



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1105406  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- 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 ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

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
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



1105406

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  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				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*  
 Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR: \_\_\_\_\_ Producing Method:  
 Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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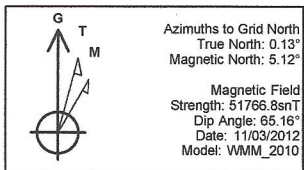
Company: Tug Hill Operating, LLC  
 Site: Donovan  
 Well: 1-10H  
 Project: Barber County, Kansas (NAD 83)  
 Rig Name: Patterson 421



Planning: 936.442.2510 Fax: 936.442.2515  
 Operations: 936.442.2500 Fax: 936.442.2599

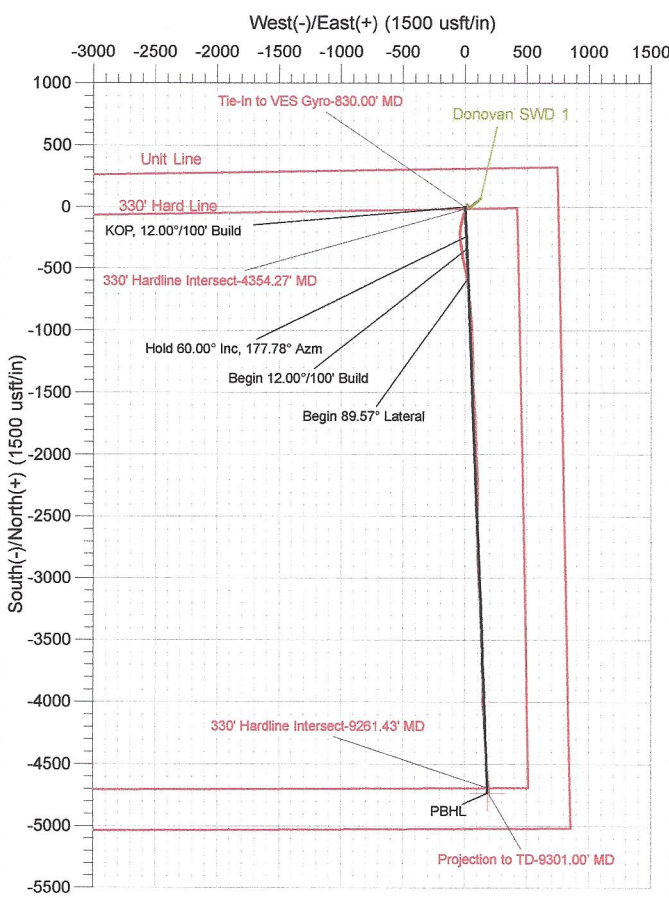
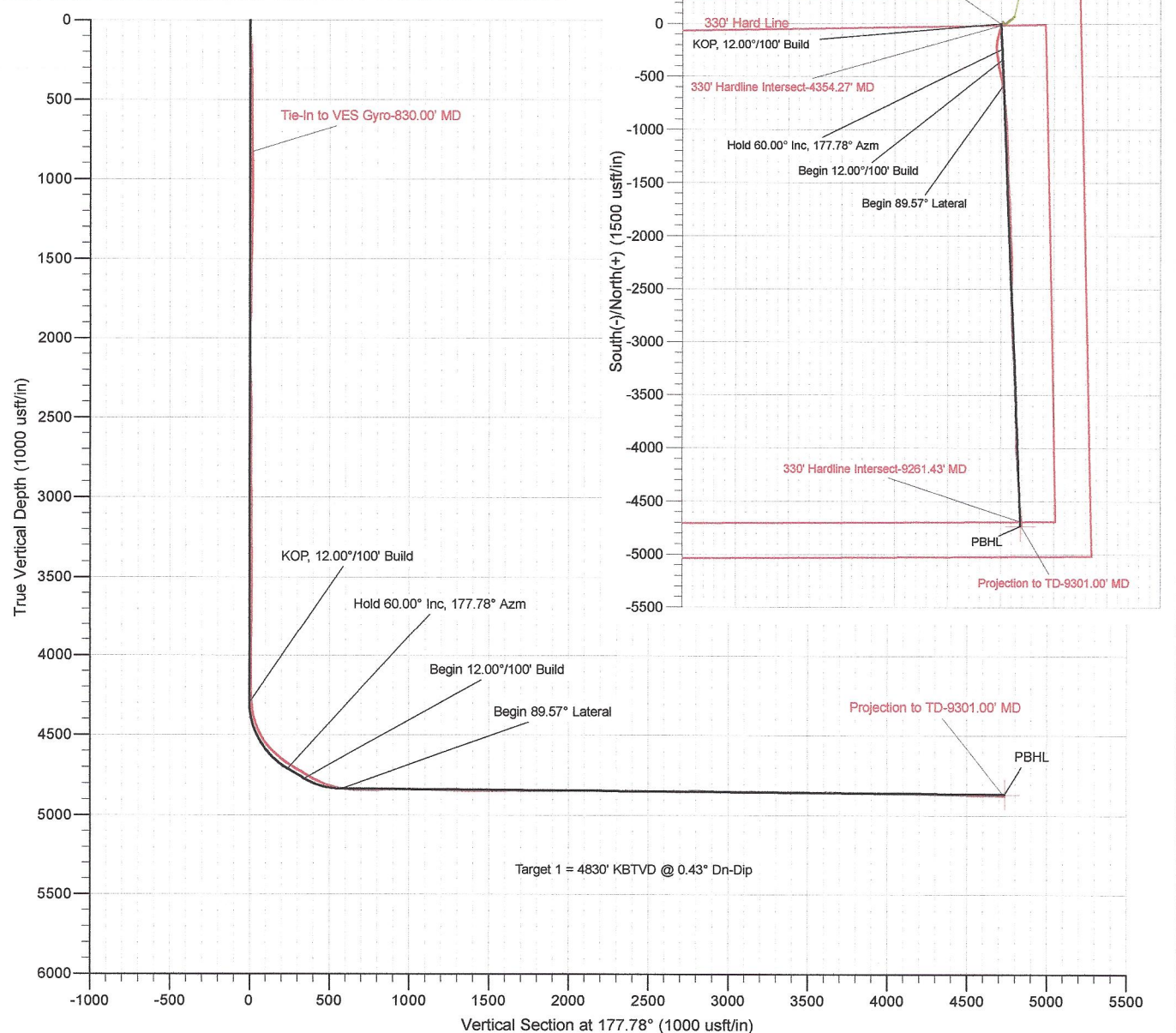
ANNOTATIONS

MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure	Annotation
4296.89	0.00	0.00	4296.89	0.00	0.00	0.00	0.00	KOP, 12.00°/100' Build
4796.89	60.00	177.78	4710.38	-238.55	9.25	238.73	238.73	Hold 60.00° Inc, 177.78° Azm
4916.89	60.00	177.78	4770.38	-342.40	13.28	342.66	342.66	Begin 12.00°/100' Build
5163.30	89.57	177.78	4834.34	-577.37	22.39	577.80	577.80	Begin 89.57° Lateral
9319.70	89.57	177.78	4865.53	-4730.53	183.41	4734.08	4734.08	PBHL



Created By: Hunter Heseman  
 Date: 9:37, November 29 2012  
 Plan: Design #2

US State Plane 1983  
 Kansas Southern Zone



The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



<b>Company:</b>	Tug Hill Operating, LLC	<b>Local Co-ordinate Reference:</b>	Well 1-10H
<b>Project:</b>	Barber County, Kansas (NAD 83)	<b>TVD Reference:</b>	WELL @ 1679.00usft (Patterson 421)
<b>Site:</b>	Donovan	<b>MD Reference:</b>	WELL @ 1679.00usft (Patterson 421)
<b>Well:</b>	1-10H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

<b>Project</b>	Barber County, Kansas (NAD 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Kansas Southern Zone		

<b>Well</b>	1-10H				
<b>Well Position</b>	<b>+N-S</b>	0.00 usft	<b>Northing:</b>	1,473,089.42 usft	<b>Latitude:</b> 37° 6' 28.6145 N
	<b>+E-W</b>	0.00 usft	<b>Easting:</b>	1,249,345.66 usft	<b>Longitude:</b> 98° 42' 57.548 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b> 1,656.00 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	WMM_2010	11/03/12	4.98	65.16	51,767

<b>Design</b>	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	177.78	

<b>Survey Program</b>	<b>Date</b>	11/29/12			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
100.00	830.00	VES Gyro (Wellbore #1)	NS-GYRO-MS	North sensing gyrocompassing m/s	
878.00	9,301.00	MS MWD (Wellbore #1)	MWD	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
830.00	0.81	157.31	829.78	-11.39	12.04	11.85	0.00	0.00	0.00	
<b>Tie-In to VES Gyro-830.00' MD</b>										
878.00	1.00	176.80	877.77	-12.12	12.19	12.59	0.75	0.40	40.60	
970.00	1.00	165.90	969.76	-13.70	12.43	14.18	0.21	0.00	-11.85	
1,062.00	1.20	317.70	1,061.75	-13.77	11.98	14.22	2.32	0.22	165.00	
1,154.00	1.50	325.00	1,153.73	-12.07	10.64	12.47	0.38	0.33	7.93	
1,247.00	1.10	349.70	1,246.70	-10.20	9.79	10.57	0.73	-0.43	26.56	
1,339.00	0.70	338.60	1,338.69	-8.80	9.42	9.16	0.47	-0.43	-12.07	
1,431.00	0.80	335.80	1,430.68	-7.69	8.95	8.04	0.12	0.11	-3.04	
1,521.00	0.90	357.00	1,520.67	-6.42	8.66	6.75	0.36	0.11	23.56	
1,615.00	0.80	329.30	1,614.66	-5.11	8.29	5.43	0.45	-0.11	-29.47	
1,707.00	0.90	318.20	1,706.65	-4.02	7.48	4.31	0.21	0.11	-12.07	
1,799.00	0.90	324.40	1,798.64	-2.90	6.57	3.15	0.11	0.00	6.74	
1,892.00	0.90	315.90	1,891.63	-1.78	5.64	2.00	0.14	0.00	-9.14	
1,987.00	1.10	319.20	1,986.62	-0.55	4.53	0.73	0.22	0.21	3.47	



