

Confidentiality Requested:

Yes  No

**KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

**Form must be Typed**

**Form must be Signed**

**All blanks must be Filled**

**WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

**Drilling Fluid Management Plan**

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

**AFFIDAVIT**

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

**KCC Office Use ONLY**

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to [kcc-well-logs@kcc.ks.gov](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Merit Energy Company, LLC
Well Name	MCWILLIAMS E 7
Doc ID	1416764

All Electric Logs Run

ANNULAR HOLE VOLUME
ARRAY COMPENSATED TRUE RESISTIVITY LOG
ARRAY COMPENSATED TRUE RESISTIVITY LOG 1
ARRAY COMPENSATED TRUE RESISTIVITY LOG 2
BOREHOLE COMPENSATED SONIC ARRAY LOG
DUAL SPACED NEUTRON SPECTRAL DENSITY LOG
MICROLOG
QUAD COMBO LOG

Form	ACO1 - Well Completion
Operator	Merit Energy Company, LLC
Well Name	MCWILLIAMS E 7
Doc ID	1416764

Tops

Name	Top	Datum
Heebner	3910	
Toronto	3927	
Lansing	4011	
Iola	4156	
Swope	4344	
Hertha	4397	
Exline	4437	
Marmaton	4520	
Pawnee	4605	
Cherokee	4663	
Atoka	4825	
Morrow	4883	
Morrow A	4897	
Chester	4960	
St Genevieve	5032	



## FIELD TICKET

**Client**               MERIT ENERGY COMPANY

**Well**                 McWilliams E-7

**Job Description**   Conductor

**Date**                April 03, 2018

**Field Ticket #** FT-05369-W5C7H40202-09679



### MATERIALS

Product Code	Description	UOM	Quantity	List Price	Gross Amount	Disc (%)	Net Amount
L100112	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	LB	615.0000	\$2.40	\$1,476.00	76.00	\$354.24
L100019	CEMENT, CLASS A	SK	218.0000	\$43.34	\$9,448.12	76.00	\$2,267.55
L499632	RETARDER, SUGAR, GRANULAR	LB	100.0000	\$4.16	\$416.00		\$416.00
<b>Product Material Subtotal:</b>					<b>\$11,340.12</b>		<b>\$3,037.79</b>

### SERVICES

Product Code	Description	UOM	Quantity	List Price	Gross Amount	Disc (%)	Net Amount
S-100004	Cement Crew Mobilization-Demobilization Fee	EA	1.00	\$10,880.00	\$10,880.00	91.00	\$979.200
S-100048	Cement pump charge, 0-1,000 feet/ 0-300 m	4/HR	1.00	\$3,072.00	\$3,072.000	91.00	\$276.480
S-100066	Cement pump charge, Additional Hours	HR	0.00	\$2,720.00	\$0.000	0.00	\$0.000
S-100072	Circulating Equipment	JOB	1.00	\$5,248.00	\$5,248.000	91.00	\$472.320
S-100001	Mileage - vehicle heavy weight	MI	50.00	\$18.96	\$948.000	91.00	\$85.320
S-100002	Mileage - vehicle light weight	MI	50.00	\$10.72	\$536.000	91.00	\$48.240
<b>Service Subtotal:</b>					<b>\$20,684.00</b>		<b>\$1,861.56</b>

# Cementing Treatment



Injection Rate (bpm)	Fluid Density (ppg)
Injection Pressure (psi)	ISIP (psi)
Type of Squeeze	FSIP (psi)
Operators Max SQ Pressure (psi)	

## COMMENTS

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### Treatment Report

#### Job Summary

PRESSURE TEST LINES  
MIX/PUM P 218 SK / 49 BBL SLURRY AT 15.2 H/g  
DISPLACE 27 BBL TO LEAVE 30 FT OF CEMENT ON PIPE  
SHUT IT IN  
DONE  
20 BBL OF CEMENT BACK TO SURFACE  
Set @ 20Z

