

## State of Colorado

## Oil and Gas Conservation Commission

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

## APPLICATION FOR PERMIT TO:

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

2. TYPE OF WELL
- 
- OIL
- ☐
- GAS
- ☒
- COALBED
- ☐
- OTHER:
- ☐
- 
- SINGLE ZONE
- ☐
- MULTIPLE ZONES
- ☒
- COMMINGLE ZONES
- ☐

3. Name of Operator: Noble Energy Inc. 4. COGCC Operator Number: 100322

5. Address: 1625 BROADWAY, SUITE 2200

City: DENVER State: CO Zip: 80202

Contact Name: Kate Shirley Phone: (303) 228-4449 Fax: (303) 228-4280

7. Well Name: Spruce Creek

Well Number: 8-41B

8. Unit Name (if appl):

Unit Number:

9. Proposed Total Measured Depth: 9,419'

## WELL LOCATION INFORMATION

10. Qtr/Qtr: NENE Sec: 8 Twp: 7S Rng: 94W Meridian: 6th P.M.

Latitude: 39.458733 Longitude: -107.905924

Footage At Surface: 412' N 1095' E

Field Name: Rulison Field Number: 75400

11. Field Name: Rulison

Ground Elevation: 6453' 13. County: Garfield

14. GPS Data:

Date of Measurement: 9/08/2008 PDOP Reading: 2.4 Instrument Operator's Name: John Richardson

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

Footage At Top of Prod Zone: 484' N 568' E At Bottom Hole: 484' N 568' E

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: 1,670' 1300'

18. Distance to Nearest Property Line: 1155'

19. Distance to nearest well permitted/completed in the same formation: 324'

## LEASE, SPACING AND POOLING INFORMATION

Objective Formation(s)	Formation Code	Spacing Order Number (s)	Unit Acreage Assigned to Well	Unit Configuration (N2, SE4, etc.)
Williams Fork	WMFK	139-73	40	NENE
ILES	ILES	139-73	40	NENE

21. Mineral Ownership:
- ☒
- Fee
- ☐
- State
- ☐
- Federal
- ☐
- Indian

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

23. Is the Surface Owner also the Mineral Owner?
- ☒
- Yes
- ☐
- No

- 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 Qtr/Qtr Sec, Twp, Rng format enter entire mineral lease description upon which this proposed wellsite is located (attach separate sheet/map if you prefer):

See Attached

25. Distance to Nearest Mineral Lease Line: 484'

26. Total Acres in Lease: 200

## 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:

Method: ☐ Offsite ☒ Onsite☐ Land Farming ☐ Land Spreading ☐ Disposal Facility ☒ Other: Evaporation Pit

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

String	Size of Hole	Size of Casing	Weight Per Foot	Setting Depth	Sacks Cement	Cement/Bottom	Cement Top
COND	20"	16"	Line Pipe	60'	3 YDS	60'	Surface
Surface	12-1/4"	8 5/8"	32#	1,500'	550 Sks	1,500'	Surface
Production	7-7/8"	4-1/2"	11.6#	9,419'	1030 Sks	9,419'	200' TOG

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

33. Comments

34. Initial Rule 306 Consultation took place on (date) 3/17/2009, was waived, or is not required. Provide supporting documentation if consultation has been waived or if good faith effort did not result in consultation.

PERMIT SUBMITTED TO COGCC PRIOR TO COMPLIANCE WITH RULE 306 CONSULTATION SHALL BE RETURNED UNAPPROVED.

I hereby certify that a complete permit package has been sent to the applicable Local Government Designee(s), and all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: Kate Shirley

Print Name: Kate Shirley

Title: Regulatory Specialist

Date: 3/17/2009

Email: kshirley@nobleenergyinc.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. Meslin

Director of COGCC

Date: 7-16-09

Permit Number: 20091645

CONDITIONS OF APPROVAL, IF ANY:

Expiration Date: 7-15-10

API NUMBER

05-045-18501-00

See Attached Conditions of  
Approval, Notice To Operators &  
Wildlife Protection Requirements

## **CONDITIONS OF APPROVAL**

### **SPRUCE CREEK 8-41B**

**24 HOUR SPUD NOTICE REQUIRED. E-MAIL: david.andrews@state.co.us**

**GARFIELD COUNTY RULISON FIELD NOTICE TO OPERATORS. NOTE: ALL NOTICES SHALL BE GIVEN VIA E-MAIL. SEE ATTACHED NOTICE**

**CEMENT TOP VERIFICATION BY CBL REQUIRED.**

**THE MOISTURE CONTENT OF ANY DRILL CUTTINGS IN A CUTTINGS PIT, TRENCH, OR PILE SHALL BE AS LOW AS PRACTICABLE TO PREVENT ACCUMULATION OF LIQUIDS GREATER THAN DE MINIMIS AMOUNTS. AT THE TIME OF CLOSURE, THE DRILL CUTTINGS MUST ALSO MEET THE APPLICABLE STANDARDS OF TABLE 910-1.**

