

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

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

**CASE NO. 11122  
Order No. R-10253**

**IN THE MATTER OF THE HEARING CALLED  
TO CONSIDER THE RECOMMENDATION OF  
THE BRAVO DOME CARBON DIOXIDE GAS  
UNIT WORKING INTEREST OWNERS TO  
CONTRACT THE BRAVO DOME CARBON  
DIOXIDE GAS UNIT AREA, HARDING,  
QUAY AND UNION COUNTIES, NEW MEXICO.**

**ORDER OF THE COMMISSION**

**BY THE COMMISSION:**

This cause came on for hearing at 9:00 a.m. on October 20, 1994, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 30th day of November, 1994, the Commission, a quorum being present, having considered the testimony, the record, and the exhibits, and being fully advised in the premises,

**FINDS THAT:**

(1) Due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) In the late 1970's, Amoco and other working interest owners proposed the development of a large supply of carbon dioxide gas located in Northeast New Mexico under a unit plan to be called the Bravo Dome Carbon Dioxide Gas Unit, hereinafter referred to as the "Bravo Dome Unit."

(3) The operation of the Bravo Dome Unit is governed by the Bravo Dome Carbon Dioxide Gas Unit Agreement, hereinafter referred to as the "Unit Agreement". The Unit Agreement provided that it would become effective following the approval of the Oil Conservation Division of the Energy and Minerals Department of the State of New Mexico (the "Commission") and the Commissioner of Public Lands of the State of New Mexico, hereinafter referred to as the "Commissioner." (Section 17.1, Bravo Dome Carbon Dioxide Gas Unit Agreement).

(4) Two hearings were held before the Commission in 1980 to consider the application of Amoco Production Company, the operator of the Bravo Dome Unit, hereinafter referred to as "Amoco", for approval of the Unit Agreement. At the hearing, Amoco presented the data available from the wells that had been drilled at that time throughout the area.

(5) On August 14, 1980 and again following rehearing on January 23, 1981, the Commission entered Orders No. R-6446 and No. R-6446-B which granted the application of Amoco for approval of the Unit Agreement.

(6) The Bravo Dome Unit became effective on November 1, 1980.

(7) Although in 1980 a number of wells had been completed in the unit area (Order No. R-6446-B, Finding 12) the Commission found that the developed acreage within the proposed unit was very small compared to the total unit area (Order No. R-6446-B, Finding 13) and that further development would provide the data that would enable the Commission to determine if long term development under the Unit Agreement would prevent waste and be fair to the owners of interest in the unit area (Order No. R-6446-B, Findings 26 and 27).

(8) The Commission established guidelines which defined how it would exercise its continuing jurisdiction over this unit until additional data was obtained by providing in Order Paragraphs 4, 5 and 6 of Order No. R-6446-B as follows:

- (1) that the operator of said unit shall be required to periodically demonstrate to the Commission that its operations within the unit are resulting in the prevention of waste and the protection of correlative rights on a continuing basis;
- (2) that such demonstration shall take place at a public hearing held at least every four years following the effective date of the unit or at such lesser intervals as the Commission may require; and
- (3) that all plans for development and operation and all expansion or contractions of the unit area shall be submitted to the Commission for approval.

(9) Since the entry of Order No. R-6446-B, the Commission has held three public hearings to review the operation of the Bravo Dome Unit and on each occasion has found that operations of the Bravo Dome Unit result in the prevention of waste of carbon dioxide gas and the protection of correlative rights of interest owners within the unit on a continuing basis. (Orders R-6446-C, D and E, Order Paragraphs 1).

(10) At the time of this hearing, 557 wells have been drilled in the area of the Bravo Dome, over 1100 miles of seismic line have been shot consisting of approximately 60,000 shot points, and over 6000 feet of core have been obtained from 45 wells. (Testimony of Herb Wacker, Transcript at 26-27).

(11) There is now ample data to determine that operations of the Bravo Dome Unit under the Unit Agreement will prevent the waste of carbon dioxide gas and protect the correlative rights on a continuing basis and that periodic reviews of unit operations as provided in Order No. R-6446-B are no longer necessary.

(12) The requirement for periodic reviews of unit operations at public hearings to be held at least every four years are no longer necessary to determine that unit operations are resulting in the prevention of waste and the protection of correlative rights and Order Paragraphs 4 and 5 of Order No. R-6446-B which set forth these requirements should be rescinded.

