

October 22, 2018

State of New Mexico Oil Conservation Division  
Attn: Phillip Goetze  
1220 South St. Francis Drive  
Santa Fe, NM 87505

Re: Giant Panda SWD #1  
Updated Location

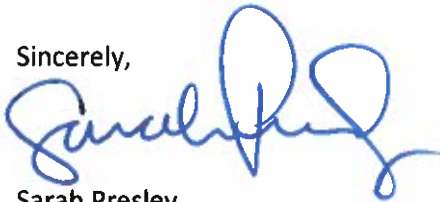
Mr. Goetze:

Delaware Energy, LLC has amended the location for the Giant Panda SWD #1. The enclosed packet has been re-sent to all affected persons. We have found that there are no new wells within the AOR and there has been no change to the affected person.

<u>Well:</u>	Giant Panda SWD #1
<u>API:</u>	Pending
<u>Disposal Zone:</u>	Devonian Formations (from 13,255' - 14,255')
<u>Location:</u>	1,440' FSL & 560' FWL, UL L, Sec. 16-T24S-R27E, Eddy Co., NM
<u>Applicants Name:</u>	Delaware Energy, L.L.C.
<u>Applicants Address:</u>	405 N. Marienfeld, Suite 200, Midland, TX 79701

Please contact me if you have any questions at 432-685-7005 or 432-269-3789.

Sincerely,



Sarah Presley  
Operations Manager  
[s.presley@delawareenergy.com](mailto:s.presley@delawareenergy.com)

**Delaware Energy, LLC**  
**Application for Injection/SWD**  
**Giant Panda SWD #1**

UL L, Sec. 16, T-24-S, R-27-E, 1,440' FSL & 560' FWL, Eddy Co., NM

October 22, 2018

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**Contents:**

1. Administrative Application Checklist
2. Form C-108: Application for Authority to Inject
3. Form C-108 Additional Questions Answered
4. Form C-102
5. Chemical Analysis of Bone Spring Formation Water Sample
6. Chemical Analysis of Wolfcamp Formation Water Sample
7. Chemical Analysis of Delaware Formation Water Sample
8. Planned wellbore diagram for the Giant Panda SWD #1
9. ~~Tabular Data on All Wells of Public Record within the Area of Review which Penetrate the Proposed Injection Zone~~ (No applicable wells)
10. Map Identifying all Wells and Leases within Two Miles of Any Proposed Injection Well with a One Mile Radius Circle Drawn Around the Proposed Injection Well
11. Sample of Letter Sent with This Application Packet to Owner of Surface of the Land on Which the Well is to be Located and to each Leasehold Operator within One Mile of the Well Location
12. Legal Notice that was run as required in the Carlsbad Current-ARGUS
13. Formation Tops
14. Certified Mailers
15. Statement regarding seismicity

RECEIVED:	REVIEWER:	TYPE:	APP NO:
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
 - Geological & Engineering Bureau -  
 1220 South St. Francis Drive, Santa Fe, NM 87505

**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND  
 REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Applicant:** Delaware Energy, LLC**OGRID Number:** 371195**Well Name:** Giant Panda SWD #1**API:** Pending**Pool:** SWD; Devonian**Pool Code:** 96101

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION  
 INDICATED BELOW**

**1) TYPE OF APPLICATION:** Check those which apply for [A]

A. Location – Spacing Unit – Simultaneous Dedication

☐ NSL☐ NSP (PROJECT AREA)☐ NSP (PRORATION UNIT)☐ SD

B. Check one only for [ I ] or [ II ]

[ I ] Commingling – Storage – Measurement

☐ DHC☐ CTB☐ PLC☐ PC☐ OLS☐ OLM

[ II ] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery

☐ WFX☐ PMX☒ SWD☐ IPI☐ EOR☐ PPR**2) NOTIFICATION REQUIRED TO:** Check those which apply.A. ☒ Offset operators or lease holdersB. ☐ Royalty, overriding royalty owners, revenue ownersC. ☒ Application requires published noticeD. ☐ Notification and/or concurrent approval by SLOE. ☐ Notification and/or concurrent approval by BLMF. ☒ Surface ownerG. ☒ For all of the above, proof of notification or publication is attached, and/or,H. ☐ No notice required**FOR OCD ONLY**☐

Notice Complete

☐Application  
Content  
Complete

- 3) CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note: Statement must be completed by an individual with managerial and/or supervisory capacity.**

Mike McCurdy

Print or Type Name

10/22/2018

Date

432-685-7005

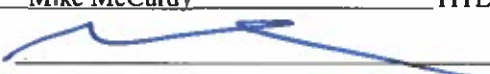
Phone Number

m.mccurdy@delawareenergy.com

e-mail Address

Signature

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance XXX Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval? XX Yes \_\_\_\_\_ No
- II. OPERATOR: Delaware Energy, LLC  
ADDRESS: 405 North Marienfeld, Suite 250, Midland TX 79701  
CONTACT PARTY: Mike McCurdy PHONE: 432-312-5251
- 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.
- IV. Is this an expansion of an existing project? \_\_\_\_\_ Yes XXXX No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_
- 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.
- 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.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  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.).
- \*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.
- IX. Describe the proposed stimulation program, if any.
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- \*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.
- 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.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- 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: Mike McCurdy TITLE: Vice-President  
SIGNATURE:  DATE: 10/17/2018  
E-MAIL ADDRESS: m.mccurdy@delawareenergy.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: \_\_\_\_\_

### 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.
- (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.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

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.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (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.
- (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.

### 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.

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:

- (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.

## INJECTION WELL DATA SHEET

OPERATOR: Delaware Energy, LLCWELL NAME & NUMBER: Giant Panda SWD # 1WELL LOCATION: 1,440' FSL & 560' FWL L 16 SECTION 24S TOWNSHIP 27E RANGEWELLBORE SCHEMATIC see attached wellbore sketchWELL CONSTRUCTION DATASurface Casing

Hole Size: 17.5" Casing Size: 13-3/8", 54.5#

Cemented with: 500 sx. or            ft<sup>3</sup>

Top of Cement: surface Method Determined: Plan to Circulate

Intermediate Casing

Hole Size: 12-1/4" Casing Size: 9-5/8", 47#, L-80

Cemented with: 3,200' sx. or            ft<sup>3</sup>

Top of Cement: surface Method Determined: Plan to Circulate

Production Casing

Hole Size: 8-1/2" Casing Size: 7-5/8", 39#, P-110

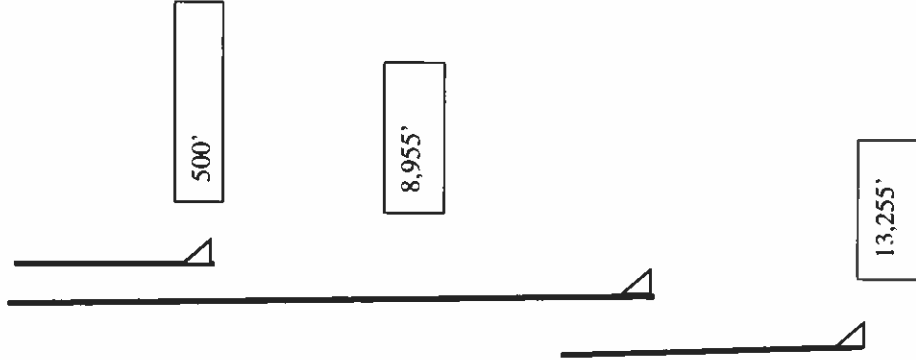
Cemented with: 580 sx. or            ft<sup>3</sup>

Top of Cement: Top of Liner Method Determined: Plan to Circulate to liner top

Total Depth: 13,255'Injection Interval

13,255' feet to 14,255'

(OPEN HOLE)



INJECTION WELL DATA SHEET

Tubing Size: 5.5" OD P-110 x 5.5" OD P-110 Liberty FJ tapered string Lining Material: Fiber Glass

Type of Packer: Weatherford Arrow Set IX

Packer Setting Depth: 13,205'

Other Type of Tubing/Casing Seal (if applicable): none

Additional Data

1. Is this a new well drilled for injection? XXXXX Yes No

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

2. Name of the Injection Formation: Devonian

3. Name of Field or Pool (if applicable): SWD; Devonian

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: \_\_\_\_\_

Below: none

Next Higher: Delaware 2,165' - 4,130', Bone Spring 5,605' - 8,955', Wolfcamp 8,955' - 10,805', Strawn 10,805' - 10,955', Atoka 10,955' - 11,655', Morrow 11,655' - 12,805'.

**VII.**

**1. Proposed average and maximum daily rate and volume of fluids to be injected;**

Average 15,000-20,000 BWPD, Max 25,000 BWPD

**2. Whether the system is open or closed;**

Open System, Commercial SWD

**3. Proposed average and maximum injection pressure;**

Average 1,500-1,800 PSI, Max 2,651 PSI

**4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,**

Bone Spring, Delaware, and Wolfcamp produced water. No known incompatibility exists with these produced water types and the Devonian. Devonian formation is used as a disposal interval throughout the Delaware Basin for Wolfcamp, Bone Springs, and Delaware produced water. See attached water analysis from Bone Spring, Wolfcamp, and Delaware produced water.

**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.).**

Disposal zone is barren and does not produce

**\*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.**

The proposed disposal interval is in the Devonian formations 13,255'-14,255'. Devonian is an impermeable organic Shale at the very top (13,155 ft, Woodford Shale) 100ft thick followed by permeable lime, dolomite, and small amount of shale 1000ft thick. There are no fresh water zones underlying the proposed injection zone. Usable water depth is from surface to 300', the water source is older alluvium (Quaternary). All of the fresh water wells in the area have an average depth to water of 35ft.

