BOPCO, LP

C-147 REGISTRATION PACKAGE

PLU CENTRAL 1 RECYCLING CONTAINMENT FACILITY
SECTION 24, TOWNSHIP 24 SOUTH, RANGE 30 EAST

EDDY COUNTY, NM

PLU Central 1 Containment

PREPARED FOR
BOPCO, LP

SEPTEMBER 26, 2017

11490 WESTHEIMER, ROAD, SUITE 700
HOUSTON, TEXAS 77077

TBPE Firm Registration No. F-3043

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Part 1
Introduction

BOPCO, LP (BOPCO) is requesting registration under NMAC 19.15.34 for the following recycling containment and recycling facility in the development area on a tract of land of located in Section 24, Township 24 South, Range 30 East, in Eddy County, New Mexico.

The proposed recycling facility will be solely for recycling of fluids used for completing wells owned and operated by BOPCO. The recycling containment ponds will cover an area of 27 acres and will consist of two double lined containment ponds with leak detection that will each hold approximately 500,000 barrels. The facility is expected to be in use for at least 5 years.

Appendix A contains a survey plat identifying the location of the proposed recycling containment and the recycling facility. Both the recycling containment and the recycling facility will be located on the same tract of land.

Compliance with the requirements of NMAC 19.15.34 are described in the application. BOPCO is requesting a total of three (3) variances from the requirements. Those variance requests are described in detail in Part 3 of this application.

A copy of Form C-147 found in **Part 2** has been submitted to the surface owner, as required under 19.15.34.10.A.

Part 2

NMOCD Form C-147

Part 3

Variance Requests

The following paragraphs describe the variances that have been requested.

3.1 Liner

BOPCO is requesting a variance to rule 34 Part 12(A)(4) requiring the secondary (lower) liners to be 30-mil string reinforced LLDPE or equivalent with a hydraulic conductivity no greater than $1x10^{-9}$ cm/sec. BOPCO is requesting approval to use 40 mil HDPE in place of the specified material. The proposed 40 mil HDPE is appropriate material for the proposed use of the containment and is compatible with the water that will be stored. This material will provide equal or better environmental protections than the specified 30 mil string reinforced LLDPE. The proposed 40 mil HDPE will be seamed in a manner that will allow nondestructive pressure testing of the seams to ensure proper sealing.

The proposed liner system cross section is as follows: prepare subgrade, 8 oz. geotextile, 40-mil HDPE, single sided 200-mil geonet, 60-mil HDPE (smooth on bottom, textured on slopes). This cross section is shown on Sheet C-5 in **Appendix G.**

3.2 Fencing

The recycling containment will be constructed with an eight (8) foot high game fence with three (3) strands of barbed wire on top to deter wildlife and human access. This is a variance from the required four (4) foot fence with at least four (4) stands of barbed wire evenly spaced in the intervals between one (1) foot and four (4) foot above ground level and provides equivalent or greater wildlife and human deterrence. The fence will be gated to provide access to BOPCO personnel and will be closed and locked when access in not required.

3.3 Netting and Wildlife Protection

The game fence, as described above, surrounding the recycling containment and recycling facility will be effective in excluding terrestrial wildlife. BOPCO, is proposing to install an audible avian deterrence system in lieu of installing netting. BOPCO is proposing to install an electronic sonic/ultrasonic avian deterrence system equivalent or equal to the Bird-X BroadBand Pro or the Bird-X Mega Blaster Pro.

This type of system has been utilized by other recycling containment operators in southeast New Mexico and has been demonstrated to be an effective deterrent for avian species, including migratory birds. The O&M plan calls for the operator to inspect for and within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

Part 4

Siting Requirements

4.1 Distance to Groundwater

This section describes the hydrology and geology surrounding the BOPCO PLU Central recycling containment and recycling facility. **Figure 1-1** shows the location of the proposed BOPCO recycling containment and recycling facility. **Figure 1-2** is a 7.5-minute USGS topographic map that shows the surface elevations at the site and surrounding area.

