



# Well Abandonment Report

**Basin: Bowen Basin**  
**Tenure: ATP1103**  
**Well: RH015GL1V**  
**Field: Red Hill**

**Operated By Arrow Energy Pty Ltd**

20/12/2013	WELL ABANDONMENT REPORT FOR RH015GL1V	MOBERHARDT
		<i>moberhardt</i>
DATE	DESCRIPTION	APPROVED

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# 1 WELL DATA CARD

<b>Well Name and Number</b>		RH015GL1V
<b>Petroleum Tenure</b>		ATP1103
<b>Surveyed Location</b>	<b>Latitude</b>	21° 46' 36.33" S
	<b>Longitude</b>	148° 01' 54.87" E
	<b>Easting</b>	606 684.67
	<b>Northing</b>	7 591 525.84
	<b>Zone</b>	55
	<b>Datum</b>	GDA94
<b>Surveyed Elevation</b>	<b>GL (m)</b>	256.60
	<b>KB (m)</b>	257.60
<b>TD (m)</b>		489.00
<b>Well Type</b>		SIS Vertical
<b>Drilling Contractor</b>		Mitchell Drilling Contractors
<b>Rig Type and Number</b>		MDC132 - Schramm 685
<b>Operator</b>		Arrow Energy Pty Ltd
<b>Hole Status</b>		Plugged & Abandoned
<b>P&amp;A Rig</b>		SWMS Rig 5
<b>Plugged Date</b>		30 <sup>th</sup> November 2013
<b>Abandonment Date</b>		10 <sup>th</sup> December 2013

\* All depths measured from ground level

## 2 DRILLING AND COMPLETION SUMMARY

RH015GL1V was drilled by CH4 Pty Ltd (Arrow Energy) as part of a six well SIS (Surface to In-Seam) pilot targeting the GL Seam of the Moranbah Coal Measures. The well was spudded on the 4<sup>th</sup> August 2008 and reached a total depth of 489m on the 10<sup>th</sup> August 2008. 6" production casing was cemented at 429.34m with fibreglass casing placed across the GM Seam to allow for future underground mining. The GL Seam was then under reamed to 16" to await the lateral hole in the seam. The well was then suspended pending pump installation and production testing.

Production testing was completed in March 2011 and the well was then suspended. In 2013 Arrow Energy authorised the plugging & abandonment of RH015GL1V as it was no longer required. On the 20<sup>th</sup> November 2013, SWMS Rig 5 was mobilised to site to conduct the plugging activities. The pumps and downhole rods were pulled out of the well and the BOP installed onto the wellhead. After running into the well, fill was tagged at 480.35m. Four cement plugs totalling 84.4 barrels were then pumped into the well with a weight of 15.2 ppg with cement to surface. The rig then demobilised from site on the 30<sup>th</sup> November 2013. Several days were lost at the start of the plugging operations due to the BOP needing to be replaced.

On the 10<sup>th</sup> of December 2013 a rehab crew from Veolia was mobilised to abandon the well and rehab the site. The casing was cut 1.5m below the surface and a cap was attached to the casing. The well was then abandoned as per the Petroleum Regulations. The site then underwent a full rehabilitation.

### 3 LOCATION MAPS

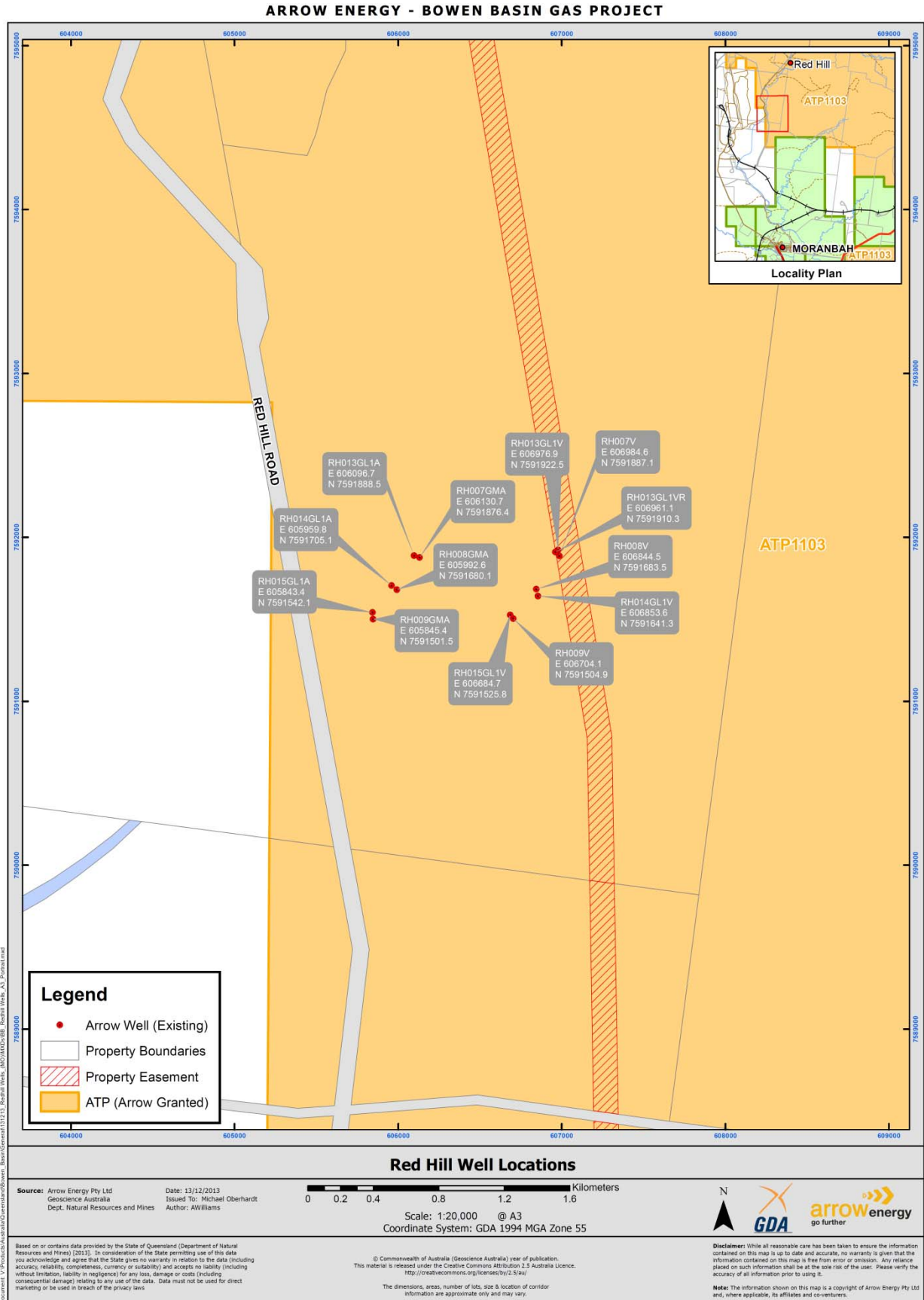


Figure 1: Map showing location of RH015GL1V

# 4 WELL DESIGN DIAGRAM

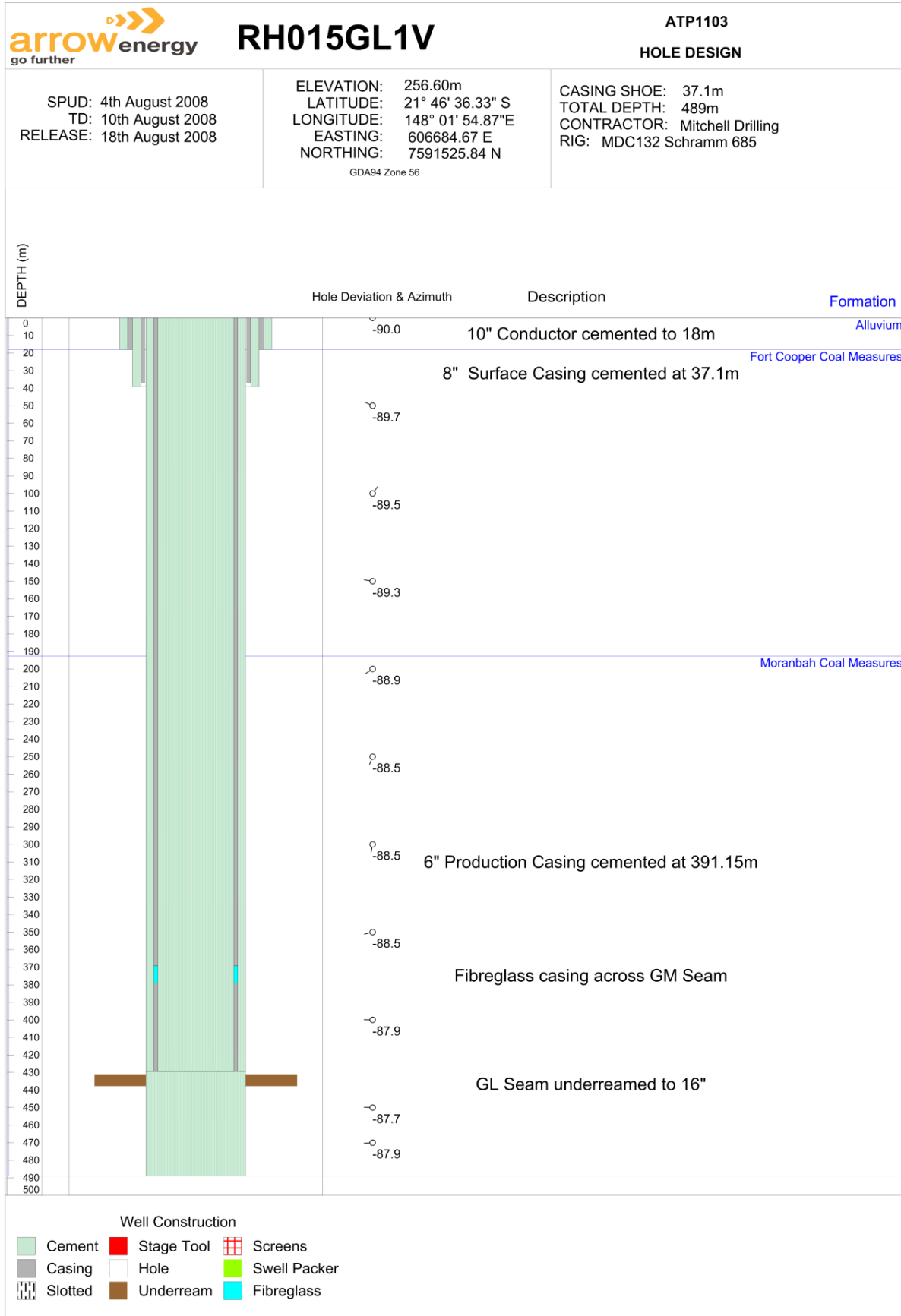


Figure 2: Well design diagram

## 5 POSITION OF SIGNIFICANT INTERSECTIONS

### 5.1 FORMATION TOPS

Formation	Member	From (m)	To (m)	Thickness (m)
Alluvium/Base of Weathering		0	18	19
Fort Cooper Coal Measures		18	192.61	174.61
Moranbah Coal Measures		192.61	246.01	53.4
	GU0	246.01	250.64	4.63
	GP2	320.70	321.29	0.59
	GP1	321.72	322.74	1.02
	PT	322.89	324.79	1.90
	GP0	324.80	325.53	0.73
	GM	370.20	377.67	7.47
	GL4	403.90	405.80	1.9
	GL1	431.1	437.80	6.7

### 5.2 COAL SEAMS

Formation	From (m)	To (m)	Thickness (m)
Moranbah Coal Measures	246.01	250.64	4.63
Moranbah Coal Measures	320.70	321.29	0.59
Moranbah Coal Measures	321.72	322.74	1.02
Moranbah Coal Measures	322.89	324.79	1.90
Moranbah Coal Measures	324.80	325.53	0.73
Moranbah Coal Measures	370.20	377.67	7.47
Moranbah Coal Measures	403.90	405.80	1.9
Moranbah Coal Measures	431.1	437.80	6.7

\*All depths measured from Ground Level

Only coal seams greater than 30cm shown.

### 5.3 AQUIFERS

Formation	From (m)	To (m)	Thickness (m)
Alluvium	0	18	18

\*All depths measured from Ground Level

## 6 DRILLING/ENGINEERING DATA

### 6.1 HOLE SIZE

Interval (from/to) (m)	Hole Size	Bit Type	Fluid	Fluid Additives
0 – 18	12"	Blade	Air	-
18 – 39	10"	Hammer	Air	Hammer Oil
39 – 489	7 7/8"	PCD	Air	Super Foam
431.10 – 437.80	16"	Underreamer	Mud	Aus Gel, Clay Coat, Liquid Polymer, Star Gel

\*All depths measured from Ground Level

### 6.2 CASING

Casing Phase	Interval (from/to) (m)	OD	API Grade	Thread	Weight
Conductor	0 – 18	10 3/4"	-	Butt Joint	-
Surface	0 – 37.1	8 5/8"	-	VAM	-
Production	0 – 369.19	6 5/8"	-	SFJ	-
Fibreglass	369.19 – 378.93	6 5/8"	-	SFJ	-
Production	378.93 – 429.34	6 5/8"	-	SFJ	-

\*All depths measured from Ground Level

### 6.3 ADDITIONAL EQUIPMENT AND HAZARDS

No additional equipment or hazards.



## 6.4 CEMENT CASING ANNULUS

Casing Phase	Interval (from/to) (m)	Cement Type	Slurry Volume	Slurry Weight	Displacement Volume	Comments
Conductor	0 -18	-	1634 L	13.44 ppg	-	-
Surface	0 – 37.1	-	1100 L	13.44 ppg	-	Cement returns noted.
Production	0 – 429.34	-	5389 L	13.4 ppg	-	Bump Pressure of 400psi.

\*All depths measured from Ground Level

## 6.5 CEMENT PLUG DETAILS

Interval (from/to) (m)	Cement Type	Slurry Volume	Slurry Weight	Comments
352.27 - 479	Class A	40 bbl	15.2 ppg	Tagged with 3000lbs of string weight. Pressure tested to 800psi.
222 – 352.27	Class A	16 bbl	15.2 ppg	
92 - 222	Class A	16.4 bbl	15.2 ppg	
0 - 92	Class A	12 bbl	15.2 ppg	

\*All depths measured from Ground Level

## 6.6 CEMENT LOSSES/COMPLICATIONS

No cement losses or complications were observed.

## 7 DEVIATION SURVEY

The full deviation report can be seen in APPENDIX 4

<i>Depth</i>	<i>Azimuth</i>	<i>Inclination</i>
0.00	0.00	-90.00
50.00	294.70	-89.70
100.00	35.95	-89.50
150.00	279.52	-89.30
200.00	236.32	-88.90
250.00	200.98	-88.50
300.00	190.75	-88.50
350.00	256.55	-88.50
400.00	271.24	-87.91
450.00	272.27	-87.70
470.00	266.47	-87.90

# APPENDIX 1. DAILY OPERATIONS REPORTS



# Daily Workover Report

Report Start Date: 20/11/2013

Report #: 1.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Overcast,Hot

Daily Operations
<p>Operations Summary</p> <p>Continue to rig up on well. Pre spud inspection with AE CWI supervisor. Bleed down well and fill well. POOH Sucker rods</p> <p>Operations Next Report Period</p> <p>Standby Wait on New Seals</p> <p>Remarks</p> <p>No rig manager on location due to crew change.</p>

Daily Contacts	
Carry forward?	Job Contact
Yes	Anthony MacKinnon
Yes	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Leasehand	SWMS	Contractor	Andrew baker	1	12.00	
Yes	Leasehand	SWMS	Contractor	Clay Macachen	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Leasehand	SWMS	Contractor	Nic bar	1	12.00	
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	0.00	
Yes	Motorman	SWMS 5	Contractor	Dion Crang	1	12.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	0.75	0.75	06:45			Travel	No	Travel from Moranbah camp to location.
06:45	0.25	1.00	07:00			Meeting (safety, training, drill & cross shift)	No	Pre shift safety meeting.
07:00	1.50	2.50	08:30			Rig Up	No	Contine to rig up equipment.
08:30	0.50	3.00	09:00			Meeting (safety, training, drill & cross shift)	No	Review JSEA for Pressure testing surface lines and BOP's.
09:00	1.50	4.50	10:30			Rig Up	No	Continue to rig up surface lines and all Koomey lines. Start going through AE Pre spud inspection.
10:30	0.50	5.00	11:00			Formation Integrity Test	No	Pressure test surface lines to 1000 psi and hold for 10 mins. Test good, no leak off.
11:00	0.50	5.50	11:30			Rig Up	No	inspection of derrick and raise. Tighten guidelines. Make sure carrier is level.
11:30	0.25	5.75	11:45			Finger Printing Well	No	Fill well. 15 bbls to fill. Finger print well.
11:45	1.00	6.75	12:45			Trip In/Out	No	Pull sucker rods from well.
12:45	0.25	7.00	13:00			Meeting (safety, training, drill & cross shift)	No	BOP safety drill. Findings was HSE advisor still had name on board and he had left site 2 hrs prior. This is not the first time this has happened.
13:00	0.50	7.50	13:30			Trip In/Out	No	Continue to pull rods from well. Some over pull being experienced during trip out.
13:30	0.25	7.75	13:45			Function/Pressure Test BOP	No	Stump test BOP's.
13:45	4.25	12.00	18:00	Yes		No Activity	No	Leaking bonnet seal on pipe rams. Strip down and check equipment.

NPT					
Activity	Start Date	End Date	Ref #	Category	Accountable Party
Breakdown - Blow out Preventer	20/11/2013 14:00	20/11/2013 18:00		Breakdown	SWMS
Comment	Leaking bonnet seal on pipe rams.				



# Daily Workover Report

Report Start Date: 20/11/2013

Report #: 1.0

Well Name: RH015GL1V

NPT Hours (hr)	4.00	Cum NPT Hours (hr)	4.00
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Job Supplies				
Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

Completion Fluid				
Des	Units	Rec	Consumed	

Completion Fluid Properties				
Type	Density (lb/gal)	KCl (lb/bbl)	Comment	

Well Fluids						
Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note

HSSE	
Days Since Lost Time Incident (days)	79.00
Days Since Reportable Incident (days)	424.00

Safety Observations				
Safety Stats	Company	Company Type	# Rpts	Com
JSA	SWMS	Contractor	1	Reviewed. Pressure testing surface lines.
HAZOBS	SWMS	Contractor		
SLAM	SWMS	Contractor		

Safety Incidents							
Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

Safety Checks			
Time	Type	Des	Result
07:00	Toolbox	Start of Shift	Acceptable
12:45	BOP Drill	BOP Drill	Acceptable



# Daily Workover Report

Report Start Date: 21/11/2013

Report #: 2.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Overcast,Hot

Daily Operations
Operations Summary
Standby Wait on new seals for BOP
Operations Next Report Period
Stump test BOP, N/U BOP, P/T. POOH w/ production string. RIH w/ and commence cementing ops.
Remarks

Daily Contacts	
Carry forward?	Job Contact
Yes	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Leasehand	SWMS	Contractor	Andrew baker	1	12.00	
Yes	Motorman	SWMS	Contractor	Clay Macachen	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Leasehand	SWMS	Contractor	Nic bar	1	12.00	
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Motorman	SWMS 5	Contractor	Dion Crang	1	12.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	12.00	12.00	18:00	Yes	Nipple up BOP - Test	No Activity	No	Wait on new Seals for BOP

NPT					
Activity	Start Date	End Date	Ref #	Category	Accountable Party
Breakdown - Blow out Preventer	21/11/2013 06:00	21/11/2013 18:00		Breakdown	SWMS
Comment					
Leaking bonnet seal on pipe rams.					
NPT Hours (hr)			Cum NPT Hours (hr)		
12.00			16.00		

Job Supplies				
Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

Completion Fluid			
Des	Units	Rec	Consumed

Completion Fluid Properties			
Type	Density (lb/gal)	KCl (lb/bbl)	Comment

Well Fluids						
Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note

HSSE	
Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
80.00	425.00

Safety Observations				
Safety Stats	Company	Company Type	# Rpts	Com

Safety Incidents							
Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

Safety Checks			
Time	Type	Des	Result



# Daily Workover Report

Report Start Date: 22/11/2013

Report #: 3.0

Well Name: RH015GL1V

Job Data				
Start Date 19/11/2013 14:15	Spud Date	Rig Release Date 30/11/2013 18:00	Ground Elevation (m) 256.60	Weather Overcast, Hot Afternoon Storms

Daily Operations
Operations Summary Replace Seals In BOP, Stump test, N/U BOP, Replace Hanger and P/T against Hanger. P/T wouldn't hold (Visibly Leaking From Kill Spool )
Operations Next Report Period Wait on New BOP to Arrive. Drawdown Test, Stump test BOP, N/U BOP, P/T
Remarks BOP Being Freightened up overnight. To be in Moranbah approx Midday. Kill Spool Being Shipped separately as it wasn't sent with the BOP. Halliburton Has gone to Savannah 409 to complete a Cement Job for them

Daily Contacts	
Carry forward?	Job Contact
Yes	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Leasehand	SWMS	Contractor	Andrew baker	1	12.00	
Yes	Motorman	SWMS	Contractor	Clay Macachen	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Leasehand	SWMS	Contractor	Nic bar	1	12.00	
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Motorman	SWMS 5	Contractor	Dion Crang	1	12.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	1.00	1.00	07:00	Yes	Nipple up BOP - Test	Travel	No	Travel From Moranbah to Location
07:00	0.50	1.50	07:30	Yes	Nipple up BOP - Test	Pre start / Toolbox	No	PJSM, Topics Discussed: Daily Operations and Associated Hazards, Hazard Identification Tools, Focusing on the job at hand and Duty to Stop Work.  Gas test Lease 0 LEL  SICP: - 10 psi SITP: - 8 psi 12 Bbl to Fill Pre-Start Checks Conducted.
07:30	2.00	3.50	09:30	Yes	Nipple up BOP - Test	Function/Pressure Test BOP / Surface Eqpt	No	Permit for Pressure test. Replace Seals On BOP and Stump Test Pipe and Blind Rams. 300psi & 3000psi. Kill line Valve Was initially leaking See attached Pressure Test Chart.
09:30	0.50	4.00	10:00	Yes	Nipple up BOP - Test	Nipple Up BOP	No	Remove Well Nut, N/U 7 1/16" Adaptor Flange and N/U BOP.
10:00	0.25	4.25	10:15	Yes	Nipple up BOP - Test	Rig Up	No	Rig Up Rig Floor and Pipe Handling Equipment.
10:15	0.50	4.75	10:45	Yes	Nipple up BOP - Test	Others	No	Change out Slips Bowl Hanger with Mandrel Hanger and Land.
10:45	2.25	7.00	13:00	Yes	Nipple up BOP - Test	Function/Pressure Test BOP / Surface Eqpt	No	Pressure Test against Mandrel Hanger, Low: 250psi and High: 1000psi. Pressure test wouldn't hold and leaking through Shaft of Gate valve on BOP. Bleed Down Pressure, Remove BOP and Secure well. Wait on Delivery of Replacement BOP (Midday 23-11-13)
13:00	4.00	11.00	17:00	Yes	Nipple up BOP - Test	No Activity	No	Standby Wait on Replacement BOP
17:00	1.00	12.00	18:00	Yes	Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Location to Moranbah