**IX. Describe the proposed stimulation program, if any.**

60,000 gallons 20% HCL acid job with packer

**X. Attach appropriate logging and test data on the well**

Mud log will be filed after the well has been drilled. All cased hole and open hole Logs will be filed following drilling operations.

**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.**

Attached are water samples from section 16 of Township 24 South, Range 27 East.

**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.**



Delaware Energy, L.L.C. has reviewed and examined available geologic and engineering data in the area of interest for the Giant Panda SWD #1 and have found no evidence of faults or other hydrologic connections between Devonian disposal zone and the underground sources of drinking water. Furthermore, there exist many impermeable intervals between the injection interval and the fresh ground water from the top of the Devonian Carbonate and the base of the ground water.

Mike McCurdy Vice President 10/17/2018  
 \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

### III. WELL DATA

**(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.**

Giant Panda SWD #1, Sec. 9-T24S-R27E, 240' FSL & 175' FEL, UL P, Eddy County, New Mexico

**(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.**

Casing Size	Setting Depth	Sacks of Cement	Hole Size	Top of Cement	Determined
13-3/8"	500'	500	17-1/2"	Surface	CIRC
9-5/8"	8,955'	3,200	12-1/4"	Surface	CIRC
7-5/8"	8,755'-13,255'	580	8-1/2"	Surface	CIRC

**(3) A description of the tubing to be used including its size, lining material, and setting depth.**

5-1/2" OD P-110 X 5-1/2" OD P-110 Liberty FJ tapered string, Internally Fiber Glass Coated Tubing set 50 to 100ft above open hole

**(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.**

Weatherford Arrow Set 1X injection packer, stainless with on/off tool

**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.**

Devonian Formation

Pool Name: SWD (Devonian)

**(2) The injection interval and whether it is perforated or open-hole.**

13,255' to 14,255' (OH)

**(3) State if the well was drilled for injection or, if not, the original purpose of the well.**

Well is a planned new drill for SWD

**(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.**

None, well is a planned new drill

**(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.**

Next Higher: Delaware 2,165' – 4,130', Bone Spring 5,605'-8,955', Wolfcamp 8,955'- 10,805', Strawn 10,805'-10,955', Atoka 10,955'-11,655', Morrow 11,655'-12,805'.

Next Lower: None

DISTRICT I  
1825 N. French Dr., Hobbs, NM 88240  
Phone (575) 393-8161 Fax: (575) 393-0720

DISTRICT II  
811 S. First St., Artesia, NM 88210  
Phone (575) 749-1283 Fax: (575) 749-0720

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3400 Fax: (505) 476-3482

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised August 1, 2011

Submit one copy to appropriate  
District Office

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 96101	Pool Name SWD; DEVONIAN
Property Code	Property Name GIANT PANDA SWD	Well Number 1
OGRID No. 371195	Operator Name DELAWARE ENERGY	Elevation 3234'

Surface Location

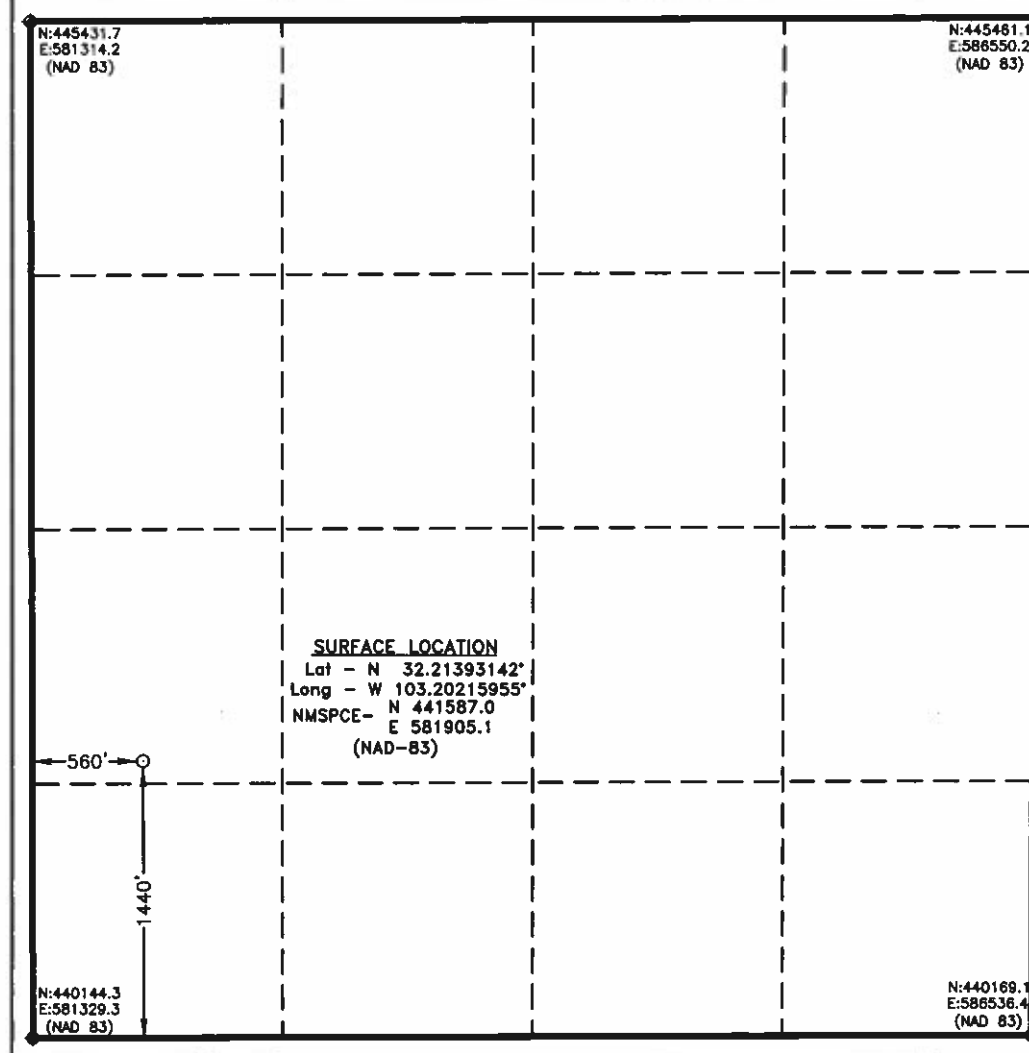
UL or lot No. L	Section 16	Township 24 S	Range 27 E	Lot Idn	Feet from the 1440	North/South line SOUTH	Feet from the 560	East/West line WEST	County EDDY
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Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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Dedicated Acres Joint or Infill Consolidation Code Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date  
10/17/18

Printed Name  
SARAH PRESLEY

Email Address  
s.presley@delawareenergy.com

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

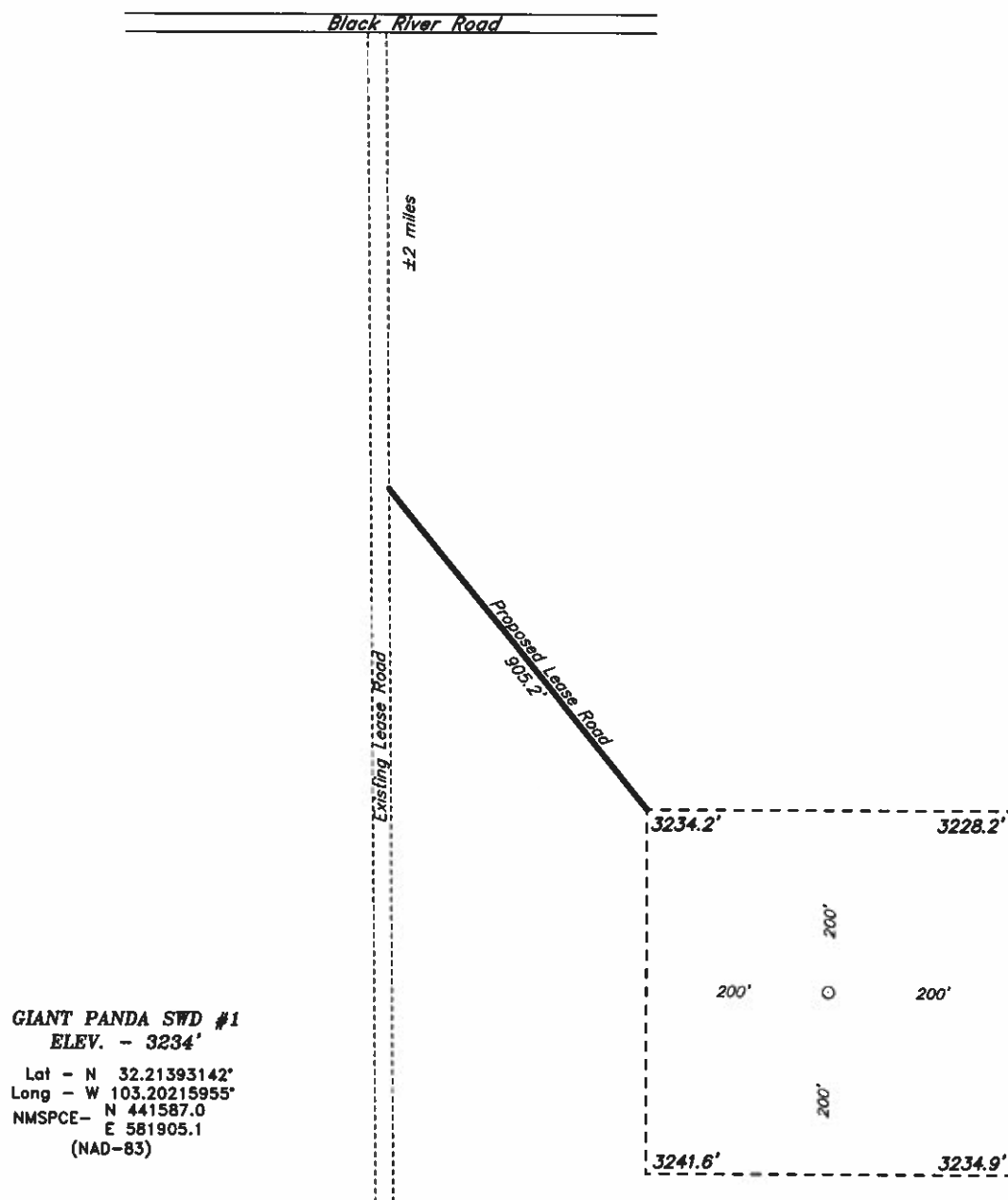
OCTOBER 16, 2018

Date Surveyed  
Signature & Seal of Professional Surveyor

Certificate No. Gary L. Jones 7977

0' 500' 1000' 1500' 2000'  
SCALE: 1" = 1000'  
WO Num.: 34148

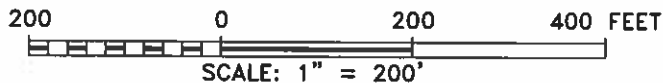
SECTION 16, TOWNSHIP 24 SOUTH, RANGE 27 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



GIANT PANDA SWD #1  
ELEV. - 3234'

Lat - N 32.21393142°  
Long - W 103.20215955°  
NMSPCE- N 441587.0  
E 581905.1  
(NAD-83)

CARLSBAD, NM IS ±10 MILES TO THE NORTH OF LOCATION.



