MBMG
Montana Bureau of Mines and Geology

Groundwater Sampling Around Oil and Gas Development

IN COOPERATION WITH:

MONTANA DNRC

Saline Seep Reclamation

MSCA

Elizabeth Meredith
Allison Brown
Simon Bierbach

SPECIAL POINTS OF INTEREST:

- **All 237 groundwater samples indicate no obvious contamination from upward movement from oil and gas formations or development at depth.**
- **Low but detectable concentrations of hydrocarbons in Sheridan County requires further investigation to determine sources and natural variability.**
- **Isotopic analyses of 10 samples indicate the methane in sampled aquifers did not migrate from oil and gas sources.**

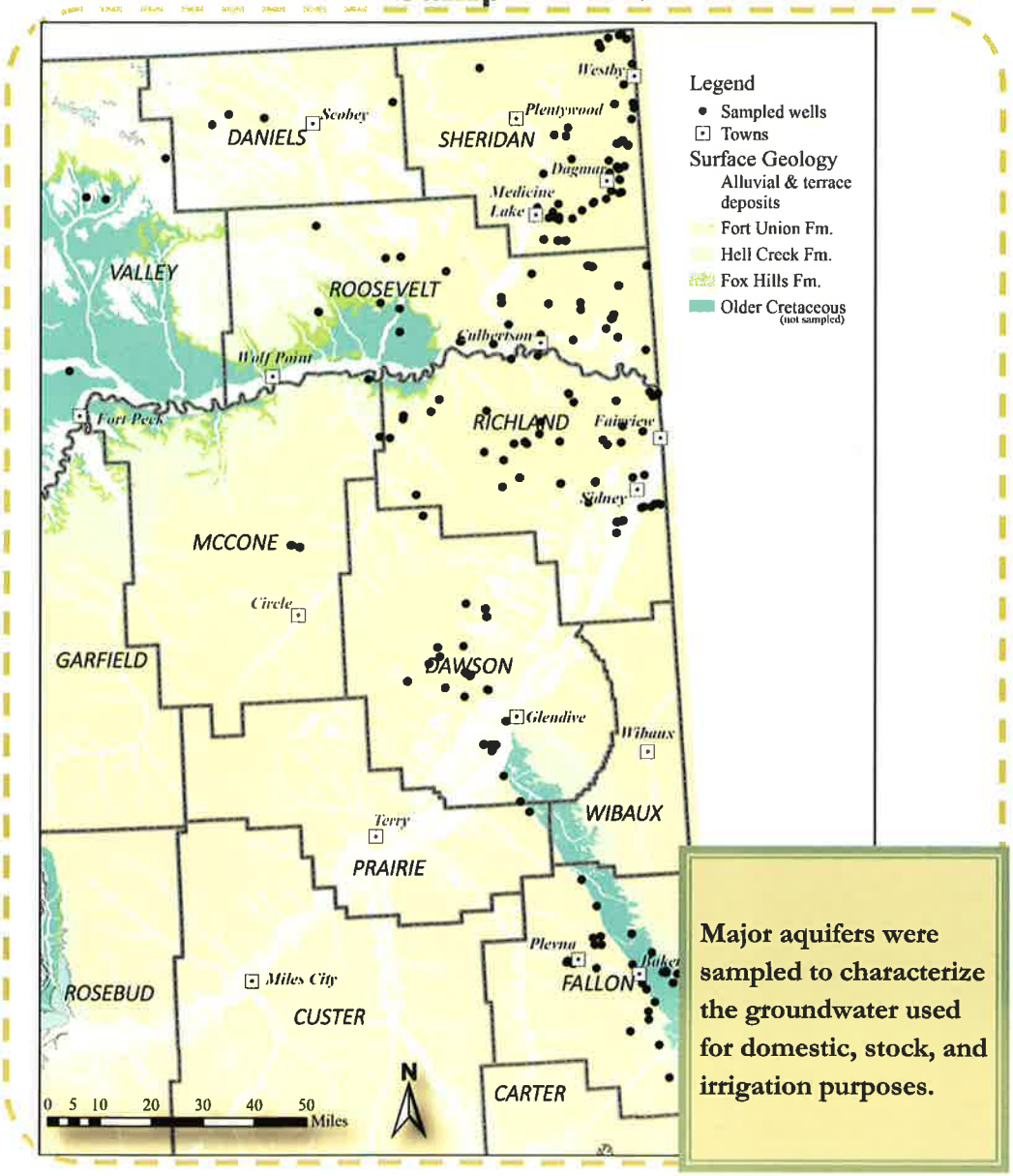
Billings Office:
101 Grand Avenue
Billings, MT 59101
Phone: (406) 272 - 1601

Butte Office:
1300 West Park Street
Butte, MT 59701
Phone: (406) 496 - 4167

www.mbmg.mtech.edu

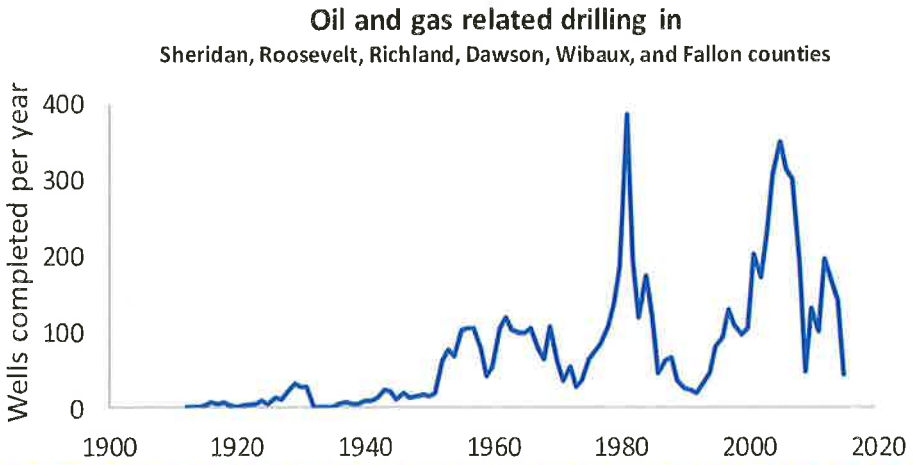
To address requests from citizens concerned with increased development and new development practices, the Montana Department of Natural Resources and Conservation (DNRC) partnered with Montana Bureau of Mines and Geology (MBMG) and the Montana Salinity Control Association (MSCA) to characterize groundwater quality near current oil and gas development. The MBMG worked with the Department of Environmental Quality (DEQ) and the U.S. Fish and Wildlife Service (USFWS) to provide additional, related sampling.

Sample Sites



Major aquifers were sampled to characterize the groundwater used for domestic, stock, and irrigation purposes.

January 2017



- Oil and gas production in eastern Montana has been ongoing since the early 20th century.
- Production is cyclical and driven by economics and technology.

(data from the Montana Board of Oil and Gas online database, through October 2015)

Eastern Montana aquifers

Groundwater is the primary source of domestic and stock water for most of eastern Montana. Major aquifers in eastern Montana include:

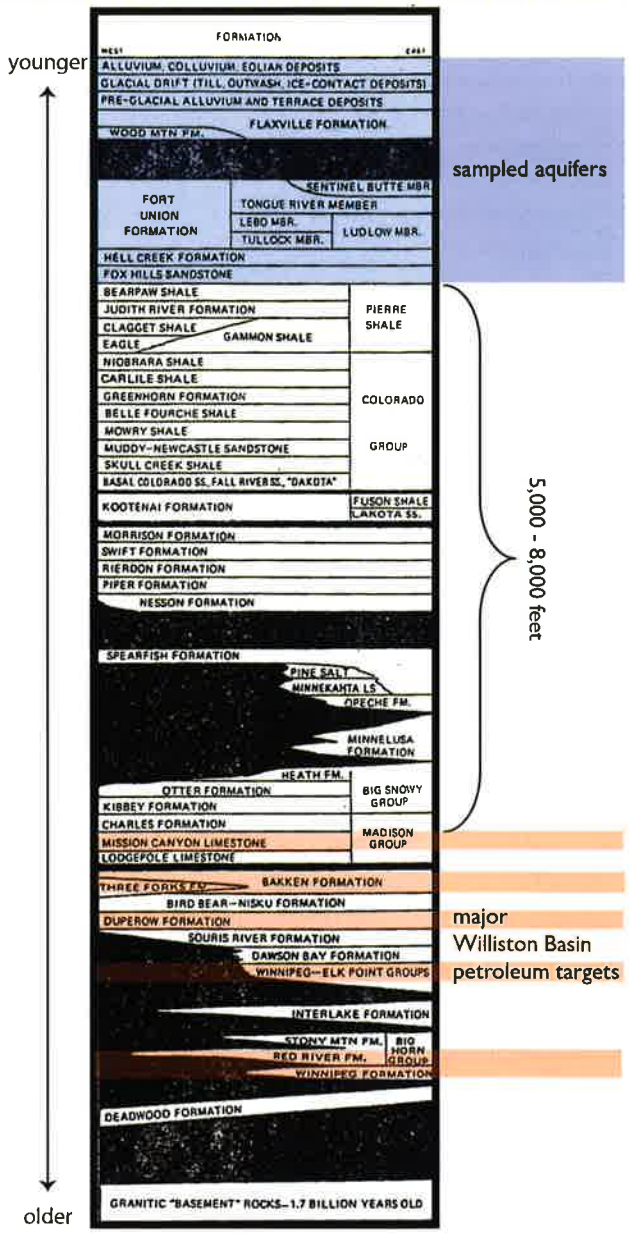
- Near-surface, unconsolidated aquifers deposited by rivers and glacial processes,
- The Fort Union Formation, specifically the sandstone-rich Tongue River Member, and
- The Fox-Hills/Hell Creek Formation sandstones

Potential sources of contamination from oil and gas activities

Alluvial and glacial till aquifers can be impacted by surface activities including unintentional releases during storage or transport of hydraulic fracturing solutions and produced brines.

Potential impacts to the Fort Union and Fox Hills/Hell Creek aquifers (generally 100 to 400 but can exceed 1,000 feet below land surface) include contamination from oil-well or injection-well casing or cement failure.

Around 5,000 to 8,000 feet of rock, including thick sequences of Cretaceous shale, prevent direct groundwater movement between oil and gas targets and eastern Montana aquifers.