# Daily Workover Report

Report Start Date: 22/11/2013

Report #: 3.0

Well Name: RH015GL1V

NPT					
Activity Breakdown - Blow out Preventer	Start Date 22/11/2013 06:00	End Date 22/11/2013 18:00	Ref #	Category Breakdown	Accountable Party SWMS
Comment Replaced Leaking Bonnet seals, Kill Spool leaking on BOP					
NPT Hours (hr)			12.00		Cum NPT Hours (hr) 28.00

Job Supplies				
Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

Completion Fluid			
Des	Units	Rec	Consumed

Completion Fluid Properties			
Type	Density (lb/gal)	KCl (lb/bbl)	Comment

Well Fluids						
Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note

HSSE	
Days Since Lost Time Incident (days)	81.00
Days Since Reportable Incident (days)	426.00

Safety Observations				
Safety Stats	Company	Company Type	# Rpts	Com

Safety Incidents							
Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

Safety Checks			
Time	Type	Des	Result
07:00	Toolbox	Start of Shift	Acceptable





# Daily Workover Report

Report Start Date: 23/11/2013

Report #: 4.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Raining

Daily Operations
Operations Summary
Standby Wait on BOP's and Certs
Operations Next Report Period
Wait on Heavy Vehicle Access.
Deliver BOP to site, Drawdown Test, Stump test BOP,
Remarks
No Heavy Vehicle Access on Lease after Wet Weather

Daily Contacts	
Carry forward?	Job Contact
Yes	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Leasehand	SWMS	Contractor	Andrew baker	1	12.00	
Yes	Motorman	SWMS	Contractor	Clay Macachen	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Leasehand	SWMS	Contractor	Nic bar	1	12.00	
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Motorman	SWMS 5	Contractor	Dion Crang	1	12.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	12.00	12.00	18:00	Yes	Cement Plugs/ Hesitation Squeeze job	No Activity	No	Standby Wait on Replacement BOP and Certs

NPT					
Activity	Start Date	End Date	Ref #	Category	Accountable Party
Breakdown - Blow out Preventer	23/11/2013 06:00	23/11/2013 18:00		Breakdown	SWMS
Comment					
Waiting on Replacement BOP and Certs					
NPT Hours (hr)			Cum NPT Hours (hr)		
12.00			40.00		

Job Supplies				
Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

Completion Fluid			
Des	Units	Rec	Consumed

Completion Fluid Properties			
Type	Density (lb/gal)	KCl (lb/bbl)	Comment

Well Fluids						
Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note

HSSE	
Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
82.00	427.00

Safety Observations				
Safety Stats	Company	Company Type	# Rpts	Com

Safety Incidents							
Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

Safety Checks			
Time	Type	Des	Result



# Daily Workover Report

Report Start Date: 24/11/2013

Report #: 5.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Hot

Daily Operations
Operations Summary Standby Wait on BOP's and Certs
Operations Next Report Period Standby Wait on BOP's and Certs BOPs are being replaced again back to a 3K Stack
Remarks Incorrect size valves were sent with BOP. Unable to source correct size

Daily Contacts	
Carry forward?	Job Contact
Yes	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Leasehand	SWMS	Contractor	Andrew baker	1	12.00	
Yes	Motorman	SWMS	Contractor	Clay Macachen	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Leasehand	SWMS	Contractor	Nic bar	1	12.00	
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Motorman	SWMS 5	Contractor	Dion Crang	1	12.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	12.00	12.00	18:00	Yes	Cement Plugs/ Hesitation Squeeze job	No Activity	No	Standby Wait on BOP's and Cert's BOPs are being replaced again back to a 3K Stack  Crew Laid some bog mats in preparation for access to next location. Safety Sunday Toolbox Meeting

NPT						
Activity	Start Date	End Date	Ref #	Category	Accountable Party	
Breakdown - Blow out Preventer	24/11/2013 06:00	24/11/2013 18:00		Breakdown	SWMS	
Comment Standby Wait on BOP's and correct Certs						
NPT Hours (hr)				Cum NPT Hours (hr)		
12.00				52.00		

Job Supplies				
Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

Completion Fluid			
Des	Units	Rec	Consumed

Completion Fluid Properties			
Type	Density (lb/gal)	KCl (lb/bbl)	Comment

Well Fluids						
Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note

HSSE	
Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
83.00	428.00

Safety Observations				
Safety Stats	Company	Company Type	# Rpts	Com

Safety Incidents							
Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com



# Daily Workover Report

Report Start Date: 24/11/2013

Report #: 5.0

Well Name: RH015GL1V

## Safety Checks

Time	Type	Des	Result
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# Daily Workover Report

Report Start Date: 25/11/2013

Report #: 6.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Overcast

Daily Operations
Operations Summary Correct BOP's On site, Waiting on correct certification for Adaptor Spool for Kill Valve
Operations Next Report Period Continue waiting on BOP compliance issues
Remarks

Daily Contacts	
Carry forward?	Job Contact
Yes	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Leasehand	SWMS	Contractor	Andrew baker	1	12.00	
Yes	Motorman	SWMS	Contractor	Clay Macachen	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Leasehand	SWMS	Contractor	Nic bar	1	12.00	
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Motorman	SWMS 5	Contractor	Dion Crang	1	12.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	1.00	1.00	07:00	Yes	Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Moranbah to Site.
07:00	0.50	1.50	07:30	Yes	Cement Plugs/ Hesitation Squeeze job	Pre start / Toolbox	No	PJSM, Topics Discussed: Daily Operations and Associated Hazards, Hazard Identification Tools, Focusing on the job at hand and Duty to Stop Work.  Gas test Lease 0 LEL  Pre-Start Checks Conducted.
07:30	9.50	11.00	17:00	Yes	Cement Plugs/ Hesitation Squeeze job	No Activity	No	Correct BOP's On site, Waiting on correct certification for Adaptor Spool for Kill Valve
17:00	1.00	12.00	18:00	Yes	Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Site to Moranbah

NPT				
Activity	Start Date	End Date	Ref #	Category
Breakdown - Blow out Preventer	25/11/2013 06:00	25/11/2013 18:00		Breakdown
Accountable Party				SWMS
Comment Standby Wait on BOP's and correct Certs				
NPT Hours (hr)			Cum NPT Hours (hr)	
12.00			64.00	

Job Supplies				
Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

Completion Fluid			
Des	Units	Rec	Consumed

Completion Fluid Properties			
Type	Density (lb/gal)	KCl (lb/bbl)	Comment

Well Fluids						
Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note

HSSE	
Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
84.00	429.00



# Daily Workover Report

Report Start Date: 25/11/2013

Report #: 6.0

Well Name: RH015GL1V

### Safety Observations

Safety Stats	Company	Company Type	# Rpts	Com
SLAM	SWMS 5	Contractor	1	
HAZOBS	SWMS 5	Contractor	1	First aid Kit in vehicle out of date

### Safety Incidents

Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

### Safety Checks

Time	Type	Des	Result
07:00	Toolbox	Start of Shift	Acceptable



# Daily Workover Report

Report Start Date: 26/11/2013

Report #: 7.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Hot

### Daily Operations

Operations Summary  
Wait on New BOPs with correct Certs and spares to be approved and Delivered.

Operations Next Report Period  
Wait on New BOP to Arrive. Stump test BOP

Remarks  
SWMS Crew Change tomorrow morning

### Daily Contacts

Carry forward?	Job Contact
Yes	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla

### Personnel

Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Leasehand	SWMS	Contractor	Andrew baker	1	12.00	
Yes	Motorman	SWMS	Contractor	Clay Macachen	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Leasehand	SWMS	Contractor	Nic bar	1	12.00	
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Motorman	SWMS 5	Contractor	Dion Crang	1	12.00	

### Hourly Operations Summary

Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	12.00	12.00	18:00	Yes	Cement Plugs/ Hesitation Squeeze job	No Activity	No	Wait on New BOPs with correct Certs and spares to be approved and Delivered.

### NPT

Activity	Start Date	End Date	Ref #	Category	Accountable Party
Breakdown - Blow out Preventer	26/11/2013 06:00	26/11/2013 18:00		Breakdown	SWMS
Comment Standby Wait on BOP's and correct Certs					
NPT Hours (hr)			12.00	Cum NPT Hours (hr)	
				76.00	

### Job Supplies

Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

### Completion Fluid

Des	Units	Rec	Consumed

### Completion Fluid Properties

Type	Density (lb/gal)	KCl (lb/bbl)	Comment

### Well Fluids

Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note

### HSSE

Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
85.00	430.00

### Safety Observations

Safety Stats	Company	Company Type	# Rpts	Com
HAZOBBS	SWMS 5	Contractor	2	No Non Potable water sign over tap. Attached Non Potable Water Sign and signed off by R/M  Odometer not working in Prime mover. Repair request submitted to be looked at in next service
SLAM	SWMS 5	Contractor	6	

### Safety Incidents

Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com



# Daily Workover Report

Report Start Date: 26/11/2013

Report #: 7.0

Well Name: RH015GL1V

Safety Checks			
Time	Type	Des	Result
07:00	Toolbox	Start of Shift	Acceptable



# Daily Workover Report

Report Start Date: 27/11/2013

Report #: 8.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Overcast & Hot

Daily Operations
Operations Summary Wait on New BOPs with correct Certs and spares to be approved and Delivered. BOP onsite at 1415 with Correct Certification. Inspect and Set up to Stump Test.
Operations Next Report Period Stump Test BOP, Fingerprint Well, N/U BOP and P/T against Hanger, RIH Completion String and Tag Fill. POOH Completion String and RIH to circulate or Mix & Pump Cement Plug #1.
Remarks Crew Change.

Daily Contacts	
Carry forward?	Job Contact
No	Lance Richards
Yes	Michael Watts
Yes	Benigno Montilla
Yes	Scott Rogers

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Driller	SWMS	Contractor	Warren Jeffrey	1	6.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Motorman	SWMS	Contractor	Gerard Mallon	1	6.00	
Yes	Floorman	SWMS	Contractor	Steve Thompson	1	6.00	
Yes	Leasehand	SWMS	Contractor	Richard Edwards	1	6.00	
Yes	Mechanic	SWMS	Contractor	David Harris	1	6.00	
Yes	HSE	SWMS	Contractor	Sarah Huth	1	6.00	
No	Leasehand	SWMS	Contractor	Andrew baker	1	6.00	
No	Motorman	SWMS	Contractor	Clay Macachen	1	6.00	
No	Leasehand	SWMS	Contractor	Nic bar	1	6.00	
No	Motorman	SWMS	Contractor	Dion Crang	1	6.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	12.00	12.00	18:00	Yes	Cement Plugs/ Hesitation Squeeze job	No Activity	No	Wait on New BOPs with correct Certs and spares to be approved and Delivered.  BOP arrived onsite at 1415 with Correct and Current Certification. Unload, Unpack and Inspect.  Set up to Stump Test BOP.

NPT					
Activity	Start Date	End Date	Ref #	Category	Accountable Party
Breakdown - Blow out Preventer	27/11/2013 06:00	27/11/2013 18:00		Breakdown	SWMS
Comment Standby Wait on BOP's and correct Certs. BOP and Certification onsite. Unload, Unpack and Inspect BOP.					
NPT Hours (hr)			12.00		Cum NPT Hours (hr) 88.00

Job Supplies				
Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

Completion Fluid			
Des	Units	Rec	Consumed

Completion Fluid Properties			
Type	Density (lb/gal)	KCl (lb/bbl)	Comment

Well Fluids						
Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note





# Daily Workover Report

Report Start Date: 27/11/2013

Report #: 8.0

Well Name: RH015GL1V

HSSE	
Days Since Lost Time Incident (days)	86.00
Days Since Reportable Incident (days)	431.00

Safety Observations				
Safety Stats	Company	Company Type	# Rpts	Com
SLAM	SWMS	Contractor	4	

Safety Incidents							
Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

Safety Checks			
Time	Type	Des	Result
12:30	Toolbox	Start of Shift	Acceptable



# Daily Workover Report

Report Start Date: 28/11/2013

Report #: 9.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Fine & Hot

### Daily Operations

Operations Summary  
Stump Test BOP, Fingerprint Well, N/U BOP and P/T against Hanger, RIH and Tag Fill at 480.35mGL. POOH Completion String and Strap. RIH 10 Joints, Secure well and SDFN.

Operations Next Report Period  
RIH Cement String to 480mGL, Mix and Pump Cement Plug #1, WOC 5hrs and Pressure Test.

Remarks  
Rig back on Operating Rate as of 0930 today.

### Daily Contacts

Carry forward?	Job Contact
Yes	Michael Watts
Yes	Benigno Montilla
Yes	Scott Rogers

### Personnel

Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Driller	SWMS	Contractor	Warren Jeffrey	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Motorman	SWMS	Contractor	Gerard Mallon	1	12.00	
Yes	Floorman	SWMS	Contractor	Steve Thompson	1	12.00	
Yes	Leasehand	SWMS	Contractor	Richard Edwards	1	12.00	
Yes	Mechanic	SWMS	Contractor	David Harris	1	12.00	
Yes	HSE	SWMS	Contractor	Sarah Huth	1	12.00	

### Hourly Operations Summary

Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	1.00	1.00	07:00	Yes	Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Kumbarilla Camp to Location.
07:00	0.75	1.75	07:45	Yes	Cement Plugs/ Hesitation Squeeze job	Pre start / Toolbox	No	PJSM, Topics Discussed: Daily Operations and Associated Hazards, Pressure Testing, DROPS, Weed & Seed, Driving to prevailing Road Conditions, SLAMS and HAZOBS and Duty to Stop Work.  SOP Reviewed: Entry into Red Zones, SOP #257.  Well on Vacuum.
07:45	1.75	3.50	09:30	Yes	Cement Plugs/ Hesitation Squeeze job	Function/Pressure Test BOP / Surface Eqpt	No	Continue Setting up new BOP for Stump Test. Change out 3 1/2 Pipe Rams to 2 3/8 and install Gate Valves.
09:30	1.00	4.50	10:30		Cement Plugs/ Hesitation Squeeze job	Function/Pressure Test BOP / Surface Eqpt	No	Stump Test BOP, Low 300psi and High 3000psi.
10:30	0.50	5.00	11:00		Cement Plugs/ Hesitation Squeeze job	Finger Printing Well	No	Fingerprint Well. 4Bbls to Fill Well, Wait 10mins and Pumped another 2Bbls to fill well.
11:00	0.75	5.75	11:45		Cement Plugs/ Hesitation Squeeze job	Nipple Up BOP	No	N/U Adaptor Flange and BOP to Wellhead.
11:45	1.50	7.25	13:15		Cement Plugs/ Hesitation Squeeze job	Function/Pressure Test BOP / Surface Eqpt	No	Pressure Test BOP against Mandrel Hanger. Leak from Adaptor Flange Iron Ring, Bleed Off and N/U. Pressure Test again Low: 220psi (Passed).  Pressure Test on High: 1000psi. Leaks discovered coming from Thread between wellhead and adaptor flange, Bleed down. N/U Adaptor Flange. Pressure on High again at 1000psi (Passed).  See attached Pressure Test.



# Daily Workover Report

Report Start Date: 28/11/2013

Report #: 9.0

Well Name: RH015GL1V

## Hourly Operations Summary

Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
13:15	0.75	8.00	14:00		Cement Plugs/ Hesitation Squeeze job	Rig Up	No	N/U Rig Floor and Pipe Handling Equipment.
14:00	0.50	8.50	14:30		Cement Plugs/ Hesitation Squeeze job	Trip In/Out	No	RIH and Tag Fill at 480.35mGL.
14:30	2.00	10.50	16:30		Cement Plugs/ Hesitation Squeeze job	Run/Pull Completion	No	POOH Completion String and BHA as Follows:  48 x 2 3/8" J55 EUE Tubing 1 x 2 7/8" J55 EUE Tubing 1 x 22-600 Weatherford Pump 1 x 10ft Perforated Tailpipe 1 x CS GAS DHS  Strap Completion/Cement String to measure Tag Fill Depth.
16:30	0.50	11.00	17:00		Cement Plugs/ Hesitation Squeeze job	Trip In/Out	No	RIH 10 Joints, Secure Well and SDFN.
17:00	1.00	12.00	18:00		Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Location to Kumbarilla Camp.

## NPT

Activity Breakdown - Blow out Preventer	Start Date 28/11/2013 06:00	End Date 28/11/2013 09:30	Ref #	Category Breakdown	Accountable Party SWMS
Comment Standby Wait on BOP's and correct Certs. BOP and Certification onsite. Unload, Unpack and Inspect BOP.					
NPT Hours (hr)			Cum NPT Hours (hr)		
3.50			91.50		

## Job Supplies

Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

## Completion Fluid

Des	Units	Rec	Consumed

## Completion Fluid Properties

Type	Density (lb/gal)	KCl (lb/bbl)	Comment

## Well Fluids

Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note
Water		40.0		40.0		

## HSSE

Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
87.00	432.00

## Safety Observations

Safety Stats	Company	Company Type	# Rpts	Com
HAZOBS	SWMS	Contractor	1	
SLAM	SWMS	Contractor	9	

## Safety Incidents

Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

## Safety Checks

Time	Type	Des	Result
07:00	Toolbox	Start of Shift	Acceptable



# Daily Workover Report

Report Start Date: 29/11/2013

Report #: 10.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Fine

Daily Operations
Operations Summary RIH Cement String to 479mGL. Mix and Pump Cement Plug #1. Secure Well and WOC.
Operations Next Report Period RIH and Tag TOC. Pressure Test to 850psi. Mix and Pump Cement to Surface. Rig Down.
Remarks

Daily Contacts	
Carry forward?	Job Contact
Yes	Michael Watts
Yes	Benigno Montilla
Yes	Scott Rogers

Personnel							
Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Driller	SWMS	Contractor	Warren Jeffrey	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Motorman	SWMS	Contractor	Gerard Mallon	1	12.00	
Yes	Floorman	SWMS	Contractor	Steve Thompson	1	12.00	
Yes	Leasehand	SWMS	Contractor	Richard Edwards	1	12.00	
Yes	Mechanic	SWMS	Contractor	David Harris	1	12.00	
Yes	HSE	SWMS	Contractor	Sarah Huth	1	12.00	

Hourly Operations Summary								
Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	1.00	1.00	07:00		Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Camp to Location.
07:00	0.75	1.75	07:45		Cement Plugs/ Hesitation Squeeze job	Pre start / Toolbox	No	PJSM, Topics Discussed: Daily Operations and Associated Hazards. Third-Party Contractors, Loader Operations on a Congested Lease and Duty to Stop Work.  SOP Reviewed: Tripping Tubing  SICP: 0psi SITP: 0psi
07:45	0.50	2.25	08:15	Yes	Cement Plugs/ Hesitation Squeeze job	No Activity	No	Mechanical Issues with Mud Pump. Issue Rectified.
08:15	3.00	5.25	11:15		Cement Plugs/ Hesitation Squeeze job	Trip In/Out	No	Continue RIH 2 3/8" Cement String to 479mGL. N/U Circulating Head and Establish Circulation. Rig Up Halliburton.
11:15	0.50	5.75	11:45		Cement Plugs/ Hesitation Squeeze job	Pre start / Toolbox	No	Hold TBM with Halliburton.
11:45	1.50	7.25	13:15		Cement Plugs/ Hesitation Squeeze job	Cement	No	Cement Plug #1.  Pump 5 BBL water, Pressure test treating lines to 3000 psi, 5 min, Pump 5 BBL water, Mix & pump 40.0 BBL 15.2 PPG cement, (150 m plug) Displace with 4.1 BBL water, Disconnect line, POOH 37 joints 2-3/8" tubing, Connect line, Reverse circulate with 10 BBL water Secure well.
13:15	3.75	11.00	17:00		Cement Plugs/ Hesitation Squeeze job	Wait on Cement	No	Wait on Cement.



# Daily Workover Report

Report Start Date: 29/11/2013

Report #: 10.0

Well Name: RH015GL1V

## Hourly Operations Summary

Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
17:00	1.00	12.00	18:00		Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Location to Camp.

## NPT

Activity	Start Date	End Date	Ref #	Category	Accountable Party
Breakdown - Mud Pump	29/11/2013 07:45	29/11/2013 08:15		Breakdown	SWMS
Comment Mud Pump had Mechanical Issues.					
NPT Hours (hr)				Cum NPT Hours (hr)	
				0.50	92.00

## Job Supplies

Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

## Completion Fluid

Des	Units	Rec	Consumed

## Completion Fluid Properties

Type	Density (lb/gal)	KCl (lb/bbl)	Comment

## Well Fluids

Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note
Water		140.0		140.0		

## HSSE

Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
88.00	433.00

## Safety Observations

Safety Stats	Company	Company Type	# Rpts	Com
JSA	Halliburton	Contractor	1	
SLAM	SWMS	Contractor	7	

## Safety Incidents

Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com

## Safety Checks

Time	Type	Des	Result
07:00	Toolbox	Start of Shift	Acceptable
11:15	Toolbox	Start of Job	Halliburton



# Daily Workover Report

Report Start Date: 30/11/2013

Report #: 11.0

Well Name: RH015GL1V

Job Data				
Start Date	Spud Date	Rig Release Date	Ground Elevation (m)	Weather
19/11/2013 14:15		30/11/2013 18:00	256.60	Fine

## Daily Operations

Operations Summary  
RIH and Tag TOC at 352mGL. Pressure Test to 800psi. Mix and Pump Cement to Surface. Rig Down.

Operations Next Report Period  
Continue Rig Down and Rig Move to RH013GL1V. Remove Out Riggers.

Remarks  
Rig will shut down for 2-3 days to carry out repairs to the Hydraulics and Seals on the Out Riggers.

