



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

January 20, 1987

10-29-13

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Smith Drilling Systems
The Dominion Plaza
600 17th Street Suite 1100N
Denver, Colorado 80202

Attn: Terry Kerr

Re: Tenneco Oil Company City of
Farmington Well No. 2

Dear Mr. Kerr,

This letter is to confirm our telephone conversations last week concerning the directional drilling survey for the subject well. Division Order No. R-8253, dated July 8, 1986, requires that a continuous multi-shot directional survey be made of the wellbore from total depth to the initial kick-off point, however, having reviewed the data submitted and other matters concerning this well, an exception to this requirement shall be waived at this time for this well only and the survey submitted shall be adequate.

Sincerely,

Michael. E. Stogner
Engineer

MES/et

xc: ✓ Frank Chavez
Case No. 8915

RECEIVED

JAN 21 1987

OIL CON. DIV.
DIST. 3

Sii DATADRIL
Division of Smith International, Inc.

TENNECO OIL COMPANY
CITY OF FARMINGTON #2
SEC 10-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO
DIRECTIONAL SURVEYS

File Name: COF2MGS

***** RECORD OF SURVEY *****
Calculated by Sii DATADRIL's C.A.D.D.S. System

Radius of Curvature Method
All Angles are Decimal
Vertical Section Plane: S 74.77 W

| MEASURED DEPTH (FT) | INCL ANGLE (DEG) | D R I F T DIRECTION (DEG) | COURSE LENGTH (FT) | TOTAL VERTICAL DEPTH | T O T A L RECTANGULAR COORDINATES (FT) | | VERTICAL SECTION (FT) | C L O S U R E DISTANCE DIRECTION (FT) (DEG) | | DOGLEG SEVERITY (DEG/100') |
|---------------------------|------------------------|---------------------------------|--------------------------|----------------------------|--|----------|-----------------------------|---|------|----------------------------------|
| 0.00 | 0.00 | N 0.00 E | 0.00 | 0.00 | 0.00 N | 0.00 E | 0.00 | 0.00 N 0.00 E | 0.00 | |
| 743.00 | 1.25 | S 40.00 W | 743.00 | 742.94 | 6.21 S | 5.21 W | 6.66 | 8.10 S 40.00 W | .17 | |
| 819.00 | 3.00 | S 50.00 W | 76.00 | 818.89 | 8.20 S | 7.20 W | 9.10 | 10.91 S 41.29 W | 2.35 | |
| 881.00 | 5.00 | S 63.00 W | 62.00 | 880.73 | 10.58 S | 10.80 W | 13.20 | 15.12 S 45.58 W | 3.52 | |
| 975.00 | 8.00 | S 70.00 W | 94.00 | 974.12 | 14.82 S | 20.55 W | 23.72 | 25.34 S 54.20 W | 3.30 | |
| 1070.00 | 10.00 | S 78.00 W | 95.00 | 1067.94 | 18.91 S | 34.82 W | 38.57 | 39.63 S 61.49 W | 2.48 | |
| 1130.00 | 11.50 | S 78.00 W | 60.00 | 1126.89 | 21.24 S | 45.77 W | 49.74 | 50.46 S 65.11 W | 2.50 | |
| 1161.00 | 11.75 | S 78.00 W | 31.00 | 1157.25 | 22.54 S | 51.88 W | 55.98 | 56.56 S 66.52 W | .81 | |
| 1224.00 | 13.00 | S 78.00 W | 63.00 | 1218.79 | 25.35 S | 65.09 W | 69.46 | 69.85 S 68.72 W | 1.98 | |
| 1286.00 | 15.00 | S 80.00 W | 62.00 | 1278.94 | 28.21 S | 79.81 W | 84.41 | 84.65 S 70.53 W | 3.32 | |
| 1340.00 | 16.50 | S 76.00 W | 54.00 | 1330.91 | 31.25 S | 94.14 W | 99.05 | 99.19 S 71.63 W | 3.43 | |
| 1381.00 | 16.75 | S 73.00 W | 41.00 | 1370.20 | 34.39 S | 105.44 W | 110.77 | 110.91 S 71.94 W | 2.18 | |
| 1473.00 | 17.50 | S 66.00 W | 92.00 | 1458.12 | 43.87 S | 130.80 W | 137.73 | 137.96 S 71.46 W | 2.38 | |
| 1564.00 | 19.00 | S 64.00 W | 91.00 | 1544.54 | 55.91 S | 156.63 W | 165.82 | 166.31 S 70.35 W | 1.79 | |
| 1688.00 | 21.00 | S 62.00 W | 124.00 | 1661.06 | 75.16 S | 194.41 W | 207.33 | 208.44 S 68.86 W | 1.70 | |
| 1782.00 | 22.00 | S 63.00 W | 94.00 | 1748.51 | 91.07 S | 224.97 W | 240.99 | 242.71 S 67.96 W | 1.13 | |
| 1882.00 | 23.50 | S 62.00 W | 100.00 | 1840.73 | 108.93 S | 259.27 W | 278.78 | 281.22 S 67.21 W | 1.55 | |
| 1977.00 | 24.50 | S 63.00 W | 95.00 | 1927.52 | 126.77 S | 293.54 W | 316.54 | 319.75 S 66.64 W | 1.14 | |
| 2100.00 | 25.00 | S 63.00 W | 123.00 | 2039.22 | 150.15 S | 339.43 W | 366.95 | 371.15 S 66.14 W | .41 | |
| 2287.00 | 25.00 | S 64.00 W | 187.00 | 2208.70 | 185.41 S | 410.15 W | 444.45 | 450.11 S 65.67 W | .23 | |
| 2474.00 | 25.50 | S 64.00 W | 187.00 | 2377.83 | 220.38 S | 481.85 W | 522.82 | 529.85 S 65.42 W | .27 | |

