

Kubeczko, Dave

From: Kubeczko, Dave
Sent: Thursday, December 30, 2010 9:57 AM
To: Kubeczko, Dave
Subject: EnCana Oil & Gas (USA), North Parachute EMF H17 595 Pad, SENE Sec 17 T5S R95W, Garfield County, Form 2A (#400103653) Review

Scan No 2033551 CORRESPONDENCE 2A#400103653

From: Mitchell, Heather R. [mailto:Heather.Mitchell@encana.com]
Sent: Thursday, December 30, 2010 8:28 AM
To: Kaal, Kimberly; Warren, Michael; Kubeczko, Dave
Cc: Byrnes, Nicole M.
Subject: RE: Encana East Middle Fork Permit Information

Kim:

Please find Encana's Final East Middle Fork BMP and COA document. Our issue with the 110% containment has been clarified by Dave Kubeczko and Encana is able to comply with the COAs. Also, minor changes from Exxon have been updated in the final document.

If you have any questions or concerns, please feel free to contact me.

Thank you,

Heather Mitchell
Regulatory Analyst
Encana Oil & Gas (USA) Inc.
720-876-3070 Office
720-375-4879 Cell
720-876-4070 Fax
heather.mitchell@encana.com

Best Management Practices for Encana's East Middle Fork Operations

A. Studies, Best Management Practices, and Mitigation for Aquatic Resources

1. Encana Oil & Gas (USA) Inc. (Encana) will conduct the following studies and sampling efforts beginning in 2011 and continuing a minimum of five years:
 - a. Biannual macro-invertebrate sampling.
 - b. Water sampling to monitor for changes in water quality. Prior to drilling, operator will collect baseline surface water data from immediately down gradient of the oil and gas location. Sampling will occur quarterly at low elevations and biannually at higher elevations. Follow-up surface water data will be collected by sampling the same location beginning in the 2011 calendar year, and continue for 5 years.

2. Use two or more storm water best management practices to control sediment runoff and control or contain any potential spills, wherever surface disturbance must occur within a riparian habitat, as defined by the presence of riparian associated vegetation.
3. Maintain spill response kits at strategic locations adjacent to riparian areas.
4. Utilize existing head gates and analyze the strategic use of additional head gates on road culverts as a tertiary containment (these are not the culverts in the waterway but draining to the waterway during storm events).
5. Encana will coordinate access in a safe and timely manner when ExxonMobil permits Colorado Division of Wildlife (CDOW) personnel onto the property for fish population sampling.
6. Records relating to water sampling and wildlife surveys will be made available by Encana for review by CDOW during an annual meeting with CDOW. However, Encana will not relinquish to CDOW or Colorado Oil & Gas Commission (COGCC) any data or report related to the East Middle Fork (EMF) Project that is not public information.
7. Mitigation Measures
 - **\$10,000 for habitat improvement project on Trapper Creek**
 - **\$250,000 in escrow to cover any potential damages.** Utilization of the escrow account will be determined by the monitoring outlined in the Watershed Management Plan
 - **Watershed Management Plan for EMF that will include:**
 - macro-invertebrate sampling*
 - water quality sampling*
 - stormwater management plan*
 - weed control/reclamation guidance and documentation*

The details of the watershed management plan will be finalized by February 15, 2011.

B. Species-specific best management practices for raptors

1. Conduct annual surveys for occupied nests and unoccupied nests beginning 2010 and continuing through the period of active development.
 - a. Apply disturbance buffers described in the document Recommended Buffer Zones and Seasonal Restrictions (CDOW) prior to commencing new construction and drilling or completion operations near occupied nests.
 - b. Schedule the commencement of disturbance for the time of year outside of average breeding seasons for the species of concern, if the duration of operations on a location prevents seasonal avoidance (e.g., during drilling and completion operations that exceed 12 months per location).

Conditions of Approval for Encana's East Middle Fork Operations

1. Water sampling to monitor for changes in water quality. Prior to drilling, operator will collect baseline surface water data from immediately down gradient of the oil and gas location. Sampling will occur quarterly at low elevations and biannually at higher elevations. Follow-up surface water data will be collected by sampling the same location beginning in the 2011 calendar year, and to continue for 5 years.
2. Use solar panels as an alternative energy source for on-location production equipment, where appropriate, economically and technically feasible.
3. Use multiple gathering lines placed in a single trench to minimize disturbance and construction, where appropriate, economically and technically feasible.
4. Prohibit EnCana employees and contractors from carrying projectile weapons on ExxonMobil's property.
5. Prohibit pets on ExxonMobil's property.
6. Strategically apply fugitive dust control measures, including enforcing established speed limits on ExxonMobil's private roads, to reduce fugitive dust and coating of vegetation and deposition in water sources.
7. Based on discussions during the EnCana/ExxonMobil/CDOW/COGCC onsite (November 17, 2010), it appears that the plans for the access road and well pads are likely to be an iterative process and that the exact layouts have yet to be finalized. Therefore, the operator must submit professional engineer (PE) approved/stamped updated/revised Construction Layout Drawings for the well pad and access road (plan view and cross-sections) showing stormwater and secondary containment BMPs via a Form 4 Sundry Notice to Dave

