

## MERRION OIL &amp; GAS CORPORATION

610 REILLY AVE. • P. O. Box 840  
FARMINGTON, NEW MEXICO 87499

March 1, 1990

Mr. Mike Stogner  
New Mexico Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87501

RE: C-108 Injection Permit Application  
Papers Wash Field  
Navajo Allotted 15-3  
Section 15, T19N, R5W  
McKinley County, New Mexico

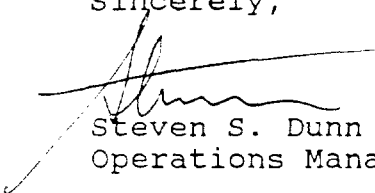
Dear Mr. Stogner:

As you know, we are planning on converting the Navajo Allotted 15-3 to injection to initiate a secondary recovery waterflood in the Entrada formation. A Cooperative Agreement has already been formed for a secondary recovery project. Attached is a Form C-108 for the proposed conversion.

We are on the State Docket to propose the waterflood on March 7, 1990. By that date, we should have submitted the EPA application for the conversion to injection.

If additional information is required, please contact Mr. George Sharpe at (505) 327-9801.

Sincerely,



Steven S. Dunn  
Operations Manager

GFS/eg

CC: Well File  
Ken Townsend-BLM, Farmington, NM  
Ron Van Wyk-EPA, Dallas, Texas  
Frank Chavez-NMOCD, Aztec, NM  
Ervin Peshlakai-BIA, Window Rock, Az  
Frank Welker-Chase Oil, Albuquerque, NM  
Pat Hegarty

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FAX 505-326-5900

MERRION OIL & GAS CORPORATION  
610 REILLY AVE. • P. O. Box 840  
FARMINGTON, NEW MEXICO 87499

March 13, 1990

Mr. Ron Van Wyk (6W-5)  
US Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Tx 75202-2733

Re: Supplemental Information  
UIC Injection Permit Application  
Navajo Allotted 15-3  
Papers Wash Field  
Section 15, T19N, R5W  
McKinley County, New Mexico

Dear Mr. Van Wyk:

Attached for your information is an updated wellbore schematic for the Federal 15-2H horizontal well. The Federal 15-2H, which is within the 1/2 mile area of review for the proposed injection project, was still being completed when the original UIC application was submitted (see 3/1/90 letter).

Also attached is an updated produced water analysis from the Entrada Formation showing the TDS to be  $\pm 4,200$  ppm. Analyses from various Entrada fields show the TDS to vary from 3,000 to 20,000 ppm, with an average around 8,000 to 10,000 ppm. Again, our plan is to reinject the produced water back into the Entrada Formation to institute a waterflood. A very small amount (less than 5% by volume) of produced Mesaverde water (TDS = 7,245 ppm) will be commingled and injected with the produced Entrada water. This should not present an environmental problem because a.) the TDS of the Mesaverde water is less than the 10,000 ppm fresh water threshold, b.) the Mesaverde TDS is less than the 8 to 10,000 ppm Entrada average, c.) there are no compatibility problems with the two waters, and d.) the Entrada is not currently used for drinking water in the area.

Please contact George Sharpe at (505) 327-9801 if additional information is required. We appreciate your consideration in this matter.

Sincerely,



Steven S. Dunn  
Operations Manager

SSD:ks  
Enc.  
cc: Well file

*Handwritten notes:*  
2. Virginia  
3/15/90  
Have you read the book  
- Full with  
Agencies  
Exempted  
You must be  
from

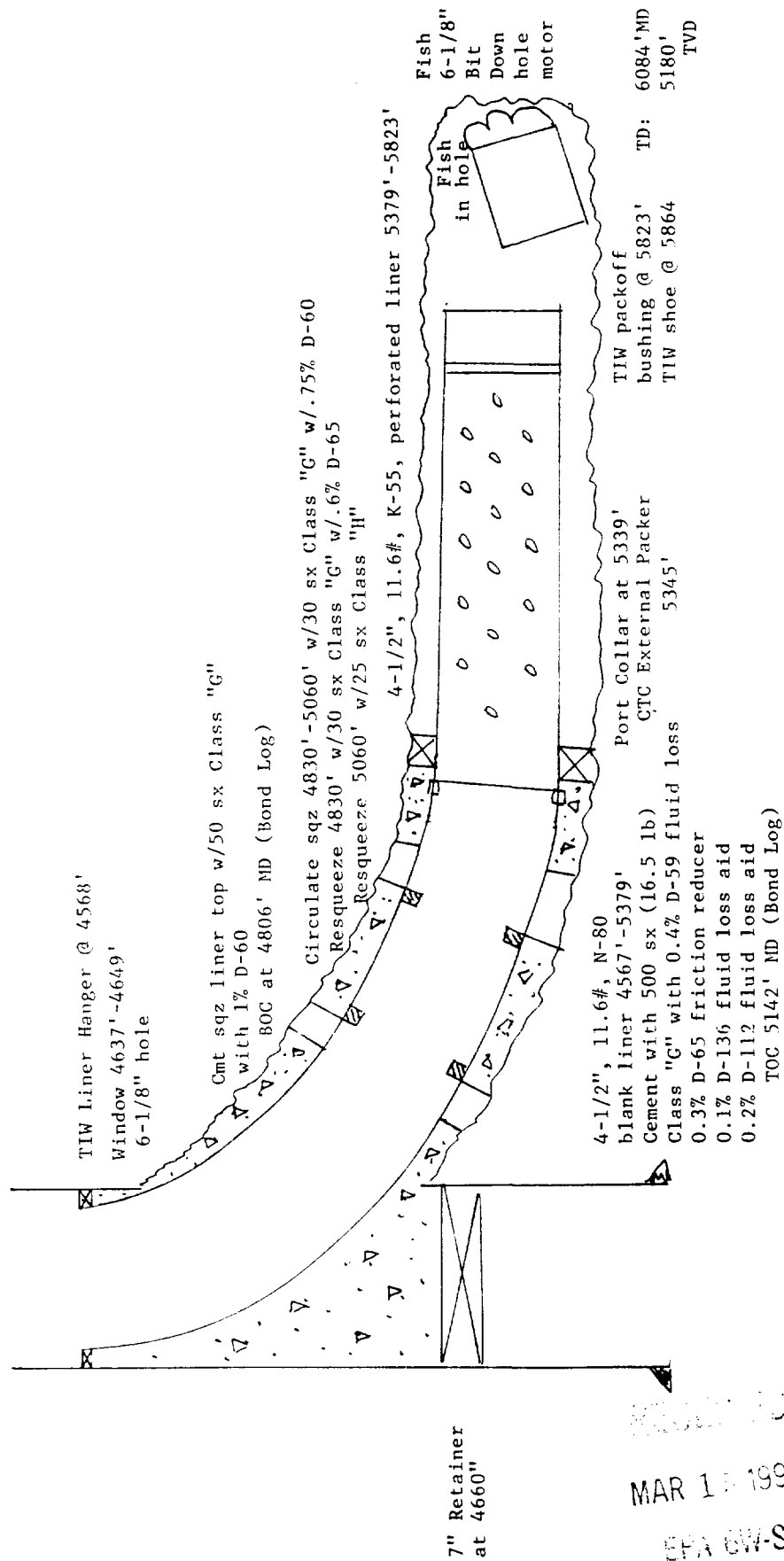
*Stamp:*  
MAR 16 1990  
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Federal 15-2H  
Horizontal Redrill  
Wellbore Schematic

GFS 3-12-90

KB: 6614'  
GL: 6604'  
1910' FNL & 990' FWL  
Section 15, T19N, R5W  
McKinley County, New Mexico

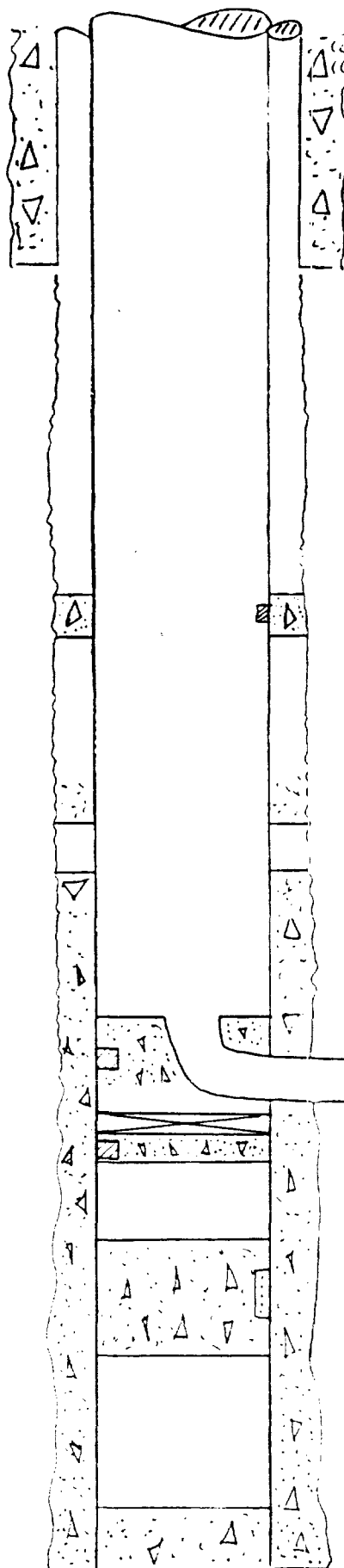
See Federal 15-2 Schematic  
For Straight Hole  
Casing Details



MAR 15 1990  
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FEDERAL 15 NO. 2  
 PAPERS WASH FIELD  
 1910' FNL & 990' FWL  
 Section 15, T19N, R5W  
 McKinley County, New Mexico

ELEVATION: 6604' GL  
 6616' KB



10-3/4", 32.75#, H-40 surface csg.  
 Cmtd with 200 sx Class "B".

203'

7", 23#, K-55 production csg.  
 Cmtd 1st Stage w/228 sx 65/35 Poz,  
 50 sx Class "B", 2nd Stage w/305 sx  
 65/35 Poz, 100 sx Class "A".  
 (no circulation) (no cement on  
 bond log)  
 Squeeze leaky csg 1930'-2020'  
 w/75 sx  
 Squeeze perfs 1954-1956' w/50 sx

DV Tool at 2785' KB

TOC at 3290'

4-1/2", 11.6#, K-55 liner @ 4568'  
 Squeeze cmt liner top w/50 sx

Cement circ with 35 sx.  
 Perfs at 4610' and 4665'  
 CIRC at 4660'

Milled window 4637'-4639'  
 to kick off horizontal well.

Cement plug 5000'-5195'  
 with 50 sx

ENTRADA PERFS:  
 5184'-92' (2 JSPF)

PBTD: 5370'

TD: 5428'

1910' FNL & 990' FWL

Section 15, T19N, R5W

# EXHIBIT 8

## ENTRADA WATER ANALYSIS

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL & GAS  
 Date : 02-13-1990  
 Location: Papers Wash - Inj. Tank (on 1-31-90)

|                         |                 |
|-------------------------|-----------------|
|                         | <u>Sample 1</u> |
| Specific Gravity:       | 1.003           |
| Total Dissolved Solids: | 4210            |
| pH:                     | 7.60            |
| IONIC STRENGTH:         | 0.085           |

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 1.73            | 34.7            |
| Magnesium       | (Mg <sup>+2</sup> ) | 3.20            | 38.9            |
| Sodium          | (Na <sup>+1</sup> ) | 55.8            | 1230            |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.061           | 1.70            |
| Barium          | (Ba <sup>+2</sup> ) | 0.003           | 0.200           |
| Manganese       | (Mn <sup>+2</sup> ) | 0.008           | 0.210           |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 6.40 | 390  |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 42.7 | 2050 |
| Chloride       | (Cl <sup>-1</sup> )               | 11.7 | 413  |

SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | -0.07            | -11            |
| 120°F              | 49°C | 0.33             | -11            |

MERRION OIL & GAS

CASE NO. 9880

3-7-90

REC'D 110

MAR 15 1990

EPA OW-6  
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# EXHIBIT 9

## MESAVERDE WATER ANALYSIS

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL & GAS

Date : 01-09-1990

Location: Little Blue Fed #1 (on 12-22-89)

|                         |                 |
|-------------------------|-----------------|
|                         | <u>Sample 1</u> |
| Specific Gravity:       | 1.005           |
| Total Dissolved Solids: | 7245            |
| pH:                     | 9.10            |
| IONIC STRENGTH:         | 0.121           |

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 0.400           | 8.00            |
| Magnesium       | (Mg <sup>+2</sup> ) | 2.48            | 30.1            |
| Sodium          | (Na <sup>+1</sup> ) | 111             | 2550            |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.705           | 19.7            |
| Barium          | (Ba <sup>+2</sup> ) | 0.016           | 1.10            |
| Manganese       | (Mn <sup>+2</sup> ) | 0.019           | 0.510           |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 19.2 | 1170 |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 10.1 | 483  |
| Chloride       | (Cl <sup>-1</sup> )               | 84.6 | 3000 |

### SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | 1.2              | -27            |
| 120°F              | 49°C | 2.1              | -27            |

#### Comments:

This water to be mixed with Media - Entrada #6

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MERRION OIL & GAS  
CASE NO. 9880  
3-7-90

ETA 01-10  
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MERRION OIL & GAS CORPORATION

610 REILLY AVE. • P O. BOX 840  
FARMINGTON, NEW MEXICO 87499

JP 36/40

March 1, 1990

Mr. Ron Van Wyk (6W-S)  
U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

RE: UIC Injection Permit Application  
Navajo Allotted 15-3  
Papers Wash Field  
Section 15, T19N, R5W  
McKinley County, New Mexico

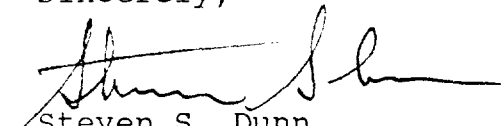
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Dear Mr. Van Wyk:

We are proposing to convert to injection the Navajo Allotted 15-3 to institute a waterflood in the Papers Wash Entrada Field. A Cooperative Agreement Area has been formed surrounding the reservoir to facilitate a secondary recovery project. Attached is an EPA application for the subject conversion. Please indicate your approval by signing and returning a copy of the application.

Also, enclosed is a State Form C-108 for conversion of the subject well. If information is required that is not included in the two permit applications, please contact George Sharpe at (505) 327-9801.

Sincerely,

  
Steven S. Dunn  
Operations Manager

GFS/eg

CC: Well File  
EPA File  
Pat Hegarty  
Mike Stogner-NMOCD, Santa Fe, NM  
Ken Townsend-BLM, Farmington, NM  
Ervin Peshlakai-BIA, Window Rock, AZ  
Frank Welker-Chase Oil, Albuquerque, NM

NEW MEXICO UIC  
PERMIT APPLICATION

Well # Navajo Allotted 15-3  
Permit #                       
Date Received:                       
EPA Authorization #                     

Permit Application Checklist

|    | <u>Attached</u>                                         | <u>Not Attached</u> |                                                                                                                                        |
|----|---------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1. | <u>X</u><br>Will be submitted upon EPA & State Approval | <u>X</u>            | 1. BLM Sundry Notice "Notice of Intent" (BLM Form 3160-3), or BLM Application for Permit to Drill (BLM Form 3160-5). (2 copies to EPA) |
| 2. | <u>X</u> ✓                                              | _____               | 2. Map using Sections, Township and Range to show the location of wells within 1/2 mile (2,640 ft.) of the proposed well.              |
| 3. | <u>x</u> ✓                                              | _____               | 3. Tabulation of data on wells within 1/2 mile (2,640 ft.) including:                                                                  |
|    | <u>X</u>                                                | _____               | depth                                                                                                                                  |
|    | <u>X</u>                                                | _____               | location                                                                                                                               |
|    | <u>X</u>                                                | _____               | For wells that penetrate the injection interval, also show:                                                                            |
|    | <u>X</u>                                                | _____               | date drilled                                                                                                                           |
|    | <u>X (see state application)</u>                        | _____               | record of plugging and/or completion                                                                                                   |
|    |                                                         | <u>X NA</u>         | corrective action plan for inadequately completed or plugged wells.                                                                    |
| 4. | <u>X</u> ✓                                              | _____               | 4. Injection well schematic drawings of surface and subsurface details showing:                                                        |
|    | <u>X</u>                                                | _____               | a. total depth and plugback depth,                                                                                                     |
|    | <u>X</u>                                                | _____               | b. depth to top and bottom of injection interval,                                                                                      |
|    | <u>X</u>                                                | _____               | c. depth to top and bottom of casing(s) and cemented interval(s), plus amount of cement.                                               |
|    | <u>X</u>                                                | _____               | d. size(s) of casing and tubing and depth of packer, and                                                                               |
|    | <u>X</u>                                                | _____               | e. hole diameter(s)                                                                                                                    |
|    |                                                         | <u>NA</u>           | f. other perforated intervals,                                                                                                         |

\* need to review

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NEW MEXICO UIC  
PERMIT APPLICATION

2

|     | <u>Attached</u>          | <u>Not Attached</u> |                                                                                                                                                                                                                            |
|-----|--------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | X                        | _____               | g. daily drilling report, if available                                                                                                                                                                                     |
| 5.  | <u>✓</u>                 | _____               | 5. Operating data including:                                                                                                                                                                                               |
| a.  | Avg Rate = 3000 BPD      |                     | a. maximum and average injection rate,                                                                                                                                                                                     |
| a.  | Max Rate = 6000 BPD      |                     | b. maximum and average injection pressure,                                                                                                                                                                                 |
| b.  | Avg Press = 500 psi      |                     | b. maximum and average injection pressure,                                                                                                                                                                                 |
| b.  | Max Press = 1000 psi     |                     | (1300 psi surface)                                                                                                                                                                                                         |
| c.  | Frac Grad = 0.65 psi/ft  |                     | c. fracture pressure gradient of injection zone,                                                                                                                                                                           |
|     | (1300 psi surface)       |                     | d. whether operation is cyclic or continuous, and                                                                                                                                                                          |
| A.  | Continuous               |                     | e. source and analysis of injected fluids including TDS, chlorides, and additives.                                                                                                                                         |
| e.  | Entrada - 95% of volume  |                     |                                                                                                                                                                                                                            |
|     | Mesaverde - 5% of volume |                     |                                                                                                                                                                                                                            |
|     | Analyses attached        |                     |                                                                                                                                                                                                                            |
| 6.  | <u>✓</u><br>X            | _____               | 6. Geologic data on the injection and confining zones, including: faults, geological name, thickness, porosity, permeability, depth, current reservoir pressure or fluid level, water quality, and lithologic description. |
| 7.  | <u>✓</u><br>X            | _____               | 7. Depth to base of fresh water (10,000 mg/l).                                                                                                                                                                             |
| 8.  | <u>✓</u><br>X            | _____               | 8. Verification of public notice, consisting of a list showing names, addresses, and date that notice of permit application was given or sent to each:                                                                     |
|     |                          |                     | a. the surface landowner,                                                                                                                                                                                                  |
|     |                          |                     | b. tenants,                                                                                                                                                                                                                |
|     |                          |                     | c. operator of a producing lease within one-half mile of the well location, and                                                                                                                                            |
|     |                          |                     | d. affected Tribal Government.                                                                                                                                                                                             |
| 9.  | <u>✓</u><br>X            | _____               | 9. All available logging and testing data on the well (for existing wells only).                                                                                                                                           |
|     | National Oil & Gas       | Bond No: 40         | S 23025 BCA                                                                                                                                                                                                                |
| 10. | <u>✓</u><br>Bond         | _____               | 10. Proof of adequate financial responsibility.                                                                                                                                                                            |
| 11. | <u>✓</u><br>X            | _____               | 11. Certification form signed by well owner/operator or authorized representative (authorization must be in writing and copy attached).                                                                                    |
| 12. | <u>(YES)</u>             | <u>(NO) X</u>       | 12. Has the applicant declared any part of submission confidential? [147.2907]                                                                                                                                             |

MAR 15 1990

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NEW MEXICO UIC  
PERMIT APPLICATION

3

- |     | <u>Attached</u> | <u>Not Attached</u> |                                                                                        |
|-----|-----------------|---------------------|----------------------------------------------------------------------------------------|
| 13. | <u>(YES)</u>    | <u>(NO)</u> x       | 13. Is the injection well currently authorized by rule? If yes, EPA Form No. is _____. |
| 14. | <u>(YES)</u> x  | <u>(NO)</u>         | 14. Was applicant required by EPA to apply for a permit.                               |
| 15. | <u>(YES)</u> x  | <u>(NO)</u>         | 15. The permit applicant is the <del>owner</del> /operator.<br>(Circle one)            |
| 16. | <u>(YES)</u>    | <u>(NO)</u> x       | 16. Has the applicant requested emergency authorization to inject?                     |
| 17. | <u>(YES)</u>    | <u>(NO)</u> x       | 17. Plugging and Abandonment Plan, and estimated cost of plan.                         |

