

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

OCT 31 2019

Form C-102

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

RECEIVED

Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☒ AMENDED REPORT

As-Drilled

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

|                            |                                                          |                                                |
|----------------------------|----------------------------------------------------------|------------------------------------------------|
| API Number<br>30-015-45337 | Pool Code<br>98220 / 98236                               | Pool Name<br>Purple Sage Wolfcamp / WC-015 G08 |
| Property Code<br>322740    | Property Name<br>STERLING SILVER MDP1 "33-4" FEDERAL COM | Section<br>172H                                |
| OGRID No.<br>16696         | Operator Name<br>OXY USA INC.                            | Elevation<br>3372.6'                           |

**Surface Location**

| UL or lot no. | Section | Township | Range             | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------------------|---------|---------------|------------------|---------------|----------------|--------|
| D             | 33      | 23 SOUTH | 31 EAST, N.M.P.M. |         | 90'           | NORTH            | 904'          | WEST           | EDDY   |

**Bottom Hole Location If Different From Surface**

| UL or lot no.          | Section | Township        | Range              | Lot Idn   | Feet from the | North/South line | Feet from the | East/West line | County |
|------------------------|---------|-----------------|--------------------|-----------|---------------|------------------|---------------|----------------|--------|
| N                      | 4       | 24 SOUTH        | 31 EAST, N.M.P.M.  |           | 254           | SOUTH            | 1425          | WEST           | EDDY   |
| Dedicated Acres<br>640 |         | Joins or Infill | Consolidation Code | Order No. |               |                  |               |                |        |

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

|                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>98236</p> <p>98220</p> <p>1324</p> <p>1355</p> <p>1427</p> <p>1425</p> <p>489</p> <p>254</p> <p>GRID AZ = 84°46'23"</p> <p>467.69'</p> <p>GRID AZ = 179°45'29"</p> <p>10503.03' IN ALL</p> | <p><b>KICK OFF POINT</b><br/>NEW MEXICO EAST<br/>NAD 1983<br/>Y=461677.30 US FT<br/>X=710244.79 US FT<br/>LAT.: N 32.2680435°<br/>LONG.: W 103.7868579°</p> <p><b>FIRST TAKE POINT</b><br/>NEW MEXICO EAST<br/>NAD 1983<br/>Y=461627.30 US FT<br/>X=710245.00 US FT<br/>LAT.: N 32.2679060°<br/>LONG.: W 103.7868581°</p> <p><b>SURFACE LOCATION</b><br/>NEW MEXICO EAST<br/>NAD 1983<br/>Y=461634.69 US FT<br/>X=709779.04 US FT<br/>LAT.: N 32.2679329°<br/>LONG.: W 103.7868354°</p> <p><b>LAST TAKE POINT</b><br/>NEW MEXICO EAST<br/>NAD 1983<br/>Y=451174.36 US FT<br/>X=710289.13 US FT<br/>LAT.: N 32.239326°<br/>LONG.: W 103.7868872°</p> <p><b>BOTTOM HOLE LOCATION</b><br/>NEW MEXICO EAST<br/>NAD 1983<br/>Y=451174.36 US FT<br/>X=710289.13 US FT<br/>LAT.: N 32.2391727°<br/>LONG.: W 103.7868874°</p> | <p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or selected mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order.</p> <p>hereby entered by the division</p> <p>Sarah Chapman 10/28/19<br/>Signature Date</p> <p>Sarah Chapman<br/>Printed Name</p> <p>Sarah.Chapman@oxy.com<br/>E-mail Address</p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>15079<br/>JANUARY 29, 2019<br/>Date of Survey</p> <p>Signature and Seal<br/>Professional Surveyor</p> <p>15079<br/>Certificate Number</p> <p>WO# 180129WL-a (Rev. A) (KA)</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Dual / WOLF CAMP Pool Reporting

OCT 31 2019

Intent ☐ As Drilled ☒

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|                                    |                                                        |                         |
|------------------------------------|--------------------------------------------------------|-------------------------|
| API #<br>30-015-45337              |                                                        |                         |
| Operator Name:<br><br>Oxy USA Inc. | Property Name:<br><br>Sterling Silver HDP 33-4 Fed Com | Well Number<br><br>172H |

Kick Off Point (KOP)

| UL                   | Section | Township | Range | Lot | Feet                    | From N/S | Feet | From E/W     | County |
|----------------------|---------|----------|-------|-----|-------------------------|----------|------|--------------|--------|
| N                    | 28      | 23S      | 31E   |     | 473                     | South    | 1326 | West         | EDDY   |
| Latitude<br>32.26948 |         |          |       |     | Longitude<br>-103.78699 |          |      | NAD<br>NAD83 |        |

First Take Point (FTP)

| UL                   | Section | Township | Range | Lot | Feet                    | From N/S | Feet | From E/W     | County |
|----------------------|---------|----------|-------|-----|-------------------------|----------|------|--------------|--------|
| C                    | 33      | 23S      | 31E   |     | 132                     | NORTH    | 1355 | West         | EDDY   |
| Latitude<br>32.26781 |         |          |       |     | Longitude<br>-103.78691 |          |      | NAD<br>NAD83 |        |

Last Take Point (LTP)

| UL                   | Section | Township | Range | Lot | Feet                    | From N/S | Feet | From E/W     | County |
|----------------------|---------|----------|-------|-----|-------------------------|----------|------|--------------|--------|
| N                    | 4       | 24S      | 31E   |     | 489                     | South    | 1427 | West         | EDDY   |
| Latitude<br>32.24045 |         |          |       |     | Longitude<br>-103.78624 |          |      | NAD<br>NAD83 |        |

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

|                |                |             |
|----------------|----------------|-------------|
| API #          |                |             |
| Operator Name: | Property Name: | Well Number |

KZ 06/29/2018

Oilfield Services, Central U.S. Land  
Schlumberger Drilling and Measurements  
Drilling Group  
Geo Market Area: South West Texas Basin  
7220 W I-H 20  
Midland, Texas 79706  
Phone : (432) 742-5400 (Main)  
Fax : (432) 742-5606 (Shared)

# Schlumberger

October 4, 2019

Oxy USA Incorporated  
5 Greenway Plaza, Suite 110  
Houston TX 77046

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

**OCT 31 2019**

**RECEIVED**

Re:

S33, T23S, R31E Eddy, NM  
N 32.26793 W -103.78837

CLIENT: Oxy USA Incorporated  
WELL: Sterling Silver MDP1 33-4 Fed Com 172H  
FIELD: Purple Sage Wolfcamp

RIG: H&P 556  
COUNTY: Eddy  
API NO: 30-015-45337  
JOB NO: 19MLH0351

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).  
Other information required by your office is as follows.

| <u>Name &amp; Title of<br/>Surveyor</u> | <u>Drainhole Number</u>                                    | <u>Surveyed Depths</u>     | <u>Dates Performed</u>                | <u>Type of Survey</u>                       |
|-----------------------------------------|------------------------------------------------------------|----------------------------|---------------------------------------|---------------------------------------------|
| Andy Cooke<br>FST                       | Sterling Silver MDP1<br>33-4 Fed Com 172H<br>Original Hole | 583.00 Ft to<br>9077.00 Ft | August 10, 2019 to<br>August 26, 2019 | TelePacer, SlimPulse<br>3rd Party Corrected |

Schlumberger Drilling and Measurements  
Drilling Group  
Geo Market Area: South West Texas Basin  
7220 W I-H 20  
Midland, Texas 79706  
Phone : (432) 742-5400 (Main)  
Fax : (432) 742-5606 (Shared)

Well Reference:  
S33, T23S, R31E Eddy, NM  
N 32.26793 W -103.78837

I, Andy Cooke certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 10, 2019 through August 26, 2019, conduct or supervise the taking of the TelePacer, SlimPulse & 3rd Party Corrected surveys from a depth of 583.00 feet to a depth of 9077.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Oxy USA Incorporated for the Sterling Silver MDPI 33-4 Fed Com 172H Well (Original Hole) API No. 30-015-45337 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By  
Andy Cooke  
FST

*Andy Cooke*

Subscribed and Sworn to before me this 4 day of October (month) 2019 (yr)

My Commission expires:

6/14/2023

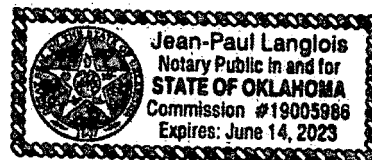
*Jean-Paul Langlois*

(signature)

Notary Public

*Comanche, Oklahoma*

(County State)



Oilfield Services, Central U.S. Land  
Schlumberger Drilling and Measurements  
Drilling Group  
Geo Market Area: South West Texas Basin  
7220 W I-H 20  
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# Schlumberger

October 4, 2019

Oxy USA Incorporated  
5 Greenway Plaza, Suite 110  
Houston TX 77046

Re:

S33, T23S, R31E Eddy, NM  
N 32.26793 W -103.78837

CLIENT: Oxy USA Incorporated  
WELL: Sterling Silver MDP1 33-4 Fed Com 172H ST01  
FIELD: Purple Sage Wolfcamp

RIG: H&P 556  
COUNTY: Eddy  
API NO: 30-015-45337-01  
JOB NO: 19MLH0351

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).  
Other information required by your office is as follows.

| <u>Name &amp; Title of<br/>Surveyor</u> | <u>Drainhole Number</u>                                      | <u>Surveyed Depths</u>       | <u>Dates Performed</u>                   | <u>Type of Survey</u>                       |
|-----------------------------------------|--------------------------------------------------------------|------------------------------|------------------------------------------|---------------------------------------------|
| Cody Jacks<br>FE                        | Sterling Silver MDP1 33-4<br>Fed Com 172H ST01<br>Side Track | 7275.00 Ft to<br>22166.00 Ft | August 10, 2019 to<br>September 25, 2019 | TelePacer, SlimPulse<br>3rd Party Corrected |

Schlumberger Drilling and Measurements  
Drilling Group  
Geo Market Area: South West Texas Basin  
7220 W I-H 20  
Midland, Texas 79706  
Phone : (432) 742-5400 (Main)  
Fax : (432) 742-5606 (Shared)

**Schlumberger**

Well Reference:

S33, T23S, R31E Eddy, NM  
N 32.26793 W -103.78837

I, Cody Jacks certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 10, 2019 through September 25, 2019, conduct or supervise the taking of the TelePacer, SlimPulse & 3rd Party Corrected surveys from a depth of 7275.00 feet to a depth of 22166.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Oxy USA Incorporated for the Sterling Silver MDPI 33-4 Fed Com 172H ST01 Well (Side Track) API No. 30-015-45337-01 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By  
Cody Jacks  
FE

*Cody Jacks*

Subscribed and Sworn to before me this 4 day of October (month) 2019 (yr)

My Commission expires:

6/14/2023

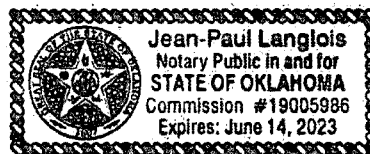
*Jean Paul Langlois*

Notary Public

*Comanche, Oklahoma*

(County State)

(signature)



# Schlumberger

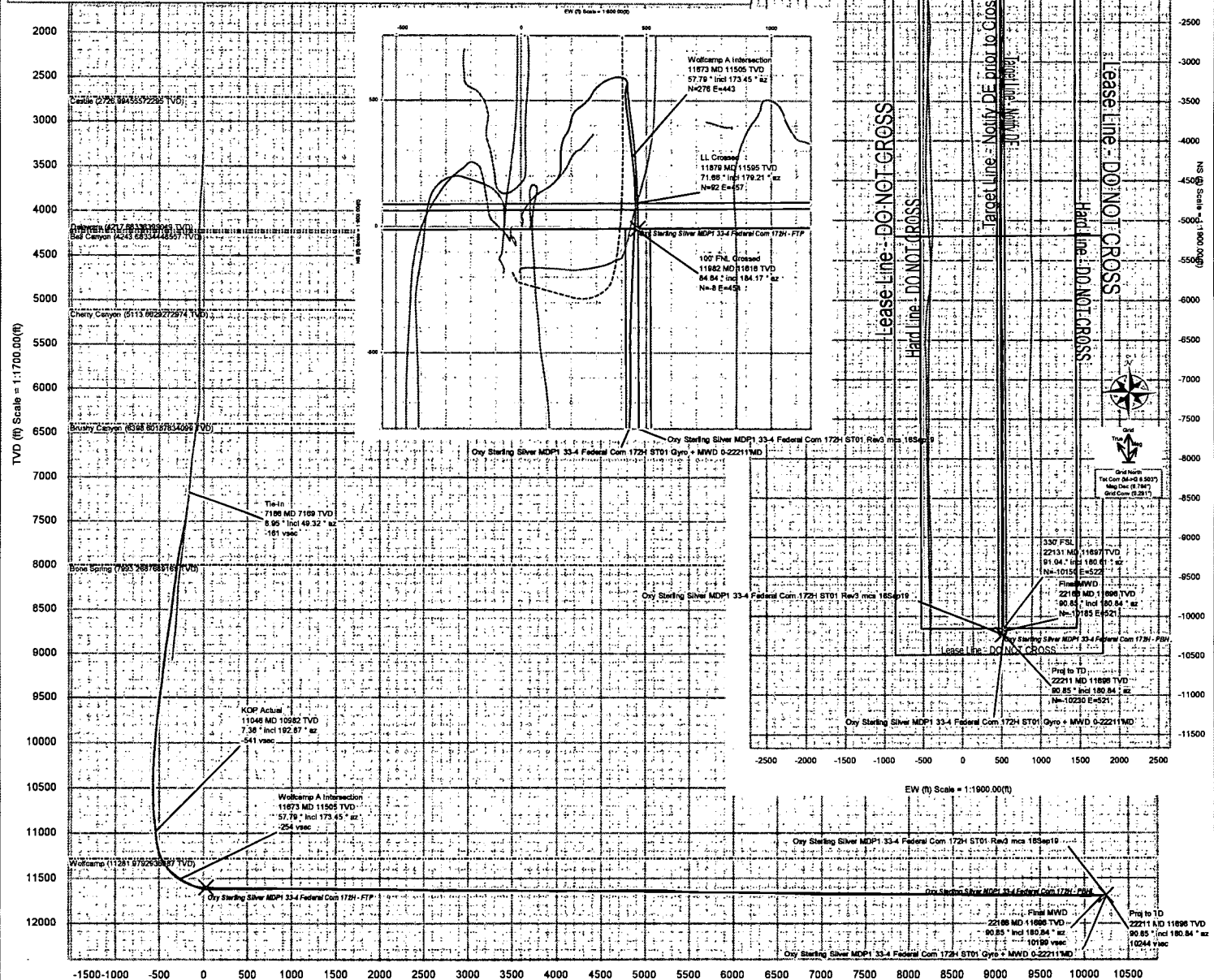
OXY



|           |                                                |                         |                                                |
|-----------|------------------------------------------------|-------------------------|------------------------------------------------|
| Borehole: | Well:                                          | Field:                  | Structure:                                     |
| ST01      | Oxy Sterling Silver MDP1 33-4 Federal Com 172H | NM Eddy County (NAD 83) | Oxy Sterling Silver MDP1 33-4 Federal Com 172H |

|                               |        |      |         |                                                                      |                           |      |                |                                                                                |              |             |            |
|-------------------------------|--------|------|---------|----------------------------------------------------------------------|---------------------------|------|----------------|--------------------------------------------------------------------------------|--------------|-------------|------------|
| Gravity & Magnetic Parameters |        |      |         | Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet |                           |      |                | Miscellaneous                                                                  |              |             |            |
| Model:                        | IFR1   | Dip: | 53.85°  | Date:                                                                | 28-Aug-2019               | Lat: | N 32 16 4.56   | Northing:                                                                      | 451634.69RUS | Grid Conv:  | 0.251°     |
| MagDec:                       | 6.784° | FS:  | 47842nT | Gravity FS:                                                          | 998.451mg (9.80665 Based) | Lon: | W 103 47 18.12 | Eastng:                                                                        | 709779.04RUS | Scale Fact: | 0.99994169 |
|                               |        |      |         |                                                                      |                           |      |                | Plan: Oxy Sterling Silver MDP1 33-4 Federal Com 172H ST01 Gyro + MWD 0-22211MD |              |             |            |

