MS Energy Services

3335 Pollok Drive
Conroe, Texas 77303

936.442.2500 (Office)
936.442.2599 (Fax)
www.msenergyservices.com

March 30, 2017

The Railroad Commission of Texas
Oil and Gas Division
PO Drawer 12967
Capital Station
Austin, Texas 78711-2967

Attn: Pam Johns

RE: EP Energy E&P Company, L.P.
University 38 Block Unit 3819KH (Permit No. 824004)
Survey: UL / Abstract: Not Available
Field: LIN (Wolfcamp)
Crockett County, TX
API number: 42-105-42367

Dear Pam Johns:

Please find enclosed the original and one copy of the survey performed on the above referenced well by MS Energy Services; RRC Operator No. 592474. Other information required by your office is as follows:

Name of surveyor	Drainhole number	Surveyed depths	Date performed	Type of Survey
Aaron Henzen	Original	Surface - 800'	3/20/2017 - 3/20/2017	Rate Gyro

A certified plat, on which the bottom hole location is oriented, both to the survace location and to the lease lines (or unit lines in case of pooling), is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,

Ryan Moran
MS Survey

RAILROAD COMMISSION OF TEXAS
OIL & GAS DIVISION

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER	DATE PERMIT ISSUED OR AMENDED	DISTRICT
824004	Mar 02, 2017	* 7C
API NUMBER	**FORM W-1 RECEIVED**	**COUNTY**
42-105-42367	Mar 02, 2017	CROCKETT
TYPE OF OPERATION	**WELLBORE PROFILE(S)**	**ACRES**
NEW DRILL	Horizontal	1352.8

OPERATOR 253385

EP ENERGY E&P COMPANY, L.P.

ATTN JOSEPH ARAIZA
PO BOX 4660
HOUSTON, TX 77210-4660

NOTICE
This permit and any allowable assigned may be revoked if payment for fee(s) submitted to the Commission is not honored.
District Office Telephone No:
(325) 657-7450

LEASE NAME	WELL NUMBER
UNIVERSITY 38 BLOCK UNIT	3819KH
LOCATION	**TOTAL DEPTH**
8.57 miles SE direction from BARNHART	8999

Section, Block and/or Survey

SECTION 19 BLOCK 38 ABSTRACT

SURVEY UL

DISTANCE TO SURVEY LINES	DISTANCE TO NEAREST LEASE LINE
30 ft. S 2230 ft. E	135 ft.
DISTANCE TO LEASE LINES	**DISTANCE TO NEAREST WELL ON LEASE**
30 ft. S 2230 ft. E	See FIELD(s) Below

FIELD(s) and LIMITATIONS:

* SEE FIELD DISTRICT FOR REPORTING PURPOSES *

FIELD NAME / LEASE NAME	ACRES / NEAREST LEASE	DEPTH	WELL # / NEAREST WE	DIST
LIN (WOLFCAMP)	1352.80	8,999	3819KH	7C
UNIVERSITY 38 BLOCK UNIT	135		383	

WELLBORE PROFILE(s) FOR FIELD: Horizontal

RESTRICTIONS:

```
Lateral: TH1
Penetration Point Location
  Lease Lines:        350.0 F N L
                     1545.0 F E L
Terminus Location
  BH County: CROCKETT
  Section: 12            Block: 38            Abstract:
  Survey: UL
  Lease Lines:         30.0 F S L
                     2230.0 F E L
  Survey Lines:        60.0 F N L
                     1545.0 F E L
```

THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS

This well shall be completed and produced in compliance with applicable special field or statewide spacing and density rules. If this well is to be used for brine mining, underground storage of liquid hydrocarbons in salt formations, or underground storage of gas in salt formations, a permit for that specific purpose must be obtained from Environmental Services prior to construction, including drilling, of the well in accordance with Statewide Rules 81, 95, and 97.

MS Energy Services

Job Number: SVMO-170217
Company: EP Energy E&P Co.
Lease/Well: University 38 Block Unit 3819KH
Location: Crockett County, TX
Rig Name: MS Mast
RKB: 0'
G.L. or M.S.L.: GL

State/Country: Texas/USA (X 20616223.85) (Y 1033920.45)
Declination: Declination See Details Below - NAD 27
Grid: East To Grid North
File name: C:\WINSER~1\2017\EPENER~1\MO\UNIVER~1\38BLOC~1\3819KH.SVY
Date/Time: 22-Mar-17 / 14:58
Curve Name: Surface - 800' M.D. (Rate Gyro)

MS Energy

Declination To True North: 5.74°
Grid Convergence Factor: -0° 23' 9.68139"
Total Correction Mag to Grid: 6.12°

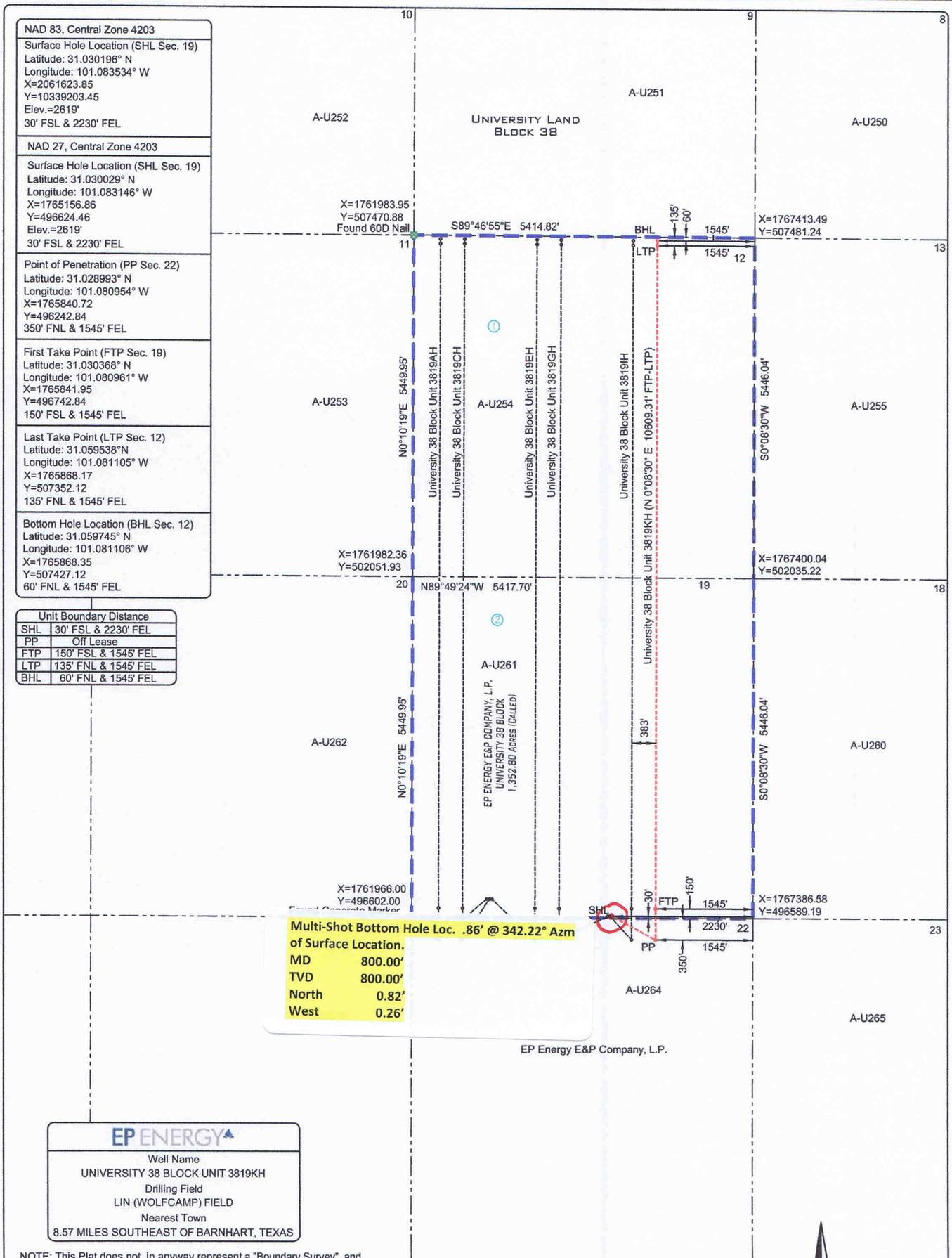
WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane .00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
50.00	.02	343.73	50.00	.01	.00	.01	.01	343.81	.04
100.00	.06	244.47	100.00	.01	-.03	.01	.03	280.89	.13
150.00	.04	319.97	150.00	.01	-.06	.01	.06	276.81	.13
200.00	.08	293.11	200.00	.03	-.11	.03	.11	287.98	.10
250.00	.11	306.76	250.00	.08	-.18	.08	.19	293.50	.07
300.00	.20	282.61	300.00	.12	-.30	.12	.33	292.53	.22
350.00	.36	311.81	350.00	.25	-.50	.25	.56	296.30	.42
400.00	.11	259.52	400.00	.34	-.67	.34	.75	297.31	.61
450.00	.16	301.34	450.00	.37	-.77	.37	.86	295.67	.21
500.00	.08	347.99	500.00	.44	-.84	.44	.95	297.76	.24
550.00	.11	63.22	550.00	.50	-.81	.50	.95	301.75	.24
600.00	.22	47.02	600.00	.59	-.69	.59	.91	310.22	.24

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
650.00	.13	68.80	650.00	.67	-.57	.67	.88	319.70	.22
700.00	.10	45.74	700.00	.72	-.49	.72	.87	326.11	.11
750.00	.12	61.52	750.00	.78	-.41	.78	.88	332.33	.07
Last Survey Depth Recorded									
800.00	.23	80.17	800.00	.82	-.26	.82	.86	342.22	.24

NAD 83, Central Zone 4203
Surface Hole Location (SHL Sec. 19) Latitude: 31.030196° N Longitude: 101.083534° W X=2061623.85 Y=10339203.45 Elev.=2619' 30' FSL & 2230' FEL
NAD 27, Central Zone 4203
Surface Hole Location (SHL Sec. 19) Latitude: 31.030029° N Longitude: 101.083146° W X=1765156.86 Y=496624.46 Elev.=2619' 30' FSL & 2230' FEL
Point of Penetration (PP Sec. 22) Latitude: 31.028993° N Longitude: 101.080954° W X=1765840.72 Y=496242.84 350' FNL & 1545' FEL
First Take Point (FTP Sec. 19) Latitude: 31.030368° N Longitude: 101.080961° W X=1765841.95 Y=496742.84 150' FSL & 1545' FEL
Last Take Point (LTP Sec. 12) Latitude: 31.059538°N Longitude: 101.081105° W X=1765868.17 Y=507352.12 135' FNL & 1545' FEL
Bottom Hole Location (BHL Sec. 12) Latitude: 31.059745° N Longitude: 101.081106° W X=1765868.35 Y=507427.12 60' FNL & 1545' FEL

Unit Boundary Distance	
SHL	30' FSL & 2230' FEL
PP	Off Lease
FTP	150' FSL & 1545' FEL
LTP	135' FNL & 1545' FEL
BHL	60' FNL & 1545' FEL



Multi-Shot Bottom Hole Loc. .86' @ 342.22° Azm of Surface Location.

