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

APPLICATION OF GOODNIGHT MIDSTREAM PERMIAN LLC FOR APPROVAL OF A SALTWATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO.	**COMM. CASE NO. 24123**
APPLICATIONS OF GOODNIGHT MIDSTREAM PERMIAN LLC FOR APPROVAL OF SALTWATER DISPOSAL WELLS, LEA COUNTY, NEW MEXICO.	**CASE NOS. 23614-23617**
APPLICATION OF GOODNIGHT MIDSTREAM PERMIAN, LLC TO AMEND ORDER NO. R-22026/SWD-2403 TO INCREASE THE APPROVED INJECTION RATE IN ITS ANDRE DAWSON SWD #1, LEA COUNTY, NEW MEXICO.	**DIV. CASE NO. 23775**
APPLICATIONS OF EMPIRE NEW MEXICO LLC TO REVOKE INJECTION AUTHORITY, LEA COUNTY, NEW MEXICO.	**CASE NOS. 24018-24020, 24025**

EMPIRE
PETROLEUM CORPORATION EST. 1983

Rebuttal Exhibits J-13, K-57, K-58, K-59, K-60 and L-54

Submitted March 5, 2025

Page 2 of 13

Grayburg

Premier Sandstone

Composite Sequence Boundary

U. San Andres

Upper HFS

Lovington Sandstone

High Frequency Sequence

Composite Sequence Boundary

Lower San Andres

Lower HFS

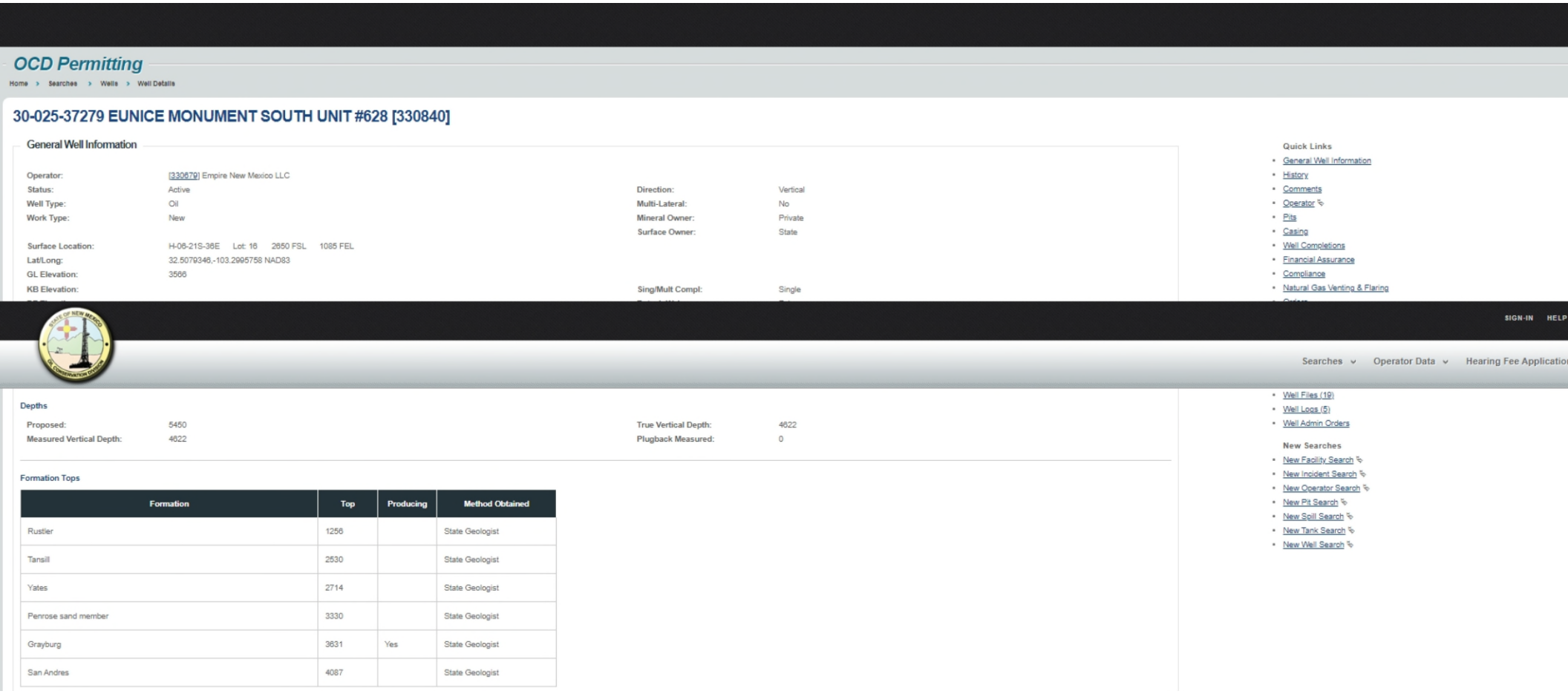
Composite Sequence Boundary

GLRT

EXHIBIT J-13

Received by OCD: 3/5/2025 1:12:17 PM

Released to Imaging: 3/7/2025 4:26:15 PM



OCD Permitting

Home › Searches › Wells › Well Details

