



**REPORT  
of  
SUB-SURFACE  
DIRECTIONAL  
SURVEY**

ARCO OIL AND GAS  
COMPANY

SEVEN RIVERS QUEEN WELL NO. 44  
WELL NAME

LEA COUNTY, NEW MEXICO  
LOCATION

JOB NUMBER  
WT0982-G0013

TYPE OF SURVEY  
GYROSCOPIC MULTISHOT SURVEY

DATE  
9/23/82

SURVEY BY  
GARY DESPALN

OFFICE  
WEST TEXAS

ARCO OIL & GAS  
SEVEN RIVERS QUEEN WELL NO. 44  
LEA COUNTY, NEW MEXICO BDI-98  
SEPTEMBER 23, 1982

EASTMAN WHIPSTOCK, INC.  
GYROSCOPIC MULTI SHOT SURVEY WT982-G0013  
SURVEYOR: GARY DESPAIN (0'-3720')

Eastman Whipstock  
RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

TIME DATE

08:26:13 27-SEP-82

| MEASURED<br>DEPTH<br>FEET | DRIFT<br>ANGLE<br>D M | DRIFT<br>DIRECTION<br>D | COURSE<br>LENGTH<br>FEET | TRUE<br>VERTICAL<br>DEPTH<br>FEET | R E C T A N G U L A R<br>C O O R D I N A T E S<br>FEET | DOGLEG<br>SEVERITY<br>DG/100FT |
|---------------------------|-----------------------|-------------------------|--------------------------|-----------------------------------|--------------------------------------------------------|--------------------------------|
| 0.                        | 0 0                   | 0                       | 0.                       | 0.00                              | 0.00                                                   | 0.00                           |
| 100.                      | 0 30                  | S 74 E                  | 100.                     | 100.00                            | 0.12 S                                                 | 0.50                           |
| 200.                      | 0 30                  | S 56 E                  | 100.                     | 199.99                            | 0.49 S                                                 | 0.16                           |
| 300.                      | 0 30                  | S 1 E                   | 100.                     | 299.99                            | 1.23 S                                                 | 0.46                           |
| 400.                      | 0 45                  | S 2 W                   | 100.                     | 399.99                            | 2.32 S                                                 | 0.25                           |
| 500.                      | 0 30                  | S 23 W                  | 100.                     | 499.98                            | 3.37 S                                                 | 0.34                           |
| 600.                      | 1 0                   | S 17 W                  | 100.                     | 599.97                            | 4.60 S                                                 | 0.51                           |
| 700.                      | 1 0                   | S 16 W                  | 100.                     | 699.96                            | 6.28 S                                                 | 0.02                           |
| 800.                      | 1 0                   | S 22 W                  | 100.                     | 799.94                            | 7.92 S                                                 | 0.10                           |
| 900.                      | 1 0                   | S 3 W                   | 100.                     | 899.92                            | 9.62 S                                                 | 0.33                           |
| 1000.                     | 1 0                   | S 24 W                  | 100.                     | 999.91                            | 11.31 S                                                | 0.36                           |
| 1100.                     | 0 45                  | S 4 W                   | 100.                     | 1099.90                           | 12.78 S                                                | 0.39                           |
| 1200.                     | 1 0                   | S 20 W                  | 100.                     | 1199.89                           | 14.27 S                                                | 0.35                           |
| 1300.                     | 0 45                  | S 20 W                  | 100.                     | 1299.87                           | 15.70 S                                                | 0.25                           |
| 1400.                     | 1 0                   | S 22 W                  | 100.                     | 1399.86                           | 17.13 S                                                | 0.25                           |
| 1500.                     | 0 30                  | S 24 W                  | 100.                     | 1499.85                           | 18.33 S                                                | 0.50                           |
| 1600.                     | 0 30                  | S 80 E                  | 100.                     | 1599.85                           | 19.00 S                                                | 0.79                           |
| 1700.                     | 0 45                  | N 88 E                  | 100.                     | 1699.84                           | 19.08 S                                                | 0.28                           |
| 1800.                     | 0 30                  | N 8 W                   | 100.                     | 1799.84                           | 18.34 S                                                | 0.94                           |
| 1900.                     | 0 15                  | N 86 W                  | 100.                     | 1899.84                           | 17.92 S                                                | 0.51                           |
| 2000.                     | 0 30                  | N 54 W                  | 100.                     | 1999.83                           | 17.70 S                                                | 0.32                           |
| 2050.                     | 0 15                  | S 4 E                   | 50.                      | 2049.83                           | 17.83 S                                                | 1.38                           |
| 2100.                     | 0 30                  | N 29 W                  | 50.                      | 2099.83                           | 17.89 S                                                | 1.47                           |
| 2150.                     | 0 15                  | S 83 E                  | 50.                      | 2149.83                           | 17.67 S                                                | 1.36                           |
| 2200.                     | 0 15                  | N 30 E                  | 50.                      | 2199.83                           | 17.58 S                                                | 0.55                           |
| 2250.                     | 0 45                  | N 42 E                  | 50.                      | 2249.83                           | 17.23 S                                                | 1.02                           |
| 2300.                     | 1 15                  | N 74 E                  | 50.                      | 2299.82                           | 16.77 S                                                | 1.46                           |
| 2350.                     | 1 0                   | N 52 E                  | 50.                      | 2349.81                           | 16.33 S                                                | 0.99                           |
| 2400.                     | 1 30                  | N 69 E                  | 50.                      | 2399.80                           | 15.80 S                                                | 1.23                           |
| 2450.                     | 2 0                   | N 45 E                  | 50.                      | 2449.77                           | 14.97 S                                                | 1.75                           |