Stratigraphic column illustrating the relative position of aquifers compared to oil and gas targets (from Donovan, 1988)

Groundwater Hydrocarbon-Testing Results

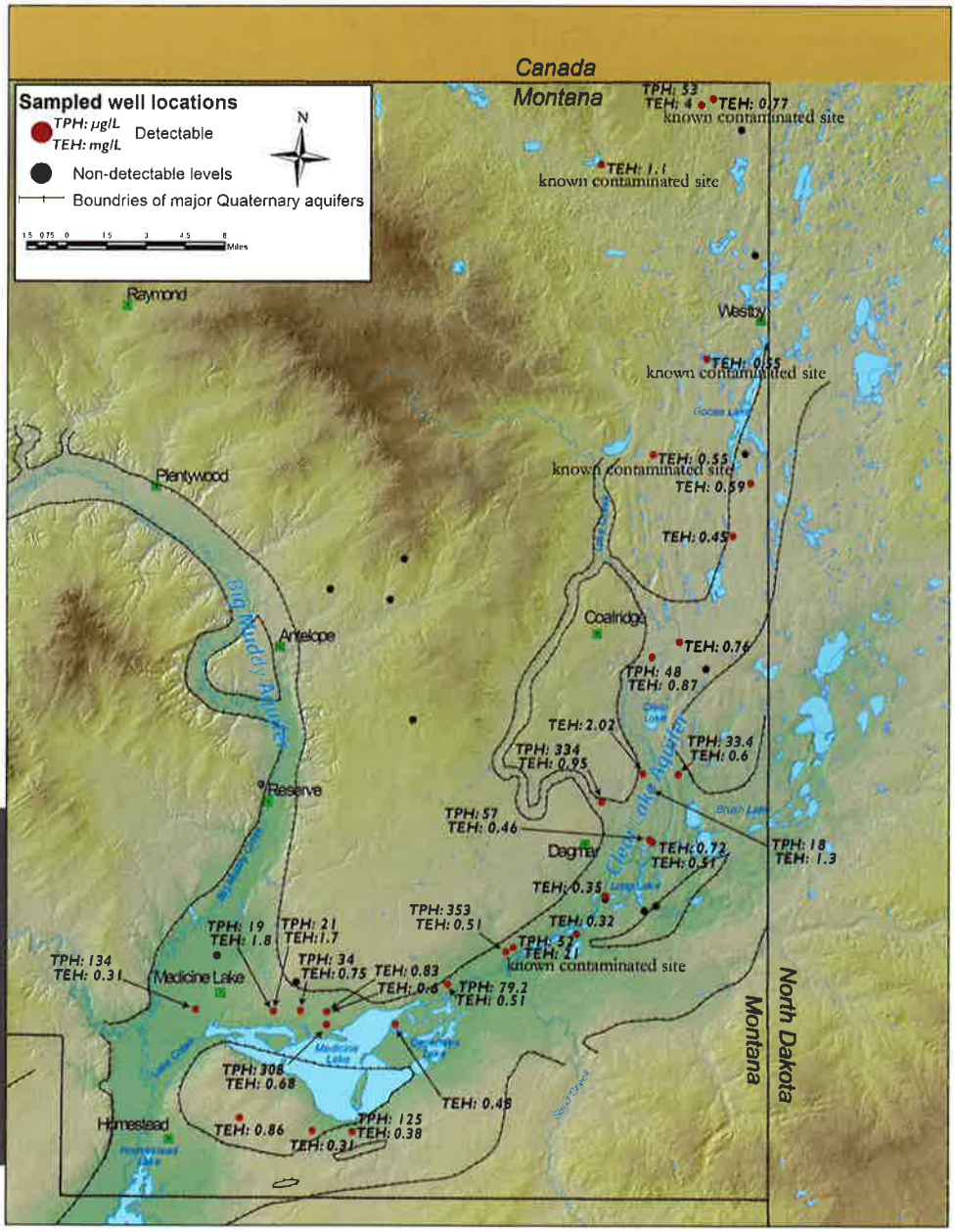
Low levels of hydrocarbons can occur naturally in some Montana aquifers, especially those, like the Fort Union Formation, that contain coal. The natural variability of these constituents in Montana aquifers is not well understood. With this in mind, organic analytes were chosen that, in combination, may identify groundwater contamination from hydraulic fracturing and oil and gas production. Samples were analyzed for one or more of the following organic constituents:

- Gasoline range organics (GRO)
- Total purgeable hydrocarbons (TPH) - *includes gasoline range, benzene, toluene, xylene, naphthalene, and light aliphatics and aromatics.*
- Diesel range organics (DRO)
- Total extractable hydrocarbons (TEH) - *includes diesel range, and heavy aliphatics and aromatics.*
- Methane, ethane, ethene
- Radiochemical
- Isotopes of methane (10 samples)

Of the 237 samples, 51 had low, but detectable hydrocarbons; 15 detections were in groundwater from the Fort Union Formation and 2 from the Fox Hills Formation.

Most detections were in alluvial and glacial till aquifers (34 of 50) because of a focus on unconsolidated aquifers near Medicine Lake Wildlife Refuge, Sheridan County. Some samples were collected from known contaminated sites.

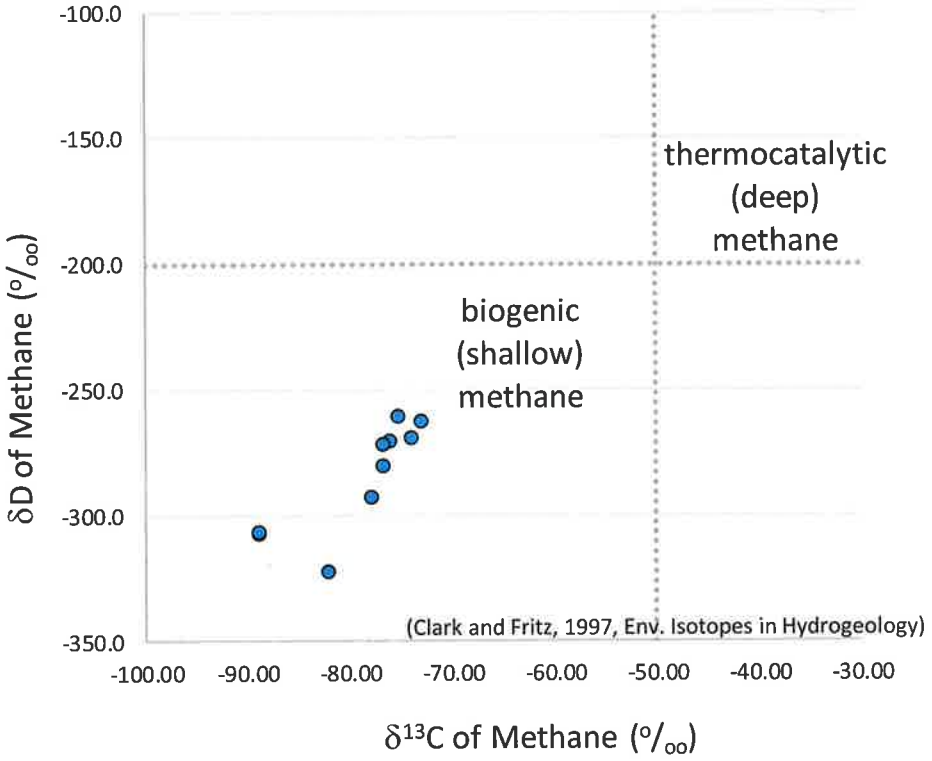
Concentraions are generally low. Of the 34 alluvial aquifer samples with detectable TEH, 8 exceeded the Montana DEQ action level of greater than 1 mg/L; 3 of these were from sites with known contamination. Outside of known contaminated sites, the source of these organic constituents has not been determined. Further investigation is required to determine sources and define the hydrocarbon concentrations that exceed natural variability.



TPH and TEH results in the Medicine Lake area, Sheridan County. The major Quaternary aquifers are outlined. Values generally fall below DEQ's required action level.

Methane Isotope Results

Methane occurs naturally in many of Montana's aquifers. The source of naturally occurring methane in aquifers less than 300 feet below land surface is through microbial (**biogenic**) processes that impart a unique carbon and hydrogen isotope signature. Deep sources of methane created by **thermocatalytic** processes, such as the methane produced in the Bakken Formation, have isotope ratios that are generally greater than -50 °/₀₀ δ13C and -200 °/₀₀ δD. The presence of thermocatalytic methane in shallow aquifers could be an indication of methane contamination from deep sources.



The 10 groundwater samples with the highest methane concentrations were analyzed for isotopes of methane. Results indicate this methane is generated locally (biogenic) and did not migrate from oil and gas sources (thermocatalytic).

Additional Information

All groundwater testing results are available on the GWIC database under the project group "Energy Development Baseline Sampling": http://mbmggwic.mtech.edu/; a full discussion of all results will be available from the MBMG in 2017.

Donovan, J.J., 1988, Ground-water geology and high-yield aquifers of northeastern Montana. MBMG Open File Report 209.

McMahon, P.B., Caldwell, R.R., Galloway, J.M., Valder, J.F., and Hunt, A.G, 2014, Quality and Age of Groundwater in the Bakken Formation Production Area, Montana and North Dakota: Groundwater, v. 53, Issue S1, p. 81-94

Montana Board of Oil and Gas online database: http://bogc.dnrc.mt.gov/onlinedata.asp

Reiten, J.C., 1992, Water quality of selected lakes in eastern Sheridan County, Montana. MBMG Open File Report 244

Rouse, D.R., Nelson, K.J., and Reiten, J.C., 2013, U.S. FWS Region 6 ECP—Montana impacts of oil and gas production to NW MT Wetland Management district. MBMG OFR 620.

Acknowledgments

This was a collaborative project with the Montana DNRC, MBMG, MSCA, Montana DEQ, and U.S. Fish and Wildlife Service. The MBMG thanks the numerous landowners who allowed access to their wells and the Conservation Districts in Sheridan, Roosevelt, Richland, Dawson, Wibaux, and Fallon Counties.

MBMG
Montana Bureau of Mines and Geology

Stream Sampling Around Oil and Gas Development

DEQ
Montana Department of Environmental Quality

Fact Sheet

Elizabeth Meredith
Shawn Kuzara

SPECIAL POINTS OF INTEREST:

- **Ueland Road Spring was the only sampled site where contamination from historic oil development was evident.**
- **Infrequent detections of organic analytes in streams were inconclusive and did not point to contamination.**
- **Sampled streams are generally, naturally unfit for human consumption and special care is needed when used for agricultural purposes.**

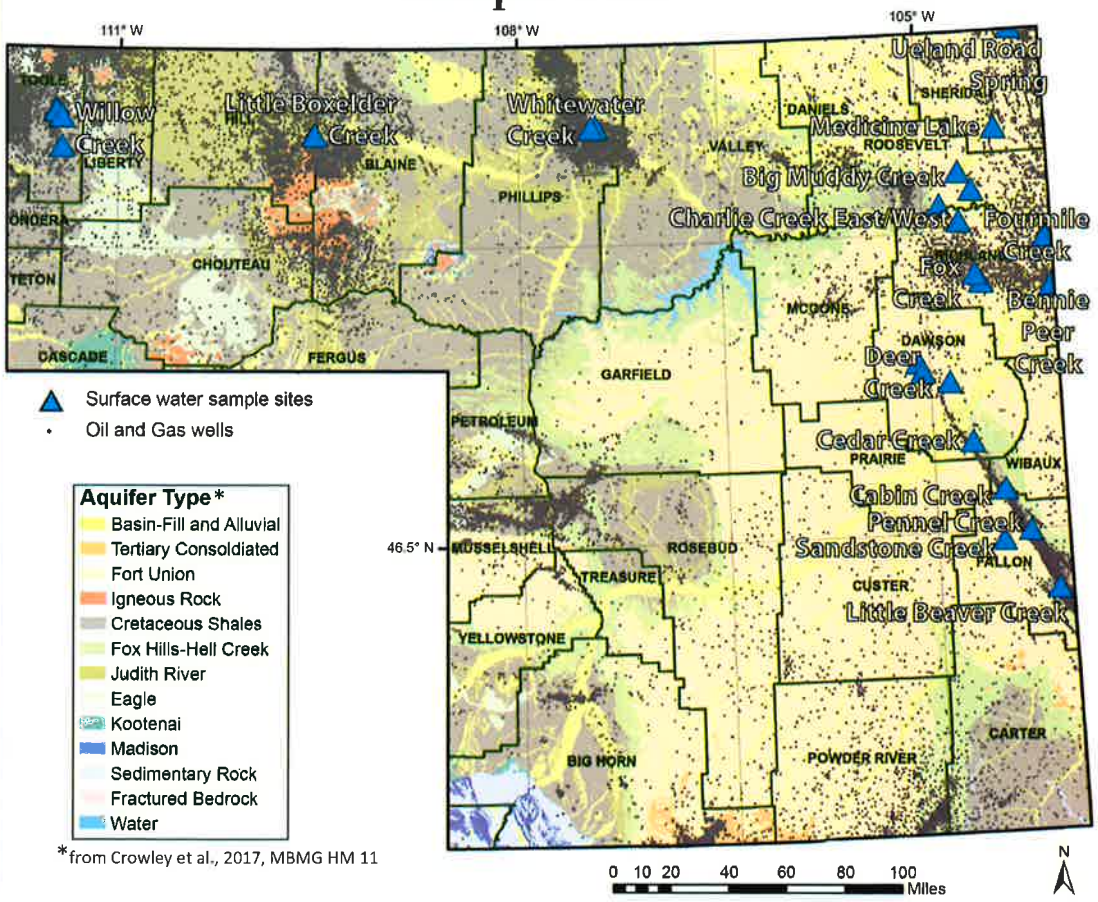
Montana Department of Environmental Quality
PO BOX 200901
Helena, Montana 59620
Phone: (406) 444 - 2544

Montana Bureau of Mines and Geology Billings Office:
101 Grand Avenue
Billings, Montana 59101
Phone: (406) 272 - 1601

The Montana Department of Environmental Quality collected, and the Montana Bureau of Mines and Geology evaluated, 276 samples from 15 streams, one spring, and one lake to address the public concern about impact to surface water from oil and gas activities. Specific chemical analyses were evaluated to identify the presence of contamination related to oil and gas development, and to describe the current condition of the streams. Sampling was funded by the U.S. Bureau of Land Management.

