

State of Colorado Oil and Gas Conservation Commission

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Document Number:

400389648

Date Received:

03/12/2013

Oil and Gas Location Assessment

☒ New Location ☐ Amend Existing Location Location#: _____

Submit original plus one copy. This form is to be submitted to the COGCC prior to any ground disturbance activity associated with oil and gas development operations. This Assessment may be approved as a standalone application or submitted as an informational report accompanying an Application for Permit-To-Drill, Form 2. Approval of this Assessment will allow for the construction of the below specified location; however, it does not supersede any land use rules applied by the local land use authority. This form may serve as notice to land owners and other interested parties, please see the COGCC web site at <http://colorado.gov/cogcc/> for all accompanying information pertinent to this Oil and Gas Location Assessment.

Location ID:

432702

Expiration Date:

04/28/2016
☐ This location assessment is included as part of a permit application.

1. CONSULTATION

- ☐ This location is included in a Comprehensive Drilling Plan. CDP # _____
- ☐ This location is in a sensitive wildlife habitat area.
- ☐ This location is in a wildlife restricted surface occupancy area.
- ☐ This location includes a Rule 306.d.(1)A.ii. variance request.

2. Operator

Operator Number: 96850

Name: WPX ENERGY ROCKY MOUNTAIN LLC

Address: 1001 17TH STREET - SUITE #1200

City: DENVER State: CO Zip: 80202

3. Contact Information

Name: Greg Davis

Phone: (303) 606-4071

Fax: (303) 629-8268

email: greg.j.davis@wpxenergy.com

4. Location Identification:

Name: Beaver Creek Frac Pad Number: 11-7-793

County: GARFIELD

QuarterQuarter: LOT 1 Section: 7 Township: 7S Range: 93W Meridian: 6 Ground Elevation: 7197

Define a single point as a location reference for the facility location. This point should be used as the point of measurement in the drawings to be submitted with this application. When the location is to be used as a well site then the point shall be a well location.

Footage at surface: 770 feet FNL, from North or South section line, and 923 feet FWL, from East or West section line.

Latitude: 39.459362 Longitude: -107.823200 PDOP Reading: 2.5 Date of Measurement: 08/15/2008

Instrument Operator's Name: J. Kirkpatrick

5. Facilities (Indicate the number of each type of oil and gas facility planned on location):

| | | | | |
|--|--|--|--|--|
| Special Purpose Pits: <input type="text"/> | Drilling Pits: <input type="text"/> | Wells: <input type="text" value="0"/> | Production Pits: <input type="text"/> | Dehydrator Units: <input type="text" value="0"/> |
| Condensate Tanks: <input type="text" value="0"/> | Water Tanks: <input type="text" value="6"/> | Separators: <input type="text" value="0"/> | Electric Motors: <input type="text"/> | Multi-Well Pits: <input type="text" value="1"/> |
| Gas or Diesel Motors: <input type="text"/> | Cavity Pumps: <input type="text"/> | LACT Unit: <input type="text"/> | Pump Jacks: <input type="text"/> | Pigging Station: <input type="text"/> |
| Electric Generators: <input type="text"/> | Gas Pipeline: <input type="text" value="0"/> | Oil Pipeline: <input type="text"/> | Water Pipeline: <input type="text" value="1"/> | Flare: <input type="text"/> |
| Gas Compressors: <input type="text"/> | VOC Combustor: <input type="text"/> | Oil Tanks: <input type="text" value="0"/> | Fuel Tanks: <input type="text"/> | |

Other: 2 Temporary Frac Tanks and 2 Temporary Pumps

6. Construction:

Date planned to commence construction: 04/15/2013 Size of disturbed area during construction in acres: 5.83
Estimated date that interim reclamation will begin: 06/01/2014 Size of location after interim reclamation in acres: 0.00
Estimated post-construction ground elevation: 7187 Will a closed loop system be used for drilling fluids: Yes ☐
Will salt sections be encountered during drilling: Yes ☐ No ☒ Is H2S anticipated? Yes ☐ No ☒
Will salt (>15,000 ppm TDS Cl) or oil based muds be used: Yes ☐ No ☒
Mud disposal: Offsite ☐ Onsite ☐ Method: Land Farming ☐ Land Spreading ☐ Disposal Facility ☐
Other: _____

