El Paso Natural Gas Company

El Paso, Texas

April 4, 1957

DIRECT REPLY TO:
P. O. BOX 997
FARMINGTON, NEW MEXICO

RECEIVED
APR 8 1957
OIL CON. COM.
DIST. 3

Mr. A. L. Porter
Secretary and Director
Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Dear Sir:

This is to request administrative approval of a well dually completed in the Blanco-Mesa Verde and Aztec Pictured Cliffs Pools. The El Paso Natural Gas Company Lackey No. 8-B (PM) is located 980 feet from the West line, 890 feet from the South line, Section 20, Township 28 North, Range 9 West, N.M.P.M., San Juan County, New Mexico. This well is completed in the Point Lookout member of the Mesa Verde formation and in the Pictured Cliffs formation. Completion has been accomplished in the following manner:

1. 10-3/4" surface casing set at 171' with 150 sacks of cement circulated to surface.
2. 7" intermediate casing set at 3819' with 300 sacks of cement.
3. 5-1/2" liner set from 3732' to 4480' with 120 sacks of cement.
4. Protection of the Pictured Cliffs formation was accomplished by circulating cement behind 7" casing before perforating. The casing and liner were both tested for leaks. None were found.
5. The Point Lookout formation was perforated with 4 intervals and sand-water fraced through the 5-1/2" liner.
6. The Pictured Cliffs formation was perforated with 2 intervals and sand-water fraced through the 7" casing.
7. After cleaning out both formations a 2" EUE tubing was run with a Baker Model "EGJ" production packer to separate the Mesa Verde and Pictured Cliffs formations. The Mesa Verde formation will be produced through the 2" tubing.
8. The Pictured Cliffs formation will be produced through the 7" casing. A syphon string consisting of 1-1/4" line pipe was run to a point opposite the Pictured Cliffs formation.

COPY

9. A Garrett circulating sleeve was installed in the 2" tubing string just below the Pictured Cliffs perforation. This sleeve will enable bottom hole pressure surveys to be taken if they are required at a future date.
10. Initial potential tests have been run and commercial production has been found from both zones. Also a packer leakage test has been run and witnessed by the Aztec Oil Conservation Commission office. This test shows no communication in the well bore between the two producing formations.

Administrative approval is asked for this dual completion to allow production from both known producing formations without the high initial cost of drilling two wells.

The offset operator of this dual completion has been notified and I am enclosing a copy of the letter waiving any objections to it. Also enclosed are:

(a) Two copies of the schematic diagram of the mechanical installations.
(b) Two copies of an affidavit from the packer setting company stating that the packer used was set at the depth shown.
(c) Two copies of the packer leakage tests as observed by a member of the Oil Conservation Commission.
(d) Two copies of the initial potential test showing commercial production from these zones.
(e) Two copies of plats showing location of this well and offset operators.

It is intended to dedicate the W/2 of Section 20 to the Mesa Verde production and the SW/4 of Section 20 to the Pictured Cliffs production.

Any further information required will be furnished upon your request. Thank you for your consideration of this matter.

Yours very truly,

ORIGINAL SIGNED E. J. COEL

E. J. Coel
Senior Petroleum Engineer

EJC/gks

cc: Emery Arnold
R. L. Hamblin
Phil McGrath

ORIGINAL SIGNED BY CDR

EL PASO NATURAL GAS COMPANY

Box 997
Farmington, N.M.

March 12, 1957

Mr. E. C. Arnold
Oil Conservation Commission
120 East Chaco
Aztec, New Mexico

Re: Packer Leakage Test on the El Paso Natural Gas Company Well, Lackey # 8-B, SW 20-28-9, San Juan County, New Mexico.

Dear Mr. Arnold:

This well was dually completed in the Pictured Cliffs and Mesa Verde formations. Production Packer was set at 3786 feet. The Pictured Cliff zone was tested February 28, 1957 with the following results:

SIPC 621 psig (shut-in 7 days)
SIPT 1032 psig

The casing was opened at 10:40 A.M. and flowed for three hours through a 3/4" choke.

Time	Casing Choke Pressure Psig	Temp. °F	Tubing Pressure Psig
10:40	621		1032
10:55	393		1033
11:10	355		1033
11:25	327		1033
11:40	310		1034
12:10	282		1034
12:40	262		1034
1:10	247		1034
1:40	236	65°	1035

The calculated choke volume was 3458 MCF/day. After the well was shut-in eleven days, the Mesa Verde zone was tested with the following results.