30-025-37279 EUNICE MONUMENT SOUTH UNIT #628 [330840]

General Well Information

Operator:	[330679] Empire New Mexico LLC		
Status:	Active	Direction:	Vertical
Well Type:	Oil	Multi-Lateral:	No
Work Type:	New	Mineral Owner:	Private
		Surface Owner:	State
Surface Location:	H-06-21S-36E Lot: 16 2650 FSL 1085 FEL		
Lat/Long:	32.5079346,-103.2995758 NAD83		
GL Elevation:	3566		
KB Elevation:		Sing/Mult Compl:	Single

SIGN-IN HELP

Searches Operator Data Hearing Fee Applicatio

Quick Links
- General Well Information
- History
- Comments
- Operator
- Pits
- Casing
- Well Completions
- Financial Assurance
- Compliance
- Natural Gas Venting & Flaring

Depths

Proposed:	5450	True Vertical Depth:	4622
Measured Vertical Depth:	4622	Plugback Measured:	0

Formation Tops

Formation	Top	Producing	Method Obtained
Rustler	1256		State Geologist
Tansill	2530		State Geologist
Yates	2714		State Geologist
Penrose sand member	3330		State Geologist
Grayburg	3631	Yes	State Geologist
San Andres	4087		State Geologist

- Well Files (19)
- Well Logs (5)
- Well Admin Orders

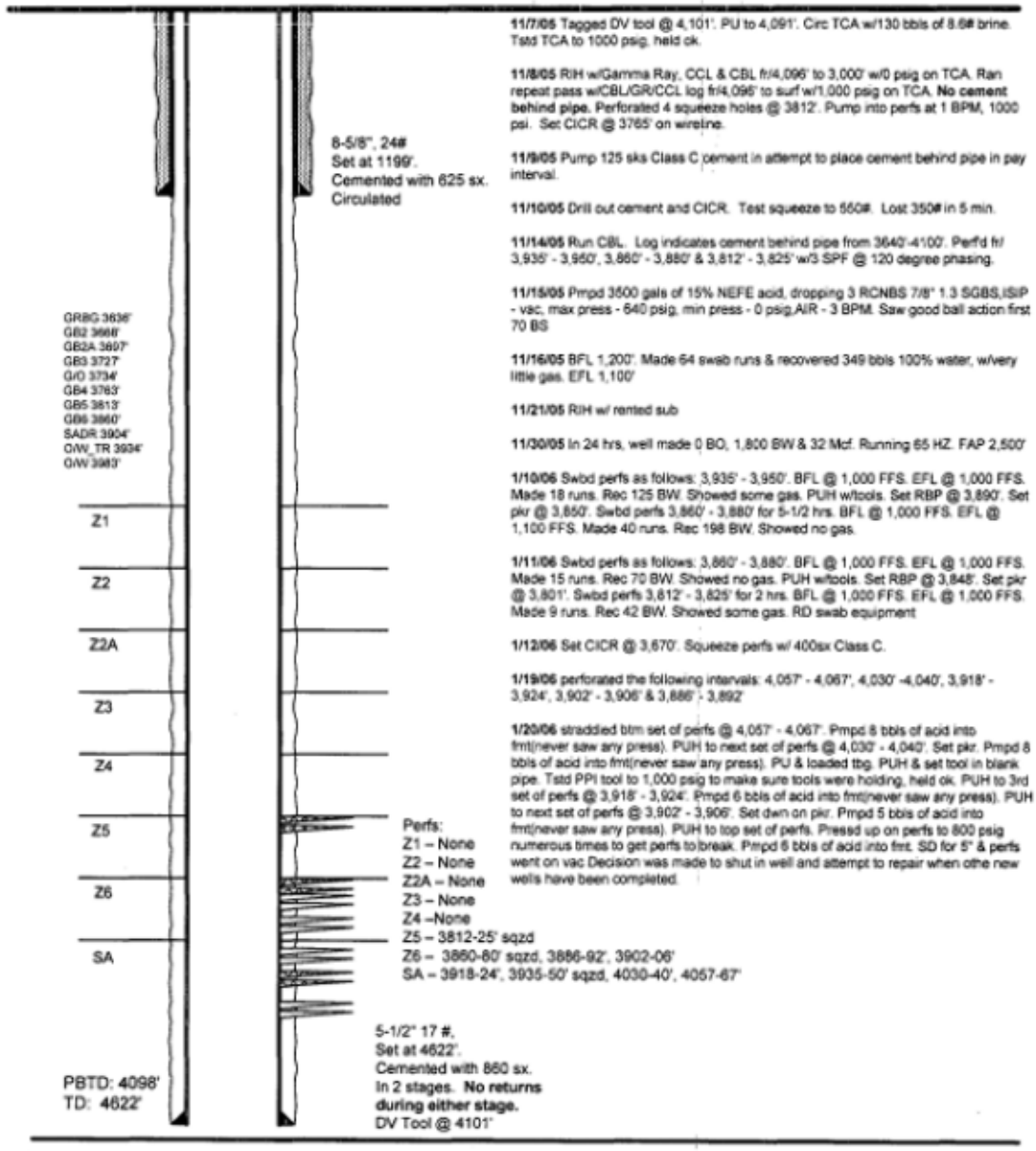
New Searches
- New Facility Search
- New Incident Search
- New Operator Search
- New Pit Search
- New Spill Search
- New Tank Search
- New Well Search