7. Surface Owner:

Name: _____ Phone: _____
Address: _____ Fax: _____
Address: _____ Email: _____
City: _____ State: _____ Zip: _____ Date of Rule 306 surface owner consultation: 12/02/2008
Surface Owner: ☒ Fee ☐ State ☐ Federal ☐ Indian
Mineral Owner: ☒ Fee ☐ State ☐ Federal ☐ Indian
The surface owner is: ☐ the mineral owner ☐ committed to an oil and gas lease
☐ is the executer of the oil and gas lease ☐ the applicant
The right to construct the location is granted by: ☐ oil and gas lease ☒ Surface Use Agreement ☐ Right of Way
☐ applicant is owner
Surface damage assurance if no agreement is in place: ☐ \$2000 ☐ \$5000 ☐ Blanket Surety ID _____

8. Reclamation Financial Assurance:

☒ Well Surety ID: 20030107 ☐ Gas Facility Surety ID: _____ ☐ Waste Mgnt. Surety ID: _____

9. Cultural:

Is the location in a high density area (Rule 603.b.): Yes ☐ No ☒
Distance, in feet, to nearest building: 7220, public road: 2503, above ground utility: 1242,
railroad: 21600, property line: 770

10. Current Land Use (Check all that apply):

Crop Land: ☐ Irrigated ☐ Dry land ☐ Improved Pasture ☐ Hay Meadow ☐ CRP
Non-Crop Land: ☒ Rangeland ☐ Timber ☐ Recreational ☐ Other (describe): _____
Subdivided: ☐ Industrial ☐ Commercial ☐ Residential

11. Future Land Use (Check all that apply):

Crop Land: ☐ Irrigated ☐ Dry land ☐ Improved Pasture ☐ Hay Meadow ☐ CRP
Non-Crop Land: ☒ Rangeland ☐ Timber ☐ Recreational ☐ Other (describe): _____
Subdivided: ☐ Industrial ☐ Commercial ☐ Residential

12. Soils:

List all soil map units that occur within the proposed location. Attach the National Resource Conservation Service (NRCS) report showing the "Map Unit Description" report listing the soil typical vertical profile. This data is to be used when segregating topsoil.

The required information can be obtained from the NRCS web site at <http://soildatamart.nrcs.usda.gov/> or from the COGCC web site GIS Online map page found at <http://colorado.gov/cogcc>. Instructions are provided within the COGCC web site help section.

NRCS Map Unit Name: 45. Morval-Tridell complex, 6 to 25% slopes

NRCS Map Unit Name: 71. Villa Grove-Zoltay loams, 15 to 30% slopes

NRCS Map Unit Name:

13. Plant Community:

Complete this section only if any portion of the disturbed area of the location's current land use is on non-crop land.

Are noxious weeds present: Yes ☒ No ☐

Plant species from: ☐ NRCS or, ☒ field observation Date of observation: 11/23/2009

List individual species: Sage, Juniper

Check all plant communities that exist in the disturbed area.

- ☐ Disturbed Grassland (Cactus, Yucca, Cheatgrass, Rye)
☐ Native Grassland (Bluestem, Grama, Wheatgrass, Buffalograss, Fescue, Oatgrass, Brome)
☒ Shrub Land (Mahogany, Oak, Sage, Serviceberry, Chokecherry)
☐ Plains Riparian (Cottonwood, Willow, Aspen, Maple, Poplar, Russian Olive, Tamarisk)
☐ Mountain Riparian (Cottonwood, Willow, Blue Spruce)
☒ Forest Land (Spruce, Fir, Ponderosa Pine, Lodgepole Pine, Juniper, Pinyon, Aspen)
☐ Wetlands Aquatic (Bullrush, Sedge, Cattail, Arrowhead)
☐ Alpine (above timberline)
☐ Other (describe):

14. Water Resources:

Rule 901.e. may require a sensitive area determination be performed. If this determination is performed the data is to be submitted with the Form 2A.

Is this a sensitive area: ☐ No ☒ Yes Was a Rule 901.e. Sensitive Areas Determination performed: ☐ No ☒ Yes

Distance (in feet) to nearest surface water: 872, water well: 6920, depth to ground water: 50

Is the location in a riparian area: ☒ No ☐ Yes Was an Army Corps of Engineers Section 404 permit filed ☒ No ☐ Yes

Is the location within a Rule 317B Surface Water Supply Area buffer zone:

☐ No ☐ 0-300 ft. zone ☐ 301-500 ft. zone ☒ 501-2640 ft. zone

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified: ☐ No ☒ Yes

15. Comments:

This is a Multi-Well Pit used for treated produced water to be recycled for completions operations.