Although only one of the sites indicated contamination, continued monitoring of the water resources around oil and gas development will protect the public and the industry from possible misattribution of contamination to recent development activities, while providing early detection of problems.

Sample Sites



*from Crowley et al., 2017, MBMG HM 11

September 2017

Water Quality

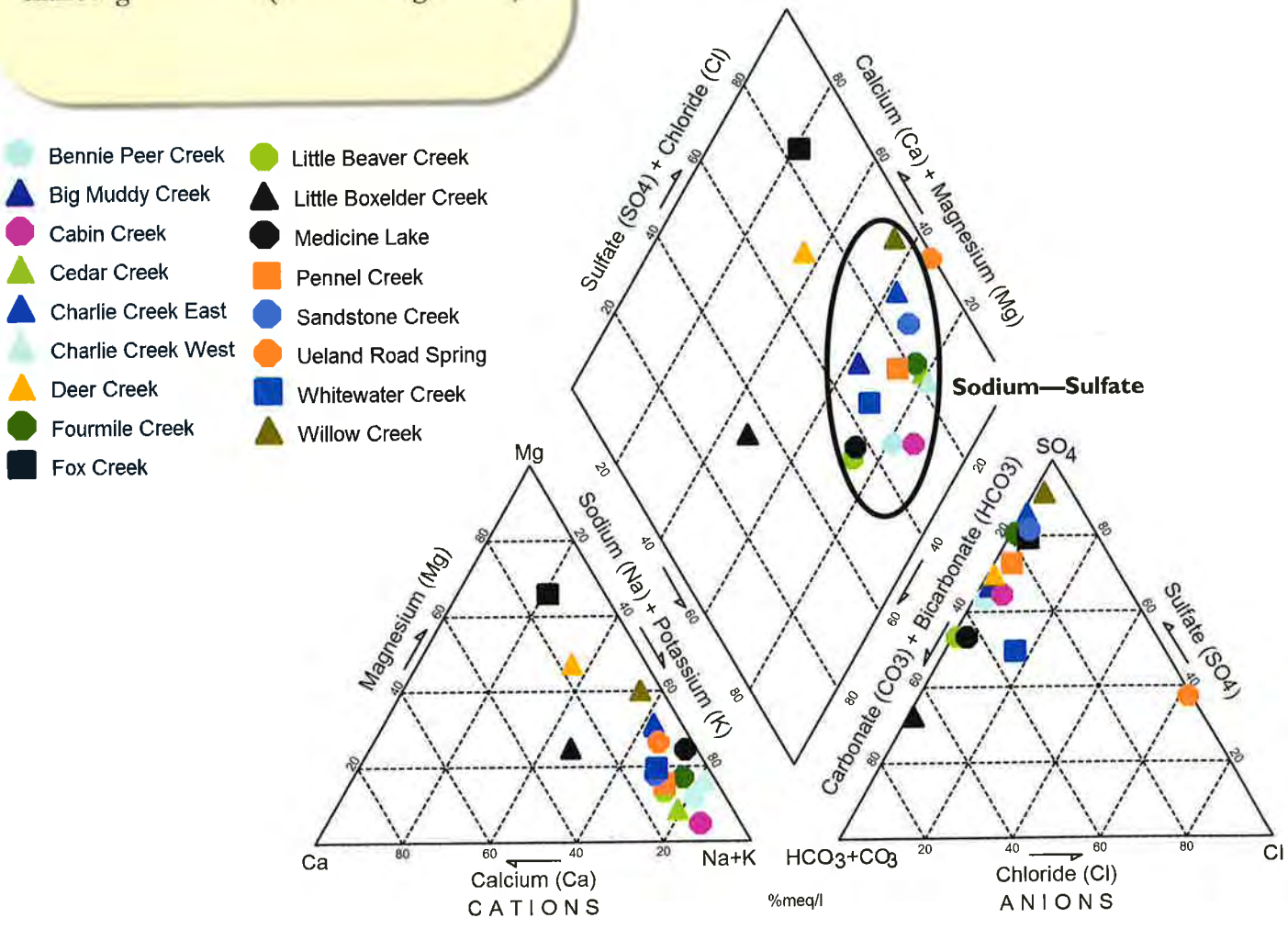
Surface geology and groundwater contributions largely control stream chemistry. The sampled streams were primarily **sodium-sulfate** type. However, Fox Creek, Deer Creek, and Little Box Elder Creek have more magnesium and calcium in their composition.

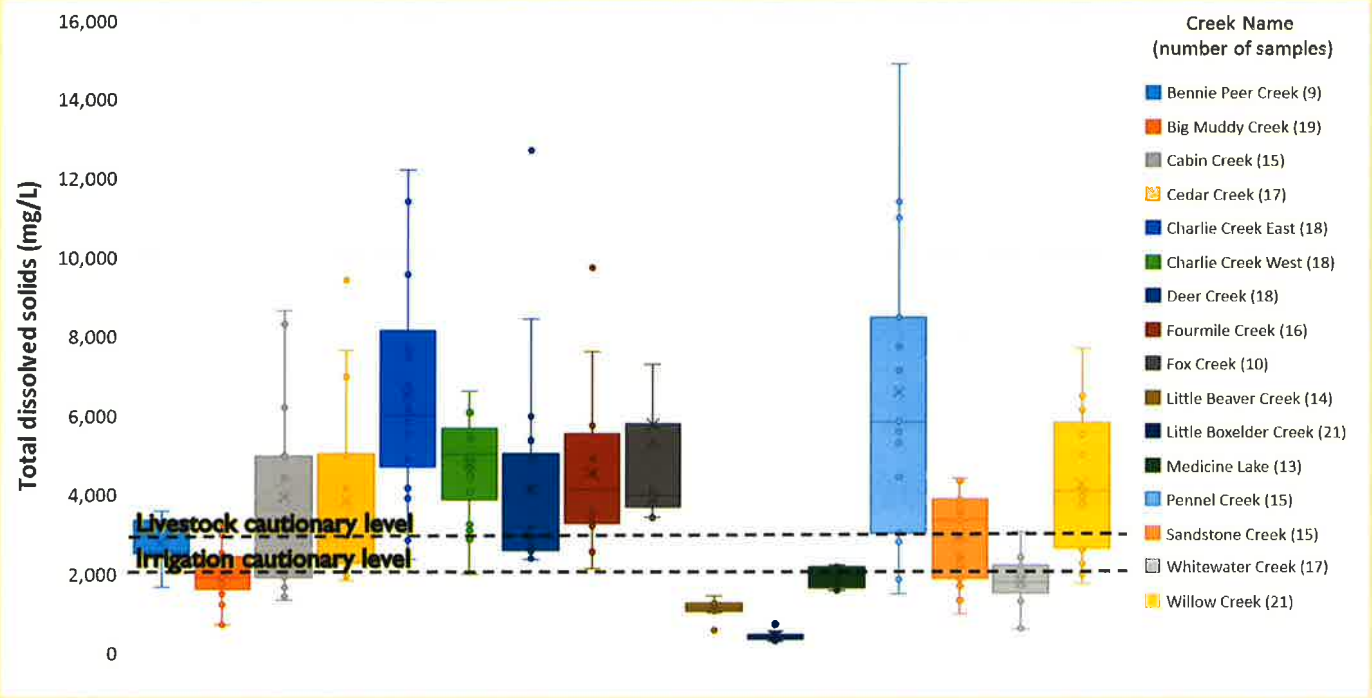
High-sodium irrigation water can be harmful to soils and requires appropriate mitigation methods (e.g. soil amendments) for long-term use.

The Ueland Road Spring site had unique **sodium-chloride** type water quality likely caused by groundwater contamination from historic handling practices of water co-produced with oil (brines). Shallow disposal pits likely allowed the brines to interact with shallow groundwater (see following section).

Sample site summary

Stream	Number of sites	Number of samples	Years Sampled
Bennie Peer Creek	1	8	2013 - 2014
Big Muddy Creek	2	18	2012 - 2016
Cabin Creek	1	15	2013 - 2016
Cedar Creek	1	15	2013 - 2016
Charlie Creek East	1	18	2012 - 2016
Charlie Creek West	1	18	2012 - 2016
Deer Creek	3	15	2014 - 2016
Fourmile Creek	1	14	2013 - 2016
Fox Creek	2	8	2014 - 2016
Little Beaver Creek	1	14	2013 - 2016
Little Boxelder Creek	1	18	2012 - 2016
Medicine Lake	1	7	2015 - 2016
Pennel Creek	1	14	2013 - 2016
Sandstone Creek	1	15	2013 - 2016
Ueland Road Spring	1	4	2015 - 2016
Whitewater Creek	2	18	2012 - 2016
Willow Creek	3	19	2012 - 2016

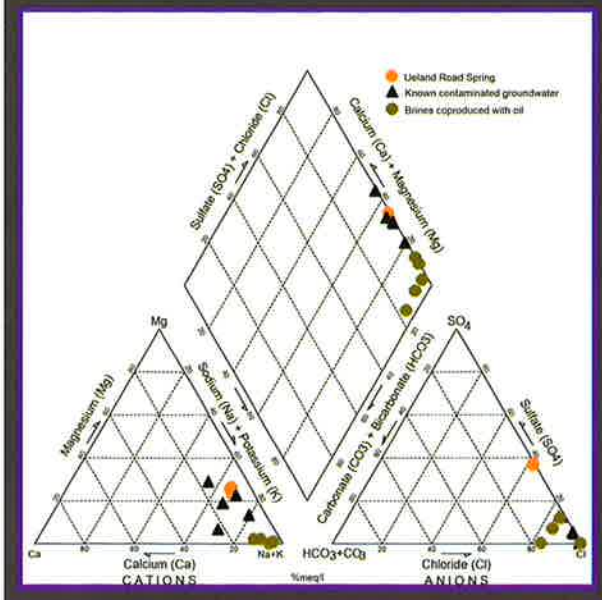




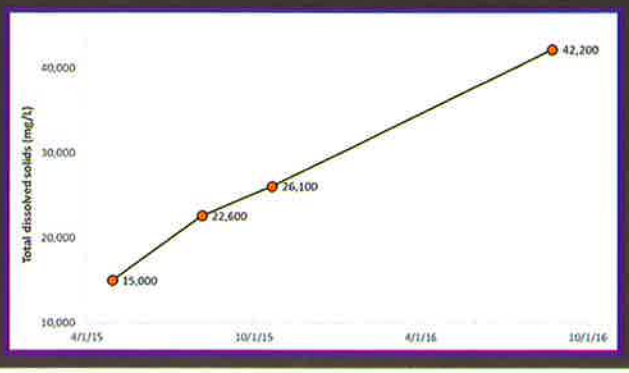
Salinity

The total dissolved solids (salinity) of streams can vary significantly seasonally or year-to-year. Most streams were near or exceeded the cautionary salinity levels for cattle, approximately 3,000 mg/L, and irrigation, approximately 2,000 mg/L depending upon sodium levels.

