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

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office  
☒ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                         |                                                          |                                                           |                                   |
|-----------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------|
| <sup>1</sup> API Number<br>30-015-43377 | <sup>2</sup> Pool Code<br>98220                          | <sup>3</sup> Property Name<br>Purple Sage, Wolfcamp (Gas) | <sup>4</sup> Well Number<br>2H    |
| <sup>5</sup> Property Code<br>315262    | <sup>6</sup> Property Name<br>BLACK RIVER 25 FEDERAL COM |                                                           | <sup>7</sup> Elevation<br>3312.8' |
| <sup>8</sup> OGRID No.<br>215099        | <sup>9</sup> Operator Name<br>CIMAREX ENERGY CO.         |                                                           |                                   |

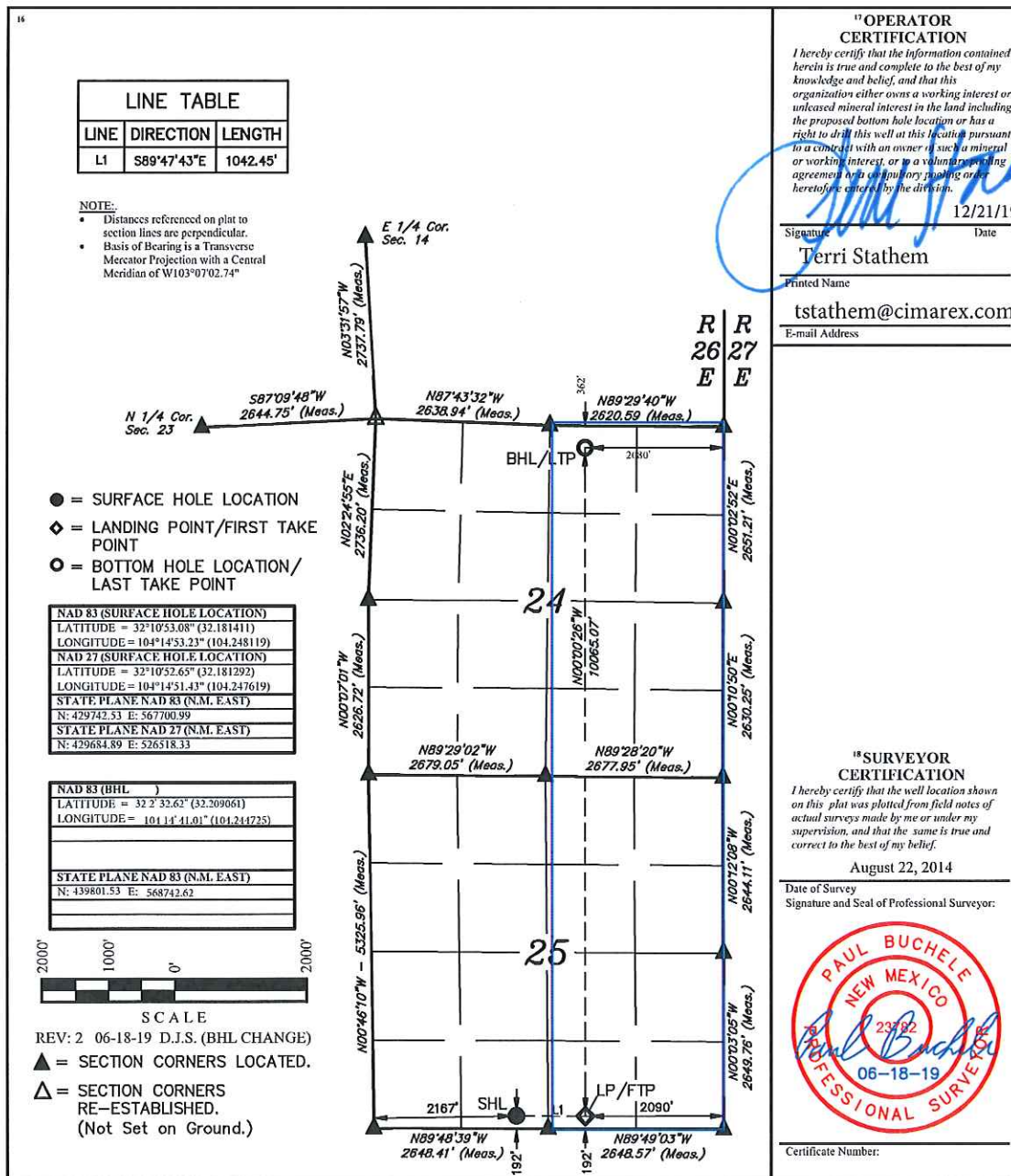
<sup>10</sup> Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| N             | 25      | 24 S     | 26 E  | 192     | 192           | SOUTH            | 2167          | WEST           | EDDY   |

<sup>11</sup> 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 |
|--------------------------------------|-------------------------------|----------------------------------|-------------------------|---------|---------------|------------------|---------------|----------------|--------|
| B                                    | 24                            | 24 S                             | 26 E                    | 362     | 362           | NORTH            | 2080          | EAST           | EDDY   |
| <sup>12</sup> Dedicated Acres<br>640 | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> 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.



Intent ☐ As Drilled ☒

API #  
30-015-43377

|                                                  |                                              |                   |
|--------------------------------------------------|----------------------------------------------|-------------------|
| Operator Name:<br>Cimarex Energy Co. of Colorado | Property Name:<br>Black River 25 Federal com | Well Number<br>2H |
|--------------------------------------------------|----------------------------------------------|-------------------|

Kick Off Point (KOP)

|                       |               |                 |              |     |                          |                   |              |                  |                |
|-----------------------|---------------|-----------------|--------------|-----|--------------------------|-------------------|--------------|------------------|----------------|
| UL<br>N               | Section<br>25 | Township<br>24S | Range<br>26E | Lot | Feet<br>196              | From N/S<br>South | Feet<br>2146 | From E/W<br>East | County<br>Eddy |
| Latitude<br>32.181411 |               |                 |              |     | Longitude<br>-104.244933 |                   |              | NAD<br>83        |                |

First Take Point (FTP)

|                       |               |                 |              |     |                          |                   |              |                  |                |
|-----------------------|---------------|-----------------|--------------|-----|--------------------------|-------------------|--------------|------------------|----------------|
| UL<br>N               | Section<br>25 | Township<br>24S | Range<br>26E | Lot | Feet<br>639              | From N/S<br>South | Feet<br>2130 | From E/W<br>East | County<br>Eddy |
| Latitude<br>32.182631 |               |                 |              |     | Longitude<br>-104.244881 |                   |              | NAD<br>83        |                |

Last Take Point (LTP)

|                       |               |                 |              |     |                          |                   |              |                  |                |
|-----------------------|---------------|-----------------|--------------|-----|--------------------------|-------------------|--------------|------------------|----------------|
| UL<br>b               | Section<br>24 | Township<br>24S | Range<br>26E | Lot | Feet<br>531              | From N/S<br>North | Feet<br>2081 | From E/W<br>East | County<br>Eddy |
| Latitude<br>32.208961 |               |                 |              |     | Longitude<br>-104.244725 |                   |              | NAD<br>83        |                |

Is this well the defining well for the Horizontal Spacing Unit? ☒ Yes

Is this well an infill well? ☐ No

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

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2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 26

Vertical Section (ft) Azim = 0.16° Scale = 1:647.45(ft) Origin = 0N/-S, 0E/-W

EW (ft) Scale = 1:512.43(ft)

# Final Surveys - Cimarex Black River 25 Federal Com 2H 0ft-18644ft (Surcon Corrected) Survey Geodetic Report (Def Survey)