(13) The Commission exercises continuing jurisdiction over the operations of the Bravo Dome Unit and thereby has the right to review the operations of this unit at such times as it deems appropriate.

(14) Section 5 of the Unit Agreement requires:

- (a) the Unit Working Interest Owners redetermine the tract participations of each tract in the unit area (Section 5.2); based on the productive acres of each tract as determined by a zero net pay isopachous line based on the extrapolated net pay intervals in all wells in the unit area in accordance with industry-wide acceptable practice for interpreting underground geologic features on maps (Section 5.2.1);
- (b) any tract shown to be outside the "then known productive limits of the unit area shall be automatically eliminated from the unit area" (Section 5.2); and
- (c) new tract participations shall be calculated by dividing the productive acres in each tract by the total productive acres contained in all tracts in the unit area.

(15) A Bravo Dome Interest Owner Technical Committee was formed in 1993 to review the data on the unit area and to determine the zero net pay isopachous line in the reservoir.

(16) By letter dated August 31, 1994, Amoco Production Company advised the Commission that this Technical Committee had established the zero net pay isopachous line. A meeting with the Commission's staff was held on September 19, 1994 to review the proposed contraction and this issue was set for hearing before the Commission pursuant to Order Paragraph 6 of Order No. R-6446-B.

(17) At the hearing, Amoco presented evidence which established:

- (a) The productive interval in the Bravo Dome Unit area is a simple loessite facies reservoir (Testimony of Wacker, at 34-35) which is comprised of well consolidated sandstone stringers that produce from four separate zones: the Upper Tubb, Middle Tubb, Lower Tubb and Granite Wash formations (Amoco Exhibits 4 and 13, Testimony of Wacker at 36; Testimony of Collier at 103-111) which varies in thickness from approximately 100 feet in the Northwest to more than 400 feet in the Southeast portion of the Bravo Dome Unit (Testimony of Wacker, at 36).
- (b) The top of the productive interval is either (1) the top of the Unitized Interval (base of the Cimarron Andydrite) which was determined by well control information (Amoco Exhibit 7, Testimony of Wacker at 45, 46-48) and confirmed and refined by seismic data in the unit area (Amoco Exhibit 7, Testimony of Cosban at 83-84), or (2) the first occurrence of sandstone below the top of the Unitized Interval with porosity greater than the reservoir's 12% porosity cutoff (Amoco Exhibit 8, Testimony of Wacker at 48-49, Amoco Exhibits 14, 15, 16, 17A and 17B, Testimony of Collier at 112-116).
- (c) The base of the productive interval is either (1) the gas water contact or (2) in the northwestern portion of the unit, the basement rock (Amoco Exhibit 9, Testimony of Wacker at 49-50, Testimony of Cosban at 86). The gas-water contact in this reservoir is tilted and undulates and its location has been determined by interpretation of well information (Amoco Exhibit 9, Testimony of Wacker at 49-50) and by seismic data (Amoco Exhibits 9, 11 and 12, Testimony of Cosban at 86-94) and refined by the determination of water saturations for each well in the unit area (Amoco Exhibits 18 through 25, Testimony of Collier at 116 through 127).

- (d) Non-productive areas within the Unit have been identified by well control information (Amoco Exhibit 10, Testimony of Wacker at 51-53) and seismic data (Amoco Exhibits 11 and 12, Testimony of Cosban at 86-89, 93-94).

(18) All reliable data available to the Unit Working Interest Owners was utilized to define the productive limits of the reservoir in the Bravo Dome Unit area and the most recent technology accepted by the industry to determine the zero net pay isopachous line in the reservoir was used. (Testimony of Wacker at 25-32, 54-55).

(19) The accuracy of the methods utilized to determine the reservoir limits has been confirmed by comparing it to test data from wells located in close proximity to the zero net pay isopachous line. This data shows there are no tests on any wells outside the line which indicated the presence of carbon dioxide gas and all wells inside this line showed the presence of carbon dioxide gas by tests or by log analysis (Amoco Exhibit 27, Testimony of Collier at 129-131).

(20) The location of the zero net pay isopachous line was identified, its relationship to the tracts within the unit area and the new Unit Boundary, as described in Exhibit A attached hereto and incorporated herein by reference, was reviewed. (Amoco Exhibit 29, Testimony of Allison, at 142-143).