| MEASURED<br>DEPTH<br>FEET | DRIFT<br>ANGLE<br>D M | DRIFT<br>DIRECTION<br>D | COURSE<br>LENGTH<br>FEET | TRUE<br>VERTICAL<br>DEPTH<br>FEET | R E C T A N G U L A R<br>C O O R D I N A T E S<br>FEET | DOGLEG<br>SEVERITY<br>DG/100FT |
|---------------------------|-----------------------|-------------------------|--------------------------|-----------------------------------|--------------------------------------------------------|--------------------------------|
| 2500.                     | 1 30                  | N 32 E                  | 50.                      | 2499.75                           | 13.78 S                                                | 1.27                           |
| 2550.                     | 2 30                  | N 36 E                  | 50.                      | 2549.72                           | 12.33 S                                                | 2.02                           |
| 2600.                     | 1 30                  | N 43 E                  | 50.                      | 2599.69                           | 10.98 S                                                | 2.06                           |
| 2650.                     | 2 30                  | N 46 E                  | 50.                      | 2649.66                           | 9.74 S                                                 | 2.01                           |
| 2700.                     | 2 0                   | N 36 E                  | 50.                      | 2699.62                           | 8.26 S                                                 | 1.27                           |
| 2750.                     | 2 30                  | N 68 E                  | 50.                      | 2749.58                           | 7.07 S                                                 | 2.66                           |
| 2800.                     | 3 0                   | N 45 E                  | 50.                      | 2799.52                           | 5.75 S                                                 | 2.40                           |
| 2850.                     | 2 15                  | N 42 E                  | 50.                      | 2849.47                           | 4.09 S                                                 | 1.52                           |
| 2900.                     | 2 30                  | N 54 E                  | 50.                      | 2899.43                           | 2.71 S                                                 | 1.11                           |
| 2950.                     | 2 15                  | N 50 E                  | 50.                      | 2949.38                           | 1.44 S                                                 | 0.60                           |
| 3000.                     | 2 15                  | N 56 E                  | 50.                      | 2999.35                           | 0.25 S                                                 | 0.47                           |
| 3050.                     | 1 45                  | N 55 E                  | 50.                      | 3049.31                           | 0.73 N                                                 | 1.00                           |
| 3100.                     | 1 45                  | N 65 E                  | 50.                      | 3099.29                           | 1.50 N                                                 | 0.61                           |
| 3150.                     | 1 30                  | N 68 E                  | 50.                      | 3149.27                           | 2.06 N                                                 | 0.53                           |
| 3200.                     | 1 30                  | N 73 E                  | 50.                      | 3199.25                           | 2.50 N                                                 | 0.26                           |
| 3250.                     | 1 15                  | N 78 E                  | 50.                      | 3249.24                           | 2.80 N                                                 | 0.55                           |
| 3300.                     | 1 15                  | N 74 E                  | 50.                      | 3299.23                           | 3.06 N                                                 | 0.17                           |
| 3350.                     | 1 0                   | N 65 E                  | 50.                      | 3349.22                           | 3.41 N                                                 | 0.61                           |
| 3400.                     | 1 0                   | N 68 E                  | 50.                      | 3399.21                           | 3.75 N                                                 | 0.10                           |
| 3450.                     | 1 0                   | N 72 E                  | 50.                      | 3449.20                           | 4.05 N                                                 | 0.14                           |
| 3500.                     | 1 0                   | N 71 E                  | 50.                      | 3499.20                           | 4.33 N                                                 | 0.03                           |
| 3550.                     | 0 45                  | N 79 E                  | 50.                      | 3549.19                           | 4.53 N                                                 | 0.56                           |
| 3600.                     | 0 45                  | N 78 E                  | 50.                      | 3599.19                           | 4.66 N                                                 | 0.03                           |
| 3650.                     | 0 45                  | S 80 E                  | 50.                      | 3649.18                           | 4.67 N                                                 | 0.57                           |
| 3700.                     | 0 45                  | S 74 E                  | 50.                      | 3699.18                           | 4.52 N                                                 | 0.16                           |
| 3720.                     | 0 45                  | S 80 E                  | 20.                      | 3719.17                           | 4.46 N                                                 | 0.39                           |