Sii DATADRIL
Division of Smith International, Inc.

TENNECO OIL COMPANY
CITY OF FARMINGTON #2

SEC 10-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO

| MEASURED DEPTH (FT) | INCL ANGLE (DEG) | D R I F T DIRECTION (DEG) | COURSE LENGTH (FT) | TOTAL VERTICAL DEPTH | T O T A L RECTANGULAR COORDINATES (FT) | | VERTICAL SECTION (FT) | C L O S U R E DISTANCE DIRECTION (FT) (DEG) | | DOSLEG SEVERITY (DEG/100') |
|---------------------------|------------------------|---------------------------------|--------------------------|----------------------------|--|-----------|-----------------------------|---|---------|----------------------------------|
| 2727.00 | 29.00 | S 64.00 W | 253.00 | 2602.72 | 271.15 S | 585.95 W | 636.60 | 645.65 S | 65.17 W | 1.36 |
| 2814.00 | 26.50 | S 62.00 W | 87.00 | 2679.70 | 289.54 S | 622.04 W | 676.25 | 686.12 S | 65.04 W | 3.07 |
| 2877.00 | 24.50 | S 63.00 W | 63.00 | 2736.56 | 302.06 S | 646.09 W | 702.75 | 713.22 S | 64.94 W | 3.25 |
| 2975.00 | 23.75 | S 59.00 W | 98.00 | 2826.00 | 321.48 S | 681.12 W | 741.65 | 753.17 S | 64.73 W | 1.84 |
| 3100.00 | 24.00 | S 62.00 W | 125.00 | 2940.31 | 346.39 S | 725.15 W | 790.67 | 803.63 S | 64.47 W | .99 |
| 3288.00 | 25.50 | S 60.00 W | 188.00 | 3111.03 | 384.54 S | 793.98 W | 867.11 | 882.20 S | 64.16 W | .91 |
| 3478.00 | 27.00 | S 62.00 W | 190.00 | 3281.44 | 425.28 S | 867.48 W | 948.73 | 966.11 S | 63.88 W | .92 |
| 3663.00 | 27.75 | S 63.00 W | 185.00 | 3445.72 | 464.56 S | 942.93 W | 1031.85 | 1051.16 S | 63.77 W | .48 |
| 3908.00 | 28.00 | S 65.00 W | 245.00 | 3662.29 | 514.77 S | 1045.88 W | 1144.37 | 1165.70 S | 63.79 W | .40 |
| 4161.00 | 29.00 | S 64.00 W | 253.00 | 3884.63 | 566.74 S | 1154.84 W | 1263.16 | 1286.41 S | 63.86 W | .44 |
| 4286.00 | 29.00 | S 65.00 W | 125.00 | 3993.95 | 592.83 S | 1209.53 W | 1322.79 | 1347.00 S | 63.89 W | .39 |
| 4338.00 | 28.50 | S 66.00 W | 52.00 | 4039.54 | 602.80 S | 1232.47 W | 1347.53 | 1371.99 S | 63.94 W | 2.94 |
| 4403.00 | 26.00 | S 74.00 W | 65.00 | 4097.33 | 612.49 S | 1260.59 W | 1377.22 | 1401.51 S | 64.09 W | 5.71 |
| 4465.00 | 24.75 | S 84.00 W | 62.00 | 4153.34 | 617.55 S | 1286.64 W | 1403.68 | 1427.17 S | 64.36 W | 7.19 |
