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March 24, 2014

**VIA HAND DELIVERY**

Jami Bailey, Chair  
Oil Conservation Commission  
New Mexico Department of Energy  
Minerals and Natural Resources  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

*Case 15127*

**Re: Application of DCP Midstream, LP for Authorization to Inject Acid Gas into the Artesia AGI #2 Well, Section 7, Township 18 South, Range 28 East, N.M.P.M., Eddy County, New Mexico.**

Dear Ms. Bailey:

Enclosed, please find the original and six copies of the above-referenced application on behalf of DCP Midstream, LP, as well as a copy of a proposed legal advertisement. Applicant respectively requests that this matter be set for hearing before the Oil Conservation Commission on May 22, 2014. Your attention to this matter is greatly appreciated.

Sincerely,

Adam G. Rankin  
**ATTORNEY FOR DCP MIDSTREAM, LP**

cc: Phillip Goetze, w/o encls.  
Oil Conservation Division

Gabriel Wade, Esq. w/o encls.  
Oil Conservation Division

Paul Tourangeau, Esq. w/o encls.  
DCP Midstream, LP

Alberto Gutiérrez  
Geolex, Inc. w/o encls.

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

The State of New Mexico through its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of the Division of the following public hearing to be held at 9:00 A.M. on May 22, 2014, in Porter Hall at 1220 South St. Francis, Santa Fe, New Mexico, before the Oil Conservation Commission. If you are an individual with a disability who is in need of a reader, amplifier, qualified sign language interpreter, or any other form of auxiliary aid or service to attend or participate in the hearing, please contact: Florene Davidson at 505-476-3458 or through the New Mexico Relay Network, 1-800-659-1779 by May 12, 2014. Public documents including the agenda and minutes, can be provided in various accessible forms. Please contact Florene Davidson if a summary or other type of accessible form is needed.

**STATE OF NEW MEXICO TO:  
All named parties and persons  
having any right, title, interest  
or claim in the following cases  
and notice to the public.**

(NOTE: All land descriptions herein refer to the New Mexico Principal Meridian whether or not so stated.)

**Case No. 15127: Application of DCP Midstream, LP for Authorization to Inject Acid Gas into the Artesia AGI #2 Well, Section 7, Township 18 South, Range 28 East, N.M.P.M., Eddy County, New Mexico.**

Applicant DCP Midstream, LP seeks an order from the New Mexico Oil Conservation Commission authorizing it to inject acid gas and carbon dioxide (CO<sub>2</sub>) from the Artesia Gas Processing Plant (the "Plant") into its proposed Artesia AGI #2 well. The proposed Artesia AGI #2 well will be located 1,180 feet from the South line and 2,035 feet from the East line (Unit O) of Section 7, Township 18 South, Range 28 East, N.M.P.M., Eddy County, New Mexico. The Applicant proposes to inject treated acid gas for disposal into the Lower San Andres, Glorietta and Upper Yeso, at an approximate depth of 4,300 feet below the surface, under a maximum allowable operating pressure of 1,704 psig for treated acid gas only and 916 psig for injection of waste water only. The proposed well will serve as the primary disposal well for acid gas and CO<sub>2</sub> from the Plant. The proposed well is located approximately 6 miles Southwest of Riverside, New Mexico.

Given under the Seal of the State of New Mexico, Oil Conservation Commission, Santa Fe, New Mexico on this 20th day of March 2014.

**STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION**

**Jami Bailey, Division Director**



# C-108 Application for Authority to Inject

**DCP Midstream LLC**  
**DCP Artesia AGI #2**  
1180' FSL & 2035' FEL  
Section 7, T18S, R28E  
Eddy County, New Mexico

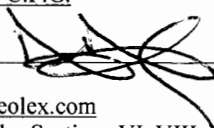


**February 19, 2014**

*Prepared For:*  
**DCP Midstream LLC**  
**370 17<sup>th</sup> Street, Suite 2500**  
**Denver, Colorado 80202**

*Prepared By:*  
**Geolex, Inc.**  
**500 Marquette Avenue, NE, Suite 1350**  
**Albuquerque, New Mexico 87102**  
**(505)-842-8000**

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: Disposal Secondary Recovery \_\_\_\_\_ Pressure Maintenance \_\_\_\_\_ Disposal \_\_\_\_\_ Storage \_\_\_\_\_  
Application qualifies for administrative approval? X Yes \_\_\_\_\_ No \_\_\_\_\_
- II. OPERATOR: DCP Midstream LP *Case 15127*  
ADDRESS: 370 17<sup>TH</sup> Street, #2500, Denver, CO 80202  
CONTACT PARTY: Alberto A. Gutierrez, R.G. - GEOLEX, INC. (Consultant to DCP) PHONE: (505) 842-8000
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  
Additional sheets may be attached if necessary. **A CROSS REFERENCE TO THE APPLICABLE SECTIONS OR APPENDICES IN THE ATTACHED C108 APPLICATION FOR EACH ROMAN NUMERAL BELOW IS SPECIFIED BY SECTION AND/OR APPENDIX NUMBERS.**
- IV. Is this an expansion of an existing project? X Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, give the Division order number authorizing the project: SWD-838
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review. **SECTION 5 and FIGURE 17**
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail. **SECTION 5 and TABLES 4 and 5**
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected; **SECTION 3 and TABLES 1 and 2**
  2. Whether the system is open or closed; **SECTIONS 1 and 7**
  3. Proposed average and maximum injection pressure; **SECTION 3.1 through 3.4**
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, **SECTION 4.4**
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.). **SECTION 4.4 REFERENCES APPLICATION FOR AUTHORITY FOR SALT WATER DISPOSAL - ADMINISTRATIVE APPROVAL, ARTESIA PLANT SWD NO. 1, EDDY COUNTY, FEBRUARY 5, 1985.**
- \*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval. **SECTION 4.** Describe the proposed stimulation program, if any. **None other than routine acidizing of perforations is anticipated.**
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted). **WELL IS NOT YET DRILLED.**
- \*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken. None Available
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water. **SECTIONS 1 and 7**
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. **SECTION 6 and APPENDIX B**
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Alberto A. Gutierrez, C.P.G. TITLE: President, Geolex, Inc.®; Consultant to DPC Midstream Services  
SIGNATURE:  DATE: 2/18/14  
E-MAIL ADDRESS: aag@geolex.com
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: **SEE ATTACHED APPLICATION**

### III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section. **DCP Artesia AGI #2; Section 7, T18S, R28E, 1180 FSL, 2035 FEL surface location and 690 FSL, 745 FEL bottom hole location.**
  - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined. **SEE SECTION 3.5 AND FIGURE 5 FOR PROPOSED WELL DESIGN. FINAL DESIGN WILL BE SUBMITTED WHEN PROPOSED WELL IS DRILLED AND COMPLETED.**
  - (3) A description of the tubing to be used including its size, lining material, and setting depth. **SECTION 3.5 and FIGURE 5**
  - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used. **SECTION 3.5 and FIGURE 5**
- Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.
- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
- (1) The name of the injection formation and, if applicable, the field or pool name. **SECTION 4**
  - (2) The injection interval and whether it is perforated or open-hole. **SECTIONS 3.5 and 4.0 and FIGURE 5**
  - (3) State if the well was drilled for injection or, if not, the original purpose of the well. **N/A – WELL IS NOT YET DRILLED**
  - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations. **N/A – WELL IS NOT YET DRILLED**
  - (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any. **SECTION 5 and FIGURES 8 and 9**

### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location. **SECTION 6; APPENDIX B; WE WILL NOTIFY OPERATORS AND LEASHOLD OWNERS AND SURFACE OWNERS WITH THE AREA OF REVIEW PURSUANT TO NMOCD REGULATIONS AND WE WILL SUBMIT AFFIDAVITS OF PUBLICATION OF NOTICE AND CERTIFIED MAIL RETURN RECEIPTS AT HEARING**

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include: **SECTION 6; APPENDIX B; FOR DRAFT OF PUBLIC NOTICE – AFFIDAVIT OF PUBLICATION OF NOTICE FROM NEWSPAPER WILL BE SUBMITTED AT HEARING.**

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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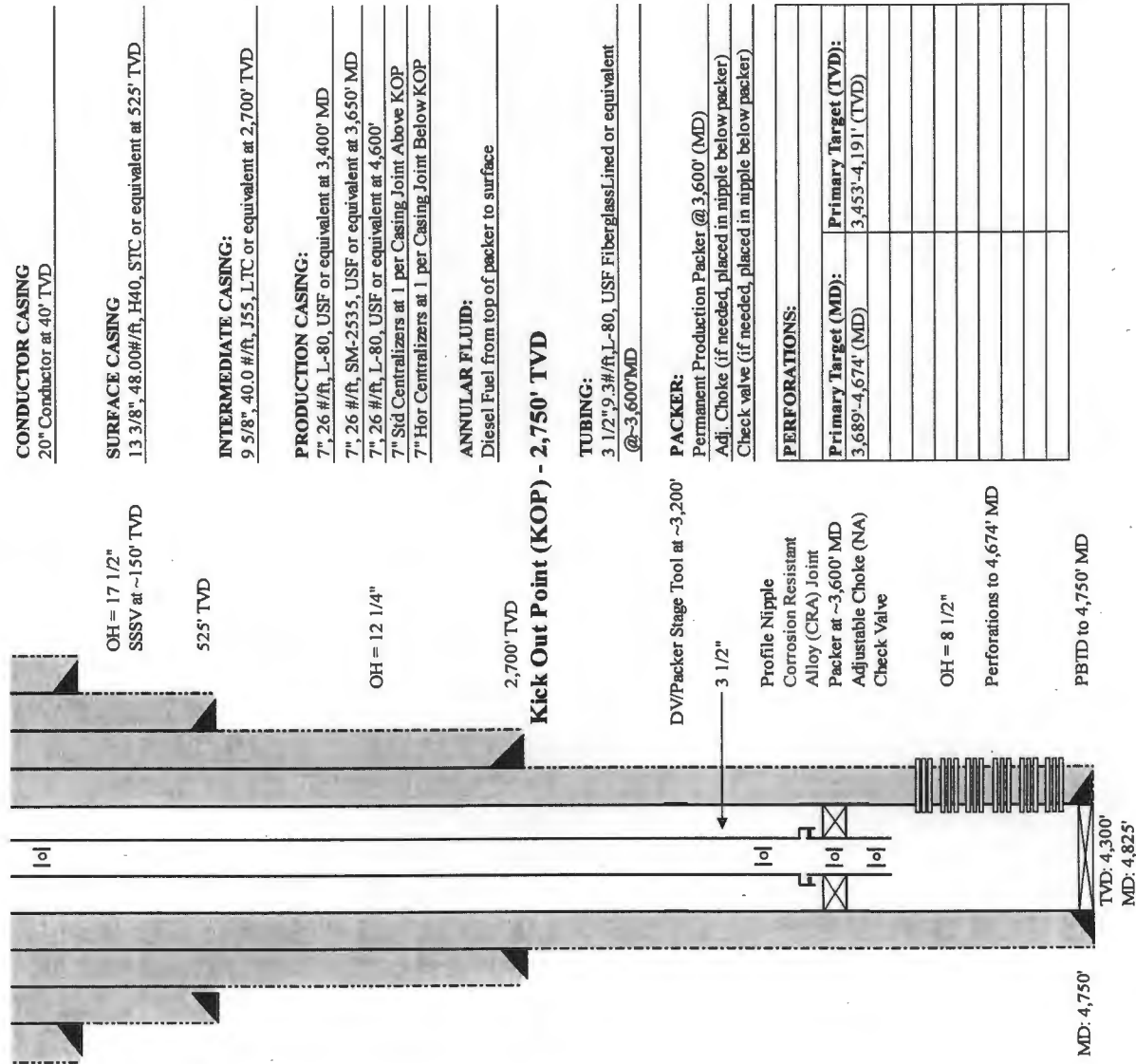
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

**GEOLEX<sup>®</sup>**  
INCORPORATED

**DCP Midstream Services**

**Location:** DCP Artesia AGI #2  
**STR** Section 7, T18S-R28E  
**County, St.:** EDDY COUNTY, NEW MEXICO

### 41.5 DEGREES FROM VERTICAL



**INJECTION WELL DATA SHEET**

Tubing Size: 3 1/2 inches 9.3 ppf, EUE Lining Material: Fiberglass

Type of Packer: Retrievable Production Packer (Schlumberger QL, Baker DB or Similar)

Packer Setting Depth: 3,600 feet

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1. Is this a new well drilled for injection? X Yes      No **Note: Well has not yet been drilled.**

If no, for what purpose was the well originally drilled? N/A

2. Name of the Injection Formation: Lower San Andres, Glorietta, Upper Yeso

3. Name of Field or Pool (if applicable): N/A

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. N/A

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Producing zones above: Tansill, Yates, 7 Rivers  
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## 1.0 EXECUTIVE SUMMARY

On behalf of DCP Midstream LP (DCP), Geolex<sup>®</sup>, Inc. (Geolex) has prepared and is hereby submitting a complete C-108 application for approval to drill, complete and operate an acid gas injection and CO<sub>2</sub> sequestration well (DCP Artesia AGI #2) as part of the existing DCP Duke AGI #1 Facility. The well will also be used to inject plant wastewater that is currently being disposed of with the existing salt water disposal well no. 1 (SWD #1), which will be plugged and abandoned after DCP Artesia AGI #2 is completed. The existing AGI facility which will house the new well is located on Section 7, T18S, R28E near Artesia in Eddy County, New Mexico (Figure 1). The proposed DCP Artesia AGI #2 will be drilled at a location 1180 feet from the south line (FSL) and 2035 feet from the east line (FEL) of Section 7 at an approximate distance of 120 feet west southwest of DCP Duke AGI #1 (Figure 2). The bottom hole location of proposed DCP Artesia AGI #2 is 690 FSL and 745 FEL. DCP Artesia AGI #2 is intended to provide the primary treated acid gas (TAG) injection and the existing Duke AGI #1 will be converted to a redundant back-up well in the case that DCP Artesia AGI #2 encounters problems that require it to be temporarily shut down for repairs or upgrades. In addition, DCP Artesia AGI #2 will also provide injection capacity for plant wastewater to replace the existing SWD #1. The new well will serve as a redundant AGI well to the Duke AGI #1, originally approved under New Mexico Oil Conservation Division (NMOCD) Order SWD-838 dated May 29, 2002 and its amendments.

The Artesia Gas Plant is dependent on the existing Duke AGI #1 well and associated compression facility for its operation since the complete shutdown of the plant's sulfur reduction unit (SRU). Without the ability to dispose of acid gas using the existing well, the plant would have to be shut down and producers would have to be shut in. The existing Duke AGI #1 may be approaching its reservoir injection capacity and may be filled up in approximately nine years if continually utilized at the current capacity. For these reasons, DCP Midstream Services (DCP) has determined that a new AGI well which is capable of serving as a conduit to inject into an injection zone with greater capacity is necessary to prevent unscheduled shutdowns of the plant that would negatively affect many producers and the State of New Mexico.

The proposed DCP Artesia AGI #2 would become the primary injection well with the Duke AGI #1 as backup. The existing Duke AGI #1 could be used in the event of a casing or tubing failure in the new DCP Artesia AGI #2 and would be immediately available to continue injection of acid gas and keep the plant running while the DCP Artesia AGI #2 is repaired or worked over. The ideal situation for assuring the continued operation of the plant is to have two wells in separate reservoirs which DCP could use in an alternating fashion when the other is being worked over or repaired.

On May 29, 2002, Duke Energy Field Services (now DCP Midstream Services, LP), received approval to inject acid gas under NMOCD Order SWD-838. A C-101 application to drill an 11,500 foot Devonian well was approved on June 3, 2002 at DCP's Artesia Gas Plant near Artesia, New Mexico (Figure 2). Duke AGI #1 was spudded on August 14, 2002 and successfully completed on September 22, 2002. The purpose of the AGI was to replace the existing SRU used to reduce elemental sulfur from the TAG from the sweetener units.

The proposed DCP Artesia AGI #2 is anticipated to have a total vertical depth (TVD) of approximately 4,300 feet and will be completed in the Lower San Andres, Glorieta and Upper Yeso (Figure 3). Like the Duke AGI #1, the proposed DCP Artesia AGI #2 is located on the southern end of the Northwest Shelf. The Northwestern Shelf includes shelf edge reefs and shelf carbonates of the Yeso, San Andres, Grayburg, Queen, Seven Rivers, Yates, and Tansill formations. All of these formations grade updip (shoaling upward) into siltstones and evaporates. By selecting a location near the existing DCP Duke

AGI #1 on the surface, and then deviating the proposed DCP Artesia AGI #2 at an angle toward the east southeast, a more favorable reservoir should be encountered. The close proximity of DCP Artesia AGI #2 to Duke AGI #1 and SWD #1 virtually assures, based on the geophysical logs for those wells, that the proposed injection zone for DCP Artesia AGI#2 will be nearly identical to that of SWD #1.

The injection reservoir selected for proposed DCP Artesia AGI #2 is between approximately 3,600 and 4,300 feet TVD below ground surface. Analysis of the reservoir characteristics of this unit, based on data from the completion and analysis of Duke AGI #1 and SWD #1, and the August 2013 step-rate test on SWD #1 confirms that this zone is an excellent closed-system reservoir that should easily accommodate the future needs of DCP for disposal of acid gas and sequestration of CO<sub>2</sub> from the plant. In addition, wastewater from plant operations that is currently being disposed via SWD #1 will be diverted to the proposed AGI #2. DCP needs to safely inject up to 2.0 MMSCFD of TAG, along with approximately 600 barrels per day of plant wastewater, for 30 years. Geologic studies conducted for the selection of this location demonstrate that the proposed injection zone is readily capable of accepting and containing the proposed acid gas injection volumes, as well as plant wastewater within NMOCD's maximum allowable injection pressures. Details on the geologic analysis and activities, along with data on the installation and operation of the existing Duke AGI #1, can be found in the following documents which are incorporated here by reference:

- C-108 Application for Authority to Inject, DCP Artesia Plant Area Lea County, NM, September 12, 2005
- Oil Conservation Commission Hearing On Duke Energy Field Services' C-108 Application, February 9, 2006
- Final End of Well Report, DCP Midstream LLC, Duke AGI #1, September 30, 2011
- NMOCD Order SWD-838 dated May 29, 2002 and its amendments
- NMOCD Form C-101 Application to Drill approved June 3, 2002
- Preliminary Report on Results on Step-Rate Test, DCP Midstream, LP, Artesia Gas Plant Duke SWD #1, August 29, 2013

Much of the information required to evaluate and approve an AGI well at this location was already gathered, evaluated and presented to New Mexico Oil Conservation Commission (NMOCC) for the Duke AGI #1. However, because the DCP Artesia AGI #2 new primary well will be completed in a different, and stratigraphically higher geologic formation, Geolex conducted a detailed examination of all of the elements required to be evaluated in order to prepare and obtain approval for this C-108 application for injection. The elements of this evaluation include:

- Identification and characterization of all hydrocarbon-producing zones of wells that surround and are present on the plant site
- The depths of perforated pay intervals in those wells relative to the depth of the target injection zone (Lower San Andres, Glorietta, Upper Yeso)
- The past and current uses of the proposed injection zone
- Total feet of net porosity in the Lower San Andres, Glorietta, Upper Yeso
- The stratigraphic and structural setting of the targeted injection zone relative to any nearby active or plugged wells, and other wells penetrating the intervals
- The identification of all surface owners within a one-half mile radius of the proposed injection well and sample notification letter
- The identification of all wells, operators, and mineral leases within a one-half mile radius of the proposed injection well and a sample notification letter

- Identification and characterization of all plugged wells within a one-half mile radius of the proposed injection well
- The details of the proposed injection operation, including detailed well design and average and maximum daily rates of injection and injection pressures
- Sources of injection fluid and compatibility with the formation fluid of the injection zone;
- Location and identification of any fresh water bearing zones in the area; the depth and quality of available groundwater in the vicinity of the proposed well, including a determination that there are no structures which could possibly communicate the disposal zone with any known sources of drinking water

Based upon our history with the injection zone through the Duke AGI #1 and SWD #1 operation and supplemented by this detailed evaluation, DCP has determined that the proposed injection well is a safe and environmentally-sound project for the disposal of acid gas and plant wastewater. Furthermore, the project provides additional environmental benefit by permanently sequestering a significant volume of CO<sub>2</sub> which would otherwise continue to be released to the atmosphere and the flaring of H<sub>2</sub>S. In addition, redundant wells will provide a more reliable AGI system as the plant can use one well while the other well is serviced as needed. At the expected ratio of 30% H<sub>2</sub>S and 70% CO<sub>2</sub>, injecting 2.0 MMSCFD will sequester approximately 29 tons of H<sub>2</sub>S and 85 tons of CO<sub>2</sub> per day. Wastewater that is currently being disposed of via SWD #1 will be diverted to the proposed DCP Artesia AGI #2.

Our research and data from the preliminary analysis, completion and implementation of the AGI system through the Duke AGI #1 and SWD #1 has identified and confirmed one primary AGI target in the Lower San Andres, Glorietta and Upper Yeso from a depth of 3,600 to 4,300 feet TVD below ground surface. This reservoir is effectively sealed laterally and above and below by the much less permeable adjacent facies.

Although 26 existing wells and one new well that has been permitted but not yet drilled occur within one-half mile of proposed DCP Artesia AGI #2, only three wells, the active DCP Duke AGI #1 well and two other injection wells (SWD #1 and State CG #1), penetrate into the proposed injection zone (Lower San Andres, Glorietta, Upper Yeso). NMOCD files show that all of the three wells that penetrate the injection reservoir have been completed in a manner that will effectively isolate the proposed injection interval. There are no active oil wells within the one-half mile radius of proposed DCP Artesia AGI #2 that penetrate the proposed injection reservoir.

All surface owners and operators within a one-half mile radius of the proposed injection well will be notified at least 20 days prior to the NMOCC hearing pursuant to the requirements of NMOCD.

There is no permanent body of surface water within several miles of the plant. A search of the New Mexico State Engineer's files shows that there are two water wells within the one-half mile radius of proposed DCP Artesia AGI #2. Both of these water wells are completed in shallow groundwater to anticipated depths ranging from 60 to 270 feet below ground surface and will not be impacted by DCP Duke AGI #1 or DCP Artesia #2 operations. This is assured by the isolation of all fresh water bearing zones by surface casing to a depth of 525 feet and cemented to the surface as in the Duke AGI #1 and DCP SWD #1. The proposed injection zone is a closed system, and there are no open faults, fractures, or other structures that could potentially serve as a pathway between the proposed injection zone and any sources of fresh water.

The facility currently operates under an approved Rule 11 H<sub>2</sub>S Contingency Plan which will be modified to include the new well and surface facilities, and then submitted for NMOCD review and approval prior to placing the DCP Artesia AGI #2 into service.

## **2.0 INTRODUCTION AND ORGANIZATION OF THIS C-108 APPLICATION**

The completed NMOCD Form C-108 is included before the Table of Contents of this document and references appropriate sections where data required to be submitted are included herein.

This application organizes and details all of the information required by NMOCD and NMOCC to evaluate and approve the submitted Form C-108 – Application for Authorization to Inject. This information is presented in the following categories:

- A detailed description of the location, construction and operation of the proposed injection well (Section 3.0)
- A summary of the regional and local geology, the hydrogeology, and the location of drinking water wells within the area of review (Section 4.0)
- The identification, location, status, production zones, and other relevant information on oil and gas wells within the area of review (Section 5.0)
- The identification and required notification for operators and surface land owners that are located within the area of review (Section 6.0)
- An affirmative statement, based on the analysis of geological conditions at the site, that there is no hydraulic connection between the proposed injection zone and any known sources of drinking water (Section 7.0)

In addition, this application includes the following supporting information:

- Appendix A: Well Completion and Plugging Diagram for All Wells Within One-Half Mile of Proposed DCP Artesia AGI #2 that Penetrate the Injection Reservoir
- Appendix B: Land information on Tracts within one-half Mile of Proposed Artesia AGI #2

It is anticipated that this application shall be the subject of a NMOCC hearing in Spring 2014.

### 3.0 PROPOSED CONSTRUCTION AND OPERATION OF DCP ARTESIA AGI #2 WELL

The proposed injection well will be drilled near the DCP Duke AGI #1 1180 feet FSL and 2035 feet FEL of Section 7, T18S, and R28E. Figure 2 shows the proposed location of the new well. The DCP Artesia AGI #2 will be utilized to sequester both TAG and wastewater (WW) generated from plant operations into the proposed injection reservoir. Section 3.1 below summarizes the calculated maximum injection pressure of TAG produced at the DCP Artesia Gas Plant. Section 3.2 summarizes the calculated maximum injection pressure of the combined TAG/WW stream produced at the plant.

#### 3.1 CALCULATED MAXIMUM INJECTION PRESSURE OF TAG + WW, TAG ONLY, and WW ONLY

The well will be designed and constructed such that it will serve as a primary injection conduit for a stream of treated acid gas and salt water. The TAG will be of approximately the following composition:

- 69.6% CO<sub>2</sub>
- 30.4% H<sub>2</sub>S
- Trace Components of C<sub>1</sub> – C<sub>7</sub>

These concentrations are entered into Table 1 based on the most recent data collected from the DCP Duke AGI #1 and used to calculate pressure and volume for TAG under current maximum DCP Artesia Plant capacity of 225 MMSCFD and measured inlet gas concentrations. The TAG specific gravity is the average of the top and bottom specific gravity as calculated by Aqualibrium<sup>TM</sup> software and included in the table.

The total volume of TAG to be injected under this scenario will be approximately 981 barrels per day (bpd) at 2.0 MMSCFD at reservoir conditions. Pressure reduction valves will be incorporated to assure that maximum surface injection pressure allowed by NMOCD will not be exceeded.

The calculated maximum allowable injection pressure for TAG + WW would be approximately 1,405 psig (depending on specific gravity of final TAG stream). We have used the following method approved by NMOCD to calculate the preliminary proposed maximum injection pressure. The final maximum permitted surface injection pressure should be based on the final specific gravity of the injection fluid according to the following formula:

$$IP_{\max} = PG * D_{\text{bot}}$$

where:  $IP_{\max}$  = maximum surface injection pressure (psi)  
 $PG$  = pressure gradient of mixed injection fluid (psi/ft)  
 $D_{\text{bot}}$  = depth at top of perforated interval of injection zone (ft)

$$PG = 0.2 + 0.433 (1.04 - SG_{\text{bif}})$$

where:  $SG_{\text{bif}}$  = specific gravity of blended injection fluid

$$\frac{SG_{bif} = [(SG_{ww})(WW_{vol})] + [(SG_{tag})(TAG_{vol})]}{WW_{vol} + TAG_{vol}}$$

where:  $SG_{ww}$  = specific gravity of wastewater  
 $SG_{tag}$  = specific gravity of treated acid gas  
 $WW_{vol}$  = volume of wastewater in mix  
 $TAG_{vol}$  = volume of treated acid gas in mix

For the maximum requested injection volume for TAG + WW case it is assumed that:

$$\begin{aligned} SG_{ww} &= 1.01 \\ SG_{tag} &= 0.587 \\ WW_{vol} &= 600 \\ TAG_{vol} &= 981 \\ D_{bot} &= 4,300 \end{aligned}$$

Therefore:

$$\frac{SG_{bif} = [(SG_{ww})(WW_{vol})] + [(SG_{tag})(TAG_{vol})]}{WW_{vol} + TAG_{vol}} = \frac{606 + 576}{1581} = 0.7475$$

$$PG = 0.2 + 0.433 (1.04 - SG_{bif}) = 0.2 + 0.433 (1.04 - 0.7475) = 0.327 \text{ psi/ft}$$

$$IP_{max} = PG * D_{top} = 0.327 * (4,300) = 1,405 \text{ psi}$$

Based on the performance of the existing injection well, it is anticipated that the average injection pressure for TAG + WW would not exceed 1,405 psig.

For the maximum requested injection volume for TAG ONLY case it is assumed that:

$$\begin{aligned} SG_{tag} &= 0.587 \\ TAG_{vol} &= 981 \\ D_{bot} &= 4,300 \end{aligned}$$

Therefore:

$$PG = 0.2 + 0.433 (1.04 - SG_{tag}) = 0.2 + 0.433 (1.04 - 0.587) = 0.396 \text{ psi/ft}$$

$$IP_{max} = PG * D_{top} = 0.396 * (4300) = 1,704 \text{ psi}$$

For the maximum requested injection volume for WW ONLY case it is assumed that:

$$\begin{aligned} SG_{ww} &= 1.01 \\ WW_{vol} &= 600 \\ D_{bot} &= 4,300 \end{aligned}$$

Therefore:

$$PG = 0.2 + 0.433 (1.04 - SG_{ww}) = 0.2 + 0.433 (1.04 - 1.01) = 0.213 \text{ psi/ft}$$

$$IP_{max} = PG * D_{top} = 0.213 * (4300) = 916 \text{ psi}$$



Based on the above calculations, DCP is requesting approval of a Maximum Allowable Operating Pressure (MAOP) end members of 1,704 psig at the surface for injection of TAG only and 916 psig for injection of WW only.