Pictured Cliffs - SIPC - 665 psig
Mesa Verde - SIPT 1068 psig (shut-in 18 days)

The tubing was opened at 12:05 P.M. through a 3/4" choke and flowed for three hours.

Time	Tubing Choke Pressure Psig	Temp. °F	Casing Pressure Psig
12:05	1068		665
12:20	400		666
12:35	407		666
12:50	377		666
1:05	358		666
1:35	308		666
2:05	294		667
2:35	281		667
3:05	274	63°	667

The calculated choke volume was 3846 MCF/day. The results of the tests obtained indicates that there is no packer leakage.

Very truly yours,

K. C. McBride
Gas Engineer

KCMcB/jla

cc: E. E. Alsup
D. H. Tucker
W. T. Hollis
W. M. Rodgers
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
Bill Parrish
Dean Rittmann
H. H. Lines
File

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE February 28, 1957

Operator: El Paso Natural Gas Company	Lease: Lackey # 8-B
Location: 890'S, 990'W, Sec. 20-28-9	County: San Juan — State: New Mexico
Formation: Pictured Cliff	Pool: Aztec
Casing: Diameter 7" — Set At: Feet 3810	Tubing: Diameter $1\frac{1}{4}$ — Set At: Feet 2085
Pay Zone: From 2040 — To 2082	Total Depth: 4483 - Packer at 3786
Stimulation Method: Sand Water Frac	Flow Through Casing: X — Flow Through Tubing:

Choke Size, Inches: .750	Choke Constant: C 14.1605		
Shut-in Pressure, Casing, PSIG + 12 = PSIA: 621 / 633	Days Shut-In: 7	Shut-in Pressure, Tubing, PSIG + 12 = PSIA: 621 / 633	
Flowing Pressure: P PSIG + 12 = PSIA: 236 / 248		Working Pressure: P_w PSIG + 12 = PSIA: 247 / 259	
Temperature: T 65	F.F. .85	Fpv (From Tables) 1.022	Gravity .641

Shut-in Mesa Verde 1032 psig

CHOKE VOLUME: Q = C x P_t x F_t x F_g x F_{pv}

Q = 14.1605 x 248 x .9952 x .9682 x 1.022 = 3458 MCF D

OPEN FLOW: Aof = Q $\left(\frac{P_c^2}{P_c^2 - P_w^2}\right)^n$

Aof = $\left(\frac{400,689}{333,608}\right)^n$ $(1.201)^{.85}$ x 3458 = 1.1685 x 3458

Aof = 4041 MCF D

TESTED: K. C. McBride

WITNESSED:

cc: E. J. Coel, Jr. (6)

By: Tom Grant

L. D. Galloway

L. D. Galloway

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE March 11, 1957

Operator: El Paso Natural Gas Company	Lease: Lackey #8-B
Location: 890'S, 990'W, Sec. 20-28-9	County: San Juan — State: New Mexico
Formation: Mesa Verde	Pool: Blanco
Casing: Diameter: 5½" liner — Set At: Feet: 3732-4480	Tubing: Diameter: 2" — Set At: Feet: 4419
Perforations: 4288 — To: 4424	Total Depth: 4483 - c/o - 4483
Stimulation Method: Sand Water Frac	Flow Through Casing: — Flow Through Tubing: X

Choke Coefficient: .750	Choke Constant: C 14.1605	7" set at 3810	
Shut-in Pressure, Casing: 1068 PSIG + 12 = PSIA 1080	Days Shut-in 18	Shut-in Pressure, Tubing: 665 P.C. PSIG + 12 = PSIA	
Flowing Pressure: P 274 PSIG + 12 = PSIA 286		Working Pressure: P_w Calculated PSIG + 12 = PSIA 589	
Temperature: T 63	F 1 .75	Fpv (From Tables)	Gravity .710

CHOKE VOLUME = Q = C x P x F_t x F_g x F_{pv}

Q = 14.1605 x 286 x .9971 x .9193 x1.035 = 3842 MCF D

$$\text{OPEN FLOW} = Aof = Q\left(\frac{P_c^2}{P_c^2 - P_w^2}\right)^n$$

$$= Q\left(\frac{1,166,400}{819,479}\right)^n \quad (1.4233)^{.75} \times 3842 = 1.303 \times 3842$$

Made water last two hours of test.

