

# dugan production corp.

DUGAN PRODUCTION CORP.  
Merry May #1  
1850' FSL - 790' FEL  
Sec 24 T24N R10W  
San Juan County, NM

APPLICATION FOR DOWNHOLE COMMINGLING  
Dugan Production Corp.  
Merry May #1 Well  
Unit I, Sec. 24, T-24-N, R-10-W  
San Juan County, New Mexico  
Case No. 7120  
Exhibit No. 3

## MORNING REPORT

9-20-80 Spud 11:15 p.m. 9-19-80. Drilled 12-1/4" hole to 252'. 1/2° @ 252'  
Ran 6 jts 8-5/8" O.D. 24# J-55, 8R, ST&C csg. T.E. 232.94 set at  
244' RKB; Cementers, Inc. cemented w/ 150 sx Class "B", 2% CaCl.  
POB 2 a.m. 9-20-80

9-21-80 1820' - drlg. Wt. 818 Vis 32 W.L. 10.0 1/2° @ 750',  
3/4° @ 1340', 1° @ 1690'.

1-1/2 hrs - trip  
12-1/4 hrs - drlg.  
3/4 hr - survey  
8 hrs - W.O.C.  
1/4 hr - W back to btm.

9-22-80 3330' drlg. wtr 1° @ 2198'. 1° @ 2700', 1-1/4° @ 3273'

2-1/2 hrs - trip  
19-1/2 hrs - drlg.  
3/4 hr - rig serv.  
3/4 hr - survey  
1/2 hr - wash 90' to btm.

9-23-80 4140' - drlg. w/ wtr. 1° @ 3377'; 3/4° @ 3820'

4-1/2 hrs - trip  
18 hrs - drlg.  
1/2 hr - rig service  
1/2 hr - survey  
1/2 hr - wash 110' to btm.

9-24-80 4764' - Trip - water and Benex 1° @ 4430 1° @ 4764

4-1/2 hrs - trip  
18-1/4 hrs - drlg.  
3/4 hr - rig serv.  
1/2 hr - survey

9-25-80 5568' - drlg. wt. 8.7 Vis 30 1° @ 4768'; 1-3/4° @ 5298'

1/4 hr - trip  
22-1/4 hrs - drilling  
3/4 hr - rig service  
1/4 hr - survey  
1/2 hr - wash to btm.

9-26-80 6094' - drlg. wt. 9.0 Vis 75 1-3/4° @ 5980'

20-1/2 hrs - drilling  
1/2 hr - rig ser.  
1/4 hr - survey  
2-3/4 hrs - lost circ.

9-27-80 6180' T.D. Cleaning out Bridge. Wt. 9.1 Vis 120 1° @ 6180'

11-3/4 hrs - trip  
7-3/4 hrs - drlg.  
1/4 hr. - rig ser.  
2-1/4 hrs - circ.  
2 hrs - attempt to log . Stopped @ 700'.

9-28-80 TD 6180' - conditioning hole for logging - unable to get below 450'.

9-29-80 TD 6180' - trip to btm w/ drill pipe. Attempt to log three times before getting to TD. and running I.E.S. and C.D.L. logs. Now going in hole with drill pipe.

9-30-80 Finish T.I.H. w/ drill pipe. Laid down drill pipe and collars. Rigged up and ran 151 jts 4 1/2" O.D., 10.5#, K-55, 8 Rd, ST&C csg. T.E. 6216.07' set @ 6210' RKB. Cemented first stage w/ 10 bbls mud flush followed by 250 sx class "B" 40% gel and 1/4# celloflake per sx followed by 150 sx class "B" neat w/ 1/4# celloflake per sx. Reciprocated pipe OK and had good returns while cementing. (Total slurry 557 cu. ft.) Float failed to hold. Left shut in 30 minutes and released - held OK. Dropped opening bomb and opened stage tool @ 4228' w/ 1400 psi. Circulated 3 hrs w/ rig pump. Cemented 2nd stage w/ 10 bbls mud flush followed by 400 sx 65-35 w/ 12% gel & 1/4# celloflake per sx followed by 50 sx class "B" w/ 1/4# celloflake per sx. Closed stage tool w/ 2500 psi. (Total slurry second stage 1203 cu. ft.)