(21) The Working Interest Owners in the Bravo Dome Unit have established a zero net pay isopachous line showing the currently known productive limits of the reservoir in the unit area based on the extrapolated net pay intervals in all wells in the unit area in accordance with industry-wide acceptable practices for mapping reservoirs and reservoir limits.

(22) The determination of the zero net pay isopachous line in the Bravo Dome Unit area and the resulting contraction of the Unit area will not reduce or otherwise impair or limit the production of carbon dioxide gas from the unit since only non-productive acreage is eliminated from the Bravo Dome Unit (See Amoco Exhibit 27, Testimony of Collier, at 129-131) and owners whose acreage has been excluded from the unit (outside the zero net pay isopachous line) can drill wells on this acreage, thus protecting their correlative rights. Amoco indicated they would release acreage outside the zero net pay isopachous if a release was requested and Amoco should honor this commitment (Testimony of Allison at 162-163).

(23) Approval of the proposed contraction of the Bravo Dome Unit as described on Exhibit A attached hereto and incorporated herein by reference as required by the Unit Agreement (Section 5.2) will prevent waste of carbon dioxide and will afford the owners of carbon dioxide in the unit area the opportunity to produce their just and equitable share of carbon dioxide in this reservoir thereby protecting correlative rights. (Amoco Exhibits 28 through 30, Testimony of Allison at 141-145).

(24) The recommendation of the Bravo Dome Carbon Dioxide Gas Unit Working Interest Owners to contract the Bravo Dome Carbon Dioxide Gas Unit area is in the best interest of conservation and should be approved.

**IT IS THEREFORE ORDERED THAT:**

(1) The recommendation of the Bravo Dome Carbon Dioxide Gas Unit Working Interest Owners to contract the Bravo Dome Carbon Dioxide Gas Unit area as described in Exhibit A attached hereto and incorporated herein by reference is approved.

(2) This approval shall be effective as of 7:00 o'clock a.m. on the first day of December, 1994.

(3) Order Paragraphs 4 and 5 of Order No. R-6446-B which require periodic demonstrations by the Unit Operator of the Bravo Dome Carbon Dioxide Gas Unit at public hearings that its operations within the unit area are resulting in the prevention of waste and the protection of correlative rights on a continuing basis are hereby rescinded.

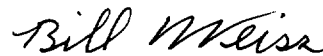
(4) Jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

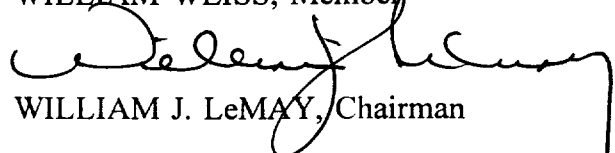
STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



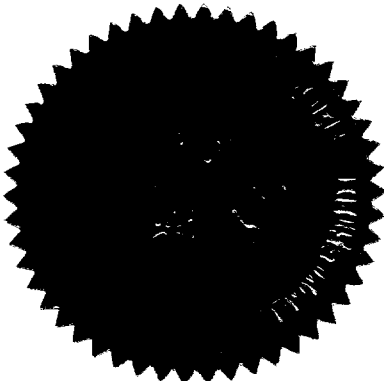
JAMI BAILEY, Member



WILLIAM WEISS, Member



WILLIAM J. LeMAY, Chairman



S E A L

# **Bravo Dome Carbon Dioxide Gas Unit**

## **Union County, New Mexico**

### **Township 18 North, Range 34 East, N.M.P.M.**

Sections 1 through 35: All  
Section 36: N/2, SW/4, N/2 SE/4, SW/4 SE/4

### **Township 18 North, Range 35 East, N.M.P.M.**

Sections 1 through 36: All

### **Township 18 North, Range 36 East, N.M.P.M.**

Section 2: Lots 1, 2, 3, 4, S/2 NW/4, N/2 SW/4  
Section 3: Lots 1, 2, 3, 4, S/2 N/2, SE/4  
Section 4: Lots 3, 4, S/2 NW/4, S/2  
Section 5: Lots 1, 2, 3, 4, S/2 N/2, SW/4  
Section 6: All  
Section 7: All  
Section 8: W/2  
Section 9: All  
Section 10: SW/4  
Section 17: SW/4  
Section 18: Lots 1, 2, 3, 4, E/2 W/2, SE/4  
Section 19: Lots 1, 2, 3, 4, E/2 W/2, SE/4  
Section 20: N/2 SW/4  
Section 21: SW/4  
Section 27: W/2, SW/4 SE/4  
Section 28: All  
Section 29: All  
Section 30: All  
Section 31: Lots 1, 2, 3, 4, E/2 W/2, SE/4, S/2 NE/4, NE/4 NE/4  
Sections 32 through 36: All