The New Mexico Oil and Gas Division (NMOCD) requires that groundwater (freshwater as defined by NMOCD rules) at the location be greater than 50-feet below the containment bottom. **Figure 2-1 (found in Appendix I)** and the discussion below demonstrates that depth to groundwater at the proposed location is greater than 75 feet beneath the bottom of the recycling containment and the recycling facility. **Figure 1-3** is a geologic map from the U.S. Geological Survey, Mineral Resources Program of geologic units and structural features in the general location of the proposed recycling containment and the recycling facility. **Figure 2-2** shows the proposed recycling containment and the recycling facility location is located within the Pecos River Basin alluvial aquifer system. Other major aquifers in the area include the Edwards-Trinity, Roswell Basin, and High Plains Aquifer. Available groundwater within the area of the proposed recycling containment and the recycling facility is noted to be within the Carlsbad Basin, by the New Mexico OSE. The Carlsbad Basin contains two major water-bearing features including shallower alluvial aquifer systems and a deeper "artesian" carbonate system. Water-bearing zones include the Triassic age Chinle Formation, of which the Santa Rosa Sandstone is the basal unit.

A geological map for the vicinity of the site was obtained from the U.S. Geological Survey, Mineral Resources Program and was used to review the geologic setting for the proposed recycling containment and recycling facility location (Figure 1-3). Based on the review of the geologic map, the recycling containment and the recycling facility location lies within the Eolian and Piedmont deposits (Qep). These deposits consist of interlayed eolian sands and piedmont-slope deposits.

On August 29 and 30, 2017, site-specific geotechnical borings were conducted to a depth of 75 feet with no detected or observed groundwater presence and the boreholes remained dry for a period of at least 24 hours following drilling. The test boring logs may be found in Figure 2-1.

4.2 Distance to Surface Water

Figure 2-2 demonstrates that the site location is not within 300-feet of a continuously flowing watercourse or other significant watercourse, or within 200-feet of a lakebed, sinkhole, or playa lake (as measured from the ordinary high-water mark). Figure 2-2 shows that there are no continuously flowing watercourses or other water bodies defined by NMOCD rules. The closest surface water bodies are the Pecos River, located approximately 8 miles west and Salt Lake, which is located approximately 10 miles northwest of the proposed recycling containment and recycling facility location.

4.3 Distance to Permanent Residences, Institutions, or Structures

Figure 2-3 demonstrates the site location is not within 1,000-feet of an occupied permanent residence, school, hospital, institution, church, or other permanent structure in existence at the time of initial application. The nearest structures to the site location appear to be pump jacks and oil field tank batteries. The Harroun School and Tempe Costa Church are approximately 14 miles northwest of the proposed recycling containment and recycling facility location.

4.4 Distance to Non-Public Water Supply

The site is not located within 500-horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes. In addition, the site is not located within 1,000-feet of any other fresh water well or spring, as documented at the time of this application. **Figure 2-4** shows the location of area water wells, active or plugged, relative to the proposed site location. There are no known domestic water wells located within 1,000-feet of the proposed site location. The nearest fresh water well listed in the is C-03702 which is located approximately 600 feet south of the site according to the NMOSE/ISC database accessed on August 29, 2017. No springs were identified within the mapping area.

4.5 Distance to Municipal Boundaries and Freshwater Fields

Figure 2-5 demonstrates that the location is not located within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3. The closest municipality to the site is Malaga, New Mexico located approximately 14 miles west of the site. In addition, the municipalities of Loving, NM is located approximately 16 miles northwest of the site, and Carlsbad, NM located approximately 25 miles northwest of the site. The closest municipal well field is located approximately 35 miles west (Sheeps Draw well field) and 45 miles north (Double Eagle well field) both serving the community of Carlsbad, New Mexico.

4.6 Distance to Wetlands

The U.S Fish and Wildlife National Wetlands Inventory maps were reviewed for the area of the site. **Figure 2-6** demonstrates the site is not located within 100 feet of a mapped wetland. The nearest designated wetland to the site is freshwater pond with a wetland code "PUSJ" (Palustrine, Unconsolidated Shore, Intermittently Flooded). The mapped wetland is located approximately 1 mile west of the site.

4.7 Distance to Subsurface Mines

General knowledge based on a search of the New Mexico Energy, Minerals, and Natural Resources Department (NM EMNRD) Mining and Minerals Division database confirms that there are no subsurface mines in proximity of the recycling containment and recycling facility (**Figure 2-7**). The only identified facilities in the general vicinity are salt mines.

4.8 Distance to High or Critical Karst Areas (Unstable Areas)

The recycling containment and the recycling facility are located within a BLM-identified medium potential karst zone. **Figure 2-8** shows BLM inventory data of existing cave/karst features, and results of site-specific geotechnical studies as detailed in **Appendix I** verifies that the recycling containment and the recycling facility are not located within an unstable area.

