STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 15540
ORDER NO. R-14299

APPLICATION OF OXY USA, INC. FOR APPROVAL OF SURFACE LEASE COMMINGLING, OFF-LEASE STORAGE, AND OFF-LEASE MEASUREMENT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on September 15, 2016 at Santa Fe, New Mexico, and again on January 5, 2017, both before Examiner William V. Jones.

NOW, on this 14th day of February, 2017, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) The applicant, OXY USA, Inc. ("OXY"), seeks approval for surface lease commingling within one pool, off-lease storage, and off-lease measurement of oil and associated gas production.

(3) OXY also seeks an exception to the metering requirements of 19.15.12.10 C.(1) NMAC by authorizing the allocation of production from diversely owned, horizontally drilled oil wells on the basis of periodic well tests.

(4) OXY proposes to commingle oil and gas production from all current and future wells producing from the Pierce Crossing; Bone Spring, East Pool (96473) underlying the following acreage ("subject acreage"):

Township 24 South, Range 29 East, NMPM, Eddy County, New Mexico.
Section 22: S/2 N/2 and N/2 S/2
Section 23: All

Section 24: W/2

(5) The following wells (with associated acreage dedication) are drilled or currently planned for drilling within the subject acreage:

Cedar Canyon 22 Federal Well No. 21H S/2 N/2 Section 22	(API No. 30-015-43642) (160 acres)
Cedar Canyon 22 Federal Com Well No. 4H N/2 S/2 Section 22	(API No. 30-015-43708) (160 acres)
Cedar Canyon 23 Federal Well No. 3H Cedar Canyon 23 Federal Well No. 4H S/2 N/2 Section 23 and S/2 NW/4 Section 24	(API No. 30-015-43290) (API No. 30-015-43281) (240 acres)
Cedar Canyon 23 Federal Well No. 5H N/2 N/2 Section 23 and N/2 SW/4 Section 24	(API No. 30-015-43282) (240 acres)
Cedar Canyon 23 Federal Com Well No. 6H Cedar Canyon 23 Federal Com Well No. 33H N/2 S/2 Section 23 and N/2 SW/4 Section 24	(API No. 30-015-Pending) (API No. 30-015-Pending) (240 acres)
S/2 S/2 Section 23 SW/4 Section 24	No Wells Permitted at this time No Wells Permitted at this time

(6) Each well proposed for commingling within this acreage produces from the Pierce Crossing; Bone Spring, East Pool (96473) which is governed by Special Rules promulgated by Division Order No. R-13248 in Case No. 14420. Said rules allow a Limiting Gas Oil Ratio of 5000 to 1, but retain all other Division rules for oil wells.

(7) OXY intends to utilize a production and a test separator at the Cedar Canyon 23-3H satellite facility (the "facility"), located at the well pad of the Cedar Canyon 23 Federal Well No. 3H in Unit I of Section 22, and use periodic well tests to allocate oil and gas production back to diversely owned wells feeding into that facility.

(8) Gas from that facility will be metered from both separators and combined into the low pressure gas gathering system and transported approximately two miles north to the Enterprise Sales Meter.

(9) Oil from that facility will be measured using a test turbine meter and a production turbine meter, then combined and transported southwest to the Cedar Canyon 22 Satellite located in Unit L of Section 22 where it will be tanked, metered through a Coriolis meter and sold at the nearby central tank battery, also within Unit L.

(10) OXY provided the following testimony at the hearing from a Landman and two engineers:

(a) OXY proposed this diversely owned commingle using well tests for allocation in an earlier administrative application. The Division asked that it be presented before an examiner where the well test method for horizontal Bone Spring wells which have been hydraulically fractured and are exhibiting hyperbolic oil production decline behavior could be presented in more detail.

(b) The SW/4 SW/4 of Section 23 is privately owned and leased at higher than 1/8th royalty rate. All other lands being proposed for commingling are federally owned and leased at 1/8th royalty. Four Federal oil and gas leases (NMNM013996, NMNM088138, NMNM081586, and NMNM093477) cover the federal lands being proposed for commingling.

(c) The horizontal well project areas being proposed for commingling are diversely owned. There are numerous overriding royalty owners in the federal leases. The leases in Section 23 are 100 percent OXY working interest.

(d) All owners, including the Bureau of Land Management ("BLM"), were noticed of the administrative application as well as the application(s) for hearing, and no one has voiced an objection.

(e) The production from each well will be gathered into the Cedar Canyon 23-3H satellite facility, located on fee surface at the well pad of the Cedar Canyon 23 Federal Well No. 3H in Unit I of Section 22 where the oil and gas from each well will be tested and measured using periodic well tests.

(f) The Cedar Canyon 22 Satellite is located in Unit L of Section 22 where oil production from all the wells will be tanked, metered through a Coriolis LACT and sold at the nearby central tank battery, also within Unit L.

(g) There would be considerable additional costs to install the additional separators needed to provide constant metering from the diversely owned tracts; and those additional meters would also be turbine meters and not Coriolis meters.

(h) Approval of this commingle as proposed would allow OXY to efficiently and effectively transport, store, and market production from the subject acreage.

(i) OXY's proposed testing methodology is based on the American Petroleum Institute Manual of Petroleum Measurement Standards, Chapter 20 (API MPMS 20.1).

(j) The decline life cycle of these Bone Spring horizontal wells would be partitioned into four stages beginning with the flow back after fracturing to peak production rate. For each of these stages, the wells would be tested at differing frequencies for optimum accuracy. For example, the early time stage would need more frequent testing of that well to accurately utilize well tests to allocate monthly production volumes among all wells being commingled prior to sales.

