

FORM
2

Rev
12/05

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80205 Phone: (303) 894-2100 Fax: (303) 894-2109



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APPLICATION FOR PERMIT TO:

1. ☒ Drill, ☐ Deepen, ☐ Re-enter, ☐ Recomplete and Operate

2. TYPE OF WELL

OIL ☐ GAS ☒ COALBED ☐ OTHER _____
SINGLE ZONE ☐ MULTIPLE ZONE ☒ COMMINGLE ZONE ☒

Refiling ☐
Sidetrack ☐

Document Number:

400061706

Plugging Bond Surety

20100017

3. Name of Operator: ENCANA OIL & GAS (USA) INC

4. COGCC Operator Number: 100185

5. Address: 370 17TH ST STE 1700

City: DENVER State: CO Zip: 80202-5632

6. Contact Name: MIRACLE PFISTER Phone: (720)876-3761 Fax: (720)876-4861
Email: miracle.pfister@encana.com

7. Well Name: TWIN CREEK Well Number: 12-5D1 (F12E)

8. Unit Name (if appl): HUNTER MESA Unit Number: COC 55972E

9. Proposed Total Measured Depth: 6362

WELL LOCATION INFORMATION

10. QtrQtr: SENW Sec: 12 Twp: 7S Rng: 92W Meridian: 6

Latitude: 39.461950 Longitude: -107.618940

Footage at Surface: 2560 feet FNL/FSL FNL 1566 feet FEL/FWL FWL

11. Field Name: MAMM CREEK Field Number: 52500

12. Ground Elevation: 6144.8 13. County: GARFIELD

14. GPS Data:

Date of Measurement: 08/13/2008 PDOP Reading: 0.0 Instrument Operator's Name: TED TAGGART

15. If well is ☒ Directional ☐ Horizontal (highly deviated) **submit deviated drilling plan.**

Footage at Top of Prod Zone: FNL/FSL 2420 FNL 660 FWL FWL Bottom Hole: FNL/FSL 2420 FNL 660 FWL FWL
Sec: 12 Twp: 7S Rng: 92W Sec: 12 Twp: 7S Rng: 92W

16. Is location in a high density area? (Rule 603b)? ☐ Yes ☒ No

17. Distance to the nearest building, public road, above ground utility or railroad: 1056 ft

18. Distance to nearest property line: 264 ft 19. Distance to nearest well permitted/completed in the same formation: 444 ft

20. LEASE, SPACING AND POOLING INFORMATION

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
Iles	ILES			
Williams Fork	WMFK			

21. Mineral Ownership: ☒ Fee ☐ State ☐ Federal ☐ Indian Lease #: _____

22. Surface Ownership: ☒ Fee ☐ State ☐ Federal ☐ Indian

23. Is the Surface Owner also the Mineral Owner? ☒ Yes ☐ No Surface Surety ID#: _____

23a. If 23 is Yes: Is the Surface Owner(s) signature on the lease? ☒ Yes ☐ No

23b. If 23 is No ☐ Surface Owners Agreement Attached or ☐ \$25,000 Blanket Surface Bond ☐ \$2,000 Surface Bond ☐ \$5,000 Surface Bond

24. Using standard QtrQtr, Sec, Twp, Rng format enter entire mineral lease description upon which this proposed wellsite is located (attach separate sheet/map if you prefer):
T7S-R92W 6TH PM SEC 1: W2SE, LESS THAT PART OF THE NW/2SE/4 LYING EAST OF A LINE LYING FIVE FEET EASTERLY OF AND PARALLEL TO THE EASTERLY BANK OF EAST DIVIDE CREEK; E2SW SEC 12: W2NE, E2NW, SWNW, NESW, NWSE.

25. Distance to Nearest Mineral Lease Line: 208 ft 26. Total Acres in Lease: 443

DRILLING PLANS AND PROCEDURES

27. Is H2S anticipated? ☐ Yes ☒ No If Yes, attach contingency plan.

28. Will salt sections be encountered during drilling? ☐ Yes ☒ No

29. Will salt (>15,000 ppm TDS CL) or oil based muds be used during drilling? ☐ Yes ☒ No

30. If questions 27 or 28 are yes, is this location in a sensitive area (Rule 903)? ☐ Yes ☐ No If 28, 29, or 30 are "Yes" a pit permit may be required.

31. Mud disposal: ☐ Offsite ☒ Onsite

Method: ☐ Land Farming ☒ Land Spreading ☐ Disposal Facility Other: _____

Note: The use of an earthen pit for Recompletion fluids requires a pit permit (Rule 905b). If air/gas drilling, notify local fire officials.