### **Township 18 North, Range 37 East, N.M.P.M.**

Section 30: Lots 1, 2, E/2 NW/4, E/2 of Lots 3, 4  
Section 31: Lots 1, 2, 3, 4, W/2

### **Township 19 North, Range 34 East, N.M.P.M.**

Sections 1 through 20: All  
Section 21: N/2, N/2 S/2, S/2 SE/4  
Sections 22 through 36: All

### **Township 19 North, Range 35 East, N.M.P.M.**

Sections 1 through 36: All

**Township 19 North, Range 36 East, N.M.P.M.**

Section 18: S/2  
Section 19: All  
Section 20: N/2, NW/4 SW/4, S/2 SW/4  
Section 29: W/2, W/2 E/2, E/2 SE/4  
Section 30: All  
Section 31: All  
Section 32: NW/4, S/2  
Section 33: S/2, S/2 NE/4  
Section 34: E/2, S/2 NW/4  
Section 35: NW/4 SW/4

**Township 20 North, Range 34 East, N.M.P.M.**

Sections 1 through 36: All

**Township 20 North, Range 35 East, N.M.P.M.**

Section 3: SW/4  
Sections 4 through 9: All  
Section 15: S/2, S/2 NW/4  
Sections 16 through 22: All  
Sections 27 through 34: All

**Township 21 North, Range 34 East, N.M.P.M.**

Sections 1 through 3: All  
Section 7: Lot 4  
Sections 10 through 14: All  
Section 15: E/2, N2 NW/4, SE/4 NW/4  
Section 17: W/2, W/2 E/2, E/2 NE/4  
Sections 18 through 20: All  
Section 21: S/2  
Sections 22 through 36: All

**Township 21 North, Range 35 East, N.M.P.M.**

Section 4: SW/4 NW/4, SE/4 NE/4, SW/4, W/2 SE/4  
Section 5: W/2, W/2 SE/4, SE/4 SE/4  
Sections 6 through 9: All  
Section 10: NW/4 NW/4  
Sections 16 through 21: All  
Sections 28 through 33: All

**Township 22 North, Range 30 East, N.M.P.M.**

Sections 1 through 36: All

**Township 22 North, Range 31 East, N.M.P.M.**

Sections 1 through 14: All  
Section 15: E/2, W/2 W/2, E/2 SW/4, SE/4 NW/4  
Sections 16 through 36: All



**Township 22 North, Range 32 East, N.M.P.M.**

Sections 1 through 30: All  
Section 31: Lots 1, 2, 4, E/2 W/2, E/2  
Sections 32 through 36: All

**Township 22 North, Range 33 East, N.M.P.M.**

Section 1: Lots 1, 2, 3, 4, S/2, S/2 N/2 except 10 acres in SW corner of SE/4 NE/4  
Section 2: N/2, S/2 S/2, N/2 SW/4, NW/4 SE/4  
Sections 3 through 12: All  
Section 13: N/2, SE/4  
Sections 14 through 23: All  
Section 24: E/2 SW/4, SW/4 SW/4  
Section 25: W/2, W/2 NE/4, NE/4 NE/4, N/2 SE/4  
Sections 26 through 35: All  
Section 36: W/2 W/2

**Township 22 North, Range 34 East, N.M.P.M.**

Section 1: W/2 SE/4, SE/4 SE/4  
Section 2: SW/4, W/2 SE/4  
Section 3: Lot 4, SW/4 NW/4, S/2  
Sections 4 through 11: All  
Section 12: N/2, E/2 SE/4  
Sections 14 through 30: All  
Section 31: Lots 1, 2, 3, 4, E/2 SW/4, W/2 SE/4  
Sections 32 through 36: All

**Township 22 North, Range 35 East, N.M.P.M.**

Section 7: Lot 4  
Section 18: Lot 1, E/2 W/2  
Section 19: Lots 2, 3, 4, E/2 W/2  
Section 30: All  
Section 31: All  
Section 32: W/2 NW/4, SW/4