**DELAWARE ENERGY**

REF: GIANT PANDA SWD #1 / WELL PAD TOPO

THE GIANT PANDA SWD #1 LOCATED 1440' FROM  
THE SOUTH LINE AND 560' FROM THE WEST LINE OF  
SECTION 16, TOWNSHIP 24 SOUTH, RANGE 27 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.



P.O. Box 1786 (575) 393-7316 - Office  
1120 N. West County Rd. (575) 392-2206 - Fax  
Hobbs, New Mexico 88241 basin-surveys.com

W.O. Number: 34148

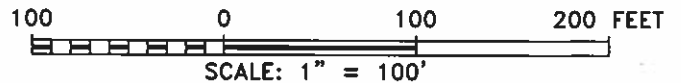
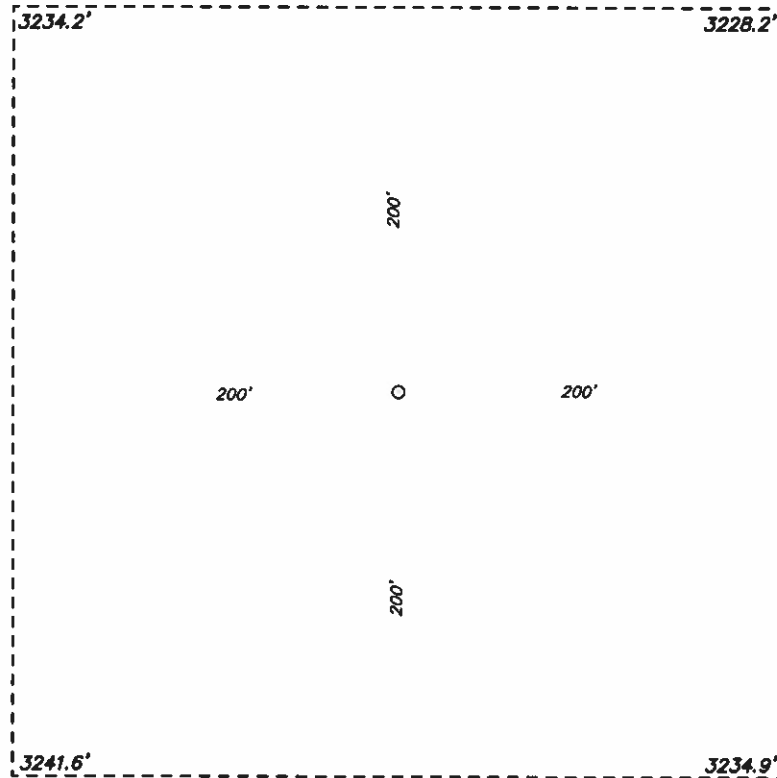
Drawn By: K. GOAD

Date: 10-17-2018

Survey Date: 10-16-2018

Sheet 1 of 1 Sheets

**SECTION 16, TOWNSHIP 24 SOUTH, RANGE 27 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.**



**DELAWARE ENERGY**

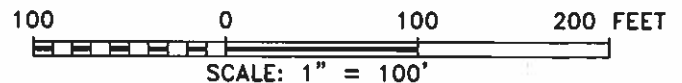
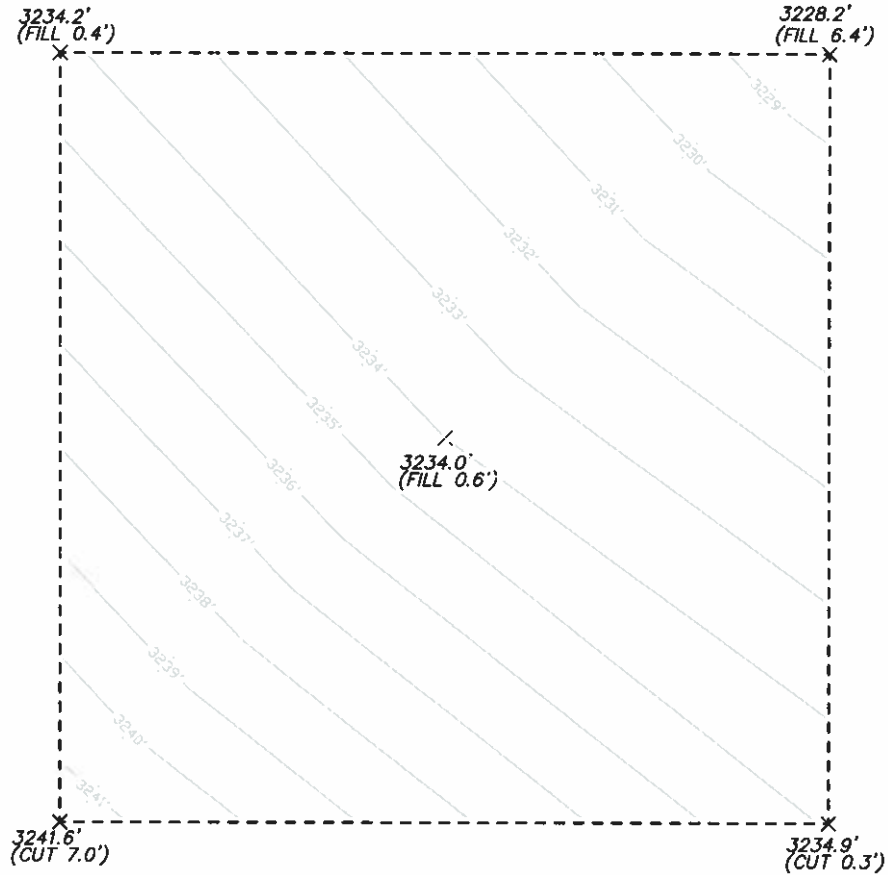
REF: GIANT PANDA SWD #1 / WELL-PAD TOPO

*THE GIANT PANDA SWD #1 LOCATED 1440' FROM  
THE SOUTH LINE AND 560' FROM THE WEST LINE OF  
SECTION 16, TOWNSHIP 24 SOUTH, RANGE 27 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.*



P.O. Box 1786 (575) 393-7316 - Office  
1120 N. West County Rd. (575) 392-2206 - Fax  
Hobbs, New Mexico 88241 [basinsurveys.com](http://basinsurveys.com)

