Annual Report: 40 C.F.R. 98.446 (Subpart RR)

Company Name: Occidental Permian Ltd.
Company Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046
GHGRP ID: 559777
Facility Name: Denver Unit
Facility Address: 2611 State Highway 214, Denver City, TX 79323
Reporting Period: January 1, 2016 – December 31, 2016
Date of Submittal: March 30, 2017

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Certification by Designated Representative:

Based on information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

Alternate Designated Representative:
William D. Calhoun, Environmental Manager

1) Executive Summary:

Occidental Permian Ltd. (Oxy) began monitoring efforts pursuant to the final Denver Unit Monitoring, Reporting and Verification (MRV) Plan on January 1, 2016, for the 2016 reporting period. The final MRV Plan was approved by EPA on December 27, 2015. The MRV plan identification number is 1011767-1.

2) Summary Table of Monitoring Activities:

The below table summarizes Oxy's Response Plan for CO_2 Loss and associated monitoring activities during the 2016 reporting period. The summary table includes potential leakage scenarios, the monitoring activities designed to detect those leaks, and Oxy's standard response.

Known Potential Leakage Risks	Monitoring Methods and Frequency	Standard Response Plan
Tubing Leak	Monitor changes in annulus pressure; MIT for injectors	Workover crews respond within days
Casing Leak	Weekly field inspection; MIT for injectors; extra attention to high risk wells	Workover crews respond within days

Wellhead Leak	Weekly field inspection	Workover crews respond within days
Loss of Bottom-hole pressure control	Blowout during well operations (weekly inspection but field personnel present daily)	Maintain well kill procedures
Unplanned wells drilled through San Andres	Weekly field inspection to prevent unapproved drilling; compliance with TRRC permitting for planned wells.	Assure compliance with TRRC regulations
Loss of seal in abandoned wells	Continuous monitoring of pressure in WAG skids; high pressure found in new wells as drilled	Re-enter and reseal abandoned wells
Pumps, values, etc.	Weekly field inspection	Workover crews respond within days
Leakage along faults	Continuous monitoring of pressure in WAG skids; high pressure found in new wells as drilled	Shut in injectors near faults
Overfill beyond spill points	Continuous monitoring of pressure in WAG skids; high pressure found in new wells as drilled	Fluid management along lease lines
Leakage through induced fractures	Continuous monitoring of pressure in WAG skids; high pressure found in new wells as drilled	Comply with rules for keeping pressures below parting pressure
Leakage due to seismic event	Continuous monitoring of pressure in WAG skids; high pressure found in new wells as drilled	Shut in injectors near seismic event

3) Narrative History of the Monitoring Effort Conducted:

As part of its ongoing operations, Oxy collected flow, pressure, and gas composition data from the Denver Unit. Flow and pressure data was monitored through hourly scans by centralized data management systems. Oxy monitored wells through continual, automated pressure monitoring in the injection zone, monitoring of the annular pressure in wellheads, and routine maintenance and inspection. Commercial custody transfer meters were used to measure the volume and concentration of CO_2 that was received, recycled, injected, and produced at the Denver Unit. The custody transfer meters generated volumetric flow rate data for use in the mass balance equations in §98.443. Meters measured flow rate continually. Fluid composition was determined, at a minimum, quarterly, consistent with EPA GHGRP's Subpart RR, section 98.447(a). Oil extended fractional analyses were conducted at two Denver Unit central tank batteries during the 2016 reporting period to determine the percentage of CO_2 entrained in the total volume of oil sold. Metering protocols used by Oxy followed the prevailing industry standard(s) for custody transfer as currently promulgated by the API, the American Gas Association (AGA), and the Gas Processors Association (GPA), as appropriate. These meters were maintained routinely, operated continually, and fed data directly to the centralized data collection systems. The meters met the industry standard for custody transfer meter accuracy and calibration frequency.

Oxy used 40 C.F.R. Part 98 Subpart W and engineering estimates to estimate surface leakage, emissions from equipment leaks, and vented emissions from surface equipment at the Denver Unit. In addition to the factor-driven approach to estimate equipment leakage in Subpart W, Oxy used an event-driven process to assess, address, track, and if applicable quantify potential CO_2 leakage. The multi-layered, risk-based monitoring program for event-driven issues was designed to meet two objectives, in accordance with the leakage risk assessment conducted for the MRV Plan: 1) to detect anomalies before CO_2 leaked to the surface; and 2) to detect and quantify any leaks that did occur. For the 2016 reporting period there was no surface leakage at the Denver Unit and no monitoring anomalies were found.

4) Non-Material Changes to EPA-Approved MRV Plan:
There are no non-material changes to Oxy's EPA-approved MRV Plan for the 2016 reporting period.

5) Narrative History of Monitoring Anomalies Found:
Oxy monitored both injection into and production from the reservoir as a means of early identification of potential anomalies that could indicate leakage from the subsurface. This year, there was no surface leakage at the Denver Unit and no monitoring anomalies were found.

6) Description of Surface Leakage:
There was no surface leakage at the Denver Unit for the 2016 reporting period. Field personnel routinely visited surface facilities and conducted visual inspections at the Denver Unit during the reporting period. These inspections included review of tank level, equipment status, lube oil levels, pressures and flow rates in the facility, valve leaks, ensured that injectors were on the proper WAG schedule, and also a general observation of the facility for visible CO_2 or fluid line leaks. If problems were detected, field personnel investigated then, if maintenance was required, generated a work order in the maintenance system, which was tracked through completion. In addition to these visual inspections, Oxy used the results of the personal H_2S monitors worn by field personnel as a supplement for smaller leaks that may escape visual detection. Equipment leaks and vented emissions from surface equipment were assessed, tracked, and estimated for each event throughout the reporting period. These estimates were included in the mass balance equation.