| Critical Points         |          |       |        |          |          |           |           |
|-------------------------|----------|-------|--------|----------|----------|-----------|-----------|
| Critical Point          | MD       | INCL  | AZIM   | TVD      | VSEC     | N(°)/S(-) | E(°)/W(-) |
| Tie-In                  | 7186.00  | 8.95  | 49.32  | 7189.06  | -160.79  | 167.15    | 123.61    |
| KOP Actual              | 11046.00 | 7.36  | 192.87 | 10981.76 | -541.31  | 563.02    | 421.92    |
| Wolfcamp A Intersection | 11673.15 | 57.79 | 173.45 | 11504.60 | -253.92  | 276.32    | 443.08    |
| LL Crossed              | 11879.00 | 71.66 | 179.21 | 11594.92 | -69.52   | 92.37     | 456.53    |
| 100' FNL Crossed        | 11982.00 | 84.84 | 184.17 | 11616.32 | 30.64    | -8.06     | 453.66    |
| 330' FSL                | 22131.00 | 91.04 | 180.61 | 11696.89 | 10163.71 | -10150.33 | 521.62    |
| Final MWD               | 22166.00 | 90.85 | 180.84 | 11696.32 | 10198.64 | -10185.32 | 521.18    |
| Proj to TD              | 22211.00 | 90.85 | 180.84 | 11695.65 | 10243.54 | -10230.31 | 520.52    |



