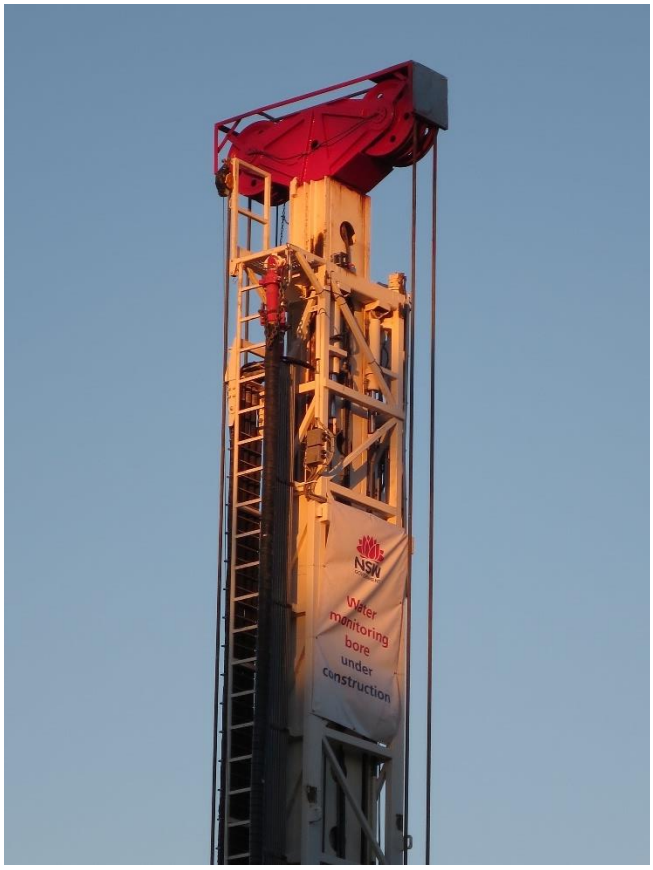
Water Monitoring Bore Construction
Plumb Road Narrabri
Contract: RFT 10003791



Well Completion Report

Plumb Road 1, 2 & 3

Issue	Revision	Author	Date
For Use	0	Kelvin Wuttke	17 Apr 17
Final – Comments and Glossary of Terms included	1	Kelvin Wuttke	5 May 17
Final Issue	2	Kelvin Wuttke	26 May 18

Contents

Purpose & Introduction

This document presents the final well construction details and provides a record of the construction activities for three groundwater monitoring bores constructed at Plumb Road, Narrabri, NSW in February 2017.

The Department of Primary Industries – Water (DPI-Water) is responsible for the management of the state's groundwater resources. To support this function, DPI-Water maintains a network of groundwater bores spread across the state, which is used to monitor variation in groundwater pressure and quality.

DPI-Water is strategically increasing the spatial distribution of its groundwater monitoring network focussing on the NSW coal basins. Plumb Road is one of a number of locations where new bores are being installed in the Gunnedah Basin.

The objective of this project is to install three groundwater monitoring bores in three different formations hydraulically isolated from each other. Each bore is to yield groundwater representative of conditions (pressure and quality) in the target aquifer/formation and are to be suitable for long-term ongoing monitoring.

As the deeper bore was expected to intersect gas bearing zones, activities needed to comply with the design and construction specifications of the Code of Practice for Coal Seam Gas Well Integrity (Code of Practice) as well as the Minimum Construction Requirements for Water Bores in Australia (MCRWBA).

The contract to drill the wells was issued to TDC Drilling Pty Ltd on 7th November 2016 and drilling commenced on 6th February 2017.

Contract Particulars

2.1 Contract Details

Contract Name:	Construction of Water Monitoring Bores
Contract Number:	10003791
Principal:	Water Administration Ministerial Corporation
Principal Authorised Person:	Chris Hague
Notices to Principal:	454-456 Peel St, Tamworth, NSW, 2340
Contractor Name:	TDC Drilling Pty Ltd
Contactor Authorised Person:	Howard Fletcher
Address:	16 Anvil Way, Welshpool, WA 6106

Well History

3.1 General Data

Well Names: Plumb Road 1, Plumb Road 2, and Plumb Road 3

Operator: DPI Water

Title Holder: DPI Water

Landowner: Forestry Corporation of NSW

Land Title: State Forest

District: Narrabri, New South Wales

Location: Latitude: -30º 32' 16.5091" S, Longitude: 149º 36' 24.9176" E

Latitude: -30.537919º S, Longitude: 149.606922º E

Map Grid of Australia (MGA94) Zone 55: Easting: 750106.52 Northing: 6618714.09

Elevation (Refer to Australian Height Datum AHD71): 257.7m

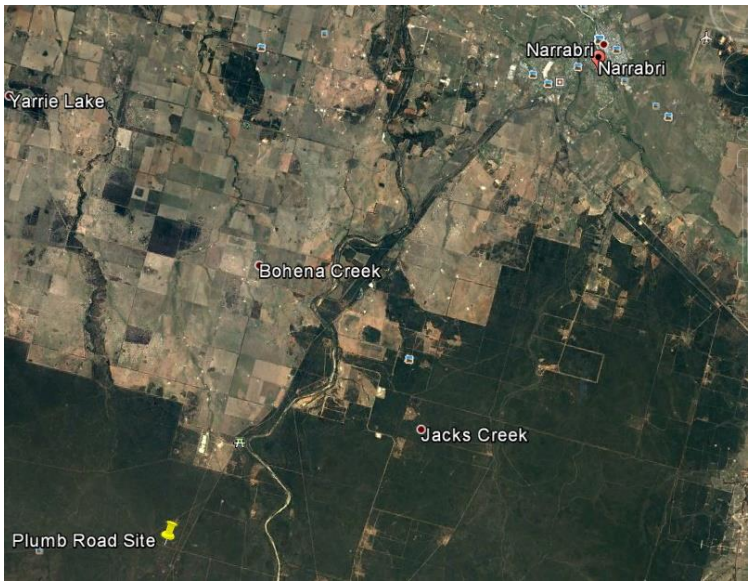
Well Specific Data:

Well Name	Plumb Road 1	Plumb Road 2	Plumb Road 3
Latitude (DMS)	-30º 32' 16.5543"	-30º 32' 16.5091"	-30º 32' 16.4652"
Longitude (DMS)	149º 36' 25.2557"	149º 36' 24.9176"	149º 36' 24.6019"
Latitude (Decimal)	-30.537932	-30.537919	-30.537907
Longitude (Decimal)	149.607016	149.606922	149.606834
AMG Easting	750115.5 m	750106.52 m	750098.14 m
AMG Northing	6618712.49 m	6618714.09 m	6618715.63 m
mGL – mRT	3.8m	2.15m	2.2m
Total Depth (mRT)	642	388	336
Total Cased Depth (mRT)	640.5	388	336
Date Spudded	6 Feb 2017	14 Feb 2017	18 Feb 2017
Rig Released	14 Feb 2017	18 Feb 2017	21 Feb 2017
Date well perforated	22 Feb 2017	23 Feb 2017	23 Feb 2017
Date Development Started	23 Feb 2017	23 Feb 2017	24 Feb 2017
Date Development Stopped	24 Feb 2017	26 Feb 2017	25 Feb 2017

3.2 Location

The site is located on Plumb Road, approximately 30km South of Narrabri.

Map of project area



The location is close to the Newell Highway with good access. The area is surrounded by old drill leases in the Pilliga Forest area as shown by the following image.

Image of local area

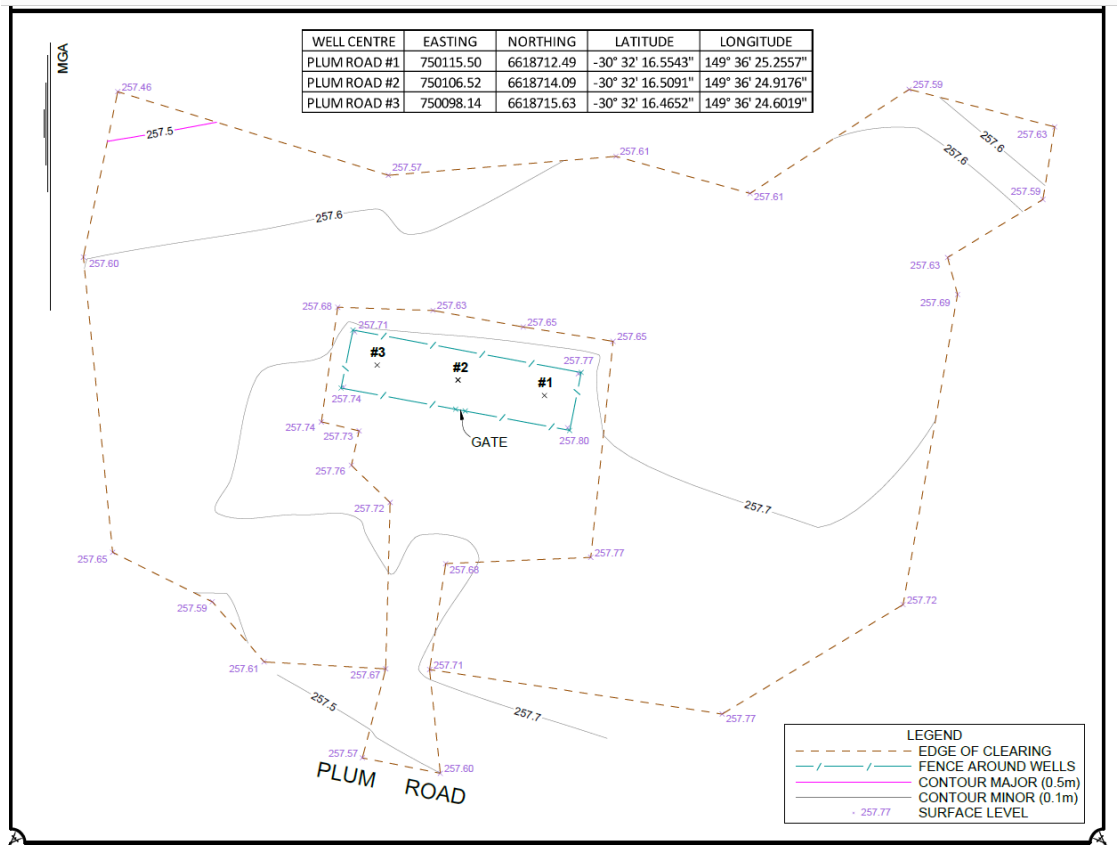
The access off of the Newell Hwy is via approx. 700m of good quality gravel road.

The approximate lease area to be cleared for the three well site at Plumb Rd was a 90m x 45m area as shown in the following image:

Lease Area

Note: Approximately 8m x 8m area of the corner sections in SW and SE corners be left and not cleared to avoid clearing a couple of larger trees on the site.

The survey plan for the rehabilitated site is as shown in the following image (Refer Appendix 1).



3.3 Objectives

The Key success criteria for the project are:

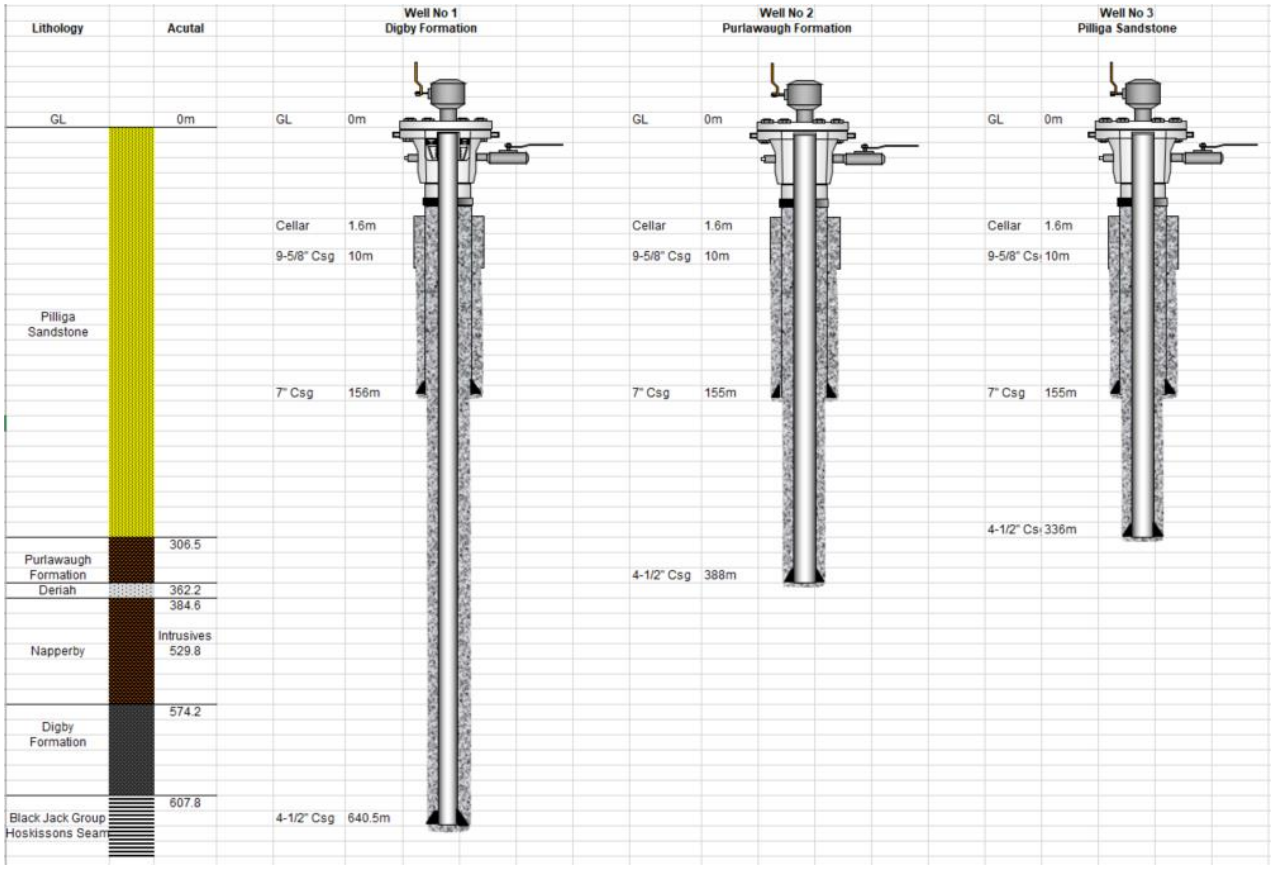
- Isolate the target formations
- Provide separate access to each of the target formations
- Produce the target formations to remove improve near wellbore permeability and demonstrate formation productivity.

3.4 Drilling Scope

Three wells to be drilled on the one site, each to access a different water aquifer. The wells achieved TD's and reached formations as per the following diagram.

The wells are vertical using a conductor and two string design cemented to surface to isolate the well monitoring formations. The purpose of the wells is to provide ongoing water monitoring and the water monitoring equipment itself will be installed into the well by others after the completion of the contract.

The following image shows the surface and production casing depths schematically along with formations based on wireline correlation.



3.5 Installation Summary

The three wells were drilled and cased in the order Plumb Road 1, Plumb Road 2, Plumb Road 3.

The drilling operations involved:

- Rigging up over well centre,
- Drill 12-1/4" conductor hole,
- Run 9-5/8" Conductor and grout in place,
- Drill 8-1/2" Surface hole,
- Run 7" Surface casing,
- Circulate cement to surface with a two stage cement job,
- Wait on cement,
- Drill out shoe track and drill 6-1/8" production hole to TD,
- Log well with electric wireline,
- Run 4-1/2" Casing,
- Circulate two stage cement job to surface; and
- Release drilling rig and rig down and move to next well.

Once all wells were drilled, a CBL was done on each well and the wells were then perforated using wireline conveyed 3-3/8" guns. Once the wells were perforated they were developed. Plumb Road 1 and 3 were air lifted while plumb road 2 was initially developed under free flow, but then air lifted to complete the development.

Air lifted development involved:

- Rig up flush-by rig over well,
- Run 3-3/8" tubing to depth of perforations,
- Close annular and circulate air to develop well
- Once developing compete, pull tubing,
- Rig down flushby and nipple up wellhead.

Well construction details for the three wells were similar and the designed construction can be summarised for all three wells as follows:

	Hole	Drill Fluid	Casing	Cement
Conductor	12-1/4" Hole	Water	9-5/8" BTC	Class A Grouted
Surface Section	8-1/2" Hole	KCl Polymer 8.7 ppg	7" 23ppf BTC	Two stage, Class A cement Lead – 12.5ppg, Tail - 15.6ppg
Production Section	6-1/8" Hole	KCl Polymer 9.8 ppg	4-1/2" 11.6 ppf BTC	Two stage, Class A cement Lead – 12.5ppg, Tail - 15.6ppg

Refer to Appendix 8 for Daily Drilling Reports.

3.6 Drilling Data

3.6.1 Drilling Plant

Name: TDC Rig 10

Make: Drillmec

Model: 2005 Drillmec G55 R3

Mast: Static pull capacity 122,000 lbs

Engine: Cummins QSK 19-C, Diesel 6 cylinder DI Turbo

Pump: F500 pump & diesel drive, Cummins Diesel QSK-15 600 HP

Blow Out Preventer: Shenkai, 7-1/16", 3k Annular, 5k Double Gate rams

The drilling rig is TDC Rig 10. A summary of the main features includes:

- Drillmec G55 R3 (built 2005)
- 122,047lb pull capacity. (Note: highest anticipated hookload for these wells was 24,000lbs (dry air weight) for the 620m of 4.5" production casing on the Digby Formation well. This gave 98,000lbs overpull contingency).
- Handles Range 1, 2 or 3 tubulars
- 17,000 ft.lbs torque capacity
- 5000psi double gate plus annular Blow Out Preventer (BOP)
- Pason electronic drilling recorder
- F500 mud pumps

- 250bbl mud system
- Iron roughneck for hands free pipe makeup
- Pipe handler for hands-free lifting of the tubulars to the rig floor.

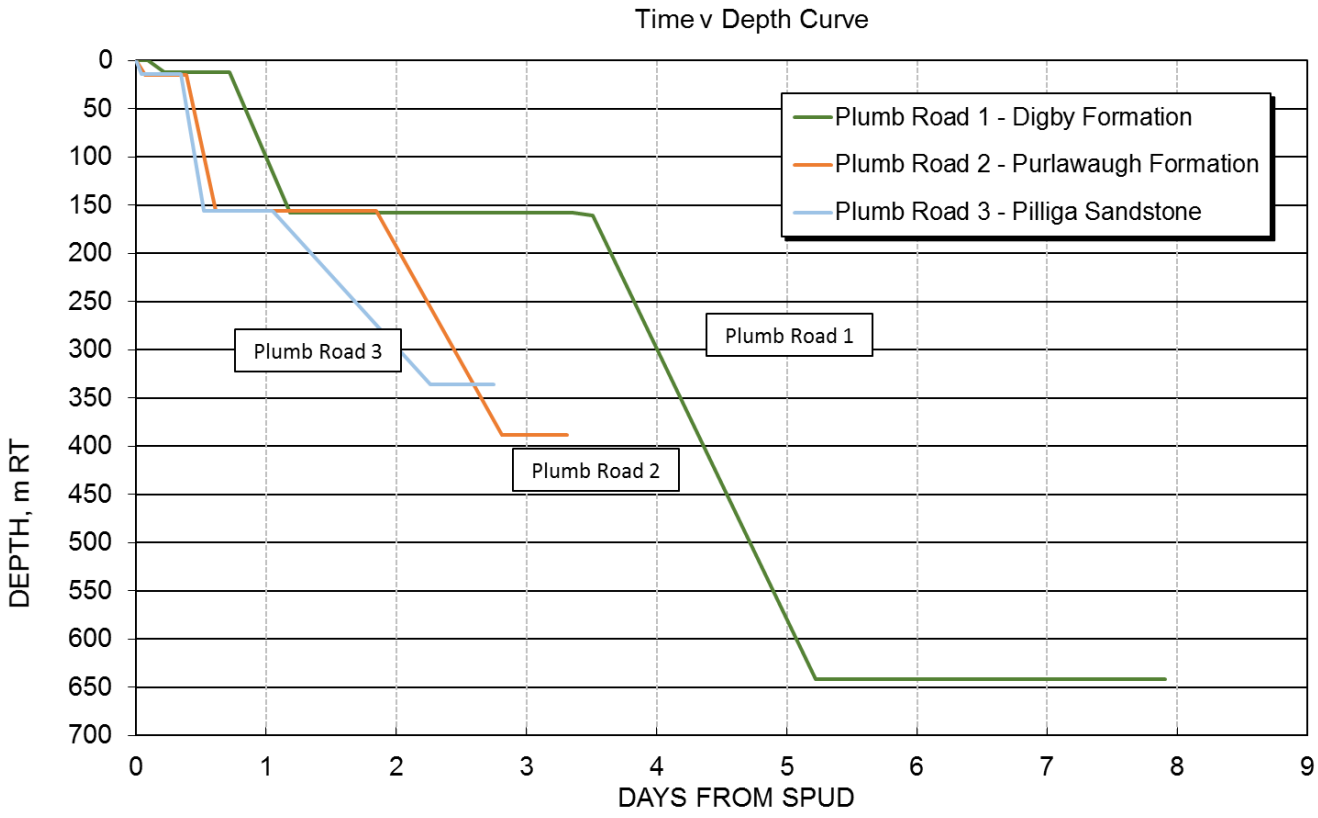
The rig (TDC Rig 10) is comprised of 15 loads which are moved with prime mover and requires an oversize permit for the rig carrier.

3.7 Well Construction Details

Well Name	Plumb Road 1	Plumb Road 2	Plumb Road 3
Conductor Hole	12-1/4” Hole to 12m	12-1/4” Hole to 12.5m	12-1/4” Hole to 14.3m
Conductor Casing	9-5/8” 36ppf BTC K55	9-5/8” 36ppf BTC K55	9-5/8” 36ppf BTC K55
Conductor Casing Depth (mGL)	11.1m	11.0m	12.3m
GR – RT	3.8m	2.15m	2.2m
Surface Hole Size	8-1/2”	8-1/2”	8-1/2”
Surface Hole Depth (mRT)	158m	156m	156m
Surface Casing	7” 23ppf N80 BTC	7” 23ppf N80 BTC	7” 23ppf N80 BTC
Surface Casing Depth (mRT)	156m	155m	155m
Production Hole Size (in)	6-1/8”	6-1/8”	6-1/8”
Production Hole Depth (mRT)	642 m	388 m	336 m
Production Casing	4-1/2” 11.6ppf K55 BTC	4-1/2” 11.6ppf K55 BTC	4-1/2” 11.6ppf K55 BTC
Production Casing Depth (mRT)	640.5 m	388 m	336 m

3.8 Time Depth Curves

Drilling Progress for the three wells is shown in the Time vs Depth curve below, showing time from spud of the conductor to release.



3.9 Development Data

All perforation intervals were selected from the Plumb Road 1 wireline log data based on geophysical assessment of the most productive sands at the various formation depths.

Kinetic Energy was the wireline company that carried out the perforations. A GR-CCL correlation run was carried out in each well and the GR correlated to the GR signature from the Plumb Road 1 log data at the agreed perforation depth. The perforation run was then carried out using the CCL to confirm depth against the (now correlated) GR-CCL log.

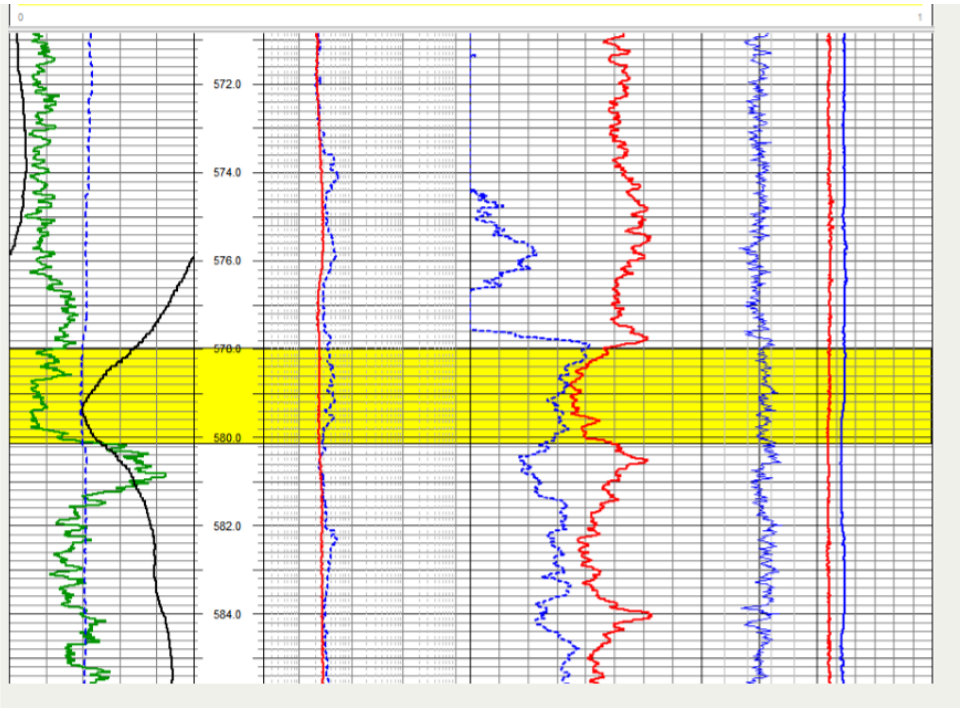
Perforations were 19gr HSC DP charges in 3-3/8" carriers at 60 deg phasing 6 spf.

Perforation Intervals:

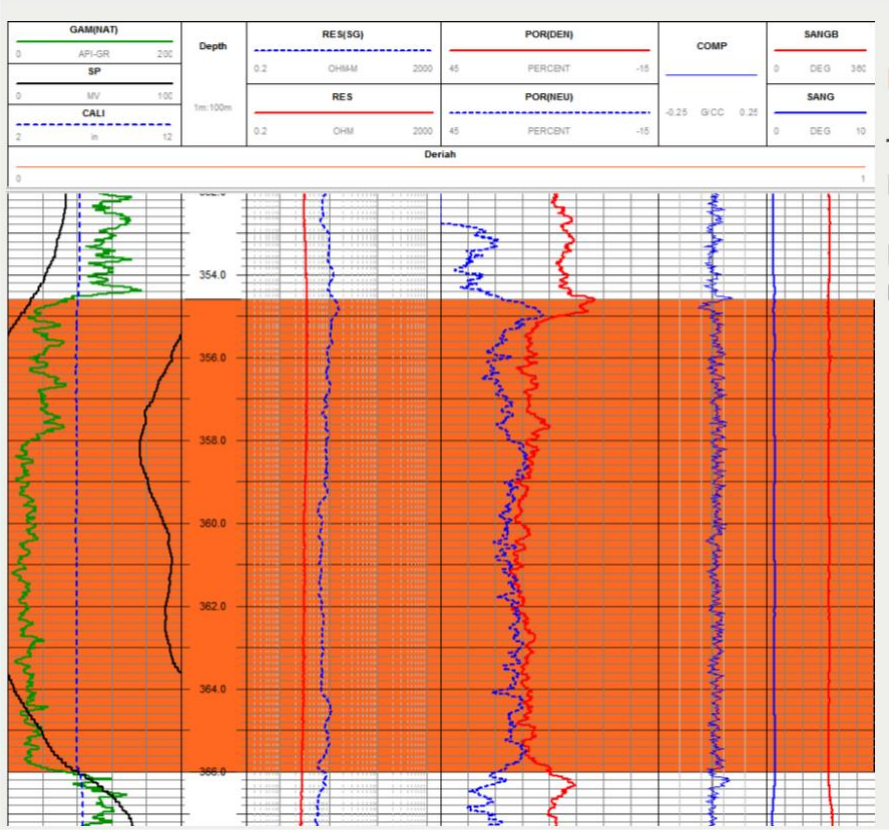
Well Name	**Plumb Road 1**	**Plumb Road 2**	**Plumb Road 3**
Formation	Digby Formation	Purlawaugh Formation	Pilliga Sandstone
Top Perforation (mRT)	578	359	305
Perforated Length m	3m	6m	6m
Bottom Perforation (mRT)	581	365	311

Images of the sections in the three wells indicating the sands selected for perforation and development are shown in the following images:

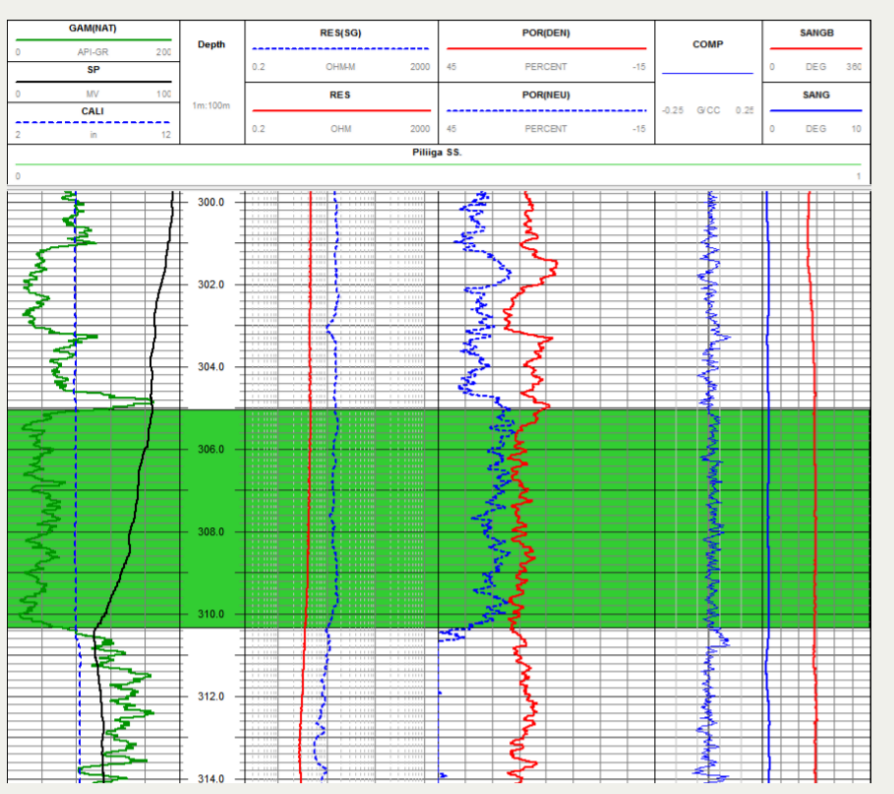
Plumb Road 1 – Digby Formation



Plumb Road 2 – Purlawaugh Formation



Plumb Road 3 – Pilliga Sandstone



The wells were developed for a minimum of 24 hours and 3 casing volumes and until the fluid reached stabilised conditions.

The final fluid data was as follows:

Well Name	**Plumb Road 1**	**Plumb Road 2**	**Plumb Road 3**
Development Start	23 Feb 2017	23 Feb 2017	24 Feb 2017
Final Conductivity	14300	2220	220
Final Ph	9.1	8.3	8.7
Final Turbidity (NTU)	27.4	10.5	8.1

Stratigraphy and lithology

4.1 Hydrogeological Logging

The sampling regime for this location was designed to confirm the existing known formation tops and descriptions. The first well, into the Digby Formation, was the deepest well and intersects all the formations found in the following two wells on same site. Sampling was therefore carried out on the first well across all formations. The cutting samples were washed, inspected, stored in cuttings trays, and photographed by the hydrogeologist for inclusion in the final reports. The cuttings were then delivered to the DPI facility in Gunnedah.

The sample frequency was as follows:

- Once every 10 metres through the Pilliga Sandstone (from surface down to 300m),
- Once every 5 metres Approaching the end of the Pilliga Sandstone and for all subsequent formations (300m – 630m),
- Additional sampling at the interface of formations as required by the hydrogeologist to accurately determine formation tops or as requested by the Principal.

The formations expected were the Pilliga Sandstone, Purlawaugh Formation, Deriah Formation, Napperby Formation, Digby Formation, and the Black Jack group (Hoskissons Seam). It was also possible the well would encounter some volcanics (Garrawillah Formation) and this was indeed the case.

Refer to Appendix 3 for Geologists Daily Reports.

Refer to Appendix 4 for Bore Log details.

Refer to Appendix 5 for Photo Log details.

4.2 Wireline logging

The wireline logging contractor was Vause (Kinetic). The open hole logging suite included:

- Natural gamma
- Calliper
- Neutron porosity
- Density
- Spontaneous potential
- Resistivity
- Magnetic deviation
- Temperature

These logs, along with the hydrogeological logging, was then used to confirm the casing setting depths for the subsequent wells on site and the perforation depths for all three wells on site.

Refer to Appendix 7 for the composite wireline log.

Cased hole logging included Cement Bond Logs and correlated perforating runs. These were carried out immediately prior to developing the bore.

Cement bond logs can be found in Appendix 11.

4.3 Formation Tops

The following table shows formation depths based on mud logging picks and wireline formation tops and the basis for those tops.

Wireline tops are based on offset well correlation to the Bohena-4 and Bohena-5 well data.

	Field Formation Tops			Wireline Formation Tops		
Formation Name	MDRT (m)	MDGL (m)	Picks Based On	MDRT (m)	MDGL (m)	Picks Based On
Pilliga Sandstone	54	50.2	Cuttings	56	52.2	Wireline
Purlawaugh Fm	310	306.2	Cuttings/ROP	310.3	306.5	Wireline
Deriah Fm	365	361.2	Cuttings / ROP	366	362.2	Wireline
Napperby Fm	380	376.2	Cuttings	388.4	384.6	Wireline
Intrusive	535	531.2	Cuttings	533.6	529.8	Wireline
Digby Fm	578	574.2	Cuttings/ROP	578	574.2	Wireline
Black Jack Group	610	606.2	Cuttings	611.6	607.8	Wireline
Total Depth	**642**	**638.2**				

4.4 Detailed Log Data

Refer to Appendix 4 for Bore Log details.

Refer to Appendix 5 for Photo Log details.

Refer to Appendix 6 for Formation Sample Photos.

Refer to Appendix 7 for the composite wireline log.

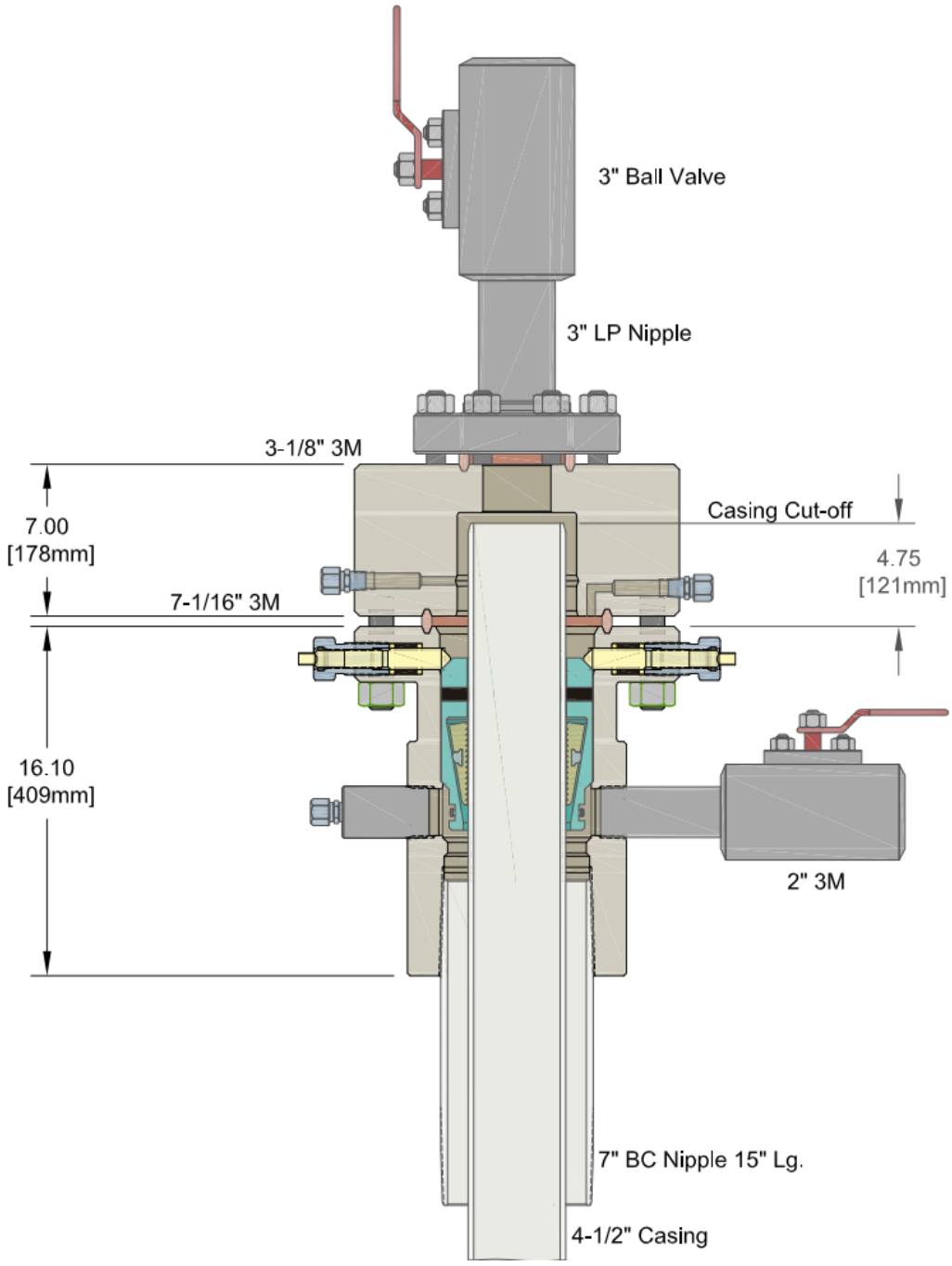
Well Details

5.1 Wellhead Design

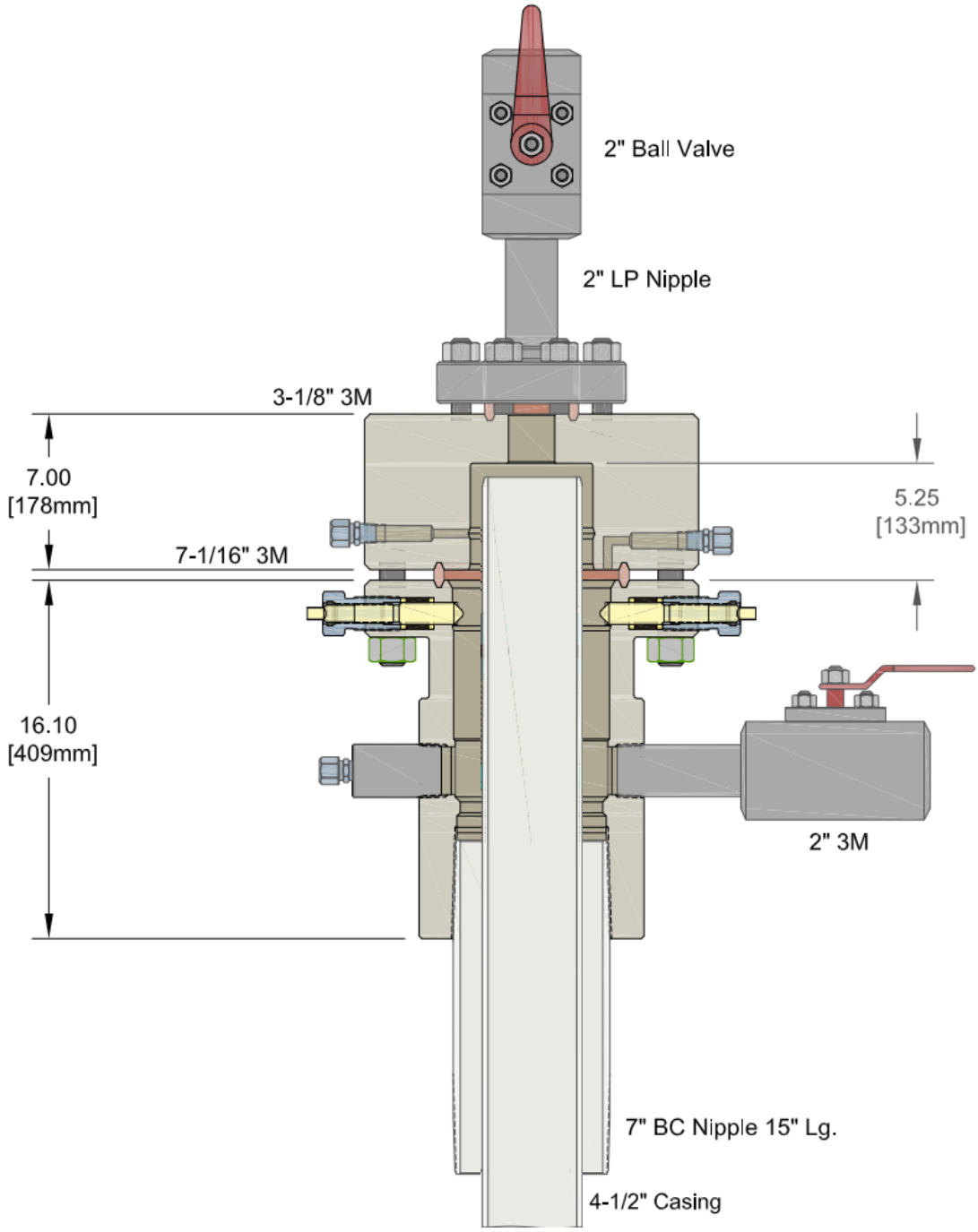
The wellhead for Plumb Road wells were all API 6A compliant and rated to 3000 psi.

Plumb Road 1 is isolated in the annulus as it was designated as an Oil and Gas well. Plumb Road 2 and 3 have the capacity to be isolated at a later date if required, but were designated at water wells and are therefore isolated only by annular cement.

Plumb Road 1 Wellhead is as follows:



Plumb Road 2 and 3 wellheads are as follows:



5.2 Drilling Fluid

The drilling fluid for drilling these wells has been designed in conjunction with Australian Mud Company (AMC), who provided a Mud Engineer for the first well to ensure fluid quality.

A KCl gel based system was used in the wells. The fluid was recycled as much as possible between wells and the same mud system was used in all three wells on the pad for the following reasons:

- The well drilled under the Oil & Gas code would have used KCl, and is only 10 metres from the water bores on the pad,
- The well drilled under the Oil & Gas code is the first well and will be used to monitor losses through the upper sands and ensure no significant losses. This will confirm the fluid is appropriate for these sands,
- Changing fluids between holes causes unnecessary wastage, environmental exposure, unnecessary use of additional local water to make the new mud, and unnecessary safety risks as the crew manually handles a new batch of chemicals to be mixed.
- Full circulation pressure cementing methods will be used with spacers to clean the wellbore annulus during cementing,

Refer Appendix 9 for the Mud Engineering Reports.

5.3 Cementation

Good cementation was critical for well integrity for monitoring wells of the type contemplated by this project where failure to achieve zonal isolation will render the monitoring results invalid.

The drilling fluid, two stage cement design, centraliser design, shoe track, float shoe and plugs were all designed to ensure good quality cementing.

Halliburton provided cementing services for this project. Halliburton are the largest cementing services contractor to the oil & gas industry worldwide. Halliburton tested the cement slurries prior to mobilising to site and modelled the casing string to recommend ideal centraliser placement to achieve maximum standoff between the casing and wellbore during cementing to prevent channelling in the cemented annulus.

All three wells on location were logged with the cement bond log tool as part of the cased hole logging programme.

All cement jobs went well with full cement returns to surface on both casing jobs for all three wells.

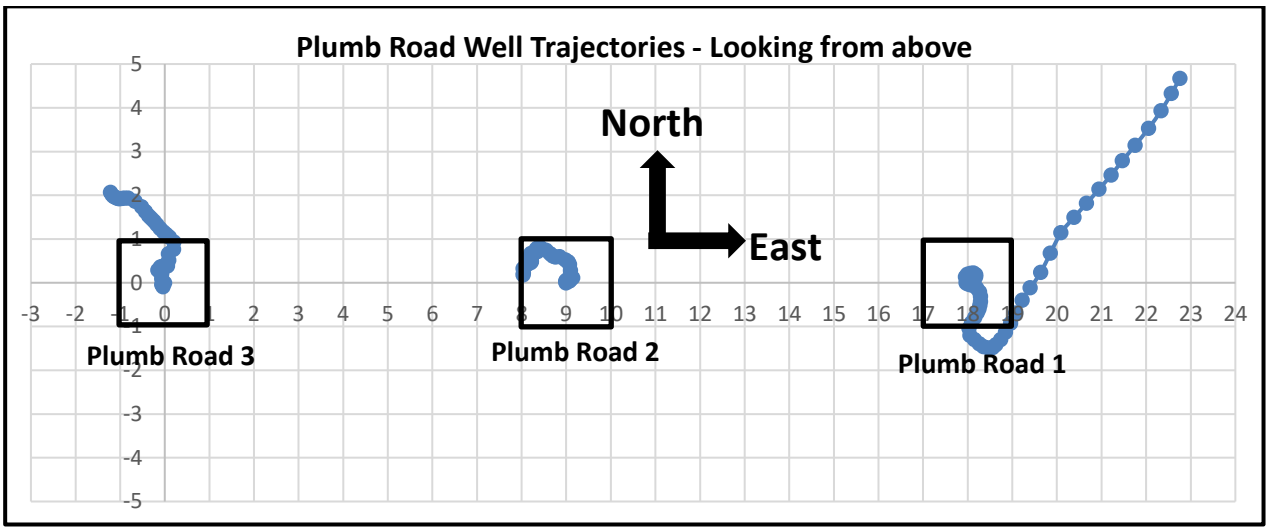
Cement reports including cementing graphs are found in Appendix 10.

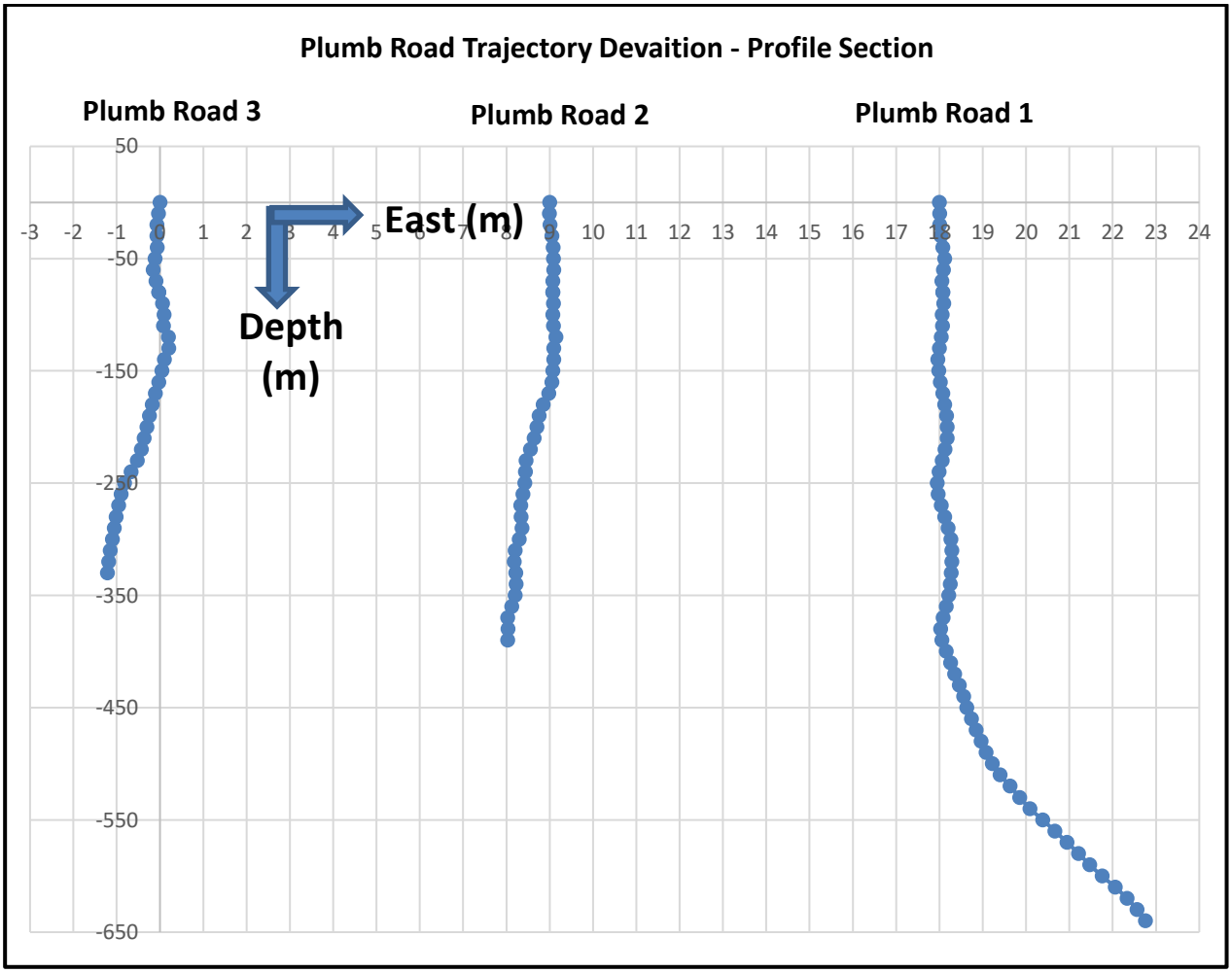
Cement bond logs can be found in Appendix 11.

5.4 Verticality

Verticality is demonstrated via drop survey results and wireline 3 axis logging. The result of the logging demonstrates that the wells never approached to within less than 8m of any neighbouring wells as shown in the following images showing well trajectories.

The deviation survey data for the three wells can be found in Appendix 12.





5.5 Formation Integrity Testing

An FIT was conducted on 10th Feb 2017 on Plumb Road 1 with formation open from 158 to 161 mRT. FIT pressure reached was 430psi with a mud weight 9.1ppg, giving an equivalent mud weight (EMW) of 24.8ppg.

5.6 Wellsite Remediation

The following images from the REF Document show the wellsite before any clearing or other works began on site at Plumb Road:

Plate 2. Project area Site 2. Note minimal native regrowth.

Plate 3. Large log dump around the periphery of Site 2

During clearing top-soil and timber was stockpiled separately and after well construction was complete the topsoil was re-spread followed by the timber as required by the REF.

The following images show the site after well construction and rehabilitation works.

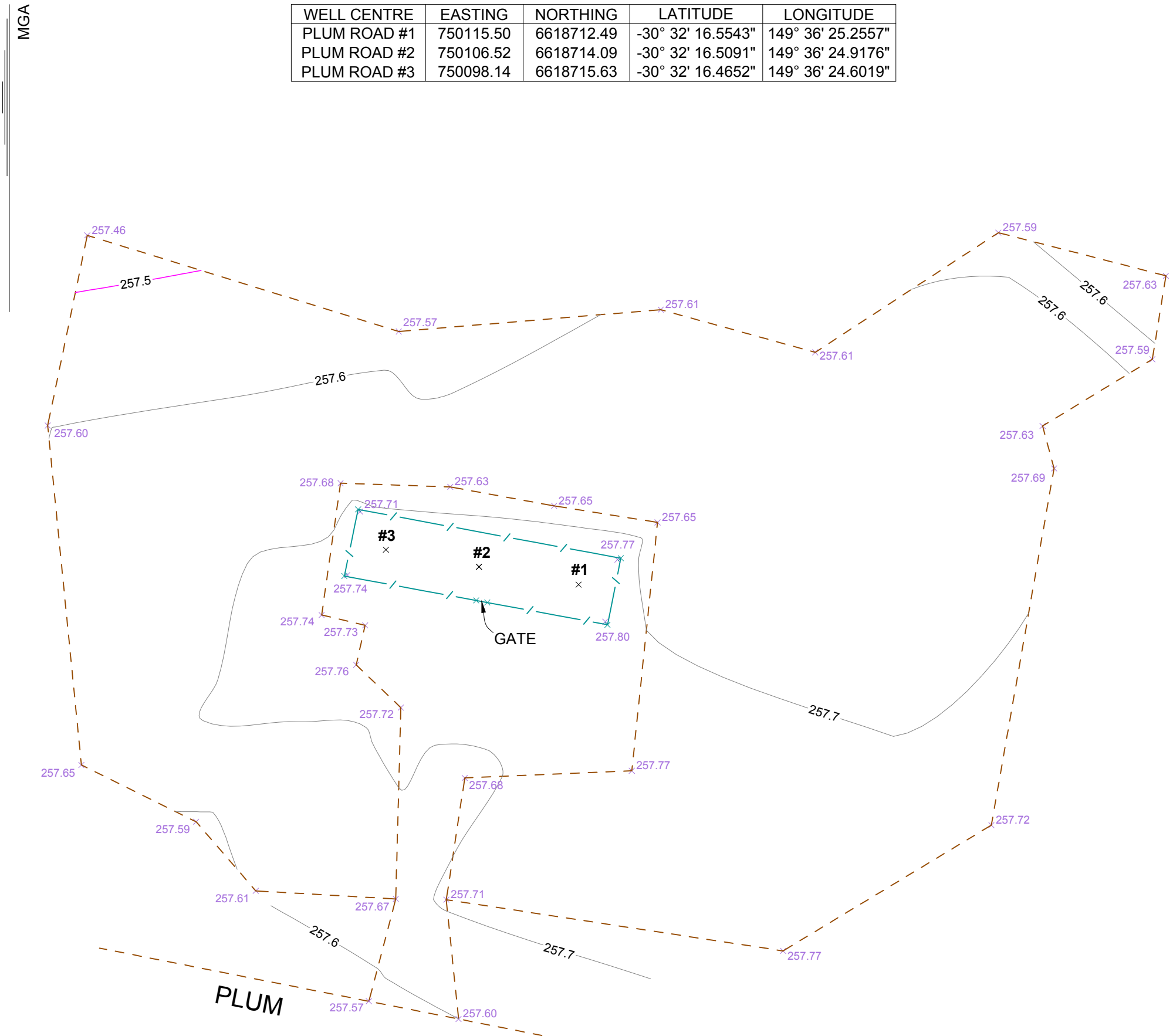

NSW
Water monitoring bore under construction

Glossary of Terms

TERM OR ACRONYM	MEANING /DEFINITION
API (RP)	American Petroleum Institute (Recommended Practice)
bbl	US barrel
BHA	Bottom Hole Assembly
BOD	Basis of Design
BOP	Blow Out Preventers
BTC	Buttress Conection
CBL	Cement Bond Log
CCL	Casing Collar Locator
DPI	Department of Primary Industries
DST	Drill Stem Test
EMW	Equivalent Mud Weight
ESD	Emergency Shutdown System
FIT	Formation Integrity Test
GL	Ground Level
GR	Gamma Ray
HAZOP	Hazard and Operability Study
HSE(S)	Heath Safety Environment (Security)
HWDP	Heavy Weight Drill Pipe
IADC	International Association of Drilling Contractors
ISO	Internal Standards Organisation
JV	Joint Venture
kPa	Kilo Pascal
LCM	Lost Circulation Materials
LOT	Leak Off Test
MASP	Maximum Anticipated Surface Pressure
MCRWBA	Minimum Construction Requirements for Water Bores in Australia
MDRT	Metres depth from Rotating Table
MDGL	Metres depth from Ground Level
MOC	Management of Change
MWD	Measurement While Drilling Tool
NACE	National Association of Corrosion Engineers
P & ID	Piping and Instrumentation Diagram
Ppf	Pounds per foot (reference to tubing weight)
ppg	Pounds per gallon
Psi(a)	Pounds per square inch (absolute)
QA/QC	Quality Assurance/Quality Control
RA	Radio Active
REF	Review of Environmental Factors
ROV	Remote Operated Vehicle
mRT	Metres relative to Rotating Table – Depth reference from rig reference point
scf	Standard cubic feet
SIMOPS	Simultaneous Operations.
TD	Total Depth
W/O	Work Over.
WOC	Wait on Cement
WSOG	Well Specific Operating Guidelines
WDP	Well Delivery Process.

Appendix 1 – Site Survey Plan

WELL CENTRE	EASTING	NORTHING	LATITUDE	LONGITUDE
PLUM ROAD #1	750115.50	6618712.49	-30° 32' 16.5543"	149° 36' 25.2557"
PLUM ROAD #2	750106.52	6618714.09	-30° 32' 16.5091"	149° 36' 24.9176"
PLUM ROAD #3	750098.14	6618715.63	-30° 32' 16.4652"	149° 36' 24.6019"



LEGEND

- EDGE OF CLEARING
- FENCE AROUND WELLS
- CONTOUR MAJOR (0.5m)
- CONTOUR MINOR (0.1m)
- × 257.77 SURFACE LEVEL

Gleeson Surveying
Registered Surveyors
1 Bowen Street, P.O. Box 1,
Narrabri N.S.W. 2390.
Phone: 02-67922720 Facs.: 02-67923660
E-mail: gleesurv@bigpond.net.au

PLUM ROAD

Client: TDC DRILLING

File Name: 8872_002.dwg | Sheets: 1 OF 1 | Ref. No.: 8872

Drawing Description: PLAN OF WATER MONITORING BORE SITE

Issue	Date	Revision Type	Dr. By	Ch. By
A	18-04-17	Original Issue	L.B.	R.G.

Scale: 1 : 400 @ A3

Datum: AHD

Orientation: MGA

Registered Surveyor Ron Gleeson Date : 18/04/2017

Notes:

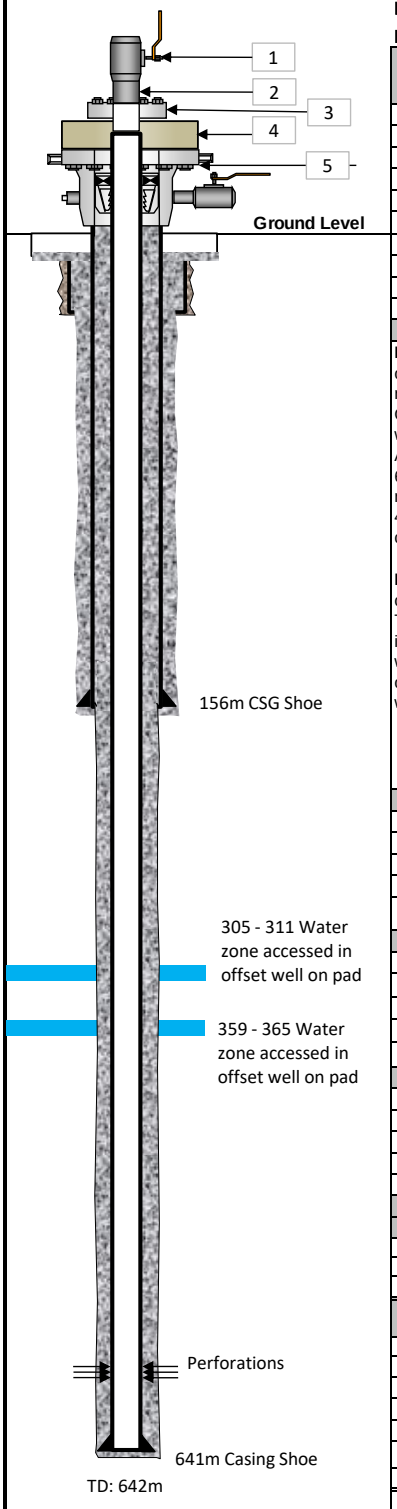
1. THIS PLAN HAS BEEN PREPARED TO SHOW THE WATER MONITORING BORE SITE CONSTRUCTED ADJACENT TO PLUM ROAD, AS SURVEYED ON 4TH APRIL 2017 AND SHOULD BE USED FOR NO OTHER PURPOSE.
2. COORDINATES ARE GIVEN ON MAP GRID OF AUSTRALIA (MGA94) PROJECTION, IN ZONE 55. R.L.S REFER TO AUSTRALIAN HEIGHT DATUM (AHD71).

Appendix 2 – Downhole Diagrams

Plumb Road 1

Latitude: -30° 32' 16.5543" **Well spudded:** 6/02/2017 **Ground Level:** 257.7 m

Longitude: 149° 36' 25.2557" **Last activity:** 24/02/2017 **K B elevation:** 261.5 m



ITEM No	DESCRIPTION	LTH (m)	DTH KB (m)	MIN I.D.	MAX O.D. (m)
	KB to top of wellhead		2.70		
1	3" NPT Ball Valve	0.22	2.92		
2	3" NPT Nipple	0.09	3.01		
3	3-1/8" 3M x 3" NPT Adaptor Flange	0.06	3.07		
4	7-1/16" 3M x 3-1/8" 3M Seal Pocket Flange for 4-1/2" casing	0.18	3.25		
5	7" BTC x 7-1/16" 3M A Section, with 4-1/2" Slip & Seal assembly, 2" ball valve side outlets	0.41	3.66		
6					
7					
8					
9					

BRIEF HISTORY ON WELL

Plumb Road 1 Drilling - was spudded by TDC Rig 10, a Drillmec G55 R3 rig on the 6th February 2017. The well was drilled by TDC Pty Ltd on behalf of the NSW Government Operator, DPI Water, and drilled with the object of creating a water monitoring bore and obtaining water samples. The well reached a final TD of 640.5m and was cased with 4-1/2", cemented to surface and perforated in the Digby formation.
Once rigged up over well centre a 12-1/4" hole was drilled to 12m and 1 joint of 9-5/8" casing run as a conductor and grouted in place. An 8-1/2" hole was drilled to 158m with a PDC bit and and water based KCL gel fluid. 7" Casing was run to 156m and cemented in place with a two stage cement job. After WOC, drilled out shoe track and casing shoe and 3m new formation. Conducted FIT 430psi with 9ppg mud to reach an EMW of 25ppg.
6-1/8" hole was drilled to the TD of 642m. The well was logged with Gamma Ray, Dual Density, caliper, resistivity, Neutron, SP, multiple depth resistivity, Temp, Mag Dev.
4-1/2" casing was run with a two joint shoe track to 641m and slip & seal installed. Circulated hole clean and pumped a two stage cement job with cement to surface. Rig down and release rig on 14 Feb 2017. Rig moved to Plumb Road 2.

Perforating and Developing: TDC Flushby rig mobilised and rigged up over location on 22 Feb 2017. Wireline unit rigged up and a CBL log carried out. The well was then perforated using the GR-CCL correlation log from 578 - 581 mRT. Wireline unit was rigged down and moved to Plumb road 2. The flushby unit rigged up its workfloor, flow cross and annular and ran 2-3/8" workstring into the well. Unload well with airpack at 95m. Continue to trip in and unload well at 419m. Continue to trip in and unload well at 577m 820psi. Rig down flushby carrier while continuing to circulate air and unload well. Monitored returned fluids and circulated for 26 hours until fluid charachteristics stable and sufficeient volume produced. Rig up flushby carrier and once approval given to cease developing well, pull out of hole workstring. Rig down and release flushby unit and move to Plumb Road 2. Install wellhead and close valve.

SURFACE

CASING DETAILS		CEMENTING DETAILS:
Size:	7"	The 7in surface casing was cemented on 8th February 2017. Pumped 20bbls fresh water spacer. Pump 12.6bbls of lead cement at 12.5ppg, Pumped 7.1bbls of tail cement at 15.6ppg. Displaced with 19bbls fresh water at 3bbls/min, bumped plug with 150psi increasing to 1500psi and held pressure for 5min. Continuous returns during job, and cement returns after 16bbls into displacement. 3bbls cement to surface. Bleed back 0.3bbls, floats holding
Weight:	36 ppf	
Grade:	N80	
Depth Set (m):	156.0	

INTERMEDIATE

CASING DETAILS		CEMENTING DETAILS:
Size:	4-1/2"	The 4-1/2in production casing was cemented on 14th February 2017, with 10bbls of gelled spacer at 9.8ppg pumped, followed by 45bbls of 12.5ppg lead slurry and 9.5bbls of 15.6ppg tail slurry. Displaced with 31.9 bbls of water, bumped plug with 820psi and increased to 1500psi. Continuous returns during job, 14 bbls cement to surface. Bleed back 0.2bbls. Floats holding
Weight:	11.6 ppf	
Grade:	K55	
Depth Set (m):	640.5	

PRODUCTION LINER

CASING DETAILS		CEMENTING DETAILS:
Size:		
Weight:		
Grade:		
Depth Set (m):		

ABANDONMENT PLUGS

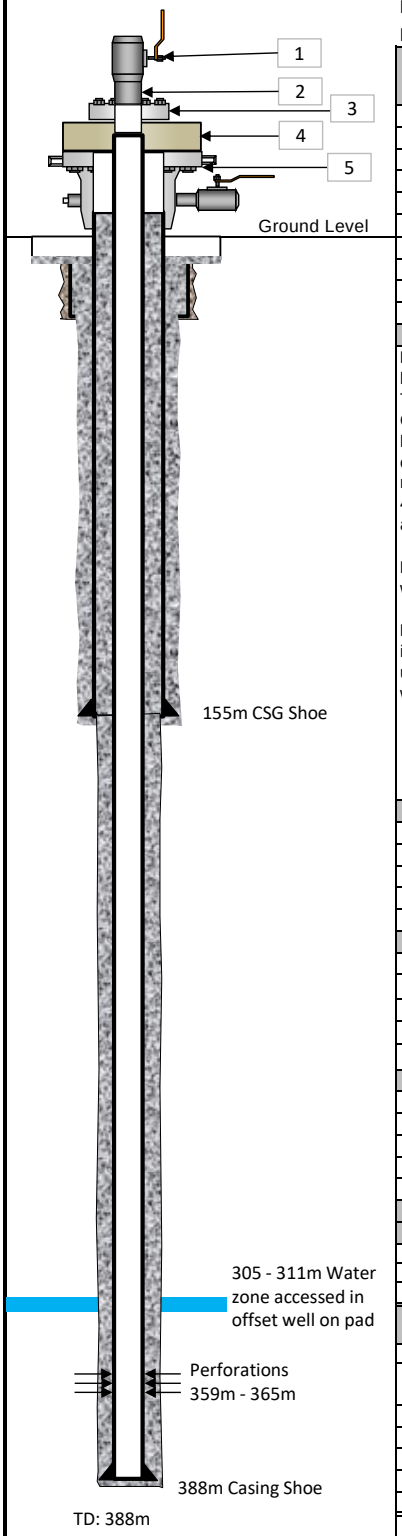
Plug	Top (mMD)	Comment

FORMATION	FORMATION INTERVAL (mMDRT) {Perforations}	GUN: SIZE	GUN: TYPE	CHARGES: SPF	CHARGES: TYPE	CHARGES: WT(g)
Pilliga Sandstone	56 - 310.3					
Purlawaugh Formation	310.3 - 366					
Deriah Formation	366 - 388.4					
Napperby Formation	388.4 - 533.6					
Intrusives	533.6 - 578					
Digby formation	578 - 611.6 {Perforated 578m - 581m}	3-3/8"	3-3/8"	3-3/8"	60° Phasing	19 gr
Black Jack Group	611.6 - 642 (TD)					
PRESSURE						
TEMPERATURE						

TAGGED DEPTHS:	22 Feb 2017, CBL tag HUD 608.9m
ANNULUS FLUID:	Open Casing - Produced Water
INDICATED STRING WEIGHT:	
CALCULATED STRING WEIGHT:	
LANDED WEIGHT:	
REMARKS:	

NOT TO SCALE	WELLSITE SUPERVISOR: Scott Hobday		
PROPOSED:	LAST WORKOVER		
COMPLETION:	DRAFTED BY: Kelvin Wuttke	DATE:	25 March 2017
RE-COMPLETION:	REVISED BY:	DATE:	
OTHER:	CHECKED BY: S. Hann	DATE:	27 March 2017

Plumb Road 2



Latitude:	-30° 32' 16.5091"	**Well spudded:**	15/02/2017	**Ground Level:**	257.7 m
Longitude:	149° 36' 24.9176"	**Last activity:**	26/02/2017	**K B elevation:**	259.9 m

ITEM No	DESCRIPTION	LTH (m)	DTH KB (m)	MIN I.D.	MAX O.D. (m)
	KB to top of wellhead		1.30		
1	2" NPT Ball Valve	0.14	1.45		
2	2" NPT Nipple	0.13	1.58		
3	3-1/8" 3M x 2" NPT Adaptor Flange	0.05	1.63		
4	7-1/16" 3M x 3-1/8" 3M Seal Pocket Flange for 4-1/2" casing	0.18	1.81		
5	7" BTC x 7-1/16" 3M A Section, 2" ball valve side outlets	0.41	2.22		
6					
7					
8					
9					

BRIEF HISTORY ON WELL

Plumb Road 2 Drilling - was spudded by TDC Rig 10, a Drillmec G55 R3 rig on the 15th February 2017. The well was drilled by TDC Pty Ltd on behalf of the NSW Government Operator, DPI Water, and drilled with the object of creating a water monitoring bore and obtaining water samples. The well reached a final TD of 388m and was cased with 4-1/2", cemented to surface and perforated in the Deriah formation.
Once rigged up over well centre a 12-1/4" hole was drilled to 12.5m and 1 joint of 9-5/8" casing run as a conductor and grouted in place. An 8-1/2" hole was drilled to 156m with a PDC bit and and water based KCL gel fluid. 7" Casing was run to 154.8m and cemented in place with a two stage cement job. After WOC, drilled out shoe track and drilled 6-1/8" hole to the TD of 388m. The well was logged with Gamma Ray, Resistivity, SP, multiple depth resistivity, Temp, Mag Dev.
4-1/2" casing was run with a single joint shoe track to 388m. Circulated hole clean and pumped a two stage cement job with cement to surface. Cut and dress casing stump and install wellhead. Rig down and release rig on 18 Feb 2017. Rig moved to Plumb Road 3.