Ueland Road Spring: evidence of contamination



- Historic handling practices allowed oil brines to interact with shallow groundwater near this spring in northeast Montana.
- Salinity and chloride levels in the spring were similar to nearby brine-contaminated groundwater.
- Increasing salinity may show contaminated groundwater plume migration but confirmation requires additional monitoring and chemical analyses.



Constituents of concern: sources may be natural or are undetermined

Number of samples that exceed the Montana numeric water quality standards for human health*

Stream (number of samples collected)	Arsenic	Barium	Chromium	Lead	Mercury	Nickel	Strontium	Zinc
Bennie Peer Creek (8)								
Big Muddy Creek** (18)	9							
Cabin Creek (15)	6	2	3	6	6	5	2	
Cedar Creek (15)	6	4	4	6	6	5	2	1
Charlie Creek East (18)	8							
Charlie Creek West (17)	2	1	2	3	5	2		
Deer Creek** (13)	3						5	
Fourmile Creek (14)	4				1			
Fox Creek (8)	3						4	
Little Beaver Creek (14)								
Little Boxelder Creek (18)								
Medicine Lake (7)	7							
Pennel Creek (15)	1			1	1	2		
Sandstone Creek (15)								
Ueland Road Spring (4)	2						4	
Whitewater Creek** (18)	6							
Willow Creek** (18)	3							

*Analytes listed are only those where at least one sample exceeded the standard from DEQ-7

** All sample sites

Organic Constituents

Several organic constituents were detected in the sampled streams. However, positive detections were never replicated and, in many cases, also present in the "blank" samples, which detect sample contamination.

Because of the prevalence and mobility of organic constituents in the modern world, accurate sampling and analyses—and interpretation of results—can be complicated by contamination from outside influences.

Additional sampling is recommended to corroborate or contradict these findings. A positive detection, if corroborated, may be naturally sourced or indicate migration of contamination to streams; however, all organic analyte detections were well below human health standards.

Detected analytes include: Acenaphthene, Acenaphthylene, Anthracene, Chrysene, Fluoranthene, Fluorene, Methanol, Naphthalene, Total Extractible Petroleum Hydrocarbons, Phenanthrene, and Pyrene.

Additional Information

For a complete discussion of the stream and groundwater sampling results:

Meredith, E., and Kuzara, S., *in review*, Surface-water and groundwater sampling in areas of oil and gas development in eastern Montana. Montana Bureau of Mines and Geology Open-File Report.

For additional, related information:

Montana Board of Oil and Gas online database: http://bogc.dnrc.mt.gov/onlinedata.asp

Montana Department of Environmental Quality (MT DEQ), 2012, Circular DEQ-7 Montana Numeric Water Quality Standards. Planning Prevention and Assistance Division, Water Quality Planning Bureau, Water Quality Standards Section, Helena, Montana.

Rouse, D.R., Nelson, K.J., and Reiten, J.C., 2013, U.S. FWS Region 6 ECP—Montana impacts of oil and gas production to NW MT Wetland Management district. MBMG OFR 620.

This project has been funded wholly or in part by the Bureau of Land Management (BLM) under assistance agreement #L12AC20345 to the Montana Department of Environmental Quality. The contents of the document do not necessarily reflect the views and policies of the BLM, nor does BLM endorse trade names or recommend the use of commercial products mentioned in the document.

October 25, 2017

Montana Board of Oil and Gas Conservation
2535 St. Johns Ave.
Billings, Montana 59102

SUBJ: Study of Feasibility of Enhanced Oil Recovery from the Bakken Formation in Elm Coulee Field, Richland County, Montana

Dear Board Members:

We are pleased to present to you the final report of the study you authorized five years ago. During this time, we at Montana Tech have been steadily working through the research tasks that were needed to accomplish the objectives of the study. Now that the study is finished, you undoubtedly have questions about what was learned.

We can answer your questions with a list of important conclusions.

1. The Elm Coulee Bakken field is determined to have an oil resource of almost 2 billion barrels. As of late 2016 only 200 million barrels have been produced, and we predict that only 270 million barrels (10+%) will ultimately be produced with the current wells and current reservoir pressure.

2. A reservoir simulation of a representative model area suggests that EOR can increase the Bakken recovery by as much as 20%, which is double the volume of oil produced to date.

3. The proposed EOR method is to reinject natural gas, which is available in sufficient supply from current field production and area pipelines.

4. With the proposals for pilot testing, oil operators in Elm Coulee, and other Bakken areas in Montana, have a basis for planning the future. Without question, much more work needs to be done before Bakken EOR will be successful, but this engineering study shows how it can be done.

5. In the future, as EOR projects are refined and expanded in Elm Coulee and elsewhere, Montana stands to receive significant revenue increases from oil and gas production taxes and business development.

6. To successfully design EOR projects, many more horizontal infill wells will need to be drilled, and compression/injection facilities constructed. That will provide jobs and economic security for many people in Montana, and will do so over an extended period of years, not just in boom-and-bust cycles.

The vision of the Board to support this research project was well founded. A stimulus is needed to prompt continued development in the Bakken fields, especially Elm Coulee. Current oil prices do not support the economics of EOR projects, but that will not always be the case. It is not too soon to begin EOR planning.

Gathered in these study reports, the 2015 Interim Report and this 2017 Final Report, are the data and the research results needed for a Bakken operator to get started on specific EOR planning. We encourage an organized way of distributing the study results to oil operators, mineral and land owners, service and supply companies, and state and local planners.

The Petroleum Engineering department of Montana Tech appreciates your support and patience during the period of this study. We are pleased to be presenting a body of work that was needed and can be used by the oil industry and the state. Thank you.

Sincerely,

John G Evans

Jay Gunderson

Leo A. Heath

David Reichhardt

Burt J. Todd

SB 299 Compliance

Directory Listing

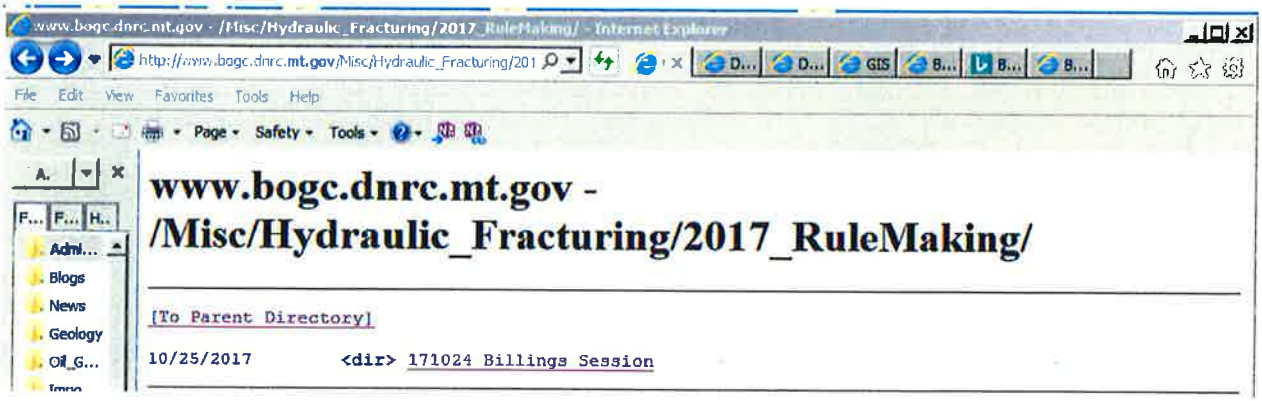
Approved Frac Plans

SB 299 Compliance

Approved Frac Plans (Continued)

Trade Secret Determinations

2017 Rulemaking Directory



FORM NO. 2 R 10/09

ARM 36.22.307, 601, 605, 1003, 1004, 1011, 1013, 1103, 1222, 1240, 1301, 1306, 1309, and 1417

RECEIVED

OCT - 4 2017

MONTANA BOARD OF OIL & GAS CONSERVATION - BILLINGS

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 Scout Energy Management, LLC

Address 4901 LBJ Freeway, Suite 300

City Dallas State TX Zip Code 75244

Telephone 972-325-1027 Fax

Location of well (1/4-1/4 section and footage measurements):
SW, SE 1193' FSL, 1479' FEL
Latitude 46.1305 Longitude -104.12718

API Number: 25 | 025 | 22788
State County Well

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

Lease Name: FEE-BR

Type (Private/State/Federal/Tribal/Allotted): PRIVATE

Well Number: 2796

Unit Agreement Name: 8B

Field Name or Wildcat: CEDAR CREEK

Township, Range, and Section: T4N, R61E, Sec 3

County: FALLON

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

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☑	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☑	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify)	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐

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.

The above listed well will be perforated and hydraulic fractured.
Estimated total volume of treatment: Clean Foam/Clean Fluid - 14,333 gallons, N2 - 58,194 scf, Surface Slurry - 151 bbls
Estimated volume of principal components: 4,300 gallons
Estimated weight or volume of inert substances for well cleanup: 102 bbls
Maximum anticipated treating pressure: 380 psi
The description of fracturing fluids that will be used is attached to this form.
The well will be perforated in zone 2: 718' - 728'. A bridge plug will also be set at 979' to shut off the Eagle Perforations and only produce from the Judith River.

BOARD USE ONLY

Approved OCT 06 2017
Date

CHIEF FIELD INSPECTOR
Name Title

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

10-2-17
Date Signed (Agent)

Tee Brown, Sr. Regulatory Specialist
Print Name and Title

Telephone: 972-325-1027

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION
BOARD OF OIL AND GAS CONSERVATION
STEVE BULLOCK, GOVERNOR
OIL AND GAS CONSERVATION DIVISION
STATE OF MONTANA

CONDITIONS OF APPROVAL

1. **Fracturing Rules 36.22.1106**

2. Field Inspector must be notified at least **24 hours** in advance of the start of fracture stimulation operations. Please contact Glendive District Inspector Clay Mercier (406) 698-4832

3. (a) New and existing wells which will be stimulated by hydraulic fracturing must demonstrate suitable and safe mechanical configuration for the stimulation treatment proposed.

   (b) Prior to initiation of fracture stimulation, the operator must evaluate the well. If the operator proposes hydraulic fracturing through production casing or through intermediate casing, the **casing must be tested to the maximum anticipated treating pressure**. If the casing fails the pressure test it must be repaired or the operator must use a temporary casing string (fracturing string).

   (c) If the operator proposes hydraulic fracturing though a fracturing string, it must be stung into a liner or run on a packer set not less than 100 feet below the cement top of the production or intermediate casing and must be tested to not less than maximum anticipated treating pressure minus the annulus pressure applied between the fracturing string and the production or immediate casing.

   (d) A casing pressure test will be considered successful if the pressure applied has been held for 30 minutes with no more than ten percent pressure loss.

   (e) A **pressure relief valve(s)** must be installed on the treating lines between pumps and wellhead to limit the line pressure to the test pressure determined above; the well **must be equipped with a remotely controlled shut-in device** unless waived by the board administrator should the factual situation warrant.

