

State of Montana
Board of Oil and Gas Conservation

Docket No. ??-2019
Underground Injection Control Application

Dry Creek Field
Well-Chapman 13-2

Big Sky Energy, LLC.
April 26, 2019

**Underground Injection Control (UIC) Permit Application
Dry Creek Field**

The following is submitted in support of our application to permit the conversion of the Chapman 13-2 non-producing well for the purpose of water injection into the Frontier formation within the Dry Creek field, as required by rule 36.22.1403 of the rules and regulations of the Montana Board of Oil and Gas Conservation.

1(a) **Well Locations:**

The Chapman 13-2 will have been proposed for conversion and water injection within the proposed Dry Creek Field in Carbon County, Montana as described below. Currently the Chapman 13-2 well is non-producing from the Frontier formation. Attachment 1 shows the surface location and the circle of a quarter (1/4) mile radius representing the area of review (AOR) for this well.

Chapman 13-2 996FSL 1016 FWL 7S-21E-02 NE SW SW

1(b) **Wells within Quarter Mile AOR**

There are currently three (3) wells drilled within the ¼ mile AOR as listed below. One Well within the AOR is drilled to the Frontier Formation, one in Lance Formation, and one in the Virgelle Sandstone Formation.

Chapman 5	SW SW	7S-21E-02	Producing (Virgelle)
Chapman 2	NE SE SW	7S-21E-02	Plugged (Lance)
LP Chapman 24	NE SW SW	7S-21E-02	Shut In (Frontier)

1(c) **Location of All Pipelines**

Injection water will be delivered to the water injection well by buried pipeline. The water source for this this injector will be from the Dry Creek 2-13 Battery (7S - 21E - 02 SW SW). Injection waters will be a from the Lakota and Frontier formations.

1(d) **Area Producing Formations, Fresh Water Aquifers and Water Well Information**

The Virgelle Sandstone formation is the only producer within a ¼ mile of the proposed injection well location. The Virgelle produces at a depth of approximately 2,612 and 2621 feet, respectively.

Fresh water well data was obtained from the Montana Department of Natural Resources and Conservation, Water Resources Division. There are no fresh water wells, which produce within the AOR of the proposed injector. The closest fresh water wells are listed below (OUTSIDE THE AOR):

Well	Location	Depth of Well	Completion Date
Ray Gloss	7S-21E-02	37 Feet	9/21/1978
Perry Scheidecker	7S-21E-02	35 Feet	9/26/1978

1(e) **Name and Geological Description of Injection Zone**

The Injection zone in the Dry Creek Field is the 2nd Frontier Formation. Light-brownish-gray, fine-grained thick-bedded to massive, ‘salt and pepper’ sandstone. Total thickness about 350’.

A fracture gradient of 0.733 psi/ft is assumed for the area. An injection test will be performed during the completion of the well.

1(f) **Additional Information on Producing Wells in the AOR**

As stated previously, there are 3 wells drilled within the AOR. Only one of these wells have been drilled and produced in the Frontier formation, one in the Virgelle formation, and one in the Lance Formation which was PA'd.

A summary of wellbores in the AOR is:

Chapman 5	SW SW 7S-21E-02	Producing (Virgelle)
Surface Casing:	15 ½ " Set @ 431' Cemented w/146 SX	
Intermediate:	13 3/8" Set @ 839' Cemented w/175 SX	
Production Casing:	8 5/8" Set @ 4697' Cemented w/ 450 SX	
Current Production:	1225 MCF Gas, 24 Bbl. Oil, 1 Bbl. water (January 2019)	
Chapman 2	NE SE SW 7S-21E-02	Plugged & Abandoned (Lance)
Plugged & Abandoned in 1916 @ 1300'		
LP Chapman 24	SE SW 7S-21E-02	Shut In (Frontier)
Surface Casing:	10 3/4" Set @ 169' Cemented w/169 SX	
Production Casing:	7" Set @ 5534' Cemented w/375 SX	
Current Production:	No production to report (January 2019)	

- 1(g) **Open Hole Logs**
Logs and geological information for the Chapman 13-2 well are currently on file with the MBOGC.
- 1(h) **Description of Wellbore Construction**
Appendix 2 shows the current wellbore configuration for the Chapman 13-2 water injection well.
- 1(i) **Description of Injection Fluid**
The injection fluid will consist of produced water from the Dry Creek 2-13 battery in the Dry Creek field. (1 well producing approximately 500 BWPD).
- 1(j) **Names of Owners of Record**
Big Sky Energy, LLC. is operator of the proposed Chapman 13-2. The surface owners within the AOR are presented in Appendix 6.

