

District I
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District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

OCD-ARTESIA
REC'D: 8/12/2020
Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-45304		² Pool Code 98220		³ Pool Name Purple sage; Wolfcamp (Gas) KZ	
⁴ Property Code 322503		⁵ Property Name RIVERBOAT 12/1 WOMB FEDERAL COM			⁶ Well Number 1H
⁷ OGRID NO. 215099		⁸ Operator Name CIMAREX ENERGY COMPANY			⁹ Elevation 3265'

¹⁰ Surface Location

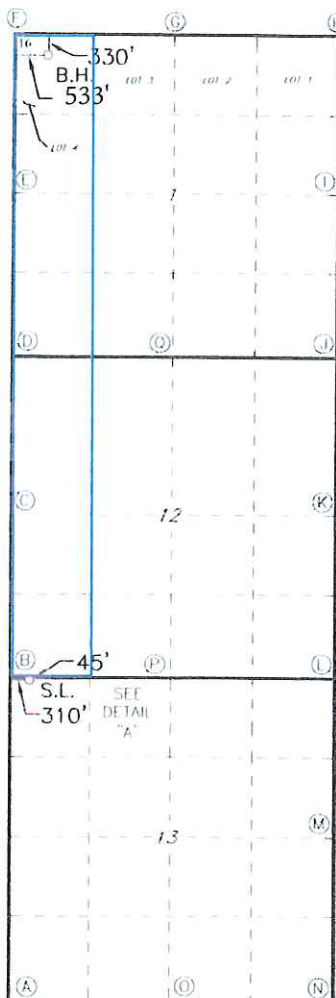
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	13	24S	26E		45	NORTH	310	WEST	EDDY

¹¹ Bottom Hole Location If Different From Surface **SL**

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	1	24S	26E		330	NORTH	553	WEST	EDDY

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
640.36			

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



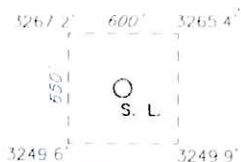
GEODETIC DATA
NAD 27 GRID - NM EAST
SURFACE LOCATION
N: 445358.3 - E: 524656.1
LAT: 32.2243818° N
LONG: 104.2536014° W

GEODETIC DATA
NAD 83 GRID - NM EAST
SURFACE LOCATION
N: 445416.1 - E: 565838.5
LAT: 32.2245006° N
LONG: 104.2541011° W

CORNER DATA
NAD 83 GRID - NM EAST

A. CALCULATED CORNER N: 440160.6 - E: 565581.4	H. FOUND BRASS CAP "1968" N: 456040.6 - E: 570833.1
B. FOUND BRASS CAP "1968" N: 445464.0 - E: 565528.1	I. FOUND BRASS CAP "1968" N: 453378.3 - E: 570839.7
C. FOUND BRASS CAP "1968" N: 448117.8 - E: 565496.3	J. FOUND BRASS CAP "1968" N: 450715.6 - E: 570845.6
D. FOUND BRASS CAP "1968" N: 450771.2 - E: 565465.1	K. FOUND BRASS CAP "1968" N: 448065.7 - E: 570825.4
F. FOUND BRASS CAP "1968" N: 453387.1 - E: 565488.1	L. FOUND BRASS CAP "1968" N: 445414.9 - E: 570824.5
E. FOUND BRASS CAP "1968" N: 456010.7 - E: 565511.5	M. FOUND BRASS CAP "1968" N: 442765.3 - E: 570824.0
G. FOUND BRASS CAP "1968" N: 456025.2 - E: 568172.1	N. FOUND BRASS CAP "1968" N: 440115.7 - E: 570822.3

DETAIL "A"



OPERATOR CERTIFICATION

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 undivided 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 heretofore entered by the division.