Casing Type	Size of Hole	Size of Casing	Wt/Ft	Csg/Liner Top	Setting Depth	Sacks Cmt	Cmt Btm	Cmt Top
CONDUCTOR	24	16	LINEPIPE	0	40	5	40	0
SURF	12+1/4	9+5/8	36	0	1,127	543	1,127	0
2ND	7+7/8	4+1/2	11.6	0	6,362	648	6,362	0

32. BOP Equipment Type: ☒ Annular Preventer ☒ Double Ram ☒ Rotating Head ☐ None

33. Comments TOP OF CEMENT FOR THE PRODUCTION CASING WILL BE at least 500' ABOVE THE TOG. RELATED DOCUMENT NUMBER FOR THE FORM 2A IS 400060081.

34. Location ID: _____

35. Is this application in a Comprehensive Drilling Plan ? ☐ Yes ☒ No

36. Is this application part of submitted Oil and Gas Location Assessment ? ☒ Yes ☐ No

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

Signed: _____ Print Name: MIRACLE PFISTER

Title: REGULATORY ANALYST Date: 5/27/2010 Email: miracle.pfister@encana.com

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

COGCC Approved: David S. Neslin Director of COGCC Date: 1/31/2011

API NUMBER

05 045 20388 00

Permit Number: _____ Expiration Date: 1/30/2013

CONDITIONS OF APPROVAL, IF ANY:

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.

- 1) COMPLIANCE WITH THE MOST CURRENT REVISION OF THE NORTHWEST COLORADO NOTIFICATION POLICY IS REQUIRED.
- 2) GARFIELD COUNTY RULISON FIELD NOTICE TO OPERATORS. NOTE: ALL NOTICES SHALL BE GIVEN VIA E-MAIL. SEE ATTACHED NOTICE
- 3) NEW MAMM CREEK FIELD NOTICE TO OPERATORS APPLIES TO THIS WELL. NOTE: ALL NOTICES SHALL BE GIVEN VIA E-MAIL. SEE ATTACHED NOTICE
- 4) THE PROPOSED SURFACE CASING IS MORE THAN 50' BELOW THE DEPTH OF THE DEEPEST WATER WELL WITHIN 1 MILE OF THE SURFACE LOCATION WHEN CORRECTED FOR ELEVATION DIFFERENCES. THE DEEPEST WATER WELL WITHIN 1 MILE IS 450 FEET DEEP.
- 5) SUBMIT PASON OR EQUIVALENT MUD LOG DATA FROM SURFACE TO TOTAL WELL DEPTH WITH THE REQUEST TO COMPLETE.
- 6) SUBMIT ALL ELECTRONIC DRILLING RECORDER DATA IN ADDITION TO A MUD/DRILLING LOG FROM SURFACE TO TOTAL DEPTH DRILLED FOR THE FIRST WELL DRILLED ON THIS PAD WITH THE FOLLOWING CURVATURE DATA: RATE OF PENETRATION (ROP), GAS, MUD VOLUME, TORQUE, DIFFERENTIAL PRESSURE AND WEIGHT ON BIT (WOB).
- 7) SUBMIT THE FOLLOWING OPEN-HOLE LOGS ON THE SURFACE HOLE FOR THE FIRST WELL DRILLED ON THIS PAD, VIA EMAIL TO COGCC WESTERN COLORADO ENGINEERING SUPERVISOR, WITHIN 24 HRS OF RUNNING AND WITH FORM 5: SPONTANEOUS POTENTIAL, GAMMA RAY, FORMATION DENSITY, COMPENSATED NEUTRON, AND RESISTIVITY (TRIPLE COMBO).
- 8) SUBMIT THE FOLLOWING OPEN-HOLE LOGS ON THE PRODUCTION HOLE, FOR AT LEAST ONE WELL PER PAD (ON THE F12E, PREFERABLY ONE OF THE WELLS BEING DRILLED TO THE NORTHWEST OF THE PAD), FROM TOTAL WELL DEPTH TO SURFACE CASING SHOE WITH FORM 5: SPONTANEOUS POTENTIAL, GAMMA RAY, FORMATION DENSITY, COMPENSATED NEUTRON, AND RESISTIVITY (TRIPLE COMBO).
- 9) 80% EXCESS CEMENT, OVER THE CALCULATED VOLUME REQUIRED TO FILL THE ENTIRE ANNULUS, IS REQUIRED TO BE PUMPED ON THE SURFACE CASING CEMENT JOB. SUBMIT CEMENT TICKETS AS AN ATTACHMENT TO THE REQUEST TO COMPLETE, FOR VERIFICATION OF CEMENT VOLUMES.
- 10) IF LOST CIRCULATION OF 20 BBL/HR OR MORE IS EXPERIENCED AT ANY TIME DURING THE DRILLING OF THIS WELL, OPERATOR SHALL STOP DRILLING, PUMP LOST CIRCULATION MATERIAL AS NEEDED.
- 11) IF LOST CIRCULATION OF 100+ BBLs WITHIN 24 HR OR MAJOR GAS (GAS OVER 1800 UNITS WHILE DRILLING) OCCURS AT A TRUE VERTICAL DEPTH LESS THAN 4200', OPERATOR SHALL NOTIFY COGCC'S WESTERN COLORADO ENGINEERING SUPERVISOR WITHIN 24 HOURS, AND PRIOR TO RUNNING CASING, TO DISCUSS THE OPTIONS FOR UTILIZING A DV TOOL ON PRODUCTION OR INTERMEDIATE CASING.
- 12) PRODUCTION CASING CEMENT TOP MUST BE 500' ABOVE THE SHALLOWEST GAS SIGNATURE OBSERVED ON MUD LOGS OR OPEN-HOLE LOGS. THE SHALLOWEST GAS SIGNATURE, AS DEFINED BY 2500 UNITS, DEPTH SHALL BE REPORTED ON THE REQUEST TO COMPLETE.
- 13) SURFACE CASING SHALL BE SET A MINIMUM OF 50' BELOW THE MOLINA MEMBER OF THE WASATCH FORMATION. THE MOLINA AND ATWELL GULCH MEMBERS OF THE WASATCH FORMATION TOPS SHALL BE REPORTED ON THE REQUEST TO COMPLETE.
- 14) SUBMIT 48 HOUR NOTICES, VIA EMAIL, FOR RUNNING AND CEMENTING ALL CASING STRINGS AND PERFORMING A WELL CONTROL DRILL TO COGCC'S GARFIELD COUNTY FIELD INSPECTOR, COGCC'S NORTHWEST AREA FIELD INSPECTION SUPERVISOR, AND COGCC'S WESTERN COLORADO ENGINEERING SUPERVISOR. CONTACT INFORMATION FOR NOTICES CAN BE FOUND ON COGCC'S CURRENT NOTIFICATION POLICY.
- 15) FRESH WATER DRILLING MUD MUST BE UTILIZED DURING THE DRILLING OF THE SURFACE CASING