   (f) The **surface casing valve must remain open** while hydraulic fracturing operations are in progress; the annular space between the fracturing string and the intermediate or production casing must be monitored and may be pressurized to a pressure not to exceed the pressure rating of the lowest rated component that would be exposed to pressure should the fracturing string fail.

DIVISION OFFICE
1625 ELEVENTH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601
(406) 444-6675

TECHNICAL AND
SOUTHERN FIELD OFFICE
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102-4693
(406) 656-0040

NORTHERN FIELD OFFICE
201 MAIN STREET
PO BOX 690
SHELBY, MONTANA 59474-0690
(406) 434-2422

025-22788

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION
BOARD OF OIL AND GAS CONSERVATION
STEVE BULLOCK, GOVERNOR
OIL AND GAS CONSERVATION DIVISION
STATE OF MONTANA

4. **36.22.1010 Work-Over, Recompletion, Well Stimulation**

(1) No well may be reperforated, recompleted, reworked, chemically stimulated, or hydraulically fractured without first notifying the board on Form No. 2 and receiving approval from the administrator or other authorized representative of the board. **Within 30 days following completion of the well work, a subsequent report of the actual work performed must be submitted on Form No. 2.**

(2) Well repairs, including tubing, pump, sucker rod replacement or repair, repairs and reconfiguration of well equipment which do not substantially change the mechanical configuration of the well bore or casing, and hot oil treatments do not require prior approval or a subsequent report. Acid and chemical treatments of less than 10,000 gallons and similar treatments intended to clean perforations, remove scale or paraffin, or remedy near-well bore damage do not require prior approval, but do require a subsequent report of the actual work performed submitted on Form No. 2 within 30 days following completion of the work.

If you have any questions, please contact Chief Field Inspector David Popp at 406-656-0040.

DIVISION OFFICE
1625 ELEVENTH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601
(406) 444-6675

TECHNICAL AND
SOUTHERN FIELD OFFICE
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102-4693
(406) 656-0040

NORTHERN FIELD OFFICE
201 MAIN STREET
PO BOX 690
SHELBY, MONTANA 59474-0690
(406) 434-2422

025-22788

SCOUT

Baker 2796

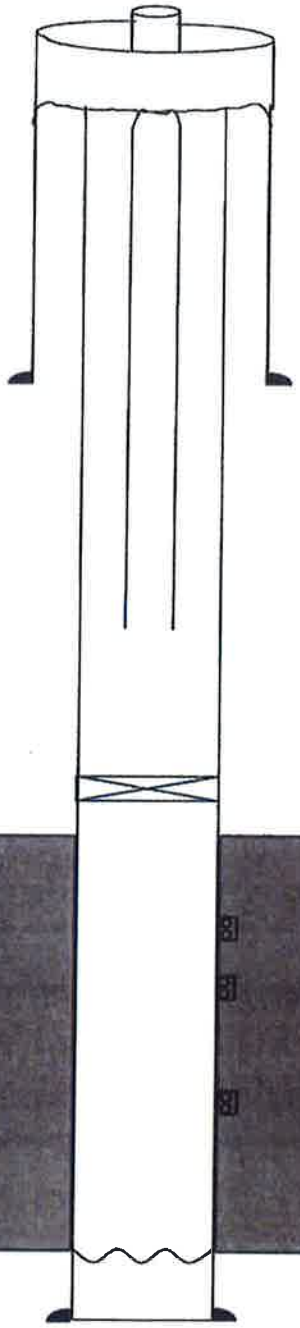
Spud 06/19/2008
Completed 07/25/2008
API 25-025-22788
EAC 09/19/2017

CURRENT COMPLETION

KB: 3032' (6')
GL: 3026'
DF:

1193' FSL & 1479' FEL
SW-SE, Sec. 3, T4N, R61E
Fallon, MT

Cum Production thru 08/30/2017
0 BO 161,122 MCF 244 BW



7" (Hole 9.875"), H-40/8 RND 17#/FT
@ 162' w/ 65 sacks w/ 2.5 barrels returned
TOC @ surface - circ

Judith River: 634'-977'
Proposed Perfs:
718'-728'

Proposed Tubing: 708' +/- of 1.75" X 1.0" polytubes as velocity string
Proposed Composite Bridge Plug: 979'

TBG: 1264' of 1.75" X 1.0" polytubes HDPE as velocity string

Eagle: 1059'-1728'

Eagle:
1440'-1450' 4 spf (7/08)
1294'-1304' 4 spf (7/08)
1230'-1240' 4 spf (7/08)
frac w/ 43800# 12/20 sand, N2 (7/08)
frac w/ 43500# 12/20 sand, N2 (7/08)
frac w/ 42600# 12/20 sand, N2 (7/08)

4.5" (Hole 6.25"), J-55/8 RND 10.5#/FT
@ 1757' w/ 45 sacks lead and 110 sacks tail
w/ 1.5 barrels returned
TOC @ surface - circ
Short Joint @ 1210'-1239'

PBTD - 1728'
TD - 1775'

02522788

10/3/2017

Scout

Basic Energy Servcies

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**
Water	CUSTOMER	BASE FLUID	WATER	7732-18-5	100.00%	119394	88.704998%
FRAC SAND (ALL MESH)	PROPPANT SPECIALTIES	PROPPANT	CRYSTALLINE SILICA	14808-60-7	100.00%	45000	25.895169%
CL-58	QUEST	LIQUID KCL REPLACEMENT	CHOLINE CHLORIDE	67-48-1	100.00%	80	0.046145%
GEL-100	Hercules	FRAC GEL	carboxymethyl 2-hydroxypropyl ether	68130-15-4	100.00%	100	0.057545%
WF-3	EES	FOAMER	METHANOL	67-56-1	50.00%	82	0.046957%
			2-BUTOEXYETHANOL	111-76-2	50.00%	82	0.046957%
BIO-II	WEATHERFORD	BIOCIDE	2,2-dibromo-3-nitrilopropionamide	10222-01-2	100.00%	2	0.001151%
BREAKER-503L	EES	LIQUID ENZYME BREAKER	SURCOSE	57-50-1	50.00%	1	0.000768%
			ETHYLENE GYCOL	107-21-1	50.00%	1	0.000768%
GB-3	UNIVAR	AMMONIUM PERSULFATE/ OXIDATIVE BREAKER	Ammonium Persulfate	7727-54-0	100.00%	1	0.000575%
GB-3 (Encap)	CHEMPLEX	ENCAPSULATED OXIDATIVE BREAKER	POTASSIUM PERSULFATE	7727-21-1	50.00%	1	0.000575%
			SILICA	14808-60-7	50.00%	1	0.000575%
S-3	EES	SURFACTANT	WATER	7732-18-5	92.00%	30	0.017280%
			SODIUM CARBONATE	497-19-18	4.00%	1	0.000751%
			PROTEOLYTIC ENZYME	9014-01-1	0.01%	0	0.000002%
			LINEAR ALKYL BENZENE SULFONATE	68081-81-2	1.50%	0	0.000282%
			PRIMARY C14-15 ALCHOHOL SULFATE	68081-98-1	1.00%	0	0.000188%
			ALCOHOL ETHER SULFATE	68585-34-2	0.50%	0	0.000094%
			D-LIMONENE	94266-47-4	1.00%	0	0.000188%
KCL	UNIVAR	CLAY CONTROL/ KCL	POTASSIUM CHLORIDE	7447-40-7	100.00%	9000	5.179034%

02522788

8/14/2017

Mel Hicks
Scout Energy Parttners
4901 Lbj Freeway, Ste 300
Dallas, Tx 75244

Thank you for the opportunity to present the following treatment proposal. This recommendation is submitted for your consideration.

Well Data

Casing: 4 1/2 in 10.5 lb/ft, J-55
Tubing: None

Stage Info	Stage 1
Formation:	JUDITH RIVER
Packer/ EOT Depth:	
TVD:	800
Perf. Top:	730
Perf. Btm:	740
SPF:	2
Total Shots:	100
Perf Diam:	0.4
Bht (deg F)	100
Frac Gradient:	0.9

Treatment Summary

Primary Fluid SpGr:	1.01
Treat Via:	Casing
Primary Fluid Type:	25-35# MavFrac
CO2 (y/n):	No
Estimated Treat psi:	380
Estimated Perf Fric (psi):	3
Acid Volume (gls):	
Total Clean Fluid/Foam (gls):	14,333
Pad Volume (gls):	3,000
SLF Volume (gls):	10,333
Estimated Flush Volume (gls):	489
Proppant Volume (lbs):	45,000
Estimated Pump Time (min):	26.0

*NOTE: Total clean fluid/foam volume does not include flush volume.

FLUID SPECIFICATIONS AND REQUIREMENTS

Tank Requirements:	**1**	**500 bbl tanks**	**Tank Bottoms:**	**30**	**bbl/tank**

Fluid1:	25 lb	Gelled Water	4,000 Gallons
Additives:			
RM258	2%	CL-58, Liquid Kcl Replacement	
RM2003	25 ppt	GEL-100, Cmhpg Gel	
RM413	5 gpt	WF-3, Foamer	
RM323	1 gpt	S-3, Surfactant	
RM141	0.15 qpt	BREAKER-503L, Liquid Enzyme Breaker	
RM142	0.3 ppt	GB-3, Oxidative Breaker	
RM145	0.5 ppt	GB-3 (Encap), Encapsulated Oxidative Breaker	
RM582	0.4 ppt	BIO-II,Dry Biocide	
	2		
Fluid 2:	10 lb	Gelled Water	300 Gallons
Additives:			
RM258	2%	CL-58, Liquid Kcl Replacement	
RM2003	10 ppt	GEL-100, Cmhpg Gel	

Fluid Required (Not including Tank Bottoms):	**4,300 Gallons**
	102 Bbls
Tank Bottoms:	**30 Bbls**
Total Fluid Required:	**132 Bbls**

ACID REQUIREMENTS

Acid Requirements:

MONTANA BOARD OF OIL AND GAS CONSERVATION
FINANCIAL STATEMENT
As of 10/18/17
Fiscal Year 2018: Percent of Year Elapsed - 30%

		Budget	Expends	Remaining	%
Regulatory	Personal Services	1,202,900	267,035	935,865	22.2
UIC	Personal Services	264,051	27,446	236,605	10.4
	Total Expended	**1,466,951**	**294,480**	**1,172,471**	**20.1**
Regulatory	Equipment & Assets	46,371	-	46,371	0.0
UIC	Equipment & Assets	10,179	-	10,179	0.0
	Total Expended	**56,550**	**-**	**56,550**	**0.0**
Regulatory	Operating Expenses:				
	Contracted Services	169,245	24,970	144,275	14.8
	Supplies & Materials	46,745	4,984	41,761	10.7
	Communication	63,336	4,935	58,401	7.8
	Travel	36,206	3,236	32,970	8.9
	Rent	25,877	6,078	19,799	23.5
	Utilities	16,394	4,704	11,690	28.7
	Repair/Maintenance	24,633	7,018	17,615	28.5
	Other Expenses	26,215	6,612	19,603	25.2
	Total Operating Expenses	408,651	62,537	346,114	15.3
UIC	Operating Expenses:				
	Contracted Services	37,151	1,173	35,978	3.2
	Supplies & Materials	10,262	1,554	8,707	15.1
	Communication	13,903	480	13,423	3.5
	Travel	7,948	145	7,803	1.8
	Rent	5,680	310	5,370	5.4
	Utilities	3,599	400	3,199	11.1
	Repair/Maintenance	5,407	1,194	4,213	22.1
	Other Expenses	5,755	1,387	4,368	24.1
	Total Operating Expenses	89,704	6,642	83,062	7.4
	Total Expended	**498,355**	**69,178**	**429,177**	**13.9**