**Table 1 – Pressure and Volume Calculations for TAG**

**PROPOSED INJECTION STREAM CHARACTERISTICS**

TAG	H <sub>2</sub> S	CO <sub>2</sub>	H <sub>2</sub> S	CO <sub>2</sub>	TAG
Gas vol MMSCFD	conc. mol %	conc. mol %	inject rate lb/day	inject rate lb/day	inject rate lb/day
2	30.4	69.6	57713	170626	228339

**CONDITIONS AT WELL HEAD**

Well Head Conditions		TAG							
Temp	Pressure	Gas vol	Comp	Inject Rate	Density <sup>1</sup>	SG <sup>2</sup>	density	volume	volume
F	psi	MMSCFD	CO <sub>2</sub> :H <sub>2</sub> S	lb/day	kg/m <sup>3</sup>		lb/gal	ft <sup>3</sup>	bbl
110	1200	2	70:30	228339	509.00	0.51	4.25	7182	1279

**CONDITIONS AT BOTTOM OF WELL**

Injection Zone Conditions					TAG				
Temp	Pressure <sup>3</sup>	Depth <sub>top</sub>	Depth <sub>bottom</sub>	Thickness <sup>4</sup>	Density <sup>1</sup>	SG <sup>2</sup>	density	volume	volume
F	psi	ft	ft	ft	kg/m <sup>3</sup>		lb/gal	ft <sup>3</sup>	bbl
104	1600	3600	4300	208	664.00	0.66	5.54	5506	981

**CONDITIONS IN RESERVOIR AT EQUILIBRIUM**

Injection Reservoir Conditions					TAG				
Temp <sup>5</sup>	Pressure <sup>3</sup>	Ave. Porosity <sup>6</sup>	Swr	Porosity	Density <sup>1</sup>	SG <sup>2</sup>	density	volume	volume
F	psi	%		ft	kg/m <sup>3</sup>		lb/gal	ft <sup>3</sup>	bbl
104	1600	9.0	0.39	11.4192	664.00	0.66	5.54	5506	981

**CONSTANTS**

	SCF/mol	
Molar volume at STD	0.7915	
	g/mol	lb/mol
Molar weight of H <sub>2</sub> S	34.0809	0.0751
Molar weight of CO <sub>2</sub>	44.0096	0.0970
Molar weight of H <sub>2</sub> O	18.015	0.0397

<sup>1</sup> Density calculated using AQUAlibrium software

<sup>2</sup> Specific gravity calculated assuming a constant density for water

<sup>3</sup> PP is extrapolated using successful Drill Stem Tests at nearby wells

<sup>4</sup> Thickness is the average total thickness of coarse sand units in the reservoir zone

<sup>5</sup> Reservoir temp. is extrapolated from bottomhole temp. measured at nearby wells

<sup>6</sup> Porosity is estimated using geophysical logs from nearby wells

MW = 8.8  
PP = 1807

**CALCULATION OF MAXIMUM INJECTION PRESSURE LIMITATION TAG & WW**

SG <sub>TAG</sub>	0.587
SG <sub>WW</sub>	1.01
WW <sub>VOL</sub>	600
TAG <sub>VOL</sub>	981
$SG_{BIF} = ((SG_{WW} * WW_{VOL}) + (SG_{TAG} * TAG_{VOL})) / (WW_{VOL} + TAG_{VOL})$	0.747258591
$PG = 0.2 + 0.433 (1.04 - SG_{BIF})$	0.327
$IP_{max} = PG * Depth$	1405

Where: SG<sub>BIF</sub> is specific gravity of the blended injection fluid (TAG+WW); PG is calculated pressure gradient; and IP<sub>max</sub> is calculated maximum injection pressure.

**CALCULATION OF 30 YEAR AREA OF INJECTION OF TAG**

Cubic Feet/day (5.6146 ft <sup>3</sup> /bbl)	5506 ft <sup>3</sup> /day
Cubic Feet/30 years	60330356 ft <sup>3</sup> /30 years
Area = V/Net Porosity (ft)	5283238 ft <sup>2</sup> /30 years
Area = V/Net Porosity (ft) (43560 ft <sup>2</sup> /acre)	121.3 acres/30 years
Radius =	1297 ft
Radius =	0.25 miles

### 3.2 CALCULATED MAXIMUM RESERVOIR VOLUME OF TAG + PLANT WASTEWATER

In addition to the 981 barrels (bbls) per day of TAG, DCP also intends to inject 600 bbls per day of plant wastewater (WW). Table 2 below summarizes the 30-year area of injection calculations for the combined TAG and WW injection stream.

**Table 2 –Volume Calculations for TAG + Wastewater****CALCULATION OF 30 YEAR AREA OF INJECTION OF TAG + WW**

Cubic Feet/day (5.6146 ft <sup>3</sup> /bbl)	8875 ft <sup>3</sup> /day
Cubic Feet/30 years	97243543 ft <sup>3</sup> /30 years
Area = V/Net Porosity (ft)	8515793 ft <sup>2</sup> /30 years
Area = V/Net Porosity (ft) (43560 ft <sup>2</sup> /acre)	195.5 acres/30 years
Radius =	1646 ft
Radius =	0.31 miles

Calculations presented in Table 2 (incorporating the compressibility of the TAG and WW at reservoir conditions) show that, given a more detailed calculation of well pressure over 30 years, a daily injection volume of 981 bbls per day of TAG and 600 bbls of salt water will occupy approximately 97.2 million cubic feet in the reservoir. As discussed in Section 4.3, a calculated gross net porosity of 208 feet in the reservoir is reduced to an effective net porosity of 11.4 feet after correcting for a residual water content of 45%. Based on a net porosity of 11.4 feet, we calculate that the 30-year injection volume will occupy approximately 196 acres of the reservoir, with a radius of 0.31 miles and centered around the DCP Artesia AGI #2 where it penetrates the injection reservoir.

**3.3 CALCULATED MAXIMUM RESERVOIR VOLUME OF TAG ONLY**

If TAG only is injected into proposed DCP Artesia AGI #2, then 981 bbls per day of TAG will be injected into the reservoir. Table 3 below summarizes the 30-year area of injection calculations for the TAG only injection stream.

**Table 3 –Volume Calculations for TAG Only****CALCULATION OF 30 YEAR AREA OF INJECTION OF TAG**

Cubic Feet/day (5.6146 ft <sup>3</sup> /bbl)	5506 ft <sup>3</sup> /day
Cubic Feet/30 years	60330356 ft <sup>3</sup> /30 years
Area = V/Net Porosity (ft)	5283238 ft <sup>2</sup> /30 years
Area = V/Net Porosity (ft) (43560 ft <sup>2</sup> /acre)	121.3 acres/30 years
Radius =	1297 ft
Radius =	0.25 miles

Calculations presented in Table 3 show that, given a more detailed calculation of well pressure over 30 years, a daily injection volume of 981 bbls per day of TAG will occupy approximately 60.3 million cubic feet in the reservoir. As discussed in Section 4.3, a calculated gross net porosity of 208 feet in the reservoir is reduced to an effective net porosity of 11.4 feet after correcting for a residual water content of 45%. Based on a net porosity of 11.4 feet, we calculate that the 30-year injection volume will occupy approximately 121 acres of the reservoir, with a radius of 0.25 miles and centered around the DCP Artesia AGI #2 where it penetrates the injection reservoir.

### 3.4 CALCULATED MAXIMUM RESERVOIR VOLUME OF PLANT WASTEWATER ONLY

If WW only is injected into proposed DCP Artesia AGI #2, then 600 bbls per day of WW will be injected into the reservoir. Table 4 below summarizes the 30-year area of injection calculations for the salt water only injection stream.

**Table 4 –Volume Calculations for Wastewater Only**

**CALCULATION OF 30 YEAR AREA OF INJECTION OF WW**

Cubic Feet/day (5.6146 ft <sup>3</sup> /bbl)	3369 ft <sup>3</sup> /day
Cubic Feet/30 years	36913188 ft <sup>3</sup> /30 years
Area = V/Net Porosity (ft)	3232555 ft <sup>2</sup> /30 years
Area = V/Net Porosity (ft) (43560 ft <sup>2</sup> /acre)	74.2 acres/30 years
Radius =	1014 ft
Radius =	0.19 miles

Calculations presented in Table 4 show that, given a more detailed calculation of well pressure over 30 years, a daily injection volume of 600 bbls of WW will occupy approximately 36.9 million cubic feet in the reservoir. As discussed in Section 4.3, a calculated gross net porosity of 208 feet in the reservoir is reduced to an effective net porosity of 11.4 feet after correcting for a residual water content of 45%. Based on a net porosity of 11.4 feet, we calculate that the 30-year injection volume will occupy approximately 74 acres of the reservoir, with a radius of 0.19 miles and centered around the DCP Artesia AGI #2 where it penetrates the injection reservoir.

### 3.5 CALCULATED MAXIMUM RESERVOIR VOLUME OF TAG ONLY WITH 100% SAFETY FACTOR

If TAG and WW are injected into proposed DCP Artesia AGI #2, then in addition to 1961 bbls per day of TAG, DCP would also inject 600 bbls per day of plant wastewater (WW) into the reservoir. This calculation increases the daily injection stream from 2 to 4 MMSCFD and satisfies the NMOCD requirement for a 100% safety factor analysis. Table 5 below summarizes the 30-year area of injection calculations for the salt water only injection stream.

**Table 5 –Volume Calculations for TAG + Wastewater with 100% Safety Factor**

**CALCULATION OF 30 YEAR AREA OF INJECTION OF TAG + WW**

Cubic Feet/day (5.6146 ft <sup>3</sup> /bbl)	14380 ft <sup>3</sup> /day
Cubic Feet/30 years	157573899 ft <sup>3</sup> /30 years
Area = V/Net Porosity (ft)	13799031 ft <sup>2</sup> /30 years
Area = V/Net Porosity (ft) (43560 ft <sup>2</sup> /acre)	316.8 acres/30 years
Radius =	2096 ft
Radius =	0.40 miles

Calculations presented in Table 5 (incorporating the compressibility of the TAG and WW at reservoir conditions) show that, given a more detailed calculation of well pressure over 30 years, a daily injection volume of 1961 bbls per day of TAG and 600 bbls of salt water will occupy approximately 157.6 million cubic feet in the reservoir. As discussed in Section 4.3, a calculated gross net porosity of 208 feet in the

reservoir is reduced to an effective net porosity of 11.4 feet after correcting for a residual water content of 45%. Based on a net porosity of 11.4 feet, we calculate that the 30-year injection volume will occupy approximately 317 acres of the reservoir, with a radius of 0.4 miles and centered around the DCP Artesia AGI #2 where it penetrates the injection reservoir. This 100% safety factor ROI at 4 MMSCFD is shown in Figure 4 along with the ROI for 2 MMSCFD TAG and is well within the half-mile radius assessment requirement.

### 3.6 WELL DESIGN

The DCP Artesia AGI #2 is intended to provide the primary capability for TAG and WW injection at the DCP Artesia Gas Plant. The existing DCP Duke AGI #1 will provide redundancy in case there is ever a problem that the DCP Artesia AGI #2 has to be shut in for repairs or upgrades. The DCP Artesia AGI #2 will be within 120 feet of the DCP Duke AGI #1, however, the depth intervals of the injection zone will be significantly shallower than for the Duke AGI #1. DCP Duke AGI #1 is completed in an injection reservoir that occurs from 11,208 to 11,412 feet TVD. The DCP Artesia AGI #2 will be completed in a much shallower injection reservoir occurring from 3,600 to 4,300 feet TVD.

While the injected fluid will be dehydrated, the line that will convey the TAG to the well from the compression facilities will be a 3-inch steel line (304 or 316) to provide added corrosion protection. The compression facilities and associated piping and layout of H<sub>2</sub>S alarms and other safety equipment will remain the same with the exception of additional H<sub>2</sub>S monitors placed along the TAG line to the well and around the DCP Artesia AGI #2 wellhead. Based on this, only a minor revision of the Rule 11 Plan is required. This revision will be completed prior to placing the DCP Artesia AGI #2 into service. The schematic of the new AGI facilities and tie-in to the existing DCP Artesia Plant are shown in Figure 5, and the preliminary design for the injection well is shown on Figure 6.

The proposed well (DCP Artesia AGI #2) will be a deviated well, spudded on property owned by DCP. The well will be drilled vertically to approximately 2,750 feet TVD and then deviated approximately 41.5 degrees from vertical and completed in the Lower San Andres, Glorietta, and Upper Yeso Formations (Figure 7).

The well will have each string of the telescoping casing cemented to the surface and will include a subsurface safety valve (SSSV) on the production tubing to assure that fluid cannot flow back out of the well in the event of a failure of the injection equipment. The annular space between the production tubing and the well bore will be filled with corrosion inhibited diesel fuel as a further safety measure which is consistent with injection well designs which have been previously approved by NMOCD for acid gas injection.

Design and materials considerations include: placement of SSSV and the packer, double casing through freshwater resources and shallow production zones alluvium (groundwater), Artesia Group and San Andres-Grayburg (oil and gas production), characterization of the zone of injection, and a total depth (TD) ensuring identification of the reservoirs. Three casing strings are proposed (Figure 6):

1. Surface casing to approximately 525 feet TVD to protect the fresh water.
2. Intermediate casing to approximately 2,700 feet TVD to isolate productive units within the Artesia Group (Yates and Queen), Grayburg and Upper San Andres Formations.
3. Production casing extending down to the final TVD (approximately 4,300 feet TVD and 4,825 feet measured depth MD).

4. Corrosion resistant (CRA) joints to be placed in production casing string at the packer seating depth.
5. Fiberglass-lined tubing to prevent potential tubing corrosion due to TAG pressure/temperature fluctuations.
6. Corrosion resistant cement will be utilized for cementing the production casing in the stage that includes the injection zone and caprock.

A suitable drilling rig will be chosen for the job that will include a 5,000 psi blowout preventer (minimum) and choke manifold for any unforeseen pressures encountered. The borehole for the surface casing will be drilled with a 17 1/2-inch bit to a depth of approximately 525 feet TVD, and 13 3/8-inch, 48.0 ppf, H40, STC or equivalent casing will be installed and cemented to the surface. The intermediate hole will be drilled with a 12 1/4-inch bit to a depth of approximately 2,700 feet TVD. There a 9 5/8 inch, 40.0 ppf, J55, LTC or equivalent intermediate casing string will be run and cemented to surface. Visual inspections of cement returns to the surface will be noted in both the surface and intermediate casing jobs. Casing and cement integrity will be demonstrated by pressure-testing after each cement job.

After verifying the cement bond in the intermediate casing, the well will be drilled at an approximate 41.5 degree slant (from vertical) to the projected total depth (TD) of approximately 4,300 feet TVD (4,825 feet MD) using an 8 1/2-inch bit. The kick out point (KOP) for the slanted borehole will be approximately 2,750 feet TVD. All drilling fluids will be managed and contained in a closed-loop system, to be documented in an approved NMOCD C-144-CLEZ form. All drilling water will be disposed of at a permitted facility.

The proposed open hole logging suite for the TD run consists of a Dual Induction, Density-Neutron-Gamma Ray Porosity and Fracture Matrix Identification (FMI) log in the San Andres, Glorieta and Yeso formations.

After the logs have been evaluated, the production casing consisting of approximately 4,825 feet MD of 7-inch casing will be run and cemented to the surface as follows:

- 7-inch, 26 ppf, L-80, USF or equivalent to 3,400 feet MD
- 7-inch, 26 ppf, SM-2535, USF or equivalent to 3,650 feet MD
- 7-inch, 26 ppf, L-80, USF or equivalent to 4,825 feet MD

A 250 foot section of Corrosion Resistant Alloy (CRA) or equivalent material will be inserted into the string at the packer setting depth to provide a corrosion resistant seat for the packer later in the job. The cementing of the long string will be accomplished in two stages. The first stage will seal the annular space from total depth (approximately 4,300 feet TVD and 4,825 MD) to a level well above the CRA joint in the caprock. This stage will employ acid-resistant cement (CORROSACEM™ or equivalent). For the second stage, a DV/Packer Stage Tool previously inserted in the casing (at approximately 3,200 feet MD) will be used to pump cement to the surface. This second stage of cementing will ensure a good cement bond throughout the transitional interval from vertical to 41.5 degrees from vertical.

Once the cement has set, the tubing adaptor for the wellhead will be welded on the wellhead and the rig will be released. A casing integrity test (pressure test) will be performed to test the casing just prior to releasing the rig. Following successful testing and the release of the drilling rig, a workover rig will be used and a cement bond log will be run to ascertain the quality of the cement bond of the production casing. It is important that a good bond be established around the injection interval as well as below the

CRA joint to assure that acid gas mixed with formation water do not travel up the outside of the casing and negatively impact the integrity of the casing job.

Once the integrity of the cement job has been determined, the selected injection intervals will be perforated with approximately four shots per foot. At this location a total of approximately 700 feet TVD (914 feet MD) of injection zone may be perforated. A temporary string of removable packer and tubing will be run, and injection tests (step tests) will be performed to confirm injection pressures and volumes. Once the reservoirs have been tested, the final tubing string including a permanent packer, approximately 3,600 feet MD of tubing, and an SSSV will be run into the well as follows:

- 3 ½-inch, 9.3 ppf, L-80 USF Fiberglass Lined or equivalent to approximately 3,600 feet MD

A ¼ inch CRA steel line will connect the SSSV to a hydraulic panel at the surface.

The National Association of Corrosion Engineers (NACE) issues guidelines for metals exposed to various corrosive gases like the ones in this well. For a H<sub>2</sub>S/CO<sub>2</sub> stream of acid gas that is de-watered at the surface through successive stages of compression, downhole components such as the SSSV and packer need to be constructed CRA. The CRA joint will be constructed of a similar alloy from a manufacturer such as Sumitomo. A product like SM2535 will likely be used. The gates, bonnets and valve stems within the Christmas tree will also be nickel coated and corrosion resistant.

The rest of the Christmas tree will be outfitted with annular pressure gauges that report operating pressure conditions in real time to a gas control center located remotely from the wellhead. In the case of abnormal pressures or any other situation requiring immediate action, the acid gas injection process can be stopped at the compressor and the wellhead shut-in using a hydraulically operated wing valve on the Christmas tree. The SSSV provides a redundant safety feature to shut in the well in case the wing valve does not close properly.

After the AGI well is drilled and tested (without using acid gas) to assure that it will be able to accept the volume of injection fluid, it will be completed with the approved injection equipment for the acid gas stream. The Rule 11 Plan will be modified when the well connection design is complete and will be submitted for NMOCD review and approval prior to commencement of TAG injection into the DCP Artesia AGI #2 well. The current AGI facility at DCP Artesia operates under an approved Rule 11 Plan dated July 22, 2002. The new plan is anticipated to have a radius of exposure (ROE) essentially identical to the existing plan because the new well, the DCP Artesia AGI #2, is simply being located 120 feet to the west southwest of the DCP Duke AGI #1. There is no change in the total capacity or stream composition from what is already approved for the DCP Duke AGI #1. The DCP Duke AGI #1 and proposed DCP Artesia AGI #2 are two redundant injection points to the NMOCC-approved injection reservoir and the new proposed injection reservoir.

## 4.0 REGIONAL AND LOCAL GEOLOGY AND HYDROGEOLOGY

The DCP Artesia Gas Plant is located in the SE 1/4 of Section 7, T 18 S, R 28 E, in Eddy County, New Mexico. This Section (4.0) is based on the collection and analysis of data generated in the design and installation of Duke AGI #1, SWD #1 and this preliminary analysis of the geology of potential alternate injection reservoirs. DCP Artesia AGI #2 will be located within approximately 120 feet west southwest of the Duke AGI #1 and (Figure 2) the regional geology and hydrogeology are not expected to have any significant changes within this short distance. Locally, however, the geology of the proposed injection interval for DCP Artesia AGI #2 exhibits a significantly higher porosity than is found in the Duke AGI #1 injection interval.

### 4.1 GENERAL GEOLOGIC SETTING

The Duke AGI #1 and proposed DCP Artesia AGI #2 are located on the south end of the Northwestern Shelf of the Permian Basin (Figures 3 and 8). The Northwest Shelf constitutes the northern boundary of the Delaware Basin and extends from western Lea County across northern Eddy County, New Mexico. The Northwestern Shelf includes shelf edge reefs and shelf carbonates of the Yeso, San Andres, Grayburg, Queen, Seven Rivers, Yates, and Tansill formations. All of these formations grade updip (shoaling upward) into siltstones and evaporates.

### 4.2 BEDROCK GEOLOGY

Bedrock geology was determined from DCP SWD #1 (4,100 feet TVD) and Duke AGI #1 (11,520 feet TVD) geophysical logs (Figures 9 and 10). These logs show the stratigraphic column in the subsurface below the DCP Artesia Gas Plant where proposed DCP Artesia AGI #2 is located. The geologic formations beneath the plant that include the proposed injection zone, as well as caprock zones (**anhydrites, tight carbonates and shales**) above and below the proposed injection zone, are briefly described in this section (**caprock** zones are identified in **bold**). Table 5 presents the formation tops for all of these formations based on DCP SWD #1 and Duke AGI #1 logs.

#### 4.2.1 Potential Groundwater Bearing Units

The upper 200 feet of the subsurface is composed of Quaternary Alluvium (primarily gravel and caliche) that unconformably overlies red **shale**, sand, and **anhydrite** of the Upper Permian. These units host minor groundwater in the area of the plant.

#### 4.2.2 Formations Above the Proposed Injection Zone

There are six formations identified in the geophysical logs (Figure 9) that occur above the proposed injection zone. The formation top depths (TVD) and a brief lithologic description are as follows:

- Tansill Formation (200.1 feet) – dolomite and **anhydrite (caprock)**
- Yates Formation (437.2 feet) – **anhydritic (caprock)** dolomite and dolomitic sands
- 7 Rivers Formation (754.0 feet) – **anhydritic (caprock)** dolomite and thin dolomitic sands
- Queen Formation (1,398.0 feet) – **anhydritic (caprock)** dolomite and locally porous sands
- Grayburg Formation (1,840.4 feet) – cyclic **anhydritic (caprock)** dolomite and locally porous sands
- Upper San Andres (2,212.6) – **anhydritic (caprock)** dolomite and dolomitic limestone

Historical and current pay zones in the areas shown by red stars in Figure 9. The lowest pay zone is at least 920 feet above the top of the proposed injection interval. This entire interval is dominated by low permeability lithologic caprock units (noted above in bold).

#### 4.2.3 Proposed Injection Zone

The upper Permian interval proposed for the injection interval includes the lower part of the San Andres (up to 400 feet above the top of Glorieta or 3,600 feet TVD measured depth, whichever comes first), all of the Glorieta, and the upper 200 feet of the Yeso Formations (Figures 9 and 10). This interval is the interval into which DCP is disposing of plant wastewater in their SWD #1 well. These rocks are shelf to transitional dolomites and silty dolomites, with moderate to thicker-bedded porosity, and are described as follows:

- Lower San Andres Formation (3,600.0 feet TVD) – **anhydritic (caprock)** dolomite and dolomitic limestone
- Glorieta Formation ( 3,569.0 feet TVD) – cyclic sand and silty dolomite
- Upper Yeso Formation (3,908.9 feet TVD) - locally porous dolomite and sandy dolomite

The proposed injection zone is approximately 700 feet thick, and located from approximately 3,600 to 4,300 feet TVD. The proposed injection zone is shown as a blue bar in Figures 9 and 10. Figure 11 provides a more detailed geophysical analysis of the proposed injection zone. Note that Figure 11 shows that this interval is **capped** by a tight **anhydritic** dolomite that provides an excellent caprock for the proposed injection zone.

The proposed injection zone is surrounded above and below with significant thicknesses of low permeability units (caprock). Figure 12 is a structural cross-section across the area of investigation, showing the proposed AGI interval that will be accessed with the deviated wellbore drilled near the Duke AGI #1 well site. The cross-section shows that there is over 900 feet of caprock separating the proposed injection zone from the producing zones of the Artesia Group. Below the proposed injection zone there is over 5,000 feet of primarily tight carbonates and shales (Figures 10 and 12) and the only known producing zone within a mile of the proposed DCP Artesia AGI #2 is in the Morrow at a depth of over 10,000 feet TVD. The proposed injection zone is virtually isolated from groundwater and producing zones by nearly a thousand feet of caprock above and over 5,000 feet of caprock below. There are no known faults in the vicinity that could affect the injection reservoir.

#### 4.2.4 Formations Below Proposed Injection Zone

There are 14 distinct formations that are known to occur below the proposed injection zone based on the SWD#1 and Duke AGI #1 geophysical logs (Figures 9 and 10). Those formations, formation top depths (TVD), and a brief lithologic description are as follows:

- Lower Yeso Formation (~4,100 feet) – locally porous dolomite and sandy dolomite
- T/Bone Springs formation ( 4,639.7 feet) – **tight carbonate and shales (caprock)**, sands and silts
- Lower Leonard (7,197.3 feet) – **tight carbonate and shales (caprock)**
- Wolfcamp (7,584.9 feet) – **tight carbonate and shales (caprock)**
- Cisco (8,299.2 feet) – predominately carbonates and shales
- Strawn (9,252.1 feet) – **tight carbonate and shales (caprock)**
- Atoka (9,674.0 feet) – **tight shales and thin carbonates (caprock)**



- Morrow Formation (10,081.6 feet) – locally porous sands (producing zone) and **tight shales (caprock)**
- Barnett ( 10,310.3 feet) – **tight shale (caprock)**
- Chester (10,433.0 feet) – locally porous carbonate, and **shales (caprock)**
- Osage (10,652.0 feet) – **tight limestone (caprock)**
- Woodford (11,128.5 feet) – **predominately shale (caprock)**
- Wristen (11,189.2 feet) – locally porous carbonate
- Fusselman (11,397.4 feet) – carbonate sediments

The only pay zone identified in this interval within one-half mile occurs in the Morrow Formation and is denoted in Figure 10 by a red star. The current injection interval in Duke AGI #1 is located in the Silurian/Devonian Wristen and Fusselman Formations and is denoted with the blue bar in Figures 9 and 10. This entire interval is dominated by low permeability caprock units (noted above in bold). The depths to formation tops in the Duke AGI #1 and anticipated for the DCP Artesia AGI #2 based on geophysical logs from SWD #1 and Duke AGI #1 are summarized below in Table 6.

<b>Table 6: Estimated Formation Tops in the Area of Proposed DCP Artesia AGI #2</b>	
<b>Formation</b>	<b>Depth (feet)</b>
Water-Bearing Near Surface Gravels	Surface
Tansill	170.3
Yates	436.1
7 Rivers	754.0
Queen	1,398.0
San Andres	2,212.6
Glorieta	3,569.0
Yeso	3,908.9
T/Bone Springs	4,639.7
L/Leonard	7,197.3
Wolfcamp	7,584.9
Cisco	8,299.2
Strawn	9,252.1
Atoka	9,674.0
Morrow	10,081.6
Barnett	10,310.3
Chester	10,433.0
Osage	10,652.0
Woodford	11,128.5
Wristen	11,189.2
Fusselman	11,397.4
From Artesia Salt Water SWD #1 and Duke AGI #1 Well Logs	

#### 4.3 LITHOLOGIC AND RESERVOIR CHARACTERISTICS OF THE LOWER SAN ANDRES, GLORIETTA AND UPPER YESO

Analysis of geophysical logs showed porosities averaging 9 percent within the target injection interval. Reservoir parameters in the Upper Permian within one-half mile of proposed DCP Artesia AGI #2 are as follows:

- Effective injection area = 564 acres
- Average injection interval porosity = 9.0%
- Average reservoir thickness = 208 feet
- Bottom hole temperature = 104° F
- Bottom hole pressure = 1,550 – 1,800 psi

Figure 13 is a contour map that shows the total effective injection area and the average porosity-feet thickness within one-half mile of proposed DCP Artesia AGI #2. Figure 14 is a chart showing the normal temperature gradient within the proposed injection interval and Figure 15 shows the range of pressure within the same interval.

A step rate test was performed on DCP Artesia SWD #1 in the proposed AGI zone in the San Andres-Glorieta Formations. Analysis of the results of the August 13, 2013 step rate test indicate that the San Andres-Glorieta zone, in the immediate area of the DCP Artesia SWD #1, has very good injectivity characteristics. Based on the ranges of the anticipated final depth and configuration of the proposed DCP Artesia AGI #2, and the mixture range of the TAG/Water injection mixture, the step rate test results indicate good potential to inject 2 to 3 bbl/min below the 1,704 psig MAOP.

#### 4.4 FORMATION FLUID CHEMISTRY

A sample of the San Andreas formation fluid was collected from plant wastewater and analyzed. The formation fluid is sodium chloride-rich brine with total dissolved solids of 157,864 milligrams per liter. A complete copy of the analyses is included in the Application for Authority for Salt Water Disposal – Administrative Approval, Artesia Plant SWD No. 1, Eddy County, February 5, 1985. The formation fluid has been further impacted by the injection of plant wastewater and produced water via the DCP Artesia SWD #1. Nicholson and Clebsch, 1961, cites a chemical analysis of water from the Grayburg-San Andres Formations in Lea County that contains the following constituents:

- Calcium (Ca) – 411 ppm
- Magnesium (Mg) – 179 ppm
- Sodium plus Potassium (Na +K) – 7,352 ppm
- Bicarbonate ( $\text{HCO}_3$ ) – 2,125 ppm
- Sulfate ( $\text{SO}_4$ ) – 699 ppm
- Chloride (Cl) – 10,800 ppm
- Dissolved Solids – 21,566 ppm

While this analysis is from water collected in nearby Lea County it does provide an approximation of the water chemistry from the San Andres Formation that makes up the majority of the proposed injection zone for DCP Artesia AGI #2.

#### 4.5 GROUNDWATER HYDROLOGY IN THE VICINITY OF THE PROPOSED INJECTION WELL

Groundwater in the area of the well site is sparse and found in shallow, unconfined aquifers hosted by the Quaternary alluvial and aeolian surficial deposits. Groundwater may also occur in local, confined sandstone beds in the deeper “red beds” of the Triassic Dockum Group. Figure 16 is a map from the NM State Engineer’s office that shows that the proposed DCP Artesia AGI #2 well site is not within any declared water basin and corroborated by the fact aquifers do not appear on shallow well logs in the area. The DCP Artesia Gas Plant does not have a water supply well and utilizes water for plant operations that is purchased from Caprock Water Company that is transported to the plant via pipeline.

A review of the New Mexico State Engineer’s database identified two water wells within one-half mile of the Duke AGI #1 and proposed DCP Artesia AGI #2. In addition, there are two known windmills, one east and one west of the plant that pump groundwater to stock tanks. These wells are summarized in Table 7 below, and located in Figure 17. All of these wells are completed in very shallow alluvial units. Due to their shallow completions, there are no potential for impacts from the Duke AGI #1 and proposed DCP Artesia AGI #2 wells.

