YESO SHELF AREA DRAINAGE CALCULATIONS

Object: To Determine Paddock and Blinebry Drainage Areas for All COG Operated Yeso Wells Across SENM Shelf Area

Calculation Methods:

- Estimate Volumetric Original Oil in Place (OOIP) for Paddock and Blinebry for Each COG Operated Lease Across SENM Shelf (Approximately 41,000 acres)
  - Paddock Cut Offs (Porosity > or = 3%, Connate Water Saturation, Scw, < 28%)
  - Blinebry Cut Offs (Porosity > or = 3%, Connate Water Saturation, Scw, <40%)
  - Paddock and Blinebry Boi=1.29
- So PHI-H (Oil Saturation Times Net Pay) Determined from Available Digitized Logs with Geological Picks of Paddock and Blinebry Intervals Using Geographics Integration Software
- OOIP/Acre Determined for Each Lease
- Cumulative Allocated Paddock and Blinebry Production (50% to Each Zone When Commingled) Calculated for Each Well
- Ultimate Allocated Paddock and Blinebry Production (50% to Each Zone When Commingled) Based on Aries Forecasts Calculated for Each Well
- Current Drainage Area Based on Allocated Cumulative Production Calculated Assuming 15% Recovery of OOIP
  - Current Paddock Drainage Area=Allocated PDK Well Cumulative Production/(0.15*PDK OOIP/Acre)
  - Current Blinebry Drainage Area=Allocated BLY Well Cumulative Production/(0.15*BLY OOIP/Acre)
- Ultimate Drainage Area Based on Allocated Ultimate Well Production Assuming 15% Recovery of OOIP
  - Ultimate Paddock Drainage Area=Allocated PDK Well Ultimate Production/(0.15*OOIP/Acre)
  - Ultimate Blinebry Drainage Area=(Allocated BLY Well Ultimate Production/(0.15*OOIP/Acre)
- Summary of 2009 Calculations
  - 1,200 Wells
  - Average Ultimate PDK Drainage Area=9.2 Acres/Well (OOIP=35 MBO/Acre)
  - Average Ultimate BLY Drainage Area=4.9 Acres/Well (OOIP=80 MBO/Acre)
- Graphical Representations Made for Each Lease With 10 Acre Tracts
- Yucca State Examples Attached

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Case No. 14613 Exhibit No. 38
Submitted by:
COG OPERATING, LLC
Hearing Date: May 16-17, 2011