<b>Company:</b>	Tug Hill Operating, LLC	<b>Local Co-ordinate Reference:</b>	Well 1-10H
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<b>Site:</b>	Donovan	<b>MD Reference:</b>	WELL @ 1679.00usft (Patterson 421)
<b>Well:</b>	1-10H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,082.00	0.50	195.90	2,081.61	-0.26	3.82	0.41	1.51	-0.63	-129.79	
2,176.00	1.00	189.60	2,175.60	-1.46	3.57	1.60	0.54	0.53	-6.70	
2,271.00	0.60	172.80	2,270.59	-2.77	3.49	2.91	0.48	-0.42	-17.68	
2,366.00	0.80	190.20	2,365.59	-3.92	3.44	4.05	0.30	0.21	18.32	
2,461.00	0.70	173.90	2,460.58	-5.15	3.38	5.28	0.25	-0.11	-17.16	
2,556.00	0.00	169.90	2,555.57	-5.73	3.44	5.86	0.74	-0.74	0.00	
2,650.00	0.30	216.90	2,649.57	-5.92	3.29	6.05	0.32	0.32	0.00	
2,745.00	0.10	142.80	2,744.57	-6.19	3.19	6.31	0.30	-0.21	-78.00	
2,840.00	0.10	263.60	2,839.57	-6.26	3.16	6.38	0.18	0.00	127.16	
2,936.00	0.20	177.50	2,935.57	-6.44	3.09	6.56	0.23	0.10	-89.69	
3,031.00	0.40	148.60	3,030.57	-6.89	3.27	7.01	0.26	0.21	-30.42	
3,126.00	0.30	136.70	3,125.57	-7.35	3.61	7.49	0.13	-0.11	-12.53	
3,220.00	0.40	108.70	3,219.57	-7.64	4.09	7.79	0.21	0.11	-29.79	
3,315.00	0.30	105.50	3,314.57	-7.81	4.64	7.99	0.11	-0.11	-3.37	
3,411.00	0.40	93.60	3,410.57	-7.90	5.22	8.10	0.13	0.10	-12.40	
3,506.00	0.80	110.70	3,505.56	-8.15	6.17	8.39	0.46	0.42	18.00	
3,601.00	0.70	85.60	3,600.55	-8.34	7.37	8.62	0.36	-0.11	-26.42	
3,695.00	0.70	49.20	3,694.55	-7.93	8.38	8.24	0.47	0.00	-38.72	
3,790.00	0.90	45.60	3,789.54	-7.02	9.35	7.38	0.22	0.21	-3.79	
3,883.00	0.90	45.00	3,882.52	-6.00	10.39	6.39	0.01	0.00	-0.65	
3,978.00	0.40	258.90	3,977.52	-5.53	10.59	5.94	1.32	-0.53	-153.79	
4,073.00	1.10	258.90	4,072.51	-5.77	9.37	6.13	0.74	0.74	0.00	
4,167.00	1.00	253.00	4,166.50	-6.19	7.70	6.48	0.16	-0.11	-6.28	
4,230.00	0.90	243.40	4,229.49	-6.57	6.73	6.82	0.30	-0.16	-15.24	
4,261.00	1.90	201.60	4,260.48	-7.16	6.32	7.39	4.41	3.23	-134.84	
4,293.00	4.70	195.50	4,292.42	-8.91	5.78	9.13	8.81	8.75	-19.06	
4,324.00	8.00	200.70	4,323.23	-12.15	4.68	12.33	10.79	10.65	16.77	
4,354.27	11.22	200.80	4,353.07	-16.88	2.89	16.98	10.65	10.65	0.32	
<b>330' Hardline Intersect-4354.27' MD</b>										
4,355.00	11.30	200.80	4,353.79	-17.01	2.84	17.11	10.65	10.65	0.23	
4,387.00	15.40	202.80	4,384.91	-23.86	0.07	23.85	12.89	12.81	6.25	
4,419.00	18.50	203.10	4,415.52	-32.45	-3.56	32.29	9.69	9.69	0.94	
4,450.00	22.50	203.10	4,444.55	-42.44	-7.82	42.10	12.90	12.90	0.00	
4,481.00	26.40	200.90	4,472.77	-54.34	-12.61	53.81	12.92	12.58	-7.10	
4,513.00	30.50	199.40	4,500.90	-68.65	-17.85	67.90	13.00	12.81	-4.69	
4,545.00	34.90	198.10	4,527.82	-85.02	-23.39	84.05	13.92	13.75	-4.06	
4,577.00	39.50	197.20	4,553.30	-103.45	-29.25	102.24	14.47	14.38	-2.81	
4,608.00	43.50	194.80	4,576.52	-123.19	-34.89	121.75	13.88	12.90	-7.74	
4,640.00	46.50	192.00	4,599.14	-145.20	-40.12	143.54	11.23	9.38	-8.75	
4,671.00	48.90	187.30	4,620.01	-167.79	-43.94	165.97	13.62	7.74	-15.16	
4,703.00	51.20	183.90	4,640.56	-192.20	-46.33	190.26	10.86	7.19	-10.63	
4,734.00	53.90	180.50	4,659.41	-216.79	-47.26	214.79	12.31	8.71	-10.97	
4,766.00	56.20	177.10	4,677.75	-243.00	-46.70	241.01	11.29	7.19	-10.63	