# Cementing Treatment - Surface Casing



## Treatment Report

### Job Summary

ON LOCATION

RIG UP

SAFETY MEETING

PRESSURE TEST LINES

20 BBL LCM

490 SK/224 BBL LEAD SLURRY AT 12.1 #/

8 175 SK/39 BBL TAIL SLURRY AT 15.2 #/g

6.65 sk - Class A

Set @ 1704

RELEASE PRE-LOADED PLUG

START DISPLACEMENT

20 BBL GONE

40 BBL GONE

55 BBL SLOW DOWN TO 2 BPM AS REQUESTED 80M BBL GONE

100 BBL GONE

105 BBL BUMP PLUG

CHECK FLOATS

FLOATS HOLDING

RIG DOWN

LEAVE F.E.E FOR NEXT JOB ON LOCATION

115 BBL OF CEMENT BACK TO SURFACE THANKS





# FIELD TICKET

**Client**                   MERIT ENERGY COMPANY

**Well**                      McWilliams E-7

**Job Description**   Long String

**Date**                    April 09, 2018



**Field Ticket #** FT-05581-M1H1W60202-92250

## MATERIALS

Product Code	Description	UOM	Quantity	List Price	Gross Amount	Disc (%)	Net Amount
L100318	CEMENT EXTENDER, GYPSUM, A-10	LB	1,185.0000	\$0.72	\$853.20	78.00	\$187.70
L013152	Cement Nose, 5-1/2 In.	EA	1.0000	\$561.00	\$561.00	78.00	\$123.42
L488168	CEMENT, ASTM TYPE I	SK	210.0000	\$44.11	\$9,263.10	78.00	\$2,037.88
L017064	CENTRALIZER,5-1/2"NON-WELD	EA	15.0000	\$193.05	\$2,895.75	78.00	\$637.07
20000018	CFL-210	LB	99.0000	\$22.72	\$2,249.28	78.00	\$494.84
L100120	EXTENDER, BENTONITE	LB	395.0000	\$2.08	\$821.60	78.00	\$180.75
L015395	FLOAT COLLAR,CEM,5-1/2"K55	EA	1.0000	\$1,243.00	\$1,243.00	78.00	\$273.46
L101196	Foam Preventer, FP-25	LB	40.0000	\$14.52	\$580.80	78.00	\$127.78
L488735	IntegraGuard ULTRA CONCENTRATE	GAL	12.0000	\$159.60	\$1,915.20	78.00	\$421.34
L100295	IntegraSeal CELLO	LB	53.0000	\$5.76	\$305.28	78.00	\$67.16
L415082	IntegraSeal KOL	LB	1,050.0000	\$1.20	\$1,260.00	78.00	\$277.20
L86710	PLUG,CEMENT 5.5 TOP BIPL	EA	1.0000	\$1,026.48	\$1,026.48	78.00	\$225.83
L100404	SALT,SODIUM CHLORIDE, A-5	LB	1,677.0000	\$1.04	\$1,744.08	78.00	\$383.70
<b>Product Material Subtotal:</b>					<b>\$24,718.77</b>		<b>\$5,438.13</b>

## SERVICES

Product Code	Description	UOM	Quantity	List Price	Gross Amount	Disc (%)	Net Amount
S-100004	Cement Crew Mobilization-Demobilization Fee	EA	1.00	\$10,880.00	\$10,880.00	92.00	\$870.400
S-100475	Cement head	EA	1.00	\$2,656.00	\$2,656.00	92.00	\$212.480
S-100053	Cement pump charge, 5,001-6,000 feet/1,501 - 1,800 m	6/HR	1.00	\$7,032.00	\$7,032.00	92.00	\$562.560
S-100066	Cement pump charge, Additional Hours	HR	0.00	\$2,720.00	\$0.000	92.00	\$0.000
S-100001	Mileage - vehicle heavy	MI	50.00	\$18.96	\$948.000	92.00	\$75.840