	Budget	Expends	Remaining	%
Carryforward FY16				
Personal Services	21,416	-	21,416	0.0
Operating Expenses	42,833	-	42,833	0.0
Equipment & Assests	42,833	-	42,833	0.0
Total	**107,082**	**-**	**107,082**	**0.0**

Funding Breakout	Regulatory Budget	Regulatory Expends	UIC Budget	UIC Expends	2018 Total Budget	2018 Total Expends	%
State Special	1,657,922	329,572	363,934	34,087	2,021,856	363,659	18.0
Federal			105,676	54,852	105,676	54,852	51.9
Total	1,657,922	329,572	469,610	88,939	2,127,532	418,511	**19.7**

REVENUE INTO STATE SPECIAL REVENUE ACCOUNT

	FY 18	FY 17
Oil & Gas Production Tax	$ -	$ 1,703,125
Oil Production Tax	-	1,556,410
Gas Production Tax	-	146,715
Drilling Permit Fees	4,350	12,575
UIC Permit Fees	-	242,800
Interest on Investments	1,202	8,826
Copies of Documents	160	541
Public Information Request	-	221
Miscellaneous Reimbursements	-	6,801
TOTAL	$ 5,712	$ 1,974,889

REVENUE INTO DAMAGE MITIGATION ACCOUNT

	FY 18	FY 17
RIT Investment Earnings:	$ 32,627	$ -
July	12,531	-
August	9,947	-
September	10,149	-
October	-	-
November	-	-
December	-	-
January	-	-
February	-	-
March	-	-
April	-	-
May	-	-
June	-	-
Bond Forfeitures:	110,381	15,000
Interest on Investments	1,419	7,562
TOTAL	$ 144,427	$ 22,562

INVESTMENT ACCOUNT BALANCES

Regulatory Account	$ (59,526)
Damage Mitigation Account	$ 716,035

REVENUE INTO GENERAL FUND FROM FINES

		FY 18
ROLAND OIL AND GAS	7/7/2017	$ 110
EAGLE CREEK COLONY INC	7/14/2017	140
MONTANA LAND AND MINERAL COMPANY	9/8/2017	60
HAWLEY OIL LLP	9/22/2017	250
NINE POINT ENERGY LLC	9/22/2017	110
PETRO-HUNT LLC	9/22/2017	250
SCOUT ENERGY MANAGEMENT LLC	9/22/2017	2,730
PINNACLE ENERGY GROUP LLC	9/29/2017	90
GALUSKA GEORGE AND BARBARA REVOCABLE TRUST	10/13/2017	130
TOTAL		$ 3,870

DAMAGE MITIGATION CONTRACTS

Name	Authorized Amt	Expended	Balance	Status	Expiration Date
Flack #1 Plugging	$ 50,356	$ 49,098	$ 1,258	Completed	12/31/2017
Danielson 1 Well Plug and Reclaim	23,805	21,306	2,499	Completed	6/30/2018
Goeddertz 1	20,480	-	20,480	Under Contract	6/30/2018
Beery 2 and Beery 22-24 Wells Plug and Reclaim	176,500	-	176,500	Under Contract	6/30/2018
TOTAL	$ 74,161	$ 70,404	$ 3,757		

CONTRACTS

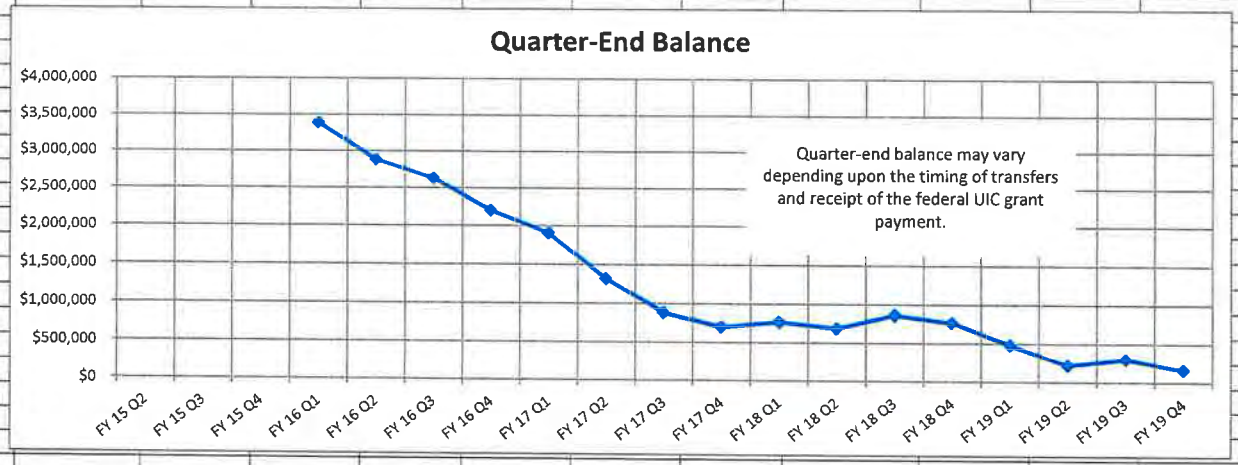
Name	Authorized Amt	Expended	Balance	Status	Expiration Date
MT Tech - Elm Coulee EOR Study (MOU 127220)	$ 863,905	$ 646,696	$ 217,209	Under Contract	12/31/2017
Agency Legal Services 2018	70,000	4,552	65,448	Under Contract	6/30/2018
COR Enterprises - Billings Janitorial	30,876	18,311	12,565	Under Contract	6/30/2018
TOTAL	$ 964,781	$ 669,559	$ 295,222		

Agency Legal Services Expenditures in FY18

Case	Amt Spent
BOGC Duties	$ 3,927
Hekkel	-
CCRC	-
Ostby	-
Interstate	-
Malsam	278
MEIC	346
Total	$ 4,552

10/12/2017

Month	Months	CY	FY	Beginning Balance	Revenue	P&L	Received	UIC Fees	UIC Federal	Misc	Disbursements	Budgeted	Expended	Transfers	Oil $	Gas $	Tax
						Income											
0	Oct-Dec	4Q-2014	FY 15 Q2														
1	Jan-Mar	1Q-2015	FY 15 Q3											1,350,000.00			
2	Apr-Jun	2Q-2015	FY 15 Q4											-			
3	Jul-Sep	3Q-2015	FY 16 Q1	3,990,170.51	5,732.73		8/4/2015	-		5,732.73		508,808.00	380,681.51	162,357.22			0.0009
4	Oct-Dec	4Q-2015	FY 16 Q2	3,383,390.01	114,246.18	-	10/30/2015	31,400.00	52,763.00	30,083.18		508,808.00	362,773.02	168,817.25			0.0009
5	Jan-Mar	1Q-2016	FY 16 Q3	2,874,838.43	482,483.61	241,969.82	1/26/2016	207,600.00	25,868.00	7,045.79	734,812.05	508,808.00	443,659.70	148,989.92			0.0009
6	Apr-Jun	2Q-2016	FY 16 Q4	2,622,509.99	268,803.58	219,215.86	4/27/2016	400.00	27,604.00	21,583.72	694,429.94	508,808.00	480,519.77	155,654.61			0.0009
7	Jul-Sep	3Q-2016	FY 17 Q1	2,196,883.63	206,371.36	147,515.32	8/4/2016		54,528.00	4,328.04	500,634.33	518,553.25	305,204.97	180,507.36			0.0009
8	Oct-Dec	4Q-2016	FY 17 Q2	1,902,620.66	268,151.97	204,643.97	10/26/2016	56,800.00		6,708.00	851,987.86	518,553.25	412,756.67	414,895.62			0.0009
9	Jan-Mar	1Q-2017	FY 17 Q3	1,318,784.77	395,647.60	205,281.01	1/27/2017	185,600.00		4,766.59	832,588.65	518,553.25	452,951.93	360,730.71			0.0009
10	Apr-Jun	2Q-2017	FY 17 Q4	881,843.72	783,074.53	718,144.29	4/28/2017	400.00	51,148.00	13,382.24	967,927.77	518,553.25	382,541.61	248,127.31			0.0030
11	Jul-Sep	3Q-2017	FY 18 Q1	696,990.48	838,709.52	779,669.79	7/27/2017	-	54,852.00	4,187.73	772,170.17	504,199.00	307,282.29	443,715.93			0.0030
12	Oct-Dec	4Q-2017	FY 18 Q2	763,529.83	757,010.99	703,261.65		31,400.00	17,049.33	5,300.00	837,839.87	504,199.00	504,199.00	165,057.36	$42.00	$1.77	0.0030
13	Jan-Mar	1Q-2018	FY 18 Q3	682,700.95	941,852.49	711,903.15		207,600.00	17,049.33	5,300.00	766,739.87	504,199.00	504,199.00	165,057.36	$44.00	$1.77	0.0030
14	Apr-Jun	2Q-2018	FY 18 Q4	857,813.56	670,598.13	648,248.79			17,049.33	5,300.00	766,739.87	504,199.00	504,199.00	165,057.36	$41.00	$1.77	0.0030
15	Jul-Sep	3Q-2018	FY 19 Q1	761,671.82	620,375.69	588,575.69			26,500.00	5,300.00	903,726.43	505,338.75	505,338.75	309,745.50	$38.00	$1.77	0.0030
16	Oct-Dec	4Q-2018	FY 19 Q2	478,321.08	636,609.88	573,409.88		31,400.00	26,500.00	5,300.00	903,726.43	505,338.75	505,338.75	309,745.50	$38.00	$1.77	0.0030
17	Jan-Mar	1Q-2019	FY 19 Q3	211,204.52	838,583.28	599,183.28		207,600.00	26,500.00	5,300.00	753,726.43	505,338.75	505,338.75	159,745.50	$41.00	$1.77	0.0030
18	Apr-Jun	2Q-2019	FY 19 Q4	296,061.37	616,696.59	584,896.59			26,500.00	5,300.00	753,726.43	505,338.75	505,338.75	159,745.50	$41.00	$1.77	0.0030
												Transfers - FY 2018-2019		1,877,870.00			



					Expenditures							
Transfers	SB 418 (2015)	Sage Grouse	SG GIS	St. Mary's (Base)	St. Mary's (OTO)	MT Rural Water	MBMG	DNRC Charges	Accurals	IT Fixed	Carryforward	Boiler
1,350,000.00	1,350,000.00											
-												
162,357.22		5,357.22	-	-			157,000.00	69,474.50	69,474.50	-		
168,817.25		25,621.45	195.80	-			143,000.00	91,207.49	86,029.49	-		
148,989.92		64,355.35	9,634.57	75,000.00			-	142,162.43	15,847.43	32,150.00		
155,654.61		115,398.98	40,255.63	-			-	58,255.56	50,076.56	284.00		
180,507.36		64,189.28	29,071.08	75,000.00			12,247.00	14,922.00	10,503.00	-		
414,895.62		246,915.35	28,151.27	-			139,829.00	24,335.57	24,335.57	-		
360,730.71		187,438.74	25,367.97	-			147,924.00	18,906.01	18,906.01	-		
248,127.31		113,805.63	9,321.68	125,000.00			-	337,258.85	44,487.85	61,321.00	121,243.00	7,500.00
443,715.93		103,715.93	-	-	-	40,000.00	300,000.00	21,171.95	2,571.91	-	8,610.04	1,400.00
165,057.36		67,876.69	514.00	50,000.00	-	46,666.67	-	168,583.51	51,944.18	14,564.67		71,100.00
165,057.36		67,876.69	514.00	50,000.00	-	46,666.67	-	97,483.51	51,944.18	14,564.67		
165,057.36		67,876.69	514.00	50,000.00	-	46,666.67	-	97,483.51	51,944.18	14,564.67		
309,745.50		76,860.00	385.50	37,500.00	-	45,000.00	150,000.00	88,642.18	51,944.18	11,194.00		
309,745.50		76,860.00	385.50	37,500.00	-	45,000.00	150,000.00	88,642.18	51,944.18	11,194.00		
159,745.50		76,860.00	385.50	37,500.00	-	45,000.00	-	88,642.18	51,944.18	11,194.00		
159,745.50		76,860.00	385.50	37,500.00	-	45,000.00	-	88,642.18	51,944.18	11,194.00		
1,877,870.00		614,786.00	3,084.00	300,000.00	-	360,000.00	600,000.00	739,291.21				
	FY 16 17	1,350,000.00	944,482.00	141,998.00	300,000.00	-	-	600,000.00	3,336,480.00			
	FY 18 19		614,786.00	3,084.00	300,000.00	-	360,000.00	600,000.00	1,877,870.00			

