



## **Final Well Report**

Well: Amungee NW-1H

Field: Beetaloo North

Rig: Saxon 185

**Slb Oilfield Australia (Pty) L,PathFinder**

Prepared For

Client: ORIGIN ENERGY RESOURCES LTD

Report Prepared By: \_\_\_\_\_

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

Quality Check By: \_\_\_\_\_

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

Approved By: \_\_\_\_\_

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



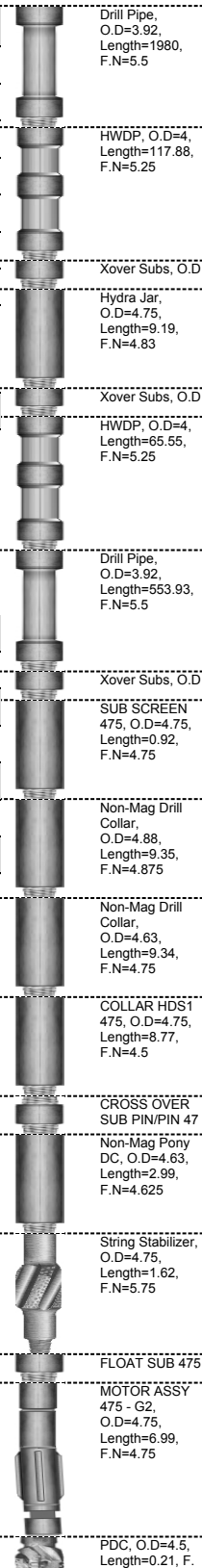


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

BHA # 1 on Run # 1 - BHA Summary Information																	
TIME IN - OUT				Rotary Hours		0.00		Start Depth		1885		RPM Range		Flow Rate			
Start Time		End Time		Total Circu. Hours		5.68		End Depth		2016		20-20		300-300			
23-Oct-15 @ 18:15		24-Oct-15 @ 17:30		Slide Hours		0.00		Percent Rotary				TVD Depth In		TVD Depth Out			
				Below Rotary Hour		23.25		Percent Slide				1,884.90		2,015.90			
Total Drilled			0.00		Avg. Total ROP			0		Incl.			Azimuth				
Total Rotary Drilled			0.00		Avg. Rotary ROP					IN		OUT		IN		OUT	
Total Drilled Sliding			0.00		Avg. Slide ROP					0.98		0.79		78.92		84.43	
SPP	2,100-1,900		wt. SOW		-		PUW	-		RSW	-		Rea. POOH		Change Bottom Hole Assembly (non-failure)		
Bit Data						Motor Data						Mud Data					
Smith-SLB			MSI713			MOTOR ASSY 475 - G2						Type	Water Base		BHT	64	
Bit Type		PDC				Model	PathFinder		Pad OD	6.50	WT	9.65 <th>Gas</th> <td></td> <th>Solids</th> <td></td>	Gas		Solids		
TFA		.907				MFG	Pathfinder		Stator / Rot	7:8	Vis	44	Sand		T		
JETS		13	13	13	13	13	Bend		1.50	Motor Diff	200	PV		PH		Chlor	
		13	13				Bit to Bend		0.52	Output	1.02	YP		WL		Oil%	
Bit Coding		IADC #					NB Stab		6.50	Rotor Jet	12.00	PUMPS		PUMP1		PUMP2	
IR	OR	DL	LOC	BS	G	ODL	Sensor Offsets				NAME	HONG HUA		HONG HUA			
0	0	NO	A	X	I	NOBHA	GAMMA	14.18				Model	F1000		F1000		
Bit Drop		88 PSI @ 300 GPM										Type	Triplex		Triplex		
												Liner	6		6		
												Stroke	10		10		
												Output	1.2239970447		1.22399704473		
Comments																	
<p>A pre job meeting was held with the crew prior to picking up the BHA and discussed use of lifting subs, the order tools were to be picked up in. Pinch point awareness and manual handling techniques were discussed.</p> <p>The BHA was made up and RIH to the proposed sidetrack point. At 1870 wash down started to clean the hole and test the integrity of the cement. However, the cement was found to be very soft and no suitable for a kicking off.</p> <p>Drilling continued further beyond the sidetrack point to 2016 m, without any sign of improvement in the quality of the cement.</p> <p>Decision was made to POOH and redo the cement Job</p> <p>Highlights: None</p> <p>Lowlights: Soft Cement</p>																	
BHA Detail																	
#	Description					Serial #		I.D	O.D	Length	Sum	Top Conn					
1	PDC					JJ4558		1.5	4.5	0.21	0.21	3 1/2 in API REG PIN					
2	MOTOR ASSY 475 - G2					4235		3.49	4.75	6.99	7.2	3 1/2 in NC38(IF) BOX					
3	FLOAT SUB 475					D47F300		2.5	4.75	0.94	8.14	3 1/2 in NC38(IF) BOX					
4	String Stabilizer					OSS11-01375D		2.13	4.75	1.62	9.76	3 1/2 in NC38(IF) BOX					
5	Non-Mag Pony DC					B47V074		2.5	4.63	2.99	12.75	3 1/2 in NC38(IF) BOX					
6	CROSS OVER SUB PIN/PIN 475					D47X323		2.5	4.5	0.36	13.11	3 1/2 in NC38(IF) PIN					
7	COLLAR HDS1 475					D47C557		3.38	4.75	8.77	21.88	3 1/2 in NC38(IF) BOX					
8	Non-Mag Drill Collar					B47C103C		2.75	4.63	9.34	31.22	3 1/2 in NC38(IF) BOX					
9	Non-Mag Drill Collar					B50C0035		2.75	4.88	9.35	40.57	3 1/2 in NC38(IF) BOX					
10	SUB SCREEN 475					D47R087		2.25	4.75	0.92	41.49	3 1/2 in NC38(IF) BOX					
11	Xover Subs					116265-03-01		2.25	5.25	0.61	42.1	4 in NC40(DS) BOX					
12	Drill Pipe					RIG1		3.24	3.92	553.93	596.03	4 in NC40(DS) BOX					
13	HWDP					RIG2		2.56	4	65.55	661.58	4 in NC40(DS) BOX					
14	Xover Subs					RIG3		2.25	5.25	0.73	662.31	3 1/2 in NC38(IF) BOX					
15	Hydra Jar					83952J		2.25	4.75	9.19	671.5	3 1/2 in NC38(IF) BOX					





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**Rig Name:** Saxon 185

**Well Name:** Amungee NW-1H

**Well Location:** Lat: -16.3445, Long: 133.8845

**Well State:** Northern Territory

**Well County:** Beetaloo

**Well Field:** Beetaloo North

**Well Country:** AUSTRALIA

**Lead DD:** Pritchett, Andrew

**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

16	Xover Subs	185026	2.25	5.25	0.66	672.16	4 in NC40(DS) BOX
17	HWDP	RIG4	.56	4	117.88	790.04	4 in NC40(DS) BOX
18	Drill Pipe	RIG5	3.24	3.92	1980	2770.04	4 in NC40(DS) BOX






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BHA # 2 on Run # 2 - BHA Summary Information																										
TIME IN - OUT				Rotary Hours		7.00		Start Depth		1910.2		RPM Range		Flow Rate												
Start Time		End Time		Total Circu. Hours		32.64 <th colspan="2">End Depth</th> <td colspan="2">1926.1<td colspan="2">0-0<td colspan="3">300-300</td></td></td>		End Depth		1926.1 <td colspan="2">0-0<td colspan="3">300-300</td></td>		0-0 <td colspan="3">300-300</td>		300-300												
25-Oct-15 @ 12:30		27-Oct-15 @ 11:30		Slide Hours		0.00 <th colspan="2">Percent Rotary</th> <td colspan="2">100%<th colspan="2">TVD Depth In</th><th colspan="3">TVD Depth Out</th></td>		Percent Rotary		100% <th colspan="2">TVD Depth In</th> <th colspan="3">TVD Depth Out</th>		TVD Depth In		TVD Depth Out												
				Below Rotary Hour		47.00 <th colspan="2">Percent Slide</th> <td colspan="2">0%<td colspan="2">1,857.00</td><td colspan="3">1,926.00</td></td>		Percent Slide		0% <td colspan="2">1,857.00</td> <td colspan="3">1,926.00</td>		1,857.00		1,926.00												
Total Drilled		15.90		Avg. Total ROP		2.27		Incl.				Azimuth														
Total Rotary Drilled		15.90		Avg. Rotary ROP		2.27		IN		OUT		IN		OUT												
Total Drilled Sliding		0.00		Avg. Slide ROP				0.79		0.79		76.1		79.54												
SPP	1,600-1,550		wt. SOW		124-124		PUW	127-127		RSW	126-126		Rea. POOH		Change Bottom Hole Assembly (non-failure)											
Bit Data						Motor Data						Mud Data														
Smith-SLB			XR50Y			MOTOR ASSY 475 - G2						Type		Water Base		BHT		73								
Bit Type		Insert				Model		PathFinder		Pad OD		6.50		WT		9.50		Gas		Solids						
TFA		.746				MFG		Pathfinder		Stator / Rot		7:8		Vis		38		Sand		T						
JETS		18		18		18				Bend		1.50		Motor Diff		50		PV		PH		9.5		Chlor		
										Bit to Bend		1.64		Output		1.02		YP		WL				Oil%		
Bit Coding		IADC #				NB Stab		6.50		Rotor Jet		12.00		PUMPS		PUMP1		PUMP2								
IR	OR	DL	LOC	BS	G	ODL		Sensor Offsets						NAME		HONG HUA		HONG HUA								
0	0	NO	A		I	NOBHA		HDS1		16.61				Model		F1000		F1000								
Bit Drop		128 PSI @ 300 GPM				GAMMA		14.15						Type		Triplex		Triplex								
														Liner		6		6								
														Stroke		10		10								
														Output		1.2239970447		1.22399704473								
Comments																										
<p>Operation Summary: A pre job meeting was held with the crew prior to picking up the BHA and discussed use of lifting subs, the order tools were to be picked up in. Pinch point awareness and manual handling techniques were discussed. The BHA was made up and RIH to the proposed sidetrack point. At 1857 the cement was tagged, started increasing the WOB gradually until 15K was reached to test the cement integrity, the WOB applied yielded an average ROP of 13 m/hr. The cement quality had improved noticeably compared with the last run, so the BHA was rotated to 1891 m, and started to Slide instead of rotating, in an attempt to kick off the well earlier and avoid time drilling. However, due to the hardness of the formation, no increase in the formation percentage was noticed. At 1911, a pre-kick was attempted, to utilize the cement hardness and give us an advantage of staying ahead of the plan. Time drilling at a rate Of 04-0.5 m/hr was used most of the time, without any significant success.</p> <p>AT 1926 decision was made to POOH and increase the motor bend to 2.12 and switch TCI bit with PDC.</p> <p>Highlights: None Lowlights: 1.5 bend was not enough to kick off the well and initiate the sidetrack</p>																										
BHA Detail																										
#	Description						Serial #		I.D	O.D	Length	Sum	Top Conn													
1	Insert						RD3412		1.5	4.5	0.18	0.18	3 1/2 in API REG PIN													
2	MOTOR ASSY 475 - G2						4235		3.49	4.75	6.99	7.17	3 1/2 in NC38(IF) BOX													
3	FLOAT SUB 475						D47F300		2.5	4.75	0.94	8.11	3 1/2 in NC38(IF) BOX													
4	String Stabilizer						01375D		2.13	4.75	1.62	9.73	3 1/2 in NC38(IF) BOX													
5	Non-Mag Pony DC						B47V074		2.5	4.63	2.99	12.72	3 1/2 in NC38(IF) BOX													
6	CROSS OVER SUB PIN/PIN 475						D47X323		2.5	4.5	0.36	13.08	3 1/2 in NC38(IF) BOX													
7	COLLAR HDS1 475						D47C557		3.38	4.75	8.77	21.85	3 1/2 in NC38(IF) BOX													
8	Non-Mag Drill Collar						B47C103C		2.75	4.63	9.34	31.19	3 1/2 in NC38(IF) BOX													
9	Non-Mag Drill Collar						B50C0035		2.75	4.88	9.35	40.54	3 1/2 in NC38(IF) BOX													
10	SUB SCREEN 475						D47R087		2.25	4.75	0.92	41.46	3 1/2 in NC38(IF) BOX													
11	Xover Subs						116265-03-01		2.25	5.25	0.61	42.07	4 in NC40(DS) BOX													



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12	Drill Pipe	RIG	3.24	3.92	553.93	596	4 in NC40(DS) BOX
13	HWDP	RIG1	2.56	4.04	65.55	661.55	4 in NC40(DS) BOX
14	Xover Subs	RIG2	2.25	5.25	0.73	662.28	3 1/2 in NC38(IF) BOX
15	Hydra Jar	8395J2	2.25	4.75	9.19	671.47	3 1/2 in NC38(IF) BOX
16	Xover Subs	RIG3	2.25	5.25	0.66	672.13	4 in NC40(DS) BOX
17	HWDP	RIG4	2.56	4	117.88	790.01	4 in NC40(DS) BOX
18	Drill Pipe	RIG5	3.24	3.92	1980	2770.01	4 in NC40(DS) BOX

























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BHA # 3 on Run # 3 - BHA Summary Information																					
TIME IN - OUT				Rotary Hours		5.00		Start Depth		1926.1		RPM Range		Flow Rate							
Start Time		End Time		Total Circu. Hours		20.79 <th colspan="2">End Depth</th> <td colspan="2">1928.8<th colspan="2">0-0</th><td colspan="2">285-285</td><th rowspan="2"></th></td>		End Depth		1928.8 <th colspan="2">0-0</th> <td colspan="2">285-285</td> <th rowspan="2"></th>		0-0		285-285							
27-Oct-15 @ 12:00		29-Oct-15 @ 01:30		Slide Hours		0.00 <th colspan="2">Percent Rotary</th> <td colspan="2">100%</td> <th colspan="2">TVD Depth In</th> <th colspan="2">TVD Depth Out</th>		Percent Rotary		100%		TVD Depth In		TVD Depth Out							
				Below Rotary Hour		37.50 <th colspan="2">Percent Slide</th> <td colspan="2">0%</td> <td colspan="2">1,926.00</td> <td colspan="2">1,928.71</td> <th rowspan="2"></th>		Percent Slide		0%		1,926.00		1,928.71							
Total Drilled		2.70		Avg. Total ROP		0.54		Incl.				Azimuth									
Total Rotary Drilled		2.70		Avg. Rotary ROP		0.54		IN		OUT		IN		OUT							
Total Drilled Sliding		0.00		Avg. Slide ROP				0.79		0		79.54		0							
SPP	1,650-1,650		wt. SOW		-		PUW	-		RSW	-		Rea. POOH		Change Bottom Hole Assembly (non-failure)						
Bit Data				Motor Data				Mud Data													
Smith-SLB			MS1713			MOTOR ASSY 475 - G2				Type	Water Base			BHT	73						
Bit Type		PDC				Model	PathFinder		Pad OD	6.50		WT	9.60		Gas			Solids			
TFA		.907				MFG	Pathfinder		Stator / Rot	7:8		Vis	41		Sand		T				
JETS		13	13	13	13	13	Bend		1.50		Motor Diff	0		PV		PH	9.5		Chlor		
		13	13				Bit to Bend		1.67		Output	1.02		YP		WL		Oil%			
Bit Coding		IADC #					NB Stab		6.50		Rotor Jet	12.00		PUMPS		PUMP1		PUMP2			
IR	OR	DL	LOC	BS	G	ODL		Sensor Offsets				NAME	HONG HUA		HONG HUA						
0	0	NO	A		I	NOBHA		GAMMA	14.15				Model	F1000		F1000					
Bit Drop		79 PSI @ 285 GPM								Type	Triplex		Triplex								
											Liner	6		6							
											Stroke	10		10							
																		Output	1.2239970447		1.22399704473
Comments																					
<p>Objectives: Sidetrack successfully with motor @ 2.12 deg bend Avoid negative drilling events including stuck pipe and twist off. No components LIH or DBR Drill with good ROP while achieving well plan. No QHSE events.</p> <p>Hold PJSM with all crew and M/U 4-3/4" steerable motor MWD assembly. A successful shallow test was conducted and the assembly tripped in hole.</p> <p>At 1923m MD the side-track was initiated, decision was made already to side-track at a slower pace than before, to ensure the side-track is created successfully.</p> <p>A rate of 0.3 m/hr was chosen and with close monitoring to the samples in coordination with the geologists the first signs of success started to show up at 1926 with a formation percent of 20%, at that moment while considering the high degree of hardness of the formation, the rate was maintained longer to ensure the ledge is not broken and the side-track is achieved with high degree of confidence.</p> <p>At 1932, the formation percent was 90 %, decision was made to POOH to change the motor bend to 1.5 deg and pick up the SGS tool.</p> <p>At surface the motor was tested and redialled again to 1.5 deg and the bit was found in good condition at</p> <p>The bit was graded 1 - 1 - WT - All - X - In - No - BHA.</p> <p>Highlights: Successful first attempt to sidetrack with 2.12 deg bend and PDC bit No unplanned events</p> <p>Recommendations: The 2.12 bend with the 0.3 m/hr time drilling were the main factors in achieving the sidetrack</p>																					
																					
BHA Detail																					
#	Description					Serial #	I.D	O.D	Length	Sum	Top Conn										
1	PDC					JJ4558	1.5	4.5	0.21	0.21	3 1/2 in API REG PIN										



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8	Non-Mag Drill Collar	B47C103C	2.75	4.63	9.34	31.22	3 1/2 in NC38(IF) BOX
9	Non-Mag Drill Collar	B50C0035	2.75	4.88	9.35	40.57	3 1/2 in NC38(IF) BOX
10	SUB SCREEN 475	D47R087	2.25	4.75	0.92	41.49	3 1/2 in NC38(IF) BOX
11	Xover Subs	116265-03-01	2.25	5.25	0.61	42.1	4 in NC40(DS) BOX
12	Drill Pipe	RIG1	3.24	3.92	553.93	596.03	4 in NC40(DS) BOX
13	HWDP	RIG2	2.56	4	65.55	661.58	4 in NC40(DS) BOX
14	Xover Subs	RIG3	2.25	4.75	0.73	662.31	3 1/2 in NC38(IF) BOX
15	Hydra Jar	83952J	2.25	4.75	9.19	671.5	3 1/2 in NC38(IF) BOX
16	Xover Subs	185025	2.25	5.25	0.66	672.16	4 in NC40(DS) BOX
17	HWDP	RIG4	2.56	4	117.88	790.04	NC40(DS) BOX
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BHA # 4 on Run # 4 - BHA Summary Information																					
TIME IN - OUT				Rotary Hours			34.62		Start Depth		1928.8		RPM Range		Flow Rate						
Start Time		End Time		Total Circu. Hours			172.36		End Depth		2798.5		0-270		270-320						
29-Oct-15 @ 02:00		06-Nov-15 @ 11:00		Slide Hours			109.10		Percent Rotary		43.22%		TVD Depth In		TVD Depth Out						
				Below Rotary Hour			201.00		Percent Slide		56.78%		1,928.80		2,465.72						
Total Drilled			869.70			Avg. Total ROP			6.05		Incl.			Azimuth							
Total Rotary Drilled			375.90			Avg. Rotary ROP			10.86		IN		OUT		IN		OUT				
Total Drilled Sliding			493.80			Avg. Slide ROP			4.53		0		84.95		0		135.48				
SPP	1,990-2,520		wt. SOW		126-138			PUW	136-155		RSW	128-145		Rea. POOH		Section Total Depth					
Bit Data						Motor Data						Mud Data									
Smith-SLB				MSI713				MOTOR ASSY 475 - G2				Type		Water Base			BHT	81			
Bit Type		PDC						Model	PathFinder		Pad OD		6.50		WT	10.50	Gas <td colspan="1"></td> <th colspan="1">Solids</th> <td colspan="1">14.20</td>		Solids	14.20	
TFA		.907						MFG	Pathfinder		Stator / Rot		7:8		Vis	49	Sand	0.10	T		
JETS		13	13	13	13	13	Bend		1.50		Motor Diff		90		PV	18	PH	9.5	Chlor	165,000	
		13	13				Bit to Bend		1.67		Output		1.02		YP	35	WL		Oil%		
Bit Coding		IADC #						NB Stab		6.50		Rotor Jet		12.00		PUMPS		PUMP1		PUMP2	
IR	OR	DL	LOC	BS	G	ODL		Sensor Offsets						NAME		HONG HUA		HONG HUA			
1	1	WT	A	X	I	NOTD		Spectral Gam		14.51						Model		F1000		F1000	
Bit Drop		77 PSI @ 270 GPM														Type		Triplex		Triplex	
																Liner		6		6	
																Stroke		10		10	
																Output		1.2239970447		1.22399704473	

## Comments

### Objectives:

Drill 6-3/4" build section from 1932m to +/- 2770m using a steerable motor assembly with a 1.5 bend  
 Build from 1932m building and as per plan to 90 deg inclination at 135 deg azimuth landing out at approximately 2770m  
 Avoid negative drilling events including stuck pipe and twist off.  
 No components LIH or DBR  
 Drill with good ROP while achieving well plan.  
 No QHSE events.

Hold PJSM with all crew and M/U 4-3/4" steerable motor MWD assembly. A successful shallow test was conducted and the assembly tripped in hole. Once on bottom sliding was initiated to kick the well off, however sliding was quite difficult with even minor differential fluctuations causing wild toolface jumps so light parameters were necessary to control the toolface. Initial slides of 50% yielded no build and more than 90% sliding was required to achieve the required 3.2 deg/30m build rates. It seems that there was a huge dropping tendency within the formation and over half the motor output was needed to overcome the drop before any build could be achieved and the assembly dropped dramatically when rotated. Because of this, DL was about 1/4 of would normally be expected and extremely unpredictable however enough DL was achievable to keep up with the well plan. As inclination was built to over 20 deg at 2120m, toolface control improved so sliding was quicker as a result, but long slides of about 80% were still required because of the big drop rate. The 1.5 deg motor bend was a good choice as less bend would not have managed to get the DL. With improved ROP and better TF stability Better DL was yielded but because of the huge rotary drop rotary intervals had to be kept short. The drop rate began to lessen from about 60deg inclination and shorter slides and more rotation was possible about 50% and by 75 deg inclination 2630m only 30% or less sliding was required and rotary intervals held angle or even a slight build. Slides in the latter part of the build were a little difficult to get started but once underway were reasonably straight forward if a little slower. The evo lube in the mud system seemed to help as little or no hanging up was observed when sliding.

At section TD the hole was circulated clean and the assembly tripped out of hole without any problems.  
 The motor had accumulated 87 circulating hrs and was in good condition with a bearing gap of 2mm

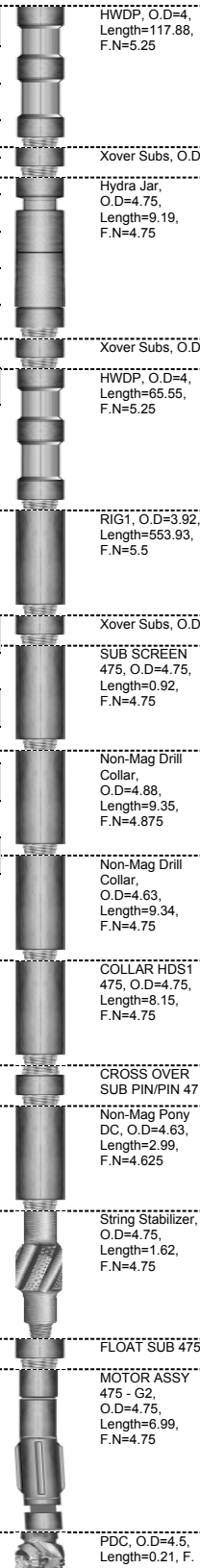
The Smith MSI713 PDC did a good job. Toolface control was quite a challenge caused slow sliding ROP till the inclination was over 20deg after which it became progressively more stable and very good ROP's were obtained both sliding and rotating The bit was graded 1 - 1 - WT - All - X - In - No - BHA.

### Highlights:

Managed to achieve the well plan under difficult conditions  
 No unplanned events

### Recommendations:

The Smith MSI713 PDC although a hand full at the beginning is a good choice to do the build section in one run





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.343937, Long: 133.8842  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

Because of the large drop rate and reduced unpredictable DL achieved for 2/3 of the build section a 1.5 degree motor bend is necessary

As there was little sign of any hanging up when sliding throughout the section the dosing of the mud system with lubricant would seem beneficial.

#### BHA Detail

#	Description	Serial #	I.D	O.D	Length	Sum	Top Conn
1	PDC	JJ4558	1.5	4.5	0.21	0.21	3 1/2 in API REG PIN
2	MOTOR ASSY 475 - G2	4235	3.49	4.75	6.99	7.2	3 1/2 in NC38(IF) BOX
3	FLOAT SUB 475	D47F300	2.5	4.75	0.94	8.14	3 1/2 in NC38(IF) BOX
4	String Stabilizer	OSS11-01375D	2.13	4.75	1.62	9.76	3 1/2 in NC38(IF) BOX
5	Non-Mag Pony DC	B47V074	2.5	4.63	2.99	12.75	3 1/2 in NC38(IF) BOX
6	CROSS OVER SUB PIN/PIN 475	D47X327	2.5	4.75	0.98	13.73	3 1/2 in NC38(IF) BOX
7	COLLAR HDS1 475	D47C546	2.81	4.75	8.15	21.88	3 1/2 in NC38(IF) BOX
8	Non-Mag Drill Collar	B47C103C	2.75	4.63	9.34	31.22	3 1/2 in NC38(IF) BOX
9	Non-Mag Drill Collar	B50C0035	2.75	4.88	9.35	40.57	3 1/2 in NC38(IF) BOX
10	SUB SCREEN 475	D47R087	2.25	4.75	0.92	41.49	3 1/2 in NC38(IF) BOX
11	Xover Subs	116265-03-01	2.25	5.25	0.61	42.1	4 in NC40(DS) BOX
12	RIG1	RIG1	3.24	3.92	553.93	596.03	4 in NC40(DS) BOX
13	HWDP	RIG2	2.56	4	65.55	661.58	4 in NC40(DS) BOX
14	Xover Subs	16022-01-01	2.25	5.25	0.73	662.31	3 1/2 in NC38(IF) BOX
15	Hydra Jar	83952J	2.25	4.75	9.19	671.5	3 1/2 in NC38(IF) BOX
16	Xover Subs	185026	2.25	5.25	0.66	672.16	4 in NC40(DS) BOX
17	HWDP	RIG3	2.56	4	117.88	790.04	4 in NC40(DS) BOX

[illegible]



Job Number: 15AUS0152  
 Company Name: ORIGIN ENERGY RESOURCES LTD  
 Rig Name: Saxon 185  
 Well Name: Amungee NW-1H  
 Well Location: Lat: -16.3445, Long: 133.8845  
 Well State: Northern Territory

Well County: Beetaloo  
 Well Field: Beetaloo North  
 Well Country: AUSTRALIA  
 Lead DD: Pritchett, Andrew  
 Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

BHA # 5 on Run # 5 - BHA Summary Information																			
TIME IN - OUT				Rotary Hours		105.42		Start Depth		2798.5		RPM Range		Flow Rate					
Start Time		End Time		Total Circu. Hours		137.88		End Depth		3808		80-100		275-280					
07-Nov-15 @ 06:30		15-Nov-15 @ 06:00		Slide Hours		0.00		Percent Rotary		100%		TVD Depth In		TVD Depth Out					
				Below Rotary Hour		191.50		Percent Slide		0%		2,449.88		2,428.00					
Total Drilled		1,009.50		Avg. Total ROP		9.58		Incl.				Azimuth							
Total Rotary Drilled		1,009.50		Avg. Rotary ROP		9.58		IN		OUT		IN		OUT					
Total Drilled Sliding		0.00		Avg. Slide ROP				84.33		92.07		136.52		126.21					
SPP	2,450-2,840		wt. SOW		120-147		PUW	160-165		RSW	145-151		Rea. POOH	Well Total Depth					
Bit Data					Motor Data					Mud Data									
Smith-SLB			MDSIR516								Type	Fresh Water			BHT	97			
Bit Type		PDC				Model			Pad OD			WT	10.50	Gas			Solids	14.00	
TFA		.552				MFG			Stator / Rot			Vis	46	Sand	0.10	T			
JETS		12	12	12	12	12	Bend		Motor Diff				PV	16	PH	9.5	Chlor	159,000	
							Bit to Bend		Output				YP	34	WL	85.80	Oil%		
Bit Coding		IADC #					NB Stab				Rotor Jet			PUMPS		PUMP1		PUMP2	
IR	OR	DL	LOC	BS	G	ODL		Sensor Offsets					NAME		HONG HUA		HONG HUA		
1	1	ER	A	X	I	NOTD		DPM	6.66	GAMMA	17.26	Model		F1000		F1000			
Bit Drop		216 PSI @ 275 GPM				Spectral Gam		8.73	INC		16.94	Type		Triplex		Triplex			
								AWR		19.3			Liner		6		6		
													Stroke		10		10		
													Output		1.2239970447		1.22399704473		

## Comments

BHA #5: 6-3/4" RSS Assembly 2798m – 3808m (7-Nov-15 \_ 15-Nov-15)

### Objectives:

Drill 6-3/4" build section from 2798 m to +/- 2808 m using a PDX475  
 Land the well at 90 degrees and Geo-steer to target at 3808  
 Avoid negative drilling events including stuck pipe and twist off.  
 No components LIH or DBR  
 Drill with good ROP while achieving well plan.  
 No QHSE events.

Hold PJSM with all crew and M/U 4-3/4" RSS assembly. A successful shallow test was conducted and the assembly tripped in hole. Tight spots were washed through at 2130m and 2200m then at 2520 washing and reaming in hole was required to bottom at 2798m. The problem appears to be caused by cavings rather than cuttings.

Once on bottom, absolute commands 324 TF 50 % ratio and 342 @ 100 % were used to land the well at 2452m TVD @ 90 degrees, once horizontal, Inclination hold was initiated where with a few adjustments the tool remained for most of the run.

The drilling was initiated with 150 RPM of 150 but torque and stick slip were extremely high, this caused very poor MWD detection. Various parameters were tried to mitigate the high torque and stick slip and thus improve MWD signal, 80 rpm with 10 to 12klbs WOB was the best combination.

This combination was consistent for most of the run but the parameters were occasionally changed to try and improve both MWD detection and ROP. The aggressive nature of the MDSIR 516 bit was likely a big contributor the high torque and stick slip when drilling, it possibly had the potential for higher ROP but this could not be realized due to the excessive torque generated when higher WOB was applied.

Through the course of the run the PD performed very well, yielding up to 7°/30 from 100 % SR. Once horizontal Inclination hold mode was utilized most of the run where PD475 managed to perfectly hold the angle as required, adjustments were made through nudging up and down and occasionally minor azimuthal corrections to counter the formation walking tendency, which was constantly changing while drilling.

At around 3600m while the RSS was in inclination hold at 92°, the assembly began to build angle steadily, it seemed the RSS was unable to cope with a strong formation tendency when in Inclination hold so absolute command's using 100% SR were required to stop the build and get the well path back on track.

Just short of TD wellpath began to build again, thought to be the result of strong formation trend. Due to being close to TD well was rotated ahead to TD without issue.

At TD the hole was circulated until the shakers were clean before POOH. The assembly pulled nicely till around 2600m where it pulled tight, in much the same area as problems were incurred when RIH. The well was circulated but further attempts to POOH were unsuccessful. The assembly was backreamed out till near vertical hole at 2300m and the assembly was then. Once again caving seem to be the problem as when tripping in the hole.

The Smith MDSIR516 was graded 1 - 1 - ER - All - X - In - No - TD.

SUB SCREEN  
475, O.D=4.75,  
Length=0.92,  
F.N=4.75

Non-Mag Drill  
Collar,  
O.D=4.63,  
Length=9.34,  
F.N=4.75

ABS 475 -  
MEMORY/BATT  
ERY, O.D=5.25,  
Length=4.7,  
F.N=4.75

AWR 475 -  
TOOL ASSY,  
O.D=4.88,  
Length=6.24,  
F.N=4.75

COLLAR HDS1  
475, O.D=4.75,  
Length=8.15,  
F.N=4.75

CROSS OVER  
SUB PIN/PIN  
475, O.D=4.75, L

DPM 475 -  
TOOL ASSY,  
O.D=4.75,  
Length=1.4,  
F.N=4.75

FLOAT SUB  
475, O.D=4.75, L

PDX5/6 475,  
O.D=5,  
Length=4.46

PDC, O.D=4.5,  
Length=0.19,  
F.N=4.5





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

**Highlights:**

Managed to maintain the trajectory as per Geology requirements.  
Utilized the INC hold to make minor changes in the trajectory with min Dogleg severity  
No unplanned events

**Lowlights:**

Poor signal detection and real time log quality due torque and stick slip

**Recommendations:**

Highly recommended to run RT communications when running power drive for a quicker reaction to any problems, tool or hole.  
Choice of a less aggressive bit would improve real-time data quality and possibly improve ROP  
Run advanced detection to improve signal detection, ie two pressure transducers

**BHA Detail**

#	Description	Serial #	I.D	O.D	Length	Sum	Top Conn
1	PDC	JJ3265	1.5	4.5	0.19	0.19	3 1/2 in REG PIN
2	PDX5/6 475	69506	3.64	5	4.46	4.65	3 1/2 in IF BOX
3	FLOAT SUB 475	D47F300	2.5	4.75	0.94	5.59	3 1/2 in NC38(IF) BOX
4	DPM 475 - TOOL ASSY	P47C514K	2.5	4.75	1.4	6.99	3 1/2 in NC38(IF) BOX
5	CROSS OVER SUB PIN/PIN 475	D47X327	2.5	4.75	0.98	7.97	3 1/2 in NC38(IF) PIN
6	COLLAR HDS1 475	D47C546	2.81	4.75	8.15	16.12	3 1/2 in NC38(IF) BOX
7	AWR 475 - TOOL ASSY	R47M713	3.75	4.88	6.24	22.36	4 in FH BOX
8	ABS 475 - MEMORY/BATTERY	M47C199	4	5.25	4.7	27.06	3 1/2 in NC38(IF) BOX
9	Non-Mag Drill Collar	B47C103C	2.75	4.63	9.34	36.4	3 1/2 in NC38(IF) BOX
10	SUB SCREEN 475	D47R087	2.25	4.75	0.92	37.32	3 1/2 in NC38(IF) BOX



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
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## BHA Summary Report JOB - 15AUS0152

	TIME IN - OUT			DEPTHS		TVD DEPTHS		Footage / Hours			ROP			RPM	FLOW	Inclination		Azimuth		Weight Ranges		
#	Time In	Time Out	Hrs	IN	Out	IN	OUT	Rotary	Slide	Total	Avg	Rotary	Slide	RPM	FLOW	IN	OUT	IN	OUT	SO	PU	RAB
1	23-Oct-15 18:15	24-Oct-15 17:30	23.25	1885	2016	1884.9	2015.9	0 / 0.00	0 / 0.00	0 / 0.00	0			20-20	300-300	0.98	0.79	78.92	84.43	-	-	-

MOTOR ASSY 475 - G2, O.D=4.5, Length=0.21, F.N=4.5  
FLOAT SUB 475, O.D=4.75, Length=0.94, F.N=4.75  
String Stabilizer, O.D=4.75, Length=1.62, F.N=5.75  
Non-Mag Pony DC, O.D=4.63, Length=2.99, F.N=4.625  
CROSS OVER SUB PIN/PIN 475, O.D=4.5, Length=0.36, F.N=4.5  
COLLAR HDS1 475, O.D=4.75, Length=8.77, F.N=4.5  
Non-Mag Drill Collar, O.D=4.63, Length=9.34, F.N=4.75  
Non-Mag Drill Collar, O.D=4.88, Length=9.35, F.N=4.875  
SUB SCREEN 475, O.D=4.75, Length=0.92, F.N=4.75  
Xover Subs, O.D=5.25, Length=0.61, F.N=5.25  
Drill Pipe, O.D=3.92, Length=553.93, F.N=5.5  
HWDP, O.D=4, Length=65.55, F.N=5.25  
Xover Subs, O.D=5.25, Length=0.73, F.N=5.25  
Hydra Jar, O.D=4.75, Length=9.19, F.N=4.83  
Xover Subs, O.D=5.25, Length=0.66, F.N=5.25  
HWDP, O.D=4, Length=117.88, F.N=5.25



	TIME IN - OUT			DEPTHS		TVD DEPTHS		Footage / Hours			ROP			RPM	FLOW	Inclination		Azimuth		Weight Ranges		
#	Time In	Time Out	Hrs	IN	Out	IN	OUT	Rotary	Slide	Total	Avg	Rotary	Slide	RPM	FLOW	IN	OUT	IN	OUT	SO	PU	RAB
2	25-Oct-15 12:30	27-Oct-15 11:30	47	1910.2	1926.1	1857	1926	15.8999 999999 999 / 7.	0 / 0.00	15.8999 999999 999 / 7.	2.27	2.27		0-0	300-300	0.79	0.79	76.1	79.54	124-124	127-127	126-126

MOTOR ASSY 475 - G2, O.D=4.5, Length=0.18, F.N=4.5  
FLOAT SUB 475, O.D=4.75, Length=0.94, F.N=4.75  
String Stabilizer, O.D=4.75, Length=1.62, F.N=4.75  
Non-Mag Pony DC, O.D=4.63, Length=2.99, F.N=4.625  
CROSS OVER SUB PIN/PIN 475, O.D=4.5, Length=0.36, F.N=4.5  
COLLAR HDS1 475, O.D=4.75, Length=8.77, F.N=4.5  
Non-Mag Drill Collar, O.D=4.63, Length=9.34, F.N=4.75  
Non-Mag Drill Collar, O.D=4.88, Length=9.35, F.N=4.875  
SUB SCREEN 475, O.D=4.75, Length=0.92, F.N=4.75  
Xover Subs, O.D=5.25, Length=0.61, F.N=5.25  
Drill Pipe, O.D=3.92, Length=553.93, F.N=5.5  
HWDP, O.D=4.04, Length=65.55, F.N=5.25  
Xover Subs, O.D=5.25, Length=0.73, F.N=5.25  
Hydra Jar, O.D=4.75, Length=9.19, F.N=4.75  
Xover Subs, O.D=5.25, Length=0.66, F.N=5.25  
HWDP, O.D=4, Length=117.88, F.N=5.25





Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
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Well State: Northern Territory

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## BHA Summary Report JOB - 15AUS0152

#	TIME IN - OUT			DEPTHS		TVD DEPTHS		Footage / Hours			ROP			RPM	FLOW	Inclination		Azimuth		Weight Ranges		
	Time In	Time Out	Hrs	IN	Out	IN	OUT	Rotary	Slide	Total	Avg	Rotary	Slide	RPM	FLOW	IN	OUT	IN	OUT	SO	PU	RAB
3	27-Oct-15 12:00	29-Oct-15 01:30	37.5	1926.1	1928.8	1926	1928.71	2.70000 000000 005 / 5.	0 / 0.00	2.70000 000000 005 / 5.	0.54	0.54		0-0	285-285	0.79	0	79.54	0	-	-	-

MOTOR ASSY 475 - G2, O.D=4.5, Length=0.21, F.N=4.75  
FLOAT SUB 475, O.D=4.75, Length=0.94, F.N=4.75  
String Stabilizer, O.D=4.75, Length=1.62, F.N=4.75  
Non-Mag Pony DC, O.D=4.63, Length=2.99, F.N=4.625  
CROSS OVER SUB PIN/PIN 475, O.D=4.5, Length=0.36, F.N=4.5  
COLLAR HDS1 475, O.D=4.75, Length=8.77, F.N=4.75  
Non-Mag Drill Collar, O.D=4.63, Length=9.34, F.N=4.75  
Non-Mag Drill Collar, O.D=4.88, Length=9.35, F.N=4.875  
SUB SCREEN 475, O.D=4.75, Length=0.92, F.N=4.75  
Xover Subs, O.D=5.25, Length=0.61, F.N=5.25  
Drill Pipe, O.D=3.92, Length=553.93, F.N=5.5  
HWDP, O.D=4, Length=65.55, F.N=5.25  
Xover Subs, O.D=4.75, Length=0.73, F.N=5.25  
Hydra Jar, O.D=4.75, Length=9.19, F.N=4.75  
Xover Subs, O.D=5.25, Length=0.66, F.N=5.25  
HWDP, O.D=4, Length=117.88, F.N=5.25



#	TIME IN - OUT			DEPTHS		TVD DEPTHS		Footage / Hours			ROP			RPM	FLOW	Inclination		Azimuth		Weight Ranges		
	Time In	Time Out	Hrs	IN	Out	IN	OUT	Rotary	Slide	Total	Avg	Rotary	Slide	RPM	FLOW	IN	OUT	IN	OUT	SO	PU	RAB
4	29-Oct-15 02:00	06-Nov-15 11:00	201	1928.8	2798.5	1928.8	2465.72	375.899 999999 999 / 34	493.800 000000 001 / 10	869.7 / 143.72	6.05	10.86	4.53	0-270	270-320	0	84.95	0	135.48	126-138	136-155	128-145

MOTOR ASSY 475 - G2, O.D=4.5, Length=0.21, F.N=4.5  
FLOAT SUB 475, O.D=4.75, Length=0.94, F.N=4.75  
String Stabilizer, O.D=4.75, Length=1.62, F.N=4.75  
Non-Mag Pony DC, O.D=4.63, Length=2.99, F.N=4.625  
CROSS OVER SUB PIN/PIN 475, O.D=4.5, Length=0.98, F.N=4.75  
COLLAR HDS1 475, O.D=4.75, Length=8.15, F.N=4.75  
Non-Mag Drill Collar, O.D=4.63, Length=9.34, F.N=4.75  
Non-Mag Drill Collar, O.D=4.88, Length=9.35, F.N=4.875  
SUB SCREEN 475, O.D=4.75, Length=0.92, F.N=4.75  
Xover Subs, O.D=5.25, Length=0.61, F.N=5.25  
RIG1, O.D=3.92, Length=553.93, F.N=5.5  
HWDP, O.D=4, Length=65.55, F.N=5.25  
Xover Subs, O.D=5.25, Length=0.73, F.N=5.25  
Hydra Jar, O.D=4.75, Length=9.19, F.N=4.75  
Xover Subs, O.D=5.25, Length=0.66, F.N=5.25





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

## BHA Summary Report JOB - 15AUS0152

#	TIME IN - OUT			DEPTHS		TVD DEPTHS		Footage / Hours			ROP			RPM	FLOW	Inclination		Azimuth		Weight Ranges		
	Time In	Time Out	Hrs	IN	Out	IN	OUT	Rotary	Slide	Total	Avg	Rotary	Slide	RPM	FLOW	IN	OUT	IN	OUT	SO	PU	RAB
5	07-Nov-15 06:30	15-Nov-15 06:00	191.5	2798.5	3808	2449.88	2428	1009.5 / 105.42	0 / 0.00	1009.5 / 105.42	9.58	9.58		80-100	275-280	84.33	92.07	136.52	126.21	120-147	160-165	145-151

PDC, O.D=4.5,  
Length=0.19, F.N=4.5

PDX5/6 475, O.D=5,  
Length=4.46

FLOAT SUB 475,  
O.D=4.75, Length=0.94,  
F.N=4.75

DPM 475 - TOOL ASSY,  
O.D=4.75, Length=1.4,  
F.N=4.75

CROSS OVER SUB  
PIN/PIN 475, O.D=4.75,  
Length=0.98, F.N=4.75

COLLAR HDS1 475,  
O.D=4.75, Length=8.15,  
F.N=4.75

AWR 475 - TOOL ASSY,  
O.D=4.88, Length=6.24,  
F.N=4.75

ABS 475 -  
MEMORY/BATTERY,  
O.D=5.25, Length=4.7,  
F.N=4.75

Non-Mag Drill Collar,  
O.D=4.63, Length=9.34,  
F.N=4.75





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Saturday, October, 24 2015

**From:** Oct-23-2015 00:00 **To:** Oct-24-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS					
Start Depth	0	Rotary Hours	0.00	WOB Rot		PU		Slack Off	
End Depth	790	Total Circu. Hours	0.25	WOB Slid		SPP		Flow Rate	
Total Drilled	0	Avg. Total ROP		RAB		SPM			
Total Rotary Drilled	0	Avg. Rotary ROP		MUD DATA					
Total Sliding Drilled	0	Avg. Slide ROP		Type			PV		SOLID
Slide Hours	0.00	Percent Rotary		Weight		Gas	YP		BHT°
Below Rotary Hrs	5.75	Percent Slide		Viscosity		Sand	PH		Flow T°
				Chlorides		WL			Oil%

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
MLWD				Marfiga, Miguel Rosero				DAILY COST			
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:			
ACE (MLWD)				Bashir, Muhammad Tariq							
Incl. In	0.98	Azm. In	78.92	Incl. Out	0.79	Azm. Out	84.43				
Max Inclination:		9.58									

## BHA & COMMENTS

Wait on Client Decision

## FORECAST NEXT 24

M/U 6 3/4" Dir BHA

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
23-Oct-15	00:00	17:00	17			Operations	Waiting for Client Decision
23-Oct-15	17:00	17:30	0.5			Operations	Pre-spud meeting
23-Oct-15	17:30	17:45	0.25			Operations	PJSM-Making up 4 3/4" Dir BHA
23-Oct-15	17:45	18:15	0.5			MU/LD BHA/DP	Adjust Motor Bend
23-Oct-15	18:15	18:15	0	0	0	Run Start - TBRT	
23-Oct-15	18:15	20:40	2.42	0	42	MU/LD BHA	M/U 4 3/4" Dir BHA
23-Oct-15	20:40	20:55	0.25	42	42	Shallow hole test	SHT-MWD, 275 GPM,
23-Oct-15	20:55	00:00	3.08	42	790	RIH/POOH/Trip/Wiper Tr	RIH



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Sunday, October, 25 2015

From: Oct-24-2015 00:00 To: Oct-25-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS															
Start Depth		790		Rotary Hours		0.00		WOB Rot		5.00		PU				Slack Off							
End Depth		1,540		Total Circu. Hours		5.43		WOB Slid				SPP		2,100.00		Flow Rate		300.00 - 300.00					
Total Drilled		0		Avg. Total ROP				RAB				SPM											
Total Rotary Drilled		0		Avg. Rotary ROP				MUD DATA															
Total Sliding Drilled		0		Avg. Slide ROP				Type		Water Base				PV				SOLID					
Slide Hours		0.00		Percent Rotary				Weight		9.65		Gas				YP				BHT°		64	
Below Rotary Hrs		17.50		Percent Slide				Viscosity		44		Sand				PH				Flow T°			
								Chlorides				WL						Oil%					
PERSONNEL								CASING															
Company Man				Darryl Whitbread				Size								Set Depth							
DD - Cell Manager				Pritchett, Andrew				7								1,426.65							
MLWD				Marfiga, Miguel Rosero				DAILY COST															
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   															



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON							
24-Oct-15	08:20	08:24	0.07	1937	1937	Surveying	Check Survey
24-Oct-15	08:24	08:47	0.38	1937	1950	Drilling - Whipstock, Ce	Slide
24-Oct-15	08:47	08:52	0.08			Connection-(Kelly PU/LD	Connection
24-Oct-15	08:52	09:07	0.25	1950	1963.12	Drilling - Whipstock, Ce	Rotate
24-Oct-15	09:07	09:11	0.07			Connection-(Kelly PU/LD	Connection
24-Oct-15	09:11	09:30	0.32	1963.12	1976.3	Drilling - Whipstock, Ce	Rotate
24-Oct-15	09:30	09:37	0.12			Connection-(Kelly PU/LD	Connection
24-Oct-15	09:37	09:53	0.27	1976.3	1989.4	Drilling - Whipstock, Ce	Rotate
24-Oct-15	09:53	10:00	0.12			Connection-(Kelly PU/LD	Connection
24-Oct-15	10:00	10:13	0.22	1989.4	2002.5	Drilling - Whipstock, Ce	Rotate
24-Oct-15	10:13	10:20	0.12			Connection-(Kelly PU/LD	Connection
24-Oct-15	10:20	10:31	0.18	2002.5	2016	Drilling - Whipstock, Ce	Rotate
24-Oct-15	10:31	11:00	0.48	2016	2016	Mud Prep/Circ/Cond(hol	Circulate
24-Oct-15	11:00	11:10	0.17			Other	Flow Check
24-Oct-15	11:10	16:30	5.33	2016	42	RIH/POOH/Trip/Wiper Tr	POOH, Flow Check.
24-Oct-15	16:30	17:30	1	42	0	Other	PJSM, lay down directional BHA
24-Oct-15	17:30	17:30	0	0	0	Run End - TART	En of Run#1
24-Oct-15	17:30	18:00	0.5			Operations	Prepare for Running Cement Stinger
24-Oct-15	18:00	23:00	5	0	1431	RIH/POOH/Trip/Wiper Tr	RIH with Cement Stinger
24-Oct-15	23:00	23:30	0.5			Lubricate rig / Service	Rig Service
24-Oct-15	23:30	00:00	0.5	1431	1540	RIH/POOH/Trip/Wiper Tr	Continue RIH





Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Monday, October, 26 2015

From: Oct-25-2015 00:00 To: Oct-26-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS												
Start Depth		1,540		Rotary Hours		0.00		WOB Rot				PU			Slack Off					
End Depth		1,890		Total Circu. Hours		3.05		WOB Slid				SPP			Flow Rate					
Total Drilled		0		Avg. Total ROP				RAB				SPM								
Total Rotary Drilled		0		Avg. Rotary ROP				MUD DATA												
Total Sliding Drilled		0		Avg. Slide ROP				Type					PV			SOLID				
Slide Hours		0.00		Percent Rotary				Weight			Gas			YP			BHT°			
Below Rotary Hrs		11.50		Percent Slide				Viscosity				Sand			PH			Flow T°		
								Chlorides			WL					Oil%				
PERSONNEL								CASING												
Company Man				Darryl Whitbread				Size				Set Depth								
DD - Cell Manager				Pritchett, Andrew				7				1,426.65								
MLWD				Marfiga, Miguel Rosero				DAILY COST												
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:												
ACE (MLWD)				Bashir, Muhammad Tariq																
Incl. In	0.79	Azm. In	76.1	Incl. Out	0.79	Azm. Out	79.54													
Max Inclination:		0.95																		
BHA & COMMENTS																				
Drill Cement(Soft cment). POOH for another cement plug																				
FORECAST NEXT 24																				
M/U 4 3/4" Dir BHA. Sidetrack off cement plug.																				
MWD JOURNAL																				
Date		Start	End	Hours	Start	End	Activity			Comment										
25-Oct-15		00:00	01:30	1.5	1540	2002	RIH/POOH/Trip/Wiper Tr			Coninue RIH										
25-Oct-15		01:30	02:25	0.92			Operations			Circulate										
25-Oct-15		02:25	02:40	0.25			Operations			PJSM-Cement Job										
25-Oct-15		02:40	05:40	3			Run Csg, Cmt/Cmt Plug			Cement Job										
25-Oct-15		05:40	08:00	2.33	2002	778	RIH/POOH/Trip/Wiper Tr			POOH										
25-Oct-15		08:00	08:50	0.83			Lubricate rig / Service			Rig Service, Fill trip tank										
25-Oct-15		08:50	10:22	1.53	778	181	RIH/POOH/Trip/Wiper Tr			Continue POOH										
25-Oct-15		10:22	10:30	0.13			Operations			Changed Out elevators inserts										
25-Oct-15		10:30	12:00	1.5	181	0	RIH/POOH/Trip/Wiper Tr			Continue POOH, LD cement stinger. Clean and clear Ri										
25-Oct-15		12:00	12:30	0.5			Operations			PJSM-M/U Dir BHA										
25-Oct-15		12:30	12:30	0	0	0	Run Start - TBRT			Start Run#2										



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON							
25-Oct-15	12:30	14:00	1.5	0	40	MU/LD BHA	Pick -up and Test Motor. M/U Directional BHA
25-Oct-15	14:00	14:15	0.25			Shallow hole test	Shallow Hole Test - MWD
25-Oct-15	14:15	20:50	6.58	40	1844	RIH/POOH/Trip/Wiper Tr	Continue M/U BHA and RIH
25-Oct-15	20:50	21:00	0.17	1844	1857	Reaming/Hole Opening	Wash down
25-Oct-15	21:00	21:03	0.05	1857	1857	Connection-(Kelly PU/LD	Connection
25-Oct-15	21:03	21:31	0.47	1857	1865	Drilling - Whipstock, Ce	Tag top of cement @ 1857m, drill out cement
25-Oct-15	21:31	21:38	0.12	1865	1865	Other	Flow check - static
25-Oct-15	21:38	22:13	0.58	1865	1871	Drilling - Whipstock, Ce	Drill out cement plug, rotate
25-Oct-15	22:13	22:20	0.12	1871	1871	Connection-(Kelly PU/LD	Connection
25-Oct-15	22:20	22:27	0.12	1871	1871	Surveying	check survey
25-Oct-15	22:27	23:27	1	1871	1884	Drilling - Whipstock, Ce	Drill out cement plug- rotate
25-Oct-15	23:27	23:33	0.1	1884	1884	Reaming/Hole Opening	Ream
25-Oct-15	23:33	23:38	0.08			Connection-(Kelly PU/LD	Connection
25-Oct-15	23:38	23:43	0.08	1884	1884	Surveying	Check Survey
25-Oct-15	23:43	00:00	0.28	1884	1890	Drilling - Whipstock, Ce	Drill out cement plug- Rotate



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
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UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Tuesday, October, 27 2015

From: Oct-26-2015 00:00 To: Oct-27-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS															
Start Depth		1,890		Rotary Hours		1.93		WOB Rot				PU		127.00		Slack Off		124.00					
End Depth		1,923		Total Circu. Hours		23.77		WOB Slid		1.00		SPP		1,600.00		Flow Rate		300.00 - 300.00					
Total Drilled		1		Avg. Total ROP		0.04		RAB		126.00		SPM											
Total Rotary Drilled		1		Avg. Rotary ROP		0.52		MUD DATA															
Total Sliding Drilled		0		Avg. Slide ROP				Type		Water Base				PV				SOLID					
Slide Hours		0.00		Percent Rotary		100%		Weight		9.50		Gas				YP				BHT°		73	
Below Rotary Hrs		24.00		Percent Slide		0%		Viscosity		38		Sand				PH		9.5		Flow T°			
								Chlorides				WL						Oil%					
PERSONNEL								CASING															
Company Man				Darryl Whitbread				Size								Set Depth							
DD - Cell Manager				Pritchett, Andrew				7								1,426.65							
MLWD				Marfiga, Miguel Rosero				DAILY COST															
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:															
ACE (MLWD)				Bashir, Muhammad Tariq																			
Incl. In	0.79	Azm. In	76.1	Incl. Out	0.79	Azm. Out	79.54																
Max Inclination:		0.95																					
BHA & COMMENTS																							
M/U 4 3/4" Dir BHA. Trip-in. Drill cement plug to sidetrack point.																							
FORECAST NEXT 24																							
Time Drilling																							
MWD JOURNAL																							
Date		Start		End		Hours		Start		End		Activity		Comment									
26-Oct-15		00:00		00:55		0.92		1890		1897.1		Drilling - Whipstock, Ce		Drill out cement plug- Slide									
26-Oct-15		00:55		01:02		0.12						Connection-(Kelly PU/LD		Connection									
26-Oct-15		01:02		01:06		0.07		1897.1		1897.1		Surveying		Check survey, TF									
26-Oct-15		01:06		02:23		1.28		1897.1		1910.2		Drilling - Whipstock, Ce		Drill out cement plug- Slide									
26-Oct-15		02:23		02:53		0.5						Mud Prep/Circ/Cond(hol		Circulate bottoms up									
26-Oct-15		02:53		03:00		0.12						Connection-(Kelly PU/LD		Connection									
26-Oct-15		03:00		03:04		0.07		1910.2		1910.2		Surveying		Check Survey									
26-Oct-15		03:04		05:00		1.93		1910.2		1911.2		Drilling		Time Drill									
26-Oct-15		05:00		16:40		11.67		1911.2		1917.5		Drilling - Whipstock, Ce		Time drill									
26-Oct-15		16:40		17:05		0.42		1917.5		1920		Drilling - Whipstock, Ce		Drill 6-8 m /hr									
26-Oct-15		17:05		18:30		1.42		1920		1920		Reaming/Hole Opening		Working on 1920m to 1917.5m spot. ( scooping )									



**Job Number:** 15AUS0152

**Company Name:** ORIGIN ENERGY RESOURCES LTD

**Rig Name:** Saxon 185

**Well Name:** Amungee NW-1H

**Well Location:** Lat: -16.3445, Long: 133.8845

**Well State:** Northern Territory

**Well County:** Beetaloo

**Well Field:** Beetaloo North

**Well Country:** AUSTRALIA

**Lead DD:** Pritchett, Andrew

**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

26-Oct-15	18:30	00:00	5.5	1920	1923.2	Drilling - Whipstock, Ce	Time drill
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Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
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## Daily Report for Wednesday, October, 28 2015

From: Oct-27-2015 00:00 To: Oct-28-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS					
Start Depth	0	Rotary Hours	0.00	WOB Rot		PU		Slack Off	
End Depth	1,927	Total Circu. Hours	3.92	WOB Slid	0.50	SPP	1,650.00	Flow Rate	285.00 - 285.00
Total Drilled	0	Avg. Total ROP		RAB		SPM			
Total Rotary Drilled	0	Avg. Rotary ROP		MUD DATA					
Total Sliding Drilled	0	Avg. Slide ROP		Type			PV		SOLID
Slide Hours	0.00	Percent Rotary		Weight		Gas	YP		BHT°
Below Rotary Hrs	12.00	Percent Slide		Viscosity		Sand	PH		Flow T°
				Chlorides		WL			Oil%

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
MLWD				Marfiga, Miguel Rosero				DAILY COST			
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:			
ACE (MLWD)				Bashir, Muhammad Tariq							
Incl. In	0.79	Azm. In	79.54	Incl. Out	0	Azm. Out	0				
Max Inclination:		0.97									

## BHA & COMMENTS

## FORECAST NEXT 24

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
27-Oct-15	00:00	00:06	0.1			Connection-(Kelly PU/LD	Connection
27-Oct-15	00:06	00:11	0.08	1923.2	1923.2	Surveying	Survey
27-Oct-15	00:11	05:15	5.07	1911.2	1926.1	Drilling	Continue Time Drilling
27-Oct-15	05:15	05:55	0.67			Mud Prep/Circ/Cond(hol	Circulate & Pump Slug
27-Oct-15	05:55	10:45	4.83	1926.1	96	RIH/POOH/Trip/Wiper Tr	POOH
27-Oct-15	10:45	11:10	0.42	96	42	Operations	Flow Check, PJSM
27-Oct-15	11:10	11:30	0.33	42	0	MU/LD BHA	L/D Dir BHA-Non Mag
27-Oct-15	11:30	11:30	0	0	0	Run End - TART	End of Run #2
27-Oct-15	11:30	12:00	0.5			Operations	Adjust Bend on Motor and Changed Bit
27-Oct-15	12:00	12:00	0	0	0	Run Start - TBRT	Start Run # 3
27-Oct-15	12:00	12:50	0.83	0	42	MU/LD BHA	M/U Dir BHA



**Job Number:** 15AUS0152

**Company Name:** ORIGIN ENERGY RESOURCES LTD

**Rig Name:** Saxon 185

**Well Name:** Amungee NW-1H

**Well Location:** Lat: -16.3445, Long: 133.8845

**Well State:** Northern Territory

**Well County:** Beetaloo

**Well Field:** Beetaloo North

**Well Country:** AUSTRALIA

**Lead DD:** Pritchett, Andrew

**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

27-Oct-15	12:50	13:00	0.17			Shallow hole test	Test MWD
27-Oct-15	13:00	18:00	5	42	1435	RIH/POOH/Trip/Wiper Tr	Continue M/U BHA and RIH to shoe
27-Oct-15	18:00	18:30	0.5	1435	1435	Rig Maintenance/Repair	Rig service
27-Oct-15	18:30	19:57	1.45	1435	1881	RIH/POOH/Trip/Wiper Tr	Continue RIH
27-Oct-15	19:57	20:00	0.05	1881	1881	Surveying	Survey , check shot
27-Oct-15	20:00	20:18	0.3	1881	1926.1	RIH/POOH/Trip/Wiper Tr	Continue RIH
27-Oct-15	20:18	00:00	3.7	1926.1	1927	Drilling - Whipstock, Ce	Orientate high side and start sliding - Time drilling



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Thursday, October, 29 2015

From: Oct-28-2015 00:00 To: Oct-29-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS												
Start Depth		1,926		Rotary Hours		5.00		WOB Rot				PU			Slack Off					
End Depth		239		Total Circu. Hours		16.87		WOB Slid				SPP			Flow Rate					
Total Drilled		3		Avg. Total ROP		0.11		RAB				SPM								
Total Rotary Drilled		3		Avg. Rotary ROP		0.54		MUD DATA												
Total Sliding Drilled		0		Avg. Slide ROP				Type		Water Base			PV			SOLID				
Slide Hours		0.00		Percent Rotary		100%		Weight		9.60	Gas			YP			BHT°			
Below Rotary Hrs		24.00		Percent Slide		0%		Viscosity		41	Sand			PH	9.5		Flow T°			
								Chlorides				WL					Oil%			
PERSONNEL								CASING												
Company Man				Darryl Whitbread				Size				Set Depth								
DD - Cell Manager				Pritchett, Andrew				7				1,426.65								
MLWD				Marfiga, Miguel Rosero				DAILY COST												
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:												
ACE (MLWD)				Bashir, Muhammad Tariq																
Incl. In	0.79	Azm. In	79.54	Incl. Out	0	Azm. Out	0													
Max Inclination:		0.97																		
BHA & COMMENTS																				
Tripping. Changed bit and bend on Motor to 2.12 deg																				
FORECAST NEXT 24																				
Time Drilling, Tripping																				
MWD JOURNAL																				
Date		Start	End	Hours		Start		End		Activity			Comment							
28-Oct-15		00:00	05:00	5		1926.1		1928.8		Drilling			Continued Time drilling							
28-Oct-15		05:00	16:07	11.12		1928.8		1932.5		Drilling - Whipstock, Ce			Continued Time drilling							
28-Oct-15		16:07	16:36	0.48		1932.5		1932.5		Mud Prep/Circ/Cond(hol			Circulate bottom's up							
28-Oct-15		16:36	16:45	0.15		1932.5		1932.5		Mud Prep/Circ/Cond(hol			SCRs							
28-Oct-15		16:45	17:26	0.68		1932.5		1880		RIH/POOH/Trip/Wiper Tr			POOH 5 stands - flow check							
28-Oct-15		17:26	17:33	0.12						Mud Prep/Circ/Cond(hol			Pump slug							
28-Oct-15		17:33	19:30	1.95		1880		1425		RIH/POOH/Trip/Wiper Tr			Continue POOH							
28-Oct-15		19:30	20:30	1						Lubricate rig / Service			Rig Service							
28-Oct-15		20:30	00:00	3.5		1425		239		RIH/POOH/Trip/Wiper Tr			Continue POOH							





Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Friday, October, 30 2015

From: Oct-29-2015 00:00 To: Oct-30-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS															
Start Depth		239		Rotary Hours		3.07		WOB Rot				PU	136.00		Slack Off		126.00						
End Depth		1,997		Total Circu. Hours		12.60		WOB Slid		10.00		SPP	2,100.00		Flow Rate		320.00 - 320.00						
Total Drilled		68		Avg. Total ROP		3.10		RAB		128.00		SPM											
Total Rotary Drilled		32		Avg. Rotary ROP		10.39		MUD DATA															
Total Sliding Drilled		36		Avg. Slide ROP		5.01		Type		Water Base			PV			SOLID	8.60						
Slide Hours		7.25		Percent Rotary		47.06%		Weight		9.60	Gas			YP	23	BHT°	73						
Below Rotary Hrs		22.00		Percent Slide		52.94%		Viscosity		42	Sand	0.10		PH	9.5	Flow T°							
								Chlorides	98,000	WL					Oil%								
PERSONNEL								CASING															
Company Man				Darryl Whitbread				Size				Set Depth											
DD - Cell Manager				Pritchett, Andrew				7				1,426.65											
MLWD				Marfiga, Miguel Rosero				DAILY COST															
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:															
ACE (MLWD)				Bashir, Muhammad Tariq																			
MLWD				Competente, Earl Jan Riofrio																			
Incl. In		0		Azm. In		0										Incl. Out		84.95		Azm. Out		135.48	
Max Inclination:		85.47																					
BHA & COMMENTS																							
FORECAST NEXT 24																							
MWD JOURNAL																							
Date		Start	End	Hours	Start	End	Activity			Comment													
29-Oct-15		00:00	00:20	0.33	239	42	Other			PJSM, Flush Motor													
29-Oct-15		00:20	01:30	1.17	42	0	MU/LD BHA			L/D BHA													
29-Oct-15		01:30	01:30	0	0	0	Run End - TART			End of Run 3													
29-Oct-15		01:30	02:00	0.5			Operations			Adjust Motor													
29-Oct-15		02:00	02:00	0	0	0	Run Start - TBRT			Run 4													
29-Oct-15		02:00	02:55	0.92	0	42	MU/LD BHA			M/U new BHA													
29-Oct-15		02:55	03:20	0.42			Shallow hole test			SHT													
29-Oct-15		03:20	07:40	4.33	42	1409	RIH/POOH/Trip/Wiper Tr			RIH													
29-Oct-15		07:40	08:50	1.17			Other			Slip & Cut													
29-Oct-15		08:50	09:30	0.67	1409	1617	RIH/POOH/Trip/Wiper Tr			Continued RIH													
29-Oct-15		09:30	09:40	0.17			Operations			Fill Pipe & Empty Trip Tank													