Aof = 5006 MCF D

K. C. McBride

cc: E. J. Coel, Jr. (6)

By: Tom Grant

L. D. Galloway

L. D. Galloway

Form 23-24 (Rev. 9-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: February 28, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, LACKEY # 8-B, San Juan County, New Mexico.

Tested By: K. C. McBride

Location ..... Sec. 20 T. 28 R. 9 890'S, 990'W

Shut-In Pressure ..... SIPC 621 psig; SIPT 621 psig; (Shut-in 7 days)

0.750" Choke Volume ..... 3458 MCF/D @ 14.7 psia and 60° F. for 0.6 gravity gas. Flow through casing for 3 hours.

Calculated 3 Hour Absolute Open Flow ..... 4041 MCF/D

Working Pressure On tubing ..... = 247 Psig

Producing Formation ..... Pictured Cliff

Stimulation Method ..... Sand Water Frac

Total Depth ..... 4483 - Packer at 3786'

Field ..... Aztec

H_2S ..... Sweet to lead acetate.

SIPT (M.V.) - 1032

cc: D. H. Tucker
~~[illegible]~~
W. T. Hollis
~~[illegible]~~
W. M. Rodgers
~~[illegible]~~
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File

H. H. Lines
Dean Rittmann
Bill Parrish

L. D. Galloway
L. D. Galloway

By: Tom Grant

Form 23-24 (Rev. 5-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: March 11, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, LACKEY # 8-B, San Juan County, New Mexico.

Tested By: K. C. McBride

Location ..... Sec. 20 T. 28 R. 9 , 890'S, 990'W

Shut-In Pressure ..... M.V. SIPC 1068 psig, P.C. SIPT 665 psig (Shut-in 18 days)

0.750" Choke Volume ..... 3842 MCF/D @ 14.7 psia and 60° F. for 0.6 gravity gas. Flow through tubing for 3 hours.

Calculated 3 Hour Absolute Open Flow ..... 5006 MCF/D

Working Pressure On ..... calculated = 589 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac

Total Depth 4483

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Made water last two hours of test.

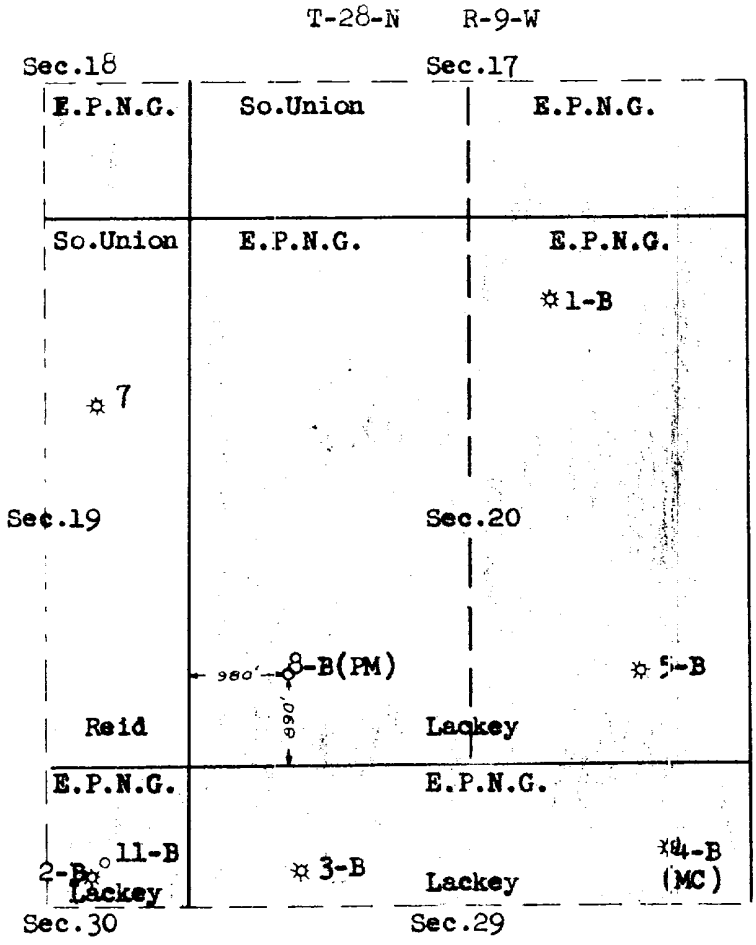
cc: D. H. Tucker
~~R. W. Hill~~
W. T. Hollis
~~C. D. Walker~~
W. M. Rodgers
~~Moyer Gheele~~
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File