9-31-80  
thru  
11-20-80 Waiting on completion.

DAILY REPORT

- 11-21-80 M.I.R.U. MTK double pulling unit. Go in hole w/ tbg and bit. Ran 75 jts 2-7/8" tbg. Slips wouldn't hold. Shut down.
- 11-22-80 Shut down
- 11-23-80 Shut down - Sunday
- 11-24-80 Finish going in hole - tag D.V. tool @ 4268'. Drlg. D.V. tool. Go in hole, tag up @ 6117'.
- 11-25-80 Drlg. cement out to 6190'. Came out of hole. Tbg. count wrong - 1 jt. off.
- 11-26-80 Strap pipe going in hole - T.D. only 6098'. Drlg. cement out to 6190'. Circulate hole for 45 minues. Came out of hole. Shut in.
- 11-27-80 Shut down - Thanksgiving day.
- 11-28-80 Rig up Jetronics. Ran GR-CCL from PBTD 6191' to 5800' and 5350' to 4800'. Perforate Dakota formation 6169'-6175' w/ 2 shots per ft. Total 12 holes. Go in hole w/ Baker Model "R" packer and tbg. Set @ 6147'. Rig up Western Co. Load annulus w/ 1000 psi. Breakdown perfs w/ 300 gals 15% HCL as follows: Initial Breakdown 3600 psi, Ave. treating press 3200 psi, ISDP 1900 psi. 10 min shut in 1200 psi. Rig down Western Co. Start swabbing; well flowing back slightly. Swabbed down to about 500'. No gas show. Shut in.
- 11-29-80 TBG press 200 psi. Fluid level 2500' from top - swabbed down - small show of gas in front of fluid. Came out of hole w/ tbg and packer.
- 11-30-80 Sunday - shut down.
- 12-1-80 Rig up Western Co. Fraced Dakota perfs 6169'-6175' as follows:  
 5000 gal pad - Mini Max III 40# gel  
 5000 gal - 1# per gal 20-40 sand Mini Max III - 40# gel  
 5000 gal - 1½# per gal 20-40 sand Mini Max III - 40# gel  
 5000 gal - 2# per gal 20-40 sand Mini Max III - 40# gel  
 4116 gal slick wtr flush  
 Initial breakdown 3800 psi on pad; Ave. treating press 3000 psi @ 15 bbl/min; ISDP 2100 psi. 15 min - shut in - 1800 psi  
 Lost 1 pump - press drop from 3400 psi to 3000 psi and rate drop from 22 bbl/min. to 15 bbl/min. Rig up Jetronics. Perf Gallup formation as follows: 5024'-30'; 5038'-48'; 5066'-5076'; 5112'-5124'; 5130'-36', 5188'-5196'; 5226'-32'. 1 shot/ft. Total 56 holes. Has 375 psi on well after perforating Gallup formation.

12-1-80 Fraced Gallup formation as follows:  
(Cont.)

Spearheaded 300 gal 15% HCL acid  
5000 gal slick water pad  
55000 gal slick water w/ 1# per gal 20-40 sand  
3360 gal. slick water flush  
Initial breakdown 2800 psi  
Ave. treating press 2700 psi @ 40 bbl/min.  
ISDP 1000 psi  
15 min shut in 800 psi

Left well shut in over night.

12-2-80 Opened well up - small amount of pressure. Went in hole w/ tbg (open end); tag solid sand about 6170'. Couldn't break circulation. Pick up on tbg. Dragging 10-12 points on weight ind. Pull 18 stands. Ran 10 stands in hole. Circulate bottom up. No sand. Ran 4 stands. Circulate. No sand. Ran 2 stands - circulating out sand. Clean out to 6090'. Ran out of water. Shut down.