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

Signed: Date: 03/12/2013 Email: greg.j.davis@wpenergy.com

Print Name: Greg Davis Title: Supervisor Permits

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:  Director of COGCC Date: 4/29/2013

**CONDITIONS OF
APPROVAL, IF ANY:**

All representations, stipulations and conditions of approval stated in this Form 2A for this location shall constitute representations, stipulations and conditions of approval for any and all subsequent operations on the location unless this Form 2A is modified by Sundry Notice, Form 4 or an Amended Form 2A.

GROUNDWATER/SURFACE WATER BASELINE SAMPLING COA:

Baseline Water Testing: Prior to pit operations, operator shall sample at a minimum two (2) domestic water wells or springs within a one (1) mile radius of the proposed oil and gas location. Testing preference shall be given to domestic water wells and springs over surface water. If possible, the water wells or springs selected should be on opposite sides of the oil and gas location not exceeding a one (1) mile radius. If water wells or springs on opposite sides of the oil and gas location cannot be identified, then the two (2) closest wells or springs within a one (1) mile radius of the oil and gas location shall be sampled. The sample location shall be surveyed in accordance with Rule 215. Sampling and analysis shall be conducted in conformance with an accepted industry standard as described in Rule 910.b.(2).

Initial baseline testing shall include: pH, specific conductance, total dissolved solids (TDS), dissolved gases (methane, ethane, propane), alkalinity (total bicarbonate and carbonate as CaCO₃), major anions (bromide, chloride, fluoride, sulfate, nitrate and nitrite as N, phosphorus), major cations (calcium, iron, magnesium, manganese, potassium, sodium), other elements (barium, boron, selenium and strontium), presence of bacteria (iron related, sulfate reducing, slime and coliform), total petroleum hydrocarbons (TPH) and BTEX compounds (benzene, toluene, ethylbenzene and xylenes). Hydrogen sulfide shall also be measured using a field test method. Field observations such as pH, temperature, specific conductance, odor, water color, sediment, bubbles, and effervescence shall also be included. COGCC recommends that the latest version of EPA SW 846 analytical methods be used where possible and that analyses of samples be performed by laboratories that maintain state or national accreditation programs.

If free gas or a dissolved methane concentration greater than 1.0 milligram per liter (mg/l) is detected in a water well, gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen: 12C, 13C, 1H and 2H) shall be performed to determine gas type. If test results indicated thermogenic or a mixture of thermogenic and biogenic gas, then the operator shall submit to the Director an action plan to determine the source of the gas. If the methane concentration increases by more than 5.0 mg/l between sampling periods, or increases to more than 10. mg/l, the operator shall notify the Director and the owner of the water well immediately.

After 90 days, but less than 180 days of use of the pit for completion operations, a "second" test shall be performed for the same analytical parameters listed above and repeated once every 12 months. Additional test(s) may be required if changes in water quality are identified during follow-up testing. The Director may require further water well sampling at any time in response to complaints from water well owners.

Copies of all test results described above shall be provided to the Director and the landowner where the water quality testing well is located within three (3) months of collecting the samples used for the test. The analytical data and surveyed well locations shall also be submitted to the Director in an electronic data deliverable format.

Documented refusal to grant access by well owner or surface owner (for water well or spring sampling), or if no water wells or springs are located/identified within one mile, shall not constitute a violation of this COA.

TEMPORARY SURFACE PIPELINES COAs:

Operator must implement best management practices to contain any unintentional release of fluids along all portions of the surface pipeline route where temporary pumps and other necessary equipment are located.

Operator must routinely inspect the entire length of the surface pipeline to ensure integrity.

Operator must ensure 110 percent secondary containment for any potential volume of fluids that may be released from the surface pipeline at all stream, intermittent stream, ditch, and drainage crossings.

Operator will utilize, to the extent practical, all existing access and other public roads, and/or existing pipeline right-of-ways, when placing/routing the surface pipelines. This will reduce surface disturbance and fragmentation of wildlife habitat in the area.

SITE SPECIFIC COAs:

Notify the COGCC 48 hours prior to start of frac pad construction, pit liner installation, start of hydrostatic test, and start of hydraulic stimulation operations using Form 42 (the appropriate COGCC individuals will automatically be email notified, including the LGD for hydraulic stimulation operations).