Montana Board of Oil and Gas Conservation
Summary of Bond Activity

8/8/2017 Through 10/24/2017

Approved

Beren Corporation Wichita KS		640 T2	Approved Amount: Purpose:	8/25/2017 $5,000.00 UIC Single Well Bond
Surety Bond	$5,000.00	FIDELITY & DEPOSIT CO. OF MD		ACT
Briscoe Petroleum, LLC Sheridan WY		733 G2	Approved Amount: Purpose:	9/22/2017 $10,000.00 Single Well Bond
Certificate of Deposit	$10,000.00	FIRST INTERSTATE BANK		ACT
MCR, LLC Shelby MT		399 T10	Approved Amount: Purpose:	10/24/2017 $5,000.00 UIC Single Well Bond
Certificate of Deposit	$5,000.00	FIRST BANK OF SHELBY		ACT
Moccasin Trails Farm, Inc. Shelby MT		823 G1	Approved Amount: Purpose:	10/11/2017 $5,000.00 Single Well Bond
Certificate of Deposit	$5,000.00	Stockman Bank, Conrad		ACT
Rock Creek Oil, Inc. Dallas TX		822 M1	Approved Amount: Purpose:	9/28/2017 $50,000.00 Multiple Well Bond
Surety Bond	$50,000.00	FEDERAL INSURANCE COMPANY		ACT
Sage Creek Colony Chester MT		6662 G4	Approved Amount: Purpose:	9/6/2017 $5,000.00 Single Well Bond
Certificate of Deposit	$5,000.00	FIRST STATE BANK OF SHELBY		ACT
Thor Resources USA, LLC Calgary AB		732 G4	Approved Amount: Purpose:	8/28/2017 $10,000.00 Single Well Bond
Certificate of Deposit	$10,000.00	FIRST STATE BANK OF SHELBY		ACT

Canceled

Blackjack Oil, Inc. Las Vegas NV		368 G1	Canceled Amount: Purpose:	9/25/2017 $10,000.00 Single Well Bond
FX Drilling Company, Inc. Shelby MT		44 U1	Canceled Amount: Purpose:	10/17/2017 $20,000.00 UIC Limited Bond
Lario Oil and Gas Company Wichita KS		456 M1	Canceled Amount: Purpose:	8/8/2017 $50,000.00 Multiple Well Bond
Northland Holdings, Inc. Calgary AB		235 L1	Canceled Amount: Purpose:	9/15/2017 $4,500.00 Limited Bond

Montana Board of Oil and Gas Conservation
Summary of Bond Activity

8/8/2017 Through 10/24/2017

Canceled

Samson Resources Company Tulsa OK	4 U1	Canceled Amount: Purpose:	9/26/2017 $150,000.00 UIC Limited Bond
Sandhill Energy, LLC Froid MT	726 T1	Canceled Amount: Purpose:	10/17/2017 $10,000.00 UIC Single Well Bond
Thor Resources USA, LLC Calgary AB	732 G2	Canceled Amount: Purpose:	8/25/2017 $5,000.00 Single Well Bond
Work Creek Cattle Ranch Reed Point MT	338 G1	Canceled Amount: Purpose:	8/10/2017 $5,000.00 Single Well Bond

Forfeited

Augusta Exploration, LLC Whitefish MT	773 G1	Forfeited Amount: Purpose:	8/28/2017 $10,000.00 Single Well Bond
Montana Oil Field Acquisition I, LLC Rutherford NJ	772 M1	Forfeited Amount: Purpose:	8/22/2017 $50,000.00 Multiple Well Bond
Mountain Pacific General Inc. Cut Bank MT	5265 M1	Forfeited Amount: Purpose:	8/24/2017 $50,000.00 Multiple Well Bond

Letter Sent

Montana Oil Field Acquisition I, LLC Rutherford NJ	772 M1	Letter Sent Amount: Purpose:	8/15/2017 $50,000.00 Multiple Well Bond
Mountain Pacific General Inc. Cut Bank MT	5265 M1	Letter Sent Amount: Purpose:	8/15/2017 $50,000.00 Multiple Well Bond

Other

Rock Creek Oil, Inc. Dallas TX		822 M1	Other Amount: Purpose:	9/18/2017 $50,000.00 Multiple Well Bond
Surety Bond	$50,000.00	FEDERAL INSURANCE COMPANY		ACT
Rock Creek Oil, Inc. Dallas TX		822 T1	Other Amount: Purpose:	10/24/2017 $5,000.00 UIC Single Well Bond

Incident Report

EXHIBIT 7

Company	Responsibility	Date	Incident	Oil Released	Water Released	Source	Contained	Latitude	Longitud	County	T-R-S
Whiting Oil and Gas Corporation	BOG	1/4/2017	Spill or Release	10 Barrels		Tank or Tank Battery	Yes	47.95467	-104.25585	Richland	26N-58E-32 SWS
TAQA USA, Inc.	BOG	1/4/2017	Spill or Release	80 Barrels		Flow Line - Production	No	48.98073	-104.18007	Sheridan	37N-57E-10 NENE
Newfield Production Company	BOG	1/7/2017	Fire		70 Barrels	Tank or Tank Battery	No	47.62214	-104.14110	Richland	22N-59E-34 NWS
True Oil LLC	BOG	1/9/2017	Spill or Release	35 Barrels		Treater	No	47.95394	-104.24045	Richland	25N-58E-4 NENW
Anadarko Minerals, Inc.	BOG	1/12/2017	Spill or Release		10 Barrels	Flow Line - Injection	No	48.40195	-106.03544	Valley	31N-44E-32 SEN
Anadarko Minerals, Inc.	BOG	1/12/2017	Spill or Release		80 Barrels	Treater	Yes	48.42313	-106.08365	Valley	31N-43E-24 SWS
Denbury Onshore, LLC	BOG	1/12/2017	Spill or Release	20 Barrels			Yes	46.09172	-104.08318	Fallon	4N-61E-24 NE
Rim Operating, Inc.	BOG	1/13/2017	Spill or Release		270 Barrels	Tank or Tank Battery	Yes	48.70257	-104.26715	Sheridan	34N-57E-16 SEN
Northern Oil Production, Inc.	BOG	1/18/2017	Fire			Treater	Yes	48.76938	-104.23923	Sheridan	35N-57E-22 SWS
Citation Oil & Gas Corp.	BOG	1/19/2017	Spill or Release	50 Barrels		Tank or Tank Battery	Yes	48.49539	-109.22854	Blaine	32N-19E-35 NEN
D & M Welding LLC	BOG	1/21/2017	Fire	100 Barrels	200 Barrels	Tank or Tank Battery	Yes	48.74675	-111.90339	Toole	35N-2W-32 NWS
EnergyQuest II, LLC	BOG	1/26/2017	Spill or Release	168 Barrels		Other	No	47.69809	-104.08484	Richland	22N-59E-1 SWNE
Denbury Onshore, LLC	BOG	2/10/2017	Spill or Release		1700 Barrels	Flow Line - Injection	No	46.34129	-104.23238	Fallon	7N-60E-20 SESW
Somont Oil Company, Inc.	BOG	2/28/2017	Spill or Release	50 Barrels	30 Barrels	Tank or Tank Battery	No	48.71304	-111.78656	Toole	34N-1W-7 SESW
Landtech Enterprises, LLC	BOG	3/6/2017	Spill or Release		15 Barrels	Tank or Tank Battery	Yes	47.74963	-104.18180	Richland	23N-59E-17 SWS
MCR, LLC	BOG	3/15/2017	Spill or Release	80 Barrels		Tank or Tank Battery	No	48.94486	-111.17270	Liberty	37N-4E-23 SESW
Wesco Operating, Inc.	BOG	3/17/2017	Spill or Release		10 Barrels	Tank or Tank Battery	Yes	46.63594	-104.43111	Fallon	10N-58E-9 SENW
Carrell Oil Company Dba Coco	FED	3/21/2017	Spill or Release			Well Head	No	47.06749	-107.99458	Petroleum	15N-29E-13 NWN
XTO Energy Inc.	BOG	3/23/2017	Spill or Release		45 Barrels	Tank or Tank Battery	Yes	47.66293	-104.04769	Richland	22N-60E-17 SES
Abraxas Petroleum Corporation	BOG	3/30/2017	Spill or Release	1 Barrels		Well Head	Yes	47.74179	-104.18173	Richland	23N-59E-20 SWN
XTO Energy Inc.	BOG	3/30/2017	Spill or Release	30 Barrels		Treater	Yes	47.67806	-104.04793	Richland	22N-60E-8 SESW
Brown, J. Burns Operating Company	VAR	3/31/2017	Spill or Release			Well Head	No	48.78181	-109.38038	Blaine	35N-18E-21 NWN
Denbury Onshore, LLC	BOG	4/3/2017	Spill or Release		200 Barrels	Flow Line - Injection	Yes	46.35017	-104.22952	Fallon	7N-60E-20 NWNE
Bad Water Disposal, LLP	BOG	4/6/2017	Spill or Release	3 Barrels		Tank or Tank Battery	Yes	47.67583	-104.05933	Richland	22N-60E-7 SESE
Samson Oil and Gas USA, Inc.	BOG	4/19/2017	Spill or Release		500 Barrels	Flow Line - Production	Yes	48.31557	-104.23542	Roosevelt	30N-58E-31 NWN
Enerplus Resources USA Corporation	BOG	4/23/2017	Spill or Release	243 Barrels		Tank or Tank Battery	Yes	47.76309	-104.40635	Richland	23N-57E-9 SWSE
Continental Resources Inc	BOG	4/25/2017	Fire	3 Barrels		Flare Pit	No	47.74766	-104.56450	Richland	23N-56E-17 SES
Sannes, Ronald M. Or Margaret Ann	BOG	4/28/2017	Spill or Release	20 Barrels	25 Barrels	Well Head	No	47.88415	-104.25986	Richland	25N-58E-29 SES
Sannes, Ronald M. Or Margaret Ann	BOG	4/28/2017	Spill or Release	40 Barrels		Treater	Yes	47.68481	-104.08096	Richland	22N-59E-12 SENE
Denbury Onshore, LLC	BOG	5/1/2017	Spill or Release	2 Barrels	20 Barrels	Flow Line - Production	No	46.69417	-104.52600	Wibaux	11N-57E-22 SENE
Sannes, Ronald M. Or Margaret Ann	BOG	5/5/2017	Fire	4 Barrels		Flare Pit	Yes	47.68481	-104.08096	Richland	22N-59E-12 SENE
Bad Water Disposal, LLP	BOG	5/6/2017	Spill or Release		2 Barrels	Tank or Tank Battery	Yes	47.67583	-104.05933	Richland	22N-60E-7 SESE
Western Natural Gas Company	BOG	5/8/2017	Spill or Release		30 Barrels	Tank or Tank Battery	No	48.73041	-111.19859	Liberty	34N-4E-3 NESW
Denbury Onshore, LLC	BOG	5/10/2017	Spill or Release		62 Barrels	Flow Line - Production	No	46.30525	-104.08116	Fallon	6N-61E-4 SWNE