ADMINISTRATIVE REVIEW

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

TECHNICAL REVIEW

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

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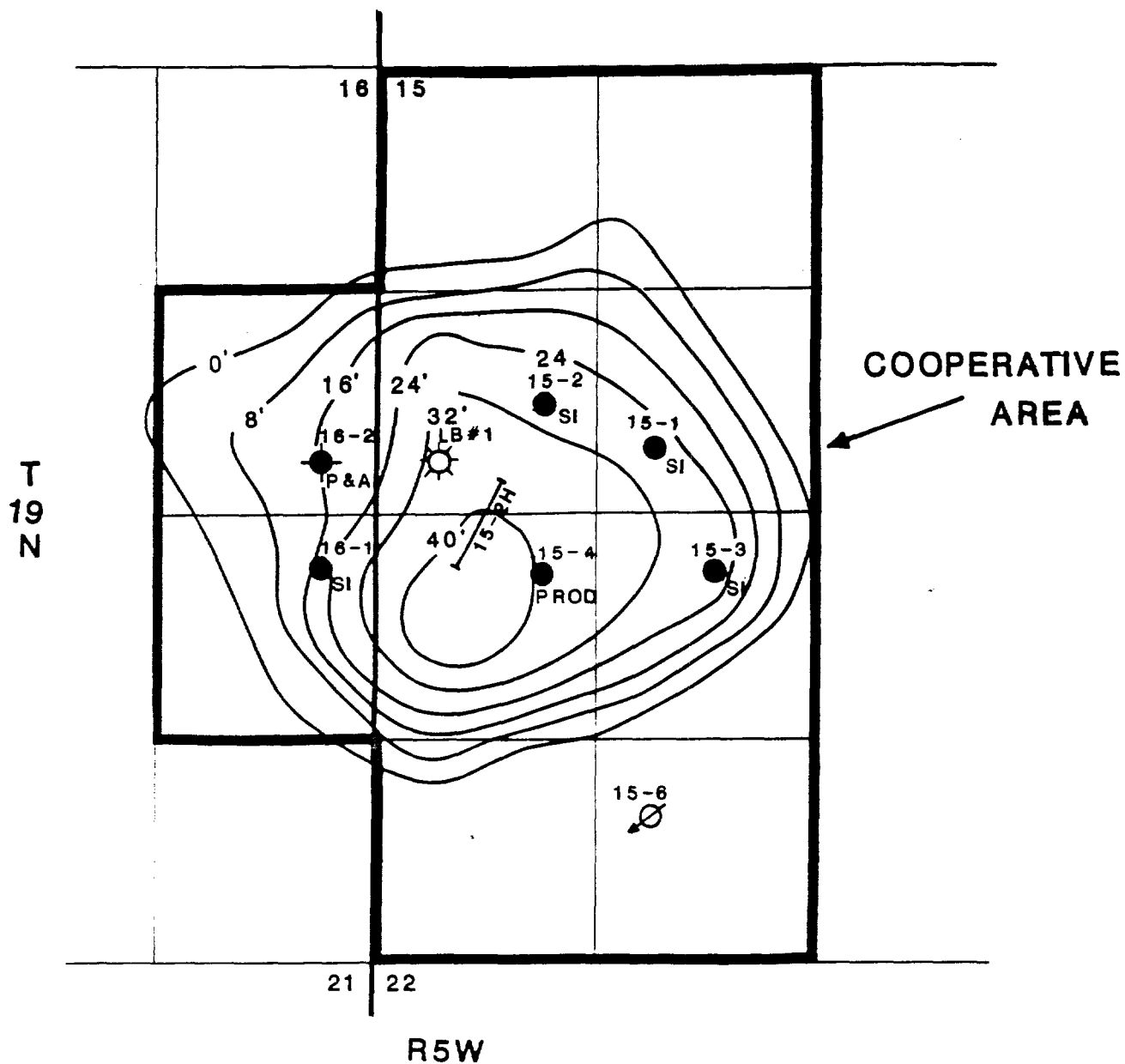
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## EXHIBIT 2

### MC KINLEY COUNTY, NEW MEXICO ORIGINAL NET PAY - LEASE MAP

SCALE: 1" = 1000'



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MERRION OIL & GAS  
CASE NO. 9880  
3-7-90

# EXHIBIT 5

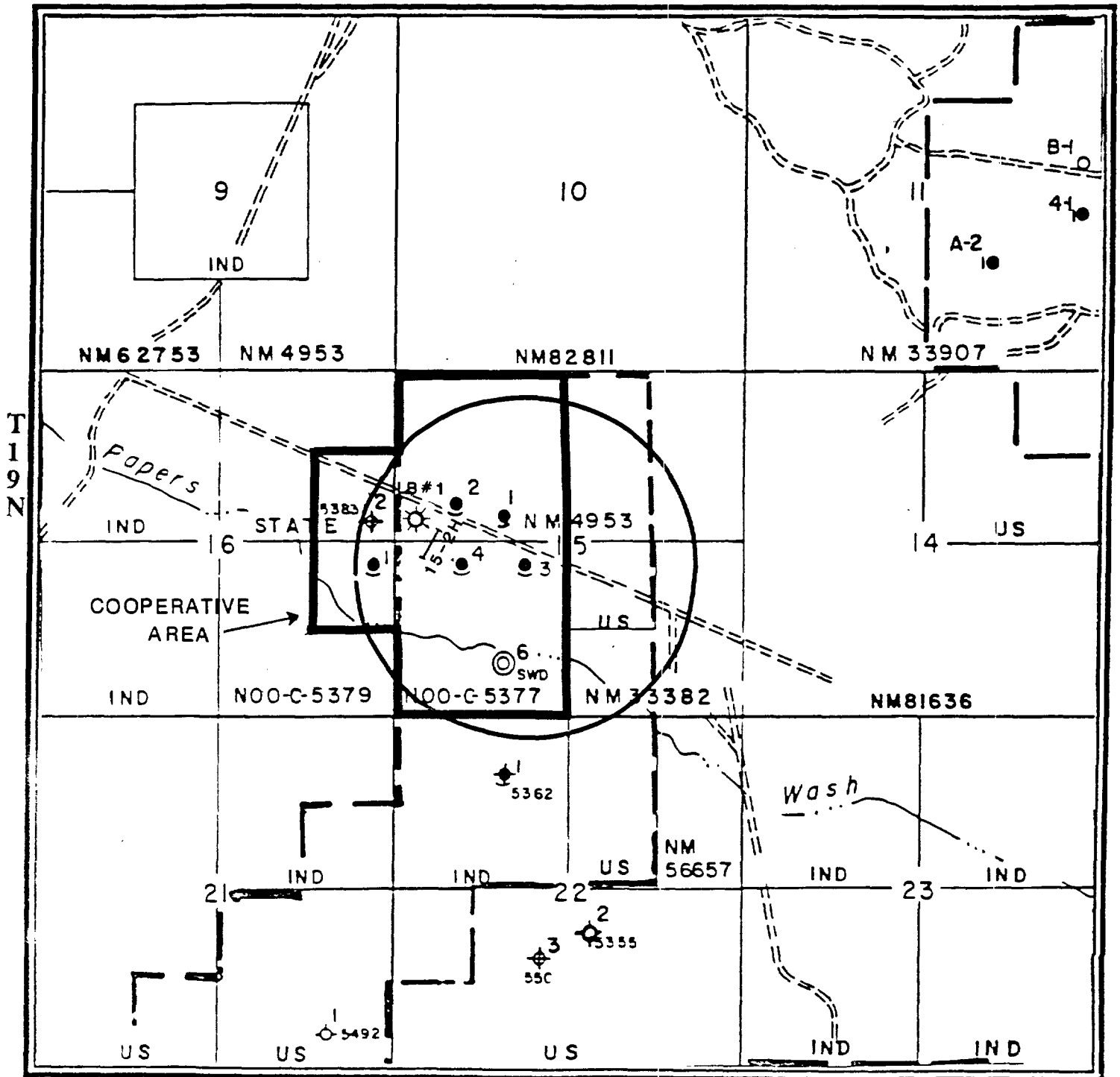
## PAPERS WASH FIELD AREA OF REVIEW NAVAJO ALLOTTED 15-3 R 5 W

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# TABULATION OF WELLS WITHIN 1/4 MILE OF PROPOSED INJECTION WELL

WHICH PENETRATE THE INJECTION ZONE. All depths from KB

Federal

Well Name 15-1 Company Name Merrion Oil & Gas Corp. Date Drilled 9-28-76 Depth 5390

Location 2210° FN L & 1650° FW L; SESW 1/4, Sec. 15 -T 19N -R 5W Status Shut-In

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|------------------------|---------------|------------------------------------|
| 15        | 10-3/4      | 224          | 200 sx Class "B"       | Surface       |                                    |
| 8-3/4     | 7           | 5242         | 600 sx Class "B"       | 2794          |                                    |
|           |             |              |                        |               |                                    |
|           |             |              |                        |               |                                    |

Formations Open to Wellbore: Mesaverde

Federal

Well Name 15-2 Company Name Merrion Oil & Gas Corp. Date Drilled 2-18-77 Depth 5426'

Location 1910° FN L & 990° FW L; SWSW 1/4, Sec. 15 -T 19N -R 5W Status Redrilled

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data                          | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|-------------------------------------------------|---------------|------------------------------------|
| 15        | 10-3/4      | 203          | 200 sx Class "B"                                | Surface       | Well was plugged back to           |
| 8-3/4     | 7           | 5426         | 1st Stge: 228 sx 65/35 Poz,<br>50 sx Class "B"  | 3290          | 4660' and redrilled as             |
|           |             |              | 2nd Stge: 305 sx 65/35 Poz,<br>100 sx Class "A" |               | horizontal well from 4639'.        |
|           |             |              |                                                 |               | (See Federal 15-2H)                |

Formations Open to Wellbore: None - Redrilled

Federal

Well Name 15-2H Company Name Merrion Oil & Gas Corp. Date Drilled 1-19-90 Depth 6084

Location 1910° FN L & 990° FW L; SWSW 1/4, Sec. 15 -T 19N -R 5W Status Completing

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data      | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|-----------------------------|---------------|------------------------------------|
| 15        | 10-3/4      | 203          | 200 sx Class "B"            | Surface       |                                    |
| 8-3/4     | 7           | 5426         | 278 sx & 405 sx in 2 stages | 3290          |                                    |
| 6-1/4     | 4-1/2       | 5864         | 90 sx LFL Class "G"         | ?             | - Sqz liner top with 50 sx         |
|           |             |              |                             |               | - Planning to sqz Entrada to;      |

Formations Open to Wellbore: Currently compleing as Horizontal Entrada Producer

Little Blue

Well Name Federal 1 Company Name Merrion Oil & Gas Corp. Date Drilled 10-19-89 Depth 2155

Location 2310° FN L & 330° FW L; NWSW 1/4, Sec. 15 -T 19N -R 5W Status Completi

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data      | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|-----------------------------|---------------|------------------------------------|
| 4-1/4     | 7           | 100          | 50 sx Class "B" with 2%CaCl | Surface       |                                    |
| 4-1/4     | 4-1/2       | 2116         | 300 sx Class "B"            | Surface       |                                    |
|           |             |              |                             |               |                                    |
|           |             |              |                             |               |                                    |

Formations Open to Wellbore: Mesaverde

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# TABULATION OF WELLS WITHIN 1/4 MILE OF PROPOSED INJECTION WELL

WHICH PENETRATE THE INJECTION ZONE. All depths from KB

Navajo Allotted

Well Name 15-4 Company Name Merrion Oil & Gas Corp. Date Drilled 3-26-77 Depth 5416'

Location 2310' F S L & 990' F W L; NWSW 1/4, Sec. 15 -T 19N -R 5W Status Producing

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data                                     | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|------------------------------------------------------------|---------------|------------------------------------|
| 2-1/4     | 9-5/8       | 209          | 150 sxs Class "B"                                          | Surface       |                                    |
| 8-3/4     | 7           | 5406         | 1st Stage: 450 sx 65/35 Poz & 6% gel with 100 sx Class "B" | Surface       |                                    |
|           |             |              | 2nd Stage: 415 sx 65/35 Poz & 6% gel with 50 sx Class B    |               |                                    |

Formations Open to Wellbore: Entrada

Navajo Allotted

Well Name 15-6 Company Name Merrion Oil & Gas Corp. Date Drilled 6-19-77 Depth 5392'

Location 890' F S L & 1650' F W L; SESW 1/4, Sec. 15 -T 19N -R 5W Status Injecting

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data                             | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|----------------------------------------------------|---------------|------------------------------------|
| 3-1/4     | 9-5/8       | 204          | 200 sx Class "B" w/2% CaCl                         | Surface       |                                    |
| 8-3/4     | 7           | 5342         | 1st Stage: 485 sx 65/35, 6% gel + 100 sx Class "B" | Surface       |                                    |
|           |             |              | 2nd Stage: 475 sx 65/35, 6% gel + 50 sx Class "B"  |               |                                    |

Formations Open to Wellbore: Gallup

Navajo Allotted

Well Name 16-1 Company Name Merrion Oil & Gas Corp. Date Drilled 8-3-77 Depth 5392'

Location 2310' F S L & 330' F E L; NWSW 1/4, Sec. 16 -T 19N -R 5W Status Producing

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data                                                             | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|------------------------------------------------------------------------------------|---------------|------------------------------------|
| 3-1/4     | 9-5/8       | 211          | 200 sx Class "B"                                                                   | Surface       |                                    |
| 8-5/8     | 7           | 5369         | 1st Stage: 330 sx BJ lite + 100 sx Class B; 2nd Stage: 370 sx BJ Lite + 50 sx Cl B | Surface       |                                    |

Formations Open to Wellbore: Entrada

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Well Name State 16-2 Company Name Merrion Oil & Gas Corp. Date Drilled 10-3-77 Depth 5383'

Location 2310' F N L & 330' F E L; SWNW 1/4, Sec. 16 -T 19N -R 5W Status P&A

| Hole Size | Casing Size | Landed Depth | Cement & Additive Data                             | Top of Cement | If well is TA or P&A Describe How: |
|-----------|-------------|--------------|----------------------------------------------------|---------------|------------------------------------|
| 3-1/4     | 9-5/8       | 205          | 200 sx Cl B with 2% CaCl                           | Surface       | Plugs @ 5050'-5315',               |
| 8-3/4     | 7           | 5373         | 1st stage: 385 sx 65/35, 6% gel + 100 sx Class "B" | Surface       | 4100'-4250', 3110'-3210',          |
|           |             |              | 2nd Stage: 370 sx 65/35, 6% gel + 100 sx Class "B" |               | 2850'-2900', 1400'-1450',          |
|           |             |              |                                                    |               | 150'-Surface                       |

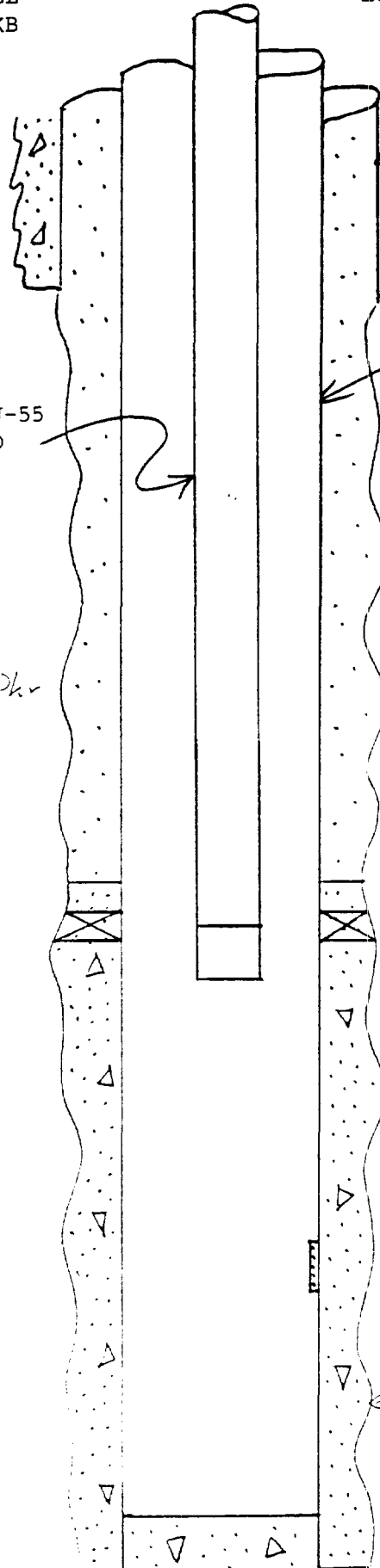
Formations Open to Wellbore: None

NAVAJO ALLOTTED 15 NO. 3  
PAPERS WASH FIELD

ELEVATION: 6562' GL  
6574' KB

LOCATION: 2310' FSL & 2000' FWL  
Sec. 15, T19N, R5W  
McKinley County, New Mexico

All depths  
From KB



3-1/2", 9.3 #/ft, J-55  
tubing @ 2725' MD

\* REDA G110 BSP  
@ 2855' KB

→ Will replace w/  
3 1/2" P.L. Tbg  
w/ Baker Lockset Pkr  
@ 5000'

DV Tool @ 2600' KB

Lynes external csg  
packer @ 2722' KB

← 15" Hole  
40-3/4", 32.75 #/ft, K-55  
surface casing cmt'd  
w/ 200 sx - TOC @ surface

204'

PRODUCTION CASING:  
7", 23 #/ft, K-55

Cmt'd w/ 1st stage - 390 sx  
65/35 POZ, 100 sx 'B'; 2nd  
stage - 370 sx 65/35 POZ,  
50 sx 'B' - TOC @ surface

TOC @ 2600'

ENTRADA PERFS:  
5142' - 48' (2JSPF)

← 5 3/4" hole

PBTD: 5295'

TD: 5343'

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE

(S her  
st: na on  
reverse side)Form approved.  
Budget Bureau No. 42-R355.5.

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG \*

|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------|-------------|
| 1a. TYPE OF WELL:                                                                                                                                                                                                     |  | OIL WELL <input checked="" type="checkbox"/>                                                          | GAS WELL <input type="checkbox"/>  | DRY <input type="checkbox"/>                                            | Other _____                        |                                                                                                         |             |
| b. TYPE OF COMPLETION:                                                                                                                                                                                                |  | NEW WELL <input checked="" type="checkbox"/>                                                          | WORK OVER <input type="checkbox"/> | DEEP-EN <input type="checkbox"/>                                        | PLUG BACK <input type="checkbox"/> | DIFF. RESSVR. <input type="checkbox"/>                                                                  | Other _____ |
| 2. NAME OF OPERATOR<br>Dome Petroleum Corporation                                                                                                                                                                     |  |                                                                                                       |                                    |                                                                         |                                    | 5. LEASE DESIGNATION AND SERIAL NO.<br>N00-C-14-20-5377                                                 |             |
| 3. ADDRESS OF OPERATOR Minerals Management Inc., Suite 105,<br>501 Airport Drive, Farmington, New Mexico - 87401                                                                                                      |  |                                                                                                       |                                    |                                                                         |                                    | 6. IF INDIAN, ALLOTTEE OR TRIBE NAME<br>Navajo Allotted                                                 |             |
| 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*<br>At surface 2310' FSL, 2000' FWL, SEC. 15, T19N, R5W<br><br>At top prod. interval reported below<br><br>At total depth |  |                                                                                                       |                                    |                                                                         |                                    | 7. UNIT AGREEMENT NAME                                                                                  |             |
| 14. PERMIT NO. _____ DATE ISSUED _____                                                                                                                                                                                |  |                                                                                                       |                                    |                                                                         |                                    | 8. FARM OR LEASE NAME<br>Navajo Allotted 15                                                             |             |
| 2142' FSL, 1957' FWL                                                                                                                                                                                                  |  |                                                                                                       |                                    |                                                                         |                                    | 9. WELL NO.<br>3                                                                                        |             |
| 15. DATE SPUDDED<br>2-28-77                                                                                                                                                                                           |  | 16. DATE T.D. REACHED<br>3-10-77                                                                      |                                    | 17. DATE COMPL. (Ready to prod.)<br>3-27-77                             |                                    | 10. FIELD AND POOL, OR WILDCAT<br>Papers Wash Entrada                                                   |             |
| 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*<br>6562' GR, 6574' KB                                                                                                                                                         |  | 19. ELEV. CASINGHEAD<br>6562'                                                                         |                                    | 11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA<br>SEC. 15, T19N, R5W |                                    | 12. COUNTY OR PARISH<br>McKinley,                                                                       |             |
| 20. TOTAL DEPTH, MD & TVD<br>5343'                                                                                                                                                                                    |  | 21. PLUG, BACK T.D., MD & TVD<br>5295'                                                                |                                    | 22. IF MULTIPLE COMPL., HOW MANY*                                       |                                    | 13. STATE<br>N.M.                                                                                       |             |
| 23. INTERVALS DRILLED BY<br>0'-5343'                                                                                                                                                                                  |  | 24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)<br>5140', 5326', Entrada |                                    | 25. WAS DIRECTIONAL SURVEY MADE<br>Yes                                  |                                    | 26. TYPE ELECTRIC AND OTHER LOGS RUN<br>Dual Induction-Laterolog, Compensated Neutron Formation Density |             |
| 27. WAS WELL CORED                                                                                                                                                                                                    |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 28. CASING RECORD (Report all strings set in well)                                                                                                                                                                    |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| CASING SIZE                                                                                                                                                                                                           |  | WEIGHT, LB./FT.                                                                                       |                                    | DEPTH SET (MD)                                                          |                                    | HOLE SIZE                                                                                               |             |
| 10 3/4                                                                                                                                                                                                                |  | 40.5                                                                                                  |                                    | 204'                                                                    |                                    | 15"                                                                                                     |             |
| 7                                                                                                                                                                                                                     |  | 23                                                                                                    |                                    | 5342'                                                                   |                                    | 8 3/4"                                                                                                  |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    | CEMENTING RECORD                                                                                        |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    | 200 sx                                                                                                  |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    | 900 sx (2 stages)                                                                                       |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    | DV tool @ 2600'                                                                                         |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    | AMOUNT PULLED                                                                                           |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    | ---                                                                                                     |             |
| 29. LINER RECORD                                                                                                                                                                                                      |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| SIZE                                                                                                                                                                                                                  |  | TOP (MD)                                                                                              |                                    | BOTTOM (MD)                                                             |                                    | SACKS CEMENT*                                                                                           |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    | SCREEN (MD)                                                                                             |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 30. TUBING RECORD                                                                                                                                                                                                     |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| SIZE                                                                                                                                                                                                                  |  | DEPTH SET (MD)                                                                                        |                                    | PACKER SET (MD)                                                         |                                    |                                                                                                         |             |
| 2 7/8                                                                                                                                                                                                                 |  | 3004                                                                                                  |                                    |                                                                         |                                    |                                                                                                         |             |
| 31. PERFORATION RECORD (Interval, size and number)                                                                                                                                                                    |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 5142'-5148' with 2 jet shots/ft (12)                                                                                                                                                                                  |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.                                                                                                                                                                        |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| DEPTH INTERVAL (MD)                                                                                                                                                                                                   |  |                                                                                                       |                                    | AMOUNT AND KIND OF MATERIAL USED                                        |                                    |                                                                                                         |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 33. PRODUCTION                                                                                                                                                                                                        |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| DATE FIRST PRODUCTION<br>3-27-77                                                                                                                                                                                      |  | PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)<br>Pumping                       |                                    |                                                                         |                                    | WELL STATUS (Producing or shut-in)<br>Producing                                                         |             |
| DATE OF TEST<br>3-28-77                                                                                                                                                                                               |  | HOURS TESTED<br>24                                                                                    |                                    | CHOKE SIZE                                                              |                                    | PROD'N. FOR TEST PERIOD                                                                                 |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| OIL—BBL.<br>380                                                                                                                                                                                                       |  | GAS—MCF.<br>TSTM                                                                                      |                                    | WATER—BBL.<br>0                                                         |                                    | GAS-OIL RATIO                                                                                           |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| FLOW. TUBING PRESS.                                                                                                                                                                                                   |  | CASING PRESSURE                                                                                       |                                    | CALCULATED 24-HOUR RATE                                                 |                                    | OIL GRAVITY-API (CORR.)                                                                                 |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
|                                                                                                                                                                                                                       |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)                                                                                                                                                            |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| TEST WITNESSED BY<br>W. E. Landry                                                                                                                                                                                     |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 35. LIST OF ATTACHMENTS                                                                                                                                                                                               |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| 36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.                                                                                    |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| Area Manager                                                                                                                                                                                                          |  |                                                                                                       |                                    |                                                                         |                                    |                                                                                                         |             |
| SIGNED                                                                                                                                                                                                                |  | TITLE                                                                                                 |                                    | Minerals Management Inc.                                                |                                    | DATE 4-27-77                                                                                            |             |