Vertical Section (ft) Azim = 177.15° Scale = 1:1700.00(ft) Origin = 0N/S, 0E/W

# Oxy Sterling Silver MDP1 33-4 Federal Com 172H ST01 Gyro + MWD 0-22211' MD Survey Geodetic Report (Def Survey)



**NM OIL CONSERVATION  
ARTESIA DISTRICT**

**OCT 31 2019**

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Report Date:</b> September 27, 2019 - 11:04 AM<br><b>Client:</b> OXY<br><b>Field:</b> NM Eddy County (NAD 83)<br><b>Structure / Slot:</b> Oxy Sterling Silver MDP1 33-4 Federal Com 172H / Oxy Sterling Silver MDP1 33-4 Federal Com 172H<br><b>Well:</b> Oxy Sterling Silver MDP1 33-4 Federal Com 172H<br><b>Borehole:</b> ST01<br><b>UWI / API#:</b> Unknown / 30-015-45337<br><b>Survey Name:</b> Oxy Sterling Silver MDP1 33-4 Federal Com 172H ST01 Gyro + MWD 0-22211' MD<br><b>Survey Date:</b> August 25, 2019<br><b>Tort / AHD / DDI / ERD Ratio:</b> 376.035' / 11624.490 ft / 6.919 / 0.994<br><b>Coordinate Reference System:</b> NAD83 New Mexico State Plane, Eastern Zone, US Feet<br><b>Location Lat / Long:</b> N 32° 16' 4.55826", W 103° 47' 18.11559"<br><b>Location Grid N/E Y/X:</b> N 461634.690 ftUS, E 709779.040 ftUS<br><b>CRS Grid Convergence Angle:</b> 0.2910°<br><b>Grid Scale Factor:</b> 0.99994159<br><b>Version / Patch:</b> 2.10.782.0 | <b>Survey / DLS Computation:</b> Minimum Curvature / Lubinski<br><b>Vertical Section Azimuth:</b> 177.146° (Grid North)<br><b>Vertical Section Origin:</b> 0.000 ft, 0.000 ft<br><b>TVD Reference Datum:</b> RKB=30'<br><b>TVD Reference Elevation:</b> 3402.600 ft above MSL<br><b>Seabed / Ground Elevation:</b> 3372.600 ft above MSL<br><b>Magnetic Declination:</b> 6.794°<br><b>Total Gravity Field Strength:</b> 998.4506mgn (9.80665 Based)<br><b>Gravity Model:</b> GARM<br><b>Total Magnetic Field Strength:</b> 47942.000 nT<br><b>Magnetic Dip Angle:</b> 59.950°<br><b>Declination Date:</b> August 28, 2019<br><b>Magnetic Declination Model:</b> IFR1<br><b>North Reference:</b> Grid North<br><b>Grid Convergence Used:</b> 0.2910°<br><b>Total Corr Mag North-&gt;Grid North:</b> 6.5030°<br><b>Local Coord Referenced To:</b> Well Head |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ")     | Longitude<br>(E/W ° ' ") |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-----------------------------|--------------------------|
| RKB      | 0.00       | 0.00        | 177.78           | 0.00        | 0.00         | 0.00       | 0.00       | 0.00             | 461634.69          | 709779.04         | N 32 16 4.56 W 103 47 18.12 |                          |
| SHL      | 30.00      | 0.00        | 0.00             | 30.00       | 0.00         | 0.00       | 0.00       | 0.00             | 461634.69          | 709779.04         | N 32 16 4.56 W 103 47 18.12 |                          |
|          | 72.40      | 0.28        | 84.56            | 72.40       | 0.00         | 0.01       | 0.10       | 0.66             | 461634.70          | 709779.14         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 101.70     | 0.23        | 101.45           | 101.70      | 0.01         | 0.00       | 0.23       | 0.31             | 461634.69          | 709779.27         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 134.60     | 0.23        | 37.32            | 134.60      | -0.03        | 0.04       | 0.34       | 0.74             | 461634.73          | 709779.38         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 163.70     | 0.28        | 12.06            | 163.70      | -0.14        | 0.16       | 0.39       | 0.42             | 461634.85          | 709779.43         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 191.10     | 0.13        | 70.68            | 191.10      | -0.21        | 0.24       | 0.43       | 0.87             | 461634.93          | 709779.47         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 220.40     | 0.15        | 150.57           | 220.40      | -0.19        | 0.21       | 0.48       | 0.62             | 461634.90          | 709779.52         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 246.90     | 0.19        | 188.12           | 246.90      | -0.12        | 0.14       | 0.49       | 0.44             | 461634.83          | 709779.53         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 272.80     | 0.17        | 183.00           | 272.80      | -0.03        | 0.06       | 0.48       | 0.10             | 461634.75          | 709779.52         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 304.30     | 0.26        | 180.85           | 304.30      | 0.08         | -0.06      | 0.48       | 0.29             | 461634.63          | 709779.52         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 335.80     | 0.28        | 184.10           | 335.80      | 0.23         | -0.21      | 0.47       | 0.08             | 461634.48          | 709779.51         | N 32 16 4.56 W 103 47 18.11 |                          |
|          | 367.40     | 0.21        | 189.78           | 367.40      | 0.36         | -0.34      | 0.46       | 0.23             | 461634.35          | 709779.50         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 398.90     | 0.29        | 188.19           | 398.90      | 0.50         | -0.48      | 0.44       | 0.25             | 461634.21          | 709779.48         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 430.40     | 0.27        | 188.12           | 430.40      | 0.65         | -0.63      | 0.41       | 0.06             | 461634.06          | 709779.45         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 461.90     | 0.14        | 213.23           | 461.90      | 0.75         | -0.74      | 0.38       | 0.49             | 461633.95          | 709779.42         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 484.60     | 0.22        | 245.49           | 484.60      | 0.79         | -0.78      | 0.33       | 0.56             | 461633.91          | 709779.37         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 583.00     | 0.03        | 293.34           | 583.00      | 0.85         | -0.84      | 0.13       | 0.20             | 461633.85          | 709779.17         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 674.00     | 0.07        | 67.39            | 674.00      | 0.82         | -0.81      | 0.16       | 0.10             | 461633.88          | 709779.20         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 764.00     | 0.07        | 307.79           | 764.00      | 0.77         | -0.76      | 0.17       | 0.13             | 461633.93          | 709779.21         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 856.00     | 0.07        | 186.28           | 856.00      | 0.79         | -0.78      | 0.12       | 0.13             | 461633.91          | 709779.16         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 946.00     | 0.15        | 23.43            | 946.00      | 0.73         | -0.73      | 0.16       | 0.24             | 461633.96          | 709779.20         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1036.00    | 0.07        | 75.61            | 1036.00     | 0.62         | -0.61      | 0.26       | 0.13             | 461634.08          | 709779.30         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1128.00    | 0.15        | 353.29           | 1128.00     | 0.49         | -0.47      | 0.30       | 0.17             | 461634.22          | 709779.34         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1218.00    | 0.07        | 171.89           | 1218.00     | 0.42         | -0.41      | 0.29       | 0.24             | 461634.28          | 709779.33         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1308.00    | 0.03        | 9.07             | 1308.00     | 0.45         | -0.44      | 0.31       | 0.11             | 461634.25          | 709779.35         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1402.00    | 0.15        | 181.64           | 1402.00     | 0.55         | -0.54      | 0.31       | 0.19             | 461634.15          | 709779.35         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1497.00    | 0.08        | 184.83           | 1497.00     | 0.74         | -0.73      | 0.30       | 0.07             | 461633.96          | 709779.34         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1592.00    | 0.07        | 114.40           | 1592.00     | 0.84         | -0.82      | 0.34       | 0.09             | 461633.87          | 709779.38         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1686.00    | 0.08        | 349.13           | 1686.00     | 0.80         | -0.78      | 0.38       | 0.14             | 461633.91          | 709779.42         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1781.00    | 0.13        | 75.91            | 1781.00     | 0.71         | -0.69      | 0.48       | 0.16             | 461634.00          | 709779.52         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1875.00    | 0.13        | 205.15           | 1875.00     | 0.78         | -0.76      | 0.53       | 0.25             | 461633.93          | 709779.57         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 1970.00    | 0.08        | 116.31           | 1970.00     | 0.91         | -0.88      | 0.55       | 0.16             | 461633.81          | 709779.59         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2064.00    | 0.11        | 229.45           | 2064.00     | 1.00         | -0.97      | 0.54       | 0.17             | 461633.72          | 709779.58         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2159.00    | 0.11        | 287.58           | 2158.99     | 1.02         | -1.00      | 0.38       | 0.11             | 461633.69          | 709779.42         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2253.00    | 0.11        | 100.71           | 2252.99     | 1.01         | -0.99      | 0.38       | 0.23             | 461633.70          | 709779.42         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2348.00    | 0.11        | 21.40            | 2347.99     | 0.95         | -0.93      | 0.51       | 0.15             | 461633.76          | 709779.55         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2443.00    | 0.07        | 261.13           | 2442.99     | 0.87         | -0.85      | 0.48       | 0.17             | 461633.84          | 709779.52         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2537.00    | 0.07        | 341.76           | 2536.99     | 0.82         | -0.80      | 0.41       | 0.10             | 461633.89          | 709779.45         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2632.00    | 0.07        | 67.06            | 2631.99     | 0.75         | -0.73      | 0.44       | 0.10             | 461633.96          | 709779.48         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2727.00    | 0.07        | 114.87           | 2726.99     | 0.75         | -0.73      | 0.55       | 0.06             | 461633.96          | 709779.59         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2821.00    | 0.11        | 320.99           | 2820.99     | 0.71         | -0.68      | 0.55       | 0.19             | 461634.01          | 709779.59         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 2916.00    | 0.11        | 138.79           | 2915.99     | 0.71         | -0.68      | 0.55       | 0.23             | 461634.01          | 709779.59         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 3011.00    | 0.14        | 143.19           | 3010.99     | 0.87         | -0.84      | 0.68       | 0.03             | 461633.85          | 709779.72         | N 32 16 4.55 W 103 47 18.11 |                          |
|          | 3106.00    | 0.31        | 51.31            | 3105.99     | 0.82         | -0.77      | 0.95       | 0.36             | 461633.92          | 709779.99         | N 32 16 4.55 W 103 47 18.10 |                          |
|          | 3200.00    | 1.04        | 33.20            | 3199.99     | -0.02        | 0.10       | 1.61       | 0.80             | 461634.79          | 709780.65         | N 32 16 4.56 W 103 47 18.10 |                          |
|          | 3295.00    | 1.55        | 22.03            | 3294.96     | -1.88        | 2.01       | 2.57       | 0.60             | 461636.70          | 709781.61         | N 32 16 4.58 W 103 47 18.09 |                          |
|          | 3390.00    | 2.50        | 19.07            | 3389.90     | -4.97        | 5.16       | 3.73       | 1.01             | 461639.85          | 709782.77         | N 32 16 4.61 W 103 47 18.07 |                          |
|          | 3484.00    | 2.66        | 17.44            | 3483.81     | -8.92        | 9.18       | 5.05       | 0.19             | 461643.87          | 709784.09         | N 32 16 4.65 W 103 47 18.06 |                          |
|          | 3579.00    | 2.85        | 15.40            | 3578.70     | -13.23       | 13.56      | 6.34       | 0.23             | 461648.25          | 709785.38         | N 32 16 4.69 W 103 47 18.04 |                          |
|          | 3673.00    | 3.76        | 4.14             | 3672.54     | -18.51       | 18.89      | 7.18       | 1.18             | 461653.58          | 709786.22         | N 32 16 4.74 W 103 47 18.03 |                          |
|          | 3768.00    | 4.41        | 353.21           | 3767.30     | -25.24       | 25.62      | 6.97       | 1.06             | 461660.31          | 709786.01         | N 32 16 4.81 W 103 47 18.03 |                          |
|          | 3863.00    | 5.02        | 342.85           | 3861.98     | -32.91       | 33.22      | 5.32       | 1.10             | 461667.91          | 709784.36         | N 32 16 4.89 W 103 47 18.05 |                          |
|          | 3957.00    | 2.96        | 338.80           | 3955.75     | -39.20       | 39.41      | 3.23       | 2.21             | 461674.10          | 709782.27         | N 32 16 4.95 W 103 47 18.08 |                          |
|          | 4052.00    | 1.35        | 330.88           | 4050.68     | -42.53       | 42.68      | 1.79       | 1.72             | 461677.36          | 709780.83         | N 32 16 4.98 W 103 47 18.09 |                          |
|          | 4147.00    | 0.47        | 327.36           | 4145.66     | -43.88       | 43.98      | 1.04       | 0.93             | 461678.67          | 709780.08         | N 32 16 4.99 W 103 47 18.10 |                          |
|          | 4191.00    | 0.09        | 40.84            | 4189.66     | -44.06       | 44.16      | 0.96       | 1.03             | 461678.85          | 709780.00         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 4348.00    | 0.11        | 305.25           | 4346.86     | -44.24       | 44.34      | 0.92       | 0.09             | 461679.03          | 709779.96         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 4443.00    | 0.06        | 55.00            | 4441.66     | -44.32       | 44.42      | 0.89       | 0.15             | 461679.11          | 709779.93         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 4538.00    | 0.04        | 177.77           | 4536.66     | -44.32       | 44.42      | 0.93       | 0.09             | 461679.10          | 709779.97         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 4633.00    | 0.08        | 258.23           | 4631.66     | -44.27       | 44.37      | 0.87       | 0.09             | 461679.06          | 709779.91         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 4727.00    | 0.06        | 41.20            | 4725.66     | -44.30       | 44.39      | 0.84       | 0.14             | 461679.08          | 709779.88         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 4822.00    | 0.06        | 186.23           | 4820.66     | -44.28       | 44.38      | 0.86       | 0.12             | 461679.07          | 709779.90         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 4916.00    | 0.06        | 223.75           | 4914.66     | -44.20       | 44.30      | 0.82       | 0.04             | 461678.99          | 709779.86         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5011.00    | 0.08        | 347.13           | 5009.66     | -44.23       | 44.33      | 0.77       | 0.13             | 461679.01          | 709779.81         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5106.00    | 0.04        | 18.17            | 5104.66     | -44.33       | 44.42      | 0.77       | 0.05             | 461679.11          | 709779.81         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5200.00    | 0.07        | 132.00           | 5198.66     | -44.32       | 44.42      | 0.82       | 0.10             | 461679.10          | 709779.86         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5295.00    | 0.02        | 202.84           | 5293.66     | -44.26       | 44.36      | 0.86       | 0.07             | 461679.05          | 709779.90         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5389.00    | 0.04        | 129.78           | 5387.66     | -44.23       | 44.33      | 0.88       | 0.04             | 461679.01          | 709779.92         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5484.00    | 0.07        | 177.42           | 5482.66     | -44.15       | 44.25      | 0.91       | 0.05             | 461678.93          | 709779.95         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5579.00    | 0.06        | 172.59           | 5577.66     | -44.04       | 44.14      | 0.92       | 0.01             | 461678.83          | 709779.96         | N 32 16 4.99 W 103 47 18.10 |                          |
|          | 5673.00    | 0.04        | 14.21            | 5671.66     | -44.02       | 44.12      | 0.93       | 0.10             | 461678.81          | 709779.97         | N 32 16 4.99 W 103 47 18.10 |                          |
|          | 5768.00    | 0.04        | 32.38            | 5766.66     | -44.08       | 44.18      | 0.96       | 0.01             | 461678.87          | 709780.00         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5862.00    | 0.04        | 184.28           | 5860.66     | -44.07       | 44.18      | 0.97       | 0.08             | 461678.86          | 709780.01         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 5956.00    | 0.04        | 53.95            | 5954.66     | -44.06       | 44.16      | 0.99       | 0.08             | 461678.85          | 709780.03         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 6051.00    | 0.01        | 25.04            | 6049.66     | -44.08       | 44.19      | 1.02       | 0.03             | 461678.86          | 709780.06         | N 32 16 5.00 W 103 47 18.10 |                          |
|          | 6146.00    | 2.20        | 23.07            | 6144.64     | -45.73       | 45.88      | 1.74       | 2.31             | 461680.58          | 709780.78         | N 32 16 5.01 W 103 47 18.09 |                          |