Operator must implement best management practices to contain any unintentional release of fluids at the pit location, as well as any fluids conveyed via temporary surface or buried permanent pipelines.

Operator must ensure secondary containment for any volume of fluids contained at frac pad site during completion operations (as described on the BMP tab); including, but not limited to, construction of a berm or diversion dike, diversion/collection trenches within and/or outside of berms/dikes, site grading, or other comparable measures (i.e., best management practices (BMPs) associated with stormwater management) sufficiently protective of nearby surface water. Any berm constructed at the frac pad location will be stabilized, inspected at regular intervals (at least every 14 days), and maintained in good condition.

Flowback and stimulation fluids must be sent to tanks, separators, or other containment/filtering equipment before the fluids can be placed into the multi-well pit or storage vessel on the frac pad; or into tanker trucks for offsite disposal. The flowback and stimulation fluid tanks, separators, or other containment/filtering equipment must be placed on the frac pad or nearby well pads in an area with additional downgradient perimeter berming. The area where flowback fluids will be stored/reused must be constructed to be sufficiently impervious to contain any spilled or released material.

Additional containment shall be required where temporary or permanent pumps and other necessary equipment or chemicals are located.

Berms or other containment devices shall be constructed to be sufficiently impervious (preferably corrugated steel with poly liner) to contain any spilled or released material around crude oil, condensate, and produced water storage tanks.

FORM 15 EARTHEN PIT PERMIT COAs:

The multi-well pit must be double-lined. The pit will also require a leak detection system (Rule 904.e).

Delivery and vacuum truck hoses will not be allowed to be placed directly onto the pit liner. Operator will construct a loading/unloading station located next to the pit, to deliver fluids to or remove fluids from the pit by truck. The loading/unloading station shall be designed and utilized to prevent hoses from being dropped into the pits and dragged over the liner, which could lead to liner damage. The loading/unloading station will be the only permitted access for manual fluids transfers to or from the pit. Vehicles will not be allowed to approach the pit any closer than the loading/unloading station. Each station will have a catch basin in case a leak occurs while operations personnel are connecting or disconnecting hoses. Signs clearly marking the truck loading/unloading station shall be provided and maintained by the operator.

Operator must submit a professional engineer (PE) approved/stamped as-built drawing (plan view and cross-sections) of the multi-well pit within 30 calendar days of construction.

After installation of the uppermost liner and prior to operating the pit, the synthetic liner(s) shall be tested by filling the pit with at least 70 percent of operating capacity of water, measured from the base of the pit (not to exceed the 2-foot freeboard requirement). The operator shall monitor the pit for leaks for a period of 72 hours prior to either draining the pit or commencing operations. Operator shall notify the COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us) 48 hours prior to start of the hydrotest. Hydrotest monitoring results must be maintained by the operator for the life of the pit and provided to COGCC prior to using the pit (via Form 4 Sundry to Dave Kubeczko; email dave.kubeczko@state.co.us) .

In lieu of conducting an initial hydrostatic test of the pit, the operator can monitor fluid levels in the pit continuously using a minimum of two pressure transducers located at the upgradient and downgradient ends of the pit (based on the original topographic profile). These pressure transducers should be linked to the operator's SCADA system such that they can be remotely monitored. In addition, the pit liner will be marked at the two foot freeboard depth line so that operations personnel (as well as COGCC inspectors) can easily verify that the required fluid free board is being maintained. The electronically collected water level measurement data shall be used to confirm changes in pit inflow and outflow during operations based on estimates from truck and/or pipeline delivery or removal activities. Any abnormalities that are noticed during operations will be reported to the operator's field supervisor immediately so that any necessary follow-up can be scheduled.

No portion of any pit that will be used to hold liquids shall be constructed on fill material, unless the pit and fill slope are designed and certified by a professional engineer, subject to review and approval by the director prior to

construction of the pit. The construction and lining of the pit shall be supervised by a professional engineer or their agent. The entire base of the pit must be in cut.

The nearby downgradient hillside below the pit location must be periodically monitored for any day-lighting of fluids throughout pit operations.

The multi-well pit must be fenced and netted. The operator must maintain the fencing and netting until the pit is closed.

Operator shall pressure test pipelines in accordance with Rule 1101.e.(1) prior to putting into initial service any temporary surface pipelines or configuration of the permanent pipeline network.