EXHIBIT K-57

XTO ENERGY

Well: EMSU 628
Location: Section 4–21S–36E
2650' FSL & 1085' FEL
County: Lea
Elevation: 3566' GL 3583' KB

API # 30-025-37318
Spud: 11/2005
State: New Mexico



11/7/05 Tagged DV tool @ 4,101'. PU to 4,091'. Circ TCA w/130 bbls of 8.6# brine. Tstd TCA to 1000 psig, held ok.

11/8/05 RIH w/Gamma Ray, CCL & CBL fr/4,096' to 3,000' w/0 psig on TCA. Ran repeat pass w/CBL/GR/CCL log fr/4,096' to surf w/1,000 psig on TCA. **No cement behind pipe.** Perforated 4 squeeze holes @ 3812'. Pump into perfs at 1 BPM, 1000 psi. Set CICR @ 3765' on wireline.

11/9/05 Pump 125 sks Class C cement in attempt to place cement behind pipe in pay interval.

11/10/05 Drill out cement and CICR. Test squeeze to 550#. Lost 350# in 5 min.

11/14/05 Run CBL. Log indicates cement behind pipe from 3640'-4100'. Perf'd fr/ 3,935' - 3,950', 3,860' - 3,880' & 3,812' - 3,825' w/3 SPF @ 120 degree phasing.

11/15/05 Prmpd 3500 gals of 15% NEFE acid, dropping 3 RCNBS 7/8" 1.3 SGBS,ISIP - vac, max press - 640 psig, min press - 0 psig,AIR - 3 BPM. Saw good ball action first 70 BS

11/16/05 BFL 1,200'. Made 64 swab runs & recovered 349 bbls 100% water, w/very little gas. EFL 1,100'

11/21/05 RIH w/ rented sub

11/30/05 In 24 hrs, well made 0 BO, 1,800 BW & 32 Mcf. Running 65 HZ. FAP 2,500'

1/10/06 Swbd perfs as follows: 3,935' - 3,950'. BFL @ 1,000 FFS. EFL @ 1,000 FFS. Made 18 runs. Rec 125 BW. Showed some gas. PUH w/tools. Set RBP @ 3,890'. Set pkr @ 3,850'. Swbd perfs 3,860' - 3,880' for 5-1/2 hrs. BFL @ 1,000 FFS. EFL @ 1,100 FFS. Made 40 runs. Rec 198 BW. Showed no gas.

1/11/06 Swbd perfs as follows: 3,860' - 3,880'. BFL @ 1,000 FFS. EFL @ 1,000 FFS. Made 15 runs. Rec 70 BW. Showed no gas. PUH w/tools. Set RBP @ 3,848'. Set pkr @ 3,801'. Swbd perfs 3,812' - 3,825' for 2 hrs. BFL @ 1,000 FFS. EFL @ 1,000 FFS. Made 9 runs. Rec 42 BW. Showed some gas. RD swab equipment

1/12/06 Set CICR @ 3,670'. Squeeze perfs w/ 400sx Class C.