Perforating: TDC Flushby rig skidded over and rigged up over location on 23 Feb 2017. Wireline unit rigged up and a CBL log carried out. The well was then perforated using the GR-CCL correlation log from 359 - 365 mRT. Wireline unit and flushby unit rigged down and moved to Plumb road 3.

Developing: Monitor production from the well which was free flowing to surface. On 25 Feb 2017 flushby unit skidded back over well and rigged up its workfloor, flow cross and annular and ran 2-3/8" workstring into the well. Trip in and unload well at 367m. Circulated well while monitoring returns until fluid charachteristics stable and sufficient volume produced. On 26 Feb 2017 once approval given to cease developing well, pull out of hole workstring. Rig down and release flushby unit. Install wellhead and close valve.

SURFACE

CASING DETAILS		CEMENTING DETAILS:
Size:	7"	The 7in surface casing was cemented on 16th February 2017. Pumped 20bbls fresh water spacer. Pump 12.6bbls of lead cement at 12.5ppg, Pumped 7.1bbls of tail cement at 15.6ppg. Displaced with 19.4bbls fresh water at 3bbls/min, bumped plug with 180psi increasing to 1500psi and held pressure for 5min. Continuous returns during job, cement returns after 14.8bbls into displacement. 4.6bbls cement to surface.
Weight:	23 ppf	
Grade:	N80	
Depth Set (m):	154.8	

INTERMEDIATE

CASING DETAILS		CEMENTING DETAILS:
Size:	4-1/2"	The 4-1/2in production casing was cemented on 18th February 2017, with 10bbls of gelled spacer at 9.5ppg pumped, followed by 21.3bbls of 12.5ppg lead slurry and 8.9bbls of 15.6ppg tail slurry. Displaced with 19.5 bbls of water, bumped plug with 430psi and increased to 1500psi. Continuous returns during job, 4.7 bbls cement to surface. Bleed back 0.2bbls. Floats holding
Weight:	11.6 ppf	
Grade:	K55	
Depth Set (m):	388.0	

PRODUCTION LINER

CASING DETAILS		CEMENTING DETAILS:
Size:		
Weight:		
Grade:		
Depth Set (m):		

ABANDONMENT PLUGS

Plug	Top (mMD)	Comment

FORMATION	FORMATION INTERVAL (mMDRT) {Perforations}	GUN: SIZE	GUN: TYPE	CHARGES: SPF	CHARGES: TYPE	CHARGES: WT(g)
Pilliga Sandstone	56 - 310.3					
Purlawaugh Formation	310.3 - 366 {Perforated 359m - 365m (Reference depth - Plumb Rd 1 OH Log)}	3-3/8"	3-3/8"	3-3/8"	60° Phasing	19 gr
Deriah Formation	366 - 388 (TD)					
PRESSURE						
TEMPERATURE						

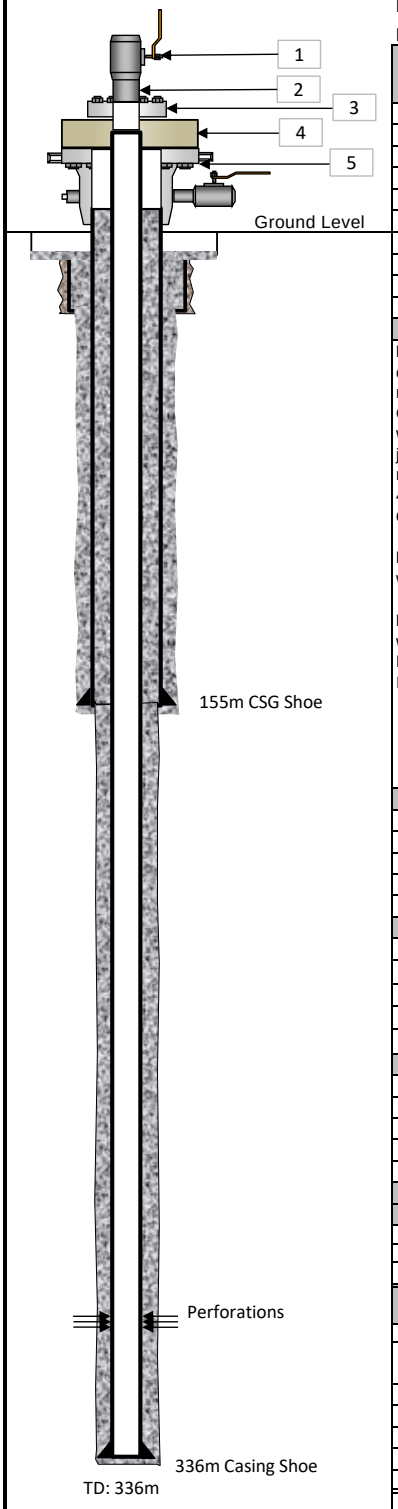
TAGGED DEPTHS:	23 Feb 2017, CBL tag HUD 375.8m
ANNULUS FLUID:	Open Casing - Produced Water
INDICATED STRING WEIGHT:	
CALCULATED STRING WEIGHT:	
LANDED WEIGHT:	
REMARKS:	

NOT TO SCALE	WELLSITE SUPERVISOR: Scott Hobday		
PROPOSED:	LAST WORKOVER		
COMPLETION:	DRAFTED BY: Kelvin Wuttke	DATE:	1 April 2017
RE-COMPLETION:	REVISED BY:	DATE:	
OTHER:	CHECKED BY: S. Hann	DATE:	14 April 2017

Plumb Road 3

Latitude: -30° 32' 16.4652" **Well spudded:** 19/02/2017 **Ground Level:** 257.7 m

Longitude: 149° 36' 24.6019" **Last activity:** 25/02/2017 **K B elevation:** 259.9 m



ITEM No	DESCRIPTION	LTH (m)	DTH KB (m)	MIN I.D.	MAX O.D. (m)
	KB to top of wellhead		1.29		
1	2" NPT Ball Valve	0.14	1.43		
2	2" NPT Nipple	0.14	1.57		
3	3-1/8" 3M x 2" NPT Adaptor Flange	0.05	1.62		
4	7-1/16" 3M x 3-1/8" 3M Seal Pocket Flange for 4-1/2" casing	0.18	1.80		
5	7" BTC x 7-1/16" 3M A Section, 2" ball valve side outlets	0.41	2.21		
6					
7					
8					
9					

BRIEF HISTORY ON WELL

Plumb Road 2 Drilling - was spudded by TDC Rig 10, a Drillmec G55 R3 rig on the 19th February 2017. The well was drilled by TDC Pty Ltd on behalf of the NSW Government Operator, DPI Water, and drilled with the object of creating a water monitoring bore and obtaining water samples. The well reached a final TD of 336m and was cased with 4-1/2", cemented to surface and perforated in the Piliga formation.
Once rigged up over well centre a 12-1/4" hole was drilled to 14.3m and 1 joint of 9-5/8" casing run as a conductor and grouted in place. An 8-1/2" hole was drilled to 156m with a PDC bit and and water based KCL gel fluid. 7" Casing was run to 155.2m and cemented in place with a two stage cement job. After WOC, drilled out shoe track and drilled 6-1/8" hole to the TD of 336m. The well was logged with Gamma Ray, Resistivity, SP, multiple depth resistivity, Temp, Mag Dev.
4-1/2" casing was run with a single joint shoe track to 336m. Circulated hole clean and pumped a two stage cement job with cement to surface. Cut and dress casing stump and install wellhead. Rig down and release rig on 21 Feb 2017.

Perforating: TDC Flushby rig skidded over and rigged up over location on 23 Feb 2017. Wireline unit rigged up and a CBL log carried out. The well was then perforated using the GR-CCL correlation log from 305 - 311 mRT. Wireline unit and flushby unit rigged down.

Developing: On 24 Feb 2017 flushby unit skidded back over well and rigged up its workfloor, flow cross and annular and ran 2-3/8" workstring into the well. Trip in and unload well at 312m. Circulated well while monitoring returns until fluid charachteristics stable and sufficient volume produced. On 25 Feb 2017 once approval given to cease developing well, pull out of hole workstring. Rig down and release flushby unit and moved to Plumb Rd 2. Install wellhead and close valve.

SURFACE

CASING DETAILS		CEMENTING DETAILS:
Size:	7"	The 7in surface casing was cemented on 19th February 2017. Pumped 20bbls fresh water spacer. Pump 12.6bbls of lead cement at 12.5ppg, Pumped 7.1bbls of tail cement at 15.6ppg. Displaced with 19.2bbls fresh water at 3bbls/min, bumped plug with 180psi increasing to 1500psi and held pressure for 5min. Continuous returns during job, and cement returns after 14.8bbls into displacement. 5.2bbls cement to surface. Bleed
Weight:	36 ppf	
Grade:	N80	
Depth Set (m):	155.2	

INTERMEDIATE

CASING DETAILS		CEMENTING DETAILS:
Size:	4-1/2"	The 4-1/2in production casing was cemented on 21st February 2017, with 10bbls of gelled spacer at 9.5ppg pumped, followed by 16.9bbls of 12.5ppg lead slurry and 8.9bbls of 15.6ppg tail slurry. Displaced with 16.6 bbls of water, bumped plug with 440psi and increased to 1500psi. Continuous returns during job, 7.6 bbls cement to surface. Bleed back 0.2bbls. Floats holding
Weight:	11.6 ppf	
Grade:	K55	
Depth Set (m):	336.0	

PRODUCTION LINER

CASING DETAILS		CEMENTING DETAILS:
Size:		
Weight:		
Grade:		
Depth Set (m):		

ABANDONMENT PLUGS

Plug	Top (mMD)	Comment

FORMATION	FORMATION INTERVAL (mMDRT) {Perforations}	GUN: SIZE	GUN: TYPE	CHARGES: SPF	CHARGES: TYPE	CHARGES: WT(g)
Piliga Sandstone	56 - 310.3					
Purlawaugh Formation	310.3 - 336 (TD) {Perforated 305m - 311m (Reference depth - Plumb Rd 1 OH log)}	3-3/8"	3-3/8"	3-3/8"	60° Phasing	19 gr
PRESSURE						
TEMPERATURE						

TAGGED DEPTHS:	23 Feb 2017, CBL tag HUD 316.3m
ANNULUS FLUID:	Open Casing - Produced Water
INDICATED STRING WEIGHT:	
CALCULATED STRING WEIGHT:	
LANDED WEIGHT:	
REMARKS:	

NOT TO SCALE	WELLSITE SUPERVISOR: Scott Hobday		
PROPOSED:	LAST WORKOVER		
COMPLETION:	DRAFTED BY: Kelvin Wuttke	DATE:	25 March 2017
RE-COMPLETION:	REVISED BY:	DATE:	
OTHER:	CHECKED BY: S. Hann	DATE:	27 March 2017

Appendix 3 – Geologist Daily Reports

DAILY GEOLOGICAL REPORT

Date:	07 February 2017	**Rig:**	DrillmecG55
Report Number:	1	**Bit Diameter:**	12-1/4"
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	244 mm (9-5/8") @ 14.9 mMDRT
Spud Date:	1545 hrs 06 Feb. 2017		
Days From Spud:	0.3	**Progress:**	16.2m
Depth @ 0600 Hrs:	16.2 mMDRT 12.4 mMDGL	**Mud Weight:** **Mud Type:**	 WBM
Last Report Depth:	0mMDRT		
Ground Level:	TBAm	**Last Survey:**	N/A
RT:	3.8 m	**Deviation:**	N/A

OPERATIONS SUMMARY

24 HOUR SUMMARY: Completed rig up. Made up 12-1/4" BHA and spud well at 1545hrs 06 February 2017. Drilled ahead to 16.2m. Circulated hole clean. Ran and cemented 9-5/8" conductor casing.

CURRENT OPERATION @ 06:00 HRS (07-Feb-2017): Preparing to drill ahead in 8-1/2" surface hole

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 0-10 mMDRT (3.8-6.2mMDGL)

SANDSTONE.
Dark yellowish orange to light brown, predominantly coarse to very coarse with common medium grained quartz grains, moderately sorted, sub-angular to sub-rounded, no cement, rare reddish brown silty matrix, occurring as loose disaggregated quartz grains, fair to good inferred porosity.

PROVISIONAL FORMATION TOPS*

Formation Name	Actual Depths MDRT (m)	Actual Depths MDGL (m)	Picks Based On
Pilliga Sandstone	10	6.2	Cuttings
Purlawaugh Fm			
Deriah Fm			
Napperby Fm			
Intrusives			
Digby Fm			
Black Jack Group			
Total Depth			

DAILY GEOLOGICAL REPORT

Date:	08 February 2017	**Rig:**	DrillmecG55
Report Number:	2	**Bit Diameter:**	8-1/2”
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	178 mm (7”) @ 156.02 mMDRT
Spud Date:	1545 hrs 06 Feb. 2017		
Days From Spud:	1.3	**Progress:**	141.8m
Depth @ 0600 Hrs:	158 mMDRT 154.2 mMDGL	**Mud Weight:** **Mud Type:**	8.6ppg WBM
Last Report Depth:	16.2mMDRT	**Avg. ROP**	30 – 40 m/hr
Ground Level:	Est. 258.2m AHD	**Last Survey:**	Miss run
RT:	3.8 m	**Deviation:**	N/A

OPERATIONS SUMMARY

24 HOUR SUMMARY: Drilled out of 9-5/8” casing. Drilled ahead in 8-1/2” from 16.2m to section TD at 158m. Circulate hole clean, dropped survey, pull out of hole.

CURRENT OPERATION @ 06:00 HRS (08-Feb-2017): Land 7” casing at 156.02m MDRT and circulating prior to pumping cement

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 10 - 30 mMDRT (6.2 – 26.2mMDGL)

Interbedded SANDSTONE and SILTY CLAYSTONE.
Grayish red, predominantly fine to medium grained with common coarse and minor very coarse quartz grains, moderately to poorly sorted, sub-angular to sub-rounded, no cement, non-calcareous, abundant reddish brown and off white argillaceous matrix, occurring as predominantly loose disaggregated grains, rare yellowish gray aggregates with abundant off-white argillaceous matrix, hard to very hard aggregates, poor to very poor visual porosity.

Rare SILTY CLAYSTONE: moderate to dark reddish brown, floating poorly sorted quartz grains, rare lithics, blocky, hard to very hard

INTERVAL: 30 - 50 mMDRT (26.2 – 46.2mMDGL)

Interbedded ARGILLACEOUS SANDSTONE and SILTY CLAYSTONE.
ARGILLACEOUS SANDSTONE: Light brown to dark reddish brown, predominantly fine-medium grained with common coarse, minor very coarse quartz grains and trace quartz pebbles, poorly sorted, sub-angular to sub-rounded, no cement, non-calcareous, abundant reddish brown and light gray argillaceous matrix, grading to claystone, dispersive, amorphous.

Trace SILTY CLAYSTONE: dark reddish brown, floating poorly sorted quartz grains, blocky, hard to very hard.

INTERVAL: 50 - 70 mMDRT (46.2 – 66.2mMDGL)

SANDSTONE
Light brown to dark reddish brown to pale yellowish orange, medium-coarse grained with minor very coarse grained quartz grains and trace quartz pebbles, moderately-poorly sorted, sub-angular to sub-rounded, no

cement, non-calcareous, localised vari-coloured argillaceous matrix increasing with depth, trace lithics, occurring as predominantly loose disaggregated grains, good visual porosity.

INTERVAL: 70 - 80 mMDRT (66.2 – 76.2mMDGL)

ARENACEOUS CLAYSTONE
Medium gray to moderate yellowish brown, arenaceous, with floating medium grained quartz grains, dispersive to soft, amorphous

INTERVAL: 80 - 140 mMDRT (76.2 – 136.2mMDGL)

SANDSTONE with minor interbedded ARGILLACEOUS SANDSTONE, SANDSTONE, SILTSTONE & CLAYSTONE.
SANDSTONE: light olive gray, very fine to fine grained quartz aggregates, well sorted, sub-rounded, siliceous cement, trace white argillaceous matrix, slightly calcareous, very hard, nil to poor visual porosity. Loose quartz grains, predominantly medium grained with common coarse, and rare very coarse quartz grains and quartz pebbles, moderately sorted, sub-angular to sub-rounded, no cement, non-calcareous, rare to minor dark yellowish orange argillaceous matrix, fair to good inferred porosity.
SILTSTONE: moderate to dark reddish brown, blocky to sub-fissile, very hard
CLAYSTONE: medium grey to light olive gray, soft, amorphous.
ARGILLACEOUS SANDSTONE: dark yellowish orange to moderate yellowish brown, predominantly medium grained with common coarse, and rare very coarse quartz grains, moderately sorted, sub-angular to sub-rounded, no cement, non-calcareous, abundant dark yellowish orange argillaceous matrix grading to claystone in part.
ARENACEOUS CLAYSTONE: medium gray to moderate yellowish brown, arenaceous, with floating medium grained quartz grains, dispersive to soft, amorphous.

INTERVAL: 140 - 158 mMDRT (136.2 – 154.2mMDGL)

SANDSTONE
SANDSTONE: Light olive gray to moderate yellowish brown, predominantly medium to coarse grained quartz grains, trace quartz pebbles, moderately sorted, sub-angular to sub-rounded, no cement, trace to rare white argillaceous matrix, occurring as loose quartz, good visual porosity

PROVISIONAL FORMATION TOPS*

	Actual Depths		Picks Based On
Formation Name	**MDRT (m)**	**MDGL (m)**	
Pilliga Sandstone	54	50.2	Cuttings
Purlawaugh Fm			
Deriah Fm			
Napperby Fm			
Intrusives			
Digby Fm			
Black Jack Group			
Total Depth			

REMARKS
Pilliga formation top changed to reflect interpreted depth based on cuttings

WELLSITE GEOLOGISTS
Andrea Strand/Adam Cruickshank

DAILY GEOLOGICAL REPORT

Date:	09 February 2017	**Rig:**	DrillmecG55
Report Number:	3	**Bit Diameter:**	8-1/2"
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	178 mm (7") @ 156.02 mMDRT
Spud Date:	1545 hrs 06 Feb. 2017		
Days From Spud:	2.3	**Progress:**	0m
Depth @ 0600 Hrs:	158 mMDRT 154.2 mMDGL	**Mud Weight:** **Mud Type:**	8.6ppg WBM
Last Report Depth:	158mMDRT	**Avg. ROP**	N/A
Ground Level:	Est. 258.2m AHD	**Last Survey:**	Miss run
RT:	3.8 m	**Deviation:**	N/A

OPERATIONS SUMMARY

24 HOUR SUMMARY: Ran 7" casing to 156.02m. Rig up and cement as per program. Wait on cement.

CURRENT OPERATION @ 06:00 HRS (09-Feb-2017): Pressure testing BOP

GEOLOGICAL SUMMARY

LITHOLOGY

No new lithology

PROVISIONAL FORMATION TOPS*

Formation Name	Actual Depths MDRT (m)	Actual Depths MDGL (m)	Picks Based On
Pilliga Sandstone	54	50.2	Cuttings
Purlawaugh Fm			
Deriah Fm			
Napperby Fm			
Intrusives			
Digby Fm			
Black Jack Group			
Total Depth			

REMARKS

Pilliga formation top changed to reflect interpreted depth based on cuttings

WELLSITE GEOLOGISTS

Andrea Strand/Adam Cruickshank

DAILY GEOLOGICAL REPORT

Date:	10 February 2017	**Rig:**	DrillmecG55
Report Number:	4	**Bit Diameter:**	6-1/8"
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	178 mm (7") @ 156.02 mMDRT
Spud Date:	1545 hrs 06 Feb. 2017		
Days From Spud:	3.3	**Progress:**	24m
Depth @ 0600 Hrs:	182m mMDRT 178.2 mMDGL	**Mud Weight:** **Mud Type:**	9.0ppg WBM
Last Report Depth:	158mMDRT	**Avg. ROP**	N/A
Ground Level:	Est. 258.2m AHD	**Last Survey:**	130m
RT:	3.8 m	**Deviation:**	1/4Deg

OPERATIONS SUMMARY

24 HOUR SUMMARY: Rigged up and pressure tested well head , BOPs and choke mainfold. Prepared BHA and TIH. Ran wire line survey – 1/4Deg @ 130m.

CURRENT OPERATION @ 06:00 HRS (10-Feb-2017): Drilling ahead in 6-1/8" hole

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 158 - 180 mMDRT (154.2 – 176.2mMDGL)

SANDSTONE
Light olive grey, translucent grains, upper fine to very coarse quartz grains, predominantly medium to coarse, minor gravel sized quartz grains, very poor to poor sorting, predominantly sub-angular, minor sub-rounded, minor dark yellowish orange stained quartz grains, minor dark lithics, common off white argillaceous material dispersed throughout sample - likely matrix in origin, rare black lustrous lignitic coal fragments with conchoidal fracture, dominantly disaggregated, trace aggregate with strong siliceous cementation and minor off white argillaceous matrix, fair to good inferred porosity. Minor cement contamination in sample.

PROVISIONAL FORMATION TOPS*

	Actual Depths		Picks Based On
Formation Name	**MDRT (m)**	**MDGL (m)**	
Pilliga Sandstone	54	50.2	Cuttings
Purlawaugh Fm			
Deriah Fm			
Napperby Fm			
Intrusives			
Digby Fm			
Black Jack Group			
Total Depth			

REMARKS

WELLSITE GEOLOGISTS
Andrea Strand/Adam Cruickshank

DAILY GEOLOGICAL REPORT

Date:	11 February 2017	**Rig:**	DrillmecG55
Report Number:	5	**Bit Diameter:**	6-1/8"
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	178 mm (7") @ 156.02 mMDRT
Spud Date:	1545 hrs 06 Feb. 2017		
Days From Spud:	4.3	**Progress:**	288.0 m
Depth @ 0600 Hrs:	470.0 mMDRT 466.2 mMDGL	**Mud Weight:** **Mud Type:**	9.7 ppg WBM
Last Report Depth:	182.0 mMDRT	**Avg. ROP**	N/A
Ground Level:	Est. 258.2 mAHD	**Last Survey:**	244.0 m
RT:	3.8 m	**Deviation:**	1/2 Deg

OPERATIONS SUMMARY

24 HOUR SUMMARY: Drilled 6-1/8" hole from 182.0 m to 470.0 mMDRT.

CURRENT OPERATION @ 06:00 HRS (11-Feb-2017): Drilling ahead 6-1/8" hole at 470.0 mMDRT.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 180 - 190 mMDRT (176.2 – 186.2mMDGL)

SANDY CLAYSTONE.
SANDY CLAYSTONE: Light olive gray, arenaceous, with minor floating predominantly medium grained and rare coarse to very coarse quartz grains, dispersive, common to abundant carbonaceous specks, amorphous.

INTERVAL: 190 - 310 mMDRT (186.2 – 306.2 mMDGL)

MASSIVE SANDSTONE with minor SILTSTONE, CLAYSTONE & COAL interbeds.
SANDSTONE: Light olive grey, translucent grains, fine to very coarse quartz grains, predominantly fine to medium, rare gravel sized quartz grains, moderate to poor sorting, predominantly sub-angular, minor sub-rounded, slightly calcareous, minor to common white to off white argillaceous material dispersed throughout sample - likely matrix in origin, rare dark lithics, rare to minor carbonaceous specks, occurring as disaggregated loose quartz grains, fair to good inferred porosity.

INTERVAL: 310 - 335 mMDRT (306.2 – 331.2mMDGL)

SANDY CLAYSTONE with minor SILTSTONE, SANDSTONE and COAL interbeds:
CLAYSTONE: light olive gray, slightly arenaceous, with minor floating predominantly fine-medium grained and trace coarse quartz grains, dispersive, common carbonaceous specks, amorphous.
ARENACEOUS SILTSTONE: medium olive grey to medium dark grey, common to abundant arenaceous material and grading to a SILTY SANDSTONE in part, common to locally abundant thin coal laminations, hard to very hard, blocky to sub-blocky, minor sub-fissile.
COAL: black, sub-vitreous, generally occurring in thin laminations with SILTSTONE, moderately hard to hard, fissile, occasionally hackly.
SANDSTONE: light olive grey, very fine to medium quartz grained aggregates, predominantly fine to medium grains, rare to minor loose coarse grains, generally well sorted, sub-angular to sub-rounded,

common strong siliceous cement, rare weak calcareous cement, minor off white to light olive grey argillaceous matrix, predominantly occurring as loose disaggregated grains, very hard where aggregates, poor visual porosity.

INTERVAL: 335 - 345 mMDRT (331.2 – 341.2 mMDGL)

INTERBEDDED SILTSTONE and CLAYSTONE
SILTSTONE: Olive gray to medium dark gray, slightly carbonaceous, firm to moderately hard, blocky
CLAYSTONE: light olive gray, slightly arenaceous, with rare floating quartz grains, dispersive, common carbonaceous specks, amorphous.

INTERVAL: 345 - 355 mMDRT (341.2 – 351.2 mMDGL)

Interbedded CLAYSTONE, SILTSTONE, SANDSTONE and COAL
ARENACEOUS SILTSTONE: medium olive grey to medium dark grey, common to abundant arenaceous material and grading to a SILTY SANDSTONE in part, common to locally abundant thin coal laminations, hard to very hard, blocky to sub-blocky, minor sub-fissile.
COAL: black, sub-vitreous, generally occurring in thin laminations with SILTSTONE, moderately hard to hard, fissile, occasionally hackly.
SANDSTONE: light olive grey, very fine to medium quartz grained aggregates, predominantly fine to medium grains, rare to minor loose coarse grains, generally well sorted, sub-angular to sub rounded, common strong siliceous cement, rare weak calcareous cement, minor off white to light olive grey argillaceous matrix, predominantly occurring as loose disaggregated grains, very hard where aggregates, poor visual porosity.
CLAYSTONE: light grey, pulverised, sticky, amorphous/ dispersive.

INTERVAL: 355 - 365 mMDRT (351.2 – 361.2 mMDGL)

MASSIVE SANDSTONE: Light olive grey, commonly frosted grains, fine to very coarse quartz grains, minor fractured gravel sized particles, predominantly medium to coarse grains, poor to very poorly sorted, angular to sub-angular and commonly due to bit fracturing, minor sub-rounding, common moderately strong siliceous cement in rare aggregates, trace weak pyritic cement, common to abundant off white argillaceous matrix (washing out of sample), minor to common lithics, rare dark volcanic fragments, generally disaggregated, rare very hard aggregates, fair to good inferred porosity.

INTERVAL: 365 - 380 mMDRT (361.2 – 376.2 mMDGL)

SANDSTONE grading with depth to CLAYSTONE & SILTSTONE.
SANDSTONE: Light olive grey, commonly frosted grains, fine to very coarse quartz grains, minor fractured gravel sized particles, predominantly medium to coarse grains, poor to very poorly sorted, angular to sub-angular and commonly due to bit fracturing, minor sub-rounding, common moderately strong siliceous cement in rare aggregates, trace weak pyritic cement, common to abundant off white argillaceous matrix (washing out of sample), minor to common lithics, generally disaggregated, rare very hard aggregates, fair to good inferred porosity.
CLAYSTONE: off white, sticky and amorphous, likely sourced from SANDSTONE matrix or as interbedded laminations.
SILTSTONE: medium dark grey to olive black, arenaceous in part, locally common carbonaceous micro-laminations and specks, very hard, sub-blocky to blocky, sub-fissile in part.

INTERVAL: 380 - 470 mMDRT (376.2 – 466.2 mMDGL)

Interbedded SILTSTONE & SANDSTONE with thin COAL stringers
SANDSTONE: off white to light grey, very fine to coarse grains, well sorted aggregates with either predominantly medium to coarse grains or predominantly fine quartz grains, sub-rounded to sub-angular grains, common strong silicic cement and minor calcareous cement, common to locally abundant off white

argillaceous matrix, locally common carbonaceous material, minor lithics, very hard aggregates, poor to fair visible porosity.
SILTSTONE: medium dark grey, minor brownish black, common to locally abundant very fine to fine quartz grains and grading to a SILTY SST in part where brownish black, common to locally abundant carbonaceous material, very hard, sub-blocky to sub-fissile.
CLAYSTONE: pulverised and likely SST matrix sourced.

PROVISIONAL FIELD FORMATION TOPS*

	Actual Depths		Picks Based On
Formation Name	**MDRT (m)**	**MDGL (m)**	
Pilliga Sandstone	54	50.2	Cuttings
Purlawaugh Fm	310	306.2	Cuttings/ROP
Deriah Fm	365	361.2	Cuttings / ROP
Napperby Fm	380	376.2	Cuttings
Intrusives			
Digby Fm			
Black Jack Group			
Total Depth			

REMARKS
None

WELLSITE GEOLOGISTS
Andrea Strand/Adam Cruickshank

DAILY GEOLOGICAL REPORT

Date:	12 February 2017	**Rig:**	DrillmecG55
Report Number:	6	**Bit Diameter:**	6-1/8”
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	178 mm (7”) @ 156.02 mMDRT
Spud Date:	1545 hrs 06 Feb. 2017		
Days From Spud:	5.3	**Progress:**	172.0 m
Depth @ 0600 Hrs:	642.0 mMDRT 638.2 mMDGL	**Mud Weight:** **Mud Type:**	9.8 ppg WBM
Last Report Depth:	470.0 mMDRT	**Avg. ROP**	N/A
Ground Level:	Est. 258.2 mAHD	**Last Survey:**	548 mMDRT
RT:	3.8 m	**Deviation:**	3.0Deg

OPERATIONS SUMMARY

24 HOUR SUMMARY: Drilled 6-1/8” hole from 470.0m to well TD at 642 mMDRT. Circulated and conditioned well. Rig repair.

CURRENT OPERATION @ 06:00 HRS (11-Feb-2017): Continuing with rig repair/maintenance

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 470.0 – 515 mMDRT (466.2 – 511.2 mMDGL)

SANDY SILTSTONE with minor interbedded SANDSTONE.
SANDSTONE: light olive grey, off white, very fine to fine grained, well sorted, generally sub-angular, common strong siliceous cement, rare weak calcareous material, common off white argillaceous matrix, common to abundant light olive grey silty matrix and commonly grades to / interbedded with
SANDY SILTSTONE: olive grey, medium dark grey, common carbonaceous and micaceous specks, quartzite micro-laminations in part, minor lithics, firm to very hard aggregates, sub-fissile to blocky

INTERVAL: 515 - 525 mMDRT (511.2 – 521.2 mMDGL)

SILTSTONE: olive black to greyish black to black, commonly argillaceous, arenaceous in part with common floating quartz grains, common carbonaceous material, moderately hard to hard, blocky to sub-fissile.

INTERVAL: 525 - 535 mMDRT (521.2 – 531.2 mMDGL)

Interbedded SANDSTONE with minor SANDY SILTSTONE.
SANDSTONE: off-white to medium light gray, predominantly medium to coarse-grained, trace very coarse quartz grains, translucent and opaque quartz, moderately sorted, sub-angular, common to abundant, argillaceous matrix, strongly calcareous, occurring predominantly as loose quartz grains, poor to fair inferred porosity.
SANDY SILTSTONE: olive grey, medium dark grey, common carbonaceous and micaceous specks, firm to very hard aggregates, sub fissile to blocky.

INTERVAL: 535.0 - 578.0 mMDRT (531.2 – 574.2 mMDGL)

Intrusive VOLCANICS
VOLCANICS: predominantly occurring as loose dark greenish gray, porphyritic, rare olivine phenocrysts, trace biotite, common to abundant calcite - likely as fracture fill, tight, conchoidal fracture.
Trace SILTSTONE: olive grey, medium dark grey, common carbonaceous and micaceous specks, firm to very hard aggregates, sub-fissile to blocky.
Trace SANDSTONE: off white/off-white, fine-medium grained, well sorted, sub-angular to sub-rounded, minor to common argillaceous matrix, slightly calcareous, fair inferred porosity. Trace pale yellow, opaque, gravel sized quartz grains some with adjacent calcite, possible vein material. Trace reddish brown coarse to very coarse grained aggregates, well sorted, sub-angular, common pale yellowish brown to reddish brown argillaceous matrix, non-calcareous, very hard, poor visual porosity. Trace gravel sized quartz grains with rare to minor yellowish reddish brown argillaceous matrix

INTERVAL: 578.0 - 610.0 mMDRT (574.2 – 606.2 mMDGL)

CONGLOMERATIC sequence.
CONGLOMERATE: occurring as varicolored chips (dominantly milky white and orange/reddish brown) of quartzite with conchoidal fracture. White to off white quartzite, with very fine grained disseminated pyrite. Light gray quartzite.
SANDSTONE: as above slightly to moderately calcareous, common white-off white argillaceous matrix.
Trace VOLCANICS: as above (possible cavings)
Trace ARENACEOUS SILTSTONE: olive grey to dark yellowish brown, common carbonaceous and micaceous specks, firm to very hard aggregates, sub-fissile to blocky. (possible cavings).

INTERVAL: 610.0 - 642.0 mMDRT (606.2 – 638.2 mMDGL)

Interbedded SILTSTONE, SANDSTONE, COAL and TUFF.
COAL: olive black, greyish black, locally sub-vitreous in laminations, common silty / earthy and grading to a CARBONACEOUS SILTSTONE, hard to very hard, sub-conchoidal where vitreous, hackley in part, generally sub-blocky to sub-fissile.
TUFF: off white to greenish grey, waxy / plastic, firm to hard, delaminating, blocky.
SILTSTONE: greyish black, commonly arenaceous material, common thin carbonaceous micro-laminations, hard to very hard, sub-blocky.
SANDSTONE: off white to light olive grey, fine to medium grained, predominantly fine quartz grained, sub-angular, minor sub-rounded, common strong siliceous cement, trace calcareous material, common to abundant off white argillaceous matrix, locally common thin carbonaceous / coaly microlaminations and silty layering, very hard aggregates, very poor visual porosity.

PROVISIONAL FIELD FORMATION TOPS*

	Actual Depths		Picks Based On
Formation Name	**MDRT (m)**	**MDGL (m)**	
Pilliga Sandstone	54	50.2	Cuttings
Purlawaugh Fm	310	306.2	Cuttings/ROP
Deriah Fm	365	361.2	Cuttings / ROP
Napperby Fm	380	376.2	Cuttings
Intrusives	535	531.2	Cuttings
Digby Fm	578	574.2	Cuttings/ROP
Black Jack Group	610	606.2	Cuttings
Total Depth	**642**	**638.2**	

REMARKS
The Plumb Road-1 well reached a Total Depth of 642.0 mMDRT (638.2 mMDGL) at 2100 hrs 11th February 2017.

WELLSITE GEOLOGISTS
Andrea Strand/Adam Cruickshank

Appendix 4 – Bore Log Details

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)
0	**SANDSTONE:** Dark yellowish orange to light brown, pred. coarse to very coarse with common medium grained quartz grains, moderately sorted, sub-angular to sub-rounded, no cement, rare reddish brown silty matrix, occurring as loose disaggregated quartz grains			
10	**SANDSTONE:** Grayish red, predominantly fine to medium grained with common coarse and minor very coarse quartz grains, moderately to poorly sorted, sub-angular to sub-rounded, no cement, non-calcareous, abundant reddish brown and off white argillaceous matrix, occuring as predominantly loose disaggregated grains, rare yellowish gray aggregates with abundant off-white argilleous matrix, hard to very hard aggregates, poor to very poor visual porosity. Rare **SILTY CLAYSTONE:** moderate to dark reddish brown, floating poorly sorted quartz grains, rare lithics, blocky, hard to very hard		**33 m/hr**	**UNDIFFERENTIATED SEDIMENTS**
30	**ARGILLACEOUS SANDSTONE:** Light brown to dark reddish brown, predominantly fine-medium grained with common coarse, minor very coarse quartz grains and trace quartz pebbles, poorly sorted, sub-angular to sub-rounded, no cement, non-calcareous, abundant reddish brown and light gray argillaceous matrix, grading to claystone, dispersive, amorphous. Trace **SILTY CLAYSTONE:** dark reddish brown, floating poorly sorted quartz grains, blocky, hard to very hard., argillaceous			
48				

BORE CONSTRUCTION

DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
0		SDSN	**Plumb Road-1 spud 1545hrs 06 Feb 2017**
10		SDSN	**9 5/8" K55 36 lb/ft csg @ 14.9m MDRT** **12-1/4" hole @ 16.2m MDRT**
30		SDSN	
48			

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

Draft

Department of Primary Industries Water

PLUMB ROAD-1 BORE LOG

INGAUGE Well Engineering & Project Management Reliable | Experienced | Engaged

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION
52–98	**SANDSTONE,** Light brown to dark reddish brown to pale yellowish orange, medium-coarse grained with minor very coarse grained quartz grains and trace quartz pebbles, moderately-poorly sorted, sub-angular to sub-rounded, no cement, non-calcareous, localised vari-coloured argillaceous matrix increasing with depth, trace lithics, occuring as predominantly loose disaggregated grains, good visual porosity
70–80	**SANDY CLAYSTONE** medium gray to moderate yellowish brown, arenaceous, with floating medium grained quartz grains, dispersive to soft, amorphous, sandy
80–90	**ARGILLACEOUS SANDSTONE** dark yellowish orange to moderate yellowish brown, predominantly fine-medium grained with common coarse, and rare very coarse quartz grains, moderately sorted, sub-angular to sub-rounded, no cement, non-calcareous, abundant dark yellowish orange argillaceous matrix, dispersive, grading to claystone in part, occuring as predominantly loose disaggregated grains, poor visual porosity. increasing w/ depth **SANDSTONE:** medium dark gray, very fine to fine grained quartz aggregates, well sorted, sub-rounded, siliceous cement, trace white argillaceous matrix, slightly calcareous, very hard, nil to poor visual porosity. **CLAYSTONE** medium to medium dark grey, soft, amorphous **Trace SILTSTONE:** moderate to dark reddish brown, floating poorly sorted quartz grains, blocky to subfissile, hard to very hard, argillaceous

SAMPLE DEPTH (mMDRT)

Avg. ROP (m/hr): **36 m/hr**

FORMATION TOPS (mMDRT): **56m** — **PILLIGA SANDSTONE**

BORE CONSTRUCTION

GRAPHIC LOG

GDS CODE: SDSN (70–80), CLSN (80–90), SDSN (90–98)

CONSTRUCTION

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

Draft

Department of Primary Industries Water

PLUMB ROAD-1 BORE LOG

INGAUGE Well Engineering & Project Management Reliable | Experienced | Engaged

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)
102–148				
110	**SANDSTONE with minor interbedded ARGILLACEOUS SANDSTONE, SILTSTONE & CLAYSTONE.** **SANDSTONE: l**ight olive gray, very fine to fine grained quartz aggregates, well sorted, sub-rounded, siliceous cement, trace white argillaceous matrix, slightly calcareous, very hard, nil to poor visual porosity. Loose quartz grains, predominantly medium grained with common coarse, and rare very coarse quartz grains and quartz pebbles, moderately sorted, sub-angular to sub-rounded, no cement, non-calcareous, rare to minor dark yellowish orange argillaceous matrix, fair to good inferred porosity. **SILTSTONE:** moderate to dark reddish brown, blocky to sub-fissile, very hard **CLAYSTONE:** medium grey to light olive gray, soft, amorphous. **ARGILLACEOUS SANDSTONE: d**ark yellowish orange to moderate yellowish brown, predominantly medium grained with common coarse, and rare very coarse quartz grains, moderately sorted, sub-angular to sub-rounded, no cement, non-calcareous, abundant dark yellowish orange argillaceous matrix grading to claystone in part. **ARENACEOUS CLAYSTONE:** medium gray to moderate yellowish brown, arenaceous, with floating medium grained quartz grains, dispersive to soft, amorphous		**45 m/hr**	
140	**SANDSTONE,** Light olive gray to moderate yellowish brown, predomiantly medium to coarse grained quartz grains, trace quatrz pebbles, moderately sorted, sub-angular to sub-rounded, no cement, trace to rare white argillaceous matrix, occuring as loose quartz, good visual porosity		**26 m/hr**	

BORE CONSTRUCTION

DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
102–148		SDSN (110–140) SDSN (140–148)	

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)
152	**SANDSTONE,** Light olive gray to moderate yellowish brown, predominantly medium to coarse grained quartz grains, trace quatrz pebbles, moderately sorted, sub-angular to sub-rounded, no cement, trace to rare white argillaceous matrix, occuring as loose quartz, good visual porosity			
154				
156				
158	**SANDSTONE,** Light olive grey, translucent grains, upper fine to very coarse quartz grains, predominantly medium to coarse, minor gravel sized quartz grains, very poor to poor sorting, predominantly sub-angular, minor sub-rounded, minor dark yellowish orange stained quartz grains, minor dark lithics, common off white argillaceous material dispersed throughout sample - likely matrix in origin, rare black lustrous lignitic coal fragments with conchoidal fracture, dominantly disaggregated, trace aggregate with strong siliceous cementation and minor off white argillaceous matrix, fair to good inferred porosity. Minor cement contamination in sample.		**26 m/hr**	
160				
162				
164				
166				
168				
170				
172				
174				
176				
178				
180	**SANDY CLAYSTONE:** Light olive gray, arenaceous, with minor floating predominantly medium grained and rare coarse to very coarse quartz grains, dispersive, common to abundant carbonaceous specks, amorphous., sandy		**16 m/hr**	
182				
184				
186				
188				
190	**MASSIVE SANDSTONE with minor SILTSTONE, CLAYSTONE & COAL interbeds.**		**44 m/hr**	
192	**SANDSTONE:** Light olive grey, translucent grains, fine to very coarse quartz grains, predominantly fine to medium, rare gravel sized quartz grains, moderate to poor sorting, predominantly sub-angular, minor sub-rounded, slightly calcareous, minor to common white to off white argillaceous material dispersed throughout sample - likely matrix in origin, rare dark lithics, rare to minor carbonaceous specks, occurring as disaggregated loose quartz grains, fair to good inferred porosity.			
194				
196	**CLAYSTONE:** dark yellowish brown, common carbonaceous specks, soft, amorphous			
198	**SILTSTONE:** dusky yellowish brown to olive gray, slightly carbonaceous, trace mica, hard to very hard, sub fissile to fissile.			

BORE CONSTRUCTION

DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
152			
154		SDSN	
156			**7" N80 23 lb/ft csg @ 156.02m MDRT**
158			**8-1/2" hole @ 158m MDRT**
160			
162			
164			
166			
168			
170		SDSN	
172			
174			
176			
178			
180			
182			
184		CLSN	
186			
188			
190			
192			
194		SDSN	
196			
198			

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION | BORE CONSTRUCTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)	DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
202–248	**MASSIVE SANDSTONE with minor SILTSTONE, CLAYSTONE & COAL interbeds.** **SANDSTONE:** Light olive grey, translucent grains, fine to very coarse quartz grains, predominantly fine to medium, rare gravel sized quartz grains, moderate to poor sorting, predominantly sub-angular, minor sub-rounded, slightly calcareous, minor to common white to off white argillaceous material dispersed throughout sample - likely matrix in origin, rare dark lithics, rare to minor carbonaceous specks, occurring as disaggregated loose quartz grains, fair to good inferred porosity. **CLAYSTONE:** dark yellowish brown, common carbonaceous specks, soft, amorphous **SILTSTONE:** dusky yellowish brown to olive gray, slightly carbonaceous, trace mica, hard to very hard, sub fissile to fissile.		**44 m/hr**		202–248		SDSN	

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION | BORE CONSTRUCTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)	DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
252–298	**MASSIVE SANDSTONE with minor SILTSTONE, CLAYSTONE & COAL interbeds.** **SANDSTONE:** Light olive grey, translucent grains, fine to very coarse quartz grains, predominantly fine to medium, rare gravel sized quartz grains, moderate to poor sorting, predominantly sub-angular, minor sub-rounded, slightly calcareous, minor to common white to off white argillaceous material dispersed throughout sample - likely matrix in origin, rare dark lithics, rare to minor carbonaceous specks, occurring as disaggregated loose quartz grains, fair to good inferred porosity. **CLAYSTONE:** dark yellowish brown, common carbonaceous specks, soft, amorphous **SILTSTONE:** dusky yellowish brown to olive gray, slightly carbonaceous, trace mica, hard to very hard, sub fissile to fissile.		**44 m/hr**		252–298		SDSN	

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

MASSIVE SANDSTONE with minor SILTSTONE, CLAYSTONE & COAL interbeds.

SANDSTONE: Light olive grey, translucent grains, fine to very coarse quartz grains, predominantly fine to medium, rare gravel sized quartz grains, moderate to poor sorting, predominantly sub-angular, minor sub-rounded, slightly calcareous, minor to common white to off white argillaceous material dispersed throughout sample - likely matrix in origin, rare dark lithics, rare to minor carbonaceous specks, occurring as disaggregated loose quartz grains, fair to good inferred porosity.

CLAYSTONE: dark yellowish brown, common carbonaceous specks, soft, amorphous

SILTSTONE: dusky yellowish brown to olive gray, slightly carbonaceous, trace mica, hard to very hard, sub fissile to fissile.

SANDY CLAYSTONE: light olive gray, arenaceous, with minor to common floating predominantly fine-medium grained & trace coarse quartz grains, dispersive , common to abundant carbonaceous specks, amorphous. Interpreted as interbedded sandstone and claystone

T**race COAL:** black, sub-vitreous, generally occurring in thin laminations with SILTSTONE, moderately hard to hard, fissile, occasionally hackly

Trace SANDY SILTSTONE: medium olive grey to medium dark grey, common to abundant arenaceous material and grading to a SILTY SANDSTONE in part, common to locally abundant thin coal laminations, hard to very hard, blocky to sub-blocky, minor sub-fissile.

INTERBEDDED SILTSTONE and CLAYSTONE

SILTSTONE: Olive gray to medium dark gray, slightly carbonaceous, firm to moderately hard, blocky

CLAYSTONE: light olive gray, slightly arenaceous, with rare floating quartz grains, dispersive, common carbonaceous specks, amorphous.

BORE CONSTRUCTION

DEPTH (mMDRT)	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)	GRAPHIC LOG	GDS CODE
302–310		44 m/hr			SDSN
310			310.3m PURLAWAUGH FORMATION		
312–334		21 m/hr			CLSN, SSLS
336–344					SLSN, CLSN
346–348					CLSN, SSLS, SDSN

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION
352	**Interbedded CLAYSTONE, SILTSTONE, SANDSTONE and COAL**
354	**SANDY SILTSTONE: m**edium olive grey to medium dark grey, common to abundant arenaceous material and grading to a SILTY SANDSTONE in part, common to locally abundant thin coal laminations, hard to very hard, blocky to sub-blocky, minor sub-fissile.
356	**COAL:** black, sub-vitreous, generally occurring in thin laminations with SILTSTONE, moderately hard to hard, fissile, occasionally hackly.
358	**SANDSTONE:** light olive grey, very fine to medium quartz grained aggregates, predominantly fine to medium grains, rare to minor loose coarse grains, generally well sorted, sub-angular to sub rounded, common strong siliceous cement, rare weak calcareous cement, minor off white to light olive grey argillaceous matrix, predominantly occurring as loose disaggregated grains, very hard where aggregates, poor visual porosity.
360	**CLAYSTONE:** light grey, pulverised, sticky, amorphous/ dispersive.
362	**SANDSTONE,** Light olive grey, commonly frosted grains, fine to very coarse quartz grains, minor fractured gravel sized particles, predominantly medium to coarse grains, poor to very poorly sorted, angular to sub-angular and commonly due to bit fracturing, minor sub-rounding, common moderately strong siliceous cement in rare aggregates, trace weak pyritic cement, common to abundant off white argillaceous matrix (washing out of sample), minor to common lithics, rare dark volcanic fragments, generally disaggregated, rare very hard aggregates, fair to good inferred porosity.
364	
366	
368	**SANDSTONE grading with depth to CLAYSTONE & SILTSTONE**
370	**SANDSTONE:** Light olive grey, commonly frosted grains, fine to very coarse quartz grains, minor fractured gravel sized particles, predominantly medium to coarse grains, poor to very poorly sorted, angular to sub-angular and commonly due to bit fracturing, minor sub-rounding, common moderately strong siliceous cement in rare aggregates, trace weak pyritic cement, common to abundant off white argillaceous matrix (washing out of sample), minor to common lithics, generally disaggregated, rare very hard aggregates, fair to good inferred porosity.
372	**CLAYSTONE:** off white, sticky and amorphous, likely sourced from SANDSTONE matrix or as interbedded laminations.
374	**SILTSTONE:** medium dark grey to olive black, arenaceous in part, locally common carbonaceous micro-laminations and specks, very hard, sub-blocky to blocky, sub-fissile in part.
376	
378	
380	**Interbedded SILTSTONE & SANDSTONE with thin COAL stringers. Increasing SILTSTONE with depth.**
382	**SILTSTONE:** medium dark grey, minor brownish black, common to locally abundant very fine to fine quartz grains and grading to a SILTY SST in part where brownish black, common to locally abundant carbonaceous material, very hard, sub-blocky to sub-fissile.
384	
386	**SANDSTONE:** off white to light grey, very fine to coarse grains, well sorted aggregates with either predominantly medium to coarse grains or predominantly fine quartz grains, sub-rounded to sub-angular grains, common strong silica cement and minor calcareous cement, common to locally abundant off white argillaceous matrix, locally common carbonaceous material, minor lithics, very hard aggregates, poor to fair visible porosity.
388	
390	**CLAYSTONE:** pulverised and likely SST matrix sourced.
392	
394	
396	
398	

SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)
	21 m/hr	
		366.0m DERIAH FORMATION
	13 m/hr	
		389.7m NAPPERBY FORMATION
	22 m/hr	

BORE CONSTRUCTION

DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
352		CLSN SSLS SDSN	
354			
356			
358			
360		SDSN	
362			
364			
366			
368			
370			
372		SDSN SLSN CLSN	
374			
376			
378			
380			
382			
384			
386			
388			
390		SLSN SDSN	
392			
394			
396			
398			

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION | BORE CONSTRUCTION

DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)	DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
402–448	**Interbedded SILTSTONE & SANDSTONE with thin COAL stringers. Increasing SILTSTONE with depth.** **SILTSTONE:** medium dark grey, minor brownish black, common to locally abundant very fine to fine quartz grains and grading to a SILTY SST in part where brownish black, common to locally abundant carbonaceous material, very hard, sub-blocky to sub-fissile. **SANDSTONE:** off white to light grey, very fine to coarse grains, well sorted aggregates with either predominantly medium to coarse grains or predominantly fine quartz grains, sub-rounded to sub-angular grains, common strong silica cement and minor calcareous cement, common to locally abundant off white argillaceous matrix, locally common carbonaceous material, minor lithics, very hard aggregates, poor to fair visible porosity. **CLAYSTONE:** pulverised and likely SST matrix sourced.		**22 m/hr**		402–448		SLSN SDSN	

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

Interbedded SILTSTONE & SANDSTONE with thin COAL stringers. Increasing SILTSTONE with depth.

SILTSTONE: medium dark grey, minor brownish black, common to locally abundant very fine to fine quartz grains and grading to a SILTY SST in part where brownish black, common to locally abundant carbonaceous material, very hard, sub-blocky to sub-fissile.

SANDSTONE: off white to light grey, very fine to coarse grains, well sorted aggregates with either predominantly medium to coarse grains or predominantly fine quartz grains, sub-rounded to sub-angular grains, common strong silica cement and minor calcareous cement, common to locally abundant off white argillaceous matrix, locally common carbonaceous material, minor lithics, very hard aggregates, poor to fair visible porosity.

CLAYSTONE: pulverised and likely SST matrix sourced.

SANDY SILTSTONE with minor interbedded SANDSTONE. Increasing SILTSTONE with depth.

SANDY SILTSTONE: olive grey, medium dark grey, common carbonaceous and micaceous specks, quartzite micro-laminations in part, minor lithics , firm to very hard aggregates, sub fissile to blocky

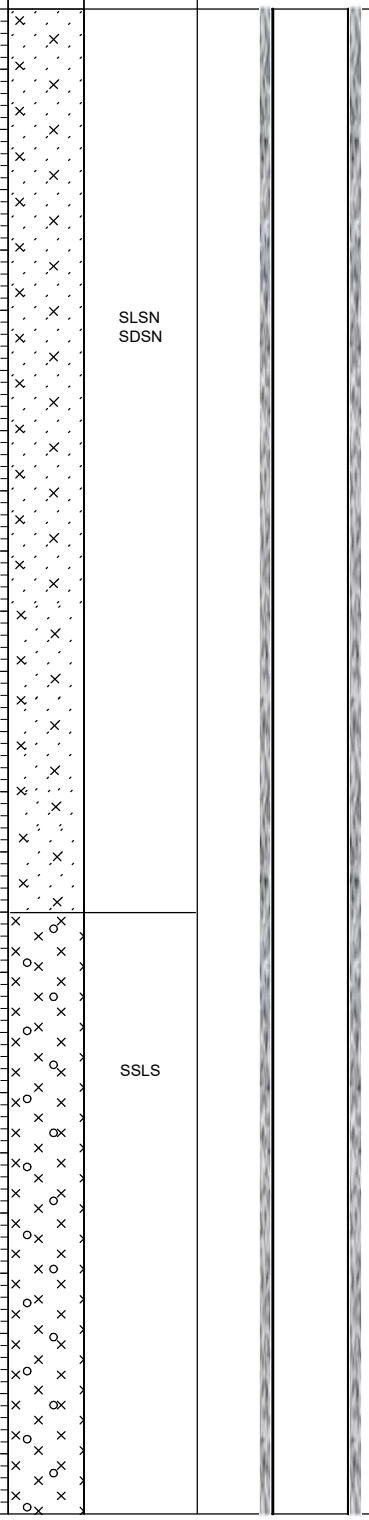
SANDSTONE: light olive grey, off white, very fine to fine grained, well sorted, generally sub-angular, common strong siliceous cement, rare weak calcareous material, common off white argillaceous matrix, common to abundant light olive grey silty matrix and commonly grades to / interbedded with SANDY SILTSTONE

Avg. ROP (m/hr): **22 m/hr**

BORE CONSTRUCTION

GDS CODE: SLSN, SDSN

GDS CODE: SSLS



COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION					BORE CONSTRUCTION		
DEPTH (mMDRT)	GEOLOGICAL DESCRIPTION	SAMPLE DEPTH (mMDRT)	Avg. ROP (m/hr)	FORMATION TOPS (mMDRT)	DEPTH (mMDRT)	GRAPHIC LOG	GDS CODE	CONSTRUCTION
502	**SANDY SILTSTONE with minor interbedded SANDSTONE. Increasing SILTSTONE with depth.** **SANDY SILTSTONE:** olive grey, medium dark grey, common carbonaceous and micaceous specks, quartzite micro-laminations in part, minor lithics , firm to very hard aggregates, sub fissile to blocky **SANDSTONE:** light olive grey, off white, very fine to fine grained, well sorted, generally sub-angular, common strong siliceous cement, rare weak calcareous material, common off white argillaceous matrix, common to abundant light olive grey silty matrix and commonly grades to / interbedded with SANDY SILTSTONE		22 m/hr		502		SSLS
504					504		
506					506		
508					508		
510					510		
512					512		
514					514		
516	**SILTSTONE:** olive black to greyish black to black, commonly argillaceous, arenaceous in part with common floating quartz grains, common carbonaceous material, moderately hard to hard, blocky to sub-fissile		20 m/hr		516		SLSN
518					518		
520					520		
522					522		
524					524		
526	**SANDY SILTSTONE:** olive grey, medium dark grey, common carbonaceous and micaceous specks, firm to very hard aggregates, sub fissile to blocky. **SANDSTONE:** off-white to medium light gray, predominantly medium to coarse-grained, trace very coarse quartz grains, translucent and opaque quartz, moderately sorted, sub-angular, common to abundant, argillaceous matrix, strongly calcareous, occurring predominantly as loose quartz grains, poor to fair inferred porosity.				526		SSLS
528					528		
530					530		
532					532		
534				533.6m	534		
536	**INTRUSIVE VOLCANICS interpreted as DOLERITE** **DOLERITE:** dark greenish gray, porphyritic, rare olivine phenocrysts, trace biotite, common to abundant calcite - likely as fracture fill, tight, conchoidal fracture. **Trace SILTSTONE:** olive grey, medium dark grey, common carbonaceous and micaceous specks, firm to very hard aggregates, sub-fissile to blocky. **Trace SANDSTONE:** off white/off-white, fine-medium grained, well sorted, sub-angular to sub-rounded, minor to common argillaceous matrix, slightly calcareous, fair inferred porosity. Trace pale yellow, opaque, gravel sized quartz grains some with adjacent calcite, possible vein material. Trace reddish brown coarse to very coarse grained aggregates, well sorted, sub-angular, common pale yellowish brown to reddish brown argillaceous matrix, non-calcareous, very hard, poor visual porosity. Trace gravel sized quartz grains with rare to minor yellowish reddish brown argillaceous matrix			INTRUSIVE	536		IGRK
538					538		
540					540		
542					542		
544					544		
546					546		
548					548		

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

INTRUSIVE VOLCANICS interpreted as DOLERITE

DOLERITE: dark greenish gray, porphyritic, rare olivine phenocrysts, trace biotite, common to abundant calcite - likely as fracture fill, tight, conchoidal fracture.

Trace SILTSTONE: olive grey, medium dark grey, common carbonaceous and micaceous specks, firm to very hard aggregates, sub-fissile to blocky.

Trace SANDSTONE: off white/off-white, fine-medium grained, well sorted, sub-angular to sub-rounded, minor to common argillaceous matrix, slightly calcareous, fair inferred porosity. Trace pale yellow, opaque, gravel sized quartz grains some with adjacent calcite, possible vein material. Trace reddish brown coarse to very coarse grained aggregates, well sorted, sub-angular, common pale yellowish brown to reddish brown argillaceous matrix, non-calcareous, very hard, poor visual porosity. Trace gravel sized quartz grains with rare to minor yellowish reddish brown argillaceous matrix

SANDSTONE, off-white, fine-medium grained, well sorted, sub-angular to sub-rounded, common to abundant calcite cement, rare to minor argillaceous matrix, strongly calcareous, hard, poor to fair inferred porosity, occurring as loose quartz grains

Trace to Rare VOLCANICS: as above

CONGLOMERATE, occurring as varicolored chips (dominantly milky white and orange/reddish brown) of quartzite with conchoidal fracture. White to off white quartzite, with very fine grained disseminated pyrite. Light gray quartzite.

SANDSTONE: as above slightly to moderately calcareous, common white-off white argillaceous matrix.

Trace VOLCANICS: as above (possible cavings)

Trace ARENACEOUS SILTSTONE: olive grey to dark yellowish brown, common carbonaceous and micaceous specks, firm to very hard aggregates, sub-fissile to blocky. (possible cavings).

20 m/hr

22 m/hr

578.0m

DIGBY FORMATION

BORE CONSTRUCTION

IGRK

SDSN

CGLM

Perforation Interval 578m to 581mMDRT

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 BORE LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **06/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

CONGLOMERATE, occurring as varicolored chips (dominantly milky white and orange/reddish brown) of quartzite with conchoidal fracture. White to off white quartzite, with very fine grained disseminated pyrite. Light gray quartzite.

SANDSTONE: as above slightly to moderately calcareous, common white-off white argillaceous matrix.

Trace VOLCANICS: as above (possible cavings)

Trace ARENACEOUS SILTSTONE: olive grey to dark yellowish brown, common carbonaceous and micaceous specks, firm to very hard aggregates, sub-fissile to blocky. (possible cavings).

Interbedded COAL, SILTSTONE, TUFF and SANDSTONE.

COAL: olive black, greyish black, locally sub-vitreous in laminations, common silty / earthy and grading to a CARBONACEOUS SILTSTONE, hard to very hard, sub-conchoidal where vitreous, hackley in part, generally sub-blocky to sub-fissile.

TUFF: off white to greenish grey, waxy / plastic, firm to hard, delaminating, blocky.

SILTSTONE: greyish black, commonly arenaceous material, common thin carbonaceous micro-laminations, hard to very hard, sub-blocky.

SANDSTONE: off white to light olive grey, fine to medium grained, predominantly fine quartz grained, sub-angular, minor sub-rounded, common strong siliceous cement, trace calcareous material, common to abundant off white argillaceous matrix, locally common thin carbonaceous / coaly microlaminations and silty layering, very hard aggregates, very poor visual porosity.

Bottom of hole at 642.00 mMDRT

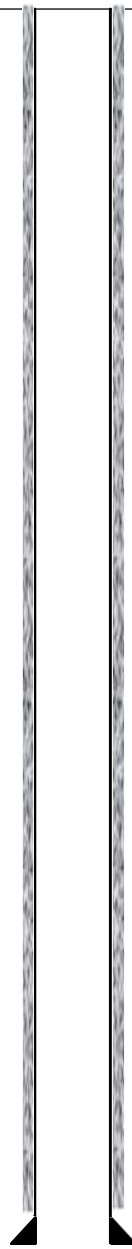
Plumb Road-1 reached a Total Depth (TD) of 642m MDRT at 2100hrs 11 Feb 2017

Avg. ROP (m/hr): **22 m/hr** (602–610 mMDRT); **17 m/hr** (610–642 mMDRT)

FORMATION TOPS (mMDRT): **611.6m BLACK JACK GROUP**

BORE CONSTRUCTION

GRAPHIC LOG / GDS CODE: CGLM (602–610 mMDRT); SLSN, COAL, TUFF, SDSN (610–642 mMDRT)



4-1/2" K55 11.6 lb/ft csg @ 641m MDRT

6-1/8" hole @ 642m MDRT

Wireline Logging at TD

Run 1: GDRC (GR Dual Density, Caliper, Resistivity)
Run 2: NRG (Neutron, GR, Resistivity)
Run 3: MPR (64"Res, Lat Res, Single Point Res, Fluid Res, SP, Temp, GR, Mag Dev)

Formation tops picked from wireline data and correlated to the Bohena-4 and Bohena-5 offset wells.