**Township 23 North, Range 30 East, N.M.P.M.**

Section 36: All

**Township 23 North, Range 31 East, N.M.P.M.**

Sections 1 through 36: All

**Township 23 North, Range 32 East, N.M.P.M.**

Sections 1 through 4: All  
Section 5: Lots 1, 2, 3, 4, S/2 N/2, N/2 S/2, S/2 SE/4, SE/4 SW/4  
Section 6: Lots 1, 2, 3, 4, 5, 6, 7, NE/4 SW/4  
Sections 7 through 36: All

**Township 23 North, Range 33 East, N.M.P.M.**

Sections 1 through 36: All

**Township 23 North, Range 34 East N.M.P.M.**

Section 6: Lots 3, 4, 5, 6, 7, SE/4 NW/4, E/2 SW/4, W/2 SE/4, SE/4 SE/4

Section 7: All

Section 8: W/2 NW/4 NW/4, W/2 SW/4

Section 17: NW/4 SE/4, N/2 SW/4, SW/4 SW/4

Section 18: All

Section: 19: All

Section 20: W/2 W/2, E/2 SW/4

Section 28: SW/4

Section 29: W/2, SE/4

Sections 30 through 33: All

Section 34: S/2, S/2 N/2, NE/4 NE/4, NW/4 NW/4

Section 35: N/2 N/2, SE/4 NE/4, E/2 SE/4

**Township 24 North, Range 31 East, N.M.P.M.**

Section 1: All

Section 2: Lots 1, 2, 3, 4, S/2 N/2, S/2 S/2, N/2 SW/4, NE/4 SE/4

Sections 3 through 8: All

Section 9: N/2

Section 10: N/2

Section 11: SW/4 NW/4, E/2 E/2, W/2 NE/4

Sections 12 through 14: All

Section 15: E/2, SW/4, SE/4 NW/4

Sections 16 through 36: All

**Township 24 North, Range 32 East, N.M.P.M.**

Sections 1 through 11: All

Section 12: NW/4, N/2 SW/4, N/2 NE/4, SW/4 NE/4, NW/4 SE/4

Section 13: W/2

Sections 14 through 36: All

**Township 24 North, Range 33 East, N.M.P.M.**

Sections 1 through 36: All

**Township 24 North, Range 34 East, N.M.P.M.**

Section 5: SW/4 NW/4, W/2 SW/4

Section 6: Lots 6, 7, S/2 NE/4, SE/4 NW/4, E/2 SW/4, SE/4

Section 7: Lots 1, 2, 3, 4, SE/4 NW/4, E/2 SW/4, E/2

Section 8: W/2

Section 19: Lots 1, 2, 3, 4, E/2 W/2

Section 30: Lots 1, 2, 3, 4, E/2 W/2, NE/4 NE/4, S/2 NE/4, SE/4

Section 31: All

## Harding County, New Mexico

### **Township 17 North, Range 30 East, N.M.P.M.**

Section 1: Lots 1, 2, 3, 4, S/2 N/2, E/2 SW/4  
Section 11: E/2 SW/4, SE/4  
Section 12: S/2, E/2 NW/4  
Section 13: All  
Section 14: E/2, E/2 NW/4, SW/4 NW/4  
Section 15: SE/4 NE/4  
Section 24: NE/4, N/2 SE/4, SE/4 SE/4  
Section 25: SE/4 NE/4

### **Township 17 North, Range 31 East, N.M.P.M.**

Sections 1 through 4: All  
Section 5: Lots 1, 2, S/2 NE/4, SE/4  
Section 7: Lots 3, 4, E/2 SW/4, S/2 SE/4  
Section 8: E/2, SW/4  
Sections 9 through 23: All  
Section 24: W/2, SE/4  
Section 25: NW/4  
Section 26: All  
Section 27: All  
Section 28: E/2, NW/4, NW/4 SW/4  
Section 29: All  
Section 30: Lots 1, 2, 3, E/2 NW/4, NE/4 SW/4, NE/4, E/2 SE/4  
Section 31: SE/4 SW/4, NE/4, NE/4 SE/4, S/2 SE/4

### **Township 17 North, Range 32 East, N.M.P.M.**

Sections 1 through 17: All  
Section 18: SE/4  
Sections 19 through 25: All  
Section 27: E/2

