

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

Lease Name:

Rowin 17-5

Lease Type (Private/State/Federal):

Private

Application for Permit To:

Drill Deepen Re-enter
Oil Gas Other

Well Number:

#3H

Operator: Kraken Operating LLC
Address: 9805 Katy Freeway Suite 300
City: Houston State: TX Zip: 77024
Telephone Number: 713-360-7705

Field Name or Wildcat:

Wildcat

Unit Name (if applicable):

N/A

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Surface Location of Well (quarter-quarter and footage measurements):

NENW Sec 20 T26N R59E, 325' FNL 2303' FWL

Objective Formation(s):

Bakken

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Township, Range, and Section:

Sec 20 T26N R59E

Proposed Total Depth and Bottom-hole Location(s) if directional or horizontal well:

TD ~~26,269'~~ ^{24,850'} MD, 10,323' TVD
Tract 105 Sec 5 T26N R59E, 1428' FNL, 1891' FWL

County:

Richland County, MT

Elevation (indicate GL or KB):

2029' GL

Size and description of drilling/spacing unit and applicable order, if any:

1920 acres (Sections 5, 8, & 17 T26N-R59E), Docket 17-2020

Formation at total depth:

Bakken

Anticipated Spud Date:

1/1/2021

| Hole Size | Casing Size | Weight / Foot | Grade (API) | Depth | Sacks of Cement | Type of Cement |
|-----------|-------------|---------------|-------------|-------|-----------------|----------------|
| 13 1/2 | 9 5/8 | 36# | J-55 | 2055 | 523 | See Attached |
| 8 3/4 | 7 | 32# | P-110 | 10621 | 679 | See Attached |
| 6 | 4 1/2 | 13.5# | P-110 | 24850 | 776 | See Attached |

Describe Proposed Operations:

Describe or attach labeled diagram of blowout preventer equipment. Indicate if air drilled or describe mud program.
See attachments for details

Kraken Operating, LLC requests variance to not run open hole logs on the subject well. Offset logs can be found for the Meldahl 1 (API #: 25-083-21667), located S2 NENE Sec. 29 T26N R59E.

BOARD USE ONLY

Approved (date) JUL 23 2020

Permit Fee \$150.00

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

By [Signature]

Check Number 35655

Signed (Agent) Wab Wab

Title Petroleum Engineer

Permit Expires JAN 23 2021

Title Sr. Drilling Engineer

Permit Number 32537

Date 7/15/2020

THIS PERMIT IS SUBJECT TO THE CONDITIONS OF APPROVAL STATED ON THE BACK

API Number: 25 - 083 - 23398

Telephone Number 713-360-7705 EXT. 121

Samples Required: NONE ALL _____ FROM _____ feet to _____ feet
Core chips to address below, full cores to USGS, Core Laboratory, Arvada, CO. Required samples must be washed, dried and delivered prepaid to:

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

SUPPLEMENTAL INFORMATION

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

1. Attach a survey plat certified by a registered surveyor. The survey plat must show the location of the well with reference to the nearest lines of an established public survey.
2. Attach an 8 1/2 x 11" photocopy of that portion of a topographic map showing the well location, the access route from county or other established roads, residences, and water wells within a 1/2 mile radius of the well.
3. Attach a sketch of the well site showing the dimensions and orientation of the site, the size and location of pits, topsoil stockpile, and the estimated cut/fill at the corners and centerstake. (Note: the diagram need not be done by an engineer or surveyor). Attach a sketch of a top view and two side views of the reserve pit(s), if utilized. The reserve pit sketch must show the length, width, depth, cut and fill, amount of freeboard, area of topsoil stockpile, and the height and width of berms.
4. Describe the type and amount of material or liner, if any, to be used to seal the reserve pit. If a synthetic liner is used, indicate the liner thickness (mils), bursting strength, tensile strength, tear strength, puncture resistance, hydrostatic resistance, or attach the manufacturer's specifications.
5. Describe the proposed plan for the treatment and/or the disposal of reserve pit fluids and solids after the well is drilled. If the operator intends to dispose of or treat the reserve pit contents off-site, specify the location and the method of waste treatment and disposal. (Note: The operator must comply with all applicable federal, state, county, and local laws and regulations with regard to the handling, transportation, treatment, and disposal of solid wastes.)
6. Does construction of the access road or location, or some other aspect of the drilling operation require additional federal, state, or local permits or authorizations? If yes, indicate the type of permit or authorization required:
 - No additional permits needed
 - Stream crossing permit (apply through county conservation district)
 - Air quality permit (apply through Montana Department of Environmental Quality)
 - Water discharge permit (apply through Montana Department of Environmental Quality)
 - Water use permit (apply through Montana Department of Natural Resources and Conservation)
 - Solid waste disposal permit (apply through Montana Department of Environmental Quality)
 - State lands drilling authorization (apply through Montana Department of Natural Resources and Conservation)
 - Federal drilling permit (specify agency)
 - Other federal, state, county, or local permit or authorization: (specify type) _____

NOTICES:

1. Date and time of spudding must be reported to the Board verbally or in writing within 72 hours after the commencement of drilling operations.
2. The operator must give notice of drilling operations to the surface owner as required by Section 82-10-503, MCA, before the commencement of any surface activity.

| | |
|-----------------------|-------------------------------|
| BOARD USE ONLY | CONDITIONS OF APPROVAL |
|-----------------------|-------------------------------|

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

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

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Kraken Operating, LLC Proposed Well Stimulation