## Daily Contacts

Carry forward?	Job Contact
Yes	Michael Watts
Yes	Benigno Montilla
Yes	Scott Rogers

## Personnel

Carry forward?	Employee Type	Company	Type	Employee Name	Count	Reg Work Time (hr)	OT Sum (hr)
Yes	Rig Manager	SWMS	Contractor	Mick Murray	1	12.00	
Yes	Driller	SWMS	Contractor	Warren Jeffrey	1	12.00	
Yes	Assistant Driller	SWMS	Contractor	Troy Jarvis	1	12.00	
Yes	Motorman	SWMS	Contractor	Gerard Mallon	1	12.00	
Yes	Floorman	SWMS	Contractor	Steve Thompson	1	12.00	
Yes	Leasehand	SWMS	Contractor	Richard Edwards	1	12.00	
Yes	Mechanic	SWMS	Contractor	David Harris	1	12.00	
Yes	HSE	SWMS	Contractor	Sarah Huth	1	12.00	

## Hourly Operations Summary

Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
06:00	1.00	1.00	07:00		Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Camp to Location.
07:00	0.75	1.75	07:45		Cement Plugs/ Hesitation Squeeze job	Pre start / Toolbox	No	PJSM, Topics Discussed: Daily Operations and Associated Hazards, Use of SLAMS and HAZOBS, EEL Location and Duty to Stop Work.  SICP: 0psi SITP: 0psi  JSEA's Reviewed: #101 Pressure Testing and #43 Raise Mast.  3Bbls to Fill Well.
07:45	0.75	2.50	08:30		Cement Plugs/ Hesitation Squeeze job	Trip In/Out	No	RIH and Tag TOC at 352.27mGL. 3000lbs String Weight layed down on TOC. Pull up 1m.
08:30	1.50	4.00	10:00		Cement Plugs/ Hesitation Squeeze job	Function/Pressure Test BOP / Surface Eqpt	No	Pressure Test Cement Plug #1 to 800psi. Started at 800psi for 10mins and lost 80psi over 10mins. 10psi p/m. See attached Pressure Test Chart.  Engineer gave approval to go ahead and cement to surface.
10:00	0.50	4.50	10:30		Cement Plugs/ Hesitation Squeeze job	Pre start / Toolbox	No	Hold TBM with Halliburton.



# Daily Workover Report

Report Start Date: 30/11/2013

Report #: 11.0

Well Name: RH015GL1V

## Hourly Operations Summary

Start Time	Dur (hr)	Cum Dur (hr)	End Time	Problem?	Comp Phase	Description	Exclude	Com
10:30	3.50	8.00	14:00		Cement Plugs/ Hesitation Squeeze job	Cement	No	Cement Plug #2.  Pump 5 BBL water, Pressure test treating lines to 3000 psi, 5 min, Pump 5 BBL water, Mix & pump 16.4 BBL 15.2 PPG cement, (130 m plug) Displace with 4.1 BBL water, Disconnect line, POOH 20 joints 2-3/8" tubing, Connect line, Reverse circulate with 10 BBL water  Cement Plug #3.  Pump 5 BBL water, Mix & pump 16.4 BBL 15.2 PPG cement, (130 m plug) Displace with 4.1 BBL water, POOH 14 Joints.  Cement Plug #4.  Pump 5 BBL water, Mix & pump 12 BBL 15.2 PPG cement, (84 m plug to Surface) Displace with 4.1 BBL water, POOH and Flush Surface Lines.
14:00	3.00	11.00	17:00		Cement Plugs/ Hesitation Squeeze job	Rig Down	No	Rig Down.
17:00	1.00	12.00	18:00		Cement Plugs/ Hesitation Squeeze job	Travel	No	Travel from Location to Camp.

## NPT

Activity	Start Date	End Date	Ref #	Category	Accountable Party
Comment					
NPT Hours (hr)				Cum NPT Hours (hr)	
				0.00	92.00

## Job Supplies

Supply Item Des	Unit Label	Received	Consumed	Cum On Loc

## Completion Fluid

Des	Units	Rec	Consumed

## Completion Fluid Properties

Type	Density (lb/gal)	KCl (lb/bbl)	Comment

## Well Fluids

Fluid	Action	To (bbl)	From (bbl)	Non-recov (bbl)	BS&W (%)	Note
Water		90.0		90.0		

## HSSE

Days Since Lost Time Incident (days)	Days Since Reportable Incident (days)
89.00	434.00

## Safety Observations

Safety Stats	Company	Company Type	# Rpts	Com
JSA	Halliburton	Contractor	1	Cementing
HAZOPS	SWMS	Contractor	1	Halliburton not wearing Dust Mask.
SLAM	SWMS	Contractor	4	

## Safety Incidents

Time	Category	Type	SubTyp	Severity	LSR Breached	LAR Breached	Com



# Daily Workover Report

Report Start Date: 30/11/2013

Report #: 11.0

Well Name: RH015GL1V

## Safety Checks

Time	Type	Des	Result
07:00	Toolbox	Start of Shift	Acceptable
10:00	Toolbox	Start of Job	Acceptable



## APPENDIX 2. DAILY DRILLING REPORTS



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5		DATE: 20/11/2013		Report No: 423		Well Name/No: RH015GL1V Moranbah		Item	Amount
<b>Personnel</b>	<b>Name</b>	<b>Hrs:</b>	<b>Travel</b>	<b>Incoming Crew</b>	<b>Hrs</b>	<b>Travel</b>	<b>Consumables</b>		Total Combined Man Hours	84	
Rig Manager	Allan Lehmann	6	6	Mick Murray	6	6	<b>DRILL LINE CHANGED 19-09-13</b> <b>TOTAL TONNE MILES : 109</b>		Total Combined Kilometres	121	
Rig Manager									Fatalities	0	
Driller	Andrew Baker	12							Medical Treatment (MTI)	0	
Motorman	Troy Jarvis	12							First Aid Injury (FAI)	0	
Lease hand	Dion Crang	12							Restricted Work Case (RWC)	0	
Lease hand	Nic Barr	12							Lost Time Injury (LTI)	0	
HSE Adviser	Mark.T.Edwards	12							Environmental	0	
Fitter									Equipment Damage/Failure	0	
Sparky									High Potential Incident (HPO)	0	
Summer L/H	Clay Maceachen	12							Near Miss	0	
Fiel Sup							Non-Work Related Incident/Injury	0			
<b>Total Hours</b>		<b>84</b>						Permits to Work Open/Closed	1		
<b>Weather Summary:</b>			<b>Tonne Miles</b>		<b>1</b>			HAZOBS	0		
<b>Time</b>	<b>Hours</b>	<b>Activity</b>									
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.									
07:00-07:45	0.75	Safety meeting, pre start all equipment, check LEL 0% .									
07:45-10:00	2.25	R/U the Rig and suport gear , Nipple up the surface lines , Set up to pressure test the surface lines , Sud in .									
10:00-10:15	0.25	TBM with the crew.									
10:15-11:00	0.75	Top up the well 16 Bbls , figer print the well 16 Bbls P/H.									
11:00-12:00	1.00	Set up to pull sucker rods.									
12:00-12:30	0.50	Start POOH sucker rod .									
12:30-12:45	0.25	BOP drill.									
12:45-13:15	0.50	Finish POOH sucker rods ( 56 joints + 3m pony rod ) , Secure the well.									
13:15-17:00	3.75	Standby ( BOP failed the sump test pipe ram doors seals leaking , Waiting on replacements ).									
17:00-18:00	1.00	Travel from the Rig location RH015GL1V to camp.									
<p align="right"> <b>VERIFIED</b>  <b>LANCE RICHARDS</b>  Date: <u>25-11-13</u>  Signature:  </p>											
<b>Item</b>	<b>Hours</b>	<b>Comments</b>									
Prime Mover	20945										
Rig hours:	1463										
Mud pump hours:	955										
Wheel Loader	503										
Rig Generator	9253										
Accommodation Required		yes	<b>RECORDABLE INCIDENTS FREE DAYS : 38</b>		<b>LOST TIME INCIDENT FREE DAYS : 427</b>						
<b>Client Representative : Lance Richards</b>			<b>SWMS Representative: Mick Murray</b>								
									Fuel On Hand / litters	1696	
									Fuel Used / litters	0	
									<b>Operating Rate</b>	<b>3.25</b>	
									<b>Reduced Operating Rate</b>	<b>0</b>	
									<b>Repair Rate</b>	<b>4.75</b>	
									<b>Rig move, up/down</b>	<b>4</b>	
									<b>Rig move distance</b>	<b>0</b>	
									Contractors on site	0	
									Contractors man hours	0	
									Fluid Delivery /BBL	0	
									Fluid on Site @ 06:00 / BBL	60	
									Fluid Pumped Down Hole / BBL	16	
									Fluid on Site @ 18:00 / BBL	44	
									Fluid Removed Offsite / 0 BBL	0	



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 21/11/2013	Report No: 424	Well Name/No: RH015GL1V Moranbah		Item	Amount
<b>Personnel</b>	<b>Name</b>	<b>Hrs:</b>	<b>Travel</b>	<b>Incoming Crew</b>	<b>Hrs</b>	<b>Travel</b>	<b>Consumables</b>	
Rig Manager	Mick Murray	12					Total Combined Man Hours	72
Rig Manager							Total Combined Kilometres	185
Driller	Andrew Baker	12					Fatalities	0
Motorman	Troy Jarvis	12					Medical Treatment (MTI)	0
Lease hand	Dion Crang	12					First Aid Injury (FAI)	0
Lease hand	Nic Barr	12					Restricted Work Case (RWC)	0
HSE Adviser	Mark.T.Edwards	12					Lost Time Injury (LTI)	0
Contractors	Haliburton	6					Environmental	0
Contractors	Hornerys	8					Equipment Damage/Failure	0
Summer L/H	Clay Maceachen	12					High Potential Incident (HPO)	0
Fiel Sup							Near Miss	0
	<b>Total Hours</b>	72					Non-Work Related Incident/Injury	0
<b>Weather Summary:</b>			<b>Tonne Miles</b>	0			Permits to Work Open/Closed	1
<b>Time</b>	<b>Hours</b>	<b>Activity</b>					HAZOBS	1
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.					SLAMS	12
07:00-07:45	0.75	Safety meeting, pre start all equipment, check LEL 0% , SICP -10psi Top up the well 12 Bbls.					Inductions Completed/Delivered	0
07:45-16:45	9.00	Standby ( BOP failed stump test , Replaced pipe ram door seals , Blind rem door seal leaking and kill valve leaking from the shaft seal , no spears for the BOP Waiting on spears to arrive ).					SOP's Developed	0
16:45-17:00	0.25	EOD TBM with the crew.					SOP's Reviewed	0
17:00-18:00	1.00	Travel from from thye Rig location RH015GL1V to camp.					JSEA's Developed	0
							JSEA's Reviewed	3
							Emergency Drill Conducted	0
							Non-Conformance Issued	0
							Toolbox/Pre-start Meetings	2
							Audits	0
							Life Saving Rule Breaches	0
							Fuel On Hand / litters	6000
							Fuel Used / litters	0
							<b>Operating Rate</b>	0
							<b>Reduced Operating Rate</b>	0
							<b>Repair Rate</b>	12
							<b>Rig move, up/down</b>	0
							<b>Rig move distance</b>	0
<b>Item</b>	<b>Hours</b>	<b>Comments</b>					Contractors on site	4
Prime Mover	20945						Contractors man hours	14
Rig hours:	1467						Fluid Delivery /BBL	94
Mud pump hours:	958						Fluid on Site @ 06:00 / BBL	138
Wheel Loader	510						Fluid Pumped Down Hole / BBL	16
Rig Generator	9272	<b>RECORDABLE INCIDENTS FREE DAYS : 39</b>					Fluid on Site @ 18:00 / BBL	122
Accommodation Required	yes	<b>LOST TIME INCIDENT FREE DAYS : 428</b>					Fluid Removed Offsite / 0 BBL	0
<b>Client Representative : Lance Richards</b>				<b>SWMS Representative: Mick Murray</b>				

WORK VERIFIED  
 LANCE RICHARDS  
 Date: 25-11-13  
 Signature:



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 22/11/2013	Report No: 425	Well Name/No: RH015GL1V Moranbah		Item	Amount	
Personnel	Name	Hrs:	Travel	Incoming Crew	Hrs	Travel	Consumables		
Rig Manager	Mick Murray	12						Total Combined Man Hours 72	
Rig Manager								Total Combined Kilometres 143	
Driller	Andrew Baker	12						Fatalities 0	
Motorman	Troy Jarvis	12						Medical Treatment (MTI) 0	
Lease hand	Dion Crang	12						First Aid Injury (FAI) 0	
Lease hand	Nic Barr	12						Restricted Work Case (RWC) 0	
HSE Adviser	Mark.T.Edwards	12						Lost Time Injury (LTI) 0	
Contractors		0						Environmental 0	
Contractors		0						Equipment Damage/Failure 0	
Summer L/H	Clay Maceachen	12						High Potential Incident (HPO) 0	
Fiel Sup								Near Miss 0	
	<b>Total Hours</b>	72						Non-Work Related Incident/Injury 0	
<b>Weather Summary:</b>			<b>Tonne Miles</b>	0				Permits to Work Open/Closed 1	
<b>Time</b>	<b>Hours</b>	<b>Activity</b>						HAZOBS 1	
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.						SLAMS 3	
07:00-07:45	0.75	Safety meeting, pre start all equipment, check LEL 0% .						Inductions Completed/Delivered 0	
07:45-17:00	9.25	Standby ( Waiting on the New BOP and Kill valves ).						SOP's Developed 0	
17:00-18:00	1.00	Travel from Rig location RH015GL1V to camp.						SOP's Reviewed 0	
								JSEA's Developed 0	
								JSEA's Reviewed 2	
								Emergency Drill Conducted 0	
								Non-Conformance Issued 0	
								Toolbox/Pre-start Meetings 2	
								Audits 0	
								Life Saving Rule Breaches 0	
								Fuel On Hand / litters 6000	
								Fuel Used / litters 0	
								<b>Operating Rate</b> 0	
								<b>Reduced Operating Rate</b> 0	
								<b>Repair Rate</b> 12	
								<b>Rig move, up/down</b> 0	
								<b>Rig move distance</b> 0	
Item	Hours	Comments						Contractors on site 0	
Prime Mover	20945							Contractors man hours 0	
Rig hours:	1467							Fluid Delivery /BBL 94	
Mud pump hours:	958							Fluid on Site @ 06:00 / BBL 138	
Wheel Loader	510							Fluid Pumped Down Hole / BBL 16	
Rig Generator	9272	RECORDABLE INCIDENTS FREE DAYS : 40						Fluid on Site @ 18:00 / BBL 122	
Accommodation Required	yes	LOST TIME INCIDENT FREE DAYS : 429						Fluid Removed Offsite / 0 BBL 0	
Client Representative : Lance Richards				SWMS Representative: Mick Murray					

WORK VERIFIED  
LANCE RICHARDS

Date: 25-11-13  
Signature:



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SWS	DATE: 23/11/2013		Report No: 426	Well Name/No: RH015GL1V Moranbah		Item	Amount
<b>Personnel</b>	<b>Name</b>	<b>Hrs:</b>	<b>Travel</b>	<b>Incoming Crew</b>	<b>Hrs</b>	<b>Travel</b>	<b>Consumables</b>		
Rig Manager	Mick Murray	12						Total Combined Man Hours	72
Rig Manager								Total Combined Kilometres	121
Driller	Andrew Baker	12						Fatalities	0
Motorman	Troy Jarvis	12						Medical Treatment (MTI)	0
Lease hand	Dion Crang	12						First Aid Injury (FAI)	0
Lease hand	Nic Barr	12						Restricted Work Case (RWC)	0
HSE Adviser	Mark.T.Edwards	12						Lost Time Injury (LTI)	0
Contractors		0						Environmental	0
Contractors		0						Equipment Damage/Failure	0
Summer L/H	Clay Maceachen	12						High Potential Incident (HPO)	0
Fiel Sup								Near Miss	0
	<b>Total Hours</b>	72					<b>DRILL LINE CHANGED 19-09-13</b> <b>TOTAL TONNE MILES : 109</b>	Non-Work Related Incident/Injury	0
<b>Weather Summary:</b>				<b>Tonne Miles</b>	0			Permits to Work Open/Closed	0
<b>Time</b>	<b>Hours</b>	<b>Activity</b>						HAZOBS	0
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.						SLAMS	0
07:00-07:45	0.75	Safety meeting, pre start all equipment, check LEL 0% .						Inductions Completed/Delivered	0
07:45-17:00	9.25	Standby ( Waiting on the New BOP and Kill valves , Wrong kill valve was sent).						SOP's Developed	0
17:00-18:00	1.00	Travel from Rig location RH015GL1V to camp.						SOP's Reviewed	0
								JSEA's Developed	0
								JSEA's Reviewed	2
								Emergency Drill Conducted	0
								Non-Conformance Issued	0
								Toolbox/Pre-start Meetings	1
								Audits	0
								Life Saving Rule Breaches	0
								Fuel On Hand / litters	6000
								Fuel Used / litters	0
								<b>Operating Rate</b>	<b>0</b>
								<b>Reduced Operating Rate</b>	<b>0</b>
								<b>Repair Rate</b>	<b>12</b>
								<b>Rig move, up/down</b>	<b>0</b>
								<b>Rig move distance</b>	<b>0</b>
<b>Item</b>	<b>Hours</b>	<b>Comments</b>						Contractors on site	0
Prime Mover	20945							Contractors man hours	0
Rig hours:	1467							Fluid Delivery /BBL	0
Mud pump hours:	958							Fluid on Site @ 06:00 / BBL	122
Wheel Loader	510							Fluid Pumped Down Hole / BBL	0
Rig Generator	9272	<b>RECORDABLE INCIDENTS FREE DAYS : 41</b>						Fluid on Site @ 18:00 / BBL	122
Accommodation Required	yes	<b>LOST TIME INCIDENT FREE DAYS : 430</b>						Fluid Removed Offsite / 0 BBL	0
<b>Client Representative : Lance Richards</b>				<b>SWMS Representative: Mick Murraray</b>					

**WORK VERIFIED  
LANCE RICHARDS**

Date: 25-11-13

Signature: [Signature]



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 24/11/2013	Report No: 427	Well Name/No: RH015GL1V Moranbah		Item	Amount	
Personnel	Name	Hrs:	Travel	Incoming Crew	Hrs	Travel	Consumables		
Rig Manager	Mick Murray	12					Total Combined Man Hours	72	
Rig Manager							Total Combined Kilometres	127	
Driller	Andrew Baker	12					Fatalities	0	
Motorman	Troy Jarvis	12					Medical Treatment (MTI)	0	
Lease hand	Dion Crang	12					First Aid Injury (FAI)	0	
Lease hand	Nic Barr	12					Restricted Work Case (RWC)	0	
HSE Adviser	Mark.T.Edwards	12					Lost Time Injury (LTI)	0	
Contractors		0					Environmental	0	
Contractors		0					Equipment Damage/Failure	0	
Summer L/H	Clay Maceachen	12					High Potential Incident (HPO)	0	
Fiel Sup							Near Miss	0	
	<b>Total Hours</b>	<b>72</b>					Non-Work Related Incident/Injury	0	
<b>Weather Summary:</b>				<b>Tonne Miles</b>	<b>0</b>		Permits to Work Open/Closed	0	
<b>Time</b>	<b>Hours</b>	<b>Activity</b>						HAZOBS	0
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.						SLAMS	0
07:00-07:45	0.75	Safety meeting, pre start all equipment.						Inductions Completed/Delivered	0
07:45-17:00	9.25	Standby ( Waiting on the New BOP and Kill valves , Wrong kill valve was sent).						SOP's Developed	0
17:00-18:00	1.00	Travel from Rig location RH015GL1V to camp.						SOP's Reviewed	0
							JSEA's Developed	0	
							JSEA's Reviewed	2	
							Emergency Drill Conducted	0	
							Non-Conformance Issued	0	
							Toolbox/Pre-start Meetings	1	
							Audits	0	
							Life Saving Rule Breaches	0	
							Fuel On Hand / litters	6000	
							Fuel Used / litters	0	
							<b>Operating Rate</b>	<b>0</b>	
							<b>Reduced Operating Rate</b>	<b>0</b>	
							<b>Repair Rate</b>	<b>12</b>	
							<b>Rig move, up/down</b>	<b>0</b>	
							<b>Rig move distance</b>	<b>0</b>	
<b>Item</b>	<b>Hours</b>	<b>Comments</b>						Contractors on site	0
Prime Mover	20945							Contractors man hours	0
Rig hours:	1467							Fluid Delivery /BBL	0
Mud pump hours:	958							Fluid on Site @ 06:00 / BBL	122
Wheel Loader	510							Fluid Pumped Down Hole / BBL	0
Rig Generator	9272	<b>RECORDABLE INCIDENTS FREE DAYS : 42</b>						Fluid on Site @ 18:00 / BBL	122
Accommodation Required	yes	<b>LOST TIME INCIDENT FREE DAYS : 431</b>						Fluid Removed Offsite / O BBL	0
<b>Client Representative : Lance Richards</b>				<b>SWMS Representative: Mick Murray</b>					

**WORK VERIFIED**  
**LANCE RICHARDS**  
 Date: 25-11-13  
 Signature: [Signature]



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 25/11/2013	Report No: 428	Well Name/No: RH015GL1V Moranbah		Item	Amount
Personnel	Name	Hrs:	Travel	Incoming Crew	Hrs	Travel	Consumables	
Rig Manager	Mick Murray	12					Total Combined Man Hours	84
Rig Manager							Total Combined Kilometres	167
Driller	Andrew Baker	12					Fatalities	0
Motorman	Troy Jarvis	12					Medical Treatment (MTI)	0
Lease hand	Dion Crang	12					First Aid Injury (FAI)	0
Lease hand	Nic Barr	12					Restricted Work Case (RWC)	0
HSE Adviser	Mark.T.Edwards	12					Lost Time Injury (LTI)	0
Contractors		0					Environmental	0
Contractors		0					Equipment Damage/Failure	0
Summer L/H	Clay Maceachen	12					High Potential Incident (HPO)	0
Fiel Sup							Near Miss	0
<b>Total Hours</b>		<b>84</b>					Non-Work Related Incident/Injury	0
<b>Weather Summary:</b>				<b>Tonne Miles</b>	<b>0</b>		Permits to Work Open/Closed	0
<b>Time</b>	<b>Hours</b>	<b>Activity</b>					HAZOBS	2
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.					SLAMS	9
07:00-07:45	0.75	Safety meeting, pre start all equipment.					Inductions Completed/Delivered	0
07:45-17:00	9.25	Standby ( Waiting on cert's for adaptor spool).					SOP's Developed	0
17:00-18:00	1.00	Travel from Rig location RH015GL1V to camp.					SOP's Reviewed	0
							JSEA's Developed	0
							JSEA's Reviewed	2
							Emergency Drill Conducted	0
							Non-Conformance Issued	0
							Toolbox/Pre-start Meetings	1
							Audits	0
							Life Saving Rule Breaches	0
							Fuel On Hand / litters	5940
							Fuel Used / litters	60
							<b>Operating Rate</b>	<b>0</b>
							<b>Reduced Operating Rate</b>	<b>0</b>
							<b>Repair Rate</b>	<b>12</b>
							<b>Rig move, up/down</b>	<b>0</b>
							<b>Rig move distance</b>	<b>0</b>
							Contractors on site	0
							Contractors man hours	0
							Fluid Delivery /BBL	0
							Fluid on Site @ 06:00 / BBL	122
							Fluid Pumped Down Hole / BBL	0
							Fluid on Site @ 18:00 / BBL	0
							Fluid Removed Offsite / 0 BBL	0
<b>Item</b>	<b>Hours</b>	<b>Comments</b>						
Prime Mover	21002							
Rig hours:	1470							
Mud pump hours:	959							
Wheel Loader	510							
Rig Generator	9284							
Accommodation Required		yes	RECORDABLE INCIDENTS FREE DAYS : 43					
Client Representative : Lance Richards			LOST TIME INCIDENT FREE DAYS : 432					
				SWMS Representative: Mick Murray				