Attachments:

1. Map of ¼ mile area of review
2. Wellbore schematic
3. Sundry Notice
4. Water analysis
5. List of surface owners
6. Affidavit of notification

WORKOVER PROGRAM

Chapman 13-2 2-7S-21E

Convert Well to Water Injection

EQUIPMENT REQUIRED ON LEASE

- Double service rig

Safety Conditions

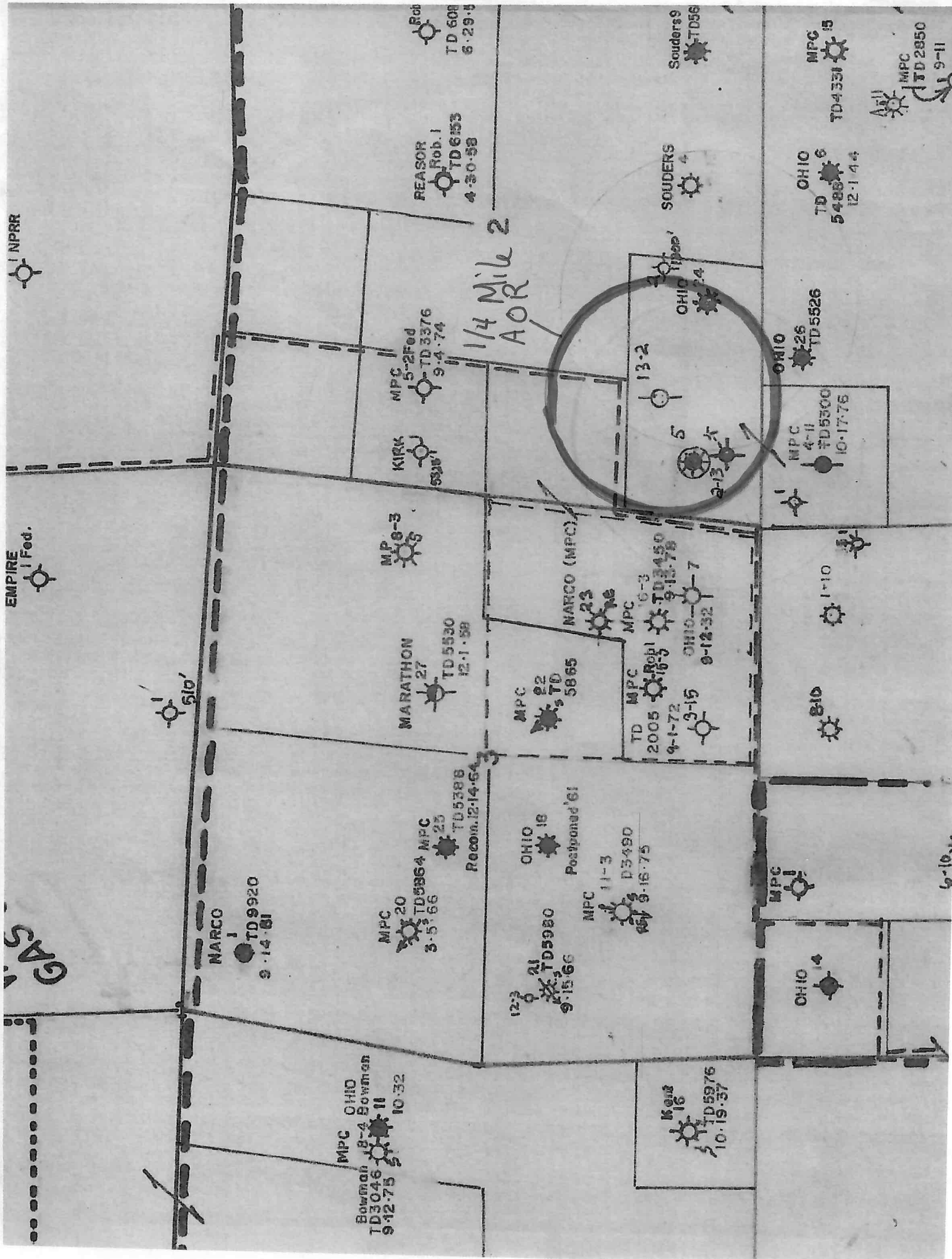
H2S content=Nil

Procedures

1. Move rig onto location. Inspect rig and conduct JSA.
2. Raise derrick and attach guide wires.
3. Cement squeeze perforations @ 2028'-2048' and 2667-2677'.
4. Rig up & test 3000 psi BOP.
5. Test cement squeeze to 1000 psi.
6. Drill cement & CIBP @ 2218'.
7. Run cased hole gamma log.
8. Perforate 2nd Frontier 4698'-4718'
9. Pump 2000 gal. 15% HCL @ 1200-1400 psi.
10. Set packer @ 4598'.
11. Pressure test tubing a packer to 750 psi.

