FORM 2 Rev 12/20

# State of Colorado
# Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number: 402589427

Date Received:` 05/12/2021

## APPLICATION FOR PERMIT TO:

[X] **Drill** [ ] Deepen [ ] Re-enter [ ] Recomplete and Operate

Amend [ ]
Refile [ ]
Sidetrack [ ]

TYPE OF WELL OIL [X] GAS [ ] COALBED [ ] OTHER:

ZONE TYPE SINGLE ZONE [X] MULTIPLE ZONES [ ] COMMINGLE ZONES [ ]

Well Name: Crystal 6-65 22-10 Well Number: 7HN

Name of Operator: GMT EXPLORATION COMPANY LLC COGCC Operator Number: 10243

Address: 1560 BROADWAY STE 2000

City: DENVER State: CO Zip: 80202

Contact Name: Whitney Eberhardt Phone: (303)586 9286 Fax: (720)946 3028

Email: w.eberhardt@gmtexploration.com

## RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20070102

## WELL LOCATION INFORMATION

**Surface Location**

QtrQtr: NESE Sec: 22 Twp: 6S Rng: 65W Meridian: 6

Footage at Surface: 1931 Feet FSL (FNL/FSL) 798 Feet FEL (FEL/FWL)

Latitude: 39.512208 Longitude: -104.645610

GPS Data: GPS Quality Value: 1.7 Type of GPS Quality Value: PDOP Date of Measurement: 04/25/2019

Ground Elevation: 6177

Field Name: WILDCAT Field Number: 99999

Well Plan: is [ ] Directional [X] Horizontal (highly deviated) [ ] Vertical

**If Well plan is Directional or Horizontal attach Deviated Drilling Plan and Directional Data.**

**Subsurface Locations**

Top of Productive Zone (TPZ)

Sec: 22 Twp: 6S Rng: 65W Footage at TPZ: 2045 FNL (FNL/FSL) 1956 FEL (FEL/FWL)

Measured Depth of TPZ: 8656 True Vertical Depth of TPZ: 8187

Base of Productive Zone (BPZ)

Sec: 10 Twp: 6S Rng: 65W Footage at BPZ: 600 FNL (FNL/FSL) 1963 FEL (FEL/FWL)

Measured Depth of BPZ: 20659 True Vertical Depth of BPZ: 8187

Bottom Hole Location (BHL)

Sec: 10 Twp: 6S Rng: 65W Footage at BHL: 550 FNL (FNL/FSL) 1964 FEL (FEL/FWL)

## LOCAL GOVERNMENT PERMITTING INFORMATION

County: ELBERT Municipality: N/A

Is the Surface Location of this Well in an area designated as one of State interest and subject to the requirements of § 24-65.1-108 C.R.S.? No

Per § 34-60-106(1)(f)(I)(A) C.R.S., the following questions pertain to the Relevant Local Government approval of the siting of the proposed Oil and Gas Location.

SB 19-181 provides that when "applying for a permit to drill," operators must include proof that they sought a local government siting permit and the disposition of that permit application, or that the local government does not have siting regulations. § 34-60-106(1)(f)(I)(A) C.R.S.

Does the Relevant Local Government regulate the siting of Oil and Gas Locations, with respect to this Location? ☐ Yes ☒ No

☐ If yes, in checking this box, I hereby certify that an application has been filed with the local government with jurisdiction to approve the siting of the proposed oil and gas location.

The disposition of the application filed with the Relevant Local Government is: Waived Date of Final Disposition:

Comments: Oil and Gas Pad sites require a building permit site plan, which is in development. Elbert County waived its right to precede.

## SURFACE AND MINERAL OWNERSHIP AT WELL'S OIL & GAS LOCATION

Surface Owner of the land at this Well's Oil and Gas Location: ☒ Fee ☐ State ☐ Federal ☐ Indian

Mineral Owner beneath this Well's Oil and Gas Location: ☒ Fee ☐ State ☐ Federal ☐ Indian

Surface Owner Protection Financial Assurance (if applicable): Surety ID Number (if applicable):

## MINERALS DEVELOPED BY WELL

The ownership of all the minerals that will be developed by this Well is (check all that apply):

☒ Fee
☐ State
☐ Federal
☐ Indian
☐ N/A

## LEASE INFORMATION

Using standard QtrQtr, Section, Township, Range format describe one entire mineral lease as follows:
* If this Well is within a unit, describe a lease that will be developed by the Well.
* If this Well is not subject to a unit, describe the lease that will be produced by the Well.
(Attach a Lease Map or Lease Description or Lease if necessary.)