MD	800.00'
TVD	800.00'
North	0.82'
West	0.26'

EP Energy E&P Company, L.P.

EP ENERGY

Well Name
UNIVERSITY 38 BLOCK UNIT 3819KH
Drilling Field
LIN (WOLFCAMP) FIELD
Nearest Town
8.57 MILES SOUTHEAST OF BARNHART, TEXAS

NOTE: This Plat does not, in anyway represent a "Boundary Survey", and does not comply with the current T.B.P.L.S. Minimum Standards of Procedures for Boundary Survey. Shown Acreages were furnished by others. The information contained on this plat is intended for the sole use of EP ENERGY E&P COMPANY, L.P.

NOTE: Bearings and coordinates refer to the Texas Coordinate System of 1927, Central Zone (4203), as observed by GPS observations

I, Damian M. Jagers do hereby certify that the above described well location was surveyed on the ground under my supervision, as shown.

Damian M. Jagers 2/28/2017

DAMIAN M. JAGERS **DATE**
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 6269

STATE OF TEXAS
REGISTERED
DAMIAN M. JAGERS
6269
PROFESSIONAL
LAND SURVEYOR

N

0 1000 2000
1"=2000'

Tract No.	Lessor	Acreage
1	University Lands	676.40
2	University Lands	676.40
	Total	1352.80

XTS
CROSS TIMBERS SURVEYING, LLC
1503 DARTMOUTH ST, LONGVIEW, TX 75601
Phone: 254-965-8686 Fax: 254-968-5715
www.xtsurvey.com

EP ENERGY E&P COMPANY, L.P.

UNIVERSITY 38 BLOCK UNIT 3819KH
Block 38, Section 19
Block 38, Section 12
Block 38, Section 22
Crockett County, Texas

MS Energy Services™

3335 Pollok Drive
Conroe, Texas 77303

936.442.2500 (Office)
936.442.2599 (Fax)
www.msenergyservices.com

Surveyor Certification Form

Survey company: MS Energy Services
Surveyors name: Aaron Henzen
Survey job type: Rate Gyro
Customer: EP Energy E&P Company, L.P.
Well: University 38 Block Unit 3819KH
API: 42-105-42367
Surveyed from: Surface to a depth of 800' MD
Survey run date: 3/20/2017 to 3/20/2017
Surface location: Crockett County, TX

I certify that the data is true, correct, complete and within the limitations of the tool set forth by MS Energy Services; that I am authorized and qualified to make this report; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by MS Energy Services.

Aaron Henzen

Digitally signed by Aaron Henzen
DN: cn=Aaron Henzen, o=MS Energy Services, ou=MS Survey, email=AHenzen@msenergyservices.com, c=US
Date: 2017.03.30 12:42:15 -05'00'

EP Energy E&P Company, L.P.

Crockett Co, TX
University 3819
38 Block Unit 3819KH
OH

Design: Surveys

Completion Report

15 May, 2017

EP ENERGY

WELL DETAILS: 38 Block Unit 3819KH

Ground Elevation: 2619.00
RKB Elevation: KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Rig Name: Nabors F34

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.00	0.00	496624.460	1765156.860	31° 1' 48.10558 N	101° 4' 59.32517 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
830.00	0.23	80.17	830.00	0.82	-0.26	0.00	0.00	0.82	
1000.00	0.23	80.17	1000.00	0.94	0.41	0.00	0.00	0.94	
1887.46	13.50	116.58	1879.16	-45.30	95.21	1.50	36.99	-45.30	
4385.84	13.50	116.58	4308.54	-306.19	616.67	0.00	0.00	-306.19	
5285.59	0.00	360.00	5200.00	-353.38	711.00	1.50	180.00	-353.38	
6116.59	0.00	360.00	6031.00	-353.38	711.00	0.00	0.00	-353.38	
6859.36	89.13	0.00	6508.41	116.85	711.02	12.00	0.00	116.85	
8471.75	89.13	0.00	6532.83	1729.05	711.09	0.00	0.00	1729.05	3819KH_T1
8495.71	89.61	0.00	6533.09	1753.01	711.09	2.00	0.00	1753.01	
13241.51	89.61	0.00	6565.28	6498.71	711.30	0.00	0.00	6498.71	3819KH_T2
13246.61	89.51	0.00	6565.32	6503.80	711.30	2.00	180.00	6503.80	
17545.64	89.51	0.00	6602.12	10802.68	711.49	0.00	0.00	10802.68	3819KH_BHL

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
3819KH_BHL	6602.12	10802.68	711.49	507427.120	1765868.350
3819KH_FTP	6507.00	118.38	685.09	496742.840	1765841.950
3819KH_T1	6532.83	1729.05	711.09	498353.511	1765867.950
3819KH_T2	6565.28	6498.71	711.30	503123.155	1765868.160

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
6116.59	0.00	0.00	6031.00	-353.38	711.00	-353.38	794.76	KOP -12°/100'
6824.93	85.00	0.00	6506.65	82.47	711.02	82.47	1230.62	85°
6859.36	89.13	0.00	6508.41	116.85	711.02	116.85	1264.99	EOC - Hold Inc. & Azm.

PROJECT DETAILS: Crockett Co, TX
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Texas Central 4203

System Datum: Mean Sea Level
Local North: Grid

Azimuths to Grid North
True North: 0.39°
Magnetic North: 5.85°

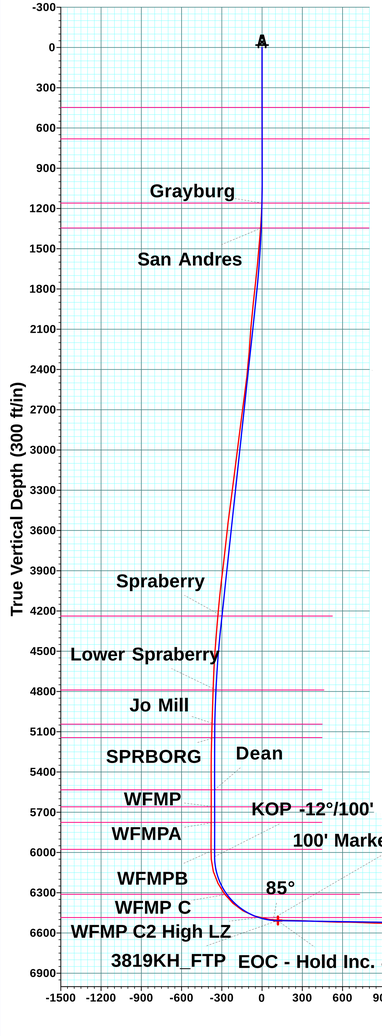
Magnetic Field
Strength: 47583.2snT
Dip Angle: 59.63°
Date: 3/6/2017
Model: HDGM

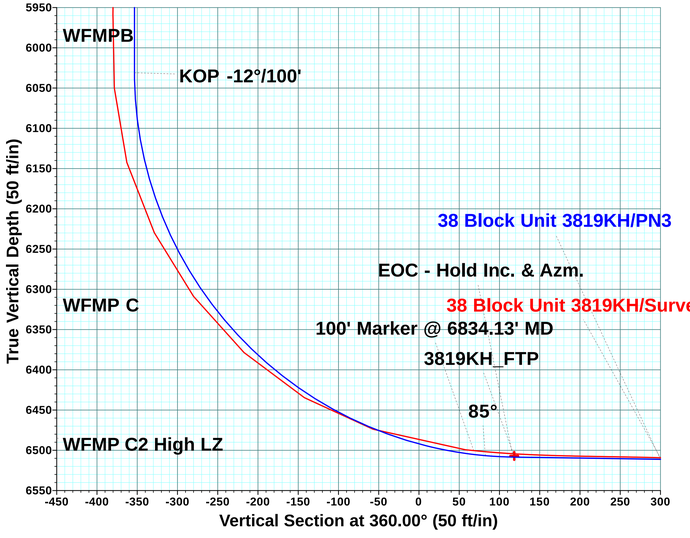
Project: Crockett Co, TX
Site: University 3819
Well: 38 Block Unit 3819KH
Wellbore: OH
Plan: PN3 (38 Block Unit 3819KH/OH)