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

29-Oct-15	09:40	11:05	1.42	1617	1911	RIH/POOH/Trip/Wiper Tr	RIH
29-Oct-15	11:05	11:20	0.25			Downlinking	Re-program Data Rate & Toolface Sequence
29-Oct-15	11:20	11:34	0.23	1911	1932	Reaming/Hole Opening	Wash down
29-Oct-15	11:34	11:52	0.3	1928.8	1933	Drilling	Slide
29-Oct-15	11:52	12:20	0.47	1933	1935	Drilling	Rotate
29-Oct-15	12:20	12:50	0.5	1935	1936.9	Drilling	Slide
29-Oct-15	12:50	13:00	0.17			Connection-(Kelly PU/LD	Connection
29-Oct-15	13:00	13:10	0.17	1936.9	1936.9	Surveying	Check Survey
29-Oct-15	13:10	13:25	0.25			Downlinking	Re-program
29-Oct-15	13:25	13:33	0.13	1936.9		Other	Orient Toolface
29-Oct-15	13:33	14:17	0.73	1936.9	1940.5	Drilling	Slide
29-Oct-15	14:17	15:12	0.92	1940.5	1950.2	Drilling	Rotate
29-Oct-15	15:12	15:19	0.12	1950.2	1950.2	Reaming/Hole Opening	Ream
29-Oct-15	15:19	15:23	0.07			Connection-(Kelly PU/LD	Connection
29-Oct-15	15:23	15:27	0.07	1950.2	1950.2	Surveying	Survey
29-Oct-15	15:27	16:12	0.75	1950.2	1955	Drilling	sliding
29-Oct-15	16:12	16:55	0.72	1955	1963.3	Drilling	Rotate
29-Oct-15	16:55	17:03	0.13	1963.3	1963.3	Reaming/Hole Opening	reaming
29-Oct-15	17:03	17:07	0.07	1963.3	1963.3	Connection-(Kelly PU/LD	Connection
29-Oct-15	17:07	17:17	0.17	1963.3	1963.3	Surveying	Survey no good . Recycle pumps.
29-Oct-15	17:17	18:55	1.63	1963.3	1970	Drilling	sliding
29-Oct-15	18:55	19:31	0.6	1970	1976.5	Drilling	rotate
29-Oct-15	19:31	19:39	0.13	1976.5	1976.5	Reaming/Hole Opening	reaming
29-Oct-15	19:39	19:44	0.08	1976.5	1976.5	Connection-(Kelly PU/LD	connection
29-Oct-15	19:44	19:50	0.1	1976.5	1976.5	Surveying	Survey no good . Recycle pumps
29-Oct-15	19:50	21:45	1.92	1976.5	1984.1	Drilling	Slide
29-Oct-15	21:45	22:07	0.37	1984.1	1989.5	Drilling	Rotate
29-Oct-15	22:07	22:16	0.15	1989.5	1989.5	Reaming/Hole Opening	Ream
29-Oct-15	22:16	22:29	0.22			Connection-(Kelly PU/LD	Connection
29-Oct-15	22:29	22:35	0.1	1989.5	1989.5	Surveying	Survey
29-Oct-15	22:35	00:00	1.42	1989.5	1997	Drilling	Slide



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Saturday, October, 31 2015

From: Oct-30-2015 00:00 To: Oct-31-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	1,997	Rotary Hours	2.20	WOB Rot		PU		Slack Off			
End Depth	2,082	Total Circu. Hours	23.18	WOB Slid	6.00	SPP	1,990.00	Flow Rate	320.00 - 320.00		
Total Drilled	85	Avg. Total ROP	3.53	RAB		SPM					
Total Rotary Drilled	18	Avg. Rotary ROP	8.32	MUD DATA							
Total Sliding Drilled	67	Avg. Slide ROP	3.58	Type	Water Base		PV	15	SOLID	10.10	
Slide Hours	18.57	Percent Rotary	21.18%	Weight	9.80	Gas		YP	24	BHT°	75
Below Rotary Hrs	24.00	Percent Slide	78.82%	Viscosity	44	Sand	0.15	PH	9.5	Flow T°	
				Chlorides	119,00	WL	5.80		Oil%		

PERSONNEL								CASING							
Company Man				Darryl Whitbread				Size				Set Depth			
DD - Cell Manager				Pritchett, Andrew				7				1,426.65			
MLWD				Marfiga, Miguel Rosero				DAILY COST							
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:							
ACE (MLWD)				Bashir, Muhammad Tariq											
MLWD				Competente, Earl Jan Riofrio											
Incl. In	0		Azm. In	0		Incl. Out	84.95		Azm. Out	135.48					
Max Inclination:		85.47													

## BHA & COMMENTS

Drill 6 3/4" hole build-up section

## FORECAST NEXT 24

Continue drilling 6 3/4" hole

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
30-Oct-15	00:00	00:41	0.68	1997	2000	Drilling	Slide
30-Oct-15	00:41	00:50	0.15	2000	2000	Surveying	Check Survey
30-Oct-15	00:50	01:30	0.67	2000	2002.4	Drilling	Slide
30-Oct-15	01:30	01:35	0.08	2002.4	2002.4	Reaming/Hole Opening	Ream
30-Oct-15	01:35	01:39	0.07			Connection-(Kelly PU/LD	Connection
30-Oct-15	01:39	01:44	0.08	2002.4	2002.4	Surveying	Survey
30-Oct-15	01:44	03:44	2	2002.4	2011	Drilling	Slide
30-Oct-15	03:44	03:48	0.07	2011	2011	Surveying	Check Survey
30-Oct-15	03:48	04:24	0.6	2011	2013	Drilling	Slide
30-Oct-15	04:24	04:41	0.28	2013	2015.7	Drilling	Rotate
30-Oct-15	04:41	04:47	0.1	2015.7	2015.7	Reaming/Hole Opening	Ream



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

30-Oct-15	04:47	04:57	0.17			Connection-(Kelly PU/LD	Connection
30-Oct-15	04:57	05:00	0.05	2015.7	2015.7	Surveying	Survey
30-Oct-15	05:00	09:10	4.17	2015.7	2028	Drilling	Slide
30-Oct-15	09:10	09:19	0.15	2028	2028.8	Drilling	Rotate
30-Oct-15	09:19	09:26	0.12	2028.8	2028.8	Reaming/Hole Opening	Ream
30-Oct-15	09:26	09:30	0.07	2028.8	2028.8	Connection-(Kelly PU/LD	Connection
30-Oct-15	09:30	09:40	0.17	2028.8	2028.8	Surveying	Survey
30-Oct-15	09:40	11:47	2.12	2028.8	2036	Drilling	Slide
30-Oct-15	11:47	12:06	0.32	2036	2039	Drilling	Rotate
30-Oct-15	12:06	12:17	0.18	2039	2039	Surveying	Check Survey
30-Oct-15	12:17	12:34	0.28	2039	2041.9	Drilling	Rotate
30-Oct-15	12:34	12:40	0.1	2041.9	2041.9	Reaming/Hole Opening	Ream
30-Oct-15	12:40	12:44	0.07	2041.9	2041.9	Connection-(Kelly PU/LD	Connection
30-Oct-15	12:44	12:54	0.17	2041.9	2041.9	Surveying	Survey
30-Oct-15	12:54	14:17	1.38	2041.9	2049	Drilling	Slide
30-Oct-15	14:17	14:30	0.22	2049	2050.5	Drilling	Rotate
30-Oct-15	14:30	14:38	0.13	2050.5	2050.5	Surveying	Check Survey
30-Oct-15	14:38	15:14	0.6	2050.5	2055.9	Drilling	Rotate
30-Oct-15	15:14	15:22	0.13	2055.9	2055.9	Reaming/Hole Opening	Ream
30-Oct-15	15:22	15:27	0.08	2055.9	2055.9	Connection-(Kelly PU/LD	Connection
30-Oct-15	15:27	15:35	0.13	2055.9	2055.9	Surveying	Survey
30-Oct-15	15:35	17:44	2.15	2055.9	2067	Drilling	Slide
30-Oct-15	17:44	18:05	0.35	2067	2069	Drilling	Rotate
30-Oct-15	18:05	18:12	0.12	2069	2069	Reaming/Hole Opening	Ream
30-Oct-15	18:12	18:16	0.07	2069	2069	Connection-(Kelly PU/LD	Connection
30-Oct-15	18:16	18:42	0.43	2069	2069	Surveying	Survey 3 times to confirm correct inclination, Inc was sa
30-Oct-15	18:42	22:04	3.37	2069	2077.7	Drilling	Slide
30-Oct-15	22:04	22:19	0.25			Other	Flow Check
30-Oct-15	22:19	23:45	1.43	2077.7	2081.8	Drilling	Slide
30-Oct-15	23:45	23:52	0.12	2081.8	2081.8	Reaming/Hole Opening	Ream, SCR's
30-Oct-15	23:52	23:55	0.05			Connection-(Kelly PU/LD	Connection
30-Oct-15	23:55	00:00	0.08	2081.8	2081.8	Surveying	Survey



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Sunday, November, 01 2015

**From:** Oct-31-2015 00:00 **To:** Nov-01-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	0	Rotary Hours	1.22	WOB Rot		PU	141.50	Slack Off	128.50		
End Depth	2,164	Total Circu. Hours	23.20	WOB Slid	6.20	SPP	2,070.00	Flow Rate	320.00 - 320.00		
Total Drilled	82	Avg. Total ROP	3.43	RAB	132.50	SPM					
Total Rotary Drilled	8	Avg. Rotary ROP	6.31	MUD DATA							
Total Sliding Drilled	75	Avg. Slide ROP	3.63	Type	Water Base		PV	16	SOLID	11.60	
Slide Hours	20.60	Percent Rotary	9.76%	Weight	10.00	Gas		YP	28	BHT°	78
Below Rotary Hrs	24.00	Percent Slide	91.46%	Viscosity	44	Sand	0.15	PH	9.5	Flow T°	
				Chlorides	14,000	WL	5.60		Oil%		

PERSONNEL								CASING							
Company Man				Darryl Whitbread				Size				Set Depth			
DD - Cell Manager				Pritchett, Andrew				7				1,426.65			
MLWD				Marfiga, Miguel Rosero				DAILY COST							
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:							
MLWD				Competente, Earl Jan Riofrio											
Incl. In	0	Azm. In	0	Incl. Out	84.95	Azm. Out	135.48								
Max Inclination:		85.47													

## BHA & COMMENTS

Drill 6 3/4" hole build section

## FORECAST NEXT 24

Continue drilling 6 3/4" hole section

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
31-Oct-15	00:00	00:07	0.12			Other	Orient Toolface
31-Oct-15	00:07	05:00	4.88	2081.8	2095.2	Drilling	Slide
31-Oct-15	05:00	05:03	0.05	2095.2	2095.2	Reaming/Hole Opening	Ream
31-Oct-15	05:03	05:13	0.17			Connection-(Kelly PU/LD	Connection
31-Oct-15	05:13	05:19	0.1	2095.2	2095.2	Surveying	Survey
31-Oct-15	05:19	08:27	3.13	2095.2	2108.3	Drilling	Slide
31-Oct-15	08:27	08:34	0.12	2108.3	2108.3	Reaming/Hole Opening	Ream
31-Oct-15	08:34	08:39	0.08	2108.3	2108.3	Connection-(Kelly PU/LD	Connection
31-Oct-15	08:39	08:45	0.1	2108.3	2108.3	Surveying	Survey
31-Oct-15	08:45	12:12	3.45	2108.3	2121.4	Drilling	Slide
31-Oct-15	12:12	12:20	0.13	2121.4	2121.4	Reaming/Hole Opening	Ream



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

31-Oct-15	12:20	12:27	0.12	2121.4	2121.4	Connection-(Kelly PU/LD	Connection
31-Oct-15	12:27	12:36	0.15	2121.4	2121.4	Reaming/Hole Opening	Survey
31-Oct-15	12:36	12:48	0.2	2121.4	2123	Drilling	Rotate
31-Oct-15	12:48	12:50	0.03	2123	2123	Mud Prep/Circ/Cond(hol	Orient Toolface
31-Oct-15	12:50	16:16	3.43	2123	2134	Drilling	Slide
31-Oct-15	16:16	16:29	0.22	2134	2135.1	Drilling	Rotate
31-Oct-15	16:29	16:39	0.17	2135.1	2135.1	Reaming/Hole Opening	Ream
31-Oct-15	16:39	16:44	0.08	2135.1	2135.1	Connection-(Kelly PU/LD	Connection
31-Oct-15	16:44	16:50	0.1	2135.1	2135.1	Surveying	Survey
31-Oct-15	16:50	19:46	2.93	2135.1	2146.2	Drilling	Slide
31-Oct-15	19:46	20:06	0.33	2146.2	2148.2	Drilling	Rotate
31-Oct-15	20:06	20:15	0.15	2148.2	2148.2	Reaming/Hole Opening	Ream
31-Oct-15	20:15	20:21	0.1			Connection-(Kelly PU/LD	Connection
31-Oct-15	20:21	20:26	0.08	2148.2	2148.2	Surveying	Survey
31-Oct-15	20:26	20:30	0.07			Other	Orient Toolface
31-Oct-15	20:30	22:26	1.93	2148.2	2158.3	Drilling	Slide
31-Oct-15	22:26	22:54	0.47	2158.3	2161.3	Drilling	Rotate
31-Oct-15	22:54	23:00	0.1	2161.3	2161.3	Reaming/Hole Opening	Ream
31-Oct-15	23:00	23:04	0.07			Connection-(Kelly PU/LD	Connection
31-Oct-15	23:04	23:10	0.1	2161.3	2161.3	Surveying	Survey
31-Oct-15	23:10	00:00	0.83	2161.3	2164.2	Drilling	Slide



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Monday, November, 02 2015

From: Nov-01-2015 00:00 To: Nov-02-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	2,164	Rotary Hours	1.12	WOB Rot		PU		Slack Off			
End Depth	2,237	Total Circu. Hours	23.48	WOB Slid	7.75	SPP	2,260.00	Flow Rate	320.00 - 320.00		
Total Drilled	73	Avg. Total ROP	3.03	RAB		SPM					
Total Rotary Drilled	10	Avg. Rotary ROP	8.93	MUD DATA							
Total Sliding Drilled	63	Avg. Slide ROP	3.02	Type	Water Base		PV	18	SOLID	13.70	
Slide Hours	20.82	Percent Rotary	13.7%	Weight	10.40	Gas		YP	30	BHT°	79
Below Rotary Hrs	24.00	Percent Slide	86.3%	Viscosity	47	Sand	0.15	PH	9.5	Flow T°	
				Chlorides	161,00	WL	5.80		Oil%		

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
MLWD				Marfiga, Miguel Rosero				DAILY COST			
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   <			

## BHA & COMMENTS

Drill 6 3/4" hole build section

## FORECAST NEXT 24

Continue drilling 6 3/4" hole

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
01-Nov-15	00:00	02:41	2.68	2164.2	2174.4	Drilling	Slide
01-Nov-15	02:41	02:52	0.18	2174.4	2174.4	Reaming/Hole Opening	Ream
01-Nov-15	02:52	02:57	0.08			Connection-(Kelly PU/LD)	Connection
01-Nov-15	02:57	03:03	0.1	2174.4	2174.4	Surveying	Survey
01-Nov-15	03:03	03:09	0.1			Other	Oreint Toolface
01-Nov-15	03:09	06:57	3.8	2174.4	2187.5	Drilling	Slide
01-Nov-15	06:57	07:06	0.15	2187.5	2187.5	Reaming/Hole Opening	Ream
01-Nov-15	07:06	07:09	0.05	2187.5	2187.5	Connection-(Kelly PU/LD)	Connection
01-Nov-15	07:09	07:16	0.12	2187.5	2187.5	Surveying	Survey
01-Nov-15	07:16	13:12	5.93	2187.5	2200.7	Drilling	Slide
01-Nov-15	13:12	13:18	0.1	2200.7	2200.7	Reaming/Hole Opening	Ream





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

01-Nov-15	13:18	13:24	0.1	2200.7	2200.7	Connection-(Kelly PU/LD	Connection
01-Nov-15	13:24	13:30	0.1	2200.7	2200.7	Surveying	Survey
01-Nov-15	13:30	17:28	3.97	2200.7	2214.3	Drilling	Slide
01-Nov-15	17:28	17:36	0.13	2214.3	2214.3	Reaming/Hole Opening	Ream
01-Nov-15	17:36	17:42	0.1	2214.3	2214.3	Connection-(Kelly PU/LD	Connection
01-Nov-15	17:42	17:48	0.1	2214.3	2214.3	Surveying	Survey
01-Nov-15	17:48	18:17	0.48	2214.3	2218.8	Drilling	Rotate
01-Nov-15	18:17	20:57	2.67	2218.8	2227.5	Drilling	Slide
01-Nov-15	20:57	21:05	0.13	2227.5	2227.5	Reaming/Hole Opening	Ream
01-Nov-15	21:05	21:10	0.08			Connection-(Kelly PU/LD	Connection
01-Nov-15	21:10	21:15	0.08	2227.5	2227.5	Surveying	Survey
01-Nov-15	21:15	21:26	0.18			Mud Prep/Circ/Cond(hol	SCR's
01-Nov-15	21:26	22:04	0.63	2227.5	2233	Drilling	Rotate
01-Nov-15	22:04	22:14	0.17			Mud Prep/Circ/Cond(hol	Acquire and Toolface
01-Nov-15	22:14	00:00	1.77	2233	2237	Drilling	Slide



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Tuesday, November, 03 2015

From: Nov-02-2015 00:00 To: Nov-03-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	2,237	Rotary Hours	3.68	WOB Rot	9.00	PU	147.50	Slack Off	132.50		
End Depth	2,355	Total Circu. Hours	22.87	WOB Slid		SPP	2,415.00	Flow Rate	320.00 - 320.00		
Total Drilled	118	Avg. Total ROP	4.91	RAB	139.00	SPM					
Total Rotary Drilled	35	Avg. Rotary ROP	9.65	MUD DATA							
Total Sliding Drilled	82	Avg. Slide ROP	5.22	Type	Water Base		PV	18	SOLID	13.70	
Slide Hours	15.78	Percent Rotary	29.66%	Weight	10.40	Gas		YP	30	BHT°	81
Below Rotary Hrs	24.00	Percent Slide	69.49%	Viscosity	47	Sand	0.15	PH	9.5	Flow T°	
				Chlorides	161,00	WL	5.80		Oil%		

PERSONNEL								CASING							
Company Man				Darryl Whitbread				Size				Set Depth			
DD - Cell Manager				Pritchett, Andrew				7				1,426.65			
MLWD				Marfiga, Miguel Rosero				DAILY COST							
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:  							

## BHA & COMMENTS

Drill 6 3/4" hole build section

## FORECAST NEXT 24

Continue drilling 6 3/4" hole

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
02-Nov-15	00:00	01:27	1.45	2237	2240.8	Drilling	Continue Sliding
02-Nov-15	01:27	01:33	0.1	2240.8	2240.8	Reaming/Hole Opening	Ream
02-Nov-15	01:33	01:38	0.08			Connection-(Kelly PU/LD)	Connection
02-Nov-15	01:38	01:47	0.15	2240.8	2240.8	Surveying	Survey
02-Nov-15	01:47	04:48	3.02	2240.8	2253.8	Drilling	Slide
02-Nov-15	04:48	04:54	0.1	2253.8	2253.8	Reaming/Hole Opening	Ream
02-Nov-15	04:54	04:57	0.05			Connection-(Kelly PU/LD)	Connection
02-Nov-15	04:57	05:03	0.1	2253.8	2253.8	Surveying	Survey
02-Nov-15	05:03	07:51	2.8	2253.8	2267.3	Drilling	Slide
02-Nov-15	07:51	07:56	0.08	2267.3	2267.3	Reaming/Hole Opening	Ream
02-Nov-15	07:56	08:01	0.08	2267.3	2267.3	Connection-(Kelly PU/LD)	Connection



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

02-Nov-15	08:01	08:09	0.13	2267.3	2267.3	Surveying	Survey
02-Nov-15	08:09	08:31	0.37	2267.3	2269	Drilling	Rotate
02-Nov-15	08:31	10:00	1.48	2269	2279.1	Drilling	Slide
02-Nov-15	10:00	10:09	0.15	2279.1	2280.4	Drilling	Rotate
02-Nov-15	10:09	10:15	0.1	2280.4	2280.4	Reaming/Hole Opening	Ream
02-Nov-15	10:15	10:20	0.08	2280.4	2280.4	Connection-(Kelly PU/LD	Connection
02-Nov-15	10:20	10:25	0.08	2280.4	2280.4	Surveying	Survey
02-Nov-15	10:25	10:47	0.37	2280.4	2283	Drilling	Slide
02-Nov-15	10:47	10:51	0.07	2283	2283	Pump Repair	Troubleshoot pumps
02-Nov-15	10:51	12:12	1.35	2283	2291.5	Drilling	Slide
02-Nov-15	12:12	12:29	0.28	2291.5	2293.5	Drilling	Rotate
02-Nov-15	12:29	12:36	0.12	2293.5	2293.5	Reaming/Hole Opening	Ream
02-Nov-15	12:36	12:41	0.08	2293.5	2293.5	Connection-(Kelly PU/LD	Connection
02-Nov-15	12:41	12:48	0.12	2293.5	2293.5	Surveying	Survey
02-Nov-15	12:48	12:57	0.15	2293.5	2295	Drilling	Rotate
02-Nov-15	12:57	14:39	1.7	2295	2304.3	Drilling	Slide
02-Nov-15	14:39	14:58	0.32	2304.3	2306.7	Drilling	Rotate
02-Nov-15	14:58	15:04	0.1	2306.7	2306.7	Reaming/Hole Opening	Ream
02-Nov-15	15:04	15:13	0.15	2306.7	2306.7	Connection-(Kelly PU/LD	Connection
02-Nov-15	15:13	15:20	0.12	2306.7	2306.7	Surveying	Survey
02-Nov-15	15:20	15:36	0.27	2306.7	2309	Drilling	Rotate
02-Nov-15	15:36	16:49	1.22	2309	2315	Drilling	Slide
02-Nov-15	16:49	16:57	0.13	2315	2315.6	Drilling	Rotate
02-Nov-15	16:57	17:09	0.2	2315.6	2315.6	Pump Repair	Pump issues
02-Nov-15	17:09	17:32	0.38	2315.6	2320	Drilling	Rotate
02-Nov-15	17:32	17:39	0.12	2320	2320	Reaming/Hole Opening	Ream
02-Nov-15	17:39	17:48	0.15	2320	2320	Connection-(Kelly PU/LD	Connection
02-Nov-15	17:48	17:53	0.08	2320	2320	Surveying	Survey
02-Nov-15	17:53	18:33	0.67	2320	2324	Drilling	Slide
02-Nov-15	18:33	19:20	0.78	2324	2333.1	Drilling	Rotate
02-Nov-15	19:20	19:30	0.17	2333.1	2333.1	Reaming/Hole Opening	Ream
02-Nov-15	19:30	20:42	1.2			Mud Prep/Circ/Cond(hol	Rig Service
02-Nov-15	20:42	20:46	0.07			Connection-(Kelly PU/LD	Connection
02-Nov-15	20:46	20:55	0.15	2333.1	2333.1	Surveying	Survey
02-Nov-15	20:55	21:20	0.42	2333.1	2336	Drilling	
02-Nov-15	21:20	22:11	0.85	2336	2346.2	Drilling	Rotate
02-Nov-15	22:11	22:24	0.22	2346.2	2346.2	Reaming/Hole Opening	Ream
02-Nov-15	22:24	22:31	0.12			Connection-(Kelly PU/LD	Connection
02-Nov-15	22:31	22:41	0.17	2346.2	2346.2	Surveying	Survey, Orient TF
02-Nov-15	22:41	00:00	1.32	2346.2	2354.8	Drilling	



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Wednesday, November, 04 2015

From: Nov-03-2015 00:00 To: Nov-04-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	2,355	Rotary Hours	6.00	WOB Rot		PU	148.00	Slack Off	137.00		
End Depth	2,544	Total Circu. Hours	22.72	WOB Slid	9.00	SPP	2,550.00	Flow Rate	320.00 - 320.00		
Total Drilled	189	Avg. Total ROP	7.89	RAB	140.00	SPM					
Total Rotary Drilled	85	Avg. Rotary ROP	14.13	MUD DATA							
Total Sliding Drilled	105	Avg. Slide ROP	8.67	Type	Water Base		PV	18	SOLID	14.30	
Slide Hours	12.05	Percent Rotary	44.97%	Weight	10.50	Gas		YP	31	BHT°	83
Below Rotary Hrs	24.00	Percent Slide	55.56%	Viscosity	48	Sand	0.15	PH	9.5	Flow T°	
				Chlorides	169,00	WL	5.20		Oil%		

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
MLWD				Marfiga, Miguel Rosero				DAILY COST			
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:			
MLWD				Competente, Earl Jan Riofrio							
MLWD				Rowley, Daniel							
Incl. In	0	Azm. In	0	Incl. Out	84.95	Azm. Out	135.48				
Max Inclination:		85.47									

## BHA & COMMENTS

Drill 6 3/4" hole build section

## FORECAST NEXT 24

Continue drilling 6 3/4 hole

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
03-Nov-15	00:00	00:30	0.5	2354.8	2359.6	Drilling	Rotate
03-Nov-15	00:30	00:40	0.17	2359.6	2359.6	Reaming/Hole Opening	Ream
03-Nov-15	00:40	00:46	0.1			Connection-(Kelly PU/LD)	Connection
03-Nov-15	00:46	00:57	0.18	2359.6	2359.6	Surveying	Survey, Orient TF
03-Nov-15	00:57	02:31	1.57	2359.6	2372.6	Drilling	
03-Nov-15	02:31	02:37	0.1	2372.6	2372.6	Reaming/Hole Opening	Ream
03-Nov-15	02:37	02:42	0.08			Connection-(Kelly PU/LD)	Connection
03-Nov-15	02:42	02:55	0.22	2372.6	2372.6	Surveying	Survey, Orient TF
03-Nov-15	02:55	04:12	1.28	2372.6	2383.6	Drilling	
03-Nov-15	04:12	04:24	0.2	2383.6	2385.7	Drilling	Rotate
03-Nov-15	04:24	04:29	0.08	2385.7	2385.7	Reaming/Hole Opening	Ream



**Job Number:** 15AUS0152  
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**Rig Name:** Saxon 185  
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**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
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**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

03-Nov-15	04:29	04:32	0.05			Connection-(Kelly PU/LD)	Connection
03-Nov-15	04:32	04:44	0.2	2385.7	2385.7	Surveying	Survey, Orient TF
03-Nov-15	04:44	05:34	0.83	2385.7	2392.2	Drilling	
03-Nov-15	05:34	06:03	0.48	2392.2	2398.8	Drilling	Rotate
03-Nov-15	06:03	06:09	0.1	2398.8	2398.8	Reaming/Hole Opening	Ream
03-Nov-15	06:09	06:15	0.1	2398.8	2398.8	Connection-(Kelly PU/LD)	Connection
03-Nov-15	06:15	07:29	1.23	2398.8	2407	Drilling	
03-Nov-15	07:29	07:55	0.43	2407	2411.9	Drilling	Rotate
03-Nov-15	07:55	08:00	0.08	2411.9	2411.9	Reaming/Hole Opening	Ream
03-Nov-15	08:00	08:05	0.08	2411.9	2411.9	Connection-(Kelly PU/LD)	Connection
03-Nov-15	08:05	08:16	0.18	2411.9	2411.9	Surveying	Survey, Orient TF
03-Nov-15	08:16	09:05	0.82	2411.9	2419	Drilling	
03-Nov-15	09:05	09:33	0.47	2419	2425	Drilling	Rotate
03-Nov-15	09:33	09:38	0.08	2425	2425	Reaming/Hole Opening	Ream
03-Nov-15	09:38	09:50	0.2	2425	2425	Connection-(Kelly PU/LD)	Connection
03-Nov-15	09:50	10:03	0.22	2425	2425	Surveying	Survey, Orient TF
03-Nov-15	10:03	10:53	0.83	2425	2433	Drilling	
03-Nov-15	10:53	11:25	0.53	2433	2438.7	Drilling	Rotate
03-Nov-15	11:25	11:30	0.08	2438.7	2438.7	Reaming/Hole Opening	Ream
03-Nov-15	11:30	11:33	0.05	2438.7	2438.7	Connection-(Kelly PU/LD)	Connection
03-Nov-15	11:33	11:45	0.2	2438.7	2438.7	Surveying	Survey, Orient TF
03-Nov-15	11:45	12:43	0.97	2438.7	2448	Drilling	
03-Nov-15	12:43	12:58	0.25	2448	2451.9	Drilling	Rotate
03-Nov-15	12:58	13:04	0.1	2451.9	2451.9	Reaming/Hole Opening	Ream
03-Nov-15	13:04	13:09	0.08	2451.9	2451.9	Connection-(Kelly PU/LD)	Connection
03-Nov-15	13:09	13:22	0.22	2451.9	2451.9	Surveying	Survey, Orient TF
03-Nov-15	13:22	14:15	0.88	2451.9	2459.1	Drilling	
03-Nov-15	14:15	14:39	0.4	2459.1	2465	Drilling	Rotate
03-Nov-15	14:39	14:52	0.22	2465	2465	Reaming/Hole Opening	Ream
03-Nov-15	14:52	14:56	0.07	2465	2465	Connection-(Kelly PU/LD)	Connection
03-Nov-15	14:56	15:02	0.1	2465	2465	Surveying	Survey, Orient TF
03-Nov-15	15:02	15:30	0.47	2465	2469	Drilling	
03-Nov-15	15:30	16:01	0.52	2469	2478.1	Drilling	Rotate
03-Nov-15	16:01	16:08	0.12	2478.1	2478.1	Reaming/Hole Opening	Ream
03-Nov-15	16:08	16:13	0.08			Connection-(Kelly PU/LD)	Connection
03-Nov-15	16:13	16:25	0.2	2478.1	2478.1	Surveying	Survey, Orient TF
03-Nov-15	16:25	17:18	0.88	2478.1	2484.5	Drilling	
03-Nov-15	17:18	17:47	0.48	2484.5	2491.5	Drilling	Rotate
03-Nov-15	17:47	17:55	0.13	2491.5	2491.5	Reaming/Hole Opening	Ream
03-Nov-15	17:55	18:00	0.08			Connection-(Kelly PU/LD)	Connection
03-Nov-15	18:00	18:06	0.1	2491.5	2491.5	Surveying	Survey, Orient TF
03-Nov-15	18:06	18:28	0.37	2491.5	2495.7	Drilling	
03-Nov-15	18:28	18:55	0.45	2495.7	2504.6	Drilling	Rotate
03-Nov-15	18:55	19:04	0.15	2504.6	2504.6	Reaming/Hole Opening	Ream



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

03-Nov-15	19:04	19:09	0.08			Connection-(Kelly PU/LD	Connection
03-Nov-15	19:09	19:15	0.1	2504.6	2504.6	Downlinking	Downlink
03-Nov-15	19:15	19:27	0.2	2504.6	2504.6	Surveying	Survey
03-Nov-15	19:27	20:13	0.77	2504.6	2517.9	Drilling	Rotate
03-Nov-15	20:13	20:21	0.13	2517.9	2517.9	Reaming/Hole Opening	Ream
03-Nov-15	20:21	20:25	0.07			Connection-(Kelly PU/LD	Connection
03-Nov-15	20:25	20:38	0.22	2517.9	2517.9	Surveying	Survey, Orient TF
03-Nov-15	20:38	21:29	0.85	2517.9	2526.5	Drilling	
03-Nov-15	21:29	21:49	0.33	2526.5	2531	Drilling	Rotate
03-Nov-15	21:49	21:53	0.07	2531	2531	Reaming/Hole Opening	Ream
03-Nov-15	21:53	21:58	0.08			Connection-(Kelly PU/LD	Connection
03-Nov-15	21:58	22:09	0.18	2531	2531	Surveying	Survey, Orient TF
03-Nov-15	22:09	23:13	1.07	2531	2542	Drilling	
03-Nov-15	23:13	23:24	0.18	2542	2544.1	Drilling	Rotate
03-Nov-15	23:24	23:29	0.08	2544.1	2544.1	Reaming/Hole Opening	Ream
03-Nov-15	23:29	23:35	0.1	2544.1	2544.1	Surveying	Survey
03-Nov-15	23:35	23:56	0.35			Mud Prep/Circ/Cond(hol	Rig service
03-Nov-15	23:56	00:00	0.07	2544.1	2544.1	Connection-(Kelly PU/LD	Connection



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
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UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Thursday, November, 05 2015

From: Nov-04-2015 00:00 To: Nov-05-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS															
Start Depth		2,544		Rotary Hours		7.98		WOB Rot		12.00		PU		152.50		Slack Off		137.50					
End Depth		2,675		Total Circu. Hours		22.62		WOB Slid		10.00		SPP		2,650.00		Flow Rate		270.00 - 320.00					
Total Drilled		131		Avg. Total ROP		5.45		RAB		143.00		SPM		117.00									
Total Rotary Drilled		83		Avg. Rotary ROP		10.41		MUD DATA															
Total Sliding Drilled		48		Avg. Slide ROP		5.59		Type		Water Base				PV		19		SOLID		14.20			
Slide Hours		8.55		Percent Rotary		63.36%		Weight		10.50		Gas				YP		33		BHT°		86	
Below Rotary Hrs		24.00		Percent Slide		36.64%		Viscosity		48		Sand		0.10		PH		9.5		Flow T°			
								Chlorides		167,00		WL		5.00				Oil%					
PERSONNEL								CASING															
Company Man				Darryl Whitbread				Size				Set Depth											
DD - Cell Manager				Pritchett, Andrew				7				1,426.65											
MLWD				Marfiga, Miguel Rosero				DAILY COST															
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:															
MLWD				Competente, Earl Jan Riofrio																			
MLWD				Rowley, Daniel																			
Incl. In		0		Azm. In		0														Incl. Out		84.95	
Max Inclination:		85.47																					
BHA & COMMENTS																							
Drilled ahead to 2581.2m MD																							
FORECAST NEXT 24																							
Drill 6-3/4" build section																							
MWD JOURNAL																							
Date		Start		End		Hours		Start		End		Activity				Comment							
04-Nov-15		00:00		00:04		0.07		2544.1		2544.1		Mud Prep/Circ/Cond(hol				Start pumps							
04-Nov-15		00:04		00:35		0.52		2544.1		2549.2		Drilling											
04-Nov-15		00:35		00:57		0.37		2549.2		2554.5		Drilling				Rotate							
04-Nov-15		00:57		01:05		0.13		2554.5		2554		Mud Prep/Circ/Cond(hol				Swab pump							
04-Nov-15		01:05		01:20		0.25		2554.5		2557.2		Drilling				Rotate with 1 pump - 254 gpm							
04-Nov-15		01:20		01:30		0.17		2557.2		2557.2		Reaming/Hole Opening				Ream							
04-Nov-15		01:30		01:33		0.05		2557.2		2557.2		Connection-(Kelly PU/LD				Connection							
04-Nov-15		01:33		01:47		0.23		2557.2		2557.2		Surveying				Orient TF							
04-Nov-15		01:47		02:36		0.82		2557.2		2563.2		Drilling											
04-Nov-15		02:36		02:49		0.22		2563.2		2563.2		Mud Prep/Circ/Cond(hol				Test other pump / Still using 1 pump							
04-Nov-15		02:49		03:28		0.65		2563.2		2570.3		Drilling				Rotate							





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

04-Nov-15	03:28	03:39	0.18	2570.3	2570.3	Reaming/Hole Opening	Ream
04-Nov-15	03:39	03:44	0.08	2570.3	2570.3	Connection-(Kelly PU/LD	Connection
04-Nov-15	03:44	03:54	0.17	2570.3	2570.3	Surveying	Survey, Orient TF
04-Nov-15	03:54	04:24	0.5	2570.3	2573.8	Drilling	
04-Nov-15	04:24	05:14	0.83	2573.8	2583.4	Drilling	Rotate
04-Nov-15	05:14	05:19	0.08	2583.4	2583.4	Reaming/Hole Opening	Ream
04-Nov-15	05:19	05:24	0.08	2583.4	2583.4	Connection-(Kelly PU/LD	Connection
04-Nov-15	05:24	05:40	0.27	2583.4	2583.4	Surveying	Survey, Orient TF
04-Nov-15	05:40	06:24	0.73	2583.4	2587	Drilling	
04-Nov-15	06:24	07:22	0.97	2587	2596.5	Drilling	Rotate
04-Nov-15	07:22	07:30	0.13	2596.5	2596.5	Reaming/Hole Opening	Ream
04-Nov-15	07:30	07:34	0.07	2596.5	2596.5	Connection-(Kelly PU/LD	Connection
04-Nov-15	07:34	07:43	0.15	2596.5	2596.5	Surveying	Survey, Orient TF
04-Nov-15	07:43	08:14	0.52	2596.5	2601	Drilling	
04-Nov-15	08:14	08:58	0.73	2601	2610.2	Drilling	Rotate
04-Nov-15	08:58	09:08	0.17	2610.2	2610.2	Reaming/Hole Opening	Ream
04-Nov-15	09:08	09:14	0.1	2610.2	2610.2	Connection-(Kelly PU/LD	Connection
04-Nov-15	09:14	09:20	0.1	2610.2	2610.2	Surveying	Survey, Orient TF
04-Nov-15	09:20	10:04	0.73	2610.2	2616	Drilling	
04-Nov-15	10:04	10:41	0.62	2616	2623.5	Drilling	Rotate
04-Nov-15	10:41	11:07	0.43	2623.5	2623.5	Reaming/Hole Opening	Ream
04-Nov-15	11:07	11:12	0.08	2623.5	2623.5	Connection-(Kelly PU/LD	Connection
04-Nov-15	11:12	11:23	0.18	2623.5	2623.5	Surveying	Survey, Orient TF
04-Nov-15	11:23	12:08	0.75	2623.5	2629.5	Drilling	
04-Nov-15	12:08	12:48	0.67	2629.5	2636.5	Drilling	Rotate
04-Nov-15	12:48	12:59	0.18	2636.5	2636.5	Reaming/Hole Opening	Ream
04-Nov-15	12:59	13:07	0.13	2636.5	2636.5	Connection-(Kelly PU/LD	Connection
04-Nov-15	13:07	13:15	0.13	2636	2636	Surveying	Survey, Orient TF
04-Nov-15	13:15	13:31	0.27	2636.5	2638.6	Drilling	
04-Nov-15	13:31	13:44	0.22	2638.6	2639.5	Drilling	Rotate
04-Nov-15	13:44	13:58	0.23	2639.5	2640.9	Drilling	
04-Nov-15	13:58	14:02	0.07	2640	2640	Other	Blown Pop Off / Recycle
04-Nov-15	14:02	14:06	0.07	2640	2640	Surveying	Recylce - Out of Spec Survey
04-Nov-15	14:06	14:17	0.18	2640	2640	Surveying	Survey for TF / Orient TF
04-Nov-15	14:17	14:25	0.13	2640.9	2641.9	Drilling	
04-Nov-15	14:25	14:58	0.55	2641	2641	Other	Electrical Issue / Recycle / Blown Pop Off Issue
04-Nov-15	14:58	15:23	0.42	2641.9	2643.3	Drilling	
04-Nov-15	15:23	15:33	0.17	2643	2643	Mud Prep/Circ/Cond(hol	Circulate
04-Nov-15	15:33	16:37	1.07	2643.3	2645.6	Drilling	
04-Nov-15	16:37	17:21	0.73	2645.6	2649.9	Drilling	Rotate
04-Nov-15	17:21	17:28	0.12	2645	2645	Reaming/Hole Opening	Ream
04-Nov-15	17:28	17:33	0.08	2645	2645	Connection-(Kelly PU/LD	Connection
04-Nov-15	17:33	17:37	0.07	2645	2645	Surveying	Out of Spec Survey
04-Nov-15	17:37	17:43	0.1	2645	2645	Surveying	Recycle / Survey @ 2644.0m MD



**Job Number:** 15AUS0152

**Company Name:** ORIGIN ENERGY RESOURCES LTD

**Rig Name:** Saxon 185

**Well Name:** Amungee NW-1H

**Well Location:** Lat: -16.3445, Long: 133.8845

**Well State:** Northern Territory

**Well County:** Beetaloo

**Well Field:** Beetaloo North

**Well Country:** AUSTRALIA

**Lead DD:** Pritchett, Andrew

**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

04-Nov-15	17:43	19:30	1.78	2645	2645	Mud Prep/Circ/Cond(hol	Circulate
04-Nov-15	19:30	19:38	0.13	2645	2645	Surveying	Survey for TF / Orient TF
04-Nov-15	19:38	20:42	1.07	2649.9	2652.5	Drilling	
04-Nov-15	20:42	21:30	0.8	2652.5	2663.1	Drilling	Rotate
04-Nov-15	21:30	21:36	0.1	2663	2663	Reaming/Hole Opening	Ream
04-Nov-15	21:36	21:41	0.08	2663	2663	Connection-(Kelly PU/LD	Connection
04-Nov-15	21:41	21:44	0.05	2663	2663	Surveying	Survey / Recycle
04-Nov-15	21:44	22:03	0.32	2663	2663	Surveying	Survey @ 2646.2m MD / Orient TF
04-Nov-15	22:03	22:51	0.8	2663.1	2665.6	Drilling	
04-Nov-15	22:51	00:00	1.15	2665.6	2675	Drilling	Rotate



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
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## Daily Report for Friday, November, 06 2015

From: Nov-05-2015 00:00 To: Nov-06-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	2,675	Rotary Hours	9.35	WOB Rot	12.00	PU	154.50	Slack Off	134.50		
End Depth	2,781	Total Circu. Hours	21.37	WOB Slid	15.00	SPP	2,820.00	Flow Rate	320.00 - 320.00		
Total Drilled	124	Avg. Total ROP	5.15	RAB	144.50	SPM	127.50				
Total Rotary Drilled	105	Avg. Rotary ROP	11.19	MUD DATA							
Total Sliding Drilled	19	Avg. Slide ROP	3.45	Type	Water Base		PV	18	SOLID	14.20	
Slide Hours	5.48	Percent Rotary	84.68%	Weight	10.50	Gas		YP	35	BHT°	89
Below Rotary Hrs	24.00	Percent Slide	15.32%	Viscosity	49	Sand	0.10	PH	9.5	Flow T°	
				Chlorides	165,00	WL	5.20		Oil%		

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
MLWD				Rowley, Daniel				7		1,426.65	
MLWD				Competente, Earl Jan Riofrio				DAILY COST			
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:  <			

## BHA & COMMENTS

Drilled to 2703.2m MD

## FORECAST NEXT 24

Drill 6-3/4" hole to landing point

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
05-Nov-15	00:00	00:05	0.08	2675	2676.2	Drilling	Rotate
05-Nov-15	00:05	00:13	0.13	2676	2676	Reaming/Hole Opening	Ream
05-Nov-15	00:13	00:17	0.07	2676	2676	Connection-(Kelly PU/LD)	Connection
05-Nov-15	00:17	00:21	0.07	2676	2676	Surveying	Tool Has Accidentally Reprogrammed to 0.6 DR
05-Nov-15	00:21	00:27	0.1	2676	2676	Surveying	Survey @ 2659.4m MD
05-Nov-15	00:27	01:48	1.35	2676.2	2689.2	Drilling	Rotate
05-Nov-15	01:48	01:54	0.1	2689	2689	Reaming/Hole Opening	Ream
05-Nov-15	01:54	01:59	0.08	2689	2689	Connection-(Kelly PU/LD)	Connection
05-Nov-15	01:59	02:12	0.22	2689	2689	Surveying	Survey @ 2672.5m MD / Orientate TF
05-Nov-15	02:12	03:12	1	2689.2	2692	Drilling	
05-Nov-15	03:12	04:02	0.83	2692	2702.6	Drilling	Rotate



**Job Number:** 15AUS0152  
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**Well State:** Northern Territory

**Well County:** Beetaloo  
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**Lead DD:** Pritchett, Andrew  
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**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

05-Nov-15	04:02	04:21	0.32	2702.6	2702.6	Reaming/Hole Opening	Ream
05-Nov-15	04:21	04:31	0.17	2702.6	2702.6	Connection-(Kelly PU/LD	Connection
05-Nov-15	04:31	04:41	0.17	2702.6	2702.6	Surveying	Survey
05-Nov-15	04:41	04:45	0.07	2702.6	2703.2	Drilling	Rotate
05-Nov-15	04:45	04:58	0.22	2703.2	2703.2	Mud Prep/Circ/Cond(hol	Pop off valve issue
05-Nov-15	04:58	06:06	1.13	2703.2	2715.6	Drilling	Rotate
05-Nov-15	06:06	06:16	0.17	2715.6	2715.6	Reaming/Hole Opening	Ream
05-Nov-15	06:16	06:20	0.07	2715.6	2715.6	Connection-(Kelly PU/LD	Connection
05-Nov-15	06:20	06:25	0.08	2715.6	2715.6	Surveying	Resurvey, bad TGF
05-Nov-15	06:25	06:32	0.12	2715.6	2715.6	Surveying	Survey, Orient TF
05-Nov-15	06:32	06:56	0.4	2715.6	2716.8	Drilling	
05-Nov-15	06:56	07:04	0.13	2716.8	2716.8	Mud Prep/Circ/Cond(hol	Pumps shutting down
05-Nov-15	07:04	07:57	0.88	2716.8	2720.3	Drilling	
05-Nov-15	07:57	08:53	0.93	2720.3	2728.7	Drilling	Rotate
05-Nov-15	08:53	09:00	0.12	2728.2	2728.2	Reaming/Hole Opening	Ream
05-Nov-15	09:00	09:03	0.05	2728.2	2728.2	Connection-(Kelly PU/LD	Connection
05-Nov-15	09:03	09:14	0.18	2728.2	2728.2	Surveying	Survey, Orient TF
05-Nov-15	09:14	10:25	1.18	2728.7	2733	Drilling	
05-Nov-15	10:25	11:28	1.05	2733	2742.1	Drilling	Rotate
05-Nov-15	11:28	11:39	0.18	2742.1	2742.1	Reaming/Hole Opening	Ream
05-Nov-15	11:39	11:47	0.13	2742.1	2742.1	Connection-(Kelly PU/LD	Connection
05-Nov-15	11:47	11:51	0.07	2742.1	2742.1	Surveying	Survey
05-Nov-15	11:51	12:57	1.1	2742.1	2755.2	Drilling	Rotate
05-Nov-15	12:57	13:05	0.13	2755.2	2755.2	Reaming/Hole Opening	Ream
05-Nov-15	13:05	13:08	0.05	2755.2	2755.2	Connection-(Kelly PU/LD	Connection
05-Nov-15	13:08	13:13	0.08	2755.2	2755.2	Reaming/Hole Opening	Resurvey, bad TGF
05-Nov-15	13:13	13:18	0.08	2755.2	2755.2	Surveying	Survey
05-Nov-15	13:18	14:17	0.98	2755.2	2768.3	Drilling	Rotate
05-Nov-15	14:17	14:21	0.07	2768.3	2768.3	Reaming/Hole Opening	Ream
05-Nov-15	14:21	14:26	0.08	2768.3	2768.3	Connection-(Kelly PU/LD	Connection
05-Nov-15	14:26	14:31	0.08	2768.3	2768.3	Surveying	Resurvey, bad survey
05-Nov-15	14:31	14:37	0.1	2768.3	2768.3	Surveying	Survey
05-Nov-15	14:37	15:38	1.02	2768.3	2781.7	Drilling	Rotate
05-Nov-15	15:38	15:45	0.12	2781.7	2781.7	Reaming/Hole Opening	Ream
05-Nov-15	15:45	15:50	0.08	2781.7	2781.7	Connection-(Kelly PU/LD	Connection
05-Nov-15	15:50	15:55	0.08	2781.7	2781.7	Surveying	Resurvey, bad survey
05-Nov-15	15:55	16:06	0.18	2781.7	2781.7	Surveying	Survey, Orient TF
05-Nov-15	16:06	16:47	0.68	2781.7	2785.1	Drilling	
05-Nov-15	16:47	17:35	0.8	2785.1	2794.8	Drilling	Rotate
05-Nov-15	17:35	17:41	0.1	2794.8	2794.8	Reaming/Hole Opening	Ream
05-Nov-15	17:41	18:08	0.45	2794.8	2794.8	Lubricate rig / Service	Rig service
05-Nov-15	18:08	18:12	0.07	2794	2794	Connection-(Kelly PU/LD	Connection
05-Nov-15	18:12	18:20	0.13	2794	2794	Surveying	Survey @ 2778.0m MD
05-Nov-15	18:20	19:40	1.33	2794.8	2798.5	Drilling	



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**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

<b>UOM:</b> DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON							
05-Nov-15	19:40	21:00	1.33	2798	2798	Other	Troubleshoot
05-Nov-15	21:00	00:00	3	2790	2781.1	Mud Prep/Circ/Cond(hol	Circulate / Pump Sweep / SCR's



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Saturday, November, 07 2015

From: Nov-06-2015 00:00 To: Nov-07-2015 00:00

DRILLING SUMMARY							DRILLING PARAMETERS												
Start Depth		2,781		Rotary Hours		0.00		WOB Rot				PU			Slack Off				
End Depth		0		Total Circu. Hours		0.32		WOB Slid				SPP			Flow Rate				
Total Drilled		0		Avg. Total ROP				RAB				SPM							
Total Rotary Drilled		0		Avg. Rotary ROP				MUD DATA											
Total Sliding Drilled		0		Avg. Slide ROP				Type					PV			SOLID			
Slide Hours		0.00		Percent Rotary				Weight			Gas			YP			BHT°		
Below Rotary Hrs		11.00		Percent Slide				Viscosity			Sand			PH			Flow T°		
								Chlorides			WL					Oil%			
PERSONNEL								CASING											
Company Man				Darryl Whitbread				Size					Set Depth						
DD - Cell Manager				Pritchett, Andrew				7					1,426.65						
DD				Abdelrehim, Mohamed Mostafa				DAILY COST											
MLWD				Competente, Earl Jan Riofrio				Daily Cost:  Cumulative Cost:   Signature:											
MLWD				Rowley, Daniel															
Incl. In		0	Azm. In		0	Incl. Out		84.95	Azm. Out		135.48								
Max Inclination:		85.47																	
BHA & COMMENTS																			
FORECAST NEXT 24																			
MWD JOURNAL																			
Date		Start	End	Hours	Start	End	Activity					Comment							
06-Nov-15		00:00	07:51	7.85	2781.1	490	RIH/POOH/Trip/Wiper Tr					POOH							
06-Nov-15		07:51	08:24	0.55	490	490	Lubricate rig / Service					Rig service							
06-Nov-15		08:24	09:21	0.95	490	125	RIH/POOH/Trip/Wiper Tr					POOH							
06-Nov-15		09:21	09:40	0.32	125	125	Mud Prep/Circ/Cond(hol					Flush motor and tools / PJSM							
06-Nov-15		09:40	11:00	1.33	125	0	MU/LD BHA					Lay down NMDC, HDS1, Motor							
06-Nov-15		11:00	11:00	0	0	0	Run End - TART					End of Run #4							
06-Nov-15		11:00	00:00	13			Test BOP					Pressure Test BOP							



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Sunday, November, 08 2015

From: Nov-07-2015 00:00 To: Nov-08-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS													
Start Depth		0		Rotary Hours		0.00		WOB Rot				PU				Slack Off					
End Depth		2,600		Total Circu. Hours		1.57		WOB Slid				SPP				Flow Rate					
Total Drilled		0		Avg. Total ROP				RAB				SPM									
Total Rotary Drilled		0		Avg. Rotary ROP				MUD DATA													
Total Sliding Drilled		0		Avg. Slide ROP				Type		Fresh Water				PV		18		SOLID		14.20	
Slide Hours		0.00		Percent Rotary				Weight		10.50		Gas				YP		33		BHT°	
Below Rotary Hrs		17.50		Percent Slide				Viscosity		48		Sand		0.10		PH		9.5		Flow T°	
								Chlorides		169,00		WL						Oil%			
PERSONNEL								CASING													
Company Man				Darryl Whitbread				Size						Set Depth							
DD - Cell Manager				Pritchett, Andrew				7						1,426.65							
DD				Abdelrehim, Mohamed Mostafa				DAILY COST													
MLWD				Competente, Earl Jan Riofrio				Daily Cost:  Cumulative Cost:   Signature:													
MLWD				Rowley, Daniel																	
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21														
Max Inclination:		96.64																			
BHA & COMMENTS																					
POOH, LDBHA, Pressure Test BOP																					
FORECAST NEXT 24																					
MUBHA, RIH, Drill Ahead																					
MWD JOURNAL																					
Date		Start	End	Hours	Start	End	Activity			Comment											
07-Nov-15		00:00	06:10	6.17			Test BOP			Pressure Test BOP											
07-Nov-15		06:10	06:30	0.33			Operations			PJSM											
07-Nov-15		06:30	06:30	0	0	0	Run Start - TBRT			Start of Run #5											
07-Nov-15		06:30	08:30	2	0	38	MU/LD BHA			M/U bit / Test RSS / Pick up BHA											
07-Nov-15		08:30	08:35	0.08	38	38	Shallow hole test			SHT good											
07-Nov-15		08:35	11:55	3.33	38	1090	RIH/POOH/Trip/Wiper Tr			RIH											
07-Nov-15		11:55	12:00	0.08	1090	1090	Mud Prep/Circ/Cond(hol			Break circulation											
07-Nov-15		12:00	13:17	1.28	1090	1410	RIH/POOH/Trip/Wiper Tr			RIH											
07-Nov-15		13:17	13:20	0.05	1410	1410	Mud Prep/Circ/Cond(hol			Break circulation											
07-Nov-15		13:20	15:15	1.92	1410	1410	Slip-n-Cut Drilling Line			Slip & Cut											
07-Nov-15		15:15	21:21	6.1	1410	2534	RIH/POOH/Trip/Wiper Tr			RIH											

Run Statistics Calculated from MWD Journal





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON							
07-Nov-15	21:21	22:42	1.35	2534	2534	Mud Prep/Circ/Cond(hol	Tight Spot - Circulate - Wash
07-Nov-15	22:42	00:00	1.3	2534	2599.8	RIH/POOH/Trip/Wiper Tr	Wash to Bottom



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Monday, November, 09 2015

From: Nov-08-2015 00:00 To: Nov-09-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	2,600	Rotary Hours	16.08	WOB Rot	7.67	PU	160.00	Slack Off	138.00		
End Depth	2,900	Total Circu. Hours	19.47	WOB Slid		SPP	2,483.33	Flow Rate	275.00 - 280.00		
Total Drilled	101	Avg. Total ROP	4.23	RAB	149.50	SPM	121.33				
Total Rotary Drilled	101	Avg. Rotary ROP	6.31	MUD DATA							
Total Sliding Drilled	0	Avg. Slide ROP		Type	Fresh Water		PV	19	SOLID	14.20	
Slide Hours	0.00	Percent Rotary	100%	Weight	10.50	Gas		YP	33	BHT°	92
Below Rotary Hrs	24.00	Percent Slide	0%	Viscosity	47	Sand	0.10	PH	9.5	Flow T°	
				Chlorides	169,00	WL				Oil%	

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
DD				Abdelrehim, Mohamed Mostafa				DAILY COST			
MLWD				Competente, Earl Jan Riofrio				Daily Cost:  Cumulative Cost:   Signature:			
MLWD				Rowley, Daniel							
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21				
Max Inclination:		96.64									

## BHA & COMMENTS

Drill Ahead

## FORECAST NEXT 24

Drill Ahead

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
08-Nov-15	00:00	03:02	3.03	2599.8	2798.5	RIH/POOH/Trip/Wiper Tr	Wash to Bottom
08-Nov-15	03:02	03:14	0.2	2798	2798	Mud Prep/Circ/Cond(hol	Circulate
08-Nov-15	03:14	03:18	0.07	2798	2798	Downlinking	Downlink to PD
08-Nov-15	03:18	03:47	0.48	2798	2798	Mud Prep/Circ/Cond(hol	Circulate Bottom's Up
08-Nov-15	03:47	04:38	0.85	2798.5	2803.3	Drilling	Rotate
08-Nov-15	04:38	04:42	0.07	2803	2803	Reaming/Hole Opening	Ream
08-Nov-15	04:42	04:49	0.12	2803	2803	Other	SCR's
08-Nov-15	04:49	04:53	0.07	2803	2803	Connection-(Kelly PU/LD	Connection
08-Nov-15	04:53	05:00	0.12	2803	2803	Surveying	Survey @ 2792.3m MD
08-Nov-15	05:00	05:10	0.17	2803	2803	Downlinking	Downlink to PD
08-Nov-15	05:10	07:11	2.02	2803.3	2816.4	Drilling	Rotate



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

08-Nov-15	07:11	07:20	0.15	2816.4	2816.4	Reaming/Hole Opening	Ream
08-Nov-15	07:20	07:22	0.03	2816.4	2816.4	Mud Prep/Circ/Cond(hol	SCR
08-Nov-15	07:22	07:34	0.2	2816.4	2816.4	Downlinking	Reprogram data rate from 0.8 p.w t 1.0 p.w
08-Nov-15	07:34	07:42	0.13	2816.4	2816.4	Connection-(Kelly PU/LD	Connection
08-Nov-15	07:42	07:51	0.15	2816.4	2816.4	Surveying	Survey
08-Nov-15	07:51	08:11	0.33	2816.4	2818.8	Drilling	Rotate
08-Nov-15	08:11	08:15	0.07	2818.8	2818.8	Surveying	Checkshot
08-Nov-15	08:15	08:27	0.2	2818.8	2818.8	Downlinking	Downlink to PD
08-Nov-15	08:27	10:00	1.55	2818.8	2829.5	Drilling	Rotate
08-Nov-15	10:00	10:06	0.1	2829.5	2829.5	Reaming/Hole Opening	Ream
08-Nov-15	10:06	10:10	0.07	2829.5	2829.5	Connection-(Kelly PU/LD	Connection
08-Nov-15	10:10	10:15	0.08	2829.5	2829.5	Surveying	Survey
08-Nov-15	10:15	10:20	0.08	2829.5	2829.5	Downlinking	Downlink to PD
08-Nov-15	10:20	12:32	2.2	2829.5	2842.9	Drilling	Rotate
08-Nov-15	12:32	12:38	0.1	2842.9	2842.9	Reaming/Hole Opening	Ream
08-Nov-15	12:38	12:46	0.13	2842.9	2842.9	Connection-(Kelly PU/LD	Connection
08-Nov-15	12:46	12:51	0.08	2842.9	2842.9	Surveying	Survey
08-Nov-15	12:51	13:02	0.18	2842.9	2842.9	Downlinking	Downlink to PD
08-Nov-15	13:02	15:15	2.22	2842.9	2856.2	Drilling	Rotate
08-Nov-15	15:15	15:21	0.1	2856.2	2856.2	Reaming/Hole Opening	Ream
08-Nov-15	15:21	15:28	0.12	2856.2	2856.2	Connection-(Kelly PU/LD	Connection
08-Nov-15	15:28	15:35	0.12	2856.2	2856.2	Surveying	Survey
08-Nov-15	15:35	17:56	2.35	2856.2	2869.4	Drilling	Rotate
08-Nov-15	17:56	18:06	0.17	2869	2869	Reaming/Hole Opening	Ream
08-Nov-15	18:06	18:42	0.6	2869	2869	Other	Rig Service / SCR's
08-Nov-15	18:42	18:46	0.07	2869	2869	Connection-(Kelly PU/LD	Connection
08-Nov-15	18:46	18:51	0.08	2869	2869	Surveying	Survey @ 2858.2m MD
08-Nov-15	18:51	21:01	2.17	2869.4	2882.4	Drilling	Rotate
08-Nov-15	21:01	21:07	0.1	2882	2882	Reaming/Hole Opening	Ream
08-Nov-15	21:07	21:14	0.12	2882	2882	Connection-(Kelly PU/LD	Connection
08-Nov-15	21:14	21:19	0.08	2882	2882	Surveying	Survey @ 2871.3m MD
08-Nov-15	21:19	23:10	1.85	2882.4	2895.7	Drilling	Rotate
08-Nov-15	23:10	23:14	0.07	2895	2895	Reaming/Hole Opening	Ream
08-Nov-15	23:14	23:19	0.08	2895	2895	Connection-(Kelly PU/LD	Connection
08-Nov-15	23:19	23:27	0.13	2895	2895	Surveying	Survey @ 2884.5m MD
08-Nov-15	23:27	00:00	0.55	2895.7	2899.9	Drilling	Rotate



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Tuesday, November, 10 2015

From: Nov-09-2015 00:00 To: Nov-10-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	2,900	Rotary Hours	18.55	WOB Rot	10.00	PU	160.50	Slack Off	137.00		
End Depth	3,053	Total Circu. Hours	22.23	WOB Slid		SPP	2,600.00	Flow Rate	280.00 - 280.00		
Total Drilled	141	Avg. Total ROP	5.86	RAB	149.50	SPM	122.00				
Total Rotary Drilled	141	Avg. Rotary ROP	7.58	MUD DATA							
Total Sliding Drilled	0	Avg. Slide ROP		Type	Fresh Water		PV	18	SOLID	14.20	
Slide Hours	0.00	Percent Rotary	100%	Weight	10.50	Gas		YP	33	BHT°	93
Below Rotary Hrs	24.00	Percent Slide	0%	Viscosity	48	Sand	0.10	PH	9.5	Flow T°	
				Chlorides	169,00	WL				Oil%	

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
DD				Abdelrehim, Mohamed Mostafa				DAILY COST			
MLWD				Rowley, Daniel				Daily Cost:  Cumulative Cost:   Signature:			
MLWD				Competente, Earl Jan Riofrio							
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21				
Max Inclination:		96.64									

## BHA & COMMENTS

Drill Ahead

## FORECAST NEXT 24

Drill Ahead

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
09-Nov-15	00:00	01:14	1.23	2899.9	2908.3	Drilling	Rotate
09-Nov-15	01:14	01:22	0.13	2908	2908	Reaming/Hole Opening	Ream
09-Nov-15	01:22	01:27	0.08	2908	2908	Connection-(Kelly PU/LD)	Connection
09-Nov-15	01:27	01:34	0.12	2908	2908	Surveying	Survey @ 2897.7m MD
09-Nov-15	01:34	03:12	1.63	2908.3	2921.9	Drilling	Rotate
09-Nov-15	03:12	03:20	0.13	2921	2921	Reaming/Hole Opening	Ream
09-Nov-15	03:20	03:25	0.08	2921	2921	Connection-(Kelly PU/LD)	Connection
09-Nov-15	03:25	03:35	0.17	2921	2921	Surveying	Survey @ 2910.8m MD
09-Nov-15	03:35	04:15	0.67	2921.9	2927.3	Drilling	Rotate / Downlink to PD x 3
09-Nov-15	04:15	04:23	0.13	2927	2927	Surveying	Recycle - RX5 out of sync
09-Nov-15	04:23	05:26	1.05	2927.3	2931.9	Drilling	Rotate

Run Statistics Calculated from MWD Journal



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
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**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

09-Nov-15	05:26	05:37	0.18	2931.9	2931.9	Reaming/Hole Opening	Ream
09-Nov-15	05:37	05:42	0.08	2931.9	2931.9	Connection-(Kelly PU/LD	Connection
09-Nov-15	05:42	05:45	0.05	2931.9	2931.9	Surveying	Resurvey
09-Nov-15	05:45	05:53	0.13	2931.9	2931.9	Surveying	Survey @ 2924.0m MD
09-Nov-15	05:53	07:37	1.73	2931.9	2948.4	Drilling	Rotate
09-Nov-15	07:37	07:45	0.13	2948.4	2948.4	Reaming/Hole Opening	Ream
09-Nov-15	07:45	07:49	0.07	2948.4	2948.4	Connection-(Kelly PU/LD	Connection
09-Nov-15	07:49	07:56	0.12	2948.4	2948.4	Surveying	Survey @ 2937.2m MD
09-Nov-15	07:56	09:20	1.4	2948.4	2961.5	Drilling	Rotate
09-Nov-15	09:20	09:28	0.13	2961.5	2961.5	Reaming/Hole Opening	Ream
09-Nov-15	09:28	09:35	0.12	2961.5	2961.5	Connection-(Kelly PU/LD	Connection
09-Nov-15	09:35	09:41	0.1	2961.5	2961.5	Surveying	Survey @ 2950.3m MD
09-Nov-15	09:41	11:24	1.72	2961.5	2974.7	Drilling	Rotate
09-Nov-15	11:24	11:43	0.32	2974.7	2974.7	Reaming/Hole Opening	Ream / SCRs
09-Nov-15	11:43	11:47	0.07	2974.7	2974.7	Downlinking	Reprogram from 1.0pw to 2.0pw
09-Nov-15	11:47	11:52	0.08	2974.7	2974.7	Connection-(Kelly PU/LD	Connection
09-Nov-15	11:52	12:01	0.15	2974.7	2974.7	Surveying	Survey @ 2963.5m MD
09-Nov-15	12:01	12:38	0.62	2974.7	2979.7	Drilling	Rotate
09-Nov-15	12:38	12:46	0.13	2979.7	2979.7	Surveying	Reprogram back to 1.0pw / Checkshot
09-Nov-15	12:46	12:54	0.13	2979.7	2979.7	Mud Prep/Circ/Cond(hol	Circulate
09-Nov-15	12:54	14:13	1.32	2979.7	2987.7	Drilling	Rotate
09-Nov-15	14:13	14:19	0.1	2987.7	2987.7	Reaming/Hole Opening	Ream
09-Nov-15	14:19	14:25	0.1	2987.7	2987.7	Connection-(Kelly PU/LD	Connection
09-Nov-15	14:25	14:31	0.1	2987.7	2987.7	Surveying	Resurvey
09-Nov-15	14:31	14:38	0.12	2987.7	2987.7	Surveying	Survey @ 2976.5m MD
09-Nov-15	14:38	14:53	0.25	2987.7	2989.7	Drilling	Rotate
09-Nov-15	14:53	15:05	0.2	2989.7	2989.7	Surveying	Survey / Resync RX5
09-Nov-15	15:05	16:40	1.58	2989.7	3001	Drilling	Rotate
09-Nov-15	16:40	16:50	0.17	3000	3001	Reaming/Hole Opening	Ream
09-Nov-15	16:50	17:05	0.25	3001	3001	Lubricate rig / Service	Rig service
09-Nov-15	17:05	17:37	0.53	3001	3001	Other	Pop off valve issue
09-Nov-15	17:37	17:45	0.13	3001	3001	Surveying	Survey @ 2989.9m MD
09-Nov-15	17:45	18:09	0.4	3001	3004.1	Drilling	Rotate
09-Nov-15	18:09	18:17	0.13	3004.1	3004.1	Pump Repair	Change back to 2 pumps
09-Nov-15	18:17	19:48	1.52	3004.1	3014.1	Drilling	Rotate
09-Nov-15	19:48	19:52	0.07	3014	3014	Reaming/Hole Opening	Ream
09-Nov-15	19:52	19:57	0.08	3014	3014	Connection-(Kelly PU/LD	Connection
09-Nov-15	19:57	20:02	0.08	3014	3014	Surveying	Survey @ 3003.0m MD
09-Nov-15	20:02	21:50	1.8	3014.1	3027.2	Drilling	Rotate
09-Nov-15	21:50	22:01	0.18	3027	3027	Reaming/Hole Opening	Ream
09-Nov-15	22:01	22:06	0.08	3027	3027	Connection-(Kelly PU/LD	Connection
09-Nov-15	22:06	22:13	0.12	3027	3027	Surveying	Survey @ 3016.2m MD
09-Nov-15	22:13	23:51	1.63	3027.2	3040.6	Drilling	Rotate
09-Nov-15	23:51	23:56	0.08	3053	3053	Reaming/Hole Opening	Ream