N/2, SE/4, Section 22, T6S, R65W

Total Acres in Described Lease: 480 Described Mineral Lease is: ☒ Fee ☐ State ☐ Federal ☐ Indian

Federal or State Lease #

## SAFETY SETBACK INFORMATION

Distance from Well to nearest:

| | | |
|---|---|---|
| Building: | 999 | Feet |
| Building Unit: | 2183 | Feet |
| Public Road: | 2663 | Feet |
| Above Ground Utility: | 1052 | Feet |
| Railroad: | 5280 | Feet |

INSTRUCTIONS:
- Specify all distances per Rule 308.b.(1).
- Enter 5280 for distance greater than 1 mile.
- Building - nearest building of any type. If nearest Building is a Building Unit, enter same distance for both.
- Building Unit – as defined in 100 Series Rules.

Property Line: 720 Feet

## OBJECTIVE FORMATIONS

| Objective Formation(s) | Formation Code | Spacing Order Number(s) | Unit Acreage Assigned to Well | Unit Configuration (N/2, SE/4, etc.) |
|---|---|---|---|---|
| NIOBRARA | NBRR | 535-1184 | 1600 | 10&15:All;22:N/2 |

Federal or State Unit Name (if appl): Unit Number:

## SUBSURFACE MINERAL SETBACKS

Enter 5280 for distance greater than 1 mile.

Is this Well within a unit? Yes

If YES:

Enter the minimum distance from the Completed Zone of this Well to the Unit Boundary: 600 Feet

Enter the minimum distance from the Completed Zone of this Well to the Completed Zone of an offset Well within the same unit permitted or completed in the same formation: 452 Feet

If NO:

Enter the minimum distance from the Completed Zone of this Well to the Lease Line of the described lease: Feet

Enter the minimum distance from the Completed Zone of this Well to the Completed Zone of an offset Well producing from the same lease and permitted or completed in the same formation: Feet

## Exception Location

☐ If this Well requires the approval of a Rule 401.c Exception Location, enter the Rule or spacing order number and attach the Exception Location Request and Waivers.

## SPACING & FORMATIONS COMMENTS

Approved Order 535-1184

## DRILLING PROGRAM

Proposed Total Measured Depth: 20709 Feet TVD at Proposed Total Measured Depth 8187 Feet

Distance from the proposed wellbore to nearest existing or proposed wellbore belonging to another operator, including plugged wells:

Enter distance if less than or equal to 1,500 feet: 1300 Feet ☐ No well belonging to another operator within 1,500 feet

Will a closed-loop drilling system be used? Yes

Is $H_2S$ gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No If yes, attach an H2S Drilling Plan unless a plan was already submitted with the Form 2A per Rule 304.c.(10).

Will there be hydraulic fracture treatment at a depth less than 2,000 feet in this well? No

Will salt sections be encountered during drilling? No

Will salt based (>15,000 ppm Cl) drilling fluids be used? No

Will oil based drilling fluids be used? Yes

BOP Equipment Type: ☒ Annular Preventor ☒ Double Ram ☒ Rotating Head ☐ None

Beneficial reuse or land application plan submitted? No

Reuse Facility ID: or Document Number:

## CASING PROGRAM

| Casing Type | Size of Hole | Size of Casing | Grade | Wt/Ft | Csg/Liner Top | Setting Depth | Sacks Cmt | Cmt Btm | Cmt Top |
|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 24 | 16 | N/A | 42 | 0 | 80 | 100 | 80 | 0 |
| SURF | 12+1/2 | 9+5/8 | J55LTC | 36 | 0 | 2650 | 900 | 2650 | 0 |
| 1ST | 8+1/2 | 5+1/2 | HCP110 | 20 | 0 | 20709 | 3100 | 20709 | |

☐ Conductor Casing is NOT planned

## POTENTIAL FLOW AND CONFINING FORMATIONS

| Zone Type | Formation /Hazard | Top M.D. | Top T.V.D. | Bottom M.D. | Bottom T.V.D. | TDS (mg/L) | Data Source | Comment |
|---|---|---|---|---|---|---|---|---|
| Groundwater | Dawson | 46 | 46 | 507 | 507 | 0-500 | Other | COGIS Sample Inquiry |
| Groundwater | Denver | 548 | 548 | 1452 | 1435 | 0-500 | Other | COGIS Sample Inquiry |
| Groundwater | Upper Arapahoe | 1492 | 1474 | 1938 | 1910 | 0-500 | Other | COGIS Sample Inquiry |
| Groundwater | Laramie-Fox Hills | 2231 | 2197 | 2635 | 2592 | 0-500 | Other | COGIS Sample Inquiry |
| Confining Layer | Pierre Shale | 2635 | 2592 | 3421 | 3360 | | | |
| Hydrocarbon | Sussex-Terry | 3421 | 3360 | 3574 | 3510 | | | Not productive in area |
| Hydrocarbon | Shannon-Hygiene | 5719 | 5607 | 5598 | 5880 | | | Not productive in area |
| Confining Layer | Pierre Shale | 5998 | 5880 | 8079 | 7917 | | | |
| Confining Layer | Sharon Springs Shale | 8079 | 7917 | 8091 | 7927 | | | sloughing clay |
| Hydrocarbon | Niobrara | 8091 | 7927 | 20709 | 8187 | | | Potential Flow Formation Table: The TVD of the deepest hydrocarbon zone is the bottom of the well and not the bottom of the formation. The formation is not planned to be exited. |