Fatima Vasquez 04/08/2020
Signature Date
Fatima Vasquez
Printed Name
fvasquez@cimarex.com
E-mail Address

SURVEYOR CERTIFICATION

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

4-18-2017

Date of Survey

Signature and Seal of Professional Surveyor

19680

Certificate Number

REV: 11/13/19 BHL

RRC-Job No.: LS1704186

Hello Amalia, 10-14-2020 EMAIL:
BHL
32.252725 & -104.253353
N -= 32 15 9.87 & W-= -140 15 12.07
Thanks, Terri

Intent ☐ As Drilled ☒

API #
30-015-45304

Operator Name: Cimarex Energy Co.	Property Name: Riverboat 12-1 W0MD Federal Com	Well Number 1H
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Kick Off Point (KOP)

UL D	Section 13	Township 24S	Range 26E	Lot	Feet 55	From N/S North	Feet 529	From E/W West	County Eddy
Latitude 32.224467					Longitude -104.253394			NAD 83	

First Take Point (FTP)

UL M	Section 12	Township 24S	Range 26E	Lot	Feet 362	From N/S South	Feet 534	From E/W West	County Eddy
Latitude 32.225619					Longitude -104.253372			NAD 83	

Last Take Point (LTP)

UL D	Section 1	Township 24S	Range 26E	Lot	Feet 384	From N/S North	Feet 550	From E/W West	County Eddy
Latitude 32.252622					Longitude -104.253356			NAD 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

Borehole: Riverboat 12-1 WOMB Federal Com 1H Well: Riverboat 12-1 WOMB Federal Com 1H Field: NM Eddy County (NAD 83) Structure: Cimarex Riverboat 12-1 WOMB Federal Com 1H

