

Objective Criteria Review Summary - Petroleum Resource Management LLC (PRM), WPU-36-1V-H2 Well, Form 4 #402151270; Duncan Ranch 11-89-36 #3-4 Well Pad, Form 4 #402181427, Location ID #436485.

This summary explains how COGCC staff conducted its technical review of the PRM WPU 36-1V-H2 Well, Form 4 #402151270 and Duncan Ranch 11-89-36 #3-4 Pad (Location ID #436485), Form 4 #402181427 within the context of SB 19-181 and for the required Objective Criteria. This Form 4 Sundry Notice met the following Objective Criteria -

1. *(Criteria #14) The existing oil and gas location (where the requested flaring of the wildcat well is proposed) lies within 1,500 feet of a single building unit located approximately 1130 feet east-southeast of the oil and gas location's edge of disturbance.*

COGCC staff met with the Director to discuss whether the Objective Criteria was sufficiently addressed and whether the Form 4 could be approved with the proposed Best Management Practices (BMPs) and applied Conditions of Approval (COAs). The following section provides details regarding the evaluation of this criteria.

Criteria 14: A Request to Vent or Flare (Form 4) from a location within 1,500' of a Building Unit or High Occupancy Building Unit or within the Denver Metro/North Front Range 8-Hour Ozone Nonattainment Area.

Site Specific Description of Applicability of Criteria 1: Based on the technical review and desktop evaluation, staff identified one building unit located approximately 1130 feet to the east-southeast of the edge of disturbance of the existing oil and gas location (1390 feet east-southeast of the well and 1320 feet east-southeast of the natural gas flaring equipment [enclosed VOC combustor]). The building unit is owned by the surface owner, who is the mineral owner, and has signed a surface use agreement with the operator. The surface/building unit owner has been made aware of the potential impacts resulting from the proximity to the flaring operations and has no concerns about this location. This ranch house is occupied less than half the year (generally June to September). There are no other building units or high occupancy building units within 1,500 feet of the existing location. The next closest building units are approximately 6400 feet to the southeast and 9300 feet to the north.

Site Specific Measures to Address Criteria 1: The PRM Duncan Ranch 11-89-36 #3-4 Pad is an existing location built in August 2015 under the 2014 Form 2A #400443835 and a 2015 Form 4 #400844896 (API #05-081-07799, Facility ID #436484) to drill one wildcat exploratory well. There have been four (4) previously conducted production tests at this location between 2016 and 2019. These tests were conducted under CDPHE approved Air Pollutants Emission Notice (APEN) permits and approved COGCC Form 4 Sundry Notices. The drilling, completion, and testing summaries are listed below:

- The initial well (WPU-36-1V), permitted as a vertical borehole, was drilled from September to November 2015, completed in January 2016, and production tested for 60 days from July to September 2016 under an approved (5-25-16) Form 4 #401039188 and an approved CDPHE Air Pollutant Emissions Notice (APEN) permit for restricted flaring. This well was produced again for approximately 20 days between June and August 2017.

- An initial horizontal sidetrack, permitted as WPU-36-1V-H1, was drilled from August to September 2017, completed in October 2017, and production tested for 50 days from November to December 2017 under an approved (7-12-17) Form 4 #401328324 and an approved APEN permit for restricted flaring.
- A second production test for 90 days was conducted for the WPU-36-1V-H1 well from June to September 2018 under an approved (5-2-18) Form 4 #401626240 and an approved APEN permit for restricted flaring. This sidetrack was abandoned after the production test in September 2018.
- A second horizontal sidetrack, permitted as WPU-36-1V-H2, was drilled from September to November 2018, completed in December 2018, and production tested for 83 days from December 2018 to February 2019 under an approved (12-5-18) Form 4 #401855197 and an approved APEN permit for restricted flaring.

PRM submitted a Form 4 #402151270 on August 22, 2109 requesting to conduct a 12-month production test and to flare gas produced from the WPU-36-1V-H2 well. The long term test is required (1) to determine the ability of the well to sustain production for the long term, (2) to provide information necessary to verify the resource potential, (3) to properly test this bench of the Niobrara, and (4) to develop information to properly design the equipment and pipeline necessary to take away the oil and gas production. The test is proposed to start the first week of October 2019.

COGCC Engineering has placed several COAs on the flaring Form 4, including: adherence to Rule 912; no unnecessary or excessive venting or flaring; prior notification to the local emergency dispatch or the LGD of any flaring or venting event; submit monthly Form 7 production for all fluids and gas (flared, vented or used); operator is required to obtain and maintain any required air permits from CDPHE; submit annual updates for all information specified in COGCC's "Notice to Operators, Rule 912 Venting or Flaring Produced Natural Gas - Statewide."; collect a new gas sample for laboratory analysis; and utilize a fully enclosed combustor with an efficiency rating of 95 percent. The actual combustor that has been installed by PRM at the location has a manufacturer's efficiency rating of 98 percent.