**Table 7 – Water Wells within One-Half Mile of Proposed DCP Artesia AGI #2**

Owner	Type	Location	Distance (miles)	DepthWell	DepthWater
Unknown	Unknown	18.28.8.330	<0.5	Unknown	81.6
DCP Midstream	MW	18.28.7	<0.5	Unknown	55
West Windmill	Stock Tank	18.28.7	<0.5	Unknown	Unknown
East Windmill	Stock Tank	Unknown	Unknown	Unknown	Unknown

## **5.0 OIL, GAS AND AGI WELLS IN THE DCP ARTESIA AGI #2 AREA OF REVIEW AND VICINITY**

There are 26 recorded oil/gas/injection wells within one-half mile of the proposed DCP Artesia AGI #2, of which nine are active oil/gas wells, six are active injection wells, one of which is an active AGI well (Duke AGI #1) and only three of which penetrate the Lower San Andres/Glorietta/Upper Yeso. Ten are listed as plugged and abandoned and there is one well that has been permitted but not yet drilled. These wells are listed in Table 8 below and shown in Figure 18. Figure 19 shows all wells within two miles of proposed DCP Artesia AGI #2.

Table 8 - Wells Within One-Half Mile of Proposed DCP Artesia AGI #2								
No.	API	OPERATOR	WellName	Status	Type	Production Fm	TD	Miles
1	3001502634	MACK ENERGY CORP	WEST ARTESIA GRAYBURG UNIT TRACT 1 015	Plugged	O		2236	0.09
2	3001502635	ALAMO PERMIAN RESOURCES, LLC	WEST ARTESIA GRAYBURG UNIT 014	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2215	0.10
3	3001523741	MARBOB ENERGY CORP	W ARTESIA GRBG UT TR 025	Plugged	O		2530	0.20
4	3001502641	ALAMO PERMIAN RESOURCES, LLC	WEST ARTESIA GRAYBURG UNIT 016	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2493	0.21
5	3001523842	ALAMO PERMIAN RESOURCES, LLC	JENNINGS 001	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2634	0.21
6	3001523724	ALAMO PERMIAN RESOURCES, LLC	WEST ARTESIA GRAYBURG UNIT 024	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2325	0.21
7	3001532324	DCP MIDSTREAM, LP	DUKE AGI 001	Active	S		11520	0.25
8	3001502633	KERSEY & COMPANY	TEXACO STATE 002	Active	O		2362	0.26
9	3001525271	DCP MIDSTREAM, LP	ARTESIA SWD 001	Active	S		4100	0.31
10	3001502636	ALAMO PERMIAN	WEST ARTESIA GRAYBURG UNIT	Active	I		2252	0.33
11	3001502642	ALAMO PERMIAN RESOURCES, LLC	WEST ARTESIA GRAYBURG UNIT 017	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2128	0.33
12	3001501902	THE OHIO OIL CO	CJW-JACKSON 001	Plugged	O		2125	0.36
13	3001501899	ALAMO PERMIAN	WEST ARTESIA GRAYBURG UNIT	Active	I		2451	0.37
14	3001523639	ALAMO PERMIAN RESOURCES, LLC	WEST ARTESIA GRAYBURG UNIT 022	Plugged	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2551	0.37
15	3001502649	ALAMO PERMIAN	WEST ARTESIA GRAYBURG UNIT	Active	I		2273	0.38
16	3001525361	RAY WESTALL OPERATING, INC.	STATE CG 001	Active	S		8,150	0.39
17	3001502630	ALAMO PERMIAN RESOURCES, LLC	WEST ARTESIA GRAYBURG UNIT 003	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2420	0.44
18	3001541186	ALAMO PERMIAN RESOURCES, LLC	STATE N 002	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2605	0.45
19	3001523648	MARBOB ENERGY CORP	W ARTESIA GRBG UT TR 023	Plugged	O		2320	0.45
20	3001502643	ALAMO PERMIAN RESOURCES, LLC	STATE N 001	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2167	0.46
21	3001502629	BEDINGFIELD JE	HUMBLE 001	Plugged	O		2377	0.47
22	3001501897	ALAMO PERMIAN RESOURCES, LLC	WEST ARTESIA GRAYBURG UNIT 019	Active	O	ARTESIA;QUEEN-GRAYBURG-SAN ANDRES	2145	0.49
23	3001501927	BYARD BENNETT	BENNETT STATE 001	Plugged	O		2417	0.49
24	3001502655	DORAL ENERGY CORP.	WEST ARTESIA GRAYBURG UNIT 011	Plugged	I		2305	0.50
27	3001520066	V S WELCH	SIMPSON 002	Plugged	O		1795	0.55
28	3001502632	W C WELCH	SIMPSON 001	Plugged	O		2620	0.56

Note: The three injection wells that penetrate the injection zone are highlighted.

### 5.1 STATUS OF LOWER SAN ANDRES/GLORIETTA/UPPER YESO-PENETRATING WELLS WITHIN ONE-HALF MILE OF THE PROPOSED DCP ARTESIA AGI #2

As listed in Table 8 above there are a total of 26 wells within the one-half mile area of review. Nine are oil and gas wells, five are salt water disposal wells, one is an AGI well, and 10 wells have been plugged and abandoned. In addition, there is one new well that has been permitted but not yet drilled. Of these 26 wells three penetrate the Lower San Andres/Upper Yeso. Those three wells are shown in Figure 20 and summarized in Table 9 below.

API #	OPERATOR	SPUD DATE	PLUG DATE	TOTAL DEPTH	WELL NAME	WELL TYPE	STATUS	Producing/Target/Production/Injection Zone	Miles From AGI #2
301532324	DCP Midstream, LP	14-Aug-02	NA	11,520	Duke AGI #1	AGI	Active	Woodford, Devonian	0.0295
301525271	DCP Midstream, LP	7-Jun-85	NA	4,100	Artesia SWD #1	SWD	Active	Lower San Andres, Glorietta	0.171
301525361	Ray Westall	6-Sep-85	NA	8,150	State CG #01	SWD	Active	Undesignated Morrow Gas	0.155

### 5.2 CEMENTING, COMPLETION AND PLUGGING

The details of the completion and/or plugging design and construction of the three wells that penetrate the Lower San Andres/Glorietta/Upper Yeso are summarized below in Table 10. DCP Duke AGI #1 is the existing AGI well for the DCP Artesia gas plant. DCP Duke SWD #1 is the plant's existing salt water disposal well that will be plugged and abandoned when DCP Artesia #2 is completed and activated.

State CG #1 was originally drilled as an oil well to a depth of 10,380 feet but was plugged and abandoned. The surface casing and intermediate casing for this well were both cemented to the surface. The production casing was cemented to a depth of 600 feet below the surface, which is approximately 3,000 feet above the top of the DCP Artesia AGI #2 injection zone. When State CG #1 was later re-completed as a salt water disposal well it was plugged back to 8,150 feet below the surface and perforated from 7,948 to 7,982 feet, more than 3,000 feet below the base of the proposed DCP Artesia AGI #2 injection zone.

The final well design for the DCP Duke AGI #1, DCP Duke SWD #1 and CG #01 (including plugging diagram, well completion record and cementing sundries) are included in Appendix A.

**Table 10 - Casing and Cement Details for Wells within One Mile of  
Proposed DCP Artesia AGI #2 that penetrate the Lower San Andres,  
Glorietta, Upper Yeso Mile Injection Reservoir**

<b>API #</b>	<b>301532324</b>	<b>301525271</b>	<b>301525361</b>
<b>Well Name</b>	<b>DCP Duke AGI #1</b>	<b>DCP Duke SWD #1</b>	<b>State CG #01</b>
Status	Active AGI	Active SWD	Active SWD
Total Depth (feet)	11,520	4,100	8,150
Surface Casing Depth (feet)	530	355	418
Intermediate Casing Depth (feet)	4,200	NA	2,585
Long String Casing Depth (feet)	11,520	4,100	8,150
Surface Casing TOC Depth (feet)	Surface (From End of Well Report)	Surface (see NM State Engineer Well Record)	Surface (see NM State Engineer Well Record)
Intermediate Casing TOC Depth (feet)	Surface (From End of Well Report)	NA	Surface (see NM State Engineer Well Record)
Long String Casing TOC Depth (feet)	Surface (From End of Well Report)	Surface (see NM State Engineer Well Record)	TOC 600' (see NM State Engineer Well Record)
Producing/Target/ Zone	Woodford, Devonian	Lower San Andres, Glorietta	Undesignated Morrow Gas
Top Lower San Andres, Glorietta, Upper Yeso Injection Reservoir (Depth)	See Figure 10	See Figure 9	Unknown

## **6.0 IDENTIFICATION AND REQUIRED NOTIFICATION OF OPERATORS, SUBSURFACE LESSEES AND SURFACE OWNERS WITHIN THE AREA OF REVIEW**

Geolex contracted with MBF Land Services in Roswell, New Mexico to research land records in Lea County to obtain a listing of all operators, oil, gas and mineral lessees, and surface owners within a one-half mile radius of the proposed DCP Artesia AGI #2 well. Appendix B includes the data from that search.

Table B-1 lists Surface Owners within this one-half mile radius, and Table B-2 lists the Operators in the same one-half mile area of review. Appendix B also includes Table B-3 which lists Mineral Leasehold Owners in the area of review, Table B-4 lists Unleased Mineral Owners in the area of review, and Table B-5 is a Summary Land Index. Figure B-1a,b are Maps Showing Surface and Unleased Mineral Owners. Figure B-2a,b,c,d,e are Maps Showing Mineral Leasehold Owners. Also included in Appendix B are the Land Status Reports by Tract which are the basis for Table B-5.

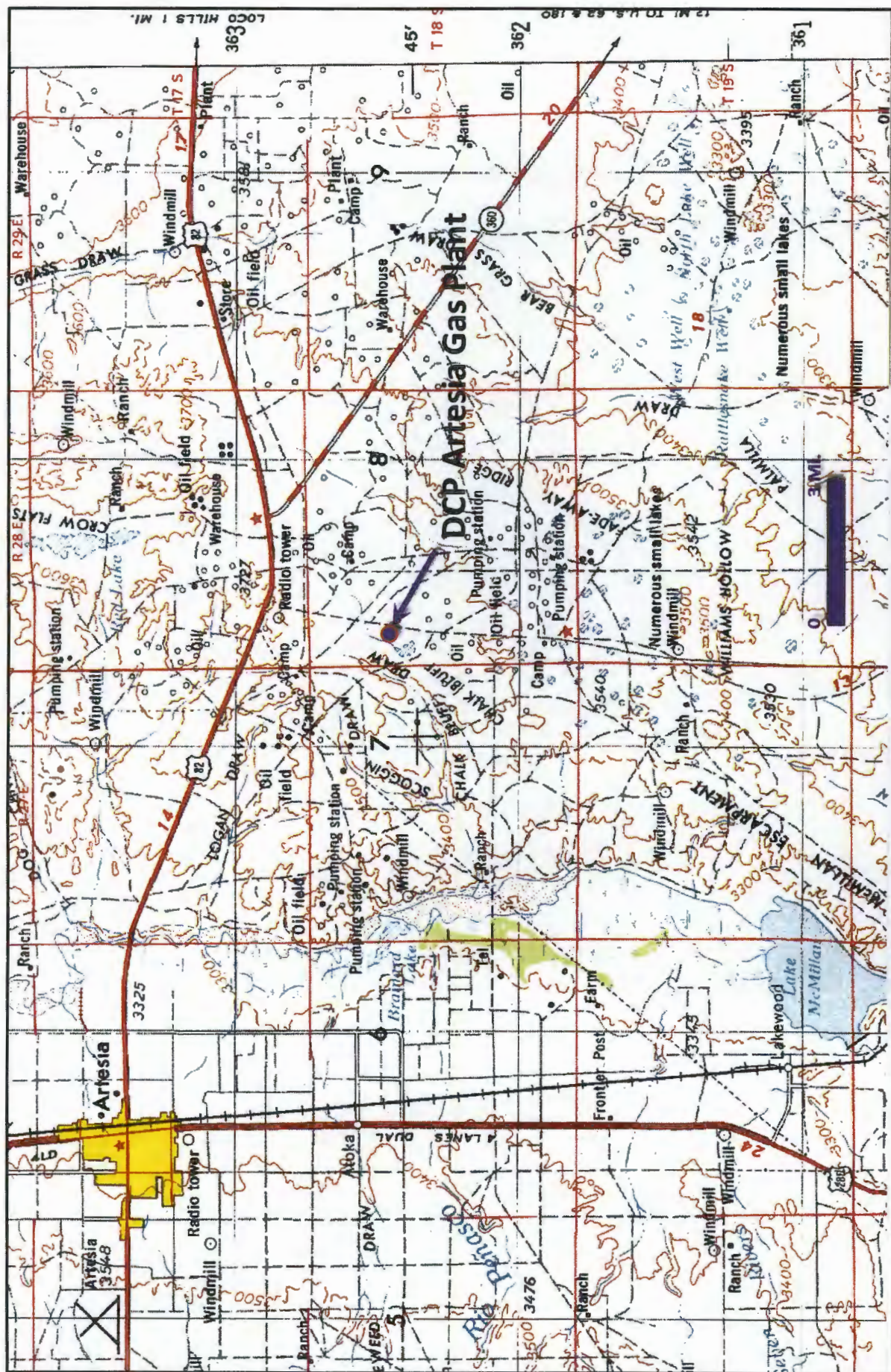
All of these operators, oil, gas and mineral lessees and surface owners within the one-half mile area of review will be provided notice and an opportunity to review this application at least 20 days prior to the NMOCC Hearing, according to the requirements of Section XIV of the C-108 and NMOCD's current policy on applications for acid gas injection wells. A draft form of this notice to interested parties is included in Appendix B.



## **7.0 AFFIRMATIVE STATEMENT OF LACK OF HYDRAULIC CONNECTION BETWEEN PROPOSED INJECTION ZONE AND KNOWN SOURCES OF DRINKING WATER**

As part of the work performed to support this application, a detailed investigation of the structure, stratigraphy and hydrogeology of the area surrounding the proposed DCP Artesia AGI #2 injection well has been performed. The investigation included the analysis of available geologic data and hydrogeologic data from wells (including data collected from the nearby Duke AGI #1) and literature identified in Sections 3, 4 and 5 above along with related appendices. Based on this investigation and analysis of these data, it is clear that there are no open fractures, faults or other structures which could potentially result in the communication of the proposed injection zone with any known sources of drinking water in the vicinity as described above in Sections 4 and 5 of this application. The proposed injection zone is a closed system. This has been confirmed by our operational history in the DCP Artesia SWD #1 and Duke AGI #1 since 2003.

# FIGURES

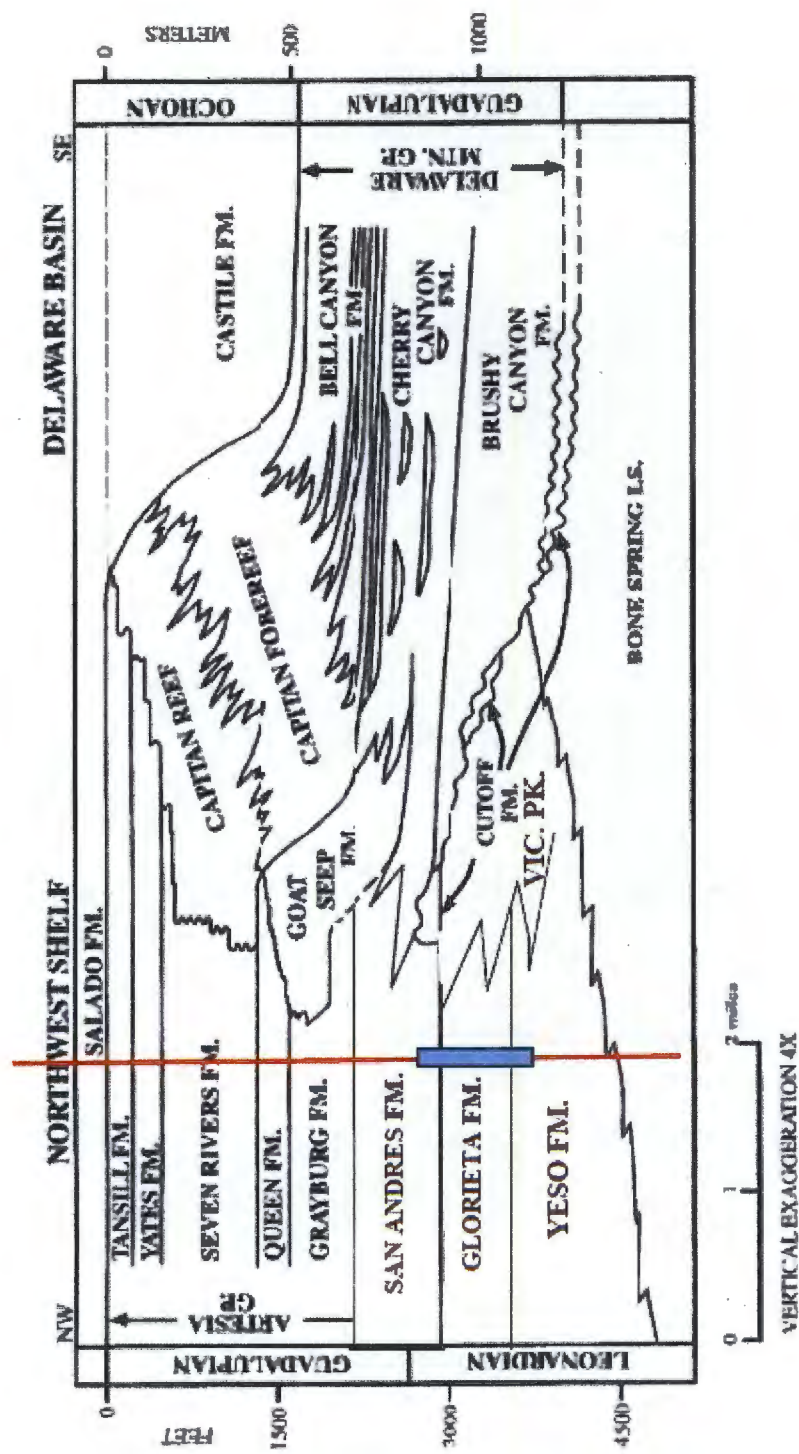


**Figure 1 - Location of DCP Artesia Gas Plant and Duke AGI #1 well  
(blue arrow), Eddy County, New Mexico.**





Figure 2: Location of Artesia Gas Plant SWD and AGI Wells

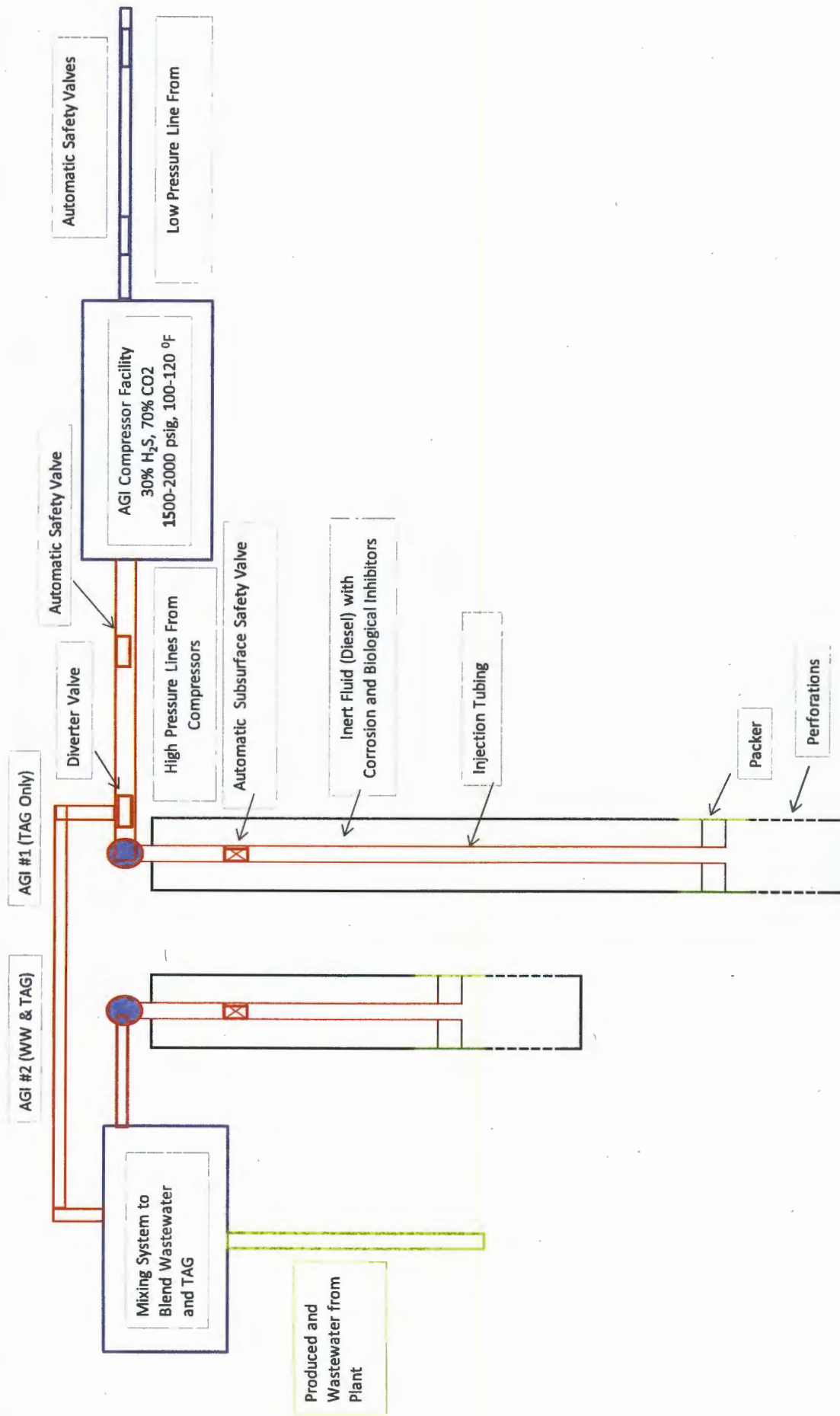


Source: Melim and Scholle, 1999

**Figure 3 – Generalized Upper Permian Stratigraphy Around the DCP Artesia Gas Plant and Proposed DCP Artesia AGI #2 Well Site – the Proposed AGI Zone is Approximated by the Blue Bar**





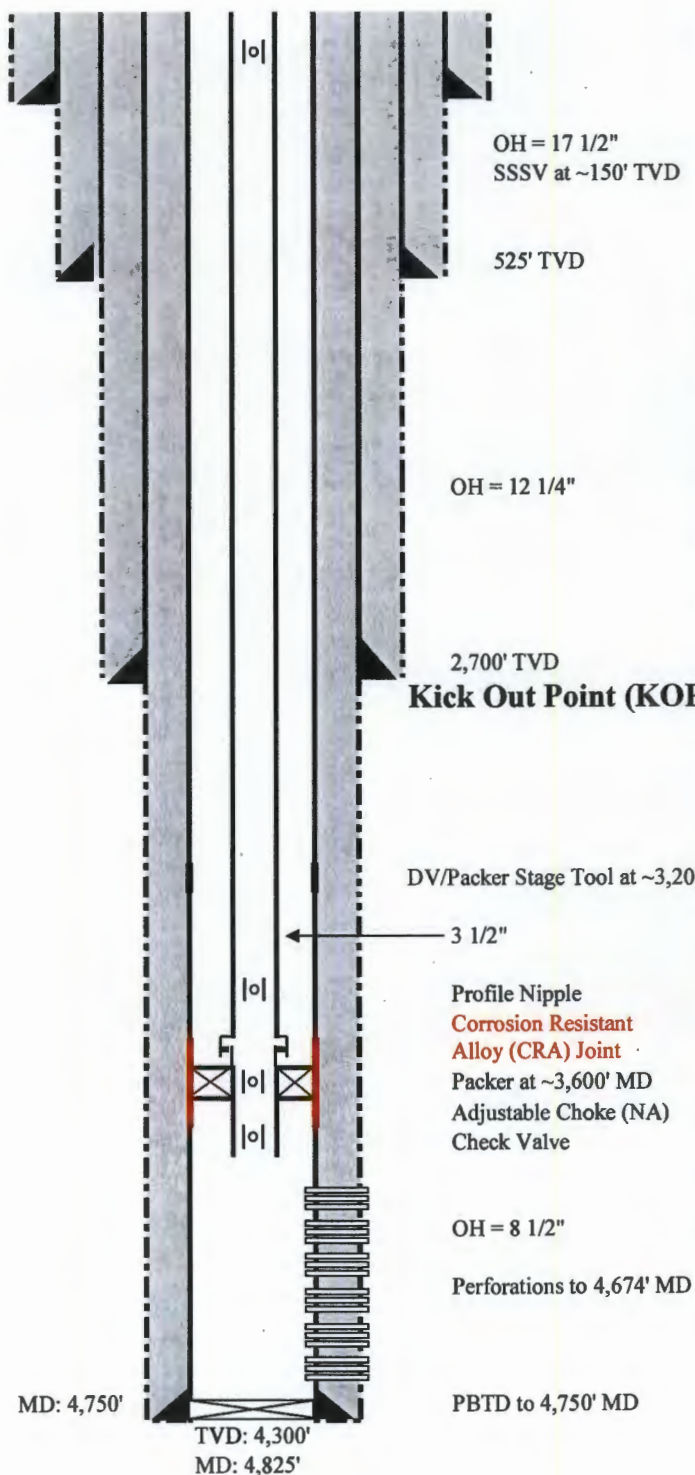


**Figure 5 – Schematic Showing Existing AGI Facilities and Tie In To Proposed DCP Artesia AGI #2**



**Location:** DCP Artesia AGI #2  
**STR** Section 7, T18S-R28E  
**County, St.:** EDDY COUNTY, NEW MEXICO

### 41.5 DEGREES FROM VERTICAL



## CONDUCTOR CASING

### 20" Conductor at 40' TVD

## SURFACE CASING

13 3/8", 48.00#/ft, H40, STC at 525' TVD

### INTERMEDIATE CASING:

9 5/8", 40.0 #/ft, J55, LTC at 2,700' TVD

**PRODUCTION CASING:**

7", 26 #/ft, L-80, USF at 3,400' MD

7", 26 #/ft, SM-2535 or equivalent, USF at 3,650' MD

7", 26 #/ft, L-80, USF at 4,600'

7" Std Centralizers at 1 per Casing Joint Above KOP

7" Hor Centralizers at 1 per Casing Joint Below KOP

### ANNULAR FLUID:

### Diesel Fuel from top of packer to surface

**TUBING:**

3 1/2", 9.3#/ft, L-80, USF Fiberglass Lined @ ~3,600' MD

**PACKER:**

### Permanent Production Packer @ 3,600' (MD)

Adj. Choke (if needed, placed in nipple below packer)

Check valve (if needed, placed in nipple below packer)

**PERFORATIONS:**[illegible]



**WV**

**RAY WESTALL**  
STATE CO-1  
FBO FEL 2310 FEL  
TUM BLVD ST  
Crescent - MOON  
BERRYMAN - 2.615

**Product:** BIO DIVERSE  
**DUKE ENERGY FLD SER**  
**DUKE AGT #1**  
**1211 3RD 1827 PEA**  
**FLS 828E 87**  
**Country:** **INDY**  
**SLV IN 1 629**

915815


 DUKES ENERGY FIELD  
 DATE AGED 02  
 COUNTY : BERRY  
 ELEV. 108 : 2,415

35

**Zone AGI #2**

Lowest active producing perf in 1/2 mile radius

Kick-off @ 2,750 ft.

41.4°

TOP OF ZONE  
606 FT. OUT

2,975 FT.

BASE OF ZONE  
1,278 FT. OUT

1,380 FT.  
HORIZONTAL DISPLACEMENT

Proposed Injection interval

MIKRO\_1 [SENM]=3409.1  
GLORETA [SENM]=3567.6  
YESO [SENM]=3680.5  
MIKRO\_2 [SENM]=4081.0  
MIKRO\_1 [SENM]=3452.5  
GLORETA [SENM]=3614.0  
YESO [SENM]=3982.1  
MIKRO\_2 [SENM]=4191.3

TVD = 4,300 FT.  
HD = 4,825 FT.

**Lowest active producing perf in 1/2 mile radius**

**Kick-off @ 2,750 ft.**

49.4°

TOP OF ZONE  
606 FT. OUT

2,078 FT.