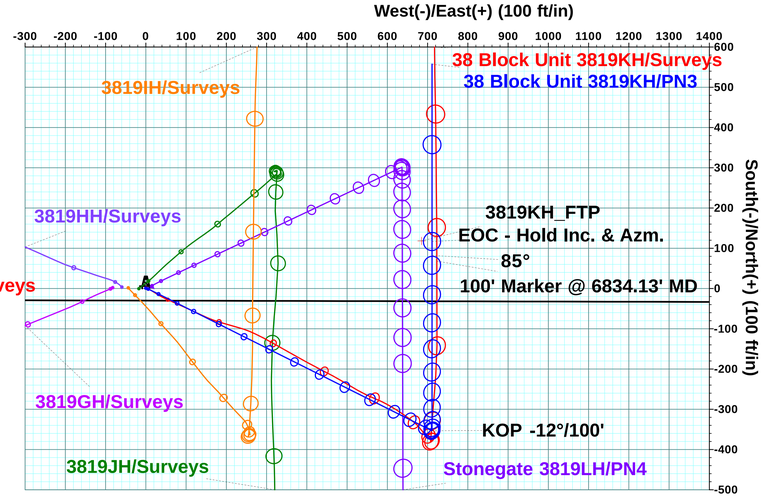
FORMATION TOP DETAILS

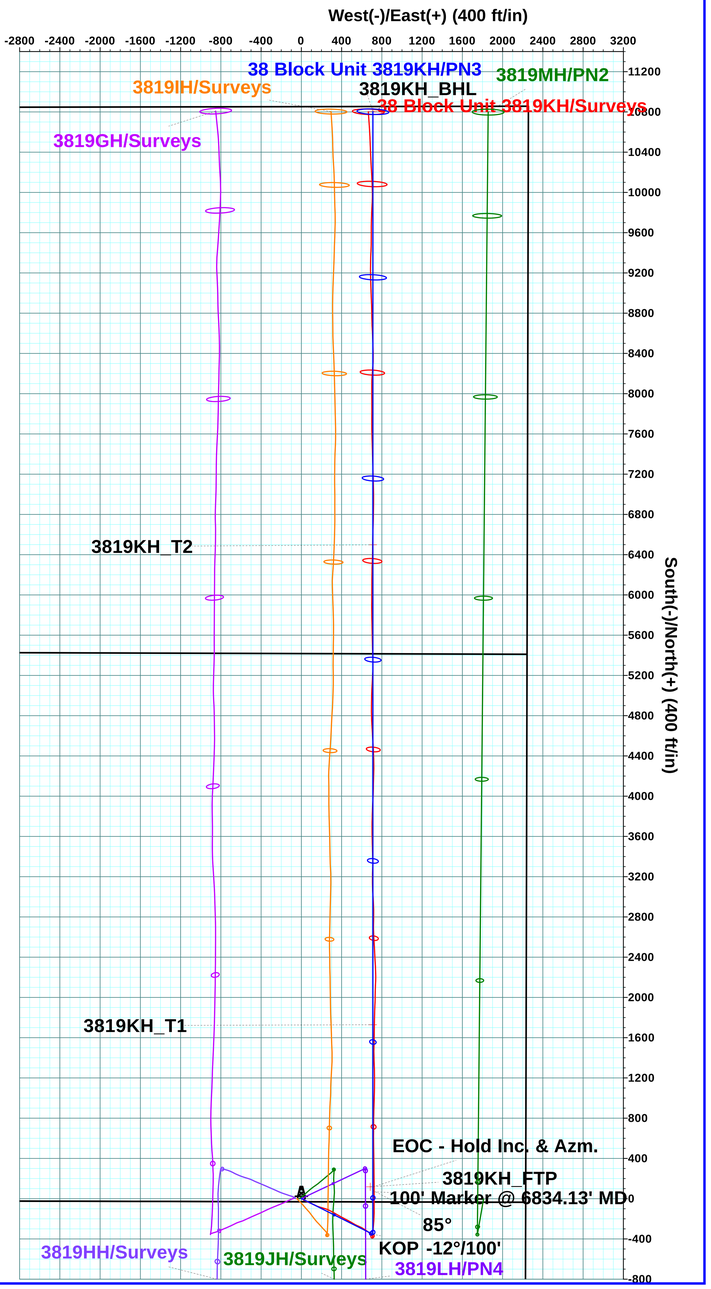
TVDPath	MDPath	Formation
447.00	447.00	Base Cretacous
681.00	681.00	Yates
1160.00	1160.06	Grayburg
1346.00	1346.53	San Andres
4238.00	4313.29	Spraberry
4789.00	4873.80	Lower Spraberry
5044.00	5129.55	Jo Mill
5144.00	5229.59	SPRBORG
5533.00	5618.59	Dean
5660.00	5745.59	WFMP
5776.00	5861.59	WFMPA
5977.00	6062.59	WFMPB
6312.00	6417.03	WFMP C
6485.00	6716.28	WFMP C2 High LZ

NABORS









Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Project Crockett Co, TX, Crockett Co, TX

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas Central 4203		

Site University 3819

Site Position:		**Northing:**	496,894.180 usft	**Latitude:**	31° 1' 50.64154 N
From:	Map	**Easting:**	1,763,159.760 usft	**Longitude:**	101° 5' 22.30053 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.39 °

Well 38 Block Unit 3819KH

Well Position	**+N/-S**	0.00 ft	**Northing:**	496,624.460 usft	**Latitude:**	31° 1' 48.10558 N
	+E/-W	0.00 ft	**Easting:**	1,765,156.860 usft	**Longitude:**	101° 4' 59.32517 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	2,619.00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	3/6/2017	5.47	59.63	47,583.20000000

Design Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	360.00

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey Program **Date** 5/13/2017

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
30.00	830.00	MS Energy (OH)	GYRO-NS	OWSG Gyrocompass Gyro
986.00	17,577.00	NDS MWD (OH)	MWD+HRGM	OWSG MWD + HRGM

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.00	0.00	360.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00
80.00	0.02	343.73	80.00	0.01	0.00	0.01	0.04	0.01	343.73
130.00	0.06	244.47	130.00	0.01	-0.03	0.01	0.13	0.03	280.86
180.00	0.04	319.97	180.00	0.01	-0.06	0.01	0.13	0.06	276.80
230.00	0.08	293.11	230.00	0.03	-0.11	0.03	0.10	0.11	287.98
280.00	0.11	306.76	280.00	0.08	-0.18	0.08	0.07	0.19	293.49
330.00	0.20	282.61	330.00	0.12	-0.30	0.12	0.22	0.33	292.53
380.00	0.36	311.81	380.00	0.25	-0.50	0.25	0.42	0.56	296.29
430.00	0.11	259.52	430.00	0.34	-0.67	0.34	0.61	0.75	297.31
480.00	0.16	301.34	480.00	0.37	-0.77	0.37	0.21	0.86	295.67
530.00	0.08	347.99	530.00	0.44	-0.84	0.44	0.24	0.95	297.75
580.00	0.11	63.22	580.00	0.50	-0.81	0.50	0.24	0.95	301.75
630.00	0.22	47.02	630.00	0.59	-0.69	0.59	0.24	0.91	310.21
680.00	0.13	68.80	680.00	0.67	-0.57	0.67	0.22	0.88	319.70
730.00	0.10	45.74	730.00	0.72	-0.49	0.72	0.11	0.87	326.11
780.00	0.12	61.52	780.00	0.78	-0.41	0.78	0.07	0.88	332.32
830.00	0.23	80.17	830.00	0.82	-0.26	0.82	0.24	0.86	342.21
986.00	0.44	67.72	985.99	1.10	0.60	1.10	0.14	1.25	28.59
1,174.00	4.31	115.89	1,173.80	-1.71	7.63	-1.71	2.14	7.82	102.65
1,361.00	8.25	123.62	1,359.65	-12.21	25.13	-12.21	2.15	27.94	115.92

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
1,549.00	12.13	114.13	1,544.66	-27.76	54.40	-27.76	2.24	61.07	117.04
1,736.00	14.63	113.78	1,726.57	-45.32	93.95	-45.32	1.34	104.31	115.75
1,924.00	14.81	116.06	1,908.40	-65.45	137.26	-65.45	0.32	152.06	115.49
2,112.00	14.69	107.45	2,090.23	-83.16	181.59	-83.16	1.17	199.72	114.60
2,299.00	14.63	104.64	2,271.14	-96.23	227.06	-96.23	0.38	246.61	112.97
2,487.00	15.31	115.71	2,452.80	-113.01	272.40	-113.01	1.56	294.91	112.53
2,675.00	15.50	119.76	2,634.05	-136.24	316.57	-136.24	0.58	344.65	113.29
2,862.00	14.50	119.23	2,814.67	-160.08	358.70	-160.08	0.54	392.79	114.05
3,050.00	14.75	119.23	2,996.58	-183.26	400.12	-183.26	0.13	440.09	114.61
3,238.00	15.31	116.42	3,178.15	-205.99	443.23	-205.99	0.49	488.76	114.93
3,425.00	14.88	120.64	3,358.71	-229.21	486.00	-229.21	0.63	537.34	115.25
3,613.00	14.06	119.93	3,540.74	-252.91	526.56	-252.91	0.45	584.15	115.65
3,800.00	14.50	112.02	3,721.98	-273.02	567.95	-273.02	1.07	630.17	115.67
3,988.00	14.31	120.81	3,904.09	-293.75	609.73	-293.75	1.17	676.80	115.72
4,176.00	10.19	125.38	4,087.78	-315.29	643.26	-315.29	2.25	716.37	116.11
4,363.00	7.38	128.37	4,272.56	-332.32	666.17	-332.32	1.52	744.46	116.51
4,551.00	5.63	144.54	4,459.36	-347.33	680.99	-347.33	1.34	764.45	117.02
4,739.00	4.56	123.45	4,646.63	-358.96	692.58	-358.96	1.14	780.07	117.40
4,926.00	2.81	134.87	4,833.24	-366.29	702.03	-366.29	1.01	791.84	117.55
5,114.00	1.94	143.66	5,021.08	-372.11	707.18	-372.11	0.50	799.10	117.75
5,301.00	1.69	150.34	5,207.99	-377.05	710.42	-377.05	0.17	804.28	117.96
5,489.00	0.50	287.10	5,395.96	-379.22	711.01	-379.22	1.11	805.82	118.07
5,677.00	0.56	277.26	5,583.95	-378.87	709.31	-378.87	0.06	804.15	118.11
5,865.00	0.25	236.65	5,771.95	-378.97	708.06	-378.97	0.22	803.10	118.16
6,052.00	0.63	206.06	5,958.94	-380.12	707.26	-380.12	0.23	802.94	118.26
6,143.00	2.75	7.43	6,049.91	-378.41	707.33	-378.41	3.68	802.19	118.15
6,237.00	16.38	5.15	6,142.39	-362.90	708.82	-362.90	14.50	796.31	117.11

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
6,331.00	26.44	3.74	6,229.79	-328.73	711.38	-328.73	10.72	783.66	114.80
6,424.00	37.06	4.97	6,308.76	-280.01	715.17	-280.01	11.44	768.03	111.38
6,518.00	46.94	4.44	6,378.53	-217.40	720.29	-217.40	10.52	752.38	106.79
6,612.00	59.63	0.58	6,434.63	-142.29	723.37	-142.29	13.89	737.23	101.13
6,706.00	71.00	359.17	6,473.82	-57.02	723.14	-57.02	12.17	725.38	94.51
6,824.00	83.94	0.58	6,499.37	57.92	722.92	57.92	11.03	725.24	85.42
6,834.13	84.38	0.45	6,500.40	68.00	723.01	68.00	4.57	726.21	84.63
100' Marker @ 6834.13' MD									
6,884.91	86.61	359.78	6,504.38	118.62	723.12	118.62	4.57	732.78	80.68
3819KH_FTP									
6,918.00	88.06	359.35	6,505.92	151.67	722.86	151.67	4.57	738.61	78.15
7,012.00	89.25	359.35	6,508.13	245.64	721.80	245.64	1.27	762.45	71.21
7,106.00	87.69	359.70	6,510.64	339.60	721.02	339.60	1.70	796.99	64.78
7,200.00	87.63	358.99	6,514.48	433.51	719.95	433.51	0.76	840.39	58.95
7,293.00	88.00	358.64	6,518.02	526.43	718.02	526.43	0.55	890.33	53.75
7,387.00	90.19	0.22	6,519.51	620.40	717.09	620.40	2.87	948.22	49.13
7,481.00	87.50	0.93	6,521.40	714.37	718.03	714.37	2.96	1,012.86	45.15
7,575.00	87.81	0.40	6,525.25	808.28	719.12	808.28	0.65	1,081.88	41.66
7,668.00	89.69	2.16	6,527.28	901.23	721.20	901.23	2.77	1,154.27	38.67
7,762.00	88.88	1.46	6,528.45	995.17	724.17	995.17	1.14	1,230.77	36.04
7,856.00	89.31	1.10	6,529.93	1,089.14	726.27	1,089.14	0.60	1,309.08	33.70
7,950.00	86.69	0.05	6,533.22	1,183.07	727.21	1,183.07	3.00	1,388.70	31.58
8,044.00	90.31	358.82	6,535.68	1,277.01	726.28	1,277.01	4.07	1,469.10	29.63
8,138.00	88.38	356.71	6,536.75	1,370.92	722.62	1,370.92	3.04	1,549.71	27.79
8,231.00	91.38	0.93	6,536.95	1,463.87	720.70	1,463.87	5.57	1,631.67	26.21
8,325.00	90.13	0.93	6,535.71	1,557.85	722.23	1,557.85	1.33	1,717.12	24.87
8,419.00	89.31	1.63	6,536.17	1,651.82	724.33	1,651.82	1.15	1,803.66	23.68