Kubeczko. These plans must be approved by COGCC prior to operator starting construction of either the access road and/or well pad. An updated Location Drawing must also be submitted after approval of Construction Drawings by COGCC.

8. Notify COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us; phone 970-309-2514) 48 hours prior to start of construction.
9. The completion/flowback fluids pit must be double-lined. The pit will also require a leak detection system (Rule 904.e).
10. The completion/flowback fluids pit must be fenced. If the completion/flowback pit is not closed (either drained and/or backfilled) immediately after well completion, then operator must appropriately net the completion/flowback pit, in a timely manner, and maintain the fencing and netting until the pit is closed in accordance with Rule 905. Closure of Pits, and Buried or Partially Buried Produced Water Vessels.
11. Flowback and stimulation fluids must be sent to tanks to allow the sand to settle out before the fluids can be placed into the pit located on the EMF F17 595 Pad. The flowback and stimulation fluid tanks must be placed on the well pad 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 (per Rule 604.a.(4)).
12. Encana will submit a secondary and tertiary containment plan via sundry notice Form 4 to Dave Kubeczko. This plan must be approved prior to fracing flowback operations.
13. Interim reclamation shall begin during the first appropriate planting season following completion/testing of the last well; unless a determination is made that subsequent wells will be permitted and drilled. Reclamation practices will be subject to approval by the surface owner.
14. Final reclamation shall begin during the first appropriate planting season following plugging, using practices approved by surface owner.
15. Reclamation reference areas will be based on the North Parachute Ranch Vegetation Reference Study (October 2009) as approved by surface owner.
16. Location is in a sensitive area because of its proximity to surface water; therefore, operator must ensure 110 percent secondary containment for any volume of fluids contained at well site during drilling and completion operations; 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.
17. Location is in a sensitive area because of the potential for shallow groundwater; therefore a closed loop system (which EnCana has already indicated on the Form 2A) must be implemented.
18. The access road will be constructed to prevent sediment migration from the access road to nearby surface water or any drainages leading to other nearby surface waters.
19. Well pad and access road to the well pad will be gravel surfaced. Operator must install adequately sized culverts that cross any drainages leading to the RSO stream. Operator must ensure 110 percent secondary containment for any potential volume of fluids that may be released from the pad/access road in the vicinity of all stream, intermittent stream, ditch, and drainage crossings within the mapped RSO boundaries.
20. The location is in an area of high runoff/run-on potential from the proposed pad area to the north; therefore the pad shall be constructed as quickly as possible and appropriate BMPs need to be in place during and after well pad construction, as well as during all drilling and well completion operations. Standard stormwater BMPs must be implemented at this location to insure compliance with CDPHE and COGCC requirements and to prevent any stormwater run-on and /or stormwater runoff. Slopes with potential for runoff should be stabilized immediately following pad construction.
21. Because of proximity of the well pad to both nearby surface water (stream mapped as a cutthroat trout restricted surface occupancy (RSO) approximately 100 feet to the south) and steep slopes to the north, operator will grade the well pad surface to slope away from the stream towards a central collection point on the well pad.
22. 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.
23. Encana will implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface pipelines.
24. 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 meet the applicable standards of Table 910-1.
25. The nearby downgradient hillside must be monitored for any day-lighting of drilling fluids throughout the drilling of the surface casing interval.
26. A spill response trailer will be on location 24 hours a day, 7 days a week during construction, drilling, and completion operations to facilitate a timely response to any spills that may occur.