1/19/06 perforated the following intervals: 4,057' - 4,067', 4,030' -4,040', 3,918' - 3,924', 3,902' - 3,906' & 3,886' - 3,892'

1/20/06 straddled btm set of perfs @ 4,057' - 4,067'. Prmpd 8 bbls of acid into frmt(never saw any press). PUH to next set of perfs @ 4,030' - 4,040'. Set pkr. Prmpd 8 bbls of acid into frmt(never saw any press). PU & loaded tbg. PUH & set tool in blank pipe. Tstd PPI tool to 1,000 psig to make sure tools were holding, held ok. PUH to 3rd set of perfs @ 3,918' - 3,924'. Prmpd 6 bbls of acid into frmt(never saw any press). PUH to next set of perfs @ 3,902' - 3,906'. Set dwn on pkr. Prmpd 5 bbls of acid into frmt(never saw any press). PUH to top set of perfs. Pressd up on perfs to 800 psig numerous times to get perfs to break. Prmpd 6 bbls of acid into frmt. SD for 5" & perfs went on vac Decision was made to shut in well and attempt to repair when othe new wells have been completed.

PREPARED BY: Jeff Gasch **DATE:** 7/11/06

OCD Permitting

Home › Searches › Wells › Well Details

30-025-37280 EUNICE MONUMENT SOUTH UNIT #658 [330840]

General Well Information

Quick Links

SIGN-IN HELP

Searches Operator Data Hearing Fee Applicatio

Surface Location: M-03-21S-36E Lot: 4 156 FSL 1240 FWL
Lat/Long: 32.5010567,-103.2577133 NAD83
GL Elevation: 3583
KB Elevation:
DF Elevation:
Sing/Mult Compl: Single
Potash Waiver: False

Proposed Formation and/or Notes

GRAYBURG

Depths

Proposed: 5450
Measured Vertical Depth: 4375
True Vertical Depth: 4375
Plugback Measured: 0

Formation Tops

Formation	Top	Producing	Method Obtained
Rustler	1300		State Geologist
Tansill	2550		State Geologist
Yates	2736		State Geologist
Seven Rivers	2927		State Geologist
Queen	3370		State Geologist
Grayburg	3604	Yes	State Geologist
San Andres	3949	Yes	State Geologist

- Well Completions
- Financial Assurance
- Compliance
- Natural Gas Venting & Flaring
- Orders
- Production
- Transporters
- Points of Disposition
- Action Status

Associated Images

- Well Files (13)
- Well Logs (2)
- Well Admin Orders

New Searches

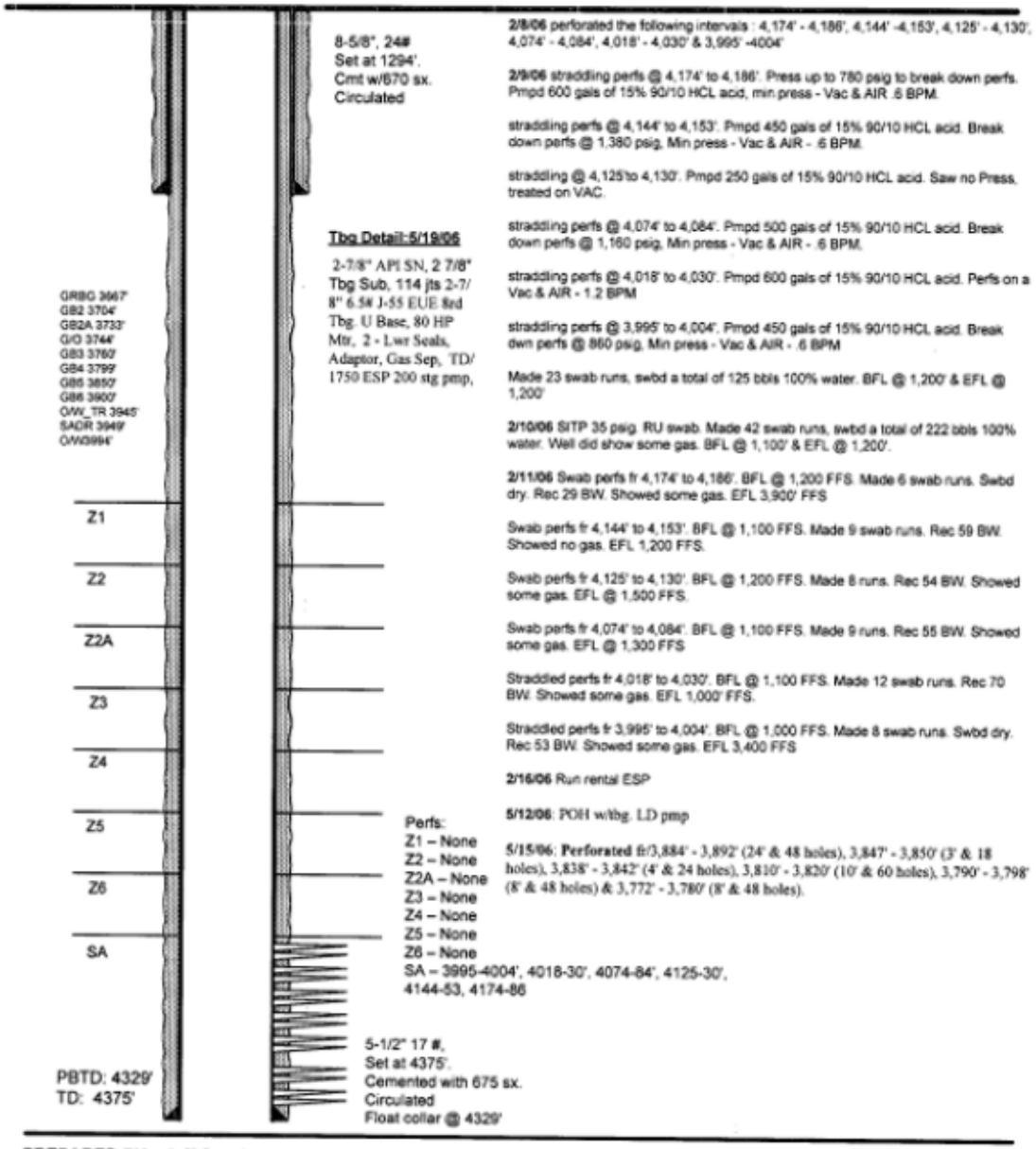
- New Facility Search
- New Incident Search
- New Operator Search
- New Pit Search
- New Spill Search
- New Tank Search
- New Well Search