H. H. Lines
Bill Parrish
Dean Rittmann

L. D. Galloway
L. D. Galloway

By: Tom Grant

PLAT SHOWING LOCATION OF DUAL COMPLETION
EL PASO NATURAL GAS LACKEY #8-B (PM)
AND OFFSET ACREAGE



EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

SCALE	DATE	No.
DRAWN BY	CHECKED BY	

STATE OF NEW MEXICO)
)
COUNTY OF SAN JUAN)

I, Mack M. Mahaffy, being first duly sworn upon my oath depose and say as follows:

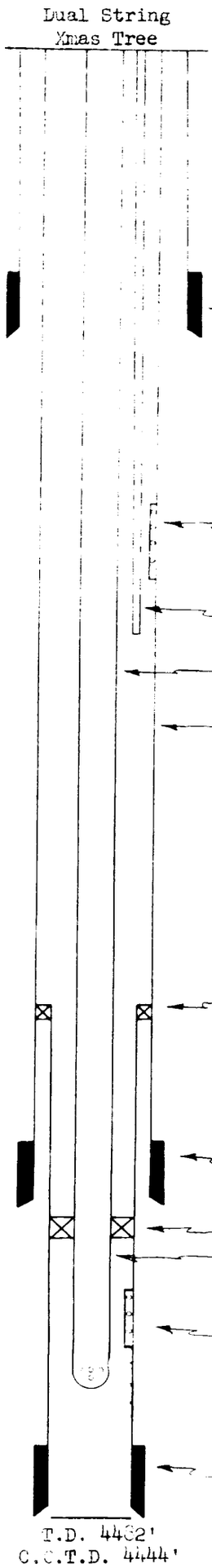
I am an employee of Baker Oil Tools, Inc., and that on February 21, 1957, I was called to the location of the El Paso Natural Gas Company Lackey 8-B Well located in the SW/4 of Section 20, Township 28 North, Range 9 West, N.M.P.M. for the purpose of installing a production packer. Under my direct supervision a Baker Model "EGJ" production packer was set at 3786 feet. The production packer was properly set in accordance with the usual practices and customs of the industry.

Mack M. Mahaffy

Mack M. Mahaffy

SCHEMATIC DIAGRAM OF DUAL COMPLETION
EPNG LACKEY NO. 8-B (PM)
(SW Sec. 20-T28N-R9W)

Measurement reference point is 8.00' above top flange of tubing hanger.



10-3/4", 32.75#, S.W. casing at 171' with 150 sacks.

Pictured Cliffs perfs. 2040'-2056' and 2068'-2082' (2 shts/ft.) Water-sand fraced.

1-1/4", Grade "B", 2.30#, line pipe landed at 2095'. Tubing perfs. 2075'-2080'.

Carrett circulating sleeve at 2103'.

Two stage tool in 7" casing at 2310'. Top of cement on second stage at 1660'.

Burns liner hanger at 3732'.

7", 23.0#, J-55 casing at 3819' with 150 sacks, each in two stages.

Baker Model "EGJ" production packer at 3785'.

2", EUE, 4.7#, J-55 tubing landed at 4429'. Tubing perfs 4393-4396'

Point Lookout perfs. 4288'-4300' 4322'-4332'; 4360'-4386' and 4414'-4424' (2 shots/ft.). Water-sand fraced.

5-1/2", 15.50#, J-55 liner set from 3432' to 4480' with 120 sacks. Top of cement at 3732'.

Form 9-331a
(Feb. 1951)

Budget Bureau No. 42-R358.4.
Approval expires 12-31-60.

Land Office Santa Fe
Lease No. 077106
Unit Lackey

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	X
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

January 20, 1957

Well No. 8-B(PM) is located 690 ft. from {N/S} line and 990 ft. from {E/W} line of sec. 20

SW Section 20 (¼ Sec. and Sec. No.) 29N (Twp.) 9W (Range) NMPM (Meridian)

Aztec P.C. & Blanco (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the derrick floor above sea level is 5671 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Spud date 1-18-57.
On 1-20-57, Total Depth 175'.
Ran 4 joints 13 3/4, 32.75#, Armco spiral weld casing (162') set at 172'
with 150 sacks regular cement circulated to surface.
Held 500# 30 minutes.