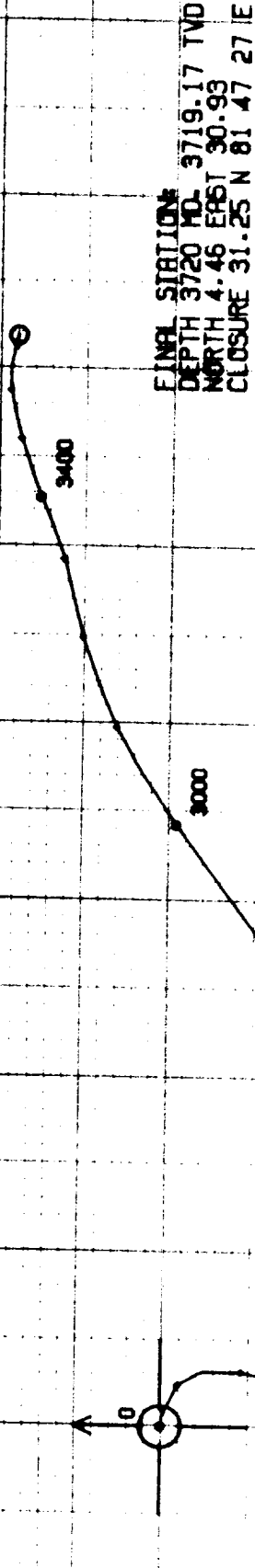
FINAL CLOSURE - DIRECTION: N 81 DEGS 47 MINS E  
DISTANCE: 31.26 FEET

ARCO OIL GAS  
SEVEN RIVERS QUEEN WELL NO. 44  
LEA COUNTY, NEW MEXICO 801-98

EASTMAN WHIPSTOCK, INC.

# HORIZONTAL PROJECTION

SCALE 1 IN. = 5 FEET  
DEPTH INDICATOR: MD



## OIL CONSERVATION DIVISION

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088  
SANTA FE, NEW MEXICO 87501Form C-102  
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