DRILL LINE CHANGED 19-09-13  
TOTAL TONNE MILES : 109

**WORK VERIFIED**  
**LANCE RICHARDS**  
Date: 26-11-13  
Signature:



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 26/11/2013	Report No: 429	Well Name/No: RH015GL1V Moranbah			Item	Amount
Personnel	Name	Hrs:	Travel	Incoming Crew	Hrs	Travel	Consumables		
Rig Manager	Mick Murray	12					Total Combined Man Hours	84	
Rig Manager							Total Combined Kilometres	436	
Driller	Andrew Baker	12					Fatalities	0	
Motorman	Troy Jarvis	12					Medical Treatment (MTI)	0	
Lease hand	Dion Crang	12					First Aid Injury (FAI)	0	
Lease hand	Nic Barr	12					Restricted Work Case (RWC)	0	
HSE Adviser	Mark.T.Edwards	12					Lost Time Injury (LTI)	0	
Contractors		0					Environmental	0	
Contractors		0					Equipment Damage/Failure	0	
Summer L/H	Clay Maceachen	12					High Potential Incident (HPO)	0	
Fiel Sup							Near Miss	0	
	<b>Total Hours</b>	<b>84</b>					Non-Work Related Incident/Injury	0	
<b>Weather Summary:</b>			<b>Tonne Miles</b>	<b>0</b>					
<b>Time</b>	<b>Hours</b>	<b>Activity</b>							
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.							
07:00-07:45	0.75	Safety meeting, pre start all equipment.							
07:45-17:00	9.25	Standby (New BOP failed , Waiting replacement BOP ).							
17:00-18:00	1.00	Travel from Rig location RH015GL1V to camp.							
<b>WORK VERIFIED</b> <b>LANCE RICHARDS</b> Date: <u>26-11-13</u> Signature:									
<b>Item</b>	<b>Hours</b>	<b>Comments</b>							
Prime Mover	21002								
Rig hours:	1470								
Mud pump hours:	959								
Wheel Loader	514								
Rig Generator	9295	<b>RECORDABLE INCIDENTS FREE DAYS : 44</b>							
Accommodation Required	yes	<b>LOST TIME INCIDENT FREE DAYS : 433</b>							
<b>Client Representative : Lance Richards</b>					<b>SWMS Representative: Mick Murraray</b>				
								Total Combined Man Hours	84
								Total Combined Kilometres	436
								Fatalities	0
								Medical Treatment (MTI)	0
								First Aid Injury (FAI)	0
								Restricted Work Case (RWC)	0
								Lost Time Injury (LTI)	0
								Environmental	0
								Equipment Damage/Failure	0
								High Potential Incident (HPO)	0
								Near Miss	0
								Non-Work Related Incident/Injury	0
								Permits to Work Open/Closed	0
								HAZOBS	2
								SLAMS	8
								Inductions Completed/Delivered	0
								SOP's Developed	0
								SOP's Reviewed	0
								JSEA's Developed	0
								JSEA's Reviewed	2
								Emergency Drill Conducted	0
								Non-Conformance Issued	0
								Toolbox/Pre-start Meetings	1
								Audits	0
								Life Saving Rule Breaches	0
								Fuel On Hand / litters	5692
								Fuel Used / litters	248
								<b>Operating Rate</b>	<b>0</b>
								<b>Reduced Operating Rate</b>	<b>0</b>
								<b>Repair Rate</b>	<b>12</b>
								<b>Rig move, up/down</b>	<b>0</b>
								<b>Rig move distance</b>	<b>0</b>
								Contractors on site	0
								Contractors man hours	0
								Fluid Delivery /BBL	0
								Fluid on Site @ 06:00 / BBL	122
								Fluid Pumped Down Hole / BBL	0
								Fluid on Site @ 18:00 / BBL	0
								Fluid Removed Offsite / 0 BBL	0





**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 27/11/2013	Report No: 430	Well Name/No: RH015GL1V Moranbah			Item	Amount
<b>Personnel</b>	<b>Name</b>	<b>Hrs:</b>	<b>Travel</b>	<b>Incoming Crew</b>	<b>Hrs</b>	<b>Travel</b>	<b>Consumables</b>		
Rig Manager	Mick Murray	12						Total Combined Man Hours 84	
Rig Manager								Total Combined Kilometres 436	
Driller	Andrew Baker	12						Fatalities 0	
Motorman	Troy Jarvis	12						Medical Treatment (MTI) 0	
Lease hand	Dion Crang	12						First Aid Injury (FAI) 0	
Lease hand	Nic Barr	12						Restricted Work Case (RWC) 0	
HSE Adviser	Mark.T.Edwards	12						Lost Time Injury (LTI) 0	
Contractors		0						Environmental 0	
Contractors		0						Equipment Damage/Failure 0	
Summer L/H	Clay Maceachen	12						High Potential Incident (HPO) 0	
Fiel Sup								Near Miss 0	
	<b>Total Hours</b>	84					<b>DRILL LINE CHANGED 19-09-13</b>	Non-Work Related Incident/Injury 0	
							<b>TOTAL TONNE MILES : 109</b>	Permits to Work Open/Closed 0	
<b>Weather Summary:</b>			<b>Tonne Miles</b>	0				HAZOBS 0	
<b>Time</b>	<b>Hours</b>	<b>Activity</b>						<b>SLAMS</b>	4
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.						Inductions Completed/Delivered	0
07:00-07:45	0.75	Safety meeting, pre start all equipment.						SOP's Developed	0
07:45-14:30	6.75	Standby (Waiting replacement BOP).						SOP's Reviewed	0
14:30-17:00	2.50	Standby ( unload the new BOP , Assemble BOP , Function test BOP).						JSEA's Developed	0
17:00-18:00	1.00	Travel from Rig site RH015GL1V to camp.						JSEA's Reviewed	1
							Emergency Drill Conducted	0	
							Non-Conformance Issued	0	
							Toolbox/Pre-start Meetings	1	
							Audits	0	
							Life Saving Rule Breaches	0	
							Fuel On Hand / litters	5392	
							Fuel Used / litters	300	
							<b>Operating Rate</b>	0	
							<b>Reduced Operating Rate</b>	0	
							<b>Repair Rate</b>	12	
							<b>Rig move, up/down</b>	0	
							<b>Rig move distance</b>	0	
<b>Item</b>	<b>Hours</b>	<b>Comments</b>						Contractors on site	0
Prime Mover	21002							Contractors man hours	0
Rig hours:	1470							Fluid Delivery /BBL	0
Mud pump hours:	959							Fluid on Site @ 06:00 / BBL	122
Wheel Loader	515							Fluid Pumped Down Hole / BBL	0
Rig Generator	9305	<b>RECORDABLE INCIDENTS FREE DAYS : 45</b>						Fluid on Site @ 18:00 / BBL	0
Accommodation Required	yes	<b>LOST TIME INCIDENT FREE DAYS : 434</b>						Fluid Removed Offsite / 0 BBL	0
<b>Client Representative : Lance Richards</b>				<b>SWMS Representative: Mick Murrery</b>					

**WORK VERIFIED**  
**SCOTT ROGERS**  
 Date: 28-11-2013  
 Signature: [Signature]

*Scott Rogers*

*[Signature]*



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 28/11/2013	Report No: 431	Well Name/No: RH015GL1V Moranbah		Item	Amount	
<b>Personnel</b>	<b>Name</b>	<b>Hrs:</b>	<b>Travel</b>	<b>Incoming Crew</b>	<b>Hrs</b>	<b>Travel</b>	<b>Consumables</b>		
Rig Manager	Mick Murray	12					Total Combined Man Hours	84	
Rig Manager							Total Combined Kilometres	380	
Driller	Warren Jeffery	12					Fatalities	0	
Motorman	Troy Jarvis	12					Medical Treatment (MTI)	0	
Lease hand	Gerard Mallon	12					First Aid Injury (FAI)	0	
Lease hand	Steve Thompson	12					Restricted Work Case (RWC)	0	
HSE Adviser	Sarah Huth	12					Lost Time Injury (LTI)	0	
Contractors							Environmental	0	
Contractors							Equipment Damage/Failure	0	
Summer L/H	Richard Edwards	12					High Potential Incident (HPO)	0	
Fiel Sup							Near Miss	0	
	<b>Total Hours</b>	<b>84</b>					Non-Work Related Incident/Injury	0	
<b>Weather Summary:</b>			<b>Tonne Miles</b>	<b>0</b>					
<b>Time</b>	<b>Hours</b>	<b>Activity</b>						<b>SLAMS</b>	<b>4</b>
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.						Inductions Completed/Delivered	0
07:00-07:45	0.75	Safety meeting, pre start all equipment, 0% LEL						SOP's Developed	0
07:45-09:30	1.75	Standby ( Assemble BOP on stump).						SOP's Reviewed	0
09:30-10:30	1.00	Stump test BOP 5min @ 300psi & 10min @ 3000psi.						JSEA's Developed	0
10:30-11:00	0.50	Finger print the well 4 Bbls to top up , Wait 10min 2 Bbls to top up well .						JSEA's Reviewed	1
11:00-11:45	0.75	N/U adaptor flange to well head , N/U BOP .						Emergency Drill Conducted	0
11.45-13:15	1.50	Pressure test BOP on the well , 5min @ 220psi & 10min @ 1000psi ( passed after adjusting the well head adaptor ).						Non-Conformance Issued	0
13:15-17:00	3.75	RIH tag fill @ 480.35m , POOH tubing 40 Joint of tubing , Brack out the BHA , Strap the tubing for TD.						Toolbox/Pre-start Meetings	1
17:00-18:00	1.00	Travel from rig location RH015GL1V to camp.+						Audits	0
							Life Saving Rule Breaches	0	
							Fuel On Hand / litters	5392	
							Fuel Used / litters	300	
							<b>Operating Rate</b>	<b>8.5</b>	
							<b>Reduced Operating Rate</b>	<b>0</b>	
							<b>Repair Rate</b>	<b>3.5</b>	
							<b>Rig move, up/down</b>	<b>0</b>	
							<b>Rig move distance</b>	<b>0</b>	
<b>Item</b>	<b>Hours</b>	<b>Comments</b>						Contractors on site	0
Prime Mover	21002							Contractors man hours	0
Rig hours:	1471							Fluid Delivery /BBL	0
Mud pump hours:	960							Fluid on Site @ 06:00 / BBL	100
Wheel Loader	516							Fluid Pumped Down Hole / BBL	24
Rig Generator	9312	<b>RECORDABLE INCIDENTS FREE DAYS : 46</b>						Fluid on Site @ 18:00 / BBL	76
Accommodation Required	yes	<b>LOST TIME INCIDENT FREE DAYS : 435</b>						Fluid Removed Offsite / 0 BBL	0
<b>Client Representative : Lane Richards</b>		<i>SCOTT ROGERS</i>			<b>SWMS Representative: Mick Murray</b>		<i>MF</i>		

**WORK VERIFIED**  
**SCOTT ROGERS**  
 Date: 30/11/2013  
 Signature: [Signature]



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 29/11/2013	Report No: 432	Well Name/No: RH015GL1V Moranbah		Item	Amount	
<b>Personnel</b>	<b>Name</b>	<b>Hrs:</b>	<b>Travel</b>	<b>Incoming Crew</b>	<b>Hrs</b>	<b>Travel</b>	<b>Consumables</b>		
Rig Manager	Mick Murray	12					Total Combined Man Hours	135	
Rig Manager							Total Combined Kilometres	158	
Driller	Warren Jeffery	12					Fatalities	0	
Motorman	Troy Jarvis	12					Medical Treatment (MTI)	0	
Lease hand	Gerard Mallon	12					First Aid Injury (FAI)	0	
Lease hand	Steve Thompson	12					Restricted Work Case (RWC)	0	
HSE Adviser	Sarah Huth	12					Lost Time Injury (LTI)	0	
Contractors	Hornery	27					Environmental	0	
Contractors	Haliburton	24					Equipment Damage/Failure	0	
Summer L/H	Richard Edwards	12					High Potential Incident (HPO)	0	
Fiel Sup							Near Miss	0	
	<b>Total Hours</b>	<b>84</b>					Non-Work Related Incident/Injury	0	
<b>Weather Summary:</b>			<b>Tonne Miles</b>	<b>0</b>					
<b>Time</b>	<b>Hours</b>	<b>Activity</b>							
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.						SLAMS	8
07:00-07:45	0.75	Safety meeting, pre start all equipment,0% LEL						Inductions Completed/Delivered	3
07:45-08:15	0.50	Standby ( Mud pump would not start ).						SOP's Developed	0
08:15-11:15	3.00	RIH tubing 478m , N/U Haliburton Secure the well .						SOP's Reviewed	0
11:15-11:45	0.50	TBM with crew and Haliburton.						JSEA's Developed	0
11:45-13:15	1.50	Pump cement plug ( 40 Bbbs @ 15.2 PPG 150m ).						JSEA's Reviewed	4
13:15-17:00	3.75	Wait on cement.						Emergency Drill Conducted	0
17:00-18:00	1.00	Travel from rig location RH015GL1V to camp.						Non-Conformance Issued	0
							Toolbox/Pre-start Meetings	2	
							Audits	0	
							Life Saving Rule Breaches	0	
							Fuel On Hand / litters	5262	
							Fuel Used / litters	130	
							<b>Operating Rate</b>	<b>11.5</b>	
							<b>Reduced Operating Rate</b>	<b>0</b>	
							<b>Repair Rate</b>	<b>0.5</b>	
							<b>Rig move, up/down</b>	<b>0</b>	
							<b>Rig move distance</b>	<b>0</b>	
<b>Item</b>	<b>Hours</b>	<b>Comments</b>						Contractors on site	0
Prime Mover	21002							Contractors man hours	0
Rig hours:	1477							Fluid Delivery /BBL	0
Mud pump hours:	967							Fluid on Site @ 06:00 / BBL	0
Wheel Loader	516							Fluid Pumped Down Hole / BBL	0
Rig Generator	9322	<b>RECORDABLE INCIDENTS FREE DAYS : 47</b>						Fluid on Site @ 18:00 / BBL	0
Accommodation Required	yes	<b>LOST TIME INCIDENT FREE DAYS : 436</b>						Fluid Removed Offsite / 0 BBL	0
<b>Client Representative : Lane Richards</b>			<i>SCOTT ROGERS</i>			<b>SWMS Representative: Mick Murray</b>			

**WORK VERIFIED**  
**SCOTT ROGERS**  
 Date: 30-11-2013  
 Signature: [Signature]



**DAILY WORKOVER REPORT WELL No: RH015GL1V / P.O. 4511884261**

CLIENT: ARROW ENERGY		RIG: SW5	DATE: 30/11/2013	Report No: 433	Well Name/No: RH015GL1V Moranbah		Item	Amount	
Personnel	Name	Hrs:	Travel	Incoming Crew	Hrs	Travel	Consumables		
Rig Manager	Mick Murray	12						Total Combined Man Hours 134	
Rig Manager								Total Combined Kilometres 161	
Driller	Warren Jeffery	12						Fatalities 0	
Motorman	Troy Jarvis	12						Medical Treatment (MTI) 0	
Lease hand	Gerard Mallon	12						First Aid Injury (FAI) 0	
Lease hand	Steve Thompson	12						Restricted Work Case (RWC) 0	
HSE Adviser	Sarah Huth	12						Lost Time Injury (LTI) 0	
Contractors	Hornery	20						Environmental 0	
Contractors	Hallburton	30						Equipment Damage/Failure 0	
Summer L/H	Richard Edwards	12						High Potential Incident (HPO) 0	
Fiel Sup								Near Miss 0	
	<b>Total Hours</b>	<b>84</b>					<b>DRILL LINE CHANGED 19-09-13</b>	Non-Work Related Incident/Injury 0	
							<b>TOTAL TONNE MILES : 109</b>	Permits to Work Open/Closed 0	
Weather Summary:				<b>Tonne Miles</b>	<b>1</b>			HAZOBS 1	
<b>Time</b>	<b>Hours</b>	<b>Activity</b>						<b>SLAMS</b>	<b>6</b>
06:00-07:00	1.00	Travel from camp to rig location RH015GL1V.						Inductions Completed/Delivered	0
07:00-07:45	0.75	Safety meeting, pre start all equipment, 0% LEL						SOP's Developed	0
07:45-09:00	1.25	RIH tubing and tag fill @ 352.27m .						SOP's Reviewed	0
09:00-10:00	1.00	Pessure fest cement plug 10min @ 800psi , Started at 800psi dropped 60psi in 10min.						JSEA's Developed	0
10:00-10:30	0.50	TBM with the crew and Haliburtons.						JSEA's Reviewed	4
10:30-14:00	3.50	Pump 5 Bbls of water , Cement 130m plug2 15.2PPG , POOH 30 joints , Cement 130m plug3 15.2.PPG , POOH 14 joints of tubing , Cement to surface 15,2 PPG , POOH tubing .						Emergency Drill Conducted	0
14:00-17:00	3.00	Rig down the rig and equipment.						Non-Conformance Issued	0
17:00-18:00	1.00	Travel from rig location RH015GL1V to camp.						Toolbox/Pre-start Meetings	2
							Audits	0	
							Life Saving Rule Breaches	0	
							Fuel On Hand / litters	4922	
							Fuel Used / litters	240	
							<b>Operating Rate</b>	<b>12</b>	
							<b>Reduced Operating Rate</b>	<b>0</b>	
							<b>Repair Rate</b>	<b>0</b>	
							<b>Rig move, up/down</b>	<b>0</b>	
							<b>Rig move distance</b>	<b>0</b>	
							Contractors on site	4	
							Contractors man hours	50	
							Fluid Delivery /BBL	0	
							Fluid on Site @ 06:00 / BBL	0	
							Fluid Pumped Down Hole / BBL	0	
							Fluid on Site @ 18:00 / BBL	0	
							Fluid Removed Offsite / 0 BBL	0	
<b>Item</b>	<b>Hours</b>	<b>Comments</b>							
Prime Mover	21002								
Rig hours:	1489								
Mud pump hours:	979								
Wheel Loader	520								
Rig Generator	9342	RECORDABLE INCIDENTS FREE DAYS : 48							
Accommodation Required	yes	LOST TIME INCIDENT FREE DAYS : 437							
Client Representative : Lance Richards				SWMS Representative: Mick Murray					

**WORK VERIFIED**  
**SCOTT ROGERS**  
 Date: 3-12-2013  
 Signature: [Signature]

## APPENDIX 3. CEMENTING REPORTS

## **Arrow Energy Pty Ltd**

Level 39

111 Eagle Street,  
Brisbane, Qld 4000

**RH015GL1V**

**SWMS 5**

**Balanced Plug Cement Program**

**Prepared for Benigno Montilla**

18<sup>th</sup> November, 2013

Revision: 0

**Submitted by Aslan Naubetzhanov**

Halliburton Australia Pty. Ltd.

Level 17, 444 Queen St, Brisbane QLD 4000

Ph: +61 7 3811 6153

Email: [Aslan.Naubetzhanov@Halliburton.com](mailto:Aslan.Naubetzhanov@Halliburton.com)

**HALLIBURTON**



18<sup>th</sup> November, 2013

**TO: Arrow Energy Pty Ltd.**  
**ATT: Benigno Monttilla**  
**RE: RH015GL1V – Balanced Cement Plug Program Rev0.**

Dear Benigno,

Please find attached cement program slurry recommendations for RH015GL1V plug job for review and approval

Included are cement slurry recommendations for the following:

- **Cement plug #1- 150m**, 15.2 ppg HalCem™ slurry from **489 to 339m** with 0.3% Halad 344, 0.5% CFR-3 and 1 % CaCl<sub>2</sub>.
- **Cement plug #2 - 125m**, 15.2 ppg HalCem™ slurry from **339 to 214m** with 0.3% Halad 344, 0.5% CFR-3 and 1 % CaCl<sub>2</sub>.
- **Cement plug #3 - 125m**, 15.2 ppg HalCem™ slurry from **214 to 89m** with 0.5% CFR-3.
- **Cement plug #4 - 89m**, 15.2 ppg HalCem™ slurry from **89 to surface** with 0.5% CFR-3.
- Job volumes are based on 75% OH Excess and 10% in cased hole to account for contamination. Only plug #1 will be tagged and tested to confirm isolation of cased hole from open hole.

Also included are the Cementing Work Methods and job procedures.

Our services for the requested work will be coordinated through the Halliburton Roma base. Point of contact in Roma is Toddman Bradshaw on (07) 4622 4588. Should you require any additional information regarding slurry design please do not hesitate to contact the Brisbane Engineering team on (07) 3811 6017.

Regards,

**Aslan Naubetzhanov**  
**Associate Technical Professional**  
**Cementing**

cc: William Farrelly Halliburton Brisbane  
Kieran MacKellar Halliburton Brisbane  
Toddman Bradshaw Halliburton Roma  
Douglas Stansbie Halliburton Roma  
Bill Nixon Halliburton Roma  
Anton Trinchini Halliburton Roma

**Revision History**

Rev. 0 Initial Program

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**4.0 Cement Plug #3 - 214m-89m MD..... 9**

**5.0 Cement Plug #4 - 89m-Surface ..... 12**



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## 1.0 Plug Cementing Work Methods

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### 1. Cement Volume:

Pumping insufficient volume is one of the biggest causes of plug failures. In open hole it is quite typical to pump up to 50% excess to account for washouts. Kick-Off plugs should be taken 200ft back above the planned sidetrack depth to ensure good cement at this point. For plugs in cased hole an additional 10bbls excess should be pumped to account for contamination by mud/spacer.

### 2. Firm Base:

In order to prevent the plug slumping downhole it should be set on a firm base. This base can be provided through the use of a fluid base such as a Viscous Reactive Pill (VRP) or a mechanical base such as a Cement Support Tool (CST), EZ-SV or Fas-Drill Packer.