| Comments         | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>("/100R) | Northring<br>(RUS) | Easting<br>(RUS) | Latitude<br>(N/S ° ' '')     | Longitude<br>(E/W ° ' '') |
|------------------|------------|-------------|------------------|-------------|--------------|------------|------------|-----------------|--------------------|------------------|------------------------------|---------------------------|
| Tie-In           | 6240.00    | 5.65        | 28.14            | 6234.00     | -51.32       | 51.62      | 4.63       | 3.69            | 461686.30          | 709783.67        | N 32 16 5.07 W 103 47 18.06  |                           |
|                  | 6335.00    | 9.18        | 30.36            | 6332.60     | -61.68       | 62.28      | 10.67      | 3.73            | 461696.97          | 709789.71        | N 32 16 5.17 W 103 47 17.99  |                           |
|                  | 6429.00    | 11.13       | 33.19            | 6425.12     | -75.29       | 76.35      | 19.43      | 2.14            | 461711.03          | 709798.47        | N 32 16 5.31 W 103 47 17.88  |                           |
|                  | 6524.00    | 11.35       | 36.53            | 6518.30     | -89.92       | 91.53      | 30.01      | 0.72            | 461726.22          | 709809.05        | N 32 16 5.46 W 103 47 17.76  |                           |
|                  | 6618.00    | 10.91       | 41.79            | 6610.53     | -103.40      | 105.60     | 41.45      | 1.18            | 461740.28          | 709820.48        | N 32 16 5.60 W 103 47 17.63  |                           |
|                  | 6713.00    | 10.81       | 46.31            | 6703.83     | -115.63      | 118.46     | 53.88      | 0.90            | 461753.14          | 709832.92        | N 32 16 5.73 W 103 47 17.48  |                           |
|                  | 6807.00    | 10.78       | 54.29            | 6796.17     | -126.16      | 129.68     | 67.39      | 1.59            | 461764.36          | 709846.43        | N 32 16 5.84 W 103 47 17.32  |                           |
|                  | 6902.00    | 10.95       | 59.12            | 6889.47     | -135.22      | 139.49     | 82.35      | 0.97            | 461774.17          | 709861.39        | N 32 16 5.93 W 103 47 17.15  |                           |
|                  | 6997.00    | 10.59       | 58.99            | 6982.80     | -143.58      | 148.62     | 97.58      | 0.38            | 461783.30          | 709876.61        | N 32 16 6.02 W 103 47 16.97  |                           |
|                  | 7186.00    | 8.95        | 49.32            | 7169.06     | -160.79      | 167.15     | 123.61     | 1.22            | 461801.83          | 709902.65        | N 32 16 6.21 W 103 47 16.67  |                           |
|                  | 7275.00    | 9.07        | 44.47            | 7256.97     | -169.79      | 176.67     | 133.78     | 0.86            | 461811.35          | 709912.81        | N 32 16 6.30 W 103 47 16.55  |                           |
|                  | 7368.00    | 9.24        | 38.60            | 7348.79     | -180.36      | 187.74     | 143.57     | 1.02            | 461822.42          | 709922.60        | N 32 16 6.41 W 103 47 16.43  |                           |
|                  | 7463.00    | 11.83       | 20.73            | 7442.20     | -195.00      | 202.81     | 151.78     | 4.36            | 461837.49          | 709930.81        | N 32 16 6.56 W 103 47 16.34  |                           |
|                  | 7557.00    | 11.51       | 6.43             | 7534.28     | -213.09      | 221.15     | 156.24     | 3.09            | 461855.83          | 709935.27        | N 32 16 6.74 W 103 47 16.28  |                           |
|                  | 7652.00    | 11.20       | 0.25             | 7627.42     | -231.66      | 239.79     | 157.34     | 1.32            | 461874.47          | 709936.37        | N 32 16 6.92 W 103 47 16.27  |                           |
|                  | 7747.00    | 11.34       | 359.45           | 7720.59     | -250.21      | 258.36     | 157.29     | 0.22            | 461893.03          | 709936.33        | N 32 16 7.11 W 103 47 16.27  |                           |
|                  | 7841.00    | 10.46       | 357.88           | 7812.89     | -267.97      | 276.13     | 156.89     | 0.99            | 461910.80          | 709935.92        | N 32 16 7.28 W 103 47 16.27  |                           |
|                  | 7935.00    | 10.00       | 5.64             | 7905.40     | -284.58      | 292.78     | 157.38     | 1.54            | 461927.45          | 709936.41        | N 32 16 7.45 W 103 47 16.27  |                           |
|                  | 8030.00    | 8.17        | 8.60             | 7999.21     | -299.35      | 307.66     | 159.20     | 1.99            | 461942.33          | 709938.23        | N 32 16 7.59 W 103 47 16.24  |                           |
|                  | 8125.00    | 7.45        | 11.81            | 8093.33     | -311.93      | 320.37     | 161.47     | 0.89            | 461955.04          | 709940.50        | N 32 16 7.72 W 103 47 16.22  |                           |
|                  | 8219.00    | 7.70        | 12.07            | 8186.51     | -323.91      | 332.49     | 164.03     | 0.27            | 461967.16          | 709943.06        | N 32 16 7.84 W 103 47 16.19  |                           |
|                  | 8314.00    | 8.74        | 18.28            | 8280.53     | -336.79      | 345.57     | 167.63     | 1.44            | 461980.24          | 709946.66        | N 32 16 7.97 W 103 47 16.14  |                           |
|                  | 8409.00    | 9.22        | 35.74            | 8374.38     | -349.47      | 358.60     | 174.34     | 2.90            | 461993.27          | 709953.37        | N 32 16 8.10 W 103 47 16.06  |                           |
|                  | 8503.00    | 7.24        | 33.04            | 8467.41     | -360.16      | 369.88     | 181.79     | 2.15            | 462004.35          | 709960.99        | N 32 16 8.21 W 103 47 15.97  |                           |
|                  | 8601.00    | 7.97        | 21.16            | 8564.55     | -371.37      | 381.19     | 187.97     | 1.76            | 462015.86          | 709966.81        | N 32 16 8.32 W 103 47 15.91  |                           |
|                  | 8700.00    | 9.79        | 15.46            | 8658.41     | -385.05      | 395.12     | 192.32     | 2.13            | 462029.79          | 709971.34        | N 32 16 8.46 W 103 47 15.85  |                           |
|                  | 8805.00    | 9.06        | 15.23            | 8751.14     | -399.68      | 409.96     | 196.39     | 0.78            | 462044.63          | 709975.42        | N 32 16 8.60 W 103 47 15.80  |                           |
|                  | 8900.00    | 8.62        | 10.81            | 8845.02     | -413.70      | 424.17     | 199.69     | 0.85            | 462058.84          | 709978.72        | N 32 16 8.75 W 103 47 15.76  |                           |
|                  | 8979.00    | 8.57        | 19.56            | 8937.86     | -427.02      | 437.69     | 203.36     | 1.39            | 462072.36          | 709982.38        | N 32 16 8.88 W 103 47 15.72  |                           |
|                  | 9074.00    | 8.75        | 32.97            | 9031.89     | -439.43      | 450.43     | 209.66     | 2.13            | 462085.09          | 709988.69        | N 32 16 9.00 W 103 47 15.65  |                           |
|                  | 9169.00    | 10.06       | 47.96            | 9125.63     | -450.53      | 463.05     | 218.76     | 2.91            | 462096.71          | 709998.78        | N 32 16 9.12 W 103 47 15.53  |                           |
|                  | 9263.00    | 11.60       | 54.53            | 9217.85     | -460.81      | 475.03     | 233.55     | 2.10            | 462107.69          | 710012.58        | N 32 16 9.23 W 103 47 15.37  |                           |
|                  | 9452.00    | 11.51       | 43.29            | 9403.15     | -484.12      | 497.79     | 261.96     | 1.19            | 462132.45          | 710040.98        | N 32 16 9.47 W 103 47 15.04  |                           |
|                  | 9547.00    | 9.16        | 34.91            | 9496.60     | -496.67      | 510.89     | 272.79     | 2.93            | 462145.55          | 710051.81        | N 32 16 9.60 W 103 47 14.91  |                           |
|                  | 9641.00    | 7.71        | 28.54            | 9589.59     | -507.97      | 522.56     | 280.08     | 1.83            | 462157.22          | 710059.11        | N 32 16 9.71 W 103 47 14.82  |                           |
|                  | 9830.00    | 6.91        | 36.27            | 9777.05     | -527.61      | 542.87     | 292.87     | 0.67            | 462177.53          | 710071.89        | N 32 16 9.92 W 103 47 14.67  |                           |
|                  | 9925.00    | 9.08        | 47.86            | 9871.13     | -536.79      | 552.51     | 301.81     | 2.83            | 462187.16          | 710080.83        | N 32 16 10.01 W 103 47 14.57 |                           |
|                  | 10114.00   | 9.18        | 54.16            | 10057.74    | -554.44      | 571.34     | 325.09     | 0.53            | 462206.00          | 710104.11        | N 32 16 10.20 W 103 47 14.30 |                           |
|                  | 10208.00   | 9.31        | 65.92            | 10150.53    | -561.28      | 578.83     | 338.11     | 2.01            | 462213.49          | 710117.13        | N 32 16 10.27 W 103 47 14.14 |                           |
|                  | 10303.00   | 8.88        | 68.36            | 10244.33    | -566.42      | 584.67     | 351.94     | 0.61            | 462219.33          | 710130.96        | N 32 16 10.33 W 103 47 13.98 |                           |