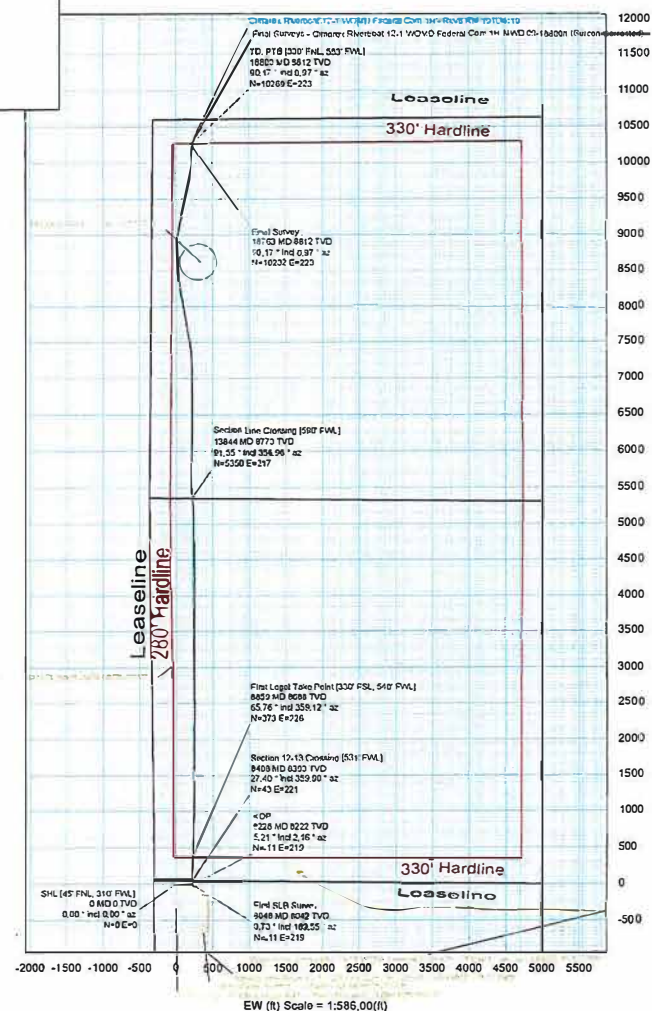
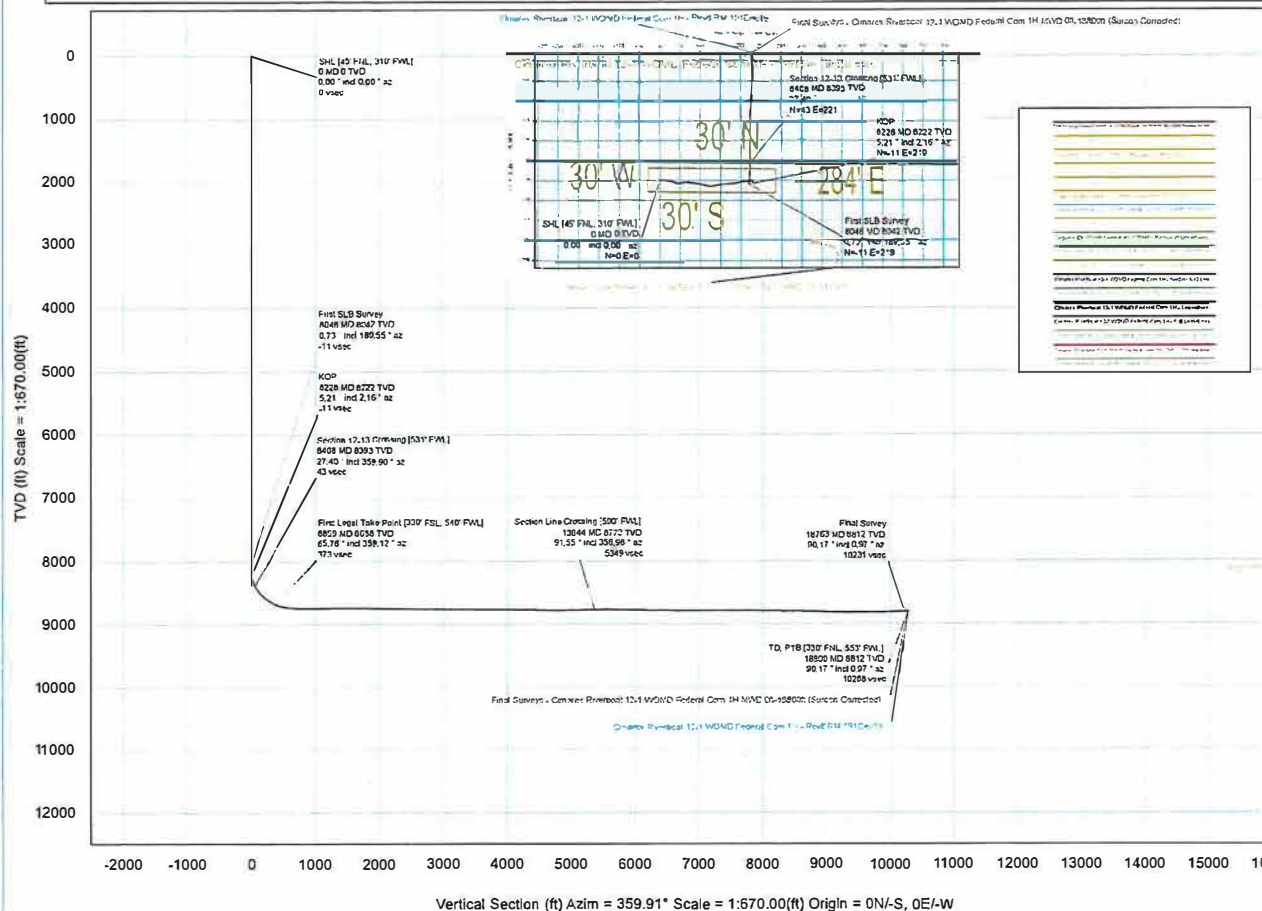
Gravity & Magnetic Parameters: Model: HDGM 2015 Dip: 53.857° Date: 15-Dec-2019 Surface Location: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Mag Dec: 7.226° Pg: 47770.355N Gravity FS: 998.461mg (9.80665 Based) Lat: N 32 13 28.20 Northing: 445416.1NUS Grid Conv: 0.0422° Miscellaneous: New Slot: TVD Ref: RKB(32881 above MSL)
Plan: Final Surveys - Cimarex Riverboat 12-1 WOMB Federal Com 1H MWD 01-100001 (Surcon Corrected) Scale Fact: 0.33330978

Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)S(-)	E(+)W(-)	DLS
SHL (45° FNL, 310° FWL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
First SLB Survey	6046.00	0.73	189.55	8042.06	-11.00	-10.66	219.40	0.77
KOP	8227.65	5.21	2.16	8221.84	-10.95	-10.80	218.77	14.44
Section 12-13 Crossing (531° FWL)	8408.33	27.40	359.90	8393.08	42.71	43.06	228.64	12.11
First Legal Take Point (330° FSL, 540° FWL)	8658.90	65.76	359.12	8658.19	372.67	373.03	226.00	10.98
Section Line Crossing (580° FWL)	13844.00	91.55	356.96	8773.30	9849.15	5349.50	217.03	0.51
Final Survey	18763.00	90.17	0.97	8811.79	10231.23	10231.59	222.86	1.57
TD, PTB (330° FNL, 553° FWL)	18800.00	90.17	0.97	8811.68	10268.22	10268.50	223.49	0.00



Grid
True
Mag
Grid North
Tot Corr (M-G 7.184°)
Mag Dec (7.226°)
Grid Conv (0.042°)

CONTROLLED	
Drawn by	
Checked by	
Scale	1:500,000
Date	10/1/2019
Drawn by	
Checked by	
Scale	
Date	



Final Surveys - Cimarex Riverboat 12-1 WOMB Federal Com 1H MWD 0ft-18800ft (Surcon Corrected) Survey Geodetic Report



(Def Survey)

Report Date:	April 08, 2020 - 05:02 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex Energy	Vertical Section Azimuth:	359,910 ° (Grid North)
Field:	NM Eddy County (NAD 83)	Vertical Section Origin:	0,000 ft, 0,000 ft
Structure / Slot:	Cimarex Riverboat 12-1 WOMB Federal Com 1H / New Slot	TVD Reference Datum:	RKB
Well:	Riverboat 12-1 WOMB Federal Com 1H	TVD Reference Elevation:	3288,000 ft above MSL
Borehole:	Riverboat 12-1 WOMB Federal Com 1H	Seabed / Ground Elevation:	3265,000 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	7.226 °
Survey Name:	Final Surveys - Cimarex Riverboat 12-1 WOMB Federal Com 1H MWD 0ft-18800ft (Surcon Corrected)	Total Gravity Field Strength:	998,4513mgn (9,80665 Based)
Survey Date:	December 09, 2019	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	253,072 ° / 10586,635 ft / 6,756 / 1,200	Total Magnetic Field Strength:	47770,355 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59,857 °
Location Lat / Long:	N 32° 13' 28.20154", W 104° 15' 14.76415"	Declination Date:	December 19, 2019
Location Grid N/E Y/X:	N 445416,100 ftUS, E 565838,500 ftUS	Magnetic Declination Model:	HDGM 2019
CRS Grid Convergence Angle:	0,0422 °	North Reference:	Grid North
Grid Scale Factor:	0,99990978	Grid Convergence Used:	0,0422 °
Version / Patch:	2,10,787,0	Total Corr Mag North->Grid North:	7,1841 °
		Local Coord Referenced To:	Well Head