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON							
09-Nov-15	23:56	00:00	0.07	3053	3053	Connection-(Kelly PU/LD	Connection



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
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UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Wednesday, November, 11 2015

From: Nov-10-2015 00:00 To: Nov-11-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS					
Start Depth	3,053	Rotary Hours	16.82	WOB Rot	12.00	PU	164.00	Slack Off	132.00
End Depth	3,256	Total Circu. Hours	22.08	WOB Slid		SPP	2,700.00	Flow Rate	280.00 - 280.00
Total Drilled	215	Avg. Total ROP	8.98	RAB	148.00	SPM	122.00		
Total Rotary Drilled	215	Avg. Rotary ROP	12.81	MUD DATA					
Total Sliding Drilled	0	Avg. Slide ROP		Type		PV		SOLID	
Slide Hours	0.00	Percent Rotary	100%	Weight	Gas	YP		BHT°	99
Below Rotary Hrs	24.00	Percent Slide	0%	Viscosity	Sand	PH		Flow T°	
				Chlorides	WL			Oil%	

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
DD				Abdelrehim, Mohamed Mostafa				DAILY COST			
MLWD				Competente, Earl Jan Riofrio				Daily Cost:  Cumulative Cost:   Signature:			
MLWD				Rowley, Daniel							
MLWD				Fry, George							
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21				
Max Inclination:		96.64									

## BHA & COMMENTS

Drill Ahead

## FORECAST NEXT 24

Drill Ahead

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
10-Nov-15	00:00	00:14	0.23	3053	3053	Surveying	Recycle / Survey @ 3029.4m MD
10-Nov-15	00:14	01:30	1.27	3040.6	3054.6	Drilling	Rotate
10-Nov-15	01:30	01:35	0.08	3054	3054	Reaming/Hole Opening	Ream
10-Nov-15	01:35	01:40	0.08	3054	3054	Connection-(Kelly PU/LD	Connection
10-Nov-15	01:40	01:46	0.1	3054	3054	Surveying	Survey @ 3042.6m MD
10-Nov-15	01:46	02:57	1.18	3054.6	3066.9	Drilling	Rotate
10-Nov-15	02:57	03:05	0.13	3066	3066	Reaming/Hole Opening	Ream
10-Nov-15	03:05	03:10	0.08	3066	3066	Connection-(Kelly PU/LD	Connection
10-Nov-15	03:10	03:13	0.05	3066	3066	Surveying	Survey
10-Nov-15	03:13	03:21	0.13	3066	3066	Surveying	Survey @ 3055.8m MD
10-Nov-15	03:21	04:20	0.98	3066.9	3079.9	Drilling	Rotate



**Job Number:** 15AUS0152  
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**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

10-Nov-15	04:20	04:27	0.12	3079	3079	Reaming/Hole Opening	Ream
10-Nov-15	04:27	04:32	0.08	3079	3079	Connection-(Kelly PU/LD	Connection
10-Nov-15	04:32	05:00	0.47	3079.9	3085.4	Drilling	Rotate
10-Nov-15	05:00	05:40	0.67	3085.4	3093.1	Drilling	Rotate
10-Nov-15	05:40	05:46	0.1	3093	3093	Reaming/Hole Opening	Ream
10-Nov-15	05:46	05:51	0.08	3093	3093	Connection-(Kelly PU/LD	Connection
10-Nov-15	05:51	06:02	0.18	3093	3093	Surveying	Survey @ 3082.1m MD
10-Nov-15	06:02	07:04	1.03	3093.1	3106.5	Drilling	Rotate
10-Nov-15	07:04	07:10	0.1	3106	3106	Reaming/Hole Opening	Ream
10-Nov-15	07:10	07:32	0.37	3106	3106	Surveying	Recycle x 2. Survey @ 3095.3m MD
10-Nov-15	07:32	08:35	1.05	3106.5	3119.6	Drilling	Rotate
10-Nov-15	08:35	08:43	0.13	3119.6	3119.6	Reaming/Hole Opening	Ream
10-Nov-15	08:43	08:46	0.05	3119.6	3119.6	Connection-(Kelly PU/LD	Connection
10-Nov-15	08:46	08:53	0.12	3119.6	3119.6	Surveying	Resurvey
10-Nov-15	08:53	09:00	0.12	3119.6	3119.6	Surveying	Survey @ 3108.5m MD
10-Nov-15	09:00	10:03	1.05	3119.6	3132.8	Drilling	Rotate
10-Nov-15	10:03	10:15	0.2	3132.8	3132.8	Mud Prep/Circ/Cond(hol	Ream / SCRs
10-Nov-15	10:15	10:20	0.08	3132.8	3132.8	Downlinking	Reprogram from 1.0pw to 0.6pw
10-Nov-15	10:20	10:25	0.08	3132.8	3132.8	Connection-(Kelly PU/LD	Connection
10-Nov-15	10:25	10:30	0.08	3132.8	3132.8	Surveying	Resurvey
10-Nov-15	10:30	10:34	0.07	3132.8	3132.8	Surveying	Survey @ 3121.7m MD
10-Nov-15	10:34	11:27	0.88	3132.8	3145.9	Drilling	Rotate
10-Nov-15	11:27	11:31	0.07	3145.9	3145.9	Reaming/Hole Opening	Ream
10-Nov-15	11:31	11:39	0.13	3145.9	3145.9	Other	BOP drill
10-Nov-15	11:39	11:42	0.05	3145.9	3145.9	Connection-(Kelly PU/LD	Connection
10-Nov-15	11:42	11:55	0.22	3145.9	3145.9	Surveying	Survey @ 3134.8m MD
10-Nov-15	11:55	12:57	1.03	3145.9	3158.9	Drilling	Rotate
10-Nov-15	12:57	13:04	0.12	3158.9	3158.9	Reaming/Hole Opening	Ream
10-Nov-15	13:04	13:12	0.13	3158.9	3158.9	Connection-(Kelly PU/LD	Connection
10-Nov-15	13:12	13:24	0.2	3158.9	3158.9	Surveying	Resurvey x2 / Bad survey (azimuth)
10-Nov-15	13:24	13:28	0.07	3158.9	3158.9	Downlinking	Reprogram from 0.6pw to 1.0pw
10-Nov-15	13:28	13:43	0.25	3158.9	3158.9	Surveying	Survey @ 3148.0m MD
10-Nov-15	13:43	14:33	0.83	3158.9	3172.3	Drilling	Rotate
10-Nov-15	14:33	14:39	0.1	3172.3	3172.3	Reaming/Hole Opening	Ream
10-Nov-15	14:39	14:45	0.1	3158.9	3158.9	Other	Test crown saver
10-Nov-15	14:45	14:48	0.05	3158.9	3158.9	Connection-(Kelly PU/LD	Connection
10-Nov-15	14:48	14:57	0.15	3158.9	3158.9	Surveying	Survey @ 3161.2m MD
10-Nov-15	14:57	15:53	0.93	3172.3	3185.4	Drilling	Rotate
10-Nov-15	15:53	15:59	0.1	3185.4	3195.4	Reaming/Hole Opening	Ream
10-Nov-15	15:59	16:04	0.08	3195.4	3195.4	Connection-(Kelly PU/LD	Connection
10-Nov-15	16:04	16:11	0.12	3195.4	3195.4	Surveying	Survey @ 3174.3m MD
10-Nov-15	16:11	17:19	1.13	3185.4	3198.7	Drilling	Rotate
10-Nov-15	17:19	17:25	0.1	3198.7	3198.7	Reaming/Hole Opening	Ream
10-Nov-15	17:25	17:30	0.08	3198.7	3198.7	Connection-(Kelly PU/LD	Connection





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
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**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

10-Nov-15	17:30	17:38	0.13	3198.7	3198.7	Surveying	Survey @ 3187.5m MD
10-Nov-15	17:38	18:36	0.97	3198.7	3211.7	Drilling	Rotate
10-Nov-15	18:36	18:45	0.15	3211.7	3211.7	Reaming/Hole Opening	Ream
10-Nov-15	18:45	19:13	0.47	3211.7	3211.7	Lubricate rig / Service	Rig service / SCR
10-Nov-15	19:13	19:20	0.12	3211.7	3211.7	Mud Prep/Circ/Cond(hol	Circulate
10-Nov-15	19:20	19:25	0.08	3211.7	3211.7	Connection-(Kelly PU/LD	Connection
10-Nov-15	19:25	19:33	0.13	3211.7	3211.7	Surveying	Survey x2 / No DPM on bus
10-Nov-15	19:33	19:40	0.12	3211.7	3211.7	Surveying	Survey @ 3200.7m MD
10-Nov-15	19:40	20:38	0.97	3211.7	3224.8	Drilling	Rotate
10-Nov-15	20:38	20:45	0.12	3224.8	3224.8	Reaming/Hole Opening	Ream
10-Nov-15	20:45	20:48	0.05	3224.8	3224.8	Connection-(Kelly PU/LD	Connection
10-Nov-15	20:48	20:55	0.12	3224.8	3224.8	Surveying	Survey @ 3213.9m MD
10-Nov-15	20:55	21:55	1	3224.8	3237.8	Drilling	Rotate
10-Nov-15	21:55	22:02	0.12	3237.8	3237.8	Reaming/Hole Opening	Ream
10-Nov-15	22:02	22:11	0.15	3237.8	3237.8	Connection-(Kelly PU/LD	Connection
10-Nov-15	22:11	22:18	0.12	3237	3237	Surveying	Survey @ 3227.0m MD
10-Nov-15	22:18	23:19	1.02	3237.8	3251.4	Drilling	Rotate
10-Nov-15	23:19	23:29	0.17	3251	3251	Reaming/Hole Opening	Ream
10-Nov-15	23:29	23:33	0.07	3251	3251	Connection-(Kelly PU/LD	Connection
10-Nov-15	23:33	23:39	0.1	3251	3251	Surveying	Survey @ 3240.2m MD
10-Nov-15	23:39	00:00	0.35	3251.4	3256	Drilling	Rotate



Job Number: 15AUS0152  
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Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Thursday, November, 12 2015

From: Nov-11-2015 00:00 To: Nov-12-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	3,256	Rotary Hours	17.82	WOB Rot	12.00	PU	164.00	Slack Off	132.00		
End Depth	3,459	Total Circu. Hours	22.12	WOB Slid		SPP	2,700.00	Flow Rate	280.00 - 280.00		
Total Drilled	203	Avg. Total ROP	8.46	RAB	148.00	SPM	122.00				
Total Rotary Drilled	203	Avg. Rotary ROP	11.40	MUD DATA							
Total Sliding Drilled	0	Avg. Slide ROP		Type	Fresh Water		PV	18	SOLID	14.10	
Slide Hours	0.00	Percent Rotary	100%	Weight	10.50	Gas		YP	33	BHT°	97
Below Rotary Hrs	24.00	Percent Slide	0%	Viscosity	48	Sand	0.10	PH	9.5	Flow T°	
				Chlorides	163,00	WL			Oil%		

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
DD				Abdelrehim, Mohamed Mostafa				DAILY COST			
MLWD				Rowley, Daniel				Daily Cost:  Cumulative Cost:   Signature:			
MLWD				Competente, Earl Jan Riofrio							
MLWD				Fry, George							
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21				
Max Inclination:		96.64									

## BHA & COMMENTS

Drill Ahead

## FORECAST NEXT 24

Drill Ahead

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
11-Nov-15	00:00	00:41	0.68	3256	3264.4	Drilling	Rotate
11-Nov-15	00:41	01:02	0.35	3264	3264	Reaming/Hole Opening	Ream
11-Nov-15	01:02	01:07	0.08	3264	3264	Connection-(Kelly PU/LD)	Connection
11-Nov-15	01:07	01:18	0.18	3264	3264	Surveying	Survey @ 3253.4m MD
11-Nov-15	01:18	02:23	1.08	3264.4	3277.4	Drilling	Rotate
11-Nov-15	02:23	02:33	0.17	3277	3277	Reaming/Hole Opening	Ream
11-Nov-15	02:33	02:43	0.17	3277	3277	Connection-(Kelly PU/LD)	Connection
11-Nov-15	02:43	02:48	0.08	3277	3277	Surveying	Survey @ 3266.6m MD
11-Nov-15	02:48	04:00	1.2	3277.4	3290.6	Drilling	Rotate
11-Nov-15	04:00	04:06	0.1	3290	3290	Reaming/Hole Opening	Ream
11-Nov-15	04:06	04:09	0.05	3290	3290	Connection-(Kelly PU/LD)	Connection



**Job Number:** 15AUS0152  
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**Well State:** Northern Territory

**Well County:** Beetaloo  
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11-Nov-15	04:09	04:12	0.05	3290	3290	Surveying	Survey @ 3279.8m MD
11-Nov-15	04:12	05:00	0.8	3290.6	3298.8	Drilling	Rotate
11-Nov-15	05:00	05:26	0.43	3298.8	3303.7	Drilling	Rotate
11-Nov-15	05:26	05:33	0.12	3303	3303	Reaming/Hole Opening	Ream
11-Nov-15	05:33	05:38	0.08	3303	3303	Connection-(Kelly PU/LD	Connection
11-Nov-15	05:38	05:44	0.1	3303	3303	Surveying	Survey @ 3292.9m MD
11-Nov-15	05:44	06:52	1.13	3303.7	3317.3	Drilling	Rotate
11-Nov-15	06:52	06:59	0.12	3317	3317	Reaming/Hole Opening	Ream
11-Nov-15	06:59	07:04	0.08	3317	3317	Connection-(Kelly PU/LD	Connection
11-Nov-15	07:04	07:10	0.1	3317	3317	Surveying	Survey @ 3306.1m MD
11-Nov-15	07:10	08:18	1.13	3317.3	3330.3	Drilling	Rotate
11-Nov-15	08:18	08:25	0.12	3330	3330	Reaming/Hole Opening	Ream
11-Nov-15	08:25	08:31	0.1	3330	3330	Connection-(Kelly PU/LD	Connection
11-Nov-15	08:31	08:37	0.1	3330	3330	Surveying	Survey @ 3319.3m MD
11-Nov-15	08:37	09:44	1.12	3330.3	3343.4	Drilling	Rotate
11-Nov-15	09:44	09:49	0.08	3343	3343	Reaming/Hole Opening	Ream
11-Nov-15	09:49	09:55	0.1	3343	3343	Connection-(Kelly PU/LD	Connection
11-Nov-15	09:55	10:02	0.12	3343	3343	Surveying	Survey @ 3332.5m MD
11-Nov-15	10:02	11:05	1.05	3343.4	3356.41	Drilling	Rotate
11-Nov-15	11:05	11:15	0.17	3356.41	3356.41	Reaming/Hole Opening	Ream
11-Nov-15	11:15	11:20	0.08	3356.41	3356.41	Mud Prep/Circ/Cond(hol	SCRs
11-Nov-15	11:20	11:25	0.08	3356.41	3356.41	Other	BOP Drill
11-Nov-15	11:25	11:28	0.05	3356.41	3356.41	Connection-(Kelly PU/LD	Connection
11-Nov-15	11:28	11:31	0.05	3356.41	3356.41	Surveying	Survey @ 3345.6m MD, Inc = 90.92, Azi = 135.06
11-Nov-15	11:31	12:50	1.32	3356.41	3369.9	Drilling	Rotate
11-Nov-15	12:50	13:04	0.23	3369.9	3369.9	Reaming/Hole Opening	Reaming
11-Nov-15	13:04	13:10	0.1	3369.9	3369.9	Connection-(Kelly PU/LD	Connection
11-Nov-15	13:10	13:13	0.05	3369.9	3369.9	Mud Prep/Circ/Cond(hol	Recycle for survey - out of spec - Torque in string
11-Nov-15	13:13	13:25	0.2	3369.9	3369.9	Surveying	Survey @3358.8m MD, Inc = 90.92, Azi = 135.26
11-Nov-15	13:25	14:45	1.33	3369.9	3382.95	Drilling	Rotate
11-Nov-15	14:45	14:55	0.17	3382.95	3382.95	Reaming/Hole Opening	Reaming
11-Nov-15	14:55	15:00	0.08	3382.95	3382.95	Connection-(Kelly PU/LD	Connection
11-Nov-15	15:00	15:04	0.07	3382.95	3382.95	Surveying	Survey @ 3371.9, Inc = 90.92, Azi = 135.46
11-Nov-15	15:04	16:15	1.18	3382.95	3396.05	Drilling	Rotate
11-Nov-15	16:15	16:26	0.18	3396.03	3396.03	Reaming/Hole Opening	Reaming
11-Nov-15	16:26	16:31	0.08	3396.03	3396.03	Connection-(Kelly PU/LD	Connection
11-Nov-15	16:31	16:35	0.07	3396.03	3396.03	Surveying	Survey @ 3385.1m MD, Inc = 90.84, Azi = 135.66
11-Nov-15	16:35	17:50	1.25	3396.05	3409.12	Drilling	Rotate - Downlink with 2 commands, dropping inclination
11-Nov-15	17:50	18:00	0.17	3409.12	3409.12	Reaming/Hole Opening	Reaming
11-Nov-15	18:00	18:05	0.08	3409.12	3409.12	Connection-(Kelly PU/LD	Connection
11-Nov-15	18:05	18:10	0.08	3409.12	3409.12	Surveying	Survey @ 3398.2m MD, Inc = 90.92, Azi = 136.09
11-Nov-15	18:10	19:20	1.17	3409.12	3422.2	Drilling	Rotate
11-Nov-15	19:20	19:29	0.15	3422	3422	Reaming/Hole Opening	Ream
11-Nov-15	19:29	19:35	0.1	3422	3422	Connection-(Kelly PU/LD	Connection



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**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

11-Nov-15	19:35	19:42	0.12	3422	3422	Surveying	Survey @ 3411.4m MD, Inc = 90.31, Azi=135.23
11-Nov-15	19:42	20:46	1.07	3422.2	3435.7	Drilling	Rotate
11-Nov-15	20:46	20:55	0.15	3435	3435	Reaming/Hole Opening	Ream
11-Nov-15	20:55	21:00	0.08	3435	3435	Connection-(Kelly PU/LD)	Connection
11-Nov-15	21:00	21:13	0.22	3435	3435	Surveying	Survey @ 3424.5m MD, INC=89.6, AZI=135.0
11-Nov-15	21:13	22:18	1.08	3435.7	3448.8	Drilling	Rotate
11-Nov-15	22:18	22:33	0.25	3448	3448	Reaming/Hole Opening	Ream
11-Nov-15	22:33	22:56	0.38	3448	3448	Other	Rig Service
11-Nov-15	22:56	23:06	0.17	3448	3448	Connection-(Kelly PU/LD)	Connection
11-Nov-15	23:06	23:13	0.12	3448	3448	Surveying	Survey @ 3437.6, INC=89.87, AZI=135.4
11-Nov-15	23:13	00:00	0.78	3448.8	3459.1	Drilling	Rotate



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Friday, November, 13 2015

From: Nov-12-2015 00:00 To: Nov-13-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS							
Start Depth	3,459	Rotary Hours	18.27	WOB Rot	10.00	PU	165.00	Slack Off	147.00		
End Depth	3,646	Total Circu. Hours	22.33	WOB Slid		SPP	2,800.00	Flow Rate	280.00 - 280.00		
Total Drilled	188	Avg. Total ROP	7.81	RAB	148.00	SPM	122.00				
Total Rotary Drilled	188	Avg. Rotary ROP	10.26	MUD DATA							
Total Sliding Drilled	0	Avg. Slide ROP		Type	Fresh Water		PV	16	SOLID	14.00	
Slide Hours	0.00	Percent Rotary	100%	Weight	10.50	Gas		YP	34	BHT°	105
Below Rotary Hrs	24.00	Percent Slide	0%	Viscosity	46	Sand	0.10	PH	9.5	Flow T°	
				Chlorides	159,00	WL			Oil%		

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
DD				Abdelrehim, Mohamed Mostafa				DAILY COST			
MLWD				Rowley, Daniel				Daily Cost:  Cumulative Cost:   Signature:			
MLWD				Fry, George							
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21				
Max Inclination:		96.64									

## BHA & COMMENTS

POOH

## FORECAST NEXT 24

Layout BHA

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
12-Nov-15	00:00	00:15	0.25	3459.1	3461.9	Drilling	Rotate
12-Nov-15	00:15	00:21	0.1	3461	3461	Reaming/Hole Opening	Ream
12-Nov-15	00:21	00:27	0.1	3461	3461	Connection-(Kelly PU/LD)	Connection
12-Nov-15	00:27	00:33	0.1	3461	3461	Surveying	Survey @ 3450.9, INC=89.87, AZI=135.45
12-Nov-15	00:33	01:39	1.1	3461.9	3475.2	Drilling	Rotate
12-Nov-15	01:39	01:46	0.12	3475	3475	Reaming/Hole Opening	Ream
12-Nov-15	01:46	01:51	0.08	3475	3475	Connection-(Kelly PU/LD)	Connection
12-Nov-15	01:51	01:57	0.1	3475	3475	Surveying	Survey @ 3464.0, INC=89.69, AZI=135.6
12-Nov-15	01:57	03:05	1.13	3475.2	3488.2	Drilling	Rotate
12-Nov-15	03:05	03:11	0.1	3488	3488	Reaming/Hole Opening	Ream
12-Nov-15	03:11	03:16	0.08	3488	3488	Connection-(Kelly PU/LD)	Connection



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON							
12-Nov-15	03:16	03:22	0.1	3488	3488	Surveying	Survey @ 3477.1, INC= 89.87, AZI = 136.12
12-Nov-15	03:22	04:33	1.18	3488.2	3501.3	Drilling	Rotate
12-Nov-15	04:33	04:40	0.12	3501	3501	Reaming/Hole Opening	Ream
12-Nov-15	04:40	04:43	0.05	3501	3501	Connection-(Kelly PU/LD	Connection
12-Nov-15	04:43	04:50	0.12	3501	3501	Surveying	Survey @ 3490.3, INC=89.96, AZI=136.33
12-Nov-15	04:50	05:00	0.17	3501.3	3502	Drilling	Rotate
12-Nov-15	05:00	06:03	1.05	3502	3514.76	Drilling	Rotate
12-Nov-15	06:03	06:10	0.12	3514.76	3514.76	Reaming/Hole Opening	Reaming
12-Nov-15	06:10	06:15	0.08	3514.76	3514.76	Connection-(Kelly PU/LD	Connection
12-Nov-15	06:15	06:24	0.15	3514.76	3514.76	Surveying	Survey @ 3503.6m MD, Inc = 90.22, Azi = 136.61
12-Nov-15	06:24	07:52	1.47	3514.76	3527.84	Drilling	Rotate
12-Nov-15	07:52	08:05	0.22	3527.84	3527.84	Reaming/Hole Opening	Reaming
12-Nov-15	08:05	08:15	0.17	3527.84	3527.84	Connection-(Kelly PU/LD	Connection - Electronic pops went off so pumps were a
12-Nov-15	08:15	08:24	0.15	3527.84	3527.84	Surveying	Survey @ 3516.7m MD, Inc = 89.78, Azi = 136.09
12-Nov-15	08:24	09:50	1.43	3527.84	3540.96	Drilling	Rotate
12-Nov-15	09:50	10:02	0.2	3540.96	3540.96	Reaming/Hole Opening	Reaming
12-Nov-15	10:02	10:06	0.07	3540.96	3540.96	Connection-(Kelly PU/LD	Connection
12-Nov-15	10:06	10:16	0.17	3540.96	3540.96	Surveying	Survey @ 3530.0m MD, Inc = 89.96, Azi = 136.15
12-Nov-15	10:16	11:05	0.82	3540.96	3548.7	Drilling	Rotate - Tried 120RPM, worse torque variation, back to
12-Nov-15	11:05	11:25	0.33	3548.7	3552	Drilling	Rotate - Downlink - Incease Inclination gradually to ~92
12-Nov-15	11:25	11:35	0.17	3552	3554.26	Drilling	Rotate
12-Nov-15	11:35	11:43	0.13	3554.26	3554.26	Reaming/Hole Opening	Reaming
12-Nov-15	11:43	11:50	0.12	3554.26	3554.26	Mud Prep/Circ/Cond(hol	SCR's
12-Nov-15	11:50	11:55	0.08	3554.26	3554.26	Mud Prep/Circ/Cond(hol	Connection
12-Nov-15	11:55	12:03	0.13	3554.26	3554.26	Surveying	Survey @ 3543.1m MD, Inc = 90.04, Azi = 135.81
12-Nov-15	12:03	13:10	1.12	3554.26	3567.38	Drilling	Rotate - Downlink - Increase Inclination gradually to ~92
12-Nov-15	13:10	13:22	0.2	3567.38	3567.38	Reaming/Hole Opening	Reaming
12-Nov-15	13:22	13:30	0.13	3567.38	3567.38	Connection-(Kelly PU/LD	Connection
12-Nov-15	13:30	13:35	0.08	3567.38	3567.38	Surveying	Survey @ 3556.3m MD, Inc = 90.31, Azi = 136.23
12-Nov-15	13:35	15:00	1.42	3567.38	3580.49	Drilling	Rotate
12-Nov-15	15:00	15:07	0.12	3580.49	3580.49	Reaming/Hole Opening	Reaming
12-Nov-15	15:07	15:13	0.1	3580.49	3580.49	Connection-(Kelly PU/LD	Connection
12-Nov-15	15:13	15:19	0.1	3580.49	3580.49	Surveying	Survey @ 3569.5m MD, Inc = 90.84, Azi = 137.47
12-Nov-15	15:19	16:35	1.27	3580.49	3593.57	Drilling	Rotate
12-Nov-15	16:35	16:47	0.2	3593.57	3593.57	Reaming/Hole Opening	Reaming
12-Nov-15	16:47	16:50	0.05	3593.57	3593.57	Connection-(Kelly PU/LD	Connection
12-Nov-15	16:50	16:55	0.08	3593.57	3593.57	Surveying	Survey @ 3582.7m MD, Inc = 91.54, Azi = 139.14
12-Nov-15	16:55	18:18	1.38	3593.57	3606.7	Drilling	Rotate
12-Nov-15	18:18	18:27	0.15	3606	3606	Reaming/Hole Opening	Ream
12-Nov-15	18:27	18:32	0.08	3606	3606	Connection-(Kelly PU/LD	Connection
12-Nov-15	18:32	18:36	0.07	3606	3606	Surveying	Survey @ 3595.9, INC=92.15, AZI=140.56
12-Nov-15	18:36	19:49	1.22	3606.7	3619.8	Drilling	Rotate
12-Nov-15	19:49	19:59	0.17	3619	3619	Reaming/Hole Opening	Ream
12-Nov-15	19:59	20:06	0.12	3619	3619	Connection-(Kelly PU/LD	Connection



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

12-Nov-15	20:06	20:11	0.08	3619	3619	Surveying	Survey @ 3609.1, INC=93.03, AZI=141.47
12-Nov-15	20:11	21:23	1.2	3619.8	3632.9	Drilling	Rotate
12-Nov-15	21:23	21:32	0.15	3632	3632	Reaming/Hole Opening	Ream
12-Nov-15	21:32	21:38	0.1	3632	3632	Connection-(Kelly PU/LD)	Connection
12-Nov-15	21:38	21:44	0.1	3632	3632	Surveying	Survey @ 3622.2, INC=93.83, AZI=140.56
12-Nov-15	21:44	22:26	0.7	3632.9	3640.6	Drilling	Rotate
12-Nov-15	22:26	22:31	0.08	3640	3640	Surveying	Check Shot Survey... Survey @ 3629.3m INC=95.41, A
12-Nov-15	22:31	23:23	0.87	3640.6	3646.6	Drilling	Rotate
12-Nov-15	23:23	23:30	0.12	3646	3646	Reaming/Hole Opening	Ream
12-Nov-15	23:30	23:36	0.1	3646	3646	Other	Rig Service
12-Nov-15	23:36	23:57	0.35	3646	3646	Other	SCR's
12-Nov-15	23:57	00:00	0.05	3646	3646	Surveying	Survey @ 3635.4, INC=96.2, AZI=138.92



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
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Well State: Northern Territory

Well County: Beetaloo  
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## Daily Report for Saturday, November, 14 2015

From: Nov-13-2015 00:00 To: Nov-14-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS					
Start Depth	3,646	Rotary Hours	17.48	WOB Rot	10.25	PU	164.00	Slack Off	122.50
End Depth	3,804	Total Circu. Hours	22.48	WOB Slid		SPP	2,865.00	Flow Rate	280.00 - 280.00
Total Drilled	158	Avg. Total ROP	6.58	RAB	146.00	SPM	122.00		
Total Rotary Drilled	158	Avg. Rotary ROP	9.03	MUD DATA					
Total Sliding Drilled	0	Avg. Slide ROP		Type			PV		SOLID
Slide Hours	0.00	Percent Rotary	100%	Weight		Gas	YP		BHT°
Below Rotary Hrs	24.00	Percent Slide	0%	Viscosity		Sand	PH		Flow T°
				Chlorides		WL			Oil%

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
DD - Cell Manager				Pritchett, Andrew				7		1,426.65	
DD				Abdelrehim, Mohamed Mostafa				DAILY COST			
MLWD				Rowley, Daniel				Daily Cost:  Cumulative Cost:   Signature:			
MLWD				Fry, George							
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21				
Max Inclination:		96.64									

## BHA & COMMENTS

Drill Ahead, TD

## FORECAST NEXT 24

POOH, LDBHA

MWD JOURNAL							
Date	Start	End	Hours	Start	End	Activity	Comment
13-Nov-15	00:00	00:03	0.05	3646	3646	Surveying	Survey Continuation
13-Nov-15	00:03	01:28	1.42	3646.6	3659.7	Drilling	Rotate
13-Nov-15	01:28	01:35	0.12	3659	3659	Reaming/Hole Opening	Ream
13-Nov-15	01:35	01:40	0.08	3659	3659	Connection-(Kelly PU/LD	Connection
13-Nov-15	01:40	01:46	0.1	3659	3659	Surveying	Survey @ 3648.6, INC=96.64, AZI=136.2
13-Nov-15	01:46	03:08	1.37	3659.7	3673	Drilling	Rotate
13-Nov-15	03:08	03:14	0.1	3673	3673	Reaming/Hole Opening	Ream
13-Nov-15	03:14	03:19	0.08	3673	3673	Connection-(Kelly PU/LD	Connection
13-Nov-15	03:19	03:24	0.08	3673	3673	Surveying	Survey @ 3661.8, INC=96.64, AZI=133.39
13-Nov-15	03:24	05:00	1.6	3673	3683	Drilling	Rotate
13-Nov-15	05:00	05:17	0.28	3683	3686	Drilling	Rotate





**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

13-Nov-15	05:17	05:28	0.18	3686	3686	Reaming/Hole Opening	Ream
13-Nov-15	05:28	05:33	0.08	3686	3686	Connection-(Kelly PU/LD	Connection
13-Nov-15	05:33	05:39	0.1	3686	3686	Surveying	Survey @ 3674.9m MD, INC = 96.46, AZI=130.5
13-Nov-15	05:39	07:00	1.35	3686	3699.01	Drilling	Rotate
13-Nov-15	07:00	07:10	0.17	3699.01	3699.01	Reaming/Hole Opening	Reaming
13-Nov-15	07:10	07:15	0.08	3699.01	3699.01	Connection-(Kelly PU/LD	Connection
13-Nov-15	07:15	07:22	0.12	3699.01	3699.01	Surveying	Survey @ 3688.0m MD, Inc = 95.41, Azi = 127.97
13-Nov-15	07:22	08:35	1.22	3699.01	3712.29	Drilling	Rotate
13-Nov-15	08:35	08:45	0.17	3712.29	3712.29	Reaming/Hole Opening	Reaming
13-Nov-15	08:45	08:52	0.12	3712.29	3712.29	Connection-(Kelly PU/LD	Connection
13-Nov-15	08:52	09:00	0.13	3712.29	3712.29	Surveying	Survey @ 3701.1m MD, Inc = 93.91, Azi = 126.24
13-Nov-15	09:00	09:45	0.75	3712.29	3720.54	Drilling	Rotate
13-Nov-15	09:45	09:54	0.15	3720.54	3720.54	Surveying	Checkshot survey - Inc 93.21 and Azi 126.80
13-Nov-15	09:54	10:18	0.4	3720.54	3724.41	Drilling	Rotate
13-Nov-15	10:18	10:48	0.5	3724.41	3724.41	Rig Maintenance/Repair	Rig shutdown - generator repair
13-Nov-15	10:48	11:02	0.23	3724.41	3725.5	Drilling	Rotate
13-Nov-15	11:02	11:30	0.47	3725.5	3725.5	Reaming/Hole Opening	Reaming - Slack off weight was starting to increase
13-Nov-15	11:30	11:37	0.12	3725.5	3725.5	Mud Prep/Circ/Cond(hol	SCRs
13-Nov-15	11:37	11:43	0.1	3725.5	3725.5	Connection-(Kelly PU/LD	Connection
13-Nov-15	11:43	11:46	0.05	3725.5	3725.5	Surveying	Survey @ 3714.2m MD, Inc = 92.77, Azi = 127.22
13-Nov-15	11:46	13:06	1.33	3725.5	3738.54	Drilling	Rotate
13-Nov-15	13:06	13:20	0.23	3738.54	3738.54	Reaming/Hole Opening	Reaming
13-Nov-15	13:20	13:26	0.1	3738.54	3738.54	Connection-(Kelly PU/LD	Connection
13-Nov-15	13:26	13:31	0.08	3738.54	3738.54	Surveying	Survey @ 3727.4m MD, Inc = 91.89, Azi = 127.50
13-Nov-15	13:31	14:56	1.42	3738.54	3751.57	Drilling	Rotate
13-Nov-15	14:56	15:14	0.3	3751.57	3751.57	Reaming/Hole Opening	Reaming
13-Nov-15	15:14	15:20	0.1	3751.57	3751.57	Connection-(Kelly PU/LD	Connection
13-Nov-15	15:20	15:24	0.07	3751.57	3751.57	Surveying	Survey @ 3740.5m MD, Inc = 91.98, Azi = 127.20
13-Nov-15	15:24	16:53	1.48	3751.57	3764.66	Drilling	Rotate
13-Nov-15	16:53	17:13	0.33	3764.66	3764.66	Reaming/Hole Opening	Reaming
13-Nov-15	17:13	17:19	0.1	3764.66	3764.66	Connection-(Kelly PU/LD	Connection
13-Nov-15	17:19	17:25	0.1	3764.66	3764.66	Surveying	Survey @ 3753.7m MD, Inc = 91.89, Azi = 127.09
13-Nov-15	17:25	18:47	1.37	3764.66	3777.7	Drilling	Rotate
13-Nov-15	18:47	19:07	0.33	3777	3777	Reaming/Hole Opening	Ream
13-Nov-15	19:07	19:12	0.08	3777	3777	Connection-(Kelly PU/LD	Connection
13-Nov-15	19:12	19:16	0.07	3777	3777	Surveying	Survey @ 3766.8m MD, INC=92.15, AZI=126.45
13-Nov-15	19:16	20:53	1.62	3777.7	3790.8	Drilling	Rotate
13-Nov-15	20:53	21:15	0.37	3790	3790	Reaming/Hole Opening	Ream
13-Nov-15	21:15	21:20	0.08	3790	3790	Connection-(Kelly PU/LD	Connection
13-Nov-15	21:20	21:25	0.08	3790	3790	Surveying	Survey @ 3779.9m MD, INC=92.07, AZI=126.47
13-Nov-15	21:25	23:04	1.65	3790.8	3804.4	Drilling	Rotate
13-Nov-15	23:04	00:00	0.93	3804	3804	Reaming/Hole Opening	Ream / Rig Service



**Job Number:** 15AUS0152  
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**Rig Name:** Saxon 185  
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**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Sunday, November, 15 2015

From: Nov-14-2015 00:00 To: Nov-15-2015 00:00

DRILLING SUMMARY								DRILLING PARAMETERS															
Start Depth		3,804		Rotary Hours		0.40		WOB Rot				PU				Slack Off							
End Depth		1,277		Total Circu. Hours		5.60		WOB Slid				SPP				Flow Rate							
Total Drilled		4		Avg. Total ROP		0.15		RAB				SPM											
Total Rotary Drilled		4		Avg. Rotary ROP		9.00		MUD DATA															
Total Sliding Drilled		0		Avg. Slide ROP				Type						PV				SOLID					
Slide Hours		0.00		Percent Rotary		100%		Weight				Gas				YP				BHT°			
Below Rotary Hrs		24.00		Percent Slide		0%		Viscosity				Sand				PH				Flow T°			
								Chlorides				WL						Oil%					
PERSONNEL								CASING															
Company Man				Darryl Whitbread				Size								Set Depth							
DD - Cell Manager				Pritchett, Andrew				7								1,426.65							
DD				Abdelrehim, Mohamed Mostafa				DAILY COST															
MLWD				Rowley, Daniel				Daily Cost:  Cumulative Cost:   Signature:															
MLWD				Fry, George																			
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21																
Max Inclination:		96.64																					
BHA & COMMENTS																							
POOH, LDBHA																							
FORECAST NEXT 24																							
LDBHA, Leave Rig																							
MWD JOURNAL																							
Date		Start	End	Hours	Start	End	Activity			Comment													
14-Nov-15		00:00	00:14	0.23	3804	3804	Other			Rig Service													
14-Nov-15		00:14	00:38	0.4	3804.4	3808	Drilling			Rotate													
14-Nov-15		00:38	05:00	4.37	3808	3808	Mud Prep/Circ/Cond(hol			Pump Sweep / Bottom Up's													
14-Nov-15		05:00	05:50	0.83	3808	3804	Mud Prep/Circ/Cond(hol			Circulate and take SCRs													
14-Nov-15		05:50	00:00	18.17	3804	1276.5	RIH/POOH/Trip/Wiper Tr			POOH													



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

## Daily Report for Monday, November, 16 2015

From: Nov-15-2015 00:00 To: Nov-16-2015 00:00

DRILLING SUMMARY				DRILLING PARAMETERS					
Start Depth	1,276	Rotary Hours	0.00	WOB Rot		PU		Slack Off	
End Depth	0	Total Circu. Hours	0.00	WOB Slid		SPP		Flow Rate	
Total Drilled	0	Avg. Total ROP		RAB		SPM			
Total Rotary Drilled	0	Avg. Rotary ROP		MUD DATA					
Total Sliding Drilled	0	Avg. Slide ROP		Type			PV		SOLID
Slide Hours	0.00	Percent Rotary		Weight		Gas	YP		BHT°
Below Rotary Hrs	6.00	Percent Slide		Viscosity		Sand	PH		Flow T°
				Chlorides		WL			Oil%

PERSONNEL								CASING			
Company Man				Darryl Whitbread				Size		Set Depth	
MLWD				Fry, George				7		1,426.65	
MLWD				Rowley, Daniel				DAILY COST			
DD				Abdelrehim, Mohamed Mostafa				Daily Cost:  Cumulative Cost:   Signature:			
DD - Cell Manager				Pritchett, Andrew							
Incl. In	84.33	Azm. In	136.52	Incl. Out	92.07	Azm. Out	126.21				
Max Inclination:		96.64									

## BHA & COMMENTS

## FORECAST NEXT 24

## MWD JOURNAL

Date	Start	End	Hours	Start	End	Activity	Comment
15-Nov-15	00:00	04:00	4	1276	50	RIH/POOH/Trip/Wiper Tr	POOH
15-Nov-15	04:00	06:00	2	50	30	MU/LD BHA/DP	LDBHA
15-Nov-15	06:00	06:00	0	0	0	Run End - TART	
15-Nov-15	06:00	00:00	18	0	0	Rig Up/Rig Down	Rig Down and Process memory logs



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

### Motor Information

<b>Desc:</b>	MOTOR ASSY 475 - G2		
<b>Bent Hsg/Sub:</b>	1.50	<b>Bit to Bend:</b>	0.52
<b>Pad OD:</b>	4.75	<b>NB Stab:</b>	6.50

### DD Journal Report for BHA # 1 on Run # 1 for Job # 15AUS0152

Note: Surveys listed are interpolated from the actual surveys

#	Date	Drill Mode	Start Time	End Time	Hours	Start MD	End MD	Depth Drilled	WOB	ROP	Surf. RPM	Surf. Torque	Flow Rate	SPP On Bottom	SPP Off Bottom	Diff Press.	TFO	Steer Ratio	Pad Press.	Survey Depth (MD)	INC	AZM	DLS	Note
						Total Drilled:			0		Avg. On Bottom ROP:			0				DEPTH% - TIME%						
						Total Rotary Drilled:			0		Avg. Rotary ROP:					Percent Rotary:				-				
						Total Drilled Sliding:			0		Avg. Slide ROP:					Percent Slide:				-				



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

### Motor Information

Desc:	MOTOR ASSY 475 - G2		
Bent Hsg/Sub:	1.50	Bit to Bend:	1.64
Pad OD:	4.75	NB Stab:	6.50

### DD Journal Report for BHA # 2 on Run # 2 for Job # 15AUS0152

Note: Surveys listed are interpolated from the actual surveys

#	Date	Drill Mode	Start Time	End Time	Hours	Start MD	End MD	Depth Drilled	WOB	ROP	Surf. RPM	Surf. Torque	Flow Rate	SPP On Bottom	SPP Off Bottom	Diff Press.	TFO	Steer Ratio	Pad Press.	Survey Depth (MD)	INC	AZM	DLS	Note
						Total Drilled:		15.8999999	Avg. On Bottom ROP:			2.27				DEPTH% - TIME%								
						Total Rotary Drilled:		15.8999999	Avg. Rotary ROP:			2.27		Percent Rotary:		100% - 100%								
						Total Drilled Sliding:		0		Avg. Slide ROP:					Percent Slide:		0% - 0%							



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

### Motor Information

<b>Desc:</b>	MOTOR ASSY 475 - G2		
<b>Bent Hsg/Sub:</b>	1.50	<b>Bit to Bend:</b>	1.67
<b>Pad OD:</b>	4.75	<b>NB Stab:</b>	6.50

### DD Journal Report for BHA # 3 on Run # 3 for Job # 15AUS0152

Note: Surveys listed are interpolated from the actual surveys

#	Date	Drill Mode	Start Time	End Time	Hours	Start MD	End MD	Depth Drilled	WOB	ROP	Surf. RPM	Surf. Torque	Flow Rate	SPP On Bottom	SPP Off Bottom	Diff Press.	TFO	Steer Ratio	Pad Press.	Survey Depth (MD)	INC	AZM	DLS	Note
						Total Drilled:		2.70000000	Avg. On Bottom ROP:		0.54				DEPTH% - TIME%									
						Total Rotary Drilled:		2.70000000	Avg. Rotary ROP:		0.54		Percent Rotary:		100% - 100%									
						Total Drilled Sliding:		0	Avg. Slide ROP:				Percent Slide:		0% - 0%									



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

### Motor Information

<b>Desc:</b>	MOTOR ASSY 475 - G2		
<b>Bent Hsg/Sub:</b>	1.50	<b>Bit to Bend:</b>	1.67
<b>Pad OD:</b>	4.75	<b>NB Stab:</b>	6.50

### DD Journal Report for BHA # 4 on Run # 4 for Job # 15AUS0152

**Note:** Surveys listed are interpolated from the actual surveys

#	Date	Drill Mode	Start Time	End Time	Hours	Start MD	End MD	Depth Drilled	WOB	ROP	Surf. RPM	Surf. Torque	Flow Rate	SPP On Bottom	SPP Off Bottom	Diff Press.	TFO	Steer Ratio	Pad Press.	Survey Depth (MD)	INC	AZM	DLS	Note
						Total Drilled:			869.7		Avg. On Bottom ROP:			6.05					DEPTH% - TIME%					
						Total Rotary Drilled:			375.899999		Avg. Rotary ROP:			10.86		Percent Rotary:		43.22% - 24.09%						
						Total Drilled Sliding:			493.800000		Avg. Slide ROP:			4.53		Percent Slide:		56.78% - 75.91%						



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

DD Journal Report for BHA # 5 on Run # 5 for Job # 15AUS0152																			Note: Surveys listed are interpolated from the actual surveys						
#	Date	Drill Mode	Start Time	End Time	Hours	Start MD	End MD	Depth Drilled	WOB	ROP	Surf. RPM	Surf. Torque	Flow Rate	SPP On Bottom	SPP Off Bottom	Diff Press.	TFO	Steer Ratio	Pad Press.	Survey Depth (MD)	INC	AZM	DLS	Note	
						Total Drilled:			1009.5		Avg. On Bottom ROP:			9.58					DEPTH% - TIME%						
						Total Rotary Drilled:			1009.5		Avg. Rotary ROP:			9.58		Percent Rotary:			100% - 100%						
						Total Drilled Sliding:			0		Avg. Slide ROP:					Percent Slide:			0% - 0%						



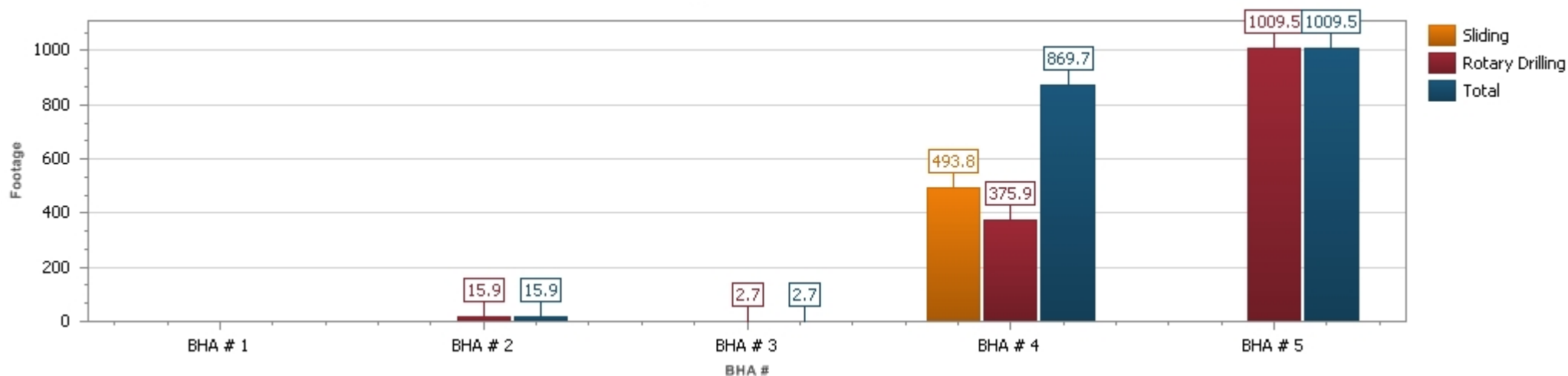


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

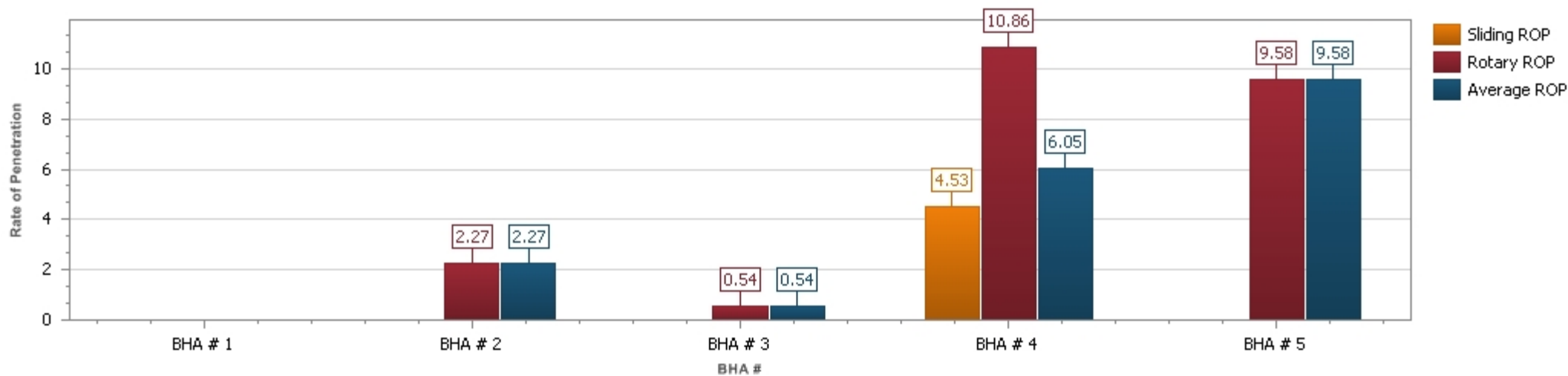
Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbft/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

## Footage Drilled for BHA



## ROP vs BHA



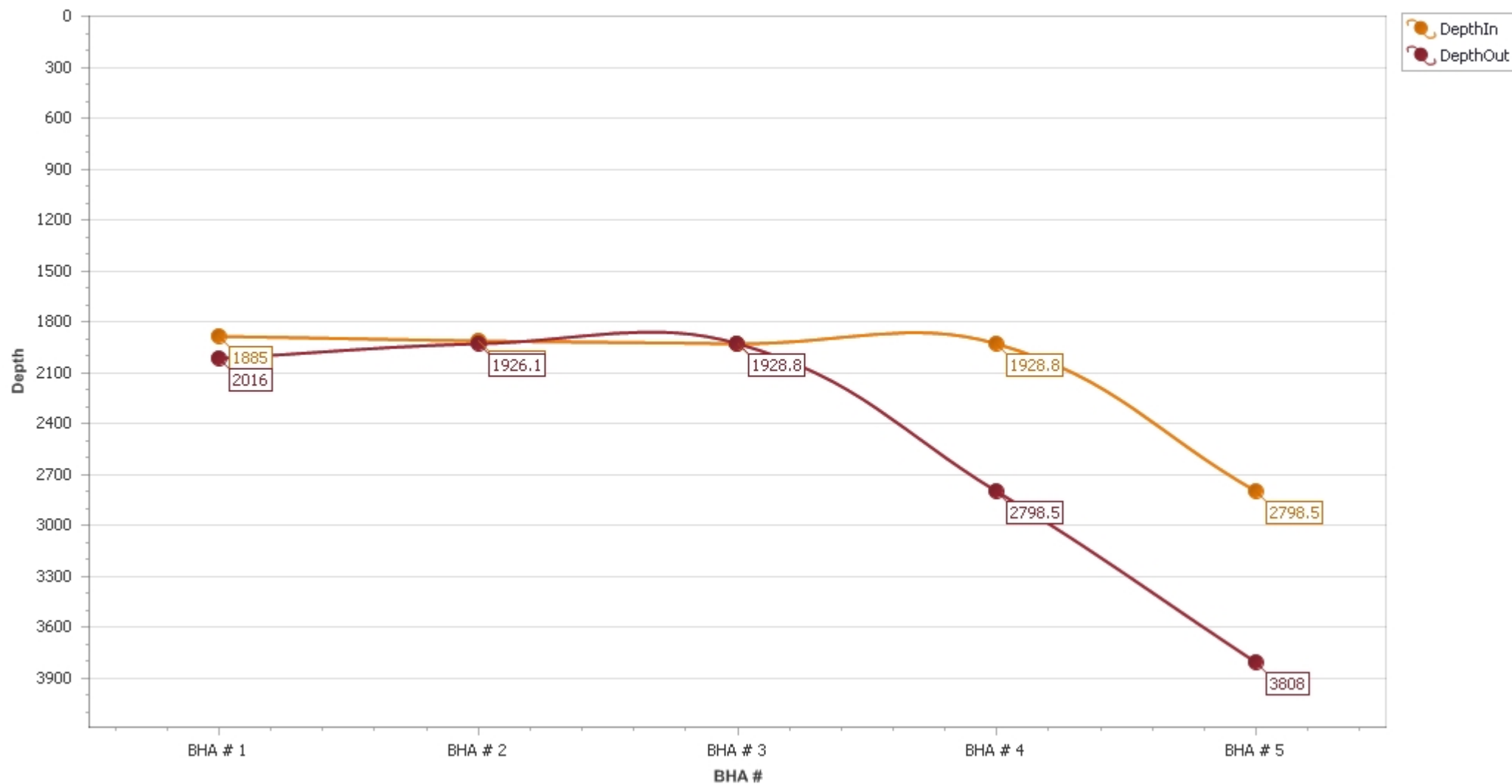


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
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## Depth vs BHA



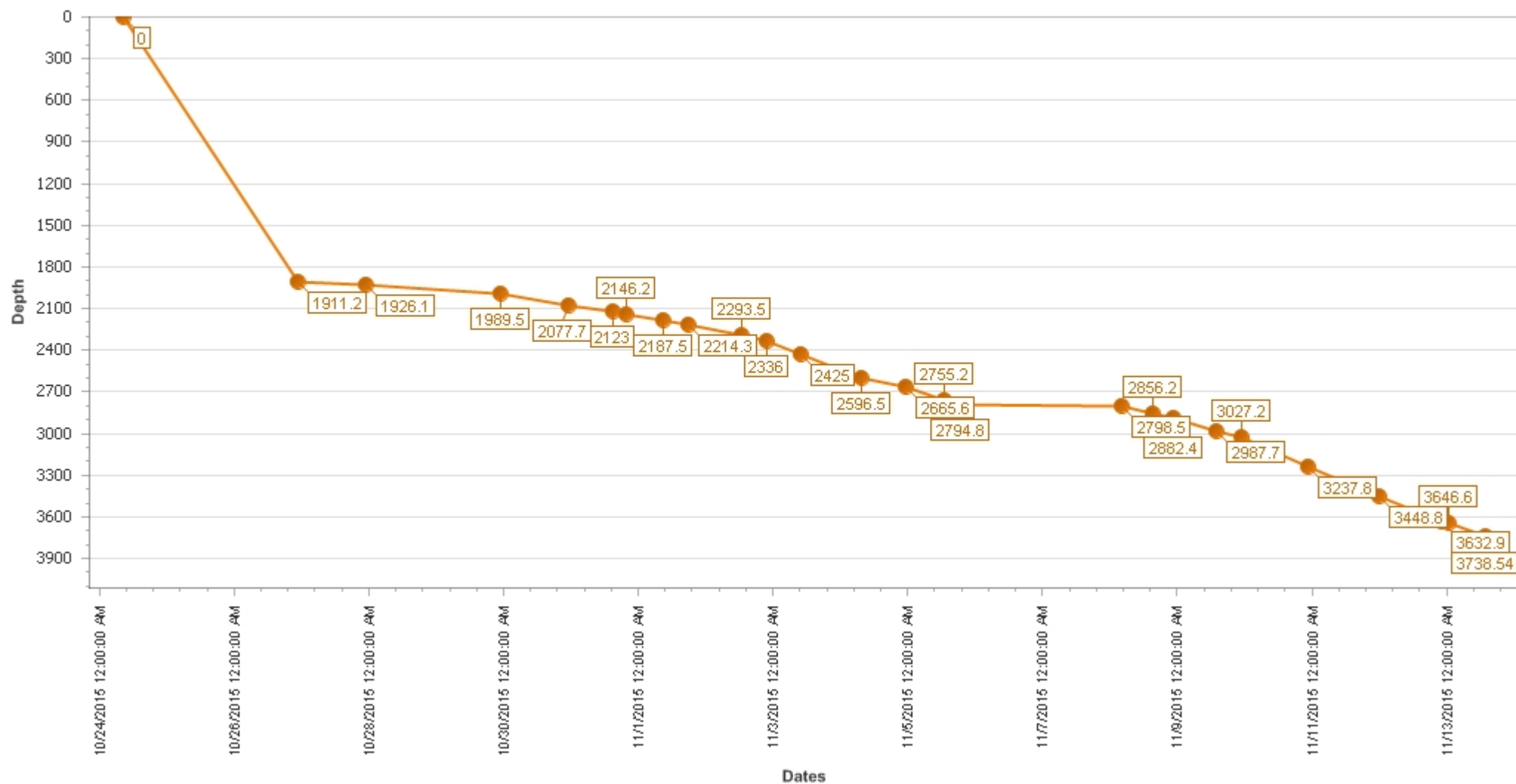


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

## Depth vs Days



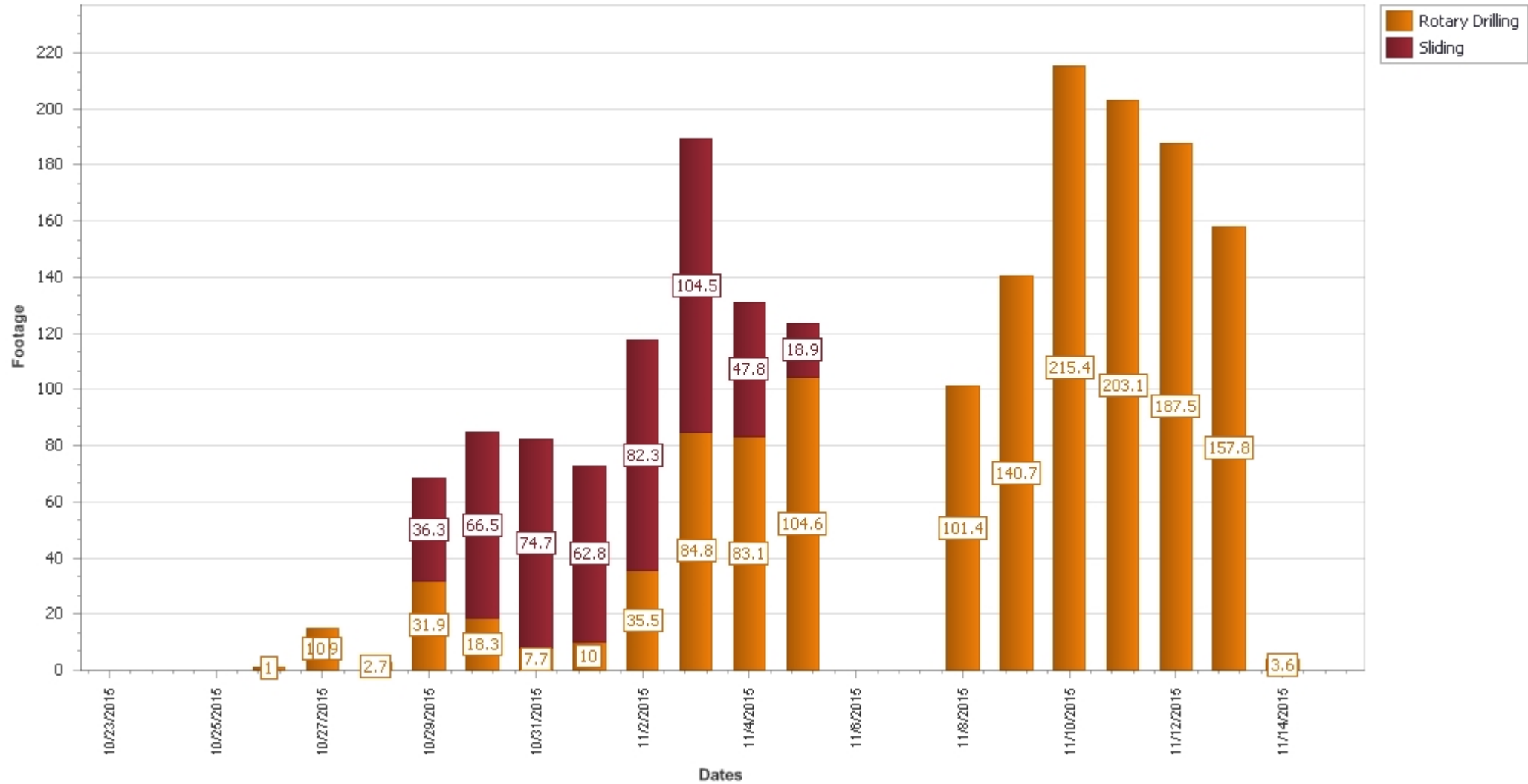


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

## Daily Footage



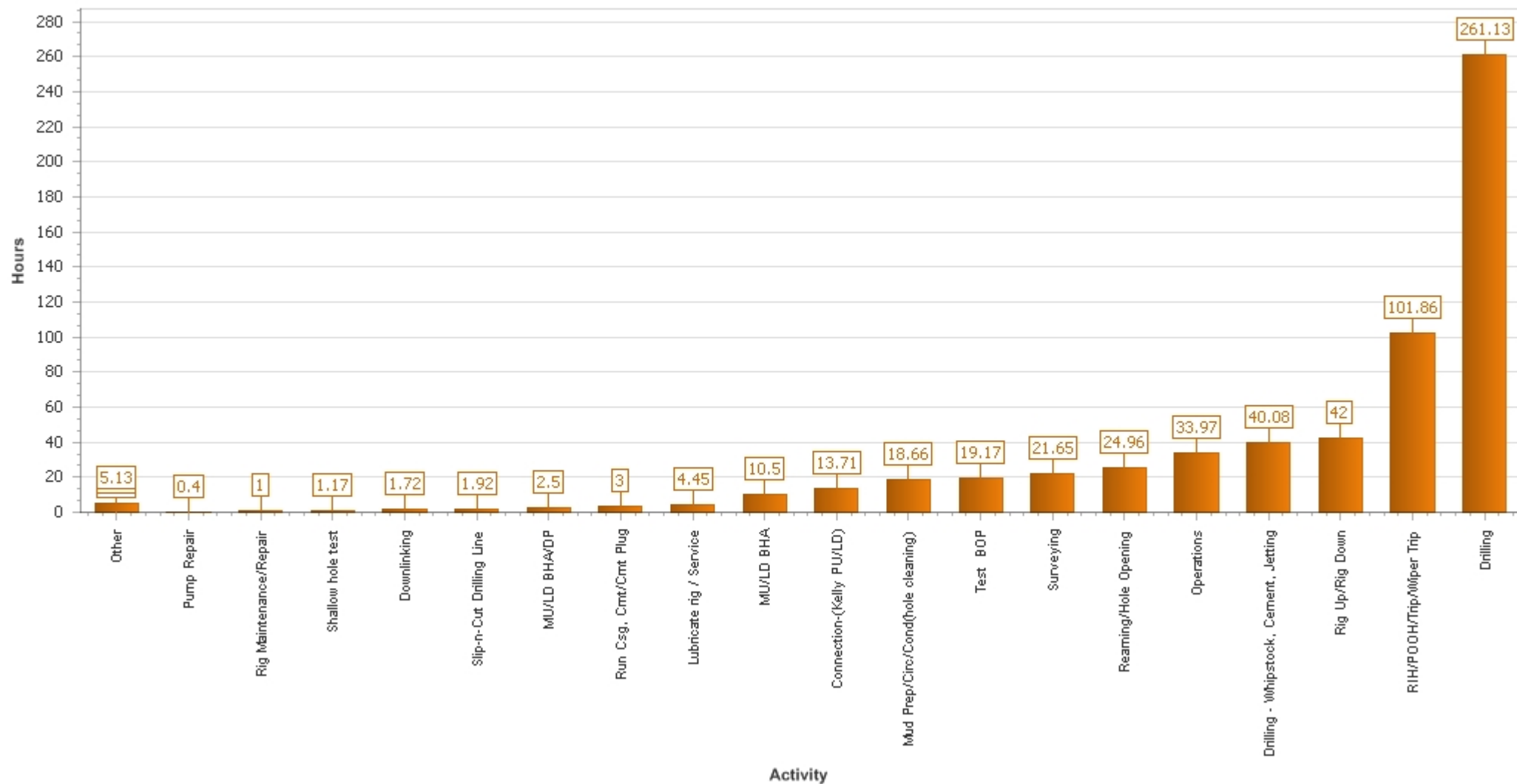


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
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## Activity Histogram