12-3-80 Finished cleaning out sand to PBTD 6191'. Pulled 32 jts tbg. Landing tbg @ 5242' RKB. Total of 172 jts 2-3/8" O.D., 4.7#, J-55, 8 Rd, EUE tbg. Seating nipple top of bottom joint. Nipple up well head. Swab rest of day.

12-5-80 M.I.&R.U. Farmington Well Service swabbing unit. Csg. Pressure 350 p.s.i.. Made three swab runs; well kicked off to pit. Left flowing over night.

12-6-80 Checked well and rigged down swabbing unit. Left well open. Gauged well after flowing to pit for 22 hrs. Making 1400 MCFGPD w/ spray of oil and frac wtr. Shut in for IP.

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Unit I, Sec. 24, T-24-N, R-10-W

San Juan County, New Mexico

Case No. 7120

Exhibit No. 2

A. USA NM 25842  
Southern Union Exploration

B. USA NM 4958  
Dugan Production Corp.

C. USA NM 4958  
Dugan Production Corp.

D. USA NM 5991  
Dugan Production Corp.

E. USA NM 30019  
Joan Chorney (50%)  
R. K. Cramer (50%)

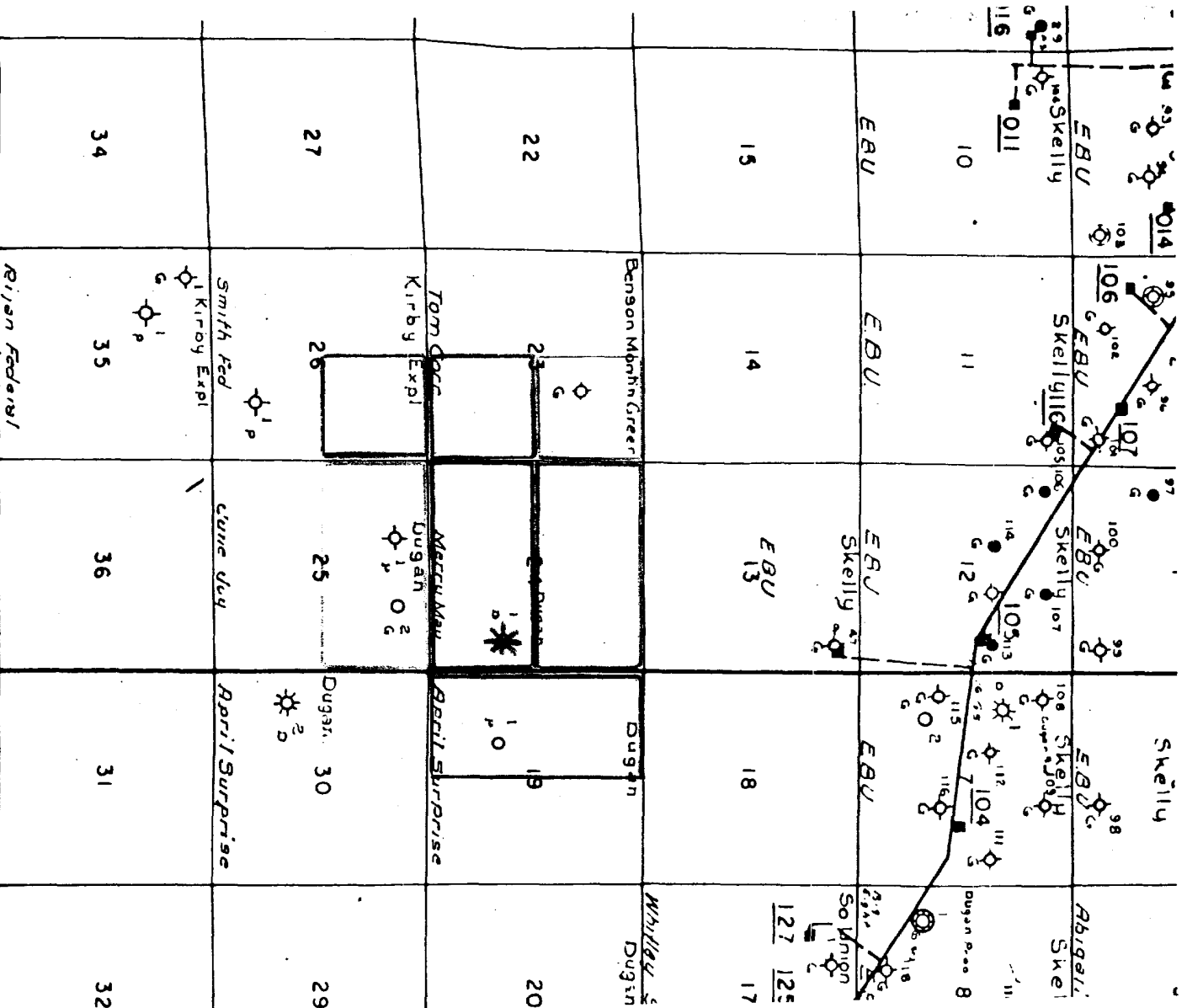
F. UNLEASED FEDERAL  
ACREAGE - US GEOLOGICAL  
SURVEY

G. USA NM 30019  
Joan Chorney (50%)  
R.K. Cramer (50%)

H. DEDICATED ACREAGE  
USA NM 25842  
Merry May #1 Well  
Dugan Production Corp.

MERRY MAY #1 WELL

OFFSETTING LEASES AND OPERATORS



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Division  
P.O. BOX 2088  
SANTA FE, NEW MEXICO 87501

Form C-116  
Revised 10-1-78

GAS-OIL RATIO TESTS

| Operator                           |          | Pool                        |    | Basin      |     | County                           |              |            |             |                  |                      |                   |                |            |                            |        |
|------------------------------------|----------|-----------------------------|----|------------|-----|----------------------------------|--------------|------------|-------------|------------------|----------------------|-------------------|----------------|------------|----------------------------|--------|
| Dugan Production Corp.             |          | Basin Dakota - Undesignated |    | Gallup     |     | San Juan                         |              |            |             |                  |                      |                   |                |            |                            |        |