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)
SHL [45' FNL, 310' FWL]	0,00	0,00	0,00	0,00	0,00	0,00	0,00	N/A	445416,10	565838,50	N 32 13 28.20	W 104 15 14.76	0,00	0,00
	178,00	1,13	85,44	177,99	0,14	0,14	1,75	0,63	445416,24	565840,25	N 32 13 28.20	W 104 15 14.74	85,44	1,76
	208,00	1,16	89,17	207,98	0,16	0,17	2,35	0,27	445416,27	565840,85	N 32 13 28.20	W 104 15 14.74	85,92	2,35
	278,00	1,13	81,44	277,97	0,27	0,28	3,74	0,22	445416,38	565842,24	N 32 13 28.20	W 104 15 14.72	85,71	3,75
	369,00	1,26	89,31	368,95	0,42	0,43	5,63	0,23	445416,53	565844,13	N 32 13 28.21	W 104 15 14.70	85,67	5,64
	489,00	1,37	86,54	488,92	0,52	0,53	8,38	0,11	445416,63	565846,88	N 32 13 28.21	W 104 15 14.67	86,39	8,39
	581,00	1,40	102,04	580,89	0,34	0,36	10,58	0,41	445416,46	565849,07	N 32 13 28.21	W 104 15 14.64	88,05	10,58
	673,00	1,51	103,41	672,86	-0,18	-0,16	12,85	0,13	445415,94	565851,35	N 32 13 28.20	W 104 15 14.61	90,69	12,85
	763,00	1,51	101,75	762,83	-0,70	-0,67	15,17	0,05	445415,43	565853,67	N 32 13 28.19	W 104 15 14.59	92,54	15,18
	853,00	1,90	105,94	852,79	-1,35	-1,32	17,76	0,45	445414,78	565856,26	N 32 13 28.19	W 104 15 14.56	94,26	17,81
	943,00	1,90	99,12	942,74	-2,00	-1,97	20,67	0,25	445414,13	565859,17	N 32 13 28.18	W 104 15 14.52	95,44	20,76
	1038,00	2,08	96,95	1037,68	-2,46	-2,43	23,94	0,21	445413,67	565862,44	N 32 13 28.18	W 104 15 14.49	95,79	24,06
	1132,00	2,79	103,97	1131,60	-3,23	-3,19	27,85	0,82	445412,91	565866,35	N 32 13 28.17	W 104 15 14.44	96,53	28,03
	1227,00	3,69	105,91	1226,44	-4,63	-4,58	33,03	0,95	445411,52	565871,53	N 32 13 28.16	W 104 15 14.38	97,90	33,35
	1321,00	2,80	111,29	1320,29	-6,30	-6,25	38,08	1,00	445409,86	565876,58	N 32 13 28.14	W 104 15 14.32	99,31	38,59
	1415,00	1,91	102,45	1414,21	-7,48	-7,42	41,75	1,02	445408,68	565880,25	N 32 13 28.13	W 104 15 14.28	100,07	42,41
	1509,00	2,02	86,49	1508,16	-7,72	-7,65	44,94	0,59	445408,45	565883,43	N 32 13 28.13	W 104 15 14.24	99,67	45,58
	1604,00	2,47	87,93	1603,09	-7,55	-7,48	48,65	0,48	445408,62	565887,15	N 32 13 28.13	W 104 15 14.20	98,74	49,22
	1698,00	2,08	85,74	1697,01	-7,36	-7,28	52,38	0,43	445408,82	565890,87	N 32 13 28.13	W 104 15 14.15	97,91	52,88
	1792,00	1,00	64,03	1790,98	-6,88	-6,79	54,82	1,29	445409,31	565893,31	N 32 13 28.13	W 104 15 14.13	97,06	55,24
	1816,00	0,97	70,27	1814,97	-6,72	-6,63	55,20	0,46	445409,47	565893,69	N 32 13 28.14	W 104 15 14.12	96,85	55,59
	1885,00	0,97	60,30	1883,96	-6,23	-6,14	56,25	0,24	445409,96	565894,75	N 32 13 28.14	W 104 15 14.11	96,23	56,59
	1980,00	0,81	52,30	1978,95	-5,42	-5,33	57,48	0,21	445410,77	565895,98	N 32 13 28.15	W 104 15 14.10	95,30	57,73
	2074,00	1,27	82,25	2072,94	-4,88	-4,79	59,04	0,74	445411,31	565897,53	N 32 13 28.15	W 104 15 14.08	94,64	59,23
	2169,00	1,88	95,58	2167,90	-4,69	-4,80	61,63	0,74	445411,30	565900,13	N 32 13 28.15	W 104 15 14.05	94,45	61,82
	2262,00	2,40	95,42	2260,84	-5,23	-5,13	65,09	0,56	445410,97	565903,59	N 32 13 28.15	W 104 15 14.01	94,51	65,29
	2357,00	3,68	95,52	2355,70	-5,72	-5,61	70,11	1,35	445410,49	565908,60	N 32 13 28.15	W 104 15 13.95	94,58	70,33
	2451,00	3,76	96,71	2449,50	-6,38	-6,26	76,17	0,12	445409,84	565914,66	N 32 13 28.14	W 104 15 13.88	94,70	76,43
	2546,00	3,73	99,33	2544,30	-7,26	-7,13	82,31	0,18	445408,97	565920,81	N 32 13 28.13	W 104 15 13.81	94,95	82,62
	2641,00	3,69	99,89	2639,10	-8,29	-8,15	88,37	0,06	445407,95	565926,87	N 32 13 28.12	W 104 15 13.74	95,27	88,75
	2829,00	3,47	101,87	2826,73	-10,52	-10,36	99,90	0,13	445405,74	565938,39	N 32 13 28.10	W 104 15 13.60	95,92	100,44