### **Township 17 North, Range 33 East, N.M.P.M.**

Sections 1 through 19: All

### **Township 18 North, Range 30 East, N.M.P.M.**

Section 1: All  
Section 2: All  
Section 3: Lot 1, SE/4 NE/4, NE/4 SE/4, S/2 SE/4  
Section 10: E/2 NE/4  
Section 11: N/2  
Section 12: All  
Section 13: S/2, S/2 N/2, NW/4 NW/4  
Section 14: All  
Section 23: E/2 W/2, NE/4  
Section 24: All

Section 25: N/2, SE/4, E/2 SW/4, NW/4 SW/4  
Section 26: NE/4, E/2 NW/4, N/2 S/2  
Section 36: All

**Township 18 North, Range 31 East, N.M.P.M.**

Sections 1 through 5: All  
Section 6: Lots 1, 2, 3, 4, 5, 6, SE/4 NW/4, S/2 NE/4, SE/4, NE/4 SW/4  
Sections 7 through 16: All  
Section 17: N/2, N/2 S/2, S/2 SE/4, SE/4 SW/4  
Section 18: Lots 1, 2, 3, 4, E/2 W/2, NE/4, N/2 SE/4  
Section 19: Lots 3, 4, E/2 SW/4, SE/4  
Section 20: S/2, S/2 N/2, N/2 NE/4, NE/4 NW/4  
Section 21: W/2 W/2  
Section 22: E/2, E/2 W/2  
Sections 23 through 36: All

**Township 18 North, Range 32 East, N.M.P.M.**

Sections 1 through 36: All

**Township 18 North, Range 33 East, N.M.P.M.**

Sections 1 through 36: All

**Township 19 North, Range 29 East, N.M.P.M.**

Section 1: Lots 1, 2, 3, S/2 NE/4, SE/4 NW/4

**Township 19 North, Range 30 East, N.M.P.M.**

Section 1: All  
Section 2: Lots 1, 4, SE/4 NE/4, SW/4 NW/4  
Section 3: Lot 4, SW/4 NW/4, SW/4 SW/4  
Section 4: All  
Section 5: E/2  
Section 6: NE/4 SW/4, N/2 SE/4, SE/4 SE/4  
Section 7: NE/4 NE/4, NE/4 SE/4, SW/4 SE/4, SE/4 SW/4  
Section 8: N/2, SE/4, SE/4 SW/4  
Section 9: All  
Section 10: W/2, W/2 SE/4, NE/4 SE/4  
Section 12: S/2, E/2 NE/4, NW/4 NE/4  
Section 13: N/2, SE/4  
Section 14: S/2 S/2  
Section 15: N/2 NW/4, NW/4 NE/4, SW/4, S/2 SE/4  
Section 16: All  
Section 17: N/2, SE/4  
Section 18: NE/4 NE/4  
Section 20: W/2 NE/4, S/2 SE/4  
Section 21: All  
Section 22: All  
Section 23: S/2, NE/4

Section 24: All  
Section 25: All  
Section 26: N/2, SE/4  
Section 27: All  
Section 28: All  
Section 29: NE/4  
Section 32: NE/4 NE/4  
Section 33: N/2 N/2, S/2 NW/4, SW/4 NE/4, NW/4 SE/4, NE/4 SW/4  
Section 34: N/2, E/2 SE/4  
Section 35: S/2, NE/4  
Section 36: All

**Township 19 North, Range 31 East, N.M.P.M.**

Section 1: Lots 1, 2, S/2 NE/4, S/2  
Section 2: Lots 1, 2, 3, 4, S/2 NE/4, SE/4, SW/4 NW/4, W/2 SW/4  
Section 3: Lots 2, 3, 4, SW/4 NE/4, W/2 SE/4, S/2 NW/4, SW/4  
Section 4: Lots 2, 3, SW/4 NE/4, SE/4 NW/4, E/2 SW/4, W/2 SE/4  
Section 5: Lot 1, SE/4 NE/4, E/2 SE/4  
Section 6: S/2 SE/4, SE/4 SW/4  
Section 7: Lots 1, 2, 3, 4, E/2 W/2, SE/4  
Section 9: N/2 NW/4, NE/4  
Section 11: W/2 NW/4, N/2 NE/4, SE/4 NE/4, NE/4 SE/4  
Section 12: E/2, E/2 W/2  
Section 13: All  
Section 14: NE/4 NE/4, S/2 NE/4, SE/4 SE/4  
Section 17: All  
Section 18: All  
Section 19: Lots 1, 2, 3, E/2 W/2, E/2  
Sections 20 through 24: All  
Section 25: N/2, SW/4  
Sections 26 through 29: All  
Section 30: Lots 2, 3, 4, E/2 W/2, SE/4  
Sections 31 through 36: All