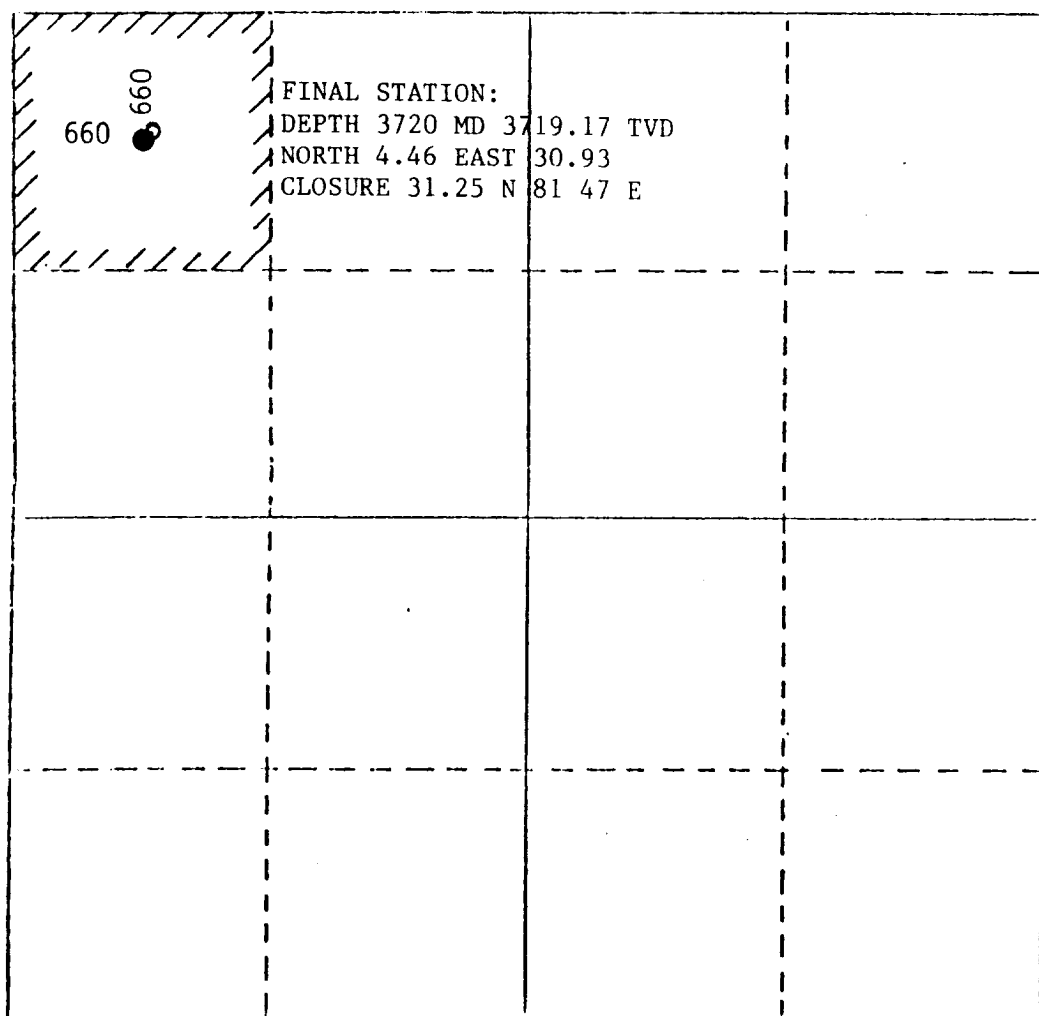
|                                                |                                                        |                                           |                                         |                      |                       |
|------------------------------------------------|--------------------------------------------------------|-------------------------------------------|-----------------------------------------|----------------------|-----------------------|
| Operator<br><b>ARCO Oil and Gas Company</b>    |                                                        |                                           | Lease<br><b>Seven-Rivers Queen Unit</b> |                      | Well No.<br><b>44</b> |
| Unit Letter<br><b>D</b>                        | Section<br><b>2</b>                                    | Township<br><b>23S</b>                    | Range<br><b>36E</b>                     | County<br><b>Lea</b> |                       |
| Actual Footage Location of Well:               |                                                        |                                           |                                         |                      |                       |
| <b>660</b> feet from the <b>North</b> line and |                                                        | <b>660</b> feet from the <b>West</b> line |                                         |                      |                       |
| Ground Level Elev.<br><b>3486</b>              | Producing Formation<br><b>Seven-Rivers &amp; Queen</b> | Pool<br><b>Langlie Mattix</b>             | Dedicated Acreage:<br><b>40</b> Acres   |                      |                       |

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☒ No If answer is "yes," type of consolidation \_\_\_\_\_

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) \_\_\_\_\_

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



## CERTIFICATION

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

*Robert E. Craig*  
Name

 Robert E. Craig  
Position

 Operations Engineer  
Company

 ARCO Oil and Gas Company  
Date

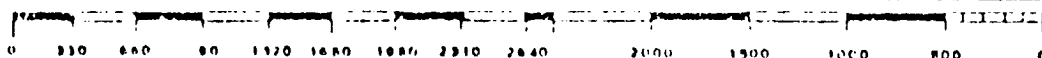
September 30, 1982

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

Date Surveyed

 Registered Professional Engineer  
and/or Land Surveyor

Certificate No.





P. O. Box 5577/Midland, Texas 79704/(915) 563-0511

SURVEY CERTIFICATION SHEET

STATE OF TEXAS  
COUNTY OF MIDLAND

I, Gary Despain, in the employ of Eastman Whipstock, Inc. did on the days of September 23, 1982 thru September 23, 1982 conduct or supervise the taking of a Gyroscopic Multi Shot survey by the method of magnetic orientation from a depth of 0 feet to 3720 feet, with recordings of inclination and direction being obtained at approximate intervals of 100 feet.

This survey was conducted at the request of ARCO Oil & Gas for their Seven Rivers Queen Well No. 44, in the Lea County, State of New Mexico, in the field.

The data for this survey and the calculations were obtained and performed by me according to standards and procedures as set forth by Eastman Whipstock, Inc. and is true and correct to the best of my knowledge.

[Signature]  
DIRECTIONAL SUPERVISOR/SURVEYOR

The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

[Signature]

Before me, the undersigned authority, on the day personally appeared GARY DESPAIN, known to me to be the person whose name is subscribed to the instrument, who after being by me duly sworn on oath, states that he has knowledge of all the facts stated above and that this instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 23 day of September, 1982.

[Signature]  
Notary Public in and for the County of Midland, Texas  
My commission expires 7/9/85