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)
Section 12-13 Crossing [531' FWL]	8378.00	23.80	1.63	8365.73	29.61	29.96	220.48	9.51	445446.05	566058.96	N 32 13 28.50	W 104 15 12.20	82.26	222.51
	8408.33	27.40	359.90	8393.08	42.71	43.06	220.64	12.11	445459.15	566059.12	N 32 13 28.63	W 104 15 12.20	78.96	224.80
	8425.00	29.38	359.12	8407.74	50.63	50.98	220.57	12.11	445467.08	566059.05	N 32 13 28.70	W 104 15 12.20	76.99	226.39
	8472.00	34.52	358.92	8447.61	75.49	75.84	220.14	10.94	445491.93	566058.62	N 32 13 28.95	W 104 15 12.20	70.99	232.84
	8519.00	39.54	0.78	8485.12	103.79	104.13	220.10	10.94	445520.22	566058.58	N 32 13 29.23	W 104 15 12.20	64.68	243.49
	8566.00	44.04	2.16	8520.15	135.09	135.43	220.92	9.77	445551.52	566059.40	N 32 13 29.54	W 104 15 12.19	58.49	259.13
	8613.00	47.75	3.41	8552.86	168.79	169.14	222.57	8.12	445585.22	566061.05	N 32 13 29.87	W 104 15 12.17	52.77	279.54
	8661.00	50.00	4.44	8584.43	204.85	205.20	225.05	4.96	445621.29	566063.53	N 32 13 30.23	W 104 15 12.14	47.64	304.56
	8708.00	54.38	1.47	8613.24	241.92	242.27	226.93	10.57	445658.35	566065.41	N 32 13 30.60	W 104 15 12.12	43.13	331.96
	8755.00	59.65	359.22	8638.82	281.32	281.68	227.15	11.91	445697.75	566065.63	N 32 13 30.99	W 104 15 12.12	38.88	361.85
	8802.00	60.29	359.27	8662.34	322.01	322.37	226.61	1.36	445738.44	566065.09	N 32 13 31.39	W 104 15 12.12	35.11	394.05
	8849.00	64.70	359.38	8684.04	363.68	364.04	226.12	9.39	445780.11	566064.60	N 32 13 31.80	W 104 15 12.13	31.85	428.55
First Legal Take Point [330' FSL, 540' FWL]	8858.90	65.76	359.12	8688.19	372.67	373.03	226.00	10.98	445789.09	566064.48	N 32 13 31.89	W 104 15 12.13	31.21	436.15
8896.00	69.74	358.18	8702.23	406.99	407.35	225.19	10.98	445823.41	566063.67	N 32 13 32.23	W 104 15 12.14	28.93	465.45	
8943.00	74.43	357.26	8716.69	451.67	452.02	223.41	10.15	445868.08	566061.89	N 32 13 32.67	W 104 15 12.16	26.30	504.22	
8990.00	79.85	357.39	8727.14	497.43	497.78	221.27	11.54	445913.83	566059.75	N 32 13 33.13	W 104 15 12.18	23.97	544.74	
9037.00	81.96	360.00	8734.57	543.82	544.17	220.22	7.09	445960.22	566058.70	N 32 13 33.58	W 104 15 12.20	22.03	587.04	
9084.00	85.25	1.80	8739.81	590.51	590.86	220.95	7.97	446006.90	566059.43	N 32 13 34.05	W 104 15 12.19	20.50	630.82	
9116.00	85.60	1.83	8742.36	622.39	622.74	221.96	1.10	446038.78	566060.44	N 32 13 34.36	W 104 15 12.17	19.62	661.11	
9163.00	86.08	1.73	8745.77	669.24	669.59	223.42	1.04	446085.63	566061.90	N 32 13 34.83	W 104 15 12.16	18.45	705.88	
9258.00	89.11	1.91	8749.76	764.09	764.45	226.43	3.20	446180.48	566064.91	N 32 13 35.76	W 104 15 12.12	16.50	797.28	
9352.00	90.85	1.33	8749.79	858.05	858.41	229.09	1.95	446274.43	566067.57	N 32 13 36.69	W 104 15 12.09	14.94	888.45	
9446.00	90.28	0.21	8748.86	952.03	952.39	230.35	1.34	446368.41	566068.83	N 32 13 37.62	W 104 15 12.07	13.60	979.86	
9540.00	69.87	0.37	8748.74	1046.03	1046.39	230.83	0.47	446462.40	566069.31	N 32 13 38.55	W 104 15 12.07	12.44	1071.55	
9635.00	90.53	0.87	8748.41	1141.02	1141.39	231.86	0.87	446557.38	566070.33	N 32 13 39.49	W 104 15 12.06	11.48	1164.70	
9823.00	90.15	0.18	8747.29	1329.01	1329.37	233.58	0.42	446745.35	566072.06	N 32 13 41.35	W 104 15 12.03	9.97	1349.74	
10012.00	90.30	359.95	8746.55	1518.00	1518.37	233.79	0.15	446934.33	566072.27	N 32 13 43.22	W 104 15 12.03	8.75	1536.27	
10106.00	89.98	0.42	8746.32	1612.00	1612.37	234.10	0.60	447028.32	566072.58	N 32 13 44.15	W 104 15 12.03	8.26	1629.28	