BASE OF ZONE  
1278 FT. OUT

1.380 Ft.

### HORIZONTAL DISPLACEMENT

**TVD = 4,300 Ft.**  
**MD = 4,825 Ft.**

MKR\_1 [SENM]=3409.1

GLORIETA [SENM]=3587.6

YESO ISENIN=3880 S

WAKB 2 (SENN)=4081 0

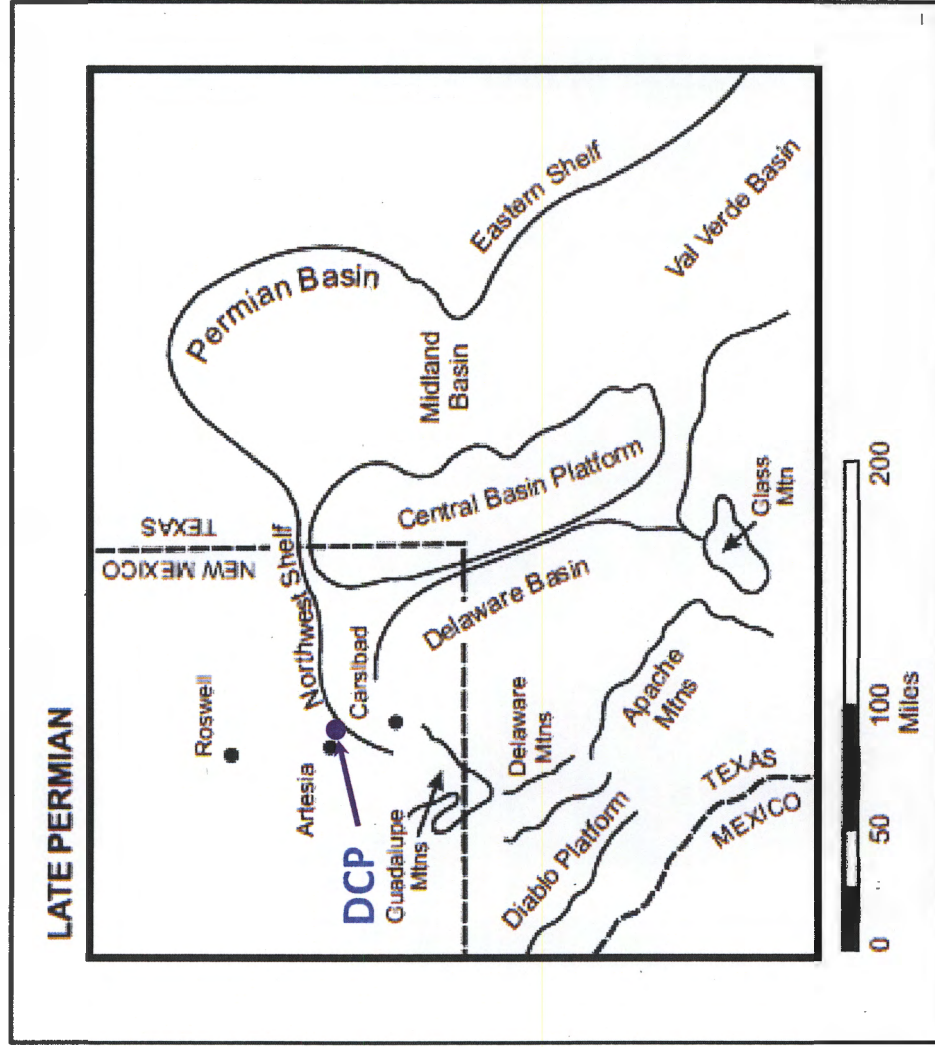
MIKR 1 [SENM]=3452.5

GLORIETA [SENM]=3614.0

WESO [SENM]=3982.1

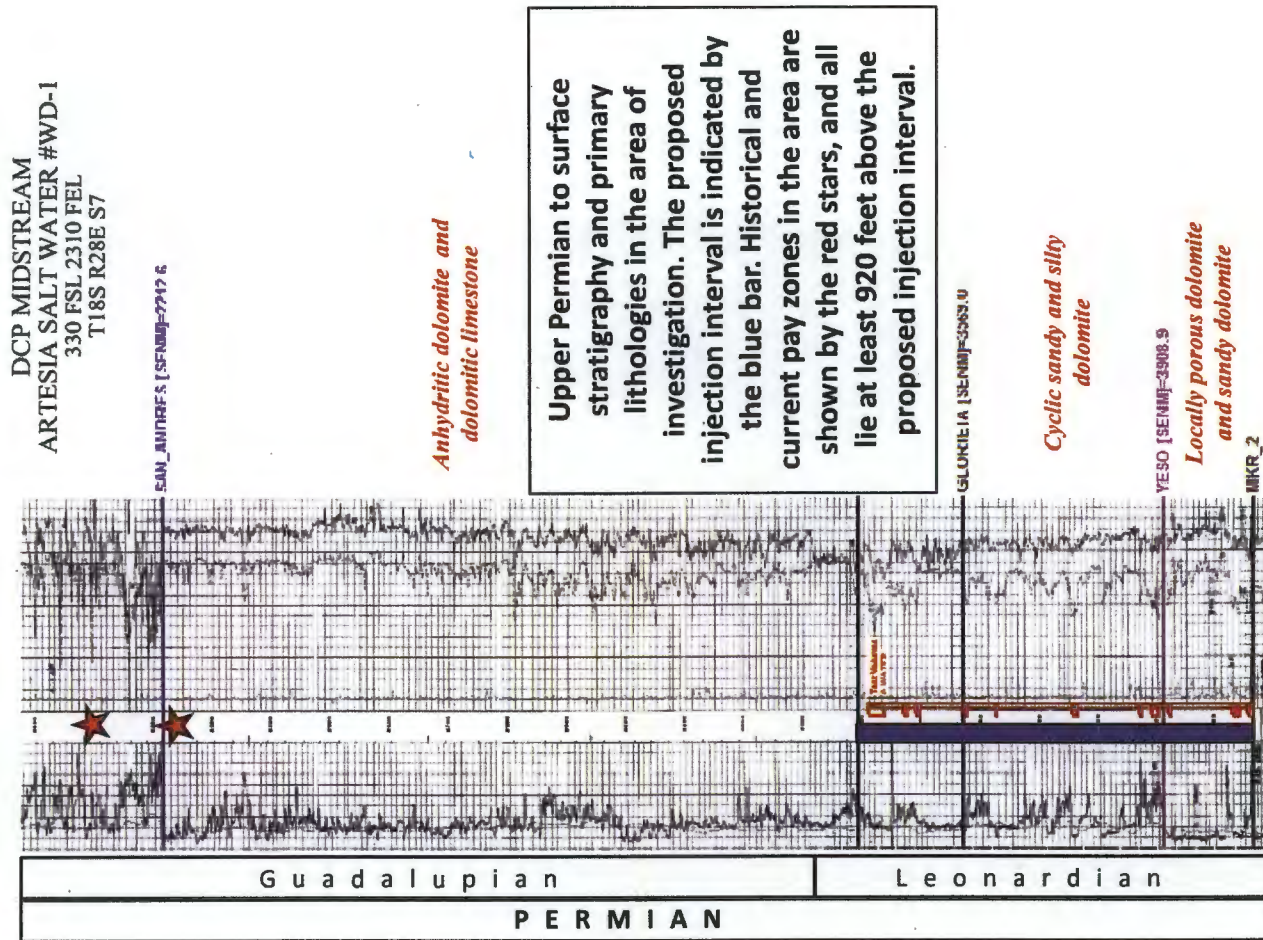
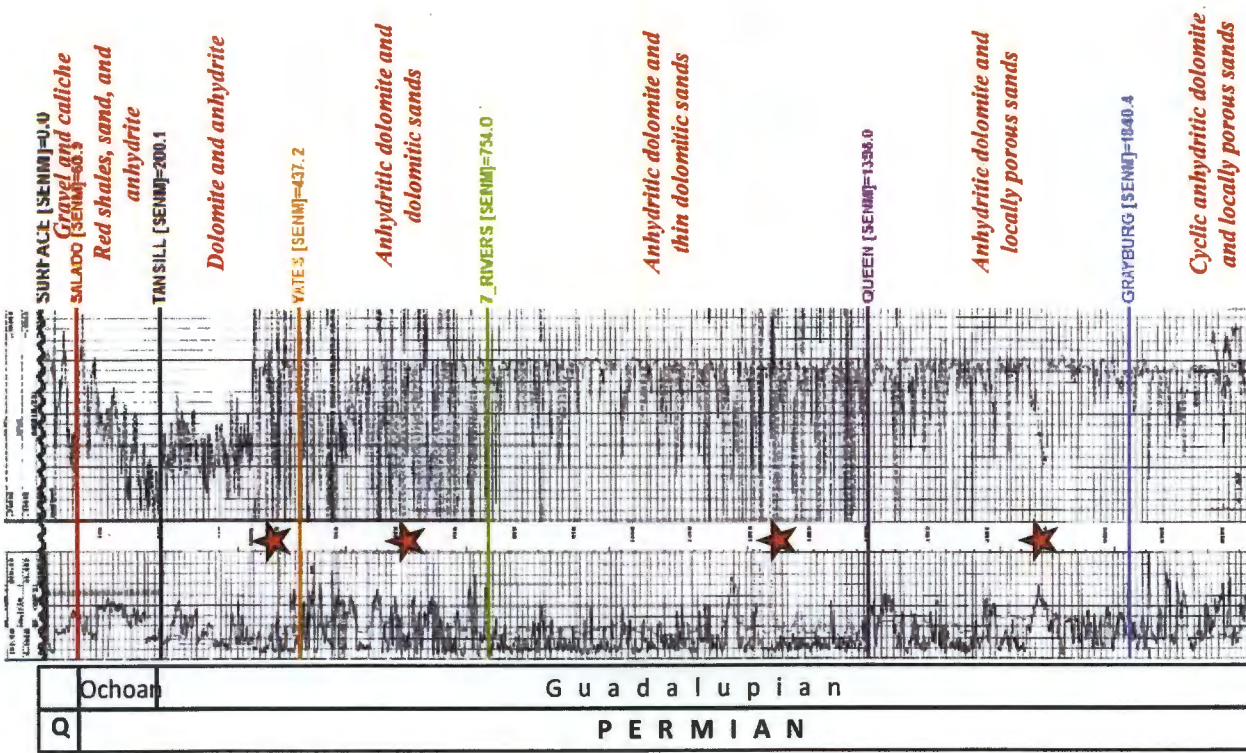
HKR 2 [SENMF]=4191.3

### Proposed Injection interval



**Figure 8 - Structural Features of the Permian Basin During the Late Permian; Modified from Ward, et al (1968). Location of the DCP Artesia Gas Plant is Shown by the Blue Arrow.**





Upper Permian to surface stratigraphy and primary lithologies in the area of investigation. The proposed injection interval is indicated by the blue bar. Historical and current pay zones in the area are shown by the red stars, and all lie at least 920 feet above the proposed injection interval.

Figure 9 – Geophysical Log from DCP Artesia SWD #1



DUKE ENERGY FLD SER  
DUKE 'AGI' #1  
1232 FSL 1927 FEL  
T18S R28E S7

*Tight carbonate and shales*

CISCO [SENM]-8239.2

Stratigraphy and major lithologies below the proposed injection interval. The only formation that is productive within one mile of the well is the Morrow (red star). The Abo, which is equivalent to the lower 2<sup>nd</sup> Bone Spring, is only productive further north (more than one mile), as is the Glorieta-Yeso (green arrows).

*Tight carbonate and shales*

ATOKA [SENM]-8674.0

*Tight shales and thin carbonates*

MRRWN CLASTIC [SENM]-1000.8

*Locally porous sands, tight shales*

BARNETT [SENM]-10310.3

*Tight shale*

CHESTER [SENM]-10433.0

*Locally porous carbonate, and shales*

OSAGE [SENM]-10652.0

*Tight limestone*

WOODFORD [SENM]-11128.5

WRIESTE [SENM]-11183.2

*Locally porous carbonate*

FUSSELMAN [SENM]-11337.4

Wolfcampian	Virgil-Missourian	Desmoines	Atokan	Mrrwn.	Chest.	Mer-
	PENNSYLVANIAN				MISSISSIPPIAN	
						SIL-DEV

CURRENT  
INJECTION  
INTERVAL

BASE OF PROPOSED  
INJECTION INTERVAL

*Locally porous dolomite and sandy dolomite*

T/BONE\_SPG [SENM]-4639.7

*Tight carbonate and shales, silts*

1\_BSPG\_SS [SENM]-5054.4

*Tight carbonate and shales, silts*

2\_BSPG\_SS [SENM]-5855.4

*Tight carbonate and shales, silts, sands*

3\_BSPG\_SS [SENM]-4938.5

*Tight shales and silty sands*

L\_LEONARD [SENM]-7197.3

*Tight carbonate and shales*

WOLF CAMP [SENM]-7584.9

Leonardian  
PERMIAN

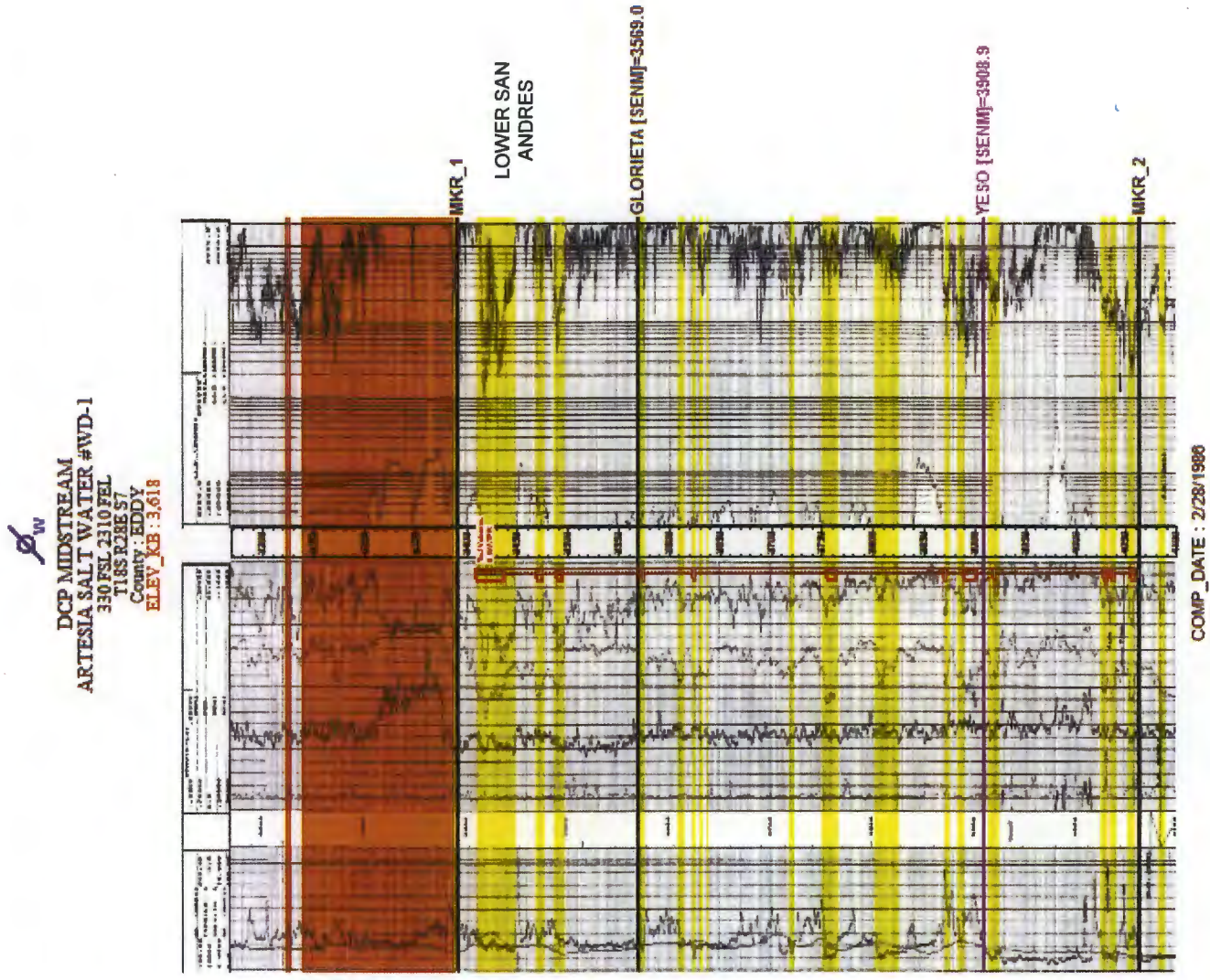
Figure 10 - Geophysical Log from DCP Duke AGI #1



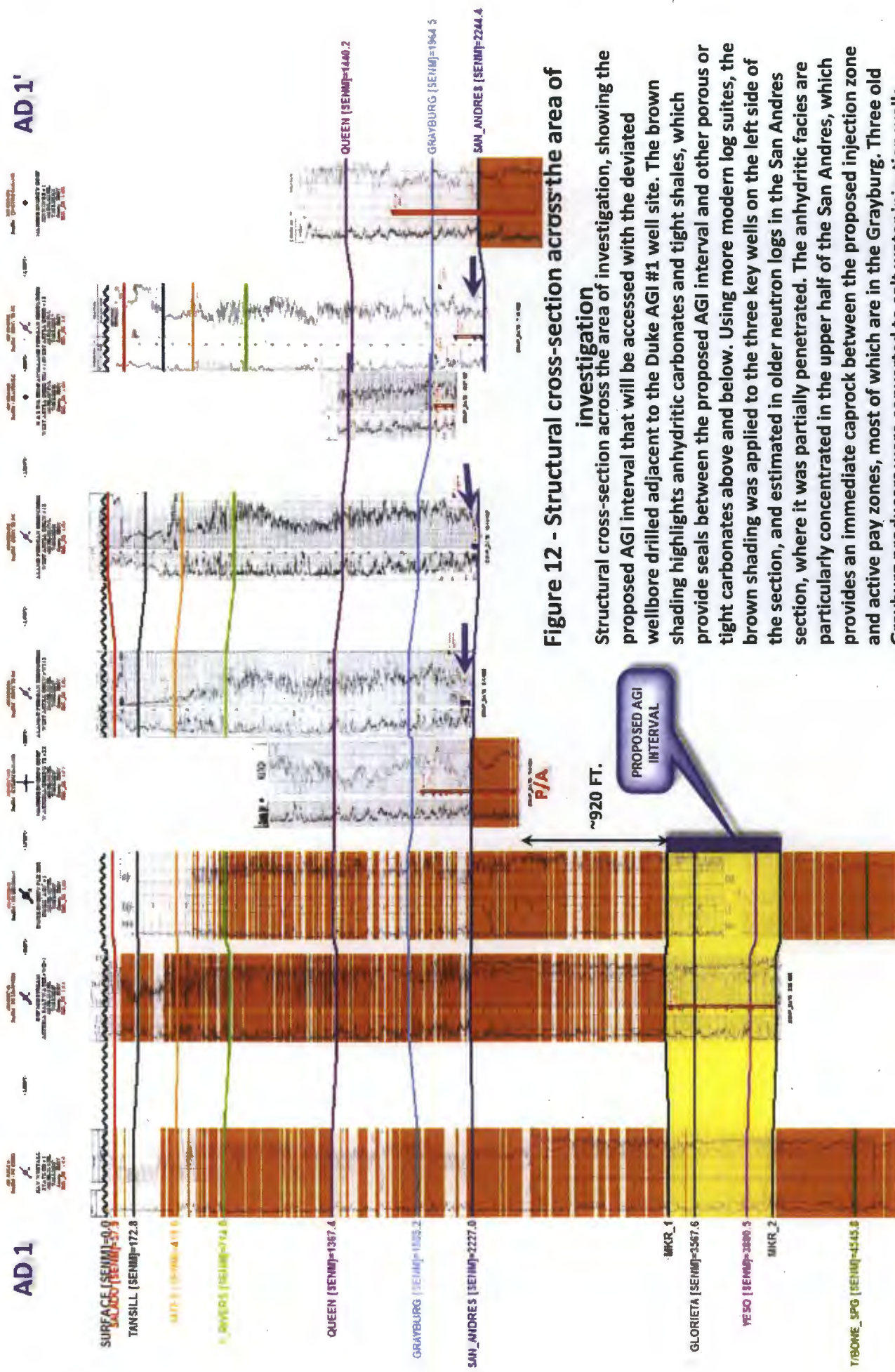
**Figure 11 – Geophysical Log  
from DCP SWD #1 Showing  
Proposed DCP Artesia AGI #2  
Injection Zone**

The proposed injection zone includes the lower 300 feet of the San Andres, all of the Glorieta, and the upper 200 feet of the Yeso, as shown in this log composite from the DCP salt water disposal well (SWDW) that offsets the DCP Artesia AGI #1 well, at a true vertical depth (TVD) range between 3,400 and 4,100 feet. Artesia SWD #1 was permitted in the same interval as the proposed injection interval in DCP Artesia AGI #2.

Perforations in this well were shot in discrete porosity zones in dolomite which are separated from one another by tight, very finely crystalline dolomite. The interval is capped in this well by tight, anhydritic dolomite above the "Mkr 1" horizon. The porous dolomites in this interval average 9% porosity in wells where modern porosity logs are available.







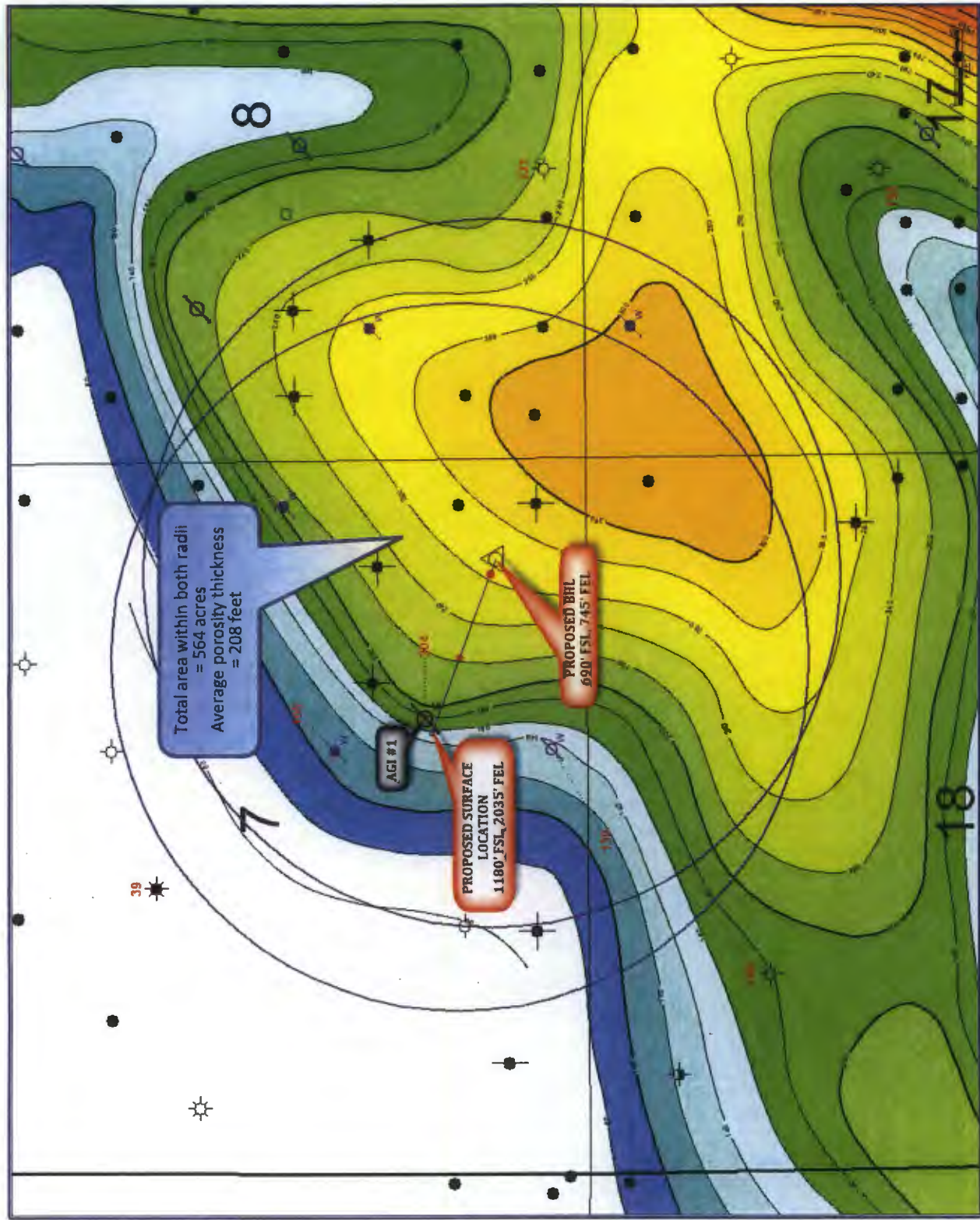
**Figure 12 - Structural cross-section across the area of investigation**

Structural cross-section across the area of investigation, showing the proposed AGI interval that will be accessed with the deviated wellbore drilled adjacent to the Duke AGI #1 well site. The brown shading highlights anhydritic carbonates and tight shales, which provide seals between the proposed AGI interval and other porous or tight carbonates above and below. Using more modern log suites, the brown shading was applied to the three key wells on the left side of the section, and estimated in older neutron logs in the San Andres section, where it was partially penetrated. The anhydritic facies are particularly concentrated in the upper half of the San Andres, which provides an immediate caprock between the proposed injection zone and active pay zones, most of which are in the Grayburg. Three old Grayburg producers were converted to salt water injection wells (blue arrows), and only one active well (far right) has perforations in the upper San Andres, in very thin-bedded, confined dolomite beds.



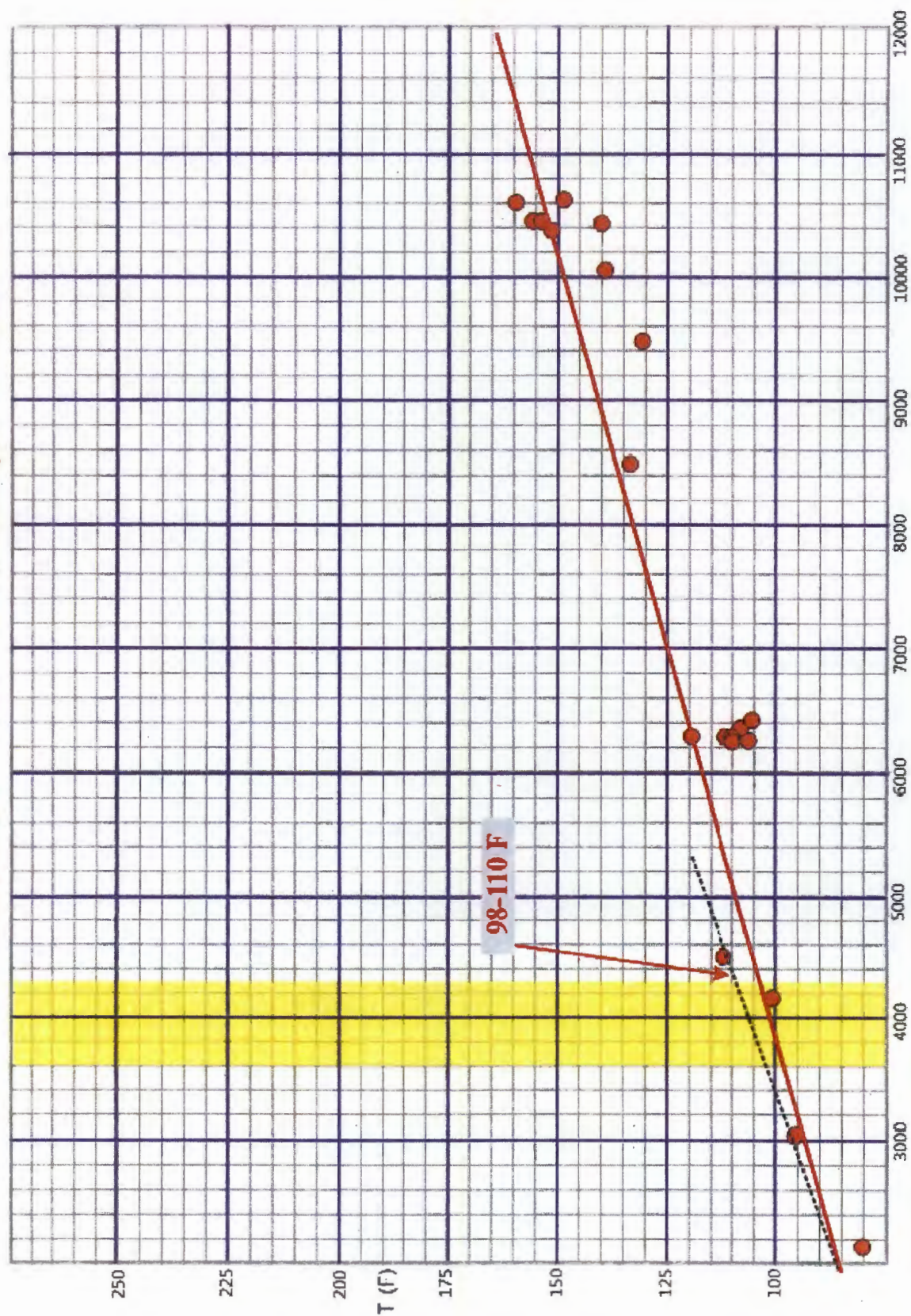
**Figure 13 –  
Average Net  
Porosity-Feet  
within One-Half  
Mile of Proposed  
DCP Artesia AGI  
#2**

The average net  
porosity-feet within the  
combined ½-mile radii  
was determined by  
counting thickness  
values at regularly  
spaced  
grid points  
within the radii.





# T/H, DCP- ARTESIA, Eddy County, New Mexico

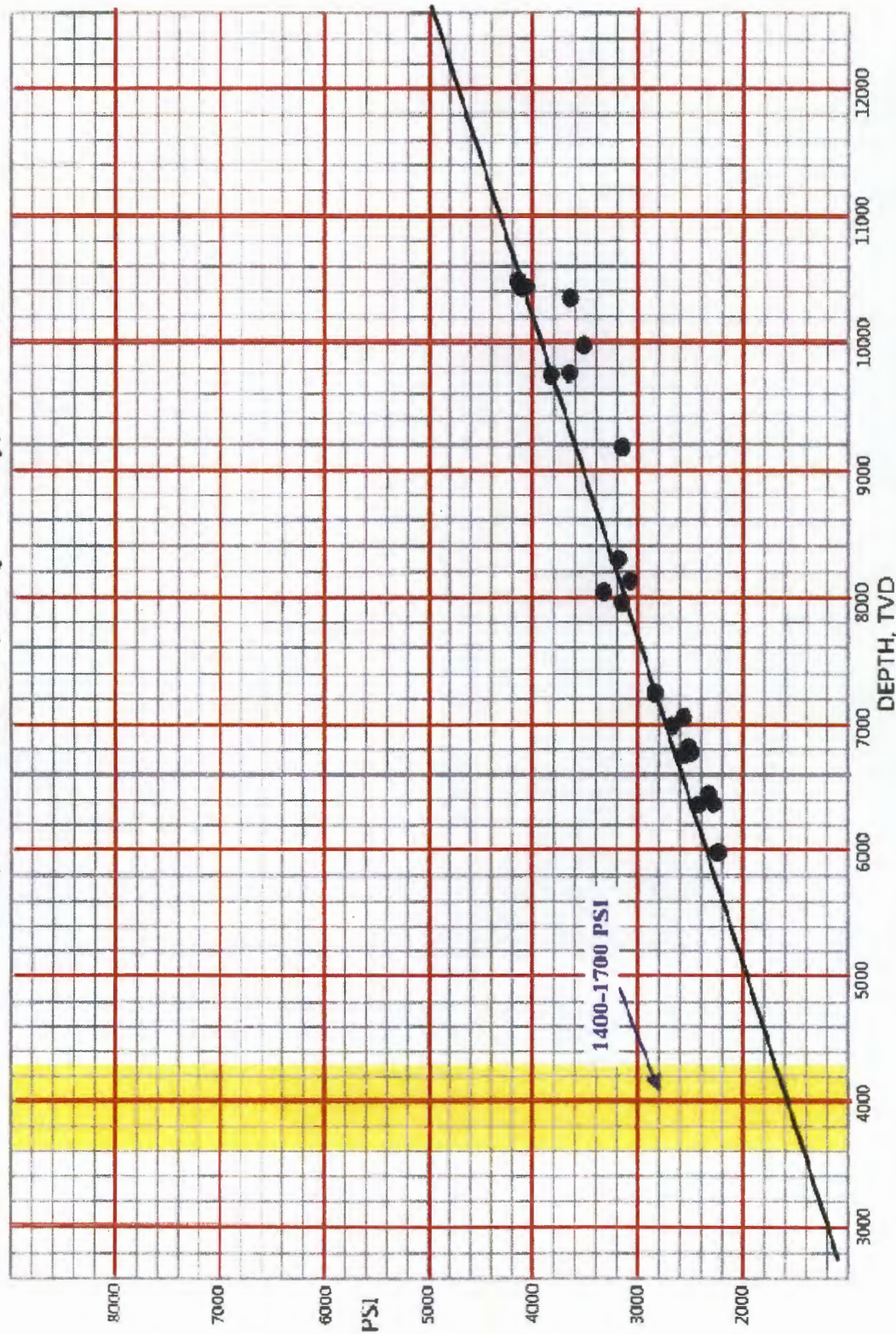


**Figure 14 - Chart Showing Normal Temperature Gradient within the Proposed Injection Interval**

The normal temperature gradient at this depth ranges from 98 to 110 degrees F, with an average of 104 F.