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

Appendix 5 – Photo Log Details

PLUMB ROAD-1 PHOTO LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **6/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

BORE CONSTRUCTION

DEPTH (mMDRT)

GAMMA RAY (API) 0 50 100 150 200

SAMPLE DEPTH (mMDRT)

Avg. ROP (m/hr)

FORMATION TOPS (mMDRT)

UNDIFFERENTIATED SEDIMENTS

56m

PILLIGA SANDSTONE

DEPTH (mMDRT)

GRAPHIC LOG

SDSN

SDSN

SDSN

SDSN

CLSN

SDSN

SDSN

SDSN

CONSTRUCTION

Plumb Road-1 spud 1545hrs 06 Feb 2017

9-5/8" K55 36 lb/ft csg @ 14.9m MDRT

12-1/4" hole @ 16.2m MDRT

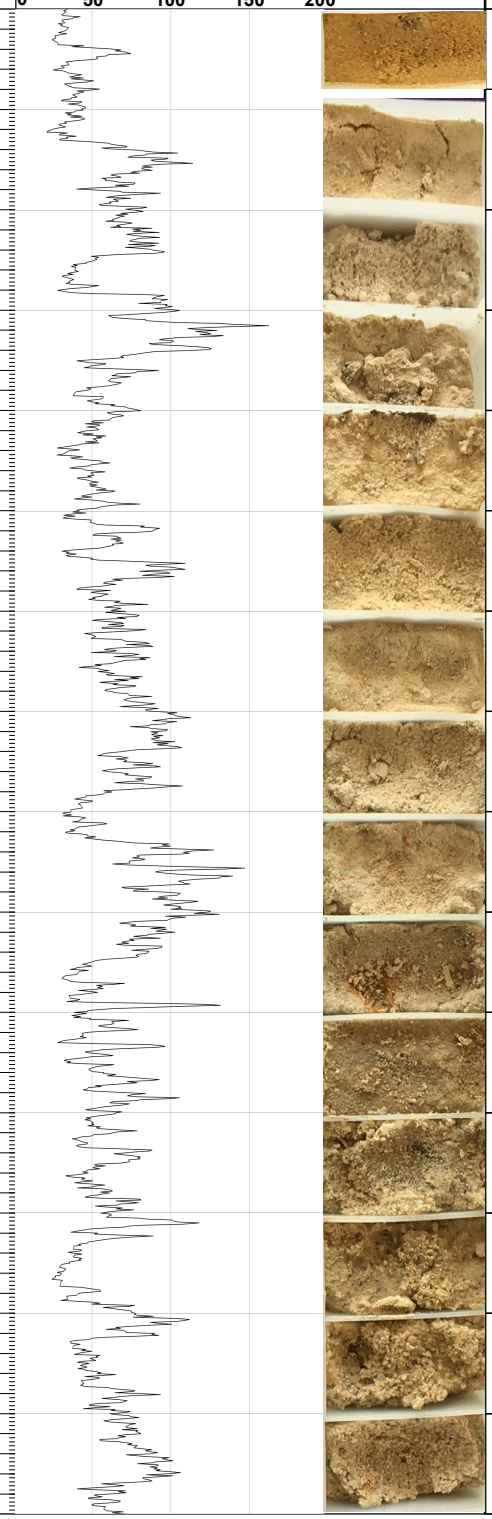
COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 PHOTO LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **6/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION | BORE CONSTRUCTION

DEPTH (mMDRT) | GAMMA RAY (API) 0 50 100 150 200 | SAMPLE DEPTH (mMDRT) | Avg. ROP (m/hr) | FORMATION TOPS (mMDRT) | DEPTH (mMDRT) | GRAPHIC LOG | CONSTRUCTION



Avg. ROP (m/hr): 26 | 15 | 44

FORMATION TOPS (mMDRT): SDSN | SDSN | CLSN | SDSN

7" N80 23 lb/ft csg @ 156.02m MDRT

8-1/2" hole @ 158m MDRT

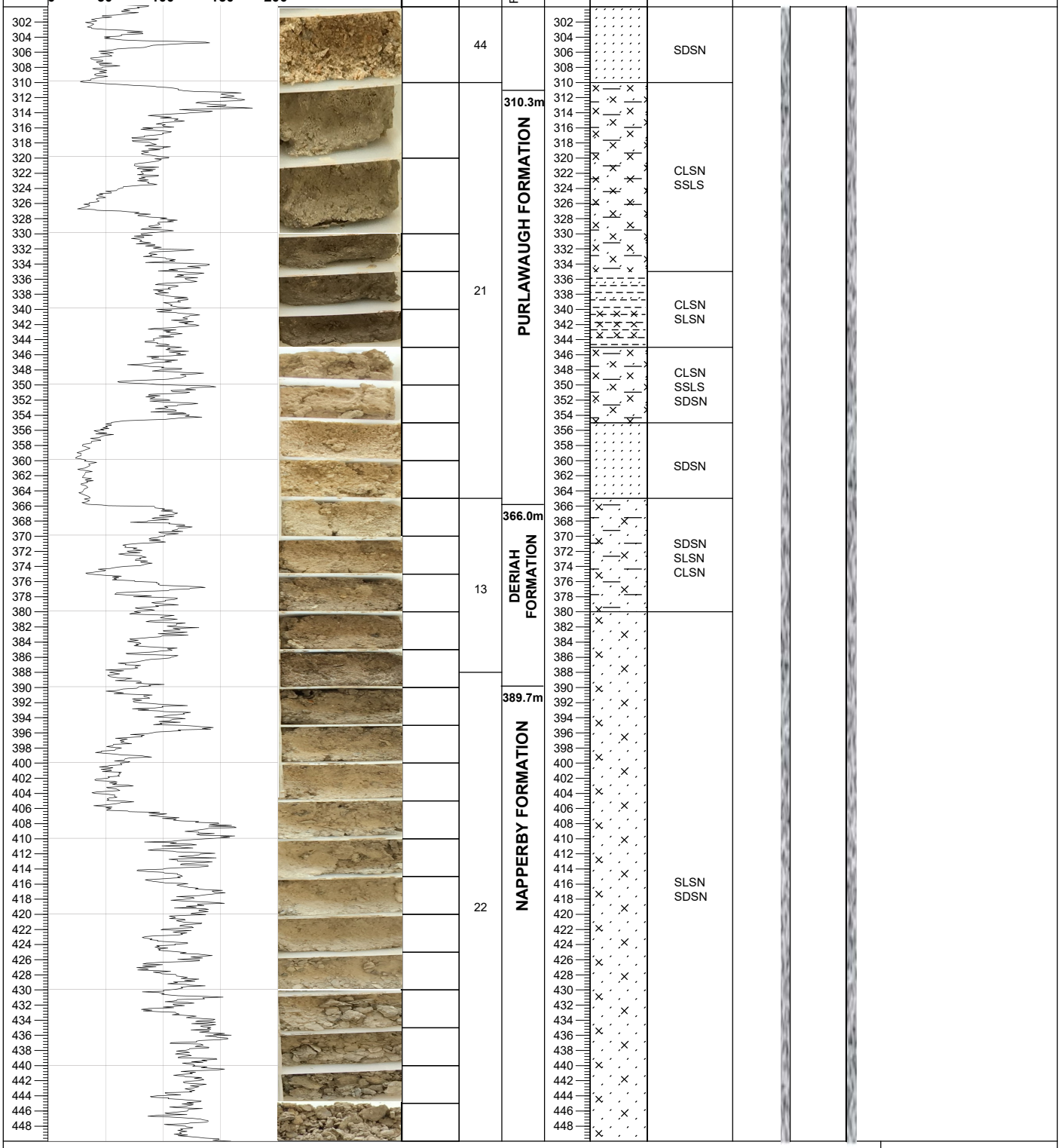
COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 PHOTO LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **6/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

BORE CONSTRUCTION



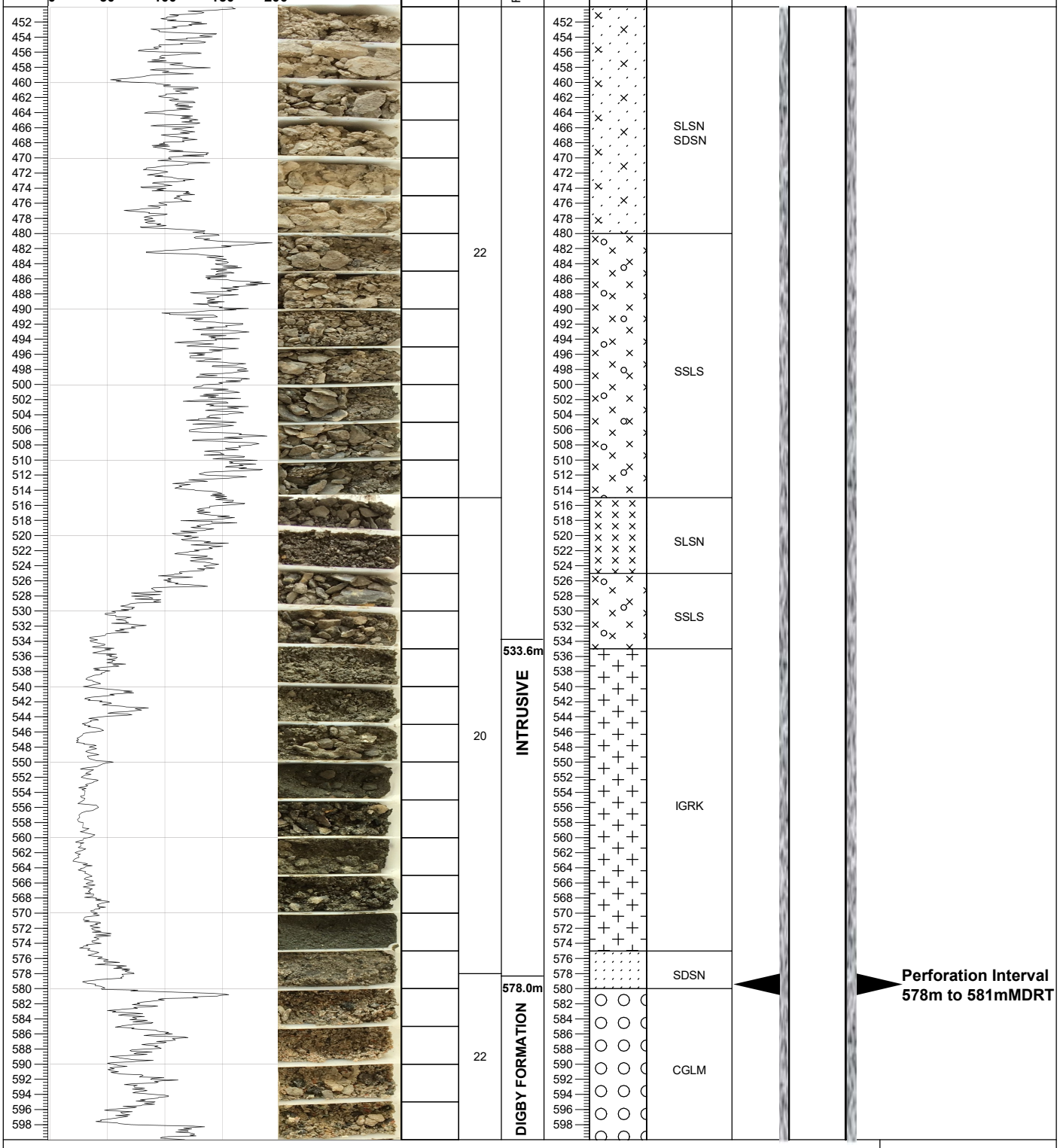
COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 PHOTO LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **6/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

BORE CONSTRUCTION



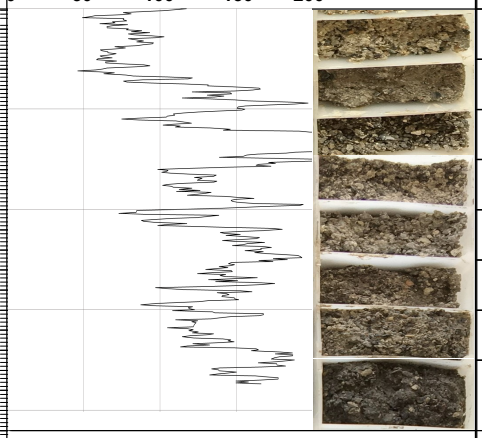
COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

PLUMB ROAD-1 PHOTO LOG

PROJECT: **Plumb Road-1**	WORK TYPE: Well	ELEVATION: **Est. 258.2 AHDm**
LOCATION: **Pilliga State Forest**	NORTHING: **750122**	EASTING: **6618717**
START DATE: **6/02/2017**	WORK STATUS: **New Bore**	
COMPLETION DATE: **11/02/2017**	REFERENCE POINT DESCRIPTION: **Rotary Table (RT) = 3.8m**	
DRILL TYPE: **Rotary Mud**	SAMPLE TYPES: **Drill Cuttings**	
DRILLING METHOD: **Rotary Mud**	LOGGED BY: **Andrea Strand**	CHECKED BY:

MATERIAL DESCRIPTION

BORE CONSTRUCTION



Bottom of hole at 642.00 mMDRT

Plumb Road-1 reached a Total Depth (TD) of 642m MDRT at 2100hrs 11 Feb 2017

SAMPLE DEPTH (mMDRT)

Avg. ROP (m/hr): 22, 17

FORMATION TOPS (mMDRT): **611.6m** **BLACK JACK GROUP**

DEPTH (mMDRT)

GRAPHIC LOG

GDS CODE: CGLM; SLSN, COAL, TUFF, SDSN

CONSTRUCTION

4-1/2" K55 11.6 lb/ft csg @ 641m MDRT

6-1/8" hole @ 642m MDRT

Wireline Logging at TD

Run 1: GDRC (GR Dual Density, Caliper, Resistivity)
Run 2: NRG (Neutron, GR, Resistivity)
Run 3: MPR (64"Res, Lat Res, Single Point Res, Fluid Res, SP, Temp, GR, Mag Dev)

Formation tops picked from wireline data and correlated to the Bohena-4 and Bohena-5 offset wells.

COMMENT: **All depths referenced to Rotary Table (mMDRT). Depth to Ground Level (mMDGL) = (mMDRT - 3.8)**

Appendix 6 – Formation Sample Photos

Water Monitoring Bore Hole

Chip Tray Photographs

Department of Primary Industries Water

PLUMB ROAD-1 BORE HOLE

INGAUGE Well Engineering & Project Management Reliable | Experienced | Engaged

Surface Hole (8-1/2”) – 0m to 158m MDRT
10m sample interval

Department of Primary Industries Water

PLUMB ROAD-1 BORE HOLE

INGAUGE
Well Engineering & Project Management
Reliable | Experienced | Engaged

Production Hole (6-1/8”) – 160m to 345m MDRT
10m sample interval to 330m then 5m sample interval

PLUMB ROAD-1 BORE HOLE

Production Hole (6-1/8”) – 345m to 445m MDRT
5m sample interval

PLUMB ROAD-1 BORE HOLE

Production Hole (6-1/8”) – 445m to 515m MDRT
5m sample interval

PLUMB ROAD-1 BORE HOLE

Production Hole (6-1/8”) – 515m to 615m MDRT
5m sample interval

PLUMB ROAD-1 BORE HOLE

Production Hole (6-1/8”) – 615m to 642m MDRT
5m sample interval

Appendix 7 – Wireline Logs

COMPOSITE PLOT

PLUMB-ROAD-1

COMPANY	INGAUGE	**FIELD**	NARRABRI	**STATE**	NSW
WELL	PLUMB-ROAD-1	**LOCATION**	PLUMB-ROAD-1	**COUNTRY**	AUSTRALIA

LOCATION: PLUMB-ROAD-1
FIELD: NARRABRI
STATE: NSW
WELL: PLUMB-ROAD-1
COMPANY: INGAUGE

PERMANENT DATUM
PERMANENT DATUM ELEVATION
LOG MEASURED FROM RT
DRILLING MEASURED FROM RT

ELEVATIONS:
KB
DF
GL

REMARKS:
1. CS137
2. CZ3956

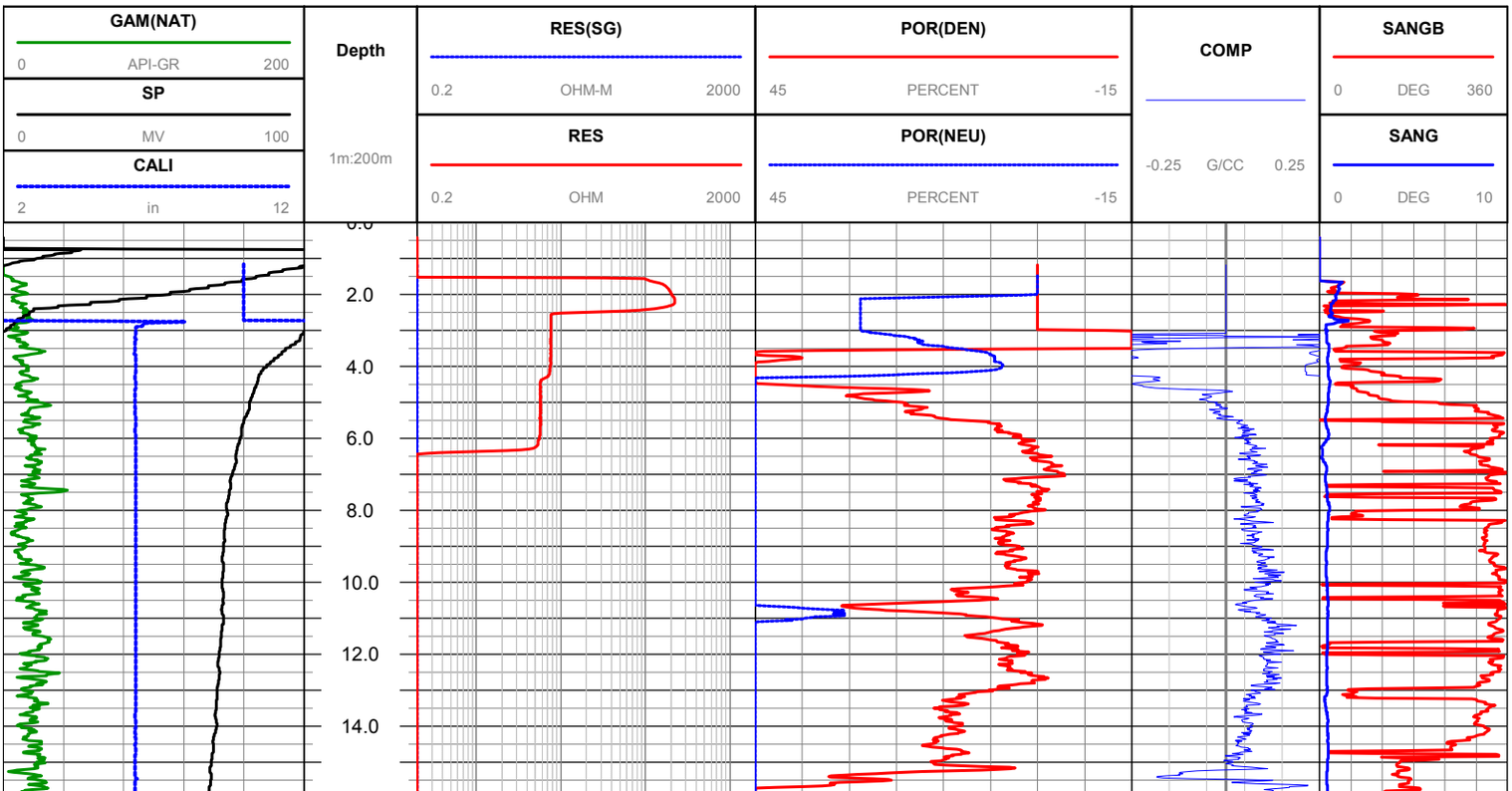
LICENSE	SECTION	TOWNSHIP	RANGE

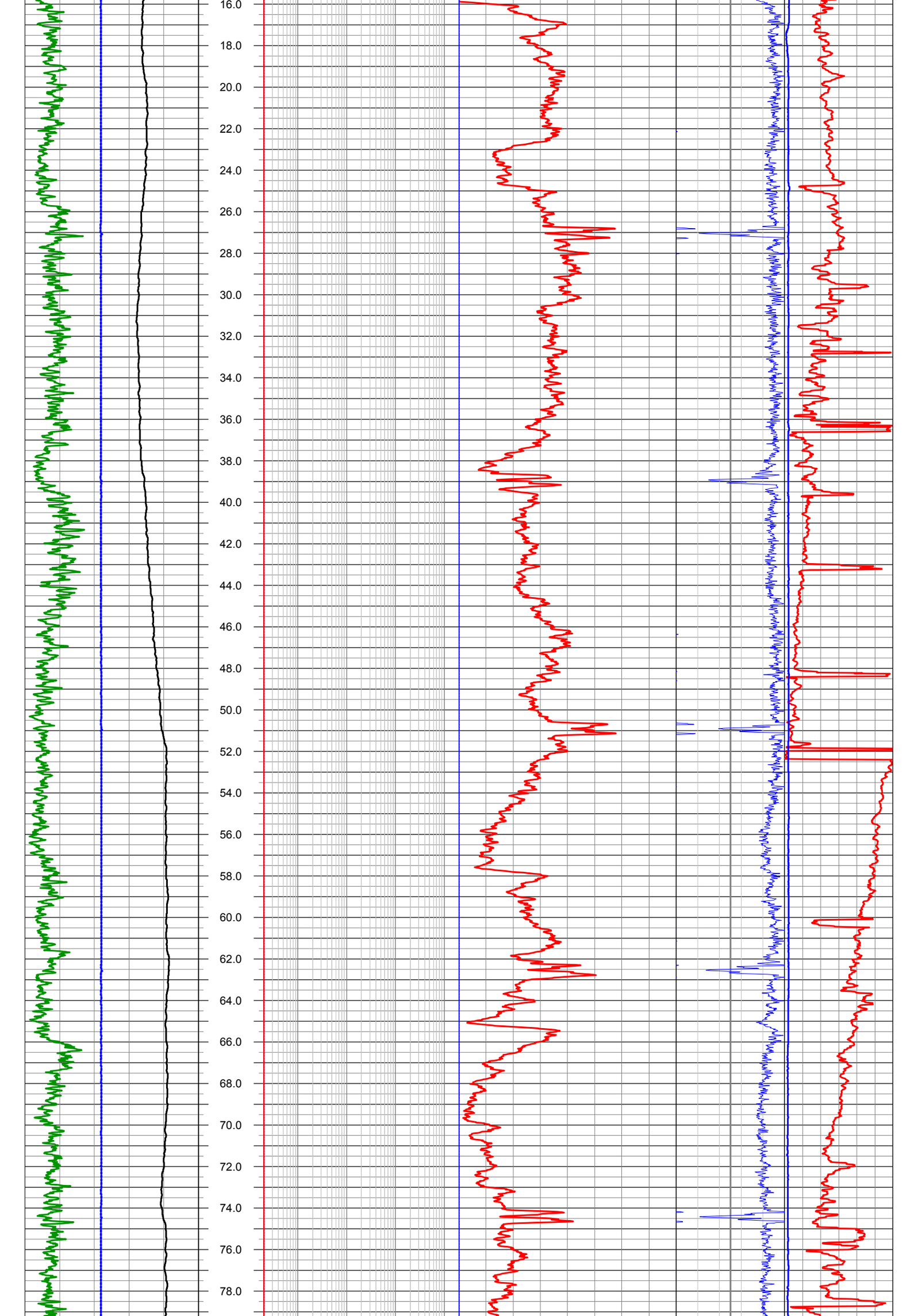
OTHER SERVICES:
1. 2. 3.

DATE	02/13/17			RECORDED BY	DMB		
TIME	12:27:			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V035		
DEPTH-DRILLER	642			RIG NUMBER			
DEPTH-LOGGER	636.70			TOOL TYPE			
BIT SIZE	15.5			TOOL SERIAL NO.			
CASING TYPE	STEEL			LATITUDE			
CASING OD	17.01			LONGITUDE			
CASING BOTTOM	156.02			SAMPLE INT.	.01		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09792			FEET OR METER	M		
WATER LEVEL				SOURCE TYPE		SOURCE ID	

IMPORTANT NOTE

The following interpretations are opinions based upon inferences from borehole logs, Kinetic Logging Services Pty Ltd cannot and does not guarantee the correctness or accuracy of any interpretations. Therefore Kinetic Logging Services Pty Ltd shall not be liable or responsible for any loss, damage, cost or expense incurred or sustained by anyone resulting from any interpretations.

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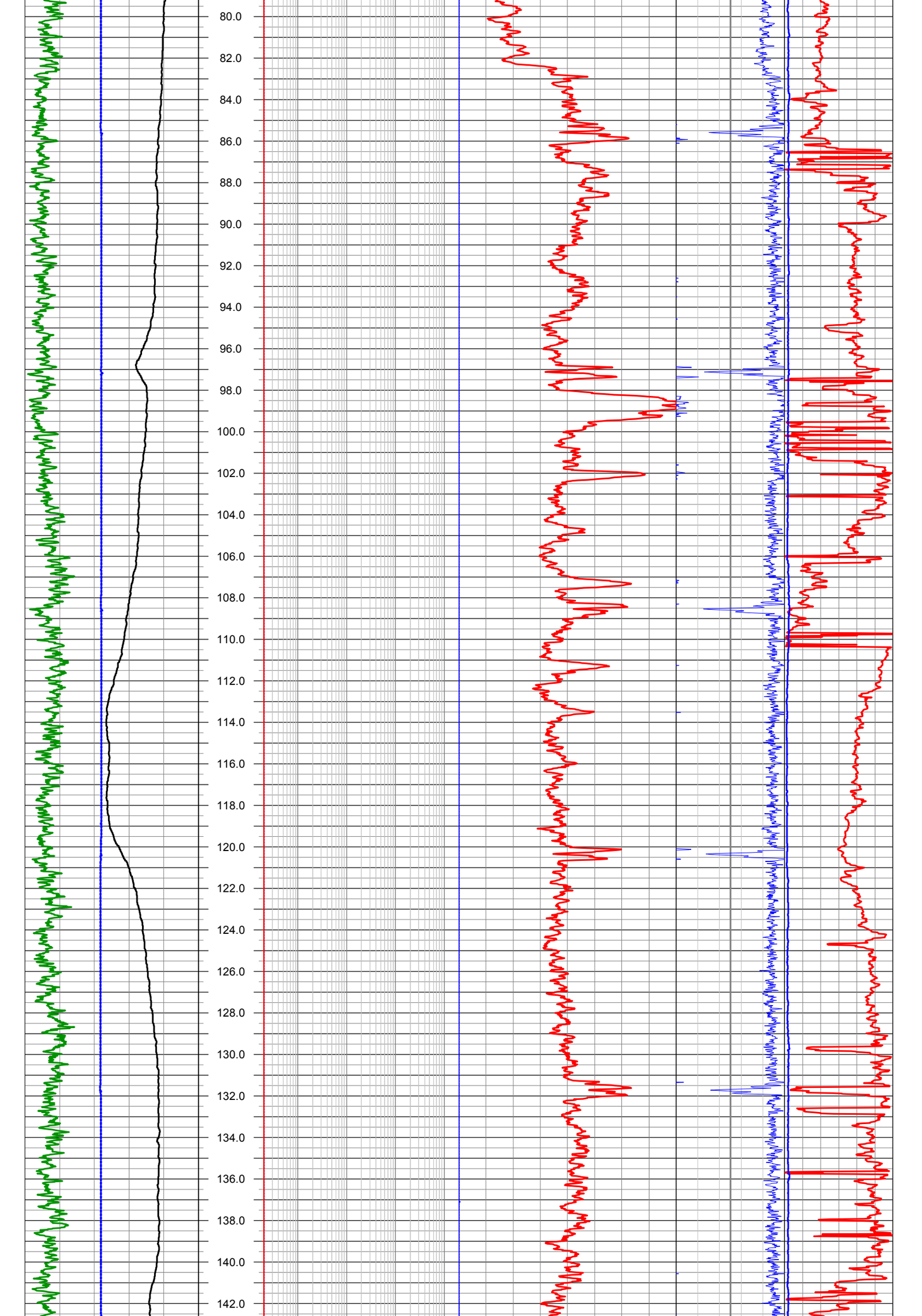
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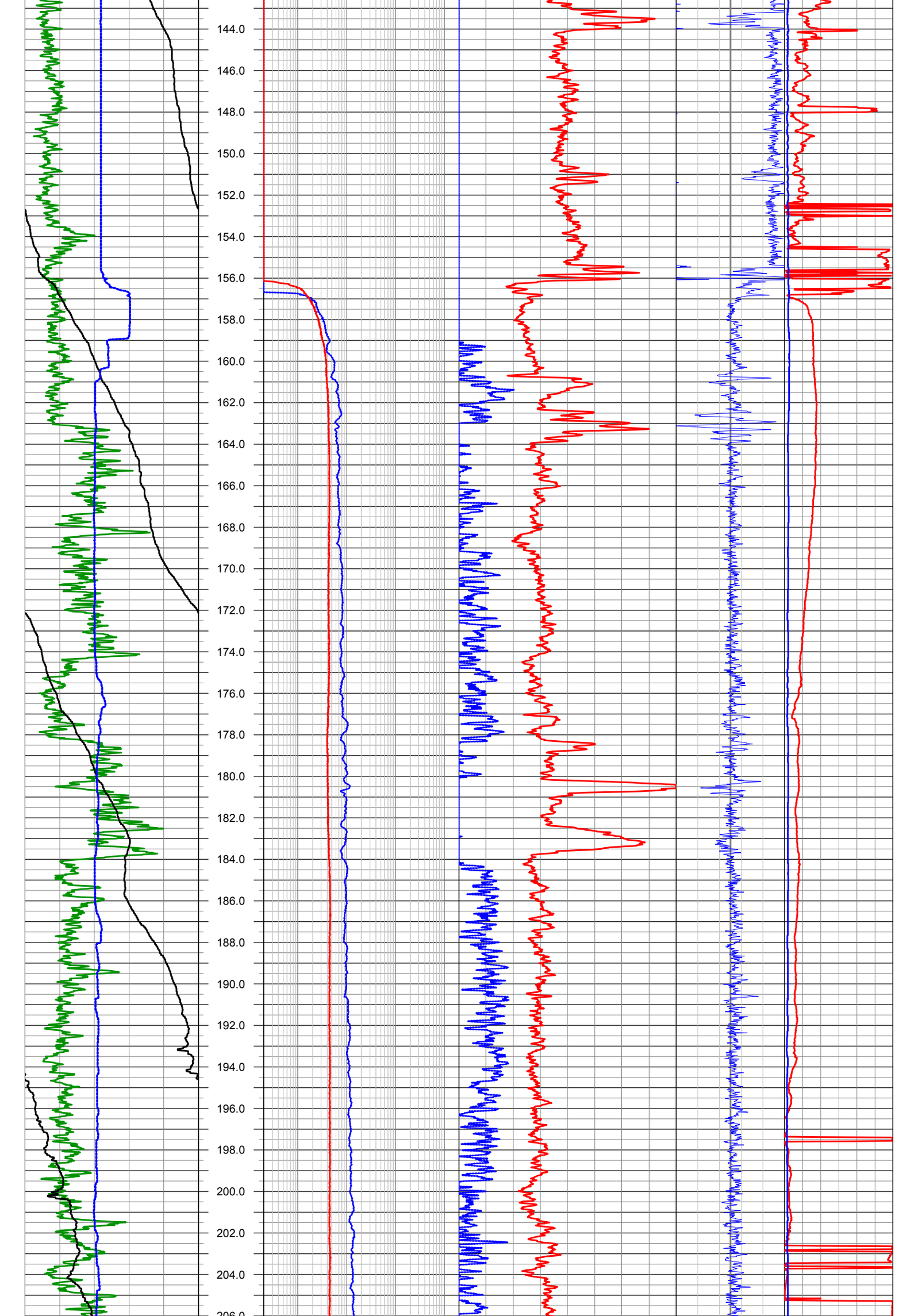
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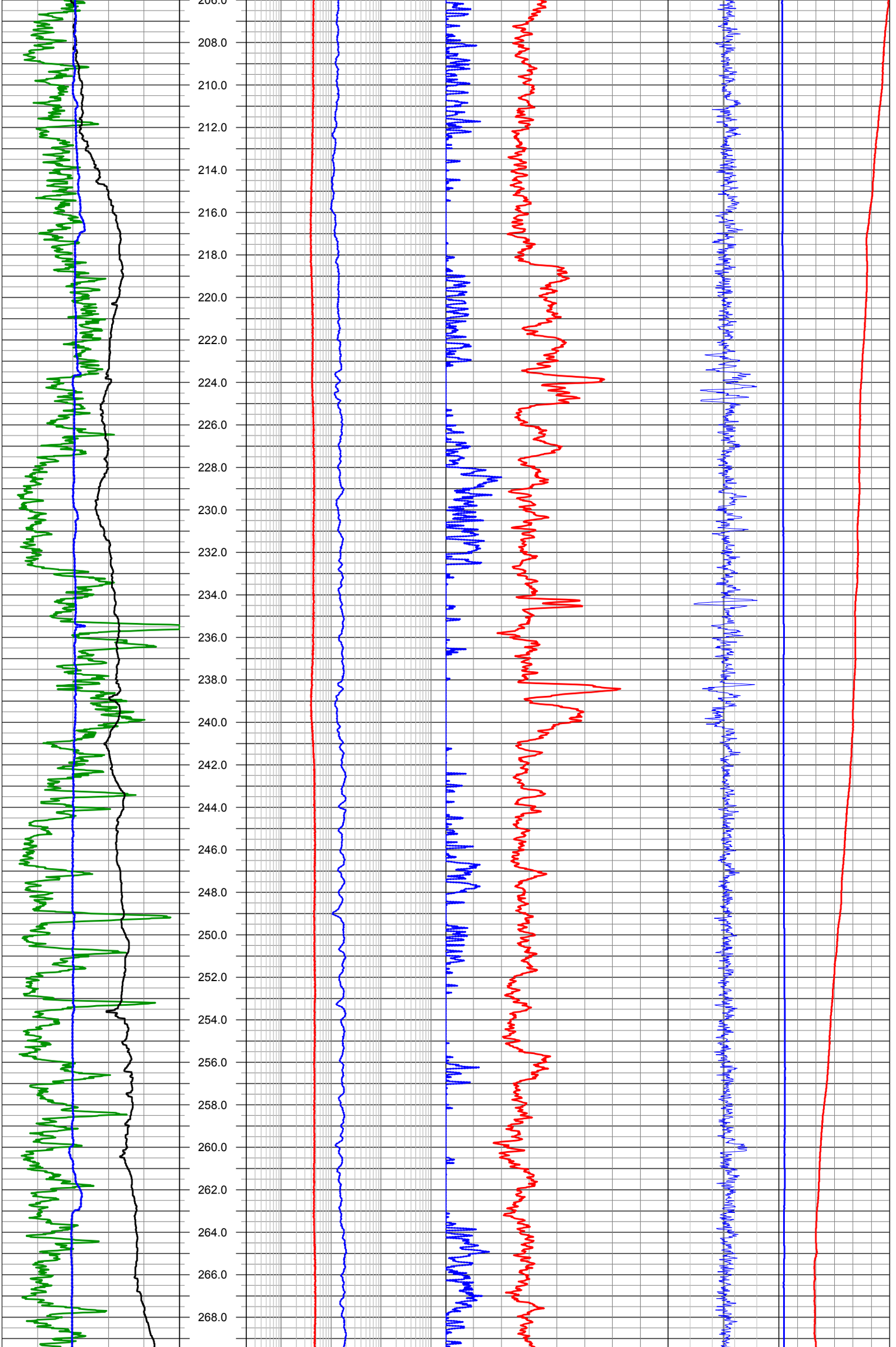
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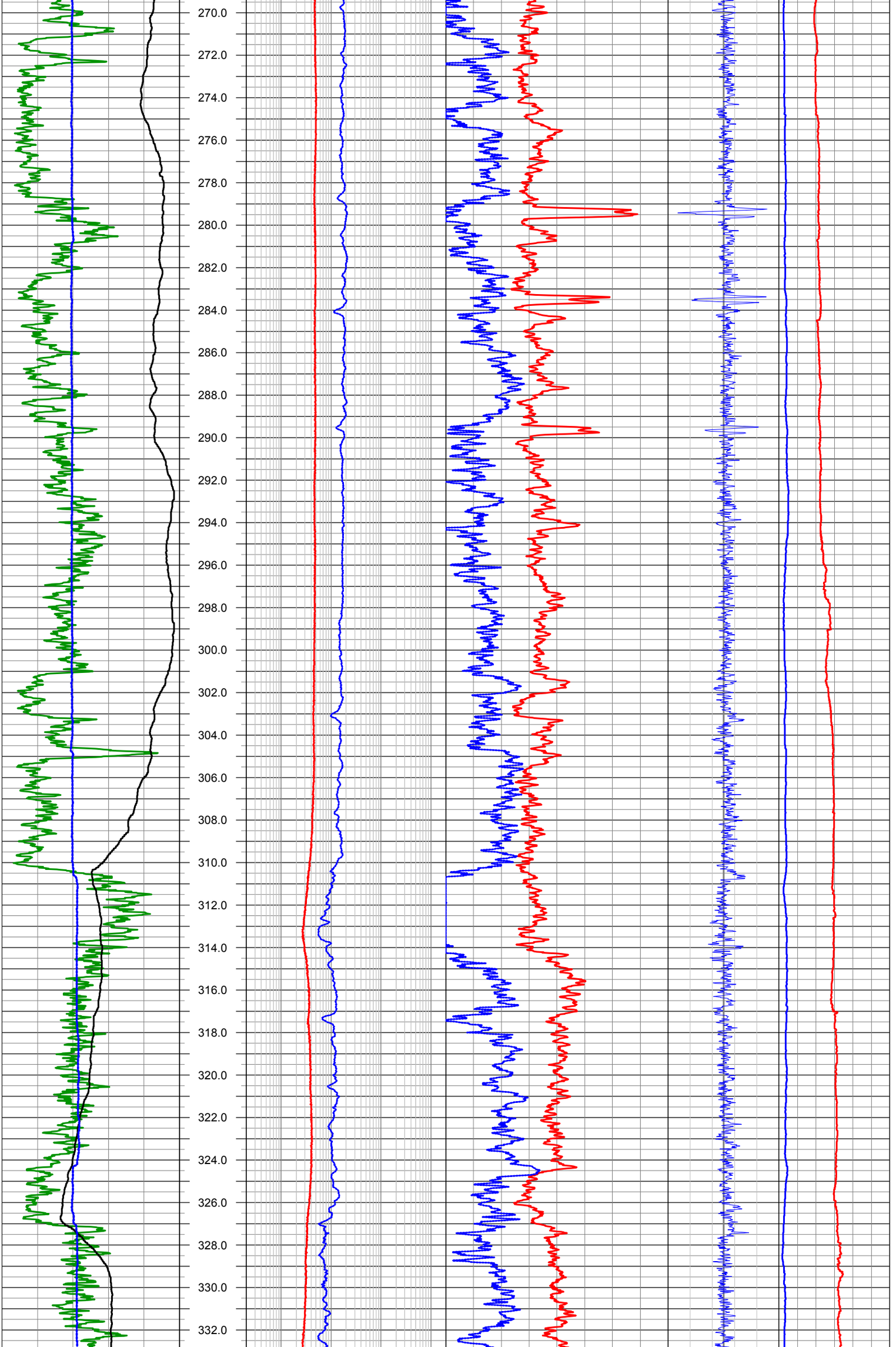
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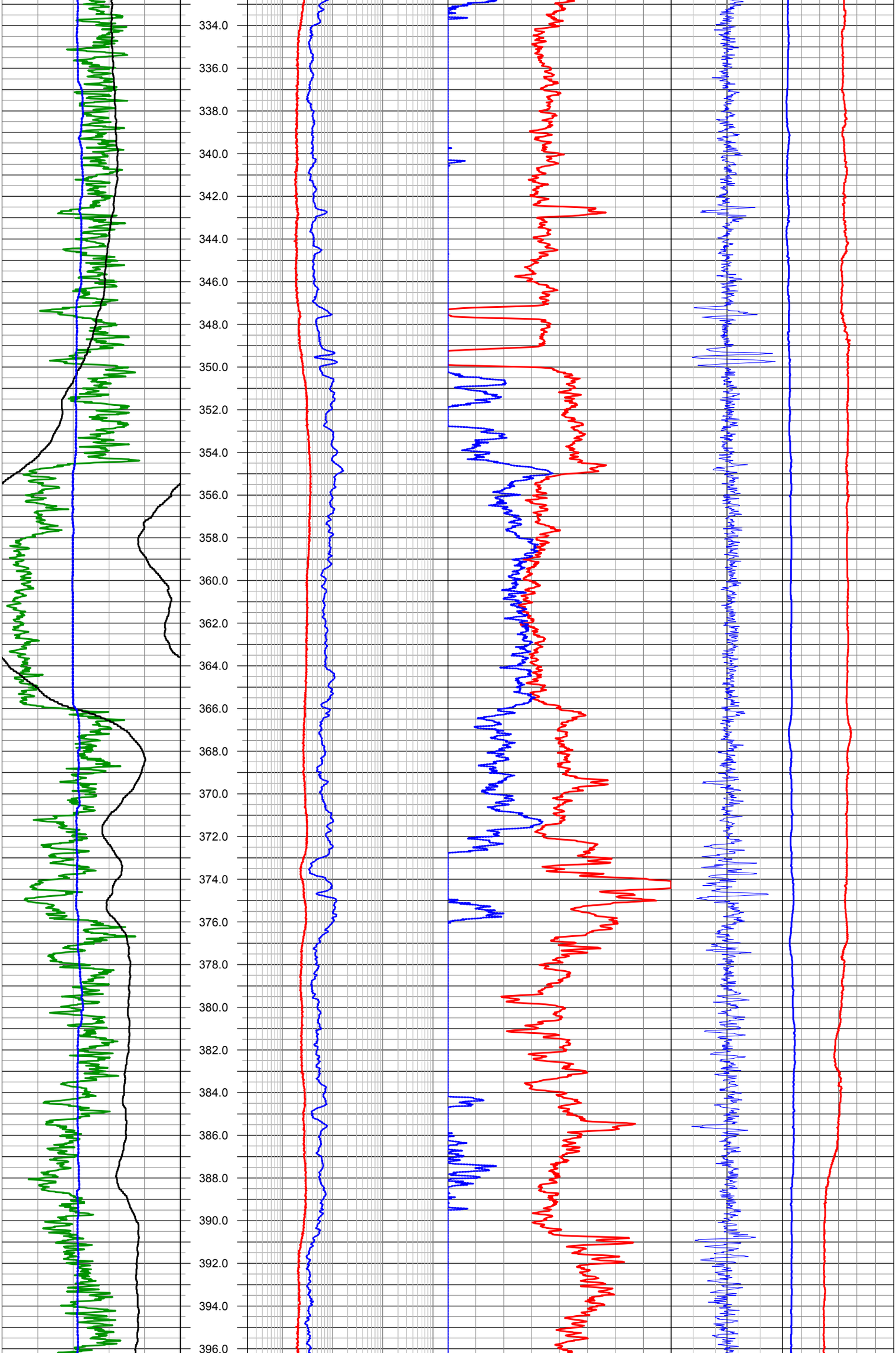
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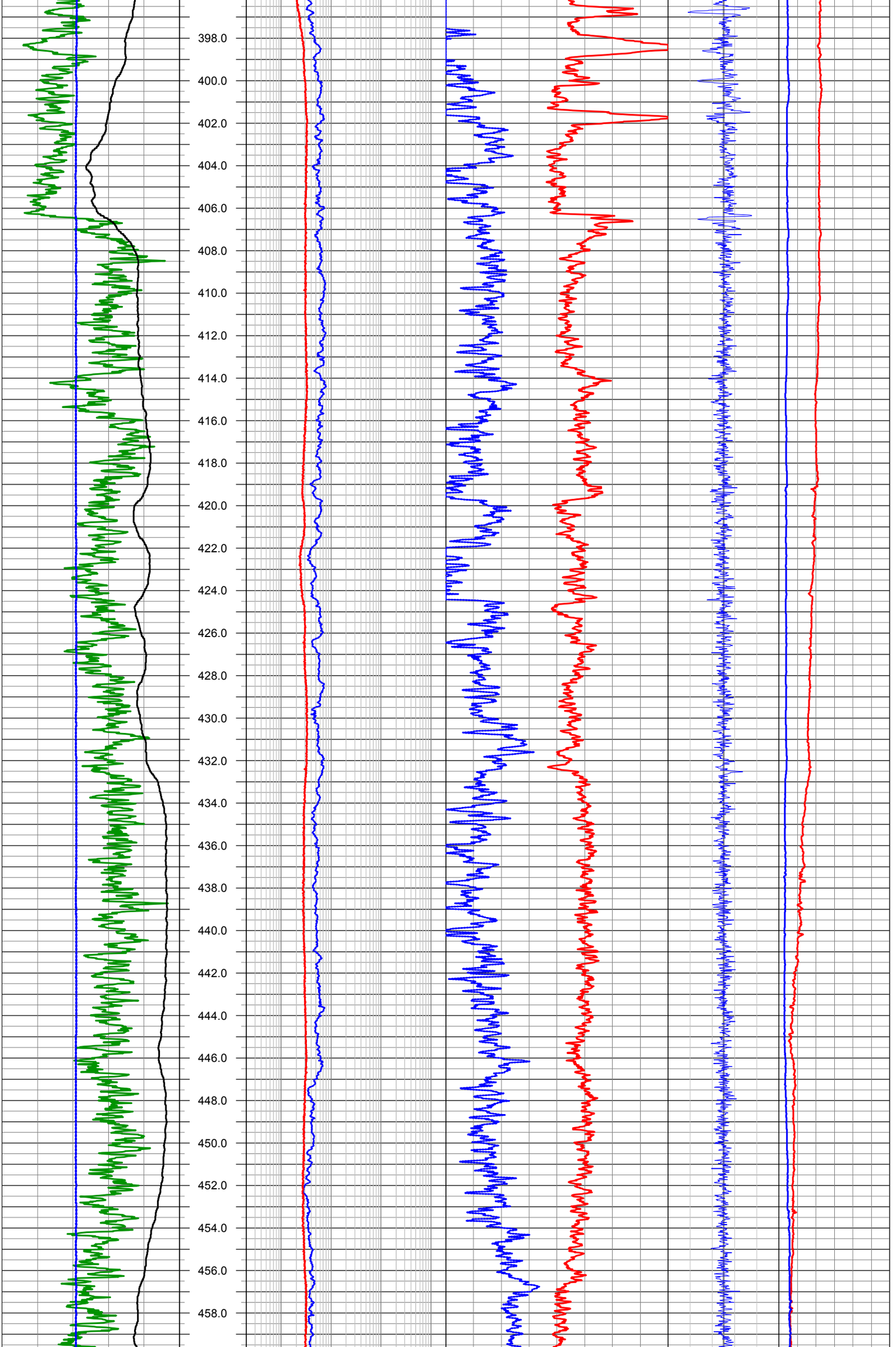
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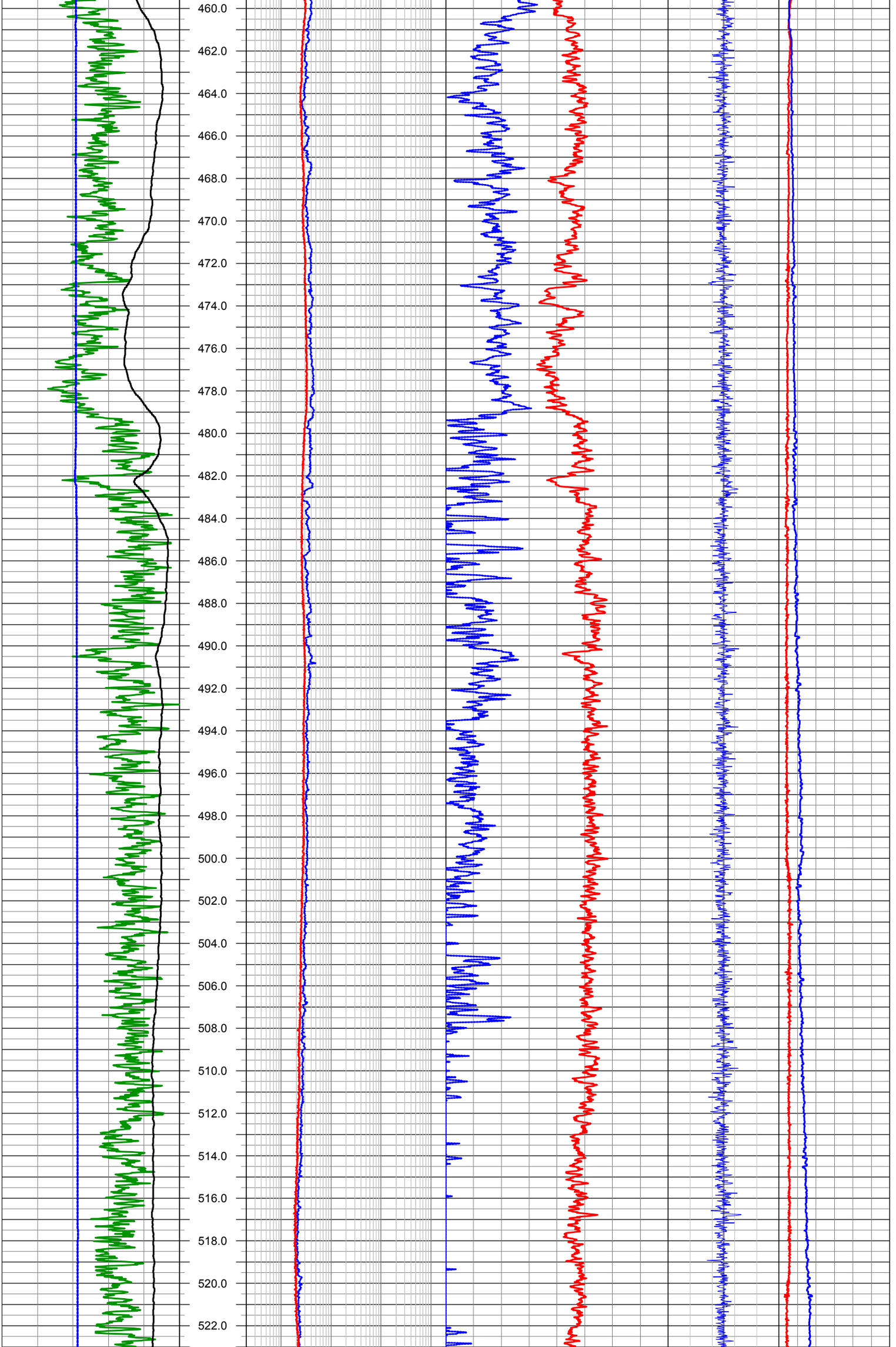
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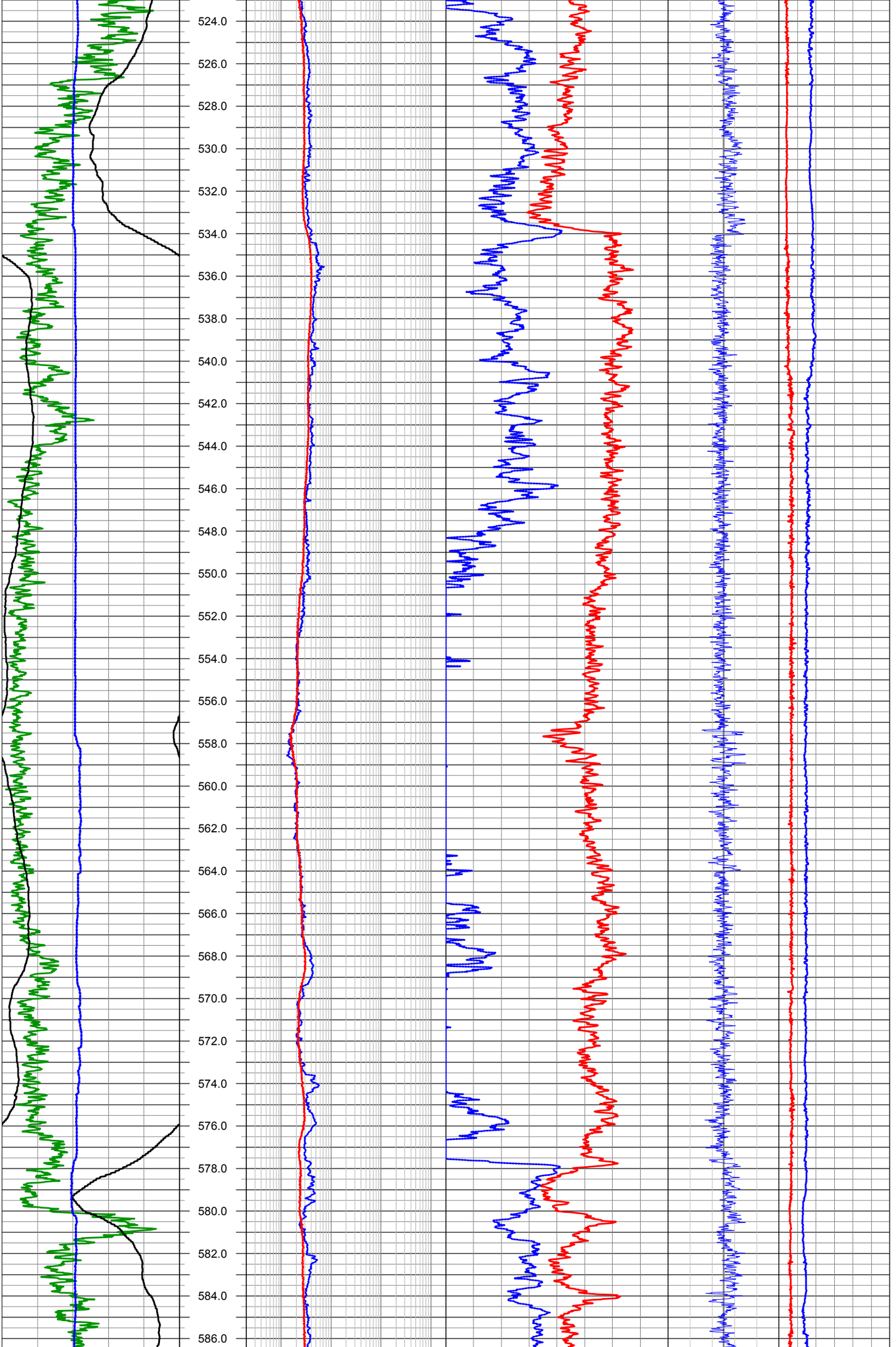
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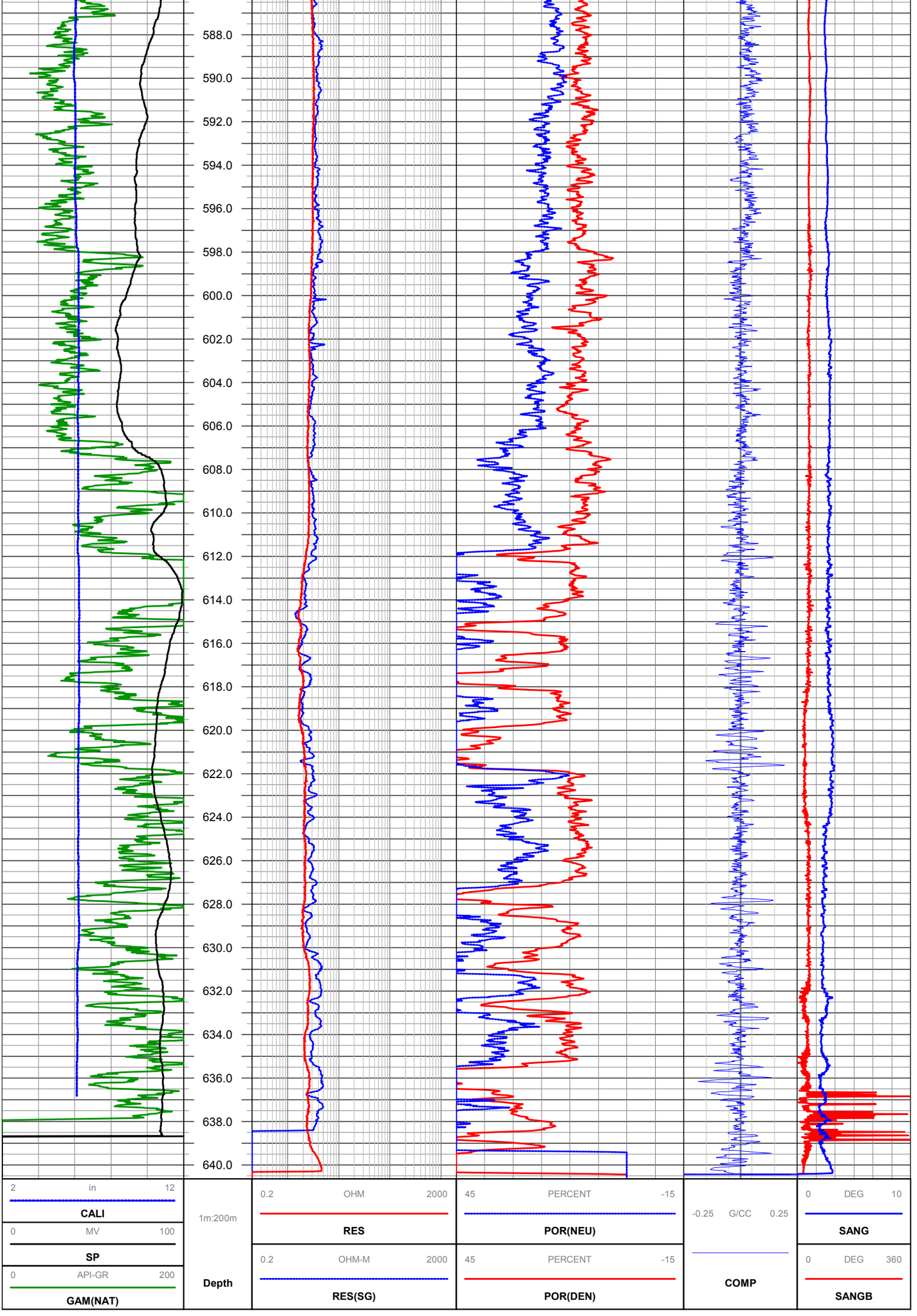
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Appendix 8 – Daily Drilling Reports

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 1-02-17	**Tenure Holder:**	**Basin:**	**Field Est Cost:**
Report No: 1	**Drilling Company: TDC Drilling**	**ATP:**	**Days from spud :**
Well Name: Plumb Road 1	**Rig Description: Drillmec G55**	**Field:**	**AFE days (from spud):**
Client Name: NSW Govt			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 0**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL**	**Deviation**	
GL- Datum	**TVD:**							
ROP:	**Progress (MD):**							
Formation :	**Proposed TD:**							
Objective:		**Last LOT Results:** n/a						
Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**				
Accident Free Days : 1	**Last LTI Date:**							
Last Safety Meeting : Ice-breaker Safety mtg								
Accidents : No								

CURRENT OPERATION @ 06:00HRS: Mobilise equipment to site.

PLANNED OPERATIONS FOR NEXT 24HRS: Mobilise rig carrier, sub base and pipe handler to site and begin rig-up.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Hold Ice-breaker / Induction meeting. Receive chemicals onto site. Rig up accomodation and amenities on location.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
9:00	12:30	3.5	Ice-breaker / Induction at Narrabri RSL	Mobilisation		
12:30	17:00	4.5	Equipment in transit to site	Demobilisation		
				Travel		
				Rig Service		
				Other		
				Circulate Hole		
				Drilling		
				Run Casing		
				Cementing		
				Wait on Cement		
				Tripping		
				Logging		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Pressure Test		
				Standby		
00:00	01:00	1		Safety Meeting		
				Other		
				Wait on Daylig		
				Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Note:			
			Note:			
Total:				Total		

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:

BIT RECORD:			**HYDRAULICS:**		
NUMBER			PUMP No.:		
SIZE, in.			PUMP TYPE:		
TYPE			# of CYLINDERS:		
SERIAL No.			STROKE, in		
TFA			LINER, in.		
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:			H.S.I.		
Joints Onsite:			Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

COMPANY:	AMC		
MUD BUILT:	bbl		
MUD LOST:	bbl		
MUD VOL:	bbl		
Reading time			
DENSITY	ppg		
VISCOSITY	sec/ltr		
PV / YP			
API W/L.	cc/30mi		
CAKE	32nd/in		
pH			
GELS:	10s/10r		
CHLOR.	mg/L		
CALCIUM	mg/L		
EXC. LM.	ppb		
SOLIDS	% Vol		
SAND	%Vol		
KCL	% Wt		
PHPA			
Pf/Mf			
M.B.T.	ppb		
		Total	

MUD USAGE

Product	Usage	Product	Usage

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**
	1	o	o	NO	A	X	I	NO	TD	

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 2-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 2	**Tenure Type: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 0**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL**	**Deviation**
GL- Datum	**TVD:**						
ROP:	**Progress (MD):**						
Formation :	**Proposed TD:**						

Objective:

Last LOT Results: n/a

Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**
Accident Free Days : 2	**Last LTI Date:**			
Last Safety Meeting : Morning Toolbox mtg				
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Preparing to spot Rig sub base on site.

PLANNED OPERATIONS FOR NEXT 24HRS: Spot sub-base, carrier and pipe handler and proceed with rig-up.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Continue rig-up of site accomodation, Unload wellheads, 4 loads arrived on site.

Operation Hours			**OPERATIONS FOR PERIOD 00:00 to 24:00**	**Time Code**		
From	**To**	**Hours**				
6:00	12:30	6.5	Transport equipment to site	Mobilisation		
12:30	18:00	5.5	Rig carrier, pipe hander and sub-base arrived on site.	Demobilisation		
			Unloaded sub-base stairs and miscelaneous equipment.	Travel		
			Repair axle of trailer damaged in transit.	Rig Service		
18:00	00:00	6	Received Generator package, pipe racks and pup joints to site.	Other		
			Continue to mobilise and rig up.	Circulate Hole		
				Drilling		
				Run Casing		
				Cementing		
				Wait on Cement		
				Tripping		
				Logging		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Pressure Test		
				Standby		
00:00	01:00	1		Safety Meeting		
				Other		
				Wait on Daylig		
				Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Note:			
			Note:			
Total:				Total		

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:

BIT RECORD:			**HYDRAULICS:**		
NUMBER			PUMP No.:		
SIZE, in.			PUMP TYPE:		
TYPE			# of CYLINDERS:		
SERIAL No.			STROKE, in		
TFA			LINER, in.		
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:			H.S.I.		
Joints Onsite:			Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

COMPANY:	AMC			**MUD USAGE**			
MUD BUILT:			bbl	Product	Usage	Product	Usage
MUD LOST:			bbl				
MUD VOL:			bbl				
Reading time							
DENSITY			ppg				
VISCOSITY			sec/ltr				
PV / YP							
API W/L.			cc/30m				
CAKE			32nd/in	**Bottom Hole Assembly (BHA)**			
pH				**Tool**	**Length**	**Type/Description**	
GELS:			10s/10r	1	0.27 m	PDC Bit	
CHLOR.			mg/L	2	2.28 m	N/B Stabilizer	
CALCIUM			mg/L	3	9.24 m	6 1/4" DC	
EXC. LM.			ppb	4	2.33 m	String Stab	
SOLIDS			% Vol	5	36.97 m	4 X 6 1/4" D/C	
SAND			%Vol	6	0.52 m	X/O	
KCL			% Wt	7	36.90 m	4 x 3 1/2" HWDP	
PHPA							
Pf/Mf							
M.B.T.			ppb				
				Total	88.51 m		

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**
	1	o	o	NO	A	X	I	NO	TD	

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 3-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 3	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 0**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL**	**Deviation**
GL- Datum	**TVD:**						
ROP:	**Progress (MD):**						
Formation :	**Proposed TD:**						

Objective: **Last LOT Results:** n/a

Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**
Accident Free Days : 3	**Last LTI Date:**			
Last Safety Meeting : Morning Toolbox mtg				
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Continue rig up, Prepare carrier for raising.

PLANNED OPERATIONS FOR NEXT 24HRS: Complete rig up, Raise mast and function.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Continued to unload equipment from trucks, spotted sub-base, carrier and mud tanks. General rig up.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code
00:00	06:00	6	Unloaded BOP's, sub baskets and miscelaneous equipment.	Mobilisation
06:00			Spotted sub-base,pipe handler. Installed iron roughneck to mast. Unloaded and spotted Geo site office	Demobilisation
	12:00	6	Pinned carrier support pyramids stands. Installed support ram to sub-base. Spotted carrier onto sub-base	Travel
12:00			Welder completed modifications to pipe handler,spotted shaker tank.Installed Pason screens and rigged up	Rig Service
	18:00	6	rig floor. Replaced 2 x airconditions to mini camp buildings. Received 24,000 litres water for day tank.	Other
18:00			Held Pre Tour Safety mtg, Rigged up stairs,hand rails,lights and hoses to shaker tank. Spotted suction	Circulate Hole
	24:00	6	tank, rigged up suction hose, equalizerline,stairs and lights. Spotted mud pump trailer and rigged up same.	Drilling
				Run Casing
				Cementing
			Note: Passon tech arrived on location for callibration.	Wait on Cemen
				Tripping
				Logging
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Pressure Test
				Standby
00:00	06:00	6	Spotted Rig generator trailer, run all electrical cables. Continue with general rig up.	Safety Meeting
				Other
				Wait on Dayligh
				Well Kill
				Down Time Rig
				Down Time Oth
				Rig up/ Nip up
			Note:	
			Note:	
Total:				Total

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:

BIT RECORD:			**HYDRAULICS:**		
NUMBER			PUMP No.:		
SIZE, in.			PUMP TYPE:		
TYPE			# of CYLINDERS:		
SERIAL No.			STROKE, in		
TFA			LINER, in.		
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:			H.S.I.		
Joints Onsite:			Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

COMPANY:	AMC			**MUD USAGE**			
MUD BUILT			bbl	Product	Usage	Product	Usage
MUD LOST:			bbl				
MUD VOL:			bbl				
Reading time							
DENSITY			ppg				
VISCOSITY			sec/ltr				
PV / YP							
API W/L.			cc/30m				
CAKE			32nd/in	**Bottom Hole Assembly (BHA)**			
pH				**Tool**	**Length**	**Type/Description**	
GELS:			10s/10r	1			
CHLOR.			mg/L	2			
CALCIUM			mg/L	3			
EXC. LM.			ppb	4			
SOLIDS			% Vol	5			
SAND			%Vol	6			
KCL			% Wt	7			
PHPA							
Pf/Mf							
M.B.T.			ppb				
				Total			

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**
	1									

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE

DAILY DRILLING REPORT

Date: 4-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 4	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 0**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL**	**Deviation**
GL- Datum	**TVD:**						
ROP:	**Progress (MD):**						
Formation :	**Proposed TD:**						

Objective:

Last LOT Results: n/a

Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**
Accident Free Days : 4	**Last LTI Date:**			
Last Safety Meeting : Morning Toolbox mtg				
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Continue general rig up.

PLANNED OPERATIONS FOR NEXT 24HRS: Complete rig up, Drill and install conductor.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Completed spotting remaining loads, raised carrier and mast. Continued with general rig up.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	06:00	6	Spotted Rig generator trailer, run all electrical cables. Continue with general rig up.	Mobilisation		
06:00			Held Pre Tour Safety mtg, Striped down and inspected mud pump liners, Removed swivel joint from Top Head	Demobilisation		
	12:00	6	Drive stripped down and serviced. Received 5,800 L of diesel. Pason tech continue with rig up.	Travel		
12:00			Received 1 x trailer of drill pipe.Received 24,000L water for mud tanks, Filled up rig hydraulic tank,	Rig Service		
	18:00	6	Rebuilt swivel joint for Top Head Drive and installed. Raised carrier to first stage onto pyramid stands.	Other		
18:00			Held Pre Tour Safety mtg, Ancored pyramid stands, Raised carrier to final height and lowered onto cannon	Circulate Hole		
			support. Installed dog collars to jack legs. Transferred fresh water from suction tank to mini skips in attaempt	Drilling		
			to seal up gates.Rigged up rig floor stairs and floor support legs. Rotated mast crown block and disconnected	Run Casing		
	24:00	6	hoses. Installed NSW Government banner to the rear of mast before raising.	Cementing		
				Wait on Cement		
			Note: Passon tech arrived on location for callibration.	Tripping		
				Logging		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Pressure Test		
				Standby		
00:00			Rigged up rear stairs and handrails to generator trailer,Removed prime mover and installed trailer support stand	Safety Meeting		
			Rigged up mud pump control lines to rig floor, installed rig bracing chains.Rigged up Iron roughneck hydraulic	Other		
			lines. Raised mast and pinned same. Installed rotary tourge gauge line. Prepared 12 1/4" BHA for drilling	Wait on Daylig		
	06:00	6	conductor.	Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Note:			
			Note:			
Total:				Total		

Operating Hours Today: | **Rotating Hours Today:** | **Break Down Hours: 0**

Pick Up Weight: | **Slack Off Weight:** | **Rotating Weight:**

Slow Pump Rate 1: | **Slow Pump Rate 2:**

Safety Topics or Incidents:

BIT RECORD:

NUMBER		
SIZE, in.		
TYPE		
SERIAL No.		
TFA		
W.O.B.,K lb.		
R.P.M.		
DEPTH OUT, m		
DEPTH IN, m		
METERAGE		
HOURS		
R.O.P., m/hr.		
CONDITION		

TUBULARS:

Drill Pipe:	
Joints Onsite:	
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:		
PUMP TYPE:		
# of CYLINDERS:		
STROKE, in		
LINER, in.		
S.P.M.		
RATE, GPM		
PRESSURE, psi.		
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC		
MUD BUILT:		bbl	
MUD LOST:		bbl	
MUD VOL:		bbl	
Reading time			
DENSITY		ppg	
VISCOSITY		sec/ltr	
PV / YP			
API W/L.		cc/30mi	
CAKE		32nd/in	
pH			
GELS:		10s/10r	
CHLOR.		mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL		% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

Product	Usage	Product	Usage

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1		
2		
3		
4		
5		
6		
7		
Total		

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1									

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 5-02-17 **Report No: 5** **Well Name: Plumb Road 1** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL	**Current Depth (MD): 0**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL**	**Deviation**
GL- Datum	**TVD:**						
ROP:	**Progress (MD):**						
Formation :	**Proposed TD:**						
Objective:		**Last LOT Results:** n/a					
Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**			
Accident Free Days : 5	**Last LTI Date:**						
Last Safety Meeting : Morning Toolbox mtg							
Accidents : No							

CURRENT OPERATION @ 06:00HRS: Realine mast to hole center.