|                  | 10398.00   | 7.89        | 73.08            | 10338.32    | -570.37      | 589.28     | 365.00     | 1.27            | 462223.93          | 710144.01        | N 32 16 10.37 W 103 47 13.83 |                           |
|                  | 10493.00   | 6.94        | 78.83            | 10432.52    | -572.78      | 592.29     | 376.87     | 1.27            | 462226.94          | 710155.88        | N 32 16 10.40 W 103 47 13.69 |                           |
|                  | 10587.00   | 7.81        | 94.82            | 10525.75    | -572.75      | 592.85     | 388.80     | 2.36            | 462227.50          | 710167.82        | N 32 16 10.40 W 103 47 13.55 |                           |
|                  | 10682.00   | 7.08        | 100.55           | 10619.95    | -570.53      | 591.23     | 400.99     | 1.10            | 462225.89          | 710180.01        | N 32 16 10.39 W 103 47 13.41 |                           |
|                  | 10776.00   | 6.10        | 119.78           | 10713.34    | -566.50      | 587.69     | 411.02     | 2.55            | 462222.35          | 710190.04        | N 32 16 10.35 W 103 47 13.29 |                           |
|                  | 10871.00   | 5.81        | 142.29           | 10807.84    | -559.83      | 581.38     | 418.35     | 2.46            | 462216.04          | 710197.36        | N 32 16 10.29 W 103 47 13.21 |                           |
|                  | 10966.00   | 6.38        | 168.51           | 10902.32    | -550.66      | 572.40     | 422.34     | 2.96            | 462207.06          | 710201.35        | N 32 16 10.20 W 103 47 13.16 |                           |
| KOP Actual       | 10992.00   | 6.60        | 179.17           | 10928.16    | -547.74      | 569.49     | 422.65     | 4.70            | 462204.15          | 710201.66        | N 32 16 10.17 W 103 47 13.16 |                           |
|                  | 11046.00   | 7.36        | 192.87           | 10981.76    | -541.31      | 563.02     | 421.92     | 3.38            | 462197.67          | 710200.94        | N 32 16 10.11 W 103 47 13.17 |                           |
|                  | 11140.00   | 6.70        | 197.89           | 11075.06    | -530.38      | 551.93     | 418.90     | 0.96            | 462186.59          | 710197.91        | N 32 16 10.00 W 103 47 13.20 |                           |
|                  | 11235.00   | 13.10       | 185.84           | 11168.60    | -514.54      | 535.93     | 416.10     | 7.05            | 462170.58          | 710195.11        | N 32 16 9.84 W 103 47 13.24  |                           |
|                  | 11330.00   | 23.81       | 176.15           | 11258.60    | -484.63      | 505.99     | 416.29     | 11.69           | 462140.65          | 710195.30        | N 32 16 9.54 W 103 47 13.24  |                           |
|                  | 11424.00   | 34.27       | 172.48           | 11340.68    | -439.15      | 460.69     | 421.04     | 11.28           | 462095.35          | 710200.05        | N 32 16 9.10 W 103 47 13.18  |                           |
|                  | 11519.00   | 49.38       | 173.65           | 11411.27    | -376.14      | 397.98     | 428.57     | 15.93           | 462032.64          | 710207.59        | N 32 16 8.47 W 103 47 13.10  |                           |
|                  | 11613.00   | 52.74       | 172.83           | 11470.34    | -303.21      | 325.38     | 437.19     | 3.64            | 461960.06          | 710216.20        | N 32 16 7.76 W 103 47 13.00  |                           |
|                  | 11673.15   | 57.79       | 173.45           | 11504.60    | -253.92      | 276.32     | 443.08     | 8.44            | 461911.00          | 710222.10        | N 32 16 7.27 W 103 47 12.94  |                           |
|                  | 11708.00   | 60.72       | 173.78           | 11522.41    | -224.02      | 246.56     | 446.41     | 8.44            | 461881.23          | 710225.42        | N 32 16 6.98 W 103 47 12.90  |                           |
| LL Crossed       | 11802.00   | 64.10       | 176.15           | 11565.95    | -140.79      | 163.59     | 453.69     | 4.23            | 461798.27          | 710232.71        | N 32 16 6.15 W 103 47 12.82  |                           |
|                  | 11879.00   | 71.66       | 179.21           | 11594.92    | -69.52       | 92.37      | 456.53     | 10.49           | 461727.06          | 710235.54        | N 32 16 5.45 W 103 47 12.79  |                           |
| 100' FNL Crossed | 11897.00   | 73.44       | 179.88           | 11600.32    | -52.37       | 75.20      | 456.67     | 10.49           | 461709.89          | 710235.68        | N 32 16 5.28 W 103 47 12.79  |                           |
|                  | 11982.00   | 84.84       | 184.17           | 11616.32    | 30.64        | -8.06      | 453.66     | 14.30           | 461626.63          | 710232.67        | N 32 16 4.46 W 103 47 12.83  |                           |
|                  | 11991.00   | 86.05       | 184.61           | 11617.03    | 39.54        | -17.01     | 452.98     | 14.30           | 461617.68          | 710231.99        | N 32 16 4.37 W 103 47 12.84  |                           |
|                  | 12086.00   | 91.24       | 182.02           | 11619.28    | 133.93       | -111.78    | 447.49     | 6.10            | 461522.92          | 710226.50        | N 32 16 3.43 W 103 47 12.91  |                           |
|                  | 12158.00   | 90.50       | 182.48           | 11618.18    | 205.63       | -183.72    | 444.66     | 1.21            | 461450.98          | 710223.68        | N 32 16 2.72 W 103 47 12.95  |                           |
|                  | 12253.00   | 90.98       | 182.90           | 11616.96    | 300.18       | -278.60    | 440.20     | 0.67            | 461356.10          | 710219.22        | N 32 16 1.78 W 103 47 13.01  |                           |
|                  | 12347.00   | 89.75       | 181.40           | 11616.36    | 393.82       | -372.53    | 436.68     | 2.06            | 461262.18          | 710215.69        | N 32 16 0.85 W 103 47 13.05  |                           |
|                  | 12441.00   | 89.20       | 179.65           | 11617.22    | 487.64       | -466.52    | 435.82     | 1.95            | 461168.20          | 710214.83        | N 32 15 59.92 W 103 47 13.07 |                           |
|                  | 12536.00   | 89.85       | 179.68           | 11618.01    | 582.55       | -561.51    | 436.37     | 0.68            | 461073.21          | 710215.39        | N 32 15 58.98 W 103 47 13.07 |                           |
|                  | 12631.00   | 91.74       | 180.64           | 11616.69    | 677.40       | -656.50    | 436.11     | 2.23            | 460978.23          | 710215.12        | N 32 15 58.04 W 103 47 13.08 |                           |
|                  | 12725.00   | 91.09       | 181.94           | 11614.37    | 771.13       | -750.44    | 433.99     | 1.55            | 460884.29          | 710213.00        | N 32 15 57.11 W 103 47 13.11 |                           |
|                  | 12820.00   | 91.46       | 183.21           | 11612.25    | 865.67       | -845.32    | 429.72     | 1.39            | 460789.42          | 710208.74        | N 32 15 56.17 W 103 47 13.16 |                           |
|                  | 12914.00   | 88.13       | 178.81           | 11612.59    | 959.42       | -939.27    | 428.07     | 5.87            | 460695.48          | 710207.08        | N 32 15 55.24 W 103 47 13.19 |                           |
|                  | 13103.00   | 89.26       | 176.17           | 11616.90    | 1148.35      | -1128.02   | 436.34     | 1.52            | 460506.74          | 710215.36        | N 32 15 53.37 W 103 47 13.10 |                           |
|                  | 13198.00   | 88.82       | 177.92           | 11618.49    | 1243.33      | -1222.88   | 441.24     | 1.90            | 460411.89          | 710220.25        | N 32 15 52.44 W 103 47 13.05 |                           |
|                  | 13292.00   | 89.30       | 175.77           | 11620.03    | 1337.31      | -1316.72   | 446.41     | 2.34            | 460318.05          | 710225.42        | N 32 15 51.51 W 103 47 12.99 |                           |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(ft/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|-------------------|--------------------|-------------------|-------------------------|--------------------------|
|          | 16886.00   | 89.81       | 180.13           | 11629.75    | 4925.71      | -4908.05   | 476.97     | 0.80              | 456726.94          | 710255.98         | N 32 15 15.97           | W 103 47 12.85           |
|          | 16980.00   | 89.64       | 180.93           | 11630.20    | 5019.54      | -5002.04   | 476.10     | 0.87              | 456632.95          | 710255.11         | N 32 15 15.04           | W 103 47 12.87           |
|          | 17075.00   | 89.81       | 180.09           | 11630.65    | 5114.38      | -5097.03   | 475.26     | 0.90              | 456537.96          | 710254.27         | N 32 15 14.10           | W 103 47 12.88           |
|          | 17169.00   | 88.44       | 179.00           | 11632.09    | 5208.28      | -5191.02   | 476.00     | 1.86              | 456443.99          | 710255.01         | N 32 15 13.17           | W 103 47 12.88           |
|          | 17359.00   | 83.96       | 177.60           | 11644.68    | 5397.77      | -5380.46   | 481.62     | 2.47              | 456254.55          | 710260.63         | N 32 15 11.29           | W 103 47 12.83           |
|          | 17453.00   | 86.93       | 177.94           | 11652.14    | 5491.46      | -5474.08   | 485.26     | 3.18              | 456160.94          | 710264.28         | N 32 15 10.37           | W 103 47 12.79           |
|          | 17547.00   | 89.64       | 179.51           | 11654.96    | 5585.37      | -5568.01   | 487.35     | 3.33              | 456067.02          | 710266.36         | N 32 15 9.44            | W 103 47 12.77           |
