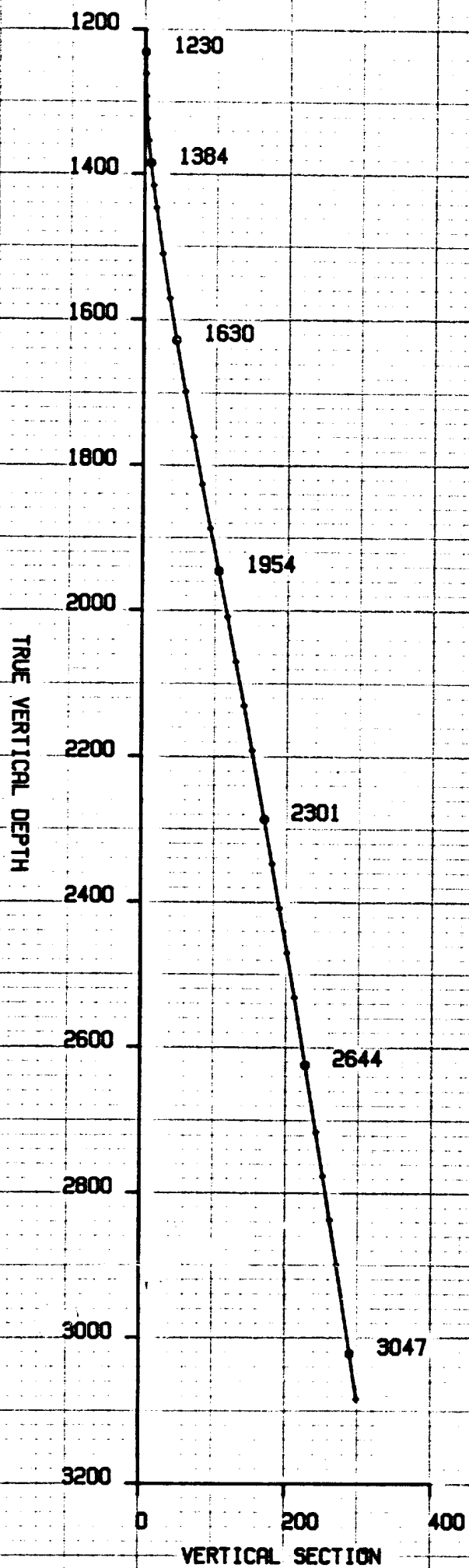


SOVEREIGN OIL COMPANY  
WELL NAME: NAVAJO LAKE NO. 9-1  
LOCATION: SAN JUAN COUNTY, NEW MEXICO

VERTICAL PROJECTION  
SCALE 1 IN. = 200 FEET

EASTMAN WHIPSTOCK, INC.



CLOSURE 307.64 N 14 40 48 W



**REPORT  
of  
SUB-SURFACE  
DIRECTIONAL  
SURVEY**

\_\_\_\_\_  
SOVEREIGN OIL COMPANY  
COMPANY

\_\_\_\_\_  
NAVAJO LAKE NO. 9-1  
WELL NAME

\_\_\_\_\_  
SAN JUAN COUNTY, NEW MEXICO  
LOCATION

JOB NUMBER  
RM183-D1274

TYPE OF SURVEY  
MAGNETIC SINGLE  
SHOT

DATE  
31 JANUARY 1983

SURVEY BY  
LYNN BADER

OFFICE  
ROCKY MOUNTAIN

COMPLETION REPORT

SOVEREIGN OIL COMPANY  
WELL NAME: NAVAJO LAKE NO. 9-1  
LOCATION: SAN JUAN COUNTY, NEW MEXICO  
FILE NO.: A2-139, FL7-09  
DATE: 26 JANUARY 1983  
JOB NO.: RM183-D1274  
TYPE: MAGNETIC SINGLE SHOT  
DIRECTIONAL DRILLER: LYNN BADER  
DECLINATION:  
COMPUTER OPERATOR: STEVE THURSTON  
RELATED FILES: A2-124