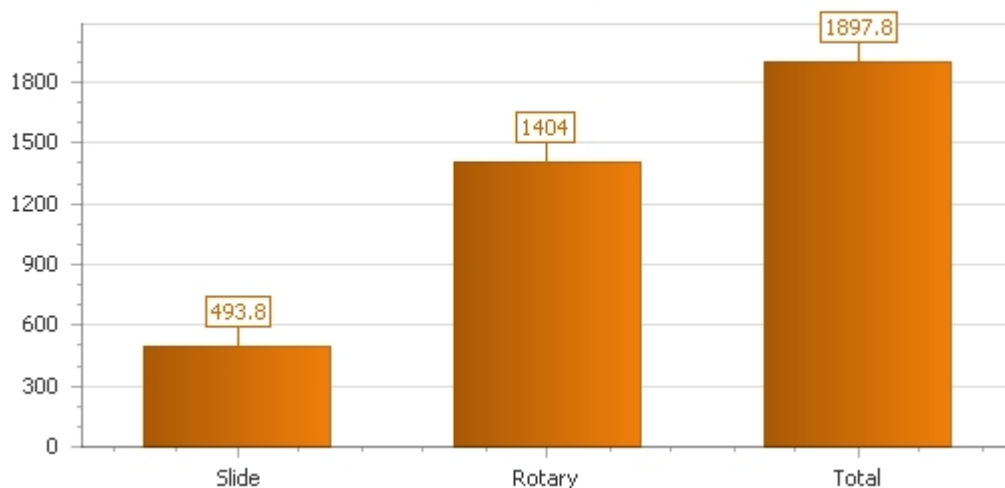


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

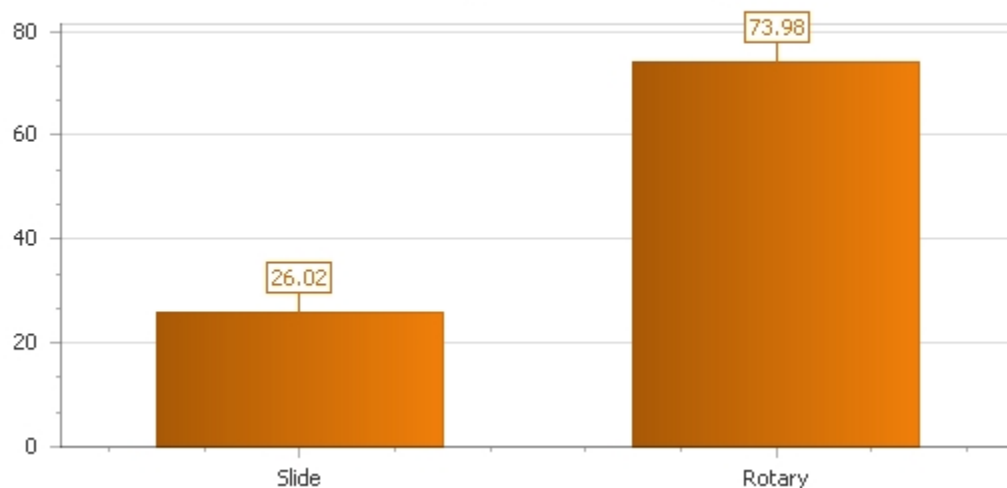
Well County: Beetaloo  
Well Field: Beetaloo North  
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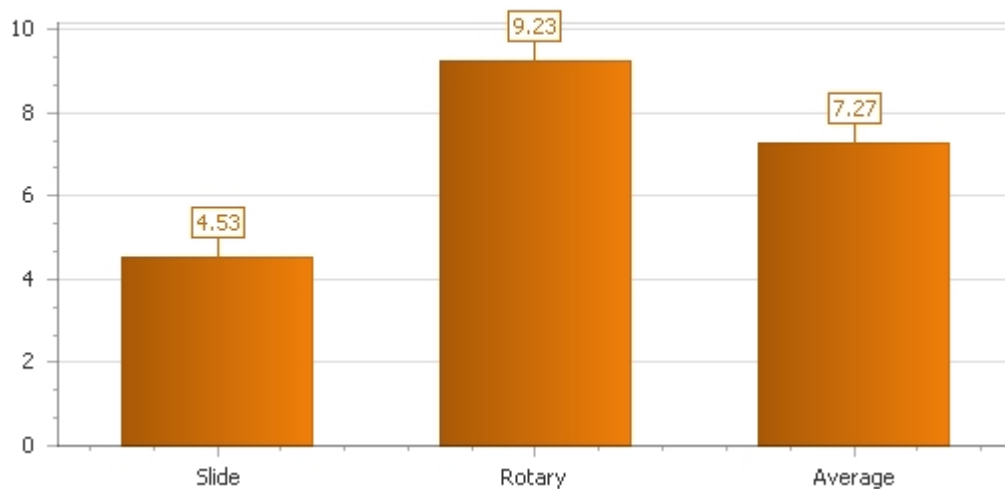
### Totals for Footage Drilled



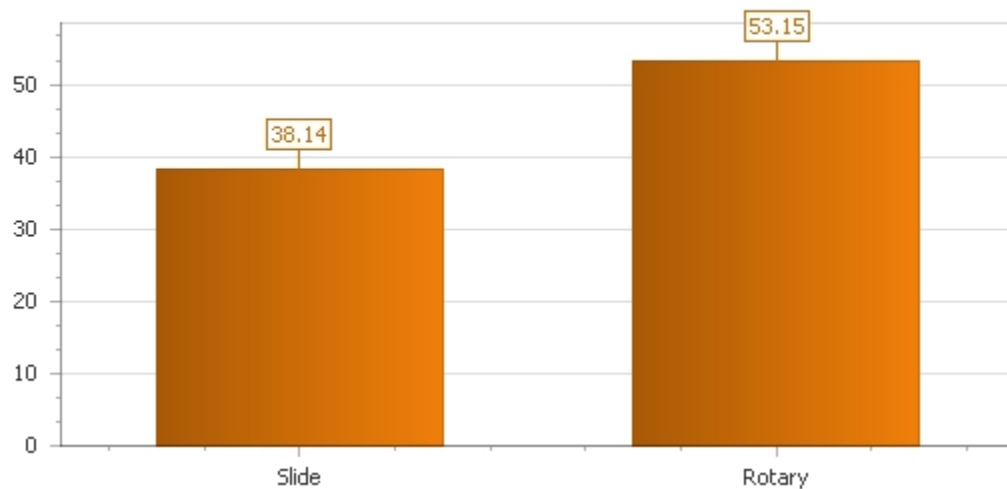
### Percentage of Footage



### Rate of Penetration



### Percentage of Total Time



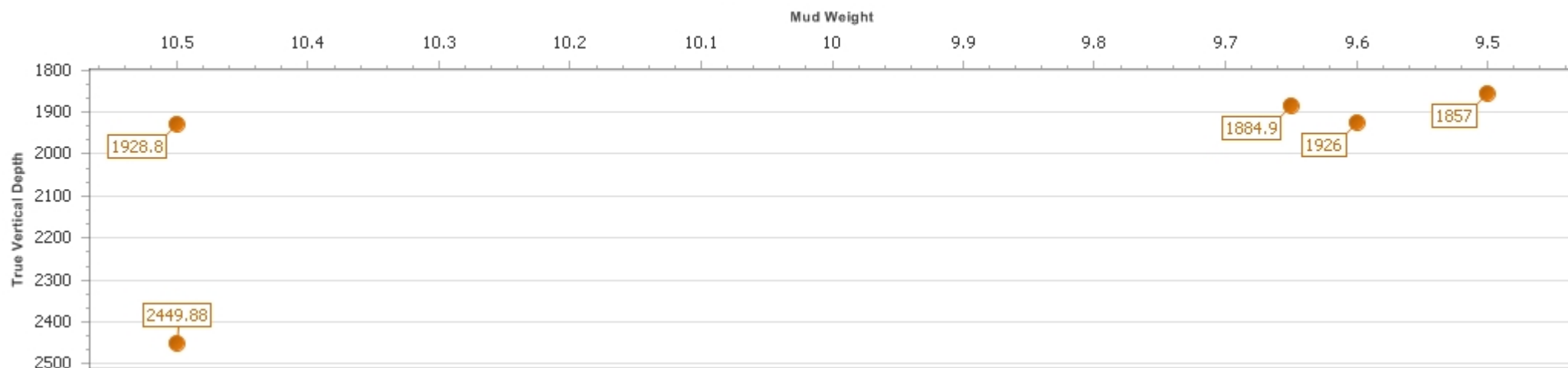


Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

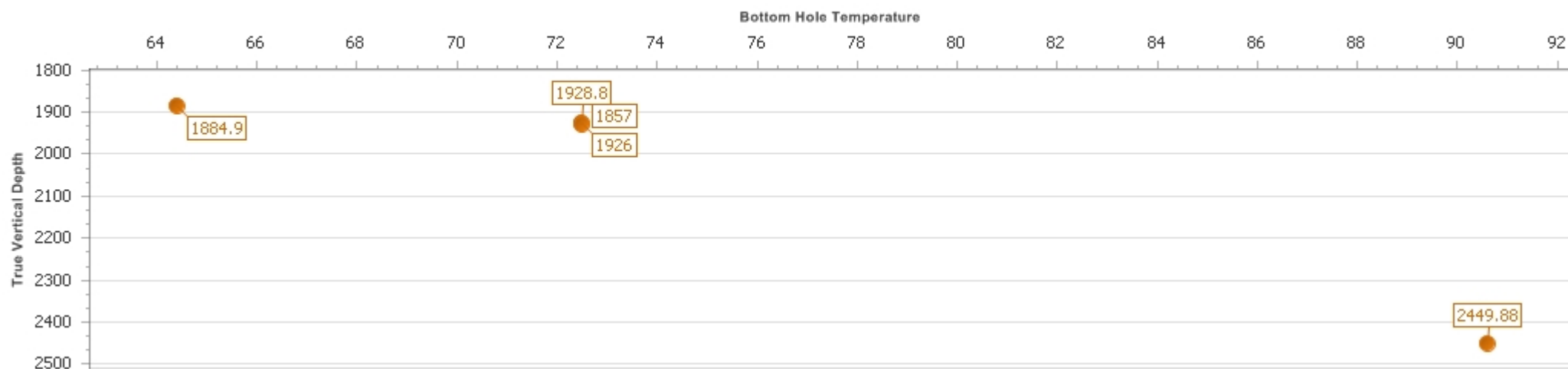
Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

## Mud Weight vs TVD Depth



## Bottom Hole Temp vs TVD Depth





Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

### Mud Motor / Rotary Steerable Report for BHA # 1 on Run # 1

Time and Depths		Motor		RSS	
Date In:	23-Oct-2015 @ 18:15	Desc:	MOTOR ASSY 475 - G2	Desc:	
Date Out:	24-Oct-2015 @ 17:30	MFG:	Pathfinder	Service Name:	
Hours In Hole:	23	BHA Circ/All BHA:	5.68 / 369.35	BHA Circ/All BHA:	
Start Depth:	1885	Motor SN:	4235	Rotary SN:	
End Depth:	2016	Pad OD:	6.50	RS Pad OD:	
Total Drilled:	0	NB Stab:	6.50	RS Stab OD:	
Avg. Total ROP:	0	Bit to Bend Dist:	0.52	Bias Unit Type:	
Total Circu. Hours:	5.68	Bent Hsg / Sub:	1.50	RT Com M Method:	
Percent Slide:		Lobe / Stage:	7:8 / 4	Control Collar Stab:	
Percent Slide Hours:		Output:	1.020	CC Stab Size:	
Slide Hours:	0.00	Rotor Jet:	12.00	Prop BUR:	
Total Sliding:	0	Prop Yield:	10.00	Act BUR:	
Avg. Slide ROP:		Act Yield:	10.00	Strike Ring Size:	
Percent Rotary:		Stator Clearance:		Bit Period:	
Percent Rotary Hours:		Number of Stalls:		Bit to Ref Point:	
Rot / Total Hours:	0.00	Stall Pressure:		% Drop Flow:	
Rotary Drilled:	0				
Avg. Rotary ROP:					
Reason POOH:	Change Bottom Hole As				

### Drilling Parameters

SO / PU:	/	SPP On Bot:	2,100 - 2,100	Flow Rate:	300 - 300
Rotating WOB:	5.00	SPP Off Bot:	1,900 - 1,900		
Sliding WOB:		Avg Diff:	200.00		
On Bot Torque:		Motor RPM:	306		
Off Bot Torque:		Rotary RPM:	20 - 20		

### Bit Record

Description:	PDC	Jets:	13,13,13,13,13,13	IADC#	
Run #	1	Bit Drop:	88 PSI @ 300 GPM	TFA:	.907
Type Bit:	PDC	Condition:	0,0,NO,A,X,I,NO,BHA		

### Mud Data

Type:	Water Base						WT:	9.65	Vis:	44	WL:		PV:		Flow T:	
Sand:		Chlor:		Gas:		Sol:		Oil %:		YP:		PH:		BH Temp:	64	

### Formation:

Expanded Reason to Pull: Planned change/add Other Drilling Tool

### BHA Performance and Comments:

A pre job meeting was held with the crew prior to picking up the BHA and discussed use of lifting subs, the order tools were to be picked up in. Pinch point awareness and manual handling techniques were discussed.  
The BHA was made up and RIH to the proposed sidetrack point. At 1870 wash down started to clean the hole and test the integrity of the cement. However, the cement was found to be very soft and no suitable for a kicking off.  
Drilling continued further beyond the sidetrack point to 2016 m, without any sign of improvement in the quality of the cement.  
Decision was made to POOH and redo the cement Job  
Highlights: None  
Lowlights: Soft Cement





Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

### Mud Motor / Rotary Steerable Report for BHA # 2 on Run # 2

Time and Depths		Motor		RSS	
Date In:	25-Oct-2015 @ 12:30	Desc:	MOTOR ASSY 475 - G2	Desc:	
Date Out:	27-Oct-2015 @ 11:30	MFG:	Pathfinder	Service Name:	
Hours In Hole:	47	BHA Circ/All BHA:	32.64 / 369.35	BHA Circ/All BHA:	
Start Depth:	1910.2	Motor SN:	4235	Rotary SN:	
End Depth:	1926.1	Pad OD:	6.50	RS Pad OD:	
Total Drilled:	16	NB Stab:	6.50	RS Stab OD:	
Avg. Total ROP:	2.27	Bit to Bend Dist:	1.64	Bias Unit Type:	
Total Circu. Hours:	32.64	Bent Hsg / Sub:	1.50	RT Com M Method:	
Percent Slide:	0%	Lobe / Stage:	7:8 / 4	Control Collar Stab:	
Percent Slide Hours:	0%	Output:	1.020	CC Stab Size:	
Slide Hours:	0.00	Rotor Jet:	12.00	Prop BUR:	
Total Sliding:	0	Prop Yield:	10.00	Act BUR:	
Avg. Slide ROP:		Act Yield:	10.00	Strike Ring Size:	
Percent Rotary:	100%	Stator Clearance:		Bit Period:	
Percent Rotary Hours:	100%	Number of Stalls:		Bit to Ref Point:	
Rot / Total Hours:	7.00	Stall Pressure:		% Drop Flow:	
Rotary Drilled:	16				
Avg. Rotary ROP:	2.27				
Reason POOH:	Change Bottom Hole As				

### Drilling Parameters

SO / PU:	124 / 127	SPP On Bot:	1,600 - 1,600	Flow Rate:	300 - 300
Rotating WOB:		SPP Off Bot:	1,550 - 1,550		
Sliding WOB:	1.00	Avg Diff:	50.00		
On Bot Torque:		Motor RPM:	306		
Off Bot Torque:	2,000 - 2,000	Rotary RPM:	0 - 0		

### Bit Record

Description:	Insert	Jets:	18,18,18	IADC#	
Run #	2	Bit Drop:	128 PSI @ 300 GPM	TFA:	.746
Type Bit:	Insert	Condition:	0,0,NO,A,,I,NO,BHA		

### Mud Data

Type:	Water Base							WT:	9.50	Vis:	38	WL:		PV:		Flow T:	
Sand:		Chlor:		Gas:		Sol:		Oil %:		YP:		PH:	9.5	BH Temp:		73	
Formation:																	
Expanded Reason to Pull:			Unplanned change complete BHA														
BHA Performance and Comments:																	



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

#### Operation Summary:

A pre job meeting was held with the crew prior to picking up the BHA and discussed use of lifting subs, the order tools were to be picked up in. Pinch point awareness and manual handling techniques were discussed.

The BHA was made up and RIH to the proposed sidetrack point. At 1857 the cement was tagged, started increasing the WOB gradually until 15K was reached to test the cement integrity, the WOB applied yielded an average ROP of 13 m/hr.

The cement quality had improved noticeably compared with the last run, so the BHA was rotated to 1891 m, and started to Slide instead of rotating, in an attempt to kick off the well earlier and avoid time drilling. However, due to the hardness of the formation, no increase in the formation percentage was noticed. At 1911, a pre-kick was attempted, to utilize the cement hardness and give us an advantage of staying ahead of the plan. Time drilling at a rate of 0.4-0.5 m/hr was used most of the time, without any significant success.

At 1926 decision was made to POOH and increase the motor bend to 2.12 and switch TCI bit with PDC.

Highlights: None

Lowlights:

1.5 bend was not enough to kick off the well and initiate the sidetrack



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

### Mud Motor / Rotary Steerable Report for BHA # 3 on Run # 3

Time and Depths		Motor		RSS	
Date In:	27-Oct-2015 @ 12:00	Desc:	MOTOR ASSY 475 - G2	Desc:	
Date Out:	29-Oct-2015 @ 01:30	MFG:	Pathfinder	Service Name:	
Hours In Hole:	38	BHA Circ/All BHA:	20.79 / 369.35	BHA Circ/All BHA:	
Start Depth:	1926.1	Motor SN:	4235	Rotary SN:	
End Depth:	1928.8	Pad OD:	6.50	RS Pad OD:	
Total Drilled:	3	NB Stab:	6.50	RS Stab OD:	
Avg. Total ROP:	0.54	Bit to Bend Dist:	1.67	Bias Unit Type:	
Total Circu. Hours:	20.79	Bent Hsg / Sub:	1.50	RT Com M Method:	
Percent Slide:	0%	Lobe / Stage:	7:8 / 4	Control Collar Stab:	
Percent Slide Hours:	0%	Output:	1.020	CC Stab Size:	
Slide Hours:	0.00	Rotor Jet:	12.00	Prop BUR:	
Total Sliding:	0	Prop Yield:	10.00	Act BUR:	
Avg. Slide ROP:		Act Yield:	10.00	Strike Ring Size:	
Percent Rotary:	100%	Stator Clearance:		Bit Period:	
Percent Rotary Hours:	100%	Number of Stalls:		Bit to Ref Point:	
Rot / Total Hours:	5.00	Stall Pressure:		% Drop Flow:	
Rotary Drilled:	3				
Avg. Rotary ROP:	0.54				
Reason POOH:	Change Bottom Hole As				

### Drilling Parameters

SO / PU:	/	SPP On Bot:	1,650 - 1,650	Flow Rate:	285 - 285
Rotating WOB:		SPP Off Bot:	1,650 - 1,650		
Sliding WOB:	0.50	Avg Diff:	0.00		
On Bot Torque:		Motor RPM:	290.7		
Off Bot Torque:		Rotary RPM:	0 - 0		

### Bit Record

Description:	PDC	Jets:	13,13,13,13,13,13	IADC#	
Run #	3	Bit Drop:	79 PSI @ 285 GPM	TFA:	.907
Type Bit:	PDC	Condition:	0,0,NO,A,,I,NO,BHA		

### Mud Data

Type:	Water Base							WT:	9.60	Vis:	41	WL:		PV:		Flow T:	
Sand:		Chlor:		Gas:		Sol:		Oil %:		YP:		PH:	9.5	BH Temp:	73		
Formation:																	
Expanded Reason to Pull:			Planned change of Bit														
BHA Performance and Comments:																	



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

**Objectives:**

Sidetrack successfully with motor @ 2.12 deg bend  
Avoid negative drilling events including stuck pipe and twist off.  
No components LIH or DBR  
Drill with good ROP while achieving well plan.  
No QHSE events.

Hold PJSM with all crew and M/U 4-3/4" steerable motor MWD assembly. A successful shallow test was conducted and the assembly tripped in hole.

At 1923m MD the side-track was initiated, decision was made already to side-track at a slower pace than before, to ensure the side-track is created successfully.

A rate of 0.3 m/hr was chosen and with close monitoring to the samples in coordination with the geologists the first signs of success started to show up at 1926 with a formation percent of 20%, at that moment while considering the high degree of hardness of the formation, the rate was maintained longer to ensure the ledge is not broken and the side-track is achieved with high degree of confidence.

At 1932, the formation percent was 90 %, decision was made to POOH to change the motor bend to 1.5 deg and pick up the SGS tool.

At surface the motor was tested and redialled again to 1.5 deg and the bit was found in good condition at

The bit was graded 1 - 1 - WT - All - X - In - No - BHA.

**Highlights:**

Successful first attempt to sidetrack with 2.12 deg bend and PDC bit  
No unplanned events

**Recommendations:**

The 2.12 bend with the 0.3 m/hr time drilling were the main factors in achieving the sidetrack



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

### Mud Motor / Rotary Steerable Report for BHA # 4 on Run # 4

Time and Depths		Motor		RSS	
Date In:	29-Oct-2015 @ 02:00	Desc:	MOTOR ASSY 475 - G2	Desc:	
Date Out:	06-Nov-2015 @ 11:00	MFG:	Pathfinder	Service Name:	
Hours In Hole:	201	BHA Circ/All BHA:	172.36 / 369.35	BHA Circ/All BHA:	
Start Depth:	1928.8	Motor SN:	4235	Rotary SN:	
End Depth:	2798.5	Pad OD:	6.50	RS Pad OD:	
Total Drilled:	870	NB Stab:	6.50	RS Stab OD:	
Avg. Total ROP:	6.05	Bit to Bend Dist:	1.67	Bias Unit Type:	
Total Circu. Hours:	172.36	Bent Hsg / Sub:	1.50	RT Com M Method:	
Percent Slide:	56.78%	Lobe / Stage:	7:8 / 4	Control Collar Stab:	
Percent Slide Hours:	75.91%	Output:	1.020	CC Stab Size:	
Slide Hours:	109.10	Rotor Jet:	12.00	Prop BUR:	
Total Sliding:	494	Prop Yield:	10.00	Act BUR:	
Avg. Slide ROP:	4.53	Act Yield:	10.00	Strike Ring Size:	
Percent Rotary:	43.22%	Stator Clearance:		Bit Period:	
Percent Rotary Hours:	24.09%	Number of Stalls:		Bit to Ref Point:	
Rot / Total Hours:	34.62	Stall Pressure:		% Drop Flow:	
Rotary Drilled:	376				
Avg. Rotary ROP:	10.86				
Reason POOH:	Section Total Depth				

### Drilling Parameters

SO / PU:	133 / 148	SPP On Bot:	1,990 - 2,850	Flow Rate:	270 - 320
Rotating WOB:	10.50	SPP Off Bot:	1,860 - 2,520		
Sliding WOB:	8.66	Avg Diff:	230.00		
On Bot Torque:	4 - 6	Motor RPM:	322.32		
Off Bot Torque:	3 - 5	Rotary RPM:	0 - 270		

### Bit Record

Description:	PDC	Jets:	13,13,13,13,13,13,13	IADC#	
Run #	4	Bit Drop:	77 PSI @ 270 GPM	TFA:	.907
Type Bit:	PDC	Condition:	1,1,WT,A,X,I,NO,TD		

### Mud Data

Type:	Water Base							WT:	10.50	Vis:	49	WL:		PV:	18	Flow T:	
Sand:	0.10	Chlor:	165,000	Gas:		Sol:	14.20	Oil %:		YP:	35	PH:	9.5	BH Temp:	81		
Formation:																	
Expanded Reason to Pull:																	
BHA Performance and Comments:																	



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

**Objectives:**

Drill 6-3/4" build section from 1932m to +/- 2770m using a steerable motor assembly with a 1.5 bend  
Build from 1932m building and as per plan to 90 deg inclination at 135 deg azimuth landing out at approximately 2770m  
Avoid negative drilling events including stuck pipe and twist off.  
No components LIH or DBR  
Drill with good ROP while achieving well plan.  
No QHSE events.

Hold PJSM with all crew and M/U 4-3/4" steerable motor MWD assembly. A successful shallow test was conducted and the assembly tripped in hole. Once on bottom sliding was initiated to kick the well off, however sliding was quite difficult with even minor differential fluctuations causing wild toolface jumps so light parameters were necessary to control the toolface. Initial slides of 50% yielded no build and more than 90% sliding was required to achieve the required 3.2 deg/30m build rates. It seems that there was a huge dropping tendency within the formation and over half the motor output was needed to overcome the drop before any build could be achieved and the assembly dropped dramatically when rotated. Because of this, DL was about 1/4 of would normally be expected and extremely unpredictable however enough DL was achievable to keep up with the well plan. As inclination was built to over 20 deg at 2120m, toolface control improved so sliding was quicker as a result, but long slides of about 80% were still required because of the big drop rate. The 1.5 deg motor bend was a good choice as less bend would not have managed to get the DL. With improved ROP and better TF stability Better DL was yielded but because of the huge rotary drop rotary intervals had to be kept short. The drop rate began to lessen from about 60deg inclination and shorter slides and more rotation was possible about 50% and by 75 deg inclination 2630m only 30% or less sliding was required and rotary intervals held angle or even a slight build. Slides in the latter part of the build were a little difficult to get started but once underway were reasonably straight forward if a little slower. The evo lube in the mud system seemed to help as little or no hanging up was observed when sliding.

At section TD the hole was circulated clean and the assembly tripped out of hole without any problems.  
The motor had accumulated 87 circulating hrs and was in good condition with a bearing gap of 2mm

The Smith MSI713 PDC did a good job. Toolface control was quite a challenge caused slow sliding ROP till the inclination was over 20deg after which it became progressively more stable and very good ROP's were obtained both sliding and rotating The bit was graded 1 - 1 - WT - All - X - In - No - BHA.

**Highlights:**

Managed to achieve the well plan under difficult conditions  
No unplanned events

**Recommendations:**

The Smith MSI713 PDC although a hand full at the beginning is a good choice to do the build section in one run run

Because of the large drop rate and reduced unpredictable DL achieved for 2/3 of the build section a 1.5 degree motor bend is necessary

As there was little sign of any hanging up when sliding throughout the section the dosing of the mud system with lubricant would seem beneficial.



Job Number: 15AUS0152  
Company Name: ORIGIN ENERGY RESOURCES LTD  
Rig Name: Saxon 185  
Well Name: Amungee NW-1H  
Well Location: Lat: -16.3445, Long: 133.8845  
Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
Well Country: AUSTRALIA  
Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

UOM: DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

### Mud Motor / Rotary Steerable Report for BHA # 5 on Run # 5

Time and Depths		Motor		RSS	
Date In:	07-Nov-2015 @ 06:30	Desc:		Desc:	PDX5/6 475
Date Out:	15-Nov-2015 @ 06:00	MFG:		Service Name:	SLB
Hours In Hole:	192	BHA Circ/All BHA:		BHA Circ/All BHA:	137.88
Start Depth:	2798.5	Motor SN:		Rotary SN:	69506
End Depth:	3808	Pad OD:		RS Pad OD:	5
Total Drilled:	1,010	NB Stab:		RS Stab OD:	6.56
Avg. Total ROP:	9.58	Bit to Bend Dist:		Bias Unit Type:	X6
Total Circu. Hours:	137.88	Bent Hsg / Sub:		RT Com M Method:	None
Percent Slide:	0%	Lobe / Stage:		Control Collar Stab:	IBS Collar
Percent Slide Hours:	0%	Output:		CC Stab Size:	
Slide Hours:	0.00	Rotor Jet:		Prop BUR:	
Total Sliding:	0	Prop Yield:		Act BUR:	
Avg. Slide ROP:		Act Yield:		Strike Ring Size:	NA
Percent Rotary:	100%	Stator Clearance:		Bit Period:	18
Percent Rotary Hours:	100%	Number of Stalls:		Bit to Ref Point:	0.00
Rot / Total Hours:	105.42	Stall Pressure:		% Drop Flow:	15.00
Rotary Drilled:	1,010				
Avg. Rotary ROP:	9.58				
Reason POOH:	Well Total Depth				

### Drilling Parameters

SO / PU:	134 / 162	SPP On Bot:	2,450 - 2,880	Flow Rate:	275 - 280
Rotating WOB:	9.75	SPP Off Bot:	2,450 - 2,840		
Sliding WOB:		Avg Diff:	9.00		
On Bot Torque:	7 - 10	Motor RPM:			
Off Bot Torque:	5 - 6	Rotary RPM:	80 - 100		

### Bit Record

Description:	PDC	Jets:	12,12,12,12,12	IADC#	
Run #	5	Bit Drop:	216 PSI @ 275 GPM	TFA:	.552
Type Bit:	PDC	Condition:	1,1,ER,A,X,I,NO,TD		

### Mud Data

Type:	Fresh Water							WT:	10.50	Vis:	46	WL:	85.80	PV:	16	Flow T:	
Sand:	0.10	Chlor:	159,000	Gas:		Sol:	14.00	Oil %:		YP:	34	PH:	9.5	BH Temp:	97		

Formation:

Expanded Reason to Pull:

BHA Performance and Comments:



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
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**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON

BHA #5: 6-3/4" RSS Assembly 2798m – 3808m (7-Nov-15 \_ 15-Nov-15)

**Objectives:**

Drill 6-3/4" build section from 2798 m to +/- 2808 m using a PDX475  
Land the well at 90 degrees and Geo-steer to target at 3808  
Avoid negative drilling events including stuck pipe and twist off.  
No components LIH or DBR  
Drill with good ROP while achieving well plan.  
No QHSE events.

Hold PJSM with all crew and M/U 4-3/4" RSS assembly. A successful shallow test was conducted and the assembly tripped in hole. Tight spots were washed through at 2130m and 2200m then at 2520 washing and reaming in hole was required to bottom at 2798m. The problem appears to be caused by cavings rather than cuttings.

Once on bottom, absolute commands 324 TF 50 % ratio and 342 @ 100 % were used to land the well at 2452m TVD @ 90 degrees, once horizontal, Inclination hold was initiated where with a few adjustments the tool remained for most of the run. The drilling was initiated with 150 RPM of 150 but torque and stick slip were extremely high, this caused very poor MWD detection. Various parameters were tried to mitigate the high torque and stick slip and thus improve MWD signal, 80 rpm with 10 to 12klbs WOB was the best combination.

This combination was consistent for most of the run but the parameters were occasionally changed to try and improve both MWD detection and ROP. The aggressive nature of the MDSIR 516 bit was likely a big contributor the high torque and stick slip when drilling, it possibly had the potential for higher ROP but this could not be realized due to the excessive torque generated when higher WOB was applied.

Through the course of the run the PD performed very well, yielding up to 7°/30 from 100 % SR. Once horizontal Inclination hold mode was utilized most of the run where PD475 managed to perfectly hold the angle as required, adjustments were made through nudging up and down and occasionally minor azimuthal corrections to counter the formation walking tendency, which was constantly changing while drilling.

At around 3600m while the RSS was in inclination hold at 92°, the assembly began to build angle steadily, it seemed the RSS was unable to cope with a strong formation tendency when in Inclination hold so absolute command's using 100% SR were required to stop the build and get the well path back on track. Just short of TD wellpath began to build again, thought to be the result of strong formation trend. Due to being close to TD well was rotated ahead to TD without issue.

At TD the hole was circulated until the shakers were clean before POOH. The assembly pulled nicely till around 2600m where it pulled tight, in much the same area as problems were incurred when RIH. The well was circulated but further attempts to POOH were unsuccessful. The assembly was backreamed out till near vertical hole at 2300m and the assembly was then. Once again caving seem to be the problem as when tripping in the hole.

The Smith MDSIR516 was graded 1 - 1 - ER - All - X - In - No - TD.

**Highlights:**

Managed to maintain the trajectory as per Geology requirements.  
Utilized the INC hold to make minor changes in the trajectory with min Dogleg severity  
No unplanned events

**Lowlights:**

Poor signal detection and real time log quality due torque and stick slip

**Recommendations:**

Highly recommended to run RT communications when running power drive for a quicker reaction to any problems, tool or hole.  
Choice of a less aggressive bit would improve real-time data quality and possibly improve ROP  
Run advanced detection to improve signal detection, ie two pressure transducers



**Amungee NW-1H 6.75" Sidetrack- landing BHA 2 Steering Sheet**



<b>Location</b>	AUS - Australia PF	<b>Casing Shoe (m)</b>	1426.65	<b>BHA Run</b>	Amungee NW-1H 6.75 Siderack-landing BHA 2			<b>Bit Run #</b>	
<b>Client</b>	Origin Energy	<b>Casing Size (in)</b>	7.00	<b>Depth (in)</b>	1857.00	<b>Depth Out</b>	2015-10-23 18:15	<b>Drilling Hours</b>	27.67
<b>Field</b>	Saxon 185	<b>Casing Weight (lbm/ft)</b>		<b>Incl (in (deg))</b>	0.89	<b>Incl Out (deg)</b>	2.00	<b>Date TD</b>	2015-10-27 05:17
<b>Rig</b>	Beetaloo Basin	<b>Mud Type</b>	WBM	<b>Azimuth (in (deg))</b>	71.31	<b>Azimuth O</b>	106.36	<b>Date Out</b>	2015-10-27 11:30
<b>Well</b>	Amungee NW-1H	<b>End MW (lbm/gal)</b>	9.65	<b>Client Representative #1</b>	Darryl Whitbread			<b>Directional Driller #1</b>	Andrew Pritchett
<b>Borehole</b>	Amungee NW-1H	<b>Hole Size (in)</b>	6.75	<b>Client Representative #2</b>	Mark Booth			<b>Directional Driller #2</b>	Mohamed Ennaahs

Bit Information				Bit Grading							
Serial Number	RD3412	IADC		Inner Rows	Duter Rows	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled
Type	insert roller cone	Ites (1/32 in)	3x18	In			New				
Wapui/Model Name	SMITH XRS50Y/BIT	ITFA (1/2)	0.746	Out							

Date dd-mm-yy	Start Time	End Time	MD From m	MD To m	Operation Mode	TF Mode	TF Angle deg	Power Setting	ired TF deg	Power S	Calc ROP m/h	WOB 1000 lbf	SRPM c/min	Torque 1000 ft.lbf	Off Bot Torque 1000 lbf	Slack Off Weight 1000 lbf	Rotating HKLD 1000 lbf	PU Weight 1000 lbf	Flow gal/min	SPP Off Bott psi	SPP On Bott psi	Svy MD m	Incl deg	Azmt deg	DLS deg/30m	Comment
25-Oct-15	21:04	22:07	1857.00	1870.94	Drilling Cement						13.28	10.0	20	3.5	2.0				250	1200	1400.0	1853.64	0.86	70.05	0.19	Tagged Cement @ 1857 m
	22:30	23:28	1870.94	1884.00	Drilling Cement						13.46	15.0	20	3.5	2.0				250	1350	1400.0	1866.85	0.88	60.13	0.65	
	23:42	00:10	1884.00	1890.00	Drilling Cement						12.77	15.0	20	3.5	2.0				250	1250	1400.0	1872.95	0.92	58.69	0.59	
26-Oct-15	00:10	00:57	1890.00	1897.10	Drilling Cement	Magnetic	135				9.10	12.0	20						280	1400	1600.0	1880.06	0.98	61.57	0.30	Sliding to sidetrack point
	01:02	01:38	1897.10	1910.20	Drilling Cement	Magnetic	135				21.83	12.0	20						280	1450	1600.0	1890.22	0.89	70.10	0.89	Sliding to sidetrack point/Samples show softer cement
	03:34	12:00	1910.20	1915.00	Sliding	Magnetic	135				0.57	1.0							280	1550	1600.0	1898.35	0.89	80.60	1.00	Time drilling
27-Oct-15	12:01	17:06	1915.00	1920.00	Sliding	Magnetic	135				0.98	1.0							280	1550	1600.0	1902.41	0.93	86.02	0.31	
	18:40	23:50	1920.00	1923.00	Sliding	Magnetic	135				0.58	1.0							280	1550	1600.0	1905.46	0.91	81.92	0.79	Restart time drilling
	00:08	05:17	1923.00	1926.30	Sliding	Magnetic	135				0.64	0.0							280	1250	1600.0	1909.52	0.86	58.69	0.19	
Min							135				0.57	0.0	20	3.5	2.0				250	1200	1400.0		0.86	58.69	0.19	
Average							135				8.14	7.4	20	3.5	2.0				270	1427.8	1533.3		0.90	72.23	0.58	
Max							135				21.83	15.0	20	3.5	2.0				290	1500	1600.0		0.98	86.02	1.00	

### DIRECTIONAL DRILLING PERFORMANCE SUMMARY

[illegible]

Comments



Amungee NW-1H 6.75" Sidetrack BHA\_3 Steering Sheet



Location	AUS - Australia PF	Casing Shoe (m)	1426.65	BHA Run	Amungee NW-1H 6.75" Sidetrack BHA_3				Bit Run #		
Client	Origin Energy	Casing Size (in)	7.00	Depth In (m)	1926.30	Depth Out	1932.50	Date In	2015-10-27 12:00	Drilling Hours	19.27
Rig	Saxon 185	Casing Weight (lbm/ft)		Incl In (deg)	2.00	Incl Out (d	3.10	Date TD	2015-10-28 16:10	Pumping Hours	20.79
Field	Beetaloo Basin	Mud Type	WBM	Azimuth In (deg)	106.36	Azimuth O	113.97	Date Out	2015-10-29 01:30	BRT Hours	37.50
Well	Amungee NW-1	End MW (lbm/gal)	9.50	Client Representative #1	Darryl Whitbread		Directional Driller #1	Andrew Pritchett			
Borehole	Amungee NW-1H	Hole Size (in)	6.75	Client Representative #2	Mark Booth		Directional Driller #2	Mohamed Einahaas			

Bit Information					Bit Grading							
Serial Number	JJ4558	IADC			Inner Rows	Duter Rows	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled
Type	insert roller cone	Jets (1/32 in)	7x13	In				New				
Manuf/Model Name	SMITH MSI713/BIT	TFA (in2)	0.907	Out								

Date	Start Time	End Time	MD From	MD To	Operation Mode	TF Mode	TF Angle	Power Setting	ired TF And	Power S	Calc ROP	WOB	SRPM	Torque	Off Bot Torque	Slack Off Weight	Rotating HKLD	PU Weight	Flow	SPP Off Bott	SPP On Bott	Svy MD	Incl	Azmth	DLS	Comment
27-Oct-15	20:50	23:55	1926.30	1927.41	Sliding	Magnetic	135				0.36	0.0							280	1625.0	1650.0	1910.54	0.85	80.32	0.41	Commence time drilling
	23:55	03:20	1927.41	1928.50	Sliding	Magnetic	135				0.32	0.0							280	1625.0	1650.0	1911.55	0.84	79.68	0.35	10% formation
28-Oct-15	03:21	07:23	1928.50	1929.50	Sliding	Magnetic	135				0.25	0.0							280	1625.0	1650.0	1912.57	0.84	79.68	0.09	40% formation
	07:23	10:45	1929.50	1930.50	Sliding	Magnetic	135				0.30	0.0							280	1625.0	1650.0	1913.59	0.86	80.91	0.80	60% formation
	10:45	14:05	1930.50	1931.50	Sliding	Magnetic	135				0.30	0.0							280	1625.0	1650.0	1914.60	0.87	83.30	1.11	80% formation
	14:05	16:10	1931.50	1932.50	Sliding	Magnetic	135				0.48	0.0							280	1625.0	1650.0	1915.62	0.90	82.84	0.91	100% formation Successfully sidetracked
Min							135				0.25	0.0							280	1625.0	1650.0		0.84	79.68	0.09	
Average							135				0.33	0.0							280	1625.0	1650.0		0.86	81.16	0.61	
Max							135				0.48	0.0							280	1625.0	1650.0		0.90	83.30	1.11	

DIRECTIONAL DRILLING PERFORMANCE SUMMARY

Drill Mode	Footage	Hrs	ROP	% Drill	Hours	Circulating	Connection	Reaming	Tripping	Other	NPT	SLB NPT
Sliding	6.20	19.27	0.3	100%		0	0	0	0	0	0	0
Drilling	6.20	19.27	0.3	100%								

Comments

### Amungee NW-1H 6.75" Sidetrack- Landing BHA\_4 Steering Sheet



Location	AUS - Australia PF	Casing Shoe (m)	1426.65	BHA Run	Amungee NW-1H 6.75" Sidetrack- Landing BHA_4	Bit Run #	
Client	Origin Energy	Casing Size (in)	7.00	Depth In (m)	1932.50	Depth Out	2798.50
Rig	Saxon 185	Casing Weight (lbm/ft)		Incl In (deg)	3.10	Incl Out (deg)	86.79
Field	Beetaloo Basin	Mud Type	WBM	Azimuth In (deg)	113.97	Azimuth Out (deg)	136.32
Well	Amungee NW-1	End MW (bms/gal)	10.50	Client Representative #1	Darryl Whitbread	Date Out	2015-11-06 11:00
Borehole	Amungee NW-1H	Hole Size (in)	6.75	Client Representative #2	Mark Booth	Directional Driller #1	Andrew Pritchett
						Directional Driller #2	Mohamed Elinahas

Bit Information				Bit Grading							
Serial Number	JJ4558	IADC		Inner Rows	Outer Rows	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled
Type	Insert roller cone	Jets (1/32 in)	7x13	In			New				
Manuf/Model Name	SMITH MS713/BIT	TFA (in2)	0.907	Out							

Date dd-mm-yy	Start Time	End Time	MD From m	MD To m	Operation Mode	TF Mode	TF Angle deg	Power Setting	Ired TF deg	And Power S	Calc ROP m/h	WOB 1000 lbf	SRPM c/min	Torque 1000 ft.lbf	Off Bot Torque 1000 ft.lbf	Stack Off Weight 1000 lbf	Rotating HKLD 1000 lbf	PU Weight 1000 lbf	Flow gal/min	SPP Off Bott psi	SPP On Bott psi	Svy MD m	Incl deg	Azmlh deg	DLS deg/30m	Comment		
29-Oct-15	11:30	11:45	1932.50	1933.00	Sliding	Magnetic	135				2.00	2.0								280	1530.0	1650.0	1915.62	0.90	82.84	0.91		
	11:45	12:15	1933.00	1935.00	Rotating						4.00	5.0	30	3.0		2.0				280	1530.0	1650.0	1917.65	0.94	80.25	0.79		
	12:15	12:50	1935.00	1936.80	Sliding	Magnetic	135				3.10	5.0								280	1530.0	1650.0	1918.67	0.95	79.60	0.43		
	13:30	14:10	1936.80	1940.50	Sliding	Magnetic	135				5.52	5.0								280	1530.0	1650.0	1919.68	0.95	78.87	0.36		
	14:10	15:11	1940.50	1950.00	Rotating						9.31	9.0	40	4.0		2.0	124.0		128.0	131.0	280	1530.0	1700.0					
	15:28	16:14	1950.00	1955.00	Sliding	Magnetic	165				6.49	8.0				2.0				280	1530.0	1700.0	1933.30	3.25	114.57	5.59		
	16:14	17:01	1955.00	1964.10	Rotating						11.67	10.0	40	4.0		2.0				280	1530.0	1700.0	1946.50	4.66	118.66	3.27		
	17:20	18:22	1964.10	1970.00	Sliding	Gravity	30				5.73	10.0				2.0				320	1870.0	1950.0					Erratic toolface/ reduce parameter to control toolface	
	19:00	19:35	1970.00	1976.38	Rotating						11.00	10.0	40	4.0		2.0	124.0		128.0	134.0	320	1870.0	1950.0					
	19:57	21:45	1976.38	1984.10	Sliding	Gravity	30				4.29	10.0				2.0				320	1870.0	1950.0	1959.70	5.01	117.98	0.81	Tool face control is difficult/poor output and response	
	21:45	22:06	1984.10	1989.48	Rotating						15.37	10.0	40	4.0		2.0				320	1870.0	1950.0						
	22:09	23:45	1989.48	1996.00	Sliding	Gravity	20				4.08	5.0				2.0				320	1870.0	1850.0	1972.90	5.45	118.90	1.02	Poor output from motor/ Erratic SPP pressure	
	23:45	00:39	1996.00	2000.00	Sliding	Gravity	20				4.44	5.0				2.0	126.0		128.0	136.0	320	1870.0	1950.0					
30-Oct-15	00:50	01:24	2000.00	2002.40	Sliding	Gravity	20				4.21	4.0				2.0				320	1870.0	1950.0						
	01:44	03:44	2002.40	2011.00	Sliding	Gravity	20				4.30	5.0				2.0				320	1870.0	1950.0	1986.10	6.24	126.31	2.48		
	03:48	04:23	2011.00	2013.17	Sliding	Gravity	20				3.74	5.0				2.0				320	1870.0	1950.0						
	04:23	04:40	2013.17	2015.73	Rotating						9.14	10.0	40	4.0		2.0				320	1870.0	1950.0						
	05:02	09:10	2015.73	2028.00	Sliding	Gravity	20				2.97	4.0				2.0				320	1870.0	1950.0	1999.30	7.47	126.53	2.80		
	09:10	09:15	2028.00	2029.00	Rotating						12.50	8.0	40	4.0		2.0	128.0		130.0	137.0	320	1870.0	1950.0					
	09:38	11:38	2029.00	2036.00	Sliding	Gravity	20				3.50	4.0				2.0				320	1870.0	1950.0	2012.50	9.58	128.24	4.83		
	11:38	12:06	2036.00	2039.00	Rotating						6.38	10.0	40	5.0		2.0				320	1870.0	1990.0						
	12:10	12:39	2039.00	2041.90	Rotating						6.04	10.0	40	5.0		2.0	126.0		131.0	139.0	320	1870.0	1990.0					
	12:54	14:17	2041.90	2049.00	Sliding	Gravity	20				5.14	6.0				2.0				320	1870.0	1990.0	2025.70	11.70	130.63	4.92		
	14:19	15:13	2049.00	2055.90	Rotating						7.67	10.0	40	4.0		2.0				320	1870.0	1990.0						
	15:31	17:38	2055.90	2067.00	Sliding	Gravity	20				5.21	6.0				2.0				320	1870.0	1990.0	2038.90	13.01	131.40	3.00		
	17:40	18:05	2067.00	2068.98	Rotating						4.71	10.0	40	4.0		2.0				320	1870.0	1990.0						
	18:10	22:04	2068.98	2077.70	Sliding	Gravity	-10				2.24	6.0				2.0	128.0		131.0	140.0	320	1870.0	1990.0	2052.20	13.10	134.00	1.34	No build from 7 m slide/Stable toolface sliding
	22:19	23:43	2077.70	2081.80	Sliding	Gravity	-10				2.93	7.0				2.0				320	1870.0	1990.0						
31-Oct-15	00:07	04:54	2081.80	2095.06	Sliding	Gravity	0				2.77	6.0				2.0	128.0		131.0	140.0	320	1870.0	1990.0	2065.40	13.98	136.94	2.54	
	05:16	08:26	2095.06	2106.30	Sliding	Gravity	0				4.18	7.0				2.0	128.0		132.0	141.0	320	1870.0	1990.0	2078.60	15.39	134.71	3.45	
	08:40	12:10	2106.30	2121.40	Sliding	Gravity	25				3.74	7.0				2.0				320	1890.0	2000.0	2091.80	17.50	132.28	5.04		
	12:30	12:44	2121.40	2123.00	Rotating						6.96	10.0	40	4.0		2.0	128.0		133.0	142.0	320	1890.0	2000.0	2105.00	19.79	129.97	5.47	
	12:45	16:13	2123.00	2134.00	Sliding	Gravity	25				3.17	7.0				2.0				320	1890.0	2000.0						
	16:18	16:28	2134.00	2135.10	Rotating						6.47	10.0	40	4.0		2.0				320	1890.0	2000.0						
	16:50	19:46	2135.10	2146.20	Sliding	Gravity	25				3.79	7.0				2.0				320	1900.0	2050.0	2118.20	21.63	130.83	4.24		
	19:46	20:05	2146.20	2148.18	Rotating						6.19	7.0	40	4.0		2.0				320	1900.0	2050.0						
	20:30	22:26	2148.18	2158.36	Sliding						5.27	7.0				2.0	129.0		133.0	142.0	320	1915.00	2150.0	2131.40	23.57	131.80	4.49	
	22:26	22:54	2158.36	2161.30	Rotating						6.26	7.0	40	4.0		2.0				320	1950.0	2150.0						
	23:10	23:50	2161.30	2163.78	Sliding	Gravity	0				3.70	7.0				2.0				320	1950.0	2150.0	2144.60	24.89	132.77	3.13		
	23:50	02:41	2163.78	2174.43	Sliding	Gravity	20				3.74	5.0				2.0	130.0		134.0	144.0	320	1950.0	2150.0					
1-Nov-15	03:09	06:55	2174.43	2187.50	Sliding	Gravity	25				3.47	7.0				2.0	131.0		134.0	145.0	320	1950.0	2050.0	2157.80	25.85	134.27	2.63	
	07:10	13:10	2187.50	2200.70	Sliding	Gravity	0				2.20	6.0				2.0	131.0		136.0	146.0	320	1950.0	2050.0	2171.10	26.82	135.59	2.56	
	13:27	17:27	2200.70	2214.30	Sliding	Gravity	0				3.40	6.0				2.0				320	1950.0	2050.0	2184.30	28.49	135.29	3.81		
	17:48	18:05	2214.30	2218.80	Rotating						16.07	8.0	40	4.0		2.0	129.0		135.0	143.0	320	2100.0	2400.0	2197.50	31.48	134.29	6.89	
	18:17	20:57	2218.80	2227.53	Sliding	Gravity	20				3.27	7.0				2.0				320	2100.0	2300.0						
	21:26	22:04	2227.53	2233.02	Rotating						8.71	9.0	40	4.0		2.0				320	2100.0	2300.0	2210.70	34.47	133.91	6.81		
	22:14	01:27	2233.02	2240.81	Sliding	Gravity	20				2.42	9.0				2.0	130.0		136.0	146.0	320	2100.0	2300.0					
2-Nov-15	01:47	04:48	2240.81	2253.91	Sliding	Gravity	15				4.34	9.0				2.0	132.0		136.0	146.0	320	2100.0	2300.0	2223.90	34.91	133.45	1.16	
	05:03	07:47	2253.91	2267.30	Sliding	Gravity	0				4.90	9.0				2.0				320	2100.0	2300.0	2237.10	35.35	134.48	1.68		
	08:06	08:27	2267.30	2269.00	Rotating						4.86	10.0	40	5.0		2.0	133.0		137.0	147.0	320	2120.0	2400.0	2250.30	37.99	136.42	6.55	
	08:30	09:55	2269.00	2279.00	Sliding	Gravity	0				7.04	10.0				2.0				320	2120.0	2300.0						
	09:55	10:10	2279.00	2280.40	Rotating						5.60	10.0	40	4.0		2.0				320	2120.0	2300.0						
	10:20	12:10	2280.40	2292.00	Sliding	Gravity	0				6.34	10.0				2.0				320	2120.0	2300.0	2263.50	40.63	136.72	6.02		
	12:10	12:27	2292.00	2293.50	Rotating						5.36	8.0	40	4.0		2.0	133.0		140.0	148.0	320	2120.0	2400.0					
	12:44	12:53	2293.50	2295.00	Rotating																							

DIRECTIONAL DRILLING PERFORMANCE SUMMARY												
Drill Mode	Footage	Hrs	ROP	% Drill	Hours	Circulating	Connection	Reaming	Tripping	Other	NPT	SLB NPT
Sliding	485.64	109.05	4.5	56%		0	0	0	0	0	0	0
Rotating	380.36	35.37	10.8	44%								
Drilling	866.00	144.42	6.0	100%								
Comments												

## Torque and Drag Load Cases

**Client:** Origin  
**Field:** Beetaloo Basin  
**Rig:** Amungee NW-1  
**Well:** Amungee NW-1  
**Bore Hole:** Amungee NW-1H  
**Engineer:** DIR\VLuu1  
**Date:** 11/2/2015

### BHA & WELLBORE DATA

**BHA Data:** Amungee NW-1H 6.75" Sidetrack- landing BHA  
**Survey Data:** Origin - Amungee NW-1H Plan 1.0 Working  
**Wellbore Data:** Amungee NW 1H wellbore geometry

<b>Drilling Bit Depth Range:</b>	0 - 2800 (m)	<b>Bit Depth (single-point):</b>	2800 (m)
<b>Tripping Range:</b>	0 - 2800 (m)	<b>Block Weight:</b>	17 (1000 lbf)
<b>Depth Increment:</b>	30 (m)	<b>Mud Weight:</b>	10.5 (lbm/gal)

### SCENARIOS

Name	Operation Type	Direction	Single Multi Depth	FF	DWOB 1000 lbf	Overpull 1000 lbf	DTOR 1000 ft.lbf
6.75D TripIn_MultiDepth		In	Multi Depth	Set 1-4	0		0
6.75D RotateOffBottom_MultiDepth		N/A	Multi Depth	Set 1-4	0	0	0
6.75D RotateDrill_MultiDepth		In	Multi Depth	Base FF - Rotate	15		3
6.75D SlideDrill_MultiDepth		In	Multi Depth	Base FF - Slide	15		3
6.75D TripOut_MultiDepth		Out	Multi Depth	Set 1-4		0	0
6.75D RotateDrill_SingleDepth@2800m		In	Single Depth	Base FF - Rotate	15		3
6.75D SlideDrill_SingleDepth@2800m		In	Single Depth	Base FF - Slide	15		3
6.75D TripOutOverpull_SingleDepth@2800m		Out	Single Depth	Base FF - Slide		0	0
6.75D BackReamOverpullDTOR_SingleDepth@2800m		Out	Single Depth	Base FF - Ream		0	3

## BHA DESCRIPTION

Component Name	Steel Grade	Length m	Cum Length m	ID in	OD in	Max OD in	Lin Weight lbm/ft
6 3/4" PDC	G-105	0.24	0.24	1.50	4.50	6.75	82.46
4-3/4 G2 set at 1.5deg 78 3.1	G-105	6.98	7.22	3.49	4.75	6.50	39.91
4.75" Float Sub	G-105	0.94	8.16	1.75	4.75	4.75	51.87
6 3/8" String Stabilizer	G-105	1.62	9.78	2.81	4.75	6.38	39.00
4.75" Pony NMDC	G-105	2.99	12.77	2.25	4.75	4.75	46.55
4.75" Pin x Pin Crossover	G-105	0.36	13.13	2.25	4.75	4.75	46.55
4.75in OD TelePacer	G-105	8.77	21.90	2.81	4.75	4.75	46.33
2 x 4.75" NMDC	G-105	18.69	40.59	2.25	4.75	4.75	46.55
4.75" Filter sub	G-105	0.94	41.53	1.75	4.75	4.75	51.87
4.75" Crossover Sub	G-105	0.92	42.45	2.25	4.75	4.75	46.55
4" 15.70 DPS, 10% Wear	S-135	554.60	597.05	3.24	3.92	5.50	18.35
Heavy Weight Drill Pipe	D-55	65.00	662.05	2.56	4.00	5.25	28.90
4.75" Crossover Sub	G-105	0.73	662.78	2.25	4.75	4.75	46.55
Hydra-Jar 4 3/4"	G-105	9.19	671.97	2.25	4.75	4.83	36.08
4.75" Crossover Sub	G-105	0.66	672.63	2.25	4.75	4.75	46.55
Heavy Weight Drill Pipe	D-55	117.90	790.53	2.56	4.00	5.25	28.90
4" 15.70 DPS, 10% Wear	S-135	2010.00	2800.53	3.24	3.92	5.50	18.35

## WELLBORE DESCRIPTION

Section Name	Length m	Cum Length m	Diameter in
7.625" Casing Run	1426.65	1426.65	6.88
6.75" BHA Run	2350.00	3776.65	6.75

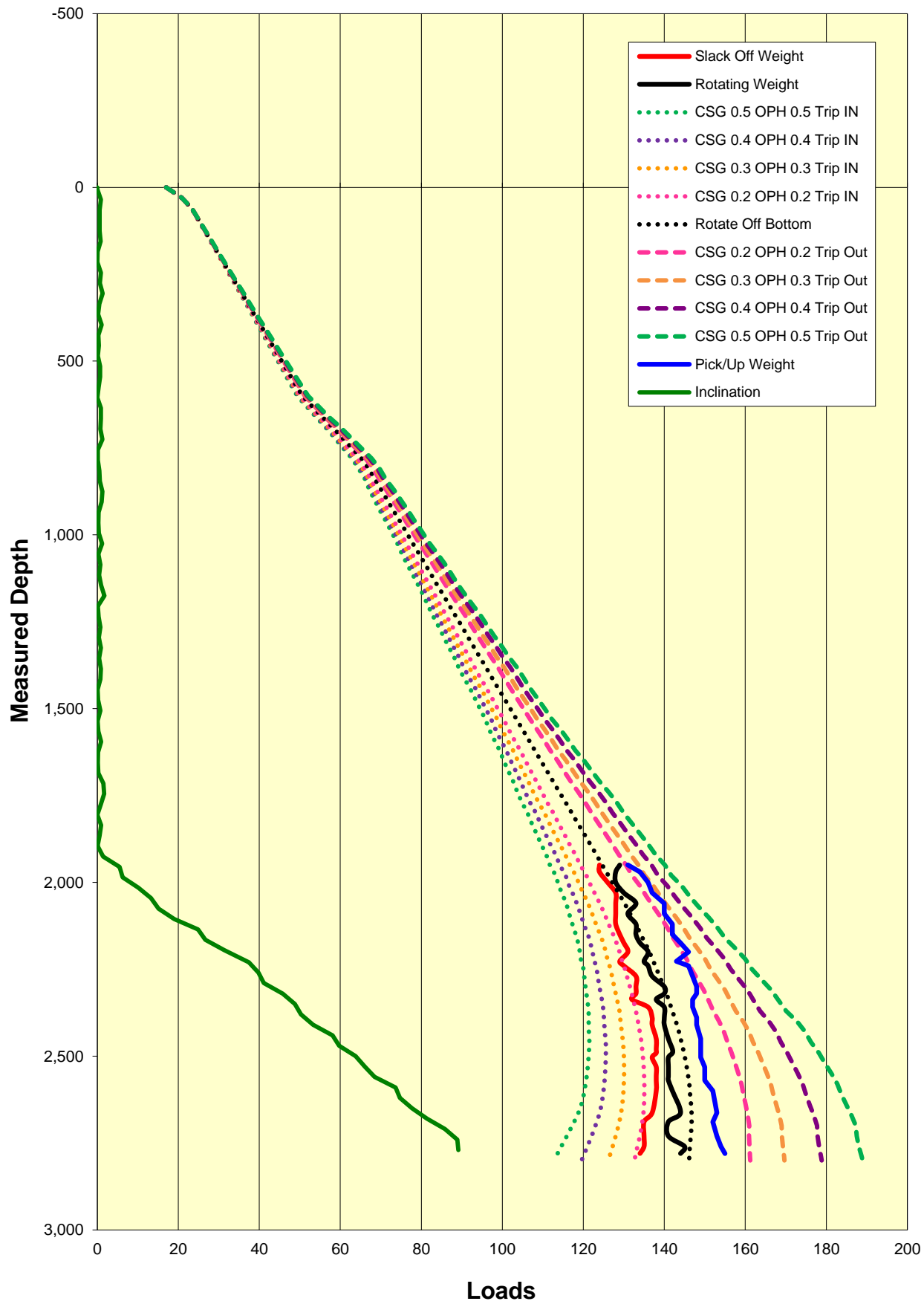
## FRICITION FACTORS

	Cased Hole Translational (Slide)	Open Hole Translational (Slide)	Cased Hole Rotational	Open Hole Rotational	Cased Hole Translational (Ream)	Open Hole Translational (Ream)
Base Set	0.30	0.40	0.30	0.40	0.05	0.05
Set 1	0.20	0.20	0.20	0.20		
Set 2	0.30	0.30	0.30	0.30		
Set 3	0.40	0.40	0.40	0.40		
Set 4	0.50	0.50	0.50	0.50		

## OUTPUT SUMMARY

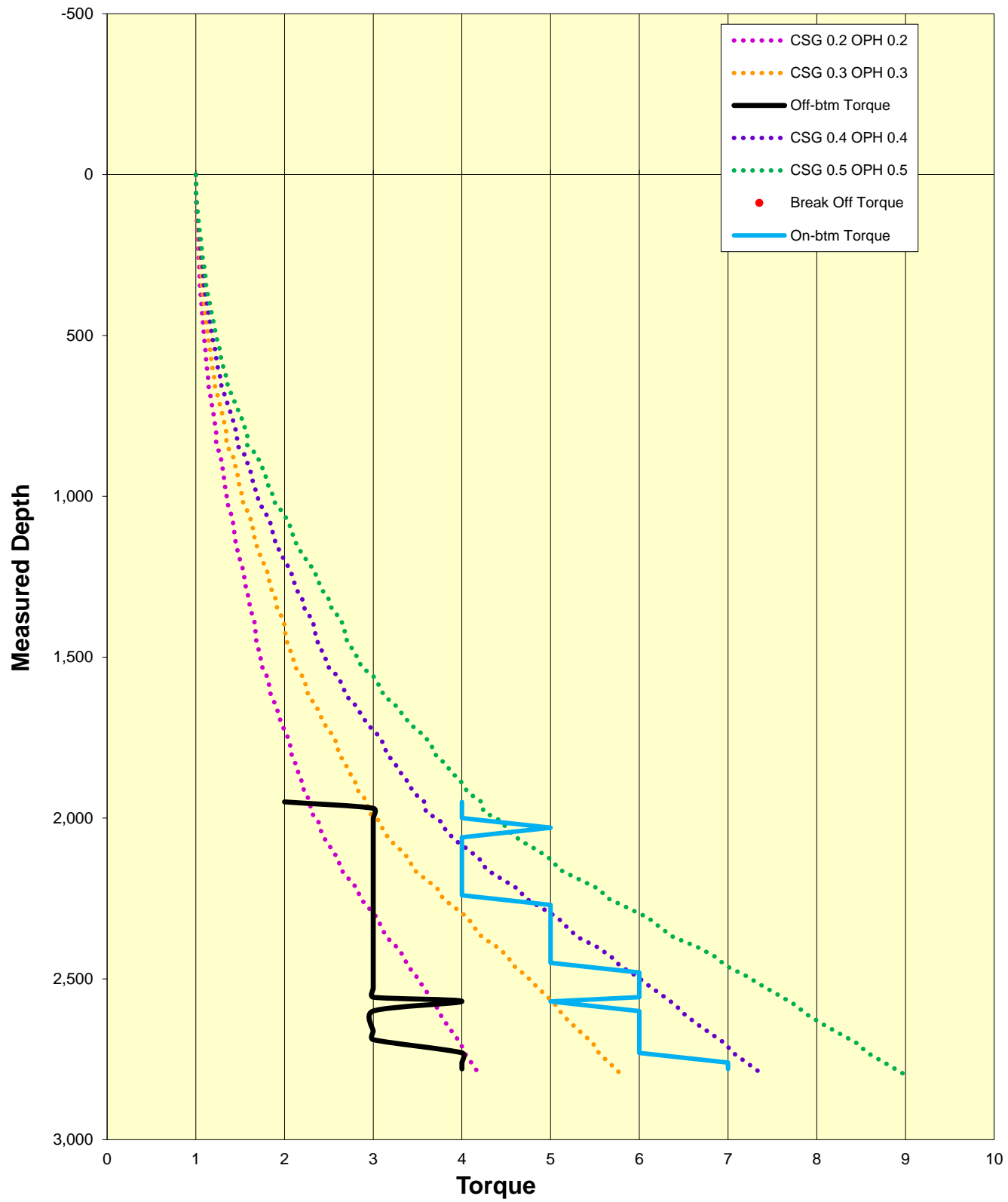
Scenario	Helical Buckling	Sinusoidal Buckling	Min Hookload	Max Hookload	Max Surface Torque	Max Von Mises Stress	Max Pipe Sideforce	Neutral Point MD	Neutral Point Distance from Bit	Max Overpull at 60% Axial Yield
			1000 lbf	1000 lbf	1000 ft.lbf	psi	1000lbf/30ft	m	m	1000 lbf
6.75D TripIn_MultiDepth	NO	NO	17.00			36993.48	3.35			
6.75D RotateOffBottom_MultiDepth				146.77	8.01	36993.48	3.35			
6.75D RotateDrill_MultiDepth	YES	YES	2.00		9.27	44624.08	1.87			
6.75D SlideDrill_MultiDepth	YES	YES	2.00			32556.20	3.91			
6.75D TripOut_MultiDepth				188.95		36993.48	3.35			
6.75D RotateDrill_SingleDepth@2800m	NO	NO	131.12		9.27	44624.08	1.17	2173.22	626.78	
6.75D SlideDrill_SingleDepth@2800m	NO	YES	99.31			25979.79	3.77	1732.74	1067.26	
6.75D TripOutOverpull_SingleDepth@2800m				174.49		44313.16	1.53			75.00
6.75D BackReamOverpullDTOR_SingleDepth@2800m				149.71	8.73	47359.89	1.07			98.44

## Drilling Hookloads





## Off bottom - Torque Load



## Drilling Parameter Record Sheet

\*data will be plotted in Drilling Loads Plot and Torque Plot

Depth	Slack Off Weight	Rotating Weight	Pick/Up Weight	Rotary RPM	Off-btm Torque	Break Off Torque	On-btm Torque
1950	124	129	131	40	2		4
1970	124	128	134	40	3		4
2000	126	128	136	40	3		4
2030	128	130	137	40	3		5
2060	128	133	140	40	3		4
2090	128	131	140	40	3		4
2120	128	133	142	40	3		4
2150	129	133	142	40	3		4
2174	130	134	144	40	3		4
2200	131	136	146	40	3		4
2227	129	135	143	40	3		4
2240	130	136	146	40	3		4
2270	133	137	147	40	3		5
2300	133	140	148	40	3		5
2320	133	140	148	40	3		5
2337	132	138	147	40	3		5
2359	136	140	147	40	3		5
2389	137	140	148	40	3		5
2410	137	140	148	40	3		5
2450	138	141	149	40	3		5
2480	138	142	149	40	3		6
2491	138	142	149	40	3		6
2504	137	141	149	40	3		6
2531	138	141	150	40	3		6
2557	138	141	150	40	3		6
2570	138	141	150	40	4		5
2600	138	142	152	40	3		6
2663	137	144	153	40	3		6
2689	135	141	152	40	3		6
2730	135	141	153	40	4		6
2760	135	145	154	40	4		7
2780	134	144	155	40	4		7

**Amungee NW-1H 6.75" Lateral RSS-AziGr AWR BHA\_5 Steering Sheet**



Location	AUS - Australia PF	Casing Shoe (m)	1426.65	BHA Run	Amungee NW-1H 6.75" Lateral RSS-AziGr AWR BHA_5				Bit Run #		
Client	Origin Energy	Casing Size (in)	7.00	Depth In (m)	2798.50	Depth Out	3808.00	Date In	2015-11-07 06:30	Drilling Hours	106.92
Rig	Saxon 185	Casing Weight (lbm/ft)		Incl In (deg)	86.79	Incl Out (d)	92.07	Date TD	2015-11-14 00:36	Pumping Hours	137.88
Field	Beetaloo Basin	Mud Type	WBM	Azimuth In (deg)	136.32	Azimuth O	126.21	Date Out	2015-11-15 06:00	BRT Hours	191.50
Well	Amungee NW-1	End MW (lbm/gal)	10.50	Client Representative #1	Darryl Whitbread		Directional Driller #1		Andrew Pritchett		
Borehole	Amungee NW-1H	Hole Size (in)	6.75	Client Representative #2	Mark Booth		Directional Driller #2		Mohamed Elnahas		