| 4573.00 | 22.25 | N 90.00 W | 108.00 | 4252.38 | 619.80 S | 1329.62 W | 1445.74 | 1466.99 S | 65.01 W | 3.20 |
| 4667.00 | 20.25 | N 88.00 W | 94.00 | 4339.98 | 619.21 S | 1363.68 W | 1478.45 | 1497.68 S | 65.58 W | 2.26 |
| 4759.00 | 16.75 | N 85.00 W | 92.00 | 4427.21 | 617.43 S | 1392.81 W | 1506.09 | 1523.53 S | 66.09 W | 3.94 |
| 4854.00 | 14.00 | N 83.00 W | 95.00 | 4518.81 | 614.79 S | 1417.86 W | 1529.57 | 1545.41 S | 66.56 W | 2.95 |
| 4885.00 | 12.75 | N 81.00 W | 31.00 | 4548.96 | 613.80 S | 1424.96 W | 1536.16 | 1551.53 S | 66.70 W | 4.30 |
| 4944.00 | 11.25 | N 77.00 W | 59.00 | 4606.67 | 611.46 S | 1437.00 W | 1547.16 | 1561.68 S | 66.95 W | 2.91 |
| 5005.00 | 11.75 | N 74.00 W | 61.00 | 4666.45 | 608.41 S | 1448.77 W | 1557.72 | 1571.34 S | 67.22 W | 1.28 |
| 5068.00 | 12.00 | N 73.00 W | 63.00 | 4728.10 | 604.73 S | 1461.20 W | 1568.74 | 1581.39 S | 67.52 W | .51 |
| 5131.00 | 12.25 | N 71.00 W | 63.00 | 4789.69 | 600.64 S | 1473.79 W | 1579.91 | 1591.48 S | 67.83 W | .78 |
| 5195.00 | 12.50 | N 74.00 W | 64.00 | 4852.21 | 596.52 S | 1486.87 W | 1591.35 | 1602.06 S | 68.14 W | 1.08 |
| 5255.00 | 12.25 | N 75.00 W | 60.00 | 4910.81 | 593.08 S | 1499.26 W | 1602.40 | 1612.30 S | 68.42 W | .55 |
| 5321.00 | 13.00 | N 75.00 W | 66.00 | 4975.22 | 589.35 S | 1513.19 W | 1614.86 | 1623.91 S | 68.72 W | 1.14 |
| 5384.00 | 11.75 | N 75.00 W | 63.00 | 5036.75 | 585.85 S | 1526.23 W | 1626.53 | 1634.81 S | 69.00 W | 1.98 |
| 5447.00 | 11.00 | N 72.00 W | 63.00 | 5098.51 | 582.32 S | 1538.14 W | 1637.10 | 1644.68 S | 69.26 W | 1.52 |
| 5527.00 | 11.50 | N 77.00 W | 80.00 | 5176.98 | 578.15 S | 1553.18 W | 1650.51 | 1657.29 S | 69.58 W | 1.37 |
| 5559.00 | 11.50 | N 77.00 W | 32.00 | 5208.33 | 576.72 S | 1559.39 W | 1656.13 | 1662.62 S | 69.70 W | 0.00 |
| 5596.00 | 13.00 | N 73.00 W | 37.00 | 5244.49 | 574.69 S | 1566.98 W | 1662.91 | 1669.04 S | 69.86 W | 4.66 |
| 5630.00 | 14.00 | N 73.00 W | 34.00 | 5277.55 | 572.37 S | 1574.57 W | 1669.62 | 1675.37 S | 70.02 W | 2.94 |
| 5691.00 | 15.00 | N 68.00 W | 61.00 | 5336.61 | 567.27 S | 1588.96 W | 1682.17 | 1687.18 S | 70.35 W | 2.63 |