This multi-well pit will comply with Rule 902. PITS - GENERAL AND SPECIAL RULES. e. Pits used for a period of no more than three (3) years for storage, recycling, reuse, treatment, or disposal of E&P waste or fresh water, as applicable, may be permitted in accordance with Rule 903 to service multiple wells.

Operator has indicated that this facility may be in operation from 3 to 5 years. Should the operation of this facility continue more than three years, a Form 28 shall be submitted and approved prior to the expiration of the Form 2A and Form 15.

Surface water samples (one upgradient and one downgradient from the frac pad/multi-well pit location) from the unnamed intermittent stream located west of the location (if water is present), as well as Beaver Creek, shall be collected prior to pit use and every 12 months (until pit closure) to evaluate potential impacts from pit operations. At a minimum, the surface water samples will be analyze for the following parameters: major cations/anions (chloride, fluoride, sulfate, sodium); total dissolved solids (TDS); and BTEX/DRO.

The operator shall submit, and receive approval of, a reuse and recycling plan per Rule 907.a.(3), prior to any offsite reuse/recycling of pit fluids.

The multi-well pit shall be closed in accordance with Rule 905. Closure of Pits, and Buried or Partially Buried Produced Water Vessels; with an approved Site Investigation and Remediation Workplan, Form 27.

Submit additional disposal facilities (wells, pits, etc.), if necessary (i.e., if original disposal option changes), for pit liquid contents to COGCC via a Form 4 Sundry prior to disposal.

At the time of pit closure, operator must submit disposal information for solids, if necessary, via a Form 4 Sundry Notice to the COGCC Location Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us). The disposal method will need to be approved prior to operator starting pit closure.

Attachment Check List

| Att Doc Num | Name |
|-------------|-------------------------|
| 400389648 | FORM 2A SUBMITTED |
| 400390058 | SURFACE AGRMT/SURETY |
| 400390060 | PROPOSED BMPs |
| 400390061 | 317B NOTIFICATION |
| 400390062 | NRCS MAP UNIT DESC |
| 400390063 | REFERENCE AREA PICTURES |
| 400390064 | SENSITIVE AREA DATA |
| 400390065 | LOCATION PICTURES |
| 400390067 | ACCESS ROAD MAP |
| 400390068 | LOCATION DRAWING |
| 400390069 | HYDROLOGY MAP |
| 400390070 | REFERENCE AREA MAP |
| 400392036 | CONST. LAYOUT DRAWINGS |
| 400392037 | OTHER |

Total Attach: 14 Files

General Comments

| <u>User Group</u> | <u>Comment</u> | <u>Comment Date</u> |
|-------------------|--|-------------------------|
| Permit | No LGD or public comments. Final Review--passed. | 4/22/2013 7:45:03 AM |
| OGLA | Initiated/Completed OGLA Form 2A review on 04-08-13 by Dave Kubeczko; placed fluid containment, spill/release BMPs, double-lined pit, fencing and netting, leak dection, as-builts, flowback to tanks, sediment control access road/pad, tank berming, hillside monitoring, dust control, secondary containment, hydrotest, loading station, pit closure, 3-year max, temp pipeline, pipeline testing, and baseline GW and SW sampling COAs on the Form 2A and Form 15; no CPW, wildlife BMPs acceptable; passed OGLA Form 2A and Form 15 review on 04-12-13 by Dave Kubeczko; fluid containment, spill/release BMPs, double-lined pit, fencing and netting, leak dection, as-builts, flowback to tanks, sediment control access road/pad, tank berming, hillside monitoring, dust control, secondary containment, hydrotest, loading station, pit closure, 3-year max, temp pipeline, pipeline testing, and baseline GW and SW sampling COAs. | 4/8/2013 12:36:46 PM |
| Permit | Corrected qtr/qtr to LOT 1. | 3/27/2013 9:57:21 AM |
| LGD | Passed DB | 3/25/2013 3:34:01 PM |
| Permit | Passed completeness. | 3/19/2013 5:42:38 AM |

Total: 5 comment(s)