\*(See Instructions and Spaces for Additional Data on Reverse Side)

# INSTRUCTIONS

**General:** This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on Items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

**Item 4:** If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

**Item 18:** Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

**Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

**Item 29: "Sacks Cement":** Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

**Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

| 37. SUMMARY OF POROUS ZONES:<br>SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING<br>DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES |       |        |                             | 38. GEOLOGIC MARKERS                                                                                             |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|-----------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| FORMATION                                                                                                                                                                                                                                             | TOP   | BOTTOM | DESCRIPTION, CONTENTS, ETC. | NAME                                                                                                             | MEAS. DEPTH<br>TRUE VERT. DEPTH                                                       |
| Entrada                                                                                                                                                                                                                                               | 5140' | 5326'  | Oil and water               | La Ventana<br>Pt. Lookout<br>Mancos<br>Gallup<br>Greenhorn<br>Dakota<br>Morrison<br>Todilto<br>Entrada<br>Carmel | 475'<br>1986'<br>2068'<br>2903'<br>3910'<br>4143'<br>4260'<br>5105'<br>5140'<br>5326' |

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W E L L    H I S T O R Y

NAVAJO ALLOTTED 15 WELL NO. 3  
2310' FSL, 2000' FWL, SEC. 15, T19N, R5W  
McKINLEY COUNTY, NEW MEXICO

UNDESIGNATED ENTRADA

DOME PETROLEUM CORPORATION

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DATA SHEET

Operator: Dome Petroleum Corporation  
1500 Colorado State Bank Building  
1600 Broadway  
Denver, Colorado 80202

Other Interested Parties: Filon Exploration Corporation  
2216 United Bank Center  
1700 Broadway  
Denver, Colorado 80202

Trend Exploration Corporation  
600 Capitol Life Building  
1600 Sherman Street  
Denver, Colorado 80203

Aquitaine Oil Corporation  
1900 Transco Tower  
2700 South Post Oak Road  
Houston, Texas 77055

Kirby Exploration Company  
P. O. Box 1745  
Houston, Texas 77001

Natural Gas Pipeline Company  
P. O. Box 283  
Houston, Texas 77001

Well Name and Number: Navajo Allotted 15 Well No. 3

Location: 2310' FSL, 2000' FWL, SEC. 15,  
T19N, R5W

County: McKinley

State: New Mexico

Field: Undesignated Entrada

Elevation: 6562' GR, 6574' KB

Contractor: Four Corners Drilling Company  
P. O. Box 1067  
Farmington, New Mexico 87401  
Toolpusher: Mr. Don Bettale

REC-051993  
EPA 604-S  
REGION VI

DATA SHEET

Engineering and Supervision: Minerals Management Inc.  
501 Airport Drive, Suite 105  
Farmington, New Mexico 87401  
Supervisor: Mr. H. W. Hollingsworth

Geologist: Mr. Dick Harnly

Commenced Drilling: February 28, 1977

Ceased Drilling: March 13, 1977

Rig Released: March 13, 1977

Total Depth: 5343'

Surface Casing: 10 3/4"-40.5", K-55, LT&C set at  
204' with 200 sx

Production Casing: 7"-23#, K-55, ST&C set at 5342' KB  
with 900 sx in two stages

Hole Size: 15" - Surface to 204'  
8 3/4" - 204' to 5343'

Logs Run: Dual Induction Laterolog  
Compensated Neutron Formation  
Density

Log Tops:

|               |       |
|---------------|-------|
| La Ventana    | 475'  |
| Point Lookout | 1986' |
| Mancos Shale  | 2068' |
| Gallup        | 2903' |
| Sanostee      | 3568' |
| Greenhorn     | 3910' |
| Graneros      | 4001' |
| Dakota        | 4143' |
| Morrison      | 4260' |
| Summerville   | 5057' |
| Todilto       | 5105' |
| Entrada       | 5140' |
| Carmel        | 5326' |

Status: Producing  
380 BOPD--I.P.

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BIT RECORD

| <u>No.</u> | <u>Size</u> | <u>Make</u> | <u>Type</u> | <u>Depth In</u> | <u>Depth Out</u> | <u>Footage Drilled</u> | <u>Hours</u> |
|------------|-------------|-------------|-------------|-----------------|------------------|------------------------|--------------|
| 1          | 15"         | STC         | DS          | 0'              | 210'             | 210'                   | 5            |
| 2          | 8 3/4"      | HTC         | OSC-3       | 210'            | 2050'            | 1840'                  | 20 1/4       |
| 3          | 8 3/4"      | STC         | DTT         | 2050'           | 2798'            | 748'                   | 17           |
| 4          | 8 3/4"      | STC         | F-2         | 2798'           | 4282'            | 1484'                  | 63           |
| 5          | 8 3/4"      | STC         | F-3         | 4282'           | 5343'            | 1061'                  | 71 3/4       |

DEVIATION RECORD

Directional survey was run in open hole at Total Depth.  
 Following are deviations recorded in course of drilling well.

| <u>Depth</u> | <u>Deviation</u> |
|--------------|------------------|
| 187'         | 3/4°             |
| 704'         | 1°               |
| 1196'        | 3/4°             |
| 1258'        | 1/2°             |
| 1506'        | 1°               |
| 1818'        | 5°               |
| 2006'        | 4 3/4°           |
| 2037'        | 4 1/4°           |
| 2132'        | 4 3/4°           |
| 2195'        | 3 3/4°           |
| 2382'        | 2 1/4°           |
| 2600'        | 1 1/2°           |
| 2758'        | 1°               |
| 2883'        | 3/4°             |
| 3166'        | 3/4°             |
| 3417'        | 3/4°             |
| 3667'        | 3/4°             |

RESUME' OF DAILY OPERATIONS

- 2-28-77 Drilled to 210'. Moved in and rigged up. Spudded surface hole at 3:30 p.m. Ran 4 jts (190') 10 3/4" O.D., 32.75# H-40 casing set at 204'. Deviation 3/4° @ 187'. PD 210'.
- 3-1-77 Drilled to 1305'. Cemented surface casing with 200 sx Class "B" cement with 2% CaCl. Plug down at 12:30 a.m. Circulated cement. Wait on cement 12 hours. Nippled up and tested casing to 600 psi 1/2 hour--OK. Deviations 1° @ 704' and 1/2° @ 1258'. PD 1305'.
- 3-2-77 Drilled to 2425'. Deviations 5° @ 1818', 4 1/4° @ 2037', 4 3/4° @ 2132'. Trip for Bit No. 3 @ 2050'. PD 2425'.
- 3-3-77 Drilled to 2834'. Trip for Bit No. 4. Layed down one drill collar with survey crowsfoot jammed. Ran wire line deviations as follows on trip in hole: 3/4° @ 1196', 1° @ 1506', 5° @ 1818', 4 3/4° @ 2006', 3 3/4° @ 2195', 2 1/4° @ 2382', 1 1/2° @ 2600', 1° @ 2758'. Washed 15' to bottom and lost circulation. Pulled 7 stands and mixed 20% LCM; regained circulation and ran back in hole slowly. PD 2834'.
- 3-4-77 Drilled to 3345'. Lost circulation at 3185'. Pulled 7 stands and mixed LCM; gained full returns and resumed drilling. Lost total of 175 bbl. mud. Deviations 3/4° @ 2883' and 3/4° @ 3166'. PD 3345'.
- 3-5-77 Drilled to 3840'. Deviations 3/4° @ 3417' and 3/4° @ 3667'. PD 3840'.
- 3-6-77 Drilled to 4282'. Deviation 2° @ 4259'. Trip for Bit No. 5 at 4282'. PD 4282'.
- 3-7-77 Drilled to 4505'. Installed keyseat wiper one joint above drill collars. Broke circulation twice on trip in hole. Washed 45' to bottom. Deviation 2° @ 4396'. PD 4505'.
- 3-8-77 Drilled to 4836'. Deviation 1 3/4° @ 4609'. PD 4836'.
- 3-9-77 Drilled to 5099'. Deviations 1 1/4° @ 4889' and 1 1/4° @ 5044'. PD 5099'.
- 3-10-77 Drilled to TD 5343'. Circulated samples at 5170'. Conditioned mud for logs and tripped out. Rigged up to log. TD 5343'.

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RESUME' OF DAILY OPERATIONS

- 3-11-77 Ran Dual Induction Laterolog and Compensated Neutron-Formation Density logs. Ran Eastman directional survey. Went in hole and conditioned mud to run pipe. Began laying down drill pipe. TD 5343'.
- 3-12-77 Layed down drill pipe. Ran jts (5330') 7"-23#, K-55 ST&C casing. Set at 5342' KB. Cemented in two stages. First Stage: 390 sx 65/35 Poz 12% gel with 10 lb. Gilsonite per sack tailed with 100 sx Class "B" with 10% salt and 0.5% friction reducer. Plug down at 3:15 p.m. Second Stage: Through DV tool at 2600' and with Baker Lynes external casing packer at 2722' with 370 sx 65/35 Poz 12% gel with 10 lb. Gilsonite per sack tailed with 50 sx Class "B". Plug down at 5:15 p.m. Circulated cement on both stages. Set slips, nipped down, cut off and commenced to tear down.

The preceeding resume' is based on the rig tour sheets.  
The time runs from midnight to midnight.

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COMPLETION RESUME'

- 3-16-77 Moved in completion unit. Picked up tubing and tagged D.V. tool.
- 3-17-77 Drilled D.V. tool. Ran tubing toward bottom but had to shut down due to high winds.
- 3-18-77 Ran tubing to 5294'. Pressure tested casing to 1500 psi--OK. Swabbed fluid level to 3000'. Stood back 3000' of tubing and layed down remainder.
- 3-19-77 Ran GR correlation log. PBTD 5295' KB. Perforated interval 5142'-5148' with 2 jet shots per foot. Ran tubing and set anchor-catcher at 3011' KB with 14,000 lb. tension. Oil to surface one hour after perforating. Ran 2 1/2"x1 3/4"x16' pump on 3/4" rods. Broke disc, set and spaced pump.
- 3-20-77 Prepared location for pump unit.
- 3-21-77 Installed flow line to treater and tanks.
- 3-22-77 Set pumping unit.
- 3-23-77 Set pumping unit.
- 3-24-77 Started pumping. Would not pump up.
- 3-25-77 Moved in pulling unit. Unable to get pump action. Pulled pump and found plunger packed and cut with sand.
- 3-26-77 Reran pump and put on pump.
- 3-27-77 Well pumping.

The preceeding resume' is based on Field Supervisor's daily reports. The time runs from 6:00 a.m. until 6:00 a.m.

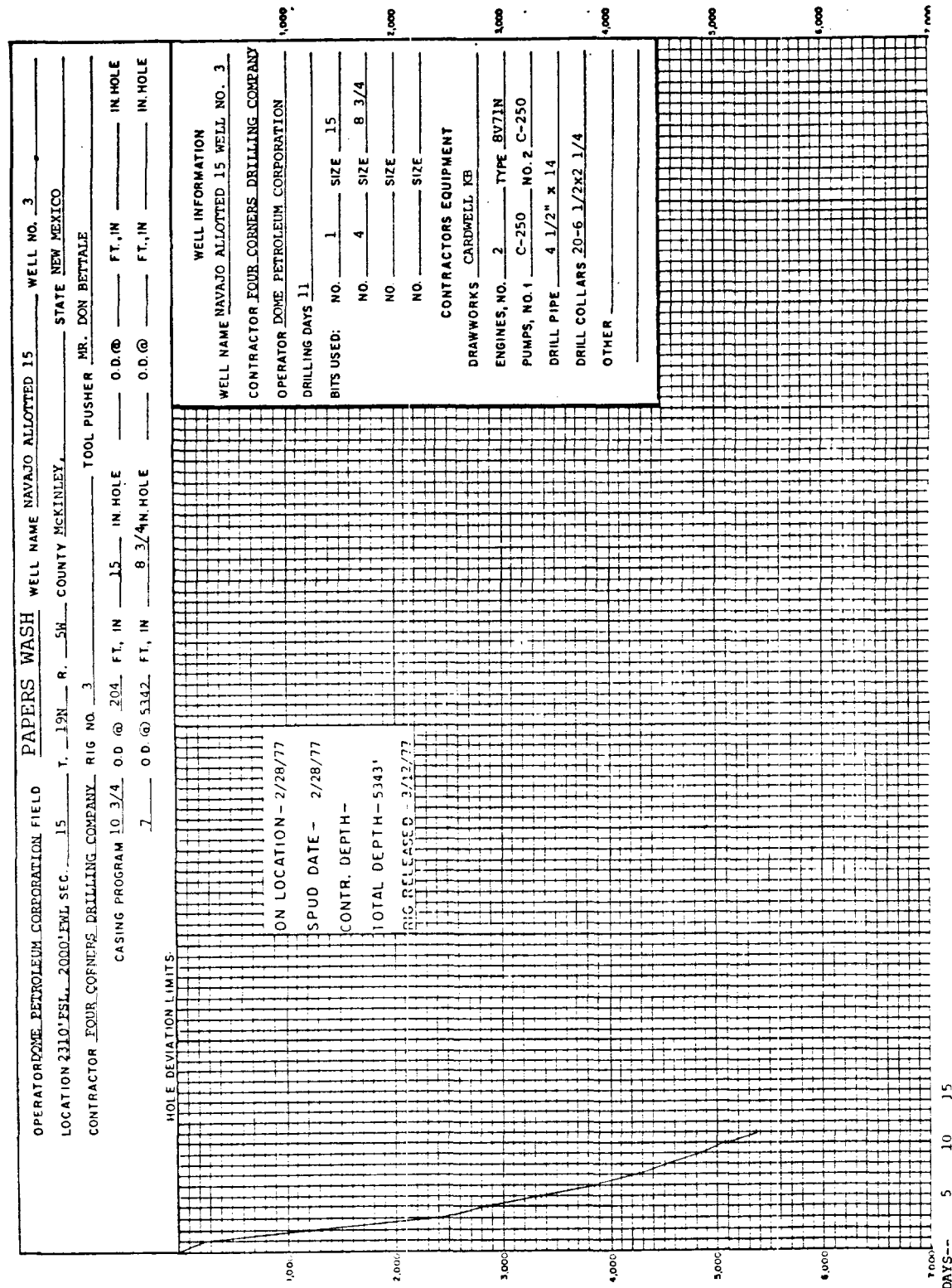
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# MINERALS MANAGEMENT, INC.

## WELL PROGRESS CHART



Permit # \_\_\_\_\_

Well Completion and Operation Data

Type Injection Well: (EOR/SWD/HC Storage) (New/Conversion)

Injection: (Continuous/Cyclic)

Approximate # days operating/year 365  
Rate (B/D): Average 3000 Maximum 6000  
Wellhead pressure (psi): Average 500 Maximum 1000  
Fluid: TDS 17000 Sp. Gr. \_\_\_\_\_ Analysis included (yes/~~no~~)  
Source (formation name): Entrada and Mesaverde  
Will anything be added to the water to be injected (yes/~~no~~)  
What will those additives be? May add corrosion inhibitor

Geologic Data: (all references to depths are below land surface)

Injection Interval: Top 5142; Bottom 5148; Effective Thickness 200  
Formation name Entrada Lithology Sandstone  
Porosity (%) 25 Current Reservoir Pressure \_\_\_\_\_ Date \_\_\_\_\_  
or Current Fluid Level in Well 607 ft. Date 3-1-88  
Permeability (md) 400  
Drill Stem Test Included: (~~YES~~) (NO)

Confining Zones: Thickness between injection zone and UDSW 85'  
Lithology Anhydrite/Limestone/: Shale  
Cumulative shale 45'; thickest shale zone 45' (interval)  
Faults: Are there any faults in the area of the well which penetrate the injection interval? (~~YES~~/No)

Well Data: (all references to depths are below ~~land surface~~ Kelly Bushing)

Surface Elevation: 6574' KB 5343' TD  
6562' GL(KB/GL) Total (Depth/Plugged Back Depth) 5295' PBDT  
Date Drilled or to be drilled 2-28-77  
Type logs available on (this well/offset well): (By reference/included)  
Dual Induction-Laterolog, Compensated Neutron Formation Density

| Construction:     | Size<br>(in)  | Depth<br>Interval | Sacks of<br>Cement          | Hole<br>Size  | Cement<br>Interval | How<br>Determined  |
|-------------------|---------------|-------------------|-----------------------------|---------------|--------------------|--------------------|
| Surface Csg.      | <u>10-3/4</u> | <u>204'</u>       | <u>200</u>                  | <u>15"</u>    | <u>Surface</u>     | <u>Circulation</u> |
| Intermediate Csg. |               |                   |                             |               |                    |                    |
| Long String Csg.  | <u>7"</u>     | <u>5342'</u>      | <u>1010</u>                 | <u>8-3/4"</u> | <u>Surface</u>     | <u>Circulation</u> |
| Liner             |               |                   |                             |               |                    |                    |
| Tubing            |               |                   |                             |               |                    |                    |
|                   |               |                   | Packer type and depth _____ |               |                    |                    |

Other Perforated Intervals None

Depth of base of fresh water: Morrison top at 4260'

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# ENTRADA WATER

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL & GAS  
Date : 01-09-1990  
Location: Media - Entrada #6 (on 9-13-89)

|                         | <u>Sample 1</u> |
|-------------------------|-----------------|
| Specific Gravity:       | 1.013           |
| Total Dissolved Solids: | 17838           |
| pH:                     | 7.50            |
| IONIC STRENGTH:         | 0.351           |

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 14.4            | 288             |
| Magnesium       | (Mg <sup>+2</sup> ) | 8.80            | 107             |
| Sodium          | (Na <sup>+1</sup> ) | 256             | 5890            |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.014           | 0.400           |
| Barium          | (Ba <sup>+2</sup> ) | 0.003           | 0.200           |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 7.20 | 439  |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 116  | 5550 |
| Chloride       | (Cl <sup>-1</sup> )               | 157  | 5560 |

## SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | 0.21             | -9.4           |
| 120°F              | 49°C | 1.1              | -9.4           |

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REGION VII

# MESAVERDE WATER

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL & GAS  
Date : 01-09-1990  
Location: Little Blue Fed #1 (on 12-22-89)

|                         | <u>Sample 1</u> |
|-------------------------|-----------------|
| Specific Gravity:       | 1.005           |
| Total Dissolved Solids: | 7245            |
| pH:                     | 9.10            |
| IONIC STRENGTH:         | 0.121           |

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 0.400           | 8.00            |
| Magnesium       | (Mg <sup>+2</sup> ) | 2.48            | 30.1            |
| Sodium          | (Na <sup>+1</sup> ) | 111             | 2550            |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.705           | 19.7            |
| Barium          | (Ba <sup>+2</sup> ) | 0.016           | 1.10            |
| Manganese       | (Mn <sup>+2</sup> ) | 0.019           | 0.510           |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 19.2 | 1170 |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 10.1 | 483  |
| Chloride       | (Cl <sup>-1</sup> )               | 84.6 | 3000 |

## SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | 1.2              | -27            |
| 120°F              | 49°C | 2.1              | -27            |

Comments:  
This water to be mixed with Media - Entrada #6

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Navajo 15-3 Conversion to Injection

Verification of Public Notice

|                                                                                                          | <u>Date Sent</u> |
|----------------------------------------------------------------------------------------------------------|------------------|
| Mr. Mike Stogner<br>New Mexico Oil Conservation Division<br>P. O. Box 2088<br>Santa Fe, New Mexico 87501 | 3-1-90           |
| Mr. Ken Townsend<br>Bureau of Land Management<br>1235 La Plata Highway<br>Farmington, New Mexico 87401   | 3-1-90           |
| Mr. Ervin Peshlakai<br>Bureau of Indian Affairs<br>P. O. Box M<br>Window Rock, Arizona 86515             | 3-1-90           |
| Mr. Frank Welker<br>Chase Oil<br>313 Washington SE<br>Albuquerque, New Mexico 87108                      | 3-1-90           |

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REGION VI

### Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

GG Sharpe  
Name

Petroleum/Reservoir Engineer  
Title

- \* If certification is signed by a party other than the injection well owner/operator a written statement of authorization signed by the owner/operator must accompany the application.

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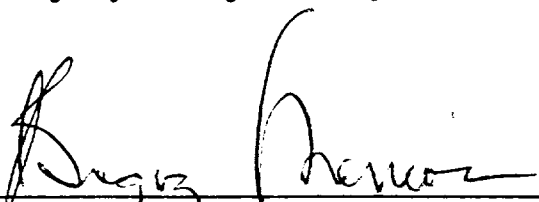
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STATEMENT OF AUTHORIZATION

I I Gregory Morrison, hereby authorize George F Sharp  
(injection well owner/operator)

to act in my behalf in executing the necessary forms including permit applications, compliance reports, etc., as required under the Environmental Protection Agency Underground Injection Control Program.

