

**Objective Criteria Review Memo - SandRidge Exploration & Production LLC (SandRidge), Peterson Ridge Unit (PRU) High Point 0880 S28 Pad; Form 2A #402201622; and 4 associated form 2s.**

This summary explains how COGCC and CPW staff conducted its technical review of the SandRidge PRU High Point 0880 S28 Pad; Form 2A #402201622 within the context of SB 19-181 and for the required Objective Criteria. The proposed 5.4-acre PRU High Point 0880 S28 Federal Surface and Federal and Fee Minerals well pad is planned to have four (4) horizontal oil wells, four (4) pump jacks, four (4) allocation vessel separators, four (4) power fluid vessels, four (4) triplex pumps, one (1) meter skid, one (1) vertical separator, one (1) oil/condensate storage tank (maintenance and workover use only), three (3) VOC combustors, one (1) emergency flare, and one (1) 8-inch steel subgrade pipeline used to send produced fluids to the Marmot 0880 S19 Centralized Tank Battery (CTB) Facility (Location ID #458558) for further separation and storage. The offsite pipeline will follow the access road right-of-way. SandRidge plans to begin construction on this well pad and pipelines on May 1, 2021. This Form 2A permit application met the following Objective Criteria -

1. *(Criteria 5.c) The proposed oil and gas location is in a sensitive area for surface water resources.*
2. *(Criteria 6) The proposed oil and gas location falls within CPW mapped 'sensitive wildlife habitat' (SWH) areas for mule deer critical winter range and greater sage-grouse production.*
3. *(Criteria 12) The proposed access road (the road to be constructed from Colorado State Highway 14) falls within CPW mapped 'sensitive wildlife habitat' (SWH) areas for mule deer critical winter range and greater sage-grouse production.*

COGCC staff met with the Director to discuss whether the Objective Criteria were sufficiently addressed and whether the Form 2A could be approved with the proposed Best Management Practices (BMPs) and applied Conditions of Approval (COAs). The following sections provide details regarding the evaluation of each criterion.

**Criteria 5.c:** Oil and Gas Locations within: c) a Sensitive Area for water resources.

**Site Specific Description of Applicability of Criteria 5.c:** Based on the field onsites, technical review, and desktop evaluation, staff determined that this proposed oil and gas location is in a sensitive area for water resources due to its proximity to two (2) unnamed, unmapped, surface water features shown on the USGS topographic map and aerial photo maps. These dry washes are located approximately 260 feet northwest and approximately 130 feet to the southeast of the edge of disturbance at this location. They are ephemeral drainages in low areas where surface precipitation flows, and are not sourced from a spring or creek.

**Site Specific Measures to Address Criteria 5.c:** COGCC staff's review of this proposed oil and gas location indicates this well pad will have four (4) horizontal oil wells and associated production- and transfer-related equipment on location and both onsite and offsite pipelines. There is no onsite product fluid storage planned for this location as all oil/condensate and produced water will be sent via the offsite pipeline to the Marmot CTB Facility. Construction of this location is planned for May to June 2021. As the location is currently designed, the direction of a potential release is limited to the east-southeast portion of the pad. If a potential release were to migrate off location, flow would be to the east-southeast towards and into the unnamed, unmapped ephemeral

drainage. During construction, stormwater BMPs will be implemented to control run-on and run-off, prevent offsite transport of sediments, and minimize site degradation (particularly along the fill slope portion to the east and south towards the ephemeral drainage).

Stormwater BMP's will include a minimum 1.5-foot compacted earthen perimeter berm on all fill slope portions around the working pad surface (southeast and southwest sides). The earthen berm will be seeded on the outside slopes. Placement of waddles and silt fencing outside of the perimeter berm and the topsoil and excess soil stockpiles along the southern edge of the well pad will be used to prevent erosion and non-source pollution. Site degradation control measures will also include grading, slope stabilization (seeding, mulching, surface roughening of the topsoil and excess soil stockpiles), and the use of gravel and roadbase materials for surfacing. The access road will have waddles and rocked check dams in the borrow ditches. The location is subject to State oversight from the COGCC and Federal oversight from the BLM.

Other measures to protect water resources will include: lined secondary containment for the oil/condensate storage tank; built-in containment for the allocation vessels, triplex pumps, and power fluid vessels; cathodic protection on buried steel lines to mitigate corrosion; automatic shutdown pressure devices installed on tanks and process vessels with remote monitoring capabilities; and remote shut-in capabilities for the wells and the oil/condensate storage tank located on this pad. The operator will use a portable rig substructure liner during well drilling and completion activities.

**Summary:** During the technical review process for the Form 2A, COGCC staff reviewed information regarding the operator's planned activities; the planned stormwater and erosion control measures consisting of berms, waddles, check dams, and silt fencing; the absence of any fluid storage tanks (except for one oil/condensate tank for well maintenance and workover operations); and the BMPs concerning construction, drilling, and completion operations. Based on this information, it is not anticipated that the closest downgradient intermittent drainage (located 130 feet from the southeastern edge of the proposed disturbance area) could be impacted by a potential release.