EXHIBIT K-58

XTO ENERGY

Well: EMSU 658
Location: Section 3–21S–36E
155' FSL & 1240' FWL
County: Lea
Elevation: 3583' GL 3610' KB

API # 30-025-37280
Spud: 11/2005
State: New Mexico



2/8/06 perforated the following intervals : 4,174' - 4,186', 4,144' -4,153', 4,125' - 4,130', 4,074' - 4,084', 4,018' - 4,030' & 3,995' -4004'

2/9/06 straddling perfs @ 4,174' to 4,186'. Press up to 780 psig to break down perfs. Pmpd 600 gals of 15% 90/10 HCL acid, min press - Vac & AIR .6 BPM.

straddling perfs @ 4,144' to 4,153'. Pmpd 450 gals of 15% 90/10 HCL acid. Break down perfs @ 1,380 psig, Min press - Vac & AIR - .6 BPM.

straddling @ 4,125'to 4,130'. Pmpd 250 gals of 15% 90/10 HCL acid. Saw no Press, treated on VAC.

straddling perfs @ 4,074' to 4,084'. Pmpd 500 gals of 15% 90/10 HCL acid. Break down perfs @ 1,160 psig, Min press - Vac & AIR - .6 BPM.

straddling perfs @ 4,018' to 4,030'. Pmpd 600 gals of 15% 90/10 HCL acid. Perfs on a Vac & AIR - 1.2 BPM

straddling perfs @ 3,995' to 4,004'. Pmpd 450 gals of 15% 90/10 HCL acid. Break dwn perfs @ 860 psig, Min press - Vac & AIR - .6 BPM

Made 23 swab runs, swbd a total of 125 bbls 100% water. BFL @ 1,200' & EFL @ 1,200'

2/10/06 SITP 35 psig. RU swab. Made 42 swab runs, swbd a total of 222 bbls 100% water. Well did show some gas. BFL @ 1,100' & EFL @ 1,200'.

2/11/06 Swab perfs fr 4,174' to 4,186'. BFL @ 1,200 FFS. Made 6 swab runs. Swbd dry. Rec 29 BW. Showed some gas. EFL 3,900' FFS

Swab perfs fr 4,144' to 4,153'. BFL @ 1,100 FFS. Made 9 swab runs. Rec 59 BW. Showed no gas. EFL 1,200 FFS.

Swab perfs fr 4,125' to 4,130'. BFL @ 1,200 FFS. Made 8 runs. Rec 54 BW. Showed some gas. EFL @ 1,500 FFS.