**Report Date:** August 21, 2019 - 02:21 PM  
**Client:** Cimarex  
**Field:** NM Eddy County (NAD 83)  
**Structure / Slot:** Cimarex Black River 25 Federal Com 2H / Cimarex Black River 25 Federal Com 2H  
**Well:** Cimarex Black River 25 Federal Com 2H  
**Borehole:** Original Borehole  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Final Surveys - Cimarex Black River 25 Federal Com 2H 0ft-18644ft (Surcon Corrected)  
**Survey Date:** August 06, 2019  
**Tort / AHD / DDI / ERD Ratio:** 235.916° / 11074.479 ft / 6.744 / 1.254  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 10' 53.08041" W 104° 14' 53.22605"  
**Location Grid N/E Y/X:** N 429742.530 ftUS, E 567700.990 ftUS  
**CRS Grid Convergence Angle:** 0.0454°  
**Grid Scale Factor:** 0.99990989  
**Version / Patch:** 2.10.760.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 0.163° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB  
**TVD Reference Elevation:** 3338.800 ft above MSL  
**Seabed / Ground Elevation:** 3312.800 ft above MSL  
**Magnetic Declination:** 7.262°  
**Total Gravity Field Strength:** 998.4396mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 47792.761 nT  
**Magnetic Dip Angle:** 59.823°  
**Declination Date:** August 14, 2019  
**Magnetic Declination Model:** HDGM 2019  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.0454°  
**Total Corr Mag North->Grid North:** 7.2167°  
**Local Coord Referenced To:** Structure Reference Point

| Comments | MD (ft) | Incl (°) | Azim Grid (°) | TVD (ft) | VSEC (ft) | NS (ft) | EW (ft) | DLS (°/100ft) | Northing (ftUS) | Easting (ftUS) | Latitude (N/S ° ' '') | Longitude (E/W ° ' '') | Closure Azimuth (°) | Closure (ft) |
|----------|---------|----------|---------------|----------|-----------|---------|---------|---------------|-----------------|----------------|-----------------------|------------------------|---------------------|--------------|
|          | 0.00    | 0.00     | 0.00          | 0.00     | 0.00      | 0.00    | 0.00    | N/A           | 429742.53       | 567700.99      | N 32 10 53.08         | W 104 14 53.23         | 0.00                | 0.00         |
|          | 160.00  | 0.60     | 54.90         | 160.00   | 0.48      | 0.48    | 0.69    | 0.38          | 429743.01       | 567701.68      | N 32 10 53.09         | W 104 14 53.22         | 54.90               | 0.84         |
|          | 372.00  | 1.60     | 24.90         | 372.00   | 3.81      | 3.80    | 2.84    | 0.53          | 429746.33       | 567703.83      | N 32 10 53.12         | W 104 14 53.19         | 36.74               | 4.75         |
|          | 569.00  | 1.57     | 22.72         | 568.88   | 8.80      | 8.79    | 5.04    | 0.03          | 429751.32       | 567706.03      | N 32 10 53.17         | W 104 14 53.17         | 29.83               | 10.13        |
|          | 660.00  | 1.60     | 25.82         | 659.85   | 11.10     | 11.08   | 6.07    | 0.10          | 429753.61       | 567707.06      | N 32 10 53.19         | W 104 14 53.16         | 28.73               | 12.64        |
|          | 750.00  | 1.65     | 32.13         | 749.81   | 13.33     | 13.31   | 7.31    | 0.21          | 429755.84       | 567708.30      | N 32 10 53.21         | W 104 14 53.14         | 28.78               | 15.19        |
|          | 841.00  | 1.73     | 25.68         | 840.77   | 15.68     | 15.66   | 8.60    | 0.23          | 429758.19       | 567709.59      | N 32 10 53.24         | W 104 14 53.13         | 28.79               | 17.87        |
|          | 935.00  | 1.68     | 23.10         | 934.73   | 18.23     | 18.20   | 9.76    | 0.10          | 429760.73       | 567710.75      | N 32 10 53.26         | W 104 14 53.11         | 28.79               | 20.63        |
|          | 1029.00 | 1.59     | 22.79         | 1028.69  | 20.70     | 20.67   | 10.80   | 0.10          | 429763.20       | 567711.79      | N 32 10 53.28         | W 104 14 53.10         | 28.59               | 23.33        |
|          | 1123.00 | 1.84     | 30.40         | 1122.65  | 23.21     | 23.18   | 12.07   | 0.36          | 429765.71       | 567713.06      | N 32 10 53.31         | W 104 14 53.09         | 27.52               | 26.13        |
|          | 1218.00 | 0.93     | 30.75         | 1217.82  | 25.19     | 25.16   | 13.24   | 0.96          | 429767.68       | 567714.23      | N 32 10 53.33         | W 104 14 53.07         | 27.76               | 28.43        |
|          | 1312.00 | 0.28     | 26.00         | 1311.61  | 26.06     | 26.02   | 13.73   | 0.69          | 429768.55       | 567714.72      | N 32 10 53.34         | W 104 14 53.07         | 27.82               | 29.42        |
|          | 1406.00 | 1.23     | 94.50         | 1405.61  | 26.19     | 26.15   | 14.84   | 1.23          | 429768.87       | 567715.93      | N 32 10 53.34         | W 104 14 53.05         | 29.57               | 30.06        |
|          | 1501.00 | 1.31     | 92.37         | 1500.58  | 26.07     | 26.02   | 16.94   | 0.10          | 429768.85       | 567717.93      | N 32 10 53.34         | W 104 14 53.03         | 33.06               | 31.05        |
|          | 1595.00 | 1.36     | 93.17         | 1594.56  | 25.97     | 25.91   | 19.13   | 0.06          | 429768.44       | 567720.11      | N 32 10 53.34         | W 104 14 53.00         | 36.43               | 32.21        |
|          | 1689.00 | 1.96     | 103.70        | 1688.52  | 25.53     | 25.47   | 21.80   | 0.71          | 429768.00       | 567722.79      | N 32 10 53.33         | W 104 14 52.97         | 40.56               | 33.53        |
|          | 1783.00 | 2.47     | 97.12         | 1782.45  | 24.91     | 24.84   | 25.37   | 0.61          | 429767.37       | 567726.36      | N 32 10 53.33         | W 104 14 52.93         | 45.61               | 35.51        |
|          | 1885.00 | 2.46     | 100.37        | 1884.35  | 24.26     | 24.17   | 29.71   | 0.14          | 429766.70       | 567730.69      | N 32 10 53.32         | W 104 14 52.88         | 50.86               | 38.30        |
|          | 2050.00 | 2.30     | 91.49         | 2050.20  | 23.51     | 23.41   | 36.91   | 0.23          | 429765.93       | 567737.90      | N 32 10 53.31         | W 104 14 52.80         | 57.62               | 43.71        |
|          | 2154.00 | 2.59     | 90.87         | 2153.12  | 23.44     | 23.32   | 40.92   | 0.31          | 429765.85       | 567741.91      | N 32 10 53.31         | W 104 14 52.75         | 60.32               | 47.10        |
|          | 2248.00 | 2.98     | 92.01         | 2247.01  | 23.34     | 23.21   | 45.49   | 0.42          | 429765.73       | 567746.47      | N 32 10 53.31         | W 104 14 52.70         | 62.97               | 51.06        |
|          | 2343.00 | 4.00     | 92.49         | 2341.83  | 23.12     | 22.98   | 51.26   | 1.07          | 429765.50       | 567752.25      | N 32 10 53.31         | W 104 14 52.63         | 65.86               | 55.18        |
|          | 2437.00 | 5.36     | 93.78         | 2435.51  | 22.71     | 22.54   | 58.92   | 1.45          | 429765.07       | 567759.91      | N 32 10 53.30         | W 104 14 52.54         | 69.06               | 63.09        |
|          | 2532.00 | 7.34     | 94.70         | 2529.93  | 21.95     | 21.75   | 69.40   | 2.09          | 429764.28       | 567770.38      | N 32 10 53.30         | W 104 14 52.42         | 72.60               | 72.73        |
|          | 2626.00 | 9.14     | 92.54         | 2622.95  | 21.17     | 20.93   | 82.84   | 1.94          | 429763.46       | 567783.82      | N 32 10 53.29         | W 104 14 52.26         | 75.82               | 85.45        |
|          | 2720.00 | 11.35    | 92.07         | 2715.45  | 20.55     | 20.27   | 99.55   | 2.35          | 429762.79       | 567800.53      | N 32 10 53.28         | W 104 14 52.07         | 78.49               | 101.59       |
|          | 2815.00 | 13.76    | 90.53         | 2808.17  | 20.17     | 19.82   | 120.19  | 2.56          | 429762.35       | 567821.17      | N 32 10 53.28         | W 104 14 51.83         | 80.63               | 121.81       |
|          | 2909.00 | 16.06    | 92.85         | 2899.00  | 19.48     | 19.07   | 144.36  | 2.53          | 429761.60       | 567845.33      | N 32 10 53.27         | W 104 14 51.55         | 82.47               | 145.61       |
|          | 3003.00 | 17.46    | 93.80         | 2989.00  | 17.98     | 17.49   | 171.42  | 1.52          | 429760.02       | 567872.39      | N 32 10 53.25         | W 104 14 51.23         | 84.17               | 172.31       |
|          | 3098.00 | 18.11    | 94.97         | 3079.46  | 15.84     | 15.27   | 200.35  | 0.78          | 429757.80       | 567901.32      | N 32 10 53.20         | W 104 14 50.99         | 85.64               | 200.93       |
|          | 3192.00 | 18.88    | 95.53         | 3168.61  | 13.19     | 12.54   | 230.04  | 0.84          | 429755.07       | 567931.01      | N 32 10 53.20         | W 104 14 50.55         | 86.88               | 230.38       |
|          | 3286.00 | 17.77    | 96.25         | 3257.84  | 10.25     | 9.51    | 259.44  | 1.21          | 429752.04       | 567960.40      | N 32 10 53.17         | W 104 14 50.21         | 87.90               | 259.61       |
|          | 3381.00 | 16.34    | 95.72         | 3348.66  | 7.42      | 6.60    | 287.15  | 1.51          | 429749.13       | 567988.11      | N 32 10 53.14         | W 104 14 49.86         | 88.68               | 287.22       |
|          | 3475.00 | 16.37    | 95.15         | 3438.86  | 4.99      | 4.09    | 313.50  | 0.17          | 429746.62       | 568014.46      | N 32 10 53.12         | W 104 14 49.58         | 89.25               | 313.52       |