PLANNED OPERATIONS FOR NEXT 24HRS: Complete rig up, Drill and install conductor. Wait on cement. Make up 8 1/2" BHA.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Continued to rig up, made up Top Head Drive subs and picked up drill collar. Repostion pipe handler

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code
00:00			Rigged up rear stairs and handrails to generator trailer,Removed prime mover and installed trailer support stand	Mobilisation
			Rigged up mud pump control lines to rig floor, installed rig bracing chains.Rigged up Iron roughneck hydraulic	Demobilisation
			lines. Raised mast and pinned same. Installed rotary tourge gauge line. Prepared 12 1/4" BHA for drilling	Travel
	06:00	6	conductor.	Rig Service
06:00			Removed cellar cover and adjusted rig floor stands. Pumped up instrumantation lines with totco fluid.	Other
			completed instalation of case drain for sand gazzler. Continued with general rig up. Trouble shoot sand gazzle	Circulate Hole
			hydraulic system. Sealed up all mud tank gates and refilled mud tanks with water from skip bins.	Drilling
	18:00	12	Passon teck complete rig up and calibration. Strapped 12 1/4" BHA and 9 5/8" casing.	Run Casing
18:00	18:30	0.5	Held weekly safety meeting with day and night crews.	Cementing
18:30			Installed drive subs to Top Head Drive, Held pre job safety mtg picking up drill collars. Picked up drill collar and	Wait on Cemen
			raised in mast, trialled pipe lay out. Pipe handler required relocation to give it sufficient reach. Rig down pipe	Tripping
			handler and reposition. Broke out 5ft pup joint and replaced with 3ft pup joint and made up Top Head Drive.	Logging
	24:00	5.5	Picked up drill collar and layed out, pipe handler in correct position. Worked on mud pump liners.	Pressure Test
				Standby
				Safety Meeting
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Other
				Wait on Daylig
00:00			Continued working on mud pump realine liners and bird cage. Made up 12 1/4" BHA, Picked up bit breaker and	Well Kill
			removed top and bottom jaws on iron roughneck,installed bit breaker and made up 12 1/4" bit. Removed	Down Time Rig
	06:00	6	bit breaker and installed jaws in iron roughneck. Picked up 6 1/4" drill collar and made up same.	Down Time Oth
				Rig up/ Nip up
Total:				Total

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:

BIT RECORD:			**HYDRAULICS:**		
NUMBER			PUMP No.:	1	
SIZE, in.			PUMP TYPE:		
TYPE			# of CYLINDERS:	3	
SERIAL No.			STROKE, in		
TFA			LINER, in.	7	
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:			H.S.I.		
Joints Onsite:			Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

				MUD USAGE			
COMPANY:	AMC			Product	Usage	Product	Usage
MUD BUILT:			bbl				
MUD LOST:			bbl				
MUD VOL:			bbl				
Reading time							
DENSITY			ppg				
VISCOSITY			sec/ltr				
PV / YP							
API W/L.			cc/30mi				
CAKE			32nd/in	**Bottom Hole Assembly (BHA)**			
pH				**Tool**	**Length**	**Type/Description**	
GELS:			10s/10r	1			
CHLOR.			mg/L	2			
CALCIUM			mg/L	3			
EXC. LM.			ppb	4			
SOLIDS			% Vol	5			
SAND			%Vol	6			
KCL			% Wt	7			
PHPA							
Pf/Mf							
M.B.T.			ppb				
				Total			

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**
	1									

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 6-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 6	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 0**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL**	**Deviation**
GL- Datum	**TVD:**						
ROP:	**Progress (MD):**	K55	12.0 mGL	9 5/8"			
Formation :	**Proposed TD:**						

Objective:

Last LOT Results: n/a

Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**
Accident Free Days : 6	**Last LTI Date:**			
Last Safety Meeting : Morning Toolbox mtg			Surface	12m
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Making up 8 1/2" BHA.

PLANNED OPERATIONS FOR NEXT 24HRS: Wait on cement, Make up 8 1/2" BHA. Drill surface hole to +/- 160m. Circulate hole clean. TOOH.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Completed rig up. Drilled 12 1/4" hole and cemented conductor. Waited on cement. Prepared 8 1/2" BHA.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00			Continued working on mud pump realine liners and bird cage. Made up 12 1/4" BHA, Picked up bit breaker and	Mobilisation		
			removed top and bottom jaws on iron roughneck,installed bit breaker and made up 12 1/4" bit. Removed	Demobilisation		
	06:00	6	bit breaker and installed jaws in iron roughneck. Picked up 6 1/4" drill collar and made up same.	Travel		
06:00			Held Pre Tour Safety mtg, Removed dog collars from levelling jacks and removed tie down chains, levelled	Rig Service		
			mast and resecured. Replaced seized valve on stand pipe disharge line. Layed out 6 1/4" drill collar. Rigged up	Other		
	12:00	6	and circulated through system, functioned sand gazzler.	Circulate Hole		
12:00			Continued to circulate through system varying pump speeds. Repaired leaking 3" valve on mud pump discharge	Drilling		
	15:00	3	line,stripped down and removed debrie from mixing hopper.	Run Casing		
15:00	15:45	0.75	Made up 12 1/4" BHA and bit.	Cementing		
15:45	17:00	1.25	Drilled 12 1/4" hole to 16.2m RKB.	Wait on Cement		
17:00	18:00	1	TOOH to surface laying out drill collars and bit.	Tripping		
18:00			Held Pre Tour Safety mtg, Picked up 1 joint 9 5/8" casing and TIH. Circulate and wash casing to bottom. Mix	Logging		
	21:30	3.5	and pump cement. Conductor shoe at 12m from ground level.	Pressure Test		
21:30	24:00	2.5	Waited on cement. Measure and strap 8 1/2" BHA. Changed out liners from 5" to 5 1/2".	Standby		
				Safety Meeting		
				Other		
				Wait on Daylight		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Well Kill		
				Down Time Rig		
00:00			Waited on cement. Continued to change out pump liners from 5" to 5 1/2". Prepared and loaded racks with	Down Time Oth		
			8 1/2" BHA straped and clean same. Picked up and broke out cross over sub from 6 1/4" drill collar.	Rig up/ Nip up		
	06:00	6	In progress picking up 8 1/2" BHA and bit. Prepared drilling fluid. Loaded 13 x 7" casing onto racks.			
Total:				Total		

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:

BIT RECORD:			**HYDRAULICS:**		
NUMBER	1		PUMP No.:	1	
SIZE, in.	8 1/2"		PUMP TYPE:	F-500	
TYPE	S519		# of CYLINDERS:	3	
SERIAL No.	222906		STROKE, in	8	
TFA			LINER, in.	5 1/2"	
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:	3 1/2"		H.S.I.		
Joints Onsite:	65		Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

COMPANY:	AMC						**MUD USAGE**			
MUD BUILT:				bbl			Product	Usage	Product	Usage
MUD LOST:				bbl						
MUD VOL:				bbl						
Reading time										
DENSITY				ppg						
VISCOSITY				sec/ltr						
PV / YP										
API W/L.				cc/30mi						
CAKE				32nd/in			**Bottom Hole Assembly (BHA)**			
pH							**Tool**	**Length**	**Type/Description**	
GELS:				10s/10n			1			
CHLOR.				mg/L			2			
CALCIUM				mg/L			3			
EXC. LM.				ppb			4			
SOLIDS				% Vol			5			
SAND				%Vol			6			
KCL				% Wt			7			
PHPA										
Pf/Mf										
M.B.T.				ppb						
							Total			

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**
	1									

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Eng**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 7-02-17 **Report No: 7** **Well Name: Plumb Road 1** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL **GL- Datum** **ROP: 30m/hr** **Formation :**	**Current Depth (MD): 158m RKB** **TVD: 158m** **Progress (MD):** **Proposed TD:**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL** / **Deviation**
		K55	12.0 mGL	9 5/8"		

Objective:

Last LOT Results: n/a

Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**
Accident Free Days : 7	**Last LTI Date:**			
Last Safety Meeting : Morning Toolbox mtg			Surface	12m
Accidents : No				

CURRENT OPERATION @ 06:00HRS:

PLANNED OPERATIONS FOR NEXT 24HRS:

SUMMARY OF PERIOD 00:00 to 24:00HRS: Waited on cement. Made up 8 1/2" BHA. Drilled 8 1/2" surface hole from 16.2m to 158m. Circulated hole. TOOH from 158m to surface.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00			Waited on cement. Continued to change out pump liners from 5" to 5 1/2". Prepared and loaded racks with	Mobilisation		
			8 1/2" BHA straped and clean same. Picked up and broke out cross over sub from 6 1/4" drill collar.	Demobilisation		
	06:00	6	In progress picking up 8 1/2" BHA and bit. Prepared drilling fluid. Loaded 13 x 7" casing onto racks.	Travel		
06:00	09:00	3	Picked up and made up 8 1/2" BHA.	Rig Service		
09:00	12:00	3	Drilled 8 1/2" surface hole from 16.2m to 49m.	Other		
12:00	15:00	3	Drilled 8 1/2" surface hole from 49m to 86m	Circulate Hole		1.00
15:00			Drilled 8 1/2" surface hole from 86m to 130m. Halliburton arrived on location at 17:00hrs and spotted	Drilling		11.25
	18:00	3	equipment	Run Casing		
18:00	20:15	2.25	Drilled 8 1/2" surface hole from 130m to 158m.	Cementing		
20:15	21:15	1	Circulated hole clean while receprocating drill string.	Wait on Cemen		6.00
21:15	21:30	0.25	Flow checked,Laid out 1 joint and dropped survey.	Tripping		
21:30	24:00	2.5	TOOH from 158m to surface, Recovered survey, broke out and laid out bit.	Logging		
				Pressure Test		
				Standby		
				Safety Meeting		
				Other		
				Wait on Daylig		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Well Kill		
				Down Time Rig		
00:00	00:45	0.75	Held Pre Job Safety mtg, Rigged up to run 7" casing.	Down Time Oth		
00:45	05:00	4.25	Made up float and shoe track, checked floats. TIH with 7" casing to setting depth at 156.02m	Rig up/ Nip up		
05:00	06:00	6	Circulated hole clean, Rigged up Halliburton.			
			Note: 1 x male activist arrived at site approx 10:15 and left at 10:45am. Walked around the fence line			
			taking photos.			
			Note: Prime 7 news arrived at location at 11:30, recording footage. Left loaction at 11:45am.			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Total skip bins on site = 8			
Total:				Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight: 17k	**Slack Off Weight:** 16k	**Rotating Weight:** 17k
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:

MUD RECORD

COMPANY:	AMC					**MUD USAGE**	
MUD BUILT:	150	bbl			Product	Usage	
MUD LOST:	5	bbl			Soda Ash	1	
MUD VOL:		bbl			Potassium Chloride	44	
Reading time					Ausdex	5	
DENSITY	8.6	ppg			Sodium Chloride	10	
VISCOSITY	36	sec/ltr			Bore Seal	6	
PV / YP					Biocide	1	
API W/L.		cc/30m					
CAKE		32nd/in			**Bottom Hole Assembly (BHA)**		
pH				**Tool**	**Length**	**Type/Description**	
GELS:		10s/10r		1	0.21 m	8 1/2" PDC Bit	
CHLOR.		mg/L		2	1.26 m	8 1/2" NBS W/ float	
CALCIUM		mg/L		3	9.20 m	6 1/4" DC	
EXC. LM.		ppb		4	1.87 m	8 1/2" String Stab	
SOLIDS		% Vol		5	37.34 m	4 x 6 1/4" DC	
SAND		%Vol		6	0.76 m	X/O	
KCL	2.5	% Wt		7	91.66 m	10 x 4 3/4" DC	
PHPA				8	18.51 m	2 x 3 1/2" HWDP	
Pf/Mf							
M.B.T.		ppb					
				Total	160.81 m		

BIT RECORD:			**HYDRAULICS:**	
NUMBER	1		PUMP No.:	1
SIZE, in.	8 1/2"		PUMP TYPE:	F-500
TYPE	S519		# of CYLINDERS:	3
SERIAL No.	222906		STROKE, in	8
TFA	0.773		LINER, in.	5 1/2"
W.O.B.,K lb.	5		S.P.M.	130
R.P.M.	100-120		RATE, GPM	300
DEPTH OUT, m	158		PRESSURE, psi.	200
DEPTH IN, m	16.2		AV/DP, ft./min.	
METERAGE	141.8		AV/DC, ft./min.	
HOURS	11.25		JET VEL., ft./sec.	
R.O.P., m/hr.	30-40		BIT HHP.	
CONDITION			PUMP HHP.	
TUBULARS:			E.C.D., ppg.	
Drill Pipe:	3 1/2"		H.S.I.	
Joints Onsite:	65		Shaker Screens:	
Joints In hole:			Solids Control:	
Rotating hours:				
Max Pull/Torque:				

I.A.D.C. DULL GRADING:	Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
	1	1	1	CT	N	X	IN		TD	

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

INGAUGE Well Engineering & Project Management — Reliable | Experienced | Engaged

Date: 8-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 8	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 158m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth GL**	**Deviation**
GL- Datum	**TVD: 158m**	K55	12.0 mGL	9 5/8"			
ROP:	**Progress (MD):**	N80	152.22 mGL	7"	23 lb/ft		
Formation :	**Proposed TD: 630m**						

Objective: **Last LOT Results:** n/a

Cement	**Top**	**Bottom**
	Surface	12m

Last BOP Test: **Last BOP Drill:**
Accident Free Days : 8 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

CURRENT OPERATION @ 06:00HRS: Pressure testing BOP's.

PLANNED OPERATIONS FOR NEXT 24HRS: Pressure test BOP's, make 6 1/8" BHA. Drill out flow shoe track. Perform FIT.

SUMMARY OF PERIOD 00:00 to 24:00HRS: TIH with 7" casing to setting depth at 156.02m. Circulated, Rigged up Halliburton and cemented as per progame. Waited on cement. Layed out landing joint.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	00:45	0.75	Held Pre Job Safety mtg, Rigged up to run 7" casing.	Mobilisation		
00:45	05:00	4.25	Made up float and shoe track, checked floats. TIH with 7" casing to setting depth at 156.02m	Demobilisation		
05:00	06:00	1	Circulated hole clean, Rigged up Halliburton.	Travel		
06:00	07:15	1.25	Held Pre Job Safety mtg with Halliburton and crew, Rigged up Halliburton cement head and lines.	Rig Service		
07:15			Pumped 5bbls fresh water spacer, Pressure tested surface lines to 2500psi, Pump 15bbls fresh water spacer.	Other		
			Mixed and pump 12.6bbls of lead cement at 12.5ppg, Mixed and pumped 7.1bbls of tail cement at 15.6ppg.	Circulate Hole		
			Displaced with 19bbls fresh water at 3bbls/min, bumped plug with 150psi increasing to 1500psi 5min.	Drilling		
			Bleed back 0.3bbls. Cement returns after 16bbls into displacement. 3bbls cement to surface.	Run Casing		
	08:30	1.25	Cement in place at 08:25 hrs.	Cementing		
08:30	14:30	6	Waited on cement. Spotted Koomey unit and prepared equipment for nipple up.	Wait on Cement		
14:30	15:00	0.5	Slacked off 7" casing. Broke out landing joint and layed out same.	Tripping		
15:00	17:00	2	2 crew members short due to illness, Rig maintenance on Top Head Drive and mixing pump. Housekeeping.	Logging		
17:00	18:00	1	Broke out casing drive sub ,changed out X/O , installed A-section and tourque to spec.	Pressure Test		
18:00	18:30	0.5	Pre Tour Safety mtg, Layed out spud masher and 1 x joint drill pipe.	Standby		
18:30	21:00	2.5	Nippled up 7 1/16" 5000psi BOP stack and choke line.	Safety Meeting		
21:00			Spotted choke manifold, rigged up Koomey unit, hydraulic lines and kill line. Unable to run Koomey unit	Other		
	24:00	3	from rig generator, Power up Koomey unit from mini camp. Pressure up Koomey unit and function BOP's.	Wait on Daylig		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Well Kill		
				Down Time Rig		
00:00			Rigged up pressure testing unit. Pressure tested A-section,casing against blind rams 500psi 5min (ok). Changed	Down Time Oth		
			out 2 x swivel joints on hard line. Tighten bolts on BOP flange. Rigged up bell nipple and flow line. Made up	Rig up/ Nip up		
			test plug, Attempted to pressure test pipe rams and annular no go. Pulled out test plug and inspect.			
	06:00	6	Rerun test plug. Opened doors on BOP and inspected pipe rams.			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Total skip bins on site = 8			
Total:				Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:

BIT RECORD:

NUMBER	1	2
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	
R.P.M.	100-120	
DEPTH OUT, m	158	
DEPTH IN, m	16.2	
METERAGE	141.8	
HOURS	11.25	
R.O.P., m/hr.	30-40	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.		
RATE, GPM		
PRESSURE, psi.		
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC			
MUD BUILT:	150		bbl	
MUD LOST:	5		bbl	
MUD VOL:			bbl	
Reading time				
DENSITY	8.6		ppg	
VISCOSITY	36		sec/ltr	
PV / YP				
API W/L.			cc/30mi	
CAKE			32nd/in	
pH				
GELS:			10s/10r	
CHLOR.			mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL	2.5		% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	
Ausdex	
Sodium Chloride	
Bore Seal	
Biocide	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1		6 1/8" PDC Bit
2		6 1/8" NBS W/ float
3		4 3/4" DC
4		6 1/8" String Stab
5		9 x 4 3/4" DC
6		3 x 3 1/2" HWDP
7		
8		
Total		

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1	1	1	CT	N	X	IN		TD	

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE

DAILY DRILLING REPORT

Date: 9-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 9	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 158m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- Datum	**TVD: 158m**	K55	12.0 mGL	9 5/8"		130m	1/4 Deg
ROP:	**Progress (MD):**	N80	152.22 mGL	7"	23 lb/ft		
Formation :	**Proposed TD: 630m**						

Objective:	**Last LOT Results:**			
Last BOP Test: 9-2-17	**Last BOP Drill: 9-2-17 Day and Night crew**	**Cement**	**Top**	**Bottom**
Accident Free Days : 9	**Last LTI Date:**	Conductor	Surface	12m
Last Safety Meeting : Morning Toolbox mtg		7" Casing	Surface	156.02m
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Drilling 6 1/8" hole

PLANNED OPERATIONS FOR NEXT 24HRS: Drill 6 1/8" to TD +/- 630m

SUMMARY OF PERIOD 00:00 to 24:00HRS: Rigged up and pressure tested well head , BOPs and choke mainfold. Prepared BHA and TIH. Ran wire line survey.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00			Rigged up pressure testing unit. Pressure tested A-section,casing against blind rams 500psi 5min (ok). Changed	Mobilisation		
			out 2 x swivel joints on hard line. Tighten bolts on BOP flange. Rigged up bell nipple and flow line. Made up	Demobilisation		
			test plug, Attempted to pressure test pipe rams and annular no go. Pulled out test plug and inspect.	Travel		
	06:00	6	Rerun test plug. Opened doors on BOP and inspected pipe rams.	Rig Service		
06:00	07:30	1.5	Held Pre Tour Safety mtg, closed doors on BOP and rigged up to pressure test.	Other		
07:30	10:30	3	Pressure tested Blind rams, pipe rams , annular choke manifold 200 psi low 5min 1500 psi high 10min.	Circulate Hole		
10:30	12:00	1.5	Rigged up and pressure tested TIW and Inside BOP.Installed survey line on drum.	Drilling		
12:00	13:00	1	Broke out test plug and ran wear bushing, Installed Pason flow show.	Run Casing		
13:00	14:00	1	Loaded racks with 10 x 4 3/4" drill collars, 3 x 3 1/2" HWDP. Prepared 6 1/8" BHA.	Cementing		
14:00	17:15	3.25	Made up 6 1/8" BHA and TIH to 67m	Wait on Cement		
17:15	17:45	0.5	Held BOP drill and breifing with crew.	Tripping		
17:45	18:00	0.25	Pre Tour Safety mtg.	Logging		
18:00	19:00	1	Changed out pipe handler jaws. Unable to grip pipe.	Pressure Test		
19:00	20:30	1.5	Continued to TIH to top of cement at 139m	Standby		
20:30	20:45	0.25	Held BOP drill and breifing with crew.	Safety Meeting		
20:45	22:15	1.5	Pulled back to 132m .Rig up and run wire line survey,Survey barrel hung up in HWDP.	Other		
22:15	23:00	0.75	TOOH to HWDP, Trim down rubber centralizer on survey barrel. TIH to	Wait on Daylig		
23:00	23:30	0.5	TIH to 132m	Well Kill		
23:30	24:00	0.5	Rigged up and run wire line survey.	Down Time Rig		
				Down Time Oth		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Rig up/ Nip up		
00:00	00:30	0.5	Rigged down wire line survey equipment, Survey 1/4 degree.			
00:30	2:45	2.25	TIH to 139m, Drilled out float, shoe track and rat hole to 158m. Displaced well to 9ppg mud.			
02:45	03:15	0.5	Drilled 3m new hole from 158m to 161m. Circulated hole clean.			
03:15	04:00	0.75	Rigged up pressure testing unit and peformed FIT to 430psi EMW 25ppg.			
04:00	06:00	2	Drilled 6 1/8" hole from 161m to 182m.			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Total skip bins on site = 8			
Total:				Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1	2
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	6
R.P.M.	100-120	100-120
DEPTH OUT, m	158	
DEPTH IN, m	16.2	158
METERAGE	141.8	
HOURS	11.25	
R.O.P., m/hr.	30-40	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	110	
RATE, GPM	250	
PRESSURE, psi.	240	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC			
MUD BUILT:	150		bbl	
MUD LOST:	5		bbl	
MUD VOL:			bbl	
Reading time				
DENSITY	9		ppg	
VISCOSITY	36		sec/ltr	
PV / YP				
API W/L.			cc/30mi	
CAKE			32nd/in	
pH	8.8			
GELS:			10s/10r	
CHLOR.	32000		mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL	2.5		% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	21
Ausdex	12
Sodium Chloride	48
Bore Seal	
Biocide	1
Bircarbantae	3

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.57 m	9 x 4 3/4" DC
6	27.75 m	3 x 3 1/2" HWDP
7		
8		
Total	122.84 m	

I.A.D.C. DULL GRADING:	Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
	1	1	1	CT	N	X	IN		TD	

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 10-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 10	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 396m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- Datum	**TVD: 396m**	K55	12.0 mGL	9 5/8"		130m	1/4 Deg
ROP: 15-25m/hr	**Progress (MD): 238**	N80	152.22 mGL	7"	23 lb/ft	248m	1/4 Deg
Formation :Napperby	**Proposed TD: 630m**					344m	1/2 Deg

Objective:

Last LOT Results:

Last BOP Test: 9-2-17	**Last BOP Drill: 9-2-17 Day and Night crew**	**Cement**	**Top**	**Bottom**
Accident Free Days : 9	**Last LTI Date:**	Conductor	Surface	12m
Last Safety Meeting : Morning Toolbox mtg		7" Casing	Surface	156.02m
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Drilling 6 1/8" hole at 470m

PLANNED OPERATIONS FOR NEXT 24HRS: Drill 6 1/8" hole to TD +/- 630m. Perform wiper trip and TOOH

SUMMARY OF PERIOD 00:00 to 24:00HRS: Drilled out float shoe track and 3m new hole. Conducted FIT to 430psi 25ppg EMW. Drilled ahead 6 1/8" hole to 396m

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	00:30	0.5	Rigged down wire line survey equipment, Survey 1/4 degree.	Mobilisation		
00:30	2:45	2.25	TIH to 139m, Drilled out float, shoe track and rat hole to 158m. Displaced well to 9ppg mud.	Demobilisation		
02:45	03:15	0.5	Drilled 3m new hole from 158m to 161m. Circulated hole clean.	Travel		
03:15	04:00	0.75	Rigged up pressure testing unit and peformed FIT to 430psi EMW 25ppg.	Rig Service		
04:00	06:00	2	Drilled 6 1/8" hole from 161m to 182m. Recorded SCR's.	Other		
06:00	09:00	3	Drilled 6 1/8" hole from 182m to 226m.	Circulate Hole		
09:00	11:00	2	Drilled 6 1/8" hole from 226m to 256m.	Drilling		
11:00	12:00	1	Circulated hole clean, rigged up and run wire line survey at 248m RKB, 1/4 degree.	Run Casing		
12:00	15:00	3	Drilled 6 1/8" hole from 256m to 316m.	Cementing		
15:00	17:15	2.25	Drilled 6 1/8" hole from 316m to 345m.	Wait on Cement		
17:15	18:00	0.75	Layed out damaged drill pipe.	Tripping		
18:00	18:45	0.75	Rigged up and ran wire line survey at 344m RKB , 1/2 degree.	Logging		
18:45	22:00	3.25	Drilled 6 1/8" hole from 345m to 370m.	Pressure Test		
22:00	24:00	2	Drilled 6 1/8" hole from 370m to 396m.	Standby		
				Safety Meeting		
				Other		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Wait on Daylig		
00:00	04:00	4	Drilled 6 1/8" hole from 396m to 450m. Recorderd SCR's.	Well Kill		
04:00	04:45	0.75	Rigged up and ran wire line survey at 441m RKB , Miss run.	Down Time Rig		
04:45	06:00	1.25	Drilled 6 1/8" hole from 450m to 470m.	Down Time Oth		
				Rig up/ Nip up		
			Formation Tops - Field Pics Only			
			Piliga sandstone 54m,			
			Purlawaugh Fm 310m			
			Deriah Fm 365m			
			Napperby 380 m			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 2 x 6m skip bins on the 10-2-17			
			Total skip bins on site = 10			
Total:				Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight: 38k	**Slack Off Weight: 34k**	**Rotating Weight: 37k**
Slow Pump Rate 1: 174 psi	**Slow Pump Rate 2:** 242psi	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1	2
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	43077
R.P.M.	100-120	100-135
DEPTH OUT, m	158	
DEPTH IN, m	16.2	158
METERAGE	141.8	
HOURS	11.25	
R.O.P., m/hr.	30-40	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	4200lbs

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	150	
RATE, GPM	250	
PRESSURE, psi.	540	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC		
MUD BUILT:	150	bbl	
MUD LOST:	5	bbl	
MUD VOL:		bbl	
Reading time	18:00		
DENSITY	9.7	ppg	
VISCOSITY	36	sec/ltr	
PV / YP			
API W/L.		cc/30mi	
CAKE		32nd/in	
pH	8.8		
GELS:		10s/10r	
CHLOR.	32000	mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL	2.5	% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	32
Ausdex	6
Sodium Chloride	138
Bore Seal	2
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.57 m	9 x 4 3/4" DC
6	27.75 m	3 x 3 1/2" HWDP
7		
8		
Total	122.84 m	

I.A.D.C. DULL GRADING:	Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
	1	1	1	CT	N	X	IN		TD	

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 11-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 11	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 642m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- Datum	**TVD: 642m**	K55	12.0 mGL	9 5/8"		130m	1/4 Deg
ROP:	**Progress (MD): 484m**	N80	152.22 mGL	7"	23 lb/ft	248m	1/4 Deg
Formation :	**Proposed TD: 630m**					344m	1/2 Deg
Objective:		**Last LOT Results:**				548m	3 Deg

Last BOP Test: 9-2-17	**Last BOP Drill: 9-2-17 Day and Night crew**	**Cement**	**Top**	**Bottom**
Accident Free Days : 11	**Last LTI Date:**	Conductor	Surface	12m
Last Safety Meeting : Morning Toolbox mtg		7" Casing	Surface	156.02m
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Replace sheared bolts on end cap hydraulic motor.

PLANNED OPERATIONS FOR NEXT 24HRS: TOOH, Run wire line logs. Rig up and run 4 1/2" casing.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Drilled ahead 6 1/8" hole to TD at 642m. Circulated hole clean. TOOH from 642m

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	04:00	4	Drilled 6 1/8" hole from 396m to 450m. Recorderd SCR's.	Mobilisation		
04:00	04:45	0.75	Rigged up and ran wire line survey at 441m RKB , Miss run.	Demobilisation		
04:45	06:00	1.25	Drilled 6 1/8" hole from 450m to 470m.	Travel		
06:00	09:00	3	Drilled 6 1/8" hole from 470m to 516m.	Rig Service		
09:00	12:45	3.75	Drilled 6 1/8" hole from 516m to 557m.	Other		
12:45	13:00	0.25	Circulated hole clean while receprocating drill string.	Circulate Hole		
13:00	14:00	1	Rigged up and ran wire line survey at 548m RKB , 3 deg	Drilling		
14:00	17:00	3	Drilled 6 1/8" hole from 557m to 590m.	Run Casing		
17:00	21:00	4	Drilled 6 1/8" hole from 590m to 642m TD.	Cementing		
21:00	22:00	1	Circulated hole clean while receprocating drill string.	Wait on Cement		
22:00	24:00	2	Rig repair, removed and changed out upper and lower dies on iron roughneck. Due to pipe slipping.	Tripping		
				Logging		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Pressure Test		
00:00	02:00	2	Rig repair, unable to obtain clamping force on pipe handler, change out jaws and dies.	Standby		
02:00	05:30	3.5	Flow checked, TOOH from 642m RKB to 325m. Max overpull 10k.	Safety Meeting		
05:30	06:00	0.5	Rig repair , replaced sheared bolts on hydraulic end cap on spool motor. In progress.	Other		
				Wait on Daylig		
				Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Formation Tops - Field Pics Only			
			Piliga sandstone 54m,			
			Purlawaugh Fm 310m			
			Deriah Fm 365m			
			Napperby 380 m			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 2 x 6m skip bins on the 11-2-17			
			Total skip bins on site = 12			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight: 38k	**Slack Off Weight: 34k**	**Rotating Weight: 37k**
Slow Pump Rate 1: 174 psi	**Slow Pump Rate 2:** 242psi	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1	2
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	10
R.P.M.	100-120	100-135
DEPTH OUT, m	158	642
DEPTH IN, m	16.2	158
METERAGE	141.8	
HOURS	11.25	
R.O.P., m/hr.	30-40	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	4200lbs

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	150	
RATE, GPM	250	
PRESSURE, psi.	540	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC		
MUD BUILT:	150	bbl	
MUD LOST:	5	bbl	
MUD VOL:		bbl	
Reading time	18:00		
DENSITY	9.8	ppg	
VISCOSITY	36	sec/ltr	
PV / YP			
API W/L.		cc/30mi	
CAKE		32nd/in	
pH	8.8		
GELS:		10s/10r	
CHLOR.	32000	mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL	3.5	% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	13
Ausdex	5
Sodium Chloride	
Bore Seal	6
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.57 m	9 x 4 3/4" DC
6	27.75 m	3 x 3 1/2" HWDP
7		
8		
Total	122.84 m	

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1	1	1	CT	N	X	IN		TD	

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 12-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 12	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**
GL - AMSL	**Current Depth (MD): 642m RKB**		
GL- Datum	**TVD: 642m**		
ROP:	**Progress (MD):**		
Formation :	**Proposed TD: 630m**		

Casing	Depth	Size	Weight
K55	12.0 mGL	9 5/8"	
N80	152.22 mGL	7"	23 lb/ft

Depth RKB	Deviation
130m	1/4 Deg
248m	1/4 Deg
344m	1/2 Deg
548m	3 Deg

Objective:

Last LOT Results:

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew**
Accident Free Days : 11 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

Cement	Top	Bottom
Conductor	Surface	12m
7" Casing	Surface	156.02m

CURRENT OPERATION @ 06:00HRS: Wait on approval to return to location

PLANNED OPERATIONS FOR NEXT 24HRS:Wait on approval to return to location. TOOH, Run wire line logs. Rig up and run 4 1/2" casing.

SUMMARY OF PERIOD 00:00 to 24:00HRS: TOOH, Received notification from the Forestry Corporation to evacuate location due to the extreme hot weather.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	02:00	2	Rig repair, unable to obtain clamping force on pipe handler, change out jaws and dies.	Mobilisation		
02:00	05:30	3.5	Flow checked, TOOH from 642m RKB to 325m. Max overpull 10k.	Demobilisation		
05:30	07:00	1.5	Rig repair , replaced sheared bolts on hydraulic end cap on spool motor.	Travel		
07:00	09:00	2	TOOH from 325m to casing shoe at 156m.	Rig Service		
09:00	10:15	1.25	Flow checked, TOOH from 156m to 12.5m.	Other		
10:15			Informed from NSW Forestry Corporation for all personel to evacuate site. Picked up 2 x 3 1/2" DP and TIH.	Circulate Hole		
	11:00	0.75	Shut in well and secured same. Powered down all generators and closed up shacks.	Drilling		
11:00			All crew stand by at the Civio camp in Narrabri, due to the Forestry Corporation shutting down the Piliga forest	Run Casing		
	18:00	7	due to potentional fires in extreme weather conditions.	Cementing		
18:00			All crew stand by at the Civio camp in Narrabri, due to the Forestry Corporation shutting down the Piliga forest	Wait on Cement		
	24:00	6	due to potentional fires in extreme weather conditions.	Tripping		
				Logging		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Pressure Test		
				Standby		
00:00			All crew stand by at the Civio camp in Narrabri, due to the Forestry Corporation shutting down the Piliga forest	Safety Meeting		
	06:00	6	due to potentional fires in extreme weather conditions.	Other		
				Wait on Dayligh		
				Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Formation Tops - Field Pics Only			
			Piliga sandstone 54m,			
			Purlawaugh Fm 310m			
			Deriah Fm 365m			
			Napperby 380 m			
			Intrusives 535m			
			Digby 578m			
			Black Jack Group 610m			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 2 x 6m skip bins on the 11-2-17			
			Total skip bins on site = 12			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight: 38k	**Slack Off Weight: 34k**	**Rotating Weight: 37k**
Slow Pump Rate 1: 174 psi	**Slow Pump Rate 2:** 242psi	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1	2
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	10
R.P.M.	100-120	100-135
DEPTH OUT, m	158	642
DEPTH IN, m	16.2	158
METERAGE	141.8	
HOURS	11.25	
R.O.P., m/hr.	30-40	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	4200lbs

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	150	
RATE, GPM	250	
PRESSURE, psi.	540	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC		
MUD BUILT:	150	bbl	
MUD LOST:	5	bbl	
MUD VOL:		bbl	
Reading time	18:00		
DENSITY	9.8	ppg	
VISCOSITY	36	sec/ltr	
PV / YP			
API W/L.		cc/30m	
CAKE		32nd/in	
pH	8.8		
GELS:		10s/10r	
CHLOR.	32000	mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL	3.5	% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	13
Ausdex	5
Sodium Chloride	
Bore Seal	6
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.57 m	9 x 4 3/4" DC
6	27.75 m	3 x 3 1/2" HWDP
7		
8		
Total	122.84 m	

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1	1	1	CT	N	X	IN		TD	

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 13-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 13	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD): 642m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB / Deviation**
GL- Datum	**TVD: 642m**	K55	12.0 mGL	9 5/8"		130m / 1/4 Deg
ROP:	**Progress (MD):**	N80	152.22 mGL	7"	23 lb/ft	248m / 1/4 Deg
Formation :	**Proposed TD: 630m**					344m / 1/2 Deg
Objective:		**Last LOT Results:**				548m / 3 Deg

Last BOP Test: 9-2-17	**Last BOP Drill: 9-2-17 Day and Night crew**	**Cement**	**Top**	**Bottom**
Accident Free Days : 13	**Last LTI Date:**	Conductor	Surface	12m
Last Safety Meeting : Morning Toolbox mtg		7" Casing	Surface	156.02m
Accidents : No				

CURRENT OPERATION @ 06:00HRS: Casing at TD. Rig up cement unit and currently pumping cement job.

PLANNED OPERATIONS FOR NEXT 24HRS: Complete cement job. Install slip & seal assembly. Nipple up wellhead. Release rig, rig down & move to Plumb Road 2.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Received approval to return to site. Restart operations. Pull kill string out of hole. Rigged up and logged well. Three logging runs all ok. Rig down wireline. Prepare BHA and start running casing to 389m.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00			All crew stand by at the Civeo camp in Narrabri, due to the Forestry Corporation shutting down the Piliga forest	Mobilisation		
	06:00	6	due to potentional fires in extreme weather conditions.	Demobilisation		
06:00			All crew stand by at the Civio camp in Narrabri, due to the Forestry Corporation shutting down the Piliga forest	Travel		
	08:00	2	due to potentional fires in extreme weather conditions.	Rig Service		
08:00	09:00	1	Received conformation to return to location. Crew arrive on site at 08:50 hrs.	Other		
09:00			Recorded will pressure 0 psi. Pre inspected all rig engines before power up. Opened BOP's and filled	Circulate Hole		
	09:45	0.75	annulas with 2 bbls drilling fluid.	Drilling		
09:45	10:15	0.5	Removed stabbing valve, TOOH with 2 x 3 1/2" drill pipe.	Run Casing		
10:15	10:45	0.5	Broke out and layed out string stab, drill collar, NBR and 6 1/8" PDC Bit.	Cementing		
10:45	11:00	0.25	Held pre job Safety mtg with Kinetic wire line crew.	Wait on Cemen		
11:00			Rigged up Kinetic wire line and run in hole with dummy tool, Tool through table at 11:45hrs, hoist wire line.	Tripping		
			Run #2 GDRC- Gammy Ray, Dual Density, Caliper, Resistivity, tools through table at 13:00, Log up.	Logging		
			Run #3 NRG- Neutron, GR, Resistivity, tools through table at 15:00. Log up.	Pressure Test		
			Run #3 MPR'"=64"Res,Lat Res,Single Point Res,Fluid Res, SP,Temp,GR,Mag Dev through table at 16:45. Log	Standby		
	18:45	7.75	up. Rigged down Kinetic wire line. (Held weekly Safety meeting with both crews.)	Safety Meeting		
18:45	19:30	0.75	Picked up joint drill pipe, made up combo tool and retrieved wear bushing. Changed out Top Head Drive subs.	Other		
19:30	20:00	0.5	Pre Job Saafety mtg, Rigged up to run 4 1/2" casing.	Wait on Daylig		
20:00	24:00	4	Made up float and 2 joint shoe track, checked floats. TIH with 4 1/2" casing to 389m RKB.	Well Kill		
				Down Time Rig		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Down Time Oth		
00:00	03:45	3.75	TIH with 4 1/2" casing from 389m to 469m, Wash down from 469m with 4bbls min to casing depth at 641m.	Rig up/ Nip up		
03:45	04:30	0.75	Circulated hole clean at 5bbls min, while Halliburton prepared spacer.			
04:30	04:45	0.25	Held pre job Safety mtg with Halliburton and crew.			
04:45	06:00	1.25	Rigged up Halliburton cement head and lines, Pumped cement as per program. (In Progress)			
			Formation Tops - Field Pics Only			
			Piliga sandstone 54m, Purlawaugh Fm 310m, Deriah Fm 365m, Napperby 380 m			
			Intrusives 535m, Digby 578m, Black Jack Group 610m			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 4 x 6m skip bins on the 11-2-17			
			Total skip bins on site = 12			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight: 38k	**Slack Off Weight: 34k**	**Rotating Weight: 37k**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1	2
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	10
R.P.M.	100-120	100-135
DEPTH OUT, m	158	642
DEPTH IN, m	16.2	158
METERAGE	141.8	484
HOURS	11.25	
R.O.P., m/hr.	30-40	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	4200lbs

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	150	
RATE, GPM	250	
PRESSURE, psi.	540	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC		
MUD BUILT:	150	bbl	
MUD LOST:	5	bbl	
MUD VOL:		bbl	
Reading time	18:00		
DENSITY	9.8	ppg	
VISCOSITY	36	sec/ltr	
PV / YP			
API W/L.		cc/30mi	
CAKE		32nd/in	
pH	8.8		
GELS:		10s/10r	
CHLOR.	32000	mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL	3.5	% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	
Ausdex	
Sodium Chloride	
Bore Seal	
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.57 m	9 x 4 3/4" DC
6	27.75 m	3 x 3 1/2" HWDP
7		
8		
Total	122.84 m	

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
2	5	2	BT	C	X	IN	WT	TD	
1	1	1	CT	N	X	IN		TD	

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE

DAILY DRILLING REPORT

Date: 14-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 14	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 1	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	258.2m	**Current Depth (MD): 642m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- KB	3.8m	**TVD: 642m**	K55	11.08 m	9 5/8"	36 lb/ft	130m	1/4 Deg
ROP:		**Progress (MD):**	N80	156.02 mKB	7"	23 lb/ft	248m	1/4 Deg
Formation :		**Proposed TD: 630m**	K55	641 mKB	4 1/2"	11.6 lb/ft	344m	1/2 Deg
Objective:			**Last LOT Results:**				548m	3 Deg

Last BOP Test: 9-2-17	**Last BOP Drill: 9-2-17 Day and Night crew**	**Cement**	**Top**	**Bottom**
Accident Free Days : 14	**Last LTI Date:**	Conductor	Surface	12m
Last Safety Meeting : Morning Toolbox mtg		7" Casing	Surface	158m
Accidents : No		4 1/2" Casing	Surface	642m

CURRENT OPERATION @ 06:00HRS:

PLANNED OPERATIONS FOR NEXT 24HRS: Rig down and skid move to Plumb Road 2.

SUMMARY OF PERIOD 00:00 to 24:00HRS: TIH with 4 1/2" casing to 641m. Circulated hole clean, Rig up Halliburton and cemented as per program. Lifted BOP's and installed slip and seal assembly. Trim casing. Layed out BOPs, final cut casing and installed wellhead.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	03:45	3.75	TIH with 4 1/2" casing from 389m to 469m, Wash down from 469m with 4bbls min to casing depth at 641m.	Mobilisation		
03:45	04:30	0.75	Circulated hole clean at 5bbls min, while Halliburton prepared spacer.	Demobilisation		
04:30	04:45	0.25	Held pre job Safety mtg with Halliburton and crew.	Travel		
04:45			Rigged up Halliburton cement head and lines, Pressure tested surface lines to 3000psi, Mixed and pumped 10bbls	Rig Service		
			of 9.8ppg gelled spacer, Mixed and pumped 45bbls of 12.5ppg lead cement, Mixed and pumped 9.5bbls of	Other		
			15.6ppg cement. Displaced with 31.9 bbls of water, bumped plug with 820psi and increased to 1500psi. Bleed	Circulate Hole		
	07:15	2.5	back 0.2bbls. Floats holding, Cement in place at 06:54hrs. Rigged down cement head and lines.	Drilling		
07:15	8:30	1.75	Opened doors on BOP's and cleaned out cement. Nippled down BOP's and removed flow line	Run Casing		
08:30	10:00	1.5	Lifted BOP's and set Slip and seal assembly, slacked of casing . Cut 4 1/2" casing and layed out same.	Cementing		
10:00			Set down BOP's onto A-section, removed bell nipple, Rigged down pipe handler, choke manifold and flare line	Wait on Cement		
	12:45	2.45	reposition pipe handler, lifted BOP's and secured to BOP skid, layed out same.	Tripping		
12:45	13:30	0.75	Final cut and dressed 4 1/2" casing stump at 4 3/4" , installed wellhead and nippled up.	Logging		
			Rig released to Plumb Road 2 at 13:30hrs.	Pressure Test		
				Standby		
				Safety Meeting		
				Other		
				Wait on Daylig		
				Well Kill		
				Down Time Rig		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Down Time Oth		
				Rig up/ Nip up		
			Formation Tops - Field Pics Only			
			Piliga sandstone 54m, Purlawaugh Fm 310m, Deriah Fm 365m, Napperby 380 m			
			Intrusives 535m, Digby 578m, Black Jack Group 610m			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 4 x 6m skip bins on the 11-2-17			
			Total skip bins on site = 12			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:			HYDRAULICS:		
NUMBER	1	2	PUMP No.:	1	
SIZE, in.	8 1/2"	6 1/8"	PUMP TYPE:	F-500	
TYPE	S519	DP408F	# of CYLINDERS:	3	
SERIAL No.	222906	7907092	STROKE, in	8	
TFA	0.773	0.371	LINER, in.	5 1/2"	
W.O.B.,K lb.	5	10	S.P.M.	150	
R.P.M.	100-120	100-135	RATE, GPM	250	
DEPTH OUT, m	158	642	PRESSURE, psi.	540	
DEPTH IN, m	16.2	158	AV/DP, ft./min.		
METERAGE	141.8	484	AV/DC, ft./min.		
HOURS	11.25		JET VEL., ft./sec.		
R.O.P., m/hr.	30-40		BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:	3 1/2"		H.S.I.		
Joints Onsite:	65		Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD						
COMPANY:	AMC					
MUD BUILT:			bbl			
MUD LOST:			bbl			
MUD VOL:			bbl			
Reading time						
DENSITY			ppg			
VISCOSITY			sec/ltr			
PV / YP						
API W/L.			cc/30mi			
CAKE			32nd/in			
pH						
GELS:			10s/10r			
CHLOR.			mg/L			
CALCIUM			mg/L			
EXC. LM.			ppb			
SOLIDS			% Vol			
SAND			%Vol			
KCL			% Wt			
PHPA						
Pf/Mf						
M.B.T.			ppb			

MUD USAGE		
Product	Usage	
Soda Ash		
Potassium Chloride		
Ausdex		
Sodium Chloride		
Bore Seal		
Biocide		
Bircarbantae		

Bottom Hole Assembly (BHA)		
Tool	**Length**	**Type/Description**
1		
2		
3		
4		
5		
6		
7		
8		
Total		

I.A.D.C. DULL GRADING:	Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 14-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 1	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 2	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**Current Depth (MD):**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- Datum	**TVD:**	K55		9 5/8"			
ROP:	**Progress (MD):**	N80		7"	23 lb/ft		
Formation :	**Proposed TD: 370m**	K55		4 1/2"	11.6 lb/ft		
Objective:		**Last LOT Results:**					

Last BOP Test: 9-2-17	**Last BOP Drill: 9-2-17 Day and Night crew**	**Cement**	**Top**	**Bottom**
Accident Free Days : 14	**Last LTI Date:**	Conductor		
Last Safety Meeting : Morning Toolbox mtg		7" Casing		
Accidents : No		4 1/2" Casing		

CURRENT OPERATION @ 06:00HRS: Prepare to drill 12 1/4" hole to set conductor.

PLANNED OPERATIONS FOR NEXT 24HRS: Rig down and skid move to Plumb Road 2, Drill conductor hole and cement. WOC. Drill 8 1/2" surface hole.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Skid moved to Plumb Road 2, spotted equipment and rigged up same.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
13:30			Rigged down electrical cables, air and water lines. Reposition generator trailer, prepared to lower mast.	Mobilisation		
			Mast lowered at 14:20hrs , Removed hold down chains and lowered carrier, removed pyramid stands. Changed out 2	Demobilisation		
			out 2 tyres on carrier. Removed and replaced gland packing on charge pump for mud pump. Removed carrier	Travel		
	18:00	4.5	from sub base.	Rig Service		
18:00			Spotted sub base and carrier. Raised rig on jack legs, RKB to ground 2.15m. Installed stairs to rig floor and rear	Other		
	24:00	6	of carrier. Rigged up kelly hose. Spotted generator and day tank trailers.	Circulate Hole		
				Drilling		
				Run Casing		
				Cementing		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Wait on Cement		
00:00			Rigged up all electrical cables, air and water lines. Functioned ESD's. Installed sand guzzler into cellar. Raised	Tripping		
			mast, spotted pipehandler and rigged up same. Strapped 12 1/4" BHA, prepared cementing equipment and	Logging		
	06:00	6	strapped 1 joint 9 5/8" casing. Made up 12 1/4" BHA.	Pressure Test		
				Standby		
				Safety Meeting		
				Other		
				Wait on Dayligh		
				Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 4 x 6m skip bins on the 11-2-17			
			Total skip bins on site = 12			
Total:				Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1	2
SIZE, in.		
TYPE		
SERIAL No.		
TFA		
W.O.B.,K lb.		
R.P.M.		
DEPTH OUT, m		
DEPTH IN, m		
METERAGE		
HOURS		
R.O.P., m/hr.		
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.		
RATE, GPM		
PRESSURE, psi.		
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC		
MUD BUILT:		bbl	
MUD LOST:		bbl	
MUD VOL:		bbl	
Reading time			
DENSITY		ppg	
VISCOSITY		sec/ltr	
PV / YP			
API W/L.		cc/30mi	
CAKE		32nd/in	
pH			
GELS:		10s/10r	
CHLOR.		mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL		% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	
Ausdex	
Sodium Chloride	
Bore Seal	
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1		
2		
3		
4		
5		
6		
7		
8		
Total		

I.A.D.C. DULL GRADING:	Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 15-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 2	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 2	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL		**Current Depth (MD): 156m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB** / **Deviation**
GL- KB	2.15m	**TVD: 156m**	K55	11.0 m	9 5/8"	36 lb/ft	
ROP: 30-80 M/HR		**Progress (MD): 141.5m**	N80		7"	23 lb/ft	
Formation :		**Proposed TD: 370m**	K55		4 1/2"	11.6 lb/ft	
Objective:			**Last LOT Results:**				

Last BOP Test: 9-2-17	**Last BOP Drill: 9-2-17 Day and Night crew**	**Cement**	**Top**	**Bottom**
Accident Free Days : 15	**Last LTI Date:**	Conductor	Surface	12.5m
Last Safety Meeting : Morning Toolbox mtg		7" Casing		
Accidents : No		4 1/2" Casing		

CURRENT OPERATION @ 06:00HRS: TOOH with 7" casing

PLANNED OPERATIONS FOR NEXT 24HRS: Lay out 7" casing , make up wipper trip assembly, Run 7" casing and cement.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Completed rig up, Drilled conductor hole, cemented 9 5/8" casing.Waited on cement. Drilled 8 1/2" hole to 156m. Circulated hole clean, TOOH to 22m.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00			Rigged up all electrical cables, air and water lines. Functioned ESD's. Installed sand guzzler into cellar. Raised	Mobilisation		
			mast, spotted pipehandler and rigged up same. Strapped 12 1/4" BHA, prepared cementing equipment and	Demobilisation		
	07:00	7	strapped 1 joint 9 5/8" casing. Made up 12 1/4" BHA. Functioned sand guzzler.	Travel		
07:00	08:00	1	Drilled 12 1/4" hole to 14.5m RKB	Rig Service		
08:00	08:45	0.75	TOOH laying out 12 1/4" BHA.	Other		
08:45	09:00	0.25	Ran 1 x joint 11m 9 5/8" casing for conductor.	Circulate Hole		
09:00	09:30	0.5	Cemented conductor	Drilling		
09:30			Waited on cement, Loaded BHA and strapped same, Prepared equipment for backload to Roma.	Run Casing		
			Loaded racks with 7" casing. Received a load of water for day tank. Pressure tested seal assy and wellhead	Cementing		
	15:30	6	connection on Plumb Road 1 to 600psi.	Wait on Cement		
15:30	16:15	0.75	Made up 8 1/2" BHA.	Tripping		
16:15	19:00	2.75	Drilled 8 1/2" from 14.5m to 70m	Logging		
19:00	21::45	2.75	Drilled 8 1/2" from 70m to 156m	Pressure Test		
21:45	22:15	0.5	Circulated hole clean while reciprocating drill string.	Standby		
22:15	22:30	0.25	Flow checked, dropped survey.	Safety Meeting		
22:30	24:00	1.5	TOOH from 156m to 22m	Other		
				Wait on Daylig		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Well Kill		
00:00	00:30	0.5	Continued to TOOH from 22m to surface, layed out stabalizer's and bit. Retrieve survey. Miss run.	Down Time Rig		
00:30	01:00	0.5	Pre job Safety mtg, Rigged up to run 7" casing.	Down Time Oth		
01:00			NPT: Unable to make up casing due to pipe handler requiring realignment, unloaded casing and drill collars.	Rig up/ Nip up		
	02:00	1	Realigned pipe handler.			
02:00	03:45	1.75	Made up float and shoe track and checked for flow, TIH with 7" to 94m Hang up.			
03:45	05:15	1.5	Worked casing from 94m to 95m, unable to pass. Held pre job Safety mtg on laying out casing.			
05:15	06:00	0.75	TOOH laying out 7" casing from 95m to 70m			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 4 x 6m skip bins on the 11-2-17, Received 4 x 6m skip bins on the 15-2-17			
			Skip bins back loaded to Namoi Wastecorp = 1 on the 15-2-17			
			Total skip bins on site = 15			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1 RR	2
SIZE, in.	8 1/2"	
TYPE	S519	
SERIAL No.	222906	
TFA	0.773	
W.O.B.,K lb.	6	
R.P.M.	100-120	
DEPTH OUT, m	156	
DEPTH IN, m	14.5	
METERAGE	141.5	
HOURS	5.5	
R.O.P., m/hr.	30-80	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	130	
RATE, GPM	300	
PRESSURE, psi.	350	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC		
MUD BUILT:		bbl	
MUD LOST:		bbl	
MUD VOL:	200	bbl	
Reading time	18:00		
DENSITY	9.7	ppg	
VISCOSITY	36	sec/ltr	
PV / YP			
API W/L.		cc/30mi	
CAKE		32nd/in	
pH			
GELS:		10s/10r	
CHLOR.		mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL	2.5	% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	
Ausdex	
Sodium Chloride	
Bore Seal	1
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.21 m	8 1/2" PDC Bit
2	1.26 m	8 1/2" NBS W/ float
3	9.35 m	6 1/4" DC
4	1.87 m	8 1/2" String Stab
5	37.25 m	4 x 6 1/4" DC
6	0.76 m	X/O
7	100.81 m	10 x 4 3/4" DC
8	18.44 m	2 x 3 1/2" HWDP
Total	169.95 m	

I.A.D.C. DULL GRADING:	Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
	1RR	1	1	CT	N	X	IN	WT	TD	

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 16-02-17 **Report No: 3** **Well Name: Plumb Road 2** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL 258.2m **GL- KB** 2.15m **ROP: 20-60 M/HR** **Formation :**	**Current Depth (MD): 219m RKB** **TVD: 219m** **Progress (MD): 63m** **Proposed TD: 390m**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
		K55	11.0 m	9 5/8"	36 lb/ft	132m	2 Deg
		N80	154.75	7"	23 lb/ft		
		K55		4 1/2"	11.6 lb/ft		

Objective:

Last LOT Results:

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew** **Accident Free Days : 16** **Last LTI Date:** **Last Safety Meeting :** Morning Toolbox mtg **Accidents :** No	**Cement**	**Top**	**Bottom**	
	Conductor	Surface	12.5m	
	7" Casing	Surface	156m	
	4 1/2" Casing			

CURRENT OPERATION @ 06:00HRS: Drilling 6 1/8" Production hole.

PLANNED OPERATIONS FOR NEXT 24HRS: Drill production hole to TD +/- 390m. Circulate hole clean. TOOH and run wire line logs.

SUMMARY OF PERIOD 00:00 to 24:00HRS: TOOH with 8 1/2" BHA, Rigged up and run 7" casing to 95m unable to pass. TOOH layed out casing. TIH with 8 1/2" wipper trip assembly. Rigged up and run 7" casing to setting depth.Cement casing as per program. Installed A-section.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	00:30	0.5	Continued to TOOH from 22m to surface, layed out stabalizer's and bit. Retrieve survey. Miss run.	Mobilisation		
00:30	01:00	0.5	Pre job Safety mtg, Rigged up to run 7" casing.	Demobilisation		
01:00			NPT: Unable to make up casing due to pipe handler requiring realignment, unloaded casing and drill collars.	Travel		
	02:00	1	Realigned pipe handler.	Rig Service		
02:00	03:45	1.75	Made up float and shoe track and checked for flow, TIH with 7" to 94m Hang up.	Other		
03:45	05:15	1.5	Worked casing from 94m to 95m, unable to pass. Held pre job Safety mtg on laying out casing.	Circulate Hole		
05:15	06:00	0.75	TOOH laying out 7" casing from 95m to 70m.	Drilling		
06:00	08:30	2.5	Rig repair, trouble shoot rig engine shut down, rebooted engine computer diagnostic screen.	Run Casing		
08:30	09:45	1.25	TOOH laying out 7" casing from 70m to surface, broke out casing drive sub.	Cementing		
9:45	10:45	1	Made up 8 1/2" BHA and TIH to 95m tagged up same.	Wait on Cement		
10:45	11:00	0.25	Esatablished circulation and parameters. 300 GPM , 120-140 RPM.	Tripping		
11:00	12:00	1	Washed and reamed from 87m to TD at 156m	Logging		
12:00	12:30	0.5	Circulated hole clean while receprocating drill string.	Pressure Test		
12:30	13:00	0.5	TOOH from 156m to 142m.	Standby		
13:00	13:30	0.5	Rig repair, Changed on dies on iron roughneck.	Safety Meeting		
13:30	15:00	1.5	Continued to TOOH from 142m to surface, layed out stabalizer's and bit.	Other		
15:00	15:30	0.5	Pre job Safety mtg, Rigged up to run 7" casing.	Wait on Dayligh		
15:30	16:30	1	Made up float and shoe track and checked for flow path, TIH with 7" casing to setting depth of 154.75m.	Well Kill		
16:30	17:30	1	Circulated hole clean while rigged up Halliburton.	Down Time Rig		
17:30			Held Pre Job Safety mtg with Halliburton and crew, Rigged up Halliburton cement head and lines.	Down Time Oth		
			Pumped 5bbls fresh water spacer, Pressure tested surface lines to 2900psi, Pump 15bbls fresh water spacer.	Rig up/ Nip up		
			Mixed and pump 12.6bbls of lead cement at 12.5ppg, Mixed and pumped 7.1bbls of tail cement at 15.6ppg.			
			Displaced with 19.4bbls fresh water at 3bbls/min, bumped plug with 180psi increasing to 1500psi 5min.			
			Bleed back 0.4bbls. Cement returns after 14.8 bbls into displacement. 4.6 bbls cement to surface.			
	18:45	1.25	Cement in place at 18:35 hrs.			
18:45	22:30	3.25	Waited on cement. Removed 8 1/2" BHA from racks. Prepared 6 1/8" BHA.			
22:30	22:45	0.25	Slacked off 7" casing. Broke out landing joint and layed out same.			
22:45	23:30	0.75	Broke out casing drive sub ,changed out X/O , installed A-section and tourque to spec.			
23:30	24:00	0.5	Attempted to break out x/o sub from 3 1/2" HWDP. Unable to break, layed out and removed from BHA.			
			OPERATIONS FOR PERIOD 24:00 TO 06:00			
00:00	01:30	1.5	Made up 6 1/8" BHA and TIH to 132m.			
01:30	02:00	0.5	Rigged up and run Totco wire line survey. Recovered survey 2 degree's, rigged down same.			
02:00	03:15	1.25	TIH, tagged cement at 139m, Drilled out float ,shoe track and rat hole to 156m.			
03:15	06:00	2.75	Drilled 6 1/8" hole from 156m to 219m. (Discussed with crews signs of well flowing and monitoring tank volumes.)			
			Note: Received 4 x 6m skip bins on the 4-2-17. Received 4 x 6m skip bins on the 7-2-17.			
			Received 4 x 6m skip bins on the 11-2-17, Received 4 x 6m skip bins on the 15-2-17			
			Skip bins back loaded to Namoi Wastecorp = 2 on the 15-2-17, 16-2-17			
			Total skip bins on site = 14			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1 RR	2 RR
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	6	10
R.P.M.	100-120	100-135
DEPTH OUT, m	156	642
DEPTH IN, m	14.5	158
METERAGE	141.5	
HOURS	5.5	
R.O.P., m/hr.	30-80	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	130	
RATE, GPM	300	
PRESSURE, psi.	350	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC			
MUD BUILT:			bbl	
MUD LOST:			bbl	
MUD VOL:	200		bbl	
Reading time	18:00	6:00		
DENSITY	96	9.5	ppg	
VISCOSITY	36	36	sec/ltr	
PV / YP				
API W/L.			cc/30mi	
CAKE			32nd/in	
pH				
GELS:			10s/10r	
CHLOR.			mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL	5		% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	5
Ausdex	
Sodium Chloride	
Bore Seal	1
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.58 m	9 x 4 3/4" DC
6	18.53 m	2 x 3 1/2" HWDP
7		
8		
Total	113.63 m	

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1RR	1	1	CT	N	X	IN	WT	TD	

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

INGAUGE Well Engineering & Project Management — Reliable | Experienced | Engaged

Date: 17-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 4	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 2	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**258.2m**	**Current Depth (MD): 388m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB / Deviation**
GL- KB	**2.15m**	**TVD: 388m**	K55	11.0 m	9 5/8"	36 lb/ft	132m / 2 Deg
ROP: 2-20 M/HR		**Progress (MD): 232m**	N80	154.75	7"	23 lb/ft	267m / 0 Deg
Formation :		**Proposed TD: 390m**	K55		4 1/2"	11.6 lb/ft	

Objective:

Last LOT Results:

Cement	Top	Bottom
Conductor	Surface	12.5m
7" Casing	Surface	156m
4 1/2" Casing		

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew**
Accident Free Days : 17 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

CURRENT OPERATION @ 06:00HRS: TOOH with 6 1/8" BHA, Prepare to run wire line logs.

PLANNED OPERATIONS FOR NEXT 24HRS: TOOH and run wire line logs. TIH with 4 1/2" casing. Cement casing, install wellhead. Skid move to Plumb Road 3.

SUMMARY OF PERIOD 00:00 to 24:00HRS: TIH with 6 1/8" BHA. Drilled out float shoe track. Drilled 6 1/8" production hole to 381m.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code
00:00	01:30	1.5	Made up 6 1/8" BHA and TIH to 132m.	Mobilisation
01:30	02:00	0.5	Rigged up and run Totco wire line survey. Recovered survey 2 degree's, rigged down same.	Demobilisation
02:00	03:15	1.25	TIH, tagged cement at 139m, Drilled out float ,shoe track and rat hole to 156m.	Travel
03:15	06:00	2.75	Drilled 6 1/8" hole from 156m to 219m. (Discussed with crews signs of well flowing and monitoring tank volumes.)	Rig Service
06:00	07:45	1.75	Drilled 6 1/8" hole from 219m to 277m.	Other
07:45	08:30	0.75	Circulated hole clean, rigged up and run Totco wire line survey at 267m. Recovered survey 0 degree's	Circulate Hole
08:30	12:00	3.5	Drilled 6 1/8" hole from 277m to 327m.	Drilling
12:00	15:00	3	Drilled 6 1/8" hole from 327m to 339m.	Run Casing
15:00	18:00	3	Drilled 6 1/8" hole from 339m to 354m.	Cementing
18:00	21:00	3	Drilled 6 1/8" hole from 354m to 375m.	Wait on Cement
21:00	23:00	2	Drilled 6 1/8" hole from 375m to 381m.	Tripping
23:00	24:00	1	Rig repair, Rig engine overheating. Repaired leaking exhaust pipe.	Logging
				Pressure Test
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Standby
00:00	01:00	1	Drilled 6 1/8" hole from 381m to 385m.	Safety Meeting
01:00	02:00	1	Rig repair, Rig engine shut down. Troubled shoot same.	Other
02:00	02:30	0.5	Drilled 6 1/8" hole from 385m to 388m.	Wait on Daylight
02:30	03:30	1	Rig repair. Blew 6" suction hose on mud pump. (Discussed with Brisbane and TD called at 388m.)	Well Kill
03:30	06:00	2.5	TOOH from 388m to 12.5m.	Down Time Rig
				Down Time Oth
				Rig up/ Nip up
			Total skip bins on site = 14	
Total:		24		Total 24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1 RR	2 RR
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	6	10
R.P.M.	100-120	100-135
DEPTH OUT, m	156	
DEPTH IN, m	14.5	
METERAGE	141.5	
HOURS	5.5	
R.O.P., m/hr.	30-80	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	130	
RATE, GPM	300	
PRESSURE, psi.	350	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC			
MUD BUILT:			bbl	
MUD LOST:			bbl	
MUD VOL:	200		bbl	
Reading time	18:00	06:00		
DENSITY	9.5	9.5	ppg	
VISCOSITY	38	36	sec/ltr	
PV / YP				
API W/L.			cc/30mi	
CAKE			32nd/in	
pH				
GELS:			10s/10r	
CHLOR.			mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL	3.5	4	% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

Product	Usage
Soda Ash	2
Potassium Chloride	
Ausdex	
Sodium Chloride	
Bore Seal	
Biocide	
Bircarbantae	2

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.58 m	9 x 4 3/4" DC
6	18.53 m	2 x 3 1/2" HWDP
Total	113.63 m	

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
2RR									
1RR	1	1	CT	N	X	IN	WT	TD	

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE

DAILY DRILLING REPORT

Date: 18-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 5	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 2	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**258.2m**	**Current Depth (MD): 388m RKB**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- KB	**2.15m**	**TVD: 388m**	K55	11.0 m	9 5/8"	36 lb/ft	132m	2 Deg
ROP: 2-20 M/HR		**Progress (MD): 232m**	N80	154.75	7"	23 lb/ft	267m	0 Deg
Formation :		**Proposed TD: 390m**	K55	388	4 1/2"	11.6 lb/ft		

Objective:

Last LOT Results:

Cement	**Top**	**Bottom**
Conductor	Surface	12.5m
7" Casing	Surface	156m
4 1/2" Casing	Surface	388m

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew**
Accident Free Days : 18 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

CURRENT OPERATION @ 06:00HRS:

PLANNED OPERATIONS FOR NEXT 24HRS: Skid Move to Plumb Road 3

SUMMARY OF PERIOD 00:00 to 24:00HRS: Continued drilling 6 1/8" production hole to 388m. Logged well. Made up and ran 4-1/2" Casing. Circualated clean and cemented 4 1/2" casing. Cut casing and dressed stump. Rig released at 14:30hrs.