**Criteria 6:** Oil and Gas Locations within a Colorado Parks and Wildlife ("CPW") mapped Restricted Surface Occupancy Area ("RSO") or Sensitive Wildlife Habitat ("SWH"), or locations receiving site- or species-specific CPW comments.

**Criteria 12:** Oil and Gas Locations with an access road (the road constructed from the public road to the Oil and Gas Location) within a RSO, SWH, 317B buffer zone, or within 200' feet of a Building Unit on lands not subject to a Surface Use Agreement.

**Site Specific Description of Applicability of Criteria 6 and 12:** Based on the field onsite, technical review, and desktop evaluation; staff determined that this proposed oil and gas location and access road falls within CPW mapped 'sensitive wildlife habitat' (SWH) areas for mule deer critical winter range and greater sage-grouse production. The closest CPW-mapped leks are approximately 3.8 miles to the west, 1.9 miles to the north, 2.8 miles to the northeast, and 1.3 miles to the southeast.

**Site Specific Measures to Address Criteria 6 and 12:** CPW, BLM, and COGCC staff conducted a pre-consultation review of this proposed well pad on October 26, 2017. This pad is in an area with relatively low density of development and disturbance, including two well pads 1.1 and 1.3 miles to the southwest, one well pad 0.7 miles to the

west, and a centralized tank battery facility 1.5 miles to the west. CPW indicated the use of the nearby CTB facility will reduce truck traffic and consolidates disturbance within the already disturbed areas. Several wildlife BMPs for the protection of greater sage-grouse (production and habitat) and big game (habitat) were discussed and tentatively agreed to by SandRidge. On October 23, 2019, COGCC, CPW, BLM, SandRidge, and consultants onsite this location a second time. Wildlife BMPs were again discussed and agreed to by the operator at that time. These BMPs were placed in the 'Wildlife BMP' section of the Form 2A and included:

- greater sage-grouse timing limitations for drilling and completions (outside of March 1 to June 30);
- big game (deer and elk) timing limitations for drilling and completions (outside of December 1 to April 15);
- restricted visitation during greater sage-grouse production (10:00 am to 4:00 pm between March 1 to May 15);
- maintain noise levels below 75 dBA at the edge of the well pad;
- use of hospital grade mufflers to reduce noise and vibrations;
- use of combustion chambers or enclosed flaring devices to eliminate open flares;
- implement avian perch deterrents or design permanent facilities in a manner that does not provide nesting substrates for raptors, crows, or ravens;
- establish guidelines to minimize wildlife mortality from vehicle collisions and enforce 25 mph speed limits on access roads;
- fencing to prevent/exclude wildlife from facilities and infrastructure;
- preclude the use of aggressive non-native grasses in greater sage-grouse habitat and conduct reclamation to BLM standards within 12 months of well completions; and
- install and utilize bear-proof dumpsters and trash receptacles.

COGCC contacted SandRidge to determine the timeframe and duration of the planned activities (access road and well pad construction, pipeline installation, well drilling, and well completion). The activities will start in May 2021, with access road, well pad construction, and pipeline installation taking two months to complete (May to June 2021). Drilling will commence in July 2021, taking two to three months (tentatively scheduled for July to September 2021), and completions taking another two to three months (tentatively scheduled for October to December 2021); for a total estimated duration of eight (8) months on location. Interim reclamation will start after the wells have been placed into production (January 2022); scheduled to begin during the 2022 growing season (May to August 2022). SandRidge received their approved Federal APDs in September 2020.

CPW and SandRidge have signed a Wildlife Mitigation Plan (WMP) that has an analysis component that is used in determining the need for (and the amount of) compensatory mitigation to offset residual impacts within the currently defined development area (Federal Units). The mitigation calculations in the WMP are based on the habitat quantification tool from the Colorado Habitat Exchange and is scientifically defensible. SandRidge is providing general mitigation measures in the area, and CPW indicated that additional mitigation will be calculated for this proposed location.

**Summary:** During the technical review process for this Form 2A, COGCC staff requested additional information and clarification regarding the applicant's wildlife BMPs, the Wildlife Mitigation Plan, and planned timeframe for operations. Since this location is

in an area of relatively low density development; the operator has provided numerous wildlife BMPs including timing limitations for greater sage-grouse and big game, restricted visitation during greater sage-grouse production, use of an existing offsite CTB facility for product separation and storage; and both current mitigations identified in the WMP along with additional compensatory mitigation to be determined by CPW and BLM; the planned activities would have minimal adverse impacts to wildlife or habitats within this area wildlife.

**Director Determination:** Staff met with the Director to discuss Objective Criteria that are met by this Oil and Gas Location.

Based on the additional analysis from the Objective Criteria, the Director has determined that these permit applications meet the standard for protection of public health, safety, welfare, the environment and wildlife resources set by SB 19-181.