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
8,495.96	90.33	0.77	6,536.41	1,728.76	725.94	1,728.76	1.74	1,875.00	22.78
3819KH_T1									
8,513.00	90.56	0.58	6,536.27	1,745.80	726.14	1,745.80	1.74	1,890.80	22.58
8,607.00	89.88	1.28	6,535.91	1,839.79	727.67	1,839.79	1.04	1,978.47	21.58
8,700.00	89.94	3.39	6,536.06	1,932.71	731.46	1,932.71	2.27	2,066.49	20.73
8,794.00	89.06	359.70	6,536.88	2,026.65	733.99	2,026.65	4.04	2,155.47	19.91
8,888.00	90.25	3.39	6,537.44	2,120.60	736.53	2,120.60	4.12	2,244.86	19.15
8,982.00	88.38	0.22	6,538.57	2,214.53	739.49	2,214.53	3.92	2,334.73	18.47
9,075.00	88.31	355.83	6,541.26	2,307.41	736.28	2,307.41	4.72	2,422.04	17.70
9,169.00	89.38	357.24	6,543.15	2,401.22	730.60	2,401.22	1.88	2,509.91	16.92
9,263.00	91.19	357.24	6,542.68	2,495.10	726.08	2,495.10	1.93	2,598.60	16.23
9,357.00	89.44	355.83	6,542.17	2,588.92	720.40	2,588.92	2.39	2,687.28	15.55
9,451.00	89.06	359.70	6,543.40	2,682.83	716.73	2,682.83	4.14	2,776.92	14.96
9,545.00	90.69	2.16	6,543.60	2,776.80	718.26	2,776.80	3.14	2,868.19	14.50
9,639.00	90.81	358.12	6,542.37	2,870.78	718.49	2,870.78	4.30	2,959.32	14.05
9,733.00	90.75	357.24	6,541.09	2,964.69	714.68	2,964.69	0.94	3,049.61	13.55
9,826.00	88.50	356.36	6,541.70	3,057.54	709.49	3,057.54	2.60	3,138.77	13.06
9,920.00	88.44	0.05	6,544.21	3,151.44	706.55	3,151.44	3.92	3,229.67	12.64
10,014.00	92.50	2.16	6,543.44	3,245.39	708.36	3,245.39	4.87	3,321.80	12.31
10,108.00	90.81	0.58	6,540.73	3,339.32	710.61	3,339.32	2.46	3,414.09	12.01
10,202.00	86.63	357.06	6,542.83	3,433.24	708.67	3,433.24	5.81	3,505.62	11.66
10,295.00	89.56	358.82	6,545.92	3,526.12	705.33	3,526.12	3.67	3,595.97	11.31
10,389.00	88.69	358.99	6,547.35	3,620.09	703.54	3,620.09	0.94	3,687.82	11.00
10,483.00	89.00	0.40	6,549.25	3,714.07	703.04	3,714.07	1.54	3,780.02	10.72
10,577.00	90.13	2.33	6,549.96	3,808.03	705.28	3,808.03	2.38	3,872.79	10.49
10,671.00	89.50	1.81	6,550.26	3,901.97	708.67	3,901.97	0.87	3,965.80	10.29
10,764.00	89.94	3.04	6,550.72	3,994.88	712.61	3,994.88	1.40	4,057.94	10.11

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
10,858.00	88.81	0.40	6,551.74	4,088.82	715.43	4,088.82	3.05	4,150.94	9.92
10,952.00	89.56	2.33	6,553.08	4,182.78	717.67	4,182.78	2.20	4,243.90	9.74
11,046.00	91.00	0.58	6,552.62	4,276.74	720.05	4,276.74	2.41	4,336.94	9.56
11,140.00	89.69	358.29	6,552.06	4,370.73	719.13	4,370.73	2.81	4,429.49	9.34
11,234.00	89.25	357.06	6,552.93	4,464.65	715.31	4,464.65	1.39	4,521.59	9.10
11,327.00	89.31	356.71	6,554.09	4,557.50	710.26	4,557.50	0.38	4,612.51	8.86
11,421.00	88.88	356.71	6,555.58	4,651.33	704.87	4,651.33	0.46	4,704.44	8.62
11,515.00	88.25	356.53	6,557.93	4,745.14	699.33	4,745.14	0.70	4,796.40	8.38
11,609.00	88.06	0.40	6,560.96	4,839.04	696.81	4,839.04	4.12	4,888.95	8.19
11,703.00	88.19	0.75	6,564.04	4,932.99	697.75	4,932.99	0.40	4,982.09	8.05
11,796.00	90.19	1.98	6,565.35	5,025.94	699.97	5,025.94	2.52	5,074.45	7.93
11,890.00	89.75	3.21	6,565.40	5,119.84	704.22	5,119.84	1.39	5,168.05	7.83
11,984.00	91.44	3.04	6,564.42	5,213.70	709.35	5,213.70	1.81	5,261.73	7.75
12,077.00	92.19	359.87	6,561.48	5,306.61	711.71	5,306.61	3.50	5,354.12	7.64
12,171.00	91.00	358.47	6,558.86	5,400.56	710.35	5,400.56	1.95	5,447.07	7.49
12,265.00	87.75	357.41	6,559.89	5,494.48	706.97	5,494.48	3.64	5,539.77	7.33
12,358.00	91.06	359.52	6,560.85	5,587.42	704.48	5,587.42	4.22	5,631.66	7.19
12,452.00	89.31	358.64	6,560.55	5,681.40	702.97	5,681.40	2.08	5,724.73	7.05
12,546.00	88.06	358.82	6,562.71	5,775.35	700.89	5,775.35	1.34	5,817.73	6.92
12,640.00	89.63	359.70	6,564.60	5,869.32	699.67	5,869.32	1.91	5,910.88	6.80
12,733.00	91.44	1.10	6,563.73	5,962.31	700.32	5,962.31	2.46	6,003.30	6.70
12,827.00	87.31	359.87	6,564.76	6,056.28	701.12	6,056.28	4.58	6,096.73	6.60
12,921.00	88.69	0.40	6,568.04	6,150.22	701.34	6,150.22	1.57	6,190.08	6.51
13,015.00	90.81	1.10	6,568.45	6,244.20	702.57	6,244.20	2.38	6,283.60	6.42
13,109.00	88.00	2.51	6,569.42	6,338.14	705.53	6,338.14	3.34	6,377.29	6.35
13,202.00	87.63	1.10	6,572.97	6,431.02	708.46	6,431.02	1.57	6,469.93	6.29

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
13,269.29	87.27	0.60	6,575.96	6,498.24	709.45	6,498.24	0.91	6,536.86	6.23
3819KH_T2									
13,296.00	87.13	0.40	6,577.27	6,524.92	709.69	6,524.92	0.91	6,563.40	6.21
13,390.00	89.63	1.28	6,579.92	6,618.86	711.06	6,618.86	2.82	6,656.95	6.13
13,484.00	89.56	1.98	6,580.59	6,712.82	713.74	6,712.82	0.75	6,750.66	6.07
13,578.00	88.50	0.58	6,582.18	6,806.78	715.84	6,806.78	1.87	6,844.32	6.00
13,672.00	90.00	1.46	6,583.41	6,900.75	717.51	6,900.75	1.85	6,937.95	5.94
13,765.00	87.50	358.82	6,585.44	6,993.71	717.74	6,993.71	3.91	7,030.45	5.86
13,859.00	87.63	358.82	6,589.43	7,087.61	715.80	7,087.61	0.14	7,123.66	5.77
13,951.00	91.50	358.12	6,590.13	7,179.56	713.35	7,179.56	4.27	7,214.91	5.67
14,045.00	92.50	358.82	6,586.85	7,273.46	710.84	7,273.46	1.30	7,308.12	5.58
14,139.00	90.69	358.29	6,584.23	7,367.39	708.47	7,367.39	2.01	7,401.38	5.49
14,233.00	90.19	358.29	6,583.51	7,461.35	705.67	7,461.35	0.53	7,494.64	5.40
14,326.00	87.44	358.47	6,585.44	7,554.28	703.04	7,554.28	2.96	7,586.93	5.32
14,420.00	88.38	358.47	6,588.86	7,648.19	700.53	7,648.19	1.00	7,680.20	5.23
14,513.00	90.94	1.28	6,589.42	7,741.17	700.33	7,741.17	4.09	7,772.78	5.17
14,607.00	91.00	0.05	6,587.82	7,835.14	701.42	7,835.14	1.31	7,866.48	5.12
14,701.00	91.88	359.52	6,585.46	7,929.11	701.07	7,929.11	1.09	7,960.05	5.05
14,795.00	88.63	359.52	6,585.04	8,023.10	700.28	8,023.10	3.46	8,053.60	4.99
14,889.00	89.50	1.10	6,586.58	8,117.08	700.79	8,117.08	1.92	8,147.27	4.93
14,982.00	90.06	5.15	6,586.93	8,209.92	705.86	8,209.92	4.40	8,240.21	4.91
15,076.00	89.38	3.04	6,587.39	8,303.67	712.57	8,303.67	2.36	8,334.19	4.90
15,170.00	89.31	358.29	6,588.47	8,397.63	713.66	8,397.63	5.05	8,427.90	4.86
15,264.00	90.50	359.17	6,588.63	8,491.61	711.57	8,491.61	1.57	8,521.37	4.79
15,358.00	86.81	356.89	6,590.83	8,585.50	708.35	8,585.50	4.61	8,614.68	4.72
15,451.00	87.25	356.53	6,595.65	8,678.23	703.02	8,678.23	0.61	8,706.65	4.63
15,545.00	90.31	0.58	6,597.65	8,772.14	700.65	8,772.14	5.40	8,800.08	4.57