**THE PROPOSED SURFACE CASING IS MORE THAN 50' BELOW THE DEPTH OF THE DEEPEST WATER WELL WITHIN 1MILE OF THE SURFACE LOCATION WHEN CORRECTED FOR ELEVATION DIFFERENCES. THE DEEPEST WATER WELL WITHIN 1 MILE IS 220 FEET DEEP.**

**THE OPERATOR SHALL COMPLY WITH RULE 321. AND IT SHALL BE THE OPERATOR'S RESPONSIBILITY TO ENSURE THAT THE WELLBORE COMPLIES WITH SETBACK REQUIREMENTS IN COMMISSION ORDERS OR RULES PRIOR TO PRODUCING THE WELL.**

**NOTE: ALL NOTICES SHALL BE GIVEN VIA E-MAIL.**

NOTICE TO ALL OPERATORS  
DRILLING WILLIAMS FORK FORMATION WELLS IN GARFIELD COUNTY  
SURFACE CASING DEPTH AND MODIFICATION OF LEAKOFF TEST REQUIREMENTS  
JUNE 23, 2006 (Amends May 3, 2001 Notice)

Based on the evaluation of the leakoff test data, drilling histories and reservoir parameters for Williams Fork Formation wells in Garfield County, the surface casing setting depth requirements specified in the September 22, 1998 policy statement amended May 3, 2001 will remain in effect. Surface casing leakoff tests will be performed at the discretion of the operator with the exception of additional leakoff test requirements that may apply in the Grand Valley Field as required by an earlier notice. The following conditions are to be attached to all Permits-to-Drill for Williams Fork Formation or deeper gas wells in Garfield County:

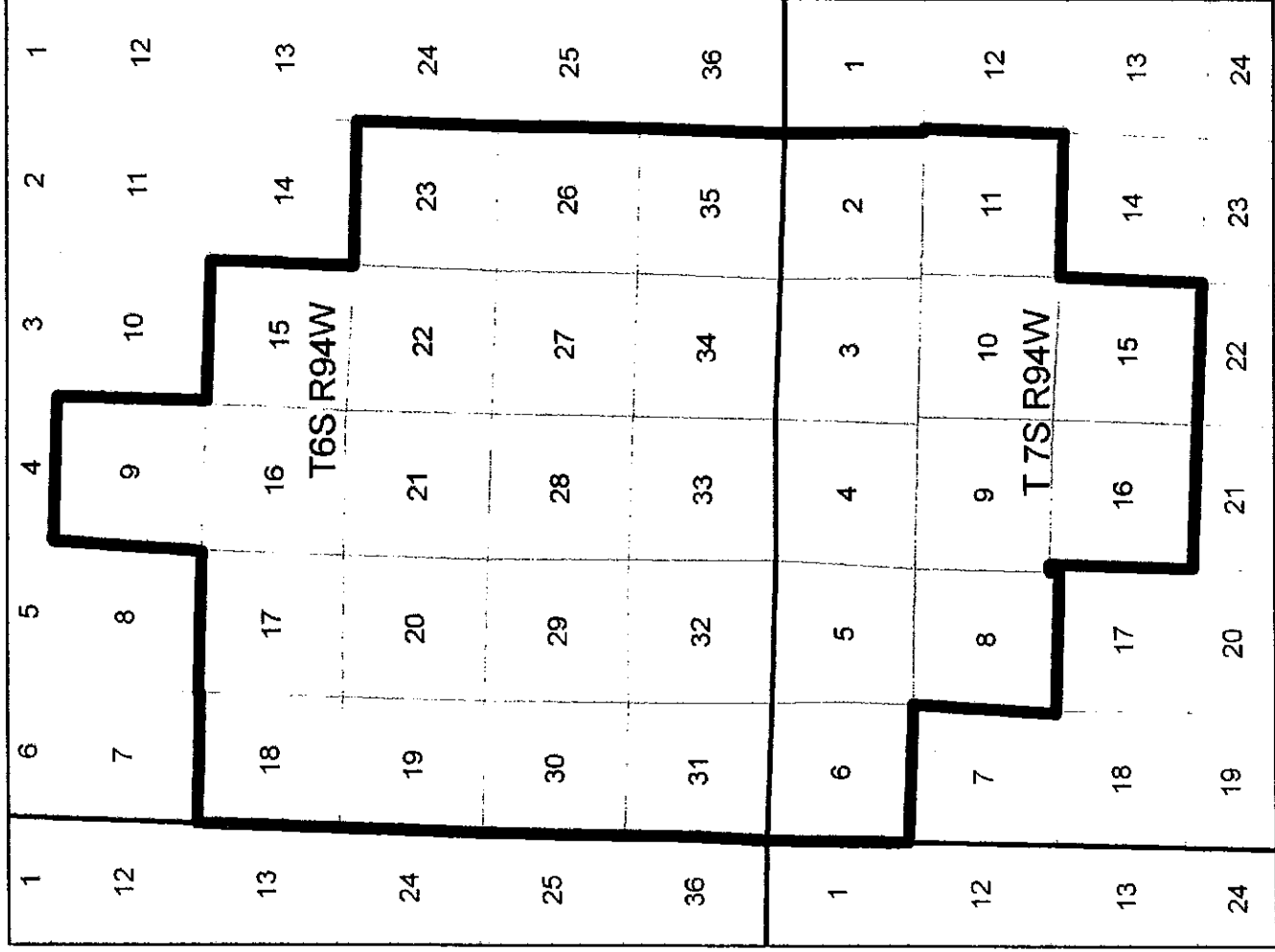
The following shall be required in the Rulison Field Overpressured Area:

1. The Rulison Field Overpressured Area is defined as (see attached map):  
Township 6 South, Range 94 West, Sections 9, 15-23, 26-35  
Township 7 South, Range 94 West, Sections 2-6, 8-10, 11, 15, 16
2. Surface casing must be set at a minimum depth of 1100 feet.

The following shall be required in all fields in Garfield County:

1. Notify the COGCC Northwest Area Engineer 24 hours prior to commencing wellsite construction, setting of conductor pipe, well spudding, running all casing and any cementing operations so that COGCC staff may have the opportunity to witness. All notification shall be given via e-mail whenever possible.
2. Surface casing shall be set at a minimum depth of ten percent (10%) of the total depth of the well.
3. All lost circulation zones, gas kicks and water flows shall be reported to the COGCC Northwest Colorado Area Engineer as soon as feasible within twenty-four (24) hours of occurrence.
4. Significant lost circulation shall be defined as a mud loss in excess of 100 barrels and which requires shut down of operations for an hour or longer to pump lost circulation material and rebuild pit volume. The following data is required: depth, mud volume lost, whether or not a kick ensued, mud weights before and after lost circulation, and procedures used to regain circulation.
5. A significant kick shall be defined as one that is managed by shutting in the well to circulate out the kick or that is managed by going on choke and requiring an increase in mud weight exceeding 3/10ths of one pound per gallon to control. The following data is required: date and time of the kick, total depth of the well at the time of the kick, surface casing depth, size and cementing data, initial and final mud weights, shut in drill pipe pressure, shut in casing pressure, or any other pressure measurement or information used to determine the mud weight necessary to control the kick.
6. The depth, rate and mud weight on all water flows must be reported.
7. Upon completion of the primary cementing operation, the annular fluid level around the production casing shall be monitored for a minimum of 4 hours after cementing. Operators shall maintain the ability to monitor the annular fluid level and keep the hole full. The amount of mud that is used to keep the hole full shall be recorded. If mud volumes in excess of twenty (20) barrels are necessary to keep the hole full, the loss of fluid shall be reported to the COGCC immediately.

For all notifications contact COGCC Northwest Area Colorado Area Engineer Jaime Adkins via e-mail at: [jaime.adkins@state.co.us](mailto:jaime.adkins@state.co.us) or in urgent cases at 970-285-9000(0), 970-250-2440(C).  
Thank you for cooperating with these requirements.  
Brian Macke, Director



COGCC Notice to Operators (June 23, 2006)

## Rulison Overpressured Area (1100 feet of Surface Casing Required)



## Notice Concerning Operating Requirements for Wildlife Protection

In December 2008 the COGCC adopted several new and amended rules intended to minimize adverse impacts to wildlife resources in Colorado from oil and gas activities. Beginning July 1, 2009 on federal land and April 1, 2009 on all other land, these rules will apply to all oil and gas exploration and development operations in the state. This notice is intended to inform operators of these wildlife protection rules and to provide a reminder so company staff and contractors may become familiar with certain new and existing operating requirements. While some of these practices were required under conditions of approval attached to permits submitted between January 5, 2009 and June 2009, operators should be aware that they will apply automatically to all permits and operations going forward. If you have any questions about the following rules, please contact the COGCC at 303-894-2100 or [dnr.ogcc@state.co.us](mailto:dnr.ogcc@state.co.us).