## OPERATOR COMMENTS AND SUBMITTAL

Comments: Nearest wellbore in proposed unit is the Crystal 6-65 22-10 8HN per anti-collision.

Nearest permitted or existing wellbore belonging to another operator is the Bennett 10-1 (API: 05-039-06482) DA Status per anti-collision report.

This well has a bottom-hole location beyond the unit boundary setback. The bottom of the completed interval will be within the unit boundary setback at 600' FNL/FSL and 1964' FEL of Section 10. The wellbore beyond the unit boundary setback will be physically isolated and will not be completed.

This application is in a Comprehensive Area Plan: No  CAP #:

Oil and Gas Development Plan Name:  OGDP ID#:

Location ID: 479191

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed:  Print Name: Justin Garrett

Title: Regulatory Analyst  Date: 5/12/2021  Email: regulatory@ascentgeomatics.c

Operator must have a valid water right or permit allowing for industrial use or purchased water from a seller that has a valid water right or permit allowing for industrial use, otherwise an application for a change in type of use is required under Colorado law. Operator must also use the water in the location set forth in the water right decree or well permit, otherwise an application for a change in place of use is required under Colorado law. Section 37-92-103(5), C.R.S. (2011).

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules, applicable orders, and SB 19-181 and is hereby approved.

COGCC Approved: _____ **Director of COGCC** Date: 8/16/2021

Expiration Date: 08/15/2024

**API NUMBER**

05 039 06739 00

# Conditions Of Approval

**All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.**

## Condition of Approval

| COA Type | Description |
|---|---|
| Drilling/Completion Operations | If the location has not been built by the Form 2A (Doc 402245599) expiration date of 01/11/2024, Operator must apply for an OGDP and submit a Refile the Form 2A for approval prior to location construction. |
| Drilling/Completion Operations | COGCC COA: Operator will insure the wellbore beyond the unit boundary setback is physically isolated and is not completed. In the Operator Comments on the Form 5A the operator will (1) report the footages from the section lines of the bottom of the completed interval (2) describe how the wellbore beyond the unit boundary setback is physically isolated and (3) certify that none of the wellbore beyond the setback was completed. |
| Drilling/Completion Operations | Operator acknowledges the proximity of the listed wells. Operator assures that this offset list will utilize Option 4 per the DJ Basin Horizontal Offset Policy. Operator will submit a Form 42 (“OTHER – AS SPECIFIED BY PERMIT CONDITION”) stating that appropriate mitigation will be completed, during the hydraulic stimulation of this well. This Form 42 shall be filed 48 hours prior to stimulation. Operator will assure that no well on the proposed pad will be hydraulically stimulated within 1500' of the listed well, 039-06153 Davidson #3 For all wells that are drilled with any portion within 1500' of 039-06153 Davidson #3. In the Form 5A comments, operator will (1) certify that this well has no treated interval within 1500' of the 039-06153 Davidson #3 , (2) provide the measured depth of the beginning and end points of any non-stimulated interval in this well that falls within 1500' of the 039-06153 Davidson #3 and (3) the distance to each offset well from these points. In other words, fully describe the excluded interval.<br><br>039-06153 Davidson 16-3 |
| Drilling/Completion Operations | 1) Submit Form 42 electronically to COGCC 2 business days prior to MIRU (spud notice) for the first well activity with a rig on the pad and provide 2 business day spud notice via Form 42 for all subsequent wells drilled on the pad.<br>2) Comply with Rule 408.j. and provide cement coverage from TD to a minimum of 500' above Niobrara. Verify coverage with cement bond log.<br>3) Oil-based drilling fluid is to be used only after all fresh water aquifers are covered. |
| Drilling/Completion Operations | Operator acknowledges the proximity of the listed non-operated wells: Operator agrees to: provide mitigation option 3 (per the DJ Basin Horizontal Offset Policy) to mitigate the situation, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit a Form 42 (“OFFSET MITIGATION COMPLETED”) for the remediated wells, referencing the API number of the proposed horizontal well(s) stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of these wells.<br><br>039-06482 Bennett 10-1<br>039-06356 Amoco 11-4<br>039-06386 UPRR-Whelchel 1-15 |
| Drilling/Completion Operations | Per COGCC Order 1-232, Bradenhead tests shall be performed according to the following schedule and Form 17 submitted within 10 days of each test:<br>1) Within 60 days of rig release, prior to stimulation. If any pressure greater than 200 psi, must contact COGCC engineer prior to stimulation.<br>2) If a delayed completion, 6 months after rig release and prior to stimulation. If any pressure greater than 200 psi, must contact COGCC engineer prior to stimulation.<br>3) A post-production test within 60 days after first sales, as reported on the Form 10, Certificate of Clearance. |
| 6 COAs | |