Bit Information				Bit Grading							
Serial Number	JJ3265	IADC		Inner Rows	Duter Rows	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled
Type	Insert roller cone	Jets (1/32")	5x12	In			New				
Manuf/Model Name	Smith/BT	TFA (in2)	0.552	Out							

dd-mm-yy	Start Time	End Time	MD From m	MD To m	Operation Mode	TF Mode	TF Angle deg	Power Setting	Ired TF deg	And Power S	Calc ROP m/h	WOB 1000 lbf	SRPM c/min	Torque 1000 ft.lbf	Off Bot Torque 1000 ft.lbf	Slack Off Weight 1000 lbf	Rotating HKLD 1000 lbf	PU Weight 1000 lbf	Flow gal/min	SPP Off Bott psi	SPP On Bott psi	Svy MD m	Incl deg	Azmth deg	DLS deg/30m	Comment
8-Nov-15	03:50	04:38	2798.50	2804.20	Absolute Command	Gravity	324	50.0			7.13	7.7	100	7.0	2.0	132.0	145.0	164.0	270	2500.0	2500.0	2792.30	85.47	136.38	2.41	@ 150 RPM/ High stick and slip and poor MWD detection reduced RPM to 130 problem still the same/ Reduced again to 100
	05:07	07:12	2804.20	2817.40	Absolute Command	Gravity	342	100.0			6.35	7.7	100	7.0	2.0	134.0	145.0	160.0	270	2400.0	2400.0	2805.50	88.29	136.26	6.41	
	07:59	09:58	2817.40	2830.60	Inclination Hold	Gravity					6.67	8.0	100	7.0	2.0	134.0	146.0	160.0	270	2400.0	2400.0	2818.70	91.63	136.19	7.59	Inc hold- nudge down
	10:20	12:31	2830.60	2843.80	Inclination Hold	Gravity					6.06	8.0	100	7.0	2.0				270	2350.0	2350.0	2831.90	90.66	135.64	2.53	Inc hold- nudge down
	13:00	15:17	2843.80	2857.00	Inclination Hold	Gravity					5.79	8.0	100	7.0	2.0				280	2450.0	2450.0	2845.10	89.52	134.33	3.95	Inc hold - nudge down
	15:32	18:03	2857.00	2869.60	Inclination Hold	Gravity					5.00	8.0	100	7.0	2.0				280	2500.0	2500.0	2858.20	89.16	133.93	1.23	
	18:51	21:01	2869.60	2882.41	Inclination Hold	Gravity	90	12.5			5.90	8.0	80	7.0	2.0	138.0	150.0	160.0	280	2500.0	2500.0	2871.30	89.16	133.41	1.19	Inc Hold more Right
	21:19	23:10	2882.41	2895.70	Inclination Hold	Gravity	90	12.5			7.18	8.0	80	7.0	2.0	138.0	150.0	160.0	280	2500.0	2500.0	2884.50	89.25	133.57	0.42	
	23:22	01:14	2895.70	2908.80	Inclination Hold	Gravity	90	12.5			7.01	8.5	80	7.0	2.0	138.0	150.0	160.0	280	2550.0	2550.0	2897.70	88.99	133.45	0.65	
9-Nov-15	01:32	03:12	2908.80	2921.90	Inclination Hold	Gravity	90	12.5			7.84	8.0	80	7.0	2.0	136.0	146.0	160.0	280	2550.0	2550.0	2910.80	89.16	133.02	1.06	
	03:35	05:30	2921.90	2935.00	Inclination Hold	Gravity	90	25.0			6.82	8.0	80	7.5	2.0	136.0	147.0	160.0	280	2550.0	2550.0	2924.00	89.16	133.05	0.07	Inc Hold more Right
	05:48	07:35	2935.00	2948.10	Inclination Hold	Gravity	90	25.0			7.36	8.0	80	7.5	2.0	136.0	147.0	160.0	280	2550.0	2550.0	2937.20	88.99	133.26	0.61	
	07:51	09:18	2948.10	2962.20	Inclination Hold	Gravity	90	25.0			9.72	8.0	80	8.0	2.0				280	2550.0	2550.0	2950.30	88.99	133.39	0.30	
	09:37	11:30	2962.20	2975.40	Inclination Hold	Gravity	90	25.0			7.02	8.0	80	8.0	2.0				280	2550.0	2550.0	2963.50	88.90	133.42	0.22	Inc Hold- Nudge Up
	11:57	14:15	2975.40	2988.60	Inclination Hold	Gravity	90	25.0			5.74	9.0	80	8.0	2.0	136.0	151.0	161.0	280	2550.0	2550.0	2976.70	89.43	134.00	1.79	Inc Hold- Nudge Up
	14:32	16:42	2988.60	3001.70	Inclination Hold	Gravity	90	25.0			6.04	9.0	80	8.0	2.0				280	2550.0	2550.0	2989.80	90.13	134.49	1.94	Inc Hold- Nudge up
	17:43	19:48	3001.70	3014.10	Inclination Hold	Gravity	90	25.0			5.96	10.0	80	8.0	2.0	136.0	151.0	161.0	280	2550.0	2550.0	3003.00	91.28	135.16	3.05	Inc Hold- More left
	20:04	22:00	3014.10	3027.20	Inclination Hold	Gravity	90	12.5			6.79	10.0	80	8.0	2.0				280	2550.0	2550.0	3016.20	90.92	134.93	0.97	
10-Nov-15	00:15	01:20	3040.50	3053.90	Inclination Hold	Gravity	90	12.5			12.41	12.0	80	9.0	2.0	138.0	149.0	160.0	280	2650.0	2650.0	3042.60	91.10	134.67	0.44	
	01:44	02:55	3053.90	3067.20	Inclination Hold	Gravity	90	12.5			11.27	12.0	80	9.0	2.0	138.0	148.0	161.0	280	2650.0	2650.0	3055.80	91.01	134.14	1.22	
	03:20	04:19	3067.20	3080.50	Inclination Hold	Gravity	90	25.0			13.57	13.0	80	9.0	2.0	138.0	148.0	161.0	280	2650.0	2650.0	3068.90	91.28	134.24	0.66	Inc Hold more right
	04:37	05:37	3080.80	3094.00	Inclination Hold	Gravity	90	25.0			13.20	13.0	80	9.0	2.0				280	2650.0	2650.0	3082.10	91.36	134.42	0.45	
	06:03	07:06	3094.00	3107.20	Inclination Hold	Gravity	90	25.0			12.57	13.0	80	9.0	2.0	134.0	148.0	161.0	280	2650.0	2650.0	3095.30	90.84	134.48	1.19	Inc Hold- Nudge Up
	07:29	08:37	3107.20	3120.40	Inclination Hold	Gravity	90	25.0			11.68	13.0	80	9.0	2.0	132.0	151.0	164.0	280	2650.0	2650.0	3108.50	91.19	134.89	1.23	Inc Hold- Nudge Up
	09:00	10:03	3120.40	3133.60	Inclination Hold	Gravity	90	25.0			12.57	13.0	80	9.0	2.0				280	2650.0	2650.0	3121.70	91.80	134.94	1.39	
	10:30	11:29	3133.60	3146.70	Inclination Hold	Gravity	90	25.0			13.37	12.0	80	9.0	2.0	132.0	151.0	163.0	280	2650.0	2650.0	3134.80	92.42	135.67	2.19	
	11:50	12:56	3146.70	3159.90	Inclination Hold	Gravity		0.0			12.00	12.0	80	9.0	2.0	133.0	151.0	162.0	280	2650.0	2650.0	3148.00	92.51	135.74	0.26	
	13:40	14:33	3159.90	3173.00	Inclination Hold	Gravity		0.0			14.89	12.0	80	9.0	2.0	133.0	150.0	161.0	280	2650.0	2650.0	3161.20	92.68	135.97	0.65	
	14:52	15:53	3173.00	3186.20	Inclination Hold	Gravity		0.0			12.94	12.0	80	9.0	2.0	135.0	149.0	161.0	280	2730.0	2730.0	3174.30	91.98	135.13	2.50	
	16:09	17:17	3186.20	3199.40	Inclination Hold	Gravity		0.0			11.68	12.0	80	9.0	2.0				280	2730.0	2730.0	3187.50	91.98	134.55	1.32	
	17:33	18:36	3199.40	3211.70	Inclination Hold	Gravity		0.0			11.71	12.0	80	9.0	2.0	134.0	149.0	161.0	280	2730.0	2730.0	3200.70	92.68	134.53	1.59	Inc Hold- Nudge Down
	19:40	20:38	3211.70	3224.76	Inclination Hold	Gravity		0.0			13.46	12.0	80	9.0	2.0	134.0	149.0	161.0	280	2730.0	2730.0					Inc Hold- Nudge Down
	20:55	21:56	3224.76	3237.80	Inclination Hold	Gravity		0.0			12.78	13.0	80	9.0	2.0	132.0	150.0	163.0	280	2730.0	2730.0	3213.90	91.98	134.39	1.62	Inc Hold- Nudge Down
	22:16	23:19	3237.80	3251.40	Inclination Hold	Gravity		0.0			12.95	13.0	80	9.0	2.0	131.0	150.0	164.0	280	2730.0	2730.0	3240.20	90.48	133.31	3.10	
11-Nov-15	23:38	00:43	3251.40	3264.40	Inclination Hold	Gravity		0.0			12.04	13.0	80	9.0	2.0	133.0	148.0	164.0	280	2780.0	2780.0	3253.40	90.92	133.61	1.21	
	01:21	02:23	3264.40	3277.40	Inclination Hold	Gravity		0.0			12.62	13.0	80	9.0	2.0	131.0	150.0	161.0	280	2780.0	2780.0					
	02:53	03:59	3277.40	3290.60	Inclination Hold	Gravity		0.0			12.00	11.0	80	9.0	2.0	131.0	149.0	162.0	280	2780.0	2780.0	3266.60	90.84	133.50	0.31	
	04:16	05:24	3290.60	3303.90	Inclination Hold	Gravity		0.0			11.77	11.0	80	9.0	2.0	130.0	148.0	162.0	280	2780.0	2780.0	3292.90	90.92	134.01	0.71	
	05:43	06:50	3303.90	3318.00	Inclination Hold	Gravity		0.0			12.59	11.0	80	9.0	2.0	130.0	149.0	163.0	280	2780.0	2780.0	3306.10	90.92	134.36	0.80	
	07:07	08:15	3318.00	3331.20	Inclination Hold	Gravity		0.0			11.48	11.0	80	9.0	2.0				280	2800.0	2800.0	3319.30	90.92	134.54	0.41	
	08:34	09:41	3331.20	3344.40	Inclination Hold	Gravity		0.0			11.75	13.0	80	10.0	2.0				280	2800.0	2800.0	3332.50	90.92	134.74	0.45	
	09:57	11:06	3344.40	3357.50	Inclination Hold	Gravity		0.0			11.39	11.0	80	10.0	2.0	130.0	150.0	165.0	280	2800.0	2800.0	3345.60	90.92	135.06	0.73	
	11:33	12:52	3357.50	3370.60	Inclination Hold	Gravity		0.0			9.92	11.0	80	9.0	2.0				280	2750.0	2750.0	3358.80	90.92	135.26	0.45	
	13:26	14:45	3370.60	3383.80	Inclination Hold	Gravity		0.0			10.00	12.0	80	9.0	2.0	130.0	150.0	165.0	280	2730.0	2730.0	3371.90	90.92	135.46	0.46	Inc Hold- Nudge Down
	15:02	16:15	3383.80	3396.90	Inclination Hold	Gravity		0.0			10.00	12.0	80	9.0	2.0				280	2730.0	2730.0	3385.10	90.92	135.65	0.49	Inc Hold- Nudge Down
	16:37	17:49	3396.90	3410.10	Inclination Hold	Gravity		0.0			11.00	12.0	80	9.0	2.0				2730.0	3382.00	3382.00	3390.20	90.92	136.01	1.00	
	18:13	19:20	3410.10	3423.30	Inclination Hold	Gravity		0.0			11.79	12.0	80	9.0	2.0	129.0	149.0	166.0	280	2730.0	2730.0	3411.40	90.31	135.23	2.40	
	19:41	20:46	3423.30	3436.40	Inclination Hold	Gravity		0.0			12.13	12.0	80	9.0	2.0				2730.0	3424.50	3424.50	3430.60	90.60	135.00	1.71	
	21:12	22:16	3436.40	3449.50	Inclination Hold	Gravity		0.0			12.24	12.0	80	9.0	2.0	129.0	147.0	165.0	280	2730.0	2730.0	3437.60	89.87	135.40	1.11	
	23:13	00:11	3449.50	3462.80	Inclination Hold	Gravity		0.0			13.71	12.0	80	9.0	2.0	129.0	145.0	166.0	280	2730.0						

date dd-mm-yy	Start Time	End Time	MD From m	MD To m	Operation Mode	TF Mode	TF Angle deg	Power Setting deg	ired TF deg	And Power S	Calc ROP m/h	WOB 1000 lb	SRPM c/min	Torque 1000 lb.ft	Off Bot Torque 1000 lb.ft	Slack Off Weight 1000 lbf	Rotating HKLD 1000 lbf	PJ Weight 1000 lbf	Flow gal/min	SPP Off Bott psi	SPP On Bott psi	Svy MD m	Incl deg	Azmtb deg	DLS deg/30m	Comment		
13-Nov-15	21:46	23:22	3632.90	3647.00	Absolute Command	Gravity	180	100.0	0.0		8.81	10.0	80	9.0	2.0				280	2800.0	2800.0	3635.40	96.20	138.92	6.54			
	00:23	01:28	3647.00	3659.70	Absolute Command	Gravity	180	100.0	0.0		11.76	10.0	80	9.0	2.0				280	2800.0	2800.0	3648.60	96.64	136.20	6.22			
	01:45	03:07	3659.70	3673.00	Absolute Command	Gravity	180	100.0	0.0		9.71	10.0	80	9.0	2.0		127.0	149.0	165.0	280	2800.0	2800.0	3661.80	96.64	133.39	6.34		
	04:05	05:19	3673.00	3686.80	Absolute Command	Gravity	144	100.0	0.0		11.22	10.0	80	9.0	2.0				280	2880.0	2880.0	3674.90	96.46	130.50	6.59			
	05:45	07:00	3686.80	3700.00	Absolute Command	Gravity	108	100.0	0.0		10.56	10.0	80	9.0	2.0		127.0	147.0	167.0	280	2880.0	2880.0	3688.00	95.41	127.97	6.24		
	07:19	08:33	3700.00	3713.10	Absolute Command	Gravity	36	50.0	0.0		10.65	10.0	80	9.0	2.0		126.0	149.0	165.0	280	2880.0	2880.0	3701.10	93.91	126.24	5.23		
	09:06	11:00	3713.10	3726.10	Absolute Command	Gravity	36	50.0	0.0		6.84	10.0	80	9.0	2.0		122.0	150.0	165.0	280	2880.0	2880.0	3714.20	92.77	127.22	3.44		
	11:46	13:08	3726.10	3739.30	Absolute Command	Gravity	0	50.0	0.0		9.64	12.0	80	9.0	2.0		122.0	145.0	164.0	280	2880.0	2880.0	3727.40	91.89	127.50	2.10		
	13:31	14:56	3739.30	3752.60	Absolute Command	Gravity	0	50.0	0.0		9.23	12.0	80	9.0	2.0		120.0	145.0	164.0	280	2880.0	2880.0	3740.50	91.98	127.20	0.72		
	15:20	17:00	3752.60	3765.40	Absolute Command	Gravity	54	75.0	0.0		7.90	12.0	80	9.0	2.0		119.0	145.0	167.0	280	2880.0	2880.0	3753.70	91.89	127.09	0.32		
	17:25	18:47	3765.40	3777.70	Absolute Command	Gravity	54	75.0	0.0		9.56	12.0	80	9.0	2.0		119.0	145.0	167.0	280	2880.0	2880.0	3768.40	92.15	126.45	0.58		
	14-Nov-15	19:16	20:53	3777.70	3790.80	Absolute Command	Gravity	0	0.0	0.0		8.09	12.0	80	9.0	2.0		119.0	145.0	167.0	280	2880.0	2880.0	3779.90	92.07	126.47	0.19	
		21:28	23:04	3790.80	3804.40	Absolute Command	Gravity	0	0.0	0.0		8.50	12.0	80	9.0	2.0		119.0	145.0	167.0	280	2880.0	2880.0	3793.20	92.07	126.21	0.59	
00:14		00:36	3804.40	3808.00	Absolute Command	Gravity	0	0.0	0.0		9.73	12.0	80	9.0	2.0		120.0	144.0	167.0	280	2880.0	2880.0						
Min							0	0.0	0.0		5.00	7.7	80	7.0	2.0		119.0	144.0	160.0	270	2350.0	2350.0	85.47	126.21	0.07			
Average						99	22.8			10.06	11.0	82	8.6	2.0		130.5	148.2	163.2	279	2706.7	2706.7	91.11	134.14	1.83				
Max						342				14.89	13.0	100	10.0	2.0		138.0	151.0	167.0	280	2880.0	2880.0	96.64	141.47	7.59				

### DIRECTIONAL DRILLING PERFORMANCE SUMMARY

Drill Mode	Footage	Hrs	ROP	% Drill		Circulating	Connection	Reaming	Tripping	Other	NPT	SLB NPT
Absolute Command	208.10	23.09	9.0	21%	Hours	0	0		0	0	0	0
Inclination Hold	802.10	83.83	9.6	79%								
Drilling	1010.20	106.92	9.4	100%								

## Torque and Drag Load Cases

**Client:** Origin  
**Field:** Beetaloo Basin  
**Rig:** Amungee NW-1  
**Well:** Amungee NW-1  
**Bore Hole:** Amungee NW-1H  
**Engineer:** DIR\VLuu1  
**Date:** 11/9/2015

### BHA & WELLBORE DATA

**BHA Data:** Amungee NW-1H 6.75" Lateral RSS-AziGr AWR BHA-Rev1  
**Survey Data:** Origin - Amungee NW-1H Plan 1.0 Working  
**Wellbore Data:** Amungee NW 1H wellbore geometry

<b>Drilling Bit Depth Range:</b>	1432 - 3830 (m)	<b>Bit Depth (single-point):</b>	3830 (m)
<b>Tripping Range:</b>	0 - 3830 (m)	<b>Block Weight:</b>	23 (1000 lbf)
<b>Depth Increment:</b>	30 (m)	<b>Single Depth Analysis</b>	
		<b>Mud Weight:</b>	10.5 (lbm/gal)

### SCENARIOS

Name	Operation Type	Direction	Single Multi Depth	FF	DWOB	Overpull	DTOR
					1000 lbf	1000 lbf	1000 ft.lbf
6.75D RSS TripIn_MultiDepth		In	Multi Depth	Set 1-4	0		0
6.75D RSS RotateOffBottom_MultiDepth		N/A	Multi Depth	Set 1-4	0	0	0
6.75D RSS RotateDrill_MultiDepth		In	Multi Depth	Base FF - Rotate	15		3
6.75D RSS TripOut_MultiDepth		Out	Multi Depth	Set 1-4		0	0
6.75D RSS RotateDrill_SingleDepth@3830m		In	Single Depth	Base FF - Rotate	15		3
6.75D RSS TripOutOverpull_SingleDepth@3830m		Out	Single Depth	Base FF - Slide		0	0
6.75D RSS BackReamOverpullDTOR_SingleDepth@3830m		Out	Single Depth	Base FF - Ream		0	3

BHA DESCRIPTION

Component Name	Steel Grade	Length m	Cum Length m	ID in	OD in	Max OD in	Lin Weight lbm/ft
6 3/4" PDC - MSi516	G-105	0.24	0.24	1.50	4.50	6.75	82.46
PD 475 X6 EA 6 3/4" Stabilizer	G-105	4.06	4.30	3.64	4.98	4.98	51.76
4.75" Float sub	G-105	0.52	4.82	2.25	4.75	4.75	46.55
DPM 4.75in. OD	G-105	1.43	6.26	3.33	4.75	4.75	42.55
SGR Sub	G-105	1.00	7.26	2.25	4.75	4.75	46.55
4.75in OD TelePacer AZiGr v	G-105	8.20	15.46	2.81	4.75	4.75	46.33
SAWR 4.75in. OD	G-105	6.25	21.70	2.65	4.75	4.75	65.85
ABS 4.75in. OD	G-105	4.72	26.43	3.38	4.75	4.75	47.74
4.75" NMDC	G-105	9.20	35.63	2.25	4.75	4.75	46.55
4.75" Filter sub	G-105	0.94	36.57	1.75	4.75	4.75	51.87
4.75" Crossover Sub	G-105	0.52	37.09	2.25	4.75	4.75	46.55
4" 15.70 DPS, 10% Wear	S-135	1622.53	1659.62	3.24	3.92	5.50	16.90
Heavy Weight Drill Pipe	D-55	132.00	1791.62	2.56	4.00	5.25	30.40
4.75" Crossover Sub	G-105	0.52	1792.14	2.25	4.75	4.75	46.55
Hydra-Jar 4 3/4"	G-105	8.87	1801.01	2.25	4.75	4.83	36.08
4.75" Crossover Sub	G-105	0.50	1801.51	2.25	4.75	4.75	46.55
Heavy Weight Drill Pipe	D-55	132.00	1933.51	2.56	4.00	5.25	30.40
4" 15.70 DPS, 10% Wear	S-135	1897.00	3830.51	3.24	3.92	5.50	16.90

WELLBORE DESCRIPTION

Section Name	Length m	Cum Length m	Diameter in
7.625" Casing Run	1426.65	1426.65	6.88
6.75" BHA Run	2468.00	3894.65	6.75

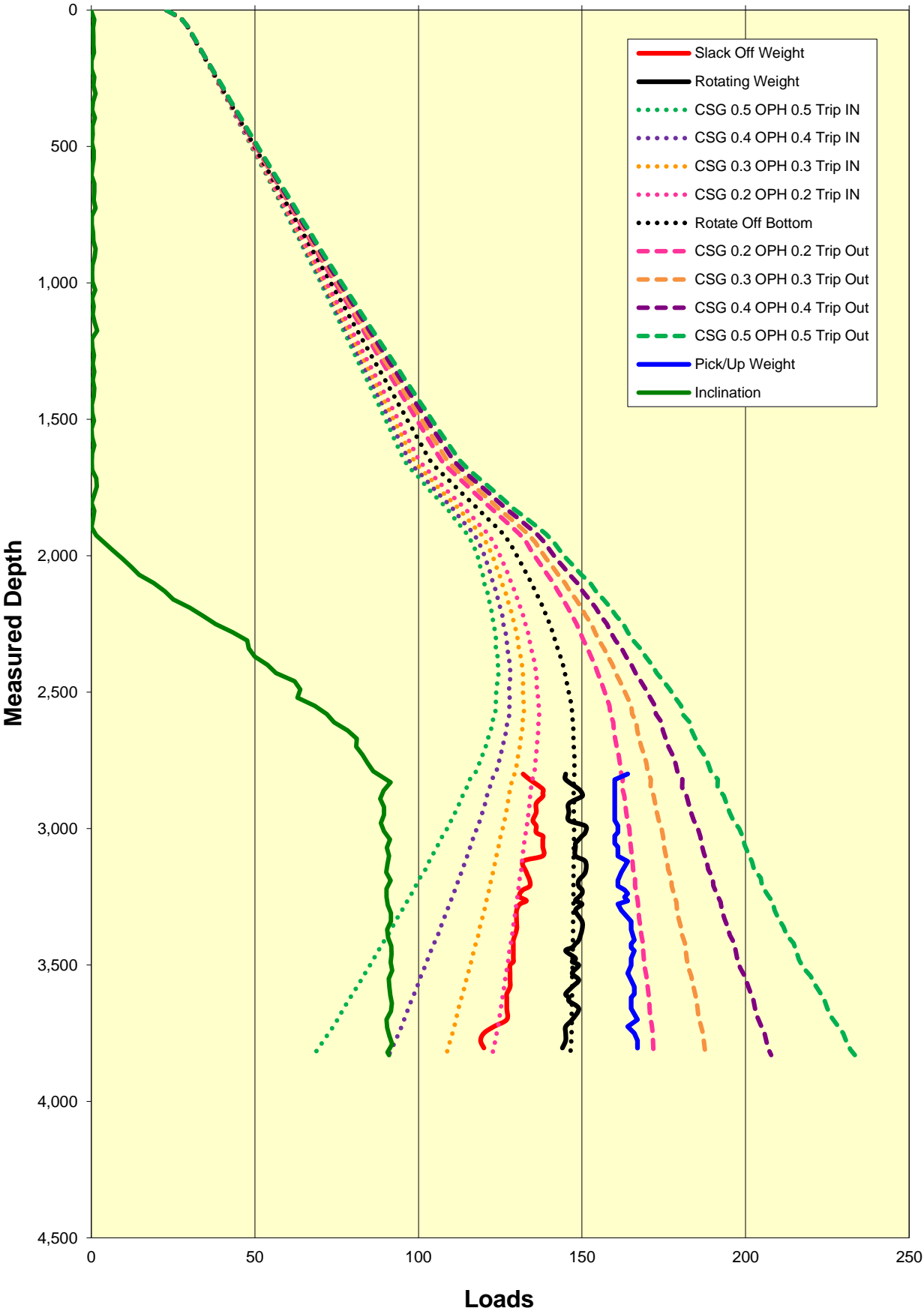
FRICTION FACTORS

	Cased Hole Translational (Slide)	Open Hole Translational (Slide)	Cased Hole Rotational	Open Hole Rotational	Cased Hole Translational (Ream)	Open Hole Translational (Ream)
Base Set	0.20	0.30	0.20	0.30	0.05	0.05
Set 1	0.20	0.20	0.20	0.20		0.00
Set 2	0.30	0.30	0.30	0.30	0.00	
Set 3	0.40	0.40	0.40	0.40	0.00	
Set 4	0.50	0.50	0.50	0.50		

OUTPUT SUMMARY

Scenario	Helical Buckling	Sinusoidal Buckling	Min Hookload	Max Hookload	Max Surface Torque	Max Von Mises Stress	Max Pipe Sideforce	Neutral Point MD	Neutral Point Distance from Bit	Max Overpull at 60% Axial Yield
			1000 lbf	1000 lbf	1000 ft.lbf	psi	1000lbf/30ft	m	m	1000 lbf
6.75D RSS TripIn_MultiDepth	NO	NO	23.00			35617.83	3.57			
6.75D RSS RotateOffBottom_MultiDepth				147.70	13.15	35617.83	3.57			
6.75D RSS RotateDrill_MultiDepth	YES	YES	78.35		10.94	47492.73	3.21			
6.75D RSS TripOut_MultiDepth				233.40		35617.83	3.57			
6.75D RSS RotateDrill_SingleDepth@3830m	NO	NO	131.46		10.94	47492.73	1.24	2140.90	1689.10	
6.75D RSS TripOutOverpull_SingleDepth@3830m				183.42		45086.23	3.06			75.00
6.75D RSS BackReamOverpullDTOR_SingleDepth@3830m				152.47	10.41	50240.88	1.12			103.13

**Drilling Hookloads**



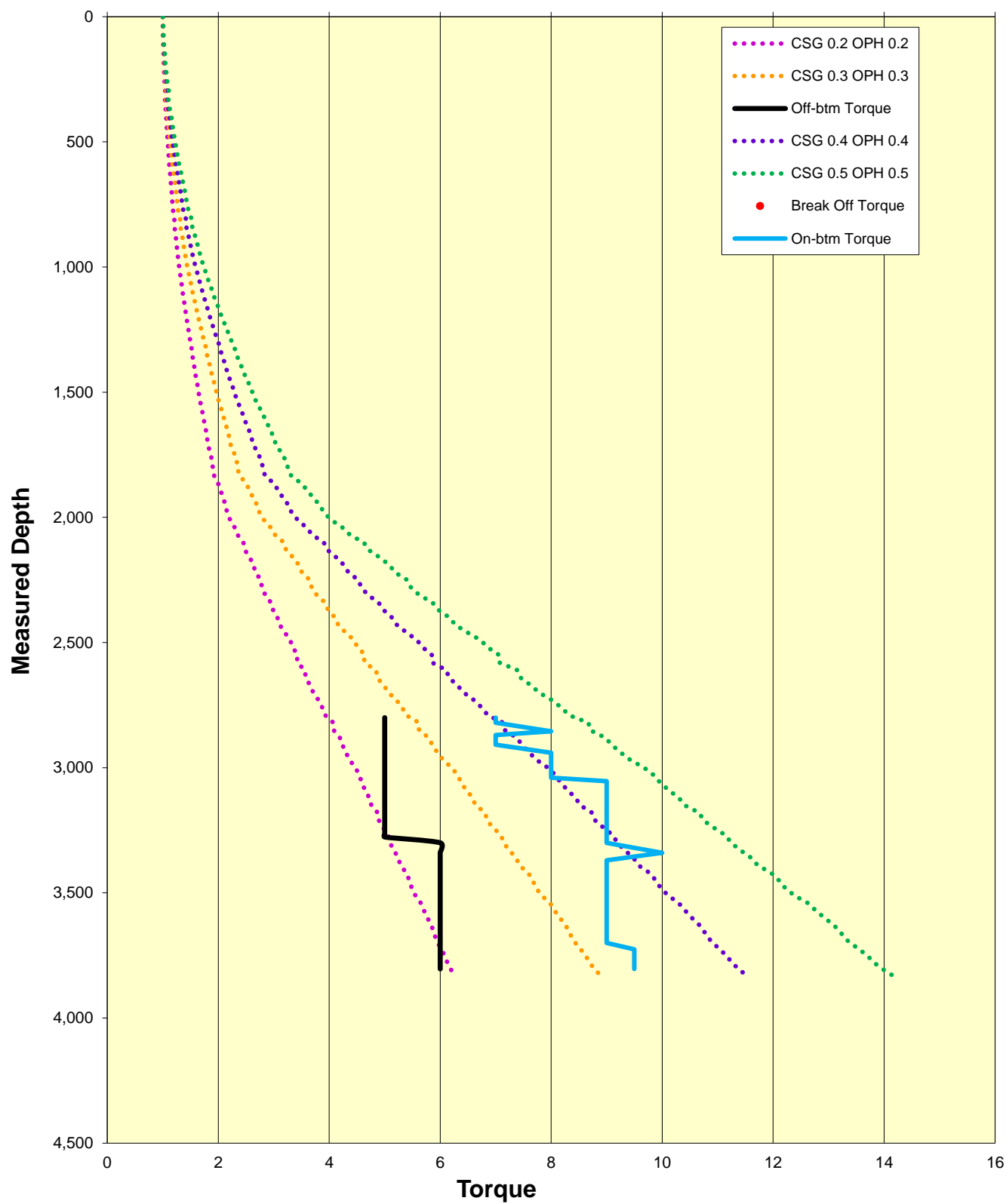
Block weight

23

(1000 lbf)



## Off-bottom Torque Load



## Drilling Parameter Record Sheet

\*data will be plotted in Drilling Loads Plot and Torque Plot

Depth	Slack Off Weight	Rotating Weight	Pick/Up Weight	Rotary RPM	Off-btm Torque	Break Off Torque	On-btm Torque
2800.00	132.00	145.00	164.00	100.00	5.00		7.00
2820.00	134.00	145.00	160.00	100.00	5.00		7.00
2855.00	138.00	149.00	160.00	100.00	5.00		8.00
2870.00	138.00	150.00	160.00	100.00	5.00		7.00
2882.00	138.00	150.00	160.00	80.00	5.00		7.00
2908.00	136.00	146.00	160.00	80.00	5.00		7.00
2940.00	136.00	146.00	160.00	80.00	5.00		8.00
2970.00	135.00	146.00	160.00	80.00	5.00		8.00
2990.00	136.00	151.00	161.00	80.00	5.00		8.00
3014.00	136.00	151.00	161.00	80.00	5.00		8.00
3027.00	138.00	150.00	160.00	80.00	5.00		8.00
3040.50	138.00	149.00	160.00	80.00	5.00		8.00
3054.00	138.00	148.00	160.00	80.00	5.00		9.00
3067.00	138.00	148.00	161.00	80.00	5.00		9.00
3100.00	138.00	148.00	161.00	80.00	5.00		9.00
3120.00	132.00	151.00	164.00	80.00	5.00		9.00
3160.00	133.00	151.00	162.00	80.00	5.00		9.00
3190.00	134.00	149.00	161.00	80.00	5.00		9.00
3211.00	134.00	149.00	161.00	80.00	5.00		9.00
3224.00	132.00	150.00	163.00	80.00	5.00		9.00
3237.80	131.00	150.00	164.00	80.00	5.00		9.00
3251.00	131.00	149.00	163.00	80.00	5.00		9.00
3264.40	133.00	148.00	164.00	80.00	5.00		9.00
3277.00	131.00	150.00	161.00	80.00	5.00		9.00
3300.00	130.00	148.00	162.00	80.00	6.00		9.00
3340.00	130.00	150.00	165.00	80.00	6.00		10.00
3370.00	130.00	150.00	165.00	80.00	6.00		9.00
3409.00	129.00	149.00	166.00	80.00	6.00		9.00
3422.00	129.00	148.00	165.00	80.00	6.00		9.00
3435.70	129.00	147.00	165.00	80.00	6.00		9.00
3448.00	129.00	145.00	166.00	80.00	6.00		9.00
3475.20	129.00	148.00	165.00	80.00	6.00		9.00
3488.00	129.00	147.00	165.00	80.00	6.00		9.00
3501.00	128.00	149.00	165.00	80.00	6.00		9.00
3530.00	128.00	147.00	164.00	80.00	6.00		9.00
3555.00	128.00	149.00	165.00	80.00	6.00		9.00
3580.00	128.00	147.00	166.00	80.00	6.00		9.00
3606.00	127.00	145.00	166.00	80.00	6.00		9.00
3619.00	127.00	146.00	165.00	80.00	6.00		9.00
3632.00	127.00	146.00	165.00	80.00	6.00		9.00
3659.70	127.00	149.00	165.00	80.00	6.00		9.00
3700.00	127.00	147.00	167.00	80.00	6.00		9.00
3726.00	123.00	145.00	164.00	80.00	6.00		9.50
3750.00	120.00	145.00	166.00	80.00	6.00		9.50
3777.00	119.00	145.00	167.00	80.00	6.00		9.50
3804.00	120.00	144.00	167.00	80.00	6.00		9.50



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

## Tool Utilization Report

### Acquisition Hardware

Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	Systel Computer System	777-93764-SYS0250								23	m
1	AZONIX DRILLERS UNIT	779-13746-ADU0127								23	m
1	Surface Barrier Box RX5	777-94515-SBB0124								23	m
1	PRESSURE TRANSDUCER ASSY	779-10163-PRT0681								23	m
1	SYSTEM INTERFACE BOX	777-97748-SIB239								23	m
2	Systel Computer System	777-93764-SYS0250				7		7	1	47	16 m
2	PRESSURE TRANSDUCER ASSY	779-10163-PRT0681				7		7	1	47	16 m
2	Surface Barrier Box RX5	777-94515-SBB0124				7		7	1	47	16 m
2	AZONIX DRILLERS UNIT	779-13746-ADU0127				7		7	1	47	16 m
2	SYSTEM INTERFACE BOX	777-97748-SIB239				7		7	1	47	16 m
3	PRESSURE TRANSDUCER ASSY	779-10163-PRT0681				5		5	1	38	3 m
3	Surface Barrier Box RX5	777-94515-SBB0124				5		5	1	38	3 m
3	Systel Computer System	777-93764-SYS0073				5		5	1	38	3 m
3	SYSTEM INTERFACE BOX	777-97748-SIB239				5		5	1	38	3 m
4	PRESSURE TRANSDUCER ASSY	779-10163-PRT0681				35	109	144	8	201	870 m
4	Surface Barrier Box RX5	777-94515-SBB0124				35	109	144	8	201	870 m
4	Systel Computer System	777-93764-SYS0073				35	109	144	8	201	870 m
4	SYSTEM INTERFACE BOX	777-97748-SIB066				35	109	144	8	201	870 m
5	PRESSURE TRANSDUCER ASSY	779-10163-PRT0681				105		105	8	192	1,010 m
5	Surface Barrier Box RX5	777-94515-SBB0124				105		105	8	192	1,010 m
5	Systel Computer System	777-93764-SYS0073				105		105	8	192	1,010 m
5	SYSTEM INTERFACE BOX	777-97748-SIB066				105		105	8	192	1,010 m



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Bits											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	PDC	-JJ4558	3 1/2 in	1.5 in	4.5 in					23	m
2	Insert	-RD3412	3 1/2 in	1.5 in	4.5 in	7		7	1	47	16 m
3	PDC	-JJ4558	3 1/2 in	1.5 in	4.5 in	5		5	1	38	3 m
4	PDC	-JJ4558	3 1/2 in	1.5 in	4.5 in	35	109	144	8	201	870 m
5	PDC	-JJ3265	3 1/2 in	1.5 in	4.5 in	105		105	8	192	1,010 m
Collar											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	Non-Mag Pony DC	782-90370-B47V074	3 1/2 in	2.5 in	4.63 in					23	m
1	Non-Mag Drill Collar	782-90002-B47C103C	3 1/2 in	2.75 in	4.63 in					23	m
1	Non-Mag Drill Collar	782-90475-B50C0035	3 1/2 in	2.75 in	4.88 in					23	m
2	Non-Mag Pony DC	782-90370-B47V074	3 1/2 in	2.5 in	4.63 in	7		7	1	47	16 m
2	Non-Mag Drill Collar	782-90002-B47C103C	3 1/2 in	2.75 in	4.63 in	7		7	1	47	16 m
2	Non-Mag Drill Collar	782-90475-B50C0035	3 1/2 in	2.75 in	4.88 in	7		7	1	47	16 m
3	Non-Mag Pony DC	782-90370-B47V074	3 1/2 in	2.5 in	4.63 in	5		5	1	38	3 m
3	Non-Mag Drill Collar	782-90002-B47C103C	3 1/2 in	2.75 in	4.63 in	5		5	1	38	3 m
3	Non-Mag Drill Collar	782-90475-B50C0035	3 1/2 in	2.75 in	4.88 in	5		5	1	38	3 m
4	Non-Mag Pony DC	782-90370-B47V074	3 1/2 in	2.5 in	4.63 in	35	109	144	8	201	870 m
4	Non-Mag Drill Collar	782-90002-B47C103C	3 1/2 in	2.75 in	4.63 in	35	109	144	8	201	870 m
4	Non-Mag Drill Collar	782-90475-B50C0035	3 1/2 in	2.75 in	4.88 in	35	109	144	8	201	870 m
5	Non-Mag Drill Collar	782-90002-B47C103C	3 1/2 in	2.75 in	4.63 in	105		105	8	192	1,010 m



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Well State: Northern Territory

Well County: Beetaloo  
Well Field: Beetaloo North  
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Lead DD: Pritchett, Andrew  
Co. Man: Darryl Whitbread

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Drill Pipe											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	Drill Pipe	-RIG1	4 in	3.24 in	3.92 in					23	m
1	HWDP	-RIG2	4 in	2.56 in	4 in					23	m
1	HWDP	-RIG4	4 in	.56 in	4 in					23	m
1	Drill Pipe	-RIG5	4 in	3.24 in	3.92 in					23	m
2	HWDP	-RIG1	4 in	2.56 in	4.04 in	7		7	1	47	16 m
2	HWDP	-RIG4	4 in	2.56 in	4 in	7		7	1	47	16 m
2	Drill Pipe	-RIG	4 in	3.24 in	3.92 in	7		7	1	47	16 m
2	Drill Pipe	-RIG5	4 in	3.24 in	3.92 in	7		7	1	47	16 m
3	Drill Pipe	-RIG1	4 in	3.24 in	3.92 in	5		5	1	38	3 m
3	HWDP	-RIG2	4 in	2.56 in	4 in	5		5	1	38	3 m
3	HWDP	-RIG4		2.56 in	4 in	5		5	1	38	3 m
3	Drill Pipe	-RIG5	4 in	3.24 in	3.92 in	5		5	1	38	3 m
4	HWDP	-RIG2	4 in	2.56 in	4 in	35	109	144	8	201	870 m
4	HWDP	-RIG3	4 in	2.56 in	4 in	35	109	144	8	201	870 m
Drilling Equipment											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	Hydra Jar	-83952J	3 1/2 in	2.25 in	4.75 in					23	m
2	Hydra Jar	-8395J2	3 1/2 in	2.25 in	4.75 in	7		7	1	47	16 m
4	RIG1	-RIG1	4 in	3.24 in	3.92 in	35	109	144	8	201	870 m
Drilling Jar											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
4	Hydra Jar	-83952J	3 1/2 in	2.25 in	4.75 in	35	109	144	8	201	870 m
Drilling Mechanics											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
5	DPM 475 - TOOL ASSY	776-04530-P47C514K	3 1/2 in	2.5 in	4.75 in	105		105	8	192	1,010 m



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Motor											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	MOTOR ASSY 475 - G2	G475M-4235	3 1/2 in	3.49 in	4.75 in					23	m
2	MOTOR ASSY 475 - G2	G475M-4235	3 1/2 in	3.49 in	4.75 in	7		7	1	47	16 m
3	MOTOR ASSY 475 - G2	G475M-4235	3 1/2 in	3.49 in	4.75 in	5		5	1	38	3 m
4	MOTOR ASSY 475 - G2	G475M-4235	3 1/2 in	3.49 in	4.75 in	35	109	144	8	201	870 m
Mud Pulse											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	FLOAT SUB 475	777-91986-D47F300	3 1/2 in	2.5 in	4.75 in					23	m
1	CROSS OVER SUB PIN/PIN 475	777-10297-D47X323	3 1/2 in	2.5 in	4.5 in					23	m
1	COLLAR HDS1 475	777-10191-D47C557	3 1/2 in	3.38 in	4.75 in					23	m
1	SUB SCREEN 475	779-00707-D47R087	3 1/2 in	2.25 in	4.75 in					23	m
2	FLOAT SUB 475	777-91986-D47F300	3 1/2 in	2.5 in	4.75 in	7		7	1	47	16 m
2	CROSS OVER SUB PIN/PIN 475	777-10297-D47X323	3 1/2 in	2.5 in	4.5 in	7		7	1	47	16 m
2	COLLAR HDS1 475	777-10191-D47C557	3 1/2 in	3.38 in	4.75 in	7		7	1	47	16 m
2	SUB SCREEN 475	779-00707-D47R087	3 1/2 in	2.25 in	4.75 in	7		7	1	47	16 m
3	FLOAT SUB 475	777-91986-D47F300	3 1/2 in	2.5 in	4.75 in	5		5	1	38	3 m
3	CROSS OVER SUB PIN/PIN 475	777-10297-D47X323	3 1/2 in	2.5 in	4.5 in	5		5	1	38	3 m
3	COLLAR HDS1 475	777-10191-D47C557	3 1/2 in	3.38 in	4.75 in	5		5	1	38	3 m
3	SUB SCREEN 475	779-00707-D47R087	3 1/2 in	2.25 in	4.75 in	5		5	1	38	3 m
4	FLOAT SUB 475	777-91986-D47F300	3 1/2 in	2.5 in	4.75 in	35	109	144	8	201	870 m
4	SUB SCREEN 475	779-00707-D47R087	3 1/2 in	2.25 in	4.75 in	35	109	144	8	201	870 m
4	COLLAR HDS1 475	779-22849-D47C546	3 1/2 in	2.81 in	4.75 in	35	109	144	8	201	870 m
4	CROSS OVER SUB PIN/PIN 475	779-22453-D47X327	3 1/2 in	2.5 in	4.75 in	35	109	144	8	201	870 m
5	FLOAT SUB 475	777-91986-D47F300	3 1/2 in	2.5 in	4.75 in	105		105	8	192	1,010 m
5	CROSS OVER SUB PIN/PIN 475	779-22453-D47X327	3 1/2 in	2.5 in	4.75 in	105		105	8	192	1,010 m
5	COLLAR HDS1 475	779-22849-D47C546	3 1/2 in	2.81 in	4.75 in	105		105	8	192	1,010 m
5	SUB SCREEN 475	779-00707-D47R087	3 1/2 in	2.25 in	4.75 in	105		105	8	192	1,010 m



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

PF Batteries											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
5	ABS 475 - MEMORY/BATTERY	777-99026-M47C199	3 1/2 in	4 in	5.25 in	105		105	8	192	1,010 m

Resistivity											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
5	AWR 475 - TOOL ASSY	779-01913-R47M713	4 in	3.75 in	4.88 in	105		105	8	192	1,010 m

Rotary Steerable											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
5	PDX5/6 475	PDX4BU-EA-69506	3 1/2 in	3.64 in	5 in	105		105	8	192	1,010 m

Stabilizers											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	String Stabilizer	RNTL-B47T-OSS11-01375D	3 1/2 in	2.13 in	4.75 in					23	m
2	String Stabilizer	RNTL-B47T-01375D	3 1/2 in	2.13 in	4.75 in	7		7	1	47	16 m
3	String Stabilizer	RNTL-B47T-OSS11-01375D	3 1/2 in	2.13 in	4.75 in	5		5	1	38	3 m
4	String Stabilizer	RNTL-B47T-OSS11-01375D	3 1/2 in	2.13 in	4.75 in	35	109	144	8	201	870 m

Subs											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
1	Xover Subs	-116265-03-01	4 in	2.25 in	5.25 in					23	m
1	Xover Subs	-RIG3	3 1/2 in	2.25 in	5.25 in					23	m
1	Xover Subs	-185026	4 in	2.25 in	5.25 in					23	m
2	Xover Subs	-116265-03-01	4 in	2.25 in	5.25 in	7		7	1	47	16 m
2	Xover Subs	-RIG2	3 1/2 in	2.25 in	5.25 in	7		7	1	47	16 m
2	Xover Subs	-RIG3	4 in	2.25 in	5.25 in	7		7	1	47	16 m
3	Xover Subs	-116265-03-01	4 in	2.25 in	5.25 in	5		5	1	38	3 m
3	Xover Subs	-RIG3	3 1/2 in	2.25 in	4.75 in	5		5	1	38	3 m
3	Xover Subs	-185025	4 in	2.25 in	5.25 in	5		5	1	38	3 m
4	Xover Subs	-116265-03-01	4 in	2.25 in	5.25 in	35	109	144	8	201	870 m
4	Xover Subs	-16022-01-01	3 1/2 in	2.25 in	5.25 in	35	109	144	8	201	870 m
4	Xover Subs	-185026	4 in	2.25 in	5.25 in	35	109	144	8	201	870 m



**Job Number:** 15AUS0152  
**Company Name:** ORIGIN ENERGY RESOURCES LTD  
**Rig Name:** Saxon 185  
**Well Name:** Amungee NW-1H  
**Well Location:** Lat: -16.3445, Long: 133.8845  
**Well State:** Northern Territory

**Well County:** Beetaloo  
**Well Field:** Beetaloo North  
**Well Country:** AUSTRALIA  
**Lead DD:** Pritchett, Andrew  
**Co. Man:** Darryl Whitbread

**UOM:** DEN: lbm/galUS • DEP: m • DIA: in • FLO: galUS/min • INC: deg • MAS: klbm • PRE: psi • TEM: degC • TOR: kft.lbf • VOL: galUS • DLS: deg/30m • CON: mg/L • CON\_2: lbm/bbl • PRE\_2: lbf/100ft2 • VIS\_1: s/qt • VIS\_2: cP • HHP: h

Support Equipment											
Run #	Tool Name	File Code - Serial Number	Top Con.	Inner Dia.	Outer Dia.	Rotary Hrs	Slide Hrs	Total Hrs	Circ. Hrs	Below Rotary	Amount Drilled
3	Hydra Jar	-83952J	3 1/2 in	2.25 in	4.75 in	5		5	1	38	3 m



**SURVEY MANAGEMENT**

**DEFINITIVE SURVEY SIGN-OFF**

Client:	Origin	Job No.:	15AUS0152	Report Date:	4-Aug-16
Field:	Origin/Beetaloo Basin	Well Name:	Amungee NW-1	Borehole:	Amungee NW-1H
Stru/Slot:	Amungee NW-1/Amungee NW-1	Survey:	Origin - Amungee NW-1H FINAL		

Structure Reference:	8192298.00	380859.00
	S 16° 20' 51.03375"	E 133° 53' 4.40251"
Slot Coordinates:	8192298.00	380859.00
	S 16° 20' 51.03375"	E 133° 53' 4.40251"
Structure/Slot Uncertainty:	0.00 m(3.00 sigma)	0.00 m(3.00 sigma)
Grid Coordinate System:	GDA94/MGA94 Zone 53	
TVD Reference Datum:	Borehole: RT	
TVD Reference Elevation:	265.912 m above MSL	
Seabed/GroundLevel:	260.562 m above MSL	

Depth Units:	(m)	
Survey Date:	21-Oct-15	
Azimuth Reference:	Grid North	
Mag. Model / Mag. Decl. Date:	HDGM 2015	21-Oct-15
Magnetic Declination:	3.950 °	
Grid Convergence:	0.31399277 °	
Total Correction:	3.6364 °	
Vertical Section Origin:	0.000 m, 0.000 m	
Vertical Section Plane:	135.000 ° (Grid North)	

**DEFINITIVE SURVEY CONSTRUCTION - ORIGINAL WELL**

Instrument Type	Survey From	Survey To	Hole Size	Casing Size
SLB_GPIT-Depth Only	0.00	5.35		
SLB_GPIT-Depth Only	5.35	5.35		
SLB_GPIT	5.35	1919.68	9.88	7.63
SLB_MWD-STD	1919.68	1926.00	9.88	7.63
SLB_MWD-STD	1926.00	3793.20	6.75	4.50
SLB_BLIND+TREND	3793.20	3808.00	6.75	4.50
	Projection to TD:		Type:	Straight

**WELL REFERENCE POINT LOCATION**

MD	INC	AZ	TVD	VS	NS	EW	Northing	Easting	Latitude	Longitude
5.35	0.00	0.00	5.35	0.00	0.00	0.00	8192298.00	380859.00	S 16° 20' 51.03375"	E 133° 53' 4.40251"

**BOTTOM HOLE LOCATION**

MD	INC	AZ	TVD	VS	NS	EW	Northing	Easting	Latitude	Longitude
3808.00	92.07	126.21	2427.97	1584.71	-1105.86	1135.26	8191192.39	381994.00	S 16° 21' 27.20987"	E 133° 53' 42.44987"

**BOTTOM HOLE LOCATION COMPARISON**

MD	INC	AZ	TVD	VS	NS	EW	Northing	Easting	Latitude	Longitude

**COMMENTS**

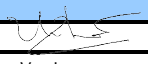
Well was placed as per Origin's geology steering instruction within Shale B reservoir. MWD Azimuth has been applied with MAC1 correction for drilling string magnetic interference.
Surface location has been updated as per new information given on 04-Aug-2016


**Well Position Declaration**

Drilling Targets requirement met ?

Yes

**DEFINITIVE SURVEY SIGNED OFF**

For Schlumberger:	
Prepared By: (Sign)	
Name:	Hoan Van Luu
Position:	Drilling Engineer
Date:	04-Aug-16

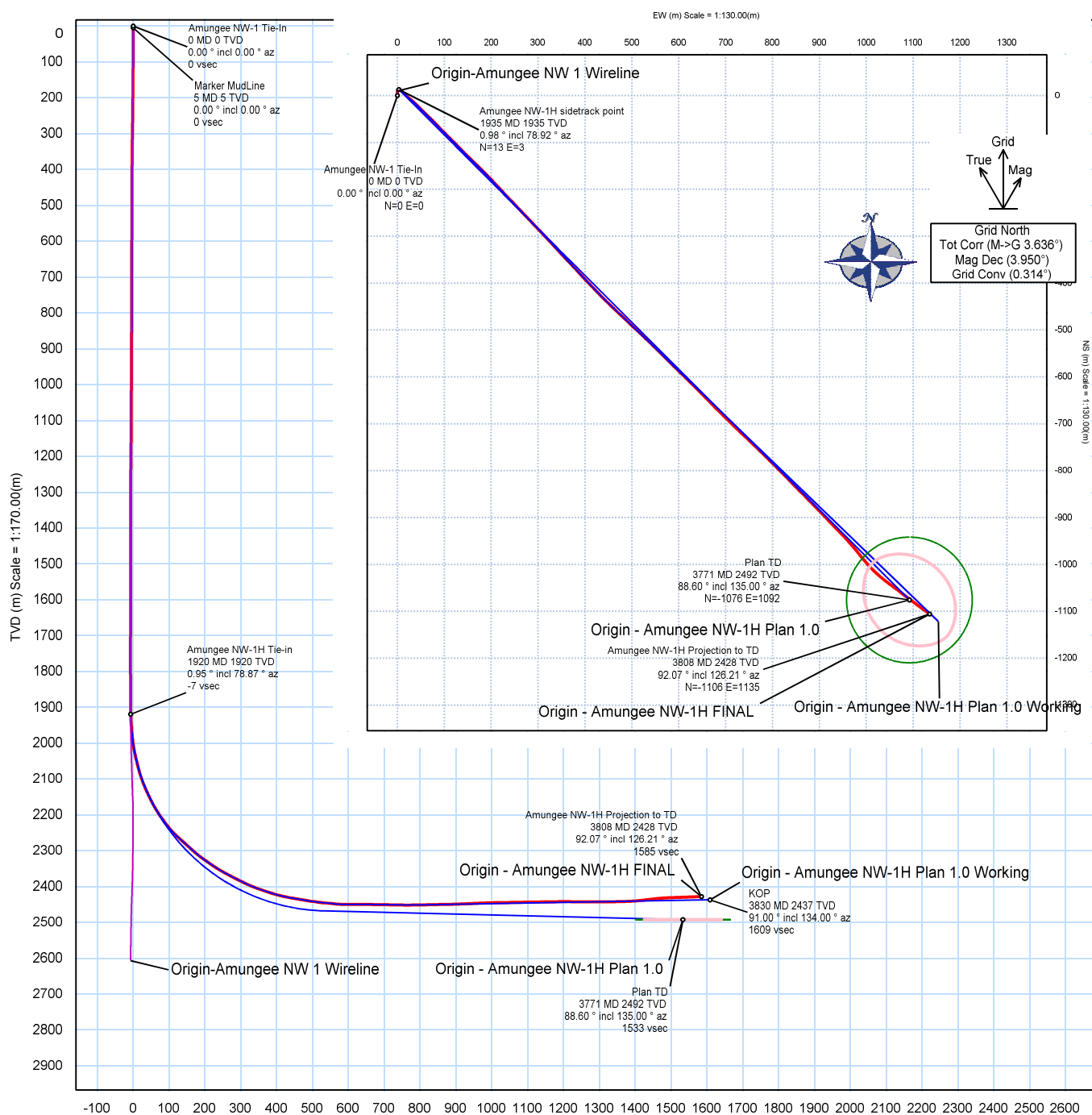
For Schlumberger:	
Checked By: (Sign)	
Name:	Brooke Carroll
Position:	DD Coordinator
Date:	04-Aug-16

For Client:	
Approved By: (Sign)	
Name:	Mathew McGilvery
Position:	Drilling Engineer
Date:	PP Dylan Stringer

**WELL SURVEY FILE UPDATED AND BACKED UP ON SERVER**

Borehole:	Well:	Field:	Structure:
Amungee NW-1H	Amungee NW-1	Origin/Beetaloo Basin	Amungee NW-1

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: HDGM 2015 Dip: -45.417° Date: 21-Oct-2015 MagDec: 3.95° FS: 48492.387nT Gravity FS: 997.634mgn (9.80665 Based)	GDA94/MGA94 Zone 53 Lat: S 16 20 51.03 Northing: 8192298m Grid Conv: 0.314° Lon: E 133 53 4.40 Easting: 380859m Scale Fact: 0.99977553	Slot: Amungee NW-1 TVD Ref: RT(265.912m above MSL) Plan: Origin - Amungee NW-1H FINAL



Vertical Section (m) Azim = 135° Scale = 1:170.00(m) Origin = 0N/-S, 0E/-W

Surface Location											
Northing: 8192298		Easting: 380859		Latitude: S 16 20 51.03		Longitude: E 133 53 4.40		VSec Azimuth: 135			
Target Description			Grid Coord						Local Coord		
Target Name	Shape	Dimension	Latitude	Longitude	Northing	Easting	TVD	VSec	N(+)S(-)	E(+)W(-)	
Amungee NW-1H TD	Circle	268.00 diameter	S 16 21 26.23	E 133 53 41.00	8191222.38	381950.75	2492.31	1532.91	-1075.86	1092.00	
Amungee NW-1H TD_WD_Driller_95%_2D	Polygon	N/A	S 16 21 26.23	E 133 53 41.00	8191222.38	381950.75	2492.31	1532.91	-1075.86	1092.00	
PART Seq.	Survey Tool/ Survey Tool Code	Vendor/Tool	Hole Size (in)	Casing Size (in)	Expected Max Incl (*)	MD From (m)	MD To (m)	Survey Frequency (m)	EDU Size (Semi Major) (m)	EDU Size (Semi Minor) (m)	Comments/ Contingency
1 1	SLB_GPIT-Depth Only		9.875	7.625		0	5.35	1/30	0.125	0.125	
1 2	SLB_GPIT-Depth Only		9.875	7.625		5.35	5.35	Act Stns	0.125	0.125	
1 3	SLB_GPIT		9.875	7.625		5.35	1919.68	Act Stns	23.63	23.617	
1 4	SLB_MWD-STD		9.875	7.625		1919.68	1926	Act Stns	23.654	23.641	
1 5	SLB_MWD-STD		6.75	4.5		1926	3793.2	Act Stns	51.124	23.742	
1 6	SLB_BLIND+TREND		6.75	4.5		3793.2	3808	Act Stns	53.846	23.996	

D E C		CONTROLLED	
Plan ref		Origin - Amungee NW-1H FINAL	
Drawing ref			
Copy number		of 3	
Date		04-Aug-2016	
1	Created by	Hoan Van Luu	
2	.		
3	Checked by	Brooke Carroll	
4	.		
5	Approved by	Mathew McGilvery	
6	.		
Copy number		for	

## Origin - Amungee NW-1H FINAL Survey Geodetic Report

(Def Survey)

<b>Report Date:</b>	August 04, 2016 - 02:05 PM	<b>Survey / DLS Computation:</b>	Minimum Curvature / Lubinski
<b>Client:</b>	Origin	<b>Vertical Section Azimuth:</b>	135.000 ° (Grid North)
<b>Field:</b>	Origin/Beetalo Basin	<b>Vertical Section Origin:</b>	0.000 m, 0.000 m
<b>Structure / Slot:</b>	Amungee NW-1 / Amungee NW-1	<b>TVD Reference Datum:</b>	RT
<b>Well:</b>	Amungee NW-1	<b>TVD Reference Elevation:</b>	265.912 m above MSL
<b>Borehole:</b>	Amungee NW-1H	<b>Seabed / Ground Elevation:</b>	260.562 m above MSL
<b>UWI / API#:</b>	Unknown / Unknown	<b>Magnetic Declination:</b>	3.950 °
<b>Survey Name:</b>	Origin - Amungee NW-1H FINAL	<b>Total Gravity Field Strength:</b>	997.6337mgn (9.80665 Based)
<b>Survey Date:</b>	October 21, 2015	<b>Gravity Model:</b>	GARM
<b>Tort / AHD / DDI / ERD Ratio:</b>	183.581 ° / 1608.811 m / 6.178 / 0.656	<b>Total Magnetic Field Strength:</b>	48492.387 nT
<b>Coordinate Reference System:</b>	GDA94/MGA94 Zone 53	<b>Magnetic Dip Angle:</b>	-45.417 °
<b>Location Lat / Long:</b>	S 16° 20' 51.03375", E 133° 53' 4.40251"	<b>Declination Date:</b>	October 21, 2015
<b>Location Grid N/E Y/X:</b>	N 8192298.000 m, E 380859.000 m	<b>Magnetic Declination Model:</b>	HDGM 2015
<b>CRS Grid Convergence Angle:</b>	0.3140 °	<b>North Reference:</b>	Grid North
<b>Grid Scale Factor:</b>	0.99977553	<b>Grid Convergence Used:</b>	0.3140 °
<b>Version / Patch:</b>	2.10.254.0	<b>Total Corr Mag North-&gt;Grid North:</b>	3.6364 °
		<b>Local Coord Referenced To:</b>	Structure Reference Point