| Comments                                           | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS     | EW      | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' '') | Longitude<br>(E/W ° ' '') | Closure Azimuth<br>(°) | Closure<br>(ft) |
|----------------------------------------------------|------------|-------------|------------------|-------------|--------------|--------|---------|------------------|--------------------|-------------------|--------------------------|---------------------------|------------------------|-----------------|
| First SLB Survey<br>KOP                            | 3570.00    | 16.57       | 95.45            | 3529.96     | 2.57         | 1.61   | 340.31  | 0.23             | 429744.14          | 568041.27         | N 32 10 53.09            | W 104 14 49.27            | 89.73                  | 340.32          |
|                                                    | 3684.00    | 17.20       | 96.23            | 3619.90     | -0.13        | -1.18  | 367.47  | 0.71             | 429741.35          | 568068.43         | N 32 10 53.07            | W 104 14 48.95            | 90.18                  | 367.48          |
|                                                    | 3758.00    | 16.83       | 95.55            | 3709.79     | -3.11        | -4.24  | 394.81  | 0.41             | 429738.29          | 568095.76         | N 32 10 53.04            | W 104 14 48.63            | 90.61                  | 394.83          |
|                                                    | 3852.00    | 15.46       | 95.88            | 3800.08     | -5.88        | -7.07  | 420.79  | 1.47             | 429735.46          | 568121.74         | N 32 10 53.01            | W 104 14 48.33            | 90.96                  | 420.85          |
|                                                    | 3947.00    | 13.78       | 92.49            | 3892.00     | -7.60        | -8.86  | 444.69  | 1.98             | 429733.87          | 568145.64         | N 32 10 52.99            | W 104 14 48.05            | 91.14                  | 444.78          |
|                                                    | 4041.00    | 12.84       | 89.05            | 3983.48     | -7.85        | -9.17  | 466.32  | 1.31             | 429733.36          | 568167.27         | N 32 10 52.99            | W 104 14 47.80            | 91.13                  | 466.41          |
|                                                    | 4135.00    | 12.82       | 89.47            | 4075.13     | -7.52        | -8.90  | 487.19  | 0.10             | 429733.63          | 568188.14         | N 32 10 52.99            | W 104 14 47.56            | 91.05                  | 487.26          |
|                                                    | 4229.00    | 12.36       | 88.87            | 4166.88     | -7.13        | -8.58  | 507.62  | 0.59             | 429733.95          | 568208.57         | N 32 10 52.99            | W 104 14 47.32            | 90.97                  | 507.70          |
|                                                    | 4324.00    | 12.36       | 88.65            | 4259.69     | -6.60        | -8.10  | 527.90  | 0.07             | 429734.43          | 568228.84         | N 32 10 53.00            | W 104 14 47.08            | 90.88                  | 527.95          |
|                                                    | 4419.00    | 11.66       | 87.01            | 4352.61     | -7.66        | -7.36  | 547.65  | 0.82             | 429735.17          | 568248.59         | N 32 10 53.00            | W 104 14 46.85            | 90.77                  | 547.70          |
|                                                    | 4513.00    | 11.84       | 84.76            | 4444.65     | -4.37        | -5.99  | 566.74  | 0.52             | 429736.55          | 568267.68         | N 32 10 53.02            | W 104 14 46.63            | 90.61                  | 566.77          |
|                                                    | 4607.00    | 12.84       | 83.37            | 4536.47     | -2.23        | -3.90  | 586.72  | 1.11             | 429738.63          | 568287.85         | N 32 10 53.04            | W 104 14 46.40            | 90.38                  | 586.73          |
|                                                    | 4702.00    | 13.83       | 86.19            | 4628.91     | -0.19        | -1.93  | 606.53  | 1.25             | 429740.60          | 568309.47         | N 32 10 53.06            | W 104 14 46.15            | 90.18                  | 606.54          |
|                                                    | 4796.00    | 14.09       | 88.29            | 4720.14     | 0.96         | -0.84  | 631.18  | 0.61             | 429741.59          | 568332.11         | N 32 10 53.07            | W 104 14 45.88            | 90.08                  | 631.19          |
|                                                    | 4890.00    | 13.31       | 88.93            | 4811.46     | 1.56         | -0.29  | 653.44  | 0.85             | 429742.24          | 568354.37         | N 32 10 53.07            | W 104 14 45.62            | 90.03                  | 653.44          |
|                                                    | 4989.00    | 12.41       | 89.54            | 4907.98     | 1.93         | 0.00   | 675.47  | 0.92             | 429742.53          | 568376.39         | N 32 10 53.08            | W 104 14 45.37            | 90.00                  | 675.47          |
|                                                    | 5079.00    | 11.91       | 89.46            | 4995.96     | 2.14         | 0.17   | 694.42  | 0.56             | 429742.70          | 568395.35         | N 32 10 53.08            | W 104 14 45.15            | 89.99                  | 694.42          |
|                                                    | 5173.00    | 11.11       | 89.96            | 5086.07     | 2.30         | 0.27   | 713.18  | 0.86             | 429742.80          | 568414.10         | N 32 10 53.08            | W 104 14 44.93            | 89.96                  | 713.16          |
|                                                    | 5268.00    | 10.69       | 91.17            | 5181.35     | 2.17         | 0.09   | 731.14  | 0.50             | 429742.82          | 568432.07         | N 32 10 53.08            | W 104 14 44.72            | 89.99                  | 731.14          |
|                                                    | 5362.00    | 10.40       | 91.79            | 5273.76     | 1.78         | -0.35  | 748.34  | 0.33             | 429742.18          | 568449.26         | N 32 10 53.07            | W 104 14 44.52            | 90.03                  | 748.34          |
|                                                    | 5456.00    | 10.33       | 90.93            | 5365.23     | 1.43         | -0.75  | 765.25  | 0.18             | 429741.78          | 568466.17         | N 32 10 53.07            | W 104 14 44.32            | 90.08                  | 765.25          |
|                                                    | 5551.00    | 10.02       | 92.09            | 5459.74     | 1.03         | -1.19  | 782.02  | 0.39             | 429741.34          | 568482.94         | N 32 10 53.06            | W 104 14 44.13            | 90.09                  | 782.02          |
|                                                    | 5645.00    | 8.90        | 93.59            | 5552.46     | 0.32         | -1.94  | 797.45  | 1.22             | 429740.99          | 568498.37         | N 32 10 53.05            | W 104 14 43.95            | 90.14                  | 797.45          |
|                                                    | 5739.00    | 8.73        | 92.39            | 5645.35     | -0.39        | -2.70  | 811.84  | 0.27             | 429739.83          | 568512.75         | N 32 10 53.05            | W 104 14 43.78            | 90.19                  | 811.84          |
|                                                    | 5833.00    | 7.79        | 88.38            | 5738.37     | -0.47        | -2.81  | 825.33  | 1.17             | 429739.72          | 568538.07         | N 32 10 53.05            | W 104 14 43.62            | 90.20                  | 825.34          |
|                                                    | 5928.00    | 6.54        | 95.05            | 5832.63     | -0.73        | -3.11  | 837.16  | 1.58             | 429739.42          | 568558.34         | N 32 10 53.04            | W 104 14 43.49            | 90.21                  | 837.16          |
|                                                    | 6022.00    | 6.06        | 100.01           | 5926.06     | -2.03        | -4.44  | 847.38  | 0.77             | 429738.09          | 568548.29         | N 32 10 53.03            | W 104 14 43.37            | 90.30                  | 847.39          |
|                                                    | 6117.00    | 5.57        | 105.77           | 6020.57     | -4.13        | -5.77  | 866.75  | 0.80             | 429735.86          | 568557.66         | N 32 10 53.01            | W 104 14 43.26            | 90.44                  | 866.78          |
|                                                    | 6212.00    | 4.89        | 104.32           | 6115.17     | -6.38        | -8.84  | 885.19  | 0.63             | 429733.99          | 568566.10         | N 32 10 52.99            | W 104 14 43.16            | 90.59                  | 885.24          |