10200.00	89.18	359.91	8747.01	1706.00	1706.37	234.37	1.01	447122.31	566072.85	N 32 13 45.08	W 104 15 12.02	7.82	1722.39	
10294.00	88.92	0.47	8748.57	1799.98	1800.35	234.68	0.66	447216.29	566073.16	N 32 13 46.01	W 104 15 12.02	7.43	1815.58	
10389.00	88.94	0.48	8750.34	1894.96	1895.33	235.47	0.02	447311.26	566073.94	N 32 13 46.95	W 104 15 12.01	7.08	1909.90	
10484.00	88.88	0.48	8752.15	1989.94	1990.31	236.26	0.06	447406.23	566074.74	N 32 13 47.89	W 104 15 12.00	6.77	2004.29	
10578.00	89.28	0.45	8753.66	2083.92	2084.30	237.02	0.43	447500.21	566075.50	N 32 13 48.82	W 104 15 11.99	6.49	2097.73	
10673.00	89.35	0.82	8754.79	2178.91	2179.28	238.08	0.40	447595.18	566076.56	N 32 13 49.76	W 104 15 11.97	6.23	2192.25	
10767.00	89.05	0.55	8756.11	2272.89	2273.27	239.20	0.43	447689.16	566077.68	N 32 13 50.69	W 104 15 11.96	6.01	2285.82	
10861.00	88.91	0.01	8757.78	2366.87	2367.25	239.66	0.59	447783.13	566078.14	N 32 13 51.62	W 104 15 11.95	5.78	2379.35	
11049.00	88.93	358.75	8761.32	2554.83	2555.20	237.63	0.67	447971.07	566076.10	N 32 13 53.48	W 104 15 11.98	5.31	2566.23	
11143.00	90.03	0.48	8762.18	2648.82	2649.19	237.00	2.18	448065.05	566075.47	N 32 13 54.41	W 104 15 11.98	5.11	2659.77	
11237.00	89.60	359.14	8762.48	2742.81	2743.19	236.68	1.50	448159.04	566075.16	N 32 13 55.34	W 104 15 11.99	4.93	2753.38	
11332.00	88.88	358.62	8763.74	2837.79	2838.16	234.83	0.93	448254.00	566073.31	N 32 13 56.28	W 104 15 12.01	4.73	2847.86	
11425.00	89.56	359.94	8765.01	2930.77	2931.14	233.66	1.60	448346.97	566072.14	N 32 13 57.20	W 104 15 12.02	4.56	2940.44	
11519.00	89.64	0.45	8765.66	3024.77	3025.14	233.98	0.55	448440.96	566072.46	N 32 13 58.13	W 104 15 12.01	4.42	3034.18	
11613.00	89.91	0.16	8766.03	3118.77	3119.14	234.48	0.42	448534.95	566072.96	N 32 13 59.06	W 104 15 12.01	4.30	3127.94	
11801.00	89.45	0.42	8767.08	3306.76	3307.13	235.43	0.28	448722.93	566073.91	N 32 14 0.92	W 104 15 11.99	4.07	3315.50	
11895.00	89.37	0.07	8768.05	3400.75	3401.13	235.83	0.38	448816.91	566074.31	N 32 14 1.85	W 104 15 11.99	3.97	3409.29	
11988.00	89.94	0.48	8768.61	3493.75	3494.12	236.28	0.75	448909.90	566074.76	N 32 14 2.77	W 104 15 11.98	3.87	3502.10	
12082.00	89.81	0.49	8768.81	3587.74	3588.12	237.07	0.14	449003.89	566075.55	N 32 14 3.70	W 104 15 11.97	3.78	3595.94	
12176.00	89.42	0.37	8769.45	3681.74	3682.11	237.78	0.43	449097.87	566076.26	N 32 14 4.63	W 104 15 11.96	3.69	3689.78	
12270.00	89.38	0.90	8770.43	3775.72	3776.10	238.82	0.57	449191.85	566077.30	N 32 14 5.56	W 104 15 11.95	3.62	3783.65	
12364.00	89.77	0.64	8771.13	3869.71	3870.09	240.08	0.50	449285.83	566078.56	N 32 14 6.49	W 104 15 11.94	3.55	3877.53	
12458.00	89.83	359.84	8771.46	3963.71	3964.09	240.48	0.85	449379.82	566078.96	N 32 14 7.42	W 104 15 11.93	3.47	3971.38	
12552.00	89.15	0.07	8772.29	4057.70	4058.08	240.40	0.76	449473.81	566078.88	N 32 14 8.36	W 104 15 11.93	3.39	4065.20	
12646.00	88.91	359.68	8773.88	4151.69	4152.07	240.20	0.49	449567.79	566078.68	N 32 14 9.29	W 104 15 11.93	3.31	4159.01	
12740.00	89.51	0.05	8775.18	4245.68	4246.06	239.98	0.75	449661.77	566078.46	N 32 14 10.22	W 104 15 11.93	3.23	4252.84	
12834.00	89.41	359.30	8776.07	4339.67	4340.05	239.44	0.80	449755.75	566077.92	N 32 14 11.15	W 104 15 11.94	3.16	4346.66	
12928.00	89.82	358.26	8776.70	4433.65	4434.03	237.44	1.19	449849.72	566075.92	N 32 14 12.08	W 104 15 11.96	3.07	4440.38	
13022.00	88.82	358.05	8777.81	4527.60	4527.97	234.42	1.09	449943.66	566072.90	N 32 14 13.00	W 104 15 12.00	2.96	4534.04	