BMP

| <u>Type</u> | <u>Comment</u> |
|-------------|---|
| Planning | <p>Planning</p> <ul style="list-style-type: none">• Conduct wildlife surveys to determine presence of game/non-game species/habitat• Identify and Protect "crucial habitats"• Site access roads, pads and facilities in locations that minimize habitat impacts• Identify private and Federal land seclusion areas where drilling will be voluntarily deferred in critical seasonal habitats• Identify and protect migration corridors• Minimize well pad density to the extent possible• Minimize the number, size and distribution of well pads and locate pads along existing roads where possible.• Cluster well pads in the least environmentally sensitive areas.• Plan pipelines routes ahead of time to avoid field fitting and reduce excessive ROW widths and reclamation.• Adequately size infrastructure and facilities to accommodate both current and future gas production. |

| | | |
|----------------------|---|--|
| General Housekeeping | <p>General</p> <ul style="list-style-type: none"> • Prepare plans and studies to support wildlife conservation and protection • Contribute to and participate in wildlife studies and research efforts related to oil and gas activity's relationship to wildlife • Treat/control noxious weeds/plants including Tamarisk • Assist CDOW in obtaining access to private lands for wildlife research and conservation • Focus BMPs on critical wildlife seclusion and "crucial habitats" • Contribute to organizations that acquire/manage habitat • Continue to Support Operation Game Thief • Continue to support CDOW sportsman's programs • Participate in wildlife seminars and conferences (e.g. AFWA) • Focus Ranch and Property Management (Williams' owned/managed properties) on wildlife resources • Identify conservation easement opportunities on Williams-owned/managed properties • Acquire water rights and irrigate key habitat areas • Restrict and/or manage grazing to benefit wildlife • Fence and restrict activities in locations that provide high value habitat • Construct habitat improvement projects as practical • Enforce policies to protect wildlife (e.g., no poaching, no firearms, no dogs on location, no feeding of wildlife, etc.). • Inventory, monitor and remove obsolete, degraded, or hazardous fencing on Williams owned property • Support research to test the effectiveness of specific Best Management Practices | |
| Interim Reclamation | <p>Production/Reclamation</p> <ul style="list-style-type: none"> • Gate access roads where necessary to minimize/control access to "crucial habitats" • Install automated emergency response systems (e.g., high tank alarms, emergency shut- down systems, etc.). • Implement fugitive dust control program • Avoid direct discharge of pipeline hydrostatic test water to any reservoir, lake, wetland, or natural perennial or seasonally flowing stream or river. • Locate above-ground facilities to minimize the visual effect (e.g., low profile equipment, appropriate paint color, vegetation screening in wooded areas, etc.). • Skim and eliminate oil from produced water ponds and fluid pits at a rate sufficient to prevent oiling of birds or other wildlife that could gain access to the pit. • Apply an aggressive, integrated, noxious and invasive weed management plan. Utilize an adaptive management strategy that permits effective responses to monitored findings and reflects local site and geologic conditions • Map the occurrence of existing weed infestations prior to development to effectively monitor and target areas that will likely become issues after development. • Evaluate the utility of soil amendment application or consider importing topsoil to achieve effective reclamation. • Use locally adapted seed whenever available and approved by landowner. • Use appropriately diverse reclamation seed mixes that mirror an appropriate reference area for the site being reclaimed where approved by landowner. • Conduct seeding in a manner that ensures that seedbed preparation and planting techniques are targeted toward the varied needs of grasses, forbs and shrubs (e.g., seed forbs and shrubs separately from grasses, broadcast big sagebrush but drill grasses, etc.) • Emphasize bunchgrass over sod-forming grasses in seed mixes in order to provide more effective wildlife cover and to facilitate forb and shrub establishment. • Seed during appropriate season to increase likelihood of reclamation success • Do not include aggressive, non-native grasses in reclamation seed mixes • Choose reference areas as goals for reclamation that have high wildlife value, with attributes such a diverse and productive understory of vegetation, productive and palatable shrubs, and a high prevalence of native species. • Establish vegetation with total perennial non-invasive plant cover of at least eighty (80) percent of pre-disturbance or reference area levels. • Establish vegetation with plant diversity of non-invasive species which is at least half that of pre-disturbance or reference area levels. Quantify diversity of vegetation using a metric that considers only species with at least 3 percent relative plant cover. • Establish permanent and monumented photo points and vegetation measurement | |