Swab perfs fr 4,074' to 4,084'. BFL @ 1,100 FFS. Made 9 runs. Rec 55 BW. Showed some gas. EFL @ 1,300 FFS

Straddled perfs fr 4,018' to 4,030'. BFL @ 1,100 FFS. Made 12 swab runs. Rec 70 BW. Showed some gas. EFL 1,000' FFS.

Straddled perfs fr 3,995' to 4,004'. BFL @ 1,000 FFS. Made 8 swab runs. Swbd dry. Rec 53 BW. Showed some gas. EFL 3,400 FFS

2/16/06 Run rental ESP

5/12/06: POH w/tbg. LD pmp

5/15/06: **Perforated** fr/3,884' - 3,892' (24' & 48 holes), 3,847' - 3,850' (3' & 18 holes), 3,838' - 3,842' (4' & 24 holes), 3,810' - 3,820' (10' & 60 holes), 3,790' - 3,798' (8' & 48 holes) & 3,772' - 3,780' (8' & 48 holes).

Perfs:
Z1 – None
Z2 – None
Z2A – None
Z3 – None
Z4 – None
Z5 – None
Z6 – None
SA – 3995-4004', 4018-30', 4074-84', 4125-30', 4144-53, 4174-86

PREPARED BY: Jeff Gasch **DATE:** 7/11/06 **Page:** 1

OCD Permitting

Home > Searches > Wells > Well Details

30-025-37321 EUNICE MONUMENT SOUTH UNIT #713 [330840]

General Well Information

Operator:	[330679] Empire New Mexico LLC		
Status:	Active	**Direction:**	Vertical
Well Type:	Oil	**Multi-Lateral:**	No
Work Type:	New	**Mineral Owner:**	Private
		Surface Owner:	Private
Surface Location:	O-09-21S-36E 1310 FSL 2205 FEL		
Lat/Long:	32.4897346,-103.2888828 NAD83		
GL Elevation:	3586		
KB Elevation:		**Sing/Mult Compl:**	Single

Quick Links

- General Well Information
- History
- Comments
- Operator
- Pits
- Casing
- Well Completions
- Financial Assurance
- Compliance
- Natural Gas Venting & Flaring

SIGN-IN HELP

Searches Operator Data Hearing Fee Applicatio

- Well Files (22)
- Well Logs (3)
- Well Admin Orders

New Searches

- New Facility Search
- New Incident Search
- New Operator Search
- New Pit Search
- New Spill Search
- New Tank Search
- New Well Search

Depths

Proposed:	5450	**True Vertical Depth:**	4532
Measured Vertical Depth:	4532	**Plugback Measured:**	0

Formation Tops

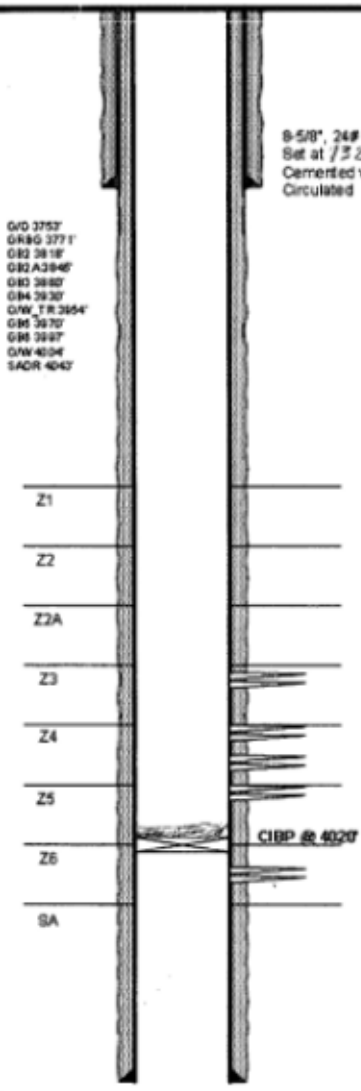
Formation	Top	Producing	Method Obtained
Rustler	1377		State Geologist
Tansill	2676		State Geologist
Yates	2766		State Geologist
Seven Rivers	3048		State Geologist
Queen	3323		State Geologist
Penrose sand member	3446		State Geologist
Grayburg	3710	Yes	State Geologist
San Andres	3942		State Geologist

EXHIBIT K-59

Well: EMSU 713
Location: Section 9–21S–36E
1310' FSL & 2205' FEL
County: Lea
Elevation: 3586' GL 3603' KB

API # 30-025-37321
Spud: 9/2005
State: New Mexico

XTO ENERGY



Perfs:
Z1 – None
Z2 – None
Z2A – None
Z3 – 3885-3904'
Z4 – 3928-40', 3952-60'
Z5 – 3970-80'
Isolated by CIBP @ 4020'
Z6 – 4042-52'