**Township 19 North, Range 32 East, N.M.P.M.**

Sections 1 through 36: All

**Township 19 North, Range 33 East, N.M.P.M.**

Sections 1 through 5: All  
Section 6: Lots 1, 2, 3, 4, 5, 6, 7, SE/4 NW/4, S/2 NE/4, E/2 SW/4  
Sections 7 through 36: All

**Township 20 North, Range 29 East, N.M.P.M.**

Section 1: All  
Section 2: All  
Section 3: Lots 1, 2, 3, S/2 N/2, S/2  
Section 4: Lot 4, SE/4 NE/4, E/2 SE/4

Section 5: SW/4, SW/4 SE/4  
 Section 6: Lots 1, 2, 3, S/2 NE/4, SE/4 NW/4, NE/4 SW/4, SE/4  
 Section 7: Lots 2, 3, NE/4 SW/4, N/2 SE/4  
 Section 8: NW/4 NW/4, W/2 SW/4  
 Section 9: NE/4 NW/4, SW/4 NE/4, E/2 E/2  
 Sections 10 through 15: All  
 Section 16: E/2, NE/4 NW/4, SE/4 SW/4, W/2 SW/4  
 Section 17: S/2, SW/4 NE/4, S/2 NW/4, NW/4 NW/4  
 Section 18: Lots 1, 2, 3, 4, E/2 SW/4, SE/4 NW/4, E/2  
 Section 19: Lots 1, 2, E/2 W/2, E/2  
 Section 20: All  
 Section 21: W/2 NW/4, NW/4 SW/4, NE/4, NE/4 SE/4  
 Section 22: All  
 Section 23: All  
 Section 24: N/2, E/2 SE/4, W/2 SW/4, SE/4 SW/4  
 Section 25: NE/4 NE/4, N/2 NW/4, S/2 N/2, SW/4, W/2 SE/4  
 Section 26: All  
 Section 27: N/2, NE/4 SW/4, SE/4  
 Section 29: N/2  
 Section 30: N/2 NE/4, SE/4 NE/4  
 Section 34: NE/4 NE/4  
 Section 35: N/2, SE/4  
 Section 36: All

**Township 20 North, Range 30 East, N.M.P.M.**

Section 1: All  
 Section 2: All  
 Section 3: S/2  
 Section 4: Lots 1, 3, 4, SW/4 NW/4, S/2  
 Sections 5 through 10: All  
 Section 11: N/2, E/2 SE/4, NW/4 SW/4  
 Section 12: All  
 Section 13: N/2 NW/4, NE/4 SE/4  
 Section 14: N/2, S/2 SW/4  
 Sections 15 through 19: All  
 Section 20: NE/4, W/2 W/2, E/2 SE/4, SW/4 SE/4, SE/4 SW/4  
 Section 21: All  
 Section 22: All  
 Section 23: S/2, E/2 NE/4  
 Section 24: N/2 NE/4, S/2  
 Sections 25 through 28: All  
 Section 29: N/2, SE/4, N/2 SW/4, SE/4 SW/4  
 Section 30: Lots 1, 2, 4, SE/4 SW/4, NE/4, E/2 NW/4, N/2 SE/4  
 Section 31: All  
 Section 32: E/2, E/2 W/2, SW/4 NW/4, W/2 SW/4  
 Sections 33 through 36: All