Sii DATADRIL
Division of Smith International, Inc.

TENNECO OIL COMPANY
CITY OF FARMINGTON #2

SEC 10-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO

| MEASURED DEPTH (FT) | INCL ANGLE (DEG) | D R I F T DIRECTION (DEG) | COURSE LENGTH (FT) | TOTAL VERTICAL DEPTH | T O T A L RECTANGULAR COORDINATES (FT) | | VERTICAL SECTION (FT) | C L O S U R E DISTANCE DIRECTION (FT) (DEG) | | DOGLEG SEVERITY (DEG/100') |
|---------------------------|------------------------|---------------------------------|--------------------------|----------------------------|--|-----------|-----------------------------|---|-----------|----------------------------------|
| 5708.00 | 15.00 | N 68.00 W | 17.00 | 5353.03 | 565.62 S | 1593.04 W | 1685.68 | 1690.47 | S 70.45 W | 0.00 |
| 5752.00 | 14.25 | N 60.00 W | 44.00 | 5395.60 | 560.76 S | 1603.02 W | 1694.02 | 1698.27 | S 70.72 W | 4.89 |
| 5783.00 | 14.25 | N 63.00 W | 31.00 | 5425.65 | 557.12 S | 1609.72 W | 1699.54 | 1703.40 | S 70.91 W | 2.38 |
| 5800.00 | 15.00 | N 63.00 W | 17.00 | 5442.10 | 555.17 S | 1613.55 W | 1702.72 | 1706.38 | S 71.01 W | 4.41 |
| 5841.00 | 16.00 | N 64.00 W | 41.00 | 5481.61 | 550.28 S | 1623.35 W | 1710.89 | 1714.08 | S 71.27 W | 2.52 |
| 5905.00 | 16.75 | N 63.00 W | 64.00 | 5543.01 | 542.23 S | 1639.50 W | 1724.36 | 1726.84 | S 71.70 W | 1.25 |
| 5968.00 | 17.00 | N 62.00 W | 63.00 | 5603.30 | 533.78 S | 1655.72 W | 1737.79 | 1739.63 | S 72.13 W | .61 |
| 6067.00 | 19.00 | N 61.00 W | 99.00 | 5697.45 | 519.19 S | 1682.60 W | 1759.90 | 1760.88 | S 72.85 W | 2.04 |
| 6163.00 | 20.00 | N 60.00 W | 96.00 | 5787.94 | 503.41 S | 1710.49 W | 1782.66 | 1783.03 | S 73.60 W | 1.10 |
| 6253.00 | 20.00 | N 59.00 W | 90.00 | 5872.51 | 487.78 S | 1737.01 W | 1804.15 | 1804.20 | S 74.31 W | .38 |

BOTTOM HOLE CLOSURE: 1804.20 Feet at S 74.31 Degrees W

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 8915
Order No. R-8253

APPLICATION OF TENNECO OIL COMPANY
FOR DIRECTIONAL DRILLING, SAN JUAN
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on June 25, 1986, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 8th day of July, 1986, the Division Director, having considered the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Tenneco Oil Company, seeks authority to directionally drill four wells to the Basin Dakota Pool in its City of Farmington Lease, all in Section 10, Township 29 North, Range 13 West, NMPM, Farmington City Limits, San Juan County, New Mexico, in the manner as described in Exhibit "A" attached hereto and made a part hereof.