INTERVAL, AS OPPOSED TO WATER ONLY. MUD THAT HAS BEEN USED TO DRILL A PRODUCTION INTERVAL MAY NOT BE REUSED TO DRILL ANOTHER SURFACE INTERVAL.

16)CENTRALIZER SYSTEMS MUST BE DESIGNED TO ACHIEVE A MINIMUM OF 50% STANDOFF ON ALL CASING STRINGS. REPORT CENTRALIZER PLACEMENT AND CALCULATED STANDOFF ON THE REQUEST TO COMPLETE.

17)RUN A CEMENT EVALUATION TOOL ON ALL CASING STRINGS, BEFORE DRILL OUT OF EACH SHOE, FROM FLOAT COLLAR TO SURFACE. TIMING OF THE LOGS SHALL BE BASED ON COMPRESSIVE STRENGTH TESTS OF SLURRIES PROVIDED BY CEMENT SERVICE PROVIDER. ALL LOGS SHALL BE PROVIDED WITH THE REQUEST TO COMPLETE

18)UTILIZE INTERMEDIATE CASING IF THE FORMATION INTEGRITY TEST FAILS OR IF THE SURFACE CASING REQUIRES PERFORATION AND CEMENT SQUEEZING.

19)SUBMIT DAILY DRILLING REPORTS TO COGCC WITH THE REQUEST TO COMPLETE.

20)SUBMIT DAILY WELL STIMULATION REPORTS TO COGCC WITH THE FORM 5 DRILLING COMPLETION REPORT.