**Township 20 North, Range 31 East, N.M.P.M.**

Sections 1 through 5: All  
Section 6: Lots 1, 2, 3, 4, 5, SE/4 NW/4, S/2 NE/4, SE/4  
Section 7: Lots 3, 4, E/2 SW/4, N/2 SE/4, NE/4, NE/4 NW/4  
Section 9: NE/4, E/2 NW/4, N/2 SE/4  
Section 10: N/2, N/2 SW/4  
Section 11: N/2, N/2 S/2, SE/4 SE/4  
Section 12: N/2 N/2, S/2 NW/4, SE/4 NE/4, NE/4 SE/4, S/2 S/2  
Section 13: All  
Section 14: NE/4, E/2 NW/4, S/2 S/2  
Section 15: S/2 S/2  
Section 17: E/2 NE/4, SE/4, E/2 SW/4  
Section 18: All  
Section 20: N/2 N/2  
Section 21: N/2 SE/4  
Sections 22 through 26: All  
Section 27: E/2, N/2 NW/4, W/2 SW/4  
Section 28: SW/4  
Section 29: E/2 SE/4  
Section 32: NE/4 NE/4  
Sections 33 through 36: All

**Township 20 North, Range 32 East, N.M.P.M.**

Sections 1 through 36: All

**Township 20 North, Range 33 East, N.M.P.M.**

Sections 1 through 36: All

**Township 21 North, Range 29 East, N.M.P.M.**

Sections 1 through 16: All  
Section 17: N/2 N/2, SE/4 SW/4, SW/4 SE/4  
Section 18: All  
Section 19: All  
Section 20: W/2, W/2 E/2, SE/4 SE/4  
Sections 21 through 24: All  
Section 25: All  
Section 26: All  
Section 27: All  
Section 28: N/2, SE/4, E/2 SW/4  
Section 29: All  
Section 30: Lots 1, 2, 4, E/2 NW/4, NE/4, N/2 SE/4, SE/4 SE/4  
Section 31: All  
Section 32: W/2, W/2 E/2, SE/4 NE/4, E/2 SE/4  
Section 33: N/2 NE/4, NE/4 NW/4, W/2 SW/4, NE/4 SW/4  
Sections 34 through 36: All

**Township 21 North, Range 30 East, N.M.P.M.**

Section 1: Lots 1, 2, 3, 4, SE/4 NW/4, S/2 NE/4, S/2

Sections 2 through 7: All

Section 8: S/2, S/2 N/2, NW/4 NW/4, N/2 NE/4

Sections 9 through 36: All

**Township 21 North, Range 31 East, N.M.P.M.**

Sections 1 through 36: All

**Township 21 North, Range 32 East, N.M.P.M.**

Sections 1 through 36: All

**Township 21 North, Range 33 East, N.M.P.M.**

Section 1: S/2 SW/4, SW/4 SE/4

Section 2: Lots 2, 3, 4, S/2 NW/4, SW/4 NE/4, SW/4, NW/4 SE/4, S/2 SE/4

Sections 3 through 11: All

Section 12: W/2, W/2 E/2, SE/4 NE/4, E/2 SE/4

Sections 13 through 36: All

**Quay County, New Mexico**

**Township 16 North, Range 34 East, N.M.P.M.**

Section 3: Lots 3 through 6, 11 and 12

Section 4: Lots 1, 2, 5 through 12, N/2 SE/4, SW/4

**Township 16 North, Range 35 East, N.M.P.M.**

Section 1: Lots 1 through 6

**Township 16 North, Range 36 East, N.M.P.M.**

Section 5: Lots 4, 5

Section 6: Lots 1 through 4, 7, 8, 10

**Township 17 North, Range 34 East, N.M.P.M.**

Section 1: All

Section 2: Lots 3, 4, S/2 NW/4, S/2

Sections 3 through 18: All

Section 19: Lots 1, 2, 3, 4, E/2 W/2, SE/4

Section 20: W/2

Section 21: S/2

Sections 22 through 29: All

Section 33: All

Section 34: N/2

Section 35: All



**Township 17 North, Range 35 East, N.M.P.M.**

Sections 1 through 19: All  
Section 20: W/2, N/2 NE/4  
Section 21: E/2 NE/4, SE/4  
Sections 22 through 26: All  
Section 27: S/2 NW/4  
Section 28: S/2, NE/4  
Section 30: Lots 1, 2, E/2 NW/4, NE/4  
Section 34: SE/4  
Section 35: All  
Section 36: All

**Township 17 North, Range 36 East, N.M.P.M.**

Sections 1 through 22: All  
Section 23: N/2, N/2 S/2, S/2 SE/4  
Sections 24 through 36: All

**Township 17 North, Range 37 East, N.M.P.M.**

Section 6: All  
Section 7: All  
Section 18: All  
Section 19: All  
Section 30: All  
Section 31: All