|          | 17736.00   | 89.02       | 178.41           | 11657.17    | 5774.26      | -5756.96   | 490.78     | 0.67              | 455878.08          | 710269.79         | N 32 15 7.57            | W 103 47 12.74           |
|          | 17831.00   | 89.95       | 179.01           | 11658.02    | 5869.22      | -5851.93   | 492.92     | 1.16              | 455783.11          | 710271.93         | N 32 15 6.63            | W 103 47 12.72           |
|          | 17926.00   | 89.88       | 179.29           | 11658.16    | 5964.16      | -5946.92   | 494.33     | 0.30              | 455688.13          | 710273.34         | N 32 15 5.69            | W 103 47 12.71           |
|          | 18020.00   | 89.16       | 177.40           | 11658.95    | 6058.13      | -6040.87   | 497.05     | 2.15              | 455594.18          | 710276.06         | N 32 15 4.76            | W 103 47 12.69           |
|          | 18210.00   | 90.54       | 179.17           | 11659.45    | 6248.08      | -6230.77   | 502.73     | 1.18              | 455404.29          | 710281.74         | N 32 15 2.88            | W 103 47 12.63           |
|          | 18304.00   | 88.92       | 177.29           | 11659.89    | 6342.05      | -6324.72   | 505.64     | 2.64              | 455310.35          | 710284.64         | N 32 15 1.95            | W 103 47 12.60           |
|          | 18399.00   | 87.68       | 177.57           | 11662.71    | 6437.01      | -6419.58   | 509.89     | 1.34              | 455215.50          | 710288.90         | N 32 15 1.01            | W 103 47 12.56           |
|          | 18494.00   | 88.68       | 178.04           | 11665.72    | 6531.95      | -6514.46   | 513.53     | 1.16              | 455120.62          | 710292.54         | N 32 15 0.07            | W 103 47 12.52           |
|          | 18588.00   | 88.89       | 180.34           | 11667.72    | 6625.87      | -6608.43   | 514.86     | 2.46              | 455026.66          | 710293.87         | N 32 14 59.14           | W 103 47 12.51           |
|          | 18683.00   | 87.61       | 180.50           | 11670.62    | 6720.68      | -6703.38   | 514.16     | 1.36              | 454931.72          | 710293.17         | N 32 14 58.20           | W 103 47 12.53           |
|          | 18777.00   | 87.82       | 178.65           | 11674.37    | 6814.50      | -6797.30   | 514.86     | 1.98              | 454837.81          | 710293.87         | N 32 14 57.27           | W 103 47 12.52           |
|          | 18967.00   | 89.54       | 180.40           | 11678.74    | 7004.27      | -6987.22   | 516.43     | 1.29              | 454647.89          | 710295.44         | N 32 14 55.39           | W 103 47 12.52           |
|          | 19061.00   | 89.75       | 180.09           | 11679.33    | 7098.13      | -7081.22   | 516.03     | 0.40              | 454553.90          | 710295.04         | N 32 14 54.46           | W 103 47 12.53           |
|          | 19156.00   | 90.40       | 181.16           | 11679.20    | 7192.96      | -7176.21   | 514.99     | 1.32              | 454458.91          | 710294.00         | N 32 14 53.52           | W 103 47 12.54           |
|          | 19344.00   | 89.26       | 178.78           | 11679.76    | 7380.63      | -7364.20   | 513.45     | 0.95              | 454270.94          | 710292.46         | N 32 14 51.66           | W 103 47 12.57           |
|          | 19439.00   | 89.68       | 179.70           | 11680.64    | 7475.53      | -7459.19   | 513.88     | 0.45              | 454175.95          | 710292.89         | N 32 14 50.72           | W 103 47 12.57           |
|          | 19533.00   | 91.67       | 181.76           | 11679.53    | 7569.33      | -7553.17   | 512.69     | 3.05              | 454081.98          | 710291.70         | N 32 14 49.79           | W 103 47 12.59           |
|          | 19723.00   | 89.61       | 180.07           | 11677.41    | 7758.89      | -7743.12   | 509.65     | 1.40              | 453892.04          | 710288.66         | N 32 14 47.91           | W 103 47 12.64           |
|          | 19912.00   | 88.71       | 179.38           | 11680.18    | 7947.67      | -7932.09   | 510.56     | 0.60              | 453703.08          | 710289.57         | N 32 14 46.04           | W 103 47 12.64           |
|          | 20006.00   | 91.12       | 181.83           | 11680.32    | 8041.49      | -8026.07   | 509.57     | 3.66              | 453609.10          | 710288.58         | N 32 14 45.11           | W 103 47 12.66           |
|          | 20101.00   | 89.92       | 180.90           | 11679.46    | 8136.22      | -8121.04   | 507.30     | 1.68              | 453514.14          | 710286.31         | N 32 14 44.18           | W 103 47 12.69           |
|          | 20195.00   | 90.74       | 181.01           | 11678.92    | 8230.01      | -8215.02   | 505.74     | 0.88              | 453420.16          | 710284.75         | N 32 14 43.25           | W 103 47 12.71           |
|          | 20289.00   | 87.75       | 177.51           | 11680.15    | 8323.92      | -8308.88   | 506.95     | 4.90              | 453326.21          | 710285.96         | N 32 14 42.32           | W 103 47 12.70           |
|          | 20384.00   | 89.75       | 178.77           | 11682.23    | 8418.87      | -8403.90   | 510.03     | 2.49              | 453231.30          | 710289.04         | N 32 14 41.38           | W 103 47 12.67           |
|          | 20479.00   | 89.47       | 180.11           | 11682.87    | 8513.79      | -8498.89   | 510.96     | 1.44              | 453136.31          | 710289.97         | N 32 14 40.44           | W 103 47 12.67           |
|          | 20573.00   | 87.20       | 178.05           | 11685.60    | 8607.68      | -8592.83   | 512.47     | 3.26              | 453042.38          | 710289.48         | N 32 14 39.51           | W 103 47 12.67           |
|          | 20668.00   | 88.34       | 178.16           | 11688.30    | 8702.60      | -8687.70   | 515.61     | 1.21              | 452947.61          | 710284.62         | N 32 14 38.57           | W 103 47 12.63           |
|          | 20762.00   | 89.44       | 178.88           | 11691.12    | 8796.55      | -8781.65   | 518.03     | 1.40              | 452853.57          | 710287.04         | N 32 14 37.64           | W 103 47 12.60           |
|          | 20857.00   | 89.92       | 180.20           | 11691.65    | 8891.47      | -8876.65   | 518.80     | 1.48              | 452758.58          | 710287.81         | N 32 14 36.70           | W 103 47 12.60           |
|          | 20951.00   | 89.92       | 180.28           | 11691.78    | 8985.33      | -8970.65   | 518.40     | 0.09              | 452664.59          | 710287.41         | N 32 14 35.77           | W 103 47 12.61           |
|          | 21045.00   | 90.88       | 181.55           | 11691.13    | 9079.12      | -9064.63   | 516.90     | 1.69              | 452570.61          | 710285.91         | N 32 14 34.84           | W 103 47 12.63           |
|          | 21139.00   | 89.47       | 179.09           | 11690.84    | 9172.97      | -9158.62   | 516.38     | 3.02              | 452476.63          | 710285.39         | N 32 14 33.91           | W 103 47 12.64           |
|          | 21233.00   | 89.71       | 179.24           | 11691.51    | 9266.91      | -9252.60   | 517.75     | 0.30              | 452382.65          | 710286.76         | N 32 14 32.98           | W 103 47 12.63           |
|          | 21328.00   | 91.22       | 181.54           | 11690.74    | 9361.74      | -9347.59   | 517.10     | 2.90              | 452287.67          | 710286.11         | N 32 14 32.04           | W 103 47 12.65           |
|          | 21422.00   | 88.41       | 177.76           | 11691.05    | 9455.63      | -9441.56   | 517.68     | 5.01              | 452193.70          | 710286.68         | N 32 14 31.11           | W 103 47 12.65           |
|          | 21516.00   | 88.85       | 178.35           | 11693.29    | 9549.59      | -9535.48   | 520.86     | 0.78              | 452099.79          | 710289.87         | N 32 14 30.18           | W 103 47 12.61           |
|          | 21611.00   | 90.19       | 180.50           | 11694.09    | 9644.50      | -9630.46   | 521.82     | 2.67              | 452004.81          | 710300.83         | N 32 14 29.24           | W 103 47 12.61           |
|          | 21800.00   | 88.99       | 180.16           | 11695.44    | 9833.20      | -9819.45   | 520.73     | 0.66              | 451815.83          | 710289.74         | N 32 14 27.37           | W 103 47 12.63           |
|          | 21895.00   | 87.37       | 178.71           | 11698.46    | 9928.07      | -9914.39   | 521.66     | 2.29              | 451720.90          | 710300.67         | N 32 14 26.43           | W 103 47 12.63           |
|          | 21990.00   | 91.05       | 180.31           | 11699.77    | 10022.96     | -10009.36  | 522.48     | 4.22              | 451625.93          | 710301.49         | N 32 14 25.49           | W 103 47 12.62           |
|          | 22084.00   | 91.29       | 180.29           | 11697.85    | 10116.80     | -10103.34  | 521.98     | 0.26              | 451531.96          | 710300.99         | N 32 14 24.56           | W 103 47 12.64           |
|          | 22131.00   | 91.04       | 180.61           | 11696.89    | 10163.71     | -10150.33  | 521.62     | 0.86              | 451484.97          | 710300.63         | N 32 14 24.09           | W 103 47 12.64           |
|          | 22166.00   | 90.85       | 180.84           | 11696.32    | 10198.64     | -10185.32  | 521.18     | 0.86              | 451449.98          | 710300.18         | N 32 14 23.75           | W 103 47 12.65           |
|          | 22211.00   | 90.85       | 180.84           | 11695.65    | 10243.54     | -10230.31  | 520.52     | 0.00              | 451405.00          | 710299.52         | N 32 14 23.30           | W 103 47 12.66           |