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

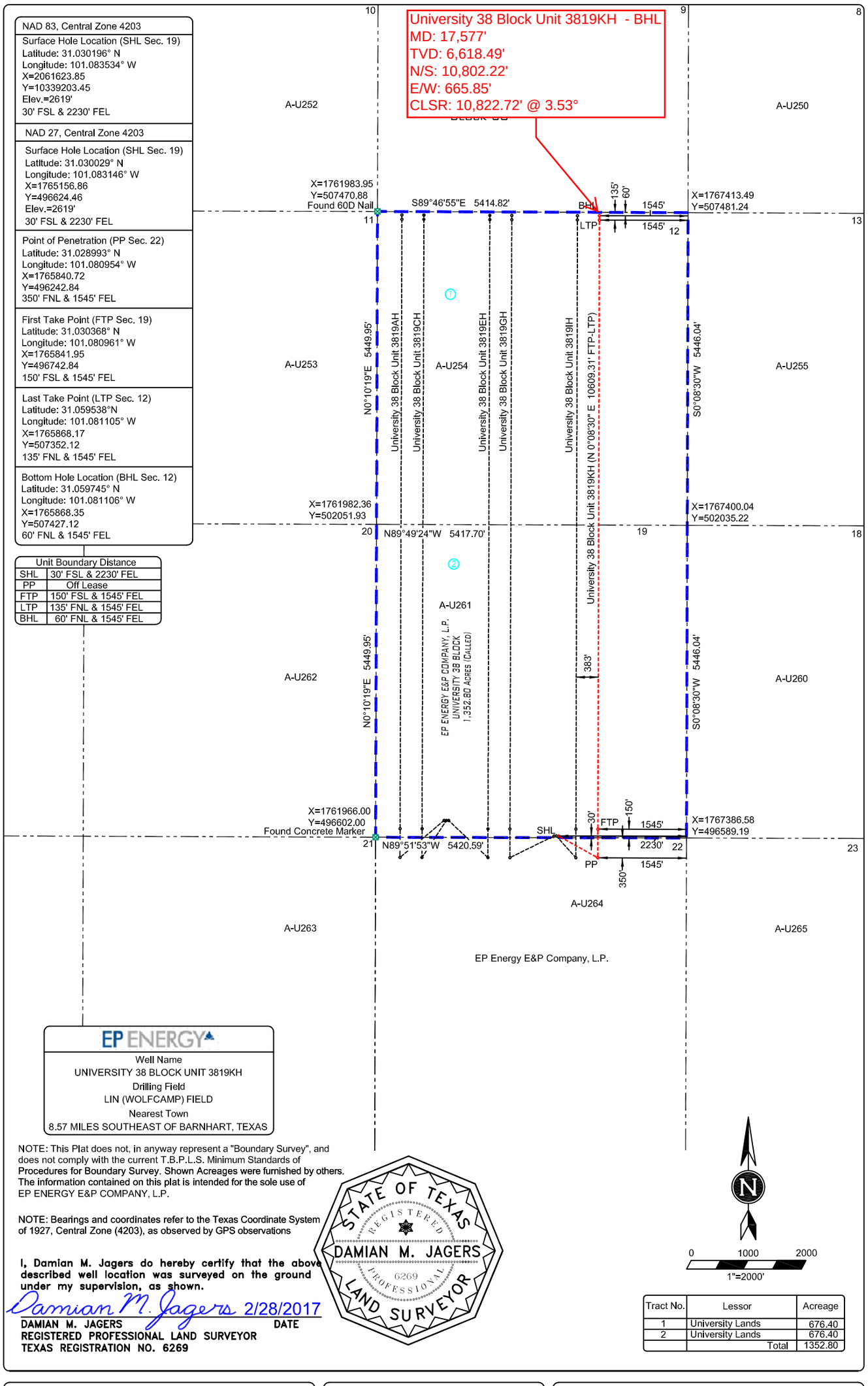
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
15,639.00	88.75	357.24	6,598.42	8,866.11	698.86	8,866.11	3.92	8,893.61	4.51
15,733.00	89.31	357.94	6,600.01	8,960.01	694.91	8,960.01	0.95	8,986.92	4.43
15,826.00	90.25	358.29	6,600.37	9,052.96	691.85	9,052.96	1.08	9,079.36	4.37
15,920.00	88.94	357.76	6,601.04	9,146.90	688.61	9,146.90	1.50	9,172.78	4.31
16,014.00	89.94	0.93	6,601.96	9,240.87	687.54	9,240.87	3.54	9,266.41	4.26
16,108.00	88.56	0.93	6,603.19	9,334.85	689.06	9,334.85	1.47	9,360.25	4.22
16,202.00	90.69	3.39	6,603.80	9,428.77	692.61	9,428.77	3.46	9,454.17	4.20
16,295.00	90.19	359.87	6,603.09	9,521.71	695.25	9,521.71	3.82	9,547.06	4.18
16,389.00	90.31	359.87	6,602.68	9,615.71	695.04	9,615.71	0.13	9,640.80	4.13
16,483.00	90.06	1.63	6,602.37	9,709.70	696.27	9,709.70	1.89	9,734.63	4.10
16,577.00	88.19	2.33	6,603.81	9,803.63	699.51	9,803.63	2.12	9,828.55	4.08
16,671.00	88.81	3.39	6,606.27	9,897.48	704.20	9,897.48	1.31	9,922.50	4.07
16,765.00	88.94	359.17	6,608.12	9,991.41	706.30	9,991.41	4.49	10,016.35	4.04
16,858.00	89.63	357.94	6,609.28	10,084.38	703.96	10,084.38	1.52	10,108.92	3.99
16,952.00	89.81	356.36	6,609.74	10,178.25	699.28	10,178.25	1.69	10,202.25	3.93
17,046.00	88.81	356.71	6,610.87	10,272.07	693.60	10,272.07	1.13	10,295.47	3.86
17,140.00	89.00	357.59	6,612.66	10,365.94	688.93	10,365.94	0.96	10,388.81	3.80
17,234.00	89.81	358.29	6,613.64	10,459.87	685.55	10,459.87	1.14	10,482.31	3.75
17,327.00	90.50	357.06	6,613.39	10,552.79	681.78	10,552.79	1.52	10,574.79	3.70
17,422.00	88.44	356.18	6,614.27	10,647.62	676.18	10,647.62	2.36	10,669.07	3.63
17,573.98	88.44	356.18	6,618.40	10,799.20	666.06	10,799.20	0.00	10,819.72	3.53
3819KH_BHL									
17,577.00	88.44	356.18	6,618.49	10,802.22	665.85	10,802.22	0.00	10,822.72	3.53
PTB									

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
6,834.13	6,500.40	68.00	723.01	100' Marker @ 6834.13' MD
17,577.00	6,618.49	10,802.22	665.85	PTB

Checked By: _____ Approved By: _____ Date: _____



XTS Cross Timbers Surveying, LLC
1503 DARTMOUTH ST, LONGVIEW, TX 75601
Phone: 254-965-8686 Fax: 254-968-5715
www.xtsurvey.com

EP ENERGY E&P COMPANY, L.P.

UNIVERSITY 38 BLOCK UNIT 3819KH
Block 38, Section 19
Block 38, Section 12
Block 38, Section 22
Crockett County, Texas

NABORS DRILLING TECHNOLOGIES USA, INC.
515 West Greens Road
Houston, TX 77067
Phone: 281.874.0035
Fax: 281.872.5205

Sunday, May 14, 2017

Railroad Commission of Texas
Oil and Gas Division
PO Box 12967
Capitol Station
Austin, TX 78711-2967

Subject: **Survey Certification Letter**

Attention: **Pam Johns**

Survey Company: **NABORS DRILLING TECH USA, INC.**
Job Number: **T2987**
Survey Job Type: **Nabors MWD**
Customer: **EP Energy E&P Company**
Well Name: **University 38 Block Unit 3819 KH**
Rig Name: **Nabors F-34**

Operator #: **598880**
Surface: **31°1' 48.10558N / 101°4' 59.32517W**
A.P.I. No: **42-105-42367**
Location: **Crockett, Tx**
RKB Height: **30'**
Distance to Bit: **51'**

Surveyor Name	*Surveyor Title*	*Borehole Number*	*Start Depth*	*End Depth*	*Start Date*	*End Date*	*Type of*	*TD Straight Line Projection*
KRIS SEALS	Wellbore Navigation Specialist	OH	830'	17422'	05/07/17	05/13/17	MWD	17577'

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by NABORS DRILLING TECHNOLOGIES USA, INC. I am authorized and qualified to review the data, calculations and these reports; the reports represents true and correct Directional Surveys of this well based on the original data, the minimum curvature method, corrected to Grid North and obtained at the well site.

KRIS SEALS
Wellbore Navigation Specialist
NABORS DRILLING TECHNOLOGIES USA, INC.

EP Energy E&P Company, L.P.

Crockett Co, TX
University 3819
38 Block Unit 3819KH
OH

Design: Surveys

Completion Report

15 May, 2017

EP ENERGY

WELL DETAILS: 38 Block Unit 3819KH

Ground Elevation: 2619.00
RKB Elevation: KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Rig Name: Nabors F34

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.00	0.00	496624.460	1765156.860	31° 1' 48.10558 N	101° 4' 59.32517 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
830.00	0.23	80.17	830.00	0.82	-0.26	0.00	0.00	0.82	
1000.00	0.23	80.17	1000.00	0.94	0.41	0.00	0.00	0.94	
1887.46	13.50	116.58	1879.16	-45.30	95.21	1.50	36.99	-45.30	
4385.84	13.50	116.58	4308.54	-306.19	616.67	0.00	0.00	-306.19	
5285.59	0.00	360.00	5200.00	-353.38	711.00	1.50	180.00	-353.38	
6116.59	0.00	360.00	6031.00	-353.38	711.00	0.00	0.00	-353.38	
6859.36	89.13	0.00	6508.41	116.85	711.02	12.00	0.00	116.85	
8471.75	89.13	0.00	6532.83	1729.05	711.09	0.00	0.00	1729.05	3819KH_T1
8495.71	89.61	0.00	6533.09	1753.01	711.09	2.00	0.00	1753.01	
13241.51	89.61	0.00	6565.28	6498.71	711.30	0.00	0.00	6498.71	3819KH_T2
13246.61	89.51	0.00	6565.32	6503.80	711.30	2.00	180.00	6503.80	
17545.64	89.51	0.00	6602.12	10802.68	711.49	0.00	0.00	10802.68	3819KH_BHL

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
3819KH_BHL	6602.12	10802.68	711.49	507427.120	1765868.350
3819KH_FTP	6507.00	118.38	685.09	496742.840	1765841.950
3819KH_T1	6532.83	1729.05	711.09	498353.511	1765867.950
3819KH_T2	6565.28	6498.71	711.30	503123.155	1765868.160

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
6116.59	0.00	0.00	6031.00	-353.38	711.00	-353.38	794.76	KOP -12°/100'
6824.93	85.00	0.00	6506.65	82.47	711.02	82.47	1230.62	85°
6859.36	89.13	0.00	6508.41	116.85	711.02	116.85	1264.99	EOC - Hold Inc. & Azm.