Operation Hours			**OPERATIONS FOR PERIOD 00:00 to 24:00**	**Time Code**		
From	**To**	**Hours**				
00:00	01:00	1	Drilled 6 1/8" hole from 381m to 385m.	Mobilisation		
01:00	02:00	1	Rig repair, Rig engine shut down. Troubled shoot same.	Demobilisation		
02:00	02:30	0.5	Drilled 6 1/8" hole from 385m to 388m.	Travel		
02:30	03:30	1	Rig repair. Blew 6" suction hose on mud pump. (Discussed with Brisbane and TD called at 388m.)	Rig Service		
03:30	06:15	3.75	TOOH from 388m to surface.	Other		
06:15	06:30	0.25	Held pre job Safety mtg with Kinetic wire line crew.	Circulate Hole		
06:30			Rigged up Kinetic wire line and run in hole with dummy tool, Tool through table at 6:45hrs, hoist wire line.	Drilling		
			Run #1 MPR'"=64"Res,Lat Res,Single Point Res,Fluid Res, SP,Temp,GR,Mag Dev through table at 07:25. Log	Run Casing		
	08:45	2.25	up. Rigged down Kinetic wire line.	Cementing		
08:45	09:00	0.25	Pre Job Saafety mtg, Rigged up to run 4 1/2" casing.	Wait on Cement		
0:9:00	11:30	2.5	Made up float and 8m shoe track, checked floats for flow path. TIH with 4 1/2" casing to 387m RKB.	Tripping		
11:30	11:45	0.25	Circulated hole clean at 5bbls min, while Halliburton prepared spacer.	Logging		
11:45	12:00	0.25	Held pre job Safety mtg with Halliburton and crew, while continued to circulate hole clean.	Pressure Test		
12:00			Rigged up Halliburton cement head and lines, Pressure tested surface lines to 3000psi, Mixed and pumped 10bbls	Standby		
			of 9.5ppg gelled spacer, Mixed and pumped 21.3 bbls of 12.5ppg lead cement, Mixed and pumped 8.9 bbls of	Safety Meeting		
			15.6ppg cement. Displaced with 19.5 bbls of water, bumped plug with 430psi and increased to 1500psi. Bleed	Other		
	13:30	1.5	back 0.2bbls. Floats holding, Cement in place at 13.23hrs. Rigged down cement head and lines.	Wait on Daylight		
13:30	14:30	1	Conected Top Head Drive to casing and lower to well TD at 388m, Cut casing stump at 4 3/4" and dress same.	Well Kill		
			Rig released at 14:30hrs.	Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Total skip bins on site = 14			
Total:		24		Total		24.0

Operating Hours Today: **Rotating Hours Today:** **Break Down Hours: 0**
Pick Up Weight: **Slack Off Weight:** **Rotating Weight:**
Slow Pump Rate 1: **Slow Pump Rate 2:**

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:			**HYDRAULICS:**		
NUMBER	1 RR	2 RR	PUMP No.:	1	
SIZE, in.	8 1/2"	6 1/8"	PUMP TYPE:	F-500	
TYPE	S519	DP408F	# of CYLINDERS:	3	
SERIAL No.	222906	7907092	STROKE, in	8	
TFA	0.773	0.371	LINER, in.	5 1/2"	
W.O.B.,K lb.	6	10	S.P.M.	130	
R.P.M.	100-120	100-135	RATE, GPM	300	
DEPTH OUT, m	156	388	PRESSURE, psi.	350	
DEPTH IN, m	14.5	156	AV/DP, ft./min.		
METERAGE	141.5	232	AV/DC, ft./min.		
HOURS	5.5		JET VEL., ft./sec.		
R.O.P., m/hr.	30-80	2-40	BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:	3 1/2"		H.S.I.		
Joints Onsite:	65		Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

COMPANY:	AMC					
MUD BUILT:			bbl			
MUD LOST:			bbl			
MUD VOL:	200		bbl			
Reading time	18:00	6:00				
DENSITY	9.5	9.5	ppg			
VISCOSITY	38	36	sec/ltr			
PV / YP						
API W/L.			cc/30m			
CAKE			32nd/in			
pH						
GELS:			10s/10r			
CHLOR.			mg/L			
CALCIUM			mg/L			
EXC. LM.			ppb			
SOLIDS			% Vol			
SAND			%Vol			
KCL	3.5	3.5	% Wt			
PHPA						
Pf/Mf						
M.B.T.			ppb			

MUD USAGE		
Product	Usage	
Soda Ash	2	
Potassium Chloride		
Ausdex		
Sodium Chloride		
Bore Seal		
Biocide		
Bircarbantae	2	

Bottom Hole Assembly (BHA)		
Tool	**Length**	**Type/Description**
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.58 m	9 x 4 3/4" DC
6	18.53 m	2 x 3 1/2" HWDP
Total	113.63 m	

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**
	2RR	5	2	BT	C	X	IN	WT	TD	
	1RR	1	1	CT	N	X	IN	WT	TD	

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 18-02-17	**Tenure Holder: DPI Water**	**Drilling Company: TDC Drilling**	**Field Est Cost:**
Report No: 1	**Tenure: Forest Permit**	**Rig Description: Drillmec G55**	**Days from spud :**
Well Name: Plumb Road 3	**Landowner: Forestry Corporation of NSW**	**Target Basin:**	**AFE days (from spud):**
Client Name: DPI Water			**AFE Cost :**

GL - AMSL	**258.2m**	**Current Depth (MD):**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB** / **Deviation**
GL- KB	**2.15m**	**TVD: 388m**	K55	12.3 m	9 5/8"	36 lb/ft	
ROP: 2-20 M/HR		**Progress (MD):**	N80		7"	23 lb/ft	
Formation :		**Proposed TD: 336m**	K55		4 1/2"	11.6 lb/ft	

Objective:

Last LOT Results:

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew**
Accident Free Days : 18 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

Cement	Top	Bottom
Conductor	Surface	14.3m
7" Casing	Surface	
4 1/2" Casing	Surface	

CURRENT OPERATION @ 06:00HRS: Wait on conductor cement, prepare equipment for next operation.

PLANNED OPERATIONS FOR NEXT 24HRS: Drill 8 1/2" hole to +/- 336m. Run and cement 7" casing.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Rigged down and moved to Plumb Road 3. Rigged up equipment.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code
14:30			Prepared to lower mast, mast lowered at 15:15hrs. Removed stairs and lowered carrier. Removed hold down chains	Mobilisation
	18:00	3.5	sub-base. Installed wellhead on Plumb road 2. Repostioned pipe handler.	Demobilisation
18:00			Held Pre Tour Safety mtg. Continued to spot sub-base, Spotted carrier on to sub-base and raised same. Raised	Travel
			and pinned mast. Rigged up mud pump hard lines, air,water and power cables. Installed stairs to rig floor, spotted	Rig Service
	24:00	6	pipe handler and rigged up same.	Other
				Circulate Hole
				Drilling
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Run Casing
00:00	01:00	1	Cleaned, measured 12 1/4" BHA and 9 5/8" casing. Prepared cementing equipment.	Cementing
01:00	02:00	1	Made up 12 1/4" bit and Drilled conductor hole to 14.3m. Layed out BHA.	Wait on Cement
02:00	03:00	1	Rigged up and run 1 x joint of 9 5/8" casing to 12.3m. Mixed and cemented same.	Tripping
03:00	06:00	3	Waited on cement, prepared 8 1/2" BHA and 7" casing.	Logging
				Pressure Test
				Standby
				Safety Meeting
				Other
				Wait on Daylight
				Well Kill
				Down Time Rig
				Down Time Oth
				Rig up/ Nip up
			Total skip bins on site = 14	
Total:		24		Total 24.0

Operating Hours Today: **Rotating Hours Today:** **Break Down Hours: 0**
Pick Up Weight: **Slack Off Weight:** **Rotating Weight:**
Slow Pump Rate 1: **Slow Pump Rate 2:**

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1 RR	
SIZE, in.	8 1/2"	
TYPE	S519	
SERIAL No.	222906	
TFA	0.773	
W.O.B.,K lb.		
R.P.M.		
DEPTH OUT, m		
DEPTH IN, m	14.3	
METERAGE		
HOURS		
R.O.P., m/hr.		
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	130	
RATE, GPM	300	
PRESSURE, psi.	350	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC			
MUD BUILT:			bbl	
MUD LOST:			bbl	
MUD VOL:	200		bbl	
Reading time	18:00	6:00		
DENSITY	9.5	9.5	ppg	
VISCOSITY	38	36	sec/ltr	
PV / YP				
API W/L.			cc/30m	
CAKE			32nd/in	
pH				
GELS:			10s/10r	
CHLOR.			mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL	3.5	3.5	% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

Product	Usage
Soda Ash	2
Potassium Chloride	
Ausdex	
Sodium Chloride	
Bore Seal	
Biocide	
Bircarbantae	2

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1		
2		
3		
4		
5		
6		
Total		

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1RR									

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE

DAILY DRILLING REPORT

Date: 19-02-17 **Report No: 2** **Well Name: Plumb Road 3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL	**258.2m**	**Current Depth (MD): 233m**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- KB	**2.20m**	**TVD: 233m**	K55	12.3 m	9 5/8"	36 lb/ft	151	1 Deg
ROP: 22 M/HR		**Progress (MD): 77m**	N80	155.16	7"	23 lb/ft		
Formation :		**Proposed TD: 336m**	K55		4 1/2"	11.6 lb/ft		

Objective:

Last LOT Results:

Cement	**Top**	**Bottom**
Conductor	Surface	14.3m
7" Casing	Surface	156m
4 1/2" Casing	Surface	

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew**
Accident Free Days : 19 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

CURRENT OPERATION @ 06:00HRS: Drilling 6 1/8" production hole.

PLANNED OPERATIONS FOR NEXT 24HRS: Drill 6 1/8"production hole to TD +/- 336m. TOOH and run wire line logs. Rig up and run 4-1/2" casing.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Completed rig up, Drilled and cemented conductor. Waited on cement. Drilled 8 1/2" surface hole to TD at 156m. TOOH Ran and cemented 7" casing. Installed A-section. Prepared 6 1/8" BHA.

Operation Hours			**OPERATIONS FOR PERIOD 00:00 to 24:00**	**Time Code**		
From	**To**	**Hours**				
00:00	01:00	1	Cleaned, measured 12 1/4" BHA and 9 5/8" casing. Prepared cementing equipment.	Mobilisation		
01:00	02:00	1	Made up 12 1/4" bit and Drilled conductor hole to 14.3m. Layed out BHA.	Demobilisation		
02:00	03:00	1	Rigged up and run 1 x joint of 9 5/8" casing to 12.3m. Mixed and cemented same.	Travel		
03:00			Waited on cement, prepared 8 1/2" BHA and 7" casing. Pressure tested Plumb Road 2 well head	Rig Service		
	09:15	6	connection to 600psi.	Other		
09:15	12:00	2.75	Drilled 8 1/2" hole from 14.3m to 96m.	Circulate Hole		
12:00	13:30	1.5	Drilled 8 1/2" hole from 96m to 156m.	Drilling		
13:30	14:00	0.5	Circulated hole clean while receprocating drill string.	Run Casing		
14:00	14:15	0.25	Layed out single, Dropped Totco survey. Flowed checked.	Cementing		
14:15	15:15	1	TOOH from 156m to surface.Retried survey 1 deg.	Wait on Cement		
15:15	15:30	0.25	Held pre job safety mtg, rigged up to run 7" casing.	Tripping		
15:30	17:00	1.5	Made up float and shoe track and checked for flow path, TIH with 7" to setting depth at 155.16m	Logging		
17:00	17:15	0.25	Circulated hole clean while rigged up Halliburton.	Pressure Test		
17:15			Held Pre Job Safety mtg with Halliburton and crew, Rigged up Halliburton cement head and lines.	Standby		
			Pumped 5bbls fresh water spacer, Pressure tested surface lines to 2900psi, Pump 15bbls fresh water spacer.	Safety Meeting		
			Mixed and pump 12.6bbls of lead cement at 12.5ppg, Mixed and pumped 7.1bbls of tail cement at 15.6ppg.	Other		
			Displaced with 19.2 bbls fresh water at 3bbls/min, bumped plug with 180psi increasing to 1500psi 5min.	Wait on Dayligh		
			Bleed back 0.3bbls. Cement returns after 14.8 bbls into displacement. 5.2 bbls cement to surface.	Well Kill		
	18:45	1.75	Cement in place at 18:38 hrs. Rigged down Cement head and lines.	Down Time Rig		
18:45	22:30	3.75	Waited on cement. Removed 8 1/2" BHA from racks. Prepared 6 1/8" BHA.	Down Time Oth		
22:30	23:00	0.5	Slacked off 7" casing. Broke out landing joint and layed out same.	Rig up/ Nip up		
23:00	23:30	0.5	Broke out casing drive sub ,changed out X/O , installed A-section and tourque to spec.			
23:30	24:00	0.5	Cleared rig floor, Picked up bit and near bit stabalizer.			
			OPERATIONS FOR PERIOD 24:00 TO 06:00			
00:00	01:00	1	TIH with 6 1/8" BHA, tagged cement at 138m.			
00:00	02:15	1.25	Drilled out cement, float, shoe track and rat hole to 156m.			
02:15	06:00	3.75	Drilled 6 1/8" hole from 156m to 233m.			
			Total skip bins on site = 14			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1 RR	2 RR
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	10
R.P.M.	150	145
DEPTH OUT, m	156	156
DEPTH IN, m	14.3	
METERAGE	141.7	
HOURS	4.2	
R.O.P., m/hr.	60	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	130	
RATE, GPM	300	
PRESSURE, psi.	350	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC				
MUD BUILT:			bbl		
MUD LOST:			bbl		
MUD VOL:	190		bbl		
Reading time	6:00	18:00			
DENSITY	9.5	9.6	ppg		
VISCOSITY	38	39	sec/ltr		
PV / YP					
API W/L.			cc/30mi		
CAKE	1	1	32nd/in		
pH	11	9			
GELS:			10s/10r		
CHLOR.			mg/L		
CALCIUM			mg/L		
EXC. LM.			ppb		
SOLIDS			% Vol		
SAND			%Vol		
KCL	3	3	% Wt		
PHPA					
Pf/Mf					
M.B.T.			ppb		

MUD USAGE

Product	Usage	
Soda Ash		
Potassium Chloride	20	
Ausdex	4	
Sodium Chloride		
Zun Gum	3	
Biocide		
Bircarbantae	2	

Bottom Hole Assembly (BHA)

Tool	**Length**	**Type/Description**
1	0.21 m	8 1/2" PDC Bit
2	1.26 m	8 1/2" NBS W/ float
3	9.35 m	6 1/4" DC
4	1.87 m	8 1/2" String Stab
5	37.25 m	4 x 6 1/4" DC
6	0.76 m	X/O
	100.81 m	10 x 4 3/4" DC
	18.44 m	2 x 3 1/2" HWDP
Total	169.95 m	

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**
	1RR	1	1	CT	N	X	IN	WT	TD	

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 20-02-17 **Report No: 3** **Well Name: Plumb Road 3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL	**258.2m**	**Current Depth (MD): 333m**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- KB	**2.20m**	**TVD: 333m**	K55	12.3 m	9 5/8"	36 lb/ft	151	1 Deg
ROP: 22 M/HR		**Progress (MD): 177m**	N80	155.16	7"	23 lb/ft		
Formation :		**Proposed TD: 336m**	K55		4 1/2"	11.6 lb/ft		

Objective:

Last LOT Results:

Cement	Top	Bottom
Conductor	Surface	14.3m
7" Casing	Surface	156m
4 1/2" Casing	Surface	

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew**
Accident Free Days : 20 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

CURRENT OPERATION @ 06:00HRS: Drilling 6 1/8" production hole.

PLANNED OPERATIONS FOR NEXT 24HRS: Drill 6 1/8"production hole to TD +/- 336m. TOOH and run wire line logs. Rig up, run 7" casing and cement. Release Rig.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Drilled out float and shoe track and rat hole to 156m. Drilled 6 1/8" production hole. TOOH and waited on mud pump. Rigged up and function tested. TIH to 180m, washed and reamed to bottom at 311m.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	01:00	1	TIH with 6 1/8" BHA, tagged cement at 138m.	Mobilisation		
00:00	02:15	1.25	Drilled out cement, float, shoe track and rat hole to 156m.	Demobilisation		
02:15	06:00	3.75	Drilled 6 1/8" hole from 156m to 233m.	Travel		
06:00	09:00	3	Drilled 6 1/8" hole from 233m to 277m.	Rig Service		
09:00	11:15	2.25	Drilled 6 1/8" hole from 277m to 311m.	Other		
11:15			Rig repair, TOOH to casing shoe due to Mud pump bearing failure, unable to pump fluid.	Circulate Hole		
			Rigged down mud pump and removed. Waited on back up mud pump from Roma. Cleaned and loaded unrequired	Drilling		
	18:00	6.75	equipment.	Run Casing		
18:00	21:30	3.5	Rig repair, Wait on mud pump. Pump arrived on location at 21:30hrs.	Cementing		
21:30	22:45	1.25	NPT: Rigged up pump and functioned same.	Wait on Cement		
22:45	24:00	1.25	NPT: TIH to 180m,tagged up. Precautionary washed and reamed from 180m to 311m.	Tripping		
				Logging		
				Pressure Test		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Standby		
00:00	00:30	0.5	NPT: Circulated hole clean while receprocating drill string.	Safety Meeting		
00:30	03:00	2.5	Drilled 6 1/8" hole from 311m to 320m.	Other		
03:00	06:00	3	Drilled 6 1/8" hole from 320m to 333m.	Wait on Dayligh		
				Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Total skip bins on site = 17			
Total:		24		Total		24.0

Operating Hours Today: **Rotating Hours Today:** **Break Down Hours: 0**
Pick Up Weight: **Slack Off Weight:** **Rotating Weight:**
Slow Pump Rate 1: **Slow Pump Rate 2:**

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1 RR	2 RR
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	10
R.P.M.	150	145
DEPTH OUT, m	156	
DEPTH IN, m	14.3	156
METERAGE	141.7	
HOURS	4.2	
R.O.P., m/hr.	60	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	130	
RATE, GPM	170	
PRESSURE, psi.	350	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC			
MUD BUILT:			bbl	
MUD LOST:			bbl	
MUD VOL:	190		bbl	
Reading time	06:00	18:00		
DENSITY	9.5	9.6	ppg	
VISCOSITY	38	39	sec/ltr	
PV / YP				
API W/L.			cc/30mi	
CAKE	1	1	32nd/in	
pH	11	9		
GELS:			10s/10r	
CHLOR.			mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL	3	3	% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	
Ausdex	
Sodium Chloride	
Zun Gum	
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.58 m	9 x 4 3/4" DC
6	18.53 m	2 x 3 1/2" HWDP
Total	113.63 m	

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1RR	1	1	CT	N	X	IN	WT	TD	

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 21-02-17 **Report No: 4** **Well Name: Plumb Road 3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL	**258.2m**	**Current Depth (MD): 336m**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- KB	**2.20m**	**TVD: 336m**	K55	12.3 m	9 5/8"	36 lb/ft	151	1 Deg
ROP: 22 M/HR		**Progress (MD): 177m**	N80	155.16	7"	23 lb/ft		
Formation :		**Proposed TD: 336m**	K55	336m	4 1/2"	11.6 lb/ft		

Objective:

Last LOT Results:

Last BOP Test: 9-2-17 **Last BOP Drill: 9-2-17 Day and Night crew**
Accident Free Days : 21 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

Cement	Top	Bottom
Conductor	Surface	14.3m
7" Casing	Surface	156m
4 1/2" Casing	Surface	336m

CURRENT OPERATION @ 06:00HRS: Rigging down equipment, prepare to spot and rig up Flushby rig.

PLANNED OPERATIONS FOR NEXT 24HRS: Rig down equipment, Preapre for TDC Flushby rig for completions.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Drilled 6 1/8" production hole to TD at 336m. TOOH, Ran and cemented 4 1/2" casing. Final cut and dress casing , Rig released at 19:00hrs. Rigged down and cleaned equipment.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code
00:00	00:30	0.5	NPT: Circulated hole clean while receprocating drill string.	Mobilisation
00:30	03:00	2.5	Drilled 6 1/8" hole from 311m to 320m.	Demobilisation
03:00	06:00	3	Drilled 6 1/8" hole from 320m to 333m.	Travel
06:00	07:15	1.25	Drilled 6 1/8" hole from 333m to 336m.	Rig Service
07:15	07:45	0.5	Circulated hole clean while receprocating drill string.	Other
07:45	09:45	2	TOOH from 336m to surface, unloaded drill collars from racks.	Circulate Hole
09:45			Rigged up Kinetic wire line and run in hole with dummy tool, Tool through table at 10:15hrs, hoist wire line.	Drilling
			Run #1 MPR'"=64"Res,Lat Res,Single Point Res,Fluid Res, SP,Temp,GR,Mag Dev through table at 11:00hrs. Log	Run Casing
	12:30	2.75	up. Rigged down Kinetic wire line.	Cementing
12:30	12:45	0.25	Pre Job Saafety mtg, Rigged up to run 4 1/2" casing.	Wait on Cement
12:45	16:00	3.25	Made up float and 1 joint shoe track, checked floats for flow path. TIH with 4 1/2" casing to 334.10m.	Tripping
16:00	16:15	0.25	Circulated hole clean at 3bbls min, while Halliburton prepared spacer.	Logging
16:15	16:30	0.25	Held pre job Safety mtg with Halliburton and crew, while continued to circulate hole clean.	Pressure Test
16:30			Rigged up Halliburton cement head and lines, Pressure tested surface lines to 3000psi, Mixed and pumped 10bbls	Standby
			of 9.5ppg gelled spacer, Mixed and pumped 16.9 bbls of 12.5ppg lead cement, Mixed and pumped 8.9 bbls of	Safety Meeting
			15.6ppg cement. Displaced with 16.6 bbls of water, bumped plug with 440psi and increased to 1500psi. Bleed	Other
	18:15	1.75	back 0.2bbls. Floats holding, Cement in place at 17:54 hrs. Rigged down cement head and lines.	Wait on Daylight
18:15	19:00	0.75	Conected Top Head Drive to casing and lower to well TD at 336m, Cut casing stump at 4 3/4" and dress same.	Well Kill
			Rig released at 19:00hrs.	Down Time Rig
				Down Time Oth
19:00			Broke out Top Head Drive subs, cleaned and stored equipment. Prepared to and lowered mast at 20:15 hrs.	Rig up/ Nip up
			Loaded 3 1/2" Drill pipe on pipe trailer. Rigged down air,water lines and electrical cables from rig carrier.	
24:00		5	Removed rig carrier from sub base and installed well head on Plumb Road 3.	
OPERATIONS FOR PERIOD 24:00 TO 06:00				
:00			Removed mud pump hard lines to carrier, cleaned sub base and loaded onto trailer. Continued general rig down	
06:00		6	and cleaning equipment for demobilization.	
			Total skip bins on site = 17	
Total:		24		Total 24.0

Operating Hours Today: **Rotating Hours Today:** **Break Down Hours: 0**
Pick Up Weight: **Slack Off Weight:** **Rotating Weight:**
Slow Pump Rate 1: **Slow Pump Rate 2:**

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER	1 RR	2 RR
SIZE, in.	8 1/2"	6 1/8"
TYPE	S519	DP408F
SERIAL No.	222906	7907092
TFA	0.773	0.371
W.O.B.,K lb.	5	10
R.P.M.	150	145
DEPTH OUT, m	156	
DEPTH IN, m	14.3	156
METERAGE	141.7	180
HOURS	4.2	
R.O.P., m/hr.	60	
CONDITION		

TUBULARS:

Drill Pipe:	3 1/2"
Joints Onsite:	65
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:	1	
PUMP TYPE:	F-500	
# of CYLINDERS:	3	
STROKE, in	8	
LINER, in.	5 1/2"	
S.P.M.	130	
RATE, GPM	170	
PRESSURE, psi.	350	
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:	AMC			
MUD BUILT:			bbl	
MUD LOST:			bbl	
MUD VOL:	190		bbl	
Reading time	06:00	18:00		
DENSITY	9.5	9.6	ppg	
VISCOSITY	38	39	sec/ltr	
PV / YP				
API W/L.			cc/30mi	
CAKE	1	1	32nd/in	
pH	11	9		
GELS:			10s/10r	
CHLOR.			mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL	3	3	% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	
Ausdex	
Sodium Chloride	
Zun Gum	
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1	0.22 m	6 1/8" PDC Bit
2	1.83 m	6 1/8" NBS W/ float
3	9.10 m	4 3/4" DC
4	1.37 m	6 1/8" String Stab
5	82.58 m	9 x 4 3/4" DC
6	18.53 m	2 x 3 1/2" HWDP
Total	113.63 m	

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment
1RR	1	1	CT	N	X	IN	WT	TD	

Rig Contact (On Site)

Position	Name	Mobile#	Position	Name	Mobile #
Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 22-02-17 **Report No: 1** **Well Name: Plumb Road 1-2-3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL 258.2m **GL- KB** **ROP:** **Formation :**	**Current Depth (MD):** **TVD:** **Progress (MD):** **Proposed TD:**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
Objective:		**Last LOT Results:**					

Last BOP Test: **Last BOP Drill:** **Accident Free Days : 22** **Last LTI Date:** **Last Safety Meeting :** Morning Toolbox mtg **Accidents :** No	**Cement**	**Top**	**Bottom**	
	Conductor			
	7" Casing			
	4 1/2" Casing			

CURRENT OPERATION @ 06:00HRS: Rig up Kinetic wire line and commence logs on Plumb Road 2

PLANNED OPERATIONS FOR NEXT 24HRS: Circulate and flow Plumb Road 1, while peform logs and perforations on Plum Road 1 and 2.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Continued to rig down rig equipment, Spotted in Flushby rig and rigged up same. Performed perforations on Plumb Road 1 Rigged up air pack trailer, Flow T and anullar, TIH and unloaded well.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
0:00			Removed mud pump hard lines to carrier, cleaned sub base and loaded onto trailer. Continued general rig down	Mobilisation		
	06:00	6	and cleaning equipment for demobilization.	Demobilisation		
06:00			Removed 2 x 22,000L of drilling fluid from mud tanks with Namoi Wastecorp. Spotted Flushby rig over Plumb	Travel		
	09:30	3.5	Road 1 and rigged up same. Kinetic on location at 08:30hrs, Spotted equipment and rigged up.	Rig Service		
09:30	09:45	0.25	Held Safety mtg with Kinetic and crew.	Other		
09:45			Run wire line 1 Gauge tool, tools through table at 09:46 hrs, changed out tools Run 2 RBT (CBL) through table	Circulate Hole		
			at 10:58 hrs, Hoisted same. Downloaded data and forwarded to Brisbane office for conformation of perforations.	Drilling		
			Held Safety mtg with Kinetic and crew, Loaded 3m Perf guns and ran in hole through table at 13:55hrs. Correlate	Run Casing		
			to peforation depth at 578m to 581m. Shot guns at 14:37hrs. Hoisted wire line and rigged down Kinitic	Cementing		
	15:30	5.75	Spotted Kinitic wire line unit at Plumb Road 2 and prepared equipment.	Wait on Cement		
15:30			Raised floor and installed flow T, nippled up anullar and blind flange, rigged up Farr tubing tong and slips.	Tripping		
	18:00	2.5	Installed hand rails and stairs.	Logging		
18:00			Cleaned out trip tank, Spotted air pack trailer, rigged up discharge hard line to mud tanks and secured same.	Pressure Test		
	20:45	2.75	Ran hydraulic lines to Koomey unit, pressured up and functioned same.	Standby		
20:45	21:15	0.5	Strapped 2 3/8" tubing and prepared to TIH.	Safety Meeting		
21:15	21:45	0.5	TIH to 95m, unloaded well with 200psi.	Other		
21:45	24:00	2.25	TIH from 95m to 419m	Wait on Dayligh		
				Well Kill		
				Down Time Rig		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Down Time Oth		
				Rig up/ Nip up		
00:00	12:30	0.5	Unloaded well at 419m with 650psi.			
12:30	03:00	2.5	TIH from 419m to 577m.			
03:00	03:30	0.5	Unloaded well at 577m with 820psi.Bleed down system and removed air line from tubing.			
03:30	04:30	1	Bleed down system and removed air line from tubing. Removed stairs and rigged down floor, lowered mast.			
04:30			Spotted Flushby rig over Plumb Road 2 in preperation for wire line , removed well head, rerun hard line into skip bin			
	06:00	1.5	for flow test on Plumb Road 1.			
			Total skip bins on site = 15			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:			**HYDRAULICS:**		
NUMBER			PUMP No.:		
SIZE, in.			PUMP TYPE:		
TYPE			# of CYLINDERS:		
SERIAL No.			STROKE, in		
TFA			LINER, in.		
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:			H.S.I.		
Joints Onsite:			Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

COMPANY:	AMC				**MUD USAGE**	
MUD BUILT:	bbl			Product	Usage	
MUD LOST:	bbl			Soda Ash		
MUD VOL:	bbl			Potassium Chloride		
Reading time				Ausdex		
DENSITY	ppg			Sodium Chloride		
VISCOSITY	sec/ltr			Zun Gum		
PV / YP				Biocide		
API W/L.	cc/30mi			Bircarbantae		
CAKE	32nd/in			**Bottom Hole Assembly (BHA)**		
pH		**Tool**	**Length**	**Type/Description**		
GELS:	10s/10r	1				
CHLOR.	mg/L	2				
CALCIUM	mg/L	3				
EXC. LM.	ppb	4				
SOLIDS	% Vol	5				
SAND	%Vol	6				
KCL	% Wt					
PHPA						
Pf/Mf						
M.B.T.	ppb					
		Total				

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 23-02-17 **Report No: 2** **Well Name: Plumb Road 1-2-3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL 258.2m	**Current Depth (MD):**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
GL- KB	**TVD:**						
ROP:	**Progress (MD):**						
Formation :	**Proposed TD:**						

Objective: **Last LOT Results:**

Last BOP Test:	**Last BOP Drill:**	**Cement**	**Top**	**Bottom**	
Accident Free Days : 23	**Last LTI Date:**	Conductor			
Last Safety Meeting : Morning Toolbox mtg		7" Casing			
Accidents : No		4 1/2" Casing			

CURRENT OPERATION @ 06:00HRS: Continue to circulate air to lift fluid on Plumb Road 1

PLANNED OPERATIONS FOR NEXT 24HRS: Circulate air to lift fluid on Plumb Road 1, Rigged down Flushby and rig up on Plumb Road 3 and run tubing .

SUMMARY OF PERIOD 00:00 to 24:00HRS: Ran in tubing and unloaded well. Moved Flushby rig to well 2 and 3 ,Performed perforations on Plumb Road 2-,3 Continued to flow Plumb Road 1

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	12:30	0.5	Unloaded well at 419m with 650psi.	Mobilisation		
12:30	03:00	2.5	TIH from 419m to 577m.	Demobilisation		
03:00	03:30	0.5	Unloaded well at 577m with 820psi.Bleed down system and removed air line from tubing.	Travel		
03:30	04:30	1	Bleed down system and removed air line from tubing. Removed stairs and rigged down floor, lowered mast.	Rig Service		
04:30			Spotted Flushby rig over Plumb Road 2 in preperation for wire line , removed well head, rerun hard line into skip bin	Other		
	06:00	1.5	for flow test on Plumb Road 1.	Circulate Hole		
06:00	06:15	0.25	Held Safety mtg with Kinetic and crew.	Drilling		
06:15			Run wire line 1 Gauge tool, tools through table at 06:15 hrs, changed out tools Run 2 RBT (CBL) through table	Run Casing		
			at 07:10 hrs, Hoisted same. Downloaded data and forwarded to Brisbane office for conformation of perforations.	Cementing		
			Held Safety mtg with Kinetic and crew, Loaded 6m Perf guns and ran in hole through table at 09:25hrs. Correlated	Wait on Cement		
			to peforation depth at 359m to 365m. Shot guns at 10:00hrs. Hoisted wire line and rigged down Kinitic.	Tripping		
			Plumb Road 2 free flowing to surface at low rate. Begin monitoring flowback fluid.			
	10:30	4.15	Spotted Kinitic wire line unit at Plumb Road 3 and prepared equipment.	Logging		
10:30	11:30	1	Rigged down and moved Flushby rig to Plumb Road 3 and rigged up same.	Pressure Test		
11:30			Run wire line 1 Gauge tool, tools through table at 11:32 hrs, changed out tools Run 2 RBT (CBL) through table	Standby		
			at 12:22 hrs, Hoisted same. Downloaded data and forwarded to Brisbane office for conformation of perforations.	Safety Meeting		
			Held Safety mtg with Kinetic and crew, Loaded 6m Perf guns and ran in hole through table at 14:07hrs. Correlated	Other		
	15:00	3.5	to peforation depth at 305m to 311m. Shot guns at 14:30hrs. Hoisted wire line and rigged down Kinitic	Wait on Daylig		
15:00	15:30	0.5	Rigged down and moved Flushby rig to Plumb Road 1, in preperation of completing well flow.	Down Time Rig		
15:30			From 07:30 ,Continued to circulate on Plumb Road 1 recording data. Loaded equipment for demob to Roma.	Down Time Oth		
	18:00	2.5	Wash and stored equipment.	Rig up/ Nip up		
18:00	24:00	6	Continued to circulate on Plumb Road 1, dumped and cleaned mud tanks into skip bins. Generall housekeeping			
			around lease.			
			OPERATIONS FOR PERIOD 24:00 TO 06:00			
00:00	06:00	6	Continued to circulate on Plumb Road 1, Preapared TDC rig 10 fror demobilization, continued to clean mud tanks.			
			Total skip bins on site = 15			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER		
SIZE, in.		
TYPE		
SERIAL No.		
TFA		
W.O.B.,K lb.		
R.P.M.		
DEPTH OUT, m		
DEPTH IN, m		
METERAGE		
HOURS		
R.O.P., m/hr.		
CONDITION		

TUBULARS:

Drill Pipe:	
Joints Onsite:	
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:		
PUMP TYPE:		
# of CYLINDERS:		
STROKE, in		
LINER, in.		
S.P.M.		
RATE, GPM		
PRESSURE, psi.		
AV/DP, ft./min.		
AV/DC, ft./min.		
JET VEL., ft./sec.		
BIT HHP.		
PUMP HHP.		
E.C.D., ppg.		
H.S.I.		
Shaker Screens:		
Solids Control:		

MUD RECORD

COMPANY:				
MUD BUILT:			bbl	
MUD LOST:			bbl	
MUD VOL:			bbl	
Reading time				
DENSITY			ppg	
VISCOSITY			sec/ltr	
PV / YP				
API W/L.			cc/30mi	
CAKE			32nd/in	
pH				
GELS:			10s/10r	
CHLOR.			mg/L	
CALCIUM			mg/L	
EXC. LM.			ppb	
SOLIDS			% Vol	
SAND			%Vol	
KCL			% Wt	
PHPA				
Pf/Mf				
M.B.T.			ppb	

MUD USAGE

	Product	Usage
	Soda Ash	
	Potassium Chloride	
	Ausdex	
	Sodium Chloride	
	Zun Gum	
	Biocide	
	Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1		
2		
3		
4		
5		
6		
Total		

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 24-02-17 **Report No: 3** **Well Name: Plumb Road 1-2-3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL 258.2m **GL- KB** **ROP:** **Formation :**	**Current Depth (MD):** **TVD:** **Progress (MD):** **Proposed TD:**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
Objective:		**Last LOT Results:**					
Last BOP Test: **Last BOP Drill:** **Accident Free Days : 24** **Last LTI Date:** **Last Safety Meeting :** Morning Toolbox mtg **Accidents :** No		**Cement**	**Top**	**Bottom**			
		Conductor					
		7" Casing					
		4 1/2" Casing					

CURRENT OPERATION @ 06:00HRS: Transfering fluid into Namoi Wastecorp tankers.

PLANNED OPERATIONS FOR NEXT 24HRS: Circulate air to lift fluid on Plumb Road 3, TOOH with tubing ,Rigged down Flushby and rig up on Plumb Road 2.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Continued to circulate Plumb Road 1, TOOH wih tubing and nippled down BOP's. Moved Flushby rig to Plumb Road 3 rigged up and TIH with tubing to 312m. Unloaded well and began circulating with air.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00			Continued to circulate on Plumb Road 1, Preapared TDC rig 10 for demobilization, continued to clean mud tanks.	Mobilisation		
	06:00	6	Continued to develop Plumb Road 2 on free flow.			
06:00			Continued to circulate on Plumb Road 1, Assisted Namoi Wastecorp with vac tanker removing drilling fluid from	Demobilisation		
	09:45	3.75	mud tanks. Loaded trailers with rig equipment.	Travel		
09:45	14:15	4.5	Received conformation to cease circulating Plumb Road 1. Set up Flushby rig and install Farr Tubing tong.	Rig Service		
14:15	15:15	1	Move Flushby rig off Plumb Road 1, nippled down BOP's and installed wellhead.	Other		
15:15	17:15	2	Nippled up BOP's on Plumb Road 3, Spotted Flushby rig and TIH with 2 3/8" tubing to 312m.	Circulate Hole		
17:15			Rigged up air pack, ran 2" hard line and unloaded well	Drilling		
			Consutled with Client and stopped developing Plumb Road 2 on free flow as turbidity still high. Will re-start			
	18:00	0.75	development with assistance of air pack after Plumb Road 3 finished.			
18:00			Circulated with air to lift fluid on Plumb Road 3, Repositioned skip bins with cuttings. Continued housekeeping	Run Casing		
	24:00	6	on location.	Cementing		
24:00			Circulated with air to lift fluid on Plumb Road 3, Repositioned mud tanks and filled with fluid from well,	Wait on Cement		
	02:30	2.5	Shut in well temporarily due to limited storgae for fluid.	Tripping		
02:30	06:00	3.5	Loaded TDC trailers with equipment for demobilization, Continued to clean equipment.	Logging		
				Pressure Test		
				Standby		
				Safety Meeting		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Other		
				Wait on Dayligh		
00:00			Circulated with air to lift fluid on Plumb Road 3, Repositioned mud tanks and filled with fluid from well,	Well Kill		
	02:30	2.5	Shut in well due to limited storgae for fluid.	Down Time Rig		
02:30	06:00	3.5	Loaded TDC trailers with equipment for demobilization, Continued to clean equipment.	Down Time Oth		
				Rig up/ Nip up		
			Total skip bins on site = 15			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:

NUMBER		
SIZE, in.		
TYPE		
SERIAL No.		
TFA		
W.O.B.,K lb.		
R.P.M.		
DEPTH OUT, m		
DEPTH IN, m		
METERAGE		
HOURS		
R.O.P., m/hr.		
CONDITION		

TUBULARS:

Drill Pipe:	
Joints Onsite:	
Joints In hole:	
Rotating hours:	
Max Pull/Torque:	

HYDRAULICS:

PUMP No.:			
PUMP TYPE:			
# of CYLINDERS:			
STROKE, in			
LINER, in.			
S.P.M.			
RATE, GPM			
PRESSURE, psi.			
AV/DP, ft./min.			
AV/DC, ft./min.			
JET VEL., ft./sec.			
BIT HHP.			
PUMP HHP.			
E.C.D., ppg.			
H.S.I.			
Shaker Screens:			
Solids Control:			

MUD RECORD

COMPANY:			
MUD BUILT:			bbl
MUD LOST:			bbl
MUD VOL:			bbl
Reading time			
DENSITY			ppg
VISCOSITY			sec/ltr
PV / YP			
API W/L.			cc/30m
CAKE			32nd/in
pH			
GELS:			10s/10r
CHLOR.			mg/L
CALCIUM			mg/L
EXC. LM.			ppb
SOLIDS			% Vol
SAND			%Vol
KCL			% Wt
PHPA			
Pf/Mf			
M.B.T.			ppb
			Total

MUD USAGE

Product	Usage
Soda Ash	
Potassium Chloride	
Ausdex	
Sodium Chloride	
Zun Gum	
Biocide	
Bircarbantae	

Bottom Hole Assembly (BHA)

Tool	Length	Type/Description
1		
2		
3		
4		
5		
6		

I.A.D.C. DULL GRADING:

Bit No.	Inside	Outside	Damage	Location	Bearings	Gauge	Other	Reason	Comment

Rig Contact (On Site)	Position	Name	Mobile#	Position	Name	Mobile #
	Company Man	Scott Hobday	0431 453 550	Drilling Engineer	Jordan Bunning	0405 727 677
	Rig Manager	Phil Hammatt	0488 484 896	Geologist	Andrea Strand	0427 685 808

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 25-02-17 **Report No: 4** **Well Name: Plumb Road 1-2-3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL **258.2m** **GL- KB** **ROP:** **Formation :**	**Current Depth (MD):** **TVD:** **Progress (MD):** **Proposed TD:**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**

Objective:

Last LOT Results:

Cement	**Top**	**Bottom**
Conductor		
7" Casing		
4 1/2" Casing		

Last BOP Test: **Last BOP Drill:**
Accident Free Days : 25 **Last LTI Date:**
Last Safety Meeting : Morning Toolbox mtg
Accidents : No

CURRENT OPERATION @ 06:00HRS: Circulate air to lift fluid on Plumb Road 2.

PLANNED OPERATIONS FOR NEXT 24HRS: Circulate air to lift fluid on Plumb Road 2, TOOH with tubing and rig down.

SUMMARY OF PERIOD 00:00 to 24:00HRS: Continued to circulate Plumb Road 3, Loaded out TDC equipment. Completed Plumb Road 3. Rigged down and and rigged up on Plumb Road 2.

Operation Hours From	**To**	**Hours**	**OPERATIONS FOR PERIOD 00:00 to 24:00**	**Time Code**		
00:00			Circulated with air to lift fluid on Plumb Road 3, Repositioned mud tanks and filled with fluid from well,	Mobilisation		
	02:30	2.5	Shut in well and attempted to free flow well to manage large volumes produced and onsite storage limits.	Demobilisation		
02:30	07:30	5	Attempted to free flow well, Loaded TDC trailers with equipment for demobilization, Continued to clean equipment.	Travel		
07:30	08:00	0.5	Namoi Wastecorp removed fluid from location, ran up air packs, Unloaded well.	Rig Service		
08:00			Circulated well with air to lift fluid on Plumb Road 3, Loaded out TDC equipment to Roma, continued to clean rig	Other		
	18:00	10	equipment.	Circulate Hole		
18:00			Circulated well with air to lift fluid on Plumb Road 3, continued to clean rig equipment and housekeeping around	Drilling		
	20:00	2	lease. Received conformation to cease air lifting Plumb Road 3.	Run Casing		
20:00	20:30	0.5	Bleed down well, opened anullar and rigged down air lines.	Cementing		
20:30	21:30	1	TOOH layed out 2 3/8" Tubing	Wait on Cement		
21:30	22:30	1	Rigged down pipe trailer, carrier. Nippled down BOP'S and installed well head.	Tripping		
22:30	23:30	1	Removed well head from Plumb Road 2, nippled up BOP's. Spotted and rigged up carrier, pipe trailer and airpack.	Logging		
23:30	24:00	0.5	TIH with 2 3/8" tubing.	Pressure Test		
				Standby		
				Safety Meeting		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Other		
00:00	01:00	1	TIH with 2 3/8" tubing to 367m.	Wait on Daylig		
01:00	06:00	5	Unloaded Plumb Road 2 with 620psi and continued to circulate with air to lift fluid.	Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Total skip bins on site = 15			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:			**HYDRAULICS:**		
NUMBER			PUMP No.:		
SIZE, in.			PUMP TYPE:		
TYPE			# of CYLINDERS:		
SERIAL No.			STROKE, in		
TFA			LINER, in.		
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:			H.S.I.		
Joints Onsite:			Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD

COMPANY:			
MUD BUILT:		bbl	
MUD LOST:		bbl	
MUD VOL:		bbl	
Reading time			
DENSITY		ppg	
VISCOSITY		sec/ltr	
PV / YP			
API W/L.		cc/30m	
CAKE		32nd/in	
pH			
GELS:		10s/10r	
CHLOR.		mg/L	
CALCIUM		mg/L	
EXC. LM.		ppb	
SOLIDS		% Vol	
SAND		%Vol	
KCL		% Wt	
PHPA			
Pf/Mf			
M.B.T.		ppb	

MUD USAGE

	Product	Usage	
	Soda Ash		
	Potassium Chloride		
	Ausdex		
	Sodium Chloride		
	Zun Gum		
	Biocide		
	Bircarbantae		

Bottom Hole Assembly (BHA)

Tool	**Length**	**Type/Description**
1		
2		
3		
4		
5		
6		
Total		

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

TDC - INGAUGE
DAILY DRILLING REPORT

Date: 26-02-17 **Report No: 5** **Well Name: Plumb Road 1-2-3** **Client Name: DPI Water**	**Tenure Holder: DPI Water** **Tenure: Forest Permit** **Landowner: Forestry Corporation of NSW**	**Drilling Company: TDC Drilling** **Rig Description: Drillmec G55** **Target Basin:**	**Field Est Cost:** **Days from spud :** **AFE days (from spud):** **AFE Cost :**

GL - AMSL 258.2m **GL- KB** **ROP:** **Formation :**	**Current Depth (MD):** **TVD:** **Progress (MD):** **Proposed TD:**	**Casing**	**Depth**	**Size**	**Weight**	**Depth RKB**	**Deviation**
Objective:		**Last LOT Results:**					

Last BOP Test: **Last BOP Drill:** **Accident Free Days : 26** **Last LTI Date:** **Last Safety Meeting :** Morning Toolbox mtg **Accidents :** No	**Cement**	**Top**	**Bottom**	
	Conductor			
	7" Casing			
	4 1/2" Casing			

CURRENT OPERATION @ 06:00HRS: Rig down and demob TDC equipment to Roma

PLANNED OPERATIONS FOR NEXT 24HRS: Wait on daylight ,Demob equipment, back blade location.

SUMMARY OF PERIOD 00:00 to 24:00HRS: TIH with tubing to 367m, Unloaded well and continued to circulate with air to lift fluid.
Completed developing Plumb Road 2. Rig released at 14:00hrs. Rig down equipment.

Operation Hours From	To	Hours	OPERATIONS FOR PERIOD 00:00 to 24:00	Time Code		
00:00	01:00	1	TIH with 2 3/8" tubing to 367m.	Mobilisation		
01:00	06:00	5	Unloaded Plumb Road 2 with 620psi and continued to circulate with air to lift fluid.	Demobilisation		
06:00	11:30	5.5	Continued to circulate with air to lift fluid, Received conformation to cease air lifting Plumb Road 2.	Travel		
11:30	11:45	0.25	Bleed down well, opened anullar and rigged down air lines.	Rig Service		
11:45	12:45	1	TOOH and layed out 2 3/8" Tubing	Other		
12:45	14:00	1.25	Rigged down pipe trailer and carrier. Nippled down BOP'S and installed well head.	Circulate Hole		
			Rig Released at 14:00hrs	Drilling		
				Run Casing		
				Cementing		
				Wait on Cement		
				Tripping		
				Logging		
				Pressure Test		
				Standby		
				Safety Meeting		
			OPERATIONS FOR PERIOD 24:00 TO 06:00	Other		
				Wait on Dayligh		
				Well Kill		
				Down Time Rig		
				Down Time Oth		
				Rig up/ Nip up		
			Total skip bins on site = 15			
Total:		24		Total		24.0

Operating Hours Today:	**Rotating Hours Today:**	**Break Down Hours: 0**
Pick Up Weight:	**Slack Off Weight:**	**Rotating Weight:**
Slow Pump Rate 1:	**Slow Pump Rate 2:**	

Safety Topics or Incidents:
Pre Tour Safety mtg

BIT RECORD:			**HYDRAULICS:**		
NUMBER			PUMP No.:		
SIZE, in.			PUMP TYPE:		
TYPE			# of CYLINDERS:		
SERIAL No.			STROKE, in		
TFA			LINER, in.		
W.O.B.,K lb.			S.P.M.		
R.P.M.			RATE, GPM		
DEPTH OUT, m			PRESSURE, psi.		
DEPTH IN, m			AV/DP, ft./min.		
METERAGE			AV/DC, ft./min.		
HOURS			JET VEL., ft./sec.		
R.O.P., m/hr.			BIT HHP.		
CONDITION			PUMP HHP.		
TUBULARS:			E.C.D., ppg.		
Drill Pipe:			H.S.I.		
Joints Onsite:			Shaker Screens:		
Joints In hole:			Solids Control:		
Rotating hours:					
Max Pull/Torque:					

MUD RECORD						
COMPANY:				**MUD USAGE**		
MUD BUILT:		bbl		Product	Usage	
MUD LOST:		bbl		Soda Ash		
MUD VOL:		bbl		Potassium Chloride		
Reading time				Ausdex		
DENSITY		ppg		Sodium Chloride		
VISCOSITY		sec/ltr		Zun Gum		
PV / YP				Biocide		
API W/L.		cc/30mi		Bircarbantae		
CAKE		32nd/in	**Bottom Hole Assembly (BHA)**			
pH			**Tool**	**Length**	**Type/Description**	
GELS:		10s/10r	1			
CHLOR.		mg/L	2			
CALCIUM		mg/L	3			
EXC. LM.		ppb	4			
SOLIDS		% Vol	5			
SAND		%Vol	6			
KCL		% Wt				
PHPA						
Pf/Mf						
M.B.T.		ppb				
			Total			

I.A.D.C. DULL GRADING:	**Bit No.**	**Inside**	**Outside**	**Damage**	**Location**	**Bearings**	**Gauge**	**Other**	**Reason**	**Comment**

Rig Contact (On Site)	**Position**	**Name**	**Mobile#**	**Position**	**Name**	**Mobile #**
	Company Man	**Scott Hobday**	**0431 453 550**	**Drilling Engineer**	**Jordan Bunning**	**0405 727 677**
	Rig Manager	**Phil Hammatt**	**0488 484 896**	**Geologist**	**Andrea Strand**	**0427 685 808**

Appendix 9 – Mud Engineer Reports

67 Wolston Road
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DRILLING FLUIDS RECAP

For

In Gauge

Plumb Road 1

Prepared by: Tapan Patel

Date: February, 2017

Contents

1.0 HSE

Rig Participation sheet
v.3 2015
Last updated 11/5/2015

QHSE Rig Participation log

Project:	*NSW GMW*	**Company:**	*InGauge*
Well:	*Plumb Road 1*	**Rig:**	*TDC*
Lead Engineer 1	*Tapan Patel*	**Lead Engineer 2**	-
Night Engineer 1	-	**Night Engineer 2**	-

Date	Engineer	Activity	Additional Comments (free text)
7/02/2017	Tapan Patel	Induction	
11/02/2017	Tapan Patel	Evacuation Drill	

3.0 Well Summary

Operator:	**InGauge**
Contractor:	**TDC**
Well type:	**Water Monitoring Wells**
Arrival Date:	**6th Feb 17**
Spud Date:	**7th Feb 17**
Days on Well:	**7**

Interval	Hole Depth (M)	Casing Size (inch)	Depth (M)	Mud Wt. (lb/gal)	Mud Type
Top Hole	**12**	**9 5/8”**	**12**	**8.34**	**Water**
Intermediate Hole	**156**	**7”**	**156**	**8.6**	**KCL/Polymer Mud**
Production Hole	**642**		**642**	**9.8**	**KCL/Polymer Mud**

3.1 Top Hole Interval (12 ¼" Hole, Surface – 12m)

3.1.1 Operations Summary

Made up 12 ¼" section BHA and bit, drilled 12 ¼" section to 16.2 meters then run 9 5/8" casing after POOH and cemented the same.

3.1.2 Fluid Parameters

Simple water was used to drill this section.

3.1.3 Solids Control

Shale shakers are fitted with API 120/170 screen for this section. Mud cleaner was also frequently used to remove fined drilled solids.

3.1.4 Recommendations

Drilling fluids used to drill section was ideal choice, no further recommendation to make.

3.2 Intermediate Hole Interval (8 ½" section, 12 m – 156m)

3.2.1 Operations Summary

Picked up and made up 8 1/2" BHA. Drilled 8 ½" section to 158 meters. Circulated hole clean while reciprocating drill string. Run 7" casing after POOH and cemented same. Notice cement return to surface while cementing. Reactive clays were encountered around 89 meters so K+ concentration started depleting, mixed more KCL and increase its concentration by 3 % by weight to maintain desire level of K+ concentration for clay inhibition and to minimise any wellbore instability associated with drilling fluids.

3.2.2 Fluid Parameters

	Min	*Max*	*Min*	*Max*
Mud Weight (ppg):	8.5	ALAP	8.5	8.7
Funnel Viscosity (sec/qt):	35.0	45.0	35.0	35.0
Plastic Viscosity (cps):	ALAP	ALAP	1.0	5.0
Yield Point (lb/100 ft^2):	12.0	20.0	10.0	14.0
pH:	8.5	9.0	8.8	9.1
API Fluid Loss (mL):		9.0	13.0	21.0
Hardness (mg/L):		400	120	720
LGS (%):		7.0	0.4	0.5
MBT (lb/bbl Bentonite):		17.5	2.5	5.0
Sand Bed Test (mm):		N/A	N/A	N/A
Primary Salt (%):		2.0	2.5	2.5

It was difficult to maintained programed mud properties for this section as mixing hopper was not working well. It gets blocked frequently especially while mixing Polymers like Aus-Dex and Xan-Bore etc. However, we have done ever best to keep mixing going and try maintain mud properties to desired levels.

3.2.3 Solids Control

Shale shakers are fitted with API 120/170 screen for this section. Mud cleaner was also frequently used to remove fined drilled solids. Overall solid control equipments have worked well in this section. There were no issues in maintaining lower mud weight.

3.2.4 Recommendations

Rig mixing equipment capacity is inappropriate for mixing drilling fluids as per programed concentration. Mud hopper gets blocked frequently. In future wells, it is strongly

recommended to have good mixing hoppers which are capable of producing quicker mixing rate for chemicals so drilling fluids properties can be maintained within programed specification.

3.3 Production Hole Interval (6 1/8” Section, 152 – 642 m)

3.2.5 Operations Summary

RIH to 133 meters, Drilled out float, shoe track and hole to 158 meters then perform FIT to 430 psi equivalent to 25 ppg. Drilled 6 1/8” section to 642 meters which was called TD and Mud Engineer was released next day.

3.2.6 Fluid Parameters

	Min	Max	Min	Max
Mud Weight (ppg):			8.8	9.1
Funnel Viscosity (sec/qt):			37	38
Plastic Viscosity (cps):			6	8
Yield Point (lb/100 ft^2):			8	12
pH:			9	9
API Fluid Loss (mL):			11.0	22.0
Hardness (mg/L):			40	280
LGS (%):			2.0	4.4
MBT (lb/bbl Bentonite):			15.0	17.5
Sand Bed Test (mm):			20.0	50.0
Primary Salt (%):			3.0	4.0

KCL/Polymer mud was used to drill out this section. All of remaining mud from previous section was recycled and treated with required concentration of Aus-Dex, Xan-Bore, KCL and Sodium Chloride. Mud Weight was gradually increased to 9.8 ppg in stages before penetrating in potential reservoir section which is expected encounter around 560 meters.

3.2.7 Solids Control

Solid control equipment were performed well in this section as we managed to keep dump and dilution to minimum especially considering that most of mud from previous section were recycle for use in this section.

Mud cleaner was continually used throughout this section. Shale shaker were dressed with API 120 and 170 mesh screen in this section.

3.2.8 Recommendations

Programmed mud system was ideal for drilling through geology for this section and performed well considering there are none wellbore instability issues due to mud related. It

would be advisable to use filming amine for prevent corrosion to rig equipment as PH alone won't be sufficient enough to prevent corrosion considering high salinity of mud system.

4.0 Daily Discussion Report

Operator: In Gauge

Well: Plumb Road 1

Contractor: TDC

Mud Company: Australian Mud Company

Date:07/02/07	TD = 12	Report / Day No: 1
Operations Summary		
Made up 12 1/4" BHA and Bit. Drilled 12 1/4" hole to 16.2 m. TOOH to surface laying out drill collars and bit. Picked up 1 joint 9 5/8" casing and TIH. Circulate and wash casing to bottom. Mix and pump cement. Waited on cement. Measure and strap 8 1/2" BHA. Changed out liners from 5" to 5 1/2".		
Fluids Summary		
Started Mixing Mud for 8 1/2" section. Treated whole active system with 1.5-2.0 KCL %. Currently, transferring mud from active into pill tank treating it with excess concentration of Xanbore (2.2 ppb) and Aus-Dex (6.6 ppb) then slowly blending it back into active system to bring mud properties within specifications.		
Date:08/02/17	**TD = 156**	**Report / Day No: 2**
Operations Summary		
Drilled 8 1/2" section to 156 meters, circulate hole clean, run 7" casing and Cemented same.		
Fluids Summary		
During Drilling, we continue transferring mud from active to pill tank and treating it with excess concentration of Xanbore & Aus-Dex then bleeding it back into active system to maintain desire properties. Notice very reative clays around 89 meter quickly check KCL contain of mud which showed signed off drop in KCL concentration due to drilling through reactive clays so Immediately started mixing more KCL to maintain KCL desire		

concentration. Mixing hopper is causing trouble it gets blocked quiet frequently which is making very difficult to mix required amount of chemicals especially Polymers like Xan-Bore and Aus-Dex.

Date:09/02/17	TD = 156	Report / Day No: 3

Operations Summary

Cemented 7 " casing, wait on cement. Current operations, nipple up BOP.

Fluids Summary

No chemicals treatment has been given. Notice cement return to surface while cementing 7 " casing. Circulating tanks via mixing lines in order

to avoid settling of solids.

Date:10/02/17	TD = 213.00	Report / Day No: 4

Operations Summary

Nipple up BOP and pressure test the same.Made up 6 1/8" BHA. Rigged up and run wire line survey. TIH to 139m, Drilled out

float, shoe track and rat hole to 158m. Displaced well to 9ppg mud. Drilled 3m new hole from 158m to 161m. Circulated hole clean.

Fluids Summary

Added 2 % KCL into active system to increase KCL concentration to desire level. Mixed Aud-Dex and Xan-Bore to decrease fluid loss and

increase low end rheology.

Date:11/02/17	TD = 475.00	Report / Day No: 5

Operations Summary

Drilling 6 1/8" section to 475 meters

Fluids Summary

Continue treating active system with Xanbore, Aus-Dex and KCL via building premixes at regurlar interval and blending them back into system slowly.		
Date:12/02/17	**TD = 642.00**	**Report / Day No: 6**
Operations Summary		
Drilled 6 1/8" to depth of 642 meters then started POOH.		
Fluids Summary		
Continue treating active system with KCL, Aus-Dex and Xanbore via premixes to maintain desire mud specifications.		

5.3 Volume Summary

DAILY VOLUME ANALYSIS

WELL :

MUD TYPE:

ENGINEER: Tapan Patel

VOLUME UNITS: bbls

HOLE SIZE:	
8.5"	KCL/Polymer Mud
6.125"	KCL/Polymer Mud

DATE	DEPTH	ACTIVE PIT VOLUME	Mud in HOLE	RESERVE	DAILY TOTAL	VOLUME BUILT	CUMULATIVE BUILT	CUMULATIVE BUILT for Well	LOST ON SURFACE	CUMULATIVE LOST @ SURFACE for WELL	LOST DOWN HOLE	CUMULATIVE LOST DOWNHOLE for WELL
8.5" HOLE SECTION												
07 Feb 17	12.0	116.8	3.0	13.0	132.8	132.8	132.8	132.8				
08 Feb 17	156.0	189.0	20.1	13.0	222.1	98.0	230.8	230.8	8.7	8.7	0.0	0.0
09 Feb 17	156.0	196.3	20.1	12.4	228.8	6.7	237.5	237.5		8.7	0.0	0.0
Cumulative for Interval							**237.5**		**8.7**		**0.0**	
Cumulative for Well								**237.5**		**8.7**		
6.125" HOLE SECTION												
10 Feb 17	213.0	139.6	19.5	25.4	184.5	184.5	184.5	422.0		8.7		
11 Feb 17	475.0	169.4	46.4	19.2	235.0	76.7	261.2	498.7	26.0	34.7	0.2	
12 Feb 17	642.0	173.4	68.7	46.5	288.6	67.4	328.6	566.1	13.8	48.5	0.0	
						.						
Cumulative for Interval							**328.6**		**39.8**		**0.2**	
Cumulative for Well								**566.1**		**48.5**		

5.4 Daily Mud Properties

DAY No	DATE 2017	DEPTH m	MUD WT Ppg	DRILLING FLUID PROPERTIES													KCL %	NITRATE	SOLIDS					
				RHEOLOGY					FILTRATE										RETORT	% HIGH GRAV	% LOW GRAV	SAND	MBT	PSI
				F. VIS	P.V. @ 120 deg	Y.P. @ 120 sec	GEL 10 SEC	GEL 10 MIN	API FLUID LOSS	CAKE	FILTRATE ANALYSIS													
											ALKALINITY				CHL	HARDNESS								
											pH	Pm	Pf	Mf	mg/l	mg/l								
1	07/02	12	8.5	32	1	10	2	2	21	0.5	9.1	0.6	0.4	0.6	12000	120					0.47	0.1	2.5	
2	08/02	156	8.7	35	5	12	5	12	13	1	8.8	0.6	0.4	0.6	32000	340	2.5				0.47	0.8	5.0	
3	09/02	156	8.7	35	4	14	6	7	13	1	8.9	0.4	0.2	0.7	33000	720	2.5				0.40	0.8	5.0	
4	10/02	198	9.1	37	5	14	5	7	7.0	1	9.0	0.8	0.4	1.5	55000	400	3.5				0.8	0.5	7.5	
5	11/02	475	9.8	37	8	12	3	4	7.5	1	8.9	0.2	0.1	0.2	89000	520	4				5.19	0.8	7.5	
6	12/02	642	9.9	36	9	11	5	8	9.5	1	8.8	0.15	0.1	0.15	82000	540	3.5				6.54	0.9	7.5	

5.5 Material Reconciliation

Product	Unit Size		Transferred from Previous Well	Product Received (excluding transfer)	Total Product Received	Product Usage	Product Transferred to Next Well
AMC Biocide G	25	ltr	0	16	16	2	14
Aus-Dex	25	kg	0	60	60	32	28
Boreseal F	25	lb	0	42	42	0	42
Citric Acid	25	kg	0	40	40	0	40
Sodium Chloride	25	kg	0	384	384	240	144
Soda Ash	25	kg	0	24	24	1	23
Sodium Bicarbonate	25	kg	0	48	48	3	45
Potassium Chloride	25	kg	0	192	192	114	78
Xan-Bore	25	kg	0	40	40	12	28

6.0 Daily Mud Reports

DC

Drilling Fluid Report

NO : 1

API	STATE	COUNTRY	**Australia**		Date	**07-Feb-17**		T.D. (MD/TVD) Meters	**12.0**	**12.0**	
WELL					Spud Date	**06-Feb-17**		Bit @ (MD/TVD) Meters			
Operator	**InGauge**		Contractor	**TDC**				Activity @ 2400 hrs:	**Making BHA**		
Report for	**Scott Hobday**		Report for	**Phil**				Rig No.			
Well Name and No.	**Plumb Road 1**		Field or Block No.					State/Country	**NSW/AUS**		

Drill String Details

Type	O.D (in.)	I.D. (in.)	Weight (lbs/ft)	Length (m)

Casing Details

Description	O.D - Weight (in. - lbs/ft)	I.D. (in.)	Depth to (m)
Cond.	9.625	8.921	12.0
Inter.			
Prod.			
Liner			

Mud Volumes (bbls)

Mud in Hole	3.0	Active Pits	116.8
Circ Vol	119.8	Ann Vol	
Displ Vol		String Vol	
Reserve	13.0	ECD (ppg)	
Mud Type	**KCL/Polymer**		

Circulation Data

Pump Make/Model	
Liner x Stroke @ % eff	5 x 7.25 (0) @ 97%
Bbl/stk 0.0426937	SPM.
Bbl/min	GPM
Circulating Pressure (Psi)	
Bottoms Up Time (min.)	
Bottoms Up Strokes	
Total Circulation Time (min.)	
Total Circulation Strokes	

Mud Property Specifications

Weight	ALAP	Viscosity	35-45
Filtrate	<= 9	pH	8.5
KCl	2	YP	12-20

Mud Properties

Sample from	Pit / F-line / Shaker	Suction
Mud Temp (In / Out)	°C	
Time Sample Taken	Hrs.	7:00
Sample Depth	Meters	10.0
Weight	ppg	8.50
Funnel Viscosity @ °C	sec. / qt.	32
Plastic Viscosity @ 49 °C	cp	1
Yield Point	lb / 100ft2	10
Gel Strength 10"/ 10' / 30'		2/
API Filtrate	cc / 30 min.	21.0
HTHP Filtrate @ N/A °C	cc / 30 min.	
Cake Thickness API / HTHP	1 / 32"	
Corrected Retort Solids	% by Vol.	2.0
Retort Oil	% by Vol.	
Corrected Water	% by Vol.	99.5
Sand Content (In / Out)	% by Vol.	0.1
Methylene Blue Capacity	ppb Equivalent Bentonite	2.5
pH Meter		9.1
Alkalinity Mud (Pm)	cc N/50 H2SO4 Acid	0.60
Alkalinity Filtrate (Pf/Mf)	cc N/50 H2SO4 Acid	0.4/1.0
Chlorides	mg / l	12,000
Total Hardness	mg / l	120
KCl (from K+ precipitation test)	% by Weight	
K+	mg / l	
Ca++	mg / l	NA
$CaCl_2$	% by Weight	NA
NaCl	% by Weight	1.89
Sulphite	mg / l	NA
S.G Brine	s.g.	1.0132
Average SG of Solids	s.g.	2.50

Solids Analysis

TIME	7:00		
% LGS	0.47		
% Barite			
ppb Bar			
% Bent equ.	0.27		
ppb Ben eq.	2.50		
% DS	0.19		
ppb DS	1.75		

Rheometer Readings

600 rpm	12		
300 rpm	11		
200 rpm	7		
100 rpm	6		
6 rpm	2		
3 rpm	1		

Volume Analysis (bbls)

Volume Mixed	Daily	Well Total
Salvage Mud		
Drill/Rain Water	130.6	130.6
Recycled Water		
Chemical Addition	2.3	2.3
Total Added	132.9	132.9
Solids Control		
Down hole losses		
Dumped		
Other surface losses		
Corrections		
Total Losses		

Bit Data

Size (in.)	24.000	IADC Code	
NB		Hrs.today/total	/ 0
S/N REED		W.O.B	
Depth In		RPM	
Drilled meters	12.0	TFA (in^2)	

Bit Hydraulics

Nozzle Velocity, (ft/sec)	
Bit Pressure Drop (psi)	
Hyd. Horsepower (hp)	
Hyd. HP per in^2 (HHP/in^2)	
Impact Force (lb_f)	

Annular Hydraulics (DP/OH) (DC/OH)

Velocity (ft/min)		
Eff. Viscosity (cp)		
Critical Velocity (ft/min)		
Critical F/Rate (gpm)		
Transport Eff. (%)		
Cuttings Conc. (Vol %)		
Effective M.WT (ppg)		

Surge & Swab Pressure in Equiv. Mud Density

Surge (ppg): Swab (ppg):

Total Annular Pressure Drop (Trip):

Total Annular Pressure Drop (Circ):

Solids Control Equipment

Total Circulating hrs		**Screens**
Shaker 1: Hours run:	12.0	20/120/120/17
Shaker 2		
Mud Cleaner - SWACO		

	Hrs Run:	UF WT	bbls/hr
De-sander	13.0 hrs		
(2-cones)			
De-silter	13.0 hrs		
(8-cones)			

Operations Summary:

Made up 12 1/4" BHA and Bit. Drilled 12 1/4" hole to 16.2 m. TOOH to surface laying out drill collars and bit. Picked up 1 joint 9 5/8" casing and TIH. Circulate and wash casing to bottom. Mix and pump cement. Waited on cement. Measure and strap 8 1/2" BHA. Changed out liners from 5" to 5 1/2".

Fluid Summary:

Started Mixing Mud for 8 1/2" section. Treated whole active system with 1.5-2.0 KCL %. Currently, transferring mud from active into pill tank treating it with excess concentration of Xanbore (2.2 ppb) and Aus-Dex (6.6 ppb) then slowly blending it back into active system to bring mud properties within specifications.