**SECTION 16, TOWNSHIP 24 SOUTH, RANGE 27 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.**



**DELAWARE ENERGY**

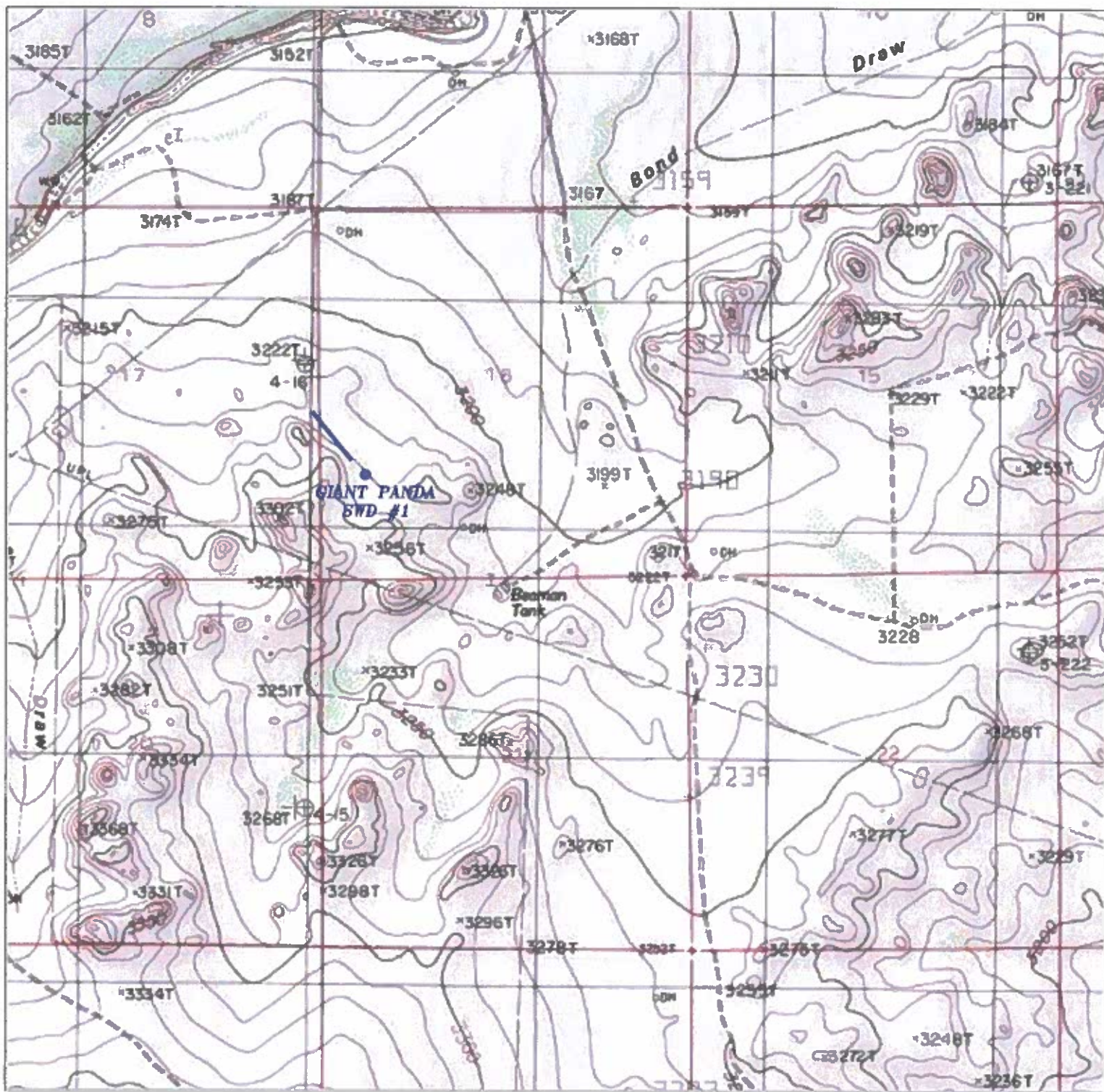
REF: GIANT PANDA SWD #1 / CUT & FILL

THE GIANT PANDA SWD #1 LOCATED 1440' FROM  
THE SOUTH LINE AND 560' FROM THE WEST LINE OF  
SECTION 16, TOWNSHIP 24 SOUTH, RANGE 27 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.



P.O. Box 1786 (575) 393-7316 - Office  
1120 N. West County Rd. (575) 392-2206 - Fax  
Hobbs, New Mexico 88241 basin-surveys.com





## GIANT PANDA SWD #1

Located 1440' FSL & 560' FWL  
 Section 16, Township 24 South, Range 27 East,  
 N.M.P.M., Eddy County, New Mexico.

**basin**  
**surveys**

focused on excellence  
 in the oilfield

P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (575) 393-7316 - Office  
 (575) 392-2206 - Fax  
[basinsurveys.com](http://basinsurveys.com)

0' 1000' 2000' 3000' 4000'  
 SCALE: 1" = 2000'

W.O. Number: KJG - 34148

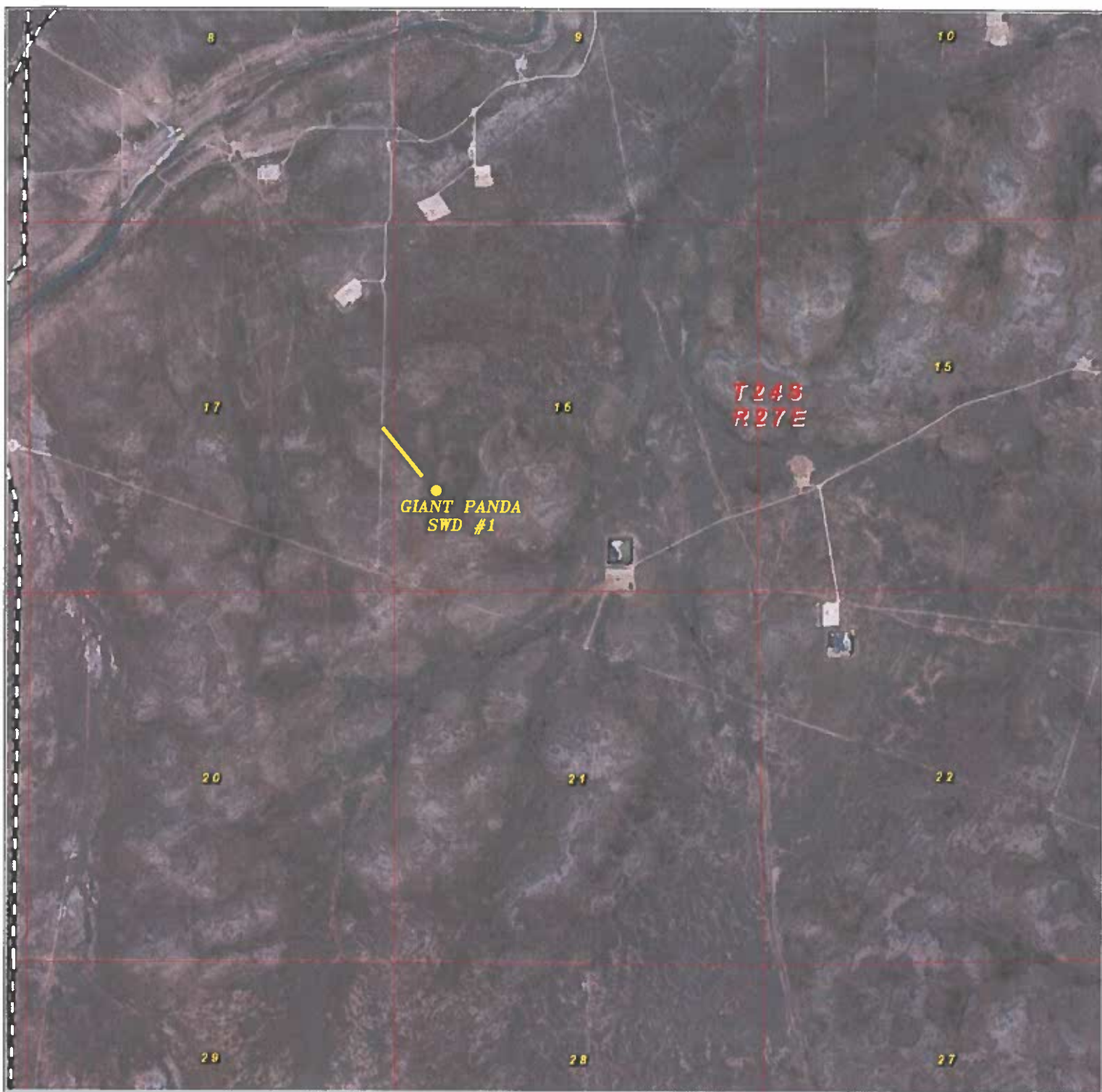
Survey Date: 10-16-2018

YELLOW TINT - USA LAND  
 BLUE TINT - STATE LAND  
 NATURAL COLOR - FEE LAND



**DELAWARE**  
**ENERGY**





## GIANT PANDA SWD #1

Located 1440' FSL & 560' FWL  
Section 16, Township 24 South, Range 27 East,  
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786  
1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(575) 393-7316 - Office  
(575) 392-2206 - Fax  
basinsurveys.com

0' 1000' 2000' 3000' 4000'  
SCALE: 1" = 2000'

W.O. Number: KJG - 34148

Survey Date: 10-16-2018

YELLOW TINT - USA LAND  
BLUE TINT - STATE LAND  
NATURAL COLOR - FEE LAND



**DELAWARE  
ENERGY**





Sec 22, T25S, R28E

North Permian Basin Region

P.O. Box 740

Sundown, TX 79372-0740

(806) 228-8121

Lab Team Leader - Sheila Hernandez

(432) 495-7240

Bone Spring

## Water Analysis Report by Baker Petrolite

Company:		Sales RDT:	33514.1
Region:	PERMIAN BASIN	Account Manager:	TONY HERNANDEZ (575) 910-7135
Area:	ARTESIA, NM	Sample #:	534665
Lease/Platform:	PINOCHLE 'BPN' STATE COM	Analysis ID #:	106795
Entity (or well #):	2 H	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 534665 @ 75 F					
Sampling Date:	03/10/11	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	03/18/11	Chloride:	109618.0	3091.92	Sodium:	70275.7	3056.82
Analyst:	SANDRA GOMEZ	Bicarbonate:	2135.0	34.99	Magnesium:	195.0	15.04
TDS (mg/l or g/m3):	184911.1	Carbonate:	0.0	0.	Calcium:	844.0	42.12
Density (g/cm3, tonne/m3):	1.113	Sulfate:	747.0	15.55	Strontium:	220.0	5.02
Anion/Cation Ratio:	1	Phosphate:			Barium:	0.8	0.01
		Borate:			Iron:	6.5	0.23
		Silicate:			Potassium:	889.0	22.22
Carbon Dioxide:	0.50 PPM	Hydrogen Sulfide:		0 PPM	Aluminum:		
Oxygen:		pH at time of sampling:		7	Chromium:		
Comments:		pH at time of analysis:			Copper:		
		pH used in Calculation:		7	Lead:		
					Manganese:	0.100	0.
					Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press
F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	1.08	188.52	-1.20	0.00	-1.18	0.00	-0.11	0.00	0.58	0.29	1.72
100	0	1.10	208.05	-1.29	0.00	-1.20	0.00	-0.15	0.00	0.35	0.29	2.35
120	0	1.12	224.17	-1.36	0.00	-1.19	0.00	-0.17	0.00	0.16	0.00	3.17
140	0	1.13	243.17	-1.42	0.00	-1.18	0.00	-0.18	0.00	0.00	0.00	4.21

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

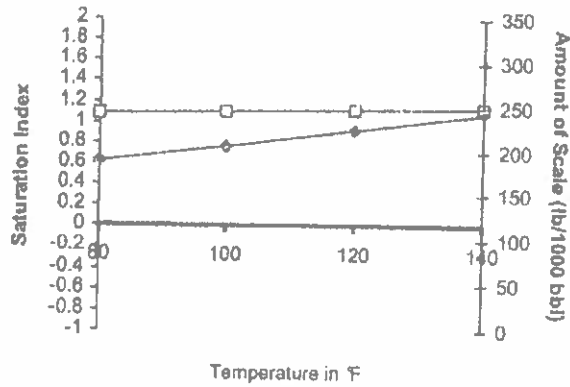
Note 3: The reported CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.