<b>Company:</b>	Tug Hill Operating, LLC	<b>Local Co-ordinate Reference:</b>	Well 1-10H
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<b>Well:</b>	1-10H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,798.00	58.60	174.60	4,694.99	-269.88	-44.74	267.95	9.98	7.50	-7.81
4,829.00	59.70	173.20	4,710.89	-296.34	-41.91	294.50	5.26	3.55	-4.52
4,861.00	60.00	173.10	4,726.96	-323.82	-38.61	322.08	0.98	0.94	-0.31
4,893.00	60.20	171.80	4,742.91	-351.32	-34.96	349.70	3.58	0.63	-4.06
4,925.00	60.40	171.00	4,758.76	-378.80	-30.81	377.32	2.26	0.63	-2.50
4,957.00	62.70	169.10	4,774.01	-406.51	-25.94	405.20	8.88	7.19	-5.94
4,989.00	66.00	166.80	4,787.86	-434.71	-19.91	433.61	12.18	10.31	-7.19
5,021.00	68.90	165.90	4,800.13	-463.43	-12.94	462.58	9.43	9.06	-2.81
5,053.00	72.30	166.90	4,810.76	-492.76	-5.84	492.16	11.03	10.63	3.13
5,084.00	74.30	168.90	4,819.67	-521.79	0.38	521.41	8.93	6.45	6.45
5,116.00	77.30	171.10	4,827.52	-552.33	5.76	552.14	11.50	9.38	6.88
5,147.00	81.50	173.20	4,833.22	-582.51	9.92	582.46	15.10	13.55	6.77
5,179.00	85.00	173.00	4,836.98	-614.05	13.73	614.13	10.96	10.94	-0.63
5,211.00	86.80	173.00	4,839.27	-645.73	17.62	645.93	5.63	5.63	0.00
5,242.00	87.30	173.20	4,840.86	-676.47	21.34	676.79	1.74	1.61	0.65
5,274.00	89.00	172.90	4,841.90	-708.22	25.21	708.66	5.39	5.31	-0.94
5,301.00	90.80	172.80	4,841.94	-735.00	28.57	735.56	6.68	6.67	-0.37
5,332.00	91.50	175.30	4,841.32	-765.83	31.79	766.49	8.37	2.26	8.06
5,420.00	92.90	175.80	4,837.94	-853.50	38.61	854.35	1.69	1.59	0.57
5,514.00	89.80	176.30	4,835.73	-947.24	45.08	948.27	3.34	-3.30	0.53
5,609.00	88.70	178.50	4,836.97	-1,042.12	49.39	1,043.25	2.59	-1.16	2.32
5,704.00	88.50	177.60	4,839.29	-1,137.04	52.62	1,138.22	0.97	-0.21	-0.95
5,799.00	89.00	179.00	4,841.37	-1,231.97	55.44	1,233.19	1.56	0.53	1.47
5,894.00	87.50	178.80	4,844.27	-1,326.91	57.26	1,328.13	1.59	-1.58	-0.21
5,989.00	90.20	177.70	4,846.17	-1,421.83	60.16	1,423.10	3.07	2.84	-1.16
6,084.00	90.70	176.80	4,845.43	-1,516.72	64.72	1,518.09	1.08	0.53	-0.95
6,179.00	90.60	176.00	4,844.35	-1,611.52	70.69	1,613.05	0.85	-0.11	-0.84
6,274.00	88.40	176.40	4,845.18	-1,706.31	76.98	1,708.01	2.35	-2.32	0.42
6,369.00	89.50	179.10	4,846.92	-1,801.21	80.71	1,802.98	3.07	1.16	2.84
6,464.00	91.30	178.40	4,846.26	-1,896.18	82.78	1,897.96	2.03	1.89	-0.74
6,559.00	89.40	178.50	4,845.68	-1,991.14	85.35	1,992.95	2.00	-2.00	0.11
6,654.00	90.50	176.20	4,845.76	-2,086.03	89.74	2,087.94	2.68	1.16	-2.42
6,749.00	88.70	176.90	4,846.42	-2,180.85	95.46	2,182.91	2.03	-1.89	0.74
6,843.00	89.80	179.80	4,847.65	-2,274.79	98.17	2,276.88	3.30	1.17	3.09
6,938.00	91.10	179.80	4,846.91	-2,369.78	98.50	2,371.82	1.37	1.37	0.00
7,032.00	88.30	179.80	4,847.40	-2,463.77	98.82	2,465.75	2.98	-2.98	0.00
7,128.00	90.40	180.30	4,848.49	-2,559.76	98.74	2,561.66	2.25	2.19	0.52
7,222.00	91.00	179.70	4,847.34	-2,653.75	98.74	2,655.59	0.90	0.64	-0.64
7,317.00	90.50	179.70	4,846.10	-2,748.74	99.24	2,750.52	0.53	-0.53	0.00
7,412.00	87.70	177.60	4,847.59	-2,843.69	101.48	2,845.49	3.68	-2.95	-2.21
7,507.00	88.00	177.60	4,851.15	-2,938.54	105.45	2,940.42	0.32	0.32	0.00
7,601.00	90.80	176.90	4,852.14	-3,032.42	109.96	3,034.40	3.07	2.98	-0.74
7,696.00	90.20	177.40	4,851.31	-3,127.29	114.68	3,129.39	0.82	-0.63	0.53
7,790.00	88.80	176.40	4,852.13	-3,221.15	119.77	3,223.37	1.83	-1.49	-1.06