Cost Breakdown

Daily Mud Cost	$	771.97
Prev Mud Cost	$	-
Total Mud Cost	**$**	**771.97**
Daily Eng. Cost	$	850.00
Prev Eng. Cost	$	850.00
Total Eng. Cost	**$**	**1,700.00**
Overall Cost	**$**	**2,471.97**

Eng.: **Tapan Patel** **Phone:** **+61-7-3723-3699** **Warehouse:** **+61-7-3723-3699**

Contr.: **AUSTRALIAN MUD CO LTD** **Fax :** **+61-7-3723-3688** **Mobile:** **+61-4-03545-323**

DC

Drilling Fluid Report

NO : 2

API	STATE	COUNTRY	**Australia**		Date	**08-Feb-17**		T.D. (MD/TVD) Meters	**156.0**	**156.0**	
WELL					Spud Date	**06-Feb-17**		Bit @ (MD/TVD) Meters			
Operator	**InGauge**		Contractor	**TDC**				Activity @ 2400 hrs:	**Cementing 7 casing**		
Report for	**Scott Hobday**		Report for	**Phil**				Rig No.			
Well Name and No.	**Plumb Road 1**		Field or Block No.					State/Country	**NSW/AUS**		

Drill String Details

Type	O.D (in.)	I.D. (in.)	Weight (lbs/ft)	Length (m)

Casing Details

Description	O.D - Weight (in. - lbs/ft)	I.D. (in.)	Depth to (m)
Cond.	9.625	8.921	12.0
Inter.	7	6.360	156.0
Prod.			
Liner			

Mud Volumes (bbls)

Mud in Hole	20.1	Active Pits	189.0
Circ Vol	209.1	Ann Vol	
Displ Vol		String Vol	
Reserve	13.0	ECD (ppg)	
Mud Type		**KCL/Polymer**	

Circulation Data

Pump Make/Model			
Liner x Stroke @ % eff		5 x 7.25 (0) @ 97%	
Bbl/stk	0.0426937	SPM.	
Bbl/min		GPM	
Circulating Pressure (Psi)			
Bottoms Up Time (min.)			
Bottoms Up Strokes			
Total Circulation Time (min.)			
Total Circulation Strokes			

Mud Property Specifications

Weight	ALAP	Viscosity	35-45
Filtrate	<= 9	pH	8.5
KCl	2	YP	12-20

Mud Properties

Sample from	Pit / F-line / Shaker	Suction	Suction	
Mud Temp (In / Out)	°C			
Time Sample Taken	Hrs.	14:00	8:00	
Sample Depth	Meters	65.0	156.0	
Weight	ppg	8.60	8.70	
Funnel Viscosity @ °C	sec. / qt.	31	35	
Plastic Viscosity @ °C	cp	2	5	
Yield Point	lb / 100ft2	8	12	
Gel Strength 10"/ 10' / 30'		1/2	5/7	
API Filtrate	cc / 30 min.	12.0	13.0	
HTHP Filtrate @ N/A °C	cc / 30 min.	NA	NA	
Cake Thickness API / HTHP	1 / 32"	1.0	1.0	
Corrected Retort Solids	% by Vol.	0.7	0.5	
Retort Oil	% by Vol.			
Corrected Water	% by Vol.	99.3	99.5	
Sand Content (In / Out)	% by Vol.	0.8	0.8	
Methylene Blue Capacity	ppb Equivalent Bentonite	5.0	5.0	
pH Meter		8.9	8.8	
Alkalinity Mud (Pm)	cc N/50 H2SO4 Acid	0.40	0.40	
Alkalinity Filtrate (Pf/Mf)	cc N/50 H2SO4 Acid	0.3/0.7	0.3/0.7	
Chlorides	mg / l	20,000	32,000	
Total Hardness	mg / l	380	340	
KCl (from K+ precipitation test)	% by Weight	0.50	2.50	
K+	mg / l	2,700	13,300	
Ca++	mg / l	NA	NA	
$CaCl_2$	% by Weight	NA	NA	
NaCl	% by Weight	2.80	3.19	
Sulphite	mg / l			
S.G Brine	s.g.	1.0224	1.0373	
Average SG of Solids	s.g.	2.50	2.50	

Solids Analysis

TIME	14:00	8:00	
% LGS	0.65	0.47	
% Barite			
ppb Bar			
% Bent equ.	0.55	0.55	
ppb Ben eq.	5.00	5.00	
% DS	0.10	-0.08	
ppb DS	0.93	-0.71	

Rheometer Readings

600 rpm	12	22	
300 rpm	10	17	
200 rpm	8	15	
100 rpm	6	12	
6 rpm	2	6	
3 rpm	1	4	

Volume Analysis (bbls)

Volume Mixed	Daily	Well Total
Salvage Mud		
Drill/Rain Water	74.2	204.8
Recycled Water	20.0	20.0
Chemical Addition	3.8	6.1
Total Added	98.0	230.9
Solids Control		
Down hole losses		
Dumped		
Other surface losses	5.0	5.0
Corrections		
Total Losses	5.0	5.0

Bit Data

Size (in.)		IADC Code	
NB		Hrs.today/total	/ 0
S/N REED		W.O.B	
Depth In		RPM	
Drilled meters	156.0	TFA (in²)	

Bit Hydraulics

Nozzle Velocity, (ft/sec)	
Bit Pressure Drop (psi)	
Hyd. Horsepower (hp)	
Hyd. HP per in^2 (HHP/in^2)	
Impact Force (lb_f)	

Annular Hydraulics (DP/OH) (DC/OH)

Velocity (ft/min)		
Eff. Viscosity (cp)		
Critical Velocity (ft/min)		
Critical F/Rate (gpm)		
Transport Eff. (%)		
Cuttings Conc. (Vol %)		
Effective M.WT (ppg)		

Surge & Swab Pressure in Equiv. Mud Density

Surge (ppg): Swab (ppg):

Total Annular Pressure Drop (Trip):

Total Annular Pressure Drop (Circ):

Solids Control Equipment

Total Circulating hrs			**Screens**
Shaker 1: Hours run:		24.0	20/120/120/17
Shaker 2		24.0	20/120/120/17
Mud Cleaner - SWACO			

	Hrs Run:	UF WT	bbls/hr
De-sander			
(2-cones)			
De-silter	4.0 hrs	9.8 ppg	
(12-cones)			

Operations Summary:

Drilled 8 1/2" section to 156 meters, circulate hole clean, run 7" casing and Cemented same.

Fluid Summary:

During Drilling, we continue transferring mud from active to pill tank and treating it with excess concentration of Xanbore & Aus-Dex then bleeding it back into active system to maintain desire properties. Notice very reative clays around 89 meter quickly check KCL contain of mud which showed signed off drop in KCL concentration due to drilling through reactive clays so Immediately started mixing more KCL to maintain KCL desire concentration. Mixing hopper is causing trouble it gets blocked quiet frequently which is making very difficult to mix required amount of chemicals especially Polymers like Xan-Bore and Aus-Dex.

Cost Breakdown

Daily Mud Cost	$	1,334.92
Prev Mud Cost	$	771.97
Total Mud Cost	**$**	**2,106.89**
Daily Eng. Cost	$	850.00
Prev Eng. Cost	$	1,700.00
Total Eng. Cost	**$**	**2,550.00**
Overall Cost	**$**	**4,656.89**

Eng.: **Tapan Patel** **Phone:** **+61-7-3723-3699** **Warehouse:** **+61-7-3723-3699**

Contr.: **AUSTRALIAN MUD CO LTD** **Fax :** **+61-7-3723-3688** **Mobile:** **+61-4-03545-323**

DC

Drilling Fluid Report

NO : 3

API	STATE	COUNTRY	**Australia**		Date	**09-Feb-17**		T.D. (MD/TVD) Meters	**156.0**	**156.0**	
WELL					Spud Date	**06-Feb-17**		Bit @ (MD/TVD) Meters			
Operator		**InGauge**		Contractor	**TDC**			Activity @ 2400 hrs:	**Nipple up BOP**		
Report for		**Scott Hobday**		Report for	**Phil**			Rig No.			
Well Name and No.		**Plumb Road 1**		Field or Block No.				State/Country	**NSW/AUS**		

Drill String Details

Type	O.D (in.)	I.D. (in.)	Weight (lbs/ft)	Length (m)

Casing Details

Description	O.D - Weight (in. - lbs/ft)	I.D. (in.)	Depth to (m)
Cond.	9.625	8.921	12.0
Inter.	7	6.360	156.0
Prod.			
Liner			

Mud Volumes (bbls)

Mud in Hole	20.1	Active Pits	196.3
Circ Vol	216.4	Ann Vol	
Displ Vol		String Vol	
Reserve	12.4	ECD (ppg)	
Mud Type		**KCL/Polymer**	

Mud Properties

Sample from	Pit / F-line / Shaker	Suction
Mud Temp (In / Out)	°C	
Time Sample Taken	Hrs.	15:00
Sample Depth	Meters	156.0
Weight	ppg	8.70
Funnel Viscosity @ °C	sec. / qt.	35
Plastic Viscosity @ 49 °C	cp	4
Yield Point	lb / 100ft2	14
Gel Strength 10"/ 10' / 30'		6/7
API Filtrate	cc / 30 min.	13.0
HTHP Filtrate @ N/A °C	cc / 30 min.	
Cake Thickness API / HTHP	1 / 32"	1.0
Corrected Retort Solids	% by Vol.	0.4
Retort Oil	% by Vol.	
Corrected Water	% by Vol.	99.6
Sand Content (In / Out)	% by Vol.	0.8
Methylene Blue Capacity	ppb Equivalent Bentonite	5.0
pH Meter		8.9
Alkalinity Mud (Pm)	cc N/50 H2SO4 Acid	0.40
Alkalinity Filtrate (Pf/Mf)	cc N/50 H2SO4 Acid	0.2/0.7
Chlorides	mg / l	33,000
Total Hardness	mg / l	720
KCl (from K+ precipitation test)	% by Weight	2.50
K+	mg / l	13,300
Ca++	mg / l	NA
$CaCl_2$	% by Weight	NA
NaCl	% by Weight	3.34
Sulphite	mg / l	
S.G Brine	s.g.	1.0384
Average SG of Solids	s.g.	2.50

Volume Analysis (bbls)

Volume Mixed	**Daily**	**Well Total**
Salvage Mud		
Drill/Rain Water		204.8
Recycled Water	3.0	23.0
Chemical Addition		6.1
Total Added	3.0	233.9
Solids Control		
Down hole losses		
Dumped		
Other surface losses		5.0
Corrections		
Total Losses		5.0

Bit Data

Size (in.)		IADC Code	
NB		Hrs.today/total	/ 0
S/N REED		W.O.B	
Depth In		RPM	
Drilled meters	156.0	TFA (in²)	

Bit Hydraulics

Nozzle Velocity, (ft/sec)	
Bit Pressure Drop (psi)	
Hyd. Horsepower (hp)	
Hyd. HP per in^2 (HHP/in^2)	
Impact Force (lb_f)	

Mud Property Specifications

Weight	ALAP	Viscosity	35-45
Filtrate	<= 9	pH	8.5
KCl	2	YP	12-20

Solids Analysis

TIME	15:00		
% LGS	0.40		
% Barite			
ppb Bar			
% Bent equ.	0.55		
ppb Ben eq.	5.00		
% DS	-0.15		
ppb DS	-1.36		

Rheometer Readings

600 rpm	22		
300 rpm	18		
200 rpm	15		
100 rpm	12		
6 rpm	6		
3 rpm	5		

Annular Hydraulics (DP/OH) (DC/OH)

Velocity (ft/min)		
Eff. Viscosity (cp)		
Critical Velocity (ft/min)		
Critical F/Rate (gpm)		
Transport Eff. (%)		
Cuttings Conc. (Vol %)		
Effective M.WT (ppg)		

Surge & Swab Pressure in Equiv. Mud Density

Surge (ppg): Swab (ppg):

Total Annular Pressure Drop (Trip):

Total Annular Pressure Drop (Circ):

Solids Control Equipment

Total Circulating hrs		**Screens**
Shaker 1: Hours run:		120/120/120/17
Shaker 2		120/120/120/17
Mud Cleaner - SWACO		

	Hrs Run:	**UF WT**	**bbls/hr**
De-sander			
(2-cones)			
De-silter			
(12-cones)			

Operations Summary:

Cemented 7 " casing, wait on cement. Current operations, nipple up BOP.

Fluid Summary:

No chemicals treatment has been given. Notice cement return to surface while cementing 7 " casing. Circulating tanks via mixing lines in order to avoid settling of solids.

Cost Breakdown

Daily Mud Cost	$	-
Prev Mud Cost	$	2,106.89
Total Mud Cost	**$**	**2,106.89**
Daily Eng. Cost	$	850.00
Prev Eng. Cost	$	2,550.00
Total Eng. Cost	**$**	**3,400.00**
Overall Cost	**$**	**5,506.89**

Eng.: **Tapan Patel** **Phone:** **+61-7-3723-3699** **Warehouse:** **+61-7-3723-3699**

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DC

Drilling Fluid Report

NO : 4

API	STATE	COUNTRY	**Australia**		Date	**10-Feb-17**		T.D. (MD/TVD) Meters	**213.0**		**213.0**
WELL					Spud Date	**06-Feb-17**		Bit @ (MD/TVD) Meters	**213.0**		**213.0**
Operator	**InGauge**			Contractor	**TDC**			Activity @ 2400 hrs:	**Drilling 6 1/8" section**		
Report for	**Scott Hobday**			Report for	**Phil**			Rig No.			
Well Name and No.	**Plumb Road 1**			Field or Block No.				State/Country	**NSW/AUS**		

Drill String Details

Type	O.D (in.)	I.D. (in.)	Weight (lbs/ft)	Length (m)
DP	3.5000	2.6500		**90.16**
HWDP	3.5000	2.2500		**27.75**
DC	4.7500	2.2500		**82.57**
Tools	4.7500	2.0600		**12.52**
Length of DP includes part of Kelly drilled.				**BHA = 122.84**

Casing Details

Description	O.D - Weight (in. - lbs/ft)	I.D. (in.)	Depth to (m)
Cond.	9.625	8.921	12.0
Inter.	7	6.360	156.0
Prod.			
Liner			

Mud Volumes (bbls)

Mud in Hole	19.5	Active Pits	139.6
Circ Vol	159.0	Ann Vol	15.5
Displ Vol	7.5	String Vol	4.0
Reserve	25.4	ECD (ppg)	10.038
Mud Type		**KCL/Polymer**	

Mud Properties

		Suction	Suction		
Sample from	Pit / F-line / Shaker	Suction	Suction		
Mud Temp (In / Out)	°C				
Time Sample Taken	Hrs.	13:00	6:00		
Sample Depth	Meters	156.0	198.0		
Weight	ppg	8.70	9.10		
Funnel Viscosity @ °C	sec. / qt.	36	37		
Plastic Viscosity @ 49 °C	cp	5	5		
Yield Point	lb / 100ft2	10	14		
Gel Strength 10"/ 10' / 30'		5/6	5/		
API Filtrate	cc / 30 min.	13.0	7.0		
HTHP Filtrate @ N/A °C	cc / 30 min.	NA	NA		
Cake Thickness API / HTHP	1 / 32"	1.0	1.0		
Corrected Retort Solids	% by Vol.	0.5	2.0		
Retort Oil	% by Vol.				
Corrected Water	% by Vol.	99.5	98.0		
Sand Content (In / Out)	% by Vol.	0.5	0.5		
Methylene Blue Capacity	ppb Equivalent Bentonite	5.0	7.5		
pH Meter		8.8	9.0		
Alkalinity Mud (Pm)	cc N/50 H2SO4 Acid	0.20	0.80		
Alkalinity Filtrate (Pf/Mf)	cc N/50 H2SO4 Acid	0.1/0.25	0.4/1.5		
Chlorides	mg / l	32,000	55,000		
Total Hardness	mg / l	480	400		
KCl (from K+ precipitation test)	% by Weight	2.50	3.50		
K+	mg / l	13,300	18,700		
Ca++	mg / l	NA	NA		
$CaCl_2$	% by Weight	NA	NA		
NaCl	% by Weight	3.19	6.00		
Sulphite	mg / l				
S.G Brine	s.g.	1.0373	1.0634		
Average SG of Solids	s.g.	2.50	2.50		

Mud Property Specifications

Weight	ALAP	Viscosity	35-45
Filtrate	<= 9	pH	8.5
KCl	2	YP	12-20

Solids Analysis

TIME	13:00	6:00	
% LGS	0.47	1.95	
% Barite			
ppb Bar			
% Bent equ.	0.55	0.82	
ppb Ben eq.	5.00	7.50	
% DS	-0.08	1.12	
ppb DS	-0.71	10.24	

Rheometer Readings

600 rpm	20	24	
300 rpm	15	19	
200 rpm	14	14	
100 rpm	11	11	
6 rpm	5	8	
3 rpm	4	4	

Volume Analysis (bbls)

Volume Mixed	Daily	Well Total
Salvage Mud		
Drill/Rain Water		204.8
Recycled Water		23.0
Chemical Addition	8.3	14.4
Total Added	8.3	242.2
Solids Control	4.5	4.5
Down hole losses		
Dumped	28.3	28.3
Other surface losses	20.0	25.0
Corrections		
Total Losses	52.8	57.8

Bit Data

Size (in.)	6.125	Jets(Nr x 32^{nd})	
NB		Hrs.today/total	/ 0
S/N REED		W.O.B	
Depth In		RPM	
Drilled meters	213.0	TFA (in^2)	0.371

Bit Hydraulics

Nozzle Velocity, (ft/sec)	192
Bit Pressure Drop (psi)	299
Hyd. Horsepower (hp)	39
Hyd. HP per in^2 (HHP/in^2)	1.32
Impact Force (lb_f)	201

Annular Hydraulics

	(DP/OH)	(DC/OH)
Velocity (ft/min)		364
Eff. Viscosity (cp)		16
Critical Velocity (ft/min)		326
Critical F/Rate (gpm)		199
Transport Eff. (%)		79.53
Cuttings Conc. (Vol %)		
Effective M.WT (ppg)		

Surge & Swab Pressure in Equiv. Mud Density

Surge (ppg):	9.479	Swab (ppg):	8.721

Total Annular Pressure Drop (Trip):	13.8 psi
Total Annular Pressure Drop (Circ):	34.1 psi

Solids Control Equipment

			Screens
Total Circulating hrs			
Shaker 1: Hours run:		24.0	20/120/120/17
Shaker 2		24.0	20/120/120/17
Mud Cleaner - SWACO			

Circulation Data

Pump Make/Model			
Liner x Stroke @ % eff	5 x 8 (0) @ 99%		
Bbl/stk	0.0480816	SPM.	110
Bbl/min	5.29	GPM	222
Circulating Pressure (Psi)			375
Bottoms Up Time (min.)			3
Bottoms Up Strokes			322
Total Circulation Time (min.)			30
Total Circulation Strokes			3,307

	Hrs Run:	UF WT	bbls/hr
De-sander			
(2-cones)			
De-silter	24.0 hrs		0.19
(12-cones)			

Operations Summary:

Nipple up BOP and pressure test the same.Made up 6 1/8" BHA. Rigged up and run wire line survey. TIH to 139m, Drilled out float, shoe track and rat hole to 158m. Displaced well to 9ppg mud. Drilled 3m new hole from 158m to 161m. Circulated hole clean.

Fluid Summary:

Added 2 % KCL into active system to increase KCL concentration to desire level. Mixed Aud-Dex and Xan-Bore to decrease fluid loss and increase low end rheology.

Cost Breakdown

Daily Mud Cost	$	2,150.59
Prev Mud Cost	$	2,106.89
Total Mud Cost	**$**	**4,257.48**
Daily Eng. Cost	$	850.00
Prev Eng. Cost	$	3,400.00
Total Eng. Cost	**$**	**4,250.00**
Overall Cost	**$**	**8,507.48**

Eng.: **Tapan Patel** **Phone:** **+61-7-3723-3699** **Warehouse:** **+61-7-3723-3699**

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DC

Drilling Fluid Report

NO : 5

API	STATE	COUNTRY	**Australia**		Date	**11-Feb-17**		T.D. (MD/TVD) Meters	**475.0**		**475.0**
WELL					Spud Date	**06-Feb-17**		Bit @ (MD/TVD) Meters	**475.0**		**475.0**
Operator		**InGauge**		Contractor	**TDC**			Activity @ 2400 hrs:	**Drilling 6 1/8"**		
Report for		**Scott Hobday**		Report for	**Phil**			Rig No.			
Well Name and No.		**Plumb Road 1**		Field or Block No.				State/Country	**NSW/AUS**		

Drill String Details

Type	O.D (in.)	I.D. (in.)	Weight (lbs/ft)	Length (m)
DP	3.5000	2.6500		**352.16**
HWDP	3.5000	2.2500		**27.75**
DC	4.7500	2.2500		**82.57**
Tools	4.7500	2.0600		**12.52**
Length of DP includes part of Kelly drilled.				**BHA = 122.84**

Casing Details

Description	O.D - Weight (in. - lbs/ft)	I.D. (in.)	Depth to (m)
Cond.	9.625	8.921	12.0
Inter.	7	6.360	156.0
Prod.			
Liner			

Mud Volumes (bbls)

Mud in Hole	46.4	Active Pits	169.4
Circ Vol	215.8	Ann Vol	36.6
Displ Vol	11.8	String Vol	9.8
Reserve	19.2	ECD (ppg)	10.357
Mud Type		**KCL/Polymer**	

Mud Properties

Sample from	Pit / F-line / Shaker		
Mud Temp (In / Out)	°C		
Time Sample Taken	Hrs.	15:00	5:30
Sample Depth	Meters	320.0	475.0
Weight	ppg	9.70	9.80
Funnel Viscosity @ °C	sec. / qt.	34	37
Plastic Viscosity @ 49 °C	cp	6	8
Yield Point	lb / 100ft2	11	12
Gel Strength 10"/ 10' / 30'		3/4	3/4
API Filtrate	cc / 30 min.	10.0	7.5
HTHP Filtrate @ N/A °C	cc / 30 min.	NA	NA
Cake Thickness API / HTHP	1 / 32"	1.0	1.0
Corrected Retort Solids	% by Vol.	4.9	4.4
Retort Oil	% by Vol.		
Corrected Water	% by Vol.	95.1	94.6
Sand Content (In / Out)	% by Vol.	0.8	0.8
Methylene Blue Capacity	ppb Equivalent Bentonite	7.5	7.5
pH Meter		8.9	8.9
Alkalinity Mud (Pm)	cc N/50 H2SO4 Acid	0.20	0.20
Alkalinity Filtrate (Pf/Mf)	cc N/50 H2SO4 Acid	0.15/0.35	0.1/0.2
Chlorides	mg / l	84,000	89,000
Total Hardness	mg / l	340	520
KCl (from K+ precipitation test)	% by Weight	4.00	4.00
K+	mg / l	21,500	21,500
Ca++	mg / l	NA	NA
$CaCl_2$	% by Weight	NA	NA
NaCl	% by Weight	9.93	10.65
Sulphite	mg / l		
S.G Brine	s.g.	1.0957	1.1012
Average SG of Solids	s.g.	2.50	2.50

Mud Property Specifications

Weight	ALAP	Viscosity	35-45
Filtrate	<= 9	pH	8.5
KCl	2	YP	12-20

Solids Analysis

TIME	15:00	5:30	
% LGS	4.72	5.19	
% Barite			
ppb Bar			
% Bent equ.	0.82	0.82	
ppb Ben eq.	7.50	7.50	
% DS	3.89	4.36	
ppb DS	35.44	39.69	

Rheometer Readings

600 rpm	23	28	
300 rpm	17	20	
200 rpm	14	15	
100 rpm	10	11	
6 rpm	4	5	
3 rpm	3	3	

Volume Analysis (bbls)

Volume Mixed	Daily	Well Total
Salvage Mud		
Drill/Rain Water	60.0	264.8
Recycled Water		23.0
Chemical Addition	16.7	31.1
Total Added	76.7	318.9
Solids Control	4.5	9.1
Down hole losses	5.0	5.0
Dumped		28.3
Other surface losses	16.5	41.5
Corrections		
Total Losses	26.0	83.9

Bit Data

Size (in.)	6.125	Jets(Nr x 32^{nd})	
NB		Hrs.today/total	/ 0
S/N REED		W.O.B	
Depth In		RPM	
Drilled meters	475.0	TFA (in^2)	0.371

Bit Hydraulics

Nozzle Velocity, (ft/sec)	201
Bit Pressure Drop (psi)	352
Hyd. Horsepower (hp)	48
Hyd. HP per in^2 (HHP/in^2)	1.62
Impact Force (lb_f)	236

Annular Hydraulics

	(DP/OH)	(DC/OH)
Velocity (ft/min)	225	380
Eff. Viscosity (cp)	34	17
Critical Velocity (ft/min)	266	314
Critical F/Rate (gpm)	274	192
Transport Eff. (%)	88.14	81.71
Cuttings Conc. (Vol %)		
Effective M.WT (ppg)		

Surge & Swab Pressure in Equiv. Mud Density

Surge (ppg):	10.065	Swab (ppg):	9.535

Total Annular Pressure Drop (Trip):	21.5 psi
Total Annular Pressure Drop (Circ):	45.2 psi

Solids Control Equipment

		Screens
Total Circulating hrs		
Shaker 1: Hours run:	24.0	20/120/120/17
Shaker 2	24.0	20/120/120/17
Mud Cleaner - SWACO		

	Hrs Run:	**UF WT**	**bbls/hr**
De-sander			
(2-cones)			
De-silter	24.0 hrs		0.19
(12-cones)			

Operations Summary:

Drilling 6 1/8" section to 475 meters

Fluid Summary:

Continue treating active system with Xanbore, Aus-Dex and KCL via building premixes at regurlar interval and blending them back into system slowly.

Cost Breakdown

Daily Mud Cost	$	3,324.79
Prev Mud Cost	$	4,257.48
Total Mud Cost	**$**	**7,582.27**
Daily Eng. Cost	$	850.00
Prev Eng. Cost	$	4,250.00
Total Eng. Cost	**$**	**5,100.00**
Overall Cost	**$**	**12,682.27**

Eng.: **Tapan Patel** **Phone:** **+61-7-3723-3699** **Warehouse:** **+61-7-3723-3699**

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DC

Drilling Fluid Report

NO : 6

API	STATE	COUNTRY	**Australia**		Date	**12-Feb-17**		T.D. (MD/TVD) Meters	**642.0**	**642.0**	
WELL					Spud Date	**06-Feb-17**		Bit @ (MD/TVD) Meters	**335.0**	**335.0**	
Operator	**InGauge**			Contractor	**TDC**			Activity @ 2400 hrs:	**POOH**		
Report for	**Scott Hobday**			Report for	**Phil**			Rig No.			
Well Name and No.	**Plumb Road 1**			Field or Block No.				State/Country	**NSW/AUS**		

Drill String Details

Type	O.D (in.)	I.D. (in.)	Weight (lbs/ft)	Length (m)
DP	3.5000	2.6500		**212.16**
HWDP	3.5000	2.2500		**27.75**
DC	4.7500	2.2500		**82.57**
Tools	4.7500	2.0600		**12.52**
Length of DP includes part of Kelly drilled.				**BHA = 122.84**

Casing Details

Description	O.D - Weight (in. - lbs/ft)	I.D. (in.)	Depth to (m)
Cond.	9.625	8.921	12.0
Inter.	7	6.360	156.0
Prod.			
Liner			

Mud Volumes (bbls)

Mud in Hole	68.7	Active Pits	173.4
Circ Vol	242.2	Ann Vol	62.0
Displ Vol	9.5	String Vol	6.7
Reserve	46.5	ECD (ppg)	
Mud Type	**KCL/Polymer**		

Mud Properties

Sample from	Pit / F-line / Shaker	Suction		
Mud Temp (In / Out)	°C			
Time Sample Taken	Hrs.	16:00		
Sample Depth	Meters	580.0		
Weight	ppg	9.90		
Funnel Viscosity @ °C	sec. / qt.	36		
Plastic Viscosity @ °C	cp	9		
Yield Point	lb / 100ft2	11		
Gel Strength 10"/ 10' / 30'		5/8		
API Filtrate	cc / 30 min.	9.5		
HTHP Filtrate @ N/A °C	cc / 30 min.	NA		
Cake Thickness API / HTHP	1 / 32"	1.0		
Corrected Retort Solids	% by Vol.	6.7		
Retort Oil	% by Vol.			
Corrected Water	% by Vol.	93.2		
Sand Content (In / Out)	% by Vol.	0.9		
Methylene Blue Capacity	ppb Equivalent Bentonite	7.5		
pH Meter		8.8		
Alkalinity Mud (Pm)	cc N/50 H2SO4 Acid	0.15		
Alkalinity Filtrate (Pf/Mf)	cc N/50 H2SO4 Acid	0.1/0.15		
Chlorides	mg / l	82,000		
Total Hardness	mg / l	540		
KCl (from K+ precipitation test)	% by Weight	3.50		
K+	mg / l	18,700		
Ca++	mg / l	NA		
$CaCl_2$	% by Weight	NA		
NaCl	% by Weight	10.00		
Sulphite	mg / l			
S.G Brine	s.g.	1.0931		
Average SG of Solids	s.g.	2.50		

Mud Property Specifications

Weight	ALAP	Viscosity	35-45
Filtrate	<= 9	pH	8.5
KCl	2	YP	12-20

Solids Analysis

TIME	16:00		
% LGS	6.54		
% Barite			
ppb Bar			
% Bent equ.	0.82		
ppb Ben eq.	7.50		
% DS	5.71		
ppb DS	51.97		

Rheometer Readings

600 rpm	29		
300 rpm	20		
200 rpm	18		
100 rpm	12		
6 rpm	5		
3 rpm	4		

Volume Analysis (bbls)

Volume Mixed	Daily	Well Total
Salvage Mud		
Drill/Rain Water	40.0	304.8
Recycled Water	25.1	48.1
Chemical Addition	2.3	33.4
Total Added	67.4	386.3
Solids Control	3.8	12.8
Down hole losses		5.0
Dumped	10.0	38.3
Other surface losses		41.5
Corrections		
Total Losses	13.8	97.6

Bit Data

Size (in.)	6.125	IADC Code	
NB		Hrs.today/total	/ 0
S/N REED		W.O.B	
Depth In		RPM	
Drilled meters	642.0	TFA (in²)	0.371

Bit Hydraulics

Nozzle Velocity, (ft/sec)	
Bit Pressure Drop (psi)	
Hyd. Horsepower (hp)	
Hyd. HP per in^2 (HHP/in^2)	
Impact Force (lb_f)	

Annular Hydraulics

	(DP/OH)	(DC/OH)
Velocity (ft/min)		
Eff. Viscosity (cp)		
Critical Velocity (ft/min)		
Critical F/Rate (gpm)		
Transport Eff. (%)		
Cuttings Conc. (Vol %)		
Effective M.WT (ppg)		

Surge & Swab Pressure in Equiv. Mud Density

Surge (ppg): 10.244 Swab (ppg): 9.556

Total Annular Pressure Drop (Trip): 19.6 psi

Total Annular Pressure Drop (Circ):

Solids Control Equipment

Total Circulating hrs			**Screens**
Shaker 1: Hours run:		24.0	20/120/120/17
Shaker 2		24.0	20/120/120/17
Mud Cleaner - SWACO			
	Hrs Run:	**UF WT**	**bbls/hr**
De-sander			
(2-cones)			
De-silter	20.0 hrs		0.19
(12-cones)			

Circulation Data

Pump Make/Model	
Liner x Stroke @ % eff	5 x 8 (0) @ 99%
Bbl/stk 0.0480816	SPM.
Bbl/min	GPM
Circulating Pressure (Psi)	
Bottoms Up Time (min.)	
Bottoms Up Strokes	
Total Circulation Time (min.)	
Total Circulation Strokes	

Operations Summary:

Drilled 6 1/8" to depth of 642 meters then started POOH.

Fluid Summary:

Continue treating active system with KCL, Aus-Dex and Xanbore via premixes to maintain desire mud specifications.

Cost Breakdown

Daily Mud Cost	$	920.32
Prev Mud Cost	$	7,582.27
Total Mud Cost	**$**	**8,502.59**
Daily Eng. Cost	$	850.00
Prev Eng. Cost	$	5,100.00
Total Eng. Cost	**$**	**5,950.00**
Overall Cost	**$**	**14,452.59**

Eng.: **Tapan Patel** **Phone:** **+61-7-3723-3699** **Warehouse:** **+61-7-3723-3699**

Contr.: **AUSTRALIAN MUD CO LTD** **Fax :** **+61-7-3723-3688** **Mobile:** **+61-4-03545-323**

Appendix 10 – Cement Reports

InGauge Ltd.
Level 1, 27 Parkview Street
Milton, QLD, 4064

Plumb Road 1
Cementing Operations
End Of Well Report

Prepared for Kelvin Wuttke
Monday, 6 March 2017

Submitted by Brendon Fischer
Halliburton Australia Pty Ltd

HALLIBURTON

1.0 Summary of Operations

The Plumb Road 1 well was cemented with a 7in surface casing and a 4-1/2in production casing.

The 7in surface casing was cemented on 8th February 2017, with 20bbl fresh water spacer, followed by 12.6bbls of 12.5ppg lead slurry and 7.1bbls of 15.6ppg tail slurry. Please see job logs (**Section 4**) for more details.

The 4-1/2in production casing was cemented on 14th February 2017, with 10bbls of Gelled Spacer at 9.8ppg pumped, followed by 41.1bbls of 12.5ppg lead slurry and 9.5bbls of 15.8ppg tail slurry. Please see job logs (**Section 4**) for more details.

1.1 Lessons Learnt

Jobs were performed as per planned with no HSE incidents

TDC Drilling

POST JOB REPORT
CEMENTING/PUMPING

Well : Plum Road #1

Rig: TDC Drilling

Surface & Production casing - 7521 & 7525

Prepared for Hobday, Scott

14-February-2017

Prepared by Marshall, Scott

HALLIBURTON

The Future is Working Together.

HALLIBURTON | Cementing			CUSTOMER	Start Date	End Date
			TDC Drilling	07-Feb-17	14-Feb-17
WELL Name & Number	RIG Name & Number	LOCATION/ FIELD	BDA	HES REP	CUSTOMER REP
Plum Road #1	TDC Drilling	Narrabri	Brisbane	Marshall, Scott	Hobday, Scott
WELL TYPE	JOB TYPE	JOB PURPOSE CODE		Program Rev.	SALES ORDER No.
06 Water	Casing Job	Surface & Production casing - 7521 & 7525		V1	903831282

JOB SUMMARY

PERSONNEL

SAP No.	PERSONNEL	HOURS	SAP No.	PERSONNEL	HOURS	SAP No.	PERSONNEL	HOURS
445514	Luck, Robert	24	0	Scott, Mick	96	515931	Marshall, Scott	84

EQUIPMENT

SAP No.	PUMPING / MIXING	HOURS	SAP No.	BULK SUPPLY	HOURS
1923852	Single Pump #1923852 (767-QVA)	192	1520333	BULKER #1520333 (892-QRV)	192
SAP No.	**VEHICLES / TRAILER**	**HOURS**	**SAP No.**	**OTHER**	**HOURS**
1204757	Dolly #1204757 (SY9-4DC)	192			
1240451	Kenworth T659 #1240451 (SB8-7GR)	192			

FLOAT AND CASING EQUIPMENT

CATEGORY	SAP NUMBER	DESCRIPTION	SUPPLIER	QTY
CASING ATTACHMENTS		Centralizers Surface Casing	HALLIBURTON	7
CASING ATTACHMENTS		Centralizers Production casing	HALLIBURTON	27
PLUGS		7" Top plug (Surface casing)		1
PLUGS		4.5" Top and Bottom plug		1
FLOAT EQUIPMENT		7" float collar and 7" guide shoe (Surface Casing)		1
FLOAT EQUIPMENT		4.5" float collar and 4.5" guide shoe (Production Casing)		1

WELL PROFILE

Was the casing tally provided? **YES**

WELL COMPONENT	SIZE (in)	WEIGHT (lb/ft)	GRADE	THREAD	TOP (MD) (m)	END (MD) (m)	END (TVD) (m)	EXCESS %	LENGTH (m)
Pervious Casing	9 5/8	36	k-55	btc	0.0	10.0			10.0
OPEN HOLE	8.5				10.0	100.0		75%	90.0
Open Hole	8.5				100.0	156.0		50%	56.0
Pervious Casing	7"	23			0.0	156.0			156.0
Open Hole	6 1/8							50%	640.0

FLUID SUMMARY

Fluid Type: SPACER **Fluid Name: Water 20 bbls / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report								
	Volume Pumped	bbl							
	Estimated Top	m							
	Density	lb/gal	8.33						
	Volume Mixed	bbl	20						
H_2O	Source	Water truck							
	Volume	bbl	20						
	Chlorides	ppm	0						

Fluid Type: CEMENT **Fluid Name: Lead Cement / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report		2364984-2						
	Volume Pumped	bbl	12.6	LAP-1	0.6	%BWOC	20	lb	
	Estimated Top	m	0	CFR-3	0.3	%BWOC	10	lb	
	Density	lb/gal	12.5	CaCl2	1	%BWOC	33	lb	
	Yield	cuft/sk	1.85	D-Air 3000L	0.05	gal/sk	2	gal	added during mixing
	Water Requirement	gal/sk	9.92	Econolite Powder	1.5	%BWOC	50	lb	
	Mix Fluid Required	gal/sk	9.97						
H_2O	Source	water truck							
	Volume	bbl	9						
	Chlorides	ppm	0						
CMT	35:65 Pozmix GP	lb/sk	87						
	Total Used	sk	38						

Fluid Type: CEMENT **Fluid Name: Tail Cement / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report		2366181-1						
	Volume Pumped	bbl	7.1	CaCl2	1	%BWOC	32	lb	added to mix water on unit
	Estimated Top	m	108	D-Air 3000L	0.05	gal/sk	2	gal	added during mixing
	Density	lb/gal	15.6						
	Yield	cuft/sk	1.19						
	Water Requirement	gal/sk	5.25						
	Mix Fluid Required	gal/sk	5.32						
H_2O	Source	water truck							
	Volume	bbl	7.1						
	Chlorides	ppm	0						
CMT	Class GP	lb/sk	94						
	Total Used	sk	34						

Fluid Type: SPACER				Fluid Name: Gelled Spacer 9.8 ppg / Production Casing						
PROPERTIES	Lab Report	na		Chemicals	Concentration		TOTAL		Notes	
	Volume Pumped	bbl	10	NaCl	113.94	lb/bbl	1,139	lb	supplied by rig	
	Estimated Top	m	0	WG-19	2.5	lb/bbl	25	lb	mixed on unit	
	Density	lb/gal	9.8	Acetic Acid 60%	0.05	gal/bbl	1	gal	mixed on unit	
	Volume Mixed	bbl	10							
H_2O	Source	water truck								
	Volume	bbl	8.4							
	Chlorides	ppm	0							

Fluid Type: CEMENT				Fluid Name: Lead Cement / Production Casing					
PROPERTIES	Lab Report	2364984-2		Chemicals	Concentration		TOTAL		Notes
	Volume Pumped	bbl	41.1	Econolite Powder	1.5	%BWOC	163	lb	
	Estimated Top	m	0	LAP-1	0.6	%BWOC	65	lb	
	Density	lb/gal	12.5	CFR-3	0.3	%BWOC	33	lb	
	Yield	cuft/sk	1.85	CaCl2	1	%BWOC	109	lb	
	Water Requirement	gal/sk	4.97	D-Air 3000L	0.05	gal/sk	7	gal	added during mixing
	Mix Fluid Required	gal/sk	5.04						
H_2O	Source	water truck							
	Volume	bbl	29.5						
	Chlorides	ppm	0						
CMT	35:65 Pozmix GP	lb/sk	87						
	Total Used	sk	125						

Fluid Type: CEMENT				Fluid Name: Tail Cement / Production Casing					
PROPERTIES	Lab Report	2366677-2		Chemicals	Concentration		TOTAL		Notes
	Volume Pumped	bbl	9.5	HALAD-413	0.5	%BWOC	22	lb	MF mixed on unit
	Estimated Top	m	540	CFR-3	0.25	%BWOC	11	lb	MF mixed on unit
	Density	lb/gal	15.8	D-Air 3000L	0.01	gal/sk	1	gal	added during mixing
	Yield	cuft/sk	1.15						
	Water Requirement	gal/sk	4.97						
	Mix Fluid Required	gal/sk	5.04						
H_2O	Source	water truck							
	Volume	bbl	5.45						
	Chlorides	ppm	0						
CMT	Class GP	lb/sk	94						
	Total Used	sk	46						

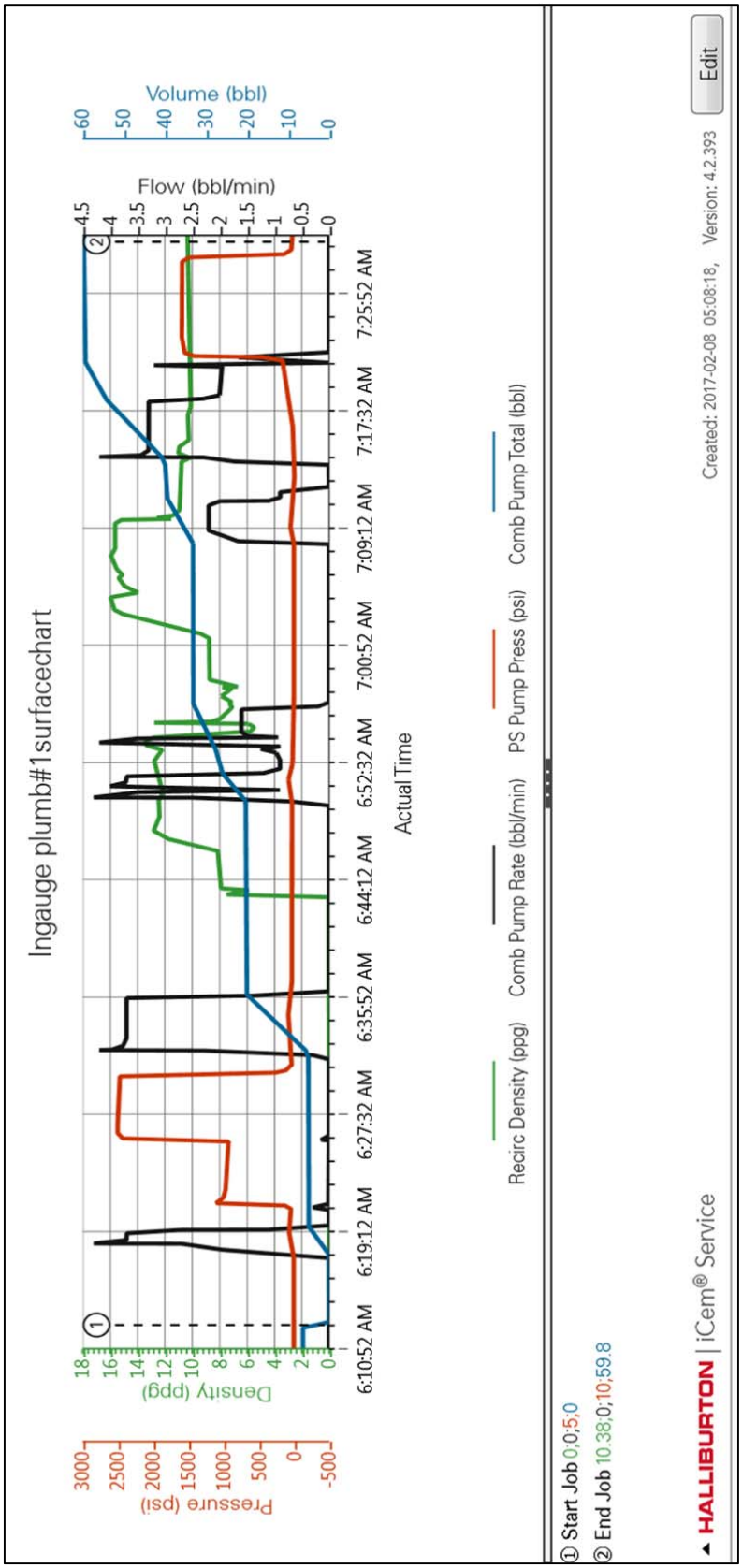
HALLIBURTON | Cementing			CUSTOMER	Start Date	End Date
			TDC Drilling	07-Feb-17	14-Feb-17
WELL Name & Number	RIG Name & Number	LOCATION/ FIELD	BDA	HES REP	CUSTOMER REP
Plum Road #1	TDC Drilling	Narrabri	Brisbane	Marshall, Scott	Hobday, Scott
WELL TYPE	JOB TYPE	JOB PURPOSE CODE		Program Rev.	SALES ORDER No.
06 Water	Casing Job	Surface & Production casing - 7521 & 7525		V1	903831282

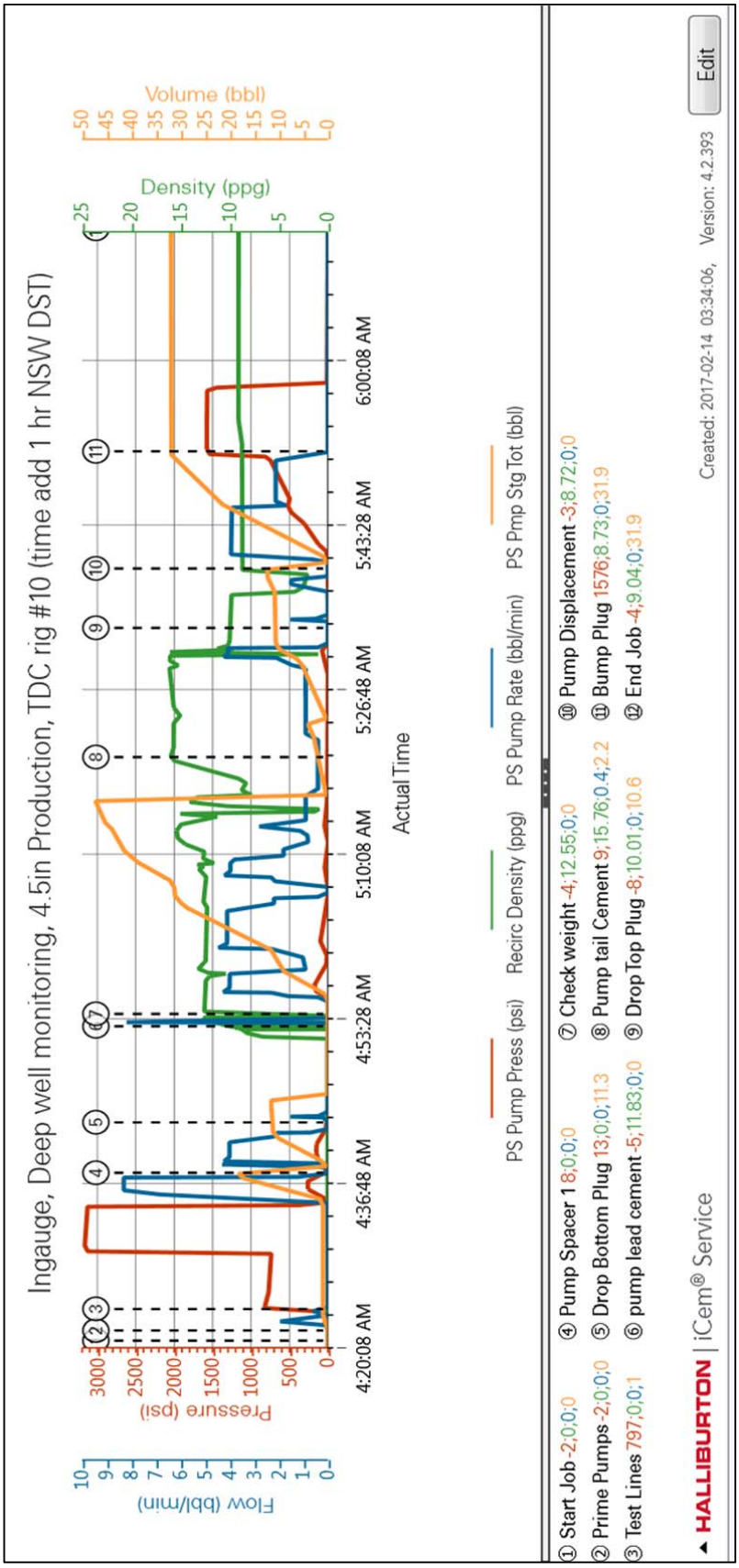
JOB LOGS

LEAD CEMENT PUMPED:	12.6 / 45	*bbl*	**SPACER TO SURFACE:**	20. / 10.	*bbl*	Add Row
TAIL CEMENT PUMPED:	7.1 / 10.6	*bbl*	**CEMENT TO SURFACE:**	3 / 14.4	*bbl*	
SPACER(S) PUMPED:	20. / 10.	*bbl*	**LOST RETURNS:**	0	*bbl*	Delete Row

DATE	TIME	VOLUME	PRESSURE (psi)		RATE	JOB DESCRIPTION
DAY-MTH-YR	HRS:MIN	BBLS	HIGH	LOW	BPM	REMARKS/DETAILS
						Rob Luck & Mick Scott mobilize to Narrabri NSW
						08/02/2017 Scott Marshall crew change Rob Luck 12:00
06-Feb-17						bulker and pump unit loaded with cement and chemicals
						prepare to mobilize / weed certify equipment
07-Feb-17	6:00					Pre Mobilisation Safety Huddle
	7:00					Depart Roma
	16:30					Arrive Location 560 km
	16:40					Talk with OCR
	16:55					Spot Equipment
	17:20					Rig Up & Run up Equipment
	17:25					Test Kickouts
	18:00					Standby for job
08-Feb-17	5:00					Called to rig
	6:00					arrive
	6:30					pre job safty meeting
	6:50					rig up floor / load top plug
	7:20	5.0	70		3.7	Prime surface lines
	7:26		945			Surface Iron Low Pressure Test
	7:28		2,500			Surface Iron High Pressure Test
	7:33		0			bleed off
	7:34	15.0	80		4	pump 15 bbls freshwater spacer
	7:40					pre pare tail mix water with 32 lb CaCl2
	7:45	12.6	50		4. - 2	mix and pump lead cement 12.6 bbls12.5 ppg
	8:04	7.1			2	mix and pump tail cement 15.6 ppg 7.1 bbls using inside Mix Fluid
	8:15	19.0			3.3	displace freshwater 18.8 bbls
	8:24	19.0	824		2	bump plug
	8:24		1,503			Pressure Test Casing
	8:30	0.3	0			bleed off / Record Returns
						cement back to surface 16 bbls into displacement
	8:30					Rig Down / wash up
	9:10					Move equipment off location
	9:30					Depart Location
						Rob Luck depart Narrabri and crew change with
						Scott Marshall
	16:30					Scott Marshall Arrive
	17:00					sign into civeo camp

09-Feb-17	7:00					arrive location
	7:05					brief OCR Scott Hobday
	7:15					site inductions
	8:00					check equipment - run up
	10:00					depart location
	11:00					stanby at Civeo Rig camp
10-Feb-17	9:00					arrive location - perform equipment maintenance due to
						rust and gravel in pump afer previous wash up
	10:30					depart location
						standby at civeo rig camp
11-Feb-17						standby at civeo rig camp / red alert day extreame heat
						in forestry area
12-Feb-17	9:00					rig crew stood down due to extreame heat in forestry
						potential fire risks (day and night shift)
13-Feb-17						arrive location / review program
						spot equipment
						rig up
						run up - clean out unit flushing out rust and sediment
						from pump unit
						water test
						mix up NaCl for spacer 9.8 ppg
						depart location / standby for rig to run casing
14-Feb-17	3:00					call to rig
	4:00					brief OCR
	4:15					mix up chemical for tail MF with 1 bbls dead volume
						Halad - 413 ; 26 lb used , CFR 3 ; 13 lb used
	4:35					pre job safety meeting with rig crew
	4:50					mix up 10 bbls gelled spacer 9.8 ppg
	5:05					rig up floor
	5:25	1.0	30		2	prime pumps freshwater
	5:27		800	738		pressure test surface lines 500 psi
	5:33		3,167	3,131		pressure test surface lines 3000 psi
	5:38					mix up gelled spacer
	5:41	10.0	154		4	pump 10 bbls 9.8 ppg gelled spacer
	5:45					release bottom plug
	5:50					open cement head load closing plug
	5:57	45.0	180	50	4. - 1	mix and pump 41.1 bbls 12.5 ppg lead slurry
	6:18	10.6	100	30	4. - 1	mix and pump 9.5 bbls tail cement 15.8 ppg
						using MF made up in displacement tank
						during mixing of lead and tail - bulk delivery to unit was not steady
	6:37					flush surface lines
	6:42	31.9	528	215	4	displace with freshwater 31.6 bbl max 32.2 bbl (1/2 shoe volume)
	6:54	31.9	820		2	bump plug
	6:54		1,575	1,573		pressure test casing 1500 psi 5 min as instructed by OCR
	7:00	0.2		0		bleed off / check floats / record returns
	7:05					rig down
	7:15					wash up
	8:00					moved equipment off location
	8:45					depart location
						breakfast
	10:00					paperwork
	12:00					check over equipment
	14:00					standby at rig camp


Ingauge plumb#1surfacechart
Volume (bbl)
Flow (bbl/min)
Density (ppg)
Pressure (psi)
Actual Time
6:10:52 AM
6:19:12 AM
6:27:32 AM
6:35:52 AM
6:44:12 AM
6:52:32 AM
7:00:52 AM
7:09:12 AM
7:17:32 AM
7:25:52 AM
Recirc Density (ppg)
Comb Pump Rate (bbl/min)
PS Pump Press (psi)
Comb Pump Total (bbl)
Edit
Created: 2017-02-08 05:08:18, Version: 4.2.393
HALLIBURTON | iCem® Service
① Start Job 0;0;5;0
② End Job 10.38;0;10;59.8


Ingauge, Deep well monitoring, 4.5in Production, TDC rig #10 (time add 1 hr NSW DST)
Volume (bbl)
Density (ppg)
Pressure (psi)
Flow (bbl/min)
Actual Time
4:20:08 AM
4:36:48 AM
4:53:28 AM
5:10:08 AM
5:26:48 AM
5:43:28 AM
6:00:08 AM
PS Pump Press (psi)
Recirc Density (ppg)
PS Pump Rate (bbl/min)
PS Pmp Stg Tot (bbl)
① Start Job -2;0;0;0
② Prime Pumps -2;0;0;0
③ Test Lines 797;0;0;1
④ Pump Spacer 1 8;0;0;0
⑤ Drop Bottom Plug 13;0;0;11.3
⑥ pump lead cement -5;11.83;0;0
⑦ Check weight -4;12.55;0;0
⑧ Pump tail Cement 9;15.76;0.4;2.2
⑨ Drop Top Plug -8;10.01;0;10.6
⑩ Pump Displacement -3;8.72;0;0
⑪ Bump Plug 1576;8.73;0;31.9
⑫ End Job -4;9.04;0;31.9
HALLIBURTON | iCem® Service
Created: 2017-02-14 03:34:06, Version: 4.2.393
Edit

InGauge Ltd.
Level 1, 27 Parkview Street
Milton, QLD, 4064

Plumb Road 2
Cementing Operations
End Of Well Report

Prepared for Kelvin Wuttke
Monday, 6 March 2017

Submitted by Brendon Fischer
Halliburton Australia Pty Ltd

HALLIBURTON

1.0 Summary of Operations

The Plumb Road 2 well was cemented with a 7in surface casing and a 4-1/2in production casing.

The 7in surface casing was cemented on 16th February 2017, with 20bbl fresh water spacer, followed by 12.6bbls of 12.5ppg lead slurry and 7.1bbls of 15.6ppg tail slurry. Please see job logs (**Section 4**) for more details.

The 4-1/2in production casing was cemented on 19th February 2017, with 10bbls of Gelled Spacer at 9.8ppg pumped, followed by 21.3bbls of 12.5ppg lead slurry and 8.9bbls of 15.8ppg tail slurry. Please see job logs (**Section 4**) for more details.

1.1 Lessons Learnt

Jobs were performed as per planned with no HSE incidents

TDC Drilling

POST JOB REPORT
CEMENTING/PUMPING

Well : Plum Road well # 2

Rig: TDC Drilling

Surface & Production casing - 7521 & 7525

Prepared for Hobday, Scott

18-February-2017

Prepared by Marshall, Scott

HALLIBURTON

The Future is Working Together.

HALLIBURTON | Cementing			CUSTOMER	Start Date	End Date
			TDC Drilling	15-Feb-17	18-Feb-17
WELL Name & Number	RIG Name & Number	LOCATION/ FIELD	BDA	HES REP	CUSTOMER REP
Plum Road well # 2	TDC Drilling	Narrabri	Brisbane	Marshall, Scott	Hobday, Scott
WELL TYPE	JOB TYPE	JOB PURPOSE CODE		Program Rev.	SALES ORDER No.
06 Water	Casing Job	Surface & Production casing - 7521 & 7525		V1	903831284

JOB SUMMARY

PERSONNEL

SAP No.	PERSONNEL	HOURS	SAP No.	PERSONNEL	HOURS	SAP No.	PERSONNEL	HOURS
515931	Marshall, Scott		0	Scott, Mick				

EQUIPMENT

SAP No.	PUMPING / MIXING	HOURS	SAP No.	BULK SUPPLY	HOURS
1923852	Single Pump #1923852 (767-QVA)		1520333	BULKER #1520333 (892-QRV)	92
SAP No.	**VEHICLES / TRAILER**	**HOURS**	**SAP No.**	**OTHER**	**HOURS**
12054757	Dolly #12054757 (SY9-4DC)				
12240451	Kenworth T659 #12240451 (SB8-7GR)				

FLOAT AND CASING EQUIPMENT

CATEGORY	SAP NUMBER	DESCRIPTION	SUPPLIER	QTY
CASING ATTACHMENTS		Centralizers Surface Casing	HALLIBURTON	6
CASING ATTACHMENTS		Centralizers Production casing	HALLIBURTON	17
PLUGS		7" Top plug (Surface casing)		1
PLUGS		4.5" Top and Bottom plug		1
FLOAT EQUIPMENT		7" float collar and 7" guide shoe (Surface Casing)		1
FLOAT EQUIPMENT		4.5" float collar and 4.5" guide shoe (Production Casing)		1

WELL PROFILE

Was the casing tally provided? **YES**

WELL COMPONENT	SIZE (in)	WEIGHT (lb/ft)	GRADE	THREAD	TOP (MD) (m)	END (MD) (m)	END (TVD) (m)	EXCESS %	LENGTH (m)
Pervious Casing	9 5/8	36	k-55	btc	0.0	10.0			10.0
OPEN HOLE	8.5				10.0	100.0		75%	90.0
Open Hole	8.5				100.0	156.0		50%	56.0
Pervious Casing	7"	23			0.0	154.4		0%	154.4
Open Hole	6 1/8				154.4	388.0		50%	233.6

FLUID SUMMARY

Fluid Type: SPACER **Fluid Name: Water 20 bbls / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report								
	Volume Pumped	bbl							
	Estimated Top	m							
	Density	lb/gal	8.33						
	Volume Mixed	bbl	20						
H_2O	Source	Water truck							
	Volume	bbl	20						
	Chlorides	ppm	0						

Fluid Type: CEMENT **Fluid Name: Lead Cement / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report		2364984-2						
	Volume Pumped	bbl	12.6	LAP-1	0.6	%BWOC	20	lb	
	Estimated Top	m	0	CFR-3	0.3	%BWOC	10	lb	
	Density	lb/gal	12.5	CaCl2	1	%BWOC	33	lb	
	Yield	cuft/sk	1.85	D-Air 3000L	0.05	gal/sk	2	gal	added during mixing
	Water Requirement	gal/sk	9.92	Econolite Powder	1.5	%BWOC	50	lb	
	Mix Fluid Required	gal/sk	9.97						
H_2O	Source	water truck							
	Volume	bbl	9						
	Chlorides	ppm	0						
CMT	35:65 Pozmix GP	lb/sk	87						
	Total Used	sk	38						

Fluid Type: CEMENT **Fluid Name: Tail Cement / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report		2366181-1						
	Volume Pumped	bbl	7.1	CaCl2	1	%BWOC	32	lb	added to mix water on unit
	Estimated Top	m	108	D-Air 3000L	0.05	gal/sk	2	gal	added during mixing
	Density	lb/gal	15.6						
	Yield	cuft/sk	1.19						
	Water Requirement	gal/sk	5.25						
	Mix Fluid Required	gal/sk	5.32						
H_2O	Source	water truck							
	Volume	bbl	7.1						
	Chlorides	ppm	0						
CMT	Class GP	lb/sk	94						
	Total Used	sk	34						

Fluid Type: SPACER **Fluid Name: Gelled Spacer 9.8 ppg / Production Casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report	na		NaCl	113.94	lb/bbl	1,139	lb	supplied by rig
	Volume Pumped	bbl	10	WG-19	2.5	lb/bbl	25	lb	mixed on unit
	Estimated Top	m	0	Acetic Acid 60%	0.05	gal/bbl	1	gal	mixed on unit
	Density	lb/gal	9.8						
	Volume Mixed	bbl	10						
H_2O	Source	water truck							
	Volume	bbl	8.4						
	Chlorides	ppm	0						

Fluid Type: CEMENT **Fluid Name: Lead Cement / Production Casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report	2364984-2		Econolite Powder	1.5	%BWOC	85	lb	
	Volume Pumped	bbl	21.3	LAP-1	0.6	%BWOC	34	lb	
	Estimated Top	m	0	CFR-3	0.3	%BWOC	17	lb	
	Density	lb/gal	12.5	CaCl2	1	%BWOC	57	lb	
	Yield	cuft/sk	1.85	D-Air 3000L	0.05	gal/sk	4	gal	added during mixing
	Water Requirement	gal/sk	4.97						
	Mix Fluid Required	gal/sk	5.04						
H_2O	Source	water truck							
	Volume	bbl	29.5						
	Chlorides	ppm	0						
CMT	35:65 Pozmix GP	lb/sk	87						
	Total Used	sk	65						

Fluid Type: CEMENT **Fluid Name: Tail Cement / Production Casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report	2366677-2		HALAD-413	0.5	%BWOC	20	lb	MF mixed on unit
	Volume Pumped	bbl	8.9	CFR-3	0.25	%BWOC	10	lb	MF mixed on unit
	Estimated Top	m	288	D-Air 3000L	0.01	gal/sk	1	gal	added during mixing
	Density	lb/gal	15.8						
	Yield	cuft/sk	1.15						
	Water Requirement	gal/sk	4.97						
	Mix Fluid Required	gal/sk	5.04						
H_2O	Source	water truck							
	Volume	bbl	5.2						
	Chlorides	ppm	0						
CMT	Class GP	lb/sk	94						
	Total Used	sk	43						

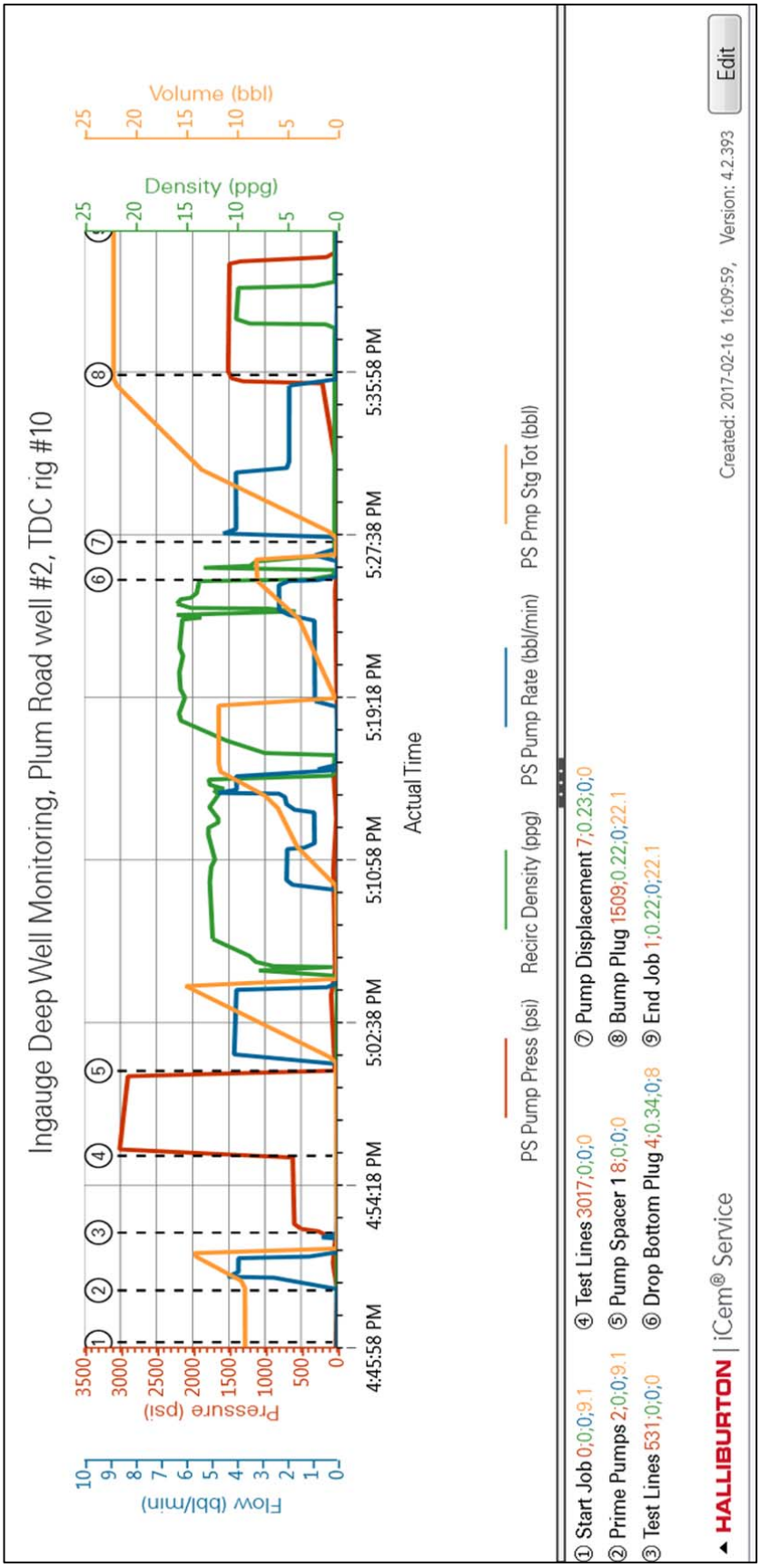
HALLIBURTON | Cementing			CUSTOMER	Start Date	End Date
			TDC Drilling	15-Feb-17	18-Feb-17
WELL Name & Number	RIG Name & Number	LOCATION/ FIELD	BDA	HES REP	CUSTOMER REP
Plum Road well # 2	TDC Drilling	Narrabri	Brisbane	Marshall, Scott	Hobday, Scott
WELL TYPE	JOB TYPE	JOB PURPOSE CODE		Program Rev.	SALES ORDER No.
06 Water	Casing Job	Surface & Production casing - 7521 & 7525		V1	903831284

JOB LOGS

LEAD CEMENT PUMPED:	12.6 / 21.3	*bbl*	**SPACER TO SURFACE:**	20. / 10.	*bbl*	Add Row
TAIL CEMENT PUMPED:	7.1 / 8.9	*bbl*	**CEMENT TO SURFACE:**	4.6 / 4.7	*bbl*	
SPACER(S) PUMPED:	20. / 10.	*bbl*	**LOST RETURNS:**	0	*bbl*	Delete Row

DATE	TIME	VOLUME	PRESSURE (psi)		RATE	JOB DESCRIPTION
DAY-MTH-YR	HRS:MIN	BBLS	HIGH	LOW	BPM	REMARKS/DETAILS
15-Feb-17	0:00					TDC rig is moving rig over to next well location on lease after
						finnishing Plum Road well #1
	12:00					call to rig
	13:00					brief with OCR Scott - Surface casing changed to 150m
						provisions made for program change - HB engineers
						additional cement will be required for production on Well #3
	13:20					run up equipment / perform checks
	14:00					spot equipment
	14:30					water test / rig up
	15:30					depart location
16-Feb-17	3:30					call to rig
	4:15					turned around due to casing run got stuck
	9:00					call to rig to move equipment
	9:30					sent back / not required
						WO rig to pull casing and run wiper trip
	16:00					call to rig
	16:45					arrive
	16:45					Brief OCR Scott
	16:50					run up equipment
	17:00					make up mix water for tail slurry 39 lb CaCl2 used
						with 1 bbl dead volume
	17:15					spot bulker
	17:25					pre job safety meeting with rig crew
	17:35					load top plug in CMT head / rig up floor
	17:48	5.0	59		4	pump 5 bbls freshwater spacer priming surface line
	17:51		615			pressure test surface 500 psi lines
	17:55		3,000	2,900		pressure test surface 2500 psi lines
	18:00	15.0	70		4	pump 15 bbls freshwater spacer
	18:05	12.6	50		4. - 2	pump 12.6 bbls 12.5 ppg lead cement
	18:19	7.1	28		2	pump 7.1 bbls 15.6 ppg tail cement using MF
	18:25					drop top plug
	18:26	19.4	180	40		displace freshwater
	18:34		180			bump plug
	18:34		1,509			pressure test casing 1500 psi 5 min
	18:40	0.4	0			bleed off / record returns / check floats
	18:43					rig down / wash up
	19:30					paperwork
	19:35					move equipment off location
	20:00					depart location
	21:00					standby

17-Feb-17						
	12:30					call to rig
	13:30					raining - spot equipment - run up
	14:00					rig up
	14:30					water test
	14:40					review program / casing tally
	15:00					weigh out chemicals for tail cement allowing 1 bbl dead volume
						Halad 413 - 24lb, CFR3 -12lb
	15:30					depart location - rig drilling
	16:10					standby
19-Feb-17	10:22					call to rig
	11:00					arrive
	11:05					brief with OCR Scott - calculations / review program
	11:10					run up equipment / mix up MF for tail cement
						mix up gelled spacer - weighed @ 9.5 ppg Oked by OCR
	11:45					pre job safety meeting with rig crew
	11:55					rig up floor / bottom plug loaded in cementing head
	12:11	1.0	56		1	prime surface lines with freshwater
	12:12		904	884		pressure test surface lines 500 psi - pressure rise
	12:17		3,178	3,160		pressure test surface lines 3000 psi - pressure rise
	12:22		0			bleed off
	12:23	4.0			9	mix acid into gelled spacer running on itself, on pump unit
	12:24	10.0	115	105	4	pump 10 bbls 9.5 ppg gelled spacer
	12:28	0.1			1	drop bottom plug
	12:30					reset plug plunger / load top plug into cementing head
	12:35	21.3	100		3.5	mix and pump 21.3 bbls 12.5 ppg lead cement
	12:47	8.9	30		2.5	mix and pump 8.9 bbls 15.8 ppg tail cement running of MF
	12:59					drop top plug
	13:03					flush lines into cellar
	13:11	19.5	490		4. - 2	displace top plug with freshwater
	13:18		490			bump plug
	13:18		1,727			pressure test casing 1500 psi 5min as requested by OCR
	13:23	0.2	0			bleed off / record returns / check floats hold
	13:25					rig down / wash up
	14:00					move equipment off location
	14:30					paperwork
	14:50					depart location
	16:00					make provisions for next job due to cement contingancy


Ingauge Deep Well Monitoring, Plum Road well #2, TDC rig #10
Volume (bbl)
Density (ppg)
Pressure (psi)
Flow (bbl/min)
Actual Time
4:45:58 PM
4:54:18 PM
5:02:38 PM
5:10:58 PM
5:19:18 PM
5:27:38 PM
5:35:58 PM
PS Pump Press (psi)
Recirc Density (ppg)
PS Pump Rate (bbl/min)
PS Pmp Stg Tot (bbl)
① Start Job 0;0;0;9.1
② Prime Pumps 2;0;0;9.1
③ Test Lines 531;0;0;0
④ Test Lines 3017;0;0;0
⑤ Pump Spacer 1 8;0;0;0
⑥ Drop Bottom Plug 4;0.34;0;8
⑦ Pump Displacement 7;0.23;0;0
⑧ Bump Plug 1509;0.22;0;22.1
⑨ End Job 1;0.22;0;22.1
HALLIBURTON | iCem® Service
Created: 2017-02-16 16:09:59, Version: 4.2.393
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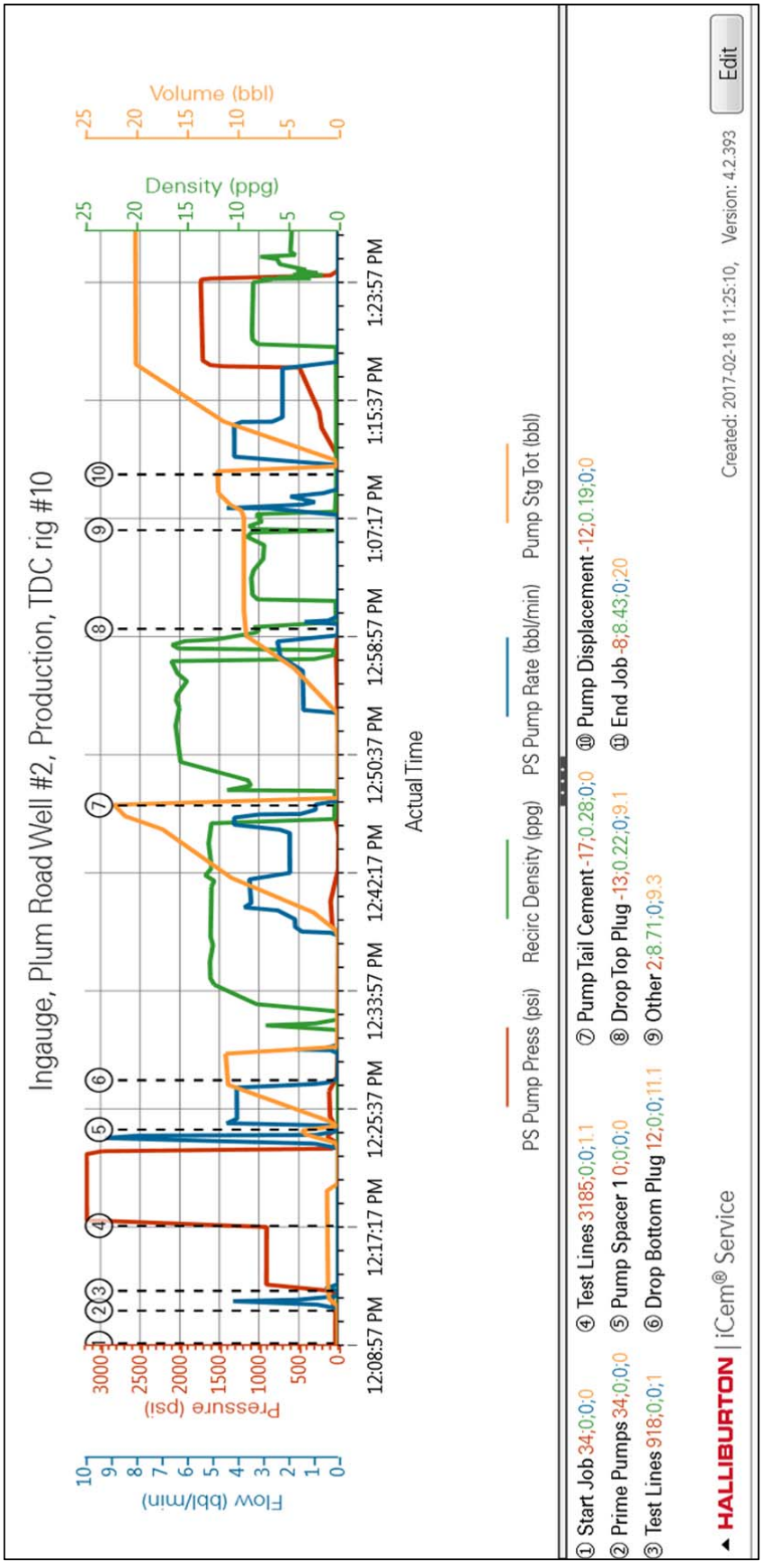
Ingauge, Plum Road Well #2, Production, TDC rig #10
Volume (bbl)
Density (ppg)
Pressure (psi)
Flow (bbl/min)
Actual Time
12:08:57 PM
12:17:17 PM
12:25:37 PM
12:33:57 PM
12:42:17 PM
12:50:37 PM
12:58:57 PM
1:07:17 PM
1:15:37 PM
1:23:57 PM
PS Pump Press (psi)
Recirc Density (ppg)
PS Pump Rate (bbl/min)
Pump Stg Tot (bbl)
① Start Job 34;0;0;0
② Prime Pumps 34;0;0;0
③ Test Lines 918;0;0;1
④ Test Lines 3185;0;0;1.1
⑤ Pump Spacer 1 0;0;0;0
⑥ Drop Bottom Plug 12;0;0;11.1
⑦ Pump Tail Cement -17;0.28;0;0
⑧ Drop Top Plug -13;0.22;0;9.1
⑨ Other 2;8.71;0;9.3
⑩ Pump Displacement -12;0.19;0;0
⑪ End Job -8;8.43;0;20
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Created: 2017-02-18 11:25:10, Version: 4.2.393
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InGauge Ltd.
Level 1, 27 Parkview Street
Milton, QLD, 4064

Plumb Road 3
Cementing Operations
End Of Well Report

Prepared for Kelvin Wuttke
Monday, 6 March 2017

Submitted by Brendon Fischer
Halliburton Australia Pty Ltd

HALLIBURTON

1.0 Summary of Operations

The Plumb Road 3 well was cemented with a 7in surface casing and a 4-1/2in production casing.