  
Signed (owner/operator)

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APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage  
Application qualifies for administrative approval? ☐ yes ☐ no

II. Operator: Merrion Oil & Gas Corporation

Address: P. O. Box 840, Farmington, New Mexico 87499

Contact party: George F. Sharpe Phone: (505) 327-9801

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 ☒ 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 geological data on the injection zone including appropriate lithologic detail, geological 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 source 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 source 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: George F. Sharpe Title: Reservoir Engineer

Signature: *GF Sharpe* Date: Feb. 28, 1990

\* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

FORM C-108  
OIL CONSERVATION DIVISION

Application For Authorization to Inject

2/28/90

- I. Secondary Recovery Project
- II. Merrion Oil & Gas Corporation  
P. O. Box 840, Farmington, New Mexico 87499  
Contact: George Sharpe (505) 327-9801
- III. Well Data Sheet Attached for Navajo 15-3
- IV. New Secondary Project
- V. Map Attached
- VI. Well Data Summary Sheet Attached  
BLM Well Completion Reports Attached  
Wellbore Schematics Attached
- VII. Operating Data:
- 1) Average injection rate = 3000 BPD  
Maximum injection rate = 6000 BPD
  - 2) Closed system = (ie. reinjection of produced water).  
However, tanks vented to atmosphere.
  - 3) Average injection pressure = 500 psi  
Maximum injection pressure = 1000 psi
  - 4) ReInjection of Entrada produced water - TDS = 17800  
ppm (95% of total) analysis attached  
Injection of Mesaverde water - TDS = 7200 ppm (5%  
of total) analysis attached
- VIII. Geologic Information
- Top Entrada: 5143'  
Thickness: ±200'  
Lithology: ss, grey-white, medium-coarse grained,  
subround-rounded, friable, porous
- Overlying Aquifer: Morrison Formation ± 4700' top.  
(Although this is not used for drinking water in the  
area, the TDS is less than 10,000 ppm).
- Underlying Aquifer: None

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FORM C-108 OIL CONSERVATION DIVISION

Page Two

February 28, 1990

- IX. No stimulation planned
- X. Existing Well - Logs previously submitted and on file at district office.
- XI. No fresh water wells in area.
- XII. Extensive seismic data acquired in this field would suggest no fault communication between any stratigraphic horizon.
- XIII. Proof of Notice Attached
- XIV. Certification - Signed on Original

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MC KINLEY COUNTY, NEW MEXICO  
ORIGINAL NET PAY - LEASE MAP

[illegible]

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**MERRION OIL & GAS**  
**CASE NO. 9880**  
**3-7-90**

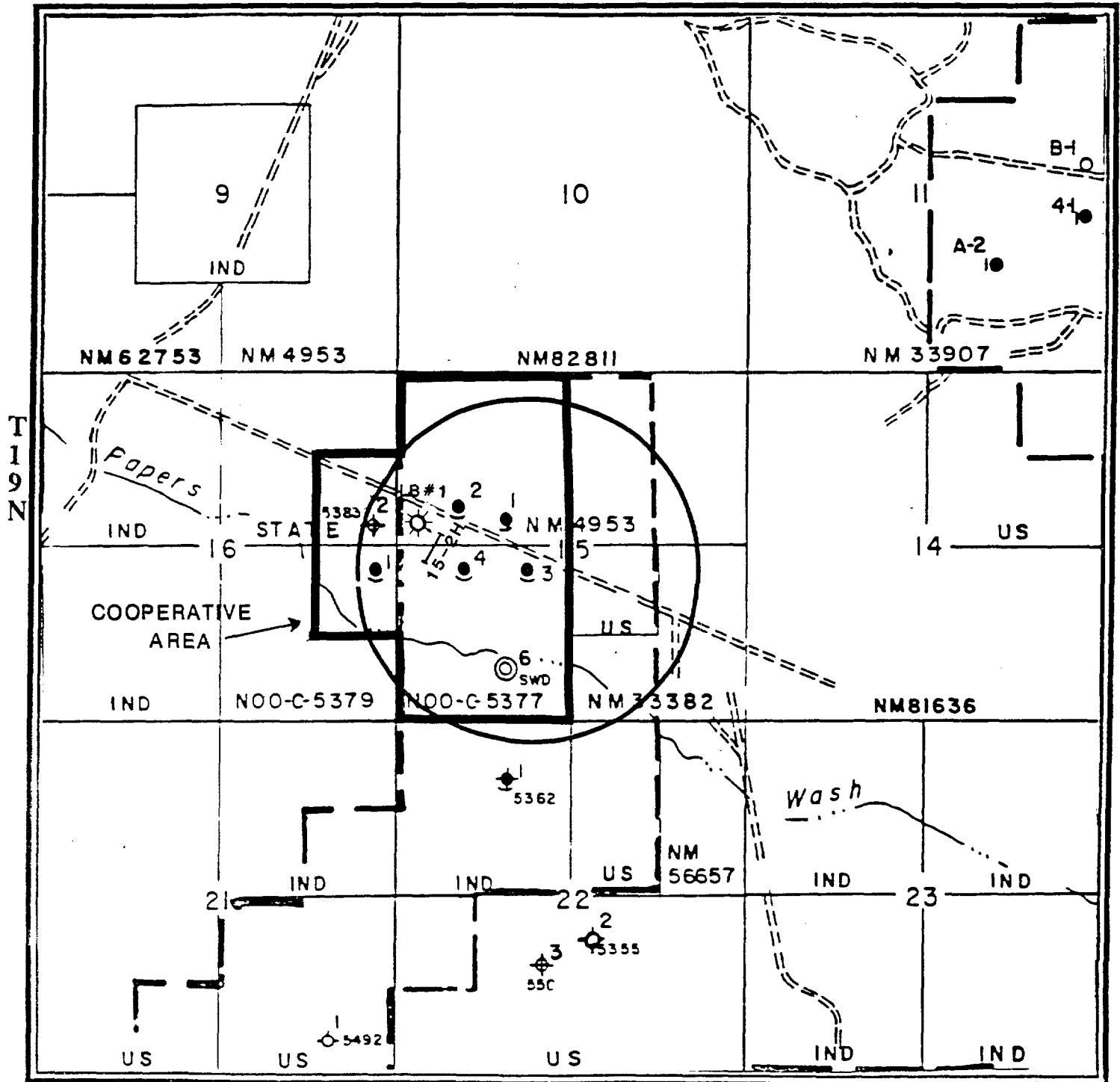
# EXHIBIT 5

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## PAPERS WASH FIELD AREA OF REVIEW NAVAJO ALLOTTED 15-3 R5W

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# INJECTION WELL DATA SHEET

Side 1

INJECTION WELL DATA SHEET

SIDE 1

|                               |                                |         |                |
|-------------------------------|--------------------------------|---------|----------------|
| OPERATOR                      | LEASE                          |         |                |
| Merrion Oil & Gas Corporation | N00-C-14-20-5377               |         |                |
| WELL NO.                      | FOOTAGE LOCATION               | SECTION | TOWNSHIP RANGE |
| Navajo Allotted 15-3          | 2310' FSL & 2000 FWL, Sec. 15, | T19N,   | R5W            |

## Schematic

## Tabular Data

### Surface Casing

Size 10-3/4" Cemented with 200 ex.  
 TOC surface feet determined by displacement  
 Hole size 15"

### Intermediate Casing

Size " Cemented with " ex.  
 TOC " feet determined by "  
 Hole size "

### Long string

Size 7" Cemented with 760 ex.  
 TOC surface feet determined by displacement  
 Hole size 8-3/4"  
 Total depth 5343'

### Injection interval

5142' (perforation or open-hole, indicate which) 48 feet perf'd

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# INJECTION WELL DATA SHEET

Side 2

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 3.5" lined with plastic lined set in a  
 (material)  
Baker Lockset Retrievable packer at 5100 feet  
 (brand and model)  
 (or describe any other casing-tubing seal).

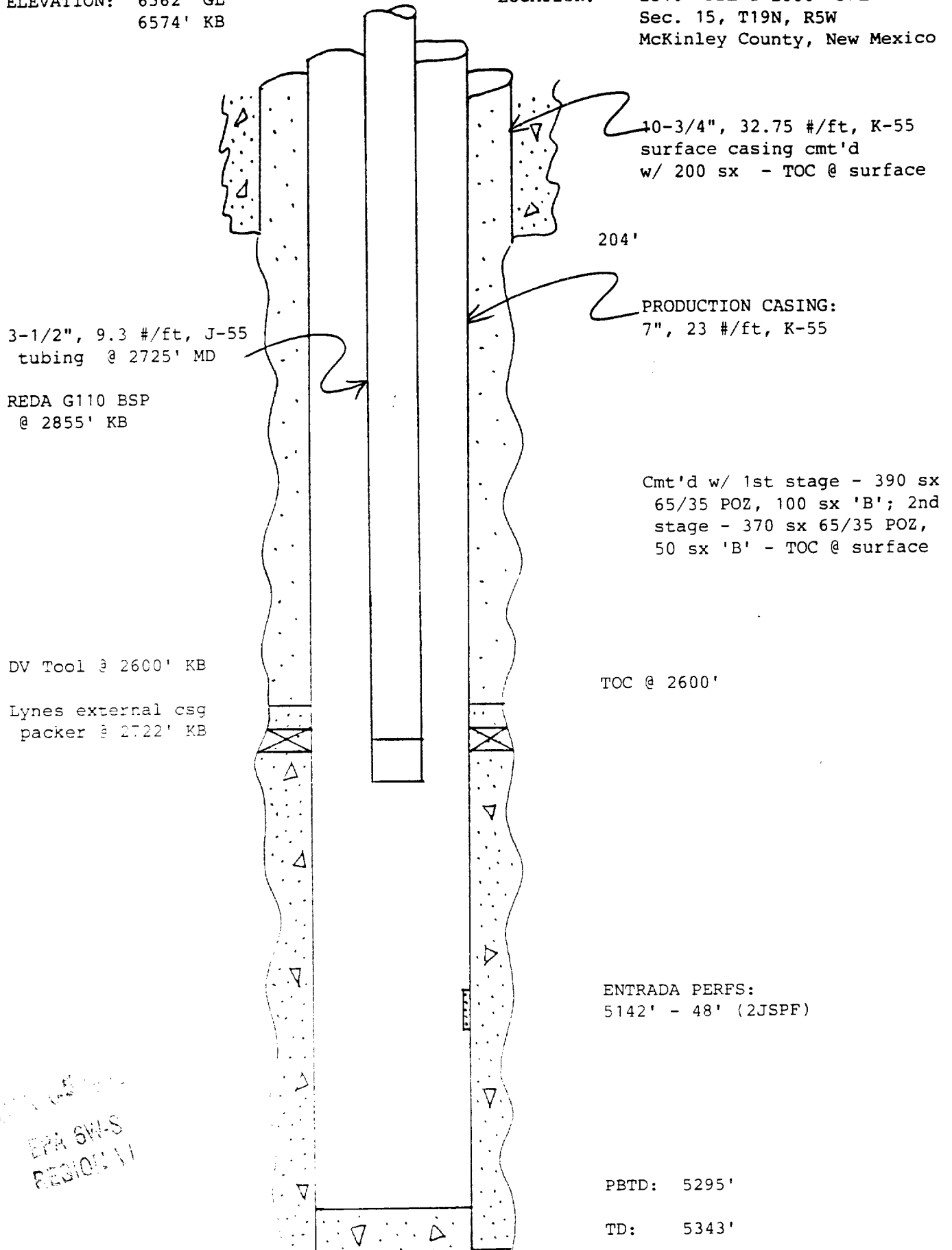
## Other Data

- Name of the injection formation Entrada
- Name of Field or Pool (if applicable) Papers Wash Entrada Field
- Is this a new well drilled for injection? ☐ Yes ☒ No  
 If no, for what purpose was the well originally drilled? Production from Entrada
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (bags of cement or bridge plug(s) used) No
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.  
Undesignated Mesaverde - Top @ ± 500'

NAVAJO ALLOTTED 15 NO. 3  
PAPERS WASH FIELD

ELEVATION: 6562' GL  
6574' KB

LOCATION: 2310' FSL & 2000' FWL  
Sec. 15, T19N, R5W  
McKinley County, New Mexico



# ENTRADA WATER

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL & GAS  
Date : 01-09-1990  
Location: Media - Entrada #6 (on 9-13-89)

|                         | <u>Sample 1</u> |
|-------------------------|-----------------|
| Specific Gravity:       | 1.013           |
| Total Dissolved Solids: | 17838           |
| pH:                     | 7.50            |
| IONIC STRENGTH:         | 0.351           |

---

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 14.4            | 288             |
| Magnesium       | (Mg <sup>+2</sup> ) | 8.80            | 107             |
| Sodium          | (Na <sup>+1</sup> ) | 256             | 5890            |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.014           | 0.400           |
| Barium          | (Ba <sup>+2</sup> ) | 0.003           | 0.200           |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 7.20 | 439  |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 116  | 5550 |
| Chloride       | (Cl <sup>-1</sup> )               | 157  | 5560 |

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## SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | 0.21             | -9.4           |
| 120°F              | 49°C | 1.1              | -9.4           |

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# MESAVERDE WATER

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL & GAS

Date : 01-09-1990

Location: Little Blue Fed #1 (on 12-22-89)

|                         | <u>Sample 1</u> |
|-------------------------|-----------------|
| Specific Gravity:       | 1.005           |
| Total Dissolved Solids: | 7245            |
| pH:                     | 9.10            |
| IONIC STRENGTH:         | 0.121           |

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 0.400           | 8.00            |
| Magnesium       | (Mg <sup>+2</sup> ) | 2.48            | 30.1            |
| Sodium          | (Na <sup>+1</sup> ) | 111             | 2550            |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.705           | 19.7            |
| Barium          | (Ba <sup>+2</sup> ) | 0.016           | 1.10            |
| Manganese       | (Mn <sup>+2</sup> ) | 0.019           | 0.510           |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 19.2 | 1170 |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 10.1 | 483  |
| Chloride       | (Cl <sup>-1</sup> )               | 84.6 | 3000 |

## SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | 1.2              | -27            |
| 120°F              | 49°C | 2.1              | -27            |

## Comments:

This water to be mixed with Media - Entrada #6

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FILE: C108  
GFS 2-28-90

WELL DATA SUMMARY  
NAVAJO ALLOTTED 15-3 AREA OF REVIEW

| WELL:              | FEDERAL 15-1                                 | FEDERAL 15-2                     | FEDERAL 15-2H                                   | LITTLE BLUE FED 1                      | NAVAJO 15-4                   | NAVAJO 15-6                  | NAVAJO 16-1                   | STATE 16-2                      |
|--------------------|----------------------------------------------|----------------------------------|-------------------------------------------------|----------------------------------------|-------------------------------|------------------------------|-------------------------------|---------------------------------|
| LOCATION:          | SESW 15 19N 5W                               | SWSW 15 19N 5W                   | SAME                                            | NMSW 15 19N 5W                         | NMSW 15 19N 5W                | SESW 15 19N 5W               | NMSW 16 19N 5W                | SMSW 16 19N 5W                  |
| CURRENT STATUS:    | SHUT IN<br>MESAVERDE<br>PRODUCER             | REDRILLED<br>AS<br>FEDERAL 15-2H | COMPLETING<br>AS HORIZONTAL<br>ENTRADA PRODUCER | COMPLETING<br>AS MESAVERDE<br>PRODUCER | ACTIVE<br>ENTRADA<br>PRODUCER | ACTIVE<br>GALLUP<br>INJECTOR | ACTIVE<br>ENTRADA<br>PRODUCER | PEA                             |
| SPUD DATE:         | 9-28-76                                      | 2-18-77                          | 1-19-90                                         | 10-19-89                               | 3-26-77                       | 6-19-77                      | 8-3-77                        | 10-3-77                         |
| NB ELEV:           | 6600                                         | 6617                             | SAME                                            | 6605                                   | 6642                          | 6565                         | 6603                          | 5690                            |
| TD:                | 5390                                         | 5428                             | 6084                                            | 2155                                   | 5416                          | 5392                         | 5392                          | 5383                            |
| PBTD:              | 1450                                         | 4568                             | UNCEMENTED LNR                                  | 2116                                   | 5361                          | 5131                         | 5264                          | 5325                            |
| SURFACE CASING:    |                                              |                                  |                                                 |                                        |                               |                              |                               |                                 |
| SIZE               | 10 3/4"                                      | 10 3/4"                          | SAME                                            | 7"                                     | 9 5/8"                        | 9 5/8"                       | 9 5/8"                        | 9 5/8"                          |
| DEPTH              | 224'                                         | 203'                             | SAME                                            | 100'                                   | 209'                          | 204'                         | 211'                          | 205'                            |
| SX CNT             | 200 SX                                       | 200 SX                           | SAME                                            | 50 SX                                  | 150 SX                        | 200 SX                       | 200 SX                        | 200 SX                          |
| TOC                | SURFACE                                      | SURFACE                          | SAME                                            | SURFACE                                | SURFACE                       | SURFACE                      | SURFACE                       | SURFACE                         |
| PRODUCTION CASING: |                                              |                                  |                                                 |                                        |                               |                              |                               |                                 |
| SIZE               | 7"                                           | 7"                               | 7" SAME                                         | 4 1/2"                                 | 7"                            | 7"                           | 7"                            | 7"                              |
| DEPTH              | 5242'                                        | 5426'                            | 4 1/2"                                          | 2145'                                  | 5406'                         | 5342'                        | 5369'                         | 5373'                           |
| SX CNT             | 600 SX                                       | 683 SX                           | 90 SX                                           | 300 SX                                 | 1015 SX                       | 1100 SX                      | 850 SX                        | 905 SX                          |
| TOC                | 2794'                                        | 3290'                            | ?                                               | SURFACE                                | SURFACE                       | SURFACE                      | SURFACE                       | SURFACE                         |
| FORMATION TOPS:    |                                              |                                  |                                                 |                                        |                               |                              |                               |                                 |
| LENS               |                                              |                                  |                                                 |                                        |                               |                              |                               |                                 |
| MESAVERDE          | SURFACE                                      | SURFACE                          | SURFACE                                         | SURFACE                                | SURFACE                       | SURFACE                      | SURFACE                       | SURFACE                         |
| GALLUP             | 492'                                         | 522'                             | SAME                                            | 500'                                   | 541'                          | 462'                         | 502'                          | 500'                            |
| DAKOTA             | 2928'                                        | 2945'                            | SAME                                            | N/A                                    | 2964'                         | 2895'                        | 2930'                         | 2915'                           |
| MORRISON           | 4140'                                        | 4142'                            | SAME                                            | N/A                                    | 4195'                         | 4111'                        | 4182'                         | 4141'                           |
| ENTRADA            | 4257'                                        | 4260'                            | SAME                                            | N/A                                    | 4314'                         | 4245'                        | 4290'                         | 4261'                           |
|                    | 5161'                                        | 5182'                            | 5378' MD                                        | N/A                                    | 5200'                         | 5160'                        | 5183'                         | 5178'                           |
| COMMENTS:          | PLUGGED BACK<br>TO MESAVERDE<br>FROM ENTRADA |                                  | CEMENT SQZ<br>LINER TOP<br>W/ 50 SX             |                                        |                               |                              | UNECONOMIC<br>MAY BE SHUT IN  | PLAN TO<br>REENTER<br>THIS WELL |

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

(Keep  
actual  
number  
of copies  
on file)

Budget Bureau No. 42-R355.6

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG \***

1a. TYPE OF WELL: OIL WELL ☒ GAS WELL ☐ DRY ☐ Other \_\_\_\_\_

b. TYPE OF COMPLETION:

NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other \_\_\_\_\_

2. NAME OF OPERATOR

Dome Petroleum Corporation

3. ADDRESS OF OPERATOR

c/o Minerals Management Inc.

501 Airport Dr., Suite 105, Farmington, N.M. 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)\*

At surface

2210' FNL, 1650' FWL, SEC. 15, T19N, R5W

At top prod. interval reported below

At total depth

14. PERMIT NO.

DATE ISSUED

5. LEASE DESIGNATION AND SERIAL NO.

NM 4953

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Federal 15

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Wildcat

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA

SEC. 15, T19N, R5W

12. COUNTY OR PARISH

McKinley

13. STATE

N.M.

15. DATE SPUDDED

9-28-76

16. DATE T.D. REACHED

10-14-76

17. DATE COMPL. (Ready to prod.)

10-31-76

18. ELEVATIONS (DP, RKB, RT, GR, ETC.)\*

6588' GR 6600' KB

19. ELEV. CASING HEAD

-

20. TOTAL DEPTH, MD & TVD

5390'

21. PLUG BACK T.D., MD & TVD

5214'

22. IF MULTIPLE COMPL., HOW MANY\*

-

23. INTERVALS DRILLED BY

ROTARY TOOLS

Yes

CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)\*

5160'-5169' Entrada

26. TYPE ELECTRIC AND OTHER LOGS RUN

Gamma Ray-Sonic

Dual Induction-Laterolog, Compensated Neutron-Density

27. WAS WELL CORED

No

28. CASING RECORD (Report all strings set in well)

| CASING SIZE | WEIGHT, LB./FT. | DEPTH SET (MD) | HOLE SIZE | CEMENTING RECORD | AMOUNT PULLED |
|-------------|-----------------|----------------|-----------|------------------|---------------|
| 10 3/4"     | 40.5#           | 224'           | 15"       | 200 sx (circ)    | -             |
| 7"          | 23.5#           | 5242'          | 8 3/4"    | 600 sx           | -             |

29. LINER RECORD

| SIZE | TOP (MD) | BOTTOM (MD) | CEMENT | SCREEN (MD) |
|------|----------|-------------|--------|-------------|
|------|----------|-------------|--------|-------------|

30. TUBING RECORD

| SIZE   | DEPTH SET (MD) | PACKER SET (MD) |
|--------|----------------|-----------------|
| 2 7/8" | 3002'          | -               |

31. PERFORATION RECORD (Interval, size and number)

5160'-5169' w/2 SPF

**U. S. GEOLOGICAL SURVEY  
DURANGO, COLO.**

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

| DEPTH INTERVAL (MD) | AMOUNT AND KIND OF MATERIAL USED |
|---------------------|----------------------------------|
|---------------------|----------------------------------|

33. PRODUCTION

| DATE FIRST PRODUCTION |                 | PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) |                         |             |             | WELL STATUS (Producing or shut-in) |               |
|-----------------------|-----------------|----------------------------------------------------------------------|-------------------------|-------------|-------------|------------------------------------|---------------|
| <u>11-1-76</u>        |                 | <u>Pumping-2 1/2"x2"x16'</u>                                         |                         |             |             | <u>Producing</u>                   |               |
| DATE OF TEST          | HOURS TESTED    | CHOKE SIZE                                                           | PROD'N. FOR TEST PERIOD | OIL—BBL.    | GAS—MCF.    | WATER—BBL.                         | GAS-OIL RATIO |
| <u>11-14-76</u>       | <u>24</u>       | <u>Open</u>                                                          | <u>→</u>                | <u>360</u>  | <u>TSTM</u> | <u>0</u>                           | <u>-</u>      |
| FROM: TUBING PRESS.   | CASING PRESSURE | CALCULATED 24 HOUR RATE                                              | OIL—BBL.                | GAS—MCF.    | WATER—BBL.  | OIL GRAVITY-API (CORR.)            |               |
| <u>-</u>              | <u>TSTM</u>     | <u>→</u>                                                             | <u>360</u>              | <u>TSTM</u> | <u>0</u>    | <u>33.6°</u>                       |               |

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

Vented

TEST WITNESSED BY

S.J. Massey

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

Area Manager

SIGNED J. Arnold Inell TITLE Minerals Management Inc DATE 11-15-76

\*See Instructions and Spaces for Additional Data on Reverse Side)

See 11-15-76 11-15-76 11-15-76 11-15-76 11-15-76 11-15-76 11-15-76 11-15-76 11-15-76 11-15-76

# INSTRUCTIC

**General:** This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on Items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see Item 35.

