



COLORADO

Parks and Wildlife

Department of Natural Resources

Northwest Regional Center
711 Independent Avenue
Grand Junction, CO 81505

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Wayne P. Bankert
Senior Regulatory & Environmental Coordinator
Piceance Energy, LLC
Laramie Energy II, LLC
601 28 1/4 Rd. Suite D
Grand Junction, CO 81506

Dear Mr. Bankert:

Colorado Parks and Wildlife (CPW) appreciates an initial review of Piceance Energy's Water Treatment and Impoundment Facility on Harrison Creek, Mesa County, Colorado. The project that Piceance Energy is proposing is a large and complex facility that has the potential to affect several wildlife species resident to the area and others that are seasonally migratory that could be attracted to the project.

CPW and Piceance Energy staff has met to discuss this project and identify ways to avoid and minimize impacts to wildlife that could arise from the development of the project. As proposed, Piceance Energy is intending to build a dissolved air flotation (DAF) treatment facility that will treat water to the point where the water quality will be clean enough to preclude the Colorado Oil and Gas Conservation Commission's (COGCC) requirement for bird netting; however, COGCC does not provide water quality standards specific to wildlife protection and Piceance Energy is unsure as to what a "wildlife water quality threshold" would be.

Piceance Energy is required by COGCC and the Colorado Water Quality Control Commission (CWQCC) to meet certain water quality standards for an Exploration and Production (E&P) waste water facility; however, the two agencies do not provide specific water quality standards for wildlife protection, therefore Piceance Energy has identified crucial constituents that they will monitor for wildlife protection purposes. The constituents that will be monitored are benzene, BTEX/GRO/DRO, TPH, PAH (including benzo (a) pyrene), (CWQCC Regulation 31); total dissolved solids, salinity (not to exceed 12,000 ppm); surfactants; and metals including As, Ba, Ca, Cd, Cr, Fe, Mg, Pb, Se; and finally nitrate, nitrite, ammonia-N, turbidity, dissolved oxygen, hydrogen sulfide, and water temperature (CWQCC Regulation 31.11 basic standards).

Piceance Energy understands that there are many other constituent elements (in many combinations that are in dynamic states of change during the treatment process) in produced water that are potentially harmful to wildlife, and that it is virtually impossible to treat and sample for all of them for wildlife protection at a guaranteed safe level. Knowing the challenges of treating produced water, Piceance Energy is committed to regular monitoring



and management of the treated water facility to protect wildlife resources based on the above constituents.

To ensure compliance with produced water standards for COGCC and CWQCC, Piceance Energy will conduct monthly water quality monitoring (COGCC and CWQCC as applicable) of the three open pits to ensure effectiveness of the facility operation and protection of wildlife. Further, Piceance Energy will provide the monthly water quality monitoring report to CPW (Michael Warren) in the Regional Office in Grand Junction. Wildlife constituent element(s) exceeding standards above will trigger an immediate investigation and adjustments to the facility so that it returns to compliance. Water quality should consistently and without interruption meet the above stated standards; if not, Piceance Energy understands that they may have to net the pits.

CPW does support Piceance Energy's efforts to plan and build a facility to treat water to the point that there is no possibility of illegal take of wildlife. While CPW supports creative and positive solutions to treating oil and gas produced water, CPW's support for this project should not be taken as a waiver of responsibility to avoid take of wildlife. It is the operator's responsibility to ensure that the taking of wildlife does not occur.

CPW is hesitant to state that the DAF water treatment facility and treatment method, or any other treatment method is the best or only solution for wildlife protection with regard to produced water treatment facilities; however, CPW does support Piceance Energy's project.

In addition to the DAF treatment process and monitoring procedures, CPW and Piceance Energy agree that fencing is necessary to exclude wildlife from the treated water pits. CPW requires that the following fencing criteria be used to ensure wildlife protection. Pit fencing should consist of a minimum: a seven foot high fence constructed of material strong enough and in such a configuration so as to prohibit deer and elk from entering a pit; concurrently it should functionally prohibit small mammals (rabbits or rodents) from entering through gaps or between spaces. Prevention of small mammals from entering may require a second type of fencing (chicken wire or similar small mesh) to be wrapped around (at the ground level) the taller exclusionary fence. The small mammal exclusionary fence(s) should be buried one foot below grade and extend at least two feet above grade level. Fence support structures should be placed in close enough proximity to each other (8 foot centers) and be sufficiently anchored into the ground so that the fence will not sag or waver and can withstand the pressure of a large animal (elk or moose) pushing against it.

CPW is also requesting that Piceance Energy install escape ramps for all of the pits. The ramps should be placed on each side of the pit (four ramps per pit) and extend from the top edge of the pit liner to the pit floor. The ramps should be made of material that will create climbing surfaces for small animals, birds and bears to exit the pit.

CPW maintains that the operator is in the best situation to select what materials will be used to build wildlife exclusionary fences and escape ramps that meet CPW requirements based on the species impacted. It is not CPW's position to tell operators exactly how to build an exclusionary fence or escape ramp but rather provide the operator with guidance on what fencing or ramp is adequate to exclude or help extract wildlife caught in a pit.

Lastly, CPW requires immediate notification of a wildlife mortality that occurs within the facility; Piceance Energy will contact Michael Blanck, District Wildlife Manager and provide information about the mortality and cooperate with an investigation as requested.

CPW supports this project based on construction and implementation of the DAF design and regular monitoring. If the design changes, CPW reserves the right to withdraw support and or review the different design.

CPW appreciates and welcomes the opportunity to provide comments on important projects such as this one. Please do not hesitate to contact Michael Blanck, District Wildlife Manager, at 970-250-4505 if you have questions or would like to discuss the project further.

Sincerely,

A handwritten signature in dark ink, appearing to read "Michael Warren", with a long horizontal flourish extending to the right.

Michael Warren, Energy Liaison, NW Region

cc. Michael Blanck, District Wildlife Manager
Dean Riggs, Deputy Regional Manager, NW Region
JT Romatzke, Area Wildlife Manager
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