# Scale Predictions from Baker Petrolite

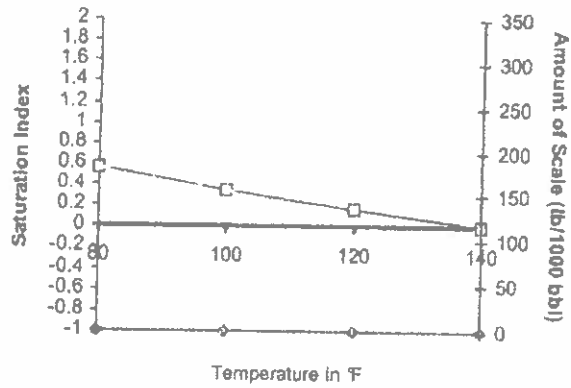
Analysis of Sample 534865 @ 75 °F for

03/18/11

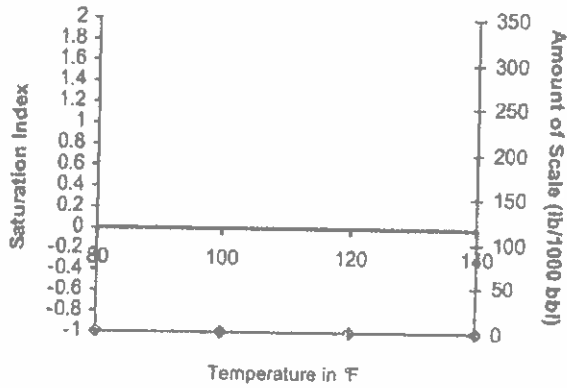
Calcite -  $\text{CaCO}_3$



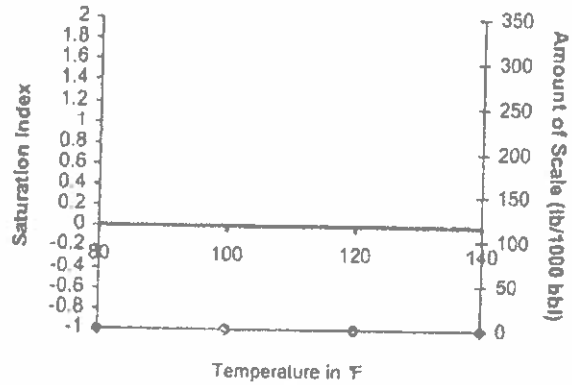
Barite -  $\text{BaSO}_4$



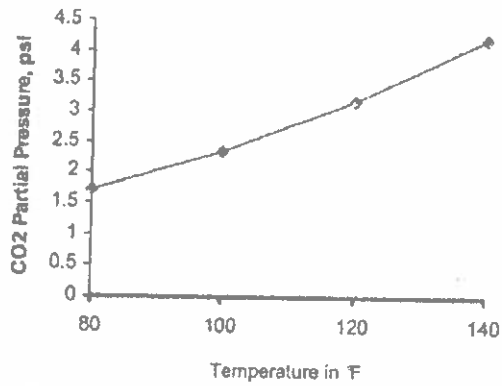
Gypsum -  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$



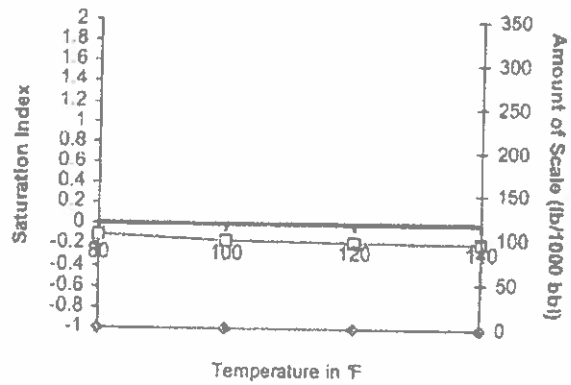
Anhydrite -  $\text{CaSO}_4$



Carbon Dioxide Partial Pressure



Celestite -  $\text{SrSO}_4$



Wolfcamp



## Water Analysis

Date: 23-Aug-11

2708 West County Road, Hobbs NM 88240

Phone (575) 392-5556 Fax (575) 392-7307

### Analyzed For

*Brushy Draw L#1*

Company	Well Name	County	State
	BD	Lea	New Mexico

### Sample Source

Swab Sample

Sample #

*Eddy*

*1-265-296*

*1*

### Formation

Depth

Specific Gravity	1.170	SG @ 60 °F	1.172
pH	6.30	Sulfides	Absent
Temperature (°F)	70	Reducing Agents	

### Cations

Sodium (Calc)	in Mg/L	77,962	in PPM	66,520
Calcium	in Mg/L	4,000	in PPM	3,413
Magnesium	in Mg/L	1,200	in PPM	1,024
Soluble Iron (FE2)	in Mg/L	10.0	in PPM	9

### Anions

Chlorides	in Mg/L	130,000	in PPM	110,922
Sulfates	in Mg/L	250	in PPM	213
Bicarbonates	in Mg/L	127	in PPM	108
Total Hardness (as CaCO3)	in Mg/L	15,000	in PPM	12,799
Total Dissolved Solids (Calc)	in Mg/L	213,549	in PPM	182,209
Equivalent NaCl Concentration	in Mg/L	182,868	in PPM	156,031

### Scaling Tendencies

\*Calcium Carbonate Index 507,520

*Below 500,000 Remote / 500,000 - 1,000,000 Possible / Above 1,000,000 Probable*

\*Calcium Sulfate (Gyp) Index 1,000,000

*Below 500,000 Remote / 500,000 - 10,000,000 Possible / Above 10,000,000 Probable*

*\*This Calculation is only an approximation and is only valid before treatment of a well or several weeks after treatment.*

Remarks RW=.048@70F

Report # 3188

Sec 16, T23S R 28E



PRODUCTION DEPARTMENT

**MILLER CHEMICALS, INC.**

Post Office Box 298  
Artesia, N.M. 88211-0298  
(505) 746-1919 Artesia Office  
(505) 392-2893 Hobbs Office  
(505) 746-1918 Fax  
mci@plateautel.net

Delaware Brushy Canyon

WATER ANALYSIS REPORT

Company :  
Address :  
Lease : LOVING "AIB"  
Well : #15  
Sample Pt. : WELLHEAD

Date : MARCH 17, 2008  
Date Sampled : MARCH 17, 2008  
Analysis No. :

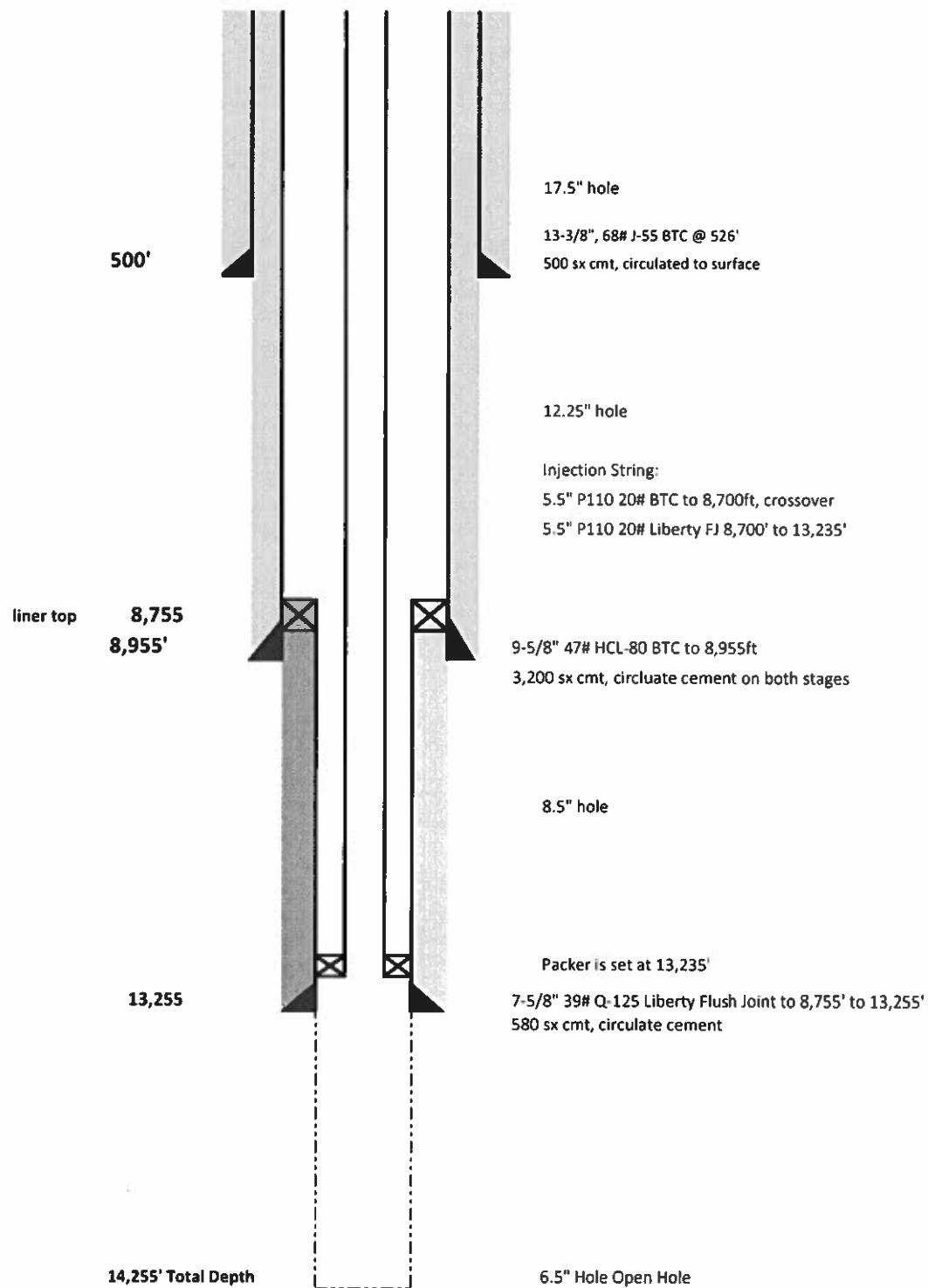
ANALYSIS		mg/L	* meq/L
1. pH	6.0		
2. H2S	0		
3. Specific Gravity	1.070		
4. Total Dissolved Solids		304684.9	
5. Suspended Solids		NR	
6. Dissolved Oxygen		NR	
7. Dissolved CO2		NR	
8. Oil In Water		NR	
9. Phenolphthalein Alkalinity (CaCO3)			
10. Methyl Orange Alkalinity (CaCO3)			
11. Bicarbonate	HCO3	927.0	HCO3 15.2
12. Chloride	Cl	187440.0	Cl 5287.4
13. Sulfate	SO4	500.0	SO4 10.4
14. Calcium	Ca	37200.0	Ca 1856.3
15. Magnesium	Mg	996.3	Mg 82.0
16. Sodium (calculated)	Na	77586.6	Na 3374.8
17. Iron	Fe	35.0	
18. Barium	Ba	NR	
19. Strontium	Sr	NR	
20. Total Hardness (CaCO3)		97000.0	