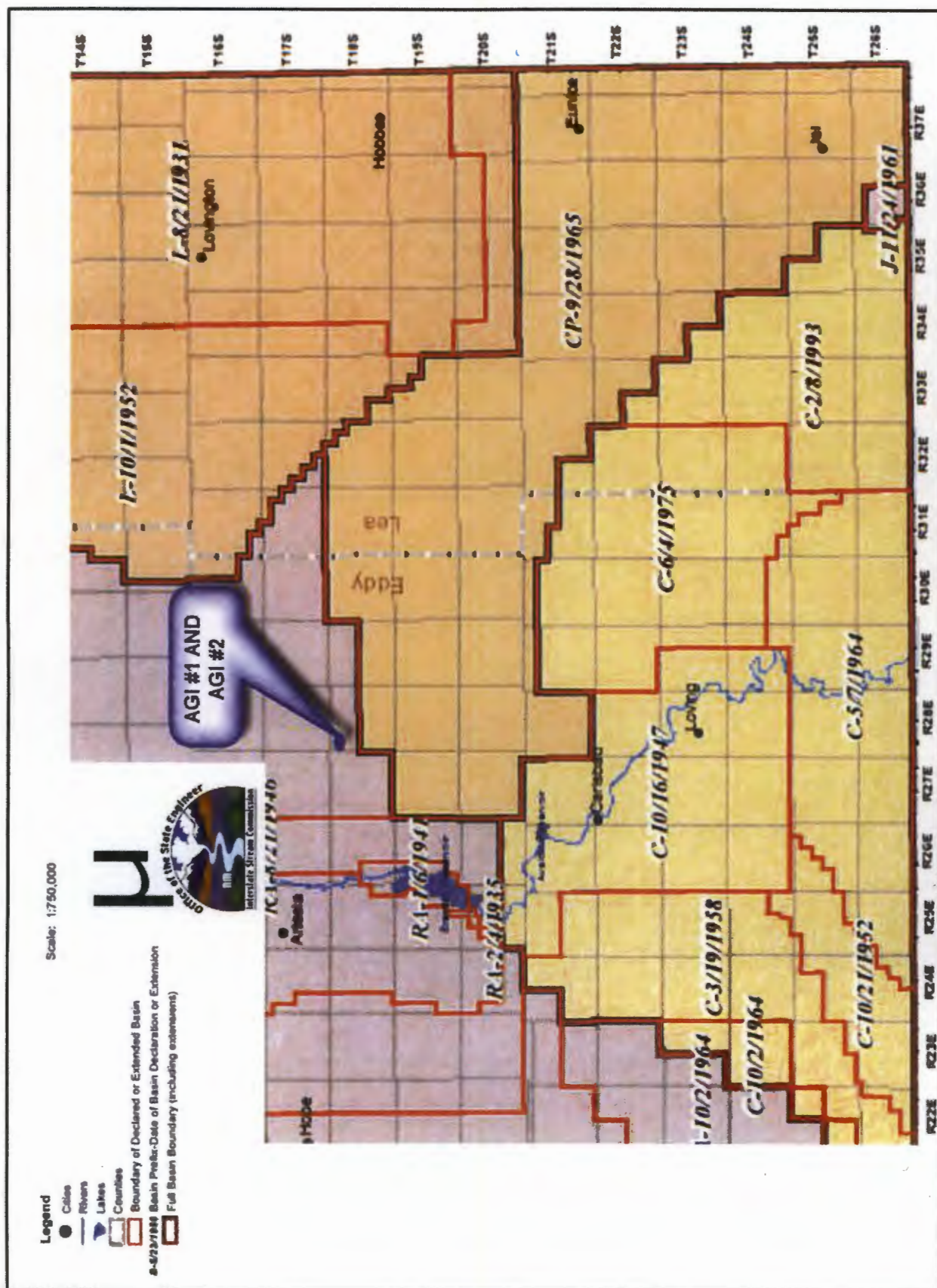
# P/H, DCP ARTESIA, Eddy County, New Mexico



**Figure 15 - Chart Showing the Range of Pressures within the Proposed Injection Interval**

P vs. H from DST data in the surrounding area. There are a lot of DSTs conducted in the 400 to 2400 foot range in the area, but none of them reported their pressures. The maximum pressure observed at the depth range of the upper Permian porosity is 1700 PSI, which is about what DCP reports as their injection pressure in the SWD #1.





**Figure 16 - Map from NM State Engineer Showing Declared Water Basins**  
Map from the State Engineer's office, showing that the well site is not within any declared water basin, which is suggested by the lack of aquifers that can be seen on shallow well logs in the area of investigation.





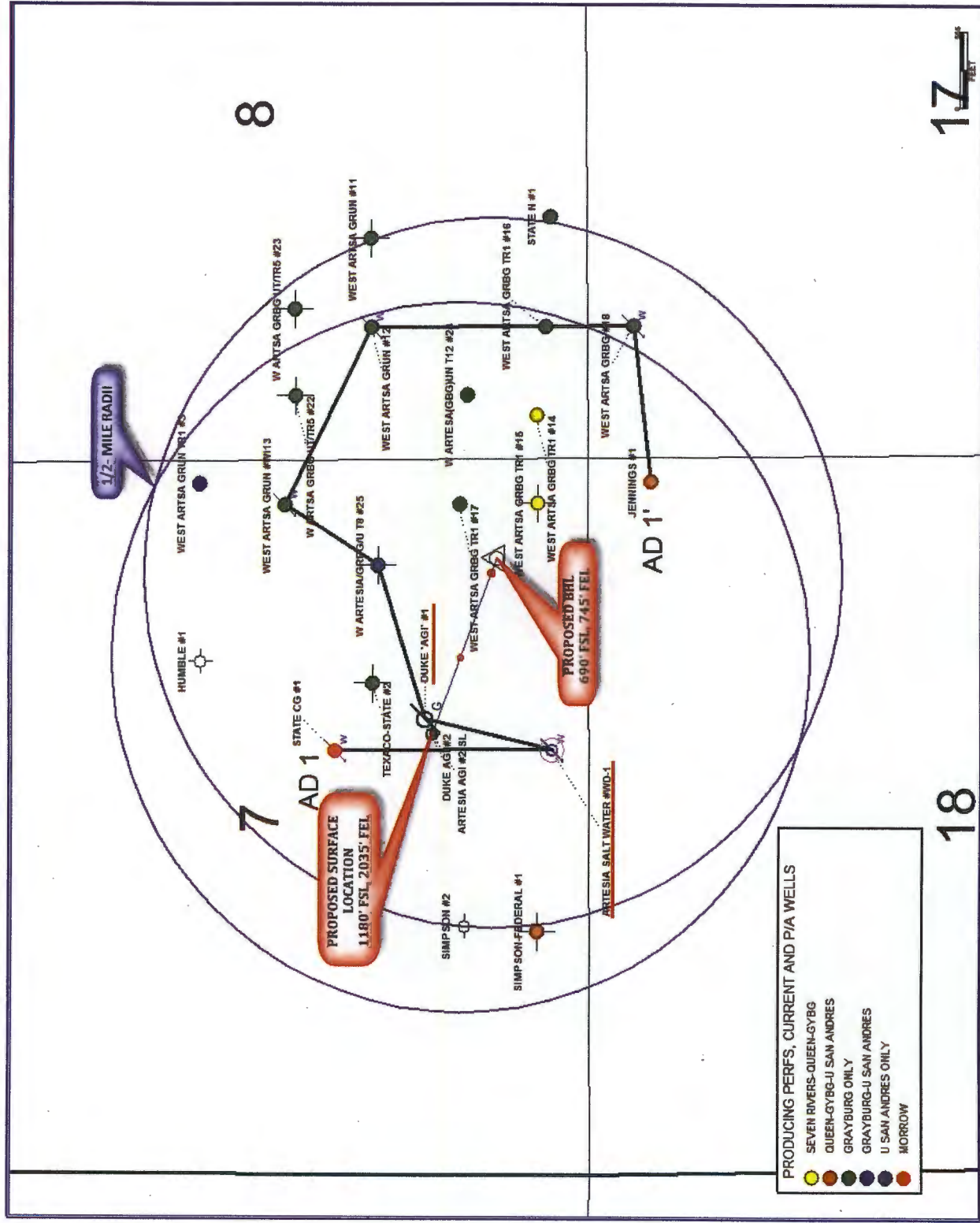
**GEOLX**  
INCORPORATED

**dcp**  
Midstream

**Figure 17 – Water Wells Within One-Half  
Mile of Proposed DCP Artesia AGI #2**

Figure 18 - Wells within One-Half Mile Radii of Proposed DCP Artesia AGI #2

Wells within the 1/2-mile radii of the proposed well track, showing actual producing perforations in both active and plugged or converted wells. Cross-section AD1- AD1', (Figure 11), ties the current DCP salt water disposal well (SWD #1) to the Duke AGI #1, and active, converted, and plugged wells in the vicinity.





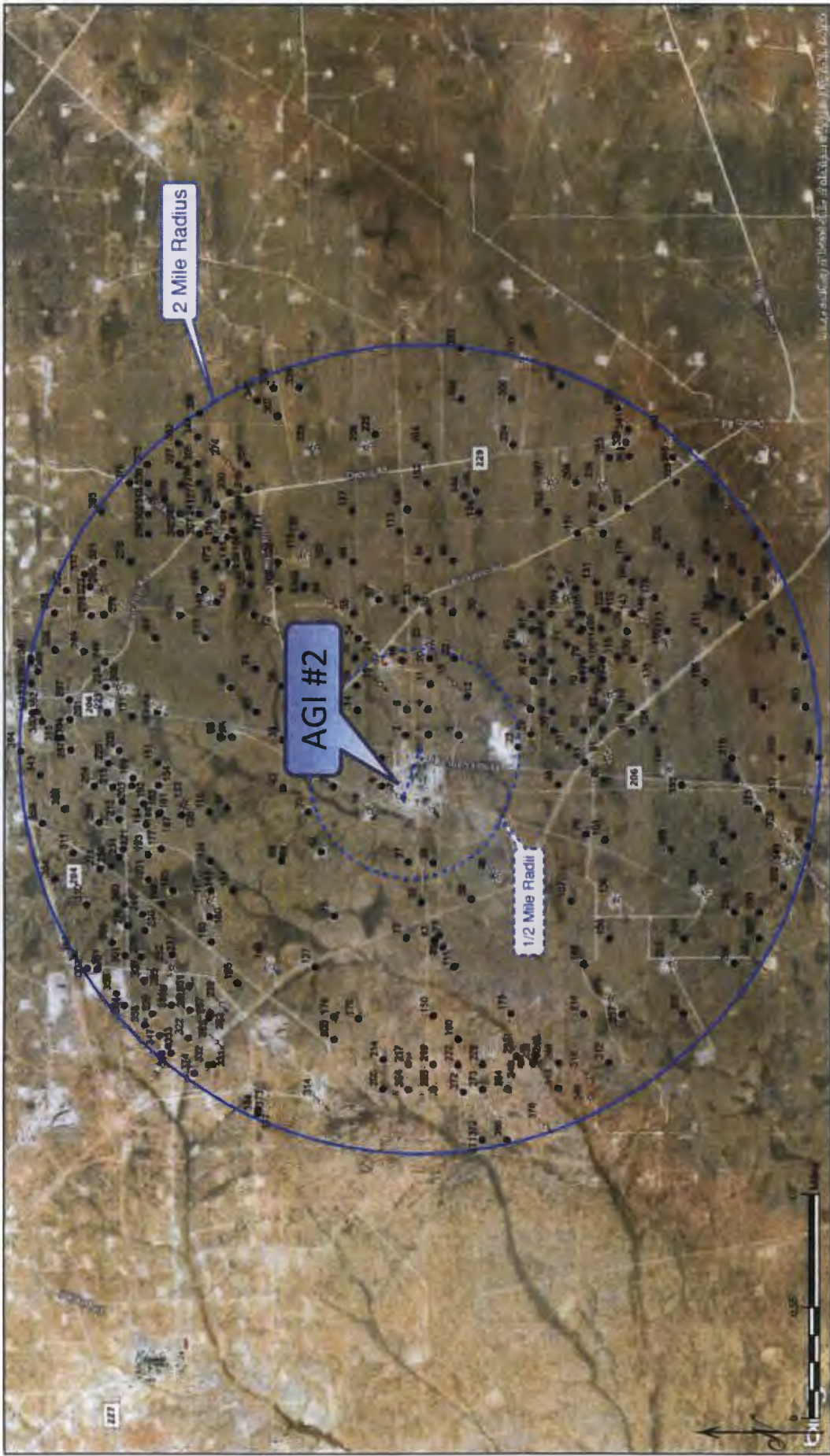
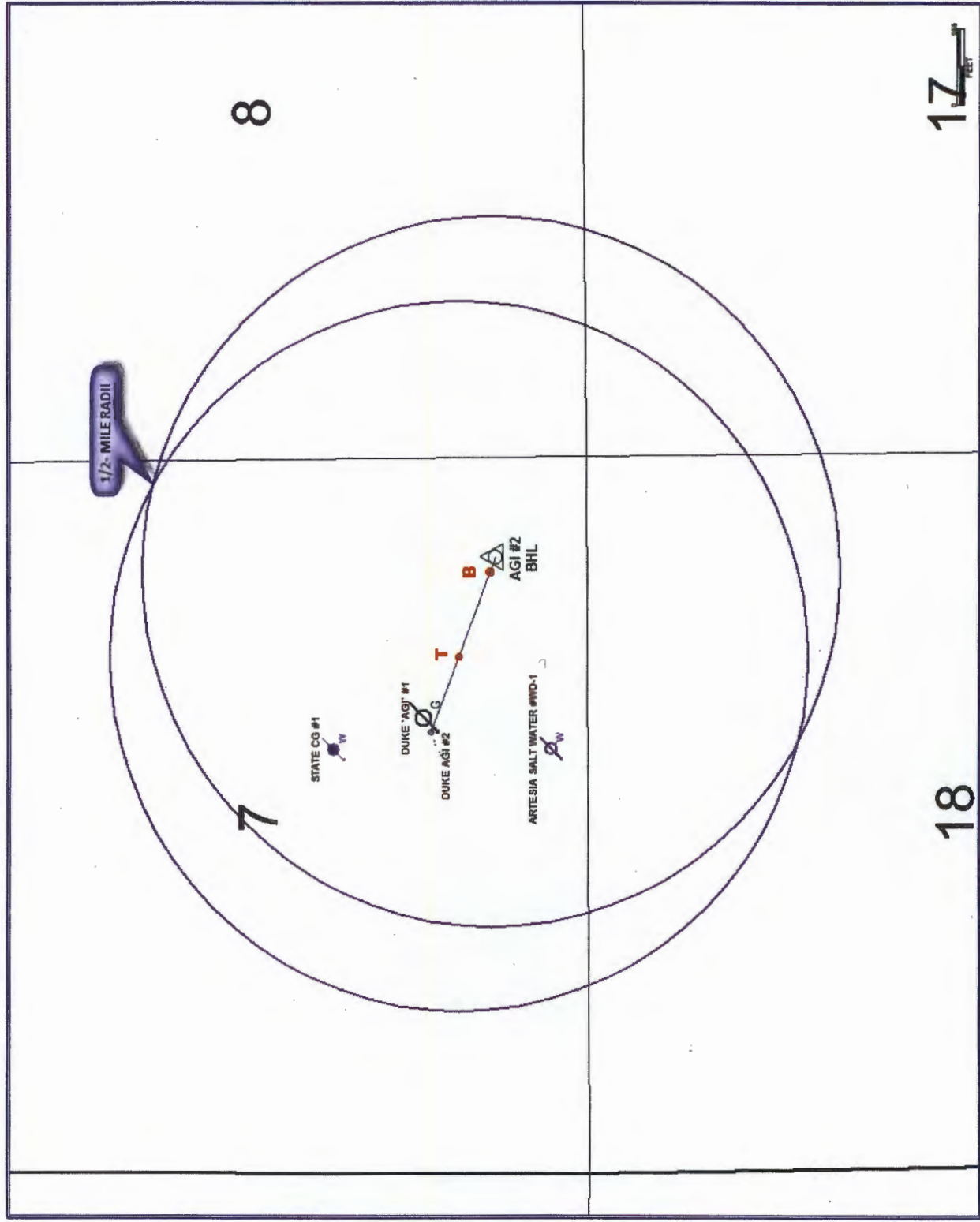


Figure 19 –Wells within Two Miles of Proposed DCP Artesia AGI #2

**Figure 20 - Wells within One-Half Mile of Proposed DCP of Artesia AGI #2 that Penetrate the Proposed Injection Reservoir**

There are only three wells within the 1/2-mile radii that penetrate the proposed injection interval; one is the current Duke AGI #1 well, the second is the DCP salt water disposal well SWD#1 (which is perforated in the proposed injection interval), and the third is the water disposal well State CG #1 that is

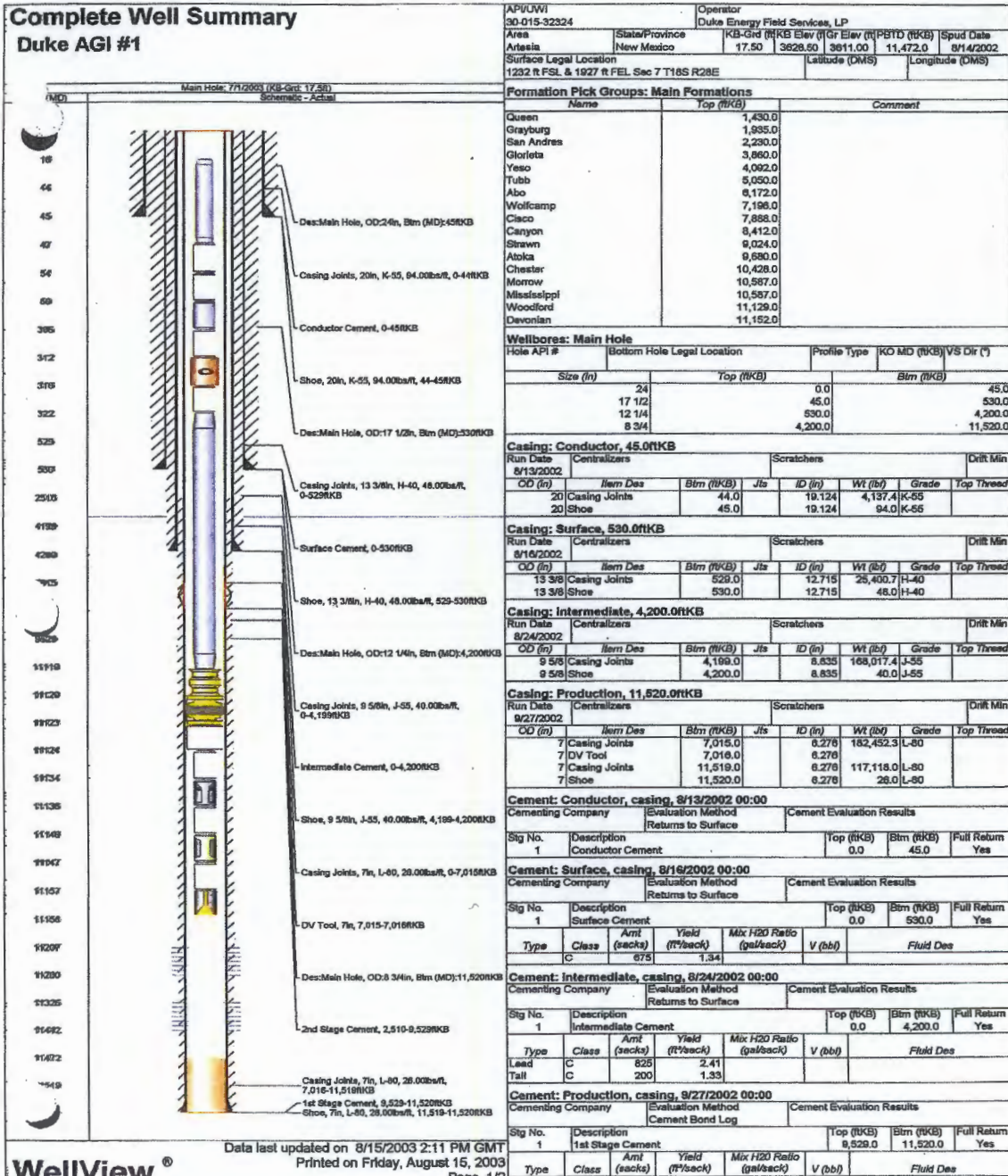
perforated in the deeper Cisco. The intersections of the AGI #2 deviated well with the top (T) and base (B) of the proposed injection zone are shown in red.



**Appendix A**  
**Well Completion/Plugging Diagrams for All Wells**  
**Within One-Half Mile of Proposed DCP Artesia AGI**  
**#2 that Penetrate the Injection Reservoir**



# Duke AGI #1 Well Schematic



Data last updated on 8/15/2003 2:11 PM GMT

Printed on Friday, August 15, 2003

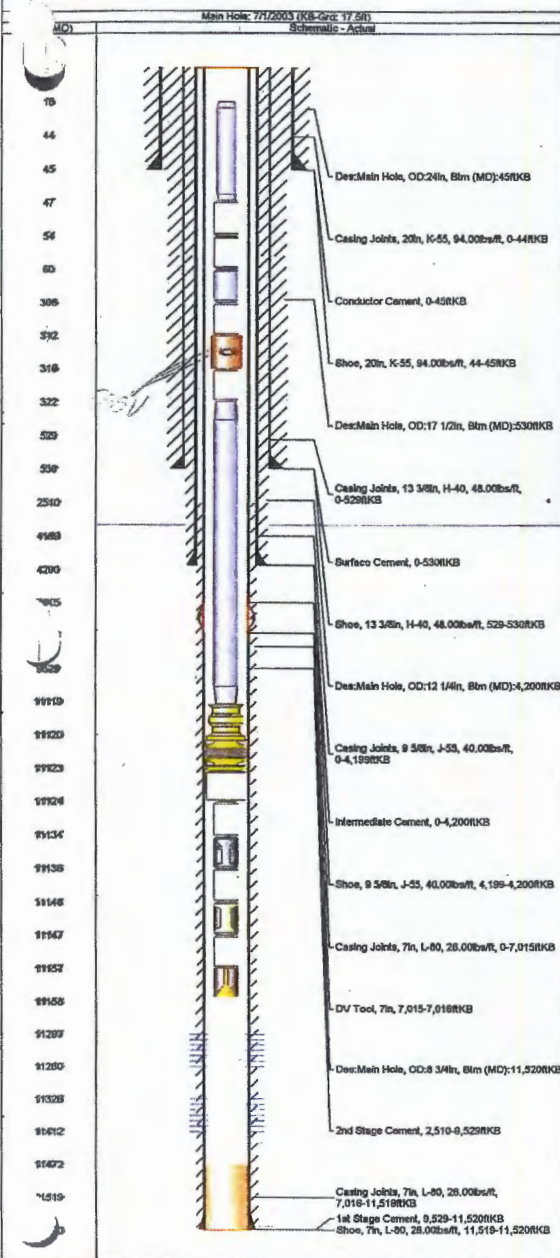
WellView®

Page 1/2



# Complete Well Summary

## Duke AGI #1



Type	Class	Amt (sacks)	Yield (ft/sack)	Mix H2O Ratio (gal/sack)	V (bbl)	Fluid Des
Tail	HL	600	1.62			Lap-1 H2S Resistant Cmt
Stg No. 2	Description				Top (ftKB)	Stm (ftKB)
	2nd Stage Cement				2,510.0	9,529.0
Lead	HLP	600	1.94			
Tail	HLP	100	1.18			

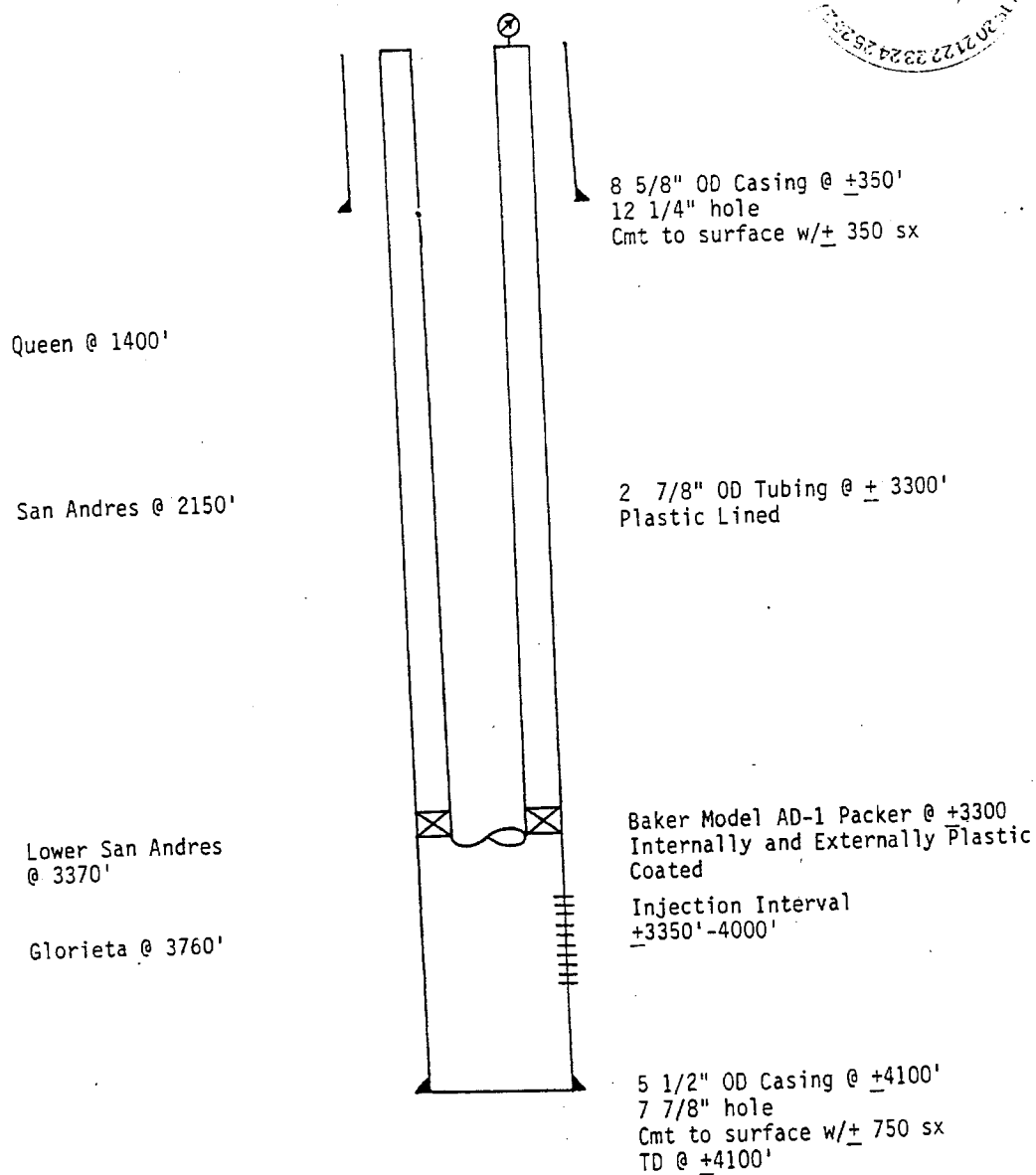
Perforations						
Date	Top (ftKB)	Stm (ftKB)	Zone	Shot Dens (shots/ft)	Shot Total	Chg Sz (in)
11/11/2002	11,207.0	11,260.0		5.0		
11/11/2002	11,328.0	11,412.0		5.0		