# Cementing Treatment



**Start Date** 4/9/2018 **Well** McWilliams E-7  
**End Date** 4/9/2018 **County** Finney  
**Client** MERIT ENERGY COMPANY **State/Province** KS  
**Client Field Rep** Rodney Gonzales **API** 15-055-22482  
**Service Supervisor** **Formation**  
**Field Ticket No.** **Rig**  
**District** Liberal, KS **Type of Job** Long String

## WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Open Hole	7.88			5,269.00	5,269.00	30.00		
Casing	4.89	5.50	17.00	5,261.00	5,261.00		J-55	LTC
Previous Casing	8.10	8.63	24.00	1,830.00	1,830.00		J-55	LTC

**Shoe Length (ft):** 42

## HARDWARE

<b>Bottom Plug Used?</b>	No	<b>Tool Type</b>	Float Collar
<b>Bottom Plug Provided By</b>		<b>Tool Depth (ft)</b>	5,218.88
<b>Bottom Plug Size</b>		<b>Max Tubing Pressure - Rated (psi)</b>	
<b>Top Plug Used?</b>	Yes	<b>Max Tubing Pressure - Operated (psi)</b>	
<b>Top Plug Provided By</b>	BJ	<b>Max Casing Pressure - Rated (psi)</b>	5,320.00
<b>Top Plug Size</b>	5.500	<b>Max Casing Pressure - Operated (psi)</b>	2,000.00
<b>Centralizers Used</b>	Yes	<b>Pipe Movement</b>	
<b>Centralizers Quantity</b>	14.00	<b>Job Pumped Through</b>	No Manifold
<b>Centralizers Type</b>	Bow	<b>Top Connection Thread</b>	LTC
<b>Landing Collar Depth (ft)</b>	5,219	<b>Top Connection Size</b>	5.5

## CIRCULATION PRIOR TO JOB

# Cementing Treatment



## COMMENTS

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### Treatment Report

#### Job Summary

pressure test lines to 3500PSI  
17bbl tail cement plug Rat/Mouse Hole  
shut down  
12bbl ultraflush spacer  
54bbl Tail cement  
shut down  
wash up to pit  
drop top plug  
121bbl displacement with 2%KCL water  
landed plug @ 1500PSI  
Surface I60 sx - 50sx RH