### PITS AND WASTE MANAGEMENT

The COGCC Rules have long had waste management requirements to protect wildlife, and the rules in this regard have not changed significantly.

Pits pose a hazard to people and animals because they are difficult to exit if one falls in. Accordingly, COGCC Rule 604.c(3) continues to require pits to be fenced in order to prevent accidental entry when the site is easily accessible and poses a hazard. The most common and significant problem with pits and wildlife arises when waterfowl land in a pit, get oil on their wings, and are unable to fly or otherwise get out of the pit. This is likely a violation of COGCC Rule 902.c and may also violate the federal Migratory Bird Treaty Act (MBTA). While the U.S. Fish and Wildlife Service (USF&WS) may enforce for the loss of life by migratory birds under the MBTA, operators should be aware that the COGCC will enforce where pits are not maintained to be free of oil and condensate, unless the pit is permitted as a skim pit and is properly lined, fenced, and netted. Additionally, COGCC Rule 902.d. continues to require operators to install appropriate netting or fencing where necessary to prevent significant adverse environmental impacts resulting from access to a pit by wildlife, including migratory birds. Failure to comply with COGCC Rules could result in penalties or revocation of the pit permit, Form 15.

The text of these provisions regarding waste management for wildlife protection follows:

#### **COGCC Rule 902. PITS - GENERAL AND SPECIAL RULES (Excerpt)**

- c. *Any accumulation of oil or condensate in a pit shall be removed within twenty-four (24) hours of discovery. Operators shall use skimming, steam cleaning of exposed liners, or other safe and legal methods as necessary to maintain pits in clean condition and to control hydrocarbon odors. Only de minimis amounts of hydrocarbons may be present unless the pit is specifically permitted for oil or condensate recovery or disposal use. A Form 15 pit permit may be revoked by*

*the Director and the Director may require that the pit be closed if an operator repeatedly allows more than de minimis amounts of oil or condensate to accumulate in a pit. This requirement is not applicable to properly permitted and properly fenced, lined, and netted skim pits that are designed, constructed, and operated to prevent impacts to wildlife, including migratory birds.*

- d. *Where necessary to protect public health, safety and welfare or to prevent significant adverse environmental impacts resulting from access to a pit by wildlife, migratory birds, domestic animals, or members of the general public, operators shall install appropriate netting or fencing.*

### **Fired Vessel, Heater Treater**

Other oil field hazards for migratory birds are fired vessels, including heater treaters. On March 1, 2007 the COGCC adopted a policy that required all oil and gas operators to install screening or other devices on the stacks and on other openings of heater treaters or fired vessels to prevent entry by migratory birds. This policy was adopted after inspection by USFWS personnel found that many heater treaters contained the remains of dead birds. As a result of these inspections, the USFWS determined that heater treaters on oil and gas properties create a widespread hazard for migratory birds and that parties responsible for bird deaths from these devices may be subject to prosecution and fines. The COGCC's March 2007 policy regarding fired vessels for wildlife protection was codified as a rule in the December 2008 rulemaking. The text of the rule follows:

#### ***COGCC Rule 604. OIL AND GAS FACILITIES (Excerpt)***

##### ***b. Fired Vessel, Heater-Treater***

- (7) *All stacks, vents, or other openings shall be equipped with screens or other appropriate equipment to prevent entry by wildlife, including migratory birds.*

### **GENERAL OPERATING REQUIREMENTS**

In response to direction from the General Assembly, the COGCC Rules now include operating requirements to minimize adverse impacts to wildlife resources -- many of which are already being implemented by operators in Colorado.

COGCC Rule 1204 contains five operating standards that will apply statewide where certain circumstances exist, such as utilizing bear-proof containers for food related trash at operations in black bear habitat, disinfecting certain equipment before using it in designated cutthroat trout habitat, planning transportation networks to minimize the number and length of oil and gas roads, and establishing refueling and chemical storage areas outside of riparian zones and floodplains.

The sixteen operating standards in Rule 1203, on the other hand, will only apply in areas designated in the rules as sensitive wildlife habitat, such as constructing escape ramps for certain pipeline trenches during installation, consolidating new facilities, minimizing rig mobilization where practicable, using boring instead of trenching across critical fish streams, and treating certain wastewater pits to prevent the spread of West Nile Virus.

Certain of these Rule 1203 operating standards will apply only with the consent of the surface owner, such as using wildlife-appropriate fencing or seed mixes during reclamation, limiting access to oil and gas roads, and using topographic features and vegetative screening to create seclusion areas.