|                                                    | 6307.00    | 5.02        | 101.96           | 6209.81     | -8.24        | -10.73 | 903.26  | 0.74             | 429731.80          | 568574.17         | N 32 10 52.97            | W 104 14 43.07            | 90.70                  | 903.33          |
|                                                    | 6401.00    | 4.34        | 104.02           | 6303.49     | -9.94        | -12.44 | 923.73  | 0.22             | 429730.09          | 568581.64         | N 32 10 52.95            | W 104 14 42.98            | 90.81                  | 923.73          |
|                                                    | 6495.00    | 4.20        | 109.58           | 6397.23     | -11.93       | -14.46 | 943.16  | 0.46             | 429728.07          | 568588.34         | N 32 10 52.93            | W 104 14 42.90            | 90.93                  | 943.16          |
|                                                    | 6589.00    | 4.42        | 105.59           | 6490.97     | -14.04       | -16.58 | 964.16  | 0.40             | 429725.95          | 568595.07         | N 32 10 52.91            | W 104 14 42.82            | 91.06                  | 964.17          |
|                                                    | 6683.00    | 3.89        | 98.34            | 6584.72     | -15.51       | -18.08 | 980.80  | 0.74             | 429724.46          | 568601.70         | N 32 10 52.89            | W 104 14 42.75            | 91.15                  | 980.96          |
|                                                    | 6778.00    | 3.36        | 90.78            | 6679.53     | -16.06       | -18.64 | 996.76  | 0.80             | 429723.90          | 568607.67         | N 32 10 52.89            | W 104 14 42.68            | 91.18                  | 996.95          |
|                                                    | 6872.00    | 2.50        | 84.34            | 6773.41     | -15.88       | -18.47 | 911.55  | 0.98             | 429724.06          | 568615.51         | N 32 10 52.89            | W 104 14 42.62            | 91.16                  | 911.74          |
|                                                    | 6967.00    | 2.66        | 89.63            | 6868.32     | -14.92       | -17.53 | 931.11  | 0.68             | 429725.00          | 568620.01         | N 32 10 52.90            | W 104 14 42.57            | 91.10                  | 931.25          |
|                                                    | 7059.00    | 2.16        | 85.50            | 6960.24     | -13.48       | -16.09 | 948.11  | 0.47             | 429726.44          | 568624.46         | N 32 10 52.92            | W 104 14 42.53            | 91.00                  | 948.25          |
|                                                    | 7154.00    | 3.40        | 91.67            | 7055.13     | -12.81       | -15.43 | 963.55  | 1.84             | 429727.10          | 568628.99         | N 32 10 52.92            | W 104 14 42.48            | 90.96                  | 963.66          |
|                                                    | 7248.00    | 4.58        | 93.23            | 7148.90     | -13.08       | -15.73 | 980.91  | 0.82             | 429729.39          | 568635.35         | N 32 10 52.96            | W 104 14 42.45            | 90.79                  | 980.98          |
|                                                    | 7342.00    | 4.47        | 93.67            | 7242.60     | -13.51       | -16.17 | 998.44  | 0.01             | 429731.35          | 568645.41         | N 32 10 52.98            | W 104 14 42.40            | 90.67                  | 998.49          |
|                                                    | 7437.00    | 4.04        | 82.65            | 7337.34     | -13.29       | -15.98 | 917.09  | 0.34             | 429735.60          | 568670.76         | N 32 10 53.00            | W 104 14 41.94            | 90.41                  | 917.10          |
|                                                    | 7531.00    | 3.71        | 74.90            | 7431.13     | -12.06       | -14.77 | 944.50  | 0.66             | 429727.77          | 568674.99         | N 32 10 53.02            | W 104 14 41.89            | 90.32                  | 944.64          |
|                                                    | 7625.00    | 3.17        | 71.43            | 7524.96     | -10.43       | -13.15 | 956.12  | 0.45             | 429729.39          | 568682.26         | N 32 10 53.03            | W 104 14 41.85            | 90.23                  | 956.13          |
|                                                    | 7720.00    | 3.09        | 63.75            | 7619.82     | -8.44        | -11.18 | 960.91  | 0.82             | 429731.35          | 568686.51         | N 32 10 53.08            | W 104 14 41.76            | 89.93                  | 960.98          |
|                                                    | 7814.00    | 3.08        | 63.59            | 7713.68     | -6.19        | -8.93  | 965.44  | 0.01             | 429733.80          | 568693.33         | N 32 10 53.10            | W 104 14 41.74            | 89.86                  | 965.49          |
|                                                    | 7908.00    | 2.84        | 67.73            | 7807.95     | -4.17        | -6.93  | 969.86  | 0.34             | 429735.60          | 568699.24         | N 32 10 53.14            | W 104 14 41.70            | 89.59                  | 969.89          |
|                                                    | 8003.00    | 2.57        | 74.13            | 7902.45     | -2.68        | -5.45  | 974.09  | 0.43             | 429737.08          | 568704.93         | N 32 10 53.14            | W 104 14 41.60            | 89.43                  | 974.10          |
|                                                    | 8097.00    | 2.48        | 62.51            | 7996.36     | -1.16        | -3.94  | 977.92  | 0.55             | 429738.59          | 568709.94         | N 32 10 53.16            | W 104 14 41.54            | 89.39                  | 977.93          |
|                                                    | 8191.00    | 2.31        | 59.78            | 8090.28     | 0.75         | -2.05  | 981.36  | 0.22             | 429740.48          | 568713.65         | N 32 10 53.05            | W 104 14 41.44            | 89.08                  | 981.36          |
|                                                    | 8286.00    | 2.06        | 50.60            | 8155.23     | 2.15         | -0.84  | 983.39  | 0.66             | 429741.89          | 568714.06         | N 32 10 53.07            | W 104 14 41.44            | 89.04                  | 983.39          |
|                                                    | 8382.00    | 2.69        | 51.17            | 8227.17     | 4.04         | 1.24   | 985.71  | 0.88             | 429743.77          | 568686.51         | N 32 10 53.08            | W 104 14 41.76            | 89.93                  | 985.71          |
|                                                    | 8349.72    | 5.69        | 40.25            | 8248.83     | 5.17         | 2.36   | 986.79  | 13.77            | 429744.89          | 568687.69         | N 32 10 53.10            | W 104 14 41.74            | 89.86                  | 986.79          |
|                                                    | 8359.00    | 6.85        | 38.42            | 8258.06     | 5.95         | 3.14   | 987.43  | 13.77            | 429745.87          | 568688.33         | N 32 10 53.10            | W 104 14 41.74            | 89.82                  | 987.43          |
|                                                    | 8391.00    | 11.29       | 33.45            | 8289.65     | 10.07        | 7.25   | 990.34  | 14.08            | 429749.78          | 568691.24         | N 32 10 53.14            | W 104 14 41.70            | 89.59                  | 990.37          |
|                                                    | 8423.00    | 15.85       | 26.52            | 8320.75     | 16.81        | 13.78  | 998.28  | 15.10            | 429750.31          | 568694.92         | N 32 10 53.21            | W 104 14 41.66            | 89.21                  | 998.21          |
|                                                    | 8470.00    | 20.84       | 16.79            | 8365.36     | 30.31        | 27.46  | 999.28  | 12.05            | 429759.99          | 568700.18         | N 32 10 53.34            | W 104 14 41.60            | 88.43                  | 999.66          |
|                                                    | 8517.00    | 26.83       | 12.81            | 8408.39     | 45.76        | 45.76  | 1004.03 | 13.60            | 429768.28          | 568704.93         | N 32 10 53.53            | W 104 14 41.54            | 87.39                  | 1005.08         |
|                                                    | 8564.00    | 34.21       | 11.59            | 8448.85     | 71.94        | 69.07  | 1009.05 | 15.76            | 429811.60          | 568709.94         | N 32 10 53.76            | W 104 14 41.48            | 86.08                  | 1011.41         |