### 3. Mud Removal & Displacement:

Wash over the plug interval when RIH with the workstring. Rotate (+/-15rpm) and reciprocate down over the entire interval at maximum pump rate, dependent on well conditions. Minimise any shutdowns, to keep the mud in a fluidized condition.

### 4. Redirect Flow:

Use a side-port diverter tool on the bottom of the cementing stinger to change the flow direction from downwards to outwards thus minimizing any intermixing and optimizing hole cleaning. If none available, one can be made by cutting off the tool joint and blanking off the end of the bottom tubing joint on the stinger. Cut 8 x 1in diameter holes radially in the bottom eight feet of this joint.

### 5. Slim Stinger:

A reduced OD stinger will help minimise stripping the plug when POOH. We recommend that 2-7/8in tubing is used for holes of 6in or smaller and 3-1/2in tubing for holes of 12-1/4in or smaller. Sufficient stinger should be available to allow for 1.5 x plug length.

### 6. Plug Length:

Increasing the length of the plug increases the risk of cementing-in the stinger due to the extra time taken to pull slowly out of the plug. It is normal practice to limit plugs to 500ft in length in order to minimise this risk. If longer plugs are set the appropriate risks should be assessed and taken account of in the job design.

### 7. Spacer System:

To provide fluid separation and hole cleaning, sufficient volume of a suitable spacer should be pumped ahead to provide 500ft-1,000ft of annular fill or a 10min contact time. The spacer volume behind should be based on the volume to balance.

### 8. Pump Rates:

Pump spacer, cement and displacement at maximum possible rates, slowing rate down to 1-2bpm at 5-10 bbls before end of calculated displacement.

- 9. Displacement Volumes:**  
Drill pipe and stinger should be drifted for accurate displacement. A latch-down indicator sub (ball catcher) can be used to help achieve accurate displacement.
  
- 10. Under Displacement:**  
Under-displacement by a small volume, allowing the cement to U-tube into position, can help ensure the plug balances out and the pipe does not pull wet. Typically under displacement of 5-10bbls is adequate, however this is dependent on hole size and cement volumes.
  
- 11. Pulling Out:**  
After plug is in place POOH slowly (30-50ft/min) and break connections carefully to avoid stripping plug. Avoid any delays as usually the slurry is designed with a short pump time to improve strength development.
  
- 12. Circulate String Clean:**  
Do not circulate directly on top of plug; wait until a minimum of 500ft above. Break circulation slowly so as to minimise disturbance of plug. Never reverse circulate when setting an open hole plug. If available pump a wiper ball after every cement plug.
  
- 13. Waiting on Cement:**  
Prior to testing a plug (tagging or pressure testing), time should be allowed for it to develop sufficient compressive strength. This should be at least the time for the plug to reach 500psi or 3,000psi for a kick-off plug.

**2.0 Cement Plug #1 - 489m-339m MD**

Plug Details - 6 5/8in casing x 7.875in hole x 16in hole x 7.875in hole

**JOB PARAMETERS**

Plug bottom MD:	489m	BHST temperature:	43°C
Plug bottom TVD:	489m	BHCT temperature:	35°C
Plug top MD:	339m	Drilling mud type:	WBM
Plug length:	150m	Drilling mud density:	8.60ppg
Plug length with DP in:	156m		

**WELLBORE**

<b>Workstring</b>	
0-489m	2 3/8in 4.6ppf tubing
<b>Annulus</b>	
0-429m	6 5/8in 17ppf casing (6.125in ID) (10% excess)
429-431m	7.875in open hole (75% excess)
431-438m	16in open hole (75% excess)
438-489m	7.875in open hole (75% excess)

**SPACERS**

<b>Spacer - Freshwater at 8.33ppg</b>		
Freshwater	42.00 gal/bbl	10.0bbl ahead and 1.1bbl behind to balance (4m annular fill / 3min contact time)

Contact times are based on the displacement rate.

**CEMENT SLURRY**

<b>Composition</b>		<b>Properties</b>	
Cem Aust Glad GBF25		Surface density:	15.20 ppg
CFR-3	0.50 %BWOC	Surface yield:	1.20 ft <sup>3</sup> /sk
Halad-344	0.30 %BWOC	Total mixing fluid:	4.89 gal/sk
Calcium Chloride	1.00 %BWOC	Thickening time (70 Bc):	1:58
Freshwater	4.89 gal/sk	Free water vert at 35°C:	0.0 %
NF-6	0.25 gal/10bbIMF	Fluid loss at 35°C:	50 cc/30min
		Comp strength at 32°C	50 psi in 3 hrs
		Comp strength at 32°C	500 psi in 5 hrs
		Comp strength at 32°C	2,848 psi in 24 hrs
		Lab report no:	2034867/1

Note that %BWOC are based on a 94 lb sack

**VOLUME CALCULATIONS**

Cement		
6 5/8in casing volume	90 m x 0.1196 bbl/m	10.8 bbl
6 5/8in casing excess	0.10 x 10.8 bbl	1.1 bbl
7.875in hole volume	2 m x 0.1976 bbl/m	0.3 bbl
7.875in hole excess	0.75 x 0.3 bbl	0.3 bbl
16in hole volume	7 m x 0.8159 bbl/m	5.5 bbl
16in hole excess	0.75 x 5.5 bbl	4.1 bbl
7.875in hole volume	51 m x 0.1976 bbl/m	10.1 bbl
7.875in hole excess	0.75 x 10.1 bbl	7.6 bbl
<i>Slurry volume =</i>		<i>39.8 bbl</i>
Quantity of cement	39.8 bbl x 5.6146 / 1.20 ft <sup>3</sup> /sk	186 sacks
Quantity of mix fluid	186 sacks x 4.89 gal/sk	21.7 bbl
Displacement		
2 3/8in tubing volume	245 m x 0.0127 bbl/m	3.1 bbl
<i>Total displacement volume =</i>		<i>3.1 bbl</i>

*The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.*

**PUMPING SCHEDULE & TIMES**

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 1.5 x hole volume::	122.6	6.0	20
Pump spacers ahead:	10.0	6.0	2
Mix & pump cement:	39.8	5.0	8
Pump spacers behind:	1.1	6.0	0
Pump displacement:	3.1	4.0	1
Pull workstring 152 m above TOC:	302m	9.1m/min	33
Drop wiper ball:	N/A	N/A	5
<i>Total job time (including circulation):</i>			<i>99 min</i>
<i>Minimum cement thickening time (with 1hr safety factor):</i>			<i>1hr 39min</i>
			<i>107 min</i>
			<i>1hr 47min</i>

**MINIMUM MATERIAL REQUIREMENTS**

Spacer - Freshwater		
Freshwater	11.1 bbl	
Cement		
Cem Aust Glad GBF25	8 MT	(186 sacks)
CFR-3	87 lbs	
Halad-344	52 lbs	
Calcium Chloride	175 lbs	
Freshwater	21.7 bbl	
NF-6	1 gals	

*These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.*

**JOB PROCEDURE**

1. Mobilize cementing crew.
2. Pre-job safety meeting and review JSA's.
3. Set up Cement Unit for pressure kick out at **3000 psi**
4. Pump **5.0 bbls** fresh water and pressure test surface lines to **3000 psi**
5. Pump remaining **5.0 bbls** of Freshwater Spacer ahead.
6. Mix and pump **39.80bbls** (186 sacks) of PlugCem™ cement slurry at **15.20 ppg** using Cem Aust Glad GBF25.  
  

<i>Density</i>	=	<i>15.20 ppg</i>
<i>Yield</i>	=	<i>1.20 ft<sup>3</sup>/sk</i>
<i>Water Requirement</i>	=	<i>4.90 gal/sk</i>
7. Displace cement plug with **1.1bbls** of Freshwater Spacer behind and **2.6 bbls** of displacement fluid. (0.5 bbl under displace to prevent U-tube)
8. Pull back immediately but carefully **to TOC at 339m** and begin reverse circulating down backside and up through the tubing to clean off excess cement and dress down top of cement.
9. Once reverse circulation is complete pull 30m above the theoretical top of cement and wait on cement for 5 hours before attempting to tag or pressure test to confirm isolation.
10. Once Plug#1 has been tagged and tested, prepare to set **Plug # 2 at 339m-214m**

### 3.0 Cement Plug #2 - 339m-214m MD

#### Plug Details - 6 5/8in casing

##### JOB PARAMETERS

Plug bottom MD:	339m	BHST temperature:	38°C
Plug bottom TVD:	339m	BHCT temperature:	31°C
Plug top MD:	214m	Drilling mud type:	WBM
Plug length:	125m	Drilling mud density:	8.60ppg
Plug length with DP in:	130m		

##### WELLBORE

Workstring	
0-339m	2 3/8in 4.6ppf tubing
Annulus	
0-339m	6 5/8in 17ppf casing (6.125in ID) (10% excess)

##### SPACERS

Spacer - Freshwater at 8.33ppg		
Freshwater	42.00 gal/bbl	10.0bbl ahead and 1.1bbl behind to balance (80m annular fill / 3min contact time)

Contact times are based on the displacement rate.

##### CEMENT SLURRY

Composition		Properties	
Cem Aust Glad GBF25		Surface density:	15.20 ppg
CFR-3	0.50 %BWOC	Surface yield:	1.20 ft <sup>3</sup> /sk
Halad-344	0.30 %BWOC	Total mixing fluid:	4.90 gal/sk
Calcium Chloride	1.00 %BWOC	Thickening time (70 Bc):	1:58
Freshwater	4.90 gal/sk	Free water vert at 31°C:	0.0 %
NF-6	0.25 gal/10bblMF	Fluid loss at 31°C:	50 cc/30min
		Comp strength at 32°C	50 psi in 3 hrs
		Comp strength at 32°C	500 psi in 5 hrs
		Comp strength at 32°C	2,848 psi in 24 hrs
		Lab report no:	2034867/1

Note that %BWOC are based on a 94 lb sack

**VOLUME CALCULATIONS**

Cement		
6 5/8in casing volume	125 m x 0.1196 bbl/m	14.9 bbl
6 5/8in casing excess	0.10 x 14.9 bbl	1.5 bbl
<i>Slurry volume =</i>		<i>16.4 bbl</i>
Quantity of cement	16.4 bbl x 5.6146 / 1.20 ft <sup>3</sup> /sk	77 sacks
Quantity of mix fluid	77 sacks x 4.90 gal/sk	9.0 bbl
Displacement		
2 3/8in tubing volume	121 m x 0.0127 bbl/m	1.5 bbl
<i>Total displacement volume =</i>		<i>1.5 bbl</i>

*The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.*

**PUMPING SCHEDULE & TIMES**

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 1.5 x hole volume::	64.2	6.0	11
Pump spacers ahead:	10.0	6.0	2
Mix & pump cement:	16.4	5.0	3
Pump spacers behind:	1.1	6.0	0
Pump displacement:	1.5	4.0	0
Pull workstring 152 m above TOC:	277m	9.1m/min	30
Drop wiper ball:	N/A	N/A	5
<i>Total job time (including circulation):</i>			<i>81 min</i>
<i>Minimum cement thickening time (with 1hr safety factor):</i>			<i>1hr 21min</i>
			<i>98 min</i>

**MINIMUM MATERIAL REQUIREMENTS**

Spacer - Freshwater		
Freshwater	11.1 bbl	
Cement		
Cem Aust Glad GBF25	3 MT	(77 sacks)
CFR-3	36 lbs	
Halad-344	22 lbs	
Calcium Chloride	72 lbs	
Freshwater	9 bbl	
NF-6	1 gals	

*These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.*

---

**JOB PROCEDURE**

---

1. Mobilize cementing crew.
2. Pre-job safety meeting and review JSA's.
3. Pump **5.0 bbls** of Freshwater Spacer ahead.
4. Pressure test lines to **3000psi**
5. Pump remaining **5.0 bbls** of freshwater spacer
6. Mix and pump **16.40 bbls** (77 sacks) of PlugCem™ cement slurry at **15.20 ppg** using Cem Aust Glad GBF25.

<i>Density</i>	=	<i>15.20 ppg</i>
<i>Yield</i>	=	<i>1.20 ft<sup>3</sup>/sk</i>
<i>Water Requirement</i>	=	<i>4.90 gal/sk</i>

7. Displace cement plug with **1.1bbls** of Freshwater Spacer behind and **1.0 bbls** of displacement fluid. (0.5 bbl under displace to prevent U-tube)
8. Pull back immediately but carefully **to TOC at 214m** and begin **reverse** circulating the tubing and casing clean of the excess cement.
9. Once casing has been circulated prepare to set **Plug #3 at 214m – 89m**



## 4.0 Cement Plug #3 - 214m-89m MD

### Plug Details - 6 5/8in casing

#### JOB PARAMETERS

Plug bottom MD:	214m	BHST temperature:	34°C
Plug bottom TVD:	214m	BHCT temperature:	28°C
Plug top MD:	89m	Drilling mud type:	WBM
Plug length:	125m	Drilling mud density:	8.60ppg
Plug length with DP in:	130m		

#### WELLBORE

Workstring	
0-214m	2 3/8in 4.6ppf tubing
Annulus	
0-214m	6 5/8in 17ppf casing (6.125in ID) (10% excess)

#### SPACERS

Spacer - Freshwater at 8.33ppg		
Freshwater	42.00 gal/bbl	10.0bbl ahead and 1.1bbl behind to balance (80m annular fill / 3min contact time)

Contact times are based on the displacement rate.

#### CEMENT SLURRY

Composition		Properties	
Cem Aust Glad GBF25		Surface density:	15.20 ppg
CFR-3	0.50 %BWOC	Surface yield:	1.19 ft <sup>3</sup> /sk
Freshwater	4.89 gal/sk	Total mixing fluid:	4.90 gal/sk
NF-6	0.25 gal/10bbIMF	Thickening time (70 Bc):	1:58
		Free water vert at 28°C:	0.0 %
		Fluid loss at 28°C:	50 cc/30min
		Comp strength at 32°C	50 psi in 3 hrs
		Comp strength at 32°C	500 psi in 5 hrs
		Comp strength at 32°C	2,848 psi in 24 hrs

Note that %BWOC are based on a 94 lb sack

**VOLUME CALCULATIONS**

Cement		
6 5/8in casing volume	125 m x 0.1196 bbl/m	14.9 bbl
6 5/8in casing excess	0.10 x 14.9 bbl	1.5 bbl
<i>Slurry volume =</i>		<i>16.4 bbl</i>
Quantity of cement	16.4 bbl x 5.6146 / 1.19 ft <sup>3</sup> /sk	78 sacks
Quantity of mix fluid	78 sacks x 4.90 gal/sk	9.1 bbl
Displacement		
<i>Total displacement volume =</i>		<i>0.0 bbl</i>

*The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.*

**PUMPING SCHEDULE & TIMES**

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 1.5 x hole volume::	40.5	6.0	7
Pump spacers ahead:	10.0	6.0	2
Mix & pump cement:	16.4	5.0	3
Pump spacers behind:	1.1	6.0	0
Pump displacement:	0.0	4.0	0
Pull workstring 152 m above TOC:	277m	9.1m/min	30
Drop wiper ball:	N/A	N/A	5
<i>Total job time (including circulation):</i>		<i>77 min</i>	<i>1hr 17min</i>
<i>Minimum cement thickening time (with 1hr safety factor):</i>		<i>98 min</i>	<i>1hr 38min</i>

**MINIMUM MATERIAL REQUIREMENTS**

Spacer - Freshwater		
Freshwater	11.1 bbl	
Cement		
Cem Aust Glad GBF25	3 MT	(78 sacks)
CFR-3	37 lbs	
Freshwater	9.1 bbl	
NF-6	1 gals	

*These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.*

---

**JOB PROCEDURE**

---

1. Pump **10 bbls** of Freshwater Spacer ahead.
2. Mix and pump **16.4 bbls** (78 sacks) of PlugCem™ cement slurry at **15.20 ppg** using Cem Aust Glad GBF25 to surface.

$$\begin{aligned} \text{Density} &= 15.20 \text{ ppg} \\ \text{Yield} &= 1.19 \text{ ft}^3/\text{sk} \\ \text{Water Requirement} &= 4.90 \text{ gal/sk} \end{aligned}$$

3. Displace cement plug with **1.1bbls** of Freshwater Spacer behind and no displacement fluid required.
4. Pull back immediately but carefully **to TOC at 89m** and begin **reverse** circulating the tubing and casing clean of excess cement.
5. Once casing has been circulated prepare to set **Plug #4 at 89m – Surface**

## 5.0 Cement Plug #4 - 89m-Surface

### Plug Details - 6 5/8in casing

#### JOB PARAMETERS

Plug bottom MD:	89m	BHST temperature:	30°C
Plug bottom TVD:	89m	BHCT temperature:	24°C
Plug top MD:	0m	Drilling mud type:	WBM
Plug length:	89m	Drilling mud density:	8.60ppg
Plug length with DP in:	89m		

#### WELLBORE

Workstring	
0-89m	2 3/8in 4.6ppf tubing
Annulus	
0-89m	6 5/8in 17ppf casing (6.125in ID) (10% excess)

#### SPACERS

Spacer - Freshwater at 8.33ppg		
Freshwater	42.00 gal/bbl	10.0bbl ahead and 0bbl behind to balance (80m annular fill / 3min contact time)

Contact times are based on the displacement rate.

#### CEMENT SLURRY

Composition		Properties	
Cem Aust Glad GBF25		Surface density:	15.20 ppg
CFR-3	0.50 %BWOC	Surface yield:	1.19 ft <sup>3</sup> /sk
Freshwater	4.89 gal/sk	Total mixing fluid:	4.90 gal/sk
NF-6	0.25 gal/10bblMF	Thickening time (70 Bc):	1:58
		Free water vert at 24°C:	0.0 %
		Fluid loss at 24°C:	50 cc/30min
		Comp strength at 32°C	50 psi in 3 hrs
		Comp strength at 32°C	500 psi in 5 hrs
		Comp strength at 32°C	2,848 psi in 24 hrs

Note that %BWOC are based on a 94 lb sack

**VOLUME CALCULATIONS**

Cement		
6 5/8in casing volume	89 m x 0.1196 bbl/m	10.6 bbl
6 5/8in casing excess	0.10 x 10.6 bbl	1.1 bbl
<i>Slurry volume =</i>		<i>11.7 bbl</i>
Quantity of cement	11.7 bbl x 5.6146 / 1.19 ft <sup>3</sup> /sk	55 sacks
Quantity of mix fluid	55 sacks x 4.90 gal/sk	6.4 bbl
Displacement		
<i>Total displacement volume =</i>		<i>0.0 bbl</i>

*The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.*

**PUMPING SCHEDULE & TIMES**

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 1.5 x hole volume::	16.9	6.0	3
Pump spacers ahead:	10.0	6.0	2
Mix & pump cement:	11.7	5.0	2
Pump spacers behind:	0.0	6.0	0
Pump displacement:	0.0	4.0	0
Pull workstring 152 m above TOC:	241m	9.1m/min	26
Drop wiper ball:	N/A	N/A	5
<i>Total job time (including circulation):</i>		<i>68 min</i>	<i>1hr 08min</i>
<i>Minimum cement thickening time (with 1hr safety factor):</i>		<i>93 min</i>	<i>1hr 33min</i>

**MINIMUM MATERIAL REQUIREMENTS**

Spacer - Freshwater		
Freshwater	10 bbl	
Cement		
Cem Aust Glad GBF25	2 MT	(55 sacks)
CFR-3	26 lbs	
Freshwater	6.4 bbl	
NF-6	1 gals	

*These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.*

---

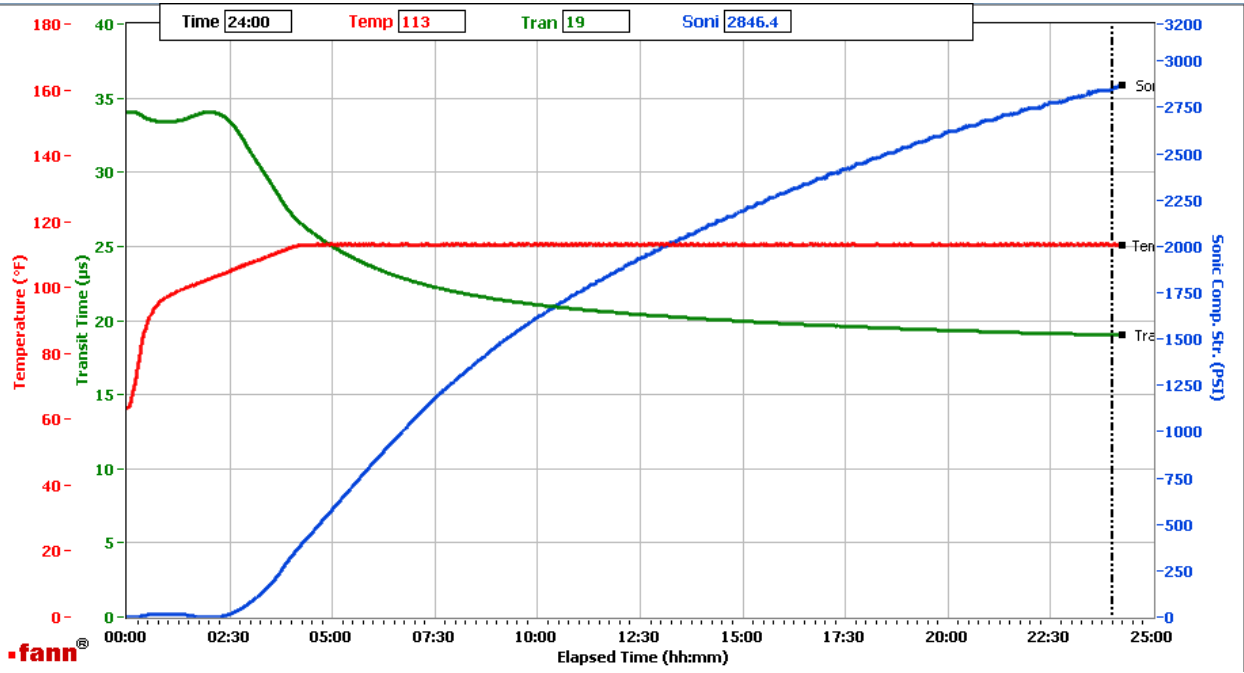
**JOB PROCEDURE**

1. Pump **10 bbls** of Freshwater Spacer ahead.
2. Mix and pump **11.7 bbls** (55 sacks) of PlugCem™ cement slurry at **15.20 ppg** using Cem Aust Glad GBF25 to surface.

$$\begin{aligned} \text{Density} &= 15.20 \text{ ppg} \\ \text{Yield} &= 1.19 \text{ ft}^3/\text{sk} \\ \text{Water Requirement} &= 4.90 \text{ gal/sk} \end{aligned}$$

3. (No displacement required as casing and tubing will be full of cement to surface. Clean stinger at surface.)
4. Pull back immediately through cement and out of hole.