Tubing - Production set at 11,168.0ftKB on 7/1/2003 00:00							
OD (in)	Item Des	Top (ftKB)	Len (ft)	ID (in)	WT (lbs/ft)	Grade	Top Thread
2 7/8	Tubing	16.2	30.05	2.441	6.50	L-80	Hydril 533
3.6	Tubing Pup Joint	46.8	7.70	2.441	6.40	L-80	Hydril 533
3.6	Tubing Pup Joint	54.5	5.70	2.441	6.40	L-80	Hydril 533
3.6	Tubing	60.2	245.87	2.441	6.40	L-80	Hydril 533
3.6	Tubing Pup Joint	308.1	5.70	2.441	6.40	L-80	Hydril 533
4.62	Safety valve	311.8	3.94				Hydril 533
3.6	Tubing Pup Joint	315.7	5.70	2.441	6.40	L-80	Hydril 533
3.6	Tubing	321.4	10797.45	2.441	6.40	L-80	Hydril 533
5.2	Anchor Latch Seal Assembly	11,118.9	1.00				Hydril 533
5 7/8	Schlum GL 7x4 Packer	11,119.9	2.95				Hydril 533
5 7/8	Tail Pipe Adaptor	11,122.8	1.35	2.441	6.40	L-80	Hydril 533
3.6	Tubing Pup Joint	11,124.2	10.12	2.441	6.40	L-80	Hydril 533
3.6	Profile Nipple	11,134.3	1.25	2.313			Hydril 533
3.6	Tubing Pup Joint	11,135.5	10.10	2.441	6.40	L-80	Hydril 533
3.6	S Nipple (w/Ball Check Valve)	11,145.8	1.37	2.205			Hydril 533
3.6	Tubing Pup Joint	11,147.0	10.00	2.441			Hydril 533
3.6	Wireline Guide	11,157.0	1.00				Hydril 533

Other In Hole					
OD (in)	Des	Top (ftKB)	Stm (ftKB)	ID (in)	Make
7	PSID	11,472.0	11,520.0	6.000	

# Duke SWD #1 Well Schematic

Phillips Petroleum Company  
 Artesia SWD Well No. 1  
 330' FSL, 2310' FEL, Section 7, T-18-S, R-28-E



### State CG #1

OH = 17 1/2"

418'

600'

2,585'

OH = 13 1/4"

2 7/8"

Packer at 7,894'

OH = 8 1/2"

## SURFACE CASING

13 3/8", 48.00#/ft, K-55, STC at 418'

**INTERMEDIATE CASING:**

9 5/8", 36.0 #/ft, K-55, LTC at 2,585'

**PRODUCTION CASING:**

5 1/2", 17 #/ft, N-80, LTC 37 joints

5 1/2", 17 #/ft, K-55, LTC 201 joints

5 1/2", 17 #/ft, N-80, LTC 12 joints at 10,380'

**TUBING:**

2 7/8", 9.3#/ft, HLC-80, Premium thread at 7,895'

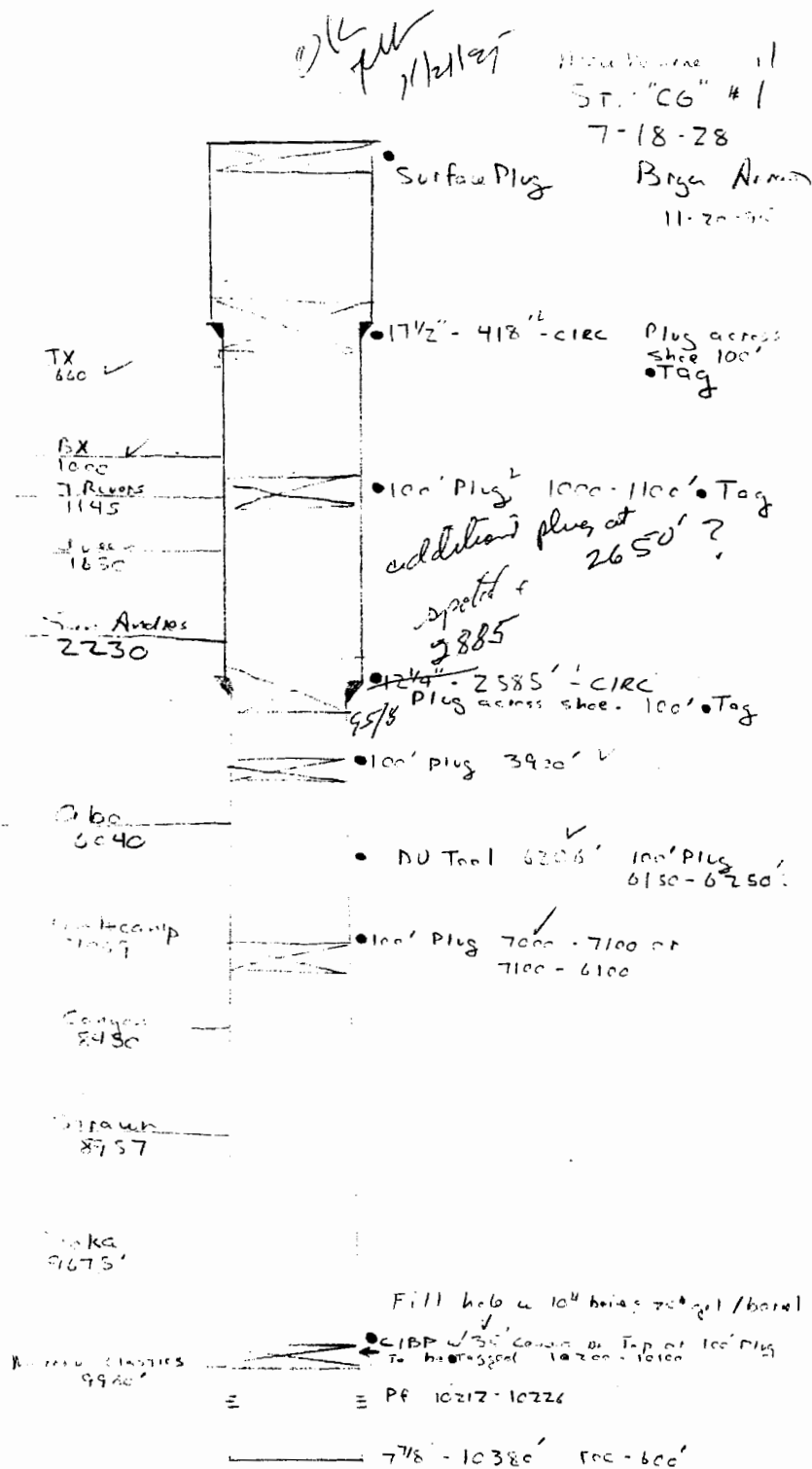
**PACKER:**

**Permanent Production Packer @ 7,894'**

**PERFORATIONS:**[illegible]

PBTD: 8,150' (original TD at 10,380' see State CG #1 Plugging Diagram on following page)

# State CG #1 Well Plugging Diagram (from NMOCD Well Records)



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT

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Revised 10-1-78

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WELL COMPLETION OR RECOMPLETION REPORT AND LOG  
C. C. D.  
ARTESIA, OFFICE

5a. Indicate Type of Lease  
State ☒ Fee ☐  
5. State Oil & Gas Lease No.  
OG-1409

10. TYPE OF WELL **80' M**  
a. TYPE OF COMPLETION  
NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER ☐  
2. Name of Operator  
ARCO Oil and Gas Company - Div. of Atlantic Richfield Company ✓  
3. Address of Operator  
P. O. Box 1710, Hobbs, New Mexico 88240  
4. Location of Well  
UNIT LETTER **J** LOCATED **2310** FEET FROM THE **East** LINE AND **1980** FEET FROM  
THE **South** LINE OF SEC. **7** TWP. **18S** RCE. **28E** NMPM  
15. Date Spudded **9/06/85** 16. Date T.D. Reached **10/11/85** 17. Date Compl. (Ready to Prod.) **10/25/85** 18. Elevations (DF, RKB, RT, GR, etc.) **3596.9' GR** 19. Elev. Casinghead  
20. Total Depth **10,380'** 21. Plug Back T.D. **10,287'** 22. If Multiple Compl., How Many  
23. Intervals Drilled By **Rotary Tools** Cable Tools  
**0-10,380'**  
24. Producing Interval(s), of this completion - Top, Bottom, Name  
**10,212-10,226' Morrow** 25. Was Directional Survey Made  
**No**  
26. Type Electric and Other Logs Run  
**GR-DLL-MSFL & GR-CNL-LDT-Cal** 27. Was Well Cored  
**No**  
28. CASING RECORD (Report all strings set in well)  

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8" OD	54.5# K-55	418'	17 1/2"	500 sx	
9-5/8" OD	36# K-55	2585'	12 1/4"	1250 sx	
5-1/2" OD	17# K-55	10380'	7-7/8"	2300 sx	

  
29. LINER RECORD  

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
2-3/8" OD				

  
30. TUBING RECORD  

SIZE	DEPTH SET	PACKER SET
2-3/8" OD	10,128'	10,128'

  
31. Perforation Record (Interval, size and number)  
**10,212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 10,226'**  
**(60 - .50" holes)**  
32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.  

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
None	

  
33. PRODUCTION  

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)
10/27/85	Flowing	Shut in

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
11/4/95	4 pt	Various		15.2	.752	0.88	49,474:1

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API (Corr.)
2195	Pkr		91	4512	5.28	55.2

  
34. Disposition of Gas (Sold, used for fuel, vented, etc.)  
**SI, WOPLC** Test Witnessed By  
**E. S. Bush**  
35. List of Attachments  
**Logs as listed above in Item 26 & Inclination Report**  
36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.  
SIGNED **H. Strange P/DDM** TITLE **Dist Drlg Supv.** DATE **11/19/85**

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O. C. D.

ARTESIA, OFFICE

36. Indicate Type of Lease	
State <input checked="" type="checkbox"/> Fee <input type="checkbox"/>	
37. State Oil & Gas Lease No.	
06-1409	

## SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.  
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

OIL WELL <input type="checkbox"/>	GAS WELL <input checked="" type="checkbox"/>	OTHER-	7. Unit Agreement Name
Name of Operator ARCO Oil and Gas Company			8. Form or Lease Name
Div of Atlantic Richfield Company			State "CG"
Address of Operator			9. Well No.
P. O. Box 1710, Hobbs, New Mexico 88240			1
Location of Well			10. Field and Pool, or Widcat
UNIT LETTER J 2310 FEET FROM THE East LINE AND 1980 FEET FROM			Undesignated Morrow Gas
THE South LINE, SECTION 7 TOWNSHIP 18S RANGE 28E NMPM.			
15. Elevation (Show whether DF, RT, GR, etc.)			12. County
3596.9' GR			Eddy

## Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

## NOTICE OF INTENTION TO:

INFORM REMEDIAL WORK ☐  
 TEMPORARILY ABANDON ☐  
 WILL OR ALTER CASING ☐  
 OTHER ☐

PLUG AND ABANDON ☐  
 CHANGE PLANS ☐  
 OTHER ☐

## SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐  
 COMMENCE DRILLING OPS. ☒  
 CASING TEST AND CEMENT JOB ☒ Surface  
 OTHER ☐

1. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1703.

MIRU 9/6/85. Spudded 17½" hole @ 7:30 AM 9/6/85. Drld to 418' TD @ 2:30 PM 9/6/85. Ran 13-3/8" OD 54.5# K-55 STC csg, set @ 418'. Cmtd 13-3/8" csg w/500 sx Cl C w/2% CaCl₂. Circ 80 sx cmt to pit. PD @ 6:30 PM 9/6/85. WOC 21½ hrs. Cut off csg & welded on head, NU BOP. Pressure tested casing to 1000# 30 mins OK. Drlg new fm @ 4:00 PM 9/7/85.

I, I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGN Mike Williams TITLE Engrg Tech Spec. DATE 9/9/85

Original Signed By

Mike Williams

SEP 16 1985

FORWARDED BY

Oil &amp; Gas Inspector

DATE

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ENERGY AND MINERALS DEPARTMENT

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O. C. D.

3a. Indicate Type of Lease	State <input checked="" type="checkbox"/> Fee <input type="checkbox"/>
5. State Oil & Gas Lease No.	OG 1409

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1. OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	7. Unit Agreement Name
2. Name of Operator ARCO Oil and Gas Company Division of Atlantic Richfield Company	8. Farm or Lease Name State CG
3. Address of Operator P. O. Box 1710, Hobbs, New Mexico 88240	9. Well No. 1
4. Location of Well UNIT LETTER J 2310 FEET FROM THE East LINE AND 1980 FEET FROM THE South LINE, SECTION 7 TOWNSHIP 18S RANGE 28E N.M.P.M.	10. Field and Pool, or Wildcat Undesignated Morrow Gas
15. Elevation (Show whether DF, RT, GR, etc.) 3596.9' GR	12. County Eddy

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data  
NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐  
TEMPORARILY ABANDON ☐  
PULL OR ALTER CASING ☐  
OTHER ☐

PLUG AND ABANDON ☐  
CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐  
COMMENCE DRILLING OPNS. ☐  
CASING TEST AND CEMENT JOBS ☐  
OTHER Run 9-5/8" csg & Cmt ☒

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Drld 12 1/2" hole to 2585' TD @ 3:15 PM 9/12/85. Ran 62 jts 9-5/8" 36# K-55 STC csg w/FS, FC. Set csg @ 2585'. Cmtd w/1000 sx HLW followed by 250 sx C1 H Neat. JC @ 1:30 AM 9/13/85. Circ 216 sx cmt to pit. WOC 24 hrs. NU BOP, press test csg to 1500#OK. Drlg new fm @ 2:15 AM 9/14/85. 30 MIN?

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Les A. Clements TITLE Engrg Tech Spec. DATE 9/20/85  
Original Signed By  
APPROVED BY Les A. Clements TITLE Supervisor District II DATE SEP 24 1985  
CONDITIONS OF APPROVAL, IF ANY:



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Indicate Type of Lease	State <input checked="" type="checkbox"/> Fee <input type="checkbox"/>
5. State Oil & Gas Lease No.	OG-1409

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USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	7. Unit Agreement Name
2. Name of Operator ARCO Oil and Gas Company Division of Atlantic Richfield Company	8. Farm or Lease Name State CG
3. Address of Operator P. O. Box 1710, Hobbs, New Mexico 88240	9. Well No. 1
4. Location of Well UNIT LETTER J 2310 FEET FROM THE East LINE AND 1980 FEET FROM THE South LINE, SECTION 7 TOWNSHIP 18S RANGE 28E NMPM.	10. Field and Pool, or Wildcat Undesignated Morrow Gas
15. Elevation (Show whether DF, RT, GR, etc.) 3596.9' GR	12. County Eddy

16.

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPERATIONS <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	OTHER <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input checked="" type="checkbox"/> Prod Csg	OTHER <input type="checkbox"/>

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1703.

Drld 8-3/4" hole to 10,380' TD @ 5:30 PM 10/11/85. Circ & POH. Ran GR-DLL-MSFL 10,380-2585' & GR-CNL-LDT-Cal 10,380-2585'. Ran 37 jts 5 1/2" 17# N-80 LTC, 201 jts 5 1/2" 17# K-55 LTC, 12 jts 5 1/2" 17# N-80 LTC csg, set @ 10,380', DV tool @ 6199'. Cmtd 1st stage w/200 sx LW w/1/4# flocele, 700 sx LW Neat followed by 250 sx Cl H Neat cmt. PD @ 7:30 PM 10/13/85. Circ 250 sx cmt on 1st stage. Cmtd 2nd stage w/200 sx LW w/1/4# flocele, 800 sx LW Neat followed by 150 sx Cl H Neat. Did not circ cmt. PD @ 2:30 AM 10/14/85. ND BOP. Ran temp survey, indicated TOC @ 600'. MORT.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED: Les A. Clements TITLE: Dist Drlg. Supv. DATE: 10/22/85  
Original Signed By  
Les A. Clements  
APPROVED BY: Supervisor District II DATE: OCT 25 1985  
CONDITIONS OF APPROVAL, IF ANY:



## **APPENDIX B**

### **Land information on Tracts within one-half Mile of Proposed Artesia AGI #2**

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- 1. Table B-1 Surface Owners**
- 2. Table B-2 Operators**
- 3. Table B-3 Mineral Leasehold Owners**
- 4. Table B-4 Unleased Mineral Owners**
- 5. Table B-5 Summary Land Index**
- 6. Figure B-1a,b Maps Showing Surface and Unleased Mineral Owners**
- 7. Figure B-2 a,b,c,d,e Maps Showing Mineral Leasehold Owners**
- 8. Land Status Reports by Tract (Basis for Table B-5)**

**TABLE B-1**  
**SURFACE OWNERS**

**DCP ARTESIA AGI #2**  
**SURFACE OWNERS WITHIN ½ MILE OF PROPOSED AGI**

Bogle Ltd Company  
PO Box 460  
Dexter, NM 88231

COG Operating  
Concho Oil and Gas LLC  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

DCP Midstream LP  
5718 Westheimer 19<sup>th</sup> floor  
Houston, TX 77057

State of New Mexico  
310 Old Santa Fe Trail  
Santa Fe, NM 87504

**TABLE B-2**  
**OPERATORS**

**DCP ARTESIA AGI #2**  
**OPERATORS WITHIN ½ MILE OF AGI**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 7702

ConocoPhillips Company  
P.O. Box 2197  
Houston, TX 77252-2197

Mewbourne Oil Co.  
500 West Texas, Suite 1020  
Midland, TX 79707

Ro-Lo Corporation  
P.O. Box 251  
Artesia, NM 88211-0251

Smith& Marrs, Inc.  
P.O. Box 863  
Kermit, TX

V-F Petroleum Inc.  
P.O. Box 1889  
Midland, TX 79702

**TABLE B-3**  
**MINERAL LEASEHOLD OWNERS**

**DCP ARTESIA AGI #2**  
**LEASEHOLDERS WITHIN ½ MILE OF PROPOSED WELL**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

John Bedingfield, ssp  
P.O. Box 630  
Artesia, NM 88211

Wayne Bedingfield, ssp  
308 Lawrence Ranch Road  
Lake Arthur, NM 88253

Chase Oil Corporation  
P.O. Box 1767  
Artesia, NM 88211-1767

Concho Oil & Gas, LLC  
600 W. Illinois  
Midland, TX 79701

COG Operating, LLC  
600 W. Illinois  
Midland, TX 79701

ConocoPhillips Company  
P.O. Box 7500  
Bartlesville, OK 74005

Jane Ann Hudson Davis, ssp  
P.O. Drawer T  
Artesia, NM 88210

Judy N. Deans, ssp  
16 Century Rd  
Artesia, NM 88210 Mewbourne Oil Company  
500 West Texas, Ste 1020  
Midland, TX 79707

Exxon Mobil Corporation  
810 Houston Street  
Fort Worth, TX 76102-6298

Jonel Susan Grasso, ssp  
aka Jonel Susan Howard  
31949 Coast Highway No. C  
South Laguna, CA 92677

Kaiser-Francis Oil Company

**TABLE B-3**  
**MINERAL LEASEHOLD OWNERS**

P.O. Box 21468  
Tulsa, OK 74121-9989

Khody Land & Minerals Co.,  
210 Park Ave, Ste 900  
Oklahoma City, OK 73102

Laurel Corporation  
5801 Steeple Chase Drive  
Plano, TX 75093

Marathon Oil Company  
P.O. Box 3487  
Houston, TX 77253-3487

Mewbourne Oil Company  
500 West Texas, Ste 1020  
Midland, TX 79707

Joan A. Hudson Moore, ssp  
380 Seaview Court, Apt 1604  
Marco Island, FL 33937

Oxy USA Inc.  
P.O. Box 4294  
Houston, TX 77210-4294

Private Trust Co., N. A. as Successor Trustee of the Vilas P. Sheldon Marital Deduction Trust  
1422 Euclid Ave., Ste 1130  
Cleveland, OH 44115

Beca Standard, ssp  
863 Redwood Lane  
Lemoore, CA 93245

Yates Petroleum Corporation  
105 S. 4th St  
Artesia, NM 88210

ZPZ Delaware I, LLC  
303 Veterans Airpark Lane,  
Ste. 3000  
Midland, TX 79705

Myrna Sue Zumwalt  
679 La Dore St.  
Grand Junction, CO 81504

**TABLE B-4**  
**UNLEASED MINERAL OWNERS**

**DCP ARTESIA AGI #2**  
**UNLEASED MINERAL OWNERS WITHIN ½ MILE OF PROPOSED AGI**

1st National Bank, Trustee of the Betty Lamb Revocable Trust u/t/a dated 8/4/2003  
P.O. Box AA  
Artesia, NM 88210

Amarillo National Bank, Trustee of the Beverly Schmidt Couzzourt IRR Trust established under Francis L. Schmidt Living Trust u/t/a dated 11/6/1998  
P.O. Box 1  
Amarillo, TX 79105-0001

Amarillo National Bank, Trustee of the Margaret Frances Grace Couzzourt IRR Trust established under Francis L. Schmidt Living Trust u/t/a dated 11/6/1998  
P.O. Box 1  
Amarillo, TX 79105-0001

Amarillo National Bank, Trustee of the Catherine Claire Couzzourt IRR Trust established under Francis L. Schmidt Living Trust u/t/a dated 11/6/1998  
P.O. Box 1  
Amarillo, TX 79105-0001

Michael Timothy Balazs, ssp  
1116 Santa Clara  
Peta Luma, CA 94952

Robert Balazs, ssp  
3332 Lindmuir  
San Jose, CA 95140

Timothy John Balazs, ssp  
1116 Santa Clara  
Peta Luma, CA 94952

Darlene Olkowski Bell, ssp  
506 Naples  
San Francisco, CA 94112

Lester M. Berry, married, ssp  
2059 Albury Ave  
Long Beach, CA 90615

Lillian Berry, married, ssp  
2059 Albury Ave  
Long Beach, CA 90615

Barbara Buonsante  
250 Murtle  
Redwood City, CA 94061

Diane Jane Busnardo, ssp



**TABLE B-4**  
**UNLEASED MINERAL OWNERS**

2220 South Flower St.  
Lakewood, CO 80227-2337

Millie Lou Carlson, ssp  
1904 Wyandotte Rd  
Euclid, OH 44117

Denise Woodman Christopher, ssp  
236 "C" Park Lake Circle  
Walnut Creek, CA 94598

Sally Chumbley, ssp  
c/o 1301 South 8th St.  
Artesia, NM 88210

\*Executive rights are held by Betty A. Lamb noted above\*

H. Scott Davis  
911 Bedford  
Midland, TX 79701

Vernon D. Dyer  
P.O. Box 1692  
Roswell, NM 88202-1692

Pamela Ferguson, ssp  
1137 Mckinley  
Redwood City, CA 94061

Hammonds Resources, Inc.  
P.O. Box 34  
Roswell, NM 88202-0034

William Hargis, ssp  
948 3rd St.  
Hermosa Beach, CA 90254

Isabelle H. Houghton, ssp  
1268 N. Holliston Ave  
Pasadena, CA 91104

L. David Houghton, ssp  
1268 N. Holliston Ave  
Pasadena, CA 91104

Linda de Iberri, ssp  
2825 State St.  
San Diego, CA 92103

Bona Faye Jones, ssp  
2788 East Mary Lue St.  
Iverness, FL 32650

**TABLE B-4**  
**UNLEASED MINERAL OWNERS**

Olive M. Kogelschatz, ssp  
1280 Veterans Blvd #507  
Redwood City, CA 94063 Penny Lamb, ssp  
c/o 1301 South 8th St.  
Artesia, NM 88210  
\*Executive rights are held by Betty A. Lamb noted above\*

Nancy Lamb, ssp  
c/o 1301 South 8th St.  
Artesia, NM 88210  
\*Executive rights are held by Betty A. Lamb noted above\*

Noelle Lamb, ssp  
c/o 1301 South 8th St.  
Artesia, NM 88210  
\*Executive rights are held by Betty A. Lamb noted above\*

Penny Lamb, ssp  
c/o 1301 South 8<sup>th</sup> St.  
Artesia, NM 88210  
\*Executive rights are held by Betty A. Lamb noted above\*

Michael S. Levick, ssp  
1075 N. Manzanita Way  
Flagstaff, AZ 86001

Mossman-Midwest, a New Mexico Corporation  
P.O. Box 597  
Roswell, NM 88202

Janet Wilson Nolan, aka Mrs Gerald Nolan Jr., aka Janet Luke Wilson  
25 Laurelton Rd  
Mt. Kisco, NY 10549-4217

Jessie McGregor Wilson Peck, fka Jessie McGregor Wilson  
13900 Shaker Blvd, Apt 1016  
Cleveland, OH 44120

John H. Self  
3329 Water Lilly Drive  
Salt Lake City, Utah 84106-1286

Ted Self, ssp  
1450 E. Cottonwood Village #9  
Price, UT 84501

Thomas A. Self, ssp  
18555 173rd Way SE

**TABLE B-4**  
**UNLEASED MINERAL OWNERS**

Renton, WA 98058-9544

Virgie Mae Self, ssp  
aka Mae Self  
Golden Living Center  
2011 West 4700 South  
Salt Lake City, UT 84114

Mary Streich, ssp  
751 Edingburg St.  
San Francisco, CA 94112

Melba F. Stevens, Trustee under Declaration of Trust dated 5/29/1987  
5 Prado Way, No 102  
San Francisco, CA 94123

Elsie E. Wilson, ssp  
6872 Vieja Dr.  
Santa Barbara, CA 93110

**TABLE B-5**  
**SUMMARY LAND INDEX**  
**(LAND STATUS REPORT BY TRACT)**

Tract #	Tract Location S/T/R	Surface Owner	Unleased Mineral Ownership	Operator	Lease Holder	Depth (tract)	Map Reference
<b>1</b>	7-18S-28E NE/4-SW/4	COG Operating, LLC					Figure B-1a
				Alamo Permian Resources, LLC	Kaiser-Francis Oil Company	Surface to 3,000', save and except the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2e
						Covering the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2a
					Mewbourne Oil Company	3,000' to 10,380'	Figure B-2c
					ConocoPhillips Company	Depths below 10,380'	Figure B-2b
<b>2</b>	7-18S-28E SE/4-SW/4	COG Operating, LLC	Denise Woodman Christopher, ssp Denise Woodman Christopher, ssp 1st National Bank, Trustee of the Betty Lamb Revocable Trust Penny Lamb, ssp Noelle Lamb, ssp Nancy Lamb, ssp Sally Chumbley, ssp Linda de Ibarri, ssp Michael S. Levick, ssp Bona Faye Jones, ssp Amarillo National Bank, Trustee of the Beverly Schmidt Couzzourt IRR Trust established under Francis L. Schmidt Living Trust Amarillo National Bank, Trustee of the Margaret Frances Grace Couzzourt IRR Trust established under Francis L. Schmidt Living Trust Amarillo National Bank, Trustee of the Catherine Claire Couzzourt IRR Trust established under Francis L. Schmidt Living Trust Elsie E. Wilson, ssp Virgie Mae Self, ssp Olive M. Kogelschatz, ssp Ted Self, ssp Thomas A. Self, ssp Robert Balazs, ssp Michael Timothy Balazs, ssp Timothy John Balazs, ssp Darlene Olkowski Bell, ssp Pamela Ferguson, ssp			Surface to 2,000' Depths below 2,000'	Figure B-1a Figure B-1b Figure B-1b

Tract #	Tract Location S/T/R	Surface Owner	Unleased Mineral Ownership	Operator	Lease Holder	Depth (tract)	Map Reference
			Barbara Buonsante, ssp Isabelle H. Houghton, ssp L. David Houghton, ssp Lester M. Berry, married, ssp Lillian Berry, married, ssp Mary Streich, ssp William Hargis, ssp Diane Jane Bushardo, ssp H. Scott Davis Melba F. Stevens, Trustee under Declaration of Trust dated 5/29/1987 Millie Lou Carlson, ssp Vernon D. Dyer Hammonds Resources, Inc. The Following appear as Strangers to title but have executed oil & gas leases: Janet Wilson Nolan, aka Mrs. Gerald Nolan Jr., aka Janet Luke Wilson Jessie McGregor Wilson Peck, fka Jessie McGregor Wilson John H. Self		Alamo Permian Resources, LLC (Leasehold owner of the mineral interest held by: Diane Woodman Raish, ssp, being 50% of the mineral interest from the Surface to 2000' and 25% mineral interest as to all depths below 2,000')	50% from the Surface to 2,000' and 25% as to all depths below 2,000'	Figure B-2a
3	18-18S-28E N/2-NW/4	COG Operating, LLC		ConocoPhillips Company		Surface to 10,450'	Figure B-1a Figure B-2b
4	7-18S-28E SW/4-NE/4	COG Operating, LLC			Exxon Mobil Corporation Mewbourne Oil Company	Surface to 3,300' From 3,300' to 10,500'	Figure B-1a Figure B-2b Figure B-2c
5	7-18S-28E NW/4-SE/4	COG Operating, LLC			COG Operating, LLC Concho Oil and Gas, LLC	All depths All depths	Figure B-1a Figure B-2a Figure B-2a
6	7-18S-28E SW/4-SE/4	DCP Midstream LP	Denise Woodman Christopher, ssp Denise Woodman Christopher, ssp 1st National Bank, Trustee of the Betty Lamb Revocable Trust Penny Lamb, ssp Noelle Lamb, ssp			Surface to 2,000' Depths below 2,000'	Figure B-1a Figure B-1b Figure B-1b

Tract #	Tract Location S/T/R	Surface Owner	Unleased Mineral Ownership	Operator	Lease Holder	Depth (tract)	Map Reference
			Nancy Lamb, ssp				
			Sally Chumbley, ssp				
			Linda de Ibarri, ssp				
			Michael S. Levick, ssp				
			Bona Faye Jones, ssp				
			Amarillo National Bank, Trustee of the				
			Beverly Schmidt Couzzourt IRR Trust				
			established under Francis L. Schmidt Living				
			Trust				
			Amarillo National Bank, Trustee of the				
			Margaret Frances Grace Couzzourt Irr				
			Trust established under Francis L. Schmidt				
			Living Trust				
			Amarillo National Bank, Trustee of the				
			Catherine Claire Couzzourt IRR Trust				
			established under Francis L. Schmidt Living				
			Trust				
			Elsie E. Wilson, ssp				
			Virgie Mae Self, ssp				
			Olive M. Kogelschatz, ssp				
			Ted Self, ssp				
			Thomas A. Self, ssp				
			Robert Balazs, ssp				
			Michael Timothy Balazs, ssp				
			Timothy John Balazs, ssp				
			Darlene Olkowski Bell, ssp				
			Pamela Ferguson, ssp				
			Barbara Buonsante, ssp				
			Isabelle H. Houghton, ssp				
			L. David Houghton, ssp				
			Lester M. Berry, married, ssp				
			Lillian Berry, married, ssp				
			Mary Streich, ssp				
			William Hargis, ssp				
			Diané Jane Busnardo, ssp				
			H. Scott Davis				
			Melba F. Stevens, Trustee under				
			Declaration of Trust dated 5/29/1987				
			Millie Lou Carlson, ssp				
			Vernon D. Dyer				
			Hammonds Resources, Inc.				
			The Following appear as Strangers to title				
			but have executed oil & gas leases:				
			Janet Wilson Nolan, aka Mrs. Gerald Nolan				
			Jr., aka Janet Luke Wilson				
			Jessie McGregor Wilson Peck, fka Jessie				
			McGregor Wilson				
			John H. Self				