|                                                    | 8611.00    | 39.32       | 4.03             | 8496.51     | 99.79        | 96.90  | 1012.75 | 14.51            | 429839.43          | 568713.65         | N 32 10 54.03            | W 104 14 41.44            | 84.53                  | 1017.38         |
|                                                    | 8658.00    | 45.98       | 357.84           | 8521.07     | 131.58       | 128.69 | 1013.16 | 16.73            | 429871.21          | 568714.06         | N 32 10 54.35            | W 104 14 41.44            | 82.76                  | 1021.30         |
| First Legal Take<br>Point [330° FSL,<br>2119° FEL] | 8667.10    | 46.92       | 357.65           | 8527.34     | 138.17       | 135.29 | 1012.90 | 10.45            | 429877.80          | 568713.80         | N 32 10 54.41            | W 104 14 41.44            | 82.39                  | 1021.90         |
|                                                    | 8705.00    | 50.84       | 356.90           | 8552.26     | 166.68       | 163.80 | 1011.54 | 10.45            | 429906.31          | 568712.44         | N 32 10 54.69            | W 104 14 41.45            | 80.80                  | 1024.72         |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | North<br>(ft) | East<br>(ft) | Latitude<br>(N/S ° ' '') | Longitude<br>(E/W ° ' '') | Closure<br>Azimuth<br>(°) | Closure<br>(ft) |
|----------|------------|-------------|-------------|-------------|--------------|------------|------------|------------------|---------------|--------------|--------------------------|---------------------------|---------------------------|-----------------|
|          | 8763.00    | 56.11       | 357.22      | 8580.82     | 205.18       | 202.31     | 1009.57    | 10.99            | 429944.82     | 588710.46    | N 32 10 55.07            | W 104 14 41.48            | 78.67                     | 1039.64         |
|          | 8800.00    | 58.31       | 356.96      | 8606.27     | 244.63       | 241.76     | 1007.56    | 4.70             | 429984.27     | 588708.46    | N 32 10 55.46            | W 104 14 41.50            | 76.51                     | 1036.16         |
|          | 8847.00    | 59.36       | 357.58      | 8630.60     | 284.79       | 281.93     | 1005.64    | 2.50             | 430024.44     | 588706.54    | N 32 10 55.86            | W 104 14 41.52            | 74.34                     | 1044.42         |
|          | 8894.00    | 60.59       | 358.45      | 8654.11     | 325.46       | 322.60     | 1004.24    | 3.07             | 430065.10     | 588705.13    | N 32 10 56.26            | W 104 14 41.54            | 72.19                     | 1054.78         |
|          | 8941.00    | 66.39       | 359.28      | 8675.08     | 367.49       | 364.63     | 1003.41    | 12.44            | 430107.13     | 588704.31    | N 32 10 56.68            | W 104 14 41.55            | 70.03                     | 1067.51         |
|          | 8989.00    | 74.22       | 358.74      | 8691.25     | 412.63       | 408.78     | 1002.63    | 16.35            | 430152.28     | 588703.52    | N 32 10 57.13            | W 104 14 41.56            | 67.77                     | 1083.13         |
|          | 9025.00    | 77.73       | 358.12      | 8699.97     | 447.54       | 444.69     | 1001.67    | 9.89             | 430187.18     | 588702.57    | N 32 10 57.47            | W 104 14 41.57            | 66.06                     | 1095.94         |
|          | 9052.00    | 82.34       | 357.27      | 8709.83     | 503.61       | 500.77     | 999.41     | 8.22             | 430243.25     | 588700.31    | N 32 10 58.03            | W 104 14 41.59            | 63.39                     | 1117.85         |
|          | 9177.00    | 86.90       | 358.43      | 8718.74     | 598.12       | 595.28     | 996.59     | 5.31             | 430337.76     | 588697.59    | N 32 10 58.63            | W 104 14 41.62            | 59.15                     | 1160.93         |
|          | 9242.00    | 87.61       | 359.51      | 8721.85     | 663.04       | 660.20     | 996.09     | 1.10             | 430402.67     | 588696.98    | N 32 10 59.61            | W 104 14 41.63            | 56.46                     | 1195.02         |
|          | 9336.00    | 87.43       | 358.95      | 8725.92     | 756.93       | 754.11     | 994.83     | 0.63             | 430496.57     | 588695.73    | N 32 11 0.53             | W 104 14 41.64            | 52.84                     | 1248.34         |
|          | 9430.00    | 87.40       | 359.64      | 8730.16     | 850.83       | 848.00     | 993.67     | 0.73             | 430590.46     | 588694.57    | N 32 11 1.46             | W 104 14 41.66            | 49.52                     | 1306.33         |
|          | 9524.00    | 87.45       | 359.64      | 8734.38     | 944.73       | 941.90     | 994.31     | 1.60             | 430684.35     | 588693.21    | N 32 11 2.39             | W 104 14 41.68            | 46.55                     | 1369.61         |
|          | 9618.00    | 87.55       | 359.64      | 8738.48     | 1038.62      | 1035.79    | 996.46     | 0.38             | 430778.22     | 588691.96    | N 32 11 3.32             | W 104 14 41.62            | 43.89                     | 1437.29         |
|          | 9712.00    | 87.64       | 358.43      | 8742.43     | 1132.51      | 1129.68    | 998.89     | 0.63             | 430872.10     | 588689.78    | N 32 11 4.25             | W 104 14 41.59            | 41.48                     | 1507.96         |
|          | 9807.00    | 87.38       | 359.64      | 8746.55     | 1227.41      | 1224.56    | 1000.89    | 0.83             | 430966.98     | 588701.79    | N 32 11 5.19             | W 104 14 41.49            | 39.26                     | 1581.56         |
|          | 9901.00    | 87.99       | 359.35      | 8750.35     | 1321.32      | 1318.47    | 1002.51    | 0.68             | 431060.88     | 588703.41    | N 32 11 6.12             | W 104 14 41.55            | 37.25                     | 1666.32         |
|          | 9995.00    | 88.83       | 359.35      | 8752.98     | 1415.27      | 1412.42    | 1004.43    | 0.94             | 431154.82     | 588705.33    | N 32 11 7.05             | W 104 14 41.53            | 35.42                     | 1733.15         |
|          | 10089.00   | 88.46       | 357.85      | 8755.18     | 1509.23      | 1506.38    | 1005.80    | 1.06             | 431248.77     | 588706.70    | N 32 11 7.98             | W 104 14 41.51            | 33.73                     | 1811.30         |
|          | 10163.00   | 88.35       | 358.34      | 8757.80     | 1603.20      | 1600.34    | 1006.20    | 0.29             | 431342.72     | 588707.10    | N 32 11 8.91             | W 104 14 41.50            | 32.16                     | 1890.36         |
|          | 10278.00   | 88.34       | 359.64      | 8760.54     | 1698.16      | 1695.30    | 1005.87    | 0.60             | 431437.67     | 588707.77    | N 32 11 9.85             | W 104 14 41.49            | 30.71                     | 1971.75         |
|          | 10372.00   | 88.72       | 359.72      | 8762.95     | 1792.12      | 1789.27    | 1007.21    | 1.11             | 431531.63     | 588708.11    | N 32 11 10.78            | W 104 14 41.48            | 29.36                     | 2053.28         |
|          | 10466.00   | 87.89       | 359.57      | 8765.73     | 1886.08      | 1883.22    | 1008.63    | 0.90             | 431625.58     | 588707.93    | N 32 11 11.71            | W 104 14 41.50            | 28.13                     | 2135.38         |
|          | 10560.00   | 88.39       | 359.57      | 8768.78     | 1980.03      | 1977.17    | 1007.03    | 1.53             | 431719.52     | 588709.24    | N 32 11 12.64            | W 104 14 41.49            | 26.99                     | 2218.85         |
|          | 10655.00   | 90.70       | 359.54      | 8769.54     | 2075.01      | 2072.15    | 1006.35    | 2.45             | 431814.49     | 588708.24    | N 32 11 13.58            | W 104 14 41.47            | 25.95                     | 2304.47         |
|          | 10749.00   | 90.51       | 358.38      | 8768.55     | 2169.00      | 2166.14    | 1009.21    | 0.37             | 431908.47     | 588710.11    | N 32 11 14.51            | W 104 14 41.46            | 24.98                     | 2389.70         |
|          | 10843.00   | 90.41       | 359.79      | 8767.79     | 2263.00      | 2260.14    | 1009.68    | 0.22             | 432002.46     | 588710.58    | N 32 11 15.44            | W 104 14 41.46            | 24.07                     | 2475.42         |
|          | 10938.00   | 90.28       | 359.82      | 8767.22     | 2358.00      | 2355.14    | 1009.70    | 0.42             | 432097.45     | 588710.80    | N 32 11 16.38            | W 104 14 41.46            | 23.21                     | 2562.45         |
|          | 11032.00   | 89.69       | 359.24      | 8767.24     | 2452.00      | 2449.13    | 1009.88    | 0.88             | 432191.44     | 588710.78    | N 32 11 17.31            | W 104 14 41.45            | 22.41                     | 2646.17         |