**Item 4:** If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

**Item 18:** Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

**Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple completion), so state in Item 22, and in Item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in Item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

**Item 29: "Sacka Cement":** Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

**Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for Items 22 and 24 above.)

| 37. SUMMARY OF POROUS ZONES:<br>SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING<br>DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES |       | 38. GEOLOGIC MARKERS |                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FORMATION                                                                                                                                                                                                                                             | TOP   | BOTTOM               | DESCRIPTION, CONTENTS, ETC.                                                                                                                                                                                                                                   |
| DST #1                                                                                                                                                                                                                                                | 5155' | 5170'                | <p>Preflow 45 min., ISIP 60 min.,<br/>Tool Open 60 min., FSIP 2 hrs.</p> <p>Recovered 2326' fluid; 2321' oil,<br/>5' mud.</p> <p>IHH 2422 psi<br/>IFP 184-425 psi<br/>ISIP 2074 psi<br/>FFP 447-895 psi<br/>FSIP 2103 psi<br/>FHH 2378 psi<br/>BHT 156° F</p> |
| Entrada                                                                                                                                                                                                                                               |       |                      | <p>Lower Menefee<br/>Point Lookout<br/>Mancos<br/>Gallup<br/>Greenhorn<br/>Graneros<br/>Dakota<br/>Morrisson<br/>Summerville<br/>Entrada</p>                                                                                                                  |
|                                                                                                                                                                                                                                                       |       |                      | <p>MEAS. DEPTH</p> <p>1134'<br/>1994'<br/>2112'<br/>2928'<br/>3917'<br/>4004'<br/>4140'<br/>4257'<br/>5089'<br/>5161'</p>                                                                                                                                     |

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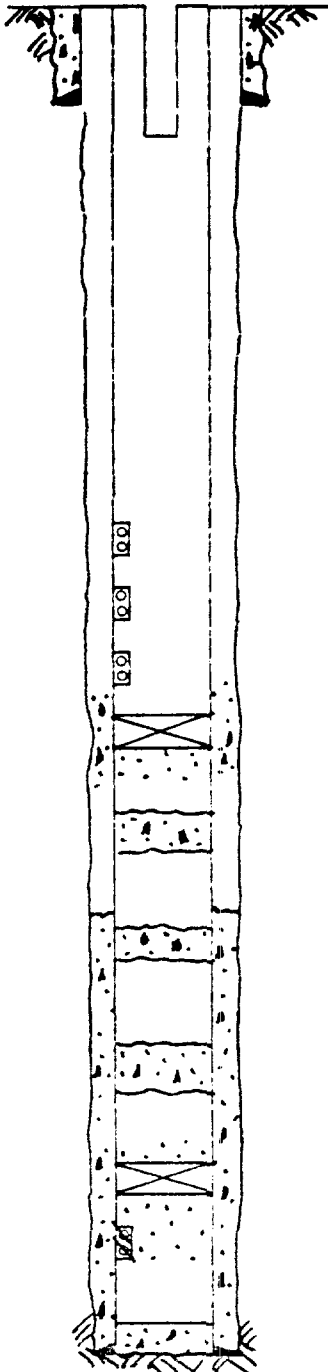
\* MERRION OIL & GAS \*

WELLBORE SCHEMATIC

Well: Federal 15 No 1  
Field: Papers Wash

Location: 2210'FNL & 1650'FWL  
Sec. 15, T19N. R6W  
Mckinlev Co. New Mexico

Elevation: 6,600' KB  
6,588' GL



TOC @ Surface  
Bit Size - 12 1/4"

10 3/4" 40.5#Surface @ 224' KB w/ 200sx

3.5" Tubing @ 200'+

| Tops       | Depth   |
|------------|---------|
| Lewis      | Surface |
| La Ventana | 492     |
| Menefee    | 770     |
| Pt Lookout | 1,995   |
| Gallup     | 2,928   |
| Dakota     | 4,140   |
| Entrada    | 5,161   |

Mesaverde Perfs:

1,274'-80'  
1,376'-86'  
1,430'-38'

7" Retainer@ 1.450'w/100sx  
Sqz Holes (4) @ 1.470'

Cement Plug 1.564'-1.850'

TOC @ 2.794' (cbl)  
Cement Plug 2879'-2979' Gallup

Hole size - 8 3/4"

Cement Plug 4.090-4.306' cover Dakota-Morrison

10sx on top of retainer  
7" Retainer @ 5.101'KB w/50sx

ENTRADA Perfs: 5.160'-69' 2df (Sqzd)

7" 23# Casing @ 5.390'KB w/ 600sx  
ID @ 5.390' KB

| Well Equipment          |
|-------------------------|
| > 3 1/2" EUE Tbg ≈ 200' |

5/ 8/1989  
File: FED151.sch

Capacities: 2 7/8" Tbg -  
7" 23#Csg-  
Annulus -

0.00579 Bbl/Ft  
0.0394 Bbl/Ft  
0.3172 Bbl/Ft

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REGION VI

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE

(If herin-  
stamped on  
reverse side)Form approved.  
Budget Bureau No. 42-B355.5.

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG \*

|                                                                                                                                                                                                                                 |                                                                                 |                                                                         |                                                               |                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------|
| 1a. TYPE OF WELL:<br>OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input type="checkbox"/> Other _____                                                                                    |                                                                                 | 5. LEASE DESIGNATION AND SERIAL NO.<br>NM 4953                          |                                                               |                                       |
| b. TYPE OF COMPLETION:<br>NEW WELL <input checked="" type="checkbox"/> WORK OVER <input type="checkbox"/> DEEP-EN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF. RESVR. <input type="checkbox"/> Other _____ |                                                                                 | 6. IF INDIAN, ALLOTTED OR TRIBE NAME                                    |                                                               |                                       |
| 2. NAME OF OPERATOR<br>Dome Petroleum Corporation                                                                                                                                                                               |                                                                                 | 7. UNIT AGREEMENT NAME                                                  |                                                               |                                       |
| 3. ADDRESS OF OPERATOR<br>% Minerals Management Inc., Suite 105,<br>501 Airport Drive, Farmington, New Mexico 87401                                                                                                             |                                                                                 | 8. FARM OR LEASE NAME<br>Federal 15                                     |                                                               |                                       |
| 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*<br>At surface 990' FWL, 1780' FNL, SEC. 15, T19N, R5W<br>At top prod. interval reported below 1980<br>At total depth               |                                                                                 | 9. WELL NO.<br>2                                                        |                                                               |                                       |
| 14. PERMIT NO.                                                                                                                                                                                                                  |                                                                                 | DATE ISSUED                                                             |                                                               |                                       |
| 10. FIELD AND POOL, OR WILDCAT<br>Undesignated Entrada                                                                                                                                                                          |                                                                                 | 11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA<br>SEC. 15, T19N, R5W |                                                               |                                       |
| 12. COUNTY OR PARISH<br>McKinley                                                                                                                                                                                                |                                                                                 | 13. STATE<br>N.M.                                                       |                                                               |                                       |
| 15. DATE SPUDDED<br>2-18-77                                                                                                                                                                                                     | 16. DATE T.D. REACHED<br>2-26-77                                                | 17. DATE COMPL. (Ready to prod.)                                        | 18. ELEVATIONS (DF, REB, RT, GR, ETC.)*<br>6604' GR, 6617' KB | 19. ELEV. CASINGHEAD<br>6604'         |
| 20. TOTAL DEPTH, MD & TVD<br>5428'                                                                                                                                                                                              | 21. PLUG, BACK T.D., MD & TVD<br>5370'                                          | 22. IF MULTIPLE COMPL., HOW MANY*                                       | 23. INTERVALS DRILLED BY<br>0-5428'                           | ROTARY TOOLS<br>CABLE TOOLS           |
| 24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*<br>5183'-5380' Entrada                                                                                                                            |                                                                                 |                                                                         |                                                               | 25. WAS DIRECTIONAL SURVEY MADE<br>no |
| 26. TYPE ELECTRIC AND OTHER LOGS RUN<br>Dual Induction-Laterolog, CNL-Density                                                                                                                                                   |                                                                                 |                                                                         |                                                               | 27. WAS WELL CORED<br>no              |
| 28. CASING RECORD (Report all strings set in well)                                                                                                                                                                              |                                                                                 |                                                                         |                                                               |                                       |
| CASING SIZE                                                                                                                                                                                                                     | WEIGHT, LB./FT.                                                                 | DEPTH SET (MD)                                                          | HOLE SIZE                                                     | CEMENTING RECORD                      |
| 10 3/4"                                                                                                                                                                                                                         | 32.75                                                                           | 203'                                                                    | 15"                                                           | 200 sx                                |
| 7"                                                                                                                                                                                                                              | 23                                                                              | 5426'                                                                   | 8 3/4"                                                        | 328 sx & 355 sx                       |
|                                                                                                                                                                                                                                 |                                                                                 |                                                                         |                                                               | 2 stage w/DV @ 2785'                  |
| 29. LINER RECORD                                                                                                                                                                                                                |                                                                                 |                                                                         |                                                               |                                       |
| SIZE                                                                                                                                                                                                                            | TOP (MD)                                                                        | BOTTOM (MD)                                                             | SACKS CEMENT*                                                 | SCREEN (MD)                           |
|                                                                                                                                                                                                                                 |                                                                                 |                                                                         |                                                               |                                       |
| 30. TUBING RECORD                                                                                                                                                                                                               |                                                                                 |                                                                         |                                                               |                                       |
| SIZE                                                                                                                                                                                                                            | DEPTH SET (MD)                                                                  | PACKER SET (MD)                                                         |                                                               |                                       |
| 2 7/8                                                                                                                                                                                                                           | 3030'                                                                           |                                                                         |                                                               |                                       |
| 31. PERFORATION RECORD (Interval, size and number)                                                                                                                                                                              |                                                                                 |                                                                         |                                                               |                                       |
| 5184'-5192' w/2 SPF                                                                                                                                                                                                             |                                                                                 |                                                                         |                                                               |                                       |
| 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.                                                                                                                                                                                  |                                                                                 |                                                                         |                                                               |                                       |
| DEPTH, INTERVAL (MD)                                                                                                                                                                                                            |                                                                                 |                                                                         |                                                               |                                       |
| AMOUNT AND KIND OF MATERIAL USED                                                                                                                                                                                                |                                                                                 |                                                                         |                                                               |                                       |
| MAR 10 1977                                                                                                                                                                                                                     |                                                                                 |                                                                         |                                                               |                                       |
| EPA GW-S REGION VI                                                                                                                                                                                                              |                                                                                 |                                                                         |                                                               |                                       |
| 33. PRODUCTION                                                                                                                                                                                                                  |                                                                                 |                                                                         |                                                               |                                       |
| DATE FIRST PRODUCTION<br>3-15-77                                                                                                                                                                                                | PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)<br>Flowing |                                                                         |                                                               |                                       |
| DATE OF TEST<br>3-16-77                                                                                                                                                                                                         | HOURS TESTED<br>24                                                              | CHOKE SIZE<br>Open                                                      | PROD'N. FOR TEST PERIOD<br>276                                | OIL—BBL.<br>GAS—MCF.<br>TSTM          |
| FLOW. TUBING PRESS.<br>45                                                                                                                                                                                                       | CASING PRESSURE<br>45                                                           | CALCULATED 24-HOUR RATE<br>276                                          | OIL—BBL.<br>GAS—MCF.<br>TSTM                                  | WATER—BBL.<br>0                       |
| 34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)<br>No gas                                                                                                                                                            |                                                                                 |                                                                         |                                                               | TEST WITNESSED BY<br>W. E. Landry     |
| 35. LIST OF ATTACHMENTS<br>None                                                                                                                                                                                                 |                                                                                 |                                                                         |                                                               |                                       |
| 36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records<br>Area Manager<br>SIGNED <u>W. E. Landry</u> TITLE Minerals Management Inc. DATE 3-31-77     |                                                                                 |                                                                         |                                                               |                                       |

\*(See Instructions and Spaces for Additional Data on Reverse Side)

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**Item 29:** "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

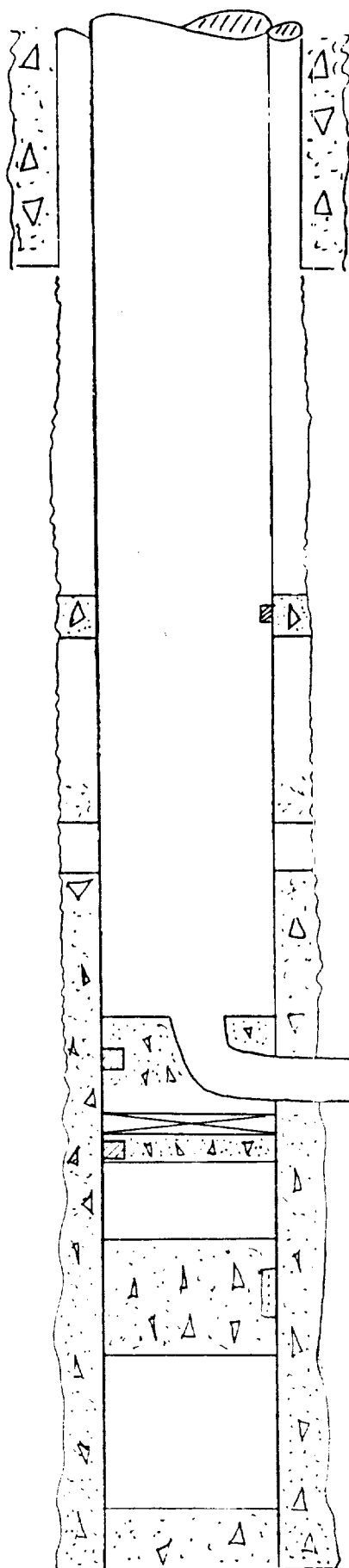
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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|----------------------|-------------|------------------|
| FORMATION                                                                                                                                                                                                                                             | TOP | BOTTOM | NAME                 | MEAS. DEPTH | TRUE VERT. DEPTH |
|                                                                                                                                                                                                                                                       |     |        | La Ventana           | 522'        |                  |
|                                                                                                                                                                                                                                                       |     |        | Pt. Lookout          | 2025'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Mancos Shale         | 2115'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Gallup               | 2945'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Sanostee             | 3608'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Greenhorn            | 3920'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Graneros             | 4010'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Dakota               | 4142'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Morrison             | 4260'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Summerville          | 5115'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Todilto              | 5151'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Entrada              | 5182'       |                  |
|                                                                                                                                                                                                                                                       |     |        | Carmel               | 5407'       |                  |

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FEDERAL 15 NO. 2  
 PAPERS WASH FIELD  
 1910' FNL & 990' FWL  
 Section 15, T19N, R5W  
 McKinley County, New Mexico

ELEVATION: 6604' GL  
 6616' KB



10-3/4", 32.75#, H-40 surface csg.  
 Cmtd with 200 sx Class "E".

203'

7", 23#, K-55 production csg.  
 Cmtd 1st Stage w/228 sx 65/35 Poz,  
 50 sx Class "B", 2nd Stage w/305 sx  
 65/35 Poz, 100 sx Class "A".  
 (no circulation) (no cement on  
 bond log)  
 Squeeze leaky csg 1930'-2020'  
 w/75 sx  
 Squeeze perfs 1954-1956' w/50 sx

DV Tool at 2785' KB

TOC at 3290'

4-1/2", 11.6#, K-55 liner @ 4568'  
 Squeeze cmt liner top w/50 sx

Milled window 4637'-4639'  
 to kick off horizontal well.

Cement circ with 35 sx.  
 Perfs at 4610' and 4665'  
 CIGR at 4660'

Cement plug 5000'-5195'  
 with 50 sx

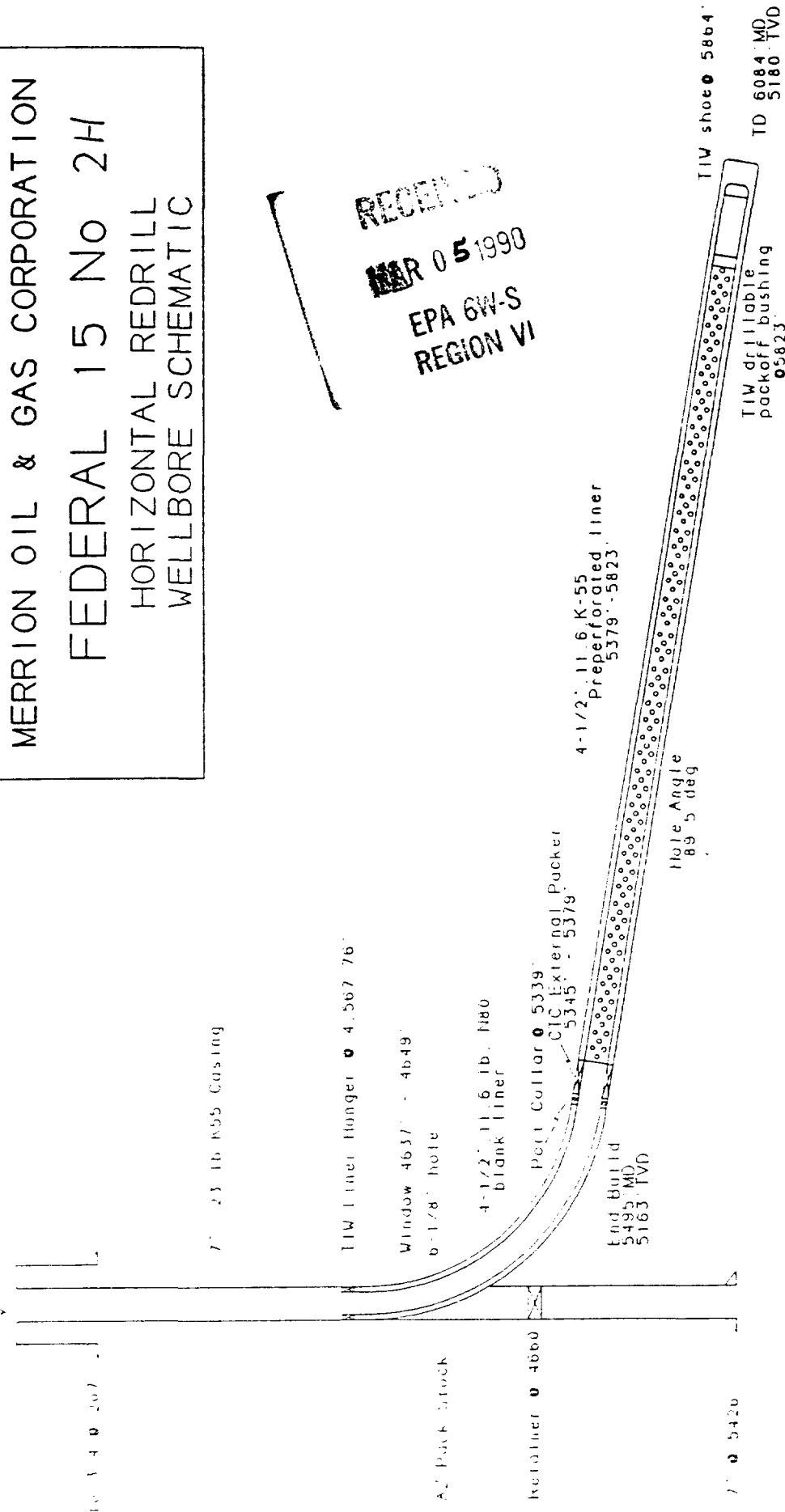
ENTRADA PERFS:  
 5184'-92' (2 JSPF)

PBTD: 5370'

TD: 5428'

RECORDED  
 SER 11-1-61  
 EPA GW-S  
 REGION VI

Elevations 6614 MB  
6624 GF



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REGION VI

A0B 02/90

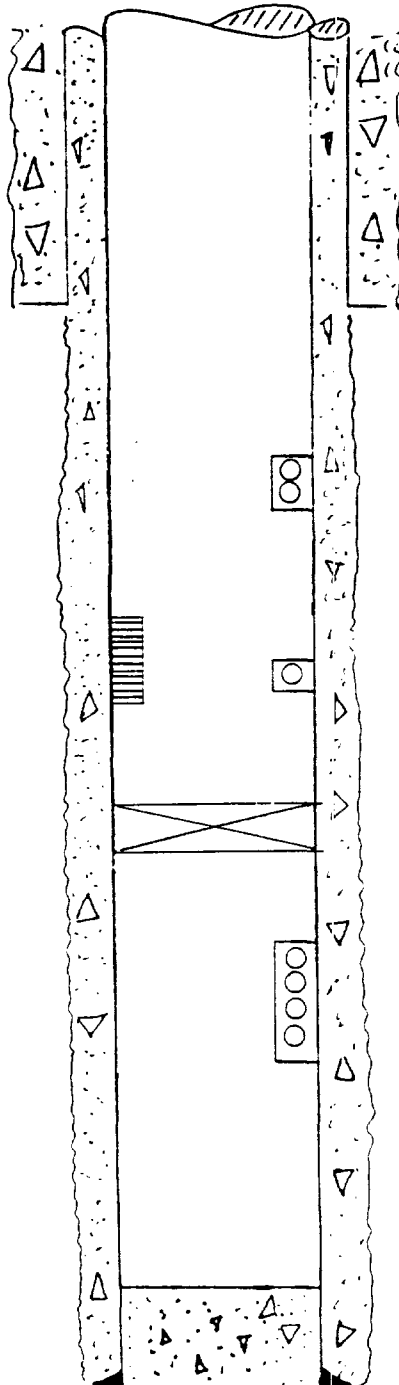
WELLBORE SCHEMATIC

LITTLE BLUE FEDERAL NO. 1  
2310' FNL & 330' FWL  
Section 15, T19N, R5W  
McKinley County, New Mexico

DATE: 2/21/90

Elevation: 6601' GL  
6605' KB

Sqz w/65 sc Class "G"  
1345'-62' 1369'-73'  
1435'-39' 1486'-94'  
1643'-48' 1666'-70'  
1861'-65'



12-1/4" hole to 100'

7", 23# Csg @ 99.8'  
50 sx Class "B" w/2% CaCl

Perf with 3-1/8" csg guns @ 2 SPF

740'-750'  
863'-882'

Reperf with 3-1/8" csg guns  
1666'-70'  
Frac w/5000# 20/40 sand

4-1/2" Alpha CIBP @ 1872'

Perf with 3-1/8" csg guns @ 2 SPF  
1881'-83' 1887'-90'  
1898'-01' 1910'-14'  
1943'-45' 1960'-64'  
1980'-82' 1993'-93'

4-1/2", 11.6#, K-55 Csg @ 2145'  
Cmt to surface w/300 sx Class "B"  
PBSD @ 2116'

6-1/4" hole to 2155' TD

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MAR 05 1990  
EPA GW-S  
REGION VI

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE

(Be erid-  
str. as on  
rev. side)Form approved  
Budget Bureau No. 42-R355.1.