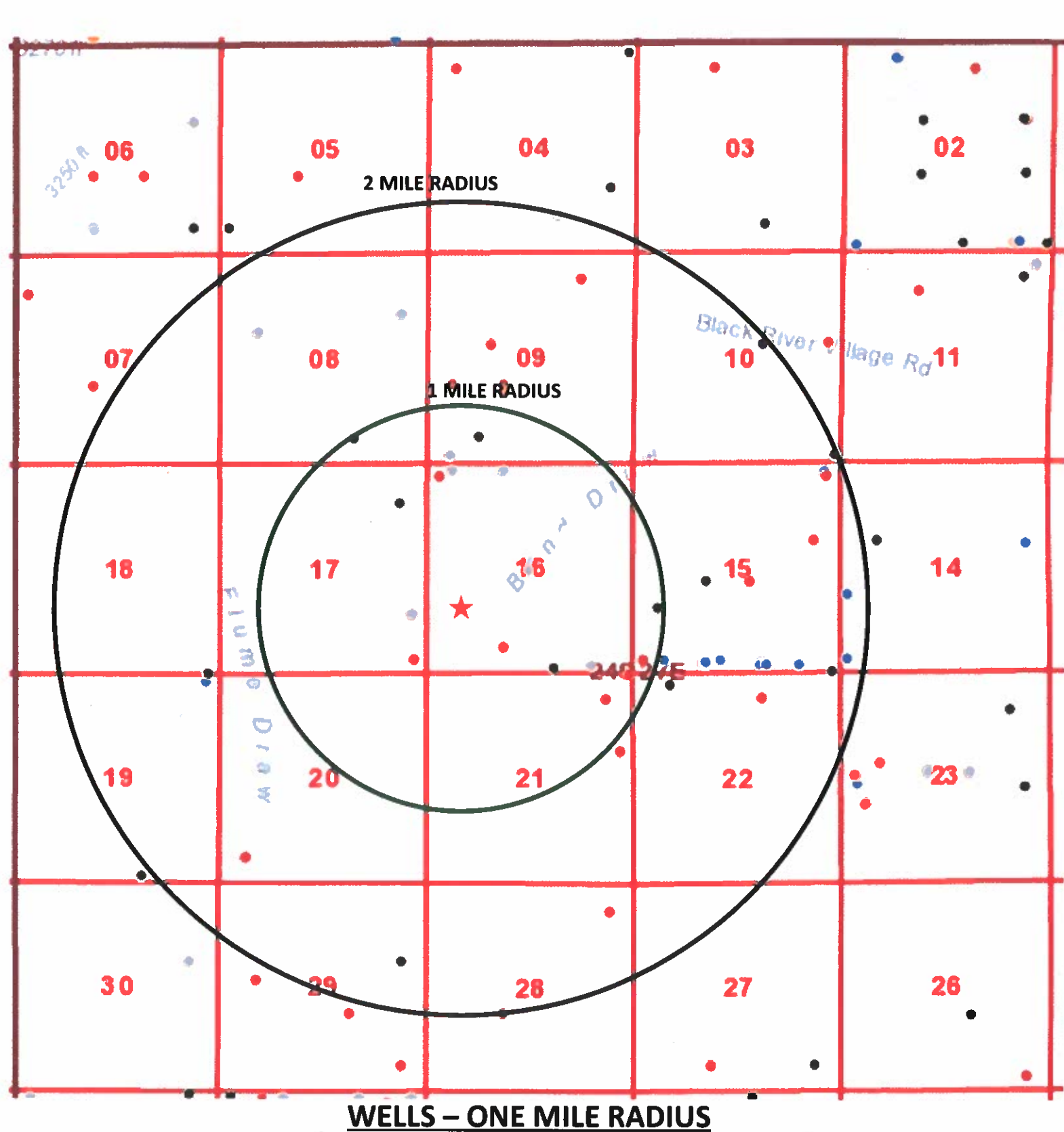
PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter	Compound	Equiv wt X meq/L	= mg/L
18561 *Ca <---- *HCO3	Ca(HCO3)2	81.0	15.2 1231
/	CaSO4	68.1	10.4 709
82 *Mg <---- *SO4	CaCl2	55.5	1830.7 101584
<-----/	Mg(HCO3)2	73.2	
33751 *Na <---- *Cl	MgSO4	60.2	
	MgCl2	47.6	82.0 3902
Saturation Values Dist. Water 20 C	NaHCO3	84.0	
CaCO3 13 mg/L	Na2SO4	71.0	
CaSO4 * 2H2O 2090 mg/L	NaCl	58.4	3374.8 197223
BaSO4 2.4 mg/L			

REMARKS:

Giant Panda SWD #1  
1,440' FSL & 560' FWL, UL L, SEC. 16, T-24S R-27E, Eddy County, NM  
API # Pending