| | |
|--------------------------------|---|
| | <p>plots or transects; monitor at least annually until plant cover, composition, and diversity standards have been met.</p> <ul style="list-style-type: none"> • Observe and maintain a performance standard for reclamation success characterized by the establishment of a self-sustaining, vigorous, diverse, locally appropriate plant community on the site, with a density sufficient to control erosion and non-native plant invasion and diversity sufficient to allow for normal plant community development. • Use early and effective reclamation techniques, including interim reclamation to accelerate return of disturbed areas for use by wildlife • Remove all unnecessary infrastructure during the production phase. • Reclaim reserve pits as quickly as practical after drilling and ensure that pit contents do not contaminate soil. • Remediate hydrocarbon spills on disturbed areas prior to reclamation. • Complete final reclamation activities so that seeding occurs during the first optimal season following plugging and abandonment of oil and gas wells. • Perform interim reclamation to final reclamation species composition and establishment standards. • Perform interim reclamation on all disturbed areas not needed for active support of production operations • Remove and properly dispose of degraded silt fencing and erosion control materials after their utility has expired • Remove and properly dispose of pit contents where contamination of surface water, groundwater, or soil by pit contents cannot be effectively prevented • Apply certified weed free mulch and crimp or tacy to remain in place to reclaim areas for seed preservation and moisture retention • Control weeds in areas surrounding reclamation areas in order to reduce weed competition • Educate employees and contractors about weed issues • Where possible, fence livestock and/or wildlife out of newly reclaimed areas until reclamation standards have been met and plants are capable of sustaining herbivory • Conduct necessary reclamation and invasive plant monitoring. • Census and assess the utilization of the reclaimed areas by the target species • Maintain pre and post development site inspection records and monitor operations for compliance • Utilize GIS technologies to assess the extent of disturbance and document the reclamation progression and the footprint of disturbances • Identify native species for which commercial seed sources are not available. Provide support to contractors for developing cultivation and seed production techniques for needed species • Conduct reclamation field trials to match seed mixes, soil preparation techniques, and planting methods to local conditions. |
| Drilling/Completion Operations | <p>Drilling/Completions</p> <ul style="list-style-type: none"> • Continue application of BMPs to prevent wildlife from entering pits including fencing and netting where appropriate • Limit days/hours operations where practical to minimize disturbance and traffic • Promptly report spills that affect wildlife to the CDOW. • Store and stage emergency spill response equipment at strategic locations so that it is available to expedite effective spill response. • Limit parking to already disturbed areas that have not yet been reclaimed • Screen water suction hoses to exclude fish. • Reduce noise by using effective sound dampening devices or techniques (e.g., hospital-grade mufflers, equipment housing, insulation, installation of sound barriers, earthen berms, vegetative buffers, etc.). |

| | |
|---------------|---|
| Site Specific | <p>Site Specific BMPs:</p> <p>Planning</p> <ul style="list-style-type: none"> • Use existing roads where possible • Combine and share roads to minimize habitat fragmentation • Maximize use of remote completion/frac operations to minimize traffic <p>Drilling/Completions</p> <ul style="list-style-type: none"> • Use centralized hydraulic fracturing operations. • Install and maintain adequate measures to exclude all types of wildlife (e.g., big game, birds, and small rodents) from all fluid pits (e.g., fencing, netting, and other appropriate exclusion measures). <p>Production/Reclamation</p> <ul style="list-style-type: none"> • Use only certified weed-free native seed in seed mixes, except for non-native plants that benefit wildlife <p>Because this location is in a Sensitive Area (See attached SAD), WPX will employ the following BMPs to support protection of surface and ground water:</p> <ul style="list-style-type: none"> • WPX will ensure 110 percent secondary containment for any volume of fluids contained at well site during drilling and completion operations. • WPX will implement best management practices to contain any unintentional release of fluids. • Either a lined drilling pit or closed loop system will be implemented. |
| Construction | <p>Construction</p> <ul style="list-style-type: none"> • Schedule necessary construction in stream courses to avoid critical spawning times. • Surface roads to ensure that the anticipated volume of traffic and the weight and speed of vehicles using the road do not cause environmental damage, including generation of fugitive dust and contribution of sediment to downstream areas. • Protect culvert inlets from erosion and sedimentation and install energy dissipation structures at outfalls • Use the minimum right-of-way width and vegetation mats where pipelines cross riparian areas and streams wherever possible • Construct fluid pit fences and nets that are capable of withstanding animal pressure and environmental conditions and that are appropriately sized for the wildlife encountered. • Install impermeable barriers beneath fluid pits to protect groundwater, riparian areas and wetlands. • Salvage topsoil from all road construction and other rights-of-way and re-apply during interim and final reclamation. • Strip and segregate topsoil prior to construction. Appropriately configure topsoil piles and immediately seed to control erosion, prevent weed establishment and maintain soil microbial activity |

Total: 6 comment(s)