EMPIRE
1 Fed.

NPRR



1/4 Mile 2
AOR Mile 2

SAG

MPC OHIO
Bowman B-A
TD3046
9-12-75

NARCO
TD9920
9-14-61

MPC
TD5364 MPC
3-5-66

MARATHON
TD5530
12-1-59

MP 8-3

KIRK
5316

MPC
5-2 Fed
TD 3376
9-4-74

REASON
Rob. 1
TD6153
4-30-58

Rob
TD 608
6-29-5

OHIO 18
Postponed '61
TD5980
9-15-66

MPC
11-3
D5490
9-16-75

MPC
22
5865

NARCO (MPC)
23
26

MPC
6-3
TD3450
9-13-78

TD MPC
2005
9-1-72

Rob
16-9

OHIO
1-10
9-12-32

OHIO
13-2

OHIO
24

SOUDETS
4

Souders 9
TD56

OHIO 14

MPC

8-10

1-10

MPC
4-11
TD5500
10-17-75

OHIO
25
TD5526

OHIO
6
TD 5488
12-1-44

MPC
TD4331
15

MPC
TD2850
19-11

Kens
16
TD5976
10-19-37

Submit In Quadruplicate To:

**MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102**

SUNDRY NOTICES AND REPORT OF WELLS

Operator Big Sky Energy, LLC.
Address P.O. Box 2342
City Cody State WY Zip Code 82414
Telephone 303-888-3839 Fax

Lease Name:
Chapman
Type (Private/State/Federal/Tribal/Allotted):
Private
Well Number:
13-2

Location of well (1/4-1/4 section and footage measurements):
996 FSL 1016 FWL

Unit Agreement Name:
N/A
Field Name or Wildcat:
Dry Creek
Township, Range, and Section:
Sec. 2 - T7S - R21E

API Number:
25 | 009 | 21165
State County Well

Well Type (oil, gas, injection, other):
Gas

County:
Carbon

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	<input type="checkbox"/>	Subsequent Report of Mechanical Integrity Test	<input type="checkbox"/>
Notice of Intention to Run Mechanical Integrity Test	<input type="checkbox"/>	Subsequent Report of Stimulation or Treatment	<input type="checkbox"/>
Notice of Intention to Stimulate or to Chemically Treat	<input type="checkbox"/>	Subsequent Report of Perforation or Cementing	<input type="checkbox"/>
Notice of Intention to Perforate or to Cement	<input type="checkbox"/>	Subsequent Report of Well Abandonment	<input type="checkbox"/>
Notice of Intention to Abandon Well	<input type="checkbox"/>	Subsequent Report of Pulled or Altered Casing	<input type="checkbox"/>
Notice of Intention to Pull or Alter Casing	<input type="checkbox"/>	Subsequent Report of Drilling Waste Disposal	<input type="checkbox"/>
Notice of Intention to Change Well Status	<input type="checkbox"/>	Subsequent Report of Production Waste Disposal	<input type="checkbox"/>
Supplemental Well History	<input type="checkbox"/>	Subsequent Report of Change in Well Status	<input type="checkbox"/>
Other (specify) <u>Intent to Convert to Injection</u>	<input checked="" type="checkbox"/>	Subsequent Report of Gas Analysis (ARM 36.22.1222)	<input type="checkbox"/>

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

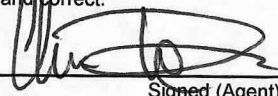
Starting 9/1/19, Operator is wanting to start injecting water from the Lakota formation into the 2nd Frontier formation

BOARD USE ONLY	
Approved _____	Date _____
_____	_____
Name	Title

The undersigned hereby certifies that the information contained on this application is true and correct:

4/26/19

Date



Signed (Agent)