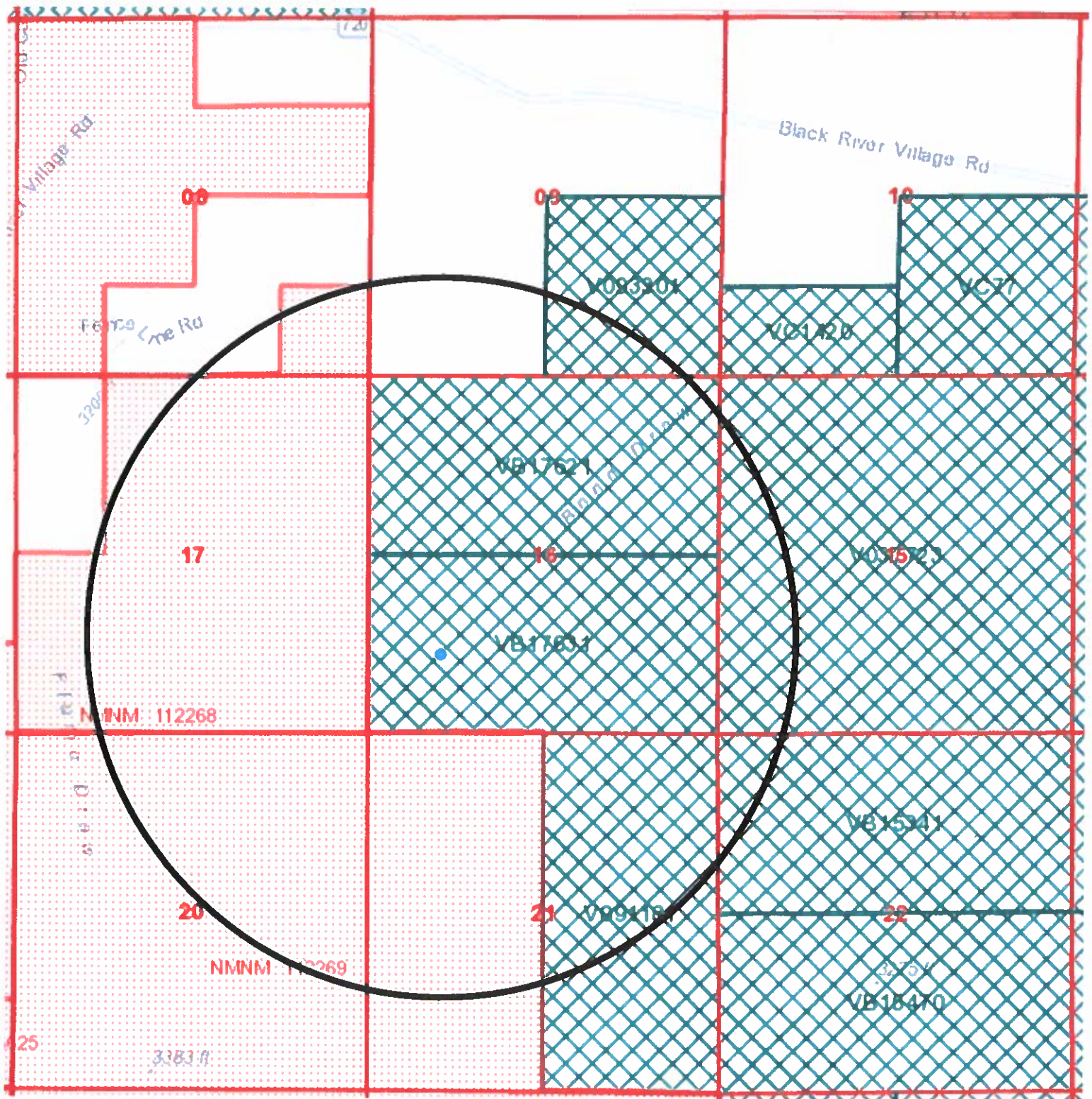
NO WELLS PENETRATE THE DEVONIAN FORMATION IN THE AOR

SECTION 16-T24S-R27E



Giant Panda SWD #1  
(Proposed Location)  
Delaware Energy, LLC





### LEASES – ONE MILE RADIUS

#### SECTION 8-T24S-R27E

- FEE & FEDERAL

#### SECTION 9-T24S-R27E

- FEE & STATE

#### SECTION 15 & 16-T24S-R27E

- STATE

#### SECTION 17 & 20 -T24S-R27E

- FEDERAL

#### SECTION 21-T24S-R27E

- STATE & FEDERAL

#### SECTION 22-T24S-R27E

- STATE



**SECTION 8-T24S-R27E**

- Devon Energy Production Company  
333 West Sheridan Ave.  
Oklahoma City, OK 73102-5015

**SECTION 9-T24S-R27E**

- Concho Resources  
600 W. Illinois Ave  
Midland, TX 79701

**SECTION 15-T24S-R27E**

- Marathon Oil Permian, LLC  
5555 San Felipe Street  
Houston, TX 77056-2723

**SECTION 16-T24S-R27E**

- Devon Energy Production Company  
333 West Sheridan Ave.  
Oklahoma City, OK 73102-5015

**SECTION 17-T24S-R27E**

- Devon Energy Production Company  
333 West Sheridan Ave.  
Oklahoma City, OK 73102-5015

**SECTION 20-T24S-R27E**

- Devon Energy Production Company  
333 West Sheridan Ave.  
Oklahoma City, OK 73102-5015

**SECTION 21-T24S-R27E**

- Devon Energy Production Company  
333 West Sheridan Ave.  
Oklahoma City, OK 73102-5015
- EOG Resources  
5509 Champions Dr.  
Midland, TX 79706

**SECTION 22-T24S-R27E**

- Concho Resources  
600 W. Illinois Ave  
Midland, TX 79701

**Delaware Energy, L.L.C.**  
405 N. Marienfeld, Suite 250  
Midland, TX 79701  
Office: (432) 685-7005

October 17, 2018

**Surface Owner / Offset Operators**

Re: Notification of **UPDATED LOCATION** Application for Authorization to Inject  
Giant Panda SWD #1 Well. Originally sent 5/9/18

Ladies and Gentlemen:

Delaware Energy, LLC is seeking administrative approval to utilize the proposed Giant Panda SWD #1 as a commercial Salt Water Disposal well. As required by the New Mexico Oil Conservation Division Rules, we are notifying you of the following proposed salt water disposal well. This letter is a notice only. No action is required unless you have questions or objections.

<u>Well:</u>	Giant Panda SWD #1
<u>Proposed Disposal Zone:</u>	Devonian Formation (from 13,255' - 14,255')
<u>Location:</u>	<b>1.440' FSL &amp; 560' FWL, UL L, Sec. 16, T24S, R27E,</b> Eddy Co., NM
<u>Applicants Name:</u>	Delaware Energy, L.L.C.
<u>Applicants Address:</u>	405 N. Marienfeld, Suite 250, Midland, TX 79701

This application for water disposal well will be filed with the New Mexico Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. And their phone number is 505-476-3460.

Please call Mike McCurdy with Delaware Energy, LLC if you have any questions at 432-685-7005.

Sincerely,



Sarah Presley

## DISTRIBUTION LIST

### Surface Owner:

State of New Mexico  
310 Old Santa Fe Trail  
Santa Fe, NM 87501

### Offset Operators/Leasehold Owners:

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

Devon Energy Production Company  
333 West Sheridan Ave.  
Oklahoma City, OK 73102-5015

Marathon Oil Permian, LLC  
5555 San Felipe Street  
Houston, TX 77056-2723

EOG Resources, Inc.  
5509 Champions Dr.  
Midland, TX 79706

Faulconer Resources 1999 – NO LONGER AFFECTED  
P.O. Box 7995  
Tyler, TX 75701

Ascent Energy, LLC – NO LONGER AFFECTED  
1621 18th St., Suite 200  
Denver, CO 80202

State of New Mexico Oil Conservation Division  
District II  
811 S. First St.  
Artesia, NM 88210

State of New Mexico Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

CARLSBAD  
**CURRENT-ARGUS**

**AFFIDAVIT OF PUBLICATION**

**Ad No.  
0001265805**


DELAWARE ENERGY, L.L.C.  
405 N. MARIENFELD  
SUITE 250  
MIDLAND TX 79701

I, a legal clerk of the **Carlsbad Current-Argus**,  
a newspaper published daily at the City of  
Carlsbad, in said county of Eddy, state of New  
Mexico and of general paid circulation in said  
county; that the same is a duly qualified  
newspaper under the laws of the State wherein  
legal notices and advertisements may be  
published; that the printed notice attached  
hereto was published in the regular and entire  
edition of said newspaper and not in supplement  
thereof on the date as follows, to wit:

10/20/18

  
Legal Clerk

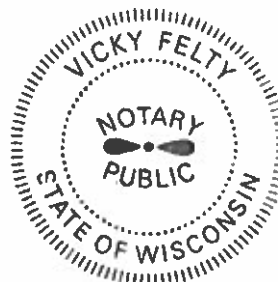
Subscribed and sworn before me this  
23th of October 2018.

  
State of WI, County of Brown  
NOTARY PUBLIC

9-19-21  
My Commission Expires

Ad#: 0001265805  
P O : Giant Panda SWD  
# of Affidavits : 0.00

**LEGAL NOTICE**  
Delaware Energy,  
L.L.C., 405 N.  
Marienfeld St. Suite  
250, Midland, TX  
79701, has filed a  
form C-108  
(Application for  
Authorization to  
Inject) with the Oil  
Conservation Division  
seeking  
administrative  
approval to drill the  
Giant Panda SWD #1  
as a Commercial Salt  
Water Disposal well.  
The Giant Panda SWD  
#1's **UPDATED**  
**LOCATION** is located  
at 1,440' FSL and 560'  
FwL, Unit Letter I,  
Section 16, Township  
24 South, Range 27  
East, Eddy County,  
New Mexico. The well  
will dispose of water  
produced from oil and  
gas wells into the  
Devonian Formation  
from 13,255' to  
14,255' at a maximum  
rate of 25,000 barrels  
of water per day at a  
maximum pressure of  
2,651 psi.  
Interested parties  
must file objections or  
requests for hearing  
with the Oil  
Conservations  
Division, 1220 South  
St. Francis Dr., Santa  
Fe, New Mexico  
87505, within 15 days.  
Additional information  
can be obtained by  
contacting Delaware  
Energy, L.L.C., at  
(432) 685-7005.  
October 20th



**Giant Panda SWD #1**

**API#: Pending**

**Location: Sec. 16, T-24S, R-27E, UL L**

**Formation Tops**

Lamar	2,130'
Delaware Sand	2,165'
Bone Springs	5,605'
Wolfcamp	8,955'
Strawn	10,805'
Atoka	10,955'
Morrow	11,655'
Mississippian Lime	12,805'
Woodford Shale	13,155'
Devonian	13,255'



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<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
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<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$1.84

Total Postage and Fees \$8.04

Giant Panda  
SWD #1

Postmark Here

OCT 18 2018

10/18/2018

Sent To  
Ascent Energy, LLC  
Street and Apt. No., or PO Box No.  
1621 18th St., Suite 200  
City, State, ZIP+4®  
Denver, CO 80202

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

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Total Postage and Fees \$8.04

Giant Panda  
SWD #1

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OCT 18 2018

10/18/2018

Sent To  
Oil Conservation Division District II  
Street and Apt. No., or PO Box No.  
811 S. First Street  
City, State, ZIP+4®  
Artesia, NM 88210

PS Form 3800, April 2015 PSN 7530-02-000-9047

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<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$1.84

Total Postage and Fees \$8.04

Giant Panda  
SWD #1

Postmark Here

OCT 18 2018

10/18/2018

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New Mexico State Land Office  
Street and Apt. No., or PO Box No.  
310 Old Santa Fe Trail  
City, State, ZIP+4®  
Santa Fe, NM 87501

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<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
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<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$1.84

Total Postage and Fees \$8.04

Giant Panda  
SWD #1

Postmark Here

OCT 18 2018

10/18/2018

Sent To  
Devon Energy Production Company  
Street and Apt. No., or PO Box No.  
555 West Sheridan Ave.  
City, State, ZIP+4®  
Oklahoma City, OK 73102-5015

PS Form 3800, April 2015 PSN 7530-02-000-9047

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<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$1.84

Total Postage and Fees \$8.04

Giant Panda  
SWD #1

Postmark Here

OCT 18 2018

10/18/2018

Sent To  
Marathon Oil Permian, LLC  
Street and Apt. No., or PO Box No.  
5555 San Felipe Street  
City, State, ZIP+4®  
Houston, TX 77056-2723

PS Form 3800, April 2015 PSN 7530-02-000-9047

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<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$1.84