Tract #	Tract Location S/T/R	Surface Owner	Unleased Mineral Ownership	Operator	Lease Holder	Depth (tract)	Map Reference
10	7-18S-28E NE/4-SE/4	COG Operating, LLC			Chase Oil Company	Surface to 2,241', save and except the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-1a Figure B-2d
				Alamo Permian Resources, LLC		Covering the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2a
					Mewbourne Oil Company	From 2,241' to 10,480'	Figure B-2c
11	7-18S-28E SE/4-SE/4	DCP Midstream LP	Mossman-Midwest, a New Mexico Corporation			Depths below 2,285'	Figure B-1a Figure B-1b
				Chase Oil Corporation		Surface to 2,285', save and except the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2d
				Alamo Permian Resources, LLC		Covering the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2a
12	18-18S-28E NE/4-NE/4	COG Operating, LLC		Alamo Permian Resources, Inc. V-F Petroleum, Inc.		Surface to 2,600' Depths below 2,600'	Figure B-1a Figure B-2a Figure B-2b
13	18-18S-28E SE/4-NE/4	COG Operating, LLC		Ro-Lo Corporation V-F Petroleum		Surface to 2,300' Depths below 2,300'	Figure B-1a Figure B-2a Figure B-2b
14	8-18S-28E SW/4-NW/4	State of New Mexico			Chase Oil Corporation	Surface to 2,500', save and except the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-1a Figure B-2d
				Alamo Permian Resources, LLC		Covering Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2a
				Exxon Mobil Corporation		Depths below 2,500'	Figure B-2b
15	8-18S-28E N/2-SW/4	COG Operating, LLC		Chase Oil Corporation		Surface to 2,500', save and except the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-1a Figure B-2d

Tract #	Tract Location S/T/R	Surface Owner	Unleased Mineral Ownership	Operator	Lease Holder	Depth (tract)	Map Reference
				Alamo Permian Resources, LLC		Covering Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2a
					ConocoPhillips Company	From 2,500' to 3,300'	Figure B-2b
					ConocoPhillips Company	All depths below 3,300'	Figure B-2b
					ZPZ Delaware I, LLC	All depths below 3,300'	Figure B-2c
16	8-18S-28E SW/4-SW/4	COG Operating, LLC (Excluding the SW/4-SW/4-SW/4) Bogle, Ltd (SW/4-SW/4-SW/4)	Mossman-Midwest, a New Mexico Corporation				Figure B-1a
						Depths below 2,300'	Figure B-1b
					Chase Oil Corporation	Surface to 2,300', save and except the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2d
				Alamo Permian Resources, LLC		Covering the Unitized formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2a
17	17-18S-28E NW/4-NW/4	COG Operating, LLC	Mossman-Midwest, a New Mexico Corporation			From 2,551' to 2,600'	Figure B-1a
						Surface to 2,551'	Figure B-1b
				Alamo Permian Resources		Depths below 2,600'	Figure B-2a
				Mewbourne Oil Company			Figure B-2c
18	17-18S-28E SW/4-NW/4	COG Operating, LLC		Smith & Marrs, Inc. Mewbourne Oil Company		Surface to 2,407' 2,407' to 10,710'	Figure B-1a Figure B-2b Figure B-2c
19	8-18S-28E SE/4-SW/4	COG Operating, LLC		Alamo Permian Resources, LLC	ZPZ Delaware I, LLC	Surface to 2,500' All depths below 2,500'	Figure B-1a Figure B-2a Figure B-2c
20	17-18S-28E NE/4-NW/4	COG Operating, LLC			OXY USA Inc.	Surface to top of Wolfcamp, save and except the Unitized Formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-1a Figure B-2b
				Alamo Permian Resources, LLC		Covering the Unitized Formation of the West Artesia Grayburg Unit (from 1,934' to 2,324')	Figure B-2a
				Mewbourne Oil Company		Depths below the top of the Wolfcamp to 10,570'	Figure B-2c

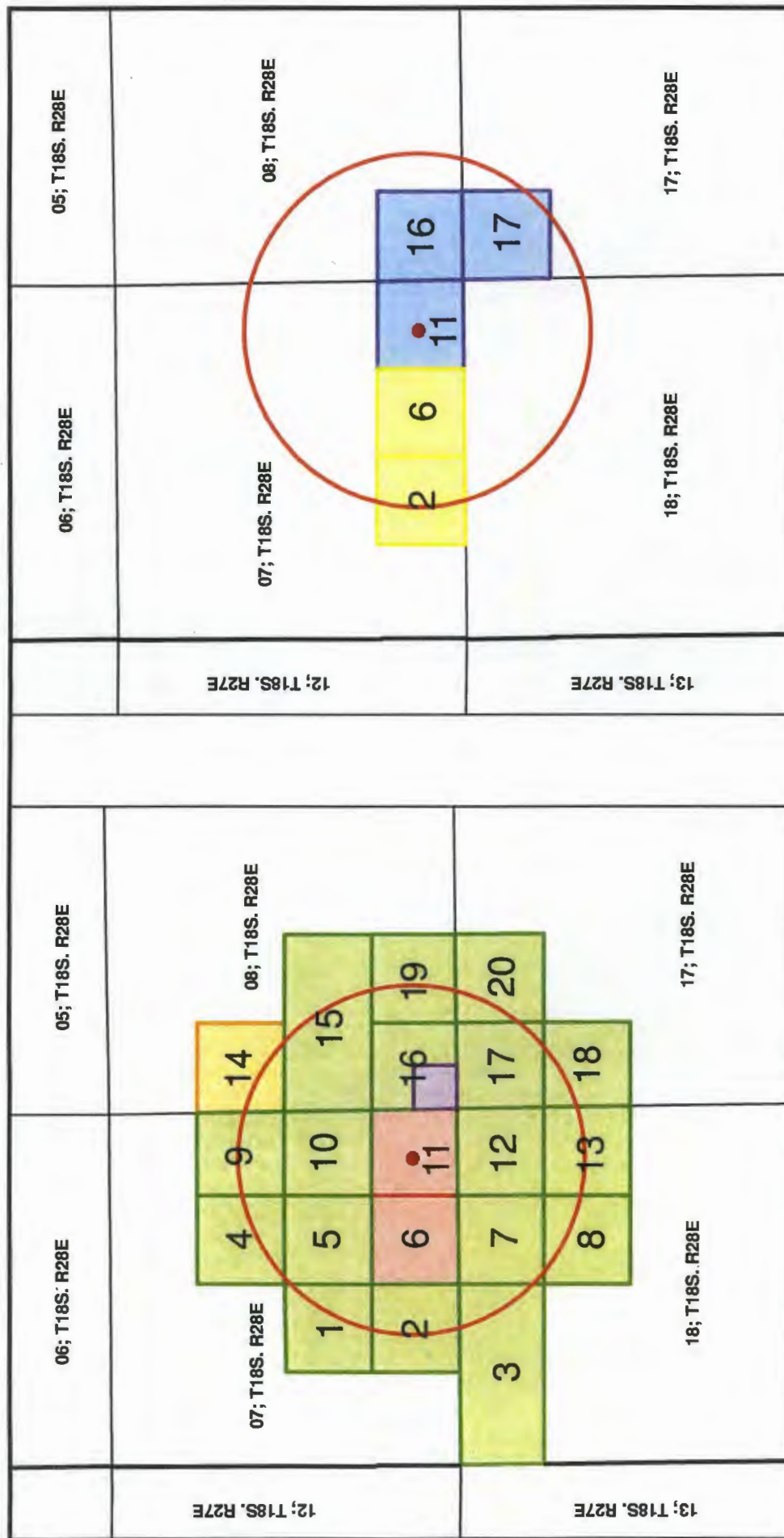


Figure B-1a: Surface Ownership by Tract

Figure B-1b: Unleased Mineral Ownership by Tract

**Legend**

- 0.5 mile radius
- AGI #2 Bottom Hole Location
- Bogle, Ltd
- COG Operating LLC
- DCP Midstream LP
- Denise Woodman Christopher (0' - 2,000') & Denise Woodman Christopher et al (2,000' & Below)
- Mosaman-Midwest
- State of New Mexico



**GEOLEX**  
INCORPORATED



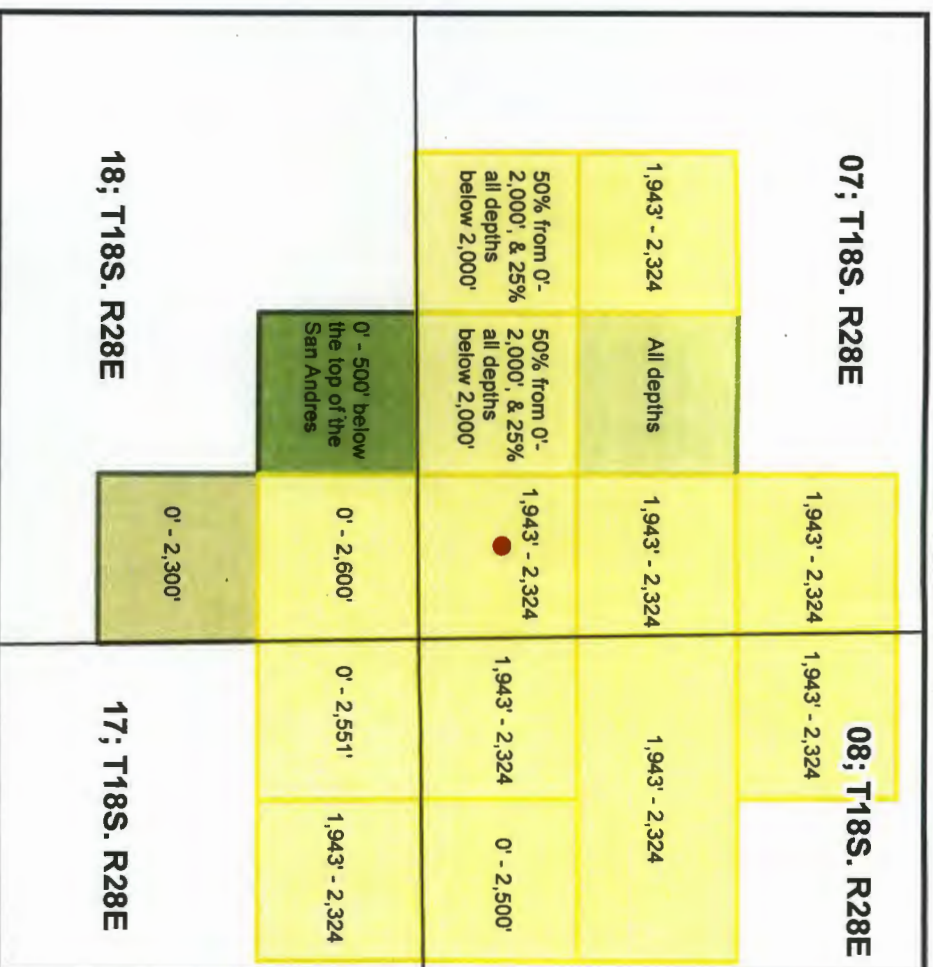


Figure B-2a: Leasehold Ownership

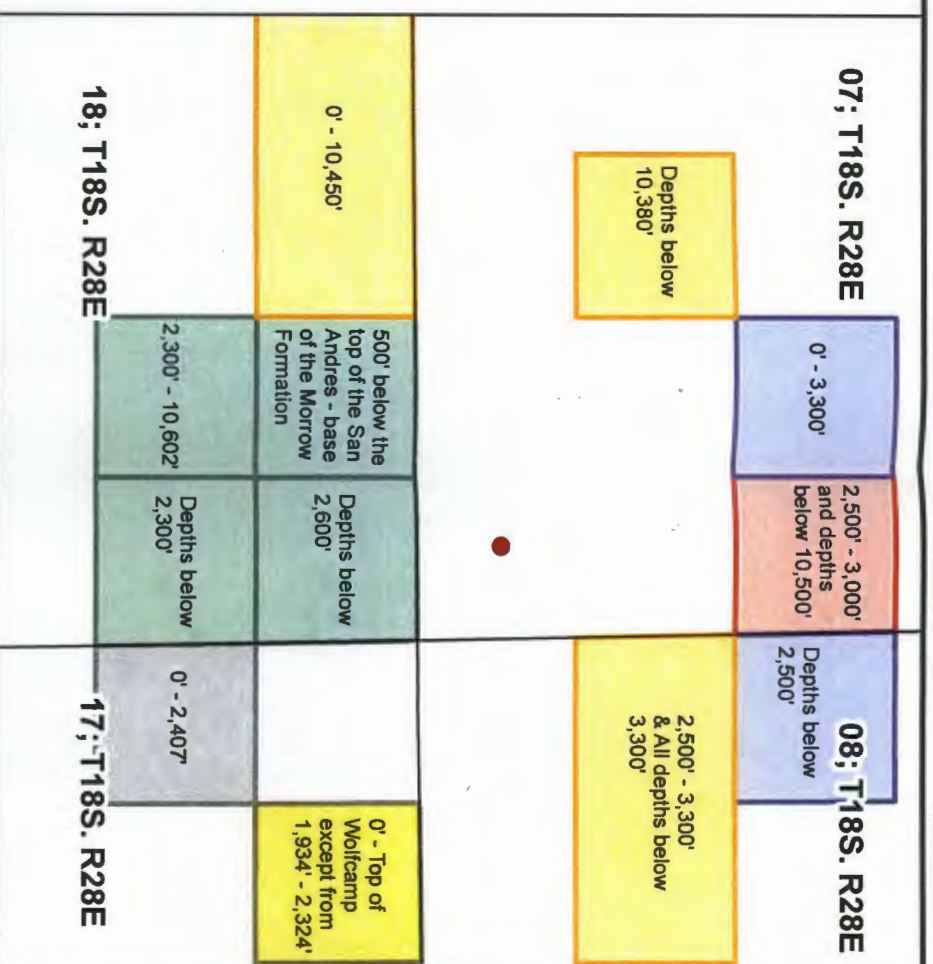


Figure B-2b: Leasehold Ownership

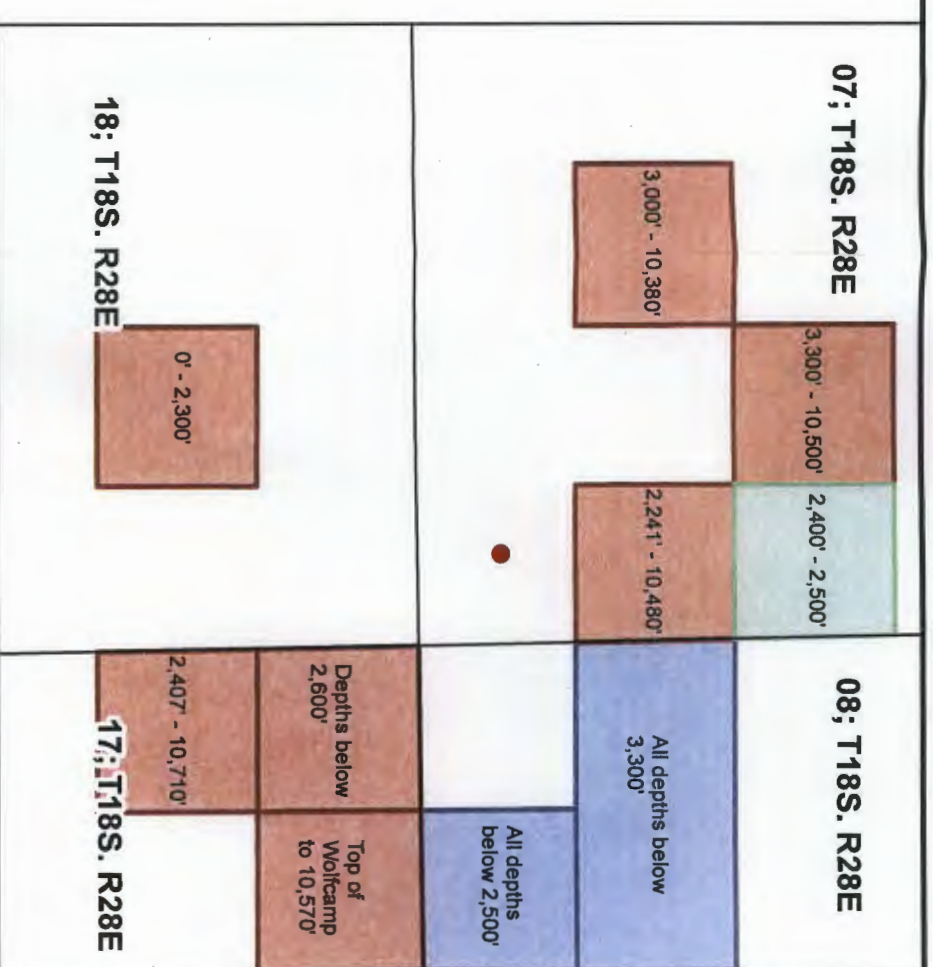


Figure B-2c: Leasehold Ownership

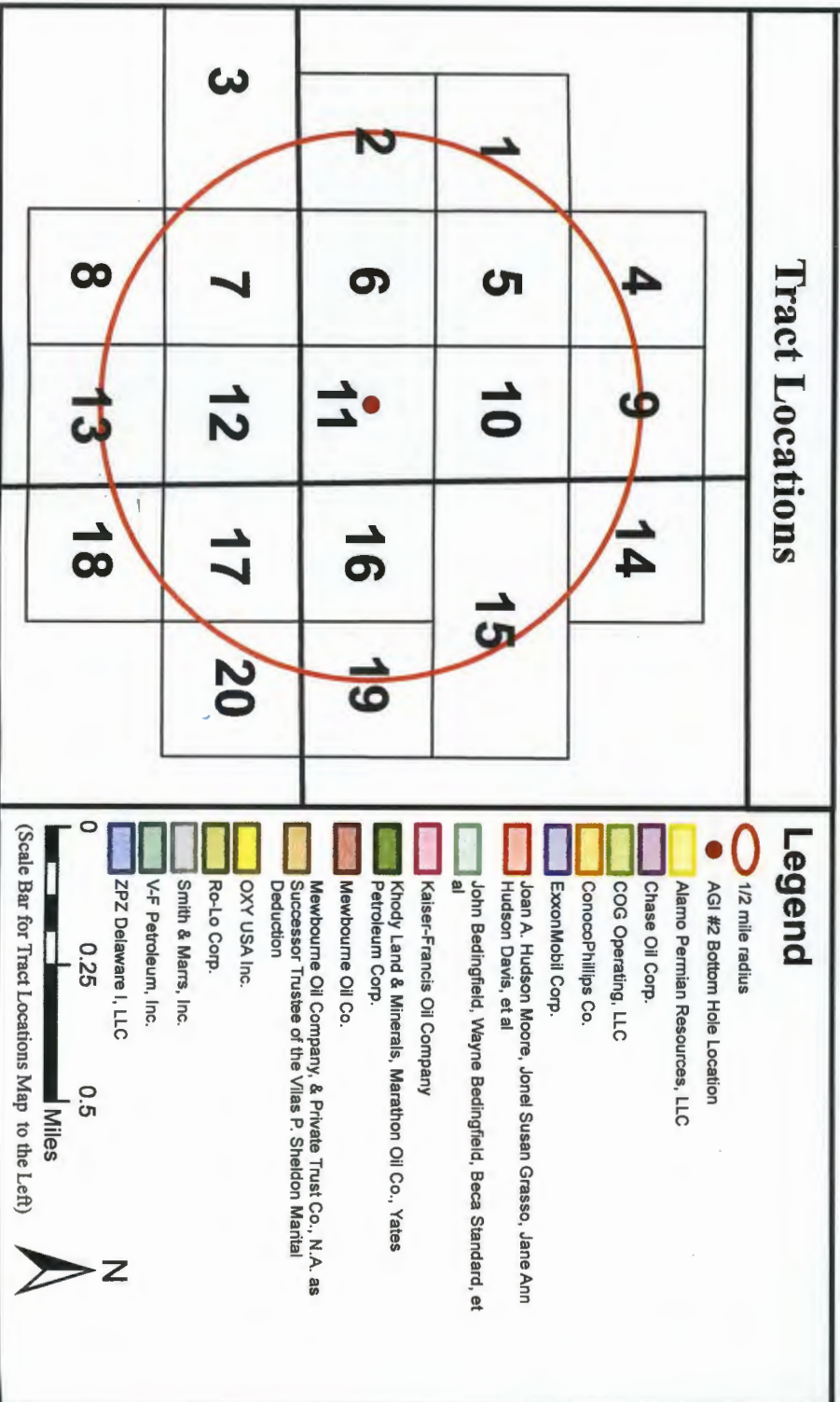


Figure B-2d: Leasehold Ownership

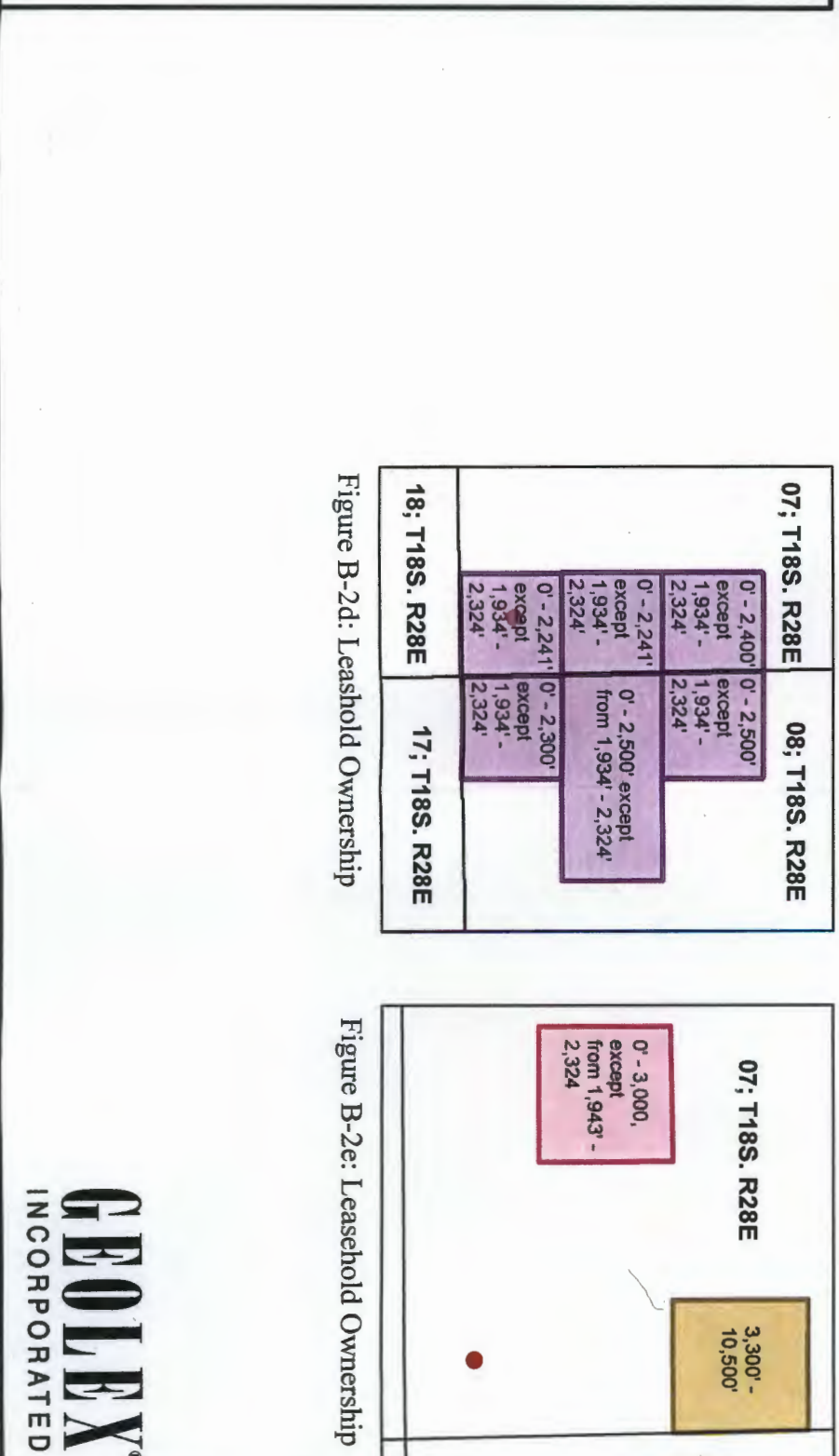


Figure B-2e: Leasehold Ownership

## Tract Locations

## Legend

- 1/2 mile radius
- AGI #2 Bottom Hole Location
- Alamo Permian Resources, LLC
- Chase Oil Corp.
- COG Operating, LLC
- ConocoPhillips Co.
- ExxonMobil Corp.
- Joan A. Hudson Moore, Jonel Susan Grasso, Jane Ann Hudson Davis, et al
- John Beddingfield, Wayne Beddingfield, Beca Standard, et al
- Kaiser-Francis Oil Company
- Khody Land & Minerals, Marathon Oil Co., Yates Petroleum Corp.
- Mewbourne Oil Co.
- Mewbourne Oil Company, & Private Trust Co., N.A. as Successor Trustee of the Villas P. Sheldon Marital Deduction
- OXY USA Inc.
- Ro-Lo Corp.
- Smith & Marrs, Inc.
- V-F Petroleum, Inc.
- ZPZ Delaware I, LLC

0 0.25 0.5 Miles



(Scale Bar for Tract Locations Map to the Left)

**Land Status Reports by Tract**  
**(Basis for Table B-5)**

**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
Telephone (575) 625-0599  
Fax (575) 625-0687

## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #1

Township 18 South, Range 28 East, N.M.P.M.  
Section 7: NE/4SW/4  
Containing: 40.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000%	40.000000	<u>HBP</u> OGL: E0-7255 DATE: 7/21/1953

**LEASEHOLD OWNERSHIP**

**NE/4SW/4**

**Surface to 3,000', save & except the  
Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

**Kaiser-Francis Oil Company  
P.O. Box 21468  
Tulsa, OK 74121-9989**

**LEASEHOLD OWNERSHIP**

**NE/4SW/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**OPERATOR:**

**Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024**

**LEASEHOLD OWNERSHIP**

**NE/4SW/4**

**From 3,000' to 10,380'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

**Mewbourne Oil Company  
500 West Texas, Ste 1020  
Midland, TX 79707**



**LEASEHOLD OWNERSHIP**  
**NE/4SW/4**  
**Depths below 10,380'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

**ConocoPhillips Company**  
**P.O. Box 7500**  
**Bartlesville, OK 74005**

# **MBF** LAND SERVICES

A Division of MBF Inspection Services, Inc.

PO Box 2428

805 N. Richardson

Roswell, NM 88202

Telephone (575) 625-0599

Fax (575) 625-0687

## **OWNERSHIP REPORT**

**PROSPECT: DCP Artesia 13-013**

**TRACT: #2 - SESW**

**#6 - SWSE**

**Township 18 South, Range 28 East, N.M.P.M.**

**Section 7: SW/4SE/4, SE/4SW/4**

**Containing: 80.0 acres, more or less**

**Eddy County, NM**

**REPORT DATE: 12/6/2013**

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

## **SURFACE OWNERSHIP**

### **TRACT #6:**

**DCP Midstream LP**

**5718 Westheimer 19<sup>th</sup> floor**

**Houston, TX 77057**

### **TRACT #2:**

**COG Operating, LLC- 95%**

**Concho Oil and Gas LLC-5%**

**550 West Texas Avenue, Suite 100**

**Midland, TX 79701**

## MINERAL OWNERSHIP

Surface to 2,000'

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
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### UNLEASED MINERAL

#### OWNERS:

Denise Woodman Christopher,  
ssp  
236 "C" Park Lake Circle  
Walnut Creek, CA 94598

## MINERAL OWNERSHIP

Depths below 2,000'

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
------------------------	----------	-----------	------------------

### UNLEASED MINERAL

#### OWNERS:

Denise Woodman Christopher,  
ssp  
236 "C" Park Lake Circle  
Walnut Creek, CA 94598

1<sup>st</sup> National Bank, Trustee of the  
Betty Lamb Revocable Trust  
u/t/a dated 8/4/2003  
P.O. Box AA  
Artesia, NM 88210

On the previous report this was  
shown in Betty Lamb as an  
individual, however the interest  
has been conveyed into her trust  
with the same address

Penny Lamb, ssp  
c/o 1301 South 8<sup>th</sup> St.  
Artesia, NM 88210  
\*Executive rights are held by  
Betty A. Lamb noted above\*

Noelle Lamb, ssp  
c/o 1301 South 8<sup>th</sup> St.  
Artesia, NM 88210  
\*Executive rights are held by  
Betty A. Lamb noted above\*

Nancy Lamb, ssp  
c/o 1301 South 8<sup>th</sup> St.