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 3 \*\*\* 3-D 95.000% Confidence 2.7955 sigma  
Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size Casing Diameter<br>(in) | Survey Tool Type          | Borehole / Survey                                                                      |
|-------------|------|-----------------|---------------|------------------|-----------------------------------|---------------------------|----------------------------------------------------------------------------------------|
|             | 1    | 0.000           | 30.000        | 1/98.425         | 30.000                            | GYD_GC+DROP+OH-Depth Only | Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 172H Gyro + MWD 0-Update |
|             | 1    | 30.000          | 30.000        | Act Stns         | 30.000                            | GYD_GC+DROP+OH-Depth Only | Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 172H Gyro + MWD 0-Update |
|             | 1    | 30.000          | 494.600       | Act Stns         | 30.000                            | GYD_GC+DROP+OH            | Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 172H Gyro + MWD 0-Update |
|             | 1    | 494.600         | 7186.000      | Act Stns         | 30.000                            | A010Mb_MWD+IFR1+SAG+MS    | Original Borehole / Oxy Sterling Silver MDP1 33-4 Federal Com 172H Gyro + MWD 0-Update |
|             | 1    | 7186.000        | 8503.000      | Act Stns         | 30.000                            | B001Mb_MWD+HRGM           | ST01 / Oxy Sterling Silver MDP1 33-4 Federal Com 172H ST01                             |
|             | 1    | 8503.000        | 22211.000     | Act Stns         | 30.000                            | A010Mb_MWD+IFR1+SAG+MS    | ST01 / Oxy Sterling Silver MDP1 33-4 Federal Com 172H ST01 Gyro + MWD 0-22211'MD       |

...ST01/Oxy Sterling Silver MDP1 33-4 Federal Com 172H ST01 Gyro + MWD 0-22211'MD