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG\*

|                                                                                                                                                                                                                                 |                                 |                                                                                                        |                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1. TYPE OF WELL:<br>OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input type="checkbox"/> Other _____                                                                                     |                                 | 5. LEASE PERMITS AND SERIAL NO.<br>N00-C-14-20-5377                                                    |                                                               |
| 2. TYPE OF COMPLETION:<br>NEW WELL <input checked="" type="checkbox"/> WORK OVER <input type="checkbox"/> DEEP-EN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF. REEVR. <input type="checkbox"/> Other _____ |                                 | 6. IF INDIAN, ALLOTTEE OR TRIBE NAME<br>Navajo Allotted                                                |                                                               |
| 3. NAME OF OPERATOR<br>Dome Petroleum Corporation                                                                                                                                                                               |                                 | 7. UNIT AGREEMENT NAME                                                                                 |                                                               |
| 8. ADDRESS OF OPERATOR<br>Minerals Management Inc., Suite 105,<br>501 Airport Drive, Farmington, New Mexico 87401                                                                                                               |                                 | 8. FARM OR LEASE NAME<br>Navajo Allotted 15                                                            |                                                               |
| 9. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*<br>At surface 2310' FSL, 990' FWL, SEC. 15, T19N, R5W<br>At top prod. interval reported below<br>At total depth                    |                                 | 9. WELL NO.<br>4                                                                                       |                                                               |
| 10. FIELD AND POOL, OR WILDCAT<br>Papers Wash - Entrada                                                                                                                                                                         |                                 | 11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA<br>SEC. 15, T19N, R5W<br>NMPM                        |                                                               |
| 12. COUNTY OR PARISH<br>McKinley                                                                                                                                                                                                |                                 | 13. STATE<br>N.M.                                                                                      |                                                               |
| 14. PERMIT NO.                                                                                                                                                                                                                  |                                 | DATE ISSUED                                                                                            |                                                               |
| 15. DATE SPUNDED<br>3-26-77                                                                                                                                                                                                     | 16. DATE T.D. REACHED<br>4-7-77 | 17. DATE COMPL. (Ready to prod.)<br>4-22-77                                                            | 18. ELEVATIONS (OF, REE, RT, OR, ETC.)*<br>6630' GR, 6642' KB |
| 19. ELEV. CASINGHEAD<br>6630'                                                                                                                                                                                                   |                                 | 20. TOTAL DEPTH, MD & TVD<br>5416'                                                                     |                                                               |
| 21. PLUG BACK T.D., MD & TVD<br>5361'                                                                                                                                                                                           |                                 | 22. IF MULTIPLE COMPL., HOW MANY*<br>---                                                               |                                                               |
| 23. INTERVALS DRILLED BY<br>0-5416'                                                                                                                                                                                             |                                 | 24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*<br>5200'-5396' - Entrada |                                                               |
| 25. WAS DIRECTIONAL SURVEY MADE<br>No                                                                                                                                                                                           |                                 | 26. TYPE ELECTRIC AND OTHER LOGS RUN<br>Dual Induction Laterolog, CNL-Density                          |                                                               |
| 27. WAS WELL CORED<br>No                                                                                                                                                                                                        |                                 | 28. CASING RECORD (Report all strings set in well)                                                     |                                                               |
| CASING SIZE                                                                                                                                                                                                                     |                                 | WEIGHT, LB./FT.                                                                                        |                                                               |
| 9 5/8                                                                                                                                                                                                                           |                                 | 36                                                                                                     |                                                               |
| 7                                                                                                                                                                                                                               |                                 | 23                                                                                                     |                                                               |
| DEPTH SET (MD)                                                                                                                                                                                                                  |                                 | HOLE SIZE                                                                                              |                                                               |
| 209                                                                                                                                                                                                                             |                                 | 12 1/4                                                                                                 |                                                               |
| 5406                                                                                                                                                                                                                            |                                 | 8 3/4                                                                                                  |                                                               |
| CEMENTING RECORD                                                                                                                                                                                                                |                                 | AMOUNT PULLED                                                                                          |                                                               |
| 150 SX                                                                                                                                                                                                                          |                                 | ---                                                                                                    |                                                               |
| 1015 (2-stage)                                                                                                                                                                                                                  |                                 |                                                                                                        |                                                               |
| DV tool @ 2679'                                                                                                                                                                                                                 |                                 |                                                                                                        |                                                               |
| 29. LINER RECORD                                                                                                                                                                                                                |                                 | 30. TUBING RECORD                                                                                      |                                                               |
| SIZE                                                                                                                                                                                                                            |                                 | SIZE                                                                                                   |                                                               |
| CONFIDENTIAL                                                                                                                                                                                                                    |                                 | 2 7/8                                                                                                  |                                                               |
| DEPTH SET (MD)                                                                                                                                                                                                                  |                                 | DEPTH SET (MD)                                                                                         |                                                               |
| 2989'                                                                                                                                                                                                                           |                                 | PACKER SET (MD)                                                                                        |                                                               |
| 31. PERFORATION RECORD (Interval, size and number)                                                                                                                                                                              |                                 | 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.                                                         |                                                               |
| 5200'-5207' with 2 jet shots per foot                                                                                                                                                                                           |                                 | DEPTH RECEIVED<br>MAY 18 1977                                                                          |                                                               |
|                                                                                                                                                                                                                                 |                                 | AMOUNT AND KIND OF MATERIAL USED<br>MAR 05 1990                                                        |                                                               |
|                                                                                                                                                                                                                                 |                                 | Minerals Management Inc.                                                                               |                                                               |
|                                                                                                                                                                                                                                 |                                 | EPA 6W-S                                                                                               |                                                               |
| 33. PRODUCTION                                                                                                                                                                                                                  |                                 | REGION VI                                                                                              |                                                               |
| DATE FIRST PRODUCTION<br>4-22-77                                                                                                                                                                                                |                                 | WELL STATUS (Producing or shut-in)<br>Producing                                                        |                                                               |
| PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)<br>Pumping                                                                                                                                                 |                                 |                                                                                                        |                                                               |
| DATE OF TEST<br>4-26-77                                                                                                                                                                                                         |                                 | HOURS TESTED<br>24                                                                                     |                                                               |
| CHOKE SIZE<br>---                                                                                                                                                                                                               |                                 | PROD'N. FOR TEST PERIOD<br>277                                                                         |                                                               |
| OIL—BBL.<br>277                                                                                                                                                                                                                 |                                 | GAS—MCF.<br>TSTM                                                                                       |                                                               |
| WATER—BBL.<br>0                                                                                                                                                                                                                 |                                 | GAS-OIL RATIO<br>---                                                                                   |                                                               |
| FLOW. TUBING PRESS.<br>---                                                                                                                                                                                                      |                                 | CASING PRESSURE<br>0                                                                                   |                                                               |
| CALCULATED 24-HOUR RATE<br>277                                                                                                                                                                                                  |                                 | OIL GRAVITY-API (CORR.)<br>32.5                                                                        |                                                               |
| 34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)                                                                                                                                                                      |                                 | TEST WITNESSED BY<br>Rusty Vigil                                                                       |                                                               |
| 35. LIST OF ATTACHMENTS                                                                                                                                                                                                         |                                 |                                                                                                        |                                                               |
| 36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records                                                                                               |                                 |                                                                                                        |                                                               |
| SIGNED<br>[Signature]                                                                                                                                                                                                           |                                 | TITLE<br>Area Manager                                                                                  |                                                               |
| Minerals Management Inc.                                                                                                                                                                                                        |                                 | DATE<br>5-16-77                                                                                        |                                                               |

\*(See Instructions and Spaces for Additional Data on Reverse Side)

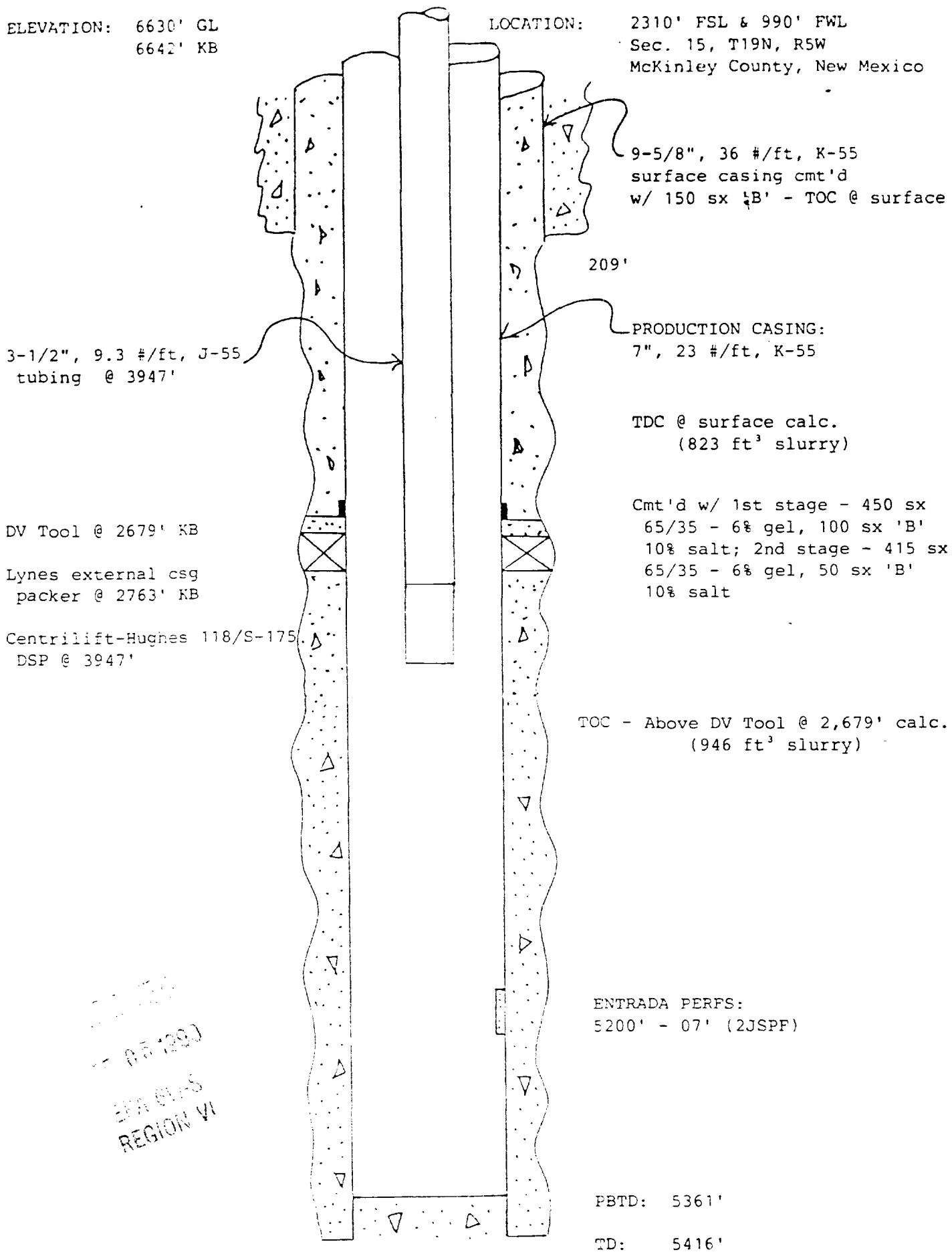
**General:** This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency. Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments. Item 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval. Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool. Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

U.S. GOVERNMENT PRINTING OFFICE: 1963-O-683636  
897-407

WAVAJO ALLOTMENT 15 NO. 4  
PAPERS WASH FIELD

ELEVATION: 6630' GL  
6642' KB

LOCATION: 2310' FSL & 990' FWL  
Sec. 15, T19N, R5W  
McKinley County, New Mexico



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE\*

(S. 161 in-  
str. 95 on  
reverse side)

Form approved.  
Budget Bureau No. 42-R555.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG\*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☐ Other Water Injection

b. TYPE OF COMPLETION:

NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESER. ☐ Other \_\_\_\_\_

2. NAME OF OPERATOR

Dome Petroleum Corporation

3. ADDRESS OF OPERATOR Minerals Management Inc., Suite 105,

501 Airport Drive, Farmington, New Mexico 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)\*

At surface 890' FSL, 1650' FWL, SEC. 15, T19N, R5W

At top prod. interval reported below

At total depth

14. PERMIT NO.

DATE ISSUED

5. LEASE DESIGNATION AND SERIAL NO.  
N00-C-14-20-5377

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
Navajo Allotted

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Navajo Allotted 15

9. WELL NO.

6

10. FIELD AND POOL, OR WILDCAT

Papers Wash

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA

SEC. 15, T19N, R5W  
NMPM

12. COUNTY OR PARISH  
McKinley

13. STATE  
N.M.

15. DATE SPUDDED

6-19-77

16. DATE T.D. REACHED

6-29-77

17. DATE COMPL. (Ready to prod.)

8-11-77 (Injection)

18. ELEVATIONS (DF, REB, RT, GR, ETC.)\*

6553' GL, 6565' KB

19. ELEV. CASINGHEAD

6553'

20. TOTAL DEPTH, MD & TVD

5392'

21. PLUG, BACK T.D., MD & TVD

5131'

22. IF MULTIPLE COMPL., HOW MANY\*

--

23. INTERVALS DRILLED BY

ROTARY TOOLS

CABLE TOOLS

0'-5392'

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)\*

Gallup, 2895'-3560'

25. WAS DIRECTIONAL SURVEY MADE

No

26. TYPE ELECTRIC AND OTHER LOGS RUN

Dual Induction Laterolog, Compensated Neutron/Formation Density

27. WAS WELL CORED

No

28. CASING RECORD (Report all strings set in well)

| CASING SIZE | WEIGHT, LB./FT. | DEPTH SET (MD) | HOLE SIZE | CEMENTING RECORD  | AMOUNT PULLED |
|-------------|-----------------|----------------|-----------|-------------------|---------------|
| 9 5/8       | 36              | 204            | 13 1/4    | 200 sx            | --            |
| 7           | 20&23           | 5342           | 8 3/4     | 1100 sx (2 stage) | --            |
|             |                 |                |           | DV @ 2669         | --            |

29. LINER RECORD

| SIZE | TOP (MD) | BOTTOM (MD) | SCREEN (MD) |
|------|----------|-------------|-------------|
|      |          |             |             |

30. TUBING RECORD

| SIZE        | DEPTH SET (MD) | PACKER SET (MD) |
|-------------|----------------|-----------------|
| 4 1/2"-9.5# | 2855           | 2855            |

31. PERFORATION RECORD (Interval, size and number)

Entrada: 5156-5163 w/2 jet shots/ft

Gallup: 2925-2982, 3002-3096,  
3110-3192 w/1 shot/ft.

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

| DEPTH INTERVAL (MD) | AMOUNT AND KIND OF MATERIAL USED |
|---------------------|----------------------------------|
| 5156-5163           | 100 sx LFL cement to 1000 p      |
| 2925-2982           | 750 gal 15% HCl                  |
| 3002-3096           | 750 gal 15% HCl                  |
| 3110-3192           | 750 gal 15% HCl                  |

33. PRODUCTION

| DATE FIRST PRODUCTION | PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) | WELL STATUS (Producing or shut-in) |
|-----------------------|----------------------------------------------------------------------|------------------------------------|
|                       | No Production                                                        |                                    |

| DATE OF TEST | HOURS TESTED | CHOKE SIZE | PROD'N. FOR TEST PERIOD | OIL—BBL. | GAS—MCF. | WATER—BBL. | GAS-OIL RATIO |
|--------------|--------------|------------|-------------------------|----------|----------|------------|---------------|
|              |              |            |                         |          |          |            |               |

| FLOW, TUBING PRESS. | CASING PRESSURE | CALCULATED 24-HOUR RATE | OIL—BBL. | GAS—MCF. | WATER—BBL. | OIL GRAVITY-API (CORR.) |
|---------------------|-----------------|-------------------------|----------|----------|------------|-------------------------|
|                     |                 |                         |          |          |            |                         |

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED

*[Signature]*

TITLE

Minerals Management Inc.  
Area Manager

DATE

8-23-77

\*(See Instructions and Spaces for Additional Data on Reverse Side)

# INSTRUCTIONS

**General:** This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on Items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see Item 35.

**Item 4:** If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

**Item 18:** Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

**Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple completion), so state in Item 22, and in Item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in Item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

**Item 29:** "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

**Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for Items 22 and 24 above.)

**37. SUMMARY OF POROUS ZONES:**  
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

**38. GEOLOGIC MARKERS**

| FORMATION | TOP | BOTTOM | DESCRIPTION, CONTENTS, ETC. | NAME          | MEAS. DEPTH | TRUE VERT. DEPTH |
|-----------|-----|--------|-----------------------------|---------------|-------------|------------------|
|           |     |        |                             | La Ventana    | 462'        |                  |
|           |     |        |                             | Point Lookout | 1956'       |                  |
|           |     |        |                             | Mancos Shale  | 2055'       |                  |
|           |     |        |                             | Mancos Marker | 2285'       |                  |
|           |     |        |                             | Gallup        | 2895'       |                  |
|           |     |        |                             | Sanostee      | 3560'       |                  |
|           |     |        |                             | Greenhorn     | 3892'       |                  |
|           |     |        |                             | Graneros      | 3976'       |                  |
|           |     |        |                             | Dakota        | 4111'       |                  |
|           |     |        |                             | Morrison      | 4245'       |                  |
|           |     |        |                             | Summerville   | 5097'       |                  |
|           |     |        |                             | Todilto       | 5149'       |                  |
|           |     |        |                             | Entrada       | 5160'       |                  |
|           |     |        |                             | Carmel        | 5376'       |                  |

RECEIVED

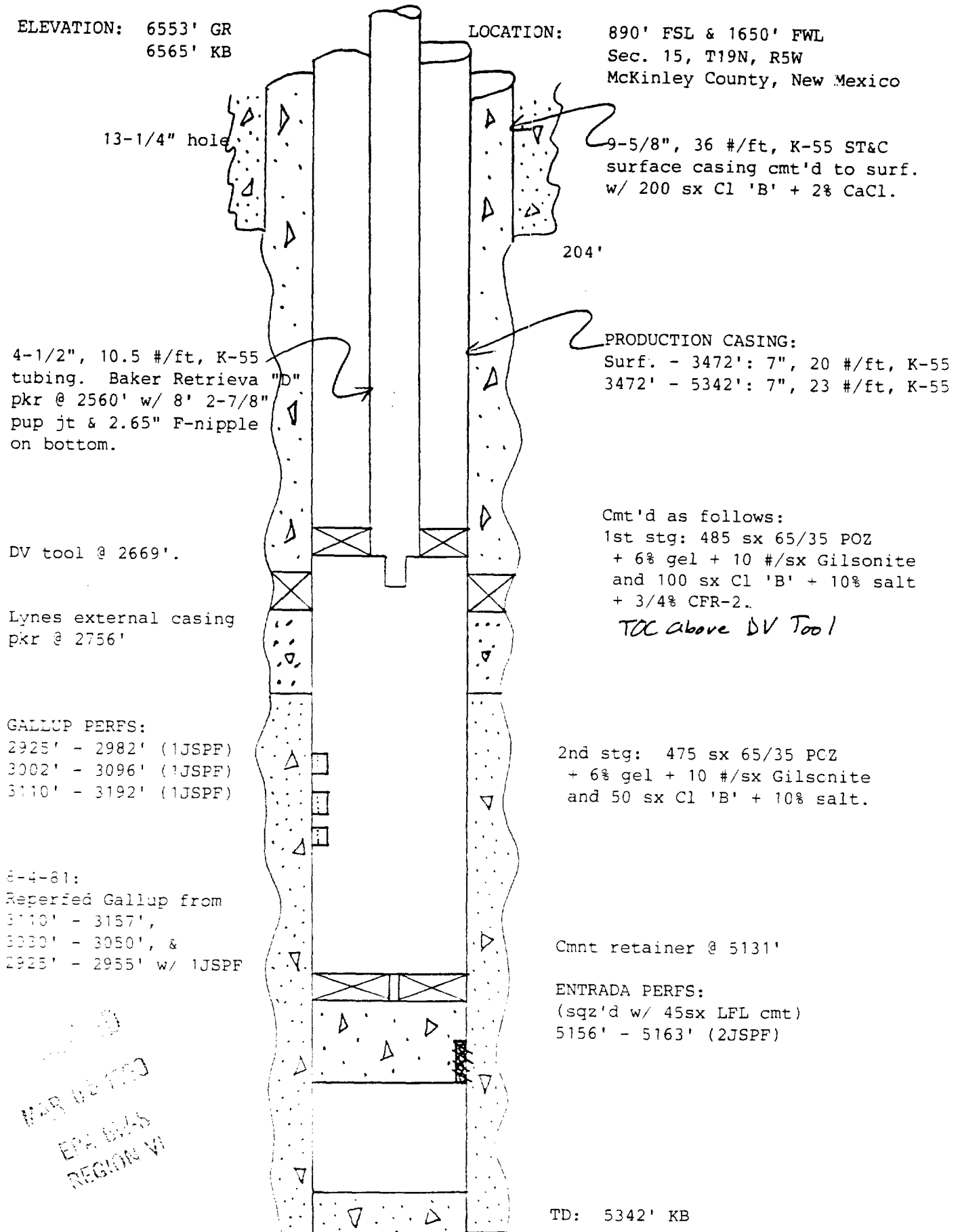
MAR 05 1990

EPA GW-S  
REGION VI

NAVAJO ALLOTTED NO. 15-6  
PAPERS WASH FIELD  
McKINLEY COUNTY, NM

ELEVATION: 6553' GR  
6565' KB

LOCATION: 890' FSL & 1650' FWL  
Sec. 15, T19N, R5W  
McKinley County, New Mexico



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE

(See instructions on reverse side)

Form approved.  
Budget Bureau No. 42-B355.5.