# **MERIT ENERGY COMPANY**

**FINNEY COUNTY, KANSAS (NAD 27)**

**NE SE SEC. 21 T24S R33W 6th P.M.**

**McWILLIAMS E-7**

**ORIGINAL WELLBORE**

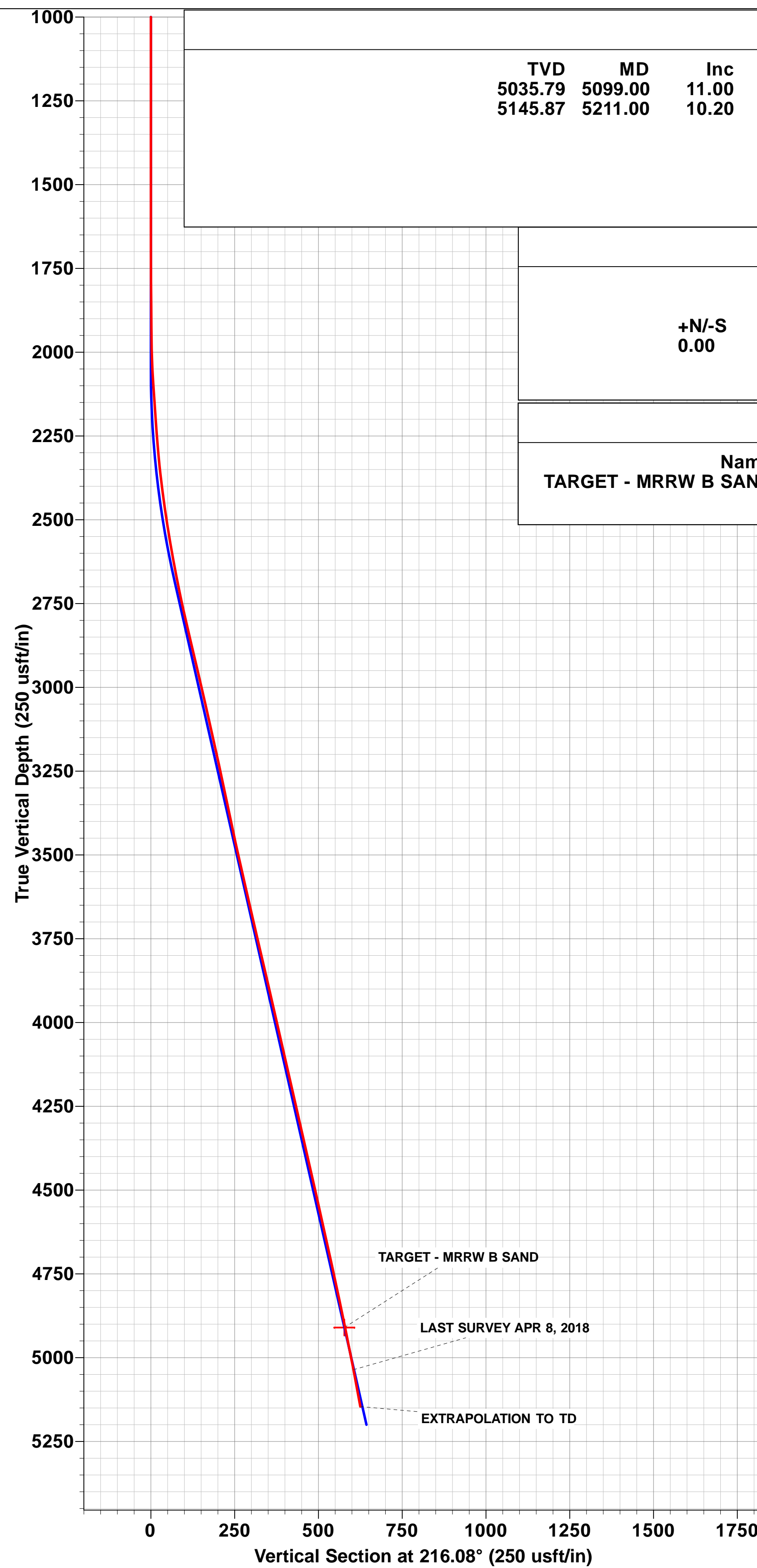
**08 April, 2018**

**Survey: FINAL SURVEYS**





Project: FINNEY COUNTY, KANSAS (NAD 27)  
 Site: NE SE SEC. 21 T24S R33W 6th P.M.  
 Well: McWILLIAMS E-7  
 Wellbore: ORIGINAL WELLBORE  
 Design: FINAL SURVEYS



ANNOTATIONS

TVD	MD	Inc	Azi	+N-S	+E-W	VSec	Departure	Annotation
5035.79	5099.00	11.00	218.40	-485.88	-359.90	604.63	605.67	LAST SURVEY APR 8, 2018
5145.87	5211.00	10.20	220.70	-501.77	-373.00	625.20	626.27	EXTRAPOLATION TO TD

WELL DETAILS: McWILLIAMS E-7

Ground Level: 2886.90

+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.00	0.00	477128.70	1296981.07	37.951798	-100.938430

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
TARGET - MRRW B SAND	4910.00	-466.73	-340.09	476662.00	1296641.00	37.950492	-100.939566

PROJECT DETAILS: FINNEY COUNTY, KANSAS (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)

Datum: NAD 1927 (NADCON CONUS)