Company	Responsibility	Date	Incident	Oil Released	Water Released	Source	Contained	Latitude	Longitud	County	T-R-S
White Rock Oil & Gas, LLC	BOG	5/13/2017	Spill or Release	2 Barrels		Flare Pit	No	47.77125	-104.43639	Richland	23N-57E-8 SENW
White Rock Oil & Gas, LLC	BOG	5/15/2017	Spill or Release	2 Barrels		Flare Pit	No	47.77125	-104.43639	Richland	23N-57E-8 SENW
Wesco Operating, Inc.	OTR	5/24/2017	Other			Other	No	46.66235	-104.46774	Fallon	11N-58E-31 NWS
TAQA USA, Inc.	BOG	6/2/2017	Spill or Release	30 Barrels		Well Head	No	48.52506	-104.12700	Sheridan	32N-58E-13 NWS
Denbury Onshore, LLC	BOG	6/4/2017	Spill or Release		70 Barrels	Pump Failure	No	46.28259	-104.16978	Fallon	6N-60E-11 SESW
Petro-Hunt, LLC	BOG	6/6/2017	Spill or Release	2 Barrels	2 Barrels	Tank or Tank Battery	No	48.53522	-104.25790	Sheridan	32N-57E-12 SWS
Continental Resources Inc	BOG	6/8/2017	Spill or Release	4 Barrels	1 Barrels	Flow Line - Production	Yes	47.77514	-104.74629	Richland	23N-54E-11 NENE
Slawson Exploration Company Inc	BOG	6/19/2017	Spill or Release	1 Barrels	3 Gallons	Well Head	Yes	48.27025	-104.06975	Roosevelt	29N-59E-17 NENE
Montana Heartland LLC	BOG	6/25/2017	Spill or Release		160 Barrels	Flow Line - Production	Yes	47.82098	-104.81017	Richland	24N-54E-20 SESE
Hawley Oil Company	BOG	6/27/2017	Spill or Release	6 Barrels		Well Head	No	48.12385	-112.10303	Pondera	27N-4W-3 SENW
XTO Energy Inc.	BOG	6/29/2017	Spill or Release	18 Barrels		Treater	Yes	47.67321	-104.20483	Richland	22N-59E-18 NWN
Enerplus Resources USA Corporation	BOG	7/6/2017	Spill or Release	1 Barrels		Treater	No	47.86179	-104.61810	Richland	24N-55E-11 NENE
Continental Resources Inc	BOG	7/6/2017	Fire			Flare Pit	No	47.73390	-104.61140	Richland	23N-55E-24 SWS
Oasis Petroleum North America LLC	BOG	7/10/2017	Spill or Release	5 Barrels		Treater	Yes	47.98416	-104.19239	Richland	26N-58E-23 SWS
Denbury Onshore, LLC	BOG	7/21/2017	Spill or Release	2 Barrels		Flare Pit	No	46.56420	-104.45190	Dawson	14N-55E-28 NE
Genesis ST Operating LLC	BOG	7/27/2017	Fire	2 Barrels		Tank or Tank Battery	No	48.27527	-104.15474	Roosevelt	29N-58E-10 SESE
Denbury Onshore, LLC	BOG	8/2/2017	Spill or Release		5 Barrels	Flow Line - Injection	No	46.86204	-104.67054	Dawson	13N-56E-19 SESE
Denbury Onshore, LLC	BOG	8/10/2017	Spill or Release		2 Barrels	Flow Line - Production	No	46.76595	-104.59085	Prairie	13N-56E-30
White Rock Oil & Gas, LLC	BOG	8/10/2017	Spill or Release	15 Barrels		Tank or Tank Battery	No	47.90586	-104.70054	Richland	25N-54E-23 SENE
Denbury Onshore, LLC	BOG	8/15/2017	Spill or Release	6 Barrels		Treater	No	46.31737	-104.15503	Fallon	7N-60E-36 NWSW
Denbury Onshore, LLC	BOG	8/15/2017	Spill or Release		200 Barrels	Flow Line - Production	No	46.69737	-104.53059	Wibaux	11N-57E-22 NWN
Burlington Resources Oil & Gas Company	OTR	9/8/2017	Fire			Flare Pit	No	47.86571	-104.92335	Richland	24N-53E-4 SWSE
Poor Boy Oil, LLP	BOG	9/12/2017	Spill or Release		12 Barrels	Tank or Tank Battery	Yes	47.81771	-104.18282	Richland	24N-59E-29 NWN
Denbury Onshore, LLC	BOG	9/14/2017	Spill or Release		4 Barrels	Other	Yes	46.31737	-104.15503	Fallon	7N-60E-36 NWSW
Burlington Resources Oil & Gas Company	BOG	9/17/2017	Fire	10 Gallons		Flare Pit	Yes	47.83232	-104.91972	Richland	24N-53E-21 NWN
Denbury Onshore, LLC	BOG	10/5/2017	Spill or Release		1000 Barrels	Flow Line - Injection	No	46.31933	-104.19015	Fallon	7N-60E-34 SENW
Denbury Onshore, LLC	BOG	10/6/2017	Spill or Release		100 Barrels	Flow Line - Injection	Yes	46.06000	-104.03000	Fallon	4N-61E-8 NW
Rim Operating, Inc.	BOG	10/16/2017	Spill or Release		20 Barrels	Flow Line - Production	No	48.57084	-104.46323	Sheridan	33N-55E-36 SEN

ALL APPLICATIONS, 10/26/2017

Docket	Applicant	Status	Request
47-2017	True Oil LLC	Withdrawn	Spacing
48-2017	True Oil LLC		Pooling
49-2017	Kraken Oil & Gas LLC		Temp. Spacing
50-2017	Kraken Oil & Gas LLC		Temp. Spacing
51-2017	Denbury Onshore, LLC		Temp. Spacing
52-2017	Denbury Onshore, LLC		Temp. Spacing
53-2017	Denbury Onshore, LLC		Temp. Spacing
54-2017	St. Croix Operating, Inc.		Temp. Spacing
55-2017	Synergy Offshore LLC	Default	Class II Permit
56-2017	Hydra MT LLC	Default	Class II Permit
57-2017	Vanguard Operating, LLC	Default	Class II Permit
58-2017	White Rock Oil & Gas, LLC		Enhanced Recovery
59-2017	White Rock Oil & Gas, LLC	(Default)	Class II Permit
34-2017	McCartney Family Mineral Trust		Protest
44-2017	Cline Production Company	Default	Class II Permit
60-2017	Black Gold Energy Resource Development, LLC		Show-Cause
61-2017	Stealth Energy USA, Inc.		Show-Cause
62-2017	Bensun Energy, LLC		Show-Cause
338-2014	K2 America Corporation		Show-Cause
49-2016	Storm Cat Energy (USA) Operating Corporation		Show-Cause

APPLICATIONS TO HEAR, 10/26/2017

(In Order of Hearing)

Docket	Applicant	Status	Request
47-2017	True Oil LLC	Withdrawn	Spacing
48-2017	True Oil LLC		Pooling
49-2017	Kraken Oil & Gas LLC		Temp. Spacing
50-2017	Kraken Oil & Gas LLC		Temp. Spacing
51-2017	Denbury Onshore, LLC		Temp. Spacing
52-2017	Denbury Onshore, LLC		Temp. Spacing
53-2017	Denbury Onshore, LLC		Temp. Spacing
54-2017	St. Croix Operating, Inc.		Temp. Spacing
58-2017	White Rock Oil & Gas, LLC		Enhanced Recovery
59-2017	White Rock Oil & Gas, LLC	(Default)	Class II Permit
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61-2017	Stealth Energy USA, Inc.		Show-Cause
62-2017	Bensun Energy, LLC		Show-Cause
338-2014	K2 America Corporation		Show-Cause
49-2016	Storm Cat Energy (USA) Operating Corporation		Show-Cause

DEFAULT DOCKET, 10/26/2017

Docket	Applicant	Status	Request
55-2017	Synergy Offshore LLC	Default	Class II Permit
56-2017	Hydra MT LLC	Default	Class II Permit
57-2017	Vanguard Operating, LLC	Default	Class II Permit
59-2017	White Rock Oil & Gas, LLC	(Default)	Class II Permit
44-2017	Cline Production Company	Default	Class II Permit

36.22.1229 WATER INJECTION AND GAS REPRESSURING

(1) The owner or operator of any well may inject water or gas under pressure into a formation containing oil or gas for the purpose of obtaining oil or gas from the reservoir upon application, hearing, and approval by the board.

(2) Wells used for the injection of water or gas into a producing formation shall be cased with sound casing so as not to permit leakage, and the casing cemented in such manner as to protect oil, gas, or fresh water reservoirs.

History: 82-11-111, MCA; IMP, 82-11-123, 82-11-124, MCA; Eff. 12/31/72.

GAS FLARING

October 25, 2017

Company	Wells Flaring over 100	Wells Flaring over 100 w/o Exception	Current Exceptions (over 100)	Exception Requests	Wells over 100 Hooked to Pipeline
Continental	1	0	1	0	1
Kraken	1	1	0	1	1
Petro-Hunt	3	3	0	3	0
Totals	5	4	1	4	2

Flaring Requests

Summary

There are 5 wells flaring over 100 MCFG per day based on current production numbers.

1 of the 5 wells have approved exceptions due to distance, pipeline capacity issues, or time to connection.

There are 4 exceptions requested at this time.

Kraken

Lysemose 33-34 #1H – API #25-083-23303, 26N-59E-32

1. Flaring 141 MCF/D. Fourth exception request.
2. Completed: 1/2015.
3. Estimated gas reserves: 400-500 MMCF.
4. Proximity to market: Connected to pipeline.
5. Flaring alternatives: None.
6. Amount of gas used in lease operations: 1 MCF/D.
7. Justification to flare: The well was tied into the ONEOK gas sales line on 10/27/15, however, Kraken has had very limited success selling gas into the line due to sales line pressure.

Petro-Hunt

Borntrager 2C-2-1 – API #25-021-21193, 19N-54E-2

1. Flaring 193 MCF/D. Fourth exception request.
2. Completed: 9/2012.
3. Proximity to market: >25 miles pipeline.
4. Estimated gas price at market: ~$2/MCF.
5. Estimated cost of marketing the gas: ~$3.2 million.
6. Flaring alternatives: None.
7. Amount of gas used in lease operations: 25-30 MCF/D.
8. Justification to flare: Uneconomic to connect due to lack of infrastructure in the area.

Boje Farms 19-54 – API #25-021-21193, 19N-54E-17

1. Flaring 115 MCF/D. Fourth exception request.
2. Completed: 2/2011.
3. Proximity to market: >25 miles pipeline.
4. Estimated gas price at market: ~$2/MCF.
5. Estimated cost of marketing the gas: ~$3.2 million.
6. Flaring alternatives: None.
7. Amount of gas used in lease operations: 25-30 MCF/D.
8. Justification to flare: Uneconomic to connect due to lack of infrastructure in the area.

Walter Senner 19-54 – API #25-021-21192, 19N-54E-18

1. Flaring 116 MCF/D. Fourth exception request.
2. Completed: 8/2012.
3. Proximity to market: >25 miles pipeline.
4. Estimated gas price at market: ~$2/MCF.
5. Estimated cost of marketing the gas: ~$3.2 million.
6. Flaring alternatives: None.
7. Amount of gas used in lease operations: 25-30 MCF/D.
8. Justification to flare: Uneconomic to connect due to lack of infrastructure in the area.