VERTICAL SECTION CALCULATED IN PLANE OF PROPOSAL  
DIRECTION: N 0 DEG. 0 MIN. W

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

WELL NAME: NAVAJO LAKE NO. 9-1

LOCATION: SAN JUAN COUNTY, NEW MEXICO

TIME DATE

13:46:07 31-JAN-83

| MEASURED<br>DEPTH<br>FEET | DRIFT<br>ANGLE<br>D M | DRIFT<br>DIRECTION<br>D M | COURSE<br>LENGTH<br>FEET | TRUE                      |  | VERTICAL<br>SECTION<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 |
|---------------------------|-----------------------|---------------------------|--------------------------|---------------------------|--|-----------------------------|--------------------------------------------------------|---------|--------------------------------|
|                           |                       |                           |                          | VERTICAL<br>DEPTH<br>FEET |  |                             |                                                        |         |                                |
| 1230.00                   | 0 0                   | 0 0                       | 0.0                      | 1230.00                   |  | 0.00                        | 0.00                                                   | 0.00    | 0.00                           |
| 1260.00                   | 1 0                   | N 39 0 E                  | 30.0                     | 1260.00                   |  | 0.20                        | 0.20 N                                                 | 0.16 E  | 3.33                           |
| 1291.00                   | 1 30                  | N 16 0 E                  | 31.0                     | 1290.99                   |  | 0.80                        | 0.80 N                                                 | 0.47 E  | 2.25                           |
| 1322.00                   | 3 30                  | N 8 0 E                   | 31.0                     | 1321.96                   |  | 2.12                        | 2.12 N                                                 | 0.76 E  | 6.53                           |
| 1353.00                   | 5 0                   | N 4 0 W                   | 31.0                     | 1352.87                   |  | 4.41                        | 4.41 N                                                 | 0.84 E  | 5.60                           |
| 1384.00                   | 7 0                   | N 10 0 W                  | 31.0                     | 1383.70                   |  | 7.63                        | 7.63 N                                                 | 0.44 E  | 6.75                           |
| 1415.00                   | 7 30                  | N 9 0 W                   | 31.0                     | 1414.45                   |  | 11.49                       | 11.49 N                                                | 0.20 W  | 1.66                           |
| 1446.00                   | 8 0                   | N 10 0 W                  | 31.0                     | 1445.17                   |  | 15.61                       | 15.61 N                                                | 0.89 W  | 1.67                           |
| 1510.00                   | 8 30                  | N 12 0 W                  | 64.0                     | 1508.51                   |  | 24.62                       | 24.62 N                                                | 2.65 W  | 0.90                           |
| 1572.00                   | 9 30                  | N 6 0 W                   | 62.0                     | 1569.74                   |  | 34.20                       | 34.20 N                                                | 4.16 W  | 2.21                           |
| 1630.00                   | 10 0                  | N 10 0 W                  | 58.0                     | 1626.91                   |  | 43.92                       | 43.92 N                                                | 5.53 W  | 1.45                           |
| 1701.00                   | 10 45                 | N 14 0 W                  | 71.0                     | 1696.75                   |  | 56.43                       | 56.43 N                                                | 8.19 W  | 1.46                           |
| 1765.00                   | 11 15                 | N 15 0 W                  | 64.0                     | 1759.57                   |  | 68.25                       | 68.25 N                                                | 11.25 W | 0.84                           |
| 1832.00                   | 10 45                 | N 19 0 W                  | 67.0                     | 1825.34                   |  | 80.47                       | 80.47 N                                                | 14.98 W | 1.36                           |
| 1894.00                   | 11 45                 | N 15 0 W                  | 62.0                     | 1886.15                   |  | 92.03                       | 92.03 N                                                | 18.52 W | 2.04                           |
| 1954.00                   | 11 45                 | N 16 0 W                  | 60.0                     | 1944.89                   |  | 103.81                      | 103.81 N                                               | 21.78 W | 0.34                           |
| 2018.00                   | 11 15                 | N 18 0 W                  | 64.0                     | 2007.60                   |  | 116.01                      | 116.01 N                                               | 25.51 W | 1.00                           |
| 2080.00                   | 11 30                 | N 17 0 W                  | 62.0                     | 2068.39                   |  | 127.67                      | 127.67 N                                               | 29.19 W | 0.51                           |
| 2142.00                   | 11 0                  | N 16 0 W                  | 62.0                     | 2129.19                   |  | 139.27                      | 139.27 N                                               | 32.63 W | 0.87                           |
| 2204.00                   | 10 45                 | N 16 0 W                  | 62.0                     | 2190.08                   |  | 150.51                      | 150.51 N                                               | 35.85 W | 0.40                           |
| 2301.00                   | 10 45                 | N 16 0 W                  | 97.0                     | 2285.38                   |  | 167.90                      | 167.90 N                                               | 40.84 W | 0.00                           |
| 2363.00                   | 10 30                 | N 17 0 W                  | 62.0                     | 2346.31                   |  | 178.87                      | 178.87 N                                               | 44.08 W | 0.50                           |
| 2425.00                   | 10 15                 | N 17 0 W                  | 62.0                     | 2407.30                   |  | 189.54                      | 189.54 N                                               | 47.35 W | 0.40                           |
| 2487.00                   | 10 15                 | N 11 0 W                  | 62.0                     | 2468.31                   |  | 200.24                      | 200.24 N                                               | 50.02 W | 1.72                           |
| 2550.00                   | 9 45                  | N 16 0 W                  | 63.0                     | 2530.35                   |  | 210.88                      | 210.88 N                                               | 52.57 W | 1.59                           |
| 2644.00                   | 9 45                  | N 16 0 W                  | 94.0                     | 2623.00                   |  | 226.18                      | 226.18 N                                               | 56.96 W | 0.00                           |
| 2736.00                   | 9 45                  | N 19 0 W                  | 92.0                     | 2713.67                   |  | 241.04                      | 241.04 N                                               | 61.64 W | 0.55                           |
| 2798.00                   | 9 15                  | N 15 0 W                  | 62.0                     | 2774.82                   |  | 250.82                      | 250.82 N                                               | 64.63 W | 1.34                           |
| 2859.00                   | 9 30                  | N 16 0 W                  | 61.0                     | 2835.00                   |  | 260.40                      | 260.40 N                                               | 67.29 W | 0.49                           |
| 2922.00                   | 9 0                   | N 17 0 W                  | 63.0                     | 2897.18                   |  | 270.11                      | 270.11 N                                               | 70.16 W | 0.83                           |