Ellipsoid: Clarke 1866

Zone: Kansas South 1502

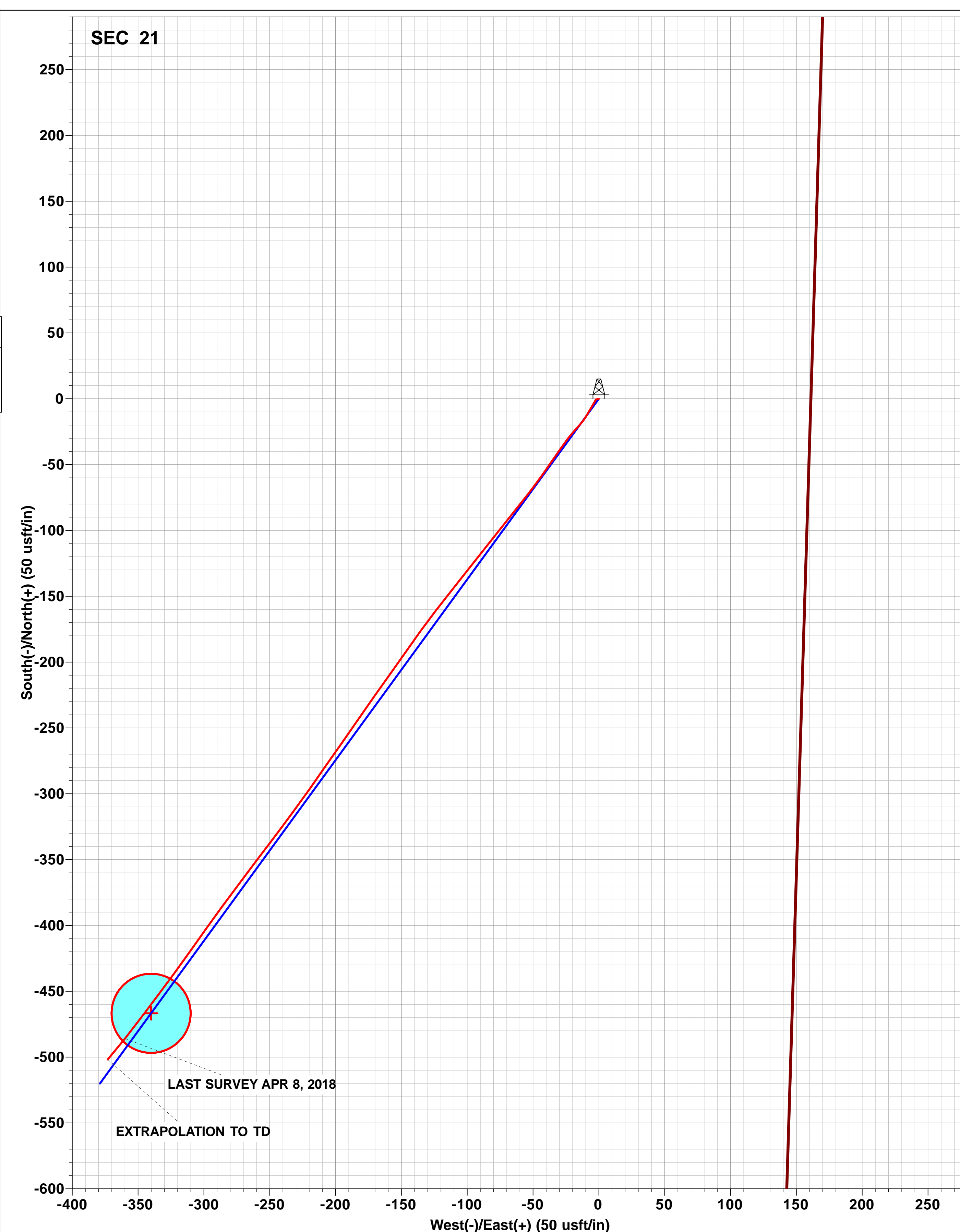
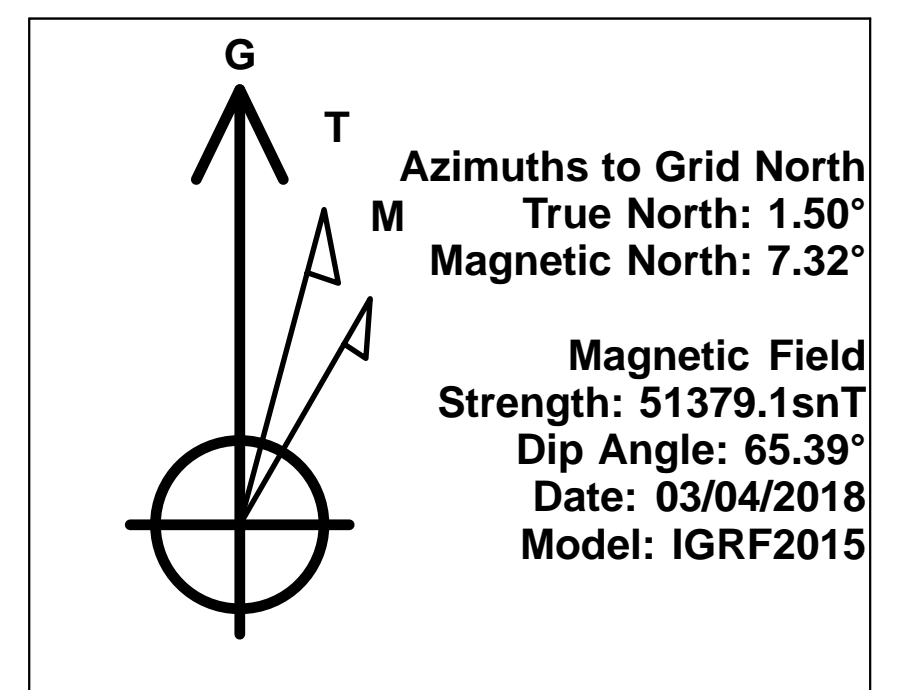
Padsite: NE SE SEC. 21 T24S R33W 6th P.M.