PROJECT DETAILS: Crockett Co, TX
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Texas Central 4203

System Datum: Mean Sea Level
Local North: Grid

Azimuths to Grid North
True North: 0.39°
Magnetic North: 5.85°

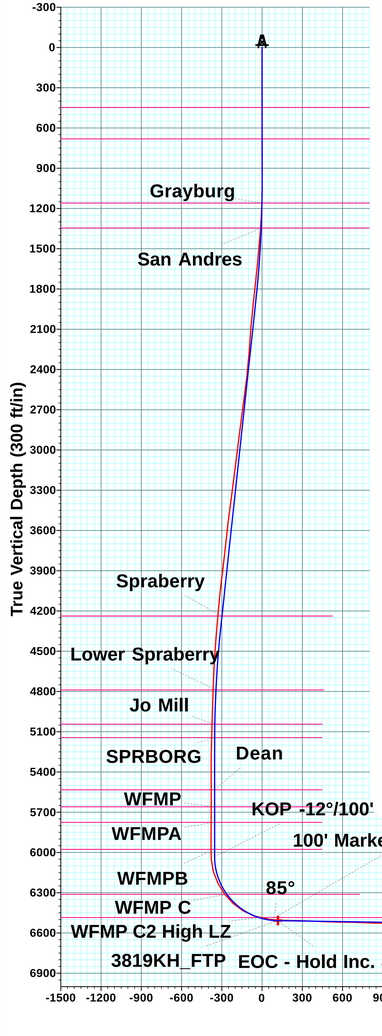
Magnetic Field
Strength: 47583.2snT
Dip Angle: 59.63°
Date: 3/6/2017
Model: HDGM

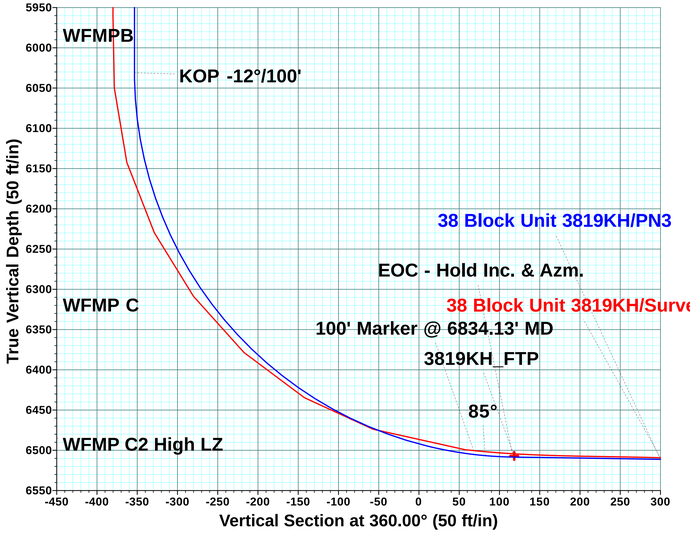
Project: Crockett Co, TX
Site: University 3819
Well: 38 Block Unit 3819KH
Wellbore: OH
Plan: PN3 (38 Block Unit 3819KH/OH)

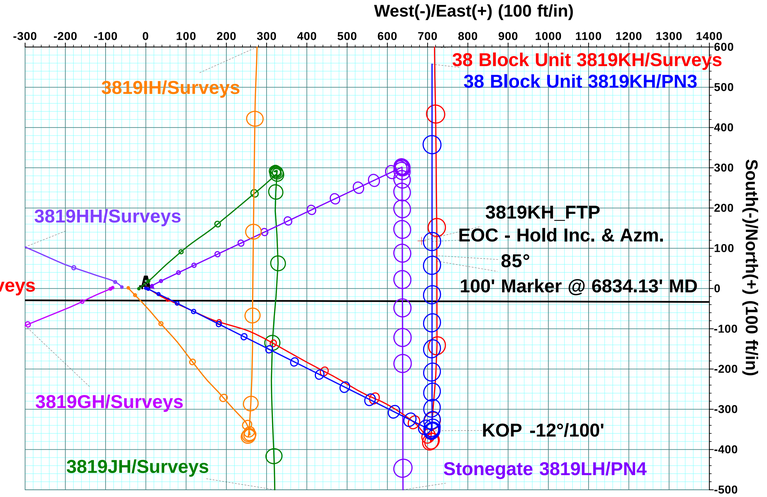
FORMATION TOP DETAILS

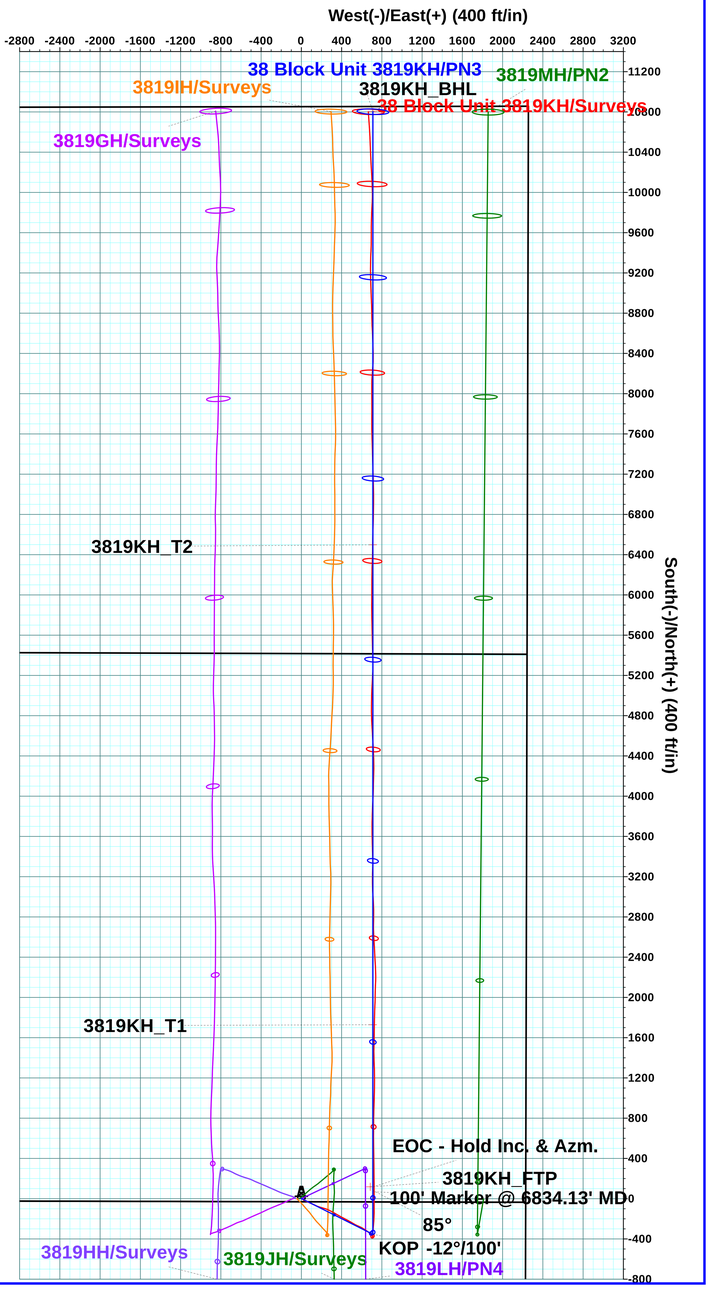
TVDPath	MDPath	Formation
447.00	447.00	Base Cretacous
681.00	681.00	Yates
1160.00	1160.06	Grayburg
1346.00	1346.53	San Andres
4238.00	4313.29	Spraberry
4789.00	4873.80	Lower Spraberry
5044.00	5129.55	Jo Mill
5144.00	5229.59	SPRBORG
5533.00	5618.59	Dean
5660.00	5745.59	WFMP
5776.00	5861.59	WFMPA
5977.00	6062.59	WFMPB
6312.00	6417.03	WFMP C
6485.00	6716.28	WFMP C2 High LZ

NABORS









Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Project Crockett Co, TX, Crockett Co, TX

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas Central 4203		

Site University 3819

Site Position:		**Northing:**	496,894.180 usft	**Latitude:**	31° 1' 50.64154 N
From:	Map	**Easting:**	1,763,159.760 usft	**Longitude:**	101° 5' 22.30053 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.39 °

Well 38 Block Unit 3819KH

Well Position	**+N/-S**	0.00 ft	**Northing:**	496,624.460 usft	**Latitude:**	31° 1' 48.10558 N
	+E/-W	0.00 ft	**Easting:**	1,765,156.860 usft	**Longitude:**	101° 4' 59.32517 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	2,619.00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	3/6/2017	5.47	59.63	47,583.20000000

Design Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	360.00

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey Program **Date** 5/13/2017

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
30.00	830.00	MS Energy (OH)	GYRO-NS	OWSG Gyrocompass Gyro
986.00	17,577.00	NDS MWD (OH)	MWD+HRGM	OWSG MWD + HRGM

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.00	0.00	360.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00
80.00	0.02	343.73	80.00	0.01	0.00	0.01	0.04	0.01	343.73
130.00	0.06	244.47	130.00	0.01	-0.03	0.01	0.13	0.03	280.86
180.00	0.04	319.97	180.00	0.01	-0.06	0.01	0.13	0.06	276.80
230.00	0.08	293.11	230.00	0.03	-0.11	0.03	0.10	0.11	287.98
280.00	0.11	306.76	280.00	0.08	-0.18	0.08	0.07	0.19	293.49
330.00	0.20	282.61	330.00	0.12	-0.30	0.12	0.22	0.33	292.53
380.00	0.36	311.81	380.00	0.25	-0.50	0.25	0.42	0.56	296.29
430.00	0.11	259.52	430.00	0.34	-0.67	0.34	0.61	0.75	297.31
480.00	0.16	301.34	480.00	0.37	-0.77	0.37	0.21	0.86	295.67
530.00	0.08	347.99	530.00	0.44	-0.84	0.44	0.24	0.95	297.75
580.00	0.11	63.22	580.00	0.50	-0.81	0.50	0.24	0.95	301.75
630.00	0.22	47.02	630.00	0.59	-0.69	0.59	0.24	0.91	310.21
680.00	0.13	68.80	680.00	0.67	-0.57	0.67	0.22	0.88	319.70
730.00	0.10	45.74	730.00	0.72	-0.49	0.72	0.11	0.87	326.11
780.00	0.12	61.52	780.00	0.78	-0.41	0.78	0.07	0.88	332.32
830.00	0.23	80.17	830.00	0.82	-0.26	0.82	0.24	0.86	342.21
986.00	0.44	67.72	985.99	1.10	0.60	1.10	0.14	1.25	28.59
1,174.00	4.31	115.89	1,173.80	-1.71	7.63	-1.71	2.14	7.82	102.65
1,361.00	8.25	123.62	1,359.65	-12.21	25.13	-12.21	2.15	27.94	115.92