27. Appropriate heavy equipment (e.g., a backhoe) will be staged at the location during all drilling and completion operations so that any emergency diversions or pits to contain spills can be built immediately upon discovery.
28. An emergency spill response program that includes employee training, safety and maintenance provisions and current contact information for Exxon, Encana, COGCC, and CDOW personnel will be implemented during construction, drilling, and completion activities.
29. In the event of a spill or release, the operator shall immediately implement the emergency response procedures in the above described emergency response program.
30. All personnel working at the location during all drilling and completion operations will receive training on spill response and reporting.
31. Documentation of this training will be maintained in Encana's office.
32. At a minimum, weekly spill prevention meetings will be held identifying staff responsibilities in order to provide a quick and effective response to a spill.
33. Appropriate documentation will be maintained in Encana's office.
34. Encana will conduct daily inspections of equipment for leaks and equipment problems with appropriate documentation retained in Encana's office. All equipment deficiencies shall be corrected.
35. Daily monitoring should end approximately 30 days after well completion and/or after production has been stabilized; however, timely inspections should continue during the production phase.
36. Encana will use adequately sized containment devices for all chemicals and/or hazardous materials stored or used on location.
37. Encana will provide an increased testing frequency (at least every thirty (30) days) of blowout prevention equipment (BOPE) during drilling operations.
38. Encana will use a rig floor safety valve with connections suitable for use with each size and tool joint or coupling being used on the job.

From: Kubeczko, Dave

Sent: Monday, December 20, 2010 5:24 PM

To: Carter, Julia M

Subject: EnCana Oil & Gas (USA), North Parachute EMF H17 595 Pad, SENE Sec 17 T5S R95W, Garfield County, Form 2A (#400103653) Review

Julia,

I have been reviewing the North Parachute EMF H17 595 Pad **Form 2A** (#400103653). COGCC would like to attach the following conditions of approval (COAs) based on the information and the data EnCana has submitted on or attached to the Form 2A, as well as information from the onsite consultations (EnCana, ExxonMobil, CDOW, and COGCC) conducted at the three well pads on Wednesday, November 17, 2010, prior to passing the Oil and Gas Location Assessment (OGLA) review.

1. **Onsite Consultation:** Based on discussions during the EnCana/ExxonMobil/CDOW/COGCC onsite, it appears that the plans for the access road and well pads is more likely to be an iterative process and that the exact layouts are not finalized. Therefore, the following conditions of approval (COAs) will apply:
 - COA 90** - The operator must submit professional engineer (PE) approved/stamped updated/revised Construction Layout Drawings for the well pad and access road (plan view and cross-sections) showing stormwater and secondary containment BMPs via a Form 4 Sundry Notice to Dave Kubeczko. These plans will need to be approved prior to operator starting construction of either the access road and/or well pad. An updated Location Drawing must also be submitted after approval of Construction Drawings by COGCC.
 - COA 91** - Notify COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us; phone 970-309-2514) 48 hours prior to start of construction.
2. **Water Resources (Section 14):** Form 2A indicates the distance to the nearest surface water is 31 feet. COGCC guidelines require designating all locations within close proximity to surface water a **sensitive area**. The following conditions of approval (COAs) will apply:
 - COA 4** - Location is in a sensitive area because of its proximity to surface water; therefore, operator must ensure 110 percent secondary containment for any volume of fluids contained at well site during drilling and completion operations; 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 well pad location will be stabilized, inspected at regular intervals (at least every 14 days), and maintained in good condition.

COA 5 - Operator must implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface pipelines.

3. **Water Resources (Section 14):** Form 2A indicates the depth to groundwater to be 120 feet bgs for a well located 4318 feet from the proposed well pad. Based on the well pad's proximity to East Middle Fork and the surface materials (alluvium), the depth to groundwater indicated appears to be the total depth of the well based on a review of this well record, as well as the records for other nearby wells. The depth to groundwater is probably considerably shallower (in the range of 30 to 40 feet bgs). COGCC guidelines require designating all locations with the potential for shallow groundwater a **sensitive area**. The following conditions of approval (COA) will apply:

COA 7 - Location is in a sensitive area because of the potential for shallow groundwater; therefore either a lined drilling pit or closed loop system (which EnCana has already indicated on the Form 2A) must be implemented.

COA 8 - Location is in a sensitive area because of the potential for shallow groundwater; therefore production pits must be lined.

4. **General:** The following conditions of approval (COAs) will also apply:

Construction:

COA 91 - Operator will collect baseline and follow-up surface water samples as follows: Prior to drilling and when sufficient water is present in the stream, operator will collect baseline surface water data from immediately down gradient of the oil and gas location. Water sampling to monitor for changes in water quality. Prior to drilling, operator will collect baseline surface water data from immediately down gradient of the oil and gas location. Sampling will occur quarterly at low elevations and biannually at higher elevations. Follow-up surface water data will be collected by sampling the same location beginning in the 2011 calendar year, and to continue for 5 years. The samples shall be analyzed (at a minimum) for the following parameters: pH; alkalinity; specific conductance; major cations/anions (chloride, fluoride, sulfate, sodium); total dissolved solids (TDS); BTEX/DRO; TPH; PAH's (including benzo[a]pyrene); and metals (arsenic, barium, calcium, chromium, iron, magnesium, selenium).