| P.O. Box 208, Farmington, NM 87401 |          |                             |    | TEST - (X) |     | Special <input type="checkbox"/> |              |            |             |                  |                      |                   |                |            |                            |        |
| LEASE NAME                         | WELL NO. | LOCATION                    |    |            |     | DATE OF TEST                     | TYPE OF TEST | CHOKE SIZE | TBG. PRESS. | DAILY ALLOW-ABLE | LENGTH OF TEST HOURS | PROD. DURING TEST |                |            | GAS - OIL RATIO CU. FT/BBL |        |
|                                    |          | U                           | S  | T          | R   |                                  |              |            |             |                  |                      | WATER BBL.        | GRAV. OIL BBL. | GAS M.C.F. |                            |        |
| Merry May                          | 1        | I                           | 24 | 24N        | 10W | 12/6/80                          | F            | 1"         | 50          | ---              | 24                   | 4*                | 45             | 16         | 700                        | 43,750 |
| *Note this is Frac Water.          |          |                             |    |            |     |                                  |              |            |             |                  |                      |                   |                |            |                            |        |

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Exhibit No. 6

No well will be assigned an allowable greater than the amount of oil produced on the official test.  
During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 301 and appropriate pool rules.

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

Jim Jacobs (Signature)  
Vice-President  
(Title)

## OIL CONSERVATION DIVISION

Form C-172  
Revised 10-1-78STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

## MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

|                                                        |  |                                             |  |                                 |  |                                  |  |                               |  |                     |  |
|--------------------------------------------------------|--|---------------------------------------------|--|---------------------------------|--|----------------------------------|--|-------------------------------|--|---------------------|--|
| Type Test                                              |  | <input checked="" type="checkbox"/> Initial |  | <input type="checkbox"/> Annual |  | <input type="checkbox"/> Special |  | Test Date                     |  | 12-17-80            |  |
| Company                                                |  |                                             |  |                                 |  | Connection                       |  |                               |  |                     |  |
| DUGAN PRODUCTION CORP.                                 |  |                                             |  |                                 |  |                                  |  |                               |  |                     |  |
| Pool                                                   |  |                                             |  |                                 |  | Formation                        |  |                               |  |                     |  |
| Undesignated-Gallup Basin-Dakota                       |  |                                             |  |                                 |  | Gallup-Dakota                    |  |                               |  |                     |  |
| Completion Date                                        |  |                                             |  | Total Depth                     |  | Plug Back TD                     |  | Elevation                     |  | Form or Lease Name  |  |
| 12-6-80                                                |  |                                             |  |                                 |  |                                  |  |                               |  | Merry May           |  |
| Csg. Size                                              |  | Wt.                                         |  | d                               |  | Set At                           |  | Perforations                  |  | Well No.            |  |
| 4-1/2                                                  |  | 10.5#                                       |  | 4.052"                          |  | 6210                             |  | 5024 - 5232<br>6169 To 6175   |  | 1                   |  |
| Tbg. Size                                              |  | Wt.                                         |  | d                               |  | Set At                           |  | Perforations                  |  | Unit Sec. Twp. Rge. |  |
| 2-3/8                                                  |  | 4.7#                                        |  | 1.95                            |  | 5242                             |  | From Open End To              |  | I 24 24N 10W        |  |
| Type Well - Single - Broadhead - G.G. or G.O. Multiple |  |                                             |  |                                 |  | Packer Set At                    |  |                               |  |                     |  |
|                                                        |  |                                             |  |                                 |  | San Juan                         |  |                               |  |                     |  |
| Producing Thru                                         |  |                                             |  | Reservoir Temp. °F              |  | Mean Annual Temp. °F             |  | Baro. Press. - P <sub>a</sub> |  | State               |  |
|                                                        |  |                                             |  |                                 |  |                                  |  |                               |  | New Mexico          |  |
| L                                                      |  | H                                           |  | Gg                              |  | % CO <sub>2</sub>                |  | % N <sub>2</sub>              |  | % H <sub>2</sub> S  |  |
|                                                        |  |                                             |  |                                 |  |                                  |  |                               |  |                     |  |
| Prover                                                 |  | Meter Run                                   |  | Taps                            |  |                                  |  |                               |  |                     |  |
|                                                        |  |                                             |  |                                 |  |                                  |  |                               |  |                     |  |

| FLOW DATA |                  |   |              |                 |                      |          | TUBING DATA     |          | CASING DATA     |          | Duration of Flow |
|-----------|------------------|---|--------------|-----------------|----------------------|----------|-----------------|----------|-----------------|----------|------------------|
| NO.       | Prover Line Size | X | Orifice Size | Press. p.s.i.g. | Diff. h <sub>w</sub> | Temp. °F | Press. p.s.i.g. | Temp. °F | Press. p.s.i.g. | Temp. °F |                  |
| SI        |                  |   |              |                 |                      |          | 1740            |          | 1740            |          | 7 days           |
| 1.        |                  |   |              |                 |                      |          |                 |          |                 |          |                  |
| 2.        |                  |   |              |                 |                      |          |                 |          |                 |          |                  |
| 3.        |                  |   |              |                 |                      |          | 50              |          | 350             |          | 4 days           |
| 4.        |                  |   |              |                 |                      |          |                 |          |                 |          |                  |

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Exhibit No. 5

| CORRELATIONS                  |                                         |                      |
|-------------------------------|-----------------------------------------|----------------------|
| Gravity Factor F <sub>g</sub> | Super Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
|                               |                                         |                      |
|                               |                                         |                      |
|                               |                                         | * 700                |
|                               |                                         |                      |
|                               |                                         |                      |

|                         |                |
|-------------------------|----------------|
| Ratio _____ Mcf/bbl.    |                |
| Hydrocarbons _____ Deg. |                |
| for Gas _____           | XXXXXXXXXXXX   |
| g Fluid _____           | XXXXXX         |
| _____ P.S.I.A.          | _____ P.S.I.A. |
| _____ R                 | _____ R        |