## Best Management Practices

| No | BMP/COA Type | Description |
|---|---|---|
| 1 | Drilling/Completion Operations | Prior to drilling operations, operator will perform an anti-collision scan of existing wells that have the potential of being within close proximity of the proposed well. This anti-collision scan will include definitive MWD or gyro surveys of the offset wells with included error of uncertainty per survey instrument, and compared against the proposed well path with its respective error of uncertainty. If current surveys do not exist for the offset wells, operator may have gyro surveys conducted to verify bottom hole location. The proposed well will only be drilled if the anti-collision scan results indicate that there is not a risk for collision, or harm to people or the environment. |
| 2 | Drilling/Completion Operations | Alternative Logging Program: One of the first wells drilled on the pad will be logged with an open-hole Resistivity Log and Gamma Ray Log from the kick-off point into the surface casing. All wells on the pad will have a Cement Bond Log with Gamma-Ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. The horizontal portion of every well will be logged with a measured-while-drilling gamma-ray log. The Form 5, Completion Report, for each well on the pad will list all logs run and have those logs attached. The Form 5 for a well without open-hole logs shall clearly state “Alternative Logging Program - No open-hole logs were run” and shall clearly identify the type of log and the well (by API#) in which open-hole logs were run. |
| 3 | Drilling/Completion Operations | No drill stem test will be performed. |
| 4 | Drilling/Completion Operations | Upon initial rig up and at least once every thirty (30) days during drilling operations thereafter, pressure testing of the casing string and each component of the blow out equipment including flange connections will be performed to seventy percent (70%) of the internal yield of casing, whichever is less. Pressure testing will be conducted. The documented results will be retained by operator for inspection by the Director for a period of one (1) year. Activation of the pipe rams for function testing shall be conducted daily when practical. A BOP with a minimum pressure rating of three thousand (3,000) psi will be utilized. At a minimum, it will consist of two (2) ram preventers and one (1) annular preventer. A backup system of pressure control will be on site consisting of a minimum of one thousand (1,000) psi accumulator. All on site representatives will be certified in Well Control Operations. |

Total: 4 comment(s)

## Applicable Policies and Notices to Operators

Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area.
http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf

## Attachment List

| Att Doc Num | Name |
|---|---|
| 402589427 | FORM 2 SUBMITTED |
| 402594435 | SURFACE AGRMT/SURETY |
| 402597887 | OffsetWellEvaluations Data |
| 402684161 | WELL LOCATION PLAT |
| 402684162 | DEVIATED DRILLING PLAN |
| 402684164 | DIRECTIONAL DATA |
| 402781172 | OFFSET WELL EVALUATION |

Total Attach: 7 Files

## General Comments

| User Group | Comment | Comment Date |
|---|---|---|
| OGLA | The COGCC conducted an on-site on August 4, 2021 to verify the condition of the mapped stream. Based on the results of the on-site, the stream consists of an upland swale with no identifiable streambed or Ordinary High Water Line. Based on these results, the approved unbuilt Oil and Gas Location is in compliance with Rule 1202.c.(1)R. | 08/13/2021 |
| Permit | With operator concurrence, the Distance to Nearest Well within the Unit was corrected.<br><br>Final Review complete. | 08/12/2021 |
| Permit | With operators concurrence changed "this well is subject to the requirements of 24-65.1-108 C.R.S. (1041 requirements) to NO.<br>This well has a bottom-hole location beyond the unit boundary setback. The bottom of the completed interval will be within the unit boundary setback at 600’ FNL/FSL and 1964' FEL of Section 10. The wellbore beyond the unit boundary setback will be physically isolated and will not be completed.<br><br>Permitting Review Complete. | 08/10/2021 |

Total: 3 comment(s)