COA 39 - 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.

COA 44 - The access road will be constructed to prevent sediment migration from the access road to nearby surface water or any drainages leading to other nearby surface waters. Strategically apply fugitive dust control measures, including enforcing established speed limits on EnCana private roads, to reduce fugitive dust and coating of vegetation and deposition in water sources.

COA 45 - Well pad and access road to the well pad will be gravel surfaced. Operator must install adequately sized culverts that cross any drainages leading to the RSO stream. Operator must ensure 110 percent secondary containment for any potential volume of fluids that may be released from the pad/access road in the vicinity of all stream, intermittent stream, ditch, and drainage crossings within the mapped RSO boundaries.

COA 46 - The location is in an area of high runoff/run-on potential from the proposed pad area to the north; therefore the pad shall be constructed as quickly as possible and appropriate BMPs need to be in place both during and after well pad construction, as well as during all drilling and well completion operations. Standard stormwater BMPs must be implemented at this location to insure compliance with CDPHE and COGCC requirements and to prevent any stormwater run-on and /or stormwater runoff. Slopes with potential for runoff should be stabilized immediately following pad construction.

COA 61 - Because of proximity of the well pad to both nearby surface water (stream mapped as a cutthroat trout restricted surface occupancy (RSO) approximately 100 feet to the south) and steep slopes to the north, operator will grade the well pad surface to slope away from the stream towards a central collection point on the well pad.

Drilling:

COA 38 - 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 meet the applicable standards of Table 910-1.

COA 40 - The nearby downgradient hillside must be monitored for any day-lighting of drilling fluids throughout the drilling of the surface casing interval.

COA 62 - A spill response trailer will be on location 24 hours a day, 7 days a week during construction, drilling, and completion operations to facilitate a timely response to any spills that may occur.

COA 63 - Appropriate heavy equipment (e.g., a backhoe) will be staged at the location during all drilling and completion operations so that any emergency diversions or pits to contain spills can be built immediately upon discovery.

COA 72 - An emergency spill response program that includes employee training, safety and maintenance provisions and current contact information for EnCana, ExxonMobil, COGCC, and CDOW personnel will be implemented during construction, drilling, and completion activities.

COA 73a - In the event of a spill or release, the operator shall immediately implement the emergency response procedures in the above described emergency response program.

COA 73b - All personnel working at the location during all drilling and completion operations will receive training on spill response and reporting.

COA 73c - Documentation of this training will be maintained in Encana's office.

COA 73d - At a minimum, weekly spill prevention meetings will be held identifying staff responsibilities in order to provide a quick and effective response to a spill.

COA 73e - Appropriate documentation will be maintained in Encana's office.

COA 73f - Encana will conduct daily inspections of equipment for leaks and equipment problems with appropriate documentation retained in Encana's office. All equipment deficiencies shall be corrected.

COA 73g - Daily monitoring should end approximately 30 days after well completion and/or after production has been stabilized; however, timely inspections should continue during the production phase.

COA 74 - Operator will conduct daily inspections of equipment for leaks and equipment problems with appropriate documentation retained in the operator's office. All equipment deficiencies shall be corrected. Daily monitoring should end approximately 30 days after well completion and/or after production has been stabilized; however, timely inspections should continue during the production phase.

COA 75 - Operator will use adequately sized containment devices for all chemicals and/or hazardous materials stored or used on location.

COA 76 - Operator will provide an increased testing frequency (at least every thirty (14) days) of blowout prevention equipment (BOPE) during drilling operations.

Completion:

COA 9 - Encana will implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface pipelines.

COA 47 - The completion/flowback fluids pit must be double-lined. The pit will also require a leak detection system (Rule 904.e).

COA 48 - The completion/flowback fluids pit must be fenced. If the completion/flowback pit is not closed (either drained and/or backfilled) immediately after well completion, then operator must appropriately net the completion/flowback pit, in a timely manner, and maintain the fencing and netting until the pit is closed in accordance with Rule 905. Closure of Pits, and Buried or Partially Buried Produced Water Vessels.

COA 25 - Flowback and stimulation fluids must be sent to tanks to allow the sand to settle out before the fluids can be placed into the pit located on the EMF F17 595 Pad. The flowback and stimulation fluid tanks must be placed on the well pad 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 (per Rule 604.a.(4)).