(k) For this commingle application consisting of hyperbolically declining horizontally drilled Bone Spring wells, OXY is proposing Range 1 as the period from peak production to two months after peak production. Range 2 would be months 3 to 12. Range 3 would begin at month 12 and continue through the life of the well. Range 1 would require more frequent well testing, with an adequately sized test separator, than the frequency needed while the same well is within Range 3.

(l) To adequately install production equipment for each well would require equipment designed for the peak production, which would be an over design for the period commencing only a few months after peak production from that well due to the rapid decline. The wells would in most cases begin production at staggered times; therefore, production equipment designed around the concept of well testing is most efficient and increases the likelihood of a proper design and utilization of the turbine and gas meters.

(m) The initial production from these wells sometimes includes slug flow which requires larger vessels to have adequate retention time. Early flow also sometimes contains sand from the hydraulic fracture treatment which also creates problems with operation of equipment.

(n) The time increment for sales through the custody transfer meters is monthly.

(o) Most of the newer oil custody transfer sites (or LACT) include a Coriolis meter which is fed by a pump; while the older LACTs had displacement meters. The Coriolis meter has been accepted as a sales measurement by the BLM in Onshore Order No. 4 and is regarded as more accurate than the displacement meters. The turbine meters handle gas better than the Coriolis meters and are less expensive, so they are used upstream of the actual sales point.

(p) OXY generated "type curves" for production from the various Bone Spring sands using available production "Rate vs Time" data and volumetric estimates of recoverable oil. The generated Rate vs

Time plots were supplied to the facilities engineer for properly designing production equipment. The engineers identified the separate segments of the decline behavior for purposes of frequency of well testing.

(q) These wells may produce over the top allowable for a short, three month period in their early life, then are expected to produce below top allowable for the remaining life of each well. After an initial period of hyperbolic decline, production stabilizes at a more predictable exponential decline rate.

The Division concludes as follows:

(11) The application was properly advertised to affected parties including to the BLM. No other parties entered appearances in this case or otherwise opposed this application.

(12) The proposed method of measurement and allocation of production between the subject wells is reasonable and sufficiently reliable to protect the correlative rights of owners of separate interests in the production from the wells.

(13) The requested exception to the metering requirements of 19.15.12.10 C.(1) NMAC should be approved. The use of periodic well tests for diversely owned wells prior to commingling for oil and gas production and sales should be approved to ensure efficient use of surface facilities and to protect correlative rights. The operator should use more frequent well tests, as proposed in this application, during the earlier stages of each well to ensure accuracy of allocation.

(14) Measurement and allocation methods for commingling of diversely owned production is governed by Division Rule 19.15.12.10 C (1) NMAC. These methods include continuous metering or: "other methods the division has specifically approved prior to commingling." There is a need to allow the commonly used "well test method" as proposed in this case, as an "other method".

(15) Henceforth the Division, upon receiving administrative requests for diversely owned commingling of oil wells, should have the option of considering approval of the Well Testing Method. Any such proposed application should include "type curves" showing expected oil production versus time behavior, the expected completion schedule of all wells to be serviced by the test separator, the maximum number of wells to be serviced at any time by each test separator, the maximum expected daily production from any well, the size and type of the test separator and specifics of the test meters. The application should propose a well testing frequency which is acceptable based on these parameters, which varies based on the stages of oil production decline, and which follows guidance provided in the American Petroleum Institute Manual of Petroleum Measurement Standards, Chapter 20 (API MPMS 20.1). These requirements should be in the application advertised to all affected parties and the administrative application must be unopposed.

(16) OXY's proposed commingling of oil and gas production from the Pierce Crossing; Bone Spring, East Pool (96473) within the lands described above for all existing and future wells should be approved to protect correlative rights and prevent waste.

(17) Off-lease storage, measurement, and sales should be approved for all leases not located on measurement or sales points.

(18) This application should be approved.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, OXY USA, Inc. ("OXY"), is hereby authorized to surface commingle oil and gas production from all current and future wells producing from the Pierce Crossing; Bone Spring, East Pool (96473) underlying the following acreage:

Township 24 South, Range 29 East, NMPM, Eddy County, New Mexico.
Section 22: S/2 N/2 and N/2 S/2
Section 23: All
Section 24: W/2

(2) The production facilities for well testing and measurement shall be the Cedar Canyon 23-3H satellite facility, located at the well pad of the Cedar Canyon 23 Federal Well No. 3H in Unit I of Section 22, and the Cedar Canyon 22 Satellite located in Unit L. The sales point for oil is located within Unit L. The sales point for gas is located off-lease approximately two miles north of this commingle. Off-lease storage, measurement, and sales is approved for all leases not located on these measurement or sales locations.

(3) The requested exception to the metering requirements of Rule 19.15.12.10 C.(1) NMAC is hereby approved. The use of periodic well tests for diversely owned wells prior to commingling for oil and gas production and sales is approved. The operator shall use more frequent well tests, as proposed in this application, during the earlier stages of each well's oil production to ensure accuracy of allocation.

(4) Henceforth the Division, upon receiving administrative requests for commingling of oil and associated gas from diversely owned leases, shall have the option of considering approval of the Well Testing Method if the operator supplies evidence in the application acceptable to the Division of proper test facility design, proposes a well testing frequency which is acceptable, which varies based on the stages of oil production decline, and which follows guidance provided in the American Petroleum Institute Manual of Petroleum Measurement Standards, Chapter 20 (API MPMS 20.1).

(5) Expansion of this permitted area as specified in ordering Paragraph (1) or the addition of any pool other than the pool specified in ordering Paragraph (1) shall entail an amended permit application. Amendments shall be permitted administratively, after proper notice, unless deemed necessary for Division hearing by the Division Director.

(6) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

David R. Catanach

DAVID R. CATANACH
Director

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