History:
10/05 – Perf 4042-52'. Acidze w/ 800 gals 15%. Swab 255 bbl water in 7 hrs. BFL 1200 FFS, EFL 1200 FFS. Set CIBP @ 4020'.
10/28/05 – Perf 3952-60'. Acidize w/ 600 gals 15%. Swab 97 bbls water in 5 hrs. BFL 1600 FFS, EFL 2500 FFS.
11/01/05 – Swab 138 bbls water in 10 hrs. BFL 2000 FFS, EFL 2700 FFS.
11/2/05 – Perf 3885-3904', 3928-40', 3970-80'. Acidize w/ 3100 gals 15% and 210 ball sealers. Very little ball action. Avg pressure 2600#, Avg rate 3.5 bpm. ISIP vac. Swab 34 bbls wtr in 2 hrs. BFL1500 FFS, EFL 2000 FFS.
11/03/05 – Swab 93 bbls water in 7 hrs. BFL 1500 FFS, EFL 2400 FFS
11/04/05 – Run rental ESP
11/09/05 – Well made 99 bo / 1054 bw / 176 mcf in 24 hrs w/ 256" FAP.
11/17/05 – Pull ESP. RIH w/ rod pump
11/24/05 – Set pumping unit. Return to production
1/25/06 – Isolate and break down each set of perfs. Acidize all with 3000 gals 90/10 15% HCL and ballsealers
2/3/06 – Well pumped 28 bo / 228 bw / 32 mcf in 24 hrs.

5-1/2" 17 #,
Set at 4226'.
Cemented with 1250 sx.
Circulated
Float collar @ 4189'

PREPARED BY: Jeff Gasch **DATE:** 3/7/06

New Mexico Bureau of Mines & Mineral Resources

A DIVISION OF
NEW MEXICO INSTITUTE OF MINING & TECHNOLOGY

OPEN-FILE REPORT 67

GEOLOGY OF LOCO HILLS SAND, LOCO HILLS FIELD EDDY COUNTY, NEW MEXICO

by Roy W. Foster, *Senior Petroleum Geologist*
New Mexico Bureau of Mines & Mineral Resources

This project is a part of "Implementation of Tertiary Recovery of Oil at Loco Hills Field, New Mexico," Project 149, New Mexico Energy Resources Board, P. O. Box 2770, Santa Fe, New Mexico.

SOCORRO, DECEMBER 1976

EXHIBIT K-60

entirely anhydrite. Within the area of the Loco Hills field this interval is from 80 to 105 ft thick. The Yates (320 to 465 ft) contains a prominent sandstone unit at the top underlain by alternating beds of anhydrite and red sandstone and shale. Sediments of the Seven Rivers Formation are mostly anhydrite but include dolomite, red shale, and some important sandstone intervals. The sequence is from 585 to 695 ft thick. The upper part of the Queen Formation is a red sandstone that is readily recognized in well cuttings and geophysical logs. This interval is known as the "Artesia red sand" and appears to be correlative with the Shattuck Member at the type locality in Dark Canyon west of Carlsbad (Newell and others, 1953). The remainder of the Queen contains dolomite, anhydrite, red shale and additional beds of red sandstone. One of the sandstones, near the middle of the interval, is correlated with the Penrose sand. Locally, at the base, there are distinctive green and purple shale beds. The total interval is from 305 to 405 ft thick. The Grayburg consists of 345 to 585 ft of light-colored dolomite; red, brown, and white sandstone; and red and green shale. Informal names have been given by operators to three of the sandstone units. These are the Loco Hills, Metex, and Premier sands. These also have been referred to as zones 4, 5, and 6 as established by the U.S. Geological Survey in the Maljamar field to the east.

The San Andres Formation (Leonardian and Guadalupian) is about 1,500 ft thick in this area. The upper part is

dolomite with an interval of sandstone and black shale, known as the Lovington sand, about 150 ft below the top.

Drilling of the Loco Hills field has established the presence of oil in many parts of the stratigraphic section. A number of wells particularly in the western and north-easternmost part of the field have been completed in two or more of these zones. In wells drilled below the Loco Hills sand completion methods have involved perforating and treating all zones that appear to have favorable porosity on geophysical logs. The produced oil is commingled, making it impossible to determine the contribution from individual zones. Based on this type of completion information, pay zones include a sandstone in the Seven Rivers; the Artesia red sand, Penrose, and basal sand of the Queen; Loco Hills, Metex, and Premier sands of the Grayburg, plus dolomites above and below the Loco Hills sand and a thin sandstone locally developed above this interval; and dolomites and the Lovington sand in the San Andres. As many as 14 zones have been perforated and treated in a single well in the Loco Hills field.