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Amungee NW-1 Tie-In	0.00	0.00	0.00	0.00	-265.91	0.00	0.00	0.00	N/A	8192298.00	380859.00	S 16 20 51.03	E 133 53 4.40
Marker MudLine	5.35	0.00	0.00	5.35	-260.56	0.00	0.00	0.00	0.00	8192298.00	380859.00	S 16 20 51.03	E 133 53 4.40
42.11	0.27	0.00	42.11	-223.80	-0.06	0.09	0.00	0.00	0.22	8192298.09	380859.00	S 16 20 51.03	E 133 53 4.40
43.13	0.27	0.00	43.13	-222.78	-0.06	0.09	0.00	0.00	0.00	8192298.09	380859.00	S 16 20 51.03	E 133 53 4.40
44.15	0.27	0.00	44.15	-221.76	-0.07	0.10	0.00	0.00	0.00	8192298.10	380859.00	S 16 20 51.03	E 133 53 4.40
45.16	0.26	0.00	45.16	-220.75	-0.07	0.10	0.00	0.00	0.30	8192298.10	380859.00	S 16 20 51.03	E 133 53 4.40
46.18	0.26	0.00	46.18	-219.73	-0.07	0.11	0.00	0.00	0.00	8192298.11	380859.00	S 16 20 51.03	E 133 53 4.40
47.19	0.26	0.00	47.19	-218.72	-0.08	0.11	0.00	0.00	0.00	8192298.11	380859.00	S 16 20 51.03	E 133 53 4.40
48.21	0.26	0.00	48.21	-217.70	-0.08	0.11	0.00	0.00	0.00	8192298.11	380859.00	S 16 20 51.03	E 133 53 4.40
49.23	0.27	0.00	49.23	-216.68	-0.08	0.12	0.00	0.29	0.29	8192298.12	380859.00	S 16 20 51.03	E 133 53 4.40
50.24	0.28	0.00	50.24	-215.67	-0.09	0.12	0.00	0.30	0.30	8192298.12	380859.00	S 16 20 51.03	E 133 53 4.40
51.26	0.29	0.00	51.26	-214.65	-0.09	0.13	0.00	0.29	0.29	8192298.13	380859.00	S 16 20 51.03	E 133 53 4.40
52.27	0.29	0.00	52.27	-213.64	-0.10	0.13	0.00	0.00	0.00	8192298.13	380859.00	S 16 20 51.03	E 133 53 4.40
53.29	0.29	0.00	53.29	-212.62	-0.10	0.14	0.00	0.00	0.00	8192298.14	380859.00	S 16 20 51.03	E 133 53 4.40
54.31	0.31	0.00	54.31	-211.60	-0.10	0.14	0.00	0.59	0.59	8192298.14	380859.00	S 16 20 51.03	E 133 53 4.40
55.32	0.33	0.00	55.32	-210.59	-0.11	0.15	0.00	0.59	0.59	8192298.15	380859.00	S 16 20 51.03	E 133 53 4.40
56.34	0.34	0.00	56.34	-209.57	-0.11	0.16	0.00	0.29	0.29	8192298.16	380859.00	S 16 20 51.03	E 133 53 4.40
57.35	0.34	0.00	57.35	-208.56	-0.11	0.16	0.00	0.00	0.00	8192298.16	380859.00	S 16 20 51.03	E 133 53 4.40
58.37	0.35	0.00	58.37	-207.54	-0.12	0.17	0.00	0.29	0.29	8192298.17	380859.00	S 16 20 51.03	E 133 53 4.40
59.39	0.34	0.00	59.39	-206.52	-0.12	0.17	0.00	0.29	0.29	8192298.17	380859.00	S 16 20 51.03	E 133 53 4.40
60.40	0.35	0.00	60.40	-205.51	-0.13	0.18	0.00	0.30	0.30	8192298.18	380859.00	S 16 20 51.03	E 133 53 4.40
61.42	0.34	0.00	61.42	-204.49	-0.13	0.19	0.00	0.29	0.29	8192298.19	380859.00	S 16 20 51.03	E 133 53 4.40
62.43	0.31	0.00	62.43	-203.48	-0.14	0.19	0.00	0.89	0.89	8192298.19	380859.00	S 16 20 51.03	E 133 53 4.40
63.45	0.32	0.00	63.45	-202.46	-0.14	0.20	0.00	0.29	0.29	8192298.20	380859.00	S 16 20 51.03	E 133 53 4.40
64.47	0.32	0.00	64.47	-201.44	-0.14	0.20	0.00	0.00	0.00	8192298.20	380859.00	S 16 20 51.03	E 133 53 4.40
65.48	0.31	0.00	65.48	-200.43	-0.15	0.21	0.00	0.30	0.30	8192298.21	380859.00	S 16 20 51.03	E 133 53 4.40
66.50	0.30	0.00	66.50	-199.41	-0.15	0.22	0.00	0.29	0.29	8192298.22	380859.00	S 16 20 51.03	E 133 53 4.40
67.51	0.30	0.00	67.51	-198.40	-0.16	0.22	0.00	0.00	0.00	8192298.22	380859.00	S 16 20 51.03	E 133 53 4.40
68.53	0.30	0.00	68.53	-197.38	-0.16	0.23	0.00	0.00	0.00	8192298.23	380859.00	S 16 20 51.03	E 133 53 4.40
69.55	0.30	0.00	69.55	-196.36	-0.16	0.23	0.00	0.00	0.00	8192298.23	380859.00	S 16 20 51.03	E 133 53 4.40
70.56	0.30	0.00	70.56	-195.35	-0.17	0.24	0.00	0.00	0.00	8192298.24	380859.00	S 16 20 51.03	E 133 53 4.40
71.58	0.30	0.00	71.58	-194.33	-0.17	0.24	0.00	0.00	0.00	8192298.24	380859.00	S 16 20 51.03	E 133 53 4.40
72.59	0.30	0.00	72.59	-193.32	-0.17	0.25	0.00	0.00	0.00	8192298.25	380859.00	S 16 20 51.03	E 133 53 4.40
73.61	0.30	0.00	73.61	-192.30	-0.18	0.25	0.00	0.00	0.00	8192298.25	380859.00	S 16 20 51.03	E 133 53 4.40
74.63	0.30	0.00	74.63	-191.28	-0.18	0.26	0.00	0.00	0.00	8192298.26	380859.00	S 16 20 51.03	E 133 53 4.40
75.64	0.29	0.00	75.64	-190.27	-0.19	0.26	0.00	0.30	0.30	8192298.26	380859.00	S 16 20 51.03	E 133 53 4.40
76.66	0.28	0.00	76.66	-189.25	-0.19	0.27	0.00	0.29	0.29	8192298.27	380859.00	S 16 20 51.03	E 133 53 4.40
77.67	0.28	0.00	77.67	-188.24	-0.19	0.27	0.00	0.00	0.00	8192298.27	380859.00	S 16 20 51.02	E 133 53 4.40
78.69	0.29	0.00	78.69	-187.22	-0.20	0.28	0.00	0.29	0.29	8192298.28	380859.00	S 16 20 51.02	E 133 53 4.40
79.71	0.30	0.00	79.71	-186.20	-0.20	0.28	0.00	0.29	0.29	8192298.28	380859.00	S 16 20 51.02	E 133 53 4.40
80.72	0.31	0.00	80.72	-185.19	-0.20	0.29	0.00	0.30	0.30	8192298.29	380859.00	S 16 20 51.02	E 133 53 4.40
81.74	0.32	0.00	81.74	-184.17	-0.21	0.29	0.00	0.29	0.29	8192298.29	380859.00	S 16 20 51.02	E 133 53 4.40
82.75	0.31	0.00	82.75	-183.16	-0.21	0.30	0.00	0.30	0.30	8192298.30	380859.00	S 16 20 51.02	E 133 53 4.40
83.77	0.30	0.00	83.77	-182.14	-0.22	0.31	0.00	0.29	0.29	8192298.31	380859.00	S 16 20 51.02	E 133 53 4.40
84.79	0.30	0.00	84.79	-181.12	-0.22	0.31	0.00	0.00	0.00	8192298.31	380859.00	S 16 20 51.02	E 133 53 4.40
85.80	0.30	0.00	85.80	-180.11	-0.22	0.32	0.00	0.00	0.00	8192298.32	380859.00	S 16 20 51.02	E 133 53 4.40
86.82	0.30	0.00	86.82	-179.09	-0.23	0.32	0.00	0.00	0.00	8192298.32	380859.00	S 16 20 51.02	E 133 53 4.40
87.83	0.30	0.00	87.83	-178.08	-0.23	0.33	0.00	0.00	0.00	8192298.33	380859.00	S 16 20 51.02	E 133 53 4.40
88.85	0.32	0.00	88.85	-177.06	-0.23	0.33	0.00	0.59	0.59	8192298.33	380859.00	S 16 20 51.02	E 133 53 4.40
89.87	0.32	0.00	89.87	-176.04	-0.24	0.34	0.00	0.00	0.00	8192298.34	380859.00	S 16 20 51.02	E 133 53 4.40
90.88	0.32	0.00	90.88	-175.03	-0.24	0.34	0.00	0.00	0.00	8192298.34	380859.00	S 16 20 51.02	E 133 53 4.40
91.90	0.32	0.00	91.90	-174.01	-0.25	0.35	0.00	0.00	0.00	8192298.35	380859.00	S 16 20 51.02	E 133 53 4.40
92.91	0.33	0.00	92.91	-173.00	-0.25	0.35	0.00	0.30	0.30	8192298.35	380859.00	S 16 20 51.02	E 133 53 4.40
93.93	0.33	0.00	93.93	-171.98	-0.25	0.36	0.00	0.00	0.00	8192298.36	380859.00	S 16 20 51.02	E 133 53 4.40
94.95	0.33	0.00	94.95	-170.96	-0.26	0.37	0.00	0.00	0.00	8192298.37	380859.00	S 16 20 51.02	E 133 53 4.40
95.96	0.33	0.00	95.96	-169.95	-0.26	0.37	0.00	0.00	0.00	8192298.37	380859.00	S 16 20 51.02	E 133 53 4.40
96.98	0.33	0.00	96.98	-168.93	-0.27	0.38	0.00	0.00	0.00	8192298.38	380859.00	S 16 20 51.02	E 133 53 4.40
97.99	0.33	0.00	97.99	-167.92	-0.27	0.38	0.00	0.00	0.00	8192298.38	380859.00	S 16 20 51.02	E 133 53 4.40
99.01	0.33	0.00	99.01	-166.90	-0.28	0.39	0.00	0.00	0.00	8192298.39	380859.00	S 16 20 51.02	E 133 53 4.40
100.03	0.32	0.00	100.03	-165.88	-0.28	0.40	0.00	0.29	0.29	8192298.40	380859.00	S 16 20 51.02	E 133 53 4.40
101.04	0.32	0.00	101.04	-164.87	-0.28	0.40	0.00	0.00	0.00	8192298.40	380859.00	S 16 20 51.02	E 133 53 4.40
102.06	0.33	0.00	102.06	-163.85	-0.29	0.41	0.00	0.29	0.29	8192298.41	380859.00	S 16 20 51.02	E 133 53 4.40
103.07	0.31	0.00	103.07	-162.84	-0.29	0.41	0.00	0.59	0.59	8192298.41	380859.00	S 16 20 51.02	E 133 53 4.40
104.09	0.29	0.00	104.09	-161.82	-0.30	0.42	0.00	0.59	0.59	8192298.42	380859.00	S 16 20 51.02	E 133 53 4.40
105.11	0.30	0.00	105.11	-160.80	-0.30	0.42	0.00	0.29	0.29	8192298.42	380859.00	S 16 20 51.02	E 133 53 4.40
106.12	0.31	0.00	106.12	-159.79	-0.30	0.43	0.00	0.30	0.30	8192298.43	380859.00	S 16 20 51.02	E 133 53 4.40
107.14	0.31	0.00	107.14	-158.77	-0.31	0.43	0.00	0.00	0.00	8192298.43	380859.00	S 16 20 51.02	E 133 53 4.40
108.15	0.31	0.00	108.15	-157.76	-0.31	0.44	0.00	0.00	0.00	8192298.44	380859.00	S 16 20 51.02	E 133 53 4.40
109.17	0.29	0.00	109.17	-156.74	-0.31	0.45	0.00	0.59	0.59	8192298.44	380859.00	S 16 20 51.02	E 133 53 4.40
110.19	0.28	0.00	110.19	-155.72	-0.32	0.45	0.00	0.29					

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	139.65	0.47	0.00	139.65	-126.26	-0.45	0.63	0.00	0.29	8192298.63	380859.00	S 16 20 51.01	E 133 53 4.40
	140.67	0.49	0.00	140.67	-125.24	-0.45	0.64	0.00	0.59	8192298.64	380859.00	S 16 20 51.01	E 133 53 4.40
	141.68	0.49	0.00	141.68	-124.23	-0.46	0.65	0.00	0.00	8192298.65	380859.00	S 16 20 51.01	E 133 53 4.40
	142.70	0.50	0.00	142.70	-123.21	-0.46	0.66	0.00	0.29	8192298.66	380859.00	S 16 20 51.01	E 133 53 4.40
	143.71	0.52	0.00	143.71	-122.20	-0.47	0.67	0.00	0.59	8192298.67	380859.00	S 16 20 51.01	E 133 53 4.40
	144.73	0.53	0.00	144.73	-121.18	-0.48	0.67	0.00	0.29	8192298.67	380859.00	S 16 20 51.01	E 133 53 4.40
	145.75	0.54	0.00	145.75	-120.16	-0.48	0.68	0.00	0.29	8192298.68	380859.00	S 16 20 51.01	E 133 53 4.40
	146.76	0.55	0.00	146.76	-119.15	-0.49	0.69	0.00	0.30	8192298.69	380859.00	S 16 20 51.01	E 133 53 4.40
	147.78	0.57	0.00	147.78	-118.13	-0.50	0.70	0.00	0.59	8192298.70	380859.00	S 16 20 51.01	E 133 53 4.40
	148.79	0.59	0.00	148.79	-117.12	-0.50	0.71	0.00	0.59	8192298.71	380859.00	S 16 20 51.01	E 133 53 4.40
	149.81	0.60	0.00	149.81	-116.10	-0.51	0.72	0.00	0.29	8192298.72	380859.00	S 16 20 51.01	E 133 53 4.40
	150.83	0.62	0.00	150.83	-115.08	-0.52	0.74	0.00	0.59	8192298.74	380859.00	S 16 20 51.01	E 133 53 4.40
	151.84	0.63	0.00	151.84	-114.07	-0.53	0.75	0.00	0.30	8192298.75	380859.00	S 16 20 51.01	E 133 53 4.40
	152.86	0.65	0.00	152.86	-113.05	-0.54	0.76	0.00	0.59	8192298.76	380859.00	S 16 20 51.01	E 133 53 4.40
	153.87	0.67	0.00	153.87	-112.04	-0.54	0.77	0.00	0.59	8192298.77	380859.00	S 16 20 51.01	E 133 53 4.40
	154.89	0.69	0.00	154.89	-111.02	-0.55	0.78	0.00	0.59	8192298.78	380859.00	S 16 20 51.01	E 133 53 4.40
	155.91	0.70	0.00	155.91	-110.00	-0.56	0.79	0.00	0.29	8192298.79	380859.00	S 16 20 51.01	E 133 53 4.40
	156.92	0.72	0.00	156.92	-108.99	-0.57	0.81	0.00	0.59	8192298.81	380859.00	S 16 20 51.01	E 133 53 4.40
	157.94	0.73	0.00	157.94	-107.97	-0.58	0.82	0.00	0.29	8192298.82	380859.00	S 16 20 51.01	E 133 53 4.40
	158.95	0.75	0.00	158.95	-106.96	-0.59	0.83	0.00	0.59	8192298.83	380859.00	S 16 20 51.01	E 133 53 4.40
	159.97	0.77	0.00	159.97	-105.94	-0.60	0.85	0.00	0.59	8192298.85	380859.00	S 16 20 51.01	E 133 53 4.40
	160.99	0.77	0.00	160.99	-104.92	-0.61	0.86	0.00	0.00	8192298.86	380859.00	S 16 20 51.01	E 133 53 4.40
	162.00	0.77	0.00	162.00	-103.92	-0.62	0.87	0.00	0.00	8192298.87	380859.00	S 16 20 51.01	E 133 53 4.40
	163.02	0.82	0.00	163.02	-102.90	-0.63	0.89	0.00	1.47	8192298.89	380859.00	S 16 20 51.00	E 133 53 4.40
	164.03	0.84	0.00	164.03	-101.89	-0.64	0.90	0.00	0.59	8192298.90	380859.00	S 16 20 51.00	E 133 53 4.40
	165.05	0.86	0.00	165.05	-100.87	-0.65	0.92	0.00	0.59	8192298.92	380859.00	S 16 20 51.00	E 133 53 4.40
	166.07	0.88	0.00	166.07	-99.85	-0.66	0.93	0.00	0.59	8192298.93	380859.00	S 16 20 51.00	E 133 53 4.40
	167.08	0.90	0.00	167.08	-98.84	-0.67	0.95	0.00	0.59	8192298.95	380859.00	S 16 20 51.00	E 133 53 4.40
	168.10	0.90	0.00	168.10	-97.82	-0.68	0.96	0.00	0.00	8192298.96	380859.00	S 16 20 51.00	E 133 53 4.40
	169.11	0.92	0.00	169.11	-96.81	-0.69	0.98	0.00	0.59	8192298.98	380859.00	S 16 20 51.00	E 133 53 4.40
	170.13	0.94	0.00	170.13	-95.79	-0.71	1.00	0.00	0.59	8192299.00	380859.00	S 16 20 51.00	E 133 53 4.40
	171.15	0.94	0.00	171.15	-94.77	-0.72	1.01	0.00	0.00	8192299.01	380859.00	S 16 20 51.00	E 133 53 4.40
	172.16	0.93	0.00	172.16	-93.76	-0.73	1.03	0.00	0.30	8192299.03	380859.00	S 16 20 51.00	E 133 53 4.40
	173.18	0.91	0.00	173.18	-92.74	-0.74	1.05	0.00	0.59	8192299.05	380859.00	S 16 20 51.00	E 133 53 4.40
	174.19	0.90	0.00	174.19	-91.73	-0.75	1.06	0.00	0.30	8192299.06	380859.00	S 16 20 51.00	E 133 53 4.40
	175.21	0.90	0.00	175.21	-90.71	-0.76	1.08	0.00	0.00	8192299.08	380859.00	S 16 20 51.00	E 133 53 4.40
	176.23	0.90	0.00	176.23	-89.69	-0.77	1.09	0.00	0.00	8192299.09	380859.00	S 16 20 51.00	E 133 53 4.40
	177.24	0.90	0.00	177.24	-88.68	-0.79	1.11	0.00	0.00	8192299.11	380859.00	S 16 20 51.00	E 133 53 4.40
	178.26	0.90	0.00	178.26	-87.66	-0.80	1.13	0.00	0.00	8192299.13	380859.00	S 16 20 51.00	E 133 53 4.40
	179.27	0.90	0.00	179.27	-86.65	-0.81	1.14	0.00	0.00	8192299.14	380859.00	S 16 20 51.00	E 133 53 4.40
	180.29	0.91	0.00	180.29	-85.63	-0.82	1.16	0.00	0.29	8192299.16	380859.00	S 16 20 51.00	E 133 53 4.40
	181.31	0.91	0.00	181.31	-84.61	-0.83	1.17	0.00	0.00	8192299.17	380859.00	S 16 20 51.00	E 133 53 4.40
	182.32	0.92	0.00	182.32	-83.60	-0.84	1.19	0.00	0.30	8192299.19	380859.00	S 16 20 51.00	E 133 53 4.40
	183.34	0.94	0.00	183.34	-82.58	-0.85	1.21	0.00	0.59	8192299.21	380859.00	S 16 20 50.99	E 133 53 4.40
	184.35	0.94	0.00	184.34	-81.57	-0.87	1.22	0.00	0.00	8192299.22	380859.00	S 16 20 50.99	E 133 53 4.40
	185.37	0.94	0.00	185.36	-80.55	-0.88	1.24	0.00	0.00	8192299.24	380859.00	S 16 20 50.99	E 133 53 4.40
	186.39	0.94	0.00	186.38	-79.53	-0.89	1.26	0.00	0.00	8192299.26	380859.00	S 16 20 50.99	E 133 53 4.40
	187.40	0.93	0.00	187.39	-78.52	-0.90	1.27	0.00	0.30	8192299.27	380859.00	S 16 20 50.99	E 133 53 4.40
	188.42	0.94	0.00	188.41	-77.50	-0.91	1.29	0.00	0.29	8192299.29	380859.00	S 16 20 50.99	E 133 53 4.40
	189.43	0.93	0.00	189.42	-76.49	-0.92	1.31	0.00	0.30	8192299.31	380859.00	S 16 20 50.99	E 133 53 4.40
	190.45	0.93	0.00	190.44	-75.47	-0.94	1.32	0.00	0.00	8192299.32	380859.00	S 16 20 50.99	E 133 53 4.40
	191.47	0.93	0.00	191.46	-74.45	-0.95	1.34	0.00	0.00	8192299.34	380859.00	S 16 20 50.99	E 133 53 4.40
	192.48	0.95	0.00	192.47	-73.44	-0.96	1.36	0.00	0.59	8192299.36	380859.00	S 16 20 50.99	E 133 53 4.40
	193.50	0.95	0.00	193.49	-72.42	-0.97	1.37	0.00	0.00	8192299.37	380859.00	S 16 20 50.99	E 133 53 4.40
	194.51	0.97	0.00	194.50	-71.41	-0.98	1.39	0.00	0.59	8192299.39	380859.00	S 16 20 50.99	E 133 53 4.40
	195.53	0.99	0.00	195.52	-70.39	-1.00	1.41	0.00	0.59	8192299.41	380859.00	S 16 20 50.99	E 133 53 4.40
	196.55	1.00	0.00	196.54	-69.37	-1.01	1.43	0.00	0.29	8192299.43	380859.00	S 16 20 50.99	E 133 53 4.40
	197.56	1.01	0.00	197.55	-68.36	-1.02	1.44	0.00	0.30	8192299.44	380859.00	S 16 20 50.99	E 133 53 4.40
	198.58	1.02	0.00	198.57	-67.34	-1.03	1.46	0.00	0.29	8192299.46	380859.00	S 16 20 50.99	E 133 53 4.40
	199.59	1.04	0.00	199.58	-66.33	-1.05	1.48	0.00	0.59	8192299.48	380859.00	S 16 20 50.99	E 133 53 4.40
	200.61	1.04	0.00	200.60	-65.31	-1.06	1.50	0.00	0.00	8192299.50	380859.00	S 16 20 50.99	E 133 53 4.40
	201.63	1.04	0.00	201.62	-64.29	-1.07	1.52	0.00	0.00	8192299.52	380859.00	S 16 20 50.98	E 133 53 4.40
	202.64	1.05	0.00	202.63	-63.28	-1.09	1.54	0.00	0.30	8192299.53	380859.00	S 16 20 50.98	E 133 53 4.40
	203.66	1.04	0.00	203.65	-62.26	-1.10	1.55	0.00	0.29	8192299.55	380859.00	S 16 20 50.98	E 133 53 4.40
	204.67	1.03	0.00	204.66	-61.25	-1.11	1.57	0.00	0.00	8192299.57	380859.00	S 16 20 50.98	E 133 53 4.40
	205.69	1.03	0.00	205.68	-60.23	-1.12	1.59	0.00	0.00	8192299.59	380859.00	S 16 20 50.98	E 133 53 4.40
	206.71	1.01	0.00	206.70	-59.21	-1.14	1.61	0.00	0.59	8192299.61	380859.00	S 16 20 50.98	E 133 53 4.40
	207.72	0.99	0.00	207.71	-58.20	-1.15	1.63	0.00	0.59	8192299.63	380859.00	S 16 20 50.98	E 133 53 4.40
	208.74	0.96	0.00	208.73	-57.18	-1.16	1.64	0.00	0.88	8192299.64	380859.00	S 16 20 50.98	E 133 53 4.40
	209.75	0.95	0.00	209.74	-56.17	-1.17	1.66	0.00	0.30	8192299.66	380859.00	S 16 20 50.98	E 133 53 4.40
	210.77	0.94	0.00	210.76	-55.15	-1.19	1.68	0.00	0.29	8192299.68	380859.00	S 16 20 50.98	E 133 53 4.40
	211.79	0.90	0.00	211.78	-54.13	-1.20	1.69	0.00	1.18	8192299.69	380859.00	S 16 20 50.98	E 133 53 4.40
	212.80	0.91	0.00	212.79	-53.12	-1.21	1.71	0.00	0.30	8192299.71	380859.00	S 16 20 50.98	E 133 53 4.40
	213.82	0.91	0.00	213.81	-52.10	-1.22	1.73	0.00	0.00	8192299.73	380859.00	S 16 20 50.98	E 133 53 4.40
	214.83	0.90	0.00	214.82	-51.09	-1.23	1.74	0.00	0.30	8192299.74	380859.00	S 16 20 50.98	E 133 53 4.40
	215.85	0.88	0.00	215.84	-50.07	-1.24	1.76	0.00	0.59	8192299.76	380859.00	S 16 20 50.98	E 133 53 4.40
	216.87	0.88	0.00	216.86	-49.05	-1.25	1.77	0.00	0.00	8192299.77	380859.00	S 16 20 50.98	E 133 53 4.40

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	271.73	1.19	0.00	271.71	5.80	-1.80	2.54	0.00	0.88	8192300.54	380859.00	S 16 20 50.95	E 133 53 4.40
	272.75	1.23	0.00	272.73	6.82	-1.81	2.56	0.00	1.18	8192300.56	380859.00	S 16 20 50.95	E 133 53 4.40
	273.76	1.25	0.00	273.74	7.83	-1.83	2.58	0.00	0.59	8192300.58	380859.00	S 16 20 50.95	E 133 53 4.40
	274.78	1.27	0.00	274.76	8.85	-1.84	2.61	0.00	0.59	8192300.61	380859.00	S 16 20 50.95	E 133 53 4.40
	275.79	1.29	0.00	275.77	9.86	-1.85	2.63	0.00	0.59	8192300.63	380859.00	S 16 20 50.95	E 133 53 4.40
	276.81	1.31	0.00	276.79	10.88	-1.88	2.65	0.00	0.59	8192300.65	380859.00	S 16 20 50.95	E 133 53 4.40
	277.83	1.30	0.00	277.81	11.90	-1.89	2.68	0.00	0.29	8192300.68	380859.00	S 16 20 50.95	E 133 53 4.40
	278.84	1.32	0.00	278.82	12.91	-1.91	2.70	0.00	0.59	8192300.70	380859.00	S 16 20 50.95	E 133 53 4.40
	279.86	1.32	0.00	279.84	13.93	-1.93	2.72	0.00	0.00	8192300.72	380859.00	S 16 20 50.95	E 133 53 4.40
	280.87	1.31	0.00	280.85	14.94	-1.94	2.75	0.00	0.30	8192300.75	380859.00	S 16 20 50.94	E 133 53 4.40
	281.89	1.30	0.00	281.87	15.96	-1.96	2.77	0.00	0.29	8192300.77	380859.00	S 16 20 50.94	E 133 53 4.40
	282.91	1.30	0.00	282.89	16.98	-1.97	2.79	0.00	0.00	8192300.79	380859.00	S 16 20 50.94	E 133 53 4.40
	283.92	1.30	0.00	283.90	17.99	-1.99	2.81	0.00	0.00	8192300.81	380859.00	S 16 20 50.94	E 133 53 4.40
	284.94	1.30	0.00	284.92	19.01	-2.01	2.84	0.00	0.00	8192300.84	380859.00	S 16 20 50.94	E 133 53 4.40
	285.95	1.29	0.00	285.93	20.02	-2.02	2.86	0.00	0.30	8192300.86	380859.00	S 16 20 50.94	E 133 53 4.40
	286.97	1.29	0.00	286.95	21.04	-2.04	2.88	0.00	0.00	8192300.88	380859.00	S 16 20 50.94	E 133 53 4.40
	287.99	1.30	0.00	287.97	22.06	-2.06	2.91	0.00	0.29	8192300.91	380859.00	S 16 20 50.94	E 133 53 4.40
	289.00	1.30	0.00	288.98	23.07	-2.07	2.93	0.00	0.00	8192300.93	380859.00	S 16 20 50.94	E 133 53 4.40
	290.02	1.30	0.00	290.00	24.09	-2.09	2.95	0.00	0.00	8192300.95	380859.00	S 16 20 50.94	E 133 53 4.40
	291.03	1.28	0.00	291.01	25.10	-2.10	2.98	0.00	0.59	8192300.98	380859.00	S 16 20 50.94	E 133 53 4.40
	292.05	1.28	0.00	292.03	26.12	-2.12	3.00	0.00	0.00	8192301.00	380859.00	S 16 20 50.94	E 133 53 4.40
	293.07	1.27	0.00	293.05	27.14	-2.14	3.02	0.00	0.29	8192301.02	380859.00	S 16 20 50.94	E 133 53 4.40
	294.08	1.27	0.00	294.06	28.15	-2.15	3.04	0.00	0.00	8192301.04	380859.00	S 16 20 50.93	E 133 53 4.40
	295.10	1.20	0.00	295.08	29.17	-2.17	3.07	0.00	2.06	8192301.06	380859.00	S 16 20 50.93	E 133 53 4.40
	296.11	1.14	0.00	296.09	30.18	-2.18	3.09	0.00	1.78	8192301.09	380859.00	S 16 20 50.93	E 133 53 4.40
	297.13	1.25	0.00	297.11	31.20	-2.20	3.11	0.00	3.24	8192301.11	380859.00	S 16 20 50.93	E 133 53 4.40
	298.15	1.23	0.00	298.13	32.22	-2.21	3.13	0.00	0.59	8192301.13	380859.00	S 16 20 50.93	E 133 53 4.40
	299.16	1.22	0.00	299.14	33.23	-2.23	3.15	0.00	0.30	8192301.15	380859.00	S 16 20 50.93	E 133 53 4.40
	300.18	1.21	0.00	300.16	34.25	-2.24	3.17	0.00	0.29	8192301.17	380859.00	S 16 20 50.93	E 133 53 4.40
	301.20	1.22	0.00	301.17	35.26	-2.25	3.19	0.00	0.59	8192301.19	380859.00	S 16 20 50.93	E 133 53 4.40
	302.21	1.23	0.00	302.19	36.27	-2.27	3.22	0.00	0.29	8192301.22	380859.00	S 16 20 50.93	E 133 53 4.40
	303.23	1.24	0.00	303.21	37.29	-2.29	3.24	0.00	0.29	8192301.24	380859.00	S 16 20 50.93	E 133 53 4.40
	304.24	1.25	0.00	304.22	38.30	-2.31	3.26	0.00	0.30	8192301.26	380859.00	S 16 20 50.93	E 133 53 4.40
	305.26	1.26	0.00	305.24	39.32	-2.32	3.28	0.00	0.29	8192301.28	380859.00	S 16 20 50.93	E 133 53 4.40
	306.27	1.27	0.00	306.25	40.33	-2.34	3.30	0.00	0.30	8192301.30	380859.00	S 16 20 50.93	E 133 53 4.40
	307.29	1.29	0.00	307.27	41.35	-2.35	3.33	0.00	0.59	8192301.33	380859.00	S 16 20 50.93	E 133 53 4.40
	308.31	1.31	0.00	308.29	42.37	-2.37	3.35	0.00	0.59	8192301.35	380859.00	S 16 20 50.92	E 133 53 4.40
	309.32	1.33	0.00	309.29	43.38	-2.39	3.37	0.00	0.59	8192301.37	380859.00	S 16 20 50.92	E 133 53 4.40
	310.34	1.33	0.00	310.31	44.40	-2.40	3.40	0.00	0.00	8192301.40	380859.00	S 16 20 50.92	E 133 53 4.40
	311.35	1.31	0.00	311.32	45.41	-2.42	3.42	0.00	0.59	8192301.42	380859.00	S 16 20 50.92	E 133 53 4.40
	312.37	1.11	0.00	312.34	46.43	-2.44	3.44	0.00	0.59	8192301.44	380859.00	S 16 20 50.92	E 133 53 4.40
	313.39	1.26	0.00	313.36	47.45	-2.45	3.47	0.00	0.88	8192301.47	380859.00	S 16 20 50.92	E 133 53 4.40
	314.40	1.24	0.00	314.37	48.46	-2.47	3.49	0.00	0.59	8192301.49	380859.00	S 16 20 50.92	E 133 53 4.40
	315.42	1.22	0.00	315.39	49.48	-2.48	3.51	0.00	0.59	8192301.51	380859.00	S 16 20 50.92	E 133 53 4.40
	316.43	1.19	0.00	316.40	50.49	-2.50	3.53	0.00	0.89	8192301.53	380859.00	S 16 20 50.92	E 133 53 4.40
	317.45	1.18	0.00	317.42	51.51	-2.51	3.55	0.00	0.29	8192301.55	380859.00	S 16 20 50.92	E 133 53 4.40
	318.47	1.17	0.00	318.44	52.53	-2.53	3.57	0.00	0.29	8192301.57	380859.00	S 16 20 50.92	E 133 53 4.40
	319.48	1.17	0.00	319.45	53.54	-2.54	3.59	0.00	0.00	8192301.59	380859.00	S 16 20 50.92	E 133 53 4.40
	320.50	1.17	0.00	320.47	54.56	-2.56	3.62	0.00	0.00	8192301.61	380859.00	S 16 20 50.92	E 133 53 4.40
	321.51	1.16	0.00	321.48	55.57	-2.57	3.64	0.00	0.30	8192301.63	380859.00	S 16 20 50.92	E 133 53 4.40
	322.53	1.15	0.00	322.50	56.59	-2.59	3.66	0.00	0.29	8192301.66	380859.00	S 16 20 50.91	E 133 53 4.40
	323.55	1.15	0.00	323.52	57.61	-2.60	3.68	0.00	0.00	8192301.68	380859.00	S 16 20 50.91	E 133 53 4.40
	324.56	1.14	0.00	324.53	58.62	-2.61	3.70	0.00	0.30	8192301.70	380859.00	S 16 20 50.91	E 133 53 4.40
	325.58	1.11	0.00	325.55	59.64	-2.63	3.72	0.00	0.88	8192301.72	380859.00	S 16 20 50.91	E 133 53 4.40
	326.59	1.09	0.00	326.56	60.65	-2.64	3.74	0.00	0.59	8192301.74	380859.00	S 16 20 50.91	E 133 53 4.40
	327.61	1.07	0.00	327.58	61.67	-2.65	3.76	0.00	0.59	8192301.75	380859.00	S 16 20 50.91	E 133 53 4.40
	328.63	1.04	0.00	328.60	62.69	-2.67	3.77	0.00	0.88	8192301.77	380859.00	S 16 20 50.91	E 133 53 4.40
	329.64	1.01	0.00	329.61	63.70	-2.68	3.79	0.00	0.89	8192301.79	380859.00	S 16 20 50.91	E 133 53 4.40
	330.66	0.99	0.00	330.63	64.72	-2.69	3.81	0.00	0.59	8192301.81	380859.00	S 16 20 50.91	E 133 53 4.40
	331.67	0.99	0.00	331.64	65.73	-2.71	3.83	0.00	0.00	8192301.83	380859.00	S 16 20 50.91	E 133 53 4.40
	332.69	0.98	0.00	332.66	66.75	-2.72	3.85	0.00	0.29	8192301.84	380859.00	S 16 20 50.91	E 133 53 4.40
	333.71	0.99	0.00	333.68	67.77	-2.73	3.86	0.00	0.29	8192301.86	380859.00	S 16 20 50.91	E 133 53 4.40
	334.72	1.01	0.00	334.69	68.78	-2.74	3.88	0.00	0.59	8192301.88	380859.00	S 16 20 50.91	E 133 53 4.40
	335.74	1.02	0.00	335.71	69.80	-2.76	3.90	0.00	0.29	8192301.90	380859.00	S 16 20 50.91	E 133 53 4.40
	336.75	0.99	0.00	336.72	70.81	-2.77	3.92	0.00	0.89	8192301.92	380859.00	S 16 20 50.91	E 133 53 4.40
	337.77	0.95	0.00	337.74	71.83	-2.78	3.93	0.00	1.18	8192301.93	380859.00	S 16 20 50.91	E 133 53 4.40
	338.79	1.00	0.00	338.76	72.85	-2.79	3.95	0.00	1.47	8192301.95	380859.00	S 16 20 50.91	E 133 53 4.40
	339.80	0.99	0.00	339.77	73.86	-2.81	3.97	0.00	0.30	8192301.97	380859.00	S 16 20 50.90	E 133 53 4.40
	340.82	0.96	0.00	340.79	74.88	-2.82	3.99	0.00	0.88	8192301.98	380859.00	S 16 20 50.90	E 133 53 4.40
	341.83	0.94	0.00	341.80	75.89	-2.83	4.00	0.00	0.59	8192302.00	380859.00	S 16 20 50.90	E 133 53 4.40
	342.85	0.91	0.00	342.82	76.91	-2.84	4.02	0.00	0.88	8192302.02	380859.00	S 16 20 50.90	E 133 53 4.40
	343.87	0.88	0.00	343.84	77.93	-2.85	4.03	0.00	0.88	8192302.03	380859.00	S 16 20 50.90	E 133 53 4.40
	344.88	0.88	0.00	344.85	78.94	-2.86	4.05	0.00	0.00	8192302.05	380859.00	S 16 20 50.90	E 133 53 4.40
	345.90	0.78	0.00	345.87	79.96	-2.87	4.07	0.00	2.94	8192302.06	380859.00	S 16 20 50.90	E 133 53 4.40
	346.91	0.88	0.00	346.88	80.97	-2.88	4.08	0.00	2.97	8192302.08	380859.00	S 16 20 50.90	E 133 53 4.40
	347.93	0.88	0.00	347.90	81.99	-2.90	4.10	0.00	0.00	8192302.09	380859.00	S 16 20 50.90	E 133 53 4.40
	348.95	0.87	0.00	348.92	83.01	-2.91	4.11	0.00	0.29	8192302.11	380859.00	S 16 20 50.90	E 133 53 4.40
	349.96	0.97	0.00	3									

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	403.81	0.39	0.00	403.77	137.86	-3.32	4.69	4.00	0.29	8192302.69	380859.00	S 16 20 50.88	E 133 53 4.40
	404.83	0.40	0.00	404.79	138.88	-3.32	4.70	0.00	0.29	8192302.70	380859.00	S 16 20 50.88	E 133 53 4.40
	405.84	0.42	0.00	405.80	139.89	-3.33	4.71	0.00	0.59	8192302.71	380859.00	S 16 20 50.88	E 133 53 4.40
	406.86	0.43	0.00	406.82	140.91	-3.33	4.71	0.00	0.29	8192302.71	380859.00	S 16 20 50.88	E 133 53 4.40
	407.87	0.45	0.00	407.83	141.92	-3.34	4.72	0.00	0.59	8192302.72	380859.00	S 16 20 50.88	E 133 53 4.40
	408.89	0.47	0.00	408.85	142.94	-3.34	4.73	0.00	0.59	8192302.73	380859.00	S 16 20 50.88	E 133 53 4.40
	409.91	0.48	0.00	409.87	143.96	-3.35	4.74	0.00	0.29	8192302.74	380859.00	S 16 20 50.88	E 133 53 4.40
	410.92	0.48	0.00	410.88	144.97	-3.36	4.75	0.00	0.00	8192302.75	380859.00	S 16 20 50.88	E 133 53 4.40
	411.94	0.48	0.00	411.90	145.99	-3.36	4.76	0.00	0.00	8192302.75	380859.00	S 16 20 50.88	E 133 53 4.40
	412.95	0.45	0.00	412.91	147.00	-3.37	4.76	0.00	0.89	8192302.76	380859.00	S 16 20 50.88	E 133 53 4.40
	413.97	0.44	0.00	413.93	148.02	-3.37	4.77	0.00	0.29	8192302.77	380859.00	S 16 20 50.88	E 133 53 4.40
	414.99	0.45	0.00	414.95	149.04	-3.38	4.78	0.00	0.29	8192302.78	380859.00	S 16 20 50.88	E 133 53 4.40
	416.00	0.48	0.00	415.96	150.05	-3.39	4.79	0.00	0.89	8192302.79	380859.00	S 16 20 50.88	E 133 53 4.40
	417.02	0.51	0.00	416.98	151.07	-3.39	4.80	0.00	0.88	8192302.80	380859.00	S 16 20 50.88	E 133 53 4.40
	418.03	0.51	0.00	417.99	152.08	-3.40	4.81	0.00	0.00	8192302.81	380859.00	S 16 20 50.88	E 133 53 4.40
	419.05	0.51	0.00	419.01	153.10	-3.40	4.81	0.00	0.00	8192302.81	380859.00	S 16 20 50.88	E 133 53 4.40
	420.07	0.51	0.00	420.03	154.12	-3.41	4.82	0.00	0.00	8192302.82	380859.00	S 16 20 50.88	E 133 53 4.40
	421.08	0.50	0.00	421.04	155.13	-3.42	4.83	0.00	0.30	8192302.83	380859.00	S 16 20 50.88	E 133 53 4.40
	422.10	0.48	0.00	422.06	156.15	-3.42	4.84	0.00	0.59	8192302.84	380859.00	S 16 20 50.88	E 133 53 4.40
	423.11	0.48	0.00	423.07	157.16	-3.43	4.85	0.00	0.00	8192302.85	380859.00	S 16 20 50.88	E 133 53 4.40
	424.13	0.48	0.00	424.09	158.18	-3.44	4.86	0.00	0.00	8192302.86	380859.00	S 16 20 50.88	E 133 53 4.40
	425.15	0.48	0.00	425.11	159.20	-3.44	4.87	0.00	0.00	8192302.87	380859.00	S 16 20 50.88	E 133 53 4.40
	426.16	0.47	0.00	426.12	160.21	-3.45	4.88	0.00	0.30	8192302.87	380859.00	S 16 20 50.88	E 133 53 4.40
	427.18	0.46	0.00	427.14	161.23	-3.45	4.88	0.00	0.29	8192302.88	380859.00	S 16 20 50.87	E 133 53 4.40
	428.19	0.42	0.00	428.15	162.24	-3.46	4.89	0.00	1.19	8192302.89	380859.00	S 16 20 50.87	E 133 53 4.40
	429.21	0.46	0.00	429.17	163.26	-3.46	4.90	0.00	1.18	8192302.90	380859.00	S 16 20 50.87	E 133 53 4.40
	430.23	0.47	0.00	430.19	164.28	-3.47	4.91	0.00	0.29	8192302.91	380859.00	S 16 20 50.87	E 133 53 4.40
	431.24	0.46	0.00	431.20	165.29	-3.48	4.92	0.00	0.30	8192302.91	380859.00	S 16 20 50.87	E 133 53 4.40
	432.26	0.46	0.00	432.22	166.31	-3.48	4.92	0.00	0.00	8192302.92	380859.00	S 16 20 50.87	E 133 53 4.40
	433.27	0.45	0.00	433.23	167.32	-3.49	4.93	0.00	0.30	8192302.93	380859.00	S 16 20 50.87	E 133 53 4.40
	434.29	0.43	0.00	434.25	168.34	-3.49	4.94	0.00	0.59	8192302.94	380859.00	S 16 20 50.87	E 133 53 4.40
	435.31	0.41	0.00	435.27	169.36	-3.50	4.95	0.00	0.59	8192302.95	380859.00	S 16 20 50.87	E 133 53 4.40
	436.32	0.37	0.00	436.28	170.37	-3.50	4.95	0.00	1.19	8192302.95	380859.00	S 16 20 50.87	E 133 53 4.40
	437.34	0.39	0.00	437.30	171.39	-3.51	4.96	0.00	0.59	8192302.96	380859.00	S 16 20 50.87	E 133 53 4.40
	438.35	0.40	0.00	438.31	172.40	-3.51	4.97	0.00	0.30	8192302.97	380859.00	S 16 20 50.87	E 133 53 4.40
	439.37	0.40	0.00	439.33	173.42	-3.52	4.97	0.00	0.00	8192302.97	380859.00	S 16 20 50.87	E 133 53 4.40
	440.39	0.41	0.00	440.35	174.44	-3.52	4.98	0.00	0.29	8192302.98	380859.00	S 16 20 50.87	E 133 53 4.40
	441.40	0.43	0.00	441.36	175.45	-3.53	4.99	0.00	0.59	8192302.99	380859.00	S 16 20 50.87	E 133 53 4.40
	442.42	0.44	0.00	442.38	176.47	-3.53	5.00	0.00	0.29	8192303.00	380859.00	S 16 20 50.87	E 133 53 4.40
	443.43	0.45	0.00	443.39	177.48	-3.54	5.00	0.00	0.30	8192303.00	380859.00	S 16 20 50.87	E 133 53 4.40
	444.45	0.47	0.00	444.41	178.50	-3.54	5.01	0.00	0.59	8192303.01	380859.00	S 16 20 50.87	E 133 53 4.40
	445.47	0.47	0.00	445.43	179.52	-3.55	5.02	0.00	0.00	8192303.02	380859.00	S 16 20 50.87	E 133 53 4.40
	446.48	0.49	0.00	446.44	180.53	-3.56	5.03	0.00	0.59	8192303.03	380859.00	S 16 20 50.87	E 133 53 4.40
	447.50	0.50	0.00	447.46	181.55	-3.56	5.04	0.00	0.29	8192303.04	380859.00	S 16 20 50.87	E 133 53 4.40
	448.51	0.49	0.00	448.47	182.56	-3.57	5.05	0.00	0.30	8192303.05	380859.00	S 16 20 50.87	E 133 53 4.40
	449.53	0.48	0.00	449.49	183.58	-3.58	5.06	0.00	0.29	8192303.05	380859.00	S 16 20 50.87	E 133 53 4.40
	450.55	0.46	0.00	450.51	184.60	-3.58	5.06	0.00	0.59	8192303.06	380859.00	S 16 20 50.87	E 133 53 4.40
	451.56	0.44	0.00	451.52	185.61	-3.59	5.07	0.00	0.59	8192303.07	380859.00	S 16 20 50.87	E 133 53 4.40
	452.58	0.43	0.00	452.54	186.63	-3.59	5.08	0.00	0.29	8192303.08	380859.00	S 16 20 50.87	E 133 53 4.40
	453.59	0.41	0.00	453.55	187.64	-3.60	5.09	0.00	0.59	8192303.09	380859.00	S 16 20 50.87	E 133 53 4.40
	454.61	0.40	0.00	454.57	188.66	-3.60	5.09	0.00	0.29	8192303.09	380859.00	S 16 20 50.87	E 133 53 4.40
	455.63	0.40	0.00	455.59	189.68	-3.61	5.10	0.00	0.00	8192303.10	380859.00	S 16 20 50.87	E 133 53 4.40
	456.64	0.39	0.00	456.60	190.69	-3.61	5.11	0.00	0.00	8192303.11	380859.00	S 16 20 50.87	E 133 53 4.40
	457.66	0.38	0.00	457.62	191.71	-3.62	5.12	0.00	0.29	8192303.12	380859.00	S 16 20 50.87	E 133 53 4.40
	458.67	0.37	0.00	458.63	192.72	-3.62	5.12	0.00	0.59	8192303.12	380859.00	S 16 20 50.87	E 133 53 4.40
	459.69	0.39	0.00	459.65	193.74	-3.63	5.13	0.00	0.59	8192303.13	380859.00	S 16 20 50.87	E 133 53 4.40
	460.71	0.40	0.00	460.67	194.76	-3.63	5.14	0.00	0.29	8192303.14	380859.00	S 16 20 50.87	E 133 53 4.40
	461.72	0.31	0.00	461.68	195.77	-3.64	5.14	0.00	2.67	8192303.14	380859.00	S 16 20 50.87	E 133 53 4.40
	462.74	0.38	0.00	462.70	196.79	-3.64	5.15	0.00	2.06	8192303.15	380859.00	S 16 20 50.87	E 133 53 4.40
	463.75	0.38	0.00	463.71	197.80	-3.65	5.16	0.00	0.00	8192303.15	380859.00	S 16 20 50.87	E 133 53 4.40
	464.77	0.36	0.00	464.73	198.82	-3.65	5.16	0.00	0.59	8192303.16	380859.00	S 16 20 50.87	E 133 53 4.40
	465.79	0.34	0.00	465.75	199.84	-3.65	5.17	0.00	0.59	8192303.17	380859.00	S 16 20 50.87	E 133 53 4.40
	466.80	0.28	0.00	466.76	200.85	-3.66	5.17	0.00	1.78	8192303.17	380859.00	S 16 20 50.87	E 133 53 4.40
	467.82	0.31	0.00	467.78	201.87	-3.66	5.18	0.00	0.88	8192303.18	380859.00	S 16 20 50.87	E 133 53 4.40
	468.83	0.28	0.00	468.79	202.88	-3.67	5.18	0.00	0.89	8192303.18	380859.00	S 16 20 50.87	E 133 53 4.40
	469.85	0.27	0.00	469.81	203.90	-3.67	5.19	0.00	0.00	8192303.19	380859.00	S 16 20 50.86	E 133 53 4.40
	470.87	0.27	0.00	470.83	204.92	-3.67	5.19	0.00	0.00	8192303.19	380859.00	S 16 20 50.86	E 133 53 4.40
	471.88	0.27	0.00	471.84	205.93	-3.68	5.20	0.00	0.00	8192303.20	380859.00	S 16 20 50.86	E 133 53 4.40
	472.90	0.26	0.00	472.86	206.95	-3.68	5.20	0.00	0.29	8192303.20	380859.00	S 16 20 50.86	E 133 53 4.40
	473.91	0.25	0.00	473.87	207.96	-3.68	5.21	0.00	0.30	8192303.21	380859.00	S 16 20 50.86	E 133 53 4.40
	474.93	0.24	0.00	474.89	208.98	-3.69	5.21	0.00	0.29	8192303.21	380859.00	S 16 20 50.86	E 133 53 4.40
	475.95	0.24	0.00	475.91	210.00	-3.69	5.22	0.00	0.00	8192303.22	380859.00	S 16 20 50.86	E 133 53 4.40
	476.96	0.24	0.00	476.92	211.01	-3.69	5.22	0.00	0.00	8192303.22	380859.00	S 16 20 50.86	E 133 53 4.40
	477.98	0.24	0.00	477.94	212.03	-3.69	5.23	0.00	0.00	8192303.22	380859.00	S 16 20 50.86	E 133 53 4.40
	478.99	0.25	0.00	478.95	213.04	-3.70	5.23	0.00	0.30	8192303.23	380859.00	S 16 20 50.86	E 133 53 4.40
	480.01	0.25	0.00	479.97	214.06	-3.70	5.23	0.00	0.00	8192303.23	380859.00	S 16 20 50.86	E 133 53 4.40
	481.03	0.24	0.00	480.99	215.08	-3.70	5.24	0.00	0.29	8192303.24	38085		

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	535.89	0.15	0.00	535.85	269.94	-3.81	5.38	0.00	0.29	8192303.38	380859.00	S 16 20 50.86	E 133 53 4.40
	536.91	0.16	0.00	536.87	270.96	-3.81	5.39	0.00	0.29	8192303.38	380859.00	S 16 20 50.86	E 133 53 4.40
	537.92	0.16	0.00	537.88	271.97	-3.81	5.39	0.00	0.00	8192303.39	380859.00	S 16 20 50.86	E 133 53 4.40
	538.94	0.15	0.00	538.90	272.99	-3.81	5.39	0.00	0.29	8192303.39	380859.00	S 16 20 50.86	E 133 53 4.40
	539.95	0.15	0.00	539.91	274.00	-3.81	5.39	0.00	0.29	8192303.39	380859.00	S 16 20 50.86	E 133 53 4.40
	540.97	0.14	0.00	540.93	275.02	-3.82	5.40	0.00	0.29	8192303.39	380859.00	S 16 20 50.86	E 133 53 4.40
	541.99	0.15	0.00	541.95	276.04	-3.82	5.40	0.00	0.29	8192303.40	380859.00	S 16 20 50.86	E 133 53 4.40
	543.00	0.15	0.00	542.96	277.05	-3.82	5.40	0.00	0.00	8192303.40	380859.00	S 16 20 50.86	E 133 53 4.40
	544.02	0.15	0.00	543.98	278.07	-3.82	5.40	0.00	0.00	8192303.40	380859.00	S 16 20 50.86	E 133 53 4.40
	545.03	0.15	0.00	544.99	279.08	-3.82	5.41	0.00	0.00	8192303.41	380859.00	S 16 20 50.86	E 133 53 4.40
	546.05	0.15	0.00	546.01	280.10	-3.82	5.41	0.00	0.00	8192303.41	380859.00	S 16 20 50.86	E 133 53 4.40
	547.07	0.14	0.00	547.03	281.12	-3.83	5.41	0.00	0.29	8192303.41	380859.00	S 16 20 50.86	E 133 53 4.40
	548.08	0.14	0.00	548.04	282.13	-3.83	5.41	0.00	0.00	8192303.41	380859.00	S 16 20 50.86	E 133 53 4.40
	549.10	0.14	0.00	549.06	283.15	-3.83	5.42	0.00	0.00	8192303.42	380859.00	S 16 20 50.86	E 133 53 4.40
	550.11	0.15	0.00	550.07	284.16	-3.83	5.42	0.00	0.30	8192303.42	380859.00	S 16 20 50.86	E 133 53 4.40
	551.13	0.16	0.00	551.09	285.18	-3.83	5.42	0.00	0.29	8192303.42	380859.00	S 16 20 50.86	E 133 53 4.40
	552.15	0.17	0.00	552.11	286.20	-3.84	5.43	0.00	0.29	8192303.42	380859.00	S 16 20 50.86	E 133 53 4.40
	553.16	0.17	0.00	553.12	287.21	-3.84	5.43	0.00	0.00	8192303.43	380859.00	S 16 20 50.86	E 133 53 4.40
	554.18	0.16	0.00	554.14	288.23	-3.84	5.43	0.00	0.29	8192303.43	380859.00	S 16 20 50.86	E 133 53 4.40
	555.19	0.16	0.00	555.15	289.24	-3.84	5.43	0.00	0.00	8192303.43	380859.00	S 16 20 50.86	E 133 53 4.40
	556.21	0.15	0.00	556.17	290.26	-3.84	5.44	0.00	0.29	8192303.44	380859.00	S 16 20 50.86	E 133 53 4.40
	557.23	0.15	0.00	557.19	291.28	-3.85	5.44	0.00	0.00	8192303.44	380859.00	S 16 20 50.86	E 133 53 4.40
	558.24	0.15	0.00	558.20	292.29	-3.85	5.44	0.00	0.00	8192303.44	380859.00	S 16 20 50.86	E 133 53 4.40
	559.26	0.15	0.00	559.22	293.31	-3.85	5.44	0.00	0.00	8192303.44	380859.00	S 16 20 50.86	E 133 53 4.40
	560.27	0.15	0.00	560.23	294.32	-3.85	5.45	0.00	0.00	8192303.45	380859.00	S 16 20 50.86	E 133 53 4.40
	561.29	0.16	0.00	561.25	295.34	-3.85	5.45	0.00	0.29	8192303.45	380859.00	S 16 20 50.86	E 133 53 4.40
	562.31	0.17	0.00	562.27	296.36	-3.86	5.45	0.00	0.29	8192303.45	380859.00	S 16 20 50.86	E 133 53 4.40
	563.32	0.17	0.00	563.28	297.37	-3.86	5.46	0.00	0.00	8192303.45	380859.00	S 16 20 50.86	E 133 53 4.40
	564.34	0.18	0.00	564.30	298.38	-3.86	5.46	0.00	0.29	8192303.46	380859.00	S 16 20 50.86	E 133 53 4.40
	565.35	0.18	0.00	565.31	299.40	-3.86	5.46	0.00	0.00	8192303.46	380859.00	S 16 20 50.86	E 133 53 4.40
	566.37	0.19	0.00	566.33	300.42	-3.86	5.47	0.00	0.29	8192303.46	380859.00	S 16 20 50.86	E 133 53 4.40
	567.39	0.19	0.00	567.35	301.44	-3.87	5.47	0.00	0.00	8192303.47	380859.00	S 16 20 50.86	E 133 53 4.40
	568.40	0.20	0.00	568.36	302.45	-3.87	5.47	0.00	0.30	8192303.47	380859.00	S 16 20 50.86	E 133 53 4.40
	569.42	0.21	0.00	569.38	303.47	-3.87	5.48	0.00	0.29	8192303.47	380859.00	S 16 20 50.86	E 133 53 4.40
	570.43	0.22	0.00	570.39	304.48	-3.87	5.48	0.00	0.30	8192303.48	380859.00	S 16 20 50.86	E 133 53 4.40
	571.45	0.22	0.00	571.41	305.50	-3.88	5.48	0.00	0.00	8192303.48	380859.00	S 16 20 50.86	E 133 53 4.40
	572.47	0.22	0.00	572.43	306.52	-3.88	5.49	0.00	0.00	8192303.49	380859.00	S 16 20 50.86	E 133 53 4.40
	573.48	0.21	0.00	573.44	307.53	-3.88	5.49	0.00	0.30	8192303.49	380859.00	S 16 20 50.86	E 133 53 4.40
	574.50	0.19	0.00	574.46	308.55	-3.89	5.49	0.00	0.59	8192303.49	380859.00	S 16 20 50.85	E 133 53 4.40
	575.51	0.21	0.00	575.47	309.56	-3.89	5.50	0.00	0.00	8192303.50	380859.00	S 16 20 50.85	E 133 53 4.40
	576.53	0.22	0.00	576.49	310.58	-3.89	5.50	0.00	0.29	8192303.50	380859.00	S 16 20 50.85	E 133 53 4.40
	577.55	0.22	0.00	577.51	311.60	-3.89	5.51	0.00	0.00	8192303.50	380859.00	S 16 20 50.85	E 133 53 4.40
	578.56	0.22	0.00	578.52	312.61	-3.90	5.51	0.00	0.00	8192303.51	380859.00	S 16 20 50.85	E 133 53 4.40
	579.58	0.22	0.00	579.54	313.63	-3.90	5.51	0.00	0.00	8192303.51	380859.00	S 16 20 50.85	E 133 53 4.40
	580.59	0.22	0.00	580.55	314.64	-3.90	5.52	0.00	0.00	8192303.52	380859.00	S 16 20 50.85	E 133 53 4.40
	581.61	0.21	0.00	581.57	315.66	-3.90	5.52	0.00	0.29	8192303.52	380859.00	S 16 20 50.85	E 133 53 4.40
	582.63	0.20	0.00	582.59	316.68	-3.91	5.53	0.00	0.29	8192303.52	380859.00	S 16 20 50.85	E 133 53 4.40
	583.64	0.20	0.00	583.60	317.69	-3.91	5.53	0.00	0.00	8192303.53	380859.00	S 16 20 50.85	E 133 53 4.40
	584.66	0.20	0.00	584.62	318.71	-3.91	5.53	0.00	0.00	8192303.53	380859.00	S 16 20 50.85	E 133 53 4.40
	585.67	0.19	0.00	585.63	319.72	-3.91	5.54	0.00	0.30	8192303.53	380859.00	S 16 20 50.85	E 133 53 4.40
	586.69	0.19	0.00	586.65	320.74	-3.92	5.54	0.00	0.00	8192303.54	380859.00	S 16 20 50.85	E 133 53 4.40
	587.71	0.20	0.00	587.67	321.76	-3.92	5.54	0.00	0.29	8192303.54	380859.00	S 16 20 50.85	E 133 53 4.40
	588.72	0.20	0.00	588.68	322.77	-3.92	5.55	0.00	0.00	8192303.54	380859.00	S 16 20 50.85	E 133 53 4.40
	589.74	0.19	0.00	589.70	323.79	-3.92	5.55	0.00	0.30	8192303.55	380859.00	S 16 20 50.85	E 133 53 4.40
	590.75	0.19	0.00	590.71	324.80	-3.93	5.55	0.00	0.00	8192303.55	380859.00	S 16 20 50.85	E 133 53 4.40
	591.77	0.19	0.00	591.73	325.82	-3.93	5.56	0.00	0.00	8192303.56	380859.00	S 16 20 50.85	E 133 53 4.40
	592.79	0.19	0.00	592.75	326.84	-3.93	5.56	0.00	0.00	8192303.56	380859.00	S 16 20 50.85	E 133 53 4.40
	593.80	0.20	0.00	593.76	327.85	-3.93	5.56	0.00	0.30	8192303.56	380859.00	S 16 20 50.85	E 133 53 4.40
	594.82	0.19	0.00	594.78	328.87	-3.94	5.57	0.00	0.29	8192303.57	380859.00	S 16 20 50.85	E 133 53 4.40
	595.83	0.20	0.00	595.79	329.88	-3.94	5.57	0.00	0.30	8192303.57	380859.00	S 16 20 50.85	E 133 53 4.40
	596.85	0.20	0.00	596.81	330.90	-3.94	5.57	0.00	0.00	8192303.57	380859.00	S 16 20 50.85	E 133 53 4.40
	597.87	0.19	0.00	597.83	331.92	-3.94	5.58	0.00	0.29	8192303.58	380859.00	S 16 20 50.85	E 133 53 4.40
	598.88	0.18	0.00	598.84	332.93	-3.95	5.58	0.00	0.30	8192303.58	380859.00	S 16 20 50.85	E 133 53 4.40
	599.90	0.17	0.00	599.86	333.95	-3.95	5.58	0.00	0.29	8192303.58	380859.00	S 16 20 50.85	E 133 53 4.40
	600.91	0.17	0.00	600.87	334.96	-3.95	5.59	0.00	0.00	8192303.59	380859.00	S 16 20 50.85	E 133 53 4.40
	601.93	0.18	0.00	601.89	335.98	-3.95	5.59	0.00	0.29	8192303.59	380859.00	S 16 20 50.85	E 133 53 4.40
	602.95	0.20	0.00	602.91	337.00	-3.95	5.59	0.00	0.59	8192303.59	380859.00	S 16 20 50.85	E 133 53 4.40
	603.96	0.21	0.00	603.92	338.01	-3.96	5.60	0.00	0.30	8192303.60	380859.00	S 16 20 50.85	E 133 53 4.40
	604.98	0.22	0.00	604.94	339.03	-3.96	5.60	0.00	0.29	8192303.60	380859.00	S 16 20 50.85	E 133 53 4.40
	605.99	0.23	0.00	605.95	340.04	-3.96	5.60	0.00	0.30	8192303.60	380859.00	S 16 20 50.85	E 133 53 4.40
	607.01	0.23	0.00	606.97	341.06	-3.97	5.61	0.00	0.00	8192303.61	380859.00	S 16 20 50.85	E 133 53 4.40
	608.03	0.23	0.00	607.99	342.08	-3.97	5.61	0.00	0.00	8192303.61	380859.00	S 16 20 50.85	E 133 53 4.40
	609.04	0.24	0.00	609.00	343.09	-3.97	5.62	0.00	0.30	8192303.62	380859.00	S 16 20 50.85	E 133 53 4.40
	610.06	0.25	0.00	610.02	344.11	-3.97	5.62	0.00	0.29	8192303.62	380859.00	S 16 20 50.85	E 133 53 4.40
	611.07	0.25	0.00	611.03	345.12	-3.98	5.63	0.00	0.00	8192303.62	380859.00	S 16 20 50.85	E 133 53 4.40
	612.09	0.25	0.00	612.05	346.14	-3.98	5.63	0.00	0.00	8192303.63	380859.00	S 16 20 50.85	E 133 53 4.40
	613.11	0.25	0.00	613.07	347.16	-3.98	5.63	0.00	0.00	8192303.63	38085		

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	667.97	0.16	0.00	667.93	402.02	-4.11	5.82	0.00	0.29	8192303.82	380859.00	S 16 20 50.84	E 133 53 4.40
	668.99	0.18	0.00	668.95	403.04	-4.12	5.82	0.00	0.59	8192303.82	380859.00	S 16 20 50.84	E 133 53 4.40
	670.00	0.19	0.00	669.96	404.05	-4.12	5.82	0.00	0.30	8192303.82	380859.00	S 16 20 50.84	E 133 53 4.40
	671.02	0.19	0.00	670.98	405.07	-4.12	5.83	0.00	0.00	8192303.83	380859.00	S 16 20 50.84	E 133 53 4.40
	672.03	0.19	0.00	671.99	406.08	-4.12	5.83	0.00	0.00	8192303.83	380859.00	S 16 20 50.84	E 133 53 4.40
	673.05	0.19	0.00	673.01	407.10	-4.12	5.83	0.00	0.00	8192303.83	380859.00	S 16 20 50.84	E 133 53 4.40
	674.07	0.19	0.00	674.03	408.12	-4.13	5.84	0.00	0.00	8192303.84	380859.00	S 16 20 50.84	E 133 53 4.40
	675.08	0.20	0.00	675.04	409.13	-4.13	5.84	0.00	0.30	8192303.84	380859.00	S 16 20 50.84	E 133 53 4.40
	676.10	0.22	0.00	676.06	410.15	-4.13	5.84	0.00	0.59	8192303.84	380859.00	S 16 20 50.84	E 133 53 4.40
	677.11	0.24	0.00	677.07	411.16	-4.14	5.85	0.00	0.59	8192303.85	380859.00	S 16 20 50.84	E 133 53 4.40
	678.13	0.26	0.00	678.09	412.18	-4.14	5.85	0.00	0.59	8192303.85	380859.00	S 16 20 50.84	E 133 53 4.40
	679.15	0.28	0.00	679.11	413.20	-4.14	5.86	0.00	0.59	8192303.86	380859.00	S 16 20 50.84	E 133 53 4.40
	680.16	0.30	0.00	680.12	414.21	-4.15	5.86	0.00	0.59	8192303.86	380859.00	S 16 20 50.84	E 133 53 4.40
	681.18	0.32	0.00	681.14	415.23	-4.15	5.87	0.00	0.59	8192303.87	380859.00	S 16 20 50.84	E 133 53 4.40
	682.19	0.33	0.00	682.15	416.24	-4.15	5.87	0.00	0.30	8192303.87	380859.00	S 16 20 50.84	E 133 53 4.40
	683.21	0.33	0.00	683.17	417.26	-4.16	5.88	0.00	0.00	8192303.88	380859.00	S 16 20 50.84	E 133 53 4.40
	684.23	0.31	0.00	684.19	418.28	-4.16	5.89	0.00	0.59	8192303.88	380859.00	S 16 20 50.84	E 133 53 4.40
	685.24	0.29	0.00	685.20	419.29	-4.17	5.89	0.00	0.59	8192303.89	380859.00	S 16 20 50.84	E 133 53 4.40
	686.26	0.26	0.00	686.22	420.31	-4.17	5.90	0.00	0.88	8192303.89	380859.00	S 16 20 50.84	E 133 53 4.40
	687.27	0.24	0.00	687.23	421.32	-4.17	5.90	0.00	0.59	8192303.90	380859.00	S 16 20 50.84	E 133 53 4.40
	688.29	0.23	0.00	688.25	422.34	-4.17	5.90	0.00	0.29	8192303.90	380859.00	S 16 20 50.84	E 133 53 4.40
	689.31	0.23	0.00	689.27	423.36	-4.18	5.91	0.00	0.00	8192303.91	380859.00	S 16 20 50.84	E 133 53 4.40
	690.32	0.23	0.00	690.28	424.37	-4.18	5.91	0.00	0.00	8192303.91	380859.00	S 16 20 50.84	E 133 53 4.40
	691.34	0.23	0.00	691.30	425.39	-4.18	5.92	0.00	0.00	8192303.91	380859.00	S 16 20 50.84	E 133 53 4.40
	692.35	0.23	0.00	692.31	426.40	-4.19	5.92	0.00	0.00	8192303.92	380859.00	S 16 20 50.84	E 133 53 4.40
	693.37	0.24	0.00	693.33	427.42	-4.19	5.92	0.00	0.29	8192303.92	380859.00	S 16 20 50.84	E 133 53 4.40
	694.39	0.25	0.00	694.35	428.44	-4.19	5.93	0.00	0.29	8192303.93	380859.00	S 16 20 50.84	E 133 53 4.40
	695.40	0.27	0.00	695.36	429.45	-4.20	5.93	0.00	0.59	8192303.93	380859.00	S 16 20 50.84	E 133 53 4.40
	696.42	0.29	0.00	696.38	430.47	-4.20	5.94	0.00	0.59	8192303.94	380859.00	S 16 20 50.84	E 133 53 4.40
	697.43	0.30	0.00	697.39	431.48	-4.20	5.94	0.00	0.29	8192303.94	380859.00	S 16 20 50.84	E 133 53 4.40
	698.45	0.32	0.00	698.41	432.50	-4.21	5.95	0.00	0.59	8192303.95	380859.00	S 16 20 50.84	E 133 53 4.40
	699.47	0.32	0.00	699.43	433.52	-4.21	5.95	0.00	0.00	8192303.95	380859.00	S 16 20 50.84	E 133 53 4.40
	700.48	0.33	0.00	700.44	434.53	-4.21	5.96	0.00	0.30	8192303.96	380859.00	S 16 20 50.84	E 133 53 4.40
	701.50	0.33	0.00	701.46	435.55	-4.22	5.97	0.00	0.00	8192303.97	380859.00	S 16 20 50.84	E 133 53 4.40
	702.51	0.33	0.00	702.47	436.56	-4.22	5.97	0.00	0.00	8192303.97	380859.00	S 16 20 50.84	E 133 53 4.40
	703.53	0.33	0.00	703.49	437.58	-4.23	5.98	0.00	0.00	8192303.98	380859.00	S 16 20 50.84	E 133 53 4.40
	704.55	0.32	0.00	704.51	438.60	-4.23	5.98	0.00	0.29	8192303.98	380859.00	S 16 20 50.84	E 133 53 4.40
	705.56	0.31	0.00	705.52	439.61	-4.24	5.99	0.00	0.30	8192303.99	380859.00	S 16 20 50.84	E 133 53 4.40
	706.58	0.31	0.00	706.54	440.63	-4.24	5.99	0.00	0.00	8192303.99	380859.00	S 16 20 50.84	E 133 53 4.40
	707.59	0.30	0.00	707.55	441.64	-4.24	6.00	0.00	0.30	8192304.00	380859.00	S 16 20 50.84	E 133 53 4.40
	708.61	0.30	0.00	708.57	442.66	-4.25	6.01	0.00	0.12	8192304.00	380859.00	S 16 20 50.84	E 133 53 4.40
	709.63	0.26	0.00	709.59	443.68	-4.25	6.01	0.00	1.18	8192304.01	380859.00	S 16 20 50.84	E 133 53 4.40
	710.64	0.29	0.00	710.60	444.69	-4.25	6.02	0.00	0.89	8192304.01	380859.00	S 16 20 50.84	E 133 53 4.40
	711.66	0.30	0.00	711.62	445.71	-4.26	6.02	0.00	0.29	8192304.02	380859.00	S 16 20 50.84	E 133 53 4.40
	712.67	0.30	0.00	712.63	446.72	-4.26	6.03	0.00	0.00	8192304.02	380859.00	S 16 20 50.84	E 133 53 4.40
	713.69	0.30	0.00	713.65	447.74	-4.26	6.03	0.00	0.00	8192304.03	380859.00	S 16 20 50.84	E 133 53 4.40
	714.71	0.31	0.00	714.67	448.76	-4.27	6.04	0.00	0.29	8192304.04	380859.00	S 16 20 50.84	E 133 53 4.40
	715.72	0.32	0.00	715.68	449.77	-4.27	6.04	0.00	0.30	8192304.04	380859.00	S 16 20 50.84	E 133 53 4.40
	716.74	0.32	0.00	716.70	450.79	-4.28	6.05	0.00	0.00	8192304.05	380859.00	S 16 20 50.84	E 133 53 4.40
	717.75	0.31	0.00	717.71	451.80	-4.28	6.05	0.00	0.30	8192304.05	380859.00	S 16 20 50.84	E 133 53 4.40
	718.77	0.31	0.00	718.73	452.82	-4.28	6.06	0.00	0.00	8192304.06	380859.00	S 16 20 50.84	E 133 53 4.40
	719.79	0.31	0.00	719.75	453.84	-4.29	6.06	0.00	0.00	8192304.06	380859.00	S 16 20 50.84	E 133 53 4.40
	720.80	0.31	0.00	720.76	454.85	-4.29	6.07	0.00	0.00	8192304.07	380859.00	S 16 20 50.84	E 133 53 4.40
	721.82	0.31	0.00	721.78	455.87	-4.30	6.08	0.00	0.00	8192304.07	380859.00	S 16 20 50.84	E 133 53 4.40
	722.83	0.29	0.00	722.79	456.88	-4.30	6.08	0.00	0.59	8192304.08	380859.00	S 16 20 50.84	E 133 53 4.40
	723.85	0.29	0.00	723.81	457.90	-4.30	6.09	0.00	0.00	8192304.08	380859.00	S 16 20 50.84	E 133 53 4.40
	724.87	0.29	0.00	724.83	458.92	-4.31	6.09	0.00	0.00	8192304.09	380859.00	S 16 20 50.84	E 133 53 4.40
	725.88	0.28	0.00	725.84	459.93	-4.31	6.10	0.00	0.30	8192304.09	380859.00	S 16 20 50.84	E 133 53 4.40
	726.90	0.28	0.00	726.86	460.95	-4.31	6.10	0.00	0.00	8192304.10	380859.00	S 16 20 50.84	E 133 53 4.40
	727.91	0.28	0.00	727.87	461.96	-4.32	6.11	0.00	0.00	8192304.10	380859.00	S 16 20 50.84	E 133 53 4.40
	728.93	0.22	0.00	728.89	462.98	-4.32	6.11	0.00	1.76	8192304.11	380859.00	S 16 20 50.83	E 133 53 4.40
	729.95	0.25	0.00	729.91	464.00	-4.32	6.11	0.00	0.88	8192304.11	380859.00	S 16 20 50.83	E 133 53 4.40
	730.96	0.24	0.00	730.92	465.01	-4.33	6.12	0.00	0.30	8192304.12	380859.00	S 16 20 50.83	E 133 53 4.40
	731.98	0.22	0.00	731.94	466.03	-4.33	6.12	0.00	0.59	8192304.12	380859.00	S 16 20 50.83	E 133 53 4.40
	732.99	0.21	0.00	732.95	467.04	-4.33	6.13	0.00	0.00	8192304.13	380859.00	S 16 20 50.83	E 133 53 4.40
	734.01	0.20	0.00	733.97	468.06	-4.34	6.13	0.00	0.30	8192304.13	380859.00	S 16 20 50.83	E 133 53 4.40
	735.03	0.20	0.00	734.99	469.08	-4.34	6.13	0.00	0.00	8192304.13	380859.00	S 16 20 50.83	E 133 53 4.40
	736.04	0.19	0.00	736.00	470.09	-4.34	6.14	0.00	0.30	8192304.14	380859.00	S 16 20 50.83	E 133 53 4.40
	737.06	0.16	0.00	737.02	471.11	-4.34	6.14	0.00	0.88	8192304.14	380859.00	S 16 20 50.83	E 133 53 4.40
	738.07	0.17	0.00	738.03	472.12	-4.34	6.14	0.00	0.30	8192304.14	380859.00	S 16 20 50.83	E 133 53 4.40
	739.09	0.16	0.00	739.05	473.14	-4.35	6.15	0.00	0.29	8192304.15	380859.00	S 16 20 50.83	E 133 53 4.40
	740.11	0.15	0.00	740.07	474.16	-4.35	6.15	0.00	0.29	8192304.15	380859.00	S 16 20 50.83	E 133 53 4.40
	741.12	0.14	0.00	741.08	475.17	-4.35	6.15	0.00	0.30	8192304.15	380859.00	S 16 20 50.83	E 133 53 4.40
	742.14	0.14	0.00	742.10	476.19	-4.35	6.15	0.00	0.00	8192304.15	380859.00	S 16 20 50.83	E 133 53 4.40
	743.15	0.13	0.00	743.11	477.20	-4.35	6.16	0.00	0.30	8192304.16	380859.00	S 16 20 50.83	E 133 53 4.40
	744.17	0.13	0.00	744.13	478.22	-4.36	6.16	0.00	0.00	8192304.16	380859.00	S 16 20 50.83	E 133 53 4.40
	745.19	0.12	0.00	745.15	479.24	-4.36	6.16	0.00	0.29	8192304.16	38085		



Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	800.05	0.20	0.00	800.01	534.10	-4.47	6.33	0.00	0.00	8192304.33	380859.00	S 16 20 50.83	E 133 53 4.40
	801.07	0.20	0.00	801.03	535.12	-4.48	6.33	0.00	0.00	8192304.33	380859.00	S 16 20 50.83	E 133 53 4.40
	802.08	0.21	0.00	802.04	536.13	-4.48	6.33	0.00	0.30	8192304.33	380859.00	S 16 20 50.83	E 133 53 4.40
	803.10	0.21	0.00	803.06	537.15	-4.48	6.34	0.00	0.00	8192304.34	380859.00	S 16 20 50.83	E 133 53 4.40
	804.11	0.23	0.00	804.07	538.16	-4.48	6.34	0.00	0.59	8192304.34	380859.00	S 16 20 50.83	E 133 53 4.40
	805.13	0.24	0.00	805.09	539.18	-4.49	6.35	0.00	0.29	8192304.34	380859.00	S 16 20 50.83	E 133 53 4.40
	806.15	0.25	0.00	806.11	540.20	-4.49	6.35	0.00	0.29	8192304.35	380859.00	S 16 20 50.83	E 133 53 4.40
	807.16	0.24	0.00	807.12	541.21	-4.49	6.35	0.00	0.30	8192304.35	380859.00	S 16 20 50.83	E 133 53 4.40
	808.18	0.25	0.00	808.14	542.23	-4.50	6.36	0.00	0.29	8192304.36	380859.00	S 16 20 50.83	E 133 53 4.40
	809.19	0.27	0.00	809.15	543.24	-4.50	6.36	0.00	0.59	8192304.36	380859.00	S 16 20 50.83	E 133 53 4.40
	810.21	0.29	0.00	810.17	544.26	-4.50	6.37	0.00	0.59	8192304.37	380859.00	S 16 20 50.83	E 133 53 4.40
	811.23	0.31	0.00	811.19	545.28	-4.51	6.37	0.00	0.59	8192304.37	380859.00	S 16 20 50.83	E 133 53 4.40
	812.24	0.33	0.00	812.20	546.29	-4.51	6.38	0.00	0.59	8192304.38	380859.00	S 16 20 50.83	E 133 53 4.40
	813.26	0.34	0.00	813.22	547.31	-4.52	6.39	0.00	0.29	8192304.38	380859.00	S 16 20 50.83	E 133 53 4.40
	814.27	0.35	0.00	814.23	548.32	-4.52	6.39	0.00	0.30	8192304.39	380859.00	S 16 20 50.83	E 133 53 4.40
	815.29	0.36	0.00	815.25	549.34	-4.52	6.40	0.00	0.29	8192304.40	380859.00	S 16 20 50.83	E 133 53 4.40
	816.31	0.35	0.00	816.27	550.36	-4.53	6.40	0.00	0.29	8192304.40	380859.00	S 16 20 50.83	E 133 53 4.40
	817.32	0.34	0.00	817.28	551.37	-4.53	6.41	0.00	0.30	8192304.41	380859.00	S 16 20 50.83	E 133 53 4.40
	818.34	0.37	0.00	818.30	552.39	-4.54	6.42	0.00	0.88	8192304.42	380859.00	S 16 20 50.83	E 133 53 4.40
	819.35	0.36	0.00	819.31	553.40	-4.54	6.42	0.00	0.30	8192304.42	380859.00	S 16 20 50.82	E 133 53 4.40
	820.37	0.34	0.00	820.33	554.42	-4.55	6.43	0.00	0.59	8192304.43	380859.00	S 16 20 50.82	E 133 53 4.40
	821.39	0.31	0.00	821.35	555.44	-4.55	6.44	0.00	0.88	8192304.43	380859.00	S 16 20 50.82	E 133 53 4.40
	822.40	0.28	0.00	822.36	556.45	-4.55	6.44	0.00	0.89	8192304.44	380859.00	S 16 20 50.82	E 133 53 4.40
	823.42	0.28	0.00	823.38	557.47	-4.56	6.45	0.00	0.00	8192304.44	380859.00	S 16 20 50.82	E 133 53 4.40
	824.43	0.27	0.00	824.39	558.48	-4.56	6.45	0.00	0.30	8192304.45	380859.00	S 16 20 50.82	E 133 53 4.40
	825.45	0.26	0.00	825.41	559.50	-4.56	6.45	0.00	0.29	8192304.45	380859.00	S 16 20 50.82	E 133 53 4.40
	826.47	0.24	0.00	826.43	560.52	-4.57	6.46	0.00	0.59	8192304.46	380859.00	S 16 20 50.82	E 133 53 4.40
	827.48	0.23	0.00	827.44	561.53	-4.57	6.46	0.00	0.30	8192304.46	380859.00	S 16 20 50.82	E 133 53 4.40
	828.50	0.22	0.00	828.46	562.55	-4.57	6.47	0.00	0.29	8192304.47	380859.00	S 16 20 50.82	E 133 53 4.40
	829.51	0.24	0.00	829.47	563.56	-4.58	6.47	0.00	0.59	8192304.48	380859.00	S 16 20 50.82	E 133 53 4.40
	830.53	0.27	0.00	830.49	564.58	-4.58	6.48	0.00	0.88	8192304.47	380859.00	S 16 20 50.82	E 133 53 4.40
	831.55	0.28	0.00	831.51	565.60	-4.58	6.48	0.00	0.29	8192304.48	380859.00	S 16 20 50.82	E 133 53 4.40
	832.56	0.30	0.00	832.52	566.61	-4.59	6.49	0.00	0.59	8192304.48	380859.00	S 16 20 50.82	E 133 53 4.40
	833.58	0.30	0.00	833.54	567.63	-4.59	6.49	0.00	0.00	8192304.49	380859.00	S 16 20 50.82	E 133 53 4.40
	834.59	0.28	0.00	834.55	568.64	-4.59	6.50	0.00	0.59	8192304.50	380859.00	S 16 20 50.82	E 133 53 4.40
	835.61	0.32	0.00	835.57	569.66	-4.60	6.50	0.00	1.18	8192304.50	380859.00	S 16 20 50.82	E 133 53 4.40
	836.63	0.33	0.00	836.59	570.68	-4.60	6.51	0.00	0.29	8192304.51	380859.00	S 16 20 50.82	E 133 53 4.40
	837.64	0.34	0.00	837.60	571.69	-4.61	6.51	0.00	0.30	8192304.51	380859.00	S 16 20 50.82	E 133 53 4.40
	838.66	0.34	0.00	838.62	572.71	-4.61	6.52	0.00	0.00	8192304.52	380859.00	S 16 20 50.82	E 133 53 4.40
	839.67	0.30	0.00	839.63	573.72	-4.61	6.53	0.00	1.19	8192304.52	380859.00	S 16 20 50.82	E 133 53 4.40
	840.69	0.23	0.00	840.65	574.74	-4.62	6.53	0.00	0.88	8192304.53	380859.00	S 16 20 50.82	E 133 53 4.40
	841.71	0.31	0.00	841.67	575.76	-4.62	6.54	0.00	0.00	8192304.54	380859.00	S 16 20 50.82	E 133 53 4.40
	842.72	0.28	0.00	842.68	576.77	-4.62	6.54	0.00	0.89	8192304.54	380859.00	S 16 20 50.82	E 133 53 4.40
	843.74	0.24	0.00	843.70	577.79	-4.63	6.55	0.00	1.18	8192304.54	380859.00	S 16 20 50.82	E 133 53 4.40
	844.75	0.25	0.00	844.71	578.80	-4.63	6.55	0.00	0.30	8192304.55	380859.00	S 16 20 50.82	E 133 53 4.40
	845.77	0.24	0.00	845.73	579.82	-4.64	6.56	0.00	0.29	8192304.55	380859.00	S 16 20 50.82	E 133 53 4.40
	846.79	0.22	0.00	846.75	580.84	-4.64	6.56	0.00	0.59	8192304.56	380859.00	S 16 20 50.82	E 133 53 4.40
	847.80	0.22	0.00	847.76	581.85	-4.64	6.56	0.00	0.00	8192304.56	380859.00	S 16 20 50.82	E 133 53 4.40
	848.82	0.23	0.00	848.78	582.87	-4.64	6.57	0.00	0.29	8192304.57	380859.00	S 16 20 50.82	E 133 53 4.40
	849.83	0.24	0.00	849.79	583.88	-4.65	6.57	0.00	0.30	8192304.57	380859.00	S 16 20 50.82	E 133 53 4.40
	850.85	0.26	0.00	850.81	584.90	-4.65	6.58	0.00	0.59	8192304.57	380859.00	S 16 20 50.82	E 133 53 4.40
	851.87	0.24	0.00	851.83	585.92	-4.65	6.58	0.00	0.59	8192304.58	380859.00	S 16 20 50.82	E 133 53 4.40
	852.88	0.29	0.00	852.84	586.93	-4.66	6.58	0.00	1.49	8192304.58	380859.00	S 16 20 50.82	E 133 53 4.40
	853.90	0.31	0.00	853.86	587.95	-4.66	6.59	0.00	0.59	8192304.59	380859.00	S 16 20 50.82	E 133 53 4.40
	854.91	0.32	0.00	854.87	588.96	-4.66	6.60	0.00	0.30	8192304.59	380859.00	S 16 20 50.82	E 133 53 4.40
	855.93	0.30	0.00	855.89	589.98	-4.67	6.60	0.00	0.59	8192304.60	380859.00	S 16 20 50.82	E 133 53 4.40
	856.95	0.32	0.00	856.91	591.00	-4.67	6.61	0.00	0.59	8192304.61	380859.00	S 16 20 50.82	E 133 53 4.40
	857.96	0.34	0.00	857.92	592.01	-4.68	6.61	0.00	0.59	8192304.61	380859.00	S 16 20 50.82	E 133 53 4.40
	858.98	0.32	0.00	858.94	593.03	-4.68	6.62	0.00	0.59	8192304.62	380859.00	S 16 20 50.82	E 133 53 4.40
	859.99	0.27	0.00	859.95	594.04	-4.68	6.62	0.00	1.49	8192304.62	380859.00	S 16 20 50.82	E 133 53 4.40
	861.01	0.28	0.00	860.97	595.06	-4.69	6.63	0.00	0.29	8192304.63	380859.00	S 16 20 50.82	E 133 53 4.40
	862.03	0.26	0.00	861.99	596.08	-4.69	6.63	0.00	0.59	8192304.63	380859.00	S 16 20 50.82	E 133 53 4.40
	863.04	0.23	0.00	863.00	597.09	-4.69	6.64	0.00	0.89	8192304.64	380859.00	S 16 20 50.82	E 133 53 4.40
	864.06	0.24	0.00	864.02	598.11	-4.70	6.64	0.00	0.29	8192304.64	380859.00	S 16 20 50.82	E 133 53 4.40
	865.07	0.25	0.00	865.03	599.12	-4.70	6.65	0.00	0.30	8192304.64	380859.00	S 16 20 50.82	E 133 53 4.40
	866.09	0.27	0.00	866.05	600.14	-4.70	6.65	0.00	0.59	8192304.65	380859.00	S 16 20 50.82	E 133 53 4.40
	867.11	0.29	0.00	867.07	601.16	-4.71	6.66	0.00	0.59	8192304.65	380859.00	S 16 20 50.82	E 133 53 4.40
	868.12	0.33	0.00	868.08	602.17	-4.71	6.66	0.00	1.19	8192304.66	380859.00	S 16 20 50.82	E 133 53 4.40
	869.14	0.35	0.00	869.10	603.19	-4.71	6.67	0.00	0.59	8192304.67	380859.00	S 16 20 50.82	E 133 53 4.40
	870.15	0.36	0.00	870.11	604.20	-4.72	6.67	0.00	0.30	8192304.67	380859.00	S 16 20 50.82	E 133 53 4.40
	871.17	0.36	0.00	871.13	605.22	-4.72	6.68	0.00	0.00	8192304.68	380859.00	S 16 20 50.82	E 133 53 4.40
	872.19	0.36	0.00	872.15	606.24	-4.73	6.69	0.00	0.00	8192304.68	380859.00	S 16 20 50.82	E 133 53 4.40
	873.20	0.36	0.00	873.16	607.25	-4.73	6.69	0.00	0.00	8192304.69	380859.00	S 16 20 50.82	E 133 53 4.40
	874.22	0.36	0.00	874.18	608.27	-4.74	6.70	0.00	0.00	8192304.70	380859.00	S 16 20 50.82	E 133 53 4.40
	875.23	0.36	0.00	875.19	609.28	-4.74	6.71	0.00	0.00	8192304.70	380859.00	S 16 20 50.82	E 133 53 4.40
	876.25	0.36	0.00	876.21	610.30	-4.75	6.71	0.00	0.00	8192304.71	380859.00	S 16 20 50.82	E 133 53 4.40
	877.27	0.34	0.00	877.23	611.32	-4.75	6.72	0.00	0.59	8192304.72	38085		

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	932.13	0.52	0.00	932.09	666.18	-5.03	7.12	0.00	0.00	8192305.11	380859.00	S 16 20 50.80	E 133 53 4.40
	933.15	0.51	0.00	933.11	667.20	-5.04	7.12	0.00	0.29	8192305.12	380859.00	S 16 20 50.80	E 133 53 4.40
	934.16	0.50	0.00	934.12	668.21	-5.04	7.13	0.00	0.30	8192305.13	380859.00	S 16 20 50.80	E 133 53 4.40
	935.18	0.49	0.00	935.14	669.23	-5.05	7.14	0.00	0.29	8192305.14	380859.00	S 16 20 50.80	E 133 53 4.40
	936.19	0.47	0.00	936.15	670.24	-5.06	7.15	0.00	0.59	8192305.15	380859.00	S 16 20 50.80	E 133 53 4.40
	937.21	0.46	0.00	937.17	671.26	-5.06	7.16	0.00	0.29	8192305.16	380859.00	S 16 20 50.80	E 133 53 4.40
	938.23	0.45	0.00	938.19	672.28	-5.07	7.17	0.00	0.29	8192305.17	380859.00	S 16 20 50.80	E 133 53 4.40
	939.24	0.43	0.00	939.20	673.29	-5.07	7.18	0.00	0.59	8192305.17	380859.00	S 16 20 50.80	E 133 53 4.40
	940.26	0.43	0.00	940.22	674.31	-5.08	7.18	0.00	0.00	8192305.18	380859.00	S 16 20 50.80	E 133 53 4.40
	941.27	0.42	0.00	941.23	675.32	-5.08	7.19	0.00	0.30	8192305.19	380859.00	S 16 20 50.80	E 133 53 4.40
	942.29	0.41	0.00	942.25	676.34	-5.09	7.20	0.00	0.29	8192305.20	380859.00	S 16 20 50.80	E 133 53 4.40
	943.31	0.41	0.00	943.27	677.36	-5.09	7.21	0.00	0.00	8192305.20	380859.00	S 16 20 50.80	E 133 53 4.40
	944.32	0.40	0.00	944.28	678.37	-5.10	7.21	0.00	0.30	8192305.21	380859.00	S 16 20 50.80	E 133 53 4.40
	945.34	0.37	0.00	945.30	679.39	-5.10	7.22	0.00	0.88	8192305.22	380859.00	S 16 20 50.80	E 133 53 4.40
	946.35	0.41	0.00	946.31	680.40	-5.11	7.23	0.00	1.19	8192305.22	380859.00	S 16 20 50.80	E 133 53 4.40
	947.37	0.42	0.00	947.33	681.42	-5.11	7.23	0.00	0.29	8192305.23	380859.00	S 16 20 50.80	E 133 53 4.40
	948.39	0.43	0.00	948.35	682.44	-5.12	7.24	0.00	0.29	8192305.24	380859.00	S 16 20 50.80	E 133 53 4.40
	949.40	0.43	0.00	949.36	683.45	-5.13	7.25	0.00	0.00	8192305.25	380859.00	S 16 20 50.80	E 133 53 4.40
	950.42	0.43	0.00	950.38	684.47	-5.13	7.26	0.00	0.00	8192305.25	380859.00	S 16 20 50.80	E 133 53 4.40
	951.43	0.42	0.00	951.39	685.48	-5.14	7.26	0.00	0.30	8192305.26	380859.00	S 16 20 50.80	E 133 53 4.40
	952.45	0.41	0.00	952.41	686.50	-5.14	7.27	0.00	0.29	8192305.27	380859.00	S 16 20 50.80	E 133 53 4.40
	953.47	0.38	0.00	953.43	687.52	-5.15	7.28	0.00	0.88	8192305.28	380859.00	S 16 20 50.80	E 133 53 4.40
	954.48	0.37	0.00	954.44	688.53	-5.15	7.28	0.00	0.30	8192305.28	380859.00	S 16 20 50.80	E 133 53 4.40
	955.50	0.37	0.00	955.46	689.55	-5.16	7.29	0.00	0.00	8192305.29	380859.00	S 16 20 50.80	E 133 53 4.40
	956.51	0.38	0.00	956.47	690.56	-5.16	7.30	0.00	0.30	8192305.30	380859.00	S 16 20 50.80	E 133 53 4.40
	957.53	0.39	0.00	957.49	691.58	-5.17	7.30	0.00	0.29	8192305.30	380859.00	S 16 20 50.80	E 133 53 4.40
	958.55	0.39	0.00	958.51	692.60	-5.17	7.31	0.00	0.00	8192305.31	380859.00	S 16 20 50.80	E 133 53 4.40
	959.56	0.38	0.00	959.52	693.61	-5.17	7.32	0.00	0.30	8192305.32	380859.00	S 16 20 50.80	E 133 53 4.40
	960.58	0.38	0.00	960.54	694.63	-5.18	7.33	0.00	0.00	8192305.32	380859.00	S 16 20 50.80	E 133 53 4.40
	961.59	0.35	0.00	961.55	695.64	-5.18	7.33	0.00	0.89	8192305.33	380859.00	S 16 20 50.80	E 133 53 4.40
	962.61	0.32	0.00	962.57	696.66	-5.19	7.34	0.00	0.88	8192305.34	380859.00	S 16 20 50.80	E 133 53 4.40
	963.63	0.30	0.00	963.59	697.68	-5.19	7.34	0.00	0.59	8192305.34	380859.00	S 16 20 50.79	E 133 53 4.40
	964.64	0.30	0.00	964.60	698.69	-5.20	7.35	0.00	0.00	8192305.35	380859.00	S 16 20 50.79	E 133 53 4.40
	965.66	0.31	0.00	965.62	699.71	-5.20	7.35	0.00	0.29	8192305.35	380859.00	S 16 20 50.79	E 133 53 4.40
	966.67	0.32	0.00	966.63	700.72	-5.20	7.36	0.00	0.30	8192305.36	380859.00	S 16 20 50.79	E 133 53 4.40
	967.69	0.33	0.00	967.65	701.74	-5.21	7.37	0.00	0.29	8192305.36	380859.00	S 16 20 50.79	E 133 53 4.40
	968.71	0.34	0.00	968.67	702.76	-5.21	7.37	0.00	0.29	8192305.37	380859.00	S 16 20 50.79	E 133 53 4.40
	969.72	0.34	0.00	969.68	703.77	-5.22	7.38	0.00	0.00	8192305.38	380859.00	S 16 20 50.79	E 133 53 4.40
	970.74	0.34	0.00	970.70	704.79	-5.22	7.38	0.00	0.00	8192305.38	380859.00	S 16 20 50.79	E 133 53 4.40
	971.75	0.34	0.00	971.71	705.80	-5.22	7.39	0.00	0.00	8192305.39	380859.00	S 16 20 50.79	E 133 53 4.40
	972.77	0.32	0.00	972.73	706.82	-5.23	7.39	0.00	0.59	8192305.39	380859.00	S 16 20 50.79	E 133 53 4.40
	973.79	0.31	0.00	973.75	707.84	-5.23	7.40	0.00	0.30	8192305.40	380859.00	S 16 20 50.79	E 133 53 4.40
	974.80	0.32	0.00	974.76	708.85	-5.24	7.41	0.00	0.00	8192305.40	380859.00	S 16 20 50.79	E 133 53 4.40
	975.82	0.31	0.00	975.78	709.87	-5.24	7.41	0.00	0.29	8192305.41	380859.00	S 16 20 50.79	E 133 53 4.40
	976.83	0.32	0.00	976.79	710.88	-5.24	7.42	0.00	0.30	8192305.42	380859.00	S 16 20 50.79	E 133 53 4.40
	977.85	0.32	0.00	977.81	711.90	-5.25	7.42	0.00	0.00	8192305.42	380859.00	S 16 20 50.79	E 133 53 4.40
	978.87	0.32	0.00	978.83	712.92	-5.25	7.43	0.00	0.00	8192305.43	380859.00	S 16 20 50.79	E 133 53 4.40
	979.88	0.32	0.00	979.84	713.93	-5.26	7.43	0.00	0.00	8192305.43	380859.00	S 16 20 50.79	E 133 53 4.40
	980.90	0.31	0.00	980.86	714.95	-5.26	7.44	0.00	0.29	8192305.44	380859.00	S 16 20 50.79	E 133 53 4.40
	981.91	0.30	0.00	981.87	715.96	-5.26	7.45	0.00	0.30	8192305.44	380859.00	S 16 20 50.79	E 133 53 4.40
	982.93	0.30	0.00	982.89	716.97	-5.27	7.45	0.00	0.00	8192305.45	380859.00	S 16 20 50.79	E 133 53 4.40
	983.95	0.29	0.00	983.91	717.99	-5.27	7.46	0.00	0.29	8192305.45	380859.00	S 16 20 50.79	E 133 53 4.40
	984.96	0.28	0.00	984.92	719.00	-5.28	7.46	0.00	0.30	8192305.46	380859.00	S 16 20 50.79	E 133 53 4.40
	985.98	0.28	0.00	985.94	720.02	-5.28	7.47	0.00	0.00	8192305.46	380859.00	S 16 20 50.79	E 133 53 4.40
	986.99	0.28	0.00	986.95	721.03	-5.28	7.47	0.00	0.00	8192305.47	380859.00	S 16 20 50.79	E 133 53 4.40
	988.01	0.28	0.00	987.97	722.05	-5.29	7.48	0.00	0.00	8192305.47	380859.00	S 16 20 50.79	E 133 53 4.40
	989.03	0.28	0.00	988.99	723.07	-5.29	7.48	0.00	0.00	8192305.48	380859.00	S 16 20 50.79	E 133 53 4.40
	990.04	0.29	0.00	990.00	724.08	-5.29	7.49	0.00	0.30	8192305.48	380859.00	S 16 20 50.79	E 133 53 4.40
	991.06	0.29	0.00	991.02	725.10	-5.30	7.49	0.00	0.00	8192305.49	380859.00	S 16 20 50.79	E 133 53 4.40
	992.07	0.28	0.00	992.03	726.11	-5.30	7.50	0.00	0.30	8192305.49	380859.00	S 16 20 50.79	E 133 53 4.40
	993.09	0.28	0.00	993.05	727.13	-5.30	7.50	0.00	0.00	8192305.50	380859.00	S 16 20 50.79	E 133 53 4.40
	994.11	0.28	0.00	994.07	728.15	-5.31	7.51	0.00	0.00	8192305.50	380859.00	S 16 20 50.79	E 133 53 4.40
	995.12	0.26	0.00	995.08	729.16	-5.31	7.51	0.00	0.59	8192305.51	380859.00	S 16 20 50.79	E 133 53 4.40
	996.14	0.26	0.00	996.10	730.18	-5.31	7.52	0.00	0.00	8192305.51	380859.00	S 16 20 50.79	E 133 53 4.40
	997.15	0.29	0.00	997.11	731.19	-5.32	7.52	0.00	0.89	8192305.52	380859.00	S 16 20 50.79	E 133 53 4.40
	998.17	0.26	0.00	998.13	732.21	-5.32	7.53	0.00	0.29	8192305.52	380859.00	S 16 20 50.79	E 133 53 4.40
	999.19	0.28	0.00	999.15	733.23	-5.32	7.53	0.00	0.59	8192305.53	380859.00	S 16 20 50.79	E 133 53 4.40
	1000.20	0.27	0.00	1000.16	734.24	-5.33	7.54	0.00	0.30	8192305.53	380859.00	S 16 20 50.79	E 133 53 4.40
	1001.22	0.27	0.00	1001.18	735.26	-5.33	7.54	0.00	0.00	8192305.54	380859.00	S 16 20 50.79	E 133 53 4.40
	1002.23	0.26	0.00	1002.19	736.27	-5.33	7.54	0.00	0.30	8192305.54	380859.00	S 16 20 50.79	E 133 53 4.40
	1003.25	0.26	0.00	1003.21	737.29	-5.34	7.55	0.00	0.00	8192305.55	380859.00	S 16 20 50.79	E 133 53 4.40
	1004.27	0.28	0.00	1004.23	738.31	-5.34	7.55	0.00	0.59	8192305.55	380859.00	S 16 20 50.79	E 133 53 4.40
	1005.28	0.28	0.00	1005.24	739.32	-5.35	7.56	0.00	0.00	8192305.56	380859.00	S 16 20 50.79	E 133 53 4.40
	1006.30	0.28	0.00	1006.26	740.34	-5.35	7.56	0.00	0.00	8192305.56	380859.00	S 16 20 50.79	E 133 53 4.40
	1007.31	0.28	0.00	1007.27	741.35	-5.35	7.57	0.00	0.00	8192305.57	380859.00	S 16 20 50.79	E 133 53 4.40
	1008.33	0.28	0.00	1008.29	742.37	-5.36	7.57	0.00	0.00	8192305.57	380859.00	S 16 20 50.79	E 133 53 4.40
	1009.35	0.27	0.00	1009.31	743.39	-5.36	7.58	0.00	0.29				

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	1064.21	0.23	0.00	1064.17	798.25	-5.51	7.79	0.00	0.00	8192305.79	380859.00	S 16 20 50.78	E 133 53 4.40
	1065.23	0.24	0.00	1065.19	799.27	-5.51	7.80	0.00	0.29	8192305.80	380859.00	S 16 20 50.78	E 133 53 4.40
	1066.24	0.26	0.00	1066.20	800.28	-5.52	7.80	0.00	0.59	8192305.80	380859.00	S 16 20 50.78	E 133 53 4.40
	1067.26	0.27	0.00	1067.22	801.30	-5.52	7.81	0.00	0.29	8192305.81	380859.00	S 16 20 50.78	E 133 53 4.40
	1068.27	0.27	0.00	1068.23	802.32	-5.52	7.81	0.00	0.00	8192305.81	380859.00	S 16 20 50.78	E 133 53 4.40
	1069.29	0.29	0.00	1069.25	803.33	-5.53	7.82	0.00	0.59	8192305.81	380859.00	S 16 20 50.78	E 133 53 4.40
	1070.31	0.29	0.00	1070.27	804.35	-5.53	7.82	0.00	0.00	8192305.82	380859.00	S 16 20 50.78	E 133 53 4.40
	1071.32	0.29	0.00	1071.28	805.36	-5.53	7.83	0.00	0.00	8192305.83	380859.00	S 16 20 50.78	E 133 53 4.40
	1072.34	0.30	0.00	1072.30	806.38	-5.54	7.83	0.00	0.29	8192305.83	380859.00	S 16 20 50.78	E 133 53 4.40
	1073.35	0.30	0.00	1073.31	807.39	-5.54	7.84	0.00	0.00	8192305.84	380859.00	S 16 20 50.78	E 133 53 4.40
	1074.37	0.30	0.00	1074.33	808.41	-5.55	7.84	0.00	0.00	8192305.84	380859.00	S 16 20 50.78	E 133 53 4.40
	1075.39	0.30	0.00	1075.35	809.43	-5.55	7.85	0.00	0.00	8192305.85	380859.00	S 16 20 50.78	E 133 53 4.40
	1076.40	0.30	0.00	1076.36	810.44	-5.55	7.85	0.00	0.00	8192305.85	380859.00	S 16 20 50.78	E 133 53 4.40
	1077.42	0.29	0.00	1077.38	811.46	-5.56	7.86	0.00	0.29	8192305.86	380859.00	S 16 20 50.78	E 133 53 4.40
	1078.43	0.28	0.00	1078.39	812.47	-5.56	7.86	0.00	0.00	8192305.86	380859.00	S 16 20 50.78	E 133 53 4.40
	1079.45	0.28	0.00	1079.41	813.49	-5.56	7.87	0.00	0.30	8192305.87	380859.00	S 16 20 50.78	E 133 53 4.40
	1080.47	0.29	0.00	1080.43	814.51	-5.57	7.87	0.00	0.29	8192305.87	380859.00	S 16 20 50.78	E 133 53 4.40
	1081.48	0.29	0.00	1081.44	815.52	-5.57	7.88	0.00	0.00	8192305.88	380859.00	S 16 20 50.78	E 133 53 4.40
	1082.50	0.28	0.00	1082.46	816.54	-5.57	7.88	0.00	0.29	8192305.88	380859.00	S 16 20 50.78	E 133 53 4.40
	1083.51	0.28	0.00	1083.47	817.55	-5.58	7.89	0.00	0.00	8192305.89	380859.00	S 16 20 50.78	E 133 53 4.40
	1084.53	0.28	0.00	1084.49	818.57	-5.58	7.89	0.00	0.00	8192305.89	380859.00	S 16 20 50.78	E 133 53 4.40
	1085.55	0.27	0.00	1085.51	819.59	-5.59	7.90	0.00	0.29	8192305.90	380859.00	S 16 20 50.78	E 133 53 4.40
	1086.56	0.27	0.00	1086.52	820.60	-5.59	7.90	0.00	0.00	8192305.90	380859.00	S 16 20 50.78	E 133 53 4.40
	1087.58	0.27	0.00	1087.54	821.62	-5.59	7.91	0.00	0.00	8192305.91	380859.00	S 16 20 50.78	E 133 53 4.40
	1088.59	0.28	0.00	1088.55	822.63	-5.60	7.91	0.00	0.30	8192305.91	380859.00	S 16 20 50.78	E 133 53 4.40
	1089.61	0.28	0.00	1089.57	823.65	-5.60	7.92	0.00	0.00	8192305.92	380859.00	S 16 20 50.78	E 133 53 4.40
	1090.63	0.29	0.00	1090.59	824.67	-5.60	7.92	0.00	0.29	8192305.92	380859.00	S 16 20 50.78	E 133 53 4.40
	1091.64	0.30	0.00	1091.60	825.68	-5.61	7.93	0.00	0.00	8192305.93	380859.00	S 16 20 50.78	E 133 53 4.40
	1092.66	0.31	0.00	1092.62	826.70	-5.61	7.93	0.00	0.29	8192305.93	380859.00	S 16 20 50.78	E 133 53 4.40
	1093.67	0.31	0.00	1093.63	827.71	-5.61	7.94	0.00	0.00	8192305.94	380859.00	S 16 20 50.78	E 133 53 4.40
	1094.69	0.32	0.00	1094.65	828.73	-5.62	7.94	0.00	0.29	8192305.94	380859.00	S 16 20 50.78	E 133 53 4.40
	1095.71	0.32	0.00	1095.67	829.75	-5.62	7.95	0.00	0.00	8192305.95	380859.00	S 16 20 50.78	E 133 53 4.40
	1096.72	0.32	0.00	1096.68	830.76	-5.63	7.96	0.00	0.00	8192305.95	380859.00	S 16 20 50.77	E 133 53 4.40
	1097.74	0.31	0.00	1097.70	831.78	-5.63	7.96	0.00	0.29	8192305.96	380859.00	S 16 20 50.77	E 133 53 4.40
	1098.75	0.31	0.00	1098.71	832.79	-5.63	7.97	0.00	0.00	8192305.97	380859.00	S 16 20 50.77	E 133 53 4.40
	1099.77	0.32	0.00	1099.73	833.81	-5.64	7.97	0.00	0.29	8192305.97	380859.00	S 16 20 50.77	E 133 53 4.40
	1100.79	0.33	0.00	1100.75	834.83	-5.64	7.98	0.00	0.29	8192305.98	380859.00	S 16 20 50.77	E 133 53 4.40
	1101.80	0.34	0.00	1101.76	835.84	-5.65	7.98	0.00	0.30	8192305.98	380859.00	S 16 20 50.77	E 133 53 4.40
	1102.82	0.35	0.00	1102.78	836.86	-5.65	7.99	0.00	0.29	8192305.99	380859.00	S 16 20 50.77	E 133 53 4.40
	1103.83	0.36	0.00	1103.79	837.87	-5.65	8.00	0.00	0.30	8192306.00	380859.00	S 16 20 50.77	E 133 53 4.40
	1104.85	0.37	0.00	1104.81	838.89	-5.66	8.01	0.00	0.29	8192306.00	380859.00	S 16 20 50.77	E 133 53 4.40
	1105.87	0.39	0.00	1105.83	839.91	-5.66	8.01	0.00	0.00	8192306.01	380859.00	S 16 20 50.77	E 133 53 4.40
	1106.88	0.41	0.00	1106.84	840.92	-5.67	8.02	0.00	0.59	8192306.02	380859.00	S 16 20 50.77	E 133 53 4.40
	1107.90	0.43	0.00	1107.86	841.94	-5.67	8.02	0.00	0.59	8192306.02	380859.00	S 16 20 50.77	E 133 53 4.40
	1108.91	0.44	0.00	1108.87	842.95	-5.68	8.03	0.00	0.30	8192306.03	380859.00	S 16 20 50.77	E 133 53 4.40
	1109.93	0.44	0.00	1109.89	843.97	-5.69	8.04	0.00	0.00	8192306.04	380859.00	S 16 20 50.77	E 133 53 4.40
	1110.95	0.44	0.00	1110.91	844.99	-5.69	8.05	0.00	0.00	8192306.05	380859.00	S 16 20 50.77	E 133 53 4.40
	1111.96	0.45	0.00	1111.92	846.00	-5.70	8.06	0.00	0.30	8192306.05	380859.00	S 16 20 50.77	E 133 53 4.40
	1112.98	0.44	0.00	1112.94	847.02	-5.70	8.06	0.00	0.29	8192306.06	380859.00	S 16 20 50.77	E 133 53 4.40
	1113.99	0.44	0.00	1113.95	848.03	-5.71	8.07	0.00	0.00	8192306.07	380859.00	S 16 20 50.77	E 133 53 4.40
	1115.01	0.45	0.00	1114.97	849.05	-5.71	8.08	0.00	0.29	8192306.08	380859.00	S 16 20 50.77	E 133 53 4.40
	1116.03	0.45	0.00	1115.99	850.07	-5.72	8.09	0.00	0.00	8192306.09	380859.00	S 16 20 50.77	E 133 53 4.40
	1117.04	0.45	0.00	1117.00	851.08	-5.72	8.10	0.00	0.00	8192306.09	380859.00	S 16 20 50.77	E 133 53 4.40
	1118.06	0.46	0.00	1118.02	852.10	-5.73	8.10	0.00	0.00	8192306.10	380859.00	S 16 20 50.77	E 133 53 4.40
	1119.07	0.46	0.00	1119.03	853.11	-5.74	8.11	0.00	0.30	8192306.11	380859.00	S 16 20 50.77	E 133 53 4.40
	1120.09	0.47	0.00	1120.05	854.13	-5.74	8.12	0.00	0.29	8192306.12	380859.00	S 16 20 50.77	E 133 53 4.40
	1121.11	0.47	0.00	1121.07	855.15	-5.75	8.13	0.00	0.00	8192306.13	380859.00	S 16 20 50.77	E 133 53 4.40
	1122.12	0.48	0.00	1122.08	856.16	-5.75	8.14	0.00	0.30	8192306.13	380859.00	S 16 20 50.77	E 133 53 4.40
	1123.14	0.49	0.00	1123.10	857.18	-5.76	8.15	0.00	0.29	8192306.14	380859.00	S 16 20 50.77	E 133 53 4.40
	1124.15	0.50	0.00	1124.11	858.19	-5.77	8.15	0.00	0.30	8192306.15	380859.00	S 16 20 50.77	E 133 53 4.40
	1125.17	0.52	0.00	1125.13	859.21	-5.77	8.16	0.00	0.59	8192306.16	380859.00	S 16 20 50.77	E 133 53 4.40
	1126.19	0.52	0.00	1126.15	860.23	-5.78	8.17	0.00	0.00	8192306.17	380859.00	S 16 20 50.77	E 133 53 4.40
	1127.20	0.53	0.00	1127.15	861.24	-5.79	8.18	0.00	0.30	8192306.18	380859.00	S 16 20 50.77	E 133 53 4.40
	1128.22	0.54	0.00	1128.17	862.26	-5.79	8.19	0.00	0.29	8192306.19	380859.00	S 16 20 50.77	E 133 53 4.40
	1129.23	0.55	0.00	1129.18	863.27	-5.80	8.20	0.00	0.00	8192306.20	380859.00	S 16 20 50.77	E 133 53 4.40
	1130.25	0.57	0.00	1130.20	864.29	-5.81	8.21	0.00	0.00	8192306.21	380859.00	S 16 20 50.77	E 133 53 4.40
	1131.27	0.61	0.00	1131.22	865.31	-5.81	8.22	0.00	1.18	8192306.22	380859.00	S 16 20 50.77	E 133 53 4.40
	1132.28	0.63	0.00	1132.23	866.32	-5.82	8.23	0.00	0.59	8192306.23	380859.00	S 16 20 50.77	E 133 53 4.40
	1133.30	0.64	0.00	1133.25	867.34	-5.83	8.24	0.00	0.29	8192306.24	380859.00	S 16 20 50.77	E 133 53 4.40
	1134.31	0.66	0.00	1134.26	868.35	-5.84	8.25	0.00	0.59	8192306.25	380859.00	S 16 20 50.77	E 133 53 4.40
	1135.33	0.67	0.00	1135.28	869.37	-5.85	8.27	0.00	0.29	8192306.26	380859.00	S 16 20 50.76	E 133 53 4.40
	1136.35	0.68	0.00	1136.30	870.39	-5.85	8.28	0.00	0.29	8192306.28	380859.00	S 16 20 50.76	E 133 53 4.40
	1137.36	0.69	0.00	1137.31	871.40	-5.86	8.29	0.00	0.30	8192306.29	380859.00	S 16 20 50.76	E 133 53 4.40
	1138.38	0.69	0.00	1138.33	872.42	-5.87	8.30	0.00	0.00	8192306.30	380859.00	S 16 20 50.76	E 133 53 4.40
	1139.39	0.70	0.00	1139.34	873.43	-5.88	8.32	0.00	0.30	8192306.31	380859.00	S 16 20 50.76	E 133 53 4.40
	1140.41	0.70	0.00	1140.36	874.45	-5.89	8.33	0.00	0.00	8192306.33	380859.00		

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	1196.29	0.90	0.00	1196.24	930.33	-6.48	9.16	0.00	0.00	8192307.16	380859.00	S 16 20 50.74	E 133 53 4.40
	1197.31	0.90	0.00	1197.26	931.35	-6.49	9.18	0.00	0.00	8192307.18	380859.00	S 16 20 50.74	E 133 53 4.40
	1198.32	0.91	0.00	1198.27	932.36	-6.50	9.20	0.00	0.30	8192307.19	380859.00	S 16 20 50.73	E 133 53 4.40
	1199.34	0.91	0.00	1199.29	933.38	-6.51	9.21	0.00	0.00	8192307.21	380859.00	S 16 20 50.73	E 133 53 4.40
	1200.35	0.92	0.00	1200.30	934.39	-6.52	9.23	0.00	0.00	8192307.23	380859.00	S 16 20 50.73	E 133 53 4.40
	1201.37	0.91	0.00	1201.32	935.41	-6.54	9.24	0.00	0.00	8192307.24	380859.00	S 16 20 50.73	E 133 53 4.40
	1202.39	0.90	0.00	1202.34	936.43	-6.55	9.26	0.00	0.29	8192307.26	380859.00	S 16 20 50.73	E 133 53 4.40
	1203.40	0.89	0.00	1203.35	937.44	-6.56	9.28	0.00	0.30	8192307.27	380859.00	S 16 20 50.73	E 133 53 4.40
	1204.42	0.88	0.00	1204.37	938.45	-6.57	9.29	0.00	0.29	8192307.29	380859.00	S 16 20 50.73	E 133 53 4.40
	1205.43	0.86	0.00	1205.38	939.46	-6.58	9.31	0.00	0.59	8192307.30	380859.00	S 16 20 50.73	E 133 53 4.40
	1206.45	0.85	0.00	1206.40	940.48	-6.59	9.32	0.00	0.29	8192307.32	380859.00	S 16 20 50.73	E 133 53 4.40
	1207.47	0.83	0.00	1207.42	941.50	-6.60	9.34	0.00	0.59	8192307.33	380859.00	S 16 20 50.73	E 133 53 4.40
	1208.48	0.81	0.00	1208.43	942.51	-6.61	9.35	0.00	0.59	8192307.35	380859.00	S 16 20 50.73	E 133 53 4.40
	1209.50	0.80	0.00	1209.45	943.53	-6.62	9.37	0.00	0.29	8192307.36	380859.00	S 16 20 50.73	E 133 53 4.40
	1210.51	0.78	0.00	1210.46	944.54	-6.63	9.38	0.00	0.59	8192307.38	380859.00	S 16 20 50.73	E 133 53 4.40
	1211.53	0.76	0.00	1211.48	945.56	-6.64	9.39	0.00	0.59	8192307.39	380859.00	S 16 20 50.73	E 133 53 4.40
	1212.55	0.74	0.00	1212.50	946.58	-6.65	9.41	0.00	0.59	8192307.40	380859.00	S 16 20 50.73	E 133 53 4.40
	1213.56	0.71	0.00	1213.51	947.59	-6.66	9.42	0.00	0.89	8192307.42	380859.00	S 16 20 50.73	E 133 53 4.40
	1214.58	0.69	0.00	1214.53	948.61	-6.67	9.43	0.00	0.59	8192307.43	380859.00	S 16 20 50.73	E 133 53 4.40
	1215.59	0.68	0.00	1215.54	949.62	-6.68	9.44	0.00	0.30	8192307.44	380859.00	S 16 20 50.73	E 133 53 4.40
	1216.61	0.66	0.00	1216.56	950.64	-6.69	9.46	0.00	0.59	8192307.45	380859.00	S 16 20 50.73	E 133 53 4.40
	1217.63	0.59	0.00	1217.58	951.66	-6.69	9.47	0.00	2.06	8192307.46	380859.00	S 16 20 50.73	E 133 53 4.40
	1218.64	0.60	0.00	1218.59	952.67	-6.70	9.48	0.00	0.30	8192307.48	380859.00	S 16 20 50.73	E 133 53 4.40
	1219.66	0.63	0.00	1219.61	953.69	-6.71	9.49	0.00	0.88	8192307.49	380859.00	S 16 20 50.73	E 133 53 4.40
	1220.67	0.62	0.00	1220.62	954.70	-6.72	9.50	0.00	0.30	8192307.50	380859.00	S 16 20 50.72	E 133 53 4.40
	1221.69	0.62	0.00	1221.64	955.72	-6.72	9.51	0.00	0.00	8192307.51	380859.00	S 16 20 50.72	E 133 53 4.40
	1222.71	0.61	0.00	1222.66	956.74	-6.73	9.52	0.00	0.29	8192307.52	380859.00	S 16 20 50.72	E 133 53 4.40
	1223.72	0.62	0.00	1223.67	957.75	-6.74	9.53	0.00	0.30	8192307.53	380859.00	S 16 20 50.72	E 133 53 4.40
	1224.74	0.60	0.00	1224.69	958.77	-6.75	9.54	0.00	0.59	8192307.54	380859.00	S 16 20 50.72	E 133 53 4.40
	1225.75	0.59	0.00	1225.70	959.78	-6.76	9.55	0.00	0.59	8192307.55	380859.00	S 16 20 50.72	E 133 53 4.40
	1226.77	0.59	0.00	1226.72	960.80	-6.76	9.56	0.00	0.00	8192307.56	380859.00	S 16 20 50.72	E 133 53 4.40
	1227.79	0.57	0.00	1227.74	961.82	-6.77	9.57	0.00	0.59	8192307.57	380859.00	S 16 20 50.72	E 133 53 4.40
	1228.80	0.54	0.00	1228.75	962.83	-6.78	9.58	0.00	0.89	8192307.58	380859.00	S 16 20 50.72	E 133 53 4.40
	1229.82	0.41	0.00	1229.77	963.85	-6.78	9.59	0.00	3.82	8192307.59	380859.00	S 16 20 50.72	E 133 53 4.40
	1230.83	0.49	0.00	1230.78	964.86	-6.79	9.60	0.00	2.38	8192307.60	380859.00	S 16 20 50.72	E 133 53 4.40
	1231.85	0.49	0.00	1231.79	965.88	-6.79	9.61	0.00	0.00	8192307.61	380859.00	S 16 20 50.72	E 133 53 4.40
	1232.87	0.49	0.00	1232.81	966.90	-6.80	9.62	0.00	0.00	8192307.62	380859.00	S 16 20 50.72	E 133 53 4.40
	1233.88	0.47	0.00	1233.82	967.91	-6.81	9.63	0.00	0.59	8192307.62	380859.00	S 16 20 50.72	E 133 53 4.40
	1234.90	0.46	0.00	1234.84	968.93	-6.81	9.63	0.00	0.29	8192307.63	380859.00	S 16 20 50.72	E 133 53 4.40
	1235.91	0.45	0.00	1235.85	969.94	-6.82	9.64	0.00	0.30	8192307.64	380859.00	S 16 20 50.72	E 133 53 4.40
	1236.93	0.44	0.00	1236.87	970.96	-6.82	9.65	0.00	0.29	8192307.65	380859.00	S 16 20 50.72	E 133 53 4.40
	1237.95	0.42	0.00	1237.89	971.97	-6.83	9.66	0.00	0.59	8192307.66	380859.00	S 16 20 50.72	E 133 53 4.40
	1238.96	0.41	0.00	1238.90	972.99	-6.83	9.67	0.00	0.30	8192307.66	380859.00	S 16 20 50.72	E 133 53 4.40
	1239.98	0.39	0.00	1239.92	974.01	-6.84	9.67	0.00	0.59	8192307.67	380859.00	S 16 20 50.72	E 133 53 4.40
	1240.99	0.37	0.00	1240.93	975.02	-6.84	9.68	0.00	0.59	8192307.68	380859.00	S 16 20 50.72	E 133 53 4.40
	1242.01	0.36	0.00	1241.95	976.04	-6.85	9.69	0.00	0.29	8192307.68	380859.00	S 16 20 50.72	E 133 53 4.40
	1243.03	0.35	0.00	1242.97	977.06	-6.85	9.69	0.00	0.29	8192307.69	380859.00	S 16 20 50.72	E 133 53 4.40
	1244.04	0.35	0.00	1243.98	978.07	-6.86	9.70	0.00	0.00	8192307.70	380859.00	S 16 20 50.72	E 133 53 4.40
	1245.06	0.36	0.00	1245.00	979.09	-6.86	9.70	0.00	0.29	8192307.70	380859.00	S 16 20 50.72	E 133 53 4.40
	1246.07	0.35	0.00	1246.01	980.10	-6.87	9.71	0.00	0.30	8192307.71	380859.00	S 16 20 50.72	E 133 53 4.40
	1247.09	0.35	0.00	1247.03	981.12	-6.87	9.72	0.00	0.00	8192307.71	380859.00	S 16 20 50.72	E 133 53 4.40
	1248.11	0.33	0.00	1248.05	982.14	-6.88	9.72	0.00	0.59	8192307.72	380859.00	S 16 20 50.72	E 133 53 4.40
	1249.12	0.32	0.00	1249.06	983.15	-6.88	9.73	0.00	0.30	8192307.73	380859.00	S 16 20 50.72	E 133 53 4.40
	1250.14	0.31	0.00	1250.08	984.17	-6.88	9.73	0.00	0.59	8192307.73	380859.00	S 16 20 50.72	E 133 53 4.40
	1251.15	0.31	0.00	1251.09	985.18	-6.89	9.74	0.00	0.30	8192307.74	380859.00	S 16 20 50.72	E 133 53 4.40
	1252.17	0.31	0.00	1252.11	986.20	-6.89	9.75	0.00	0.00	8192307.74	380859.00	S 16 20 50.72	E 133 53 4.40
	1253.19	0.32	0.00	1253.13	987.22	-6.90	9.75	0.00	0.29	8192307.75	380859.00	S 16 20 50.72	E 133 53 4.40
	1254.20	0.31	0.00	1254.14	988.23	-6.90	9.76	0.00	0.30	8192307.75	380859.00	S 16 20 50.72	E 133 53 4.40
	1255.22	0.32	0.00	1255.16	989.25	-6.90	9.76	0.00	0.29	8192307.76	380859.00	S 16 20 50.72	E 133 53 4.40
	1256.23	0.33	0.00	1256.17	990.26	-6.91	9.77	0.00	0.30	8192307.77	380859.00	S 16 20 50.72	E 133 53 4.40
	1257.25	0.33	0.00	1257.19	991.28	-6.91	9.77	0.00	0.00	8192307.77	380859.00	S 16 20 50.72	E 133 53 4.40
	1258.27	0.34	0.00	1258.21	992.30	-6.92	9.78	0.00	0.29	8192307.78	380859.00	S 16 20 50.72	E 133 53 4.40
	1259.28	0.35	0.00	1259.22	993.31	-6.92	9.79	0.00	0.30	8192307.78	380859.00	S 16 20 50.72	E 133 53 4.40
	1260.30	0.35	0.00	1260.24	994.33	-6.92	9.79	0.00	0.00	8192307.79	380859.00	S 16 20 50.72	E 133 53 4.40
	1261.31	0.35	0.00	1261.25	995.34	-6.93	9.80	0.00	0.00	8192307.80	380859.00	S 16 20 50.71	E 133 53 4.40
	1262.33	0.35	0.00	1262.27	996.36	-6.93	9.80	0.00	0.29	8192307.80	380859.00	S 16 20 50.71	E 133 53 4.40
	1263.35	0.34	0.00	1263.29	997.38	-6.94	9.81	0.00	0.29	8192307.81	380859.00	S 16 20 50.71	E 133 53 4.40
	1264.36	0.34	0.00	1264.30	998.39	-6.94	9.82	0.00	0.00	8192307.81	380859.00	S 16 20 50.71	E 133 53 4.40
	1265.38	0.33	0.00	1265.32	999.41	-6.95	9.82	0.00	0.29	8192307.82	380859.00	S 16 20 50.71	E 133 53 4.40
	1266.39	0.32	0.00	1266.33	1000.42	-6.95	9.83	0.00	0.30	8192307.83	380859.00	S 16 20 50.71	E 133 53 4.40
	1267.41	0.33	0.00	1267.35	1001.44	-6.95	9.83	0.00	0.29	8192307.83	380859.00	S 16 20 50.71	E 133 53 4.40
	1268.43	0.33	0.00	1268.37	1002.46	-6.96	9.84	0.00	0.00	8192307.84	380859.00	S 16 20 50.71	E 133 53 4.40
	1269.44	0.32	0.00	1269.38	1003.47	-6.96	9.85	0.00	0.30	8192307.84	380859.00	S 16 20 50.71	E 133 53 4.40
	1270.46	0.32	0.00	1270.40	1004.49	-6.97	9.85	0.00	0.00	8192307.85	380859.00	S 16 20 50.71	E 133 53 4.40
	1271.47	0.31	0.00	1271.41	1005.50	-6.97	9.86	0.00	0.30	8192307.85	380859.00	S 16 20 50.71	E 133 53 4.40
	1272.49	0.31	0.00	1272.43	1006.52	-6.97	9.86	0.00	0.00	8192307.86	38085		

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (s)	NS (m)	EW (m)	DLS (°/30m)	Northing	Easting	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	1328.37	0.24	0.00	1328.31	1062.40	-7.17	10.14	0.00	0.00	8192308.14	380859.00	S 16 20 50.70	E 133 53 4.40
	1329.39	0.24	0.00	1329.33	1063.42	-7.18	10.15	0.00	0.00	8192308.15	380859.00	S 16 20 50.70	E 133 53 4.40
	1330.40	0.24	0.00	1330.34	1064.43	-7.18	10.15	0.00	0.00	8192308.16	380859.00	S 16 20 50.70	E 133 53 4.40
	1331.42	0.24	0.00	1331.36	1065.45	-7.18	10.16	0.00	0.00	8192308.16	380859.00	S 16 20 50.70	E 133 53 4.40
	1332.43	0.24	0.00	1332.37	1066.46	-7.19	10.16	0.00	0.00	8192308.16	380859.00	S 16 20 50.70	E 133 53 4.40
	1333.45	0.23	0.00	1333.39	1067.48	-7.19	10.17	0.00	0.29	8192308.16	380859.00	S 16 20 50.70	E 133 53 4.40
	1334.47	0.25	0.00	1334.41	1068.50	-7.19	10.17	0.00	0.59	8192308.17	380859.00	S 16 20 50.70	E 133 53 4.40
	1335.48	0.26	0.00	1335.42	1069.51	-7.19	10.17	0.00	0.30	8192308.17	380859.00	S 16 20 50.70	E 133 53 4.40
	1336.50	0.27	0.00	1336.44	1070.53	-7.20	10.18	0.00	0.29	8192308.18	380859.00	S 16 20 50.70	E 133 53 4.40
	1337.51	0.28	0.00	1337.45	1071.54	-7.20	10.18	0.00	0.30	8192308.18	380859.00	S 16 20 50.70	E 133 53 4.40
	1338.53	0.28	0.00	1338.47	1072.56	-7.20	10.19	0.00	0.00	8192308.19	380859.00	S 16 20 50.70	E 133 53 4.40
	1339.55	0.27	0.00	1339.49	1073.58	-7.21	10.19	0.00	0.29	8192308.19	380859.00	S 16 20 50.70	E 133 53 4.40
	1340.56	0.25	0.00	1340.50	1074.59	-7.21	10.20	0.00	0.59	8192308.20	380859.00	S 16 20 50.70	E 133 53 4.40
	1341.58	0.22	0.00	1341.52	1075.61	-7.21	10.20	0.00	0.88	8192308.20	380859.00	S 16 20 50.70	E 133 53 4.40
	1342.59	0.24	0.00	1342.53	1076.62	-7.22	10.21	0.00	0.59	8192308.20	380859.00	S 16 20 50.70	E 133 53 4.40
	1343.61	0.22	0.00	1343.55	1077.64	-7.22	10.21	0.00	0.59	8192308.21	380859.00	S 16 20 50.70	E 133 53 4.40
	1344.63	0.22	0.00	1344.57	1078.66	-7.22	10.21	0.00	0.00	8192308.21	380859.00	S 16 20 50.70	E 133 53 4.40
	1345.64	0.19	0.00	1345.58	1079.67	-7.23	10.22	0.00	0.89	8192308.22	380859.00	S 16 20 50.70	E 133 53 4.40
	1346.66	0.19	0.00	1346.60	1080.69	-7.23	10.22	0.00	0.00	8192308.22	380859.00	S 16 20 50.70	E 133 53 4.40
	1347.67	0.19	0.00	1347.61	1081.70	-7.23	10.23	0.00	0.00	8192308.22	380859.00	S 16 20 50.70	E 133 53 4.40
	1348.69	0.18	0.00	1348.63	1082.72	-7.23	10.23	0.00	0.29	8192308.23	380859.00	S 16 20 50.70	E 133 53 4.40
	1349.71	0.18	0.00	1349.65	1083.74	-7.23	10.23	0.00	0.00	8192308.23	380859.00	S 16 20 50.70	E 133 53 4.40
	1350.72	0.18	0.00	1350.66	1084.75	-7.24	10.23	0.00	0.00	8192308.23	380859.00	S 16 20 50.70	E 133 53 4.40
	1351.74	0.19	0.00	1351.68	1085.77	-7.24	10.24	0.00	0.29	8192308.24	380859.00	S 16 20 50.70	E 133 53 4.40
	1352.75	0.20	0.00	1352.69	1086.78	-7.24	10.24	0.00	0.30	8192308.24	380859.00	S 16 20 50.70	E 133 53 4.40
	1353.77	0.21	0.00	1353.71	1087.80	-7.24	10.25	0.00	0.29	8192308.24	380859.00	S 16 20 50.70	E 133 53 4.40
	1354.79	0.22	0.00	1354.73	1088.82	-7.25	10.25	0.00	0.29	8192308.25	380859.00	S 16 20 50.70	E 133 53 4.40
	1355.80	0.23	0.00	1355.74	1089.83	-7.25	10.25	0.00	0.30	8192308.25	380859.00	S 16 20 50.70	E 133 53 4.40
	1356.82	0.22	0.00	1356.76	1090.85	-7.25	10.26	0.00	0.29	8192308.25	380859.00	S 16 20 50.70	E 133 53 4.40
	1357.83	0.22	0.00	1357.77	1091.86	-7.26	10.26	0.00	0.29	8192308.26	380859.00	S 16 20 50.70	E 133 53 4.40
	1358.85	0.22	0.00	1358.79	1092.88	-7.26	10.26	0.00	0.00	8192308.26	380859.00	S 16 20 50.70	E 133 53 4.40
	1359.87	0.22	0.00	1359.81	1093.90	-7.26	10.27	0.00	0.00	8192308.27	380859.00	S 16 20 50.70	E 133 53 4.40
	1360.88	0.24	0.00	1360.82	1094.91	-7.26	10.27	0.00	0.59	8192308.27	380859.00	S 16 20 50.70	E 133 53 4.40
	1361.90	0.25	0.00	1361.84	1095.93	-7.27	10.28	0.00	0.29	8192308.27	380859.00	S 16 20 50.70	E 133 53 4.40
	1362.91	0.25	0.00	1362.85	1096.94	-7.27	10.28	0.00	0.00	8192308.28	380859.00	S 16 20 50.70	E 133 53 4.40
	1363.93	0.26	0.00	1363.87	1097.96	-7.27	10.29	0.00	0.29	8192308.28	380859.00	S 16 20 50.70	E 133 53 4.40
	1364.95	0.26	0.00	1364.89	1098.98	-7.28	10.29	0.00	0.00	8192308.29	380859.00	S 16 20 50.70	E 133 53 4.40
	1365.96	0.26	0.00	1365.90	1099.99	-7.28	10.30	0.00	0.00	8192308.29	380859.00	S 16 20 50.70	E 133 53 4.40
	1366.98	0.27	0.00	1366.92	1101.01	-7.28	10.30	0.00	0.29	8192308.30	380859.00	S 16 20 50.70	E 133 53 4.40
	1367.99	0.27	0.00	1367.93	1102.02	-7.29	10.30	0.00	0.00	8192308.30	380859.00	S 16 20 50.70	E 133 53 4.40
	1369.01	0.28	0.00	1368.95	1103.04	-7.29	10.31	0.00	0.29	8192308.31	380859.00	S 16 20 50.70	E 133 53 4.40
	1370.03	0.28	0.00	1369.97	1104.06	-7.29	10.31	0.00	0.00	8192308.31	380859.00	S 16 20 50.70	E 133 53 4.40
	1371.04	0.27	0.00	1370.98	1105.07	-7.30	10.32	0.00	0.30	8192308.32	380859.00	S 16 20 50.70	E 133 53 4.40
	1372.06	0.28	0.00	1372.00	1106.09	-7.30	10.32	0.00	0.29	8192308.32	380859.00	S 16 20 50.70	E 133 53 4.40
	1373.07	0.29	0.00	1373.01	1107.10	-7.30	10.33	0.00	0.30	8192308.33	380859.00	S 16 20 50.70	E 133 53 4.40
	1374.09	0.29	0.00	1374.03	1108.12	-7.31	10.33	0.00	0.00	8192308.33	380859.00	S 16 20 50.70	E 133 53 4.40
	1375.11	0.29	0.00	1375.05	1109.14	-7.31	10.34	0.00	0.00	8192308.34	380859.00	S 16 20 50.70	E 133 53 4.40
	1376.12	0.27	0.00	1376.06	1110.15	-7.31	10.34	0.00	0.59	8192308.34	380859.00	S 16 20 50.70	E 133 53 4.40
	1377.14	0.25	0.00	1377.08	1111.17	-7.32	10.35	0.00	0.59	8192308.35	380859.00	S 16 20 50.70	E 133 53 4.40
	1378.15	0.24	0.00	1378.09	1112.18	-7.32	10.35	0.00	0.30	8192308.35	380859.00	S 16 20 50.70	E 133 53 4.40
	1379.17	0.22	0.00	1379.11	1113.20	-7.32	10.36	0.00	0.59	8192308.36	380859.00	S 16 20 50.70	E 133 53 4.40
	1380.19	0.20	0.00	1380.13	1114.22	-7.33	10.36	0.00	0.59	8192308.36	380859.00	S 16 20 50.70	E 133 53 4.40
	1381.20	0.19	0.00	1381.14	1115.23	-7.33	10.36	0.00	0.30	8192308.36	380859.00	S 16 20 50.70	E 133 53 4.40
	1382.22	0.17	0.00	1382.16	1116.25	-7.33	10.37	0.00	0.59	8192308.37	380859.00	S 16 20 50.70	E 133 53 4.40
	1383.23	0.17	0.00	1383.17	1117.26	-7.33	10.37	0.00	0.00	8192308.37	380859.00	S 16 20 50.70	E 133 53 4.40
	1384.25	0.15	0.00	1384.19	1118.28	-7.34	10.37	0.00	0.59	8192308.37	380859.00	S 16 20 50.70	E 133 53 4.40
	1385.27	0.12	0.00	1385.21	1119.30	-7.34	10.38	0.00	0.88	8192308.37	380859.00	S 16 20 50.70	E 133 53 4.40
	1386.28	0.09	0.00	1386.22	1120.31	-7.34	10.38	0.00	0.89	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1387.30	0.04	0.00	1387.24	1121.33	-7.34	10.38	0.00	1.47	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1388.31	0.02	0.00	1388.25	1122.34	-7.34	10.38	0.00	0.59	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1389.33	0.01	0.00	1389.27	1123.36	-7.34	10.38	0.00	0.29	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1390.35	0.04	0.00	1390.29	1124.38	-7.34	10.38	0.00	0.88	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1391.36	0.06	0.00	1391.30	1125.39	-7.34	10.38	0.00	0.59	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1392.38	0.07	0.00	1392.32	1126.41	-7.34	10.38	0.00	0.29	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1393.39	0.09	0.00	1393.33	1127.42	-7.34	10.38	0.00	0.59	8192308.38	380859.00	S 16 20 50.70	E 133 53 4.40
	1394.41	0.10	0.00	1394.35	1128.44	-7.34	10.39	0.00	0.59	8192308.39	380859.00	S 16 20 50.70	E 133 53 4.40
	1395.43	0.12	0.00	1395.37	1129.46	-7.35	10.39	0.00	0.59	8192308.39	380859.00	S 16 20 50.70	E 133 53 4.40
	1396.44	0.14	0.00	1396.38	1130.47	-7.35	10.39	0.00	0.59	8192308.39	380859.00	S 16 20 50.70	E 133 53 4.40
	1397.46	0.16	0.00	1397.40	1131.49	-7.35	10.39	0.00	0.59	8192308.39	380859.00	S 16 20 50.70	E 133 53 4.40
	1398.47	0.16	0.00	1398.41	1132.50	-7.35	10.40	0.00	0.00	8192308.39	380859.00	S 16 20 50.70	E 133 53 4.40
	1399.49	0.15	0.00	1399.43	1133.52	-7.35	10.40	0.00	0.29	8192308.40	380859.00	S 16 20 50.70	E 133 53 4.40
	1400.51	0.18	0.00	1400.45	1134.54	-7.35	10.40	0.00	0.88	8192308.40	380859.00	S 16 20 50.70	E 133 53 4.40
	1401.52	0.20	0.00	1401.46	1135.55	-7.36	10.40	0.00	0.59	8192308.40	380859.00	S 16 20 50.70	E 133 53 4.40
	1402.54	0.21	0.00	1402.48	1136.57	-7.36	10.41	0.00	0.29	8192308.41	380859.00	S 16 20 50.70	E 133 53 4.40
	1403.55	0.18	0.00	1403.49	1137.58	-7.36	10.41	0.00	0.89	8192308.41	380859.00	S 16 20 50.70	E