21)COLLECT SAMPLES FOR LABORATORY ANALYSIS FROM THE 2 DOMESTIC WATER WELLS LOCATED WITHIN ½ MILE OF THE F12E WELL PAD (LANGEgger AND EICHER WELLS) AND EXISTING MONITORING WELLS (MW-2 AND (MW-4) PRE-AND POST-DRILLING OF GAS WELLS TWIN CREEK 12-4A1, TWIN CREEK 12-4D1, TWIN CREEK 12-5A2, TWIN CREEK 12-5A1, AND TWIN CREEK 12-5D1. WATER SAMPLE ANALYSIS MUST INCLUDE DISSOLVED METHANE, BTEX, MAJOR ANIONS AND CATIONS. IF THE CONCENTRATION OF DISSOLVED METHANE IS >1.1 MG/L, COLLECT A SAMPLE FOR ANALYSIS OF GAS COMPOSITION AND OF THE STABLE ISOTOPES OF METHANE.

22)CONDUCT DOCUMENTED VISUAL MONITORING OF WEST DIVIDE CREEK (WDC) AND OTHER SURFACE STREAMS AND PONDS IN SECTION 12, R7S T92W FOR THE PRESENCE OF NATURAL GAS, AIR, OR OTHER GAS BUBBLES WHILE DRILLING AND FRACING GAS WELLS TWIN CREEK 12-4A1, TWIN CREEK 12-4D1, TWIN CREEK 12-5A2, TWIN CREEK 12-5A1, AND TWIN CREEK 12-5D1.

23)INCREASE FREQUENCY AND FOCUS OF DOCUMENTED VISUAL MONITORING OF WDC IN SECTIONS 12, R7S T92W WHEN THE BOREHOLE OF ANY GAS WELL BEGINS TO PASS BENEATH WDC.

24)IF VISUAL MONITORING OR ANY OTHER OBSERVATION INDICATES THAT THERE IS AN INCREASE IN THE PRESENCE NATURAL GAS, AIR, OTHER GAS OR FLUID DISCHARGING INTO WDC, OTHER SURFACE WATER, OR GROUND WATER WHILE DRILLING AND FRACING, NOTIFY COGCC STAFF AND LANDOWNER AS SOON AS PRACTICAL, BUT NO LATER THAN 24 HOURS AFTER OBSERVATION

25)IF VISUAL MONITORING OR ANY OTHER OBSERVATION INDICATES THAT THERE IS AN INCREASE IN THE PRESENCE OF NATURAL GAS, AIR, OTHER GAS, OR FLUID DISCHARGING INTO WDC, OTHER SURFACE WATER, OR GROUND WATER DURING DRILLING AND FRACING, SUBMIT THE CHEMICAL INVENTORY (REFER TO RULE 205.C) TO THE COGCC AS SOON AS PRACTICAL, BUT NO LATER THAN 24 HOURS AFTER OBSERVATION.

26)IF VISUAL MONITORING OR ANY OTHER OBSERVATION INDICATES THAT THERE IS AN INCREASE IN THE PRESENCE OF NATURAL GAS, AIR, OTHER GAS, OR FLUID DISCHARGING INTO WDC, OTHER SURFACE WATER, OR GROUND WATER DURING DRILLING AND FRACING, COLLECT SAMPLES FOR LABORATORY ANALYSIS FROM SURFACE WATER BODIES AND ALL WELLS IDENTIFIED IN COA ENV-1. THE SAMPLES SHALL BE ANALYZED FOR THE PARAMETER LIST IDENTIFIED IN COA ENV-1 AND OTHER PARAMETERS AGREED TO BASED ON THE CHEMICAL INVENTORY OR OTHER PROCESS KNOWLEDGE.

27)PROVIDE A SCHEDULE AND LOCATIONS FOR VISUAL MONITORING OF WDC AND SURFACE WATER BODIES. THE SCHEDULE WILL BE APPROVED BY COGCC STAFF PRIOR TO INITIATION OF DRILLING ACTIVITIES.

Attachment Check List

Att Doc Num	Name
1791949	WELLBORE DIAGRAM
400061706	FORM 2 SUBMITTED
400065267	30 DAY NOTICE LETTER
400065268	LEGAL/LEASE DESCRIPTION
400065269	LEGAL/LEASE DESCRIPTION
400065270	PLAT
400065271	DEVIATED DRILLING PLAN
400065272	SURFACE AGRMT/SURETY

Total Attach: 8 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	WO LETTER RESPONSE	8/16/2010 1:46:02 PM
Permit	WO LETTER RESPONSE MAMM CREEK ISSUE DO NOT PROCESS AT THIS TIME 6/29/10 BY ; Draft pr oper. JLV	

Total: 2 comment(s)

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