COA 26 - Encana will submit a secondary and tertiary containment plan to be implemented during fracing operations via sundry notice Form 4 to Dave Kubeczko for review. Notify COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us; phone 970-309-2514) 48 hours prior to start of fracing operations.

Production:

COA 84 - Use solar panels as an alternative energy source for on-location production equipment, where appropriate, economically and technically feasible.

COA 85 - Use multiple gathering lines placed in a single trench to minimize disturbance and construction, where appropriate, economically and technically feasible.

COA 86a - Interim reclamation shall begin during the first appropriate planting season following completion/testing of the last well, unless a determination is made that subsequent wells will be permitted and drilled. Reclamation practices will be approved by the surface owner.

COA 86b - Final reclamation shall begin during the first appropriate planting season following plugging, using practices approved by surface owner.

COA 86c - Reclamation reference areas will be based on the North Parachute Ranch Vegetation Reference Study (October 2009) as approved by surface owner.

5. **CDOW Consultation:** Based on discussions between EnCana, ExxonMobil, and CDOW, a number of Best Management Practice (BMPs) and mitigation measures have been developed for the three well pads proposed at the East Middle Fork Project Area. Therefore, the following BMPs and mitigations measures will apply:

A. EnCana will conduct the following studies and sampling efforts beginning in 2011 and continuing a minimum of five years:

- i. Biannual macro-invertebrate sampling.
- ii. Water sampling to monitor for changes in water quality. Prior to drilling, operator will collect baseline surface water data from immediately down gradient of the oil and gas location. Sampling will occur quarterly at low elevations and biannually at higher elevations. Follow-up surface water data will be collected by sampling the same location beginning in the 2011 calendar year, and continue for 5 years.
- iii. Use two or more storm water best management practices to control sediment runoff and control or contain any potential spills, wherever surface disturbance must occur within a riparian habitat, as defined by the presence of riparian associated vegetation.
- iv. Maintain spill response kits at strategic locations adjacent to riparian areas.
- v. Utilize existing head gates and analyze the strategic use of additional head gates on road culverts as a tertiary containment (these are not the culverts in the waterway but draining to the waterway during
- vi. Encana will coordinate access in a safe and timely manner when Exxon permits DOW personnel onto the property for fish population sampling.
- vii. Records relating to water sampling and wildlife surveys will be made available by Encana for review by CDOW during an annual meeting with CDOW. However, Encana will not relinquish to CDOW or COGCC any data or report related to the East Middle Fork Project that is not public information.

B. EnCana will implement the following species-specific best management practices (BMPs) for raptors:

- i. Conduct annual surveys for occupied nests and unoccupied nests beginning 2010 and continuing through the period of active development.
- ii. Apply disturbance buffers described in the document Recommended Buffer Zones and Seasonal Restrictions (CDOW) prior to commencing new construction and drilling or completion operations near occupied nests.
- iii. Schedule the commencement of disturbance for the time of year outside of average breeding seasons for the species of concern, if the duration of operations on a location prevents seasonal avoidance (e.g., during drilling and completion operations that exceed 12 months per location)..

C. EnCana will implement the following general best management practices (BMPs) for the site:

- i. Prohibit EnCana employees and contractors from carrying projectile weapons on Exxon's property.
- ii. Prohibit pets on Exxon's property.

D. EnCana has proposed the following mitigations measure for the east Middle Fork project area:

- i. \$10,000 for habitat improvement project on Trapper Creek.
- ii. \$250,000 in escrow to cover any potential damages. Utilization of the escrow account will be determined by the monitoring outlined in the Watershed Management Plan.
- iii. Watershed Management Plan (details of the watershed management plan will be finalized by February 15, 2011) for EMF that will include:
 - macro-invertebrate sampling*
 - water quality sampling*
 - stormwater management plan*

COGCC would appreciate your concurrence with attaching these COAs (items 1, 2, 3, and 4) and BMPs (item 5) to the Form 2A permit prior to passing the OGLA review. If you have any questions, please do not hesitate to call me at (970) 309-2514 (cell), or email. Thanks.

Dave

David A. Kubeczko, PG
Oil and Gas Location Assessment Specialist

Colorado Oil & Gas Conservation Commission
Northwest Area Office
707 Wapiti Court, Suite 204
Rifle, CO 81650
Phone: (970) 625-2497x5
FAX: (970) 625-5682
Cell: (970) 309-2514
dave.kubeczko@state.co.us



 *Please consider the environment before printing this e-mail*