|          | 11126.00   | 89.35       | 359.54      | 8767.54     | 2546.00      | 2543.13    | 1010.56    | 0.28             | 432285.43     | 588711.46    | N 32 11 18.24            | W 104 14 41.44            | 21.67                     | 2736.56         |
|          | 11221.00   | 90.18       | 357.43      | 8767.43     | 2641.00      | 2638.13    | 1011.02    | 0.41             | 432380.42     | 588711.92    | N 32 11 19.18            | W 104 14 41.44            | 20.97                     | 2825.22         |
|          | 11315.00   | 89.98       | 359.86      | 8767.30     | 2735.00      | 2732.13    | 1011.00    | 0.35             | 432474.41     | 588711.90    | N 32 11 20.11            | W 104 14 41.44            | 20.31                     | 2913.19         |
|          | 11409.00   | 89.83       | 359.97      | 8767.46     | 2828.99      | 2826.13    | 1010.86    | 0.20             | 432568.40     | 588711.76    | N 32 11 21.04            | W 104 14 41.44            | 19.68                     | 3001.48         |
|          | 11503.00   | 89.99       | 360.00      | 8767.60     | 2922.99      | 2920.13    | 1010.84    | 0.17             | 432662.39     | 588711.73    | N 32 11 21.97            | W 104 14 41.44            | 18.09                     | 3090.14         |
|          | 11598.00   | 90.16       | 359.91      | 8767.48     | 3017.99      | 3015.13    | 1010.76    | 0.20             | 432757.38     | 588711.66    | N 32 11 22.91            | W 104 14 41.44            | 16.53                     | 3180.04         |
|          | 11692.00   | 89.89       | 359.78      | 8767.44     | 3111.99      | 3109.13    | 1010.51    | 0.32             | 432851.37     | 588711.41    | N 32 11 23.84            | W 104 14 41.44            | 15.05                     | 3269.22         |
|          | 11786.00   | 89.56       | 359.82      | 8767.89     | 3205.99      | 3203.13    | 1010.26    | 0.38             | 432945.36     | 588711.16    | N 32 11 24.77            | W 104 14 41.44            | 14.00                     | 3358.67         |
|          | 11880.00   | 89.38       | 359.98      | 8768.76     | 3299.98      | 3297.12    | 1010.48    | 0.50             | 433039.35     | 588711.38    | N 32 11 25.70            | W 104 14 41.44            | 13.01                     | 3448.49         |
|          | 11974.00   | 89.50       | 359.91      | 8769.68     | 3393.98      | 3391.12    | 1010.70    | 0.49             | 433133.34     | 588711.59    | N 32 11 26.63            | W 104 14 41.44            | 12.04                     | 3538.53         |
|          | 12068.00   | 89.67       | 359.82      | 8770.35     | 3487.98      | 3485.12    | 1010.66    | 0.23             | 433227.32     | 588711.56    | N 32 11 27.56            | W 104 14 41.43            | 11.07                     | 3628.70         |
|          | 12162.00   | 89.20       | 359.89      | 8771.29     | 3581.97      | 3579.11    | 1010.62    | 0.53             | 433321.31     | 588711.51    | N 32 11 28.49            | W 104 14 41.43            | 10.08                     | 3719.06         |
|          | 12256.00   | 88.15       | 359.82      | 8773.45     | 3675.94      | 3673.08    | 1010.58    | 1.40             | 433415.27     | 588711.98    | N 32 11 29.42            | W 104 14 41.43            | 9.09                      | 3809.70         |
|          | 12350.00   | 89.99       | 359.92      | 8774.99     | 3769.92      | 3767.05    | 1012.76    | 2.09             | 433509.23     | 588713.66    | N 32 11 30.35            | W 104 14 41.43            | 8.08                      | 3900.62         |
|          | 12445.00   | 90.00       | 359.94      | 8774.99     | 3864.90      | 3862.03    | 1014.65    | 0.48             | 433604.21     | 588715.55    | N 32 11 31.29            | W 104 14 41.38            | 7.04                      | 3993.10         |
|          | 12539.00   | 89.42       | 359.87      | 8775.47     | 3958.89      | 3956.02    | 1015.96    | 0.68             | 433698.19     | 588718.86    | N 32 11 32.22            | W 104 14 41.37            | 6.03                      | 4084.39         |
|          | 12633.00   | 89.35       | 359.82      | 8776.48     | 4052.89      | 4050.01    | 1017.00    | 0.12             | 433792.17     | 588717.90    | N 32 11 33.15            | W 104 14 41.35            | 5.04                      | 4175.75         |
|          | 12727.00   | 88.99       | 359.82      | 8777.84     | 4146.87      | 4143.99    | 1018.42    | 0.70             | 433886.14     | 588719.32    | N 32 11 34.08            | W 104 14 41.34            | 4.05                      | 4267.30         |
|          | 12821.00   | 89.40       | 359.82      | 8778.16     | 4240.85      | 4237.96    | 1018.42    | 0.44             | 433980.10     | 588721.15    | N 32 11 35.01            | W 104 14 41.31            | 3.04                      | 4359.04         |
|          | 12915.00   | 88.96       | 359.82      | 8780.51     | 4334.83      | 4331.94    | 1021.36    | 1.02             | 434074.07     | 588722.26    | N 32 11 35.94            | W 104 14 41.30            | 2.04                      | 4450.72         |
|          | 13009.00   | 89.40       | 359.82      | 8781.85     | 4428.82      | 4425.93    | 1022.34    | 0.87             | 434168.05     | 588723.24    | N 32 11 36.87            | W 104 14 41.29            | 1.04                      | 4542.47         |
|          | 13104.00   | 89.10       | 359.82      | 8783.09     | 4523.79      | 4520.90    | 1024.44    | 0.75             | 434263.01     | 588725.33    | N 32 11 37.81            | W 104 14 41.26            | 0.04                      | 4634.21         |
|          | 13198.00   | 88.86       | 359.82      | 8784.77     | 4617.76      | 4614.86    | 1026.32    | 0.97             | 434356.97     | 588727.22    | N 32 11 38.74            | W 104 14 41.23            | 0.04                      | 4726.01         |
|          | 13292.00   | 89.14       | 359.82      | 8786.41     | 4711.74      | 4708.84    | 1027.54    | 0.30             | 434450.94     | 588728.43    | N 32 11 39.67            | W 104 14 41.21            | 0.04                      | 4817.81         |
|          | 13386.00   | 88.87       | 359.82      | 8788.04     | 4805.73      | 4802.82    | 1028.55    | 0.44             | 434544.91     | 588729.44    | N 32 11 40.60            | W 104 14 41.21            | 0.04                      | 4909.65         |
|          | 13480.00   | 88.96       | 359.82      | 8789.82     | 4899.70      | 4896.79    | 1029.90    | 0.78             | 434638.87     | 588730.79    | N 32 11 41.53            | W 104 14 41.20            | 0.04                      | 5001.50         |
|          | 13574.00   | 89.01       | 359.82      | 8791.49     | 4993.68      | 4990.77    | 1031.29    | 0.73             | 434732.84     | 588732.19    | N 32 11 42.46            | W 104 14 41.18            | 0.04                      | 5093.33         |
|          | 13668.00   | 88.99       | 359.82      | 8793.14     | 5088.66      | 5085.75    | 1032.13    | 0.02             | 434827.81     | 588733.03    | N 32 11 43.40            | W 104 14 41.17            | 0.04                      | 5185.12         |
|          | 13762.00   | 88.97       | 359.82      | 8793.60     | 5114.35      | 5111.43    | 1032.43    | 1.27             | 434922.78     | 588733.32    | N 32 11 43.65            | W 104 14 41.16            | 0.04                      | 5274.66         |
|          | 13856.00   | 88.91       | 359.82      | 8794.87     | 5193.63      | 5179.71    | 1033.93    | 1.27             | 434922.78     | 588734.82    | N 32 11 44.33            | W 104 14 41.15            | 0.04                      | 5366.90         |
|          | 13950.00   | 88.56       | 359.82      | 8796.12     | 5278.60      | 5273.71    | 1036.55    | 0.72             | 435015.71     | 588737.45    | N 32 11 45.26            | W 104 14 41.12            | 0.04                      | 5459.12         |
|          | 13994.00   | 88.21       | 359.82      | 8797.14     | 5371.58      | 5366.65    | 1038.27    | 1.07             | 435108.68     | 588739.16    | N 32 11 46.20            | W 104 14 41.09            | 0.04                      | 5551.34         |
|          | 14038.00   | 88.78       | 359.82      | 8798.79     | 5465.56      | 5460.63    | 1039.03    | 0.50             | 435204.63     | 588739.92    | N 32 11 47.13            | W 104 14 41.08            | 0.04                      | 5643.56         |
|          | 14082.00   | 89.04       | 359.82      | 8800.58     | 5559.54      | 5554.61    | 1039.46    | 1.55             | 435298.63     | 588739.92    | N 32 11 48.06            | W 104 14 41.08            | 0.04                      | 5735.78         |
|          | 14126.00   | 88.92       | 359.82      | 8802.27     | 5654.52      | 5649.59    | 1039.07    | 1.73             | 435393.60     | 588739.96    | N 32 11 49.00            | W 104 14 41.09            | 0.04                      | 5827.01         |
|          | 14170.00   | 89.09       | 359.82      | 8803.90     | 5748.50      | 5743.57    | 1038.75    | 0.39             | 435487.57     | 588739.64    | N 32 11 49.93            | W 104 14 41.08            | 0.04                      | 5919.23         |