<b>Company:</b>	Tug Hill Operating, LLC	<b>Local Co-ordinate Reference:</b>	Well 1-10H
<b>Project:</b>	Barber County, Kansas (NAD 83)	<b>TVD Reference:</b>	WELL @ 1679.00usft (Patterson 421)
<b>Site:</b>	Donovan	<b>MD Reference:</b>	WELL @ 1679.00usft (Patterson 421)
<b>Well:</b>	1-10H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,886.00	89.80	176.70	4,853.30	-3,316.97	125.54	3,319.34	1.09	1.04	0.31	
7,980.00	89.00	177.10	4,854.29	-3,410.82	130.63	3,413.32	0.95	-0.85	0.43	
8,075.00	89.80	178.00	4,855.28	-3,505.73	134.69	3,508.32	1.27	0.84	0.95	
8,169.00	91.00	178.30	4,854.62	-3,599.68	137.72	3,602.31	1.32	1.28	0.32	
8,264.00	88.50	178.40	4,855.04	-3,694.63	140.46	3,697.30	2.63	-2.63	0.11	
8,359.00	89.10	178.60	4,857.03	-3,789.58	142.94	3,792.27	0.67	0.63	0.21	
8,454.00	89.30	179.60	4,858.35	-3,884.55	144.43	3,887.23	1.07	0.21	1.05	
8,549.00	89.60	178.80	4,859.27	-3,979.54	145.76	3,982.20	0.90	0.32	-0.84	
8,642.00	89.20	176.10	4,860.24	-4,072.43	149.90	4,075.18	2.93	-0.43	-2.90	
8,738.00	89.40	176.00	4,861.41	-4,168.20	156.51	4,171.13	0.23	0.21	-0.10	
8,833.00	89.20	177.00	4,862.57	-4,263.01	162.31	4,266.10	1.07	-0.21	1.05	
8,928.00	88.10	177.60	4,864.81	-4,357.88	166.78	4,361.07	1.32	-1.16	0.63	
9,023.00	89.50	176.60	4,866.80	-4,452.73	171.59	4,456.04	1.81	1.47	-1.05	
9,094.00	88.30	175.10	4,868.16	-4,523.53	176.73	4,526.98	2.71	-1.69	-2.11	
9,190.00	88.70	176.30	4,870.68	-4,619.22	183.92	4,622.88	1.32	0.42	1.25	
9,242.00	88.70	177.10	4,871.86	-4,671.12	186.91	4,674.86	1.54	0.00	1.54	
9,261.43	88.70	177.10	4,872.30	-4,690.52	187.90	4,694.28	0.00	0.00	0.00	
<b>330' Hardline Intersect-9261.43' MD</b>										
9,301.00	88.70	177.10	4,873.20	-4,730.03	189.90	4,733.84	0.00	0.00	0.00	
<b>Projection to TD-9301.00' MD</b>										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
830.00	829.78	-11.39	12.04	Tie-In to VES Gyro-830.00' MD	
4,354.27	4,353.07	-16.88	2.89	330' Hardline Intersect-4354.27' MD	
9,261.43	4,872.30	-4,690.52	187.90	330' Hardline Intersect-9261.43' MD	
9,301.00	4,873.20	-4,730.03	189.90	Projection to TD-9301.00' MD	

Well Name: Donovan 1-10H

Contractor/Rig: Patterson-UTI 421

State: KS

County: Comanche

SHL: 313 FNL & 745 FEL

Township:

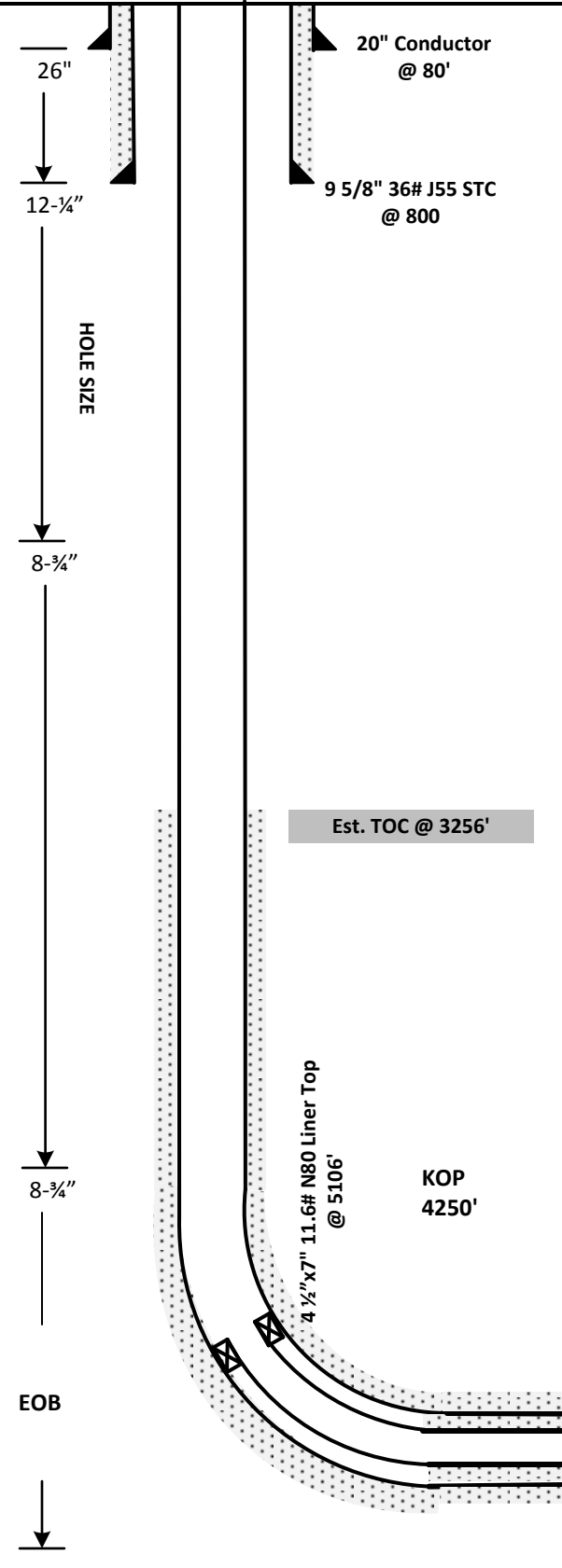
As Run

GL Elev: 1641 KB: 23 KB Elev:

BHL: 330' FSL & 660' FEL

AFE: 12-0123

Permit/API Number: 15-007-23910-01-00



Tubular Details

	20"	9 5/8"	7"	4-1/2"
Weight	94 lb/ft	36 lb/ft	26 lb/ft	15.10 lb/ft
Grade	X-42	J-55	P-110	N-80
Burst	3590 psi	3520 psi	9960 psi	10480 psi
Collapse	NA	2020 psi	6230 psi	11080 psi
Wall Thickness	0.438"	0.352"	0.724"	0.337"
ID	19.124"	8.921"	6.276"	3.826"
Setting Depth	80'	800'	5301'	9296'

Cement Details

Interval	Company	Excess	Est. Vol
Surface			
Intermediate			
Production Lead			
Production Tail			

See attachments for slurry details



# ALLIED CEMENTING CO., LLC. 32688

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:  
Medicine Lodge

DATE <u>7-28-12</u>	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START 7:00PM	JOB FINISH 8:00PM
LEASE <u>Adolph</u>	WELL # <u>1-10-10</u>	LOCATION <u>SW Medicine Lodge Ks, Tug Hill Barber</u>			COUNTY	STATE <u>KS</u>	
OLD OR <u>NEW</u> (Circle one)		RD, <u>125, W/into</u>				<u>1.07</u>	<u>1.3</u>

CONTRACTOR <u>Edge</u>	OWNER <u>Tug Hill</u>
TYPE OF JOB <u>Conductor &amp; Mouse Hole</u>	
HOLE SIZE <u>28" - 20" T.D. 100' - 73'</u>	CEMENT
CASING SIZE <u>20" - 14" DEPTH</u>	AMOUNT ORDERED <u>252 SA</u>
TUBING SIZE	
DEPTH	
DRILL PIPE	
DEPTH	
TOOL	
DEPTH	
PRES. MAX	MINIMUM
MEAS. LINE	SHOE JOINT
CEMENT LEFT IN CSG.	
PERFS.	
DISPLACEMENT	

**EQUIPMENT**

PUMP TRUCK CEMENTER <u>Bon Gilley</u>	
# <u>336276</u> HELPER <u>Eddie Piper Brett G.</u>	
BULK TRUCK	
# <u>3811250</u> DRIVER <u>Tray Lenz</u>	
BULK TRUCK	
#	DRIVER

REMARKS:

Installed 20" Conductor & 14" Mouse Hole

COMMON <u>class A 252 SA</u>	<u>16.25</u>	<u>4095.00</u>
POZ MIX	⊙	
GEL	⊙	
CHLORIDE	<u>⊙ 58.20</u>	<u>349.20</u>
ASC	⊙	
<u>#2 Hls Sugar</u>	⊙	
	⊙	
	⊙	
	⊙	
	⊙	
	⊙	
	⊙	
HANDLING <u>258</u>	<u>⊙ 2.10</u>	<u>541.80</u>
MILEAGE <u>12.08/15/2.35</u>		<u>425.82</u>
	<u>181.20</u>	TOTAL <u>5411.82</u>

CHARGE TO: Tug Hill

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**SERVICE**

DEPTH OF JOB	<u>1004.73'</u>
PUMP TRUCK CHARGE	<u>1050.00</u>
EXTRA FOOTAGE	⊙
MILEAGE <u>15</u>	⊙ <u>N/C</u>
MANIFOLD	⊙
<u>light vehicle 15</u>	⊙ <u>N/C</u>
	⊙
TOTAL <u>1050.00</u>	

**PLUG & FLOAT EQUIPMENT**

	⊙
<u>None</u>	⊙
	⊙
	⊙
	⊙
	⊙
TOTAL _____	

To Allied Cementing Co., LLC.  
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME X. Troy Hunter

SIGNATURE X. Troy Hunter

SALES TAX (if Any) 324.42

TOTAL CHARGES 6461.82

DISCOUNT 35% 2261.64 IF PAID IN 30 DAYS

NET 4200.18

# ALLIED OIL & GAS SERVICES, LLC 059634

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT:

Medicine Lodge, KS

DATE <u>11-2-2012</u>	SEC. <u>10</u>	TWP. <u>34S</u>	RANGE <u>13W</u>	CALLED OUT	ON LOCATION	JOB START <u>2:00pm</u>	JOB FINISH <u>3:00pm</u>
LEASE <u>Donovan</u>	WELL# <u>1-H</u>	LOCATION <u>1600 Gyp H. 11</u>	<u>12 South</u>	COUNTY <u>Barber</u>	STATE <u>KS</u>		
OLD OR (NEW) Circle one		<u>West line</u>					

CONTRACTOR D. Johnson #421

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D. 855'

CASING SIZE 9 5/8 DEPTH 800

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT 42'

CEMENT LEFT IN CSG.

PERFS.