(3) The E/2 of said Section 10 is to be dedicated to Wells Nos. 1 and 1-E and the W/2 of said Section 10 is to be dedicated to Wells Nos. 2 and 2-E.

(4) The proposed bottom hole locations including a 75 foot target radius on the four subject wells are standard gas well locations pursuant to the Special Pool Rules governing the Basin Dakota Gas Pool.

(5) The surface locations of all four wells are on a 4.561 acre tract of land in the NE/4 of said Section 10 which lies

within a residential section of the City of Farmington, New Mexico.

(6) The directional drilling of the subject wells is necessitated in order to adequately avoid occupied dwellings, streets, and City Parks located in said Section 10.

(7) Approval of the application is in the best interest of conservation, inasmuch as it will minimize surface damage and correlative rights, provided the applicant should be required to determine the subsurface locations of the bottom of the holes by means of a continuous multi-shot directional survey conducted subsequent to directional drilling, if said wells are to be completed as producing wells.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Tenneco Oil Company, is hereby authorized to directionally drill four wells to the Basin Dakota Pool in its City of Farmington Lease, all in Section 10, Township 29 North, Range 13 West, NMPM, Farmington City Limits, San Juan County, New Mexico, in the manner described in Exhibit "A" attached hereto and made a part hereof.

PROVIDED HOWEVER THAT, prior to the above described directional drilling, the operator shall determine the subsurface location of the kick-off point of each well;

PROVIDED FURTHER THAT, subsequent to the above described directional drilling, should said wells be producers, a continuous multi-shot directional survey shall be made of each wellbore from total depth to the kick-off point with shot points not more than 100 feet apart; the operator shall cause the surveying company to forward a copy of the survey report directly to the Santa Fe office of the Division, P. O. Box 2088, Santa Fe, New Mexico 87504, and the operator shall notify the Division's Aztec District Office of the date and time said survey is to be commenced.

(2) Form C-105's shall be filed in accordance with Division Rule 1105 and the operator shall indicate thereon true vertical depth in addition to measured depths for each well.

(3) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

Case No. 8915
Order No. R-8253
-3-

DONE at Santa Fe, New Mexico, on the day and year
hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

acting 
R. L. STAMETS,
Director

S E A L

— —

EXHIBIT "A"
Order No. R-8253

The following well descriptions all in Section 10, Township 29 North, Range 13 West, NMPM, Farmington City Limits, Basin Dakota Pool, San Juan County, New Mexico.

City of Farmington Well No. 1:

Surface Location: 2160 feet from the South line and 1591 feet from the East line;
Approximate Kick-Off Point from Vertical: 3275 feet;
Bottom Hole Location: Within 75 feet of a point 1750 feet from the South line and 1775 feet from the East line.

City of Farmington Well No. 1-E:

Surface Location: 2203 feet from the South line and 1653 feet from the East line;
Approximate Kick-Off Point from Vertical: 1800 feet;
Bottom Hole Location: Within 75 feet of a point 1650 feet from the North and East lines.

City of Farmington Well No. 2:

Surface Location: 2159 feet from the South line and 1712 feet from the East line;
Approximate Kick-Off Point from Vertical: 750 feet;
Bottom Hole Location: Within 75 feet of a point 1650 feet from the South and West lines.

City of Farmington Well No. 2-E:

Surface Location: 2246 feet from the South line and 1712 feet from the East line;
Approximate Kick-Off Point from Vertical: 750 feet;
Bottom Hole Location: Within 75 feet of a point 1650 feet from the North and West lines.