| 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 ° ' ") | Closure Azimuth<br>(°) | Closure<br>(ft) |
|--------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|------------------------|-----------------|
|              | 14424.00   | 88.95       | 0.15             | 8805.53     | 5843.47      | 5840.58    | 1039.08    | 0.18             | 435582.55          | 568739.97         | N 32 11 50.87           | W 104 14 41.08           | 10.09                  | 5932.27         |
|              | 14518.00   | 88.96       | 359.58           | 8807.22     | 5937.47      | 5934.54    | 1038.86    | 0.61             | 435576.52          | 568739.75         | N 32 11 51.80           | W 104 14 41.08           | 9.93                   | 6024.78         |
|              | 14612.00   | 88.91       | 0.28             | 8808.96     | 6031.45      | 6028.52    | 1038.74    | 0.75             | 435770.50          | 568739.64         | N 32 11 52.73           | W 104 14 41.08           | 9.78                   | 6117.36         |
|              | 14707.00   | 88.49       | 359.03           | 8811.11     | 6126.40      | 6123.40    | 1038.21    | 1.34             | 435865.46          | 568739.11         | N 32 11 53.67           | W 104 14 41.09           | 9.62                   | 6210.88         |
|              | 14801.00   | 88.46       | 359.58           | 8813.61     | 6220.38      | 6217.46    | 1037.11    | 0.53             | 435959.41          | 568739.01         | N 32 11 54.60           | W 104 14 41.10           | 9.47                   | 6303.36         |
|              | 14896.00   | 88.91       | 0.68             | 8815.79     | 6315.35      | 6312.43    | 1036.35    | 0.48             | 436054.38          | 568737.24         | N 32 11 55.53           | W 104 14 41.11           | 9.32                   | 6396.93         |
|              | 14990.00   | 88.76       | 0.68             | 8817.70     | 6409.33      | 6406.41    | 1036.50    | 1.27             | 436148.35          | 568737.39         | N 32 11 56.46           | W 104 14 41.10           | 9.19                   | 6489.71         |
|              | 15084.00   | 89.10       | 359.42           | 8819.46     | 6503.31      | 6500.39    | 1035.58    | 1.39             | 436242.32          | 568737.47         | N 32 11 57.39           | W 104 14 41.10           | 9.05                   | 6582.52         |
|              | 15178.00   | 89.02       | 0.60             | 8821.00     | 6597.30      | 6594.37    | 1036.60    | 1.28             | 436336.30          | 568737.49         | N 32 11 58.32           | W 104 14 41.10           | 8.93                   | 6675.35         |
|              | 15273.00   | 88.70       | 0.31             | 8822.89     | 6692.28      | 6689.35    | 1037.35    | 0.45             | 436431.27          | 568738.24         | N 32 11 59.26           | W 104 14 41.09           | 8.81                   | 6769.31         |
|              | 15367.00   | 89.22       | 0.35             | 8824.50     | 6786.25      | 6783.33    | 1037.99    | 0.55             | 436525.24          | 568738.79         | N 32 12 0.19            | W 104 14 41.08           | 8.70                   | 6862.28         |
|              | 15461.00   | 89.31       | 359.44           | 8825.80     | 6880.25      | 6877.33    | 1037.72    | 0.97             | 436619.22          | 568738.61         | N 32 12 1.12            | W 104 14 41.09           | 8.58                   | 6955.18         |
|              | 15556.00   | 89.46       | 359.61           | 8826.82     | 6975.24      | 6972.32    | 1036.93    | 0.24             | 436714.20          | 568737.83         | N 32 12 2.06            | W 104 14 41.09           | 8.46                   | 7049.00         |
|              | 15651.00   | 89.08       | 0.67             | 8828.03     | 7070.23      | 7067.31    | 1037.16    | 1.19             | 436809.19          | 568738.06         | N 32 12 3.00            | W 104 14 41.09           | 8.35                   | 7143.01         |
|              | 15745.00   | 89.45       | 359.45           | 8829.43     | 7164.22      | 7161.29    | 1037.27    | 1.30             | 436903.17          | 568738.18         | N 32 12 3.93            | W 104 14 41.09           | 8.24                   | 7236.03         |
|              | 15838.00   | 91.00       | 0.56             | 8829.25     | 7257.21      | 7254.29    | 1037.29    | 2.25             | 436996.15          | 568738.15         | N 32 12 4.85            | W 104 14 41.09           | 8.14                   | 7330.07         |
|              | 15933.00   | 89.58       | 359.80           | 8828.77     | 7352.20      | 7349.26    | 1036.76    | 2.38             | 437091.13          | 568737.65         | N 32 12 5.79            | W 104 14 41.09           | 8.03                   | 7422.05         |
|              | 16027.00   | 91.27       | 0.68             | 8828.07     | 7446.19      | 7443.27    | 1036.33    | 2.69             | 437185.11          | 568737.22         | N 32 12 6.72            | W 104 14 41.10           | 7.93                   | 7515.07         |
|              | 16121.00   | 88.78       | 0.38             | 8828.03     | 7540.18      | 7537.26    | 1037.20    | 2.67             | 437279.09          | 568738.09         | N 32 12 7.65            | W 104 14 41.09           | 7.84                   | 7608.29         |
|              | 16215.00   | 91.05       | 359.58           | 8828.17     | 7634.17      | 7631.25    | 1037.17    | 2.56             | 437373.08          | 568738.06         | N 32 12 8.58            | W 104 14 41.09           | 7.74                   | 7701.41         |
|              | 16309.00   | 89.55       | 359.98           | 8827.68     | 7728.16      | 7725.25    | 1036.81    | 1.65             | 437467.06          | 568737.70         | N 32 12 9.51            | W 104 14 41.08           | 7.64                   | 7794.51         |
|              | 16403.00   | 90.47       | 359.78           | 8827.66     | 7822.16      | 7819.24    | 1036.61    | 1.00             | 437561.05          | 568737.50         | N 32 12 10.45           | W 104 14 41.09           | 7.55                   | 7887.69         |
|              | 16497.00   | 90.67       | 359.80           | 8826.73     | 7916.16      | 7913.24    | 1036.26    | 0.21             | 437655.04          | 568737.16         | N 32 12 11.38           | W 104 14 41.09           | 7.46                   | 7980.80         |
|              | 16592.00   | 90.33       | 0.62             | 8825.90     | 8011.15      | 8008.23    | 1036.61    | 0.93             | 437750.03          | 568737.51         | N 32 12 12.32           | W 104 14 41.09           | 7.38                   | 8075.05         |
|              | 16686.00   | 90.65       | 359.40           | 8825.09     | 8105.15      | 8102.23    | 1036.63    | 1.34             | 437844.01          | 568737.52         | N 32 12 13.25           | W 104 14 41.09           | 7.29                   | 8168.27         |
|              | 16780.00   | 89.64       | 0.24             | 8824.86     | 8199.14      | 8196.23    | 1036.33    | 1.40             | 437938.00          | 568737.23         | N 32 12 14.18           | W 104 14 41.09           | 7.21                   | 8261.48         |
|              | 16874.00   | 89.82       | 0.11             | 8825.90     | 8293.14      | 8290.22    | 1036.62    | 0.24             | 438031.99          | 568737.51         | N 32 12 15.11           | W 104 14 41.09           | 7.13                   | 8354.75         |
|              | 16968.00   | 91.22       | 359.52           | 8824.45     | 8387.13      | 8384.22    | 1036.32    | 1.52             | 438125.98          | 568737.21         | N 32 12 16.04           | W 104 14 41.09           | 7.05                   | 8448.02         |
|              | 17063.00   | 89.62       | 0.52             | 8823.75     | 8482.12      | 8479.21    | 1036.35    | 1.99             | 438220.96          | 568737.24         | N 32 12 16.98           | W 104 14 41.09           | 6.97                   | 8542.31         |
|              | 17157.00   | 88.69       | 359.39           | 8825.14     | 8576.11      | 8573.20    | 1036.26    | 1.56             | 438314.94          | 568737.17         | N 32 12 17.91           | W 104 14 41.09           | 6.89                   | 8635.60         |
|              | 17251.00   | 89.39       | 359.09           | 8826.71     | 8670.09      | 8667.18    | 1035.03    | 0.81             | 438408.91          | 568735.92         | N 32 12 18.84           | W 104 14 41.10           | 6.81                   | 8728.76         |
|              | 17345.00   | 89.77       | 0.15             | 8827.40     | 8764.08      | 8761.17    | 1034.41    | 1.20             | 438502.89          | 568735.30         | N 32 12 19.77           | W 104 14 41.11           | 6.73                   | 8822.02         |
|              | 17439.00   | 88.88       | 359.18           | 8828.51     | 8858.06      | 8855.16    | 1033.86    | 1.40             | 438596.87          | 568734.75         | N 32 12 20.70           | W 104 14 41.11           | 6.66                   | 8915.31         |
|              | 17534.00   | 91.29       | 0.41             | 8828.37     | 8953.05      | 8950.15    | 1033.52    | 2.85             | 438691.86          | 568734.41         | N 32 12 21.64           | W 104 14 41.12           | 6.59                   | 9009.62         |
|              | 17628.00   | 91.27       | 0.43             | 8826.27     | 9047.03      | 9044.12    | 1034.21    | 0.03             | 438785.82          | 568735.10         | N 32 12 22.57           | W 104 14 41.11           | 6.52                   | 9103.06         |
|              | 17722.00   | 91.44       | 0.80             | 8824.04     | 9141.00      | 9138.09    | 1035.21    | 0.43             | 438878.78          | 568736.11         | N 32 12 23.50           | W 104 14 41.09           | 6.46                   | 9196.54         |
|              | 17816.00   | 91.03       | 0.38             | 8822.02     | 9234.98      | 9232.06    | 1036.18    | 0.62             | 438973.74          | 568737.08         | N 32 12 24.43           | W 104 14 41.08           | 6.40                   | 9290.03         |
|              | 17910.00   | 91.45       | 0.66             | 8819.98     | 9328.95      | 9326.04    | 1037.03    | 0.54             | 439068.71          | 568737.93         | N 32 12 25.36           | W 104 14 41.07           | 6.35                   | 9383.52         |
|              | 18004.00   | 91.59       | 359.66           | 8817.49     | 9422.92      | 9420.00    | 1037.30    | 1.07             | 439161.67          | 568738.19         | N 32 12 26.28           | W 104 14 41.07           | 6.28                   | 9476.94         |
|              | 18098.00   | 91.50       | 0.49             | 8814.95     | 9516.88      | 9513.97    | 1037.42    | 0.89             | 439255.62          | 568739.31         | N 32 12 27.21           | W 104 14 41.06           | 6.22                   | 9570.36         |
|              | 18193.00   | 90.16       | 0.94             | 8813.58     | 9611.86      | 9608.95    | 1038.61    | 1.48             | 439350.59          | 568739.50         | N 32 12 28.15           | W 104 14 41.05           | 6.17                   | 9664.92         |
|              | 18287.00   | 89.02       | 0.51             | 8814.25     | 9705.86      | 9702.94    | 1039.80    | 1.30             | 439444.57          | 568740.69         | N 32 12 29.08           | W 104 14 41.03           | 6.12                   | 9758.49         |
|              | 18381.00   | 90.17       | 0.43             | 8814.92     | 9799.85      | 9796.93    | 1040.57    | 1.23             | 439538.56          | 568741.46         | N 32 12 30.01           | W 104 14 41.02           | 6.06                   | 9852.04         |
|              | 18475.00   | 89.76       | 0.41             | 8814.97     | 9893.85      | 9890.93    | 1041.26    | 0.44             | 439632.55          | 568742.15         | N 32 12 30.94           | W 104 14 41.02           | 6.01                   | 9945.56         |
|              | 18570.00   | 89.77       | 0.22             | 8815.36     | 9988.85      | 9985.93    | 1041.78    | 0.20             | 439727.54          | 568742.67         | N 32 12 31.88           | W 104 14 41.01           | 5.96                   | 10040.12        |
|              | 18608.00   | 89.85       | 359.87           | 8815.49     | 10026.85     | 10023.92   | 1041.81    | 0.94             | 439765.53          | 568742.70         | N 32 12 32.28           | W 104 14 41.01           | 5.93                   | 10077.92        |
| Final Survey |            |             |                  |             |              |            |            |                  |                    |                   |                         |                          |                        |                 |
|              | 18644.00   | 89.85       | 359.87           | 8815.58     | 10062.85     | 10059.92   | 1041.73    | 0.00             | 439801.53          | 568742.62         | N 32 12 32.62           | W 104 14 41.01           | 5.91                   | 10113.72        |