Compressive Strength Graph at 113f



# Arrow Energy Pty Ltd

POST JOB REPORTS  
CEMENTING/PUMPING

**Well Name : RH015GL1V**

**Rig: SWMS 5**

## CEMENT PLUG TO ABANDON 7528

Prepared for Scott Rogers

30/11/2013

Prepared by Oliver Smale

**HALLIBURTON**

*The Future is Working Together.*

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CUSTOMER	SALES ORDER No.	DATE
Arrow Energy Pty Ltd	900672907	30 November 2013

## CEMENT/PUMPING JOB SUMMARY

WELL	LOCATION/FIELD NAME	COUNTRY	HES REP	CUSTOMER REP	WELL TYPE
RH015GL1V	Moranbah	Australia	Oliver Smale	Scott Rogers	Coal Bed Methane
JOB TYPE	BOD NUMBER	JOB PURPOSE CODE		BDA	RIG
P&A Plugs	0	CEMENT PLUG TO ABANDON 7528		Brisbane	SWMS 5

### KEY PERFORMANCE INDICATORS

TYPE OF JOB (Cementing or Non-Cementing): <i>Select the job type (Cementing or Non-Cementing)</i>	<input type="text" value="Cementing"/>	WAS THIS A PRIMARY CEMENT JOB (YES / NO) <i>Primary cement job = Casing job, Liner Job, tie back</i>	<input type="text" value="NO"/>
TOTAL OPERATING TIME (hrs) <i>Rig up/ Pumping/ Rig Down</i>	<input type="text" value="0.0 hrs"/>	DID WE RUN WIPER PLUGS?	<input type="text" value="None"/>
HSE INCIDENT, ACCIDENT, INJURY: <i>This should be recordable incidents only</i>	<input type="text" value="NO"/>	WAS THIS A PLUG OR SQUEEZE JOB?	<input type="text" value="Plug Job"/>
WAS THE JOB DELIVERED CORRECTLY AS PERJOB DESIGN <i>This will be dictated by the customer</i>	<input type="text" value="YES"/>	WAS THIS A PRIMARY OR REMEDIAL JOB? <i>Remedial = Repeated attempts or corrections of initial cement job</i>	<input type="text" value="Primary"/>
TOTAL TIME PUMPING (hrs) <i>Total number of hours pumping fluid on this job</i>	<input type="text" value="2.0 hrs"/>	MIXING DENSITY OF JOB STAYED IN DESIGNED RANGE <i>Density defined as +/- 0.2ppg. Calculation: Total bbls cement mixed at designed density divided by total bbls of cement multiplied by 100</i>	<input type="text" value="99%"/>
NON -PRODUCTIVE RIG TIME: <i>As a result of Halliburton cementing PSL</i>	<input type="text" value="0.0 hrs"/>	WAS AUTOMATED DENSITY CONTROL USED	<input type="text" value="YES"/>
NUMBER OF JSA'S PERFORMED:	<input type="text" value="3"/>	JOB WAS PUMPED AT DESIGNED PUMP RATE <i>Pump rate ranged defined as +/- bpm. Calculation : total bbls of fluid pumped at the designed rate divided by total bbls of fluid pumped multiplied by 100</i>	<input type="text" value="99%"/>
NUMBER OF UNPLANNED SHUTDOWNS (After starting to pump)	<input type="text" value="0"/>	NUMBER OF REMEDIAL SQUEEZE JOBS REQUIRED - HES <i>Number of remedial squeeze jobs required after primary job performed by HES</i>	<input type="text" value="0"/>
TYPE OF RIG(CLASSIFICATION) JOB WAS PERFORMED ON:	<input type="text" value="LAND"/>	NUMBER OF REMEDIAL SQUEEZE JOBS REQUIRED - COMPETITION <i>Number of remedial squeeze jobs required after primary job performed by competition</i>	<input type="text" value="0"/>
<u>REASON FOR UNPLANNED SHUTDOWNS (After starting to pump)</u> <i>Add details in job logs</i>		NUMBER OF REMEDIAL PLUG JOBS REQUIRED - HES <i>Number of remedial plug jobs required after primary plug pumped by HES</i>	<input type="text" value="0"/>
<u>REASON FOR NON-PRODUCTIVE RIG TIME (Cementing PSL responsibility):</u> <i>Add details in job logs</i>		DID CEMENT RETURN TO SURFACE?	
DENSITY RECORDED WITH PRESSURISED MUD BALANCE?	<input type="text" value="YES"/> <input type="text" value="15.2"/> ppg	<input type="text" value="NA"/> <input type="text" value="0"/> bbls into displacement	<input type="text" value="0"/> bbls returned to surface

### CUSTOMER SATISFACTION SURVEY

Dear Customer,

We hope that you were satisfied with the service delivery of this job performed by Halliburton. It is the aim of our management and service personnel to deliver equipment and service of a standard unmatched in the service sector of the energy industry.

Please take the time to let us know if our performance met with your satisfaction. Please be as critical as possible to ensure we constantly improve our service. Your comments are of great value to us and are intended for the exclusive use of Halliburton.

CATEGORY	CUSTOMER SATISFACTION RATING (Please circle yes or no)
Survey Conducted Date	The date the survey was conducted
Survey Interviewer	The survey interviewer is the person who initiated the survey.
Customer Participation	Did the customer participate in this survey? (Y/N)
Customer Representative	Enter the Customer representative name
HSE	Was our HSE performance satisfactory? Circle Y or N
Equipment	Were you satisfied with our Equipment? Circle Y or N
Personnel	Were you satisfied with our people? Circle Y or N
Customer Comment	

Customer and Halliburton Representative agree on the data input into the cementing report

CUSTOMER SIGNATURE

HALLIBURTON SIGNATURE

CUSTOMER	SALES ORDER No.	DATE
Arrow Energy Pty Ltd	900672907	30 November 2013

## CEMENT/PUMPING JOB SUMMARY

WELL	LOCATION/FIELD NAME	COUNTRY	HES REP	CUSTOMER REP	WELL TYPE
RH015GL1V	Moranbah	Australia	Oliver Smale	Scott Rogers	Coal Bed Methane
JOB TYPE	BOD NUMBER	JOB PURPOSE CODE		BDA	RIG
P&A Plugs	0	CEMENT PLUG TO ABANDON 7528		Brisbane	SWMS 5

### PERSONELL

PERSONNEL / EXPOSURE	hrs	PERSONNEL / EXPOSURE	hrs	PERSONNEL / EXPOSURE	hrs	PERSONNEL / EXPOSURE	hrs
533641	Oliver Smale	#N/A	Jason Miller	510002	Rodney Fletcher		

### EQUIPMENT

SAP#	PUMPING / MIXING	HOURS	SAP#	BULK SUPPLY / TANKS	HOURS
#N/A	CEMENT UNIT ELITE #12132377 (478-QWJ)		#N/A	BULKER #12277395 (SY 46 EA)	
SAP#	VEHICLES / TRAILERS	HOURS	SAP#	OTHER EQUIPMENT	HOURS
#N/A	KENWORTH T659 TRUCK #12240451 (SB87GR)				
11598590	LANDCRUISER UTE #11598590 (246-REZ)				
#N/A	DOLLY #12192991 (SY 12 DM)				

### WELL PROFILE

NEW CASING	OPEN HOLE + EXCESS OR CALIPER DATA	PREVIOUS CASINGS
	7.87in, 75 percent excess, 429m to 431m 16in, 75 percent excess, 431m to 438m 7.875in, 75 percent excess, 438m to 489m	6.625in, 17ppf, 0m to 429m

FOR PLUG AND LINER JOBS PLEASE INDICATE WORKSTRING 2.375in 4.6ppf Drill Pipe with No Stinger

### CEMENT DESIGN

Plug	SLURRY ID	0	Plug	SLURRY ID	0	Plug	SLURRY ID	0			
DENSITY	15.2 ppg	WATER	4.88 gal/sk	DENSITY	15.2 ppg	WATER	4.88 gal/sk	DENSITY	15.2 ppg	WATER	4.88 gal/sk
YIELD	1.19 cuft/sk	MIX FLUID	21.7 bbl	YIELD	1.19 cuft/sk	MIX FLUID	9 bbl	YIELD	1.19 cuft/sk	MIX FLUID	9.1 bbl
WATER SOURCE	Water Truck		WATER SOURCE	Water Truck		WATER SOURCE	Water Truck				
CEMENT TYPE	Gladstone GB Cement at 94lb/sk		CEMENT TYPE	Gladstone GB Cement at 94lb/sk		CEMENT TYPE	Gladstone GB Cement at 94lb/sk				
Total Cement Used	186 sks		Total Cement Used	77 sks		Total Cement Used	78 sks				
Estimated TOC	m		Estimated TOC	m		Estimated TOC	m				

Additive	Concentration	Total Used	Additive	Concentration	Total Used	Additive	Concentration	Total Used
CFR-3	0.5 %BWOC	87lbs	CFR-3	0.5 %BWOC	36lbs	CFR-3	0.5 %BWOC	37lbs
Halad 344	0.3 %BWOC	52lbs	Halad 344	0.3 %BWOC	22lbs			
NF-6	0.25 %BWOC	1gals	NF-6	0.25 %BWOC	1gals	NF-6	0.25 %BWOC	1lbs
Calcium Chloride	1 %BWOC	175lbs	Calcium Chloride	1 %BWOC	72lbs			

Plug	SLURRY ID	0	0	SLURRY ID	0	0	SLURRY ID	0
------	-----------	---	---	-----------	---	---	-----------	---

DENSITY	15.2 ppg	WATER	4.88 gal/sk
YIELD	1.19 cuft/sk	MIX FLUID	6.4 bbl

WATER SOURCE	Water Truck
CEMENT TYPE	Gladstone GB Cement at 94lb/sk
Total Cement Used	55 sks
Estimated TOC	m

Additive	Concentration	Total Used
CFR-3	0.5 %BWOC	26.32lbs
NF-6	0.25 gal/bbl	1gals

### JOB LOGS

DATE	TIME	VOLUME	PRESSURE (psi)		RATE	JOB DESCRIPTION
			HIGH	LOW		
DAY-MTH-YR	HRS:MIN	(BBLS)			BPM	
21-Nov-13	10,00					Arrive Location Spot Equipment rig had BOP problems, return to camp
22-Nov-13	12,00					Arrive Location BOP problems, return to camp
28-Nov-13	12,00					Arrive location, Rig up surface lines, Rig running behind, return to camp
29-Nov-13	07,00					Arrive Lease
						Drill pipe tagged @ 480
	11,00					Spot unit / Rig up
	11,15					Safety meeting / JSA / Permit (plug 1)
	11,22	5		290	3	Pump water
	11,24		3000			Pressure test lines 3000psi
	11,29	5		50	1.5	Pump water
	11,37	40		520	3	Mix and pump 15.2ppg slurry
	11,52	4.1	80	20	1.5	Displace

CUSTOMER	SALES ORDER No.	DATE
Arrow Energy Pty Ltd	900672907	30 November 2013

## CEMENT/PUMPING JOB SUMMARY

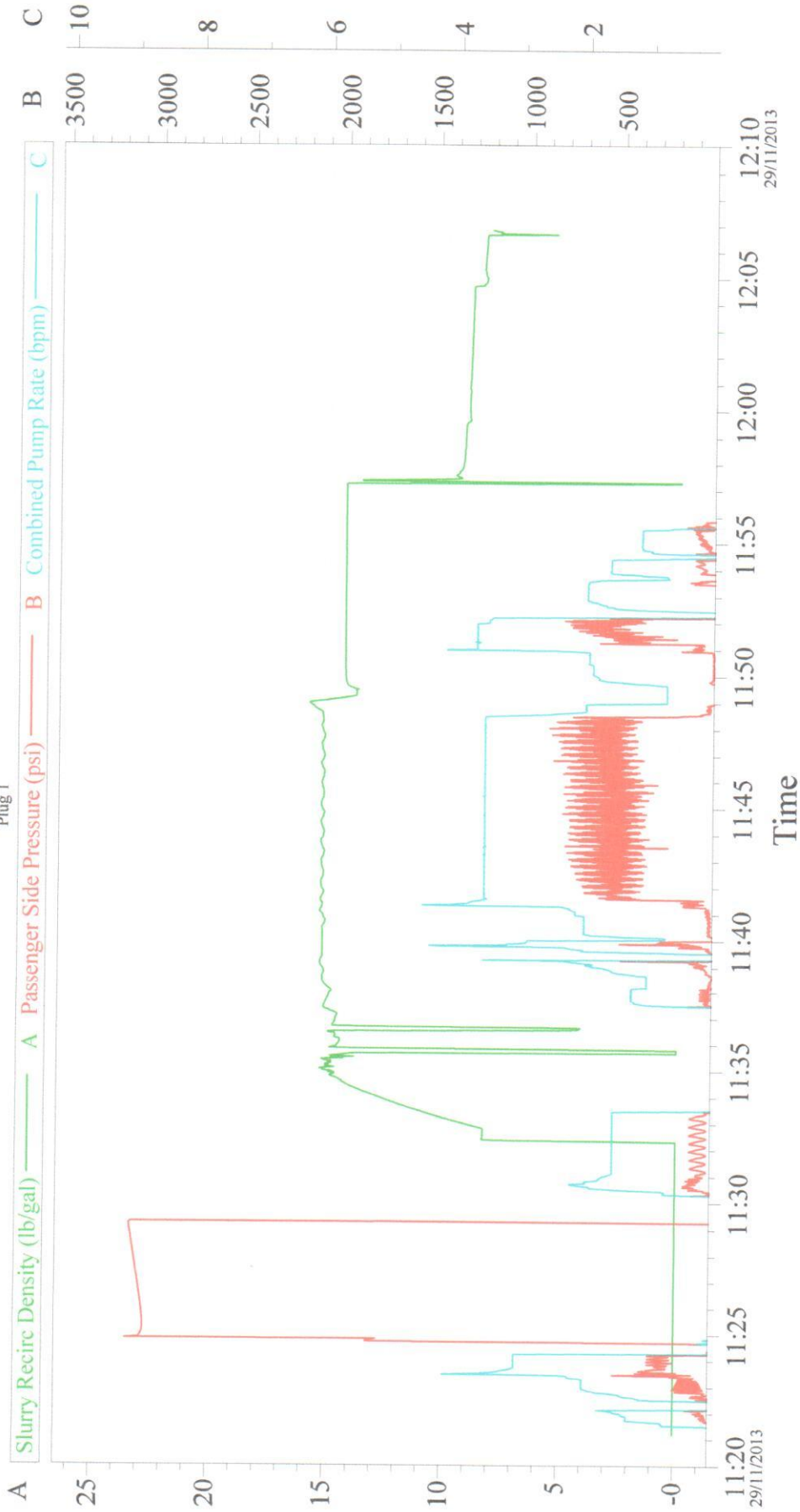
WELL	LOCATION/FIELD NAME	COUNTRY	HES REP	CUSTOMER REP	WELL TYPE
RH015GL1V	Moranbah	Australia	Oliver Smale	Scott Rogers	Coal Bed Methane
JOB TYPE	BOD NUMBER	JOB PURPOSE CODE		BDA	RIG
P&A Plugs	0	CEMENT PLUG TO ABANDON 7528		Brisbane	SWMS 5

TIME	PLUG	DEPTH	DEPTH	DEPTH	DEPTH	ACTIVITY
						Rig down
						Return to moranbah
						arrive Moranbah
30-Nov-13						Depart Moranbah
						Arrive Lease
						Morning meeting / stretches / warmup
						Safety meeting / JSA/ permit (plug 2,3,4)
						Spot unit / rig up
						Pump 5 bbls water
						Pressure test lines 3000psi
						Pump 5 bbls water
						Mix and pump 15.2ppg slurry
						displace
						Rig down Iron
						Rig up cement unit Plug 3
						Pump water
						Mix and pump 16.14bbls cement
						Displace
						Rig down / wash up
						Rig up Plug 4
						Pump 10 bbls water
						Mix and pump cement 15.2ppg
						Wash Up/Rig Down
						leave location

# ARROW

RH015GLIV

Plug 1



Customer: Halliburton

Well Desc: Technology #RTD Stig GOLD

Job Date: 11/29/13

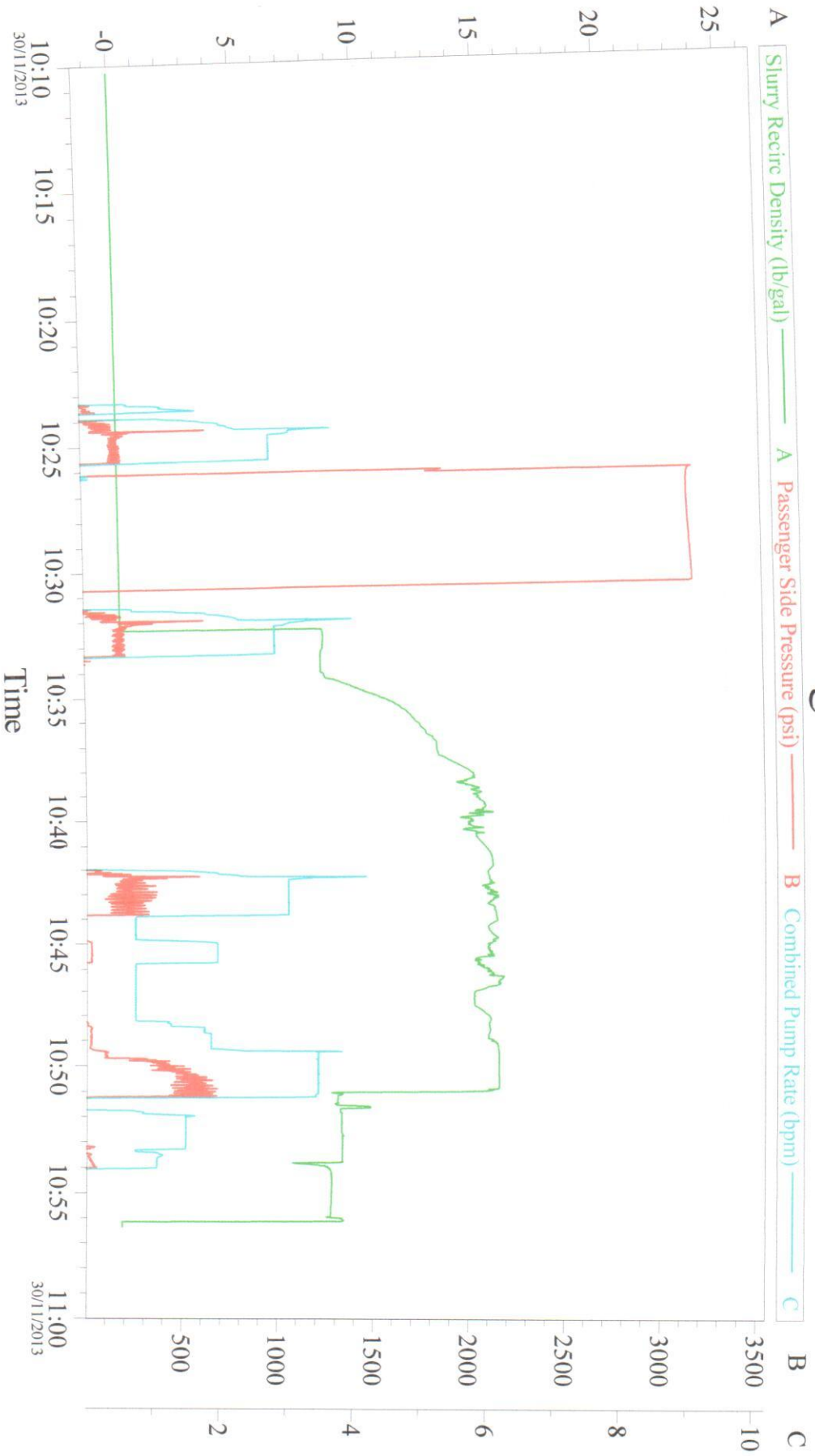
Customer Rep

Ticket #: 11:21:12

HES Rep Control ver 4.20, Display ver 4.20

30-Nov-13 14:21

# Plug 2



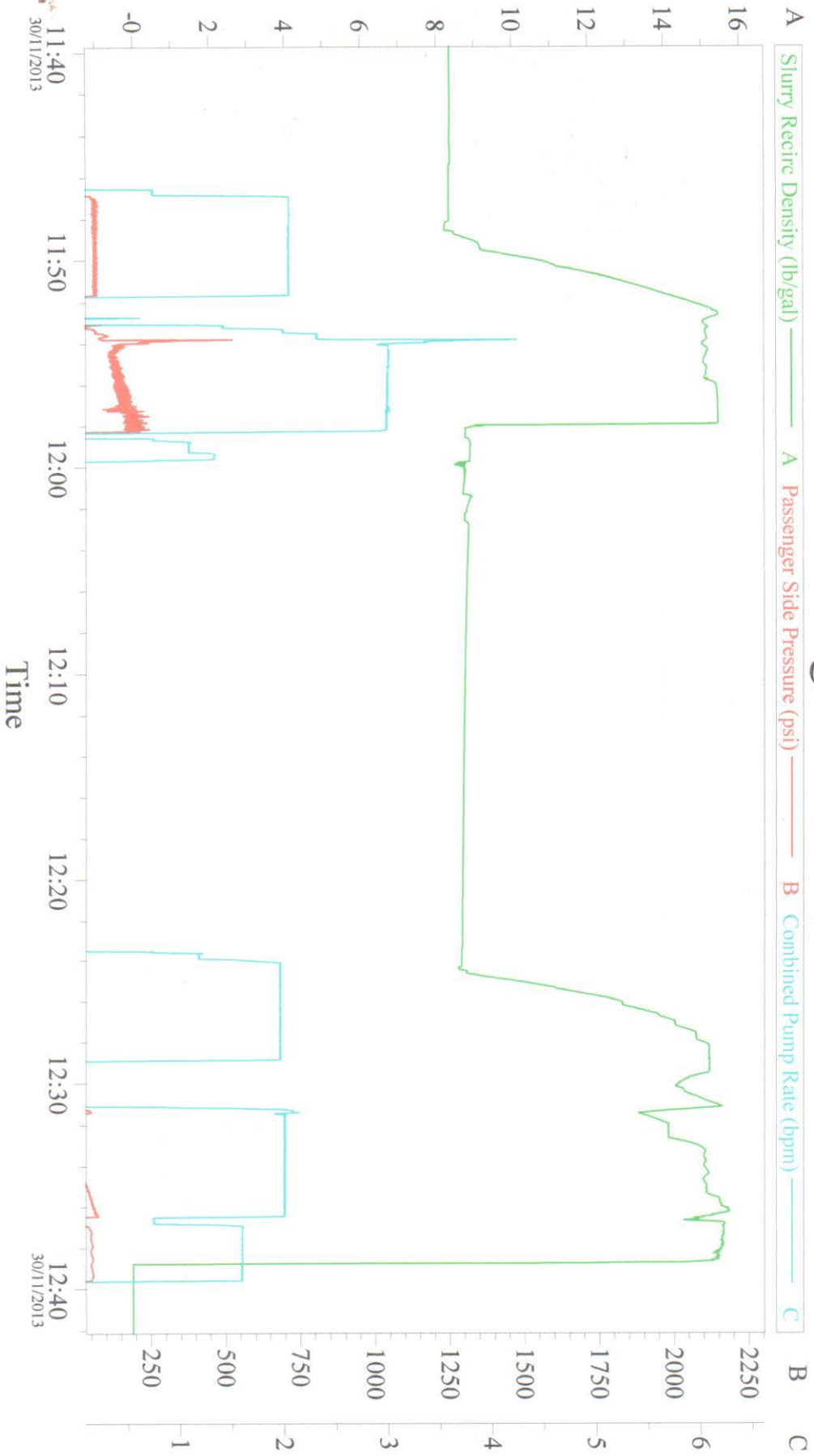
Customer: Halliburton  
Well Desc: Technology #RTD Sig GOLD