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG \*

|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    |                                                   |             |
|-----------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------|------------------------------------|-----------------------------------|------------------------------------|---------------------------------------------------|-------------|
| 1a. TYPE OF WELL:                                                                                                                 |  | OIL WELL <input checked="" type="checkbox"/>                         | GAS WELL <input type="checkbox"/>  | DRY <input type="checkbox"/>      | Other _____                        |                                                   |             |
| b. TYPE OF COMPLETION:                                                                                                            |  | NEW WELL <input checked="" type="checkbox"/>                         | WORK OVER <input type="checkbox"/> | DEEP-EN <input type="checkbox"/>  | PLUG BACK <input type="checkbox"/> | DIFF. RESVR. <input type="checkbox"/>             | Other _____ |
| 2. NAME OF OPERATOR                                                                                                               |  |                                                                      |                                    |                                   |                                    | 5. LEASE DESIGNATION AND SERIAL NO.               |             |
| Dome Petroleum Corporation                                                                                                        |  |                                                                      |                                    |                                   |                                    | NOO-C-14-20-5379                                  |             |
| 3. ADDRESS OF OPERATOR                                                                                                            |  |                                                                      |                                    |                                   |                                    | 6. IF INDIAN, ALLOTTEE OR TRIBE NAME              |             |
| Minerals Management Inc., Suite 105,<br>501 Airport Drive, Farmington, New Mexico 87401                                           |  |                                                                      |                                    |                                   |                                    | Navajo Allotted                                   |             |
| 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*                                      |  |                                                                      |                                    |                                   |                                    | 7. UNIT AGREEMENT NAME                            |             |
| At surface 2310' FSL, 330' FEL, SEC. 16, T19N, R5W                                                                                |  |                                                                      |                                    |                                   |                                    | 8. FARM OR LEASE NAME                             |             |
| At top prod. interval reported below                                                                                              |  |                                                                      |                                    |                                   |                                    | Navajo Allotted 16                                |             |
| At total depth                                                                                                                    |  |                                                                      |                                    |                                   |                                    | 9. WELL NO.                                       |             |
| 14. PERMIT NO.                                                                                                                    |  |                                                                      |                                    |                                   |                                    | 10. FIELD AND POOL, OR WILDCAT                    |             |
| DATE ISSUED                                                                                                                       |  |                                                                      |                                    |                                   |                                    | Papers Wash Entrada                               |             |
| 15. DATE SPUDDED                                                                                                                  |  |                                                                      |                                    |                                   |                                    | 11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA |             |
| 8-3-77                                                                                                                            |  |                                                                      |                                    |                                   |                                    | SEC. 16, T19N, R5W                                |             |
| 16. DATE T.D. REACHED                                                                                                             |  |                                                                      |                                    |                                   |                                    | 12. COUNTY OR PARISH                              |             |
| 8-27-77                                                                                                                           |  |                                                                      |                                    |                                   |                                    | N.M.P.M.                                          |             |
| 17. DATE COMPL. (Ready to prod.)                                                                                                  |  |                                                                      |                                    |                                   |                                    | 13. STATE                                         |             |
| 8-27-77                                                                                                                           |  |                                                                      |                                    |                                   |                                    | McKinley                                          |             |
| 18. ELEVATIONS (DF, REB, RT, GR, ETC.)*                                                                                           |  |                                                                      |                                    |                                   |                                    | 19. ELEV. CASINGHEAD                              |             |
| 6591' GR, 6603' KB                                                                                                                |  |                                                                      |                                    |                                   |                                    | 6591'                                             |             |
| 20. TOTAL DEPTH, MD & TVD                                                                                                         |  | 21. PLUG, BACK T.D., MD & TVD                                        |                                    | 22. IF MULTIPLE COMPL., HOW MANY* |                                    | 23. INTERVALS DRILLED BY                          |             |
| 5392'                                                                                                                             |  | 5264'                                                                |                                    |                                   |                                    | ROTARY TOOLS                                      |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | CABLE TOOLS                                       |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | All                                               |             |
| 24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*                                                     |  |                                                                      |                                    |                                   |                                    | 25. WAS DIRECTIONAL SURVEY MADE                   |             |
| 5185'-5190' Entrada                                                                                                               |  |                                                                      |                                    |                                   |                                    | No                                                |             |
| 26. TYPE ELECTRIC AND OTHER LOGS RUN                                                                                              |  |                                                                      |                                    |                                   |                                    | 27. WAS WELL CORED                                |             |
| Dual Induction Laterolog, Compensated Neutron Formation Density                                                                   |  |                                                                      |                                    |                                   |                                    | No                                                |             |
| 28. CASING RECORD (Report all strings set in well)                                                                                |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| CASING SIZE                                                                                                                       |  | WEIGHT, LB./FT.                                                      |                                    | DEPTH SET (MD)                    |                                    | HOLE SIZE                                         |             |
| 9 5/8                                                                                                                             |  | 36                                                                   |                                    | 211                               |                                    | 13 1/4                                            |             |
| 7                                                                                                                                 |  | 20 & 23                                                              |                                    | 5369                              |                                    | 8 5/8                                             |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | 200 sx                                            |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | 850 sx - 2 stage                                  |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | DV at 2706                                        |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| 29. LINER RECORD                                                                                                                  |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| SIZE                                                                                                                              |  | TOP (MD)                                                             |                                    | BOTTOM (MD)                       |                                    | SACKS CEMENT*                                     |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | SCREEN (MD)                                       |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| 30. TUBING RECORD                                                                                                                 |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| SIZE                                                                                                                              |  | DEPTH SET (MD)                                                       |                                    | PACKER SET (MD)                   |                                    |                                                   |             |
| 3 1/2                                                                                                                             |  | 3036                                                                 |                                    |                                   |                                    |                                                   |             |
| 31. PERFORATION RECORD (Interval, size and number)                                                                                |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| 5185'-5190' with 2 jets per foot (10 shots)                                                                                       |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.                                                                                    |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| DEPTH INTERVAL (MD)                                                                                                               |  |                                                                      |                                    | AMOUNT AND KIND OF MATERIAL USED  |                                    |                                                   |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    |                                                   |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    |                                                   |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| 33. PRODUCTION                                                                                                                    |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| DATE FIRST PRODUCTION                                                                                                             |  | PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) |                                    |                                   |                                    | WELL STATUS (Producing or shut-in)                |             |
| 8-28-77                                                                                                                           |  | Pumping                                                              |                                    |                                   |                                    | Producing                                         |             |
| DATE OF TEST                                                                                                                      |  | HOURS TESTED                                                         |                                    | CHOKE SIZE                        |                                    | PROD'N. FOR TEST PERIOD                           |             |
| 9-1-77                                                                                                                            |  | 24                                                                   |                                    | ---                               |                                    | ---                                               |             |
| FLOW, TUBING PRESS.                                                                                                               |  | CASING PRESSURE                                                      |                                    | CALCULATED 24-HOUR RATE           |                                    | OIL—BBL.                                          |             |
| ---                                                                                                                               |  | ---                                                                  |                                    | ---                               |                                    | 520                                               |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | GAS—MCF.                                          |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | TSTM                                              |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | WATER—BBL.                                        |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | 0                                                 |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | OIL GRAVITY-API (CORR.)                           |             |
|                                                                                                                                   |  |                                                                      |                                    |                                   |                                    | ---                                               |             |
| 34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)                                                                        |  |                                                                      |                                    |                                   |                                    | TEST WITNESSED BY                                 |             |
| None                                                                                                                              |  |                                                                      |                                    |                                   |                                    | R. Vigil                                          |             |
| 35. LIST OF ATTACHMENTS                                                                                                           |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| None                                                                                                                              |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| 36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records |  |                                                                      |                                    |                                   |                                    |                                                   |             |
| SIGNED <u>Area Manager</u>                                                                                                        |  |                                                                      |                                    | TITLE Minerals Management Inc.    |                                    |                                                   |             |
| DATE 11-15-77                                                                                                                     |  |                                                                      |                                    |                                   |                                    |                                                   |             |

\*(See Instructions and Spaces for Additional Data on Reverse Side)

**General:** This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on Items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formations, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

**Item 4:** If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

**Item 18:** Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

**Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

**Item 29:** "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

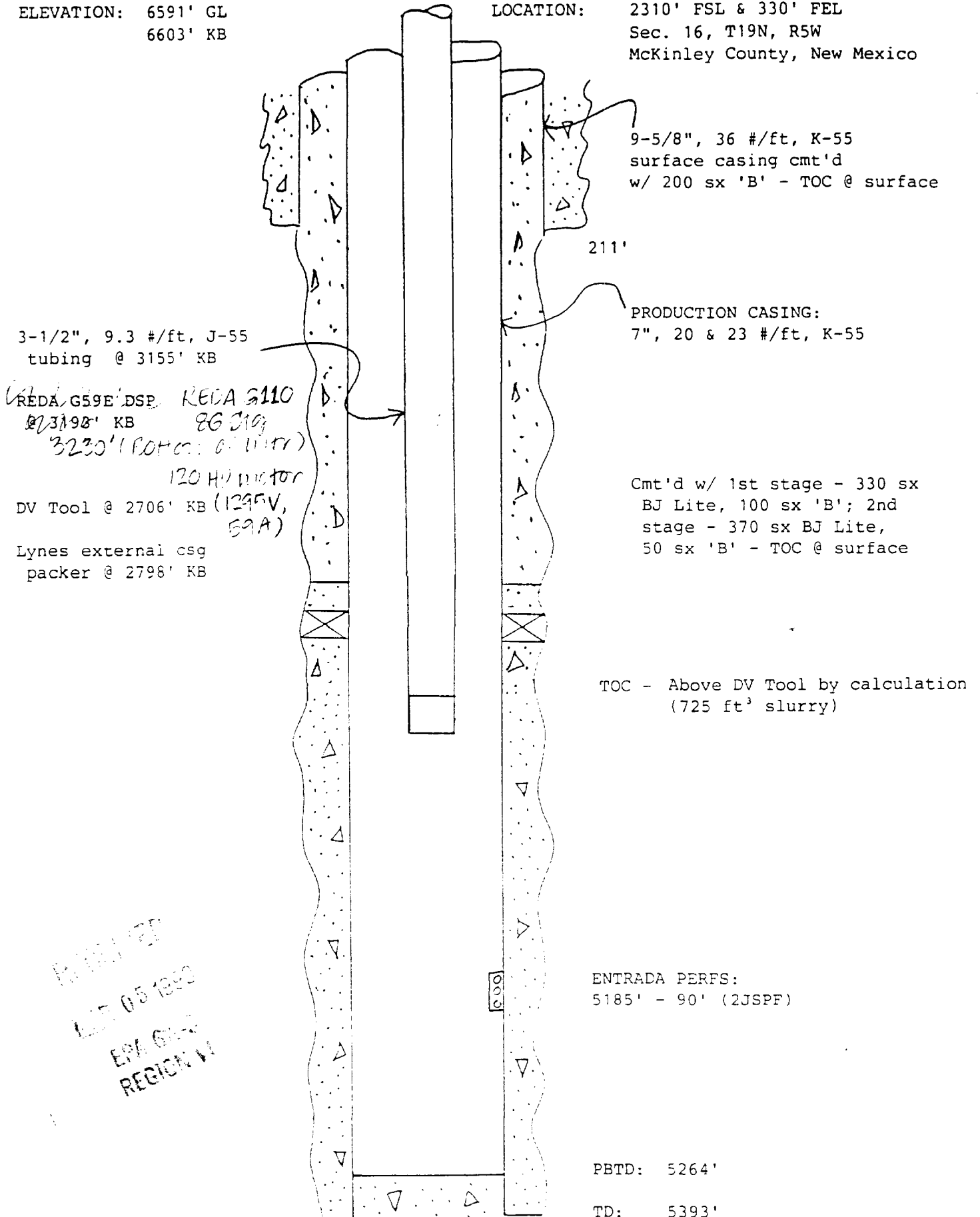
**Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

071-233

NAVAJO ALLOTTED 16 NO. 1  
PAPERS WASH FIELD

ELEVATION: 6591' GL  
6603' KB

LOCATION: 2310' FSL & 330' FEL  
Sec. 16, T19N, R5W  
McKinley County, New Mexico





**STATE 16-2**

PAPERS WASH FIELD

2310' FNL & 330' FEL

Section 16, T19N, R5W

McKinley, New Mexico

ELEVATION: 5676' GL

5690' KB

Cement  
Plug  
Surface  
to 150'  
w/120 sx

13-3/4" Hole

9-5/8", 36#, K-55 @ 205'  
200 sx Class "B" with 2% CaCl

8-3/4" hole

Cmt plug  
1400'-1450' with 10 sx

7", K-55, 20# @ 3665', 23# @ 5373'  
1st Stage: 385 sx 65/35 Poz, 6%  
gel, 10#/sx gilsonite  
(1.53 ft<sup>3</sup>/sx) w/100 sx  
Class "B" w/10% salt  
(1.23 ft<sup>3</sup>/sx)

DV Tool @ 2687'

Cmt Plug  
2850'-2900 with 10 sx

Lynes Packer at 2729'

2nd Stage: 370 sx 65/35 Poz, 6%  
gel, 10#/sx gilsonite  
with 100 sx Class "B"  
with 10% salt

Cmt Plug  
3110'-3210' with 20 sx

Cmt Plug  
4100'-4250' with 35 sx

Cmt Plug  
5050'-5315' with 55 sx

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MAR 05 1990

EPA 6W-S  
REGION VI

Entrada Perfs:

5161'-63'

5170'-72'

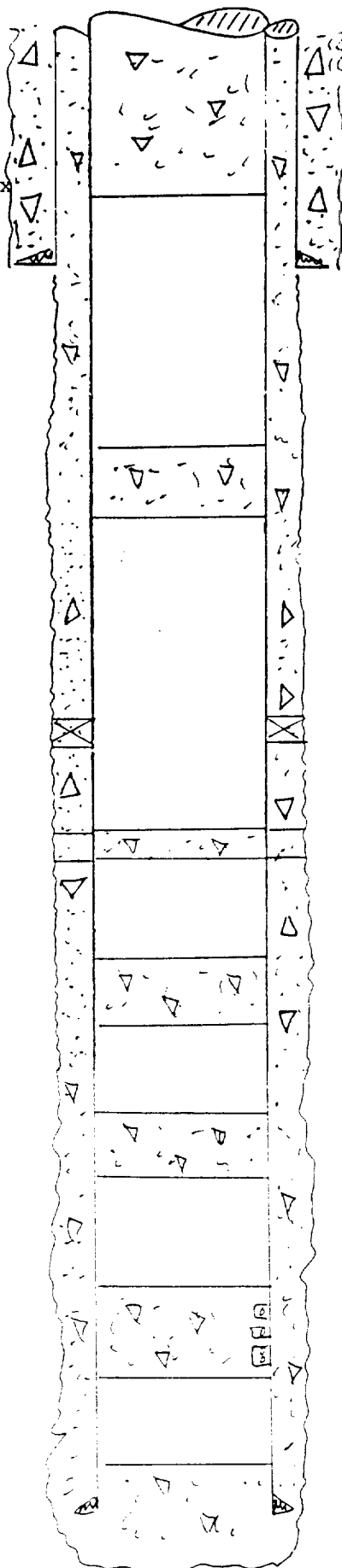
5179'-85'

Squeezed with 75 sx

Reperf 5179'-81'

PBTD: 5325'

TD: 5383'



MERRION OIL & GAS CORPORATION

610 REILLY AVE. • P. O. Box 840  
FARMINGTON, NEW MEXICO 87499

4/4/90

March 28, 1990

Ms. Virginia Hughes  
U.S. E.P.A.  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

RE  
APR  
EPA  
REGION 6

Re: Supplemental Information  
UIC Injection Permit Application  
Navajo Allotted 15-3  
Papers Wash Field  
Section 15, T19N, R5W  
McKinley County, New Mexico

Dear Ms. Hughes:

Per our conversation on March 26, 1990, attached are the following:

- 1) BLM NTL-2B Sundry Notice Application
- 2) Copy of Bond No. 40 S 23025 BCA
- 3) Eventual P & A plan for the subject well

We did not yet contact the Navajo Tribe as you requested. The BIA has indicated to us that they have jurisdiction, and we are wary of setting a precedent of notifying the tribe if it is not really necessary. Therefore, we will continue to work with you and the BIA to resolve this matter.

Please contact me at (505) 327-9801 if additional information is required.

Sincerely,

MERRION OIL & GAS CORPORATION

*George F. Sharpe*  
George F. Sharpe  
Reservoir Engineer

GFS 11s

cc: S. S. Dunn  
EPA File  
Well File

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPPLICATE\*  
(Other instructions on re-  
verse side)

Form 3100-5  
Budget No. 1004-1138  
Expires April 30, 1985

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals.)

|                                                                                                                                                                  |                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>                                                 | 7. UNIT AGREEMENT NAME                                                  |
| 2. NAME OF OPERATOR<br>Merrion Oil & Gas Corp.                                                                                                                   | 8. FARM OR LEASE NAME<br>Navajo Allotted 15                             |
| 3. ADDRESS OF OPERATOR<br>P. O. Box 840, Farmington, New Mexico 87499                                                                                            | 9. WELL NO.<br>3                                                        |
| 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*<br>See also space 17 below.)<br>At surface<br>2310 FSL and 2000 FWL | 10. FIELD AND POOL, OR WILDCAT<br>Papers Wash Entrada                   |
| 14. PERMIT NO.                                                                                                                                                   | 11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA<br>Sec. 15, T19N, R05W |
| 15. ELEVATIONS (Show whether DF, RT, GR, etc.)<br>6562' GR                                                                                                       | 12. COUNTY OR PARISH<br>McKinley                                        |
|                                                                                                                                                                  | 13. STATE<br>New Mexico                                                 |

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF ☐  
FRACTURE TREAT ☐  
SHOOT OR ACIDIZE ☐  
REPAIR WELL ☐  
(Other) Inject Water

PULL OR ALTER CASING ☐  
MULTIPLE COMPLETE ☐  
ABANDON\* ☐  
CHANGE PLANS ☒

WATER SHUT-OFF ☐  
FRACTURE TREATMENT ☐  
SHOOTING OR ACIDIZING ☐  
(Other) ☐

REPAIRING WELL ☐  
ALTERING CASING ☐  
ABANDONMENT\* ☐

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

We are proposing to convert the subject well to injection to implement a waterflood in the Entrada Formation. Attached is the required 9-point NTL-2B information. Also attached is a copy of the State Order approving the injection project. If additional information is needed, please contact Mr. George Sharpe at 327-9801.

REC-11

APR 11 1990

ER-0005  
REGION VI

18. I hereby certify that the foregoing is true and correct

SIGNED George F. Sharpe  
(This space for Federal or State office use)

TITLE Reservoir Engineer

DATE 3/30/90

APPROVED BY \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

TITLE \_\_\_\_\_

DATE \_\_\_\_\_

\*See Instructions on Reverse Side

MERRION OIL & GAS CORPORATION  
NAVAJO ALLOTTED 15-3

APPLICATION FOR APPROVAL TO DISPOSE OF  
PRODUCED WATER

LOCATION: 2310' FSL & 2000' FWL                      ELEVATION: 6,562' GR  
          Sec. 15, T19N, R5W  
          McKinley Co., New Mexico                      DATE: March 29, 1990

FIELD:        Papers Wash Entrada & Mesaverde    BY: George F. Sharpe

---

- 1) Disposal Well  
    Navajo Allotted 15-3  
    2310' FSL, 2000' FWL  
    Sec. 15, T19N, R5W  
    Lease: N00-C-14-20-5377
- 2) Proposed Injection Rate: 3000-6000 BWPB  
    Source:

| <u>Producing</u><br><u>Well</u> | <u>Location</u> | <u>Lease</u>     | <u>Formation</u> |
|---------------------------------|-----------------|------------------|------------------|
| Navajo 15-4                     | NW SW 15-19N-5W | N00-C-14-20-5377 | Entrada          |
| State 16-2                      | SE NE 16-19N-5W | NM-4953          | Entrada          |
| Federal 15-2H                   | SW NW 15-19N-5W | NM-4953          | Entrada          |
| Little Blue Fed 1               | SW NW 15-19N-5W | BN 4953          | Mesaverde        |

Water analyses for Entrada and Mesaverde formations are attached.

- 3) Injection Formation: Entrada 5142'-48'
- 4) Entrada water analysis attached.
- 5) Morrison Formation overlying the Entrada at a depth of +-4700' contains water with a TDS of less than 10000. However, no formations are used as freshwater aquifers in the immediate area.
- 6) Attached is a wellbore schematic showing the hole, casing, and cementing detail for the subject well.
- 7) TD = 5343'  
    PBTD = 5295'
- 8) The well is to be completed with 3 1/2" plastic lined tubing and a Baker Lockset Retrievable packer set at 5100' (see schematic.) The annulus will be protected with inhibited fluid. The anticipated operating conditions are as follows:

APR 05 1990

APPLICATION TO DISPOSE OF PRODUCED WATER  
PAGE TWO  
MARCH 29, 1990

|                 | <u>Average</u> | <u>Maximum</u> |
|-----------------|----------------|----------------|
| Injection Rate  | 3000 BPD       | 6000 BPD       |
| Tubing Pressure | 500 psi        | 1000 psi       |

- 9) Rates and pressures will be monitored daily. The tubing casing annulus and packer will be pressure tested prior to commencing injection and at least once every 5 years thereafter.