| Survey Type:                           | Def Survey                                           |                 |               |                  |                   |                         |                            |                                                                                                      |  |  |  |  |  |  |
|----------------------------------------|------------------------------------------------------|-----------------|---------------|------------------|-------------------|-------------------------|----------------------------|------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|
| Survey Error Model:<br>Survey Program: | ISOWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma |                 |               |                  |                   |                         |                            |                                                                                                      |  |  |  |  |  |  |
| Description                            | Part                                                 | MD From<br>(ft) | MD To<br>(ft) | EQU Freq<br>(ft) | Hole Size<br>(in) | Casing Diameter<br>(in) | Survey Tool Type           | Borehole / Survey                                                                                    |  |  |  |  |  |  |
|                                        | 1                                                    | 0.000           | 26.000        | 1/98.425         | 17.500            | 13.375                  | NAL_MWD_JFR1+MS-Depth Only | Original Borehole / Final Surveys -<br>Cimarex Black River 25 Federal<br>Com 2H Off-18644ft (Surcon) |  |  |  |  |  |  |
|                                        | 1                                                    | 26.000          | 26.000        | Act Stns         | 17.500            | 13.375                  | NAL_MWD_JFR1+MS-Depth Only | Original Borehole / Final Surveys -<br>Cimarex Black River 25 Federal<br>Com 2H Off-18644ft (Surcon) |  |  |  |  |  |  |

| 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 ° ' ") | Closure<br>(ft) |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|-----------------------------------------------------------------------|-------------------|-------------------------|--------------------------|-----------------|
|          |            | 1           | 26.000           | 412.000     | Act Stns     | 17.500     | 13.375     | NAL_MWD_JFR1+MS  | Original Borehole / Final Surveys -<br>Cimarex Black River 25 Federal |                   |                         |                          |                 |
|          |            | 1           | 412.000          | 1970.000    | Act Stns     | 12.250     | 9.625      | NAL_MWD_JFR1+MS  | Original Borehole / Final Surveys -<br>Cimarex Black River 25 Federal |                   |                         |                          |                 |
|          |            | 1           | 1970.000         | 8330.000    | Act Stns     | 8.750      | 7.000      | NAL_MWD_JFR1+MS  | Original Borehole / Final Surveys -<br>Cimarex Black River 25 Federal |                   |                         |                          |                 |
|          |            | 1           | 8330.000         | 18644.000   | Act Stns     | 8.500      | 7.000      | NAL_MWD_JFR1+MS  | Original Borehole / Final Surveys -<br>Cimarex Black River 25 Federal |                   |                         |                          |                 |