RECEIVED
FEB 1 1957
OIL CON.
DIST.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company El Paso Natural Gas Company

Address Box 997
Farmington, New Mexico

By W. F. Court

Title Petroleum Engineer

U. S. GOVERNMENT PRINTING OFFICE : 1956—O-393560

Form 9-331a
(Feb. 1951)

Budget Bureau No. 42-R358.4.
Approval expires 12-31-60.

Land Office Santa Fe
Lease No. 077106
Unit Lackey

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	X
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

March 12, 19 57

Well No. 6-B (PM) is located 890 ft. from {N/S} line and 900 ft. from {E/W} line of sec. 20

SW Section 20 (¼ Sec. and Sec. No.) 28N (Twp.) 9W (Range) N.M.P.M. (Meridian)

Aztec P.C. & Blanco M.V. (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the derrick floor above sea level is 5871 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

On 2-11-57, total depth 3820'.
Ran 113 joints, 7", 23#, J-55 casing (3810'), set at 3819' with two stage tool at 2310'. Cemented first stage with 75 sacks Pozmix, 75 sacks cement, 4% Gel, 1/8# Flocele per sack. Cement second stage with 75 sacks Pozmix, 75 sacks Cement, 4% Gel, 1/8# Flocele per sack. Held 1000 psi for 30 minutes, top of second, stage cement by temperature survey at 1600'.

RECEIVED
MAR 15 1957
OIL CON. COM.
DIST. 3

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company El Paso Natural Gas Company

Address Box 997
Farmington, N.M.

By ORIGINAL SIGNED E. S. OBERLY

Title Petroleum Engineer

U. S. GOVERNMENT PRINTING OFFICE 1956—O—393560

Budget Bureau No. 42-R358.4.
Approval expires 12-31-60.

Form 9-331a
(Feb. 1951)

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Santa Fe
Lease No. 077106
Unit Lackey

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	X
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
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NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

March 11, 19 57

Well No. 8-B (PM) is located 890 ft. from {N/S} line and 990 ft. from {E/W} line of sec. 20

SW Section 20 (¼ Sec. and Sec. No.) 28N (Twp.) 9W (Range) N.M.P.M. (Meridian)

Aztec P.C. & Blanco M.V. (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the derrick floor above sea level is 5871 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

2-15-57. Total depth 4483'.
Ran 24 joints 5-1/2", 15.5#, J-55 Liner set from 3732 to 4480'
with 60 sacks regular cement, 60 sacks Pozmix, 4% gel.
Held 1000# for 30 minutes.
Top of cement by temperature survey at 3732'.

RECEIVED
MAR 15 1957
OIL CON. COM.
DIST. 3

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company El Paso Natural Gas Company

Address Box 997
Farmington, New Mexico

By ORIGINAL SIGNED E. S. OBERLY

Title Petroleum Engineer

U. S. GOVERNMENT PRINTING OFFICE : 1956—O-393560

Form 9-331 a
(Feb. 1951)

Budget Bureau No. 42-R358.4.
Approval expires 12-31-60.

Land Office Santa Fe
Lease No. 077106
Unit Lackey

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
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NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Water Frac	X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

March 12, 19 57

Well No. 8-B (PM) is located 890 ft. from {N/S} line and 980 ft. from {E/W} line of sec. 20

SW Section 20 (¼ Sec. and Sec. No.) 28N (Twp.) 9W (Range) N.M.P.M. (Meridian)

Aztec P.C. & Blanco M.V. (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the derrick floor above sea level is 5871 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

2-17-57. Total depth 4483. Plug back T.D. 4440.
Water fractured Point Lookout perforated intervals 4288'-4300', 4322'-4332', 4360'--4386', 4414'-4424' with 2 shots per foot, with 59,976 gallons water and 60,000# sand. Maximum pressure 1350#, average treating pressure 1050#. Injection rate 75.5 bbls/min. Flush 7124 gallons.

2-17-57. Total depth 4483. Temporary Bridge Plug at 3832.
Water fractured Pictured Cliffs perforated intervals 2040'-2056', 2068'-2082' with 2 shots per foot with 48,600 gallons water and 60,000# sand. Maximum pressure 1500#, average treating pressure 1300#. Injection rate 62 bbls./min. Flush 3400 gallons.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company El Paso Natural Gas Company

Address Box 997

Farmington, New Mexico

By ORIGINAL SIGNED E. S. OBERLY

Title Petroleum Engineer

RECEIVED MAR 15 1957 OIL CON. COM. DIST.

U.S. GOVERNMENT PRINTING OFFICE : 1956—O-393560