4.9 Distance to 100-Year Floodplain

The Federal Emergency Management Agency (FEMA) Flood Insurance maps were reviewed for the location of the site. The site is located on FEMA map panel number 35015C1650D, which was noted as "Printed Flood Map Boundary" and described as areas determined to be outside the 0.2% annual chance floodplain. **Figure 2-9** demonstrates the area of the site is not located within a 100-year Floodplain.

Appendix A

Design and Construction Plan

General Specifications

Appendix A contains the design drawings and details for the recycling containment, which are designed and stamped by a Professional Engineer licensed in the State of New Mexico. **Appendix H** contains the construction specifications to accompany the design drawings and details. These design drawings and specifications meet or exceed the NMOCD requirements for recycling containments. **Appendix I** contains the geotechnical engineering testing results for the recycling containment site.

This plan addresses construction of double lined earthen containment. Field conditions may create the need for minor modifications of the containment design (i.e. changing length, width or depth) during construction.

The following general specifications have been incorporated into the design and will be met during construction.

- The recycling containment is designed and will be constructed to ensure confinement of produced water, to prevent releases, and to prevent overtopping due to wave action or rainfall. The recycling containment is being designed using a three (3) foot freeboard as the design criteria.
- The recycling containment, as designed, will be constructed with a proper foundation and interior slopes consisting of a firm, unyielding base, which is smooth and free of rocks, debris, sharp objects and irregularities. In addition, an 8 oz. non-woven geotextile will be installed under the secondary (lower) liner as needed to provide additional protection from any protuberances in the foundation and to reduce any localized stress-strain.
- The recycling containment will be constructed with inside and outside slope grades of three horizontal feet to one vertical foot (3H:1V), which is flatter and provides greater stability than the NMOCD 2H:1V specifications for the inside grade.
- The recycling containment will be constructed with a 40 mil HDPE secondary (lower) liner, a 60 mil HPDE primary (upper) liner, and a leak detection system.
- The exterior of both liners with be anchored in the bottom of a 24-inch deep compacted earth filled trench, which exceeds the NMOCD 18-inch specification.
- Liner seams will be minimized and orientated vertically rather than across slopes. Factory welded seams will be utilized to the maximum extent possible. Sloped liner panels will extend a minimum of five (5) feet beyond the point of grade change to prevent seams from resting on the grade break.

- All field seams and welds will be subjected to non-destructive field testing by qualified personnel per the appropriate testing standard to ensure proper thermal sealing. Field seams will be overlapped a minimum of 6-inches.
- The primary (upper) liner will be protected from excessive hydraulic force or mechanical damage from discharge or suction within the recycling containment. No discharge or suction lines will penetrate the liners.
- The recycling containment will be constructed with a 200 mil geonet leak detection system located between the primary (upper) and the secondary (lower) liners. The system is properly designed to facilitate effective drainage, collection, and removal of liquid above the secondary (lower) liner and the leakage detection at the earliest possible time.
- The recycling containment is designed to prevent run on of surface water. The minimal distance from the existing surface elevation to the top of the containment berm will be approximately 10 feet.

Stockpiling of Topsoil

Where topsoil is present, prior to constructing the recycling containment, it will be stripped and stockpiled on site for use as final cover or fill.

Signs

An upright sign no less than 12 inches by 24 inches with lettering no less than 2 inches in height will be installed in a conspicuous place on the fence surrounding the recycling containment. The sign will be installed in such a manner and location that a person can easily read the sign. The sigh will include:

- The operator's name;
- The location of the site by quarter-quarter or unit letter, section, township and range; and
- Emergency telephone number.

Fencing

The recycling containment will be constructed with an eight (8) foot high game fence equipped with 3 strands of barbed wire at the top to deter unauthorized wildlife and human access. The fence will be gated to provide access to operations personnel and will be closed and locked when access is not required.

Netting and Wildlife Protection

The game fence, as described above, surrounding the recycling containment and recycling facility will be effective in excluding terrestrial wildlife. BOPCO, is proposing to install an audible avian deterrence system in lieu of installing netting. BOPCO is proposing to install an electronic sonic/ultrasonic avian deterrence system equivalent or equal to the Bird-X BroadBand Pro or the Bird-X Mega Blaster Pro.

This type of system has been utilized by other recycling containment operators in southeast New Mexico and has been demonstrated to be an effective deterrent for avian species, including migratory birds. The O&M plan calls for the operator to inspect for and within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

Appendix B
Operating and Maintenance Plan

The recycling containment will be operated in such a manner to contain liquids and solids. The integrity of the liner and leak detection system will be monitored in such a manner to prevent contamination of fresh water and protect public health and the environment as described below. The purpose of the recycling containment is to facilitate recycling of treated produced water from nearby oil and gas wells for new well completions. When treated produced water is not needed for well completion activity, produced water will be properly injected at one of BOPCO's or a third party's authorized SWDs. The recycling containment will not be used for disposal of produced water or other oilfield wastes.