Operators are advised to review the requirements of the new 1200-Series Rules closely to ensure that their operations and procedures are in compliance. The text of rules containing operating requirements for wildlife protection follows:

#### **COGCC Rule 1204. OTHER GENERAL OPERATING REQUIREMENTS**

a. *The operating requirements identified below shall apply in all areas.*

- (1) *In black bear habitat west of Interstate 25 and on Raton Mesa east of Interstate 25, operators shall install and utilize bear-proof dumpsters and trash receptacles for food-related trash at all facilities that generate such trash.*
- (2) *In designated Cutthroat Trout habitat, as identified on the Colorado Division of Wildlife Species Activity Mapping (SAM) system, operators shall disinfect water suction hoses and water transportation tanks withdrawing from or discharging into surface waters (other than contained pits) used previously in another river, lake, pond, or wetland and discard rinse water in an approved disposal facility. Disinfection practices shall be repeated after completing work or before moving to the next water body. Disinfection may be performed by removing mud and debris and then implementing one of the following practices:*
  - A. *Spray/soak equipment with a disinfectant solution capable of killing whirling disease spores; or*
  - B. *Spray/soak equipment with water greater than 140 degrees Fahrenheit for at least 10 minutes.*
- (3) *To minimize adverse impacts to wildlife resources, plan new transportation networks and new oil and gas facilities to minimize surface disturbance and the number and length of oil and gas roads and utilize common roads, rights of way, and access points to the extent practicable, consistent with these rules, an operator's operational requirements, and any requirements imposed by federal and state land management agencies, local government regulations, and surface use agreements and other surface owner requirements, and taking into account cost effectiveness and technical feasibility.*
- (4) *Establish new staging, refueling, and chemical storage areas outside of riparian zones and floodplains.*
- (5) *Use minimum practical construction widths for new rights-of-way where pipelines cross riparian areas, streams, and critical habitats.*

b. **Exceptions.** *If the operator believes that any of the foregoing operating requirements should be waived for any proposed oil and gas location, it shall so specify in a Form 2A for Director consideration.*

#### **COGCC Rule 1203. GENERAL OPERATING REQUIREMENTS IN SENSITIVE WILDLIFE HABITAT AND RESTRICTED SURFACE OCCUPANCY AREAS**

a. **General Operating Requirements.** *Within sensitive wildlife habitat and restricted surface occupancy areas, operators shall comply with the operating requirements listed below.*

- (1) *During pipeline construction for trenches that are left open for more than five (5) days and are greater than five (5) feet in width, install wildlife crossovers and escape ramps where the trench crosses well-defined*

- game trails and at a minimum of one quarter (1/4) mile intervals where the trench parallels well-defined game trails.
- (2) Inform and educate employees and contractors on wildlife conservation practices, including no harassment or feeding of wildlife.
  - (3) Consolidate new facilities to minimize impact to wildlife.
  - (4) Minimize rig mobilization and demobilization where practicable by completing or reCompleting all wells from a given well pad before moving rigs to a new location.
  - (5) To the extent practicable, share and consolidate new corridors for pipeline rights-of-way and roads to minimize surface disturbance.
  - (6) Engineer new pipelines to reduce field fitting and reduce excessive right-of-way widths and reclamation.
  - (7) Use boring instead of trenching across perennial streams considered critical fish habitat.
  - (8) Treat waste water pits and any associated pit containing water that provides a medium for breeding mosquitoes with Bti (*Bacillus thuringiensis* v. israelensis) or take other effective action to control mosquito larvae that may spread West Nile Virus to wildlife, especially grouse.
  - (9) Use wildlife appropriate seed mixes wherever allowed by surface owners and regulatory agencies.
  - (10) Mow or brushhog vegetation where appropriate, leaving root structure intact, instead of scraping the surface, where allowed by the surface owner.
  - (11) Limit access to oil and gas access roads where approved by surface owners, surface managing agencies, or local government, as appropriate.
  - (12) Post speed limits and caution signs to the extent allowed by surface owners, Federal and state regulations, local government, and land use policies, as appropriate.
  - (13) Use wildlife-appropriate fencing where acceptable to the surface owner.
  - (14) Use topographic features and vegetative screening to create seclusion areas, where acceptable to the surface owner.
  - (15) Use remote monitoring of well production to the extent practicable.
  - (16) Reduce traffic associated with transporting drilling water and produced liquids through the use of pipelines, large tanks, or other measures where technically feasible and economically practicable.
- b. **Exceptions.** If the operator believes that any of the foregoing operating requirements should be waived for any proposed oil and gas location, it shall so specify in a Form 2A for Director consideration.