From the standpoint of the amount of oil produced and the potential for enhanced recovery of oil, the Loco Hills sand is the most important reservoir in the field. Because of this, detailed geological work was limited to this unit. Data on the lithology of the Loco Hills sand was obtained by examination of well cuttings from 14 wells and several hundred geophysical logs from wells drilled in and adjacent

ived by OCD: 3/5/2025 1:12:17 PM

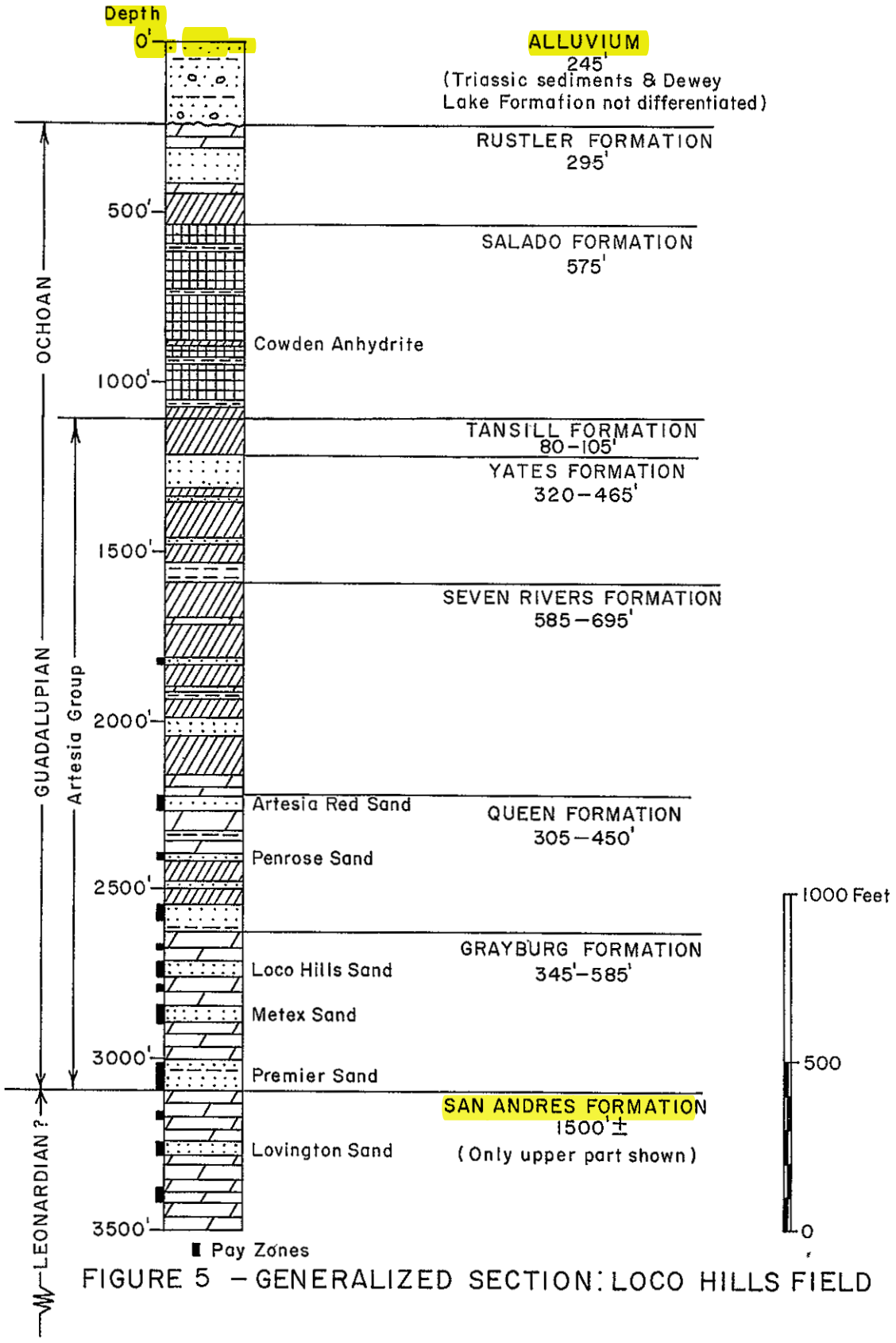


FIGURE 5 – GENERALIZED SECTION: LOCO HILLS FIELD

ased to Imaging: 3/7/2025 4:26:15 PM

COMPLIED