PROPOSED COORDINATES

SHL: 2141.5ft FSL & 160ft FEL SEC 21

TGT: 1670ft FSL & 487ft FEL SEC 21

BHL: 1618.91ft FSL & 522.76ft FEL SEC 21



Survey Report



<b>Company:</b>	MERIT ENERGY COMPANY	<b>Local Co-ordinate Reference:</b>	Well McWILLIAMS E-7
<b>Project:</b>	FINNEY COUNTY, KANSAS (NAD 27)	<b>TVD Reference:</b>	KB @ 2898.90usft (Original Well Elev)
<b>Site:</b>	NE SE SEC. 21 T24S R33W 6th P.M.	<b>MD Reference:</b>	KB @ 2898.90usft (Original Well Elev)
<b>Well:</b>	McWILLIAMS E-7	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	ORIGINAL WELLBORE	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	FINNEY COUNTY, KANSAS (NAD 27)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Kansas South 1502		Using geodetic scale factor

<b>Site</b>	NE SE SEC. 21 T24S R33W 6th P.M.				
<b>Site Position:</b>		<b>Northing:</b>	477,112.20 usft	<b>Latitude:</b>	37.951751
<b>From:</b>	Map	<b>Easting:</b>	1,296,956.07 usft	<b>Longitude:</b>	-100.938515
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	1.10000ft	<b>Grid Convergence:</b>	-1.50 °

<b>Well</b>	McWILLIAMS E-7					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	477,128.70 usft	<b>Latitude:</b>	37.951798
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,296,981.07 usft	<b>Longitude:</b>	-100.938430
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	2,886.90 usft

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	03/04/2018	5.82	65.39	51,379

<b>Design</b>	FINAL SURVEYS				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
		0.00	0.00	0.00	216.08

<b>Survey Program</b>	<b>Date</b>	08/04/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
1,703.00	5,211.00	FINAL SURVEYS (ORIGINAL WELLBORE)	MWD	MWD - Standard	