Job Date: 11/30/13  
Customer Rep

Ticket #: 10:10:18  
HES Rep Control ver 4.20, Display ver 4.20

TG Version G3.4.1  
30-Nov-13 14:16

# Plug 3&4



Customer: Halliburton  
 Well Desc: Technology #RTD Stg GOLD

Job Date: 11/30/13  
 Customer Rep

Ticket #: 11:02:52  
 HES Rep Control ver 4.20, Display ver 4.20

TG Version G3.4.1  
 30-Nov-13 14:19

## APPENDIX 4. DOWN HOLE SURVEY

Client: **Arrow Energy**

Borehole:

**RH015GL1V**

Log Type:

**Deviation**

Location: Area: Northing: Easting: Elevation:

Depth Driller	<b>489.57</b>	Date	<b>12/08/08</b>
Depth Logger		Recorded By	<b>G.Offer</b>
Logging Datum	<b>GL</b>	Witness	<b>A.Battye</b>
Logged Interval	<b>2 to 470</b>		
Sample Interval	<b>2.00</b>		
Print Interval		Other Services	
Mud Level			
Type of Mud			
Temp of Mud			

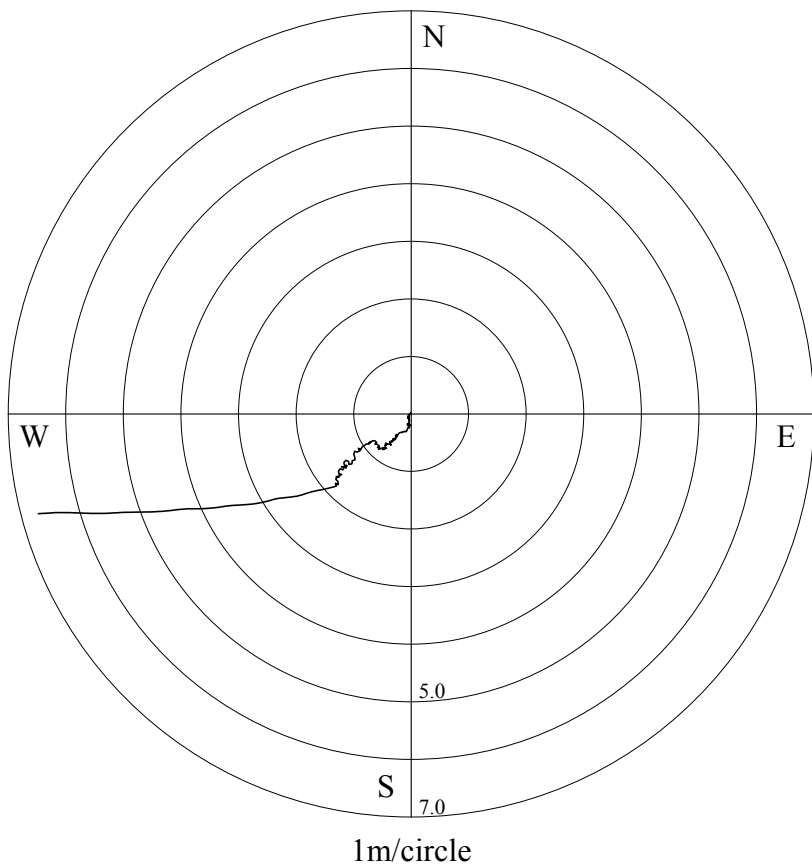
**BOREHOLE RECORD** **CASING RECORD**

Bit	From(m)	To(m)	Type	Size	From	To
	<b>0.00</b>	<b>470.00</b>	<b>Steel</b>	<b>8 5/8"</b>	<b>AG</b>	<b>43.3</b>

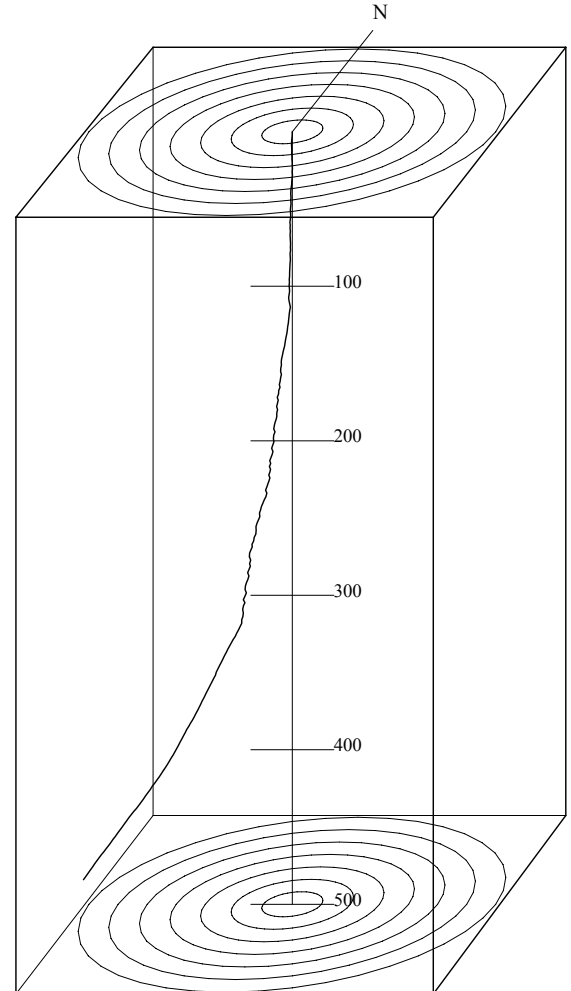
**Remarks:**

**True North. Logged through PW casing set at 306 metres.**

**BULLSEYE**

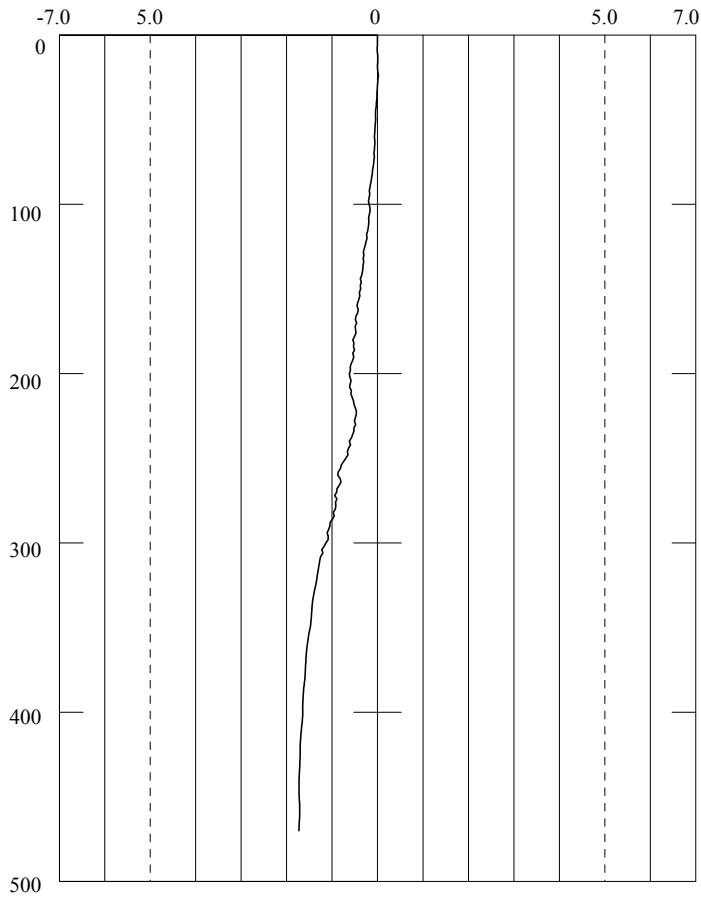


**3D DISPLAY**

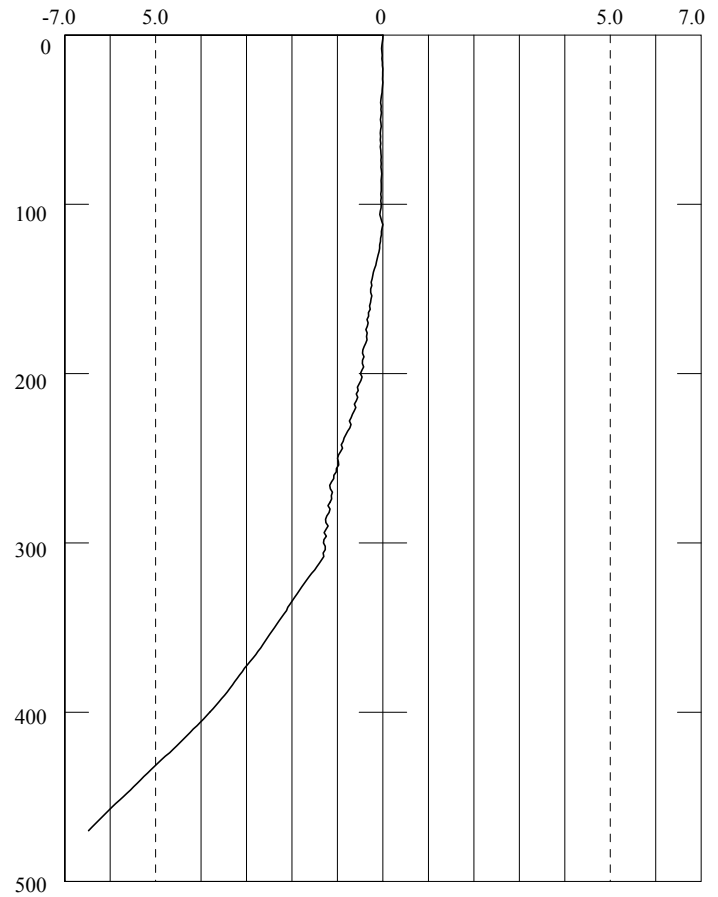




## NS PROJECTION



## EW PROJECTION



No.	Depth	Direction	Inclination	Northing	Easting	Azimuth	Drift	True Depth
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.00	235.02	0.10	0.00	0.00	235.02	0.00	2.00
3	4.00	280.51	0.30	0.00	-0.01	269.60	0.01	4.00
4	6.00	254.55	0.30	0.00	-0.02	262.94	0.02	6.00
5	8.00	226.12	0.20	-0.01	-0.03	254.73	0.03	8.00
6	10.00	63.35	0.20	0.00	-0.02	258.24	0.02	10.00
7	12.00	28.66	0.30	0.00	-0.02	285.13	0.02	12.00
8	14.00	263.78	0.20	0.00	-0.02	279.11	0.02	14.00
9	16.00	81.23	0.30	0.01	-0.01	291.79	0.01	16.00
10	18.00	159.92	0.20	0.00	-0.01	264.32	0.01	18.00
11	20.00	65.87	0.30	0.00	0.00	332.37	0.00	20.00
12	22.00	326.38	0.20	0.01	-0.01	328.41	0.01	22.00
13	24.00	1.50	0.30	0.02	-0.01	344.90	0.02	24.00
14	26.00	203.71	0.30	0.01	-0.01	316.19	0.01	26.00
15	28.00	116.26	0.30	0.01	0.00	359.26	0.01	28.00
16	30.00	230.94	0.30	0.00	-0.01	260.49	0.01	30.00
17	32.00	250.95	0.20	0.00	-0.01	256.14	0.02	32.00
18	34.00	208.62	0.30	-0.01	-0.02	237.05	0.02	34.00
19	36.00	265.50	0.40	-0.01	-0.03	247.55	0.04	36.00
20	38.00	250.67	0.30	-0.02	-0.04	248.24	0.05	38.00
21	40.00	216.67	0.30	-0.03	-0.05	242.64	0.06	40.00
22	42.00	95.20	0.40	-0.03	-0.04	233.03	0.05	42.00
23	44.00	213.36	0.40	-0.04	-0.04	228.41	0.06	44.00
24	46.00	110.01	0.30	-0.04	-0.03	218.62	0.05	46.00
25	48.00	251.88	0.30	-0.05	-0.04	223.83	0.06	48.00
26	50.00	294.70	0.30	-0.04	-0.05	232.28	0.07	50.00
27	52.00	129.21	0.30	-0.05	-0.05	223.36	0.07	52.00
28	54.00	135.42	0.30	-0.06	-0.04	214.37	0.07	54.00
29	56.00	253.74	0.37	-0.06	-0.05	220.45	0.08	56.00
30	58.00	245.79	0.30	-0.06	-0.06	223.40	0.09	58.00
31	60.00	111.24	0.30	-0.07	-0.05	216.74	0.08	60.00
32	62.00	305.25	0.30	-0.06	-0.06	223.85	0.08	62.00
33	64.00	66.18	0.30	-0.06	-0.05	220.81	0.07	64.00
34	66.00	225.87	0.30	-0.06	-0.06	221.43	0.09	66.00
35	68.00	125.84	0.30	-0.07	-0.05	214.39	0.08	68.00
36	70.00	148.90	0.30	-0.08	-0.04	208.30	0.09	70.00

No.	Depth	Direction	Inclination	Northing	Easting	Azimuth	Drift	True Depth
37	72.00	23.89	0.30	-0.07	-0.04	208.88	0.08	72.00
38	74.00	207.80	0.30	-0.08	-0.04	208.75	0.09	74.00
39	76.00	135.53	0.30	-0.09	-0.04	202.59	0.09	76.00
40	78.00	212.80	0.40	-0.10	-0.04	203.91	0.11	78.00
41	80.00	143.33	0.40	-0.11	-0.04	197.83	0.11	80.00
42	82.00	127.63	0.30	-0.12	-0.03	193.06	0.12	82.00
43	84.00	212.16	0.40	-0.13	-0.03	195.05	0.13	84.00
44	86.00	198.90	0.40	-0.14	-0.04	195.42	0.15	86.00
45	88.00	169.46	0.40	-0.15	-0.04	193.21	0.16	88.00
46	90.00	182.72	0.40	-0.17	-0.04	192.36	0.17	90.00
47	92.00	179.88	0.40	-0.18	-0.04	191.43	0.19	92.00
48	94.00	317.25	0.40	-0.17	-0.05	195.08	0.18	94.00
49	96.00	143.62	0.50	-0.19	-0.04	190.95	0.19	96.00
50	98.00	216.07	0.50	-0.20	-0.05	193.01	0.21	98.00
51	100.00	35.95	0.50	-0.19	-0.04	190.96	0.19	100.00
52	102.00	345.00	0.59	-0.17	-0.04	193.97	0.17	102.00
53	104.00	276.82	0.50	-0.16	-0.06	199.68	0.17	104.00
54	106.00	205.23	0.60	-0.18	-0.07	200.27	0.20	106.00
55	108.00	124.39	0.70	-0.20	-0.05	193.55	0.20	108.00
56	110.00	79.43	0.60	-0.19	-0.03	187.92	0.19	110.00
57	112.00	96.43	0.70	-0.20	0.00	180.75	0.20	112.00
58	114.00	241.42	0.60	-0.21	-0.02	185.82	0.21	114.00
59	116.00	220.36	0.60	-0.22	-0.03	188.85	0.22	116.00
60	118.00	181.06	0.60	-0.24	-0.03	188.19	0.25	118.00
61	120.00	306.51	0.62	-0.23	-0.05	192.83	0.24	120.00
62	122.00	190.21	0.60	-0.25	-0.06	192.61	0.26	122.00
63	124.00	216.60	0.70	-0.27	-0.07	194.65	0.28	124.00
64	126.00	185.84	0.61	-0.29	-0.07	194.03	0.30	126.00
65	128.00	215.52	0.70	-0.31	-0.09	195.62	0.32	128.00
66	130.00	297.55	0.70	-0.30	-0.11	199.92	0.32	130.00
67	132.00	228.83	0.60	-0.31	-0.12	201.64	0.34	132.00
68	134.00	294.04	0.60	-0.30	-0.14	205.20	0.34	134.00
69	136.00	223.07	0.60	-0.32	-0.16	206.23	0.36	136.00
70	138.00	266.99	0.80	-0.32	-0.19	209.99	0.37	138.00
71	140.00	244.57	0.70	-0.33	-0.21	212.02	0.39	140.00
72	142.00	218.63	0.70	-0.35	-0.22	212.40	0.42	142.00
73	144.00	211.02	0.88	-0.38	-0.24	212.31	0.45	144.00
74	146.00	318.47	0.80	-0.36	-0.26	215.80	0.44	146.00
75	148.00	145.92	0.70	-0.38	-0.24	212.88	0.45	148.00
76	150.00	279.52	0.70	-0.37	-0.27	215.68	0.46	149.99
77	152.00	180.02	0.80	-0.40	-0.27	213.74	0.48	151.99
78	154.00	62.28	0.80	-0.39	-0.24	212.07	0.46	153.99
79	156.00	219.11	0.80	-0.41	-0.26	212.47	0.49	155.99
80	158.00	204.43	0.80	-0.43	-0.27	212.04	0.51	157.99
81	160.00	230.11	0.80	-0.45	-0.29	212.96	0.54	159.99
82	162.00	23.94	0.90	-0.42	-0.28	213.51	0.51	161.99
83	164.00	255.36	1.10	-0.43	-0.32	216.24	0.54	163.99
84	166.00	174.52	1.10	-0.47	-0.31	213.66	0.57	165.99
85	168.00	245.99	1.08	-0.49	-0.35	215.59	0.60	167.99
86	170.00	41.08	1.00	-0.46	-0.33	215.25	0.56	169.99
87	172.00	206.58	1.00	-0.49	-0.34	214.74	0.60	171.99
88	174.00	281.70	1.00	-0.49	-0.38	217.74	0.61	173.99
89	176.00	69.27	0.90	-0.47	-0.35	216.14	0.59	175.99
90	178.00	203.04	1.00	-0.51	-0.36	215.41	0.62	177.99
91	180.00	163.16	1.10	-0.54	-0.35	212.72	0.65	179.99
92	182.00	311.74	1.07	-0.52	-0.38	216.02	0.64	181.99
93	184.00	252.88	1.10	-0.53	-0.41	217.98	0.67	183.99
94	186.00	311.87	1.05	-0.50	-0.44	221.11	0.67	185.99
95	188.00	191.33	1.16	-0.54	-0.45	219.48	0.71	187.99
96	190.00	55.90	1.10	-0.52	-0.42	218.55	0.67	189.99
97	192.00	240.13	1.10	-0.54	-0.45	219.69	0.70	191.99
98	194.00	184.42	1.02	-0.58	-0.45	218.09	0.73	193.99
99	196.00	129.15	1.00	-0.60	-0.43	215.37	0.74	195.99
100	198.00	275.39	1.10	-0.60	-0.46	217.89	0.76	197.99
101	200.00	236.32	1.10	-0.62	-0.50	218.77	0.79	199.99
102	202.00	79.54	1.10	-0.61	-0.46	216.89	0.76	201.99
103	204.00	314.62	1.10	-0.58	-0.49	219.76	0.76	203.99
104	206.00	246.26	1.20	-0.60	-0.52	221.11	0.80	205.99
105	208.00	249.52	1.16	-0.61	-0.56	222.43	0.83	207.99
106	210.00	24.14	1.20	-0.58	-0.54	223.38	0.79	209.99
107	212.00	258.56	1.20	-0.58	-0.59	225.05	0.83	211.98
108	214.00	48.24	1.20	-0.56	-0.55	224.88	0.79	213.98
109	216.00	309.45	1.23	-0.53	-0.59	227.98	0.79	215.98