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	1460.45	0.36	246.89	1460.39	1194.48	-7.46	10.43	-0.11	0.30	8192308.43	380858.89	S 16 20 50.69	E 133 53 4.40
	1461.47	0.27	244.81	1461.41	1195.50	-7.46	10.43	-0.12	2.67	8192308.43	380858.88	S 16 20 50.69	E 133 53 4.40
	1462.48	0.25	241.48	1462.42	1196.51	-7.46	10.43	-0.12	0.74	8192308.42	380858.88	S 16 20 50.69	E 133 53 4.40
	1463.50	0.25	242.95	1463.44	1197.53	-7.46	10.42	-0.13	0.19	8192308.42	380858.87	S 16 20 50.69	E 133 53 4.40
	1464.51	0.25	244.47	1464.45	1198.54	-7.46	10.42	-0.13	0.26	8192308.42	380858.87	S 16 20 50.69	E 133 53 4.40
	1465.53	0.22	245.65	1465.47	1199.56	-7.46	10.42	-0.13	0.89	8192308.42	380858.87	S 16 20 50.69	E 133 53 4.40
	1466.55	0.21	244.95	1466.49	1200.58	-7.46	10.42	-0.14	0.30	8192308.42	380858.86	S 16 20 50.69	E 133 53 4.40
	1467.56	0.20	245.59	1467.50	1201.59	-7.47	10.42	-0.14	0.30	8192308.41	380858.86	S 16 20 50.69	E 133 53 4.40
	1468.58	0.20	247.04	1468.52	1202.61	-7.47	10.42	-0.14	0.15	8192308.41	380858.86	S 16 20 50.69	E 133 53 4.40
	1469.59	0.18	246.29	1469.53	1203.62	-7.47	10.41	-0.15	0.60	8192308.41	380858.85	S 16 20 50.69	E 133 53 4.40
	1470.61	0.16	244.51	1470.55	1204.64	-7.47	10.41	-0.15	0.61	8192308.41	380858.85	S 16 20 50.69	E 133 53 4.40
	1471.63	0.14	240.33	1471.57	1205.66	-7.47	10.41	-0.15	0.67	8192308.41	380858.85	S 16 20 50.70	E 133 53 4.40
	1472.64	0.10	230.76	1472.58	1206.67	-7.47	10.41	-0.15	1.32	8192308.41	380858.85	S 16 20 50.70	E 133 53 4.40
	1473.66	0.07	243.06	1473.60	1207.69	-7.47	10.41	-0.16	1.03	8192308.41	380858.84	S 16 20 50.70	E 133 53 4.40
	1474.67	0.05	290.69	1474.61	1208.70	-7.47	10.41	-0.16	1.54	8192308.41	380858.84	S 16 20 50.70	E 133 53 4.40
	1475.69	0.03	349.38	1475.63	1209.72	-7.47	10.41	-0.16	1.26	8192308.41	380858.84	S 16 20 50.70	E 133 53 4.40
	1476.71	0.02	51.32	1476.65	1210.74	-7.47	10.41	-0.16	0.80	8192308.41	380858.84	S 16 20 50.70	E 133 53 4.40
	1477.72	0.01	129.75	1477.66	1211.75	-7.47	10.41	-0.16	0.61	8192308.41	380858.84	S 16 20 50.70	E 133 53 4.40
	1478.74	0.03	99.32	1478.68	1212.77	-7.47	10.41	-0.16	0.85	8192308.41	380858.84	S 16 20 50.70	E 133 53 4.40
	1479.75	0.05	104.63	1479.69	1213.78	-7.47	10.41	-0.16	0.60	8192308.41	380858.84	S 16 20 50.70	E 133 53 4.40
	1480.77	0.07	121.67	1480.71	1214.80	-7.47	10.41	-0.15	0.78	8192308.41	380858.85	S 16 20 50.70	E 133 53 4.40
	1481.79	0.10	116.06	1481.73	1215.82	-7.47	10.41	-0.15	0.91	8192308.41	380858.85	S 16 20 50.70	E 133 53 4.40
	1482.80	0.12	131.53	1482.74	1216.83	-7.47	10.41	-0.15	1.06	8192308.41	380858.85	S 16 20 50.70	E 133 53 4.40
	1483.82	0.18	142.47	1483.76	1217.85	-7.46	10.41	-0.15	1.95	8192308.40	380858.85	S 16 20 50.70	E 133 53 4.40
	1484.83	0.25	158.34	1484.77	1218.86	-7.46	10.40	-0.15	2.71	8192308.40	380858.85	S 16 20 50.70	E 133 53 4.40
	1485.85	0.24	165.60	1485.79	1219.88	-7.46	10.40	-0.15	0.96	8192308.40	380858.85	S 16 20 50.70	E 133 53 4.40
	1486.87	0.17	149.67	1486.81	1220.90	-7.45	10.39	-0.15	2.64	8192308.39	380858.85	S 16 20 50.70	E 133 53 4.40
	1487.88	0.15	130.79	1487.82	1221.91	-7.45	10.39	-0.14	1.67	8192308.39	380858.86	S 16 20 50.70	E 133 53 4.40
	1488.90	0.16	126.19	1488.84	1222.93	-7.45	10.39	-0.14	0.47	8192308.39	380858.86	S 16 20 50.70	E 133 53 4.40
	1489.91	0.16	127.34	1489.85	1223.94	-7.44	10.39	-0.14	0.10	8192308.38	380858.86	S 16 20 50.70	E 133 53 4.40
	1490.93	0.16	147.52	1490.87	1224.96	-7.44	10.39	-0.14	1.65	8192308.39	380858.86	S 16 20 50.70	E 133 53 4.40
	1491.95	0.16	167.77	1491.89	1225.98	-7.44	10.38	-0.14	1.65	8192308.38	380858.86	S 16 20 50.70	E 133 53 4.40
	1492.96	0.15	172.53	1492.90	1226.99	-7.44	10.38	-0.14	0.48	8192308.38	380858.86	S 16 20 50.70	E 133 53 4.40
	1493.98	0.12	168.53	1493.92	1228.01	-7.44	10.38	-0.14	0.92	8192308.38	380858.86	S 16 20 50.70	E 133 53 4.40
	1494.99	0.06	136.54	1494.93	1229.02	-7.43	10.38	-0.13	2.26	8192308.38	380858.87	S 16 20 50.70	E 133 53 4.40
	1496.01	0.06	119.73	1495.95	1230.04	-7.43	10.38	-0.13	0.52	8192308.38	380858.87	S 16 20 50.70	E 133 53 4.40
	1497.03	0.08	142.14	1496.97	1231.06	-7.43	10.38	-0.13	0.99	8192308.37	380858.87	S 16 20 50.70	E 133 53 4.40
	1498.04	0.08	142.49	1497.98	1232.07	-7.43	10.38	-0.13	0.01	8192308.37	380858.87	S 16 20 50.70	E 133 53 4.40
	1499.06	0.11	149.29	1499.00	1233.09	-7.43	10.37	-0.13	0.94	8192308.37	380858.87	S 16 20 50.70	E 133 53 4.40
	1500.07	0.12	133.09	1500.01	1234.10	-7.43	10.37	-0.13	1.01	8192308.37	380858.87	S 16 20 50.70	E 133 53 4.40
	1501.09	0.11	114.71	1501.03	1235.12	-7.42	10.37	-0.13	1.12	8192308.37	380858.87	S 16 20 50.70	E 133 53 4.40
	1502.11	0.11	103.31	1502.05	1236.13	-7.42	10.37	-0.13	0.47	8192308.37	380858.87	S 16 20 50.70	E 133 53 4.40
	1503.12	0.10	114.98	1503.06	1237.15	-7.42	10.37	-0.12	0.56	8192308.37	380858.88	S 16 20 50.70	E 133 53 4.40
	1504.14	0.10	105.07	1504.08	1238.17	-7.42	10.37	-0.12	0.51	8192308.37	380858.88	S 16 20 50.70	E 133 53 4.40
	1505.15	0.12	89.38	1505.09	1239.18	-7.42	10.37	-0.12	1.07	8192308.37	380858.88	S 16 20 50.70	E 133 53 4.40
	1506.17	0.11	85.31	1506.11	1240.20	-7.42	10.37	-0.12	0.38	8192308.37	380858.88	S 16 20 50.70	E 133 53 4.40
	1507.19	0.09	90.32	1507.13	1241.22	-7.42	10.37	-0.12	0.64	8192308.37	380858.88	S 16 20 50.70	E 133 53 4.40
	1508.20	0.09	87.28	1508.14	1242.23	-7.41	10.37	-0.12	0.14	8192308.37	380858.88	S 16 20 50.70	E 133 53 4.40
	1509.22	0.09	48.42	1509.16	1243.25	-7.41	10.37	-0.11	1.76	8192308.37	380858.89	S 16 20 50.70	E 133 53 4.40
	1510.23	0.12	35.90	1510.17	1244.26	-7.41	10.37	-0.11	1.12	8192308.37	380858.89	S 16 20 50.70	E 133 53 4.40
	1511.25	0.12	49.35	1511.19	1245.28	-7.41	10.37	-0.11	0.83	8192308.37	380858.89	S 16 20 50.70	E 133 53 4.40
	1512.27	0.13	60.08	1512.21	1246.30	-7.41	10.37	-0.11	0.75	8192308.37	380858.89	S 16 20 50.70	E 133 53 4.40
	1513.28	0.15	55.81	1513.22	1247.31	-7.41	10.38	-0.11	0.67	8192308.37	380858.89	S 16 20 50.70	E 133 53 4.40
	1514.30	0.12	50.24	1514.24	1248.33	-7.41	10.38	-0.11	0.89	8192308.38	380858.90	S 16 20 50.70	E 133 53 4.40
	1515.31	0.09	64.84	1515.25	1249.34	-7.41	10.38	-0.10	0.99	8192308.38	380858.90	S 16 20 50.70	E 133 53 4.40
	1516.33	0.13	66.54	1516.27	1250.36	-7.41	10.38	-0.10	1.18	8192308.38	380858.90	S 16 20 50.70	E 133 53 4.40
	1517.35	0.17	76.67	1517.29	1251.38	-7.41	10.38	-0.10	1.41	8192308.38	380858.90	S 16 20 50.70	E 133 53 4.40
	1518.36	0.18	83.60	1518.30	1252.39	-7.41	10.38	-0.10	0.69	8192308.38	380858.90	S 16 20 50.70	E 133 53 4.40
	1519.38	0.19	94.43	1519.32	1253.41	-7.41	10.38	-0.09	1.07	8192308.38	380858.91	S 16 20 50.70	E 133 53 4.40
	1520.39	0.19	93.03	1520.33	1254.42	-7.40	10.38	-0.09	0.14	8192308.38	380858.91	S 16 20 50.70	E 133 53 4.40
	1521.41	0.18	74.89	1521.35	1255.44	-7.40	10.38	-0.09	1.74	8192308.38	380858.91	S 16 20 50.70	E 133 53 4.40
	1522.43	0.19	60.42	1522.37	1256.46	-7.40	10.38	-0.08	1.40	8192308.38	380858.92	S 16 20 50.70	E 133 53 4.40
	1523.44	0.20	51.19	1523.38	1257.47	-7.40	10.38	-0.08	0.98	8192308.38	380858.92	S 16 20 50.70	E 133 53 4.40
	1524.46	0.20	49.09	1524.40	1258.49	-7.40	10.39	-0.08	0.22	8192308.38	380858.92	S 16 20 50.70	E 133 53 4.40
	1525.47	0.23	61.32	1525.41	1259.50	-7.40	10.39	-0.08	1.62	8192308.39	380858.92	S 16 20 50.70	E 133 53 4.40
	1526.49	0.25	66.44	1526.43	1260.52	-7.40	10.39	-0.07	0.86	8192308.39	380858.93	S 16 20 50.70	E 133 53 4.40
	1527.51	0.26	57.45	1527.45	1261.54	-7.40	10.39	-0.07	1.21	8192308.39	380858.93	S 16 20 50.70	E 133 53 4.40
	1528.52	0.30	55.24	1528.46	1262.55	-7.39	10.39	-0.06	1.23	8192308.39	380858.94	S 16 20 50.70	E 133 53 4.40
	1529.54	0.33	57.70	1529.48	1263.57	-7.39	10.40	-0.06	0.97	8192308.40	380858.94	S 16 20 50.70	E 133 53 4.40
	1530.55	0.36	60.79	1530.49	1264.58	-7.39	10.40	-0.05	1.05	8192308.40	380858.95	S 16 20 50.70	E 133 53 4.40
	1531.57	0.37	66.26	1531.51	1265.60	-7.39	10.40	-0.05	1.07	8192308.40	380858.95	S 16 20 50.70	E 133 53 4.40
	1532.59	0.36	73.58	1532.53	1266.62	-7.39	10.41	-0.04	1.40	8192308.40	380858.96	S 16 20 50.70	E 133 53 4.40
	1533.60	0.37	81.40	1533.54	1267.63	-7.38	10.41	-0.04	1.51	8192308.40	380858.96	S 16 20 50.70	E 133 53 4.40
	1534.62	0.38	83.98	1534.56	1268.65	-7.38	10.41	-0.03	0.58	8192308.41	380858.97	S 16 20 50.70	E 133 53 4.40
	1535.63	0											

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	1592.53	0.52	53.23	1592.47	1326.56	-7.28	10.56	0.26	0.32	8192308.56	380859.26	S 16 20 50.69	E 133 53 4.41
	1593.55	0.54	53.11	1593.49	1327.58	-7.28	10.56	0.27	0.59	8192308.56	380859.27	S 16 20 50.69	E 133 53 4.41
	1594.56	0.53	54.80	1594.50	1328.59	-7.28	10.57	0.28	0.58	8192308.57	380859.28	S 16 20 50.69	E 133 53 4.41
	1595.58	0.52	55.25	1595.52	1329.61	-7.28	10.57	0.28	0.31	8192308.57	380859.28	S 16 20 50.69	E 133 53 4.41
	1596.59	0.51	55.36	1596.53	1330.62	-7.28	10.58	0.29	0.30	8192308.58	380859.29	S 16 20 50.69	E 133 53 4.41
	1597.61	0.52	55.24	1597.55	1331.64	-7.27	10.58	0.30	0.30	8192308.58	380859.30	S 16 20 50.69	E 133 53 4.41
	1598.63	0.52	54.10	1598.57	1332.66	-7.27	10.59	0.31	0.30	8192308.59	380859.31	S 16 20 50.69	E 133 53 4.41
	1599.64	0.52	53.49	1599.58	1333.67	-7.27	10.60	0.31	0.16	8192308.59	380859.31	S 16 20 50.69	E 133 53 4.42
	1600.66	0.52	53.11	1600.60	1334.69	-7.27	10.60	0.32	0.10	8192308.60	380859.32	S 16 20 50.69	E 133 53 4.42
	1601.67	0.52	53.36	1601.61	1335.70	-7.27	10.61	0.33	0.07	8192308.60	380859.33	S 16 20 50.69	E 133 53 4.42
	1602.69	0.51	54.07	1602.63	1336.72	-7.27	10.61	0.34	0.35	8192308.61	380859.34	S 16 20 50.69	E 133 53 4.42
	1603.71	0.51	53.48	1603.65	1337.74	-7.27	10.62	0.34	0.15	8192308.61	380859.34	S 16 20 50.69	E 133 53 4.42
	1604.72	0.53	50.81	1604.66	1338.75	-7.26	10.62	0.35	0.93	8192308.62	380859.35	S 16 20 50.69	E 133 53 4.42
	1605.74	0.54	50.37	1605.68	1339.77	-7.26	10.63	0.36	0.32	8192308.63	380859.36	S 16 20 50.69	E 133 53 4.42
	1606.75	0.55	49.67	1606.69	1340.78	-7.26	10.64	0.36	0.03	8192308.63	380859.36	S 16 20 50.69	E 133 53 4.42
	1607.77	0.55	49.55	1607.71	1341.80	-7.26	10.64	0.37	0.36	8192308.64	380859.37	S 16 20 50.69	E 133 53 4.42
	1608.79	0.55	50.40	1608.73	1342.82	-7.26	10.65	0.38	0.24	8192308.65	380859.38	S 16 20 50.69	E 133 53 4.42
	1609.80	0.54	50.69	1609.74	1343.83	-7.26	10.65	0.39	0.31	8192308.65	380859.39	S 16 20 50.69	E 133 53 4.42
	1610.82	0.54	50.36	1610.76	1344.85	-7.26	10.66	0.39	0.09	8192308.66	380859.39	S 16 20 50.69	E 133 53 4.42
	1611.83	0.54	51.06	1611.77	1345.86	-7.26	10.67	0.40	0.20	8192308.66	380859.40	S 16 20 50.69	E 133 53 4.42
	1612.85	0.55	51.61	1612.79	1346.88	-7.26	10.67	0.41	0.33	8192308.67	380859.41	S 16 20 50.69	E 133 53 4.42
	1613.87	0.54	52.04	1613.81	1347.90	-7.26	10.68	0.42	0.32	8192308.68	380859.42	S 16 20 50.69	E 133 53 4.42
	1614.88	0.54	54.60	1614.82	1348.91	-7.25	10.68	0.42	0.72	8192308.68	380859.42	S 16 20 50.69	E 133 53 4.42
	1615.90	0.54	56.54	1615.84	1349.93	-7.25	10.69	0.43	0.54	8192308.69	380859.43	S 16 20 50.69	E 133 53 4.42
	1616.91	0.53	58.47	1616.85	1350.94	-7.25	10.69	0.44	0.61	8192308.69	380859.44	S 16 20 50.69	E 133 53 4.42
	1617.93	0.52	59.85	1617.87	1351.96	-7.25	10.70	0.45	0.47	8192308.70	380859.45	S 16 20 50.69	E 133 53 4.42
	1618.95	0.51	59.93	1618.89	1352.98	-7.25	10.70	0.46	0.29	8192308.70	380859.46	S 16 20 50.69	E 133 53 4.42
	1619.96	0.51	59.89	1619.90	1353.99	-7.24	10.71	0.46	0.01	8192308.71	380859.46	S 16 20 50.69	E 133 53 4.42
	1620.98	0.51	59.95	1620.92	1355.01	-7.24	10.71	0.47	0.02	8192308.71	380859.47	S 16 20 50.69	E 133 53 4.42
	1621.99	0.49	58.75	1621.92	1356.02	-7.24	10.72	0.48	0.67	8192308.71	380859.48	S 16 20 50.69	E 133 53 4.42
	1623.01	0.47	57.64	1622.95	1357.04	-7.24	10.72	0.49	0.65	8192308.72	380859.49	S 16 20 50.69	E 133 53 4.42
	1624.03	0.45	57.26	1623.97	1358.06	-7.24	10.73	0.49	0.60	8192308.72	380859.49	S 16 20 50.68	E 133 53 4.42
	1625.04	0.42	55.78	1624.98	1359.07	-7.23	10.73	0.50	0.95	8192308.73	380859.50	S 16 20 50.68	E 133 53 4.42
	1626.06	0.38	53.44	1626.00	1360.09	-7.23	10.73	0.51	1.27	8192308.73	380859.51	S 16 20 50.68	E 133 53 4.42
	1627.07	0.37	51.37	1627.01	1361.10	-7.23	10.74	0.51	0.50	8192308.74	380859.51	S 16 20 50.68	E 133 53 4.42
	1628.09	0.34	51.16	1628.03	1362.12	-7.23	10.74	0.52	0.88	8192308.74	380859.52	S 16 20 50.68	E 133 53 4.42
	1629.11	0.31	52.05	1629.05	1363.14	-7.23	10.75	0.52	0.89	8192308.74	380859.52	S 16 20 50.68	E 133 53 4.42
	1630.12	0.30	50.78	1630.06	1364.15	-7.23	10.75	0.53	0.36	8192308.75	380859.53	S 16 20 50.68	E 133 53 4.42
	1631.14	0.27	48.53	1631.08	1365.17	-7.23	10.75	0.53	0.94	8192308.75	380859.53	S 16 20 50.68	E 133 53 4.42
	1632.15	0.25	44.45	1632.09	1366.18	-7.23	10.76	0.53	0.81	8192308.75	380859.53	S 16 20 50.68	E 133 53 4.42
	1633.17	0.24	39.84	1633.11	1367.20	-7.23	10.76	0.54	0.65	8192308.76	380859.54	S 16 20 50.68	E 133 53 4.42
	1634.19	0.21	36.88	1634.13	1368.22	-7.23	10.76	0.54	1.02	8192308.76	380859.54	S 16 20 50.68	E 133 53 4.42
	1635.20	0.18	31.88	1635.14	1369.23	-7.23	10.77	0.54	0.96	8192308.76	380859.54	S 16 20 50.68	E 133 53 4.42
	1636.22	0.17	28.82	1636.16	1370.25	-7.23	10.77	0.54	0.40	8192308.77	380859.54	S 16 20 50.68	E 133 53 4.42
	1637.23	0.12	24.40	1637.17	1371.26	-7.23	10.77	0.54	1.52	8192308.77	380859.54	S 16 20 50.68	E 133 53 4.42
	1638.25	0.09	9.73	1638.19	1372.28	-7.23	10.77	0.54	1.18	8192308.77	380859.54	S 16 20 50.68	E 133 53 4.42
	1639.27	0.09	349.52	1639.21	1373.30	-7.23	10.77	0.54	0.93	8192308.77	380859.54	S 16 20 50.68	E 133 53 4.42
	1640.28	0.09	332.94	1640.22	1374.31	-7.24	10.77	0.54	0.77	8192308.77	380859.54	S 16 20 50.68	E 133 53 4.42
	1641.30	0.08	321.37	1641.24	1375.33	-7.24	10.78	0.54	0.58	8192308.77	380859.54	S 16 20 50.68	E 133 53 4.42
	1642.31	0.07	309.52	1642.25	1376.34	-7.24	10.78	0.54	0.55	8192308.77	380859.54	S 16 20 50.68	E 133 53 4.42
	1643.33	0.07	285.39	1643.27	1377.36	-7.24	10.78	0.54	0.86	8192308.78	380859.54	S 16 20 50.68	E 133 53 4.42
	1644.35	0.07	269.22	1644.29	1378.38	-7.24	10.78	0.54	0.58	8192308.78	380859.54	S 16 20 50.68	E 133 53 4.42
	1645.36	0.08	269.52	1645.30	1379.39	-7.24	10.78	0.54	0.30	8192308.78	380859.54	S 16 20 50.68	E 133 53 4.42
	1646.38	0.08	267.68	1646.32	1380.41	-7.24	10.78	0.54	0.08	8192308.78	380859.54	S 16 20 50.68	E 133 53 4.42
	1647.39	0.08	277.06	1647.33	1381.42	-7.24	10.78	0.53	0.39	8192308.78	380859.53	S 16 20 50.68	E 133 53 4.42
	1648.41	0.08	287.27	1648.35	1382.44	-7.24	10.78	0.53	0.42	8192308.78	380859.53	S 16 20 50.68	E 133 53 4.42
	1649.43	0.09	290.90	1649.37	1383.46	-7.25	10.78	0.53	0.33	8192308.78	380859.53	S 16 20 50.68	E 133 53 4.42
	1650.44	0.10	288.55	1650.38	1384.47	-7.25	10.78	0.53	0.32	8192308.78	380859.53	S 16 20 50.68	E 133 53 4.42
	1651.46	0.12	287.56	1651.40	1385.49	-7.25	10.78	0.53	0.59	8192308.78	380859.53	S 16 20 50.68	E 133 53 4.42
	1652.47	0.12	290.26	1652.41	1386.50	-7.25	10.78	0.53	0.17	8192308.78	380859.53	S 16 20 50.68	E 133 53 4.42
	1653.49	0.12	295.04	1653.43	1387.52	-7.25	10.78	0.52	0.29	8192308.78	380859.52	S 16 20 50.68	E 133 53 4.42
	1654.51	0.12	307.16	1654.45	1388.54	-7.26	10.78	0.52	0.75	8192308.78	380859.52	S 16 20 50.68	E 133 53 4.42
	1655.52	0.13	317.69	1655.46	1389.55	-7.26	10.78	0.52	0.74	8192308.78	380859.52	S 16 20 50.68	E 133 53 4.42
	1656.54	0.14	325.71	1656.48	1390.57	-7.26	10.79	0.52	0.63	8192308.78	380859.52	S 16 20 50.68	E 133 53 4.42
	1657.55	0.15	333.57	1657.49	1391.58	-7.26	10.79	0.52	0.66	8192308.79	380859.52	S 16 20 50.68	E 133 53 4.42
	1658.57	0.16	338.62	1658.51	1392.60	-7.26	10.79	0.52	0.50	8192308.79	380859.52	S 16 20 50.68	E 133 53 4.42
	1659.59	0.16	344.67	1659.53	1393.62	-7.27	10.79	0.52	0.50	8192308.79	380859.52	S 16 20 50.68	E 133 53 4.42
	1660.60	0.17	355.02	1660.54	1394.63	-7.27	10.80	0.52	0.93	8192308.79	380859.52	S 16 20 50.68	E 133 53 4.42
	1661.62	0.18	8.61	1661.56	1395.65	-7.27	10.80	0.52	1.25	8192308.80	380859.52	S 16 20 50.68	E 133 53 4.42
	1662.63	0.19	17.12	1662.57	1396.66	-7.27	10.80	0.52	0.87	8192308.80	380859.52	S 16 20 50.68	E 133 53 4.42
	1663.65	0.21	20.91	1663.59	1397.68	-7.27	10.81	0.52	0.70	8192308.80	380859.52	S 16 20 50.68	E 133 53 4.42
	1664.67	0.21	19.41	1664.61	1398.70	-7.28	10.81	0.52	0.16	8192308.81	380859.52	S 16 20 50.68	E 133 53 4.42
	1665.68	0.22	21.80	1665.62	1399.71	-7.28	10.81	0.52	0.40	8192308.81	380859.52	S 16 20 50.68	E 133 53 4.42
	1666.70	0.23	21.38	1666.64	1400.73	-7.28	10.82	0.52	0.30	8192308.81	380859.52	S 16 20 50.68	E 133 53 4.42
	1667.71	0.24	18.74	1667									

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	1724.61	0.68	10.60	1724.55	1458.63	-7.68	11.39	0.53	0.77	8192309.39	380859.53	S 16 20 50.66	E 133 53 4.42
	1725.63	0.68	9.26	1725.57	1459.65	-7.68	11.40	0.53	0.47	8192309.40	380859.53	S 16 20 50.66	E 133 53 4.42
	1726.64	0.68	9.48	1726.58	1460.66	-7.69	11.41	0.54	0.08	8192309.41	380859.54	S 16 20 50.66	E 133 53 4.42
	1727.66	0.69	9.59	1727.60	1461.68	-7.70	11.43	0.54	0.30	8192309.42	380859.54	S 16 20 50.66	E 133 53 4.42
	1728.67	0.74	9.74	1728.61	1462.69	-7.70	11.44	0.54	0.30	8192309.43	380859.54	S 16 20 50.66	E 133 53 4.42
	1729.69	0.72	10.79	1729.63	1463.71	-7.71	11.45	0.54	0.70	8192309.45	380859.54	S 16 20 50.66	E 133 53 4.42
	1730.71	0.73	11.23	1730.65	1464.73	-7.72	11.46	0.55	0.34	8192309.46	380859.55	S 16 20 50.66	E 133 53 4.42
	1731.72	0.74	11.13	1731.66	1465.74	-7.73	11.48	0.55	0.30	8192309.47	380859.55	S 16 20 50.66	E 133 53 4.42
	1732.74	0.75	11.57	1732.68	1466.76	-7.73	11.49	0.55	0.34	8192309.49	380859.55	S 16 20 50.66	E 133 53 4.42
	1733.75	0.76	12.17	1733.69	1467.77	-7.74	11.50	0.55	0.38	8192309.50	380859.55	S 16 20 50.66	E 133 53 4.42
	1734.77	0.77	13.42	1734.71	1468.79	-7.75	11.51	0.56	0.57	8192309.51	380859.56	S 16 20 50.66	E 133 53 4.42
	1735.79	0.77	15.45	1735.73	1469.81	-7.76	11.53	0.56	0.80	8192309.53	380859.56	S 16 20 50.66	E 133 53 4.42
	1736.80	0.77	17.02	1736.74	1470.82	-7.76	11.54	0.56	0.63	8192309.54	380859.56	S 16 20 50.66	E 133 53 4.42
	1737.82	0.76	18.30	1737.76	1471.84	-7.77	11.55	0.57	0.58	8192309.55	380859.57	S 16 20 50.66	E 133 53 4.42
	1738.83	0.75	20.02	1738.76	1472.85	-7.77	11.57	0.57	0.74	8192309.56	380859.57	S 16 20 50.66	E 133 53 4.42
	1739.85	0.76	21.52	1739.78	1473.87	-7.78	11.58	0.58	0.65	8192309.58	380859.58	S 16 20 50.66	E 133 53 4.42
	1740.87	0.77	22.73	1740.80	1474.89	-7.78	11.59	0.58	0.56	8192309.59	380859.58	S 16 20 50.66	E 133 53 4.42
	1741.88	0.76	24.96	1741.81	1475.90	-7.79	11.60	0.59	0.93	8192309.60	380859.59	S 16 20 50.66	E 133 53 4.42
	1742.90	0.76	27.62	1742.83	1476.92	-7.79	11.62	0.59	1.04	8192309.61	380859.59	S 16 20 50.66	E 133 53 4.42
	1743.91	0.75	29.77	1743.84	1477.93	-7.80	11.63	0.60	0.89	8192309.62	380859.60	S 16 20 50.66	E 133 53 4.42
	1744.93	0.74	32.38	1744.86	1478.95	-7.80	11.64	0.61	1.04	8192309.64	380859.61	S 16 20 50.66	E 133 53 4.43
	1745.95	0.73	34.62	1745.88	1479.97	-7.80	11.65	0.61	0.89	8192309.65	380859.61	S 16 20 50.65	E 133 53 4.43
	1746.96	0.74	36.39	1746.89	1480.98	-7.81	11.66	0.62	0.74	8192309.66	380859.62	S 16 20 50.65	E 133 53 4.43
	1747.98	0.75	38.26	1747.91	1482.00	-7.81	11.67	0.63	0.77	8192309.67	380859.63	S 16 20 50.65	E 133 53 4.43
	1748.99	0.73	39.56	1748.92	1483.01	-7.81	11.68	0.64	0.78	8192309.68	380859.64	S 16 20 50.65	E 133 53 4.43
	1750.01	0.71	40.89	1749.94	1484.03	-7.81	11.69	0.65	0.77	8192309.69	380859.65	S 16 20 50.65	E 133 53 4.43
	1751.03	0.70	43.31	1750.96	1485.05	-7.81	11.70	0.65	0.92	8192309.70	380859.65	S 16 20 50.65	E 133 53 4.43
	1752.04	0.70	46.15	1751.97	1486.06	-7.81	11.71	0.66	1.03	8192309.71	380859.66	S 16 20 50.65	E 133 53 4.43
	1753.06	0.70	47.75	1752.99	1487.08	-7.81	11.72	0.67	0.87	8192309.72	380859.67	S 16 20 50.65	E 133 53 4.43
	1754.07	0.71	48.94	1754.00	1488.09	-7.81	11.73	0.68	0.82	8192309.73	380859.68	S 16 20 50.65	E 133 53 4.43
	1755.09	0.73	51.41	1755.02	1489.11	-7.81	11.73	0.69	0.83	8192309.73	380859.69	S 16 20 50.65	E 133 53 4.43
	1756.11	0.72	52.28	1756.04	1490.13	-7.81	11.74	0.70	0.44	8192309.74	380859.70	S 16 20 50.65	E 133 53 4.43
	1757.12	0.69	53.66	1757.05	1491.14	-7.80	11.75	0.71	1.02	8192309.75	380859.71	S 16 20 50.65	E 133 53 4.43
	1758.14	0.70	55.02	1758.07	1492.16	-7.80	11.76	0.72	0.57	8192309.75	380859.72	S 16 20 50.65	E 133 53 4.43
	1759.15	0.70	56.46	1759.08	1493.17	-7.80	11.76	0.73	0.52	8192309.76	380859.73	S 16 20 50.65	E 133 53 4.43
	1760.17	0.70	58.09	1760.10	1494.19	-7.80	11.77	0.74	0.59	8192309.77	380859.74	S 16 20 50.65	E 133 53 4.43
	1761.19	0.71	58.75	1761.12	1495.21	-7.79	11.78	0.75	0.38	8192309.77	380859.75	S 16 20 50.65	E 133 53 4.43
	1762.20	0.70	59.77	1762.13	1496.22	-7.79	11.78	0.76	0.48	8192309.78	380859.76	S 16 20 50.65	E 133 53 4.43
	1763.22	0.69	61.90	1763.15	1497.24	-7.79	11.79	0.77	0.81	8192309.79	380859.77	S 16 20 50.65	E 133 53 4.43
	1764.23	0.69	62.85	1764.16	1498.25	-7.78	11.79	0.79	0.34	8192309.79	380859.78	S 16 20 50.65	E 133 53 4.43
	1765.25	0.68	64.74	1765.18	1499.27	-7.78	11.80	0.80	0.43	8192309.80	380859.80	S 16 20 50.65	E 133 53 4.43
	1766.27	0.69	64.99	1766.20	1500.29	-7.78	11.81	0.81	0.53	8192309.80	380859.81	S 16 20 50.65	E 133 53 4.43
	1767.28	0.69	65.43	1767.21	1501.30	-7.77	11.81	0.82	0.16	8192309.81	380859.82	S 16 20 50.65	E 133 53 4.43
	1768.30	0.69	66.52	1768.23	1502.32	-7.77	11.82	0.83	0.39	8192309.81	380859.83	S 16 20 50.65	E 133 53 4.43
	1769.31	0.69	68.42	1769.24	1503.33	-7.76	11.82	0.84	0.68	8192309.82	380859.84	S 16 20 50.65	E 133 53 4.43
	1770.33	0.70	69.27	1770.26	1504.35	-7.76	11.82	0.85	0.42	8192309.82	380859.85	S 16 20 50.65	E 133 53 4.43
	1771.35	0.70	69.65	1771.28	1505.37	-7.75	11.83	0.86	0.14	8192309.83	380859.86	S 16 20 50.65	E 133 53 4.43
	1772.36	0.72	70.25	1772.29	1506.38	-7.75	11.83	0.88	0.63	8192309.83	380859.88	S 16 20 50.65	E 133 53 4.43
	1773.38	0.73	69.88	1773.31	1507.40	-7.74	11.84	0.89	0.32	8192309.84	380859.89	S 16 20 50.65	E 133 53 4.43
	1774.39	0.74	69.49	1774.32	1508.41	-7.74	11.84	0.90	0.33	8192309.84	380859.90	S 16 20 50.65	E 133 53 4.44
	1775.41	0.75	69.81	1775.34	1509.43	-7.73	11.85	0.91	0.32	8192309.84	380859.91	S 16 20 50.65	E 133 53 4.44
	1776.43	0.75	69.83	1776.36	1510.45	-7.73	11.85	0.92	0.01	8192309.85	380859.92	S 16 20 50.65	E 133 53 4.44
	1777.44	0.75	69.27	1777.37	1511.46	-7.72	11.86	0.94	0.22	8192309.85	380859.94	S 16 20 50.65	E 133 53 4.44
	1778.46	0.77	68.58	1778.39	1512.47	-7.72	11.86	0.95	0.65	8192309.86	380859.96	S 16 20 50.65	E 133 53 4.44
	1779.47	0.79	67.63	1779.40	1513.49	-7.71	11.87	0.96	0.71	8192309.86	380859.96	S 16 20 50.65	E 133 53 4.44
	1780.49	0.80	67.04	1780.42	1514.51	-7.70	11.87	0.98	0.38	8192309.87	380859.98	S 16 20 50.65	E 133 53 4.44
	1781.51	0.81	66.90	1781.44	1515.53	-7.70	11.88	0.99	0.30	8192309.87	380859.99	S 16 20 50.65	E 133 53 4.44
	1782.52	0.82	66.32	1782.45	1516.54	-7.69	11.88	1.00	0.39	8192309.88	380860.00	S 16 20 50.65	E 133 53 4.44
	1783.54	0.82	65.63	1783.47	1517.56	-7.69	11.89	1.02	0.29	8192309.89	380860.02	S 16 20 50.65	E 133 53 4.44
	1784.55	0.84	65.32	1784.48	1518.57	-7.68	11.89	1.03	0.61	8192309.89	380860.03	S 16 20 50.65	E 133 53 4.44
	1785.57	0.85	65.54	1785.50	1519.59	-7.68	11.90	1.04	0.31	8192309.90	380860.04	S 16 20 50.65	E 133 53 4.44
	1786.59	0.85	66.40	1786.52	1520.61	-7.67	11.91	1.06	0.38	8192309.90	380860.06	S 16 20 50.65	E 133 53 4.44
	1787.60	0.86	67.48	1787.53	1521.62	-7.67	11.91	1.07	0.56	8192309.91	380860.07	S 16 20 50.65	E 133 53 4.44
	1788.62	0.87	67.70	1788.55	1522.64	-7.66	11.92	1.08	1.08	8192309.92	380860.08	S 16 20 50.65	E 133 53 4.44
	1789.63	0.86	67.57	1789.56	1523.65	-7.66	11.92	1.10	0.30	8192309.92	380860.10	S 16 20 50.65	E 133 53 4.44
	1790.65	0.86	68.67	1790.58	1524.67	-7.65	11.93	1.11	0.41	8192309.93	380860.11	S 16 20 50.64	E 133 53 4.44
	1791.67	0.87	68.30	1791.60	1525.69	-7.64	11.94	1.13	1.10	8192309.93	380860.13	S 16 20 50.65	E 133 53 4.44
	1792.68	0.88	68.95	1792.61	1526.70	-7.64	11.94	1.14	0.42	8192309.94	380860.14	S 16 20 50.65	E 133 53 4.44
	1793.70	0.87	69.69	1793.63	1527.72	-7.63	11.95	1.16	0.44	8192309.94	380860.16	S 16 20 50.65	E 133 53 4.44
	1794.71	0.86	70.38	1794.64	1528.73	-7.62	11.95	1.17	0.43	8192309.95	380860.17	S 16 20 50.65	E 133 53 4.44
	1795.73	0.85	70.46	1795.66	1529.75	-7.62	11.96	1.18	0.30	8192309.96	380860.18	S 16 20 50.64	E 133 53 4.44
	1796.75	0.85	70.75	1796.68	1530.77	-7.61	11.96	1.20	0.13	8192309.96	380860.20	S 16 20 50.64	E 133 53 4.45
	1797.76	0.84	70.58	1797.69	1531.78	-7.61	11.97	1.21	0.31	8192309.97	380860.21	S 16 20 50.64	E 133 53 4.45
	1798.78	0.84	70.60	1798.71	1532.80	-7.60	11.97	1.23	0.01	8192309.97	380860.23	S 16 20 50.64	E 133 53 4.45
	1799.79	0.82	71.84	1799.72	1533.81	-7.59							



Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	1856.69	0.89	71.40	1856.61	1590.70	-7.34	12.33	1.96	0.59	8192310.33	380860.96	S 16 20 50.63	E 133 53 4.47
	1857.71	0.90	71.10	1857.63	1591.72	-7.33	12.34	1.97	0.32	8192310.34	380860.97	S 16 20 50.63	E 133 53 4.47
	1858.72	0.90	69.96	1858.64	1592.73	-7.32	12.34	1.99	0.53	8192310.34	380860.99	S 16 20 50.63	E 133 53 4.47
	1859.74	0.90	68.68	1859.66	1593.75	-7.32	12.35	2.00	0.59	8192310.35	380861.00	S 16 20 50.63	E 133 53 4.47
	1860.75	0.89	67.40	1860.67	1594.77	-7.31	12.36	2.02	0.80	8192310.36	380861.01	S 16 20 50.63	E 133 53 4.47
	1861.77	0.89	65.31	1861.69	1595.78	-7.31	12.36	2.03	0.82	8192310.36	380861.03	S 16 20 50.63	E 133 53 4.47
	1862.79	0.88	64.31	1862.71	1596.80	-7.30	12.37	2.04	0.54	8192310.37	380861.04	S 16 20 50.63	E 133 53 4.47
	1863.80	0.87	63.45	1863.72	1597.81	-7.30	12.38	2.06	0.49	8192310.37	380861.06	S 16 20 50.63	E 133 53 4.47
	1864.82	0.87	62.49	1864.74	1598.83	-7.29	12.38	2.07	0.43	8192310.38	380861.07	S 16 20 50.63	E 133 53 4.47
	1865.83	0.87	61.43	1865.75	1599.84	-7.29	12.39	2.09	0.48	8192310.39	380861.08	S 16 20 50.63	E 133 53 4.48
	1866.85	0.88	60.13	1866.77	1600.86	-7.28	12.40	2.10	0.65	8192310.39	380861.10	S 16 20 50.63	E 133 53 4.48
	1867.87	0.87	58.89	1867.79	1601.88	-7.28	12.41	2.11	0.63	8192310.40	380861.11	S 16 20 50.63	E 133 53 4.48
	1868.88	0.87	58.45	1868.80	1602.89	-7.27	12.41	2.13	0.20	8192310.41	380861.12	S 16 20 50.63	E 133 53 4.48
	1869.90	0.88	58.23	1869.82	1603.91	-7.27	12.42	2.14	0.31	8192310.42	380861.14	S 16 20 50.63	E 133 53 4.48
	1870.91	0.89	58.38	1870.83	1604.92	-7.27	12.43	2.15	0.30	8192310.43	380861.15	S 16 20 50.63	E 133 53 4.48
	1871.93	0.90	58.63	1871.85	1605.94	-7.26	12.44	2.17	0.32	8192310.44	380861.16	S 16 20 50.63	E 133 53 4.48
	1872.95	0.92	58.69	1872.87	1606.96	-7.26	12.45	2.18	0.59	8192310.44	380861.18	S 16 20 50.63	E 133 53 4.48
	1873.96	0.92	58.58	1873.88	1607.97	-7.26	12.46	2.19	0.05	8192310.45	380861.19	S 16 20 50.63	E 133 53 4.48
	1874.98	0.93	59.15	1874.90	1608.99	-7.25	12.46	2.21	0.40	8192310.46	380861.21	S 16 20 50.63	E 133 53 4.48
	1875.99	0.93	59.94	1875.91	1610.00	-7.25	12.47	2.22	0.38	8192310.47	380861.22	S 16 20 50.63	E 133 53 4.48
	1877.01	0.94	60.32	1876.93	1611.02	-7.24	12.48	2.24	0.35	8192310.48	380861.24	S 16 20 50.63	E 133 53 4.48
	1878.03	0.95	60.88	1877.95	1612.04	-7.24	12.49	2.25	0.40	8192310.49	380861.25	S 16 20 50.63	E 133 53 4.48
	1879.04	0.97	61.45	1878.96	1613.05	-7.23	12.50	2.27	0.66	8192310.49	380861.26	S 16 20 50.63	E 133 53 4.48
	1880.06	0.98	61.57	1879.98	1614.07	-7.23	12.50	2.28	0.30	8192310.50	380861.28	S 16 20 50.63	E 133 53 4.48
	1881.07	0.98	61.88	1880.99	1615.08	-7.22	12.51	2.30	0.16	8192310.51	380861.30	S 16 20 50.63	E 133 53 4.48
	1882.09	0.98	62.59	1882.01	1616.10	-7.22	12.52	2.31	0.36	8192310.52	380861.31	S 16 20 50.63	E 133 53 4.48
	1883.11	0.97	63.41	1883.03	1617.12	-7.21	12.53	2.33	0.50	8192310.53	380861.33	S 16 20 50.63	E 133 53 4.48
	1884.12	0.97	64.35	1884.04	1618.13	-7.21	12.54	2.34	0.47	8192310.53	380861.34	S 16 20 50.63	E 133 53 4.48
	1885.14	0.96	65.35	1885.06	1619.15	-7.20	12.54	2.36	0.58	8192310.54	380861.36	S 16 20 50.63	E 133 53 4.48
	1886.15	0.96	63.33	1886.07	1620.17	-7.20	12.55	2.37	0.47	8192310.55	380861.37	S 16 20 50.63	E 133 53 4.49
	1887.17	0.94	67.36	1887.09	1621.18	-7.19	12.56	2.39	0.77	8192310.55	380861.39	S 16 20 50.63	E 133 53 4.49
	1888.19	0.93	68.03	1888.11	1622.20	-7.18	12.56	2.40	0.44	8192310.56	380861.40	S 16 20 50.63	E 133 53 4.49
	1889.20	0.91	68.64	1889.12	1623.21	-7.18	12.57	2.42	0.66	8192310.57	380861.42	S 16 20 50.63	E 133 53 4.49
	1890.22	0.89	70.10	1890.14	1624.23	-7.17	12.58	2.43	0.89	8192310.57	380861.43	S 16 20 50.63	E 133 53 4.49
	1891.23	0.87	78.80	1891.15	1625.24	-7.16	12.60	2.45	0.57	8192310.60	380861.54	S 16 20 50.62	E 133 53 4.49
	1892.24	0.89	80.60	1892.16	1626.25	-7.12	12.61	2.55	1.00	8192310.60	380861.55	S 16 20 50.62	E 133 53 4.49
	1893.25	0.91	82.71	1893.17	1627.26	-7.10	12.61	2.57	1.15	8192310.61	380861.57	S 16 20 50.62	E 133 53 4.49
	1894.26	0.93	84.63	1894.15	1628.27	-7.09	12.61	2.59	1.08	8192310.61	380861.59	S 16 20 50.62	E 133 53 4.49
	1895.27	0.94	85.83	1895.15	1629.28	-7.08	12.61	2.60	0.65	8192310.61	380861.60	S 16 20 50.62	E 133 53 4.49
	1896.28	0.93	86.73	1896.15	1630.29	-7.07	12.61	2.62	0.31	8192310.61	380861.62	S 16 20 50.62	E 133 53 4.49
	1897.29	0.93	87.63	1897.15	1631.30	-7.06	12.62	2.64	0.62	8192310.61	380861.64	S 16 20 50.62	E 133 53 4.49
	1898.30	0.92	88.53	1898.17	1632.31	-7.05	12.62	2.65	0.67	8192310.61	380861.65	S 16 20 50.62	E 133 53 4.49
	1899.31	0.91	89.43	1899.23	1633.32	-7.04	12.62	2.67	0.79	8192310.61	380861.67	S 16 20 50.62	E 133 53 4.49
	1900.32	0.90	90.33	1900.24	1634.33	-7.03	12.62	2.68	0.30	8192310.62	380861.68	S 16 20 50.62	E 133 53 4.50
	1901.33	0.89	91.23	1901.25	1635.34	-7.02	12.62	2.70	0.33	8192310.62	380861.70	S 16 20 50.62	E 133 53 4.50
	1902.34	0.87	92.13	1902.26	1636.35	-7.01	12.63	2.72	0.61	8192310.62	380861.71	S 16 20 50.62	E 133 53 4.50
	1903.35	0.86	93.03	1903.27	1637.36	-7.00	12.63	2.73	0.45	8192310.63	380861.73	S 16 20 50.62	E 133 53 4.50
	1904.36	0.85	93.93	1904.28	1638.37	-6.99	12.63	2.75	0.41	8192310.63	380861.74	S 16 20 50.62	E 133 53 4.50
	1905.37	0.84	94.83	1905.29	1639.38	-6.98	12.63	2.76	0.35	8192310.63	380861.76	S 16 20 50.62	E 133 53 4.50
	1906.38	0.84	95.73	1906.30	1640.39	-6.97	12.64	2.77	0.09	8192310.63	380861.77	S 16 20 50.62	E 133 53 4.50
	1907.39	0.86	96.63	1907.31	1641.40	-6.96	12.64	2.79	0.80	8192310.64	380861.79	S 16 20 50.62	E 133 53 4.50
	1908.40	0.87	97.53	1908.32	1642.41	-6.95	12.64	2.80	1.11	8192310.64	380861.80	S 16 20 50.62	E 133 53 4.50
	1909.41	0.80	98.43	1909.33	1643.42	-6.95	12.64	2.82	0.91	8192310.64	380861.82	S 16 20 50.62	E 133 53 4.50
	1910.42	0.82	99.33	1910.34	1644.43	-6.94	12.64	2.84	0.96	8192310.64	380861.84	S 16 20 50.62	E 133 53 4.50
	1911.43	0.85	100.23	1911.35	1645.44	-6.93	12.65	2.85	0.79	8192310.64	380861.85	S 16 20 50.62	E 133 53 4.50
	1912.44	0.94	101.13	1912.36	1646.45	-6.92	12.65	2.87	0.43	8192310.65	380861.87	S 16 20 50.62	E 133 53 4.50
	1913.45	0.95	102.03	1913.37	1647.46	-6.91	12.65	2.89	0.36	8192310.65	380861.88	S 16 20 50.62	E 133 53 4.50
	1914.46	0.95	102.93	1914.38	1648.47	-6.90	12.65	2.90	0.36	8192310.65	380861.89	S 16 20 50.62	E 133 53 4.50
	1915.47	0.95	103.83	1915.39	1649.48	-6.89	12.65	2.91	0.36	8192310.65	380861.90	S 16 20 50.62	E 133 53 4.50
	1916.48	0.95	104.73	1916.40	1650.49	-6.88	12.65	2.92	0.36	8192310.65	380861.91	S 16 20 50.62	E 133 53 4.50
	1917.49	0.95	105.63	1917.41	1651.50	-6.87	12.65	2.93	0.36	8192310.65	380861.92	S 16 20 50.62	E 133 53 4.50
	1918.50	0.95	106.53	1918.42	1652.51	-6.86	12.65	2.94	0.36	8192310.65	380861.93	S 16 20 50.62	E 133 53 4.50
	1919.51	0.95	107.43	1919.43	1653.52	-6.85	12.65	2.95	0.36	8192310.65	380861.94	S 16 20 50.62	E 133 53 4.50
	1920.52	0.95	108.33	1920.44	1654.53	-6.84	12.65	2.96	0.36	8192310.65	380861.95	S 16 20 50.62	E 133 53 4.50
	1921.53	0.95	109.23	1921.45	1655.54	-6.83	12.65	2.97	0.36	8192310.65	380861.96	S 16 20 50.62	E 133 53 4.50
	1922.54	0.95	110.13	1922.46	1656.55	-6.82	12.65	2.98	0.36	8192310.65	380861.97	S 16 20 50.62	E 133 53 4.50
	1923.55	0.95	111.03	1923.47	1657.56	-6.81	12.65	2.99	0.36	8192310.65	380861.98	S 16 20 50.62	E 133 53 4.50
	1924.56	0.95	111.93	1924.48	1658.57	-6.80	12.65	3.00	0.36	8192310.65	380861.99	S 16 20 50.62	E 133 53 4.50
	1925.57	0.95	112.83	1925.49	1659.58	-6.79	12.65	3.01	0.36	8192310.65	380862.00	S 16 20 50.62	E 133 53 4.50
	1926.58	0.95	113.73	1926.50	1660.59	-6.78	12.65	3.02	0.36	8192310.65	380862.01	S 16 20 50.62	E 133 53 4.50
	1927.59	0.95	114.63	1927.51	1661.60	-6.77	12.65	3.03	0.36	8192310.65	380862.02	S 16 20 50.62	E 133 53 4.50
	1928.60	0.95	115.53	1928.52	1662.61	-6.76	12.65	3.04	0.36	8192310.65	380862.03	S 16 20 50.62	E 133 53 4.50
	1929.61	0.95	116.43	1929.53	1663.62	-6.75	12.65	3.05	0.36	8192310.65	380862.04	S 16 20 50.62	E 133 53 4.50
	1930.62	0.95	117.33	1930.54	1664.63	-6.74	12.65	3.06	0.36	8192310.65	380862.05	S 16 20 50.62	E 133 53 4.50
	1931.63	0.95	118.23	193									

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSS (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	2884.50	89.25	133.57	2450.17	2184.26	663.59	-465.23	473.23	0.42	8191832.87	381332.12	S 16 21 6.25	E 133 53 20.26
	2897.70	88.99	133.45	2450.37	2184.46	676.79	-474.32	482.80	0.65	8191823.79	381341.69	S 16 21 6.55	E 133 53 20.58
	2910.80	89.16	133.02	2450.58	2184.67	689.88	-483.29	492.34	1.06	8191814.81	381351.23	S 16 21 6.84	E 133 53 20.90
	2924.00	89.16	133.05	2450.78	2184.86	703.07	-492.30	501.99	0.07	8191805.81	381360.88	S 16 21 7.14	E 133 53 21.23
	2937.20	88.99	133.26	2450.99	2185.08	716.26	-501.33	511.62	0.61	8191796.78	381370.51	S 16 21 7.43	E 133 53 21.55
	2950.30	88.99	133.39	2451.22	2185.31	729.36	-510.32	521.15	0.30	8191787.80	381380.03	S 16 21 7.73	E 133 53 21.87
	2963.50	88.90	133.42	2451.46	2185.55	742.55	-519.38	530.74	0.22	8191778.73	381389.62	S 16 21 8.02	E 133 53 22.19
	2976.70	89.43	134.00	2451.65	2185.74	755.74	-528.50	540.28	1.79	8191769.61	381399.16	S 16 21 8.32	E 133 53 22.51
	2989.90	90.13	134.49	2451.71	2185.79	768.94	-537.71	549.73	1.94	8191760.41	381408.61	S 16 21 8.62	E 133 53 22.83
	3003.00	91.28	135.16	2451.54	2185.63	782.04	-546.95	559.02	3.05	8191751.17	381417.90	S 16 21 8.93	E 133 53 23.14
	3016.20	90.92	134.93	2451.29	2185.38	795.24	-556.29	568.35	0.97	8191741.84	381427.22	S 16 21 9.23	E 133 53 23.45
	3029.40	91.01	134.84	2451.07	2185.16	808.44	-565.60	577.70	0.29	8191732.53	381436.57	S 16 21 9.54	E 133 53 23.76
	3042.60	91.10	134.67	2450.83	2184.91	821.63	-574.89	587.07	0.44	8191723.24	381445.94	S 16 21 9.84	E 133 53 24.08
	3055.80	91.01	134.14	2450.58	2184.67	834.83	-584.13	596.50	1.22	8191714.00	381455.37	S 16 21 10.14	E 133 53 24.39
	3068.90	91.28	134.24	2450.32	2184.41	847.93	-593.26	605.89	0.66	8191704.88	381464.76	S 16 21 10.44	E 133 53 24.71
	3082.10	91.36	134.42	2450.02	2184.10	861.12	-602.48	615.33	0.45	8191695.66	381474.19	S 16 21 10.74	E 133 53 25.02
	3095.30	90.84	134.48	2449.76	2183.85	874.32	-611.72	624.75	1.19	8191686.42	381483.61	S 16 21 11.04	E 133 53 25.34
	3108.50	91.19	134.89	2449.53	2183.62	887.52	-621.00	634.14	1.23	8191677.14	381492.99	S 16 21 11.35	E 133 53 25.65
	3121.70	91.80	134.94	2449.18	2183.27	900.71	-630.32	643.48	1.39	8191667.82	381502.34	S 16 21 11.65	E 133 53 25.97
	3134.80	92.42	135.67	2448.70	2182.79	913.80	-639.62	652.69	2.19	8191658.52	381511.54	S 16 21 11.96	E 133 53 26.28
	3148.00	92.51	135.74	2448.13	2182.22	926.99	-649.06	661.90	0.26	8191649.08	381520.75	S 16 21 12.27	E 133 53 26.58
	3161.20	92.68	135.97	2447.54	2181.63	940.17	-658.53	671.08	0.65	8191639.62	381529.93	S 16 21 12.58	E 133 53 26.89
	3174.30	91.98	135.13	2447.00	2181.09	953.26	-667.87	680.25	2.50	8191630.28	381539.10	S 16 21 12.88	E 133 53 27.20
	3187.50	91.98	134.55	2446.55	2180.64	966.46	-677.17	689.60	1.32	8191620.98	381548.45	S 16 21 13.19	E 133 53 27.51
	3200.70	92.68	134.53	2446.01	2180.10	979.64	-686.42	699.00	1.59	8191611.73	381557.85	S 16 21 13.49	E 133 53 27.83
	3213.90	91.98	134.39	2445.48	2179.56	992.83	-695.66	708.42	1.62	8191602.50	381567.26	S 16 21 13.79	E 133 53 28.14
	3227.00	91.54	134.17	2445.07	2179.16	1005.92	-704.80	717.79	1.13	8191593.36	381576.63	S 16 21 14.09	E 133 53 28.46
	3240.20	90.48	133.31	2444.84	2178.93	1019.12	-713.93	727.33	3.10	8191584.23	381586.16	S 16 21 14.39	E 133 53 28.78
	3253.40	90.92	133.61	2444.68	2178.77	1032.31	-723.01	736.91	1.21	8191575.16	381595.74	S 16 21 14.68	E 133 53 29.10
	3266.60	90.84	133.50	2444.48	2178.56	1045.51	-732.10	746.47	0.31	8191566.06	381605.30	S 16 21 14.98	E 133 53 29.42
	3279.80	91.10	133.76	2444.25	2178.34	1058.70	-741.21	756.02	0.84	8191556.96	381614.85	S 16 21 15.28	E 133 53 29.74
	3292.90	90.92	134.01	2444.02	2178.11	1071.80	-750.29	765.46	0.71	8191547.88	381624.29	S 16 21 15.58	E 133 53 30.06
	3306.10	90.92	134.36	2443.81	2177.90	1084.99	-759.49	774.93	0.80	8191538.69	381633.75	S 16 21 15.88	E 133 53 30.37
	3319.30	90.92	134.54	2443.60	2177.69	1098.19	-768.73	784.35	0.41	8191529.44	381643.17	S 16 21 16.18	E 133 53 30.69
	3332.50	90.92	134.74	2443.39	2177.47	1111.39	-778.00	793.74	0.45	8191520.17	381652.56	S 16 21 16.48	E 133 53 31.00
	3345.60	90.92	135.06	2443.18	2177.26	1124.49	-787.25	803.02	0.73	8191510.93	381661.84	S 16 21 16.79	E 133 53 31.31
	3358.80	90.92	135.26	2442.96	2177.05	1137.69	-796.61	812.33	0.45	8191501.57	381671.14	S 16 21 17.09	E 133 53 31.63
	3371.90	90.92	135.46	2442.75	2176.84	1150.78	-805.93	821.53	0.46	8191492.26	381680.34	S 16 21 17.40	E 133 53 31.93
	3385.10	90.84	135.66	2442.55	2176.64	1163.98	-815.35	830.77	0.49	8191482.83	381689.58	S 16 21 17.71	E 133 53 32.24
	3398.20	90.92	136.09	2442.35	2176.44	1177.08	-824.75	839.89	1.00	8191473.43	381698.70	S 16 21 18.01	E 133 53 32.55
	3411.40	90.31	135.23	2442.21	2176.30	1190.28	-834.19	849.11	2.40	8191464.00	381707.92	S 16 21 18.32	E 133 53 32.86
	3424.50	89.60	135.00	2442.22	2176.31	1203.38	-843.47	858.36	1.71	8191454.72	381717.17	S 16 21 18.63	E 133 53 33.17
	3437.60	89.87	135.40	2442.28	2176.37	1216.48	-852.77	867.59	1.11	8191445.42	381726.40	S 16 21 18.93	E 133 53 33.48
	3450.90	89.87	135.45	2442.31	2176.40	1229.78	-862.24	876.92	0.11	8191435.95	381735.73	S 16 21 19.24	E 133 53 33.79
	3464.00	89.69	135.60	2442.36	2176.45	1242.88	-871.59	886.10	0.54	8191426.61	381744.90	S 16 21 19.54	E 133 53 34.10
	3477.10	89.87	136.12	2442.41	2176.50	1255.97	-880.99	895.23	1.26	8191417.21	381754.02	S 16 21 19.85	E 133 53 34.40
	3490.30	89.96	136.33	2442.43	2176.52	1269.17	-890.52	904.36	0.52	8191407.68	381763.15	S 16 21 20.16	E 133 53 34.71
	3503.60	90.22	136.61	2442.41	2176.50	1282.47	-900.16	913.52	0.86	8191398.04	381772.31	S 16 21 20.48	E 133 53 35.02
	3516.70	89.78	136.09	2442.41	2176.50	1295.66	-909.64	922.56	1.56	8191388.56	381781.35	S 16 21 20.79	E 133 53 35.32
	3530.00	89.96	136.15	2442.44	2176.53	1308.86	-919.23	931.78	0.43	8191378.98	381790.57	S 16 21 21.10	E 133 53 35.63
	3543.10	90.04	135.81	2442.44	2176.53	1321.96	-928.65	940.88	0.80	8191369.56	381799.67	S 16 21 21.41	E 133 53 35.93
	3556.30	90.31	136.23	2442.40	2176.49	1335.16	-938.15	950.05	1.13	8191360.06	381808.83	S 16 21 21.72	E 133 53 36.24
	3569.50	90.84	137.47	2442.27	2176.35	1348.35	-947.78	959.07	3.06	8191350.43	381817.86	S 16 21 22.04	E 133 53 36.54
	3582.70	91.54	139.14	2441.99	2176.08	1361.52	-957.63	967.85	4.11	8191340.58	381826.64	S 16 21 22.36	E 133 53 36.84
	3595.90	92.15	140.56	2441.67	2175.65	1374.67	-967.72	976.36	3.51	8191330.50	381835.14	S 16 21 22.69	E 133 53 37.12
	3609.10	93.03	141.47	2440.97	2175.06	1387.78	-977.97	984.66	2.88	8191320.25	381843.43	S 16 21 23.02	E 133 53 37.40
	3622.20	93.83	140.56	2440.19	2174.27	1400.79	-988.13	992.88	2.77	8191310.09	381851.66	S 16 21 23.35	E 133 53 37.67
	3635.40	96.20	138.92	2439.03	2173.12	1413.89	-998.16	1001.38	6.54	8191300.06	381860.15	S 16 21 23.68	E 133 53 37.96
	3648.60	96.64	136.20	2437.56	2171.64	1426.99	-1007.84	1010.23	6.22	8191290.38	381869.00	S 16 21 24.00	E 133 53 38.26
	3661.80	96.64	133.39	2436.03	2170.12	1440.10	-1017.08	1019.53	6.34	8191281.15	381878.30	S 16 21 24.30	E 133 53 38.57
	3674.90	96.46	130.50	2434.53	2168.62	1453.10	-1025.78	1029.21	6.59	8191272.45	381887.98	S 16 21 24.59	E 133 53 38.89
	3688.00	95.41	127.97	2433.18	2167.27	1466.06	-1034.02	1039.30	6.24	8191264.21	381898.07	S 16 21 24.86	E 133 53 39.23
	3701.10	93.91	126.24	2432.12	2166.20	1478.99	-1041.90	1049.72	5.23	8191256.34	381908.48	S 16 21 25.11	E 133 53 39.58
	3714.20	92.77	127.22	2431.35	2165.44	1491.93	-1049.72	1060.20	3.44	8191248.52	381918.96	S 16 21 25.37	E 133 53 39.93
	3727.40	91.89	127.50	2430.82	2164.90	1505.01	-1057.72	1070.68	2.10	8191240.52	381929.44	S 16 21 25.63	E 133 53 40.28
	3740.50	91.98	127.20	2430.37	2164.46	1517.98	-1065.86	1081.09	0.72	8191232.58	381939.84	S 16 21 25.89	E 133 53 40.63
	3753.70	91.89	127.09	2429.93	2164.02	1531.05	-1073.63	1091.60	0.32	8191224.61	381950.36	S 16 21 26.15	E 133 53 40.98
	3766.80	92.15	126.45	2429.47	2163.55	1544.01	-1081.47	1102.09	1.58	8191216.78	381960.84	S 16 21 26.41	E 133 53 41.34
	3779.90	92.07	126.47	2428.98	2163.07	1556.95	-1089.24	1112.62	0.19	8191209.00	381971.37	S 16 21 26.67	E 133 53 41.69
	3793.20	92.07	126.21	2428.50	2162.59	1570.09	-1097.12	1123.33	0.59	8191201.13	381982.07	S 16 21 26.92	E 133 53 42.05
Amungee NW-1H Projection to TD	3808.00	92.07	126.21	2427.97	2162.06	1584.71	-1105.86	113					