<b>Survey</b>											
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>Subsea Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	2,898.90	0.00	0.00	0.00	0.00	0.00	0.00	
1,703.00	0.00	0.00	1,703.00	1,195.90	0.00	0.00	0.00	0.00	0.00	0.00	
1,770.00	0.90	256.70	1,770.00	1,128.90	-0.12	-0.51	0.40	1.34	1.34	0.00	
1,864.00	0.40	258.00	1,863.99	1,034.91	-0.36	-1.55	1.20	0.53	-0.53	1.38	
1,927.00	0.50	269.30	1,926.99	971.91	-0.41	-2.04	1.53	0.21	0.16	17.94	
1,990.00	1.30	200.60	1,989.98	908.92	-1.08	-2.57	2.39	1.92	1.27	-109.05	
2,053.00	3.00	210.62	2,052.94	845.96	-3.17	-3.66	4.72	2.75	2.70	15.90	
2,116.00	4.10	210.82	2,115.81	783.09	-6.52	-5.65	8.60	1.75	1.75	0.32	
2,211.00	3.80	209.92	2,210.59	688.31	-12.17	-8.96	15.11	0.32	-0.32	-0.95	
2,274.00	4.80	215.80	2,273.41	625.49	-16.11	-11.55	19.82	1.73	1.59	9.33	
2,337.00	5.90	222.42	2,336.14	562.76	-20.64	-15.27	25.68	2.00	1.75	10.51	
2,400.00	7.10	221.42	2,398.73	500.17	-25.95	-20.03	32.77	1.91	1.90	-1.59	
2,463.00	8.00	215.20	2,461.18	437.72	-32.45	-25.14	41.03	1.93	1.43	-9.87	