The 7in surface casing was cemented on 19th February 2017, with 20bbl fresh water spacer, followed by 12.6bbls of 12.5ppg lead slurry and 7.1bbls of 15.6ppg tail slurry. Please see job logs (**Section 4**) for more details.

The 4-1/2in production casing was cemented on 21st February 2017, with 10bbls of Gelled Spacer at 9.8ppg pumped, followed by 16.9bbls of 12.5ppg lead slurry and 8.9bbls of 15.8ppg tail slurry. Please see job logs (**Section 4**) for more details.

1.1 Lessons Learnt

Jobs were performed as per planned with no HSE incidents

TDC Drilling

POST JOB REPORT
CEMENTING/PUMPING

Well : Plum Road well # 3

Rig: TDC Drilling

Surface & Production casing - 7521 & 7525

Prepared for Hobday, Scott

22-February-2017

Prepared by Marshall, Scott

HALLIBURTON

The Future is Working Together.

HALLIBURTON | Cementing			CUSTOMER	Start Date	End Date
			TDC Drilling	19-Feb-17	22-Feb-17
WELL Name & Number	RIG Name & Number	LOCATION/ FIELD	BDA	HES REP	CUSTOMER REP
Plum Road well # 3	TDC Drilling	Narrabri	Brisbane	Marshall, Scott	Hobday, Scott
WELL TYPE	JOB TYPE	JOB PURPOSE CODE		Program Rev.	SALES ORDER No.
06 Water	Casing Job	Surface & Production casing - 7521 & 7525		V0	903829300

JOB SUMMARY

PERSONNEL

SAP No.	PERSONNEL	HOURS	SAP No.	PERSONNEL	HOURS	SAP No.	PERSONNEL	HOURS
515931	Marshall, Scott	48	0	Scott, Mick	48			

EQUIPMENT

SAP No.	PUMPING / MIXING	HOURS	SAP No.	BULK SUPPLY	HOURS
1923852	Single Pump #1923852 (767-QVA)	96	1520333	BULKER #1520333 (892-QRV)	48
			1277395	Bulker Convair #1277395 (SY4-6EA)	48

SAP No.	VEHICLES / TRAILER	HOURS	SAP No.	OTHER	HOURS
1054757	Dolly #1054757 (SY9-4DC)	96			
1240451	Kenworth T659 #1240451 (SB8-7GR)	96			

FLOAT AND CASING EQUIPMENT

CATEGORY	SAP NUMBER	DESCRIPTION	SUPPLIER	QTY
CASING ATTACHMENTS		Centralizers Surface Casing	HALLIBURTON	6
CASING ATTACHMENTS		Centralizers Production casing	HALLIBURTON	14
PLUGS		7" Top plug (Surface casing)		1
PLUGS		4.5" Top and Bottom plug		1
FLOAT EQUIPMENT		7" float collar and 7" guide shoe (Surface Casing)		1
FLOAT EQUIPMENT		4.5" float collar and 4.5" guide shoe (Production Casing)		1

WELL PROFILE

Was the casing tally provided? **YES**

WELL COMPONENT	SIZE (in)	WEIGHT (lb/ft)	GRADE	THREAD	TOP (MD) (m)	END (MD) (m)	END (TVD) (m)	EXCESS %	LENGTH (m)
Pervious Casing	9 5/8	36	k-55	btc	0.0	10.0			10.0
OPEN HOLE	8.5				10.0	100.0		75%	90.0
Open Hole	8.5				100.0	156.0		50%	56.0
Pervious Casing	7"	23			0.0	154.4		0%	154.4
Open Hole	6 1/8				154.4	336.0		50%	181.6

FLUID SUMMARY

Fluid Type: SPACER **Fluid Name: Water 20 bbls / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report								
	Volume Pumped	bbl							
	Estimated Top	m							
	Density	lb/gal	8.33						
	Volume Mixed	bbl	20						
H_2O	Source	Water truck							
	Volume	bbl	20						
	Chlorides	ppm	0						

Fluid Type: CEMENT **Fluid Name: Lead Cement / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report		2364984-2						
	Volume Pumped	bbl	12.6	LAP-1	0.6	%BWOC	20	lb	
	Estimated Top	m	0	CFR-3	0.3	%BWOC	10	lb	
	Density	lb/gal	12.5	CaCl2	1	%BWOC	33	lb	
	Yield	cuft/sk	1.85	D-Air 3000L	0.05	gal/sk	2	gal	added during mixing
	Water Requirement	gal/sk	9.92	Econolite Powder	1.5	%BWOC	50	lb	
	Mix Fluid Required	gal/sk	9.97						
H_2O	Source	water truck							
	Volume	bbl	9						
	Chlorides	ppm	0						
CMT	35:65 Pozmix GP	lb/sk	87						
	Total Used	sk	38						

Fluid Type: CEMENT **Fluid Name: Tail Cement / surface casing**

				Chemicals	Concentration		TOTAL		Notes
PROPERTIES	Lab Report		2366181-1						
	Volume Pumped	bbl	7.1	CaCl2	1	%BWOC	32	lb	added to mix water on unit
	Estimated Top	m	108	D-Air 3000L	0.05	gal/sk	2	gal	added during mixing
	Density	lb/gal	15.6						
	Yield	cuft/sk	1.19						
	Water Requirement	gal/sk	5.25						
	Mix Fluid Required	gal/sk	5.32						
H_2O	Source	water truck							
	Volume	bbl	7.1						
	Chlorides	ppm	0						
CMT	Class GP	lb/sk	94						
	Total Used	sk	34						

Fluid Type: SPACER				Fluid Name: Gelled Spacer 9.8 ppg / Production Casing						
PROPERTIES	Lab Report	na		Chemicals	Concentration		TOTAL		Notes
	Volume Pumped	bbl	10	NaCl	113.94	lb/bbl	1,139	lb	supplied by rig
	Estimated Top	m	0	WG-19	2.5	lb/bbl	25	lb	mixed on unit
	Density	lb/gal	9.8	Acetic Acid 60%	0.05	gal/bbl	1	gal	mixed on unit
	Volume Mixed	bbl	10						
H_2O	Source	water truck							
	Volume	bbl	8.4						
	Chlorides	ppm	0						

Fluid Type: CEMENT				Fluid Name: Lead Cement / Production Casing					
PROPERTIES	Lab Report	2364984-2		Chemicals	Concentration		TOTAL		Notes
	Volume Pumped	bbl	16.9	Econolite Powder	1.5	%BWOC	67	lb	
	Estimated Top	m	0	LAP-1	0.6	%BWOC	27	lb	
	Density	lb/gal	12.5	CFR-3	0.3	%BWOC	13	lb	
	Yield	cuft/sk	1.85	CaCl2	1	%BWOC	44	lb	
	Water Requirement	gal/sk	9.92	D-Air 3000L	0.05	gal/sk	3	gal	added during mixing
	Mix Fluid Required	gal/sk	9.97						
H_2O	Source	water truck							
	Volume	bbl	12.1						
	Chlorides	ppm	0						
CMT	35:65 Pozmix GP	lb/sk	87						
	Total Used	sk	51						

Fluid Type: CEMENT				Fluid Name: Tail Cement / Production Casing					
PROPERTIES	Lab Report	2366677-2		Chemicals	Concentration		TOTAL		Notes
	Volume Pumped	bbl	8.9	HALAD-413	0.5	%BWOC	20	lb	MF mixed on unit
	Estimated Top	m	288	CFR-3	0.25	%BWOC	10	lb	MF mixed on unit
	Density	lb/gal	15.8	D-Air 3000L	0.01	gal/sk	1	gal	added during mixing
	Yield	cuft/sk	1.15						
	Water Requirement	gal/sk	4.97						
	Mix Fluid Required	gal/sk	5.04						
H_2O	Source	water truck							
	Volume	bbl	5.2						
	Chlorides	ppm	0						
CMT	Class GP	lb/sk	94						
	Total Used	sk	43						

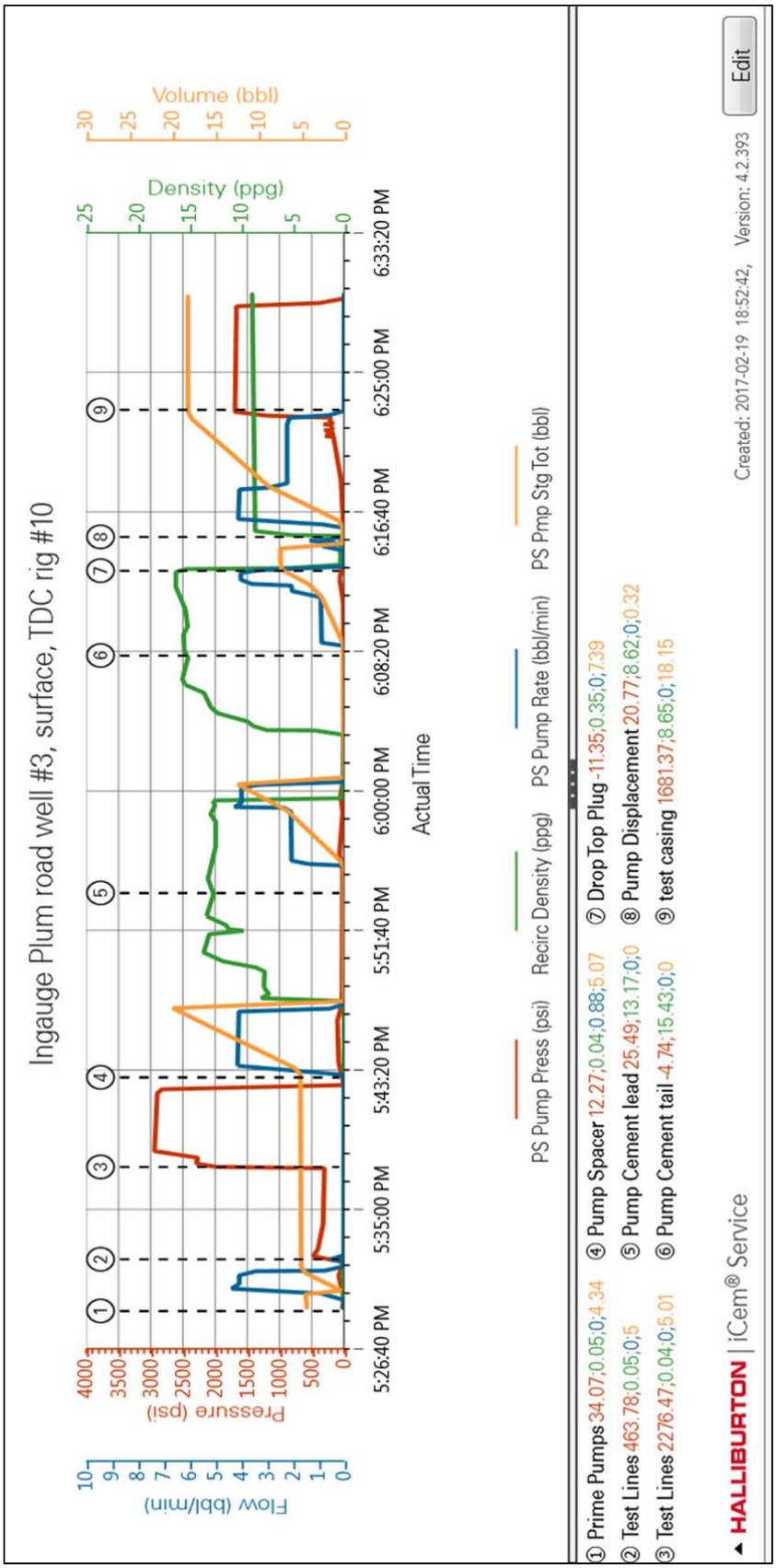
HALLIBURTON | Cementing			CUSTOMER	Start Date	End Date
			TDC Drilling	19-Feb-17	22-Feb-17
WELL Name & Number	**RIG Name & Number**	**LOCATION/ FIELD**	**BDA**	**HES REP**	**CUSTOMER REP**
Plum Road well # 3	TDC Drilling	Narrabri	Brisbane	Marshall, Scott	Hobday, Scott
WELL TYPE	**JOB TYPE**	**JOB PURPOSE CODE**		**Program Rev.**	**SALES ORDER No.**
06 Water	Casing Job	Surface & Production casing - 7521 & 7525		V0	903829300

JOB LOGS

LEAD CEMENT PUMPED:	12.6 / 16.9	*bbl*	**SPACER TO SURFACE:**	20. / 10.	*bbl*	Add Row
TAIL CEMENT PUMPED:	7.1 / 8.9	*bbl*	**CEMENT TO SURFACE:**	5.2 / 7.6	*bbl*	
SPACER(S) PUMPED:	20. / 10.	*bbl*	**LOST RETURNS:**	0	*bbl*	Delete Row

DATE	TIME	VOLUME	PRESSURE (psi)		RATE	JOB DESCRIPTION
DAY-MTH-YR	HRS:MIN	BBLS	HIGH	LOW	BPM	REMARKS/DETAILS
19-Feb-17	9:00					arrive rig
	9:05					brief with OCR Scott
	9:30					spot unit
	9:50					rig up
	10:10					water test - weigh out chemical with 1 bbls dead volume
						CaCL2 - 39lb used
	10:30					depart location
	15:50					call to rig
	14:35					arrive
	14:45					run up equipment / mix up chemical for tail MF
	17:20					pre job safety meeting with rig crew
	17:30					rig up floor
	17:45	5.0	80		4	pump 5 bbls freshwater spacer
	17:47		444	306		pressure test surface lines 500 psi
	17:52		2,949	2,905		pressure test surface lines 2500 psi
	17:57		0			bleed off 0
	17:58	15.0	100		4	pump 15 bbls freshwater spacer
	18:05	12.6	80	30	4. - 2	pump 12.6 bbls 12.5 ppg lead cement
	18:16	7.1	60	20	4. - 1	pump 7.1 bbls 15.6 ppg tail cement
	18:28					drop top plug
	18:30	19.2	300	0	4. - 2	displace top plug with freshwater
	18:38		300		2	bump plug
	18:38		1,679			pressure test casing 1500 psi 5 min OCR request
	18:44	0.3	0			bleed off / record returns / check floats hold
	18:46					rig down / wash up
	19:20					weight out chemicals for production job
						and load bulker for return trip to Roma
						addition bulker sent with lead cement for Production
						organised to leave in the morning
						Additional cement required due to depth changes to
						well design
	20:00					depart location
20-Feb-17	7:00					bulker depart Roma
	15:30					Bulker arrive at rig 560 km
						drop off with 51 sk lead cement
						Bulker return to Roma with chemicals to re - stock of
						un-open sks - Calcium Chloride 55lb, CFR 3 - 50lb, Halad 413- 50lb
						bulker returning had been blown empty having lead cement
						of 41sks been used in overblown due to taking cement
						for each previous well for same bulk supply
						Chemicals - used in this volume
						LAP - 22lb, CFR3 - 11lb, econolite - 53lb, CaCL2 - 36

	16:00					run up bulker / function test - clean out bulker hose
	16:30					depart location - WO rig to drill - WO HP mud pump from Roma
	17:45					standby at camp
21-Feb-17	7:00					paperwork
	8:30					Standby for rig to call
	14:00					call to rig
	14:35					breif with OCR Scott
	14:50					spot bulker
	15:00					run up equipment
	15:30					Wo rig to run casing
	16:15					mix chemicals for tail and gelled spacer
	16:35					prejob safety meeting with rig crew
	16:45					rig up floor
	16:55	1.0	30		2	prime surface lines
	16:57		1,127	1,071		pressure test surface lines 500 psi
	17:02		3,165	3,130		pressure test surface lines 3000 psi
	17:08	5.3	300		9	mix 10 bbls 9.8 ppg Gelled spacer
	17:09	10.0	133		4	pump 9.8 ppg Gelled spacer
	17:13					drop bottom plug
	17:17	16.9	65		4. - 2	mix and pump 16.9bbls 12.5 ppg lead cement
	17:32	8.9	65	-13	4. - 1	mix and pump 8.9 bbls 15.8 ppg tail cement
						running off MF
	17:44					drop top plug
	17:42	5.0			4. - 2	flush surface lines
	17:47	16.6	440		4. - 2	displace top plug with freshwater - cmt returns after 9 bbls disp
	17:54		440		2	bump plug
	17:54		1,757	1,740		pressure test casing 1500 psi
	18:00	0.2	0			bleed off / record returns / check floats hold
	18:03					rig down / wash up
	18:45					paperwork
	19:00					roadtrain up equipment
	17:30					depart location to Camp
22-Feb-17	6:00					depart location to Roma
	16:30					arrive roma
	17:00					Neat cement to be blown out of act pod. Ticket to
						be amended by taking off returns
						57 sks returned neat cement returned: initial ticket that
						got signed had chemicals subtracted from it with the full sks
						but still requires the 57 sks of neat subtracted
						Ticket amended in Roma


Ingauge Plum road well #3, surface, TDC rig #10
Volume (bbl)
Density (ppg)
Pressure (psi)
Flow (bbl/min)
Actual Time
5:26:40 PM
5:35:00 PM
5:43:20 PM
5:51:40 PM
6:00:00 PM
6:08:20 PM
6:16:40 PM
6:25:00 PM
6:33:20 PM
PS Pump Press (psi)
Recirc Density (ppg)
PS Pump Rate (bbl/min)
PS Pmp Stg Tot (bbl)
① Prime Pumps 34.07;0.05;0;4.34
② Test Lines 463.78;0.05;0;5
③ Test Lines 2276.47;0.04;0;5.01
④ Pump Spacer 12.27;0.04;0.88;5.07
⑤ Pump Cement lead 25.49;13.17;0;0
⑥ Pump Cement tail -4.74;15.43;0;0
⑦ Drop Top Plug -11.35;0.35;0;739
⑧ Pump Displacement 20.77;8.62;0;0.32
⑨ test casing 1681.37;8.65;0;18.15
HALLIBURTON | iCem® Service
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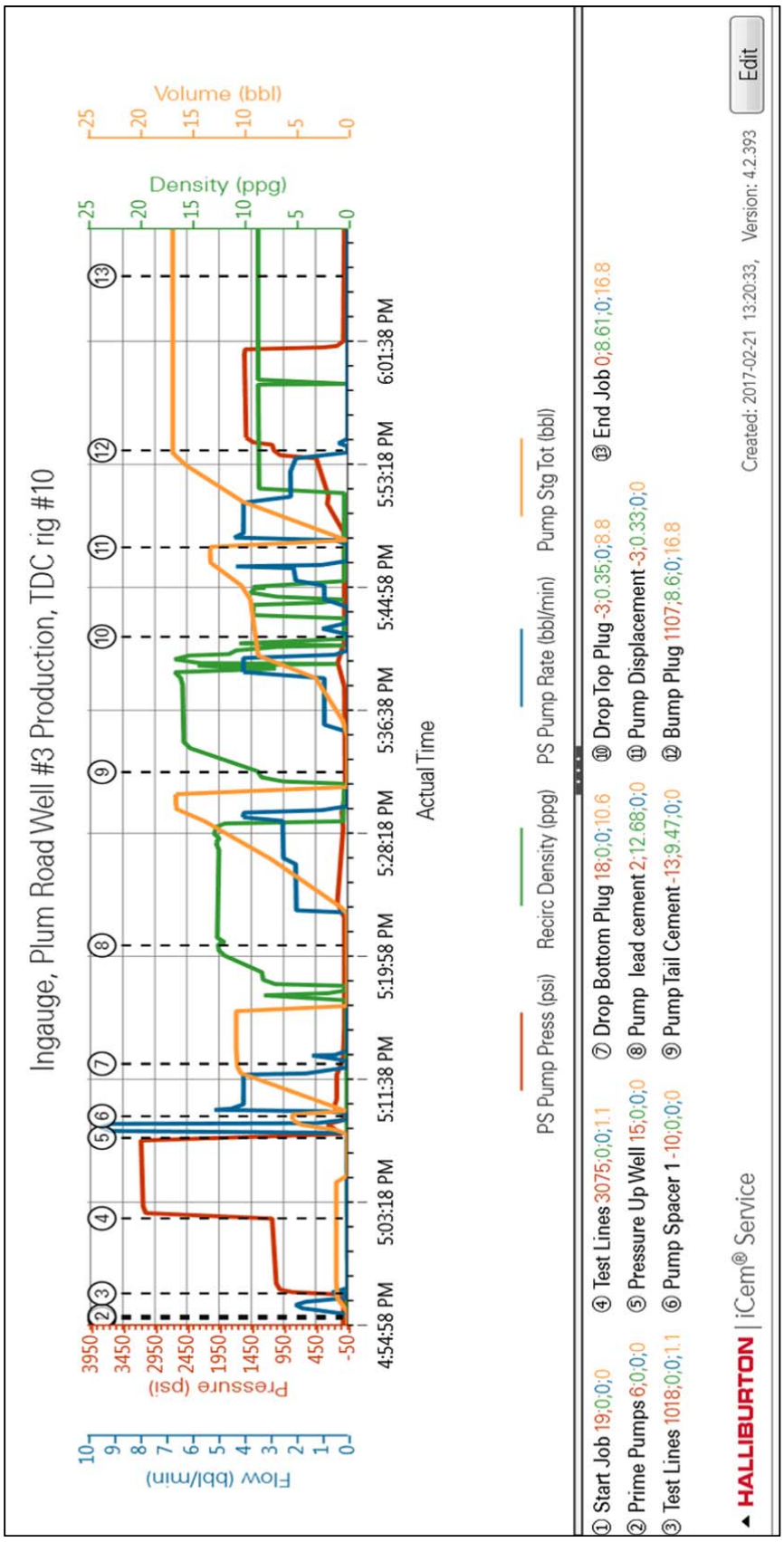

Ingauge, Plum Road Well #3 Production, TDC rig #10
Volume (bbl)
Density (ppg)
Pressure (psi)
Flow (bbl/min)
Actual Time
4:54:58 PM
5:03:18 PM
5:11:38 PM
5:19:58 PM
5:28:18 PM
5:36:38 PM
5:44:58 PM
5:53:18 PM
6:01:38 PM
PS Pump Press (psi)
Recirc Density (ppg)
PS Pump Rate (bbl/min)
Pump Stg Tot (bbl)
① Start Job 19;0;0;0
② Prime Pumps 6;0;0;0
③ Test Lines 1018;0;0;1.1
④ Test Lines 3075;0;0;1.1
⑤ Pressure Up Well 15;0;0;0
⑥ Pump Spacer 1 -10;0;0;0
⑦ Drop Bottom Plug 18;0;0;10.6
⑧ Pump lead cement 2;12.68;0;0
⑨ Pump Tail Cement -13;9.47;0;0
⑩ Drop Top Plug -3;0.35;0;8.8
⑪ Pump Displacement -3;0.33;0;0
⑫ Bump Plug 1107;8.6;0;16.8
⑬ End Job 0;8.61;0;16.8
HALLIBURTON | iCem® Service
Created: 2017-02-21 13:20:33, Version: 4.2.393
Edit

Appendix 11 – Cement Bond Logs

RADIAL CEMENT BOND LOG
FIELD COPY

KINETIC™

File No:	**Company**	INGAUGE	
	Well	PLUMB ROAD 1	
	Field		
	Area	NARRABRI	**Country** AUSTRALIA

Location	Other Services:

Permanent Datum	MSL	Elevation	0.0m	Elev K.B.	
Log Meas. From	KB	M. Above Datum		Elev G.L.	
Drilling Meas. From	KB			KB - GL	3.8m

Date	22 - FEB - 2017			Perforations			
Run No	2			Density	Shots	From	To
Log Type	RBT						
PBTD Depth - Driller							
Bottom Of Logged Interval	608.9m						
Top Of Logged Interval	SURFACE						
Metres Logged	608.9m						
Fluid Type	BRINE						
Fluid Level	SURFACE						
Wellhead Pressure	0						
Max. Temp.	31.8DEG C						
Wireline Unit	WU - 17	Carrier Size	in	Carrier Type			
		Charge Size	gr	Charge Type			
Recorded By	D. PARRY	Phasing	in	Entry Hole	in		
Witnessed By	S. HOBDAY						

Casing Record	Size (in)	Weight (lb/ft)	Top	Bottom
	4.5"	11.6PPF		

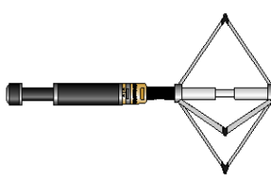
	Size (in)	Type	Model	Depth
Bridge Plug				
Re-Entry Guide				

CORRELATION LOG DEPTH CORRELATED TO KINETIC COMPOSITE LOG DATED 13/2/17

Remarks:

DSS HSR-20, 2 3/4" RBT CBL TOOL STRING

-1.37 m Top of String



Max. Length: 6.06 m

Cable Head
Length: 0.40 m Max Diameter: 1.44 in

Centralizer
Length: 0.77 m Max Diameter: 11.38 in

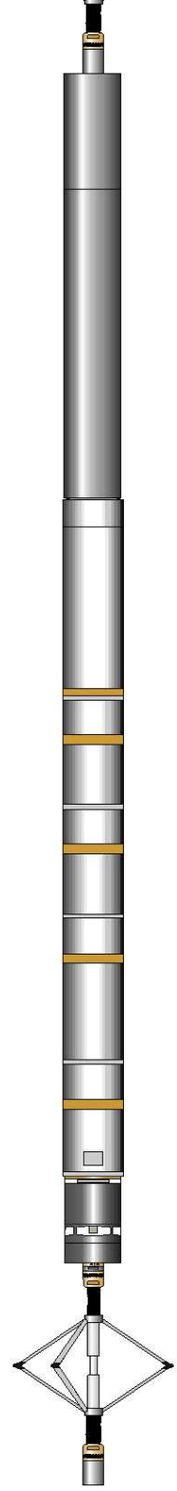
CCL
Length: 0.40 m Max Diameter: 2.75 in

Gamma Ray
Length: 1.07 m Max Diameter: 2.75 in

DSS RIB CBL
Length: 2.35 m Max Diameter: 2.75 in

Temperature Probe
Length: 0.30 m Max Diameter: 2.75 in

Roller Centralizer
Length: 0.77 m Max Diameter: 11.38 in



0.00 m - CCL
0.29 m - Gamma Ray
1.40 m - Transmitter
1.86 m - 2 ft measure point
2.02 m - 3 ft. measure point
2.33 m - 5 ft. measure point
3.57 m - Temperature Probe
4.69 m Bottom of String

MAIN PASS

2016-02-22 10:39
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 4

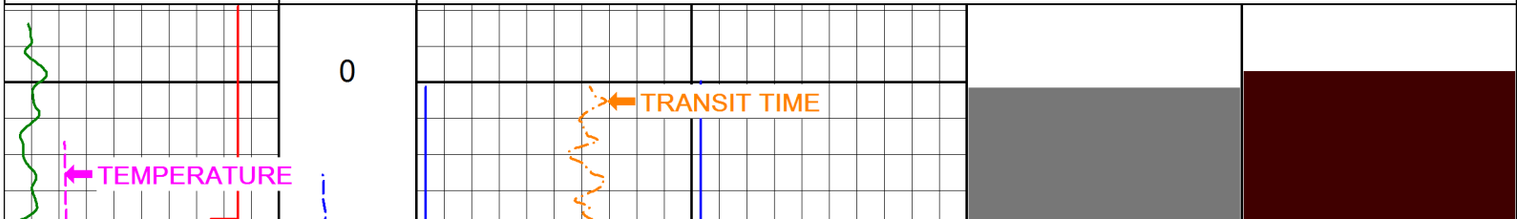
Tension (lbF)
0 700
METERS
1:200
-2.2

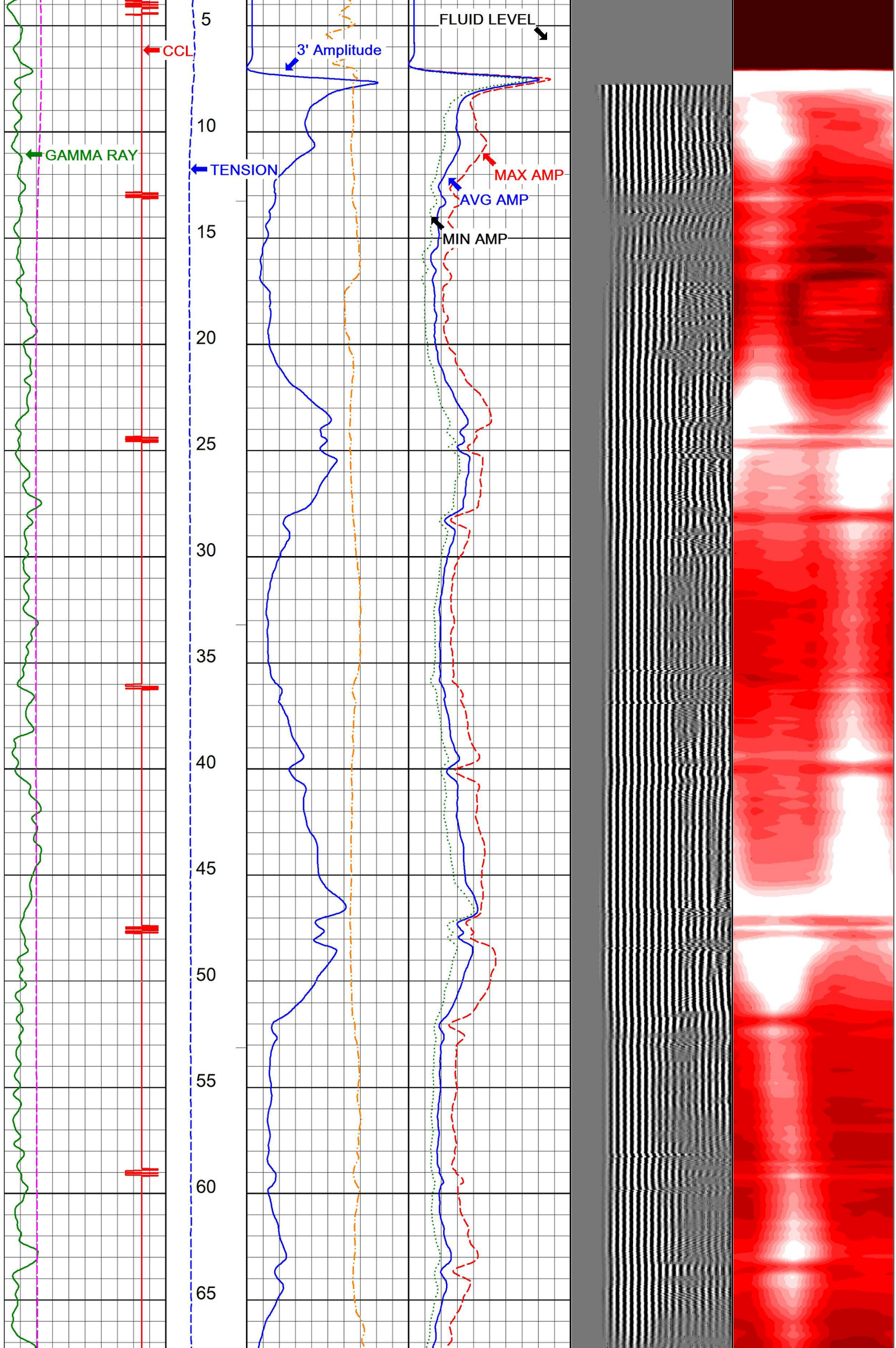
3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

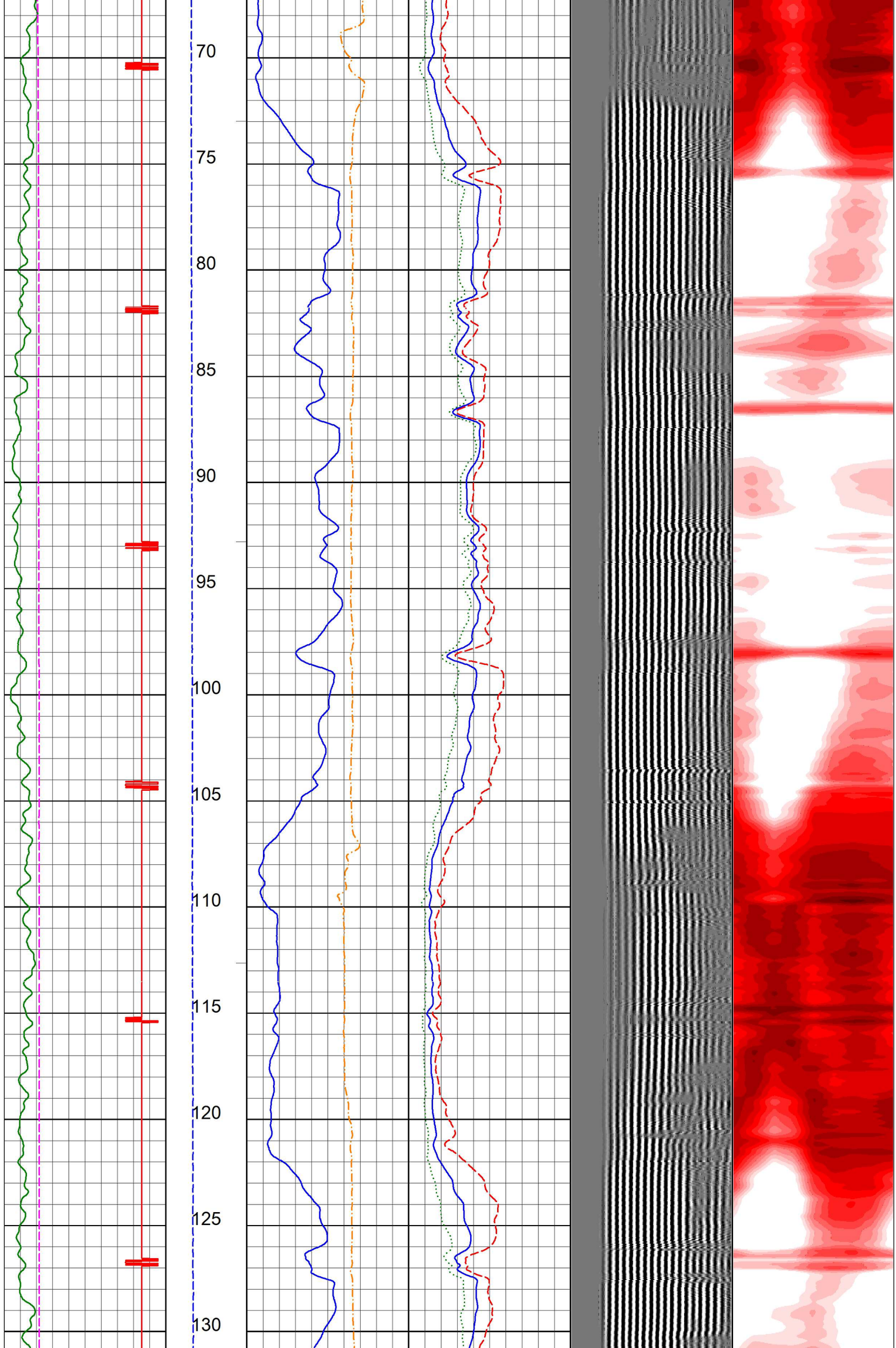
Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File MAIN PASS.pre

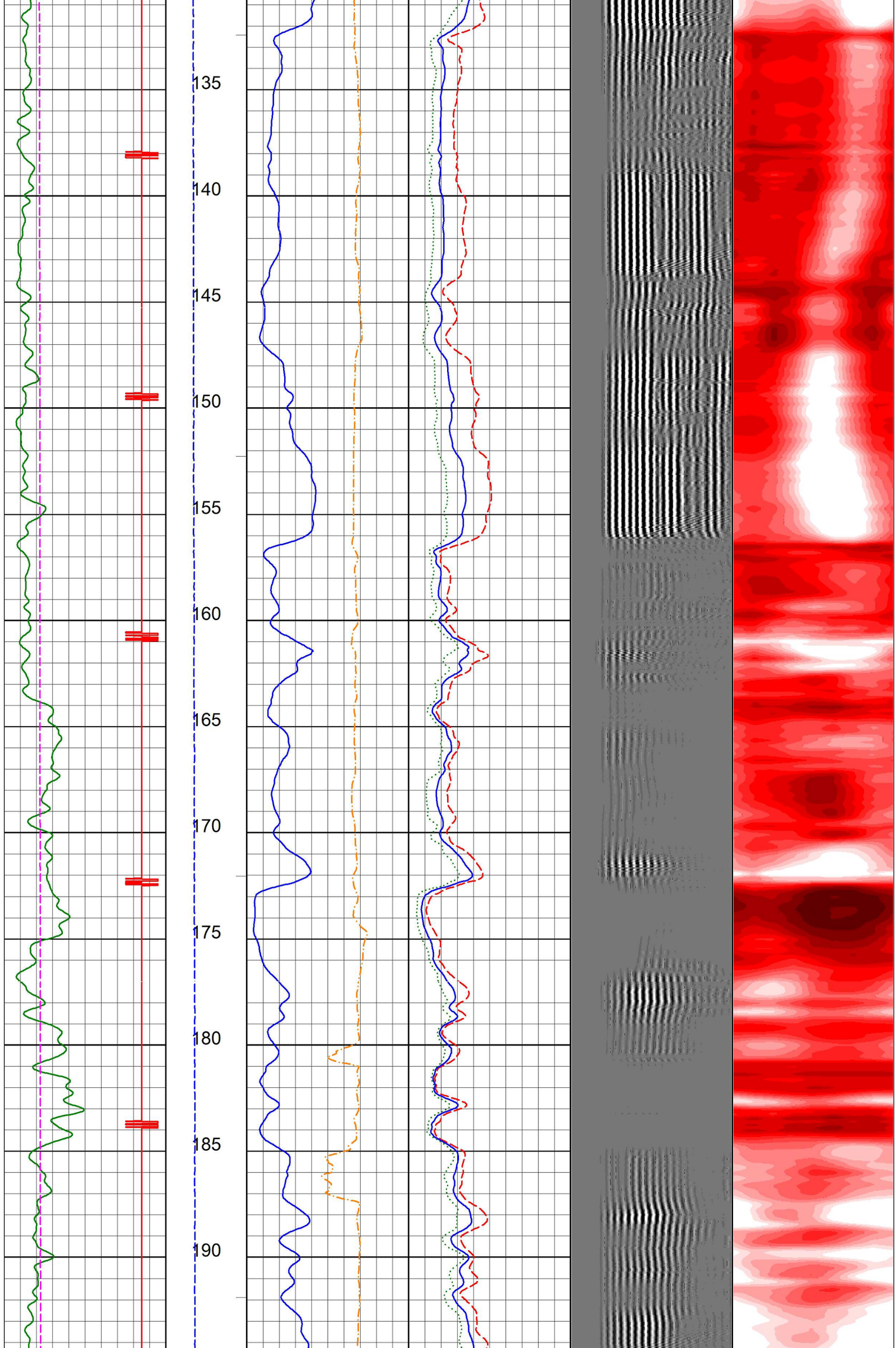
VDL (µs)
200.00 1200.00
Cement Map (mV)
0.00 40.00

Rev. 2014.07.23




FLUID LEVEL
3' Amplitude
CCL
GAMMA RAY
TENSION
MAX AMP
AVG AMP
MIN AMP
5
10
15
20
25
30
35
40
45
50
55
60
65


70
75
80
85
90
95
100
105
110
115
120
125
130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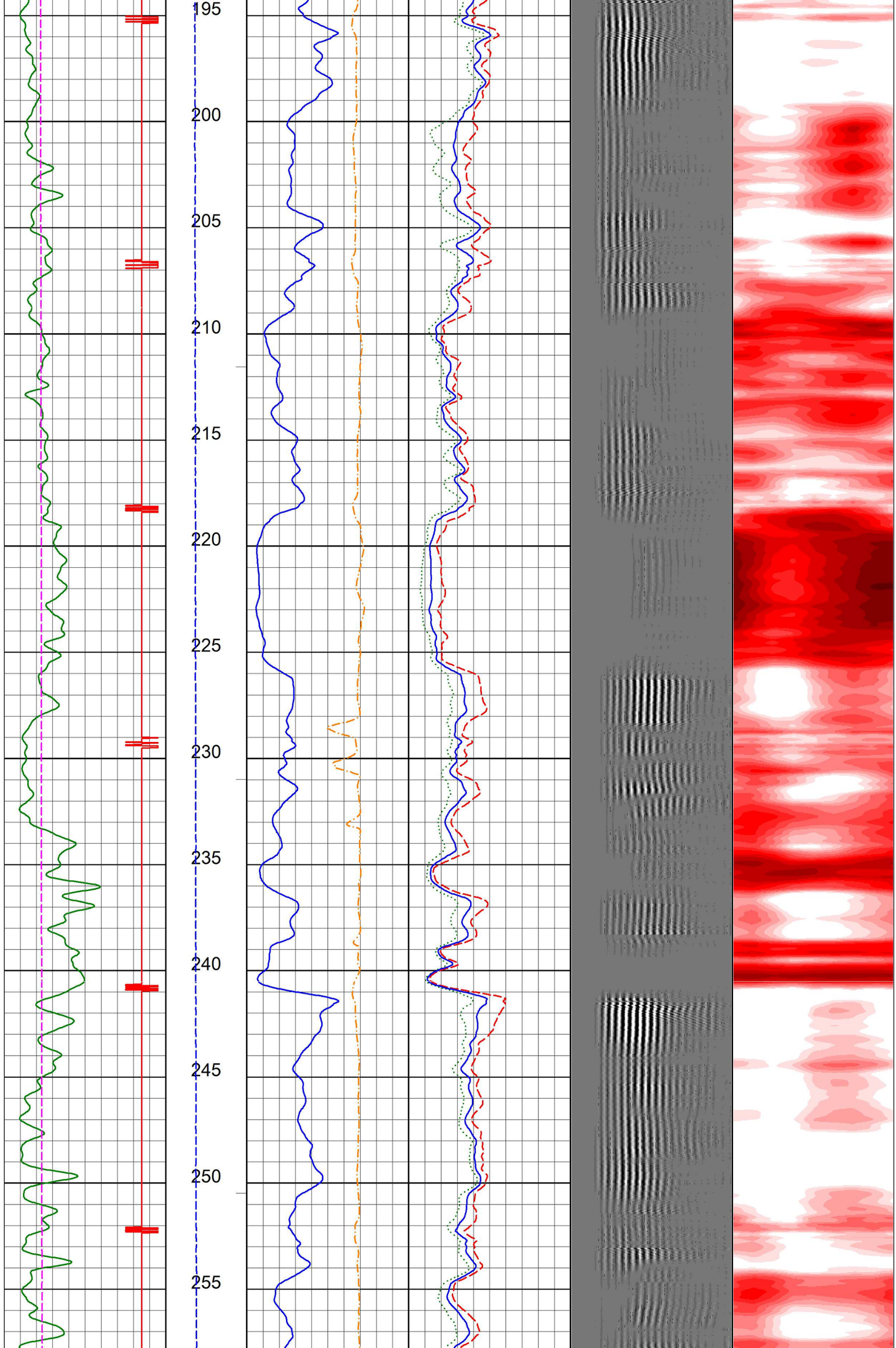
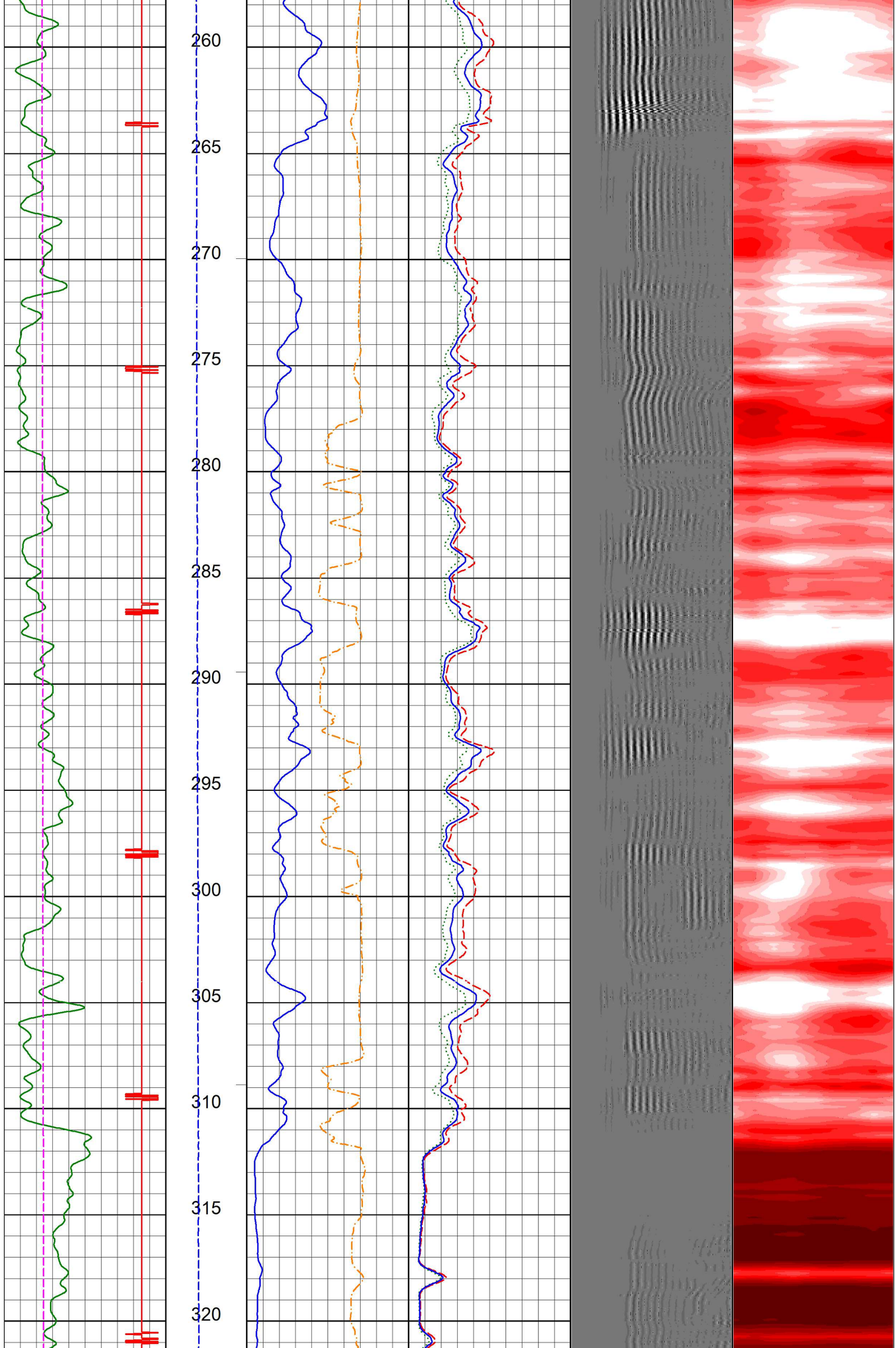
155
160
165
170
175
180
185
190


195
200
205
210
215
220
225
230
235
240
245
250
255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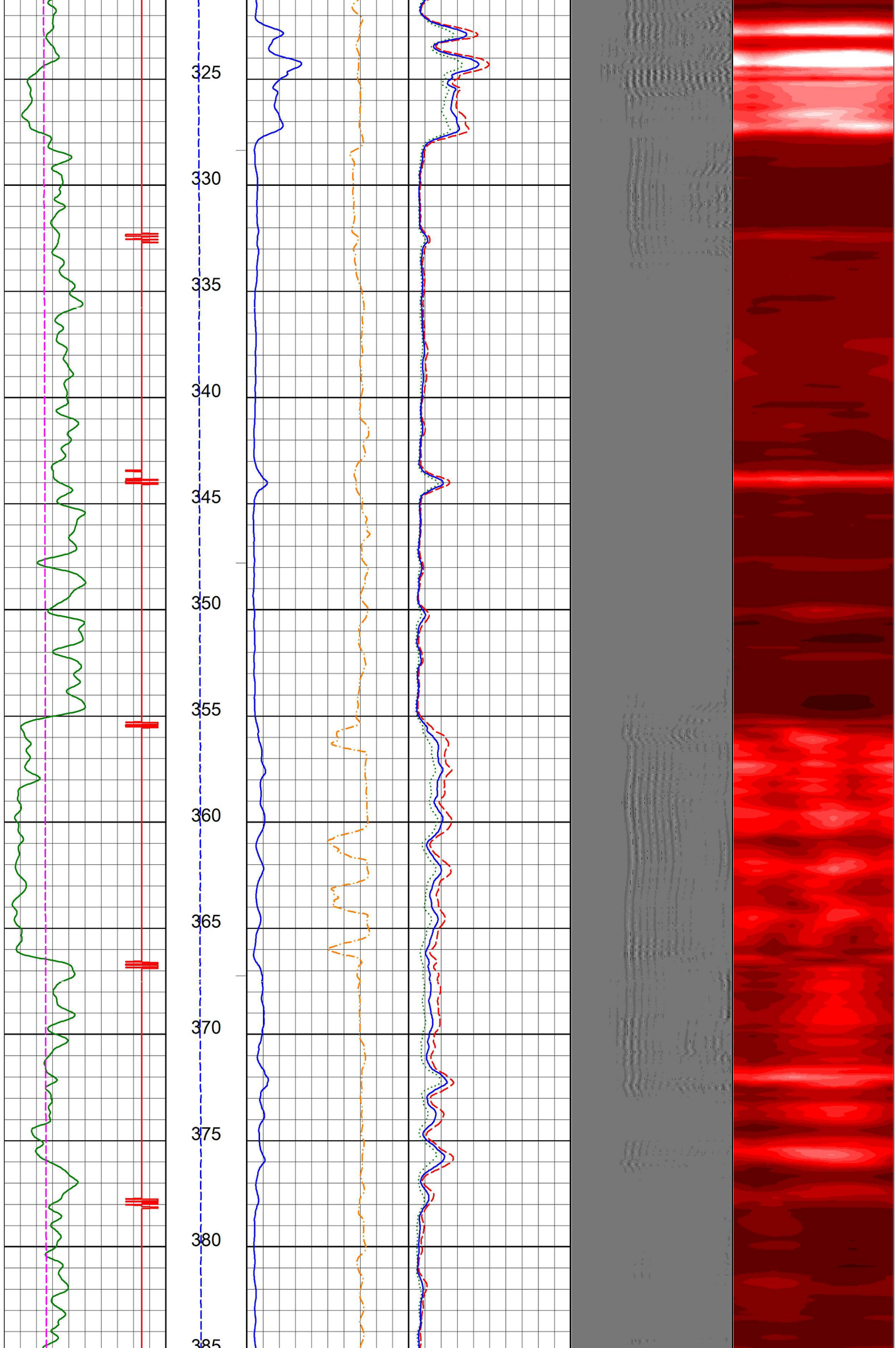
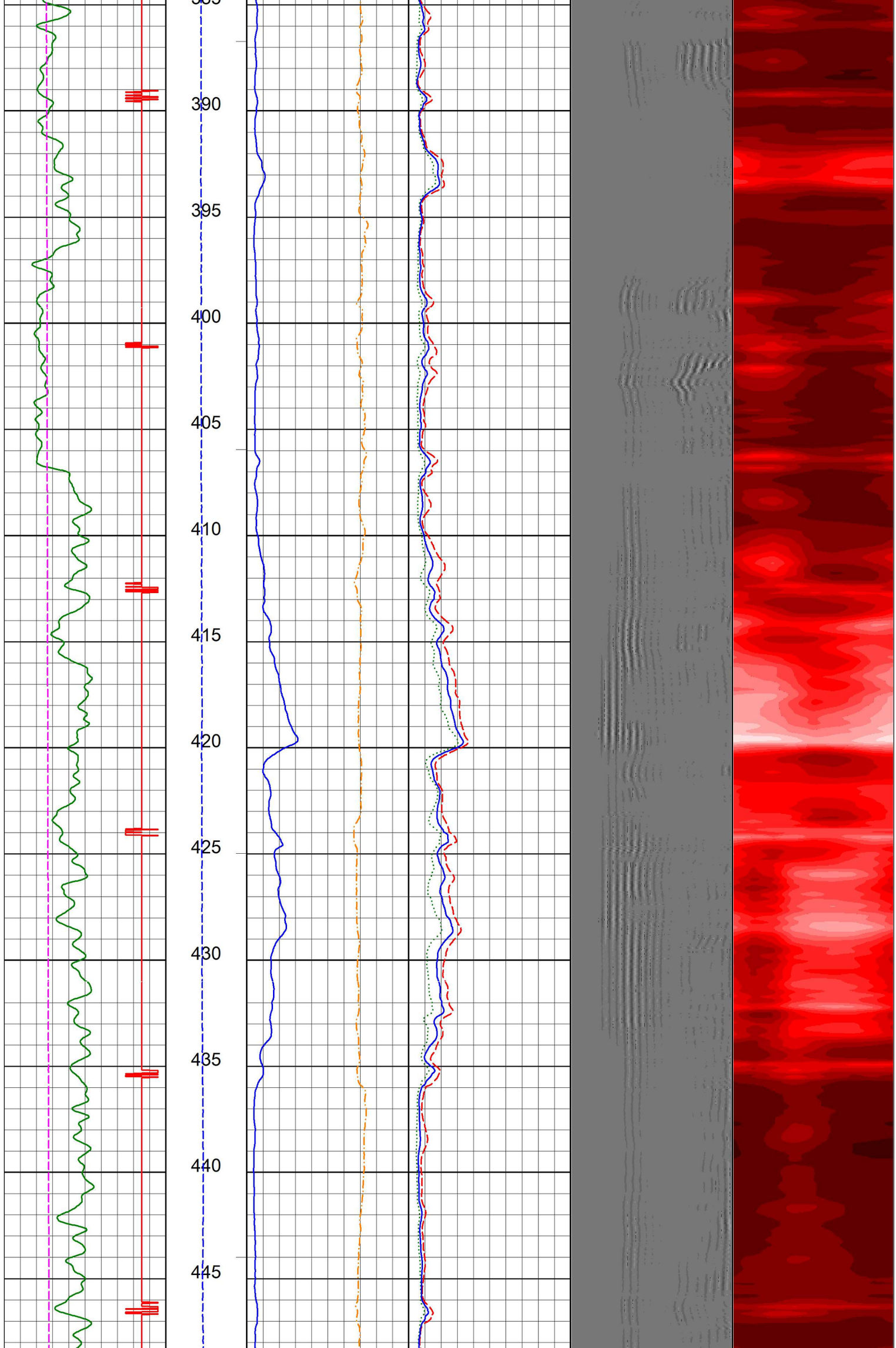
265
270
275
280
285
290
295
300
305
310
315
320


325
330
335
340
345
350
355
360
365
370
375
380
385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395
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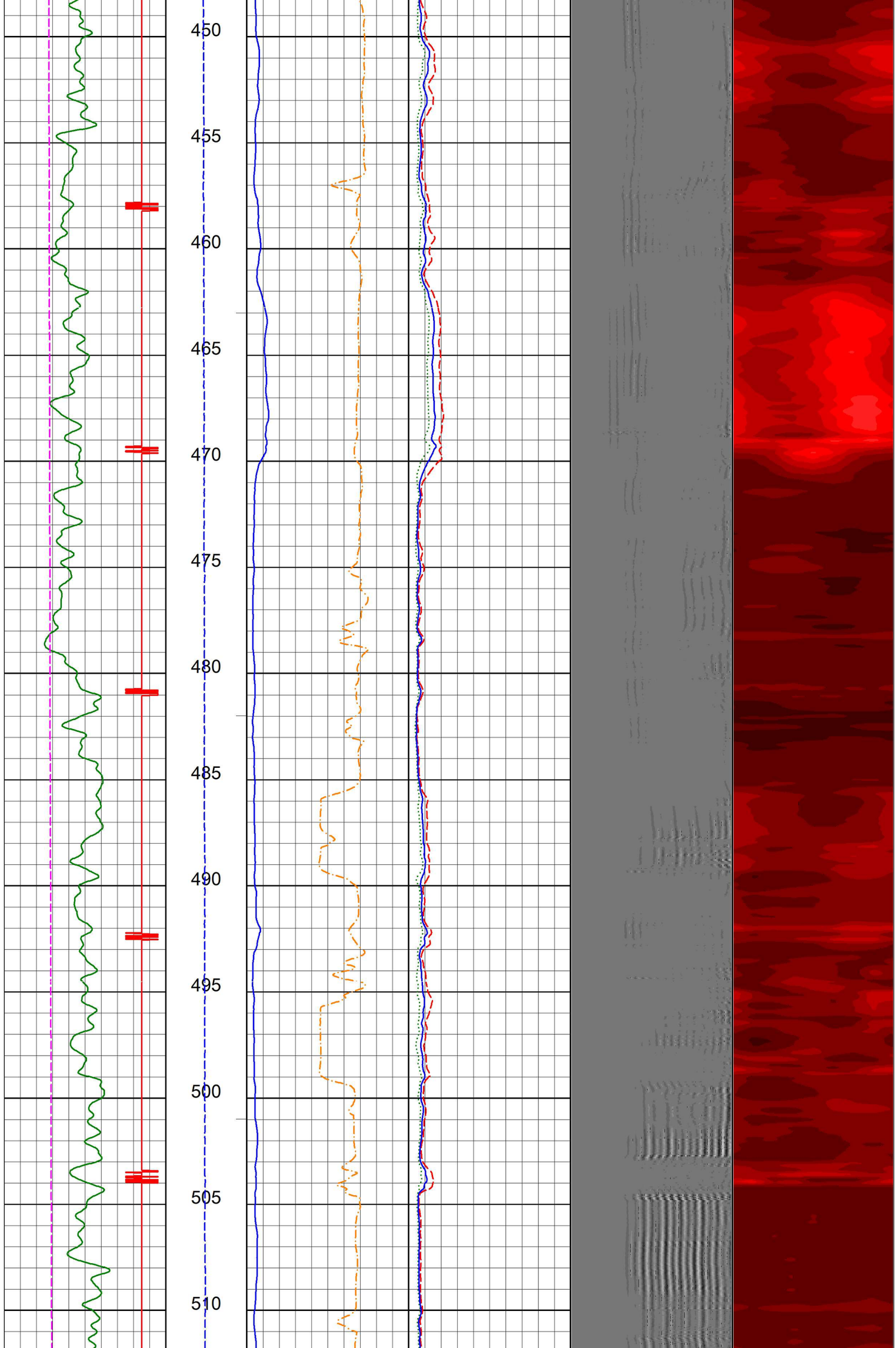
410
415
420
425
430
435
440
445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475
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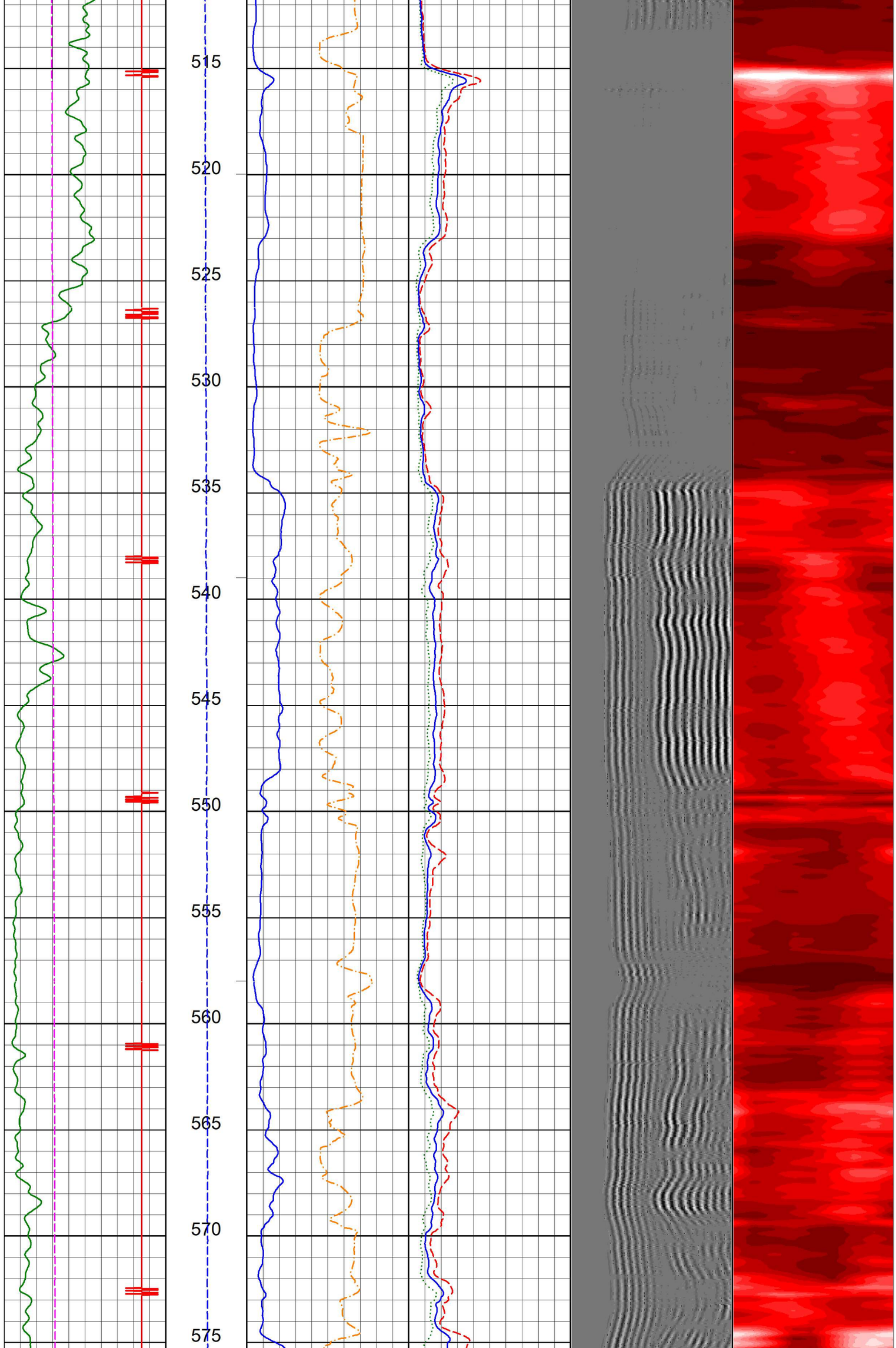
485
490
495
500
505
510