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

---

George F. Sharpe  
Reservoir Engineer

---

Date

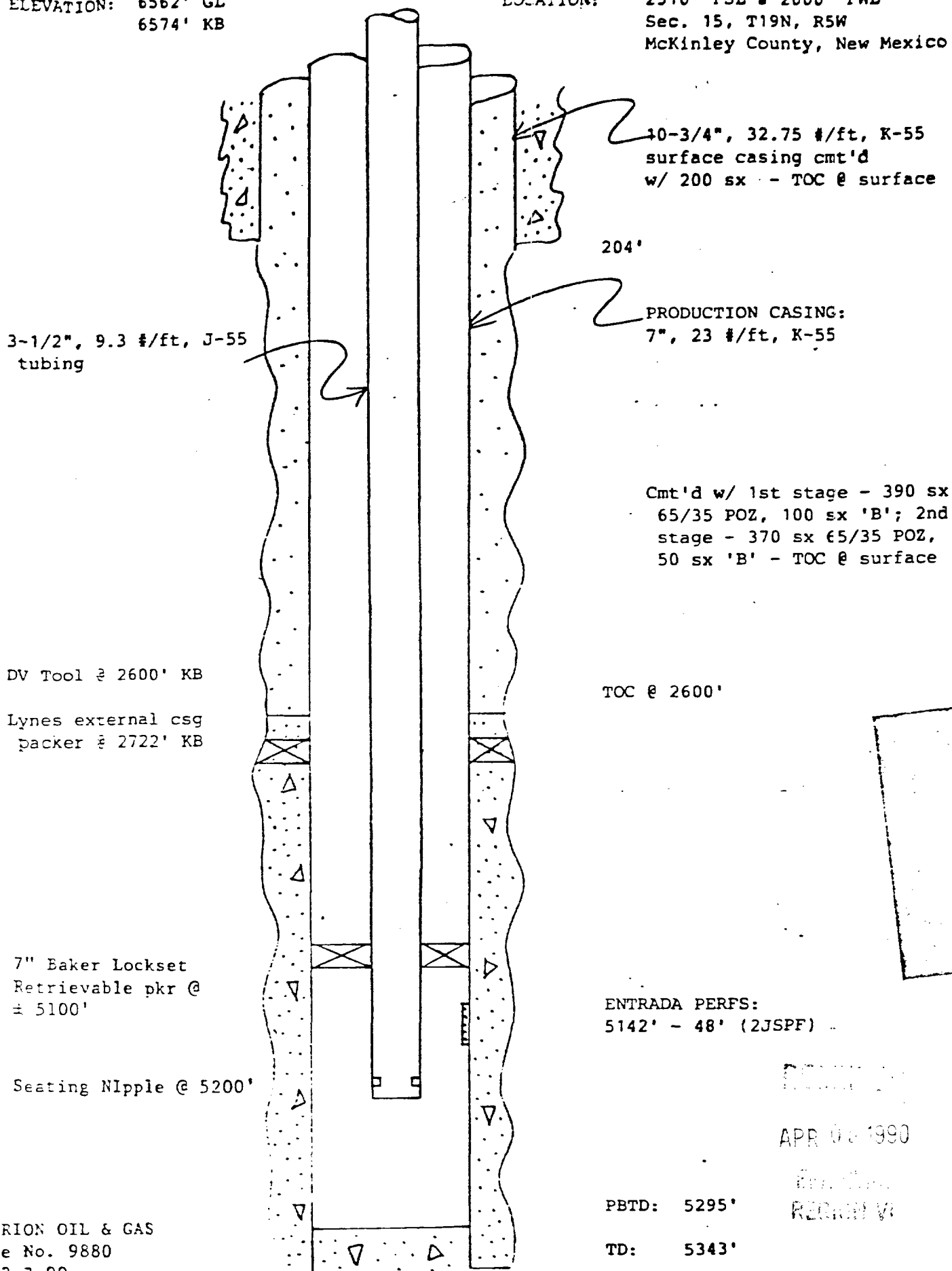
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EPA GW-S  
REGION VI

# EXHIBIT 10

NAVAJO ALLOTTED 15 NO. 3  
PAPERS WASH FIELD

ELEVATION: 6562' GL  
6574' KB

LOCATION: 2310' FSL & 2000' FWL  
Sec. 15, T19N, R5W  
McKinley County, New Mexico



## EXHIBIT 8

## ENTRADA WATER ANALYSIS

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL &amp; GAS

Date : 02-13-1990

Location: Papers Wash - Inj. Tank (on 1-31-90)

Sample 1

Specific Gravity:

1.003

Total Dissolved Solids:

4210

pH:

7.60

IONIC STRENGTH:

0.085

CATIONS:

|              |                     | <u>me/liter</u> | <u>mg/liter</u> |
|--------------|---------------------|-----------------|-----------------|
| Calcium      | (Ca <sup>+2</sup> ) | 1.73            | 34.7            |
| Magnesium    | (Mg <sup>+2</sup> ) | 3.20            | 38.9            |
| Sodium       | (Na <sup>+1</sup> ) | 55.8            | 1280            |
| Iron (total) | (Fe <sup>+2</sup> ) | 0.061           | 1.70            |
| Barium       | (Ba <sup>+2</sup> ) | 0.003           | 0.200           |
| Manganese    | (Mn <sup>+2</sup> ) | 0.008           | 0.210           |

ANIONS:

|             |                                   |      |      |
|-------------|-----------------------------------|------|------|
| Bicarbonate | (HCO <sub>3</sub> <sup>-1</sup> ) | 6.40 | 390  |
| Carbonate   | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide   | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate     | (SO <sub>4</sub> <sup>-2</sup> )  | 42.7 | 2050 |
| Chloride    | (Cl <sup>-1</sup> )               | 11.7 | 413  |

SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | -0.07            | -11            |
| 120°F              | 49°C | 0.33             | -11            |

MERRION OIL &amp; GAS

CASE NO. 9880

3-7-90

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APR 05 1990

LRA OPS  
REGION VI

# EXHIBIT 9

## MESAVERDE WATER ANALYSIS

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : MERRION OIL & GAS  
Date : 01-09-1990  
Location: Little Blue Fed #1 (on 12-22-89)

|                         |                 |
|-------------------------|-----------------|
| Specific Gravity:       | <u>Sample 1</u> |
| Total Dissolved Solids: | 1.005           |
| pH:                     | 7245            |
| IONIC STRENGTH:         | 9.10            |
|                         | 0.121           |

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 0.400           | 8.00            |
| Magnesium       | (Mg <sup>+2</sup> ) | 2.48            | 30.1            |
| Sodium          | (Na <sup>+1</sup> ) | 111             | 2550            |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.705           | 19.7            |
| Barium          | (Ba <sup>+2</sup> ) | 0.016           | 1.10            |
| Manganese       | (Mn <sup>+2</sup> ) | 0.019           | 0.510           |

| <u>ANIONS:</u> |                                   | <u>me/liter</u> | <u>mg/liter</u> |
|----------------|-----------------------------------|-----------------|-----------------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 19.2            | 1170            |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0               | 0               |
| Hydroxide      | (OH <sup>-1</sup> )               | 0               | 0               |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 10.1            | 483             |
| Chloride       | (Cl <sup>-1</sup> )               | 84.6            | 3000            |

### SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | 1.2              | -27            |
| 120°F              | 49°C | 2.1              | -27            |

Comments:  
This water to be mixed with Media - Entrada #6

MERRION OIL & GAS  
CASE NO. 9880  
3-7-90

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APR 10 1990  
EPA CIV-S  
REGION VI

Bond No. 40 8 23025 BCI Amount of Bond \$ 75,000.00  
Principal J. GREGORY MERRION & R. L. RAYLESS Hereby increased to \$ 150,000.00  
Obligee UNITED STATES OF AMERICA

As of the 9th day of April, 19 83, the amount of the above described bond is increased from the sum of \$ 75,000.00 to the sum of \$ 150,000.00, but the liability of the Surety for any acts or defaults occurring before the effective date hereof shall in no event exceed the sum first named, and the aggregate liability for any and all acts and defaults, whenever committed, shall in no event exceed the sum last named, it being the intent hereof to preclude cumulative liability. This certificate, when signed by the Principal, shall become a part of the said bond.

Signed, sealed and dated this 5th day of April, 19 83.

THE ETNA CASUALTY AND SURETY COMPANY

By \_\_\_\_\_  
Frances I. Mangold Attorney-in-Fact

I hereby consent to the above increase.

Witness my hand and seal this 13th day of May

1983 *J. Gregory Merrion*  
*Robert L. Rayless* (Seal)  
Principal

INSTRUCTIONS TO AGENTS — IMPORTANT

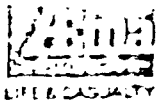
Do not deliver this certificate to the Obligee until it has been dated and signed by the Principal. One signed copy must be returned to the Surety.

RECEIVED

APR 06 1990

REGION VI

CAT. 123100  
PRINTED IN U. S.



## POWER OF ATTORNEY AND CERTIFICATE OF AUTHORITY OF ATTORNEY(S)-IN-FACT

KNOW ALL MEN BY THESE PRESENTS, THAT THE AETNA CASUALTY AND SURETY COMPANY, a corporation duly organized under the laws of the State of Connecticut, and having its principal office in the City of Hartford, County of Hartford, State of Connecticut, hath made, constituted and appointed, and does by these presents make, constitute and appoint **Burt B. Holmes, Kent Bonart, Jeffrey M. Holmes or Sue G. Scott - -**

of **Tulsa, Oklahoma**, its true and lawful Attorney(s)-in-Fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any place within the United States, or, if the following line be filled in, within the area there designated, the following instrument(s):  
by his/her sole signature and act, any and all bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any and all consents incident thereto not exceeding the sum of ONE MILLION (\$1,000,000.00) DOLLARS - -

and to bind THE AETNA CASUALTY AND SURETY COMPANY, thereby as fully and to the same extent as if the same were signed by the duly authorized officers of THE AETNA CASUALTY AND SURETY COMPANY, and all the acts of said Attorney(s)-in-Fact, pursuant to the authority herein given, are hereby ratified and confirmed.

This appointment is made under and by authority of the following Standing Resolutions of said Company which Resolutions are now in full force and effect:

VOTED: That each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, may from time to time appoint Resident Vice Presidents, Resident Assistant Secretaries, Attorneys-in-Fact, and Agents to act for and on behalf of the Company and may give any such appointee such authority as his certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors may at any time remove any such appointee and revoke the power and authority given him.

VOTED: That any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the Chairman, the Vice Chairman, the President, an Executive Vice President, a Senior Vice President, a Vice President, an Assistant Vice President or by a Resident Vice President, pursuant to the power prescribed in the certificate of authority of such Resident Vice President, and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary or by a Resident Assistant Secretary, pursuant to the power prescribed in the certificate of authority of such Resident Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact pursuant to the power prescribed in his or their certificate or certificates of authority.

This Power of Attorney and Certificate of Authority is signed and sealed by facsimile under and by authority of the following Standing Resolution voted by the Board of Directors of THE AETNA CASUALTY AND SURETY COMPANY which Resolution is now in full force and effect:

VOTED: That the signature of each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, THE AETNA CASUALTY AND SURETY COMPANY has caused this instrument to be signed by its Assistant Vice President, and its corporate seal to be hereto affixed this **20th** day of **May**, 1988

State of Connecticut }  
County of Hartford } ss. Hartford



THE AETNA CASUALTY AND SURETY COMPANY  
By Joseph P. Kiernan  
Joseph P. Kiernan  
Assistant Vice President

On this **20th** day of **May**, 1988, before me personally came **JOSEPH P. KIERNAN**, Assistant Vice President of THE AETNA CASUALTY AND SURETY COMPANY, the corporation described in and which executed the above instrument; that he/she knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; and that he/she executed the said instrument on behalf of the corporation by authority of his/her office under the Standing Resolutions thereof.

APPROVED  
SECRETARY

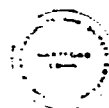


George A. Perry, Jr.  
My commission expires March 31, 1991  
George A. Perry, Jr., Notary Public

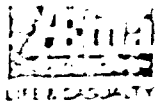
### CERTIFICATE

I, the undersigned, **Secretary** of THE AETNA CASUALTY AND SURETY COMPANY, a stock corporation of the State of Connecticut, DO HEREBY CERTIFY that the foregoing and attached Power of Attorney and Certificate of Authority remains in full force and has not been revoked. Substantive Resolutions of the Board of Directors, as set forth in the Certificate of Authority, are now in force.

Signed and Sealed at the Home Office of the Company in the City of Hartford, State of Connecticut, Dated this **17th** day of **April**, 1989



By John W. Welch  
John W. Welch, Secretary



## POWER OF ATTORNEY AND CERTIFICATE OF AUTHORITY OF ATTORNEY-IN-FACT

KNOW ALL MEN BY THESE PRESENTS, THAT THE AETNA CASUALTY AND SURETY COMPANY, a corporation duly organized under the laws of the State of Connecticut, and having its principal office in the City of Hartford, County of Hartford, State of Connecticut, hath made, constituted and appointed, and does by these presents make, constitute and appoint **Burt B. Holmes, Kent Bennett, Jeffrey C. Holmes or Sue G. Scott** - -

of **Tulsa, Oklahoma**, its true and lawful Attorney-in-Fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any place within the United States, or, if the following line be filled in, within the area there designated, the following instrument(s):  
by his/her sole signature and act, any and all bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any and all consents incident thereto **NOT** exceeding the sum of **ONE MILLION (\$1,000,000.00) DOLLARS** - -

and to bind THE AETNA CASUALTY AND SURETY COMPANY, thereby as fully and to the same extent as if the same were signed by the duly authorized officers of THE AETNA CASUALTY AND SURETY COMPANY, and all the acts of said Attorney-in-Fact, pursuant to the authority herein given, are hereby ratified and confirmed.

This appointment is made under and by authority of the following Standing Resolutions of said Company which Resolutions are now in full force and effect:

VOTED: That each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, may from time to time appoint Resident Vice Presidents, Resident Assistant Secretaries, Attorneys-in-Fact, and Agents to act for and on behalf of the Company and may give any such appointee such authority as his certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors may at any time remove any such appointee and revoke the power and authority given him.

VOTED: That any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the Chairman, the Vice Chairman, the President, an Executive Vice President, a Senior Vice President, a Vice President, an Assistant Vice President or by a Resident Vice President, pursuant to the power prescribed in the certificate of authority of such Resident Vice President, and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary or by a Resident Assistant Secretary, pursuant to the power prescribed in the certificate of authority of such Resident Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact pursuant to the power prescribed in his or their certificate or certificates of authority.

This Power of Attorney and Certificate of Authority is signed and sealed by facsimile under and by authority of the following Standing Resolution voted by the Board of Directors of THE AETNA CASUALTY AND SURETY COMPANY which Resolution is now in full force and effect:

VOTED: That the signature of each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, THE AETNA CASUALTY AND SURETY COMPANY has caused this instrument to be signed by its Assistant Vice President, **Joseph P. Kiernan**, and its corporate seal to be hereto affixed this **20th** day of **May**, **1988**.

State of Connecticut }  
County of Hartford } ss. Hartford



THE AETNA CASUALTY AND SURETY COMPANY  
By **Joseph P. Kiernan**  
**Joseph P. Kiernan**  
Assistant Vice President

On this **20th** day of **May**, **1988**, before me personally came **JOSEPH P. KIERNAN**, Assistant Vice President of THE AETNA CASUALTY AND SURETY COMPANY, the corporation described in and which executed the above instrument; that he/she knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; and that he/she executed the said instrument on behalf of the corporation by authority of his/her office under the Standing Resolutions thereof.



**George A. Perry, Jr.**  
My commission expires **March 31, 1991**  
**George A. Perry, Jr.**, Notary Public

### CERTIFICATE

I, the undersigned, **Secretary** of THE AETNA CASUALTY AND SURETY COMPANY, a stock corporation of the State of Connecticut, DO HEREBY CERTIFY that the foregoing and attached Power of Attorney and Certificate of Authority remains in full force and has not been revoked; and furthermore that the Standing Resolutions of the Board of Directors, as set forth in the Certificate of Authority, are now in force.

Signed and Sealed at the Home Office of the Company in the City of Hartford, State of Connecticut. Dated this **17th** day of **April**, **1989**.



By **John W. Welch**  
**John W. Welch**, Secretary

It is agreed that as of the effective date hereof the policy is amended as indicated by ☒

Robert L. Bayless & J. Gregory Merriam, Merriam Oil & Gas owned by

1. ☒ Name of Insured J. Gregory Merriam and Merriam Petroleum Corporation subsidiaries of.....  
Merriam Oil & Gas in lieu of Merriam Oil & Gas Corporation

2. ☐ Insured's business address .....

3. ☐ Location of the premises .....

Part occupied by Insured .....

4. ☐ Limit of Insurance under ..... increased to \$ .....

☐ Limit of Insurance under ..... increased to \$ .....

5. ☐ Limit of Insurance under ..... decreased to \$ .....

☐ Limit of Insurance under ..... decreased to \$ .....

6. ☐ Additional location and limits of insurance as shown below.

7. ☐ Rate per \$100 of Accounts Receivables \$ .....

8. ☐ Accounts Receivable Minimum Policy Premium \$ .....

9. ☐ Answer to item ..... of the declarations amended as shown below.

10. ☐ Mercantile Open Stock, Coinsurance ..... % ; \$ ..... limit.

11. ☐

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REGION V.

This endorsement forms a part of the policy to which attached, effective on the inception date of the policy unless otherwise stated herein.

(The information below is required only when this endorsement is issued subsequent to preparation of policy.)

|                       |                                                    |                   |             |                        |    |
|-----------------------|----------------------------------------------------|-------------------|-------------|------------------------|----|
| Endorsement effective | 4/17/89                                            | Policy No.        | 40S23024BCA | Endorsement No.        | 2  |
| Named Insured         | Robert L. Bayless & J. Gregory Merriam (see above) |                   |             |                        |    |
| Additional Premium \$ | N/A                                                | Return Premium \$ |             | In Adv.                | \$ |
|                       |                                                    |                   |             | 1st Anniv.             | \$ |
|                       |                                                    |                   |             | 2nd Anniv.             | \$ |
|                       |                                                    |                   |             | Total Document Premium | \$ |

☐ Additional Premium ☐ Return Premium

Insert Company name:

Aetna Casualty & Surety Company  
P.O. Box 35287  
Tulsa, Oklahoma 74153

Counter-signed by

Sue G. Scott

(Authorized Representative)

CAT. 66149A  
PRINTED IN U.S.A.

INDIAN LAND

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF INDIAN AFFAIRS

NATIONWIDE OIL AND GAS LEASE BOND

40 S 23025 BCA

KNOW ALL MEN BY THESE PRESENTS, That we, J. GREGORY MERRION & R.L. BAYLESS

of Box 507, Farmington, New Mexico 87401

as principals, and THE ETNA CASUALTY AND SURETY COMPANY

of HARTFORD, CONNECTICUT, as suret y, are held and firmly bound unto the United States of America in the sum of seventy-five thousand dollars (\$75,000), lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 21st day of December, 1975

The condition of this obligation is such that whereas the said principal.s. have heretofore or may hereafter enter into or otherwise acquire an interest in oil and gas mining leases and oil and gas prospecting permits of various dates and periods of duration covering lands or interests in lands held by the United States in trust for individual Indians, or tribes or bands of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior or his authorized representative, and the identification of which herein is expressly waived by both principals. and suret y hereto.

WHEREAS the principals. and suret y agree that the coverage of this bond shall extend to and include all extensions and renewals of leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the suret y hereby waive.s. any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal.s. and suret y agree that the neglect or forbearance of the obligee of any such lease or permit in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal.s. and suret y, or either of them, from any liability under this bond; and

WHEREAS the principal.s. and suret y agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal.s. and suret y, or either of them, without the necessity of joining the other.

Now, if the said principal.s. herein shall faithfully carry out and observe all the obligations assumed in said leases and permits to which J. GREGORY MERRION & R. L. BAYLESS is now or may hereafter become a party, and shall observe all the laws of the United States and regula-

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REGION VI

one made, or which shall be made, hereunder, for the government of trade and intercourse with Indian tribes, and all rules and regulations that have been or shall hereafter be lawfully prescribed by the Secretary of the Interior relative to said oil and gas mining leases and permits, and shall in all particulars comply with the provisions of said leases, permits, rules and regulations, then this obligation shall become null and void; otherwise, to remain in full force and effect.

The rate of premium charged on this bond is \$ 10./M; the total premium paid is \$ 750.00

Signed and sealed in the presence of—

WITNESSES\*

James M Johnson  
P. O. Farmington  
Edison Hare  
P. O. Farmington

as to [Signature] [SEAL]  
J. GREGORY MERRION

James M Johnson  
P. O. Farmington  
Edison Hare  
P. O. Farmington

as to [Signature] [SEAL]  
R. L. BAYLESS

John D. Belisle  
P. O. Tulsa OK  
Dan W. Mangold  
P. O. Tulsa, Okla

THE ETNA CASUALTY AND SURETY COMPANY  
as to Mary Lee Kirwin [SEAL]  
Mary Lee Kirwin, Attorney-in-Fact  
6111 E. Skelly Dr., Tulsa, Okla. 74135

P. O. \_\_\_\_\_  
as to \_\_\_\_\_ [SEAL]  
P. O. \_\_\_\_\_

\*Two witnesses to each signature.

DEPARTMENT OF THE INTERIOR  
BUREAU OF INDIAN AFFAIRS  
Washington 25, D. C.

APR 05 1990

ETA GW-S  
REGION VI

Approved:

\_\_\_\_\_, 19\_\_\_\_

Commissioner of Indian Affairs.

MERRION OIL & GAS CORPORATION

NAVAJO ALLOTTED 15-3

EVENTUAL PLUG AND ABANDONMENT PLAN

LOCATION: 2310' FSL & 2000' FWL                      ELEVATION: 6,562' GR  
          Sec. 15, T19N, R5W  
          McKinley Co., New Mexico                      BY: George F. Sharpe

- 1) Spot cement plug 50' above and below open Entrada Injection perforations.
- 2) Spot cement plugs 50' above and below following formation tops:

|            | <u>Depth</u> |
|------------|--------------|
| Dakota     | + - 4150'    |
| Gallup     | + - 2900'    |
| Mesa Verde | + - 500'     |

- 3) Spot cement plug 50' above and below 10 3/4" casing shoe at 204'.
- 4) Spot cement plug from 50' to surface.
- 5) Cut off casing and install P & A marker. Restore location.

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EPA OHS  
REGION 4



STATE OF NEW MEXICO

# ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

AZTEC DISTRICT OFFICE

3012215 AL 9 06

FRANK J. CARRUTHERS  
GOVERNOR

1000 MID HAZOS ROAD  
AZTEC, NEW MEXICO 87410  
(505) 334-0170

Date: 3-13-90

DAVE CATANACH

Oil Conservation Division  
P.O. Box 2088  
Santa Fe, NM 87504-2088

Re: Proposed HC \_\_\_\_\_  
Proposed DHC \_\_\_\_\_  
Proposed NSL \_\_\_\_\_  
Proposed SWD \_\_\_\_\_  
Proposed WFX X \_\_\_\_\_  
Proposed PMX \_\_\_\_\_

Gentlemen:

I have examined the application dated 3-2-90

for the Harrison Oil & Gas Corp. NAVARO ALLOTTED 15 #3  
Operator Lease & Well No.

15-19N-5W and my recommendations are as follows:  
Unit, S-T-R

Approver  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Yours truly,

Eric Brock