Chris Dunning/ Manager

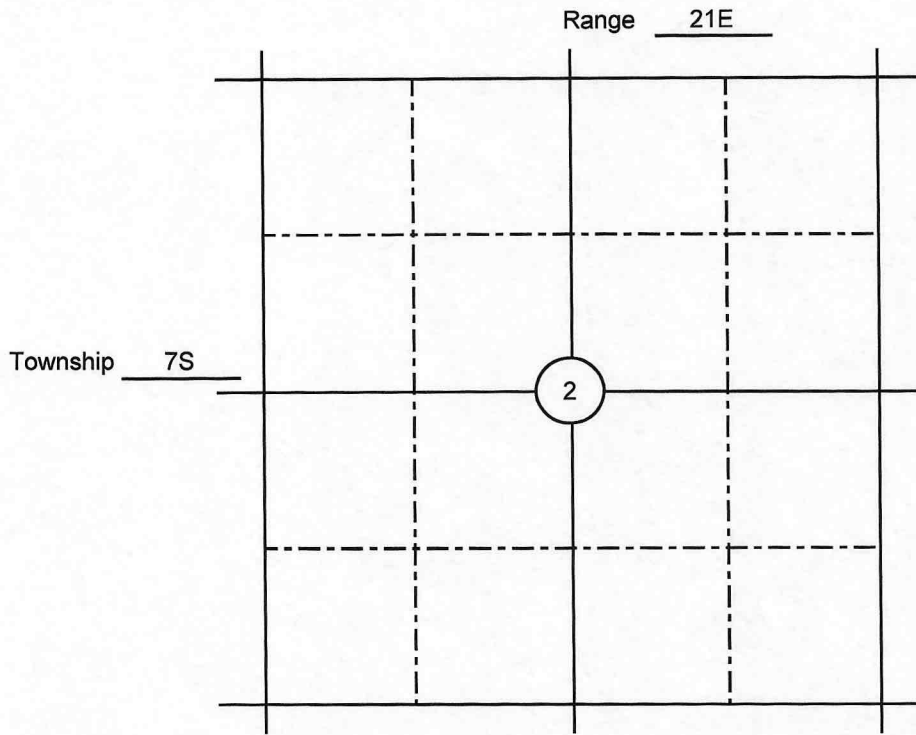
Print Name and Title

Telephone: 303.888.3839

SUPPLEMENTAL INFORMATION

NOTE: Additional information or attachments may be required by Rule or by special request.

Plot the location of the well or site that is the subject of this notice or report.



BOARD USE ONLY

CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

Failure to comply with the conditions of approval may void this permit.

Underground Injection Control (UIC) Permit Application
Chapman 13-2

Appendix 5
List of Surface Ownership

S11, T07 S, R21 E, NE4, NE4NW4	Quarter Circle JP Ranch LLC. C/O Robert S. Ball	420 NW 11 th Ave. #1206 Portland OR, 97209
S11, T07 S, R21 E, NE4, NE4NW4	Wally & Aretta Papez	165 S. Dry Creek Rd., Bridger, MT 59014
S02, T07, R21 E, SE4	Quarter Circle JP Ranch LLC. C/O Robert S. Ball	420 NW 11 th Ave. #1206 Portland OR, 97209
S02, T07, R21 E, SE4	Wally & Aretta Papez	165 S. Dry Creek Rd., Bridger, MT 59014
S02, T07S, R21 E, S2SW4	William S. Geist	719 19 th LN W, Kirkland, WA 98033-4857



ANALYTICAL SUMMARY REPORT

April 17, 2019

Big Sky Energy
PO Box 2342
Cody, WY 82414-2342

Work Order: B19041102

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Big Sky Energy on 4/11/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B19041102-001	MI26	04/11/19 12:20	04/11/19	Aqueous	Specific Gravity Preparation for TDS A2540 C Solids, Total Dissolved

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



Trust our People. Trust our Data.
www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Big Sky Energy
Project: Not Indicated
Lab ID: B19041102-001
Client Sample ID: MI26

Report Date: 04/17/19
Collection Date: 04/11/19 12:20
Date Received: 04/11/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Specific Gravity 60/60F	1.001	unitless				D1429	04/12/19 11:35 / trc
Solids, Total Dissolved TDS @ 180 C	10700	mg/L	D	100		A2540 C	04/12/19 11:20 / kjj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Big Sky Energy