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
1,549.00	12.13	114.13	1,544.66	-27.76	54.40	-27.76	2.24	61.07	117.04
1,736.00	14.63	113.78	1,726.57	-45.32	93.95	-45.32	1.34	104.31	115.75
1,924.00	14.81	116.06	1,908.40	-65.45	137.26	-65.45	0.32	152.06	115.49
2,112.00	14.69	107.45	2,090.23	-83.16	181.59	-83.16	1.17	199.72	114.60
2,299.00	14.63	104.64	2,271.14	-96.23	227.06	-96.23	0.38	246.61	112.97
2,487.00	15.31	115.71	2,452.80	-113.01	272.40	-113.01	1.56	294.91	112.53
2,675.00	15.50	119.76	2,634.05	-136.24	316.57	-136.24	0.58	344.65	113.29
2,862.00	14.50	119.23	2,814.67	-160.08	358.70	-160.08	0.54	392.79	114.05
3,050.00	14.75	119.23	2,996.58	-183.26	400.12	-183.26	0.13	440.09	114.61
3,238.00	15.31	116.42	3,178.15	-205.99	443.23	-205.99	0.49	488.76	114.93
3,425.00	14.88	120.64	3,358.71	-229.21	486.00	-229.21	0.63	537.34	115.25
3,613.00	14.06	119.93	3,540.74	-252.91	526.56	-252.91	0.45	584.15	115.65
3,800.00	14.50	112.02	3,721.98	-273.02	567.95	-273.02	1.07	630.17	115.67
3,988.00	14.31	120.81	3,904.09	-293.75	609.73	-293.75	1.17	676.80	115.72
4,176.00	10.19	125.38	4,087.78	-315.29	643.26	-315.29	2.25	716.37	116.11
4,363.00	7.38	128.37	4,272.56	-332.32	666.17	-332.32	1.52	744.46	116.51
4,551.00	5.63	144.54	4,459.36	-347.33	680.99	-347.33	1.34	764.45	117.02
4,739.00	4.56	123.45	4,646.63	-358.96	692.58	-358.96	1.14	780.07	117.40
4,926.00	2.81	134.87	4,833.24	-366.29	702.03	-366.29	1.01	791.84	117.55
5,114.00	1.94	143.66	5,021.08	-372.11	707.18	-372.11	0.50	799.10	117.75
5,301.00	1.69	150.34	5,207.99	-377.05	710.42	-377.05	0.17	804.28	117.96
5,489.00	0.50	287.10	5,395.96	-379.22	711.01	-379.22	1.11	805.82	118.07
5,677.00	0.56	277.26	5,583.95	-378.87	709.31	-378.87	0.06	804.15	118.11
5,865.00	0.25	236.65	5,771.95	-378.97	708.06	-378.97	0.22	803.10	118.16
6,052.00	0.63	206.06	5,958.94	-380.12	707.26	-380.12	0.23	802.94	118.26
6,143.00	2.75	7.43	6,049.91	-378.41	707.33	-378.41	3.68	802.19	118.15
6,237.00	16.38	5.15	6,142.39	-362.90	708.82	-362.90	14.50	796.31	117.11

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
6,331.00	26.44	3.74	6,229.79	-328.73	711.38	-328.73	10.72	783.66	114.80
6,424.00	37.06	4.97	6,308.76	-280.01	715.17	-280.01	11.44	768.03	111.38
6,518.00	46.94	4.44	6,378.53	-217.40	720.29	-217.40	10.52	752.38	106.79
6,612.00	59.63	0.58	6,434.63	-142.29	723.37	-142.29	13.89	737.23	101.13
6,706.00	71.00	359.17	6,473.82	-57.02	723.14	-57.02	12.17	725.38	94.51
6,824.00	83.94	0.58	6,499.37	57.92	722.92	57.92	11.03	725.24	85.42
6,834.13	84.38	0.45	6,500.40	68.00	723.01	68.00	4.57	726.21	84.63
100' Marker @ 6834.13' MD									
6,884.91	86.61	359.78	6,504.38	118.62	723.12	118.62	4.57	732.78	80.68
3819KH_FTP									
6,918.00	88.06	359.35	6,505.92	151.67	722.86	151.67	4.57	738.61	78.15
7,012.00	89.25	359.35	6,508.13	245.64	721.80	245.64	1.27	762.45	71.21
7,106.00	87.69	359.70	6,510.64	339.60	721.02	339.60	1.70	796.99	64.78
7,200.00	87.63	358.99	6,514.48	433.51	719.95	433.51	0.76	840.39	58.95
7,293.00	88.00	358.64	6,518.02	526.43	718.02	526.43	0.55	890.33	53.75
7,387.00	90.19	0.22	6,519.51	620.40	717.09	620.40	2.87	948.22	49.13
7,481.00	87.50	0.93	6,521.40	714.37	718.03	714.37	2.96	1,012.86	45.15
7,575.00	87.81	0.40	6,525.25	808.28	719.12	808.28	0.65	1,081.88	41.66
7,668.00	89.69	2.16	6,527.28	901.23	721.20	901.23	2.77	1,154.27	38.67
7,762.00	88.88	1.46	6,528.45	995.17	724.17	995.17	1.14	1,230.77	36.04
7,856.00	89.31	1.10	6,529.93	1,089.14	726.27	1,089.14	0.60	1,309.08	33.70
7,950.00	86.69	0.05	6,533.22	1,183.07	727.21	1,183.07	3.00	1,388.70	31.58
8,044.00	90.31	358.82	6,535.68	1,277.01	726.28	1,277.01	4.07	1,469.10	29.63
8,138.00	88.38	356.71	6,536.75	1,370.92	722.62	1,370.92	3.04	1,549.71	27.79
8,231.00	91.38	0.93	6,536.95	1,463.87	720.70	1,463.87	5.57	1,631.67	26.21
8,325.00	90.13	0.93	6,535.71	1,557.85	722.23	1,557.85	1.33	1,717.12	24.87
8,419.00	89.31	1.63	6,536.17	1,651.82	724.33	1,651.82	1.15	1,803.66	23.68

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
8,495.96	90.33	0.77	6,536.41	1,728.76	725.94	1,728.76	1.74	1,875.00	22.78
3819KH_T1									
8,513.00	90.56	0.58	6,536.27	1,745.80	726.14	1,745.80	1.74	1,890.80	22.58
8,607.00	89.88	1.28	6,535.91	1,839.79	727.67	1,839.79	1.04	1,978.47	21.58
8,700.00	89.94	3.39	6,536.06	1,932.71	731.46	1,932.71	2.27	2,066.49	20.73
8,794.00	89.06	359.70	6,536.88	2,026.65	733.99	2,026.65	4.04	2,155.47	19.91
8,888.00	90.25	3.39	6,537.44	2,120.60	736.53	2,120.60	4.12	2,244.86	19.15
8,982.00	88.38	0.22	6,538.57	2,214.53	739.49	2,214.53	3.92	2,334.73	18.47
9,075.00	88.31	355.83	6,541.26	2,307.41	736.28	2,307.41	4.72	2,422.04	17.70
9,169.00	89.38	357.24	6,543.15	2,401.22	730.60	2,401.22	1.88	2,509.91	16.92
9,263.00	91.19	357.24	6,542.68	2,495.10	726.08	2,495.10	1.93	2,598.60	16.23
9,357.00	89.44	355.83	6,542.17	2,588.92	720.40	2,588.92	2.39	2,687.28	15.55
9,451.00	89.06	359.70	6,543.40	2,682.83	716.73	2,682.83	4.14	2,776.92	14.96
9,545.00	90.69	2.16	6,543.60	2,776.80	718.26	2,776.80	3.14	2,868.19	14.50
9,639.00	90.81	358.12	6,542.37	2,870.78	718.49	2,870.78	4.30	2,959.32	14.05
9,733.00	90.75	357.24	6,541.09	2,964.69	714.68	2,964.69	0.94	3,049.61	13.55
9,826.00	88.50	356.36	6,541.70	3,057.54	709.49	3,057.54	2.60	3,138.77	13.06
9,920.00	88.44	0.05	6,544.21	3,151.44	706.55	3,151.44	3.92	3,229.67	12.64
10,014.00	92.50	2.16	6,543.44	3,245.39	708.36	3,245.39	4.87	3,321.80	12.31
10,108.00	90.81	0.58	6,540.73	3,339.32	710.61	3,339.32	2.46	3,414.09	12.01
10,202.00	86.63	357.06	6,542.83	3,433.24	708.67	3,433.24	5.81	3,505.62	11.66
10,295.00	89.56	358.82	6,545.92	3,526.12	705.33	3,526.12	3.67	3,595.97	11.31
10,389.00	88.69	358.99	6,547.35	3,620.09	703.54	3,620.09	0.94	3,687.82	11.00
10,483.00	89.00	0.40	6,549.25	3,714.07	703.04	3,714.07	1.54	3,780.02	10.72
10,577.00	90.13	2.33	6,549.96	3,808.03	705.28	3,808.03	2.38	3,872.79	10.49
10,671.00	89.50	1.81	6,550.26	3,901.97	708.67	3,901.97	0.87	3,965.80	10.29
10,764.00	89.94	3.04	6,550.72	3,994.88	712.61	3,994.88	1.40	4,057.94	10.11

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
10,858.00	88.81	0.40	6,551.74	4,088.82	715.43	4,088.82	3.05	4,150.94	9.92
10,952.00	89.56	2.33	6,553.08	4,182.78	717.67	4,182.78	2.20	4,243.90	9.74
11,046.00	91.00	0.58	6,552.62	4,276.74	720.05	4,276.74	2.41	4,336.94	9.56
11,140.00	89.69	358.29	6,552.06	4,370.73	719.13	4,370.73	2.81	4,429.49	9.34
11,234.00	89.25	357.06	6,552.93	4,464.65	715.31	4,464.65	1.39	4,521.59	9.10
11,327.00	89.31	356.71	6,554.09	4,557.50	710.26	4,557.50	0.38	4,612.51	8.86
11,421.00	88.88	356.71	6,555.58	4,651.33	704.87	4,651.33	0.46	4,704.44	8.62
11,515.00	88.25	356.53	6,557.93	4,745.14	699.33	4,745.14	0.70	4,796.40	8.38
11,609.00	88.06	0.40	6,560.96	4,839.04	696.81	4,839.04	4.12	4,888.95	8.19
11,703.00	88.19	0.75	6,564.04	4,932.99	697.75	4,932.99	0.40	4,982.09	8.05
11,796.00	90.19	1.98	6,565.35	5,025.94	699.97	5,025.94	2.52	5,074.45	7.93
11,890.00	89.75	3.21	6,565.40	5,119.84	704.22	5,119.84	1.39	5,168.05	7.83
11,984.00	91.44	3.04	6,564.42	5,213.70	709.35	5,213.70	1.81	5,261.73	7.75
12,077.00	92.19	359.87	6,561.48	5,306.61	711.71	5,306.61	3.50	5,354.12	7.64
12,171.00	91.00	358.47	6,558.86	5,400.56	710.35	5,400.56	1.95	5,447.07	7.49
12,265.00	87.75	357.41	6,559.89	5,494.48	706.97	5,494.48	3.64	5,539.77	7.33
12,358.00	91.06	359.52	6,560.85	5,587.42	704.48	5,587.42	4.22	5,631.66	7.19
12,452.00	89.31	358.64	6,560.55	5,681.40	702.97	5,681.40	2.08	5,724.73	7.05
12,546.00	88.06	358.82	6,562.71	5,775.35	700.89	5,775.35	1.34	5,817.73	6.92
12,640.00	89.63	359.70	6,564.60	5,869.32	699.67	5,869.32	1.91	5,910.88	6.80
12,733.00	91.44	1.10	6,563.73	5,962.31	700.32	5,962.31	2.46	6,003.30	6.70
12,827.00	87.31	359.87	6,564.76	6,056.28	701.12	6,056.28	4.58	6,096.73	6.60
12,921.00	88.69	0.40	6,568.04	6,150.22	701.34	6,150.22	1.57	6,190.08	6.51
13,015.00	90.81	1.10	6,568.45	6,244.20	702.57	6,244.20	2.38	6,283.60	6.42
13,109.00	88.00	2.51	6,569.42	6,338.14	705.53	6,338.14	3.34	6,377.29	6.35
13,202.00	87.63	1.10	6,572.97	6,431.02	708.46	6,431.02	1.57	6,469.93	6.29