|                            |                                       |                                            |                                                             |                                                           |
|----------------------------|---------------------------------------|--------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|
| Critical Temperature _____ |                                       |                                            |                                                             |                                                           |
| P <sub>c</sub> 1752        | P <sub>c</sub> <sup>2</sup> 3,069,504 | (1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.0446$ | (2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.0333$ |                                                           |
| NO                         | P <sub>i</sub> <sup>2</sup>           | P <sub>w</sub>                             | P <sub>w</sub> <sup>2</sup>                                 | P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> |
| 1                          |                                       |                                            |                                                             |                                                           |
| 2                          |                                       |                                            |                                                             |                                                           |
| 3                          |                                       | 362                                        | 131,044                                                     | 2,938,460                                                 |
| 4                          |                                       |                                            |                                                             |                                                           |
| 5                          |                                       |                                            |                                                             |                                                           |

|                        |  |              |  |                         |  |              |  |
|------------------------|--|--------------|--|-------------------------|--|--------------|--|
| Absolute Open Flow 723 |  | Mcf @ 15.025 |  | Angle of Slope $\theta$ |  | Slope, n .75 |  |
|------------------------|--|--------------|--|-------------------------|--|--------------|--|

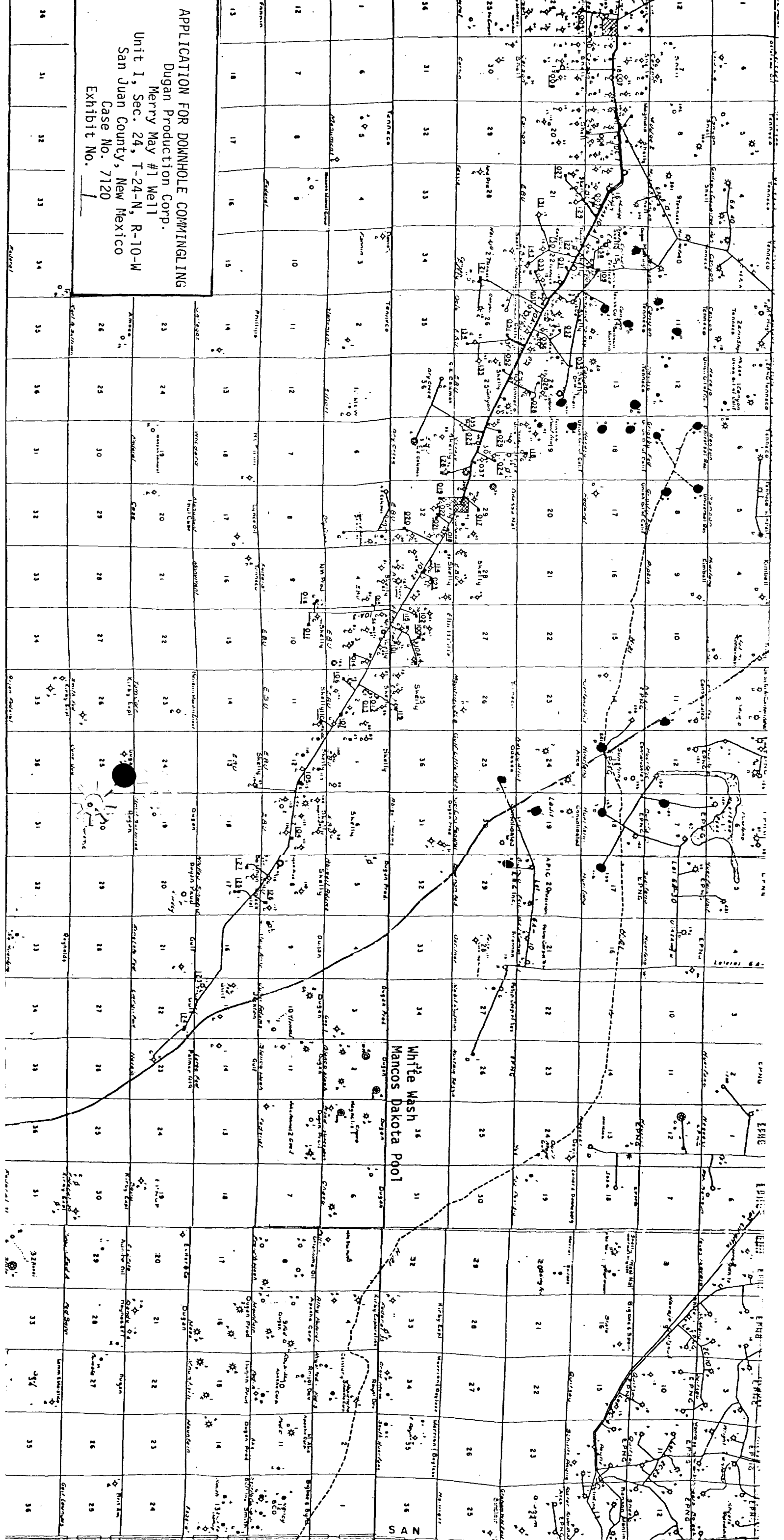
  

Remarks: \* Q - is pito tube gauge at end of 4 days - well making 16 Bbls. Oil per day at end of test.

|                      |               |                |             |
|----------------------|---------------|----------------|-------------|
| Approved By Division | Conducted By: | Calculated By: | Checked By: |
|----------------------|---------------|----------------|-------------|

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San Juan County, New Mexico  
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Exhibit No. 1



04700  
04600  
04500  
04400  
04300  
04200  
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PLUG  
SAC  
100'

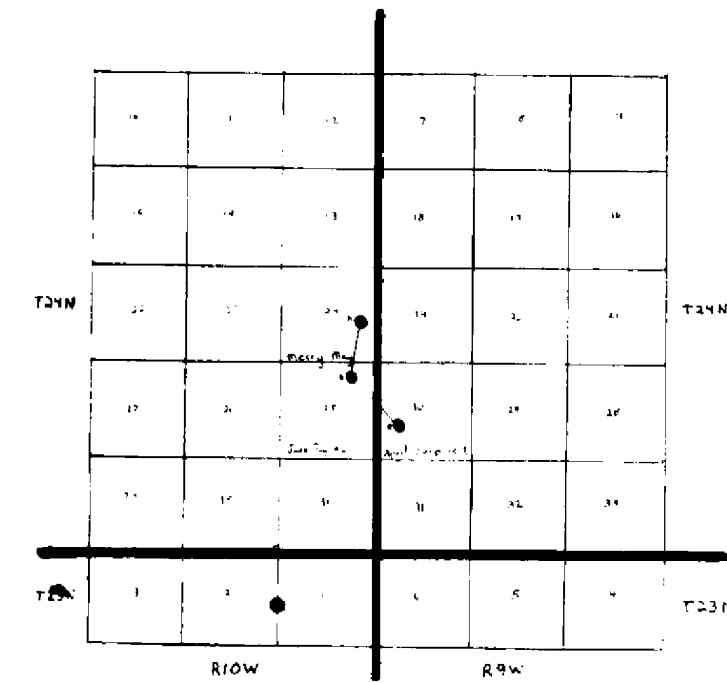
0 100

04700  
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PLUG  
SAC  
100'

0 100

This figure is a detailed geological profile of a road cut, oriented vertically. The profile shows several distinct stratigraphic layers. At the top, there is a layer labeled 'Gravelly sandstone'. Below this is a thick, light-colored layer labeled 'Sandstone'. Further down is a darker, more textured layer labeled 'Shale'. The bottom-most layer is labeled 'Siltstone'. A scale on the right side of the profile indicates depth in feet, ranging from 0 at the top to 6200 at the bottom, with major tick marks every 1000 feet. The profile itself is a black line graph on a grid, showing the topography of the road cut and the boundaries between the different geological units. A small inset at the bottom right shows a close-up of the 'Siltstone' layer, highlighting its texture and structure.



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Exhibit No. 4