Report Date: 04/17/19

Project: Not Indicated

Work Order: B19041102

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 131946
Lab ID: MB-131946		Method Blank					Run: BAL #SD-15_190412A			04/12/19 11:19
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-131946		Laboratory Control Sample					Run: BAL #SD-15_190412A			04/12/19 11:19
Solids, Total Dissolved TDS @ 180 C		999	mg/L	10	100	90	110			
Lab ID: B19041082-001A DUP		Sample Duplicate					Run: BAL #SD-15_190412A			04/12/19 11:19
Solids, Total Dissolved TDS @ 180 C		6470	mg/L	110				1.0	5	
Lab ID: B19041112-001A DUP		Sample Duplicate					Run: BAL #SD-15_190412A			04/12/19 11:21
Solids, Total Dissolved TDS @ 180 C		5310	mg/L	38				2.2	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Big Sky Energy

B19041102

Login completed by: Leslie S. Cadreau

Date Received: 4/11/2019

Reviewed by: BL2000\gmccartney

Received by: gmm

Reviewed Date: 4/15/2019

Carrier name: Hand Del

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on all shipping container(s)/cooler(s)? Yes No Not Present
- Custody seals intact on all sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time?
(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) Yes No
- Temp Blank received in all shipping container(s)/cooler(s)? Yes No Not Applicable
- Container/Temp Blank temperature: 19.6°C No Ice
- Water - VOA vials have zero headspace? Yes No No VOA vials submitted
- Water - pH acceptable upon receipt? Yes No Not Applicable

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

In Re the application of Big Sky Energy, LLC) NOTICE OF APPLIICATION FOR
For hearing of is request for a UIC permit to) UIC PERMIT FOR INJECTION
Convert the LP Chapman 24 well, 560 FSL,) WELL
2250 FWL, 7S-21E-02 SE SW, to an injection)
well for the purpose of water injection within)
Dry Creek Field)

Date: April 26, 2019

To: Surface owners within the Area of Review as listed in Appendix "A"

RE: Application for Underground Injection Permit

Ladies and Gentlemen:

Big Sky Energy, LLC., P.O. Box 2342, Cody WY 82414, has applied for a permit to convert the LP Chapman 24 well, 560 FSL, 2250 FWL, 7S-21E-02 SE SW, Carbon County, MT, to a water injection well for the purpose of injecting into the Frontier Formation underlying the Dry Creek Field. The Montana Board of Oil and Gas Conservation will hear the application at its scheduled June 13th, 2019 hearing beginning at 9 am in the hearing room at the Board's office at 2535 St. Johns Ave., Billings, Montana.

A portion of the application that describes the proposed project is enclosed. A copy of the complete application is on file with the Montana Board of Oil and Gas Conservation, 2535 St. Johns Ave., Billings, MT 59102. If you have any questions concerning the application, please contact Mr. Chris Dunning, Manager, Big Sky Energy LLC., at the address indicated above.

Yours truly,

Chris Dunning
Big Sky Energy LLC

EXHIBIT "A"
TO AFFIDAVIT OF NOTIFICATION

BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

In Re the application of Big Sky Energy, LLC)
For hearing of is request for a UIC permit to)
Convert the LP Chapman 24 well, 560 FSL,)
2250 FWL, 7S-21E-02 SE SW, to an injection)
well for the purpose of water injection within)
Dry Creek Field)

**Affidavit
of Notification**

Date: April 26, 2019

State of Wyoming)
 :
County of Park)

Christopher P. Dunning, being first duly sworn, Deposes and says:

That notice advising of Big Sky Energy LLC, application for UIC permit in the captioned matter, in the form attached as Exhibit "A" was mailed to the surface owners within the Area of Review at the addresses shown in the exhibit "B" attached to the Notice, by mailing a true copy thereof this 26th day of April 2019, postage prepaid, First Class Mail. This affidavit is given as evidence of compliance with ARM 36.22.1410.

Christopher P. Dunning

Subscribed and Sworn to before me this 26th day of April, 2019

(SEAL)

Notary Public for the State of Wyoming
Residing at Cody, Wyoming
My Commission expires _____

Underground Injection Control (UIC) Permit Application
LP Chapman 24

Appendix 5
List of Surface Ownership

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S02, T07, R21 E, SE4	Wally & Aretta Papez	165 S. Dry Creek Rd. Bridger, MT 59014
S02, T07S, R21 E, S2SW4	William S. Geist	719 19 th LN W, Kirkland, WA 98033-4857

EXHIBIT "B"
TO AFFIDAVIT OF NOTIFICATION