Total Clean Fluid – 235,000 bbls

Maximum Anticipated Treating Pressure – 9,800 psi

Hydraulic Fracturing Fluid Components Information Disclosure:

| 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 | Operator | Carrier | Carrier | 7732-18-5 | 100.00% | 82,315,800.00 | 84.06572% |
| Surf-Flo 430 | Innospec | Flowback Additive | MSDS and Non-MSDS Ingredients Listed Below | | | 7,435.80 | 0.007599% |
| FRP-1S | Liberty Oilfield Services | Friction reduction | MSDS and Non-MSDS Ingredients Listed Below | | | 252,853.79 | 0.25823% |
| DVA-75 | Liberty Oilfield Services | Diversing Agent | MSDS and Non-MSDS Ingredients Listed Below | | | 469.00 | 0.00048% |
| BioClear 5000 | Lubrizon | Biocide | MSDS and Non-MSDS Ingredients Listed Below | | | 8,387.32 | 0.00857% |
| ScaleCease 7103 | Innospec | Scale Inhibitor | MSDS and Non-MSDS Ingredients Listed Below | | | 15,850.17 | 0.01619% |
| HCL-15 | Liberty Oilfield Services | Solvent | MSDS and Non-MSDS Ingredients Listed Below | | | 17,295.26 | 0.01766% |
| ACL-300 | WST | Corrosion Inhibitor | MSDS and Non-MSDS Ingredients Listed Below | | | 67.43 | 0.00007% |
| WA-100 | WST | Wetting Agent | MSDS and Non-MSDS Ingredients Listed Below | | | 34.79 | 0.00004% |
| IC-50S | WST | Iron Control | MSDS and Non-MSDS Ingredients Listed Below | | | 125.74 | 0.00013% |
| Liberty Clean Out | Liberty Oilfield Services | Cleanup Solution | MSDS and Non-MSDS Ingredients Listed Below | | | 74.86 | 0.00008% |
| Crystalline Silica | Liberty Oilfield Services | Sand | MSDS and Non-MSDS Ingredients Listed Below | | | 15,300,000.00 | 15.62526% |
| The trade name(s) of the additive(s) used, supplier(s), and the purpose(s) of the additive(s) are listed below. The ingredient(s) for the above additive(s) are listed below. | | | | | | | |
| | Liberty Oilfield Services | Sand | Crystalline Silica (quartz) | 14808-60-7 | 99.90% | 15,284,700.00 | 15.60963% |
| | Liberty Oilfield Services | Sand | Aluminum Oxide | 1344-28-1 | 1.00% | 153,000.00 | 0.15625% |
| | Liberty Oilfield Services | Friction reduction | Petroleum distillates, hydrotreated light | 64742-47-8 | 45.00% | 113,784.20 | 0.11620% |
| | Liberty Oilfield Services | Sand | Iron Oxide | 1309-37-1 | 0.10% | 15,300.00 | 0.01563% |
| | Liberty Oilfield Services | Sand | Titanium Oxide | 13463-67-7 | 0.10% | 15,300.00 | 0.01563% |
| | Innospec | Scale Inhibitor | Water | 7732-18-5 | 95.00% | 15,057.66 | 0.01538% |
| | Liberty Oilfield Services | Solvent | Water | 7732-18-5 | 85.00% | 14,700.97 | 0.01501% |
| | Liberty Oilfield Services | Friction reduction | Poly(oxy-1,2-ethanediyl), a-tricycyl-w-hydroxy-, branched | 69011-36-5 | 3.00% | 7,585.61 | 0.00775% |
| | Innospec | Flowback Additive | Water | 7732-18-5 | 95.00% | 7,064.01 | 0.00721% |
| | Liberty Oilfield Services | Solvent | Hydrochloric Acid | 7647-01-0 | 15.00% | 2,594.29 | 0.00265% |
| | Lubrizon | Biocide | 2,2-dibromo-3-nitropropionamide | 10222-01-2 | 10.00% | 838.73 | 0.00086% |
| | Innospec | Scale Inhibitor | BHMT Phosphonate | Proprietary | 5.00% | 792.51 | 0.00081% |
| | Innospec | Scale Inhibitor | Proprietary Ingredient | Proprietary | 5.00% | 792.51 | 0.00081% |
| | Innospec | Flowback Additive | Benzenesulfonic Acid, dodecyl-, cmpl. with 2-aminoethanol | 26836-07-7 | 10.00% | 743.58 | 0.00076% |
| | Innospec | Flowback Additive | Dodecylbenzene sulfonate, triethanolamine salt | 27323-41-7 | 10.00% | 743.58 | 0.00076% |
| | Liberty Oilfield Services | Diversing Agent | Polyacetic Resin | 9051-89-2 | 100.00% | 469.00 | 0.00048% |
| | Innospec | Flowback Additive | Sodium Alpha Olefin Sulfonate | 68439-57-6 | 5.00% | 371.79 | 0.00038% |
| | WST | Iron Control | 2-hydroxypropane-1,2,3-tricarboxylic acid | 77-92-9 | 60.00% | 75.45 | 0.00008% |
| | Liberty Oilfield Services | Cleanup Solution | Oxygenate and paraffinic stream | 876065-86-0 | 99.00% | 74.11 | 0.00008% |
| | WST | Wetting Agent | Ethoxylated Decyl Alcohol | 78330-20-8 | 40.00% | 13.92 | 0.00001% |
| | WST | Corrosion Inhibitor | 2-Propyl-1-ol compound with methoxyfrane | 38172-91-7 | 15.00% | 10.11 | 0.00001% |
| | Liberty Oilfield Services | Cleanup Solution | C.I. Solvent Yellow 33 | 8003-22-3 | 1.00% | 0.75 | 0.00000% |
| | Innospec | Flowback Additive | Triethanolamine | 103-71-6 | 0.01% | 0.67 | 0.00000% |
| | Innospec | Flowback Additive | Ethanolamine | 141-43-5 | 0.01% | 0.67 | 0.00000% |

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