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)
	18672.00	91.25	1.90	8812.92	10140.27	10140.63	220.59	1.57	455555.80	566059.06	N 32 15 8.54	W 104 15 12.11	1.25	10143.03
Final Survey	18763.00	90.17	0.97	8811.79	10231.23	10231.59	222.86	1.57	455646.75	566061.34	N 32 15 9.44	W 104 15 12.08	1.25	10234.02
TD, PTB [330' FNL, 553' FWL]	18800.00	90.17	0.97	8811.68	10268.22	10268.59	223.49	0.00	455683.74	566061.97	N 32 15 9.81	W 104 15 12.07	1.25	10271.02

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 85,000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	23.000	1/98.425	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Riverboat 12-1 WOMD Federal Com 1H / Final Surveys - Cimarex
	1	23.000	23.000	Act Slns	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Riverboat 12-1 WOMD Federal Com 1H / Final Surveys - Cimarex
	1	23.000	447.000	Act Slns	17.500	13.375	NAL_MWD_IFR1+MS	Riverboat 12-1 WOMD Federal Com 1H / Final Surveys - Cimarex
	1	447.000	1878.000	Act Slns	12.250	9.625	NAL_MWD_IFR1+MS	Riverboat 12-1 WOMD Federal Com 1H / Final Surveys - Cimarex
	1	1878.000	9172.000	Act Slns	8.750	7.000	NAL_MWD_IFR1+MS	Riverboat 12-1 WOMD Federal Com 1H / Final Surveys - Cimarex
	1	9172.000	18800.000	Act Slns	8.500	7.000	NAL_MWD_IFR1+MS	Riverboat 12-1 WOMD Federal Com 1H / Final Surveys - Cimarex