DISPLACEMENT 6 1/2 bbls of Fresh water

OWNER Tug H. 11

CEMENT

AMOUNT ORDERED 200 sy C19SS A + 3% CC  
20% SWS + 20% Gypsum + 4% H. Flases

150 sy C19SS A + 20% CC

COMMON C19SS A 350 sy @ 17.90 6265.00

POZMIX Gypsum 4 sy @ 37.60 150.40

GEL Solvn mgts 37 lbs @ 3.30 1240.50

CHLORIDE 11 sy @ 64.00 704.00

ASE Flases 2.55 @ 1-10 14.50

EQUIPMENT

PUMP TRUCK CEMENTER Dorm F 1

# 556-555 HELPER Scott R 2

BULK TRUCK

# 561-553 DRIVER Justin Owen 2

BULK TRUCK

# DRIVER

Well Name Donovan 1-10H 14.50

AFE No. 12-0123

ACCNT No. 805-18

Name Joe @ Travino

Signature Joe @ Travino

HANDLING 376.35 @ 2.48 935.31

MILEAGE 17.26 don to 35 miles @ 2.60 1570.66

TOTAL 11017.76 67

REMARKS:

Pipe on bottom & break circulation

Pump 10 bbls water shear, mix 200 sy

leg cement, mix 150 sy 49.7 cement

Shut down, Release plug, start displacement

Slow rate to 3 bpm 9.50 bbls, bump

plug at 6 1/2 bbls sec - 1000 psi, plus

did hold cement did circulate

HOBBS SURRY 7B SFS

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

CHARGE TO Accnt. 12-11

STREET ACCNT No.

CITY Name STATE ZIP

Signature \_\_\_\_\_

To: Allied Oil & Gas Services, LLC.

You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME X Joe Travino

SIGNATURE X Joe Travino

Thank You!!!

SERVICE

DEPTH OF JOB 843'

PUMP TRUCK CHARGE 2056.50

EXTRA FOOTAGE @ \_\_\_\_\_

MILEAGE 35 @ 7.70 269.50

MANIFOLD Hegarty @ 275.00

L'SH 35 @ 4.40 154.00

TOTAL 2757.00

PLUG & FLOAT EQUIPMENT

9 5/8

1- Rubber Plug @ 184.86

@ \_\_\_\_\_

@ \_\_\_\_\_

@ \_\_\_\_\_

@ \_\_\_\_\_

TOTAL 184.86

SALES TAX (If Any) 634.63

TOTAL CHARGES 13959.62 53

DISCOUNT 4885.87 IF PAID IN 30 DAYS

Net \$ 9,073.75

# ALLIED OIL & GAS SERVICES, LLC

KB  
052630

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:  
Liberal KS

DATE <u>11-10-12</u>	SEC. <u>10</u>	TWP. <u>34S</u>	RANGE <u>13W.</u>	CALLED OUT	ON LOCATION	JOB START <u>11:00am</u>	JOB FINISH <u>12:00am</u>
Donovan LEASE	WELL# <u>1-H</u>	LOCATION <u>S.W. Medicine Lodge</u>		COUNTY <u>Barber</u>	STATE <u>KS</u>		
OLD OR (NEW) (Circle one)						<u>1.08</u>	<u>7.3</u>

CONTRACTOR Patterson #421  
 TYPE OF JOB 7" INTERMEDIATE  
 HOLE SIZE \_\_\_\_\_ T.D. \_\_\_\_\_  
 CASING SIZE 7" 2.6# DEPTH 9301 feet  
 TUBING SIZE \_\_\_\_\_ DEPTH \_\_\_\_\_  
 DRILL PIPE \_\_\_\_\_ DEPTH \_\_\_\_\_  
 TOOL \_\_\_\_\_ DEPTH \_\_\_\_\_  
 PRES. MAX \_\_\_\_\_ MINIMUM \_\_\_\_\_  
 MEAS. LINE \_\_\_\_\_ SHOE JOINT 41.90  
 CEMENT LEFT IN CSG. \_\_\_\_\_  
 PERFS. \_\_\_\_\_  
 DISPLACEMENT 201.5 BBLs  
 EQUIPMENT \_\_\_\_\_

OWNER Tug Hill  
 CEMENT AMOUNT ORDERED 225 sk "A" 5% salt  
B.W., 2% Gel, .3% FI-160 + defoamer  
 COMMON 225 sk A @ 17.90 4,027.50  
 POZMIX @ \_\_\_\_\_  
 GEL 4 sk @ 23.70 93.60  
 CHLORIDE @ \_\_\_\_\_  
 ASC @ \_\_\_\_\_  
 Salt 11 sk @ 21.35 234.85  
 FI-160 63 lb @ 18.90 1,190.70  
 LDEF 5 gal @ 52.38 261.90  
 ASF 12 Bbls @ 58.70 704.40  
 HANDLING 245 cu ft @ 2.48 607.60  
 MILEAGE 222.29 Ton Mi @ 2.60 577.95  
 TOTAL 7,753.50

PUMP TRUCK CEMENTER Rubeh Chavez  
 #531/484 HELPER Urcate Torres, Kenny B.  
 BULK TRUCK DRIVER Ricardo Estrada  
 BULK TRUCK DRIVER \_\_\_\_\_

REMARKS:  
Pump 12 BBLs - spacer super  
Flash. Mix + pump 22.5 sk  
of cement 54.1 BBLs of slurry  
and displace it with 201 BBLs  
of H2O. Pump plug at  
1500 PSI, Pressure Hold  
Thank you

SERVICE  
 DEPTH OF JOB 5353 feet  
 PUMP TRUCK CHARGE 3,099.25  
 EXTRA FOOTAGE @ \_\_\_\_\_  
 MILEAGE heavy 20 Mi @ 7.70 154.00  
 MANIFOLD + Cam head 1 @ 2.75 2.75.00  
 Light Vehicle 20 Mi @ 4.40 88.00