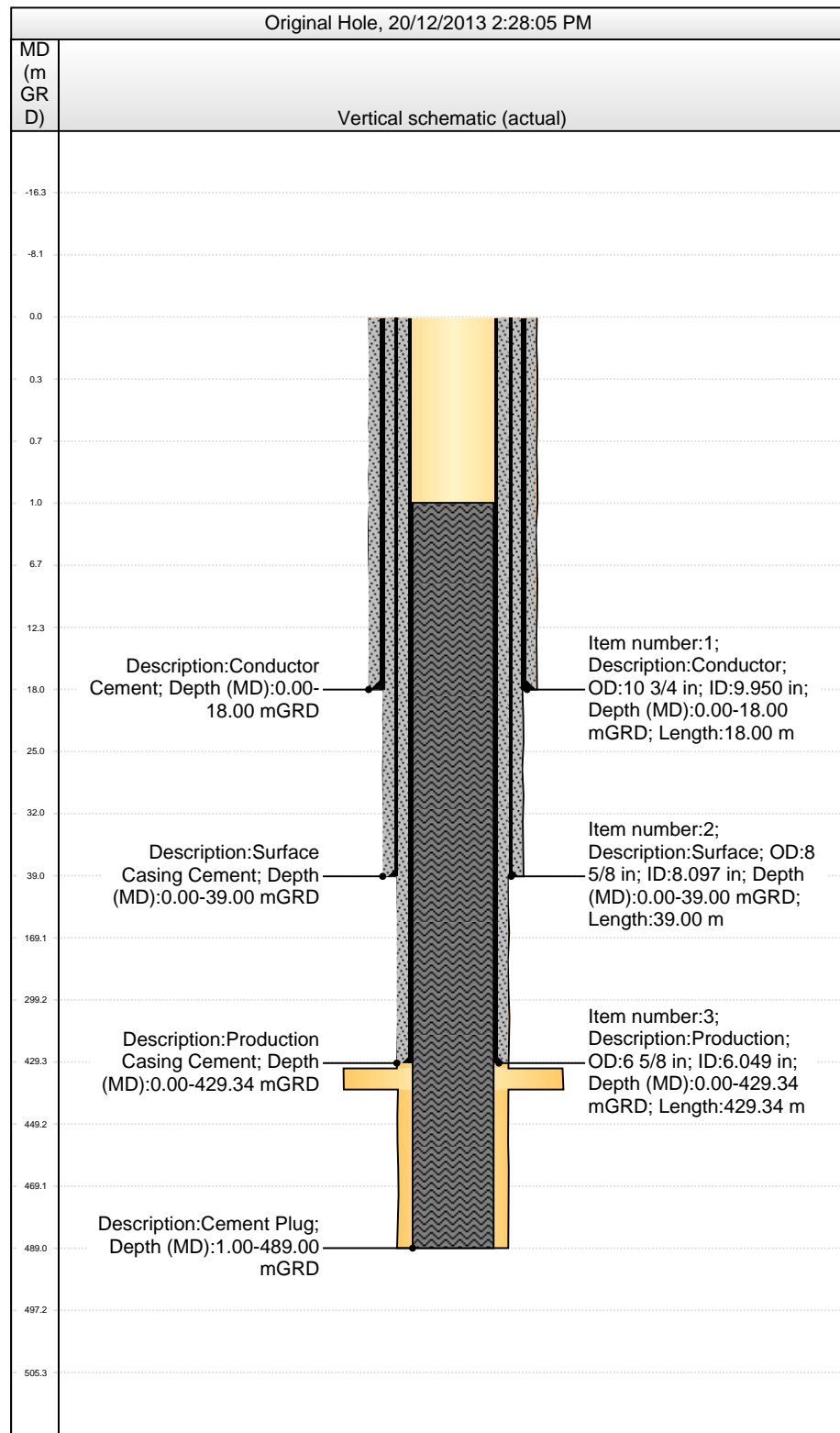
No.	Depth	Direction	Inclination	Northing	Easting	Azimuth	Drift	True Depth
110	218.00	282.66	1.20	-0.52	-0.63	230.38	0.82	217.98
111	220.00	47.40	1.20	-0.49	-0.60	230.54	0.77	219.98
112	222.00	307.26	1.20	-0.47	-0.63	233.52	0.78	221.98
113	224.00	270.40	1.10	-0.47	-0.67	235.14	0.82	223.98
114	226.00	233.62	1.10	-0.49	-0.70	235.07	0.85	225.98
115	228.00	239.86	1.20	-0.51	-0.74	235.29	0.90	227.98
116	230.00	47.81	1.30	-0.48	-0.70	235.69	0.85	229.98
117	232.00	209.50	1.33	-0.52	-0.73	234.38	0.89	231.98
118	234.00	269.94	1.40	-0.52	-0.77	236.12	0.93	233.98
119	236.00	236.08	1.40	-0.55	-0.82	236.12	0.98	235.98
120	238.00	232.87	1.40	-0.58	-0.85	235.96	1.03	237.98
121	240.00	204.50	1.40	-0.62	-0.87	234.60	1.07	239.98
122	242.00	302.15	1.43	-0.59	-0.92	237.02	1.09	241.98
123	244.00	147.36	1.48	-0.64	-0.89	234.32	1.09	243.98
124	246.00	240.04	1.40	-0.66	-0.93	234.56	1.14	245.98
125	248.00	285.68	1.40	-0.65	-0.98	236.42	1.17	247.98
126	250.00	200.98	1.50	-0.70	-1.00	234.99	1.22	249.97
127	252.00	160.84	1.50	-0.75	-0.98	232.65	1.23	251.97
128	254.00	172.37	1.42	-0.80	-0.97	230.69	1.26	253.97
129	256.00	251.52	1.50	-0.81	-1.02	231.50	1.31	255.97
130	258.00	183.67	1.50	-0.87	-1.03	229.85	1.34	257.97
131	260.00	259.43	1.50	-0.88	-1.08	230.91	1.39	259.97
132	262.00	353.14	1.50	-0.82	-1.08	232.78	1.36	261.97
133	264.00	291.25	1.50	-0.80	-1.13	234.62	1.39	263.97
134	266.00	223.52	1.50	-0.84	-1.17	234.22	1.44	265.97
135	268.00	167.82	1.50	-0.89	-1.16	232.34	1.46	267.97
136	270.00	97.01	1.32	-0.90	-1.11	231.04	1.43	269.97
137	272.00	209.86	1.39	-0.94	-1.14	230.36	1.48	271.97
138	274.00	11.00	1.40	-0.89	-1.13	231.59	1.44	273.97
139	276.00	230.37	1.31	-0.92	-1.16	231.56	1.48	275.97
140	278.00	277.61	1.40	-0.92	-1.21	232.88	1.52	277.97
141	280.00	104.17	1.40	-0.93	-1.16	231.42	1.49	279.97
142	282.00	205.60	1.40	-0.97	-1.18	230.62	1.53	281.96
143	284.00	292.50	1.50	-0.95	-1.23	232.32	1.56	283.96
144	286.00	216.05	1.40	-0.99	-1.26	231.83	1.60	285.96
145	288.00	173.28	1.46	-1.04	-1.26	230.30	1.63	287.96
146	290.00	96.12	1.40	-1.05	-1.21	229.05	1.60	289.96
147	292.00	236.67	1.50	-1.08	-1.25	229.29	1.65	291.96
148	294.00	233.25	1.50	-1.11	-1.29	229.41	1.70	293.96
149	296.00	66.14	1.50	-1.09	-1.24	228.89	1.65	295.96
150	298.00	271.65	1.50	-1.08	-1.30	230.09	1.69	297.96
151	300.00	190.75	1.50	-1.14	-1.31	228.99	1.73	299.96
152	302.00	134.98	1.50	-1.17	-1.27	227.26	1.73	301.96
153	304.00	178.91	1.58	-1.23	-1.27	225.92	1.77	303.96
154	306.00	299.25	1.50	-1.20	-1.31	227.54	1.78	305.96
155	308.00	162.40	1.46	-1.25	-1.30	226.07	1.80	307.96
156	310.00	250.12	1.50	-1.27	-1.35	226.73	1.85	309.96
157	312.00	257.78	1.46	-1.28	-1.40	227.52	1.90	311.95
158	314.00	256.60	1.58	-1.29	-1.45	228.31	1.94	313.95
159	316.00	257.96	1.40	-1.30	-1.50	229.01	1.99	315.95
160	318.00	257.84	2.06	-1.32	-1.57	229.98	2.05	317.95
161	320.00	257.44	1.65	-1.33	-1.63	230.70	2.10	319.95
162	322.00	259.31	1.59	-1.34	-1.68	231.41	2.15	321.95
163	324.00	257.30	1.60	-1.35	-1.73	232.05	2.20	323.95
164	326.00	253.28	1.51	-1.37	-1.79	232.53	2.25	325.95
165	328.00	252.70	1.52	-1.38	-1.84	232.99	2.30	327.95
166	330.00	251.34	1.50	-1.40	-1.89	233.39	2.35	329.95
167	332.00	255.38	1.50	-1.41	-1.94	233.86	2.40	331.95
168	334.00	253.88	1.56	-1.43	-1.99	234.30	2.45	333.95
169	336.00	264.42	1.50	-1.43	-2.04	234.90	2.49	335.95
170	338.00	260.56	1.50	-1.44	-2.09	235.41	2.54	337.94
171	340.00	265.91	0.80	-1.44	-2.12	235.73	2.57	339.94
172	342.00	263.03	1.60	-1.45	-2.18	236.29	2.62	341.94
173	344.00	264.10	1.60	-1.46	-2.23	236.85	2.66	343.94
174	346.00	263.21	1.50	-1.46	-2.28	237.34	2.71	345.94
175	348.00	263.33	1.50	-1.47	-2.34	237.82	2.76	347.94
176	350.00	256.55	1.50	-1.48	-2.39	238.16	2.81	349.94
177	352.00	251.09	1.50	-1.50	-2.44	238.39	2.86	351.94
178	354.00	256.12	1.56	-1.51	-2.49	238.72	2.91	353.94
179	356.00	256.29	1.50	-1.52	-2.54	239.03	2.96	355.94
180	358.00	257.84	1.40	-1.53	-2.59	239.33	3.01	357.94
181	360.00	258.26	1.49	-1.55	-2.64	239.64	3.06	359.94
182	362.00	260.16	1.45	-1.55	-2.69	239.97	3.10	361.94

No.	Depth	Direction	Inclination	Northing	Easting	Azimuth	Drift	True Depth
183	364.00	262.54	1.66	-1.56	-2.75	240.37	3.16	363.94
184	366.00	263.40	1.50	-1.57	-2.80	240.74	3.21	365.94
185	368.00	263.93	1.72	-1.57	-2.86	241.15	3.26	367.93
186	370.00	266.91	1.77	-1.58	-2.92	241.62	3.32	369.93
187	372.00	265.35	1.71	-1.58	-2.98	242.03	3.37	371.93
188	374.00	266.50	1.90	-1.59	-3.04	242.48	3.43	373.93
189	376.00	266.66	1.40	-1.59	-3.09	242.81	3.48	375.93
190	378.00	266.62	1.70	-1.59	-3.15	243.20	3.53	377.93
191	380.00	263.86	1.50	-1.60	-3.20	243.50	3.58	379.93
192	382.00	261.81	1.60	-1.61	-3.26	243.77	3.63	381.93
193	384.00	260.28	1.50	-1.61	-3.31	244.01	3.68	383.93
194	386.00	260.81	1.60	-1.62	-3.37	244.25	3.74	385.93
195	388.00	264.65	1.60	-1.63	-3.42	244.55	3.79	387.93
196	390.00	264.10	1.70	-1.63	-3.48	244.84	3.85	389.93
197	392.00	266.43	1.92	-1.64	-3.55	245.21	3.91	391.92
198	394.00	266.44	1.74	-1.64	-3.61	245.52	3.96	393.92
199	396.00	267.44	1.80	-1.65	-3.67	245.86	4.02	395.92
200	398.00	268.86	1.80	-1.65	-3.73	246.20	4.08	397.92
201	400.00	271.24	2.09	-1.65	-3.81	246.63	4.15	399.92
202	402.00	268.88	2.00	-1.65	-3.88	246.99	4.21	401.92
203	404.00	265.16	1.90	-1.65	-3.94	247.26	4.28	403.92
204	406.00	265.67	2.10	-1.66	-4.02	247.57	4.34	405.92
205	408.00	263.58	2.12	-1.67	-4.09	247.83	4.42	407.92
206	410.00	263.51	2.37	-1.68	-4.17	248.12	4.50	409.91
207	412.00	264.10	1.94	-1.68	-4.24	248.35	4.56	411.91
208	414.00	264.96	2.20	-1.69	-4.32	248.62	4.63	413.91
209	416.00	266.87	2.20	-1.69	-4.39	248.92	4.71	415.91
210	418.00	265.92	2.08	-1.70	-4.46	249.17	4.78	417.91
211	420.00	268.30	2.10	-1.70	-4.54	249.46	4.85	419.91
212	422.00	269.63	2.20	-1.70	-4.61	249.76	4.92	421.91
213	424.00	268.30	2.20	-1.70	-4.69	250.04	4.99	423.90
214	426.00	269.95	2.68	-1.70	-4.78	250.40	5.08	425.90
215	428.00	267.82	2.38	-1.71	-4.87	250.68	5.16	427.90
216	430.00	269.46	2.30	-1.71	-4.95	250.96	5.23	429.90
217	432.00	267.68	2.20	-1.71	-5.02	251.20	5.31	431.90
218	434.00	266.30	2.20	-1.72	-5.10	251.41	5.38	433.90
219	436.00	267.00	2.10	-1.72	-5.17	251.62	5.45	435.89
220	438.00	267.05	2.30	-1.72	-5.25	251.84	5.53	437.89
221	440.00	267.02	2.10	-1.73	-5.33	252.04	5.60	439.89
222	442.00	270.30	2.20	-1.73	-5.40	252.28	5.67	441.89
223	444.00	270.06	2.20	-1.73	-5.48	252.52	5.75	443.89
224	446.00	269.80	2.00	-1.73	-5.55	252.72	5.81	445.89
225	448.00	271.39	2.30	-1.72	-5.63	252.97	5.89	447.89
226	450.00	272.27	2.30	-1.72	-5.71	253.22	5.97	449.88
227	452.00	272.23	2.30	-1.72	-5.79	253.47	6.04	451.88
228	454.00	273.02	2.40	-1.71	-5.88	253.73	6.12	453.88
229	456.00	270.37	2.30	-1.71	-5.96	253.95	6.20	455.88
230	458.00	271.22	2.16	-1.71	-6.03	254.15	6.27	457.88
231	460.00	269.60	2.14	-1.71	-6.11	254.33	6.34	459.88
232	462.00	269.23	2.10	-1.71	-6.18	254.50	6.41	461.87
233	464.00	266.56	2.06	-1.72	-6.25	254.63	6.48	463.87
234	466.00	266.10	2.20	-1.72	-6.33	254.77	6.56	465.87
235	468.00	267.26	2.12	-1.73	-6.40	254.90	6.63	467.87
236	470.00	266.47	2.10	-1.73	-6.47	255.03	6.70	469.87

# APPENDIX 5. P&A REPORT

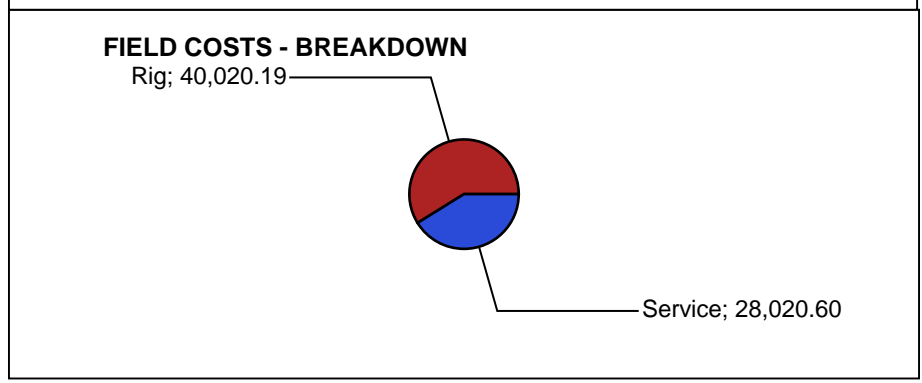
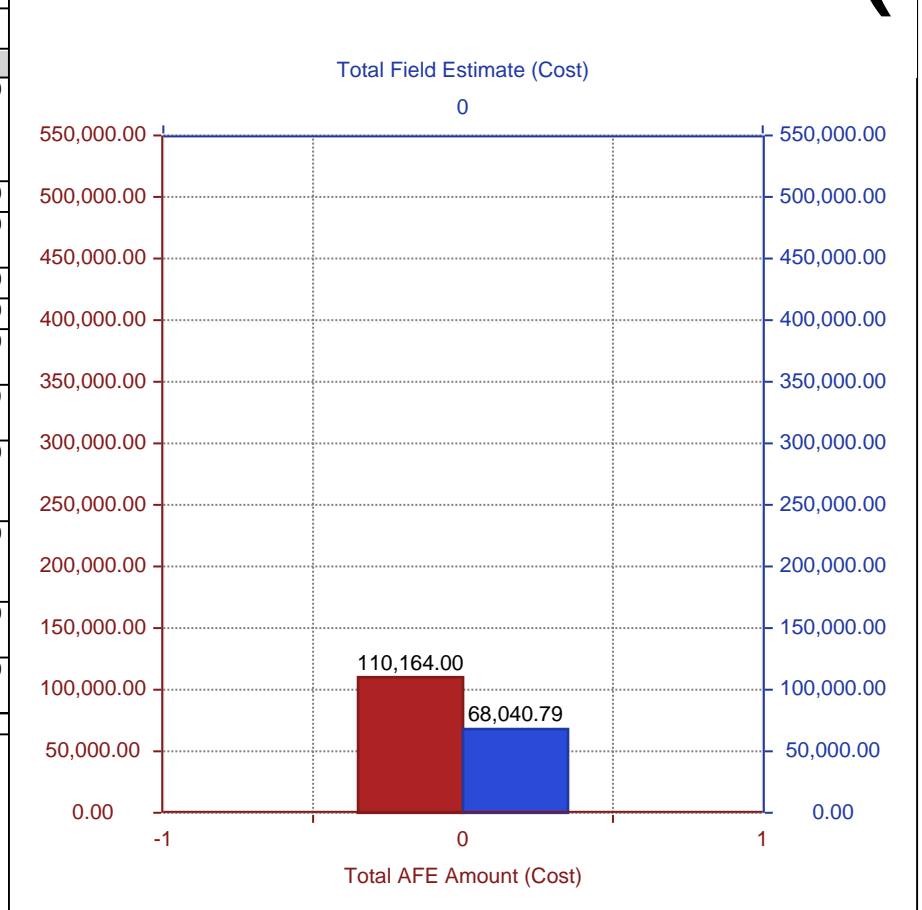
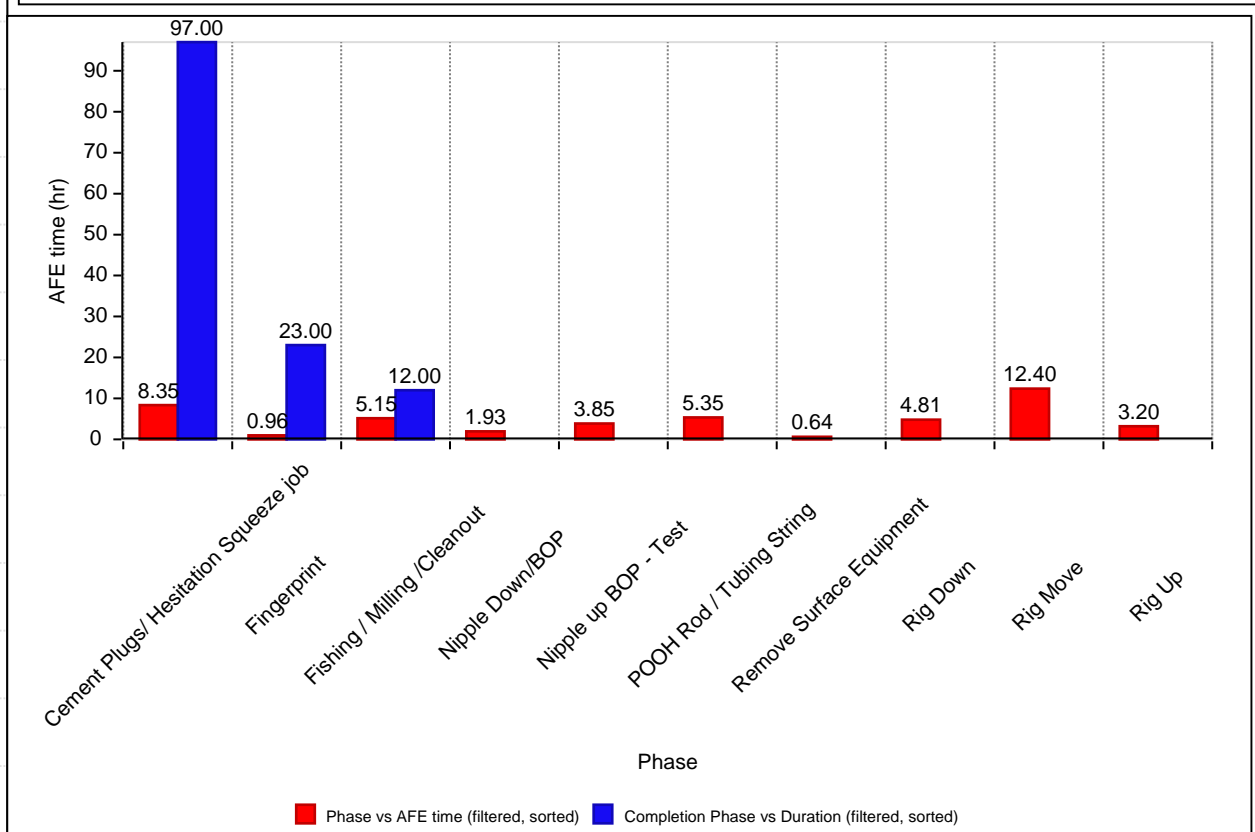
**END OF WELL REPORT**  
**Arrow Completion and Well Interventions**

Well Name	API/UWI	Lease	Latitude (°)	Longitude (°)	TD (max) (mGRD)	Well Typ	Job Cat	Job Typ	Job Status	End Date	Objective
RH015GL1V	BRH01501	ATP1103	21° 46' 36.335" S	148° 1' 54.874" E	489.00	SIS Vertical	Abandonment	Abandonment			Plug and Abandon



**Daily Operations**

Start Date	Summary	Time Log Hrs (hr)
20/11/2013	Continue to rig up on well. Pre spud inspection with AE CWI supervisor. Bleed down well and fill well. POOH Sucker rods	12.00
21/11/2013	Standby Wait on new seals for BOP	12.00
22/11/2013	Replace Seals In BOP, Stump test, N/U BOP, Replace Hanger and P/T against Hanger. P/T wouldn't hold (Visibly Leaking From Kill Spool )	12.00
23/11/2013	Standby Wait on BOP's and Certs	12.00
24/11/2013	Standby Wait on BOP's and Certs	12.00
25/11/2013	Correct BOP's On site, Waiting on correct certification for Adaptor Spool for Kill Valve	12.00
26/11/2013	Wait on New BOPs with correct Certs and spares to be approved and Delivered.	12.00
27/11/2013	Wait on New BOPs with correct Certs and spares to be approved and Delivered. BOP onsite at 1415 with Correct Certification. Inspect and Set up to Stump Test.	12.00
28/11/2013	Stump Test BOP, Fingerprint Well, N/U BOP and P/T against Hanger, RIH and Tag Fill at 480.35mGL. POOH Completion String and Strap. RIH 10 Joints, Secure well and SDFN.	12.00
29/11/2013	RIH Cement String to 479mGL. Mix and Pump Cement Plug #1. Secure Well and WOC.	12.00
30/11/2013	RIH and Tag TOC at 352mGL. Pressure Test to 800psi. Mix and Pump Cement to Surface. Rig Down.	12.00



**NPT BREAKDOWN - Hours**

Phase	Hours
Cement Plugs/ Hesitation Squeeze job	97.00
Fingerprint	23.00
Fishing / Milling /Cleanout	12.00
Nipple Down/BOP	1.93
Nipple up BOP - Test	3.85
POOH Rod / Tubing String	5.35
Remove Surface Equipment	0.64
Rig Down	4.81
Rig Move	12.40
Rig Up	3.20

**Interval Lessons**

Typ	Type Detail	Com

**Cement**

Description	Cementing Start Date	Cementing End Date
Production Casing Cement		

**Cement Fluids**

Top Depth (mGRD)	Btm (mGRD)	Fluid Type	Amount (sacks)	Vol Pumped (bbl)	Density (lb/gal)