Survey Report



<b>Company:</b>	MERIT ENERGY COMPANY	<b>Local Co-ordinate Reference:</b>	Well McWILLIAMS E-7
<b>Project:</b>	FINNEY COUNTY, KANSAS (NAD 27)	<b>TVD Reference:</b>	KB @ 2898.90usft (Original Well Elev)
<b>Site:</b>	NE SE SEC. 21 T24S R33W 6th P.M.	<b>MD Reference:</b>	KB @ 2898.90usft (Original Well Elev)
<b>Well:</b>	McWILLIAMS E-7	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	ORIGINAL WELLBORE	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,526.00	9.10	215.80	2,523.48	375.42	-40.08	-30.58	50.40	1.75	1.75	0.95
2,590.00	10.00	214.00	2,586.59	312.31	-48.79	-36.64	61.01	1.48	1.41	-2.81
2,653.00	10.80	215.70	2,648.56	250.34	-58.12	-43.15	72.38	1.36	1.27	2.70
2,716.00	11.60	217.10	2,710.36	188.54	-67.96	-50.41	84.62	1.34	1.27	2.22
2,778.00	12.70	218.40	2,770.97	127.93	-78.28	-58.41	97.66	1.83	1.77	2.10
2,873.00	13.40	218.80	2,863.52	35.38	-95.04	-71.79	119.09	0.74	0.74	0.42
2,968.00	13.10	218.20	2,955.99	-57.09	-112.08	-85.35	140.84	0.35	-0.32	-0.63
3,063.00	13.10	218.60	3,048.51	-149.61	-128.95	-98.72	162.36	0.10	0.00	0.42
3,156.00	12.50	217.82	3,139.20	-240.30	-145.14	-111.47	182.95	0.67	-0.65	-0.84
3,251.00	12.30	218.50	3,231.99	-333.09	-161.18	-124.07	203.33	0.26	-0.21	0.72
3,344.00	12.10	214.90	3,322.89	-423.99	-176.93	-135.81	222.98	0.85	-0.22	-3.87
3,438.00	11.60	215.52	3,414.88	-515.98	-192.70	-146.94	242.28	0.55	-0.53	0.66
3,533.00	13.00	215.12	3,507.70	-608.80	-209.21	-158.64	262.51	1.48	1.47	-0.42
3,627.00	12.70	215.72	3,599.35	-700.45	-226.25	-170.75	283.41	0.35	-0.32	0.64
3,722.00	13.10	214.02	3,691.95	-793.05	-243.65	-182.87	304.62	0.58	0.42	-1.79
3,816.00	13.20	215.52	3,783.48	-884.58	-261.22	-195.07	325.99	0.38	0.11	1.60
3,911.00	13.10	214.82	3,875.99	-977.09	-278.88	-207.52	347.60	0.20	-0.11	-0.74
4,005.00	12.70	214.90	3,967.62	-1,068.72	-296.10	-219.51	368.58	0.43	-0.43	0.09
4,100.00	13.10	216.70	4,060.22	-1,161.32	-313.30	-231.92	389.79	0.60	0.42	1.89
4,164.00	13.00	216.22	4,122.57	-1,223.67	-324.92	-240.51	404.24	0.23	-0.16	-0.75
4,226.00	12.80	217.60	4,183.01	-1,284.11	-335.99	-248.82	418.08	0.59	-0.32	2.23
4,320.00	12.90	216.80	4,274.65	-1,375.75	-352.64	-261.46	438.98	0.22	0.11	-0.85
4,415.00	12.90	217.00	4,367.25	-1,468.35	-369.60	-274.19	460.19	0.05	0.00	0.21
4,508.00	12.70	216.20	4,457.94	-1,559.04	-386.14	-286.48	480.79	0.29	-0.22	-0.86
4,602.00	12.40	215.50	4,549.70	-1,650.80	-402.70	-298.44	501.22	0.36	-0.32	-0.74
4,697.00	13.00	215.12	4,642.37	-1,743.47	-419.74	-310.51	522.10	0.64	0.63	-0.40
4,792.00	12.20	216.42	4,735.08	-1,836.18	-436.56	-322.62	542.82	0.89	-0.84	1.37
4,887.00	12.00	216.92	4,827.97	-1,929.07	-452.53	-334.51	562.73	0.24	-0.21	0.53
4,973.00	11.40	216.80	4,912.19	-2,013.29	-466.49	-344.97	580.17	0.70	-0.70	-0.14
<b>LAST SURVEY APR 8, 2018</b>										
<b>5,099.00</b>	<b>11.00</b>	<b>218.40</b>	<b>5,035.79</b>	<b>-2,136.89</b>	<b>-485.88</b>	<b>-359.90</b>	<b>604.63</b>	<b>0.40</b>	<b>-0.32</b>	<b>1.27</b>
<b>EXTRAPOLATION TO TD</b>										
<b>5,211.00</b>	<b>10.20</b>	<b>220.70</b>	<b>5,145.87</b>	<b>-2,246.97</b>	<b>-501.77</b>	<b>-373.00</b>	<b>625.20</b>	<b>0.81</b>	<b>-0.71</b>	<b>2.05</b>

Survey Report



<b>Company:</b>	MERIT ENERGY COMPANY	<b>Local Co-ordinate Reference:</b>	Well McWILLIAMS E-7
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<b>Site:</b>	NE SE SEC. 21 T24S R33W 6th P.M.	<b>MD Reference:</b>	KB @ 2898.90usft (Original Well Elev)
<b>Well:</b>	McWILLIAMS E-7	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	ORIGINAL WELLBORE	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
TARGET - MRRW B SAI	0.00	1.50	4,910.00	-466.73	-340.09	476,662.00	1,296,641.00	37.950492	-100.939566
- survey misses target center by 4.64usft at 4970.30usft MD (4909.54 TVD, -466.06 N, -344.65 E)									
- Circle (radius 30.00)									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
5,099.00	5,035.79	-485.88	-359.90	LAST SURVEY APR 8, 2018
5,211.00	5,145.87	-501.77	-373.00	EXTRAPOLATION TO TD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_