515
520
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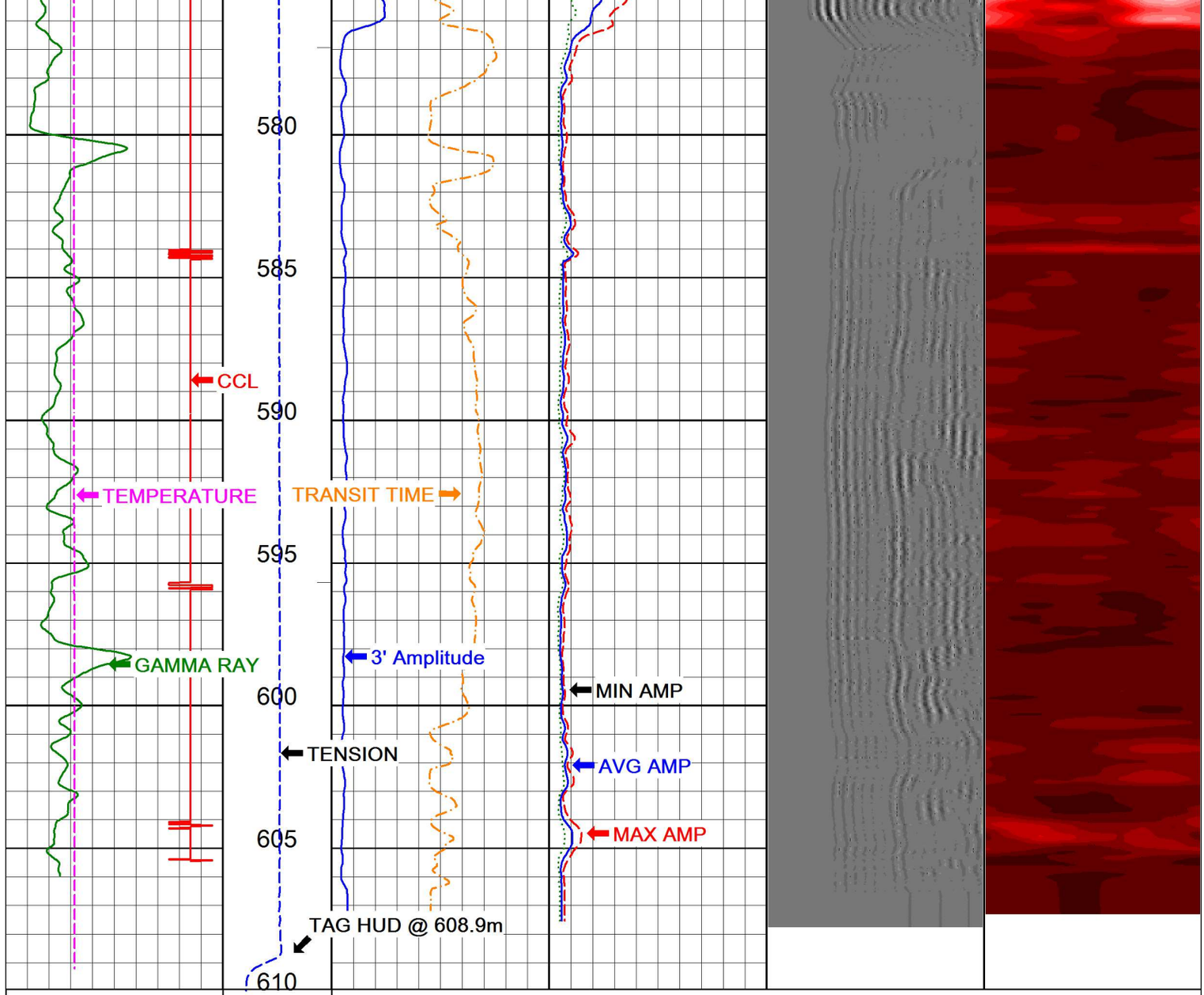
540
545
550
555
560
565
570
575



2016-02-22 10:39
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 4

609.9
Tension (lbF)
0 7(
METERS
1:200

3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File MAIN PASS.pre

VDL (µs)
200.00 1200.00

Cement Map (mV)
0.00 40.00

Rev. 2014.07.23

REPEAT PASS

2016-02-22 10:32
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 2

Tension (lbF)
0 700
METERS
1:200
553.0

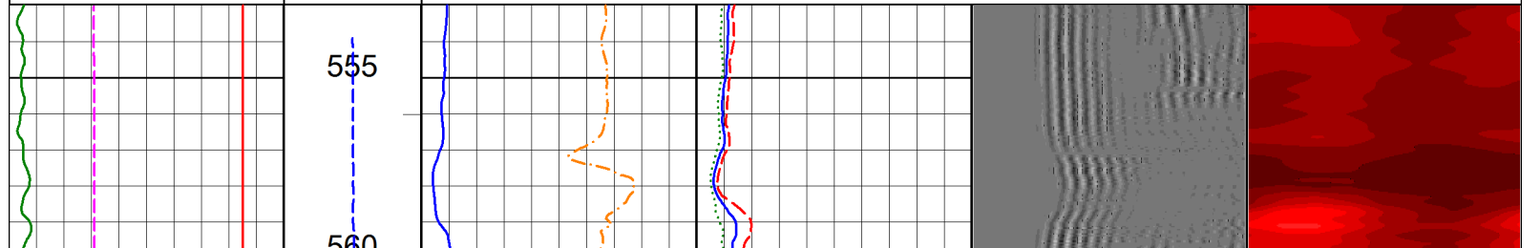
3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

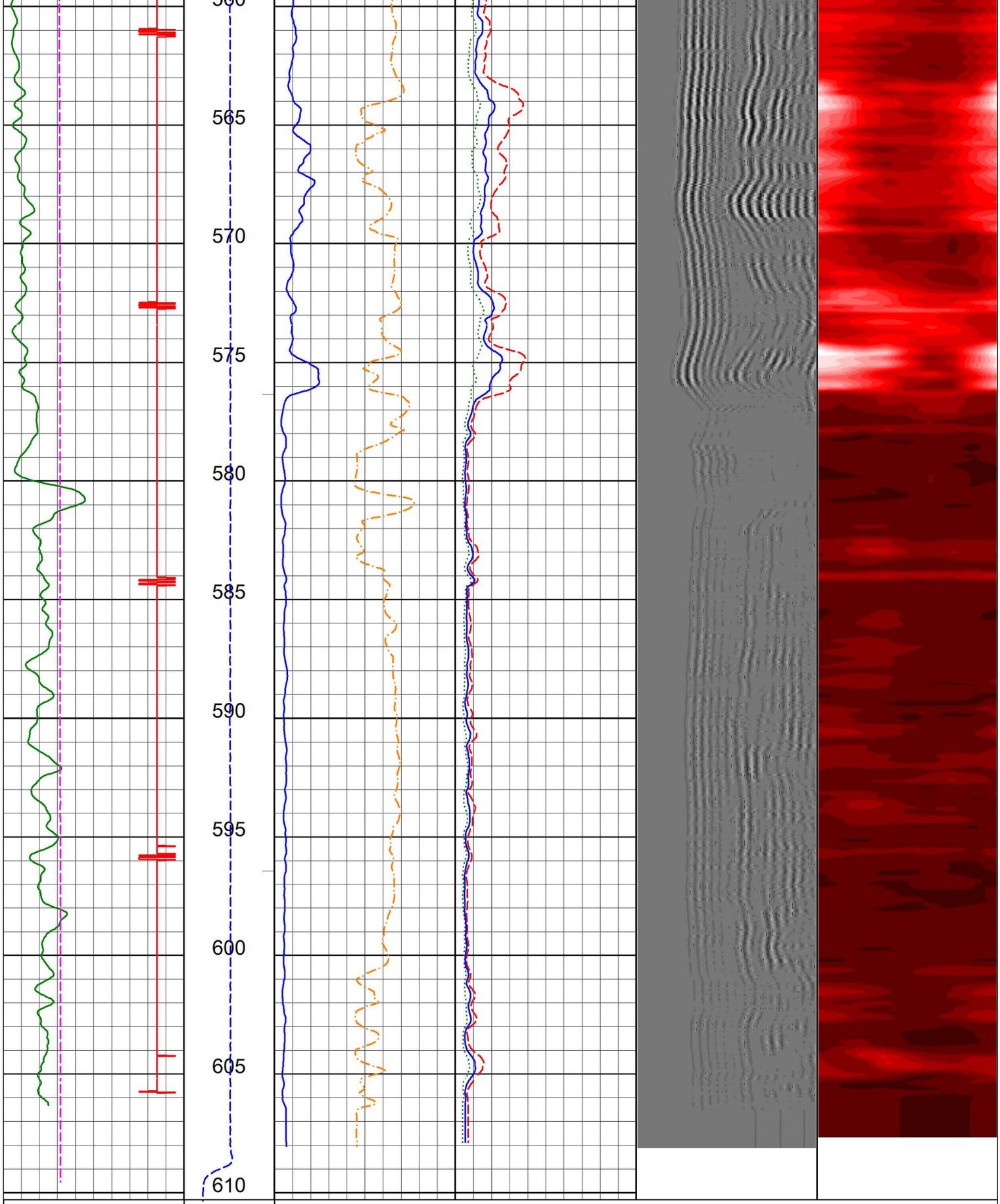
Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File REPEAT PASS OD.pre

VDL (µs)
200.00 1200.00

Cement Map (mV)
0.00 40.00

Rev. 2014.07.23





2016-02-22 10:32
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 2

610.3
Tension (lbF)
0 7(
METERS
1:200

3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File REPEAT PASS OD.pre

VDL (µs)
200.00 1200.00

Cement Map (mV)
0.00 40.00

Rev. 2014.07.23

Calibration Summary

Serial Number:DIGITAL RBT --- 4.000in --- Plumb Rd 1

Calibration Date: 2016-02-22

Waveforms	Free Pipe (mV)	Gain	Shift	Gate (us)	Width (us)	Polarity
Cal Pulse	100	1	0	242	95	Reversed
3 Foot	81	1.09093	3.2805	263	46	Normal
5 Foot	81	1.09531	3.26071	383	35	Normal
2 Foot	81	768.871	16.7627	200	50	Normal
Map1	81	0.563461	3.37417	204	40	Normal
Map2	81	0.546226	3.38375	206	39	Normal
Map3	81	0.562688	3.36347	206	39	Normal
Map4	81	0.574403	3.37923	206	39	Normal
Map5	81	0.544949	3.38251	206	39	Normal
Map6	81	0.523328	3.37937	206	39	Normal
Map7	81	0.501417	3.36633	206	39	Normal
Map8	81	0.519631	3.37956	206	39	Normal

KINETIC™

Company INGAUGE

Well PLUMB ROAD 1

Field

Area NARRABRI **Country** AUSTRALIA

Location

RADIAL CEMENT BOND LOG
FIELD COPY

KINETIC™

File No:	**Company**	INGAUGE	
	Well	PLUMB ROAD 2	
	Field		
	Area	NARRABRI	**Country** AUSTRALIA

Location	Other Services:

Permanent Datum	MSL	Elevation	0.0m	Elev K.B.	
Log Meas. From	KB	M. Above Datum		Elev G.L.	
Drilling Meas. From	KB			KB - GL	2.15m

Date	22 - FEB - 2017	Perforations					
Run No	2	Density	Shots	From	To		
Log Type	RBT						
PBTD Depth - Driller							
Bottom Of Logged Interval	375.8m						
Top Of Logged Interval	SURFACE						
Metres Logged	375.8m						
Fluid Type	BRINE						
Fluid Level	SURFACE						
Wellhead Pressure	0						
Max. Temp.	31.8DEG C						
Wireline Unit	WU - 17	Carrier Size	in	Carrier Type			
		Charge Size	gr	Charge Type			
Recorded By	D. PARRY	Phasing	in	Entry Hole	in		
Witnessed By	S. HOBDAY						

Casing Record	Size (in)	Weight (lb/ft)	Top	Bottom
	4.5"	11.6PPF		

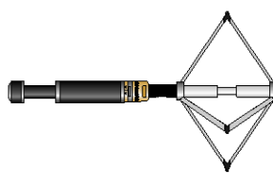
	Size (in)	Type	Model	Depth
Bridge Plug				
Re-Entry Guide				

CORRELATION LOG DEPTH CORRELATED TO KINETIC COMPOSITE PLOT DATED 18/2/17

Remarks: EXPECTED FREE PIPE AMPLITUDE IN 4.5" 11.6PPF CASING IS 81mV

DSS HSR-20, 2 3/4" RBT CBL TOOL STRING

-1.37 m Top of String



Max. Length: 6.06 m

Cable Head
Length: 0.40 m Max Diameter: 1.44 in

Centralizer
Length: 0.77 m Max Diameter: 11.38 in

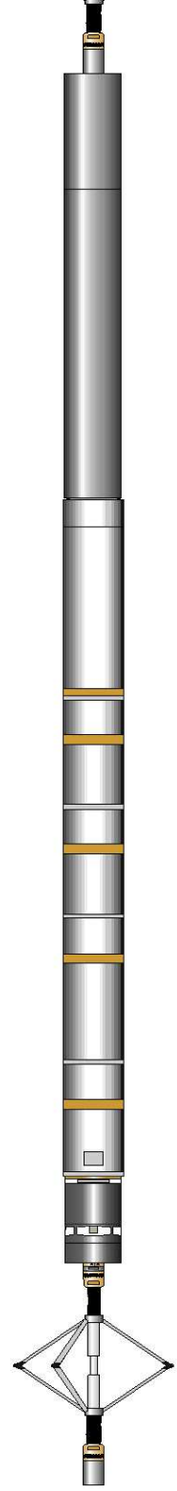
CCL
Length: 0.40 m Max Diameter: 2.75 in

Gamma Ray
Length: 1.07 m Max Diameter: 2.75 in

DSS RIB CBL
Length: 2.35 m Max Diameter: 2.75 in

Temperature Probe
Length: 0.30 m Max Diameter: 2.75 in

Roller Centralizer
Length: 0.77 m Max Diameter: 11.38 in



0.00 m - CCL
0.29 m - Gamma Ray
1.40 m - Transmitter
1.86 m - 2 ft measure point
2.02 m - 3 ft. measure point
2.33 m - 5 ft. measure point
3.57 m - Temperature Probe
4.69 m Bottom of String

MAIN PASS

2016-02-23 06:40
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 4

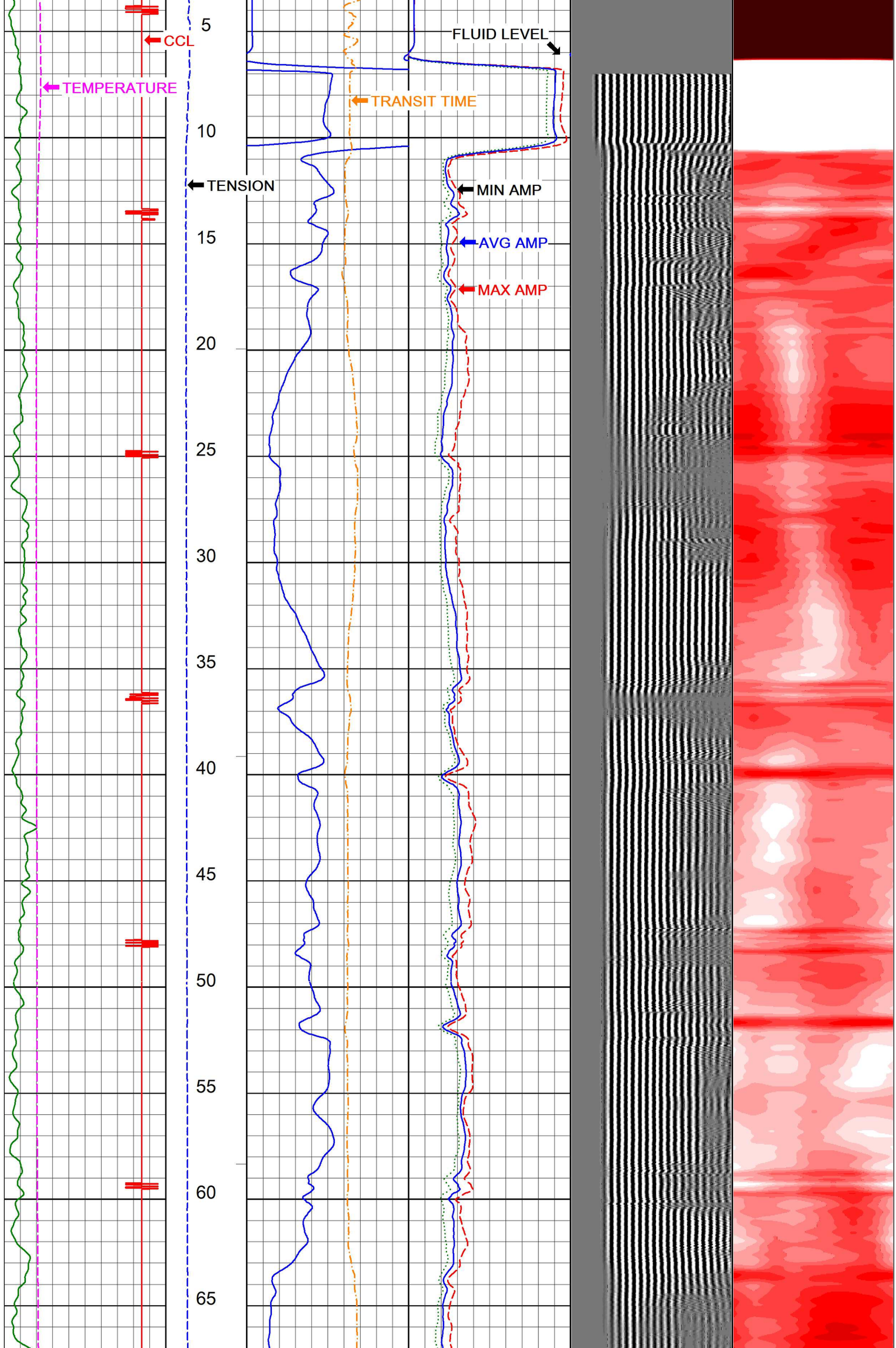
Tension (lbF)
0 800
METERS
1:200
-2.4

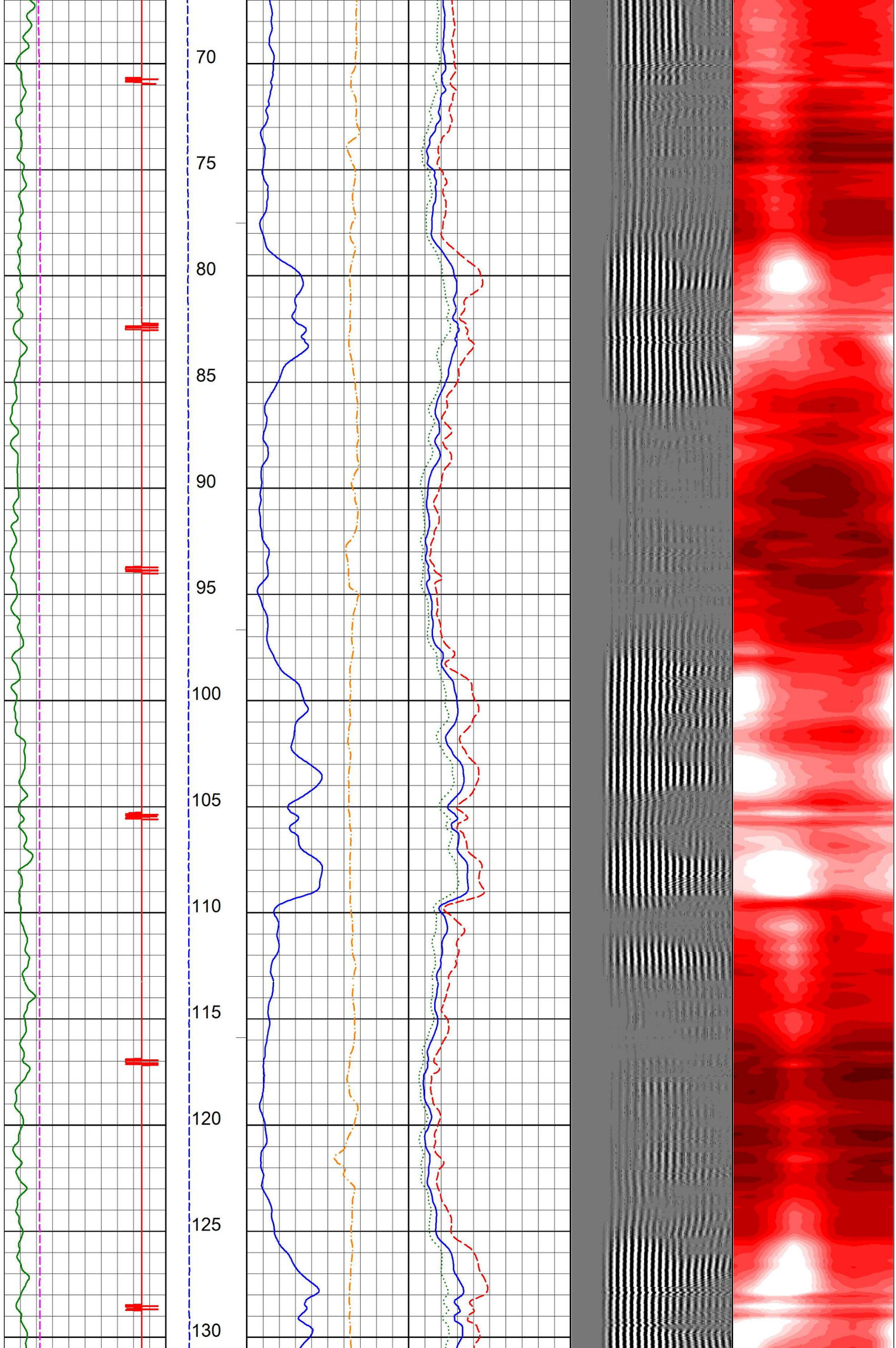
3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

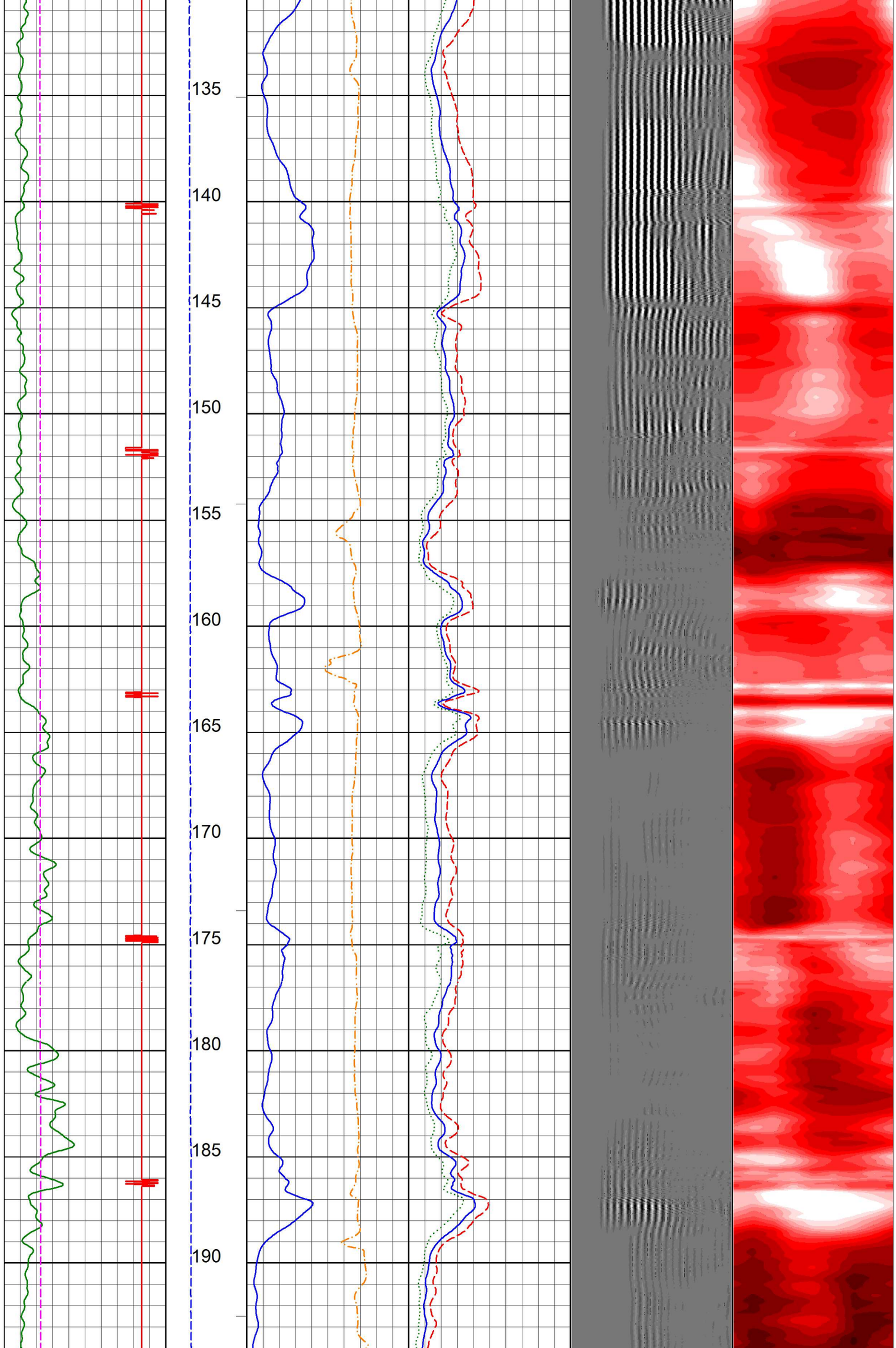
Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File MAIN PASS.pre

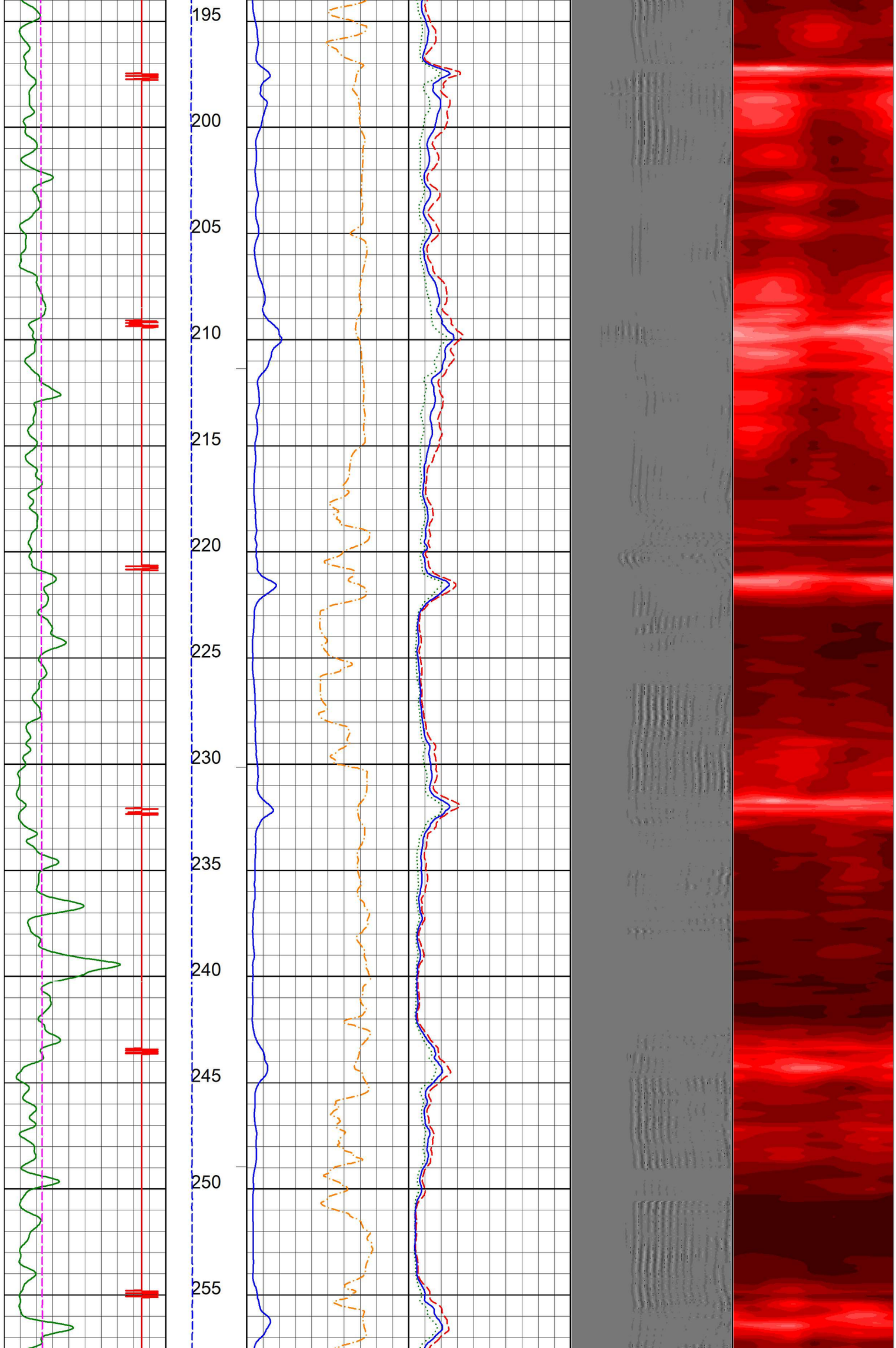
VDL (µs)
200.00 1200.00
Cement Map (mV)
0.00 40.00

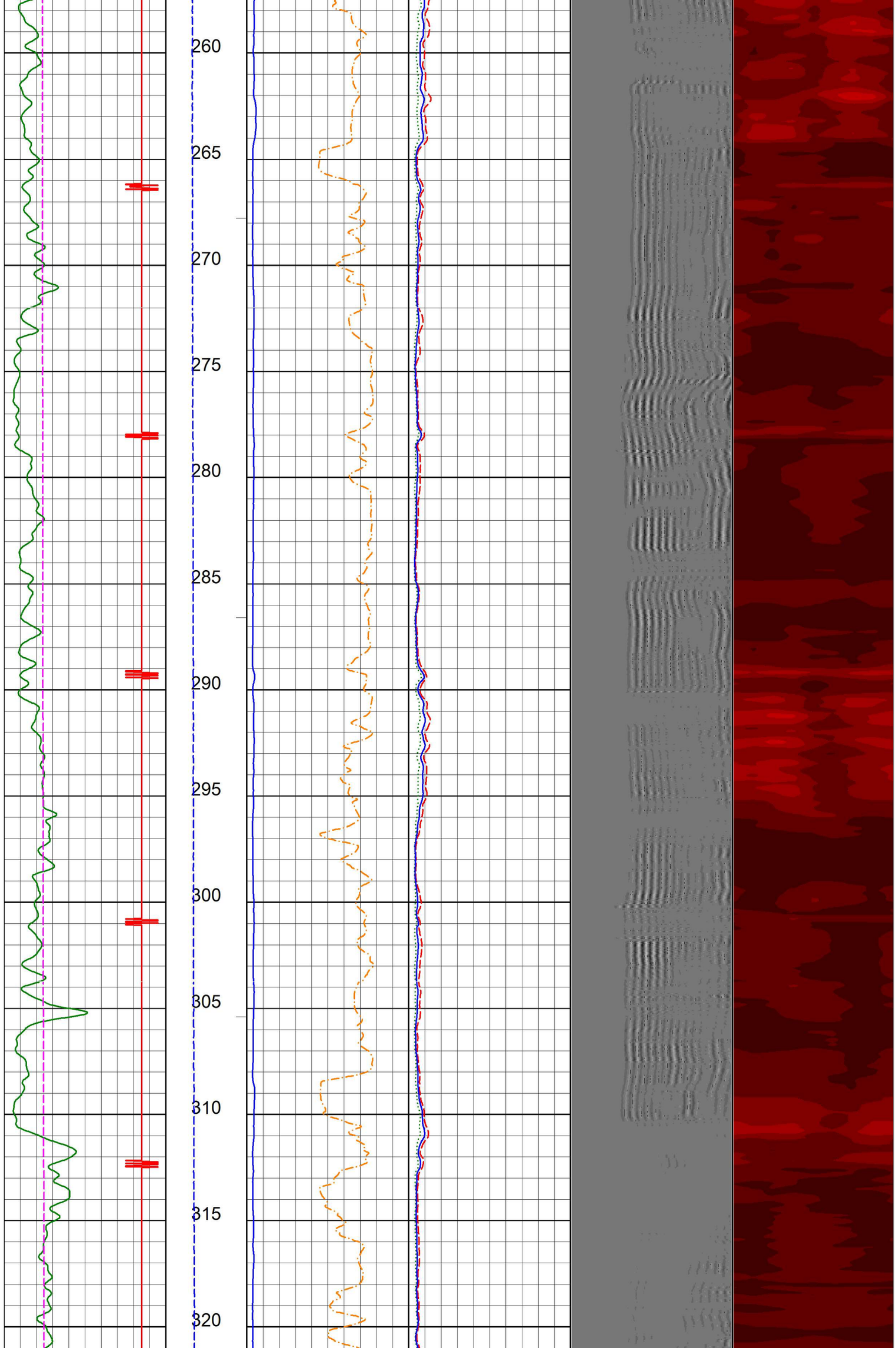
Rev. 2014.07.23

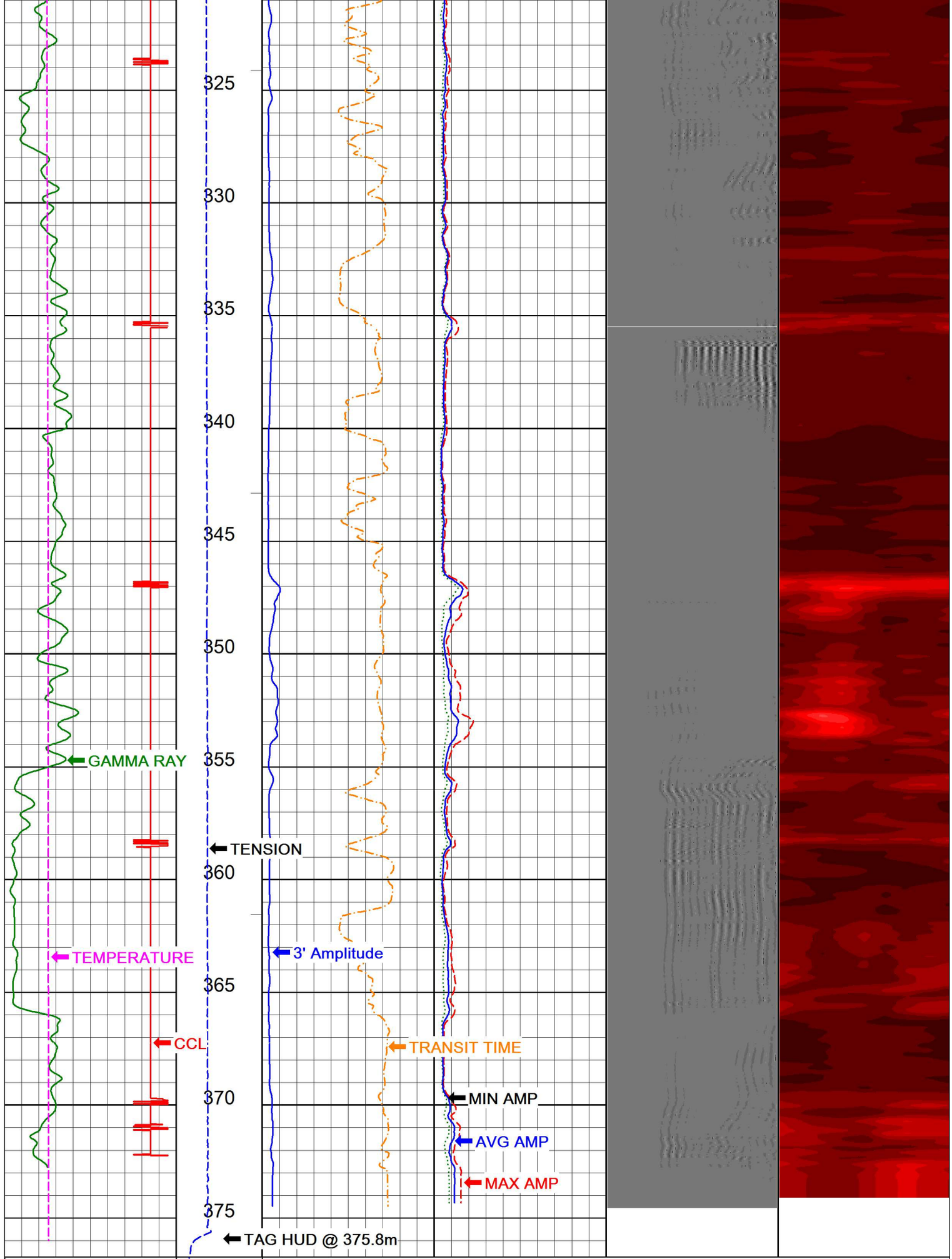

CCL
TEMPERATURE
TENSION
FLUID LEVEL
TRANSIT TIME
MIN AMP
AVG AMP
MAX AMP
5
10
15
20
25
30
35
40
45
50
55
60
65


70
75
80
85
90
95
100
105
110
115
120
125
130


135
140
145
150
155
160
165
170
175
180
185
190


195
200
205
210
215
220
225
230
235
240
245
250
255


260
265
270
275
280
285
290
295
300
305
310
315
320



2016-02-23 06:40
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 4

376.7
Tension (lbF)
0 8(
METERS
1:200

3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File MAIN PASS.pre

VDL (µs)
200.00 1200.00

Cement Map (mV)
0.00 40.00

Rev. 2014.07.23

REPEAT PASS

2016-02-23 06:33
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 2

Tension (lbF)
0 700
METERS
1:200
320.0

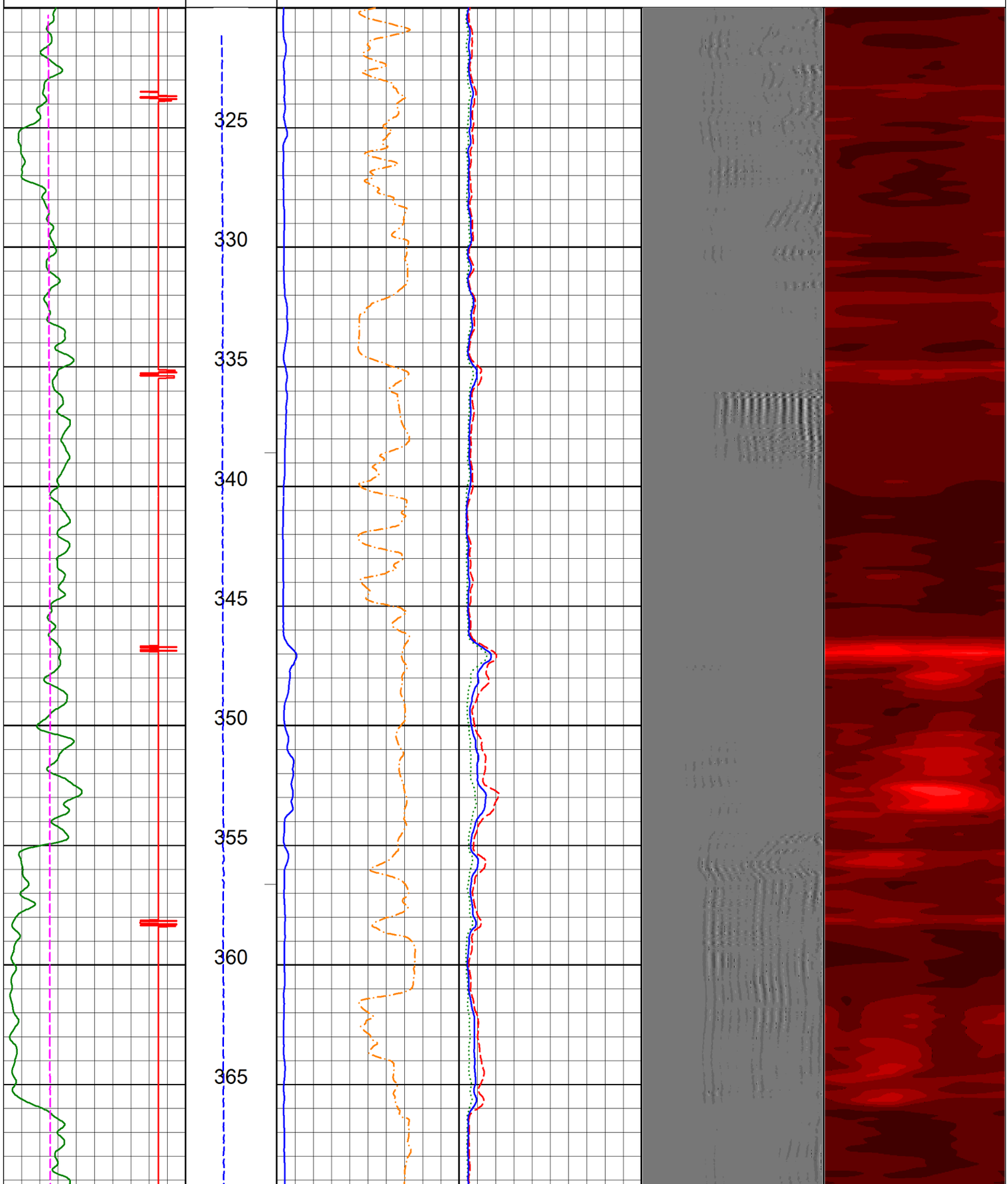
3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

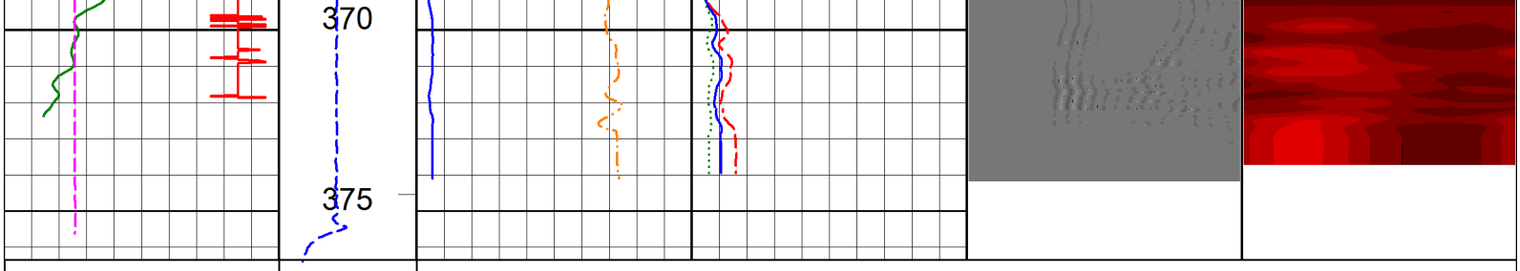
Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File REPEAT.pre

VDL (µs)
200.00 1200.00

Cement Map (mV)
0.00 40.00

Rev. 2014.07.23





2016-02-23 06:33

CCL
0.00 100.00

Gamma Ray
0.00 200.00

Temperature (°C)
0.00 100.00

Pass No. 2

376.4
Tension (lbF)
0 7(

METERS
1:200

3 Foot Amplitude (mV)
0.00 100.00

3 Foot Fixed Gate Transit Time (µs
400.00 200.00

Min Map Amplitude (mV)
0.00 100.00

Max Map Amplitude (mV)
0.00 100.00

Average Amplitude (mV)
0.00 100.00

VDL (µs)
200.00 1200.00

Cement Map (mV)
0.00 40.00

Logging Up
Shutin

File REPEAT.pre

Rev. 2014.07.23

Calibration Summary

Serial Number:DIGITAL RBT --- 4.000in --- Plumb Rd 2

Calibration Date: 2016-02-23

Waveforms	Free Pipe (mV)	Gain	Shift	Gate (us)	Width (us)	Polarity
Cal Pulse	100	1	0	242	95	Reversed
3 Foot	81	1.09093	3.2805	263	46	Normal
5 Foot	81	1.09531	3.26071	383	35	Normal
2 Foot	81	768.871	16.7627	200	50	Normal
Map1	81	0.563461	3.37417	204	40	Normal
Map2	81	0.546226	3.38375	206	39	Normal
Map3	81	0.562688	3.36347	206	39	Normal
Map4	81	0.574403	3.37923	206	39	Normal
Map5	81	0.544949	3.38251	206	39	Normal
Map6	81	0.523328	3.37937	206	39	Normal
Map7	81	0.501417	3.36633	206	39	Normal
Map8	81	0.519631	3.37956	206	39	Normal

KINETIC™

Company INGAUGE

Well PLUMB ROAD 2

Field

Area NARRABRI **Country** AUSTRALIA

Location

RADIAL CEMENT BOND LOG
FIELD COPY

KINETIC™

File No:	**Company**	INGAUGE	
	Well	PLUMB ROAD 3	
	Field		
	Area	NARRABRI	**Country** AUSTRALIA

Location	Other Services:

Permanent Datum	MSL	Elevation	0.0m	Elev K.B.	
Log Meas. From	KB	M. Above Datum		Elev G.L.	
Drilling Meas. From	KB			KB - GL	2.15m

Date	23 - FEB - 2017			Perforations			
Run No	2			Density	Shots	From	To
Log Type	RBT						
PBTD Depth - Driller							
Bottom Of Logged Interval	316.3m						
Top Of Logged Interval	SURFACE						
Metres Logged	316.3m						
Fluid Type	BRINE						
Fluid Level	SURFACE						
Wellhead Pressure	0						
Max. Temp.	25.4DEG C						
Wireline Unit	WU - 17	Carrier Size	in	Carrier Type			
		Charge Size	gr	Charge Type			
Recorded By	D. PARRY	Phasing	in	Entry Hole	in		
Witnessed By	S. HOBDAY						

Casing Record	Size (in)	Weight (lb/ft)	Top	Bottom
	4.5"	11.6PPF		

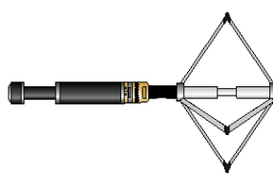
	Size (in)	Type	Model	Depth
Bridge Plug				
Re-Entry Guide				

CORRELATION LOG DEPTH CORRELATED TO KINETIC COMPOSITE PLOT DATED 21/2/17

Remarks: EXPECTED FREE PIPE AMPLITUDE IN 4.5" 11.6PPF CASING IS 81mV

DSS HSR-20, 2 3/4" RBT CBL TOOL STRING

-1.37 m Top of String



Max. Length: 6.06 m

Cable Head
Length: 0.40 m Max Diameter: 1.44 in

Centralizer
Length: 0.77 m Max Diameter: 11.38 in

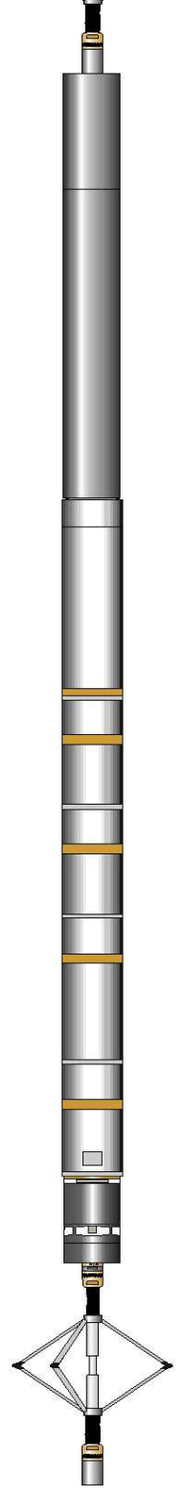
CCL
Length: 0.40 m Max Diameter: 2.75 in

Gamma Ray
Length: 1.07 m Max Diameter: 2.75 in

DSS RIB CBL
Length: 2.35 m Max Diameter: 2.75 in

Temperature Probe
Length: 0.30 m Max Diameter: 2.75 in

Roller Centralizer
Length: 0.77 m Max Diameter: 11.38 in



0.00 m - CCL
0.29 m - Gamma Ray
1.40 m - Transmitter
1.86 m - 2 ft measure point
2.02 m - 3 ft. measure point
2.33 m - 5 ft. measure point
3.57 m - Temperature Probe
4.69 m Bottom of String

MAIN PASS

2016-02-23 11:44
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 4

Tension (lbF)
0 600
METERS
1:200
-3.8

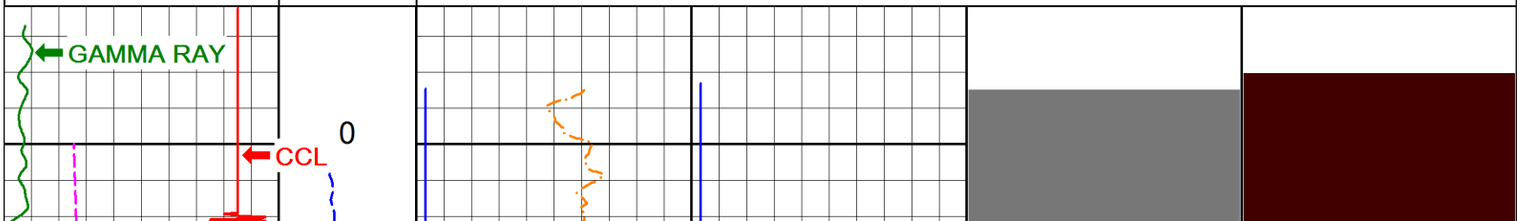
3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Logging Up
Shutin

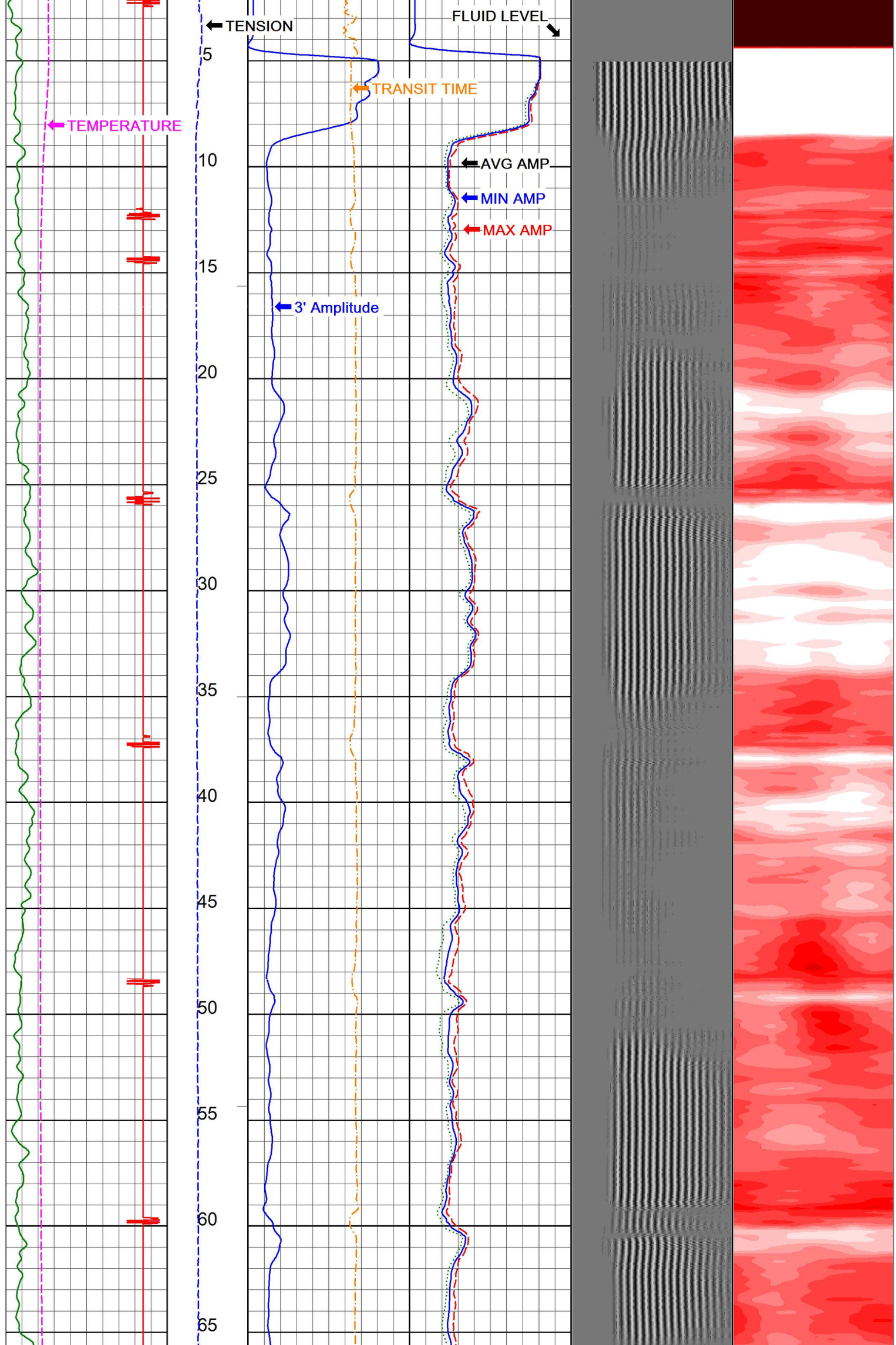
Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
File MAIN PASS.pre

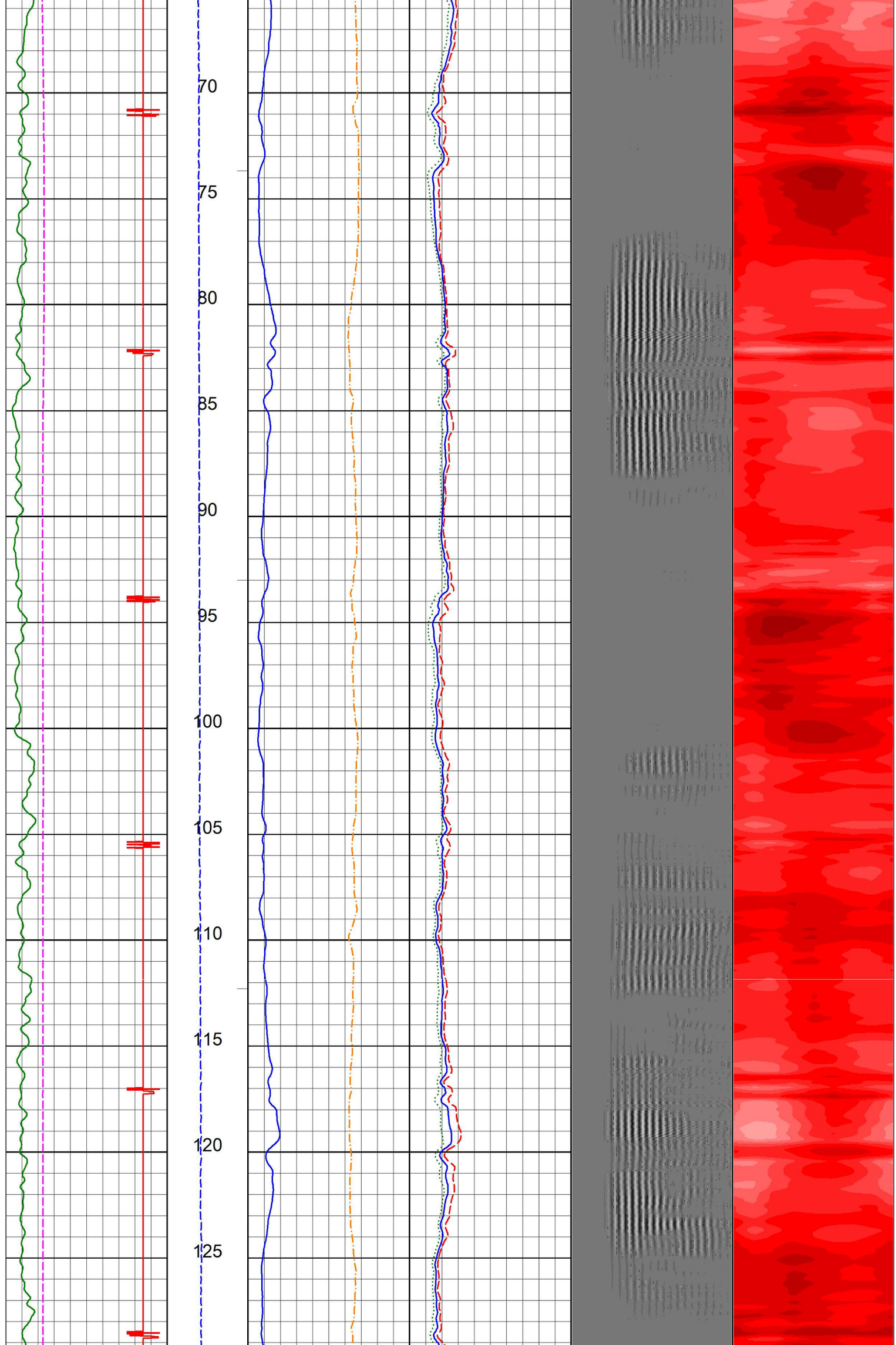
VDL (µs)
200.00 1200.00

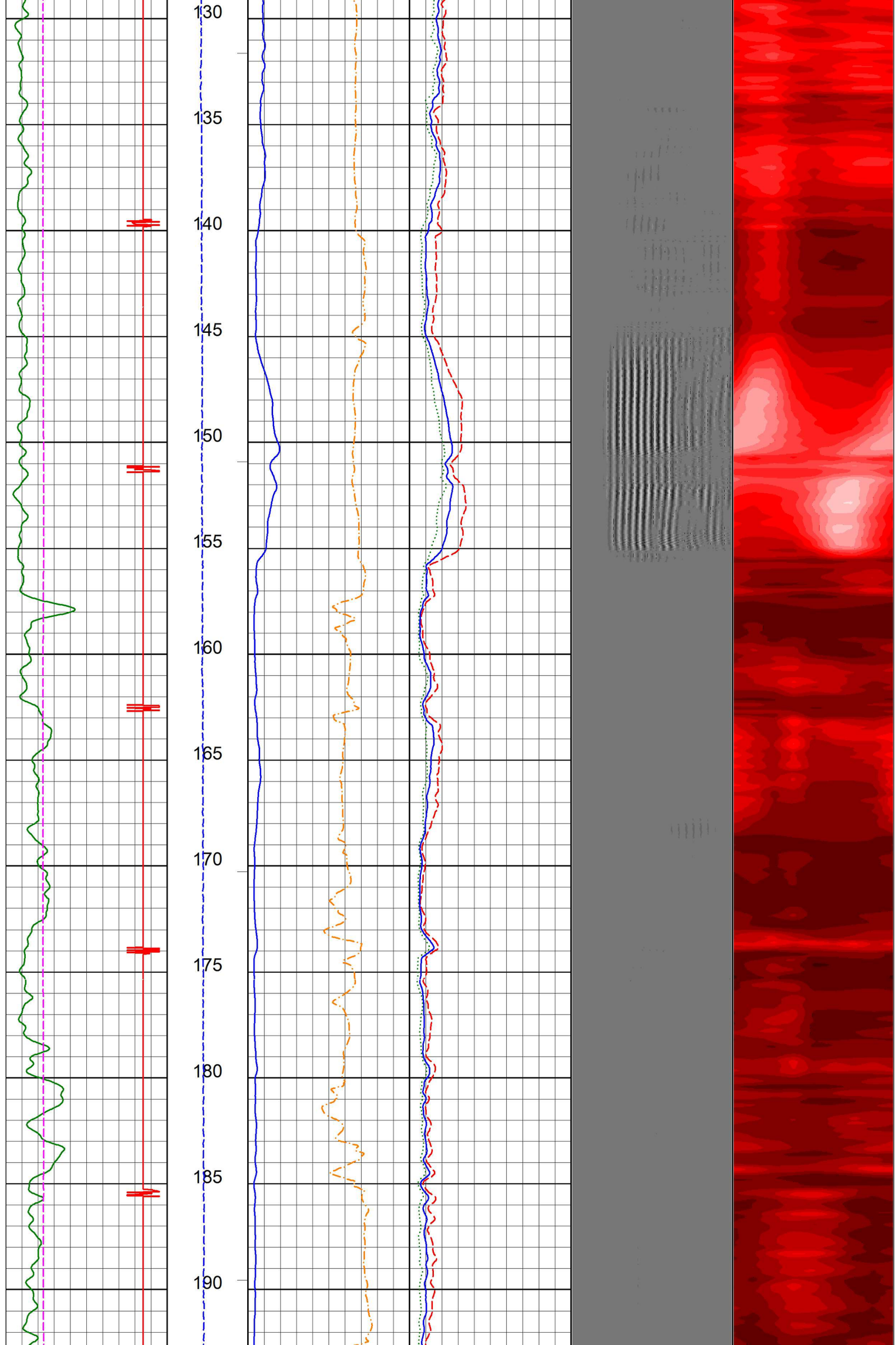
Cement Map (mV)
0.00 40.00

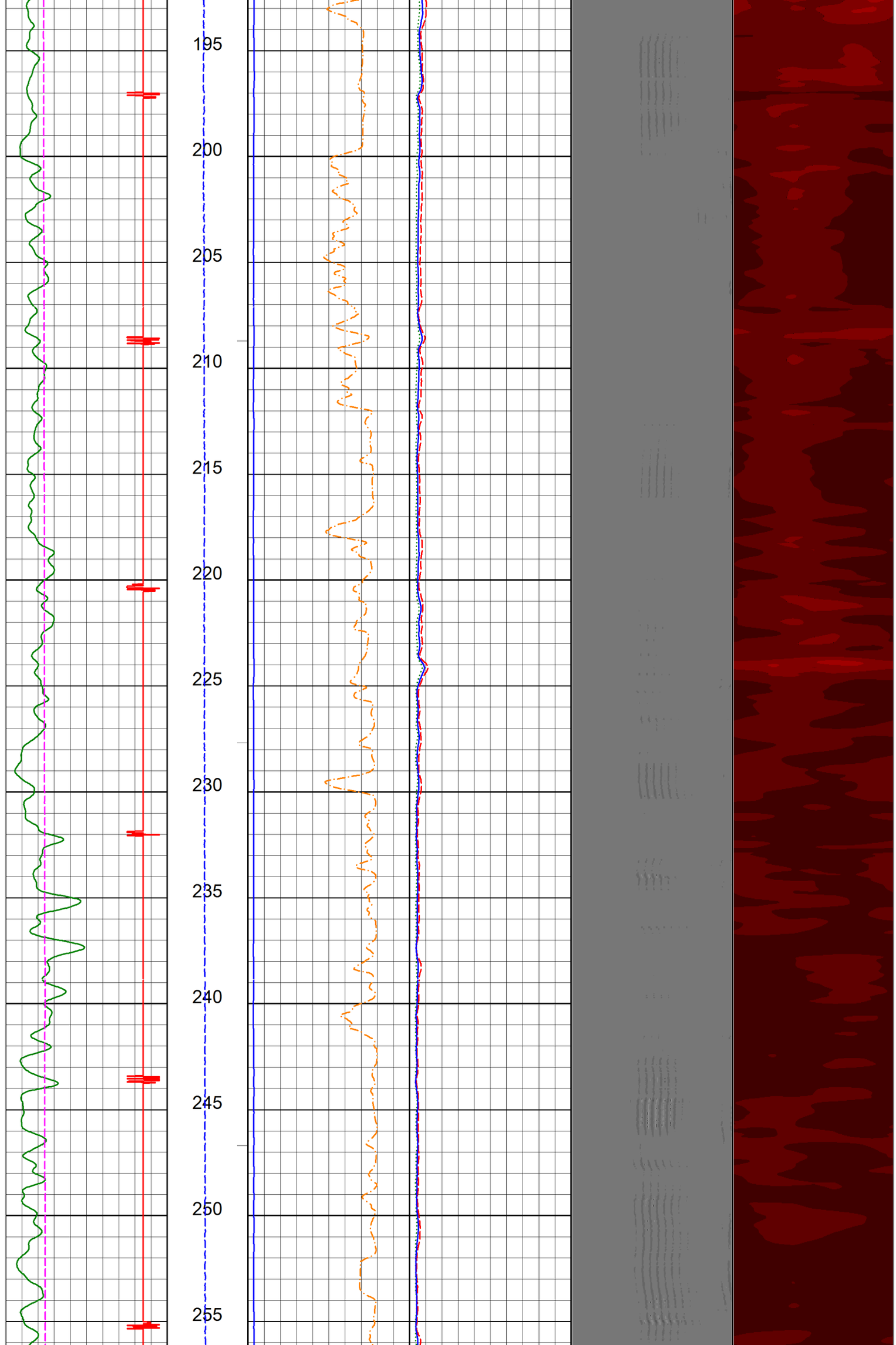
Rev. 2014.07.23