The recycling containment and associated leak detection system will be inspected at least weekly by BOPCO field operations personnel while it contains any fluid and the results of the inspection will be documented on an inspection checklist. The completed checklists will be retained and made available for review upon request. These inspections will address, at a minimum, the following:

- Removal of any visible layer of oil from the liquid surface;
- Verification that a minimum of three (3) foot freeboard is maintained;
- If a liner breach is identified above the liquid surface, the liner will be repaired or liner replacement will be initiated within 48 hours of detection. Alternatively, the NMOCD district office will be contacted within 48 hours to seek and extension for liner repair / replacement;
- If a liner breach is identified below the liquid surface, all liquid above the identified breach will be removed, the NMOCD district office will be notified, and liner repair / replacement shall be initiated within 48 hours of discovery;
- Visual inspection of berm integrity and condition to ensure the prevention of surface water run-on; and
- Determination that an oil absorbent boom is present and in proper condition to contain an unanticipated release.

The containment will be equipped with permanent HDPE stingers (supported by a sacrificial liner) for withdrawal of fluid during operations so that external discharge or suction lines do not penetrate the liner.

Treated produced water deposits into and withdrawals from the recycling containment will be measured and documented to determine when the system has ceased operations (less than 20%

of the total fluid capacity is used during each rolling six-month period following the initial withdrawal of produced water.

BOPCO will submit Form C-148 monthly to NMOCD within 30 days of the end of the calendar month listing: volumes of produced water received; volumes of fresh or brackish water received; and total volumeof water leaving the recycling facility.

Upon cessation of operation, the NMOCD district office will be notified. BOPCO will submit to NMOCD a completed Form C-148 within 30 days following the end of each calendar month. Each submittal will certify that the recycling containment has not ceased operation based on the 20% threshold described above.

Appendix C
Closure Plan

After operations cease (less than 20% of the total fluid capacity is used every six months following the initial withdrawal of produced water), all fluids will be removed within 60 days and the recycling containment closed within six months.

All removed liquids, solids, and liner materials will be removed and transferred to an NMOCD-approved disposal facility within the six-month period.

A five-point composite sample will be collected from beneath the containment and tested for contamination. The composite sample will include stained or wet soil areas, if any, and analyzed for constituents listed in Table I of 19.15.34.14 NMAC.

- If any contaminant concentration exceeds the values listed in Table I (based on depth from bottom of containment to groundwater), the NMOCD district office will be contacted requesting approval before proceeding with closure activity.
- If all contaminant concentrations are less than or equal to the values listed in Table I, closure will proceed by backfilling with non-waste containing, uncontaminated, earthen material.

Within 60 days of completing closure, a Closure Report on NMOCD Form C-147, including required attachments, will be submitted to document all closure activities including sampling results and details of any backfilling, capping, or covering, were applicable. The Closure Report will certify that all information in the report and attachments is correct and that all applicable closure requirements and conditions specified in NMOCD rules and directives have been met.

The recycling containment's locations will be reclaimed to a safe and stable condition that blends with the surrounding undisturbed areas. Topsoil and subsoil will be replaced to their original relative positions and contoured to achieve erosion control, long-term stability, and preservation of surface water flow patterns.

The location will be reseeded in the first favorable growing season following closure with the goal of substantially restoring the impact surface location to the existing condition prior to construction of the recycling containment. Surface reclamation will be deemed complete when: all ground surface disturbing activities have been completed; a uniform vegetative cover with a life-form ratio of plus or minus 50% of pre-disturbance levels has been established; and a total percent plant over of at least 70%, excluding noxious weeds, has been established.

Surface reclamation obligations imposed by the Bureau of Land Management or New Mexico State Trust Land on lands managed by those agencies will supersede these requirements, provided that these other requirements provide equal or greater protection of fresh water, human health, and the environment. NMOCD will be notified when reclamation and re-vegetation are complete.

Appendix D

Financial Assurance Requirement

BOPCO has existing financial assurance in place with NMOCD as required by 19.15.8 NMAC and use of the recycling containment will be limited to support completion of only wells owned and operated by BOPCO. Therefore, no additional financial assurance associated with the recycling containment is required.

Appendix E
Survey Information