Total Postage and Fees \$8.04

Giant Panda  
SWD #1

Postmark Here

OCT 18 2018

10/18/2018

Sent To  
EOG Resources, Inc.  
Street and Apt. No., or PO Box No.  
5509 Champions Dr.  
City, State, ZIP+4®  
Midland, TX 79706

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For delivery information, visit our website at <a href="http://www.usps.com">www.usps.com</a> ®.	
TYLER, TX 75711	
OFFICIAL USE	
Certified Mail Fee	\$3.45
Extra Services & Fees (check box, add fee as appropriate)	\$2.75
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$1.84
Total Postage and Fees	\$8.04
Sent To Faulkner Resources 1999 P.O. Box 7995 Tyler, TX 75701	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

Giant Panda  
SWD#1  
Postmark  
Here  
OCT 18 2018  
10/18/2018

7017 2620 0000 8001 1157

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT Domestic Mail Only	
For delivery information, visit our website at <a href="http://www.usps.com">www.usps.com</a> ®.	
MIDLAND, TX 79701	
OFFICIAL USE	
Certified Mail Fee	\$3.45
Extra Services & Fees (check box, add fee as appropriate)	\$2.75
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$1.84
Total Postage and Fees	\$8.04
Sent To COG Production, LLC 600 W. Illinois Midland, TX 79701	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

Giant Panda  
SWD#1  
Postmark  
Here  
OCT 18 2018  
10/18/2018



## Statement Regarding Seismicity and Well Location (Giant Panda SWD #1)

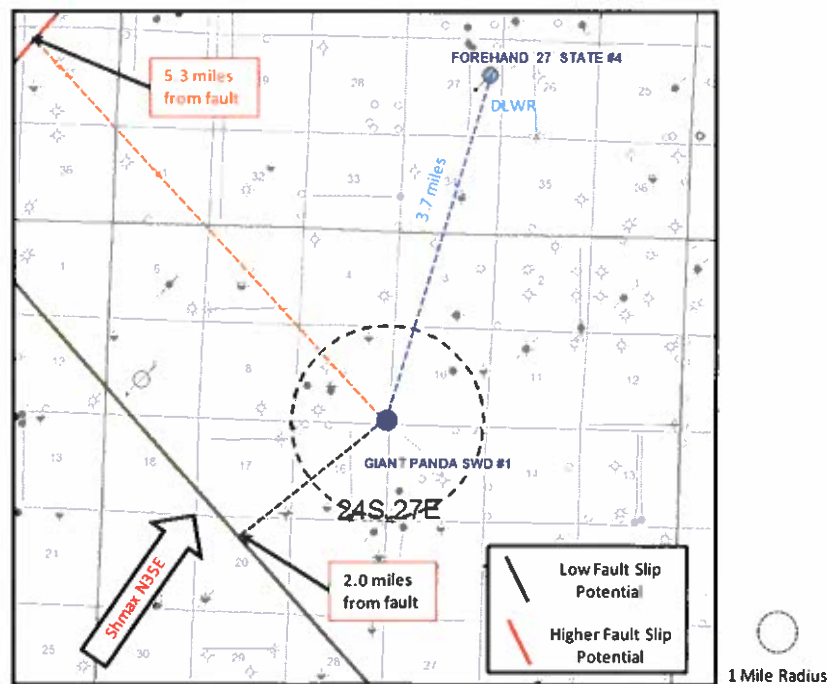
Historically, the area near the proposed Giant Panda SWD #1 has seen some nearby seismic activity. There have been two seismic events (as per public data available on the USGS database) in the area. All events are over 6.0 miles from the proposed SWD location. The most recent event is 17.3 miles east, measuring 3.1, and the closest is 6.7 miles to the NNE which measured 3.9 on November 24, 1978

Delaware Energy does not own 2D or 3D seismic data near the proposed SWD location therefore the fault interpretations are based on data obtained from the USGS New Mexico Faults Database (2005) and other published data. Based on these sources the closest faults would be approximately 5.3 miles northwest of the location and 2.0 miles southwest of the location. A recent technical paper written by Snee and Zoback, "State of Stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity", was published in the February 2018 edition of The Leading Edge. The study evaluates the strike-slip probability of known faults using FSP analysis. The study predicts that the NW-SE trending fault NE of the location (green) should have a very low probability of being critically stressed resulting in an induced seismicity event. The SW-NE trending fault NW and closest to the location (orange) would have a higher probability of being critically stressed, resulting in potential slip, due to the relationship of the strike of the fault and the regional Shmax orientation (approx. N 35 deg E) in the area. The exact position of this fault relative to the proposed location, and depth of the target formation, is unknown. Risk of contact with this fault should be reduced due to the distance of the proposed SWD well from the fault (5.3 miles).

The proposed Giant Panda SWD #1 location is located 3.7 miles away from the nearest active injector which is in the Delaware (see map below). The well should meet current OCD and Industry recommended practices.

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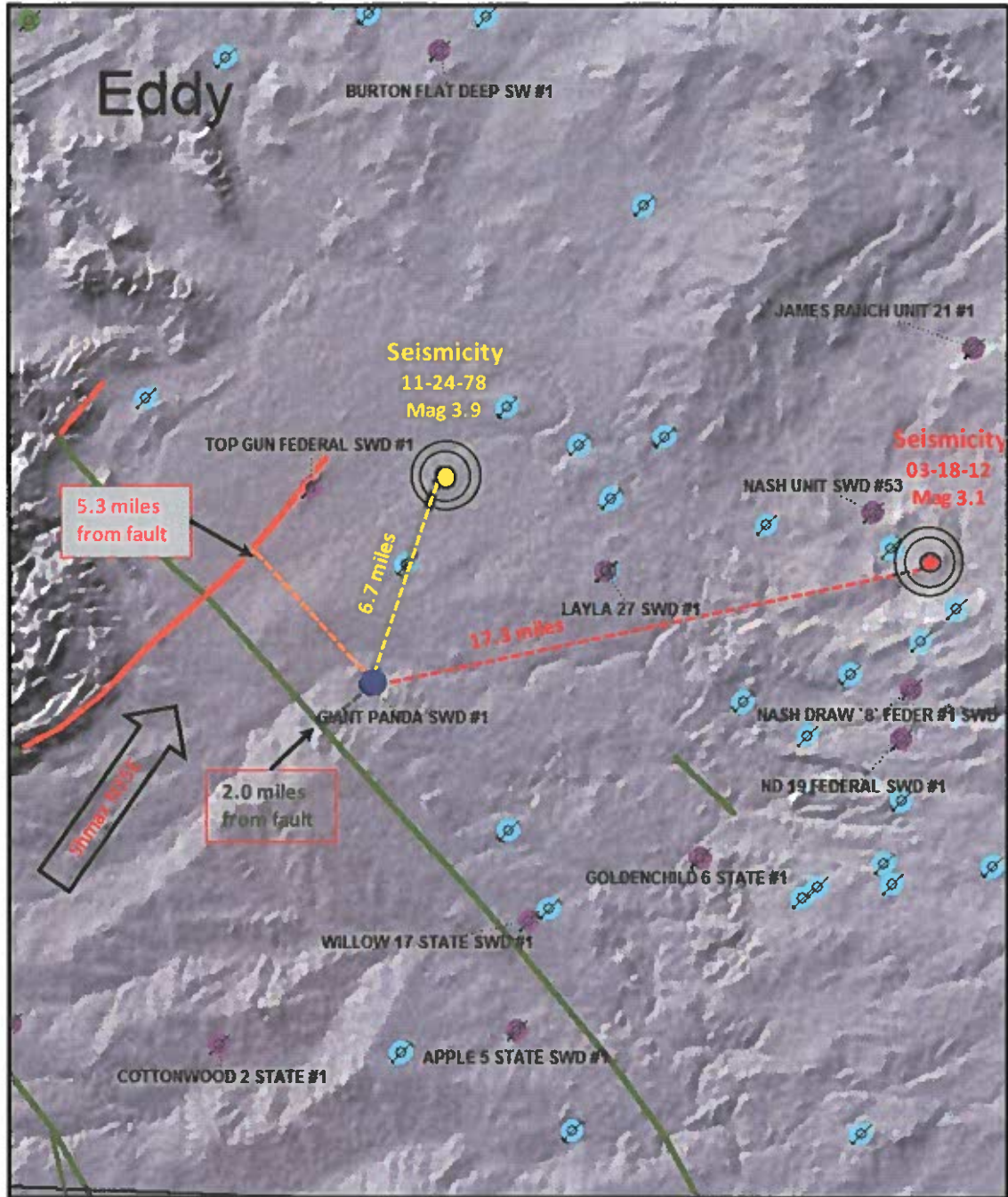
Well Activity, Faulting, and Closest SWD



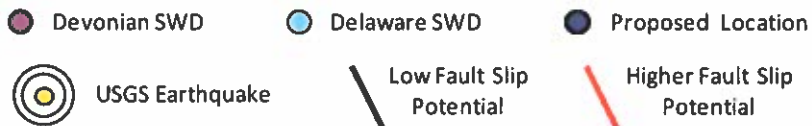
Modeled After Snee and Zoback (February 2018)



## Proximity to Historic Earthquake Activity and Faults



Modeled After Snee and Zoback (February 2018)



Data and Interpretation Disclosure - Although care has been taken to ensure that these data are up to date and accurate, this information and data is being providing as is. The data are what is believed to be the best public data available based on published documents, reports, and information available through the USGS. The user assumes all responsibility and risk for use of the data and interpretations. Users of the data agree not to misuse, add to without permission, or misrepresent the data provided in any way. In no event will the provider of this document be liable to any party for any direct, indirect, incidental, consequential, special or exemplary damages, or lost profit resulting from any use or misuse of this data. Additionally, provider is not liable for any inaccurate data. No person, entity, or user shall use the information in a manner that is in violation of any federal, state, or local law or regulation.