PRM currently has an approved APEN permit to begin this production test and recently (October 2, 2019) had a Construction Permit (CP 18MF0689), a Condensate/Oil Storage Tank General Permit (GP08), and a Produced water Storage Tank General Permit (GP05) approved by the Air Quality Control Commission (AQCC) of CDPHE for the permanent facilities that will allow long term flaring of the gas until a pipeline can be constructed. Recent correspondences from CDPHE (9-26-19) indicated that these permit applications had gone through the public comment and the CDPHE internal review process. The construction permit and general storage tank permits allow PRM to flare up to 2.34 million cubic feet (MMCF) of gas per day with an annual allowable total of 216 MMCF. The oil will be collected in recently installed storage tanks and sold. The water will be collected in recently installed storage tanks and disposed of at a permitted disposal facility. Some of the natural gas will power the pumping unit while the rest will be flared.

Welba Peak Unit, WPU-36-1V-H2 Petroleum Resource Management Corporation
General Permit (GP-09) Application Package

In compliance with Colorado Air Quality Control Commission (AQCC) Regulation Number 3, Part A, Section II, PRM submitted a General Permit GP-09 application package for the Welba Peak Unit WPU-36-1V-H2 oil and gas well production facility on October 28, 2019. Since this facility is in wildcat status and additional productivity testing is needed to prove the well and the resource; PRM consulted with CDPHE to determine if the new GP-09 permitting mechanism was appropriate for this location. Guidance from CDPHE (communication with Stephanie Spector on October 25, 2019) indicated that the GP-09 permit was designed as a temporary authorization to allow companies time to determine the potential to emit (PTE) emissions, with the data collected during the testing period to be used to refine subsequent construction permit application(s).

The new GP-09 permit has a 90 tons per year (TPY) emission limit for NO_x, CO, VOC, PM, PM₁₀, PM_{2.5}, and SO₂. For separator flared gas, the GP09 allows for higher than 95 percent control credit if the combustor unit is tested. Previous permitting mechanisms allowed for 95 percent control credit with a manufacturer's guarantee of 98 percent. Under this permit, PRM's requested PTE throughputs are as follows:

- Gas flared: 270 MMCF/yr
- Oil throughput: 180,000 bbl/yr
- Produced Water throughput: 40,000 bbl/yr

PRM plans to sample the gas and liquids which will improve emissions estimates and allow for additional throughputs. PRM will submit a modification to the GP-09 permit based on sample results. Per CDPHE guidance, PRM is allowed to begin production and flaring operations detailed in the GP-09 permit when the permit is first submitted (October 28, 2019). Similar to the previous permits, CDPHE will review and approve the GP-09 permit.

PRM submitted a Form 4 #402181427 on September 18, 2019 that updates the production equipment that is currently being installed on location to accommodate long term production and flaring at this location. There is an operational history that provides details about the production testing that has taken place between 2016 and 2019. The sundry notice also provides BMPs to address production test monitoring and potential nuisance issues, such as noise, emissions, odor, dust, and lights. PRM personnel will be on or near the location 24/7 monitoring the production and flaring operations.

The Duncan Ranch well pad is located in a remote part of Moffat County. There is one residence (ranch house) and several ranch operations-related out buildings located within 1,500 feet of the existing location. The ranch house is not within 1,000 feet of the well, production equipment, or the flaring equipment; so this location is not in a Designated Setback Location. The building unit is owned by the surface and mineral owner who is in full agreement with the long term production testing and flaring activities and has made the following statement:

"The flare at this location has been safely and efficiently operated several times over the last few years to support drilling and production operations. There have not been any issues with the operation. Light pollution, odors, noise, and emissions are not a concern. PRM runs a clean and efficient operation and they

have been an excellent operator addressing our needs and any concerns that might arise. I have been on the well pad many times during past flaring operations. I have not noticed any odors and I have not had any concerns about the health and safety aspects of the operation."

The ranch house, several barns, and smaller out-buildings are crosswind of the location based on the yearlong prevailing southwesterly winds. The area is very sparsely populated and the area roads are very lightly traveled. The location is approximately one mile from the nearest county road and is visually concealed by mature aspens and topography.

Determination: During the technical review process, COGCC staff requested additional information and clarification regarding the applicant's proposal for long term production and flaring and BMPs to address operational monitoring and potential nuisance issues, such as noise, emissions, odor, dust, and lights. The information received has been added to the Form 4s for the well and the location. The Director determined that Objective Criteria #14 was sufficiently analyzed based on the following:

- the previous production data and gas analysis information from the previous tests;
- there is an approved APEN permit to begin this production test (the APEN permit allows PRM to flare for 90 days);
- there are approved (October 2, 2019) AQCC General Permits for condensate/oil and produced water storage tanks and a Construction Permit for separation and flaring of natural gas for the permanent facilities that will accommodate long term production and flaring;
- there is a recently submitted (October 28, 2019) new general permit (GP-09) application that allows PRM the following 12-month throughputs: volume of gas flared of 270 MMCF per year; oil production of 180,000 barrels per year; and produced water production of 40,000 barrels per year;
- the operator submitted BMPs for the production and flaring operations;
- the operator submitted nuisance BMPs that address noise, emissions, odor, dust, and lights
- the building unit is crosswind of the location and flaring equipment, which has an efficiency rating of 98 percent; and
- the building unit owner (mineral owner) is in support of the proposed activities, and has been present during previous production testing.

Staff met with the Director to discuss Objective Criteria that are met by this Oil and Gas Location. The Director determined that following the application of the additional analysis from the Objective Criteria, the Form 4 gas flaring application meets the standard for protection of public health, safety, welfare, the environment and wildlife resources set by SB 19-181.