**Artesia, NM 88210**

**\*Executive rights are held by  
Betty A. Lamb noted above\***

**Sally Chumbley, ssp  
c/o 1301 South 8<sup>th</sup> St.**

**Artesia, NM 88210**

**\*Executive rights are held by  
Betty A. Lamb noted above\***

**Linda de Iberri, ssp**

**2825 State St.**

**San Diego, CA 92103**

**Michael S. Levick, ssp**

**1075 N. Manzanita Way**

**Flagstaff, AZ 86001**

**Bona Faye Jones, ssp**

**2788 East Mary Lue St.**

**Iverness, FL 32650**

**Amarillo National Bank,**

**Trustee of the Beverly Schmidt**

**Couzzourt IRR Trust**

**established under Francis L.**

**Schmidt Living Trust u/t/a**

**dated 11/6/1998**

**P.O. Box 1**

**Amarillo, TX 79105-0001**

**Amarillo National Bank,**

**Trustee of the Margaret Frances**

**Grace Couzzourt IRR Trust**

**established under Francis L.**

**Schmidt Living Trust u/t/a**

**dated 11/6/1998**

**P.O. Box 1**

**Amarillo, TX 79105-0001**

**Amarillo National Bank,**

**Trustee of the Catherine Claire**

**Couzzourt IRR Trust**

**established under Francis L.**

**Schmidt Living Trust u/t/a**

**dated 11/6/1998**

**P.O. Box 1**

**Amarillo, TX 79105-0001**

**Elsie E. Wilson, ssp**

**6872 Vieja Dr.**

**Santa Barbara, CA 93110**

**Virgie Mae Self, ssp  
aka Mae Self  
Golden Living Center  
2011 West 4700 South  
Salt Lake City, UT 84114**

**Olive M. Kogelschatz, ssp  
1280 Veterans Blvd #507  
Redwood City, CA 94063**

**Ted Self, ssp  
1450 E. Cottonwood Village #9  
Price, UT 84501**

**Thomas A. Self, ssp  
18555 173<sup>rd</sup> Way SE  
Renton, WA 98058-9544**

**Robert Balazs, ssp  
3332 Lindmuir  
San Jose, CA 95140**

**Michael Timothy Balazs, ssp  
1116 Santa Clara  
Peta Luma, CA 94952**

**Timothy John Balazs, ssp  
1116 Santa Clara  
Peta Luma, CA 94952**

**Darlene Olkowski Bell, ssp  
506 Naples  
San Francisco, CA 94112**

**Pamela Ferguson, ssp  
1137 Mckinley  
Redwood City, CA 94061**

**Barbara Buonsante  
250 Murtle  
Redwood City, CA 94061**

**Isabelle H. Houghton, ssp  
1268 N. Holliston Ave  
Pasadena, CA 91104**

**L. David Houghton, ssp  
1268 N. Holliston Ave  
Pasadena, CA 91104**



**Lester M. Berry, married, ssp  
2059 Albury Ave  
Long Beach, CA 90615**

**Lillian Berry, married, ssp  
2059 Albury Ave  
Long Beach, CA 90615**

**Mary Streich, ssp  
751 Edingburg St.  
San Francisco, CA 94112**

**William Hargis, ssp  
948 3<sup>rd</sup> St.  
Hermosa Beach, CA 90254**

**Diane Jane Busnardo, ssp  
2220 South Flower St.  
Lakewood, CO 80227-2337**

**H. Scott Davis  
911 Bedford  
Midland, TX 79701**

**Melba F. Stevens, Trustee under  
Declaration of Trust dated  
5/29/1987  
5 Prado Way, No 102  
San Francisco, CA 94123**

**Millie Lou Carlson, ssp  
1904 Wyandotte Rd  
Euclid, OH 44117**

**Vernon D. Dyer  
P.O. Box 1692  
Roswell, NM 88202-1692**

**Hammonds Resources, Inc.  
P.O. Box 34  
Roswell, NM 88202-0034**

**The following appear as  
strangers to title but have  
executed oil & gas leases:**

**Janet Wilson Nolan, aka Mrs  
Gerald Nolan Jr., aka Janet**

Luke Wilson  
25 Laurelton Rd  
Mt. Kisco, NY 10549-4217

Jessie McGregor Wilson Peck,  
fka Jessie McGregor Wilson  
13900 Shaker Blvd, Apt 1016  
Cleveland, OH 44120

John H. Self  
3329 Water Lilly Drive  
Salt Lake City, Utah 84106-  
1286

**LEASEHOLD OWNERSHIP**  
**SW/4SE/4, SE/4SW/4**  
**All Depths**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**LEASEHOLD OWNERSHIP:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

Leasehold owner of the mineral  
interest held by:  
Dianne Woodman Raish, ssp,  
being 50% of the mineral interest  
from the Surf to 2000' and 25 %  
mineral interest as to all depths  
below 2,000'. Her interest was  
leased under the following lease  
which is still in its primary term:  
**LEASED**  
**OGL: 855/1094**  
**DATE: 3/14/2011**  
**ROYALTY: 1/5**  
**TERM: 3 years, with 2 year**  
**option**  
**Riders: Horizontal/Vertical Pugh**

**MBF** LAND SERVICES  
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PO Box 2428  
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Fax (575) 625-0687

## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #3

Township 18 South, Range 28 East, N.M.P.M.  
Section 18: N/2NW/4  
Containing: 80.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95 %  
Concho Oil and Gas LLC-5 %  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000 %	40.000000	<u>HBP</u> OGL: E-1820 DATE: 4/10/1948

**LEASEHOLD OWNERSHIP**  
**N/2NW/4**  
**Surface to 10,450'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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Leatherstocking 18 State Com  
#001 Well  
(W/2 320.0 ac proration unit)  
API: 30-015-32227  
Producing: 10,201' to 10.209'

Leatherstocking 18 State Com  
#002 Well  
(W/2 320.0 ac proration unit)  
API: 30-015-35237  
Producing: 10,238' to 10, 330'

**OPERATOR:**

ConocoPhillips Company  
P.O. Box 2197  
Houston, TX 77252-2197

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## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #4

Township 18 South, Range 28 East, N.M.P.M.  
Section 7: SW/4NE/4  
Containing: 40.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95 %  
Concho Oil and Gas LLC-5 %  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000 %	40.000000	<u>HBP</u> OGL: B-11539 DATE: 10/10/1944



**LEASEHOLD OWNERSHIP**  
**SW/4NE/4**  
**Surface to 3,300'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

Exxon Mobil Corporation  
810 Houston Street  
Fort Worth, TX 76102-6298

**LEASEHOLD OWNERSHIP**  
**SW/4NE/4**  
**From 3,300' to 10,500'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

Mewbourne Oil Company  
500 West Texas, Ste 1020  
Midland, TX 79707

**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
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## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #5

Township 18 South, Range 28 East, N.M.P.M.  
Section 7: Lots 3, 4, NW/4SE/4  
Containing: 120.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000%	40.000000	<u>HBP</u> OGL: VB-1366 DATE: 3/1/2008

**LEASEHOLD OWNERSHIP**  
**Lots 3, 4, NW/4SE/4**  
**All Depths**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

**Concho Oil & Gas, LLC**  
**600 W. Illinois**  
**Midland, TX 79701**

**COG Operating, LLC**  
**600 W. Illinois**  
**Midland, TX 79701**



## LAND SERVICES

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## OWNERSHIP REPORT

PROSPECT: DCP Artesia 13-013

TRACT: #7

Township 18 South, Range 28 East, N.M.P.M.

Section 18: NW/4NE/4

Containing: 40.0 acres, more or less

Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### SURFACE OWNERSHIP

COG Operating, LLC- 95%

Concho Oil and Gas LLC-5%

550 West Texas Avenue, Suite 100

Midland, TX 79701

### MINERAL OWNERSHIP

#### All Depths

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000%	40.000000	<u>HBP</u> OGL: X0-647 DATE: 11/14/1922

**LEASEHOLD OWNERSHIP**  
**NW/4NE/4**  
**Surface to 500' below the top of the San Andres**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

Yates Petroleum Corporation  
105 S. 4<sup>th</sup> St  
Artesia, NM 88210

Marathon Oil Company  
P.O. Box 3487  
Houston, TX 77253-3487

Khody Land & Minerals Co.,  
210 Park Ave, Ste 900  
Oklahoma City, OK 73102

**LEASEHOLD OWNERSHIP**  
**NW/4NE/4**  
**From 500' below the top of the San Andres**  
**to the Base of the Morrow formation**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

Illinois Camp 18 State #001 Well  
(E/2 320.0 ac proration unit)  
API: 30-015-31337  
Producing: 10,310' to 10,444'  
Morrow formation

**OPERATOR:**

V-F Petroleum Inc.  
P.O. Box 1889  
Midland, TX 79702



**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
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## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #8

Township 18 South, Range 28 East, N.M.P.M.  
Section 18: SW/4NE/4  
Containing: 40.00 acres more or less  
Eddy County, NM

RECORD DATE: Federal 8/23/2013  
RECORD DATE: County 10/31/2013  
REPORT DATE: 11/14/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
State of New Mexico 310 Old Santa Fe Trail Santa Fe, NM 87504	100.000000%	40.00	<u>HBP;</u> OGL: E- 828 DATE: 04/10/1948
TOTAL MINERAL OWNERSHIP	100.000000%	40.00	

**LEASEHOLD OWNERSHIP**  
**SW/4NE/4**  
**Surface to 2,300'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

Mewbourne Oil Company  
P.O. Box 7698  
Tyler, TX 75711

**LEASEHOLD OWNERSHIP**  
**SW/4NE/4**  
**2,300 to 10,602'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Operator:**

V-F Petroleum, Inc.  
P.O. Box 1889  
Midland, TX

Illinois Camp 18 State Well #001  
appears to be active. Nothing has  
been posted regarding possible  
plug and/or abandonment.

Illinois Camp 18 State Well #001  
E/2 of 17- 320 acre proration  
API# 30-015-31337  
Depth: 11,000'

**MBF** LAND SERVICES  
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805 N. Richardson  
Roswell, NM 88202  
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## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #9

Township 18 South, Range 28 East, N.M.P.M.  
Section 7: SE/4NE/4  
Containing: 40.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000%	40.000000	<u>HBP</u> OGL: B-6043 DATE: 3/10/1936

**LEASEHOLD OWNERSHIP**

**SE/4NE/4**

**Surface to 2,400', save & except the  
Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

Chase Oil Corporation  
P.O. Box 1767  
Artesia, NM 88211-1767

**LEASEHOLD OWNERSHIP**

**SE/4NE/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**OPERATOR:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

**LEASEHOLD OWNERSHIP**

**SE/4NE/4**

**From 2,400' to 2,500'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

John Bedingfield, ssp  
P.O. Box 630  
Artesia, NM 88211

Wayne Bedingfield, ssp  
308 Lawrence Ranch Road  
Lake Arthur, NM 88253

Beca Standard, ssp  
863 Redwood Lane  
Lemoore, CA 93245

Judy N. Deans, ssp  
16 Century Rd  
Artesia, NM 88210

Myrna Sue Zumwalt  
679 La Dore St.  
Grand Junction, CO 81504

**LEASEHOLD OWNERSHIP**  
**SE/4NE/4**

**From 2,500' to 3,300' and depths below 10,500'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

Joan A. Hudson Moore, ssp  
380 Seaview Court, Apt 1604  
Marco Island, Fl 33937

Jonel Susan Grasso, ssp  
aka Jonel Susan Howard  
31949 Coast Highway No. C  
South Laguna, CA 92677

Jane Ann Hudson Davis, ssp  
P.O. Drawer T  
Artesia, NM 88210

ZPZ Delaware I, LLC  
303 Veterans Airpark Lane,  
Ste. 3000  
Midland, TX 79705

Private Trust Co., N. A. as  
Successor Trustee of the Vilas P.  
Sheldon Marital Deduction  
Trust  
1422 Euclid Ave., Ste 1130



Cleveland, OH 44115

**LEASEHOLD OWNERSHIP**

**SE/4NE/4**

**From 3,300' to 10,500'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

Mewbourne Oil Company  
500 West Texas, Ste 1020  
Midland, TX 79707

Private Trust Co., N. A. as  
Successor Trustee of the Vilas P.  
Sheldon Marital Deduction  
Trust  
1422 Euclid Ave., Ste 1130  
Cleveland, OH 44115

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## **OWNERSHIP REPORT**

**PROSPECT: DCP Artesia 13-013**

**TRACT: #10**

**Township 18 South, Range 28 East, N.M.P.M.**

**Section 7: NE/4SE/4**

**Containing: 40.0 acres, more or less**

**Eddy County, NM**

**REPORT DATE: 12/6/2013**

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

**COG Operating, LLC- 95%**

**Concho Oil and Gas LLC-5%**

**550 West Texas Avenue, Suite 100**

**Midland, TX 79701**

### **MINERAL OWNERSHIP**

#### **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000%	40.000000	<b><u>HBP</u></b> <b>OGL: OG-780</b> <b>DATE: 4/16/1957</b>

**LEASEHOLD OWNERSHIP**

**NE/4SE/4**

**Surface to 2,241', save & except the  
Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

<b>INTEREST OWNERS</b>	<b>WORKING INTEREST</b>	<b>NET REVENUE INTEREST</b>	<b>STATUS &amp; REMARKS</b>
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**Working Interest:**

**Chase Oil Corporation  
P.O. Box 1767  
Artesia, NM 88211-1767**

**LEASEHOLD OWNERSHIP**

**NE/4SE/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

<b>INTEREST OWNERS</b>	<b>WORKING INTEREST</b>	<b>NET REVENUE INTEREST</b>	<b>STATUS &amp; REMARKS</b>
------------------------	-----------------------------	---------------------------------	-----------------------------

**OPERATOR:**

**Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024**

# LEASEHOLD OWNERSHIP

NE/4SE/4

From 2,241' to 10,480

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

Working Interest:

Mewbourne Oil Company  
500 West Texas, Ste 1020  
Midland, TX 79707

**MBF** LAND SERVICES  
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## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #11

Township 18 South, Range 28 East, N.M.P.M.  
Section 7: SE/4SE/4  
Containing: 40.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

DCP Midstream LP  
5718 Westheimer 19<sup>th</sup> floor  
Houston, TX 77057

### **LEASEHOLD OWNERSHIP**

**SE/4SE/4**

**Surface to 2,285', save & except the  
Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**Working Interest:**

Chase Oil Corporation  
P.O. Box 1767  
Artesia, NM 88211-1767

**HBP**  
OGL: 30/524  
DATE: 6/16/1948  
LESSEE: Leonard Oil Co  
Covered Lands:  
**T18S-R28E:**

Sec 7: SESE  
Sec 8: SWSW  
Sec 17: NWNW  
among other lands

**LEASEHOLD OWNERSHIP**  
**SE/4SE/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
-----------------	---------------------	-------------------------	------------------

**OPERATOR:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

**MINERAL OWNERSHIP**  
**SE/4SE/4**  
**Depths Below 2,285'**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
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**UNLEASED MINERAL  
OWNERS:**

Mossman-Midwest, a New  
Mexico Corporation  
P.O. Box 597  
Roswell, NM 88202





**LAND SERVICES**

A Division of MBF Inspection Services, Inc.

PO Box 2428

805 N. Richardson

Roswell, NM 88202

Telephone (575) 625-0599

Fax (575) 625-0687

## **OWNERSHIP REPORT**

**PROSPECT: DCP Artesia 13-013**

**TRACT: #12**

**Township 18 South, Range 28 East, N.M.P.M.**

**Section 18: NE/4NE/4**

**Containing: 40.0 acres, more or less**

**Eddy County, NM**

**REPORT DATE: 12/6/2013**

**The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.**

## **SURFACE OWNERSHIP**

**COG Operating, LLC- 95%**

**Concho Oil and Gas LLC-5%**

**550 West Texas Avenue, Suite 100**

**Midland, TX 79701**

**LEASEHOLD OWNERSHIP**  
**NE/4NE/4**  
**Surface to 2,600'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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Jennings #001 Well  
API: 30-015-23842  
40.0 acre proration unit

**OPERATOR:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

**HBP**  
OGL: 201/946  
DATE: 6/2/1981  
LESSEE:  
Marbob Energy  
Arrowhead Oil Co  
Covered Lands:  
**T18S-R28E:**  
Sec 18: NENE, surf to 2600'

**LEASEHOLD OWNERSHIP**  
**NE/4NE/4**  
**Depths below 2,600'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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Illinois Camp 18 State #0001  
Well  
API: 30-015-31337  
E/2 320.0 acre proration unit

**OPERATOR:**

V-F Petroleum Inc.  
P.O. Box 1889  
Midland, TX 79702

**HBP**  
OGL: 147/851  
DATE: 1/20/1993  
LESSEE:  
Mewbourne Oil Co  
Covered Lands:  
**T18S-R28E:**  
Sec 17: NWNW  
Sec 18: NENE,  
as to depths below 2600'

**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
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805 N. Richardson  
Roswell, NM 88202  
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Fax (575) 625-0687

## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #13

**Township 18 South, Range 28 East, N.M.P.M.**  
**Section 18: SE/4NE/4**  
**Containing: 40.0 acres, more or less**  
**Eddy County, NM**

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000%	40.000000	<u>HBP</u> OGL: E-828 DATE: 4/10/1948

**LEASEHOLD OWNERSHIP**  
**SE/4NE/4**  
**Surface to 2,300'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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Gulf State #001 Well  
API: 30-015-20275  
40.0 acre proration unit  
Producing; 2,044 to 2,127'

**OPERATOR:**

As shown on the NM OCD:  
C.O. Fulton  
P.O. Box 1121  
Artesia, NM 88211

By assignment recorded in ECR  
the Estate of C.O. Fulton,  
deceased was conveyed into:

Ro-Lo Corporation  
P.O. Box 251  
Artesia, NM 88211-0251

**LEASEHOLD OWNERSHIP**  
**SE/4NE/4**  
**Depths below 2,300'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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Illinois Camp 18 State #001 Well  
(E/2 320.0 ac proration unit)  
API: 30-015-31337  
Producing: 10,310' to 10,444'  
Morrow formation

**OPERATOR:**

V-F Petroleum Inc.  
P.O. Box 1889  
Midland, TX 79702

**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
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Fax (575) 625-0687

## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #14

Township 18 South, Range 28 East, N.M.P.M.  
Section 8: SW/4NW/4  
Containing: 40.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

State of New Mexico  
310 Old Santa Fe Trail  
Santa Fe, NM 87504

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000 %	40.000000	<u>HBP</u> OGL: B-11539 DATE: 10/10/1944

**LEASEHOLD OWNERSHIP**

**SW/4NW/4**

**Surface to 2,500', save & except the  
Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

Chase Oil Corporation  
P.O. Box 1767  
Artesia, NM 88211-1767

**LEASEHOLD OWNERSHIP**

**SW/4NW/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**OPERATOR:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024



**LEASEHOLD OWNERSHIP**  
**SW/4NW/4**  
**Depths below 2,500'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

**Exxon Mobil Corporation**  
**810 Houston Street**  
**Fort Worth, TX 76102-6298**

**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
Telephone (575) 625-0599  
Fax (575) 625-0687

## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #15

Township 18 South, Range 28 East, N.M.P.M.  
Section 8: N/2SW/4  
Containing: 80.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP** **All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	100.000000%	80.000000	<u>HBP</u> OGL: E-7179 DATE: 6/10/1953

**LEASEHOLD OWNERSHIP**

**N/2SW/4**

**Surface to 2,500', save & except the  
Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

**Chase Oil Corporation  
P.O. Box 1767  
Artesia, NM 88211-1767**

**LEASEHOLD OWNERSHIP**

**N/2SW/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**OPERATOR:**

**Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024**

**LEASEHOLD OWNERSHIP**  
**N/2SW/4**  
**From 2,500' to 3,300'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

ConocoPhillips Company  
P.O. Box 2197  
Houston, TX 77252-2197

**LEASEHOLD OWNERSHIP**  
**N/2SW/4**  
**All depths below 3,300'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

ConocoPhillips Company  
P.O. Box 2197  
Houston, TX 77252-2197

ZPZ Delaware I, LLC  
303 Veterans Airpark Lane,  
Ste 3000  
Midland, TX 79705

# **MBF** LAND SERVICES

A Division of MBF Inspection Services, Inc.

PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
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Fax (575) 625-0687

## **OWNERSHIP REPORT**

**PROSPECT: DCP Artesia 13-013**  
**TRACT: #16**

**Township 18 South, Range 28 East, N.M.P.M.**  
**Section 8: SW/4SW/4**  
**Containing: 40.0 acres, more or less**  
**Eddy County, NM**

**REPORT DATE: 12/6/2013**

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

**SW/4SW/4SW4 belongs to:**

**Bogle Ltd Company**  
**PO Box 460**  
**Dexter, NM 88231**

**Remaining surface ownership belongs to:**

**COG Operating, LLC- 95%**  
**Concho Oil and Gas LLC-5%**  
**550 West Texas Avenue, Suite 100**  
**Midland, TX 79701**

### **LEASEHOLD OWNERSHIP**

**SW/4SW/4**

**Surface to 2,300', save & except the**  
**Unitized formation of the West Artesia Grayburg Unit**  
**(which is described as depths from 1,934' to 2,324')**

<b>INTEREST OWNERS</b>	<b>WORKING INTEREST</b>	<b>NET REVENUE INTEREST</b>	<b>STATUS &amp; REMARKS</b>
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**Working Interest:**

Chase Oil Corporation  
P.O. Box 1767  
Artesia, NM 88211-1767

**HBP**  
**OGL: 30/524**  
**DATE: 6/16/1948**  
**LESSEE: Leonard Oil Co**  
**Covered Lands:**  
**T18S-R28E:**  
**Sec 7: SESE**  
**Sec 8: SWSW**  
**Sec 17: NWNW**  
**among other lands**

**LEASEHOLD OWNERSHIP****SW/4SW/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

<b>INTEREST OWNERS</b>	<b>WORKING INTEREST</b>	<b>NET REVENUE INTEREST</b>	<b>STATUS &amp; REMARKS</b>
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**OPERATOR:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

**MINERAL OWNERSHIP****SW/4SW/4****Depths Below 2,300'**

<b>NAME OF MINERAL OWNERS</b>	<b>INTEREST</b>	<b>NET ACRES</b>	<b>LEASEHOLD STATUS</b>
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**UNLEASED MINERAL  
OWNERS:**

Mossman-Midwest, a New  
Mexico Corporation  
P.O. Box 597  
Roswell, NM 88202



**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
Telephone (575) 625-0599  
Fax (575) 625-0687

## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #17

Township 18 South, Range 28 East, N.M.P.M.  
Section 17: NW/4NW/4  
Containing: 40.0 acres, more or less  
Eddy County, NM

REPORT DATE: 12/6/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **LEASEHOLD OWNERSHIP** **NW/4NW/4** **Surface to 2,551'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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West Artesia Grayburg Unit

#### **OPERATOR:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

**HBP**  
**OGL: 30/524**  
**DATE: 6/16/1948**  
**LESSEE: Leonard Oil Co**  
**Covered Lands:**  
**T18S-R28E:**

Sec 7: SESE  
Sec 8: SWSW  
Sec 17: NWNW  
among other lands

**MINERAL OWNERSHIP**  
**NW/4NW/4**  
**From 2,551' to 2,600'**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
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**UNLEASED MINERAL**  
**OWNERS:**

Mossman-Midwest, a New  
Mexico Corporation  
P.O. Box 597  
Roswell, NM 88202

**LEASEHOLD OWNERSHIP**  
**NW/4NW/4**  
**Depths below 2,600'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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Illinois Camp 17 State #0001  
Well  
API: 30-015-31337  
E/2 320.0 acre proration unit

Illinois Camp 17 State Com #003  
Well  
API: 30-015-32009  
W/2 320.0 acre proration unit

**OPERATOR:**

Mewbourne Oil Co.  
500 West Texas, Suite 1020  
Midland, TX 79707

**HBP**  
**OGL: 147/851**  
**DATE: 1/20/1993**  
**LESSEE:**  
**Mewbourne Oil Co**

**Covered Lands:**

**T18S-R28E:**

**Sec 17: NWNW**

**Sec 18: NENE,**

**as to depths below 2600'**

**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
Telephone (575) 625-0599  
Fax (575) 625-0687

## **OWNERSHIP REPORT**

PROSPECT: DCP Artesia 13-013  
TRACT: #18

Township 18 South, Range 28 East, N.M.P.M.  
Section 17: SW/4NW/4  
Containing: 40.00 acres more or less  
Eddy County, NM

RECORD DATE: Federal 8/23/2013  
RECORD DATE: County 10/25/2013  
REPORT DATE: 10/29/2013

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

COG Operating, LLC- 95%  
Concho Oil and Gas LLC-5%  
550 West Texas Avenue, Suite 100  
Midland, TX 79701

### **MINERAL OWNERSHIP**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
State of New Mexico 310 Old Santa Fe Trail Santa Fe, NM 87504	100.000000 %	40	<u>HBP:</u> OGL: E-7179-1 DATE: 6/10/53
<b>TOTAL MINERAL OWNERSHIP</b>	<b>100.000000 %</b>	<b>40.00</b>	

**LEASEHOLD OWNERSHIP**  
**SW/4NW/4**  
**Surface to 2,407'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Operator:**  
**Smith& Marrs, Inc.**  
**P.O. Box 863**  
**Kermit, TX**

**Signal State #004**  
**40 acre proration**  
**API# 30-015-24606**  
**Depth: 2,484'**

**No record of production since  
2012, but this well has NOT been  
plugged and/or abandoned per  
OCD website.**

**Signal State #002**  
**40 acre proration**  
**API# 30-015-01901**  
**Depth:**

**LEASEHOLD OWNERSHIP**  
**SW/4NW/4**  
**2,407' to 10,710'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Operator:**  
**Mewbourne Oil Company**  
**Attn: Mickey Young**  
**P.O. Box 5270**  
**Hobbs, NM 88241**  
**575-393-5905**

**Active**

**Illinois Camp 17 State Well #003**  
**W/2 of 17-320 proration**  
**API# 30-015-32009**  
**Depth: 10,610'**

**Illinois Camp 17 State Well #001**  
**W/2 of 17-320 proration**  
**API# 30-015-27394**  
**Depth: 10,520'**

**LAND SERVICES****A Division of MBF Inspection Services, Inc.**

PO Box 2428

805 N. Richardson

Roswell, NM 88202

Telephone (575) 625-0599

Fax (575) 625-0687

**OWNERSHIP REPORT****PROSPECT: DCP Artesia 13-013****TRACT: #19****Township 18 South, Range 28 East, N.M.P.M.****Section 8: SE/4SW/4****Containing: 40.0 acres, more or less****Eddy County, NM****REPORT DATE: 12/6/2013**

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

**SURFACE OWNERSHIP****COG Operating, LLC- 95%****Concho Oil and Gas LLC-5%****550 West Texas Avenue, Suite 100****Midland, TX 79701****MINERAL OWNERSHIP****All Depths**

NAME OF MINERAL OWNERS	INTEREST	NET ACRES	LEASEHOLD STATUS
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**Commissioner of Public Lands****P.O. Box 1148****Santa Fe, NM 87504-1148****100.000000%****40.000000****HBP****OGL: E-7179****DATE: 6/10/1953**



**LEASEHOLD OWNERSHIP**  
**SE/4SW/4**  
**Surface to 2,500'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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State N. #0001 Well  
API: 30-015-02643  
40.0 acre proration unit  
Producing: 2110' to 2120'

**OPERATOR:**

Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024

**LEASEHOLD OWNERSHIP**  
**SE/4SW/4**  
**All depths below 2,500'**

INTEREST OWNERS	WORKING INTEREST	NET REVENUE INTEREST	STATUS & REMARKS
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**Working Interest:**

ZPZ Delaware I, LLC  
303 Veterans Airpark Lane,  
Ste 3000  
Midland, TX 79705

**MBF** LAND SERVICES  
A Division of MBF Inspection Services, Inc.  
PO Box 2428  
805 N. Richardson  
Roswell, NM 88202  
Telephone (575) 625-0599  
Fax (575) 625-0687

## **OWNERSHIP REPORT**

**PROSPECT: DCP Artesia 13-013**  
**TRACT: #20**

**Township 18 South, Range 28 East, N.M.P.M.**  
**Section 17: NE/4NW/4**  
**Containing: 40.0 acres, more or less**  
**Eddy County, NM**

**REPORT DATE: 12/6/2013**

The conclusions reported herein are based upon the landman's review of the instruments recorded in the county as indexed by the abstractor used.

### **SURFACE OWNERSHIP**

**COG Operating, LLC- 95%**  
**Concho Oil and Gas LLC-5%**  
**550 West Texas Avenue, Suite 100**  
**Midland, TX 79701**

### **LEASEHOLD OWNERSHIP**

**NE/4NW/4**

**Surface to top of the Wolfcamp (found at 6,533' in the State of NM "AU"**  
**No 1 Well), save & except the**  
**Unitized formation of the West Artesia Grayburg Unit**  
**(which is described as depths from 1,934' to 2,324')**

<b>INTEREST OWNERS</b>	<b>WORKING INTEREST</b>	<b>NET REVENUE INTEREST</b>	<b>STATUS &amp; REMARKS</b>
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**Working Interest:**

**Oxy USA Inc.**  
**P.O. Box 4294**  
**Houston, TX 77210-4294**

**HBP:**  
**OGL:E-1820**  
**DATE:4/10/1948**

## **LEASEHOLD OWNERSHIP**

**NE/4NW/4**

**Covering the Unitized formation of the West Artesia Grayburg Unit  
(which is described as depths from 1,934' to 2,324')**

<b>INTEREST OWNERS</b>	<b>WORKING INTEREST</b>	<b>NET REVENUE INTEREST</b>	<b>STATUS &amp; REMARKS</b>
------------------------	-----------------------------	---------------------------------	-----------------------------

### **OPERATOR:**

**Alamo Permian Resources, LLC  
820 Gessner Road, Ste 1650  
Houston, TX 77024**

## **MINERAL OWNERSHIP**

**NE/4NW/4**

**Depths Below the top of the Wolfcamp (found at 6,533' in the State of  
NM "AU" No 1 Well) to 10,570'**

<b>INTEREST OWNERS</b>	<b>WORKING INTEREST</b>	<b>NET REVENUE INTEREST</b>	<b>STATUS &amp; REMARKS</b>
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**Illinois Camp 17 State #0001  
Well**

**API: 30-015-31337**

**E/2 320.0 acre proration unit**

**Illinois Camp 17 State Com #003  
Well**

**API: 30-015-32009**

**W/2 320.0 acre proration unit**

### **OPERATOR:**

**Mewbourne Oil Co.  
500 West Texas, Suite 1020  
Midland, TX 79707**