WELL NAME: NAVAJO LAKE NO. 9-1

LOCATION: SAN JUAN COUNTY, NEW MEXICO

TIME DATE

13:46:07 31-JAN-83

| MEASURED<br>DEPTH<br>FEET | DRIFT<br>ANGLE<br>D M | DRIFT<br>DIRECTION<br>D M | COURSE<br>LENGTH<br>FEET | TRUE                      |  | VERTICAL<br>SECTION<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 | DOG LEG<br>SEVERITY<br>DG/100FT |
|---------------------------|-----------------------|---------------------------|--------------------------|---------------------------|--|-----------------------------|--------------------------------------------------------|---------------------------------|
|                           |                       |                           |                          | VERTICAL<br>DEPTH<br>FEET |  |                             |                                                        |                                 |
| 3047.00                   | 8 45                  | N 15 0 W                  | 125.0                    | 3020.69                   |  | 288.64                      | 288.64 N 75.48 W                                       | 0.32                            |
| 3109.00                   | 8 30                  | N 16 0 W                  | 62.0                     | 3081.99                   |  | 297.60                      | 297.60 N 77.96 W                                       | 0.47                            |

THE NEXT STATION IS A PROJECTION TO TD.

 FINAL CLOSURE - DIRECTION:  
 DISTANCE:

 N 14 DEGS 40 MINS 48 SECS W  
 307.65 FEET

# Eastman Whipstock

A FETTERMAN COMPANY

13:46:07  
31-JAN-83  
FILE NUMBER: 139

SOVEREIGN OIL COMPANY  
WELL NAME: NAVAJO LAKE NO.9-1  
LOCATION: SAN JUAN COUNTY, NEW MEXICO

COMPLETION REPORT

CONVERSATIONAL SURVEY PROGRAM V02.11

Eastman  
Whipstock

HORIZONTAL PROJECTION

SCALE 1 IN. = 50 FEET  
DEPTH INDICATOR: MD

SOVEREIGN OIL COMPANY  
WELL NAME: NAYAJU LAKE NO. 9-1  
LOCATION: SAN JUAN COUNTY, NEW MEXICO

EASTMAN WHIPSTOCK, INC.

FINAL STATION:  
DEPTH 3109 MD. 3081.98 TVD  
NORTH 297.60 WEST 77.96  
CLOSURE 307.64 N 14 40 48 M