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
13,269.29	87.27	0.60	6,575.96	6,498.24	709.45	6,498.24	0.91	6,536.86	6.23
3819KH_T2									
13,296.00	87.13	0.40	6,577.27	6,524.92	709.69	6,524.92	0.91	6,563.40	6.21
13,390.00	89.63	1.28	6,579.92	6,618.86	711.06	6,618.86	2.82	6,656.95	6.13
13,484.00	89.56	1.98	6,580.59	6,712.82	713.74	6,712.82	0.75	6,750.66	6.07
13,578.00	88.50	0.58	6,582.18	6,806.78	715.84	6,806.78	1.87	6,844.32	6.00
13,672.00	90.00	1.46	6,583.41	6,900.75	717.51	6,900.75	1.85	6,937.95	5.94
13,765.00	87.50	358.82	6,585.44	6,993.71	717.74	6,993.71	3.91	7,030.45	5.86
13,859.00	87.63	358.82	6,589.43	7,087.61	715.80	7,087.61	0.14	7,123.66	5.77
13,951.00	91.50	358.12	6,590.13	7,179.56	713.35	7,179.56	4.27	7,214.91	5.67
14,045.00	92.50	358.82	6,586.85	7,273.46	710.84	7,273.46	1.30	7,308.12	5.58
14,139.00	90.69	358.29	6,584.23	7,367.39	708.47	7,367.39	2.01	7,401.38	5.49
14,233.00	90.19	358.29	6,583.51	7,461.35	705.67	7,461.35	0.53	7,494.64	5.40
14,326.00	87.44	358.47	6,585.44	7,554.28	703.04	7,554.28	2.96	7,586.93	5.32
14,420.00	88.38	358.47	6,588.86	7,648.19	700.53	7,648.19	1.00	7,680.20	5.23
14,513.00	90.94	1.28	6,589.42	7,741.17	700.33	7,741.17	4.09	7,772.78	5.17
14,607.00	91.00	0.05	6,587.82	7,835.14	701.42	7,835.14	1.31	7,866.48	5.12
14,701.00	91.88	359.52	6,585.46	7,929.11	701.07	7,929.11	1.09	7,960.05	5.05
14,795.00	88.63	359.52	6,585.04	8,023.10	700.28	8,023.10	3.46	8,053.60	4.99
14,889.00	89.50	1.10	6,586.58	8,117.08	700.79	8,117.08	1.92	8,147.27	4.93
14,982.00	90.06	5.15	6,586.93	8,209.92	705.86	8,209.92	4.40	8,240.21	4.91
15,076.00	89.38	3.04	6,587.39	8,303.67	712.57	8,303.67	2.36	8,334.19	4.90
15,170.00	89.31	358.29	6,588.47	8,397.63	713.66	8,397.63	5.05	8,427.90	4.86
15,264.00	90.50	359.17	6,588.63	8,491.61	711.57	8,491.61	1.57	8,521.37	4.79
15,358.00	86.81	356.89	6,590.83	8,585.50	708.35	8,585.50	4.61	8,614.68	4.72
15,451.00	87.25	356.53	6,595.65	8,678.23	703.02	8,678.23	0.61	8,706.65	4.63
15,545.00	90.31	0.58	6,597.65	8,772.14	700.65	8,772.14	5.40	8,800.08	4.57

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Survey

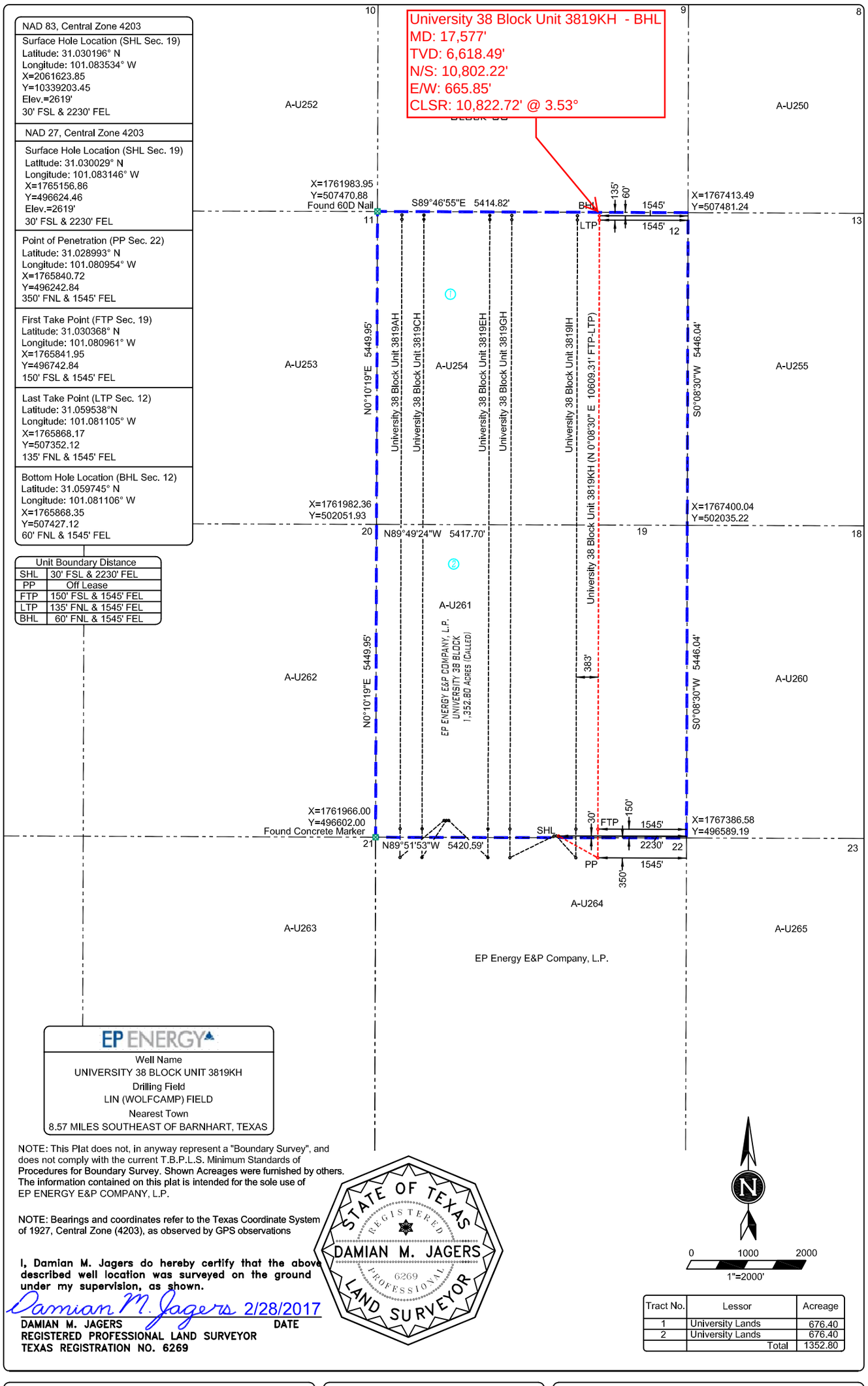
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Closure Distance (ft)	Closure Azimuth (°)
15,639.00	88.75	357.24	6,598.42	8,866.11	698.86	8,866.11	3.92	8,893.61	4.51
15,733.00	89.31	357.94	6,600.01	8,960.01	694.91	8,960.01	0.95	8,986.92	4.43
15,826.00	90.25	358.29	6,600.37	9,052.96	691.85	9,052.96	1.08	9,079.36	4.37
15,920.00	88.94	357.76	6,601.04	9,146.90	688.61	9,146.90	1.50	9,172.78	4.31
16,014.00	89.94	0.93	6,601.96	9,240.87	687.54	9,240.87	3.54	9,266.41	4.26
16,108.00	88.56	0.93	6,603.19	9,334.85	689.06	9,334.85	1.47	9,360.25	4.22
16,202.00	90.69	3.39	6,603.80	9,428.77	692.61	9,428.77	3.46	9,454.17	4.20
16,295.00	90.19	359.87	6,603.09	9,521.71	695.25	9,521.71	3.82	9,547.06	4.18
16,389.00	90.31	359.87	6,602.68	9,615.71	695.04	9,615.71	0.13	9,640.80	4.13
16,483.00	90.06	1.63	6,602.37	9,709.70	696.27	9,709.70	1.89	9,734.63	4.10
16,577.00	88.19	2.33	6,603.81	9,803.63	699.51	9,803.63	2.12	9,828.55	4.08
16,671.00	88.81	3.39	6,606.27	9,897.48	704.20	9,897.48	1.31	9,922.50	4.07
16,765.00	88.94	359.17	6,608.12	9,991.41	706.30	9,991.41	4.49	10,016.35	4.04
16,858.00	89.63	357.94	6,609.28	10,084.38	703.96	10,084.38	1.52	10,108.92	3.99
16,952.00	89.81	356.36	6,609.74	10,178.25	699.28	10,178.25	1.69	10,202.25	3.93
17,046.00	88.81	356.71	6,610.87	10,272.07	693.60	10,272.07	1.13	10,295.47	3.86
17,140.00	89.00	357.59	6,612.66	10,365.94	688.93	10,365.94	0.96	10,388.81	3.80
17,234.00	89.81	358.29	6,613.64	10,459.87	685.55	10,459.87	1.14	10,482.31	3.75
17,327.00	90.50	357.06	6,613.39	10,552.79	681.78	10,552.79	1.52	10,574.79	3.70
17,422.00	88.44	356.18	6,614.27	10,647.62	676.18	10,647.62	2.36	10,669.07	3.63
17,573.98	88.44	356.18	6,618.40	10,799.20	666.06	10,799.20	0.00	10,819.72	3.53
3819KH_BHL									
17,577.00	88.44	356.18	6,618.49	10,802.22	665.85	10,802.22	0.00	10,822.72	3.53
PTB									

Company:	EP Energy E&P Company, L.P.	**Local Co-ordinate Reference:**	Well 38 Block Unit 3819KH
Project:	Crockett Co, TX	**TVD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Site:	University 3819	**MD Reference:**	KB=30 (Nabors F34) @ 2649.00ft (Nabors F34)
Well:	38 Block Unit 3819KH	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	RyanUSA_Compass

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
6,834.13	6,500.40	68.00	723.01	100' Marker @ 6834.13' MD
17,577.00	6,618.49	10,802.22	665.85	PTB

Checked By: _____ Approved By: _____ Date: _____



XTS Cross Timbers Surveying, LLC
1503 DARTMOUTH ST, LONGVIEW, TX 75601
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www.xtsurvey.com

EP ENERGY E&P COMPANY, L.P.

UNIVERSITY 38 BLOCK UNIT 3819KH
Block 38, Section 19
Block 38, Section 12
Block 38, Section 22
Crockett County, Texas