CHARGE TO: Tug Hill DOWNHILL #1-1011  
 Well Name \_\_\_\_\_  
 STREET AFE No. #12-073  
 CITY ACCNT No. 838.83P  
 Name Joe Trevino  
 Signature Joe Trevino

TOTAL 3616.25  
stand by 6 Hours - charge only 3-440.00  
PLUG & FLOAT EQUIPMENT 1,320.00

To: Allied Oil & Gas Services, LLC.  
 You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

7"  
Rubber plug 1 @ 99.45 99.45  
 Well Name @ \_\_\_\_\_  
 AFE No. @ \_\_\_\_\_  
 ACCNT No. @ \_\_\_\_\_  
 Name \_\_\_\_\_  
 Signature \_\_\_\_\_

PRINTED NAME Joe Trevino  
 SIGNATURE Joe Trevino

SALES TAX (if Any) 486.72  
 TOTAL CHARGES 12,789.20  
 DISCOUNT 4476.22 IF PAID IN 30 DAYS  
 NET = 8312.98

# ALLIED CEMENTING CO., LLC. 32706

Federal Tax I.D.# 20-5976804

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:  
*Medicine Lodge, KS*

DATE <i>11-14-12</i>	SEC <i>10</i>	TYP <i>34s</i>	RANGE <i>14w</i>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <i>7:00 AM</i>
LEASE <i>Donovan</i>	WELL <i>1-H</i>	LOCATION <i>US 160 &amp; Gyp Hill Rd, 12s. w/nt</i>	COUNTY <i>Barber</i>	STATE <i>KS</i>			

CONTRACTOR *Patterson #* OWNER *Tughill*

TYPE OF JOB *Production Lines*

HOLE SIZE *6 1/8* T.D.

CASING SIZE *4 1/2* DEPTH *700'*

TUBING SIZE DEPTH

DRILL PIPE *4"* DEPTH *5149'*

TOOL DEPTH

PRES. MAX *3300 #* MINIMUM *N/A*

MHAS LINE SHOE JOINT *46.32*

CEMENT LEFT IN CSO. *47'*

PBRFS.

DISPLACEMENT *117 Bbls Fresh H<sub>2</sub>O*

CEMENT

AMOUNT ORDERED *4055x class H 50:50#*  
*+ 200# + 5% salt + 3# Kolsul + 6% FL-140 + 19% CD-31 + 1% SA-81 + 12% fines - 25#*

COMMON <i>class H</i>	<i>200.5</i>	<i>@ 16.85</i>	<i>3412.63</i>
POZMIX	<i>200.5</i>	<i>@ 9.35</i>	<i>1893.38</i>
OEL	<i>- 7.52</i>	<i>@ 23.40</i>	<i>163.80</i>
CHLORIDE			
ASC			
Salt	<i>90</i>	<i>@ 26.35</i>	<i>2371.15</i>
FL-140	<i>204 #</i>	<i>@ 18.40</i>	<i>3755.60</i>
SA-81	<i>34 #</i>	<i>@ 17.50</i>	<i>596.20</i>
CD-31	<i>39 #</i>	<i>@ 10.75</i>	<i>350.20</i>
Kolsul	<i>1215 #</i>	<i>@ 1.98</i>	<i>1190.70</i>
De Bruma	<i>81 #</i>	<i>@ 9.80</i>	<i>793.80</i>
HANDLING	<i>464.25</i>	<i>@ 2.48</i>	<i>1151.84</i>
MILEAGE	<i>18.59</i>	<i>@ 2.10</i>	<i>390.39</i>
			TOTAL <i>14611.82</i>

EQUIPMENT

PUMP TRUCK CEMENTER *D. Eddie*

# *558-555* HELPER *D. Franklin*

BULK TRUCK DRIVER *J. Head*

# *221-252* DRIVER *J. Head*

BULK TRUCK DRIVER

REMARKS:

*See Job Log, Set Tools w/ Baker Hood*

*Pumped Plug*

*Revised out - Bbls Cement*

*THX ☺*

CHARGE TO: *Tughill*

STREET

CITY STATE ZIP

To Allied Cementing Co., LLC.  
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME *Tony Ea*

SIGNATURE *Tony Ea*

SERVICE

DEPTH OF JOB	<i>9301</i>		
PUMP TRUCK CHARGE			<i>5920.00</i>
EXTRA FOOTAGE			
MILEAGE	<i>20</i>	<i>@ 7.70</i>	<i>154.00</i>
MANIFOLD	<i>N/A</i>		
<i>Light + Vehicle</i>	<i>20</i>	<i>@ 4.40</i>	<i>88.00</i>
			TOTAL <i>6162.00</i>

PLUG & FLOAT EQUIPMENT

Well Name *Donovan 1-DH*

AFF No. *12 0123*

ACCT No. *830.78*

Name *Tony Ea*

Signature *Tony Ea*

SALES TAX (if Any) *912.02*

TOTAL CHARGES *2077.32*

DISCOUNT *7274.09* IF PAID IN 30 DAYS

Net *13503.07*

Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

December 19, 2012

Winnie Scott  
Tug Hill Operating, LLC  
550 BAILEY AVE, STE 510  
FT. WORTH, TX 76107

Re: ACO1  
API 15-007-23910-01-00  
Donovan 1-10H  
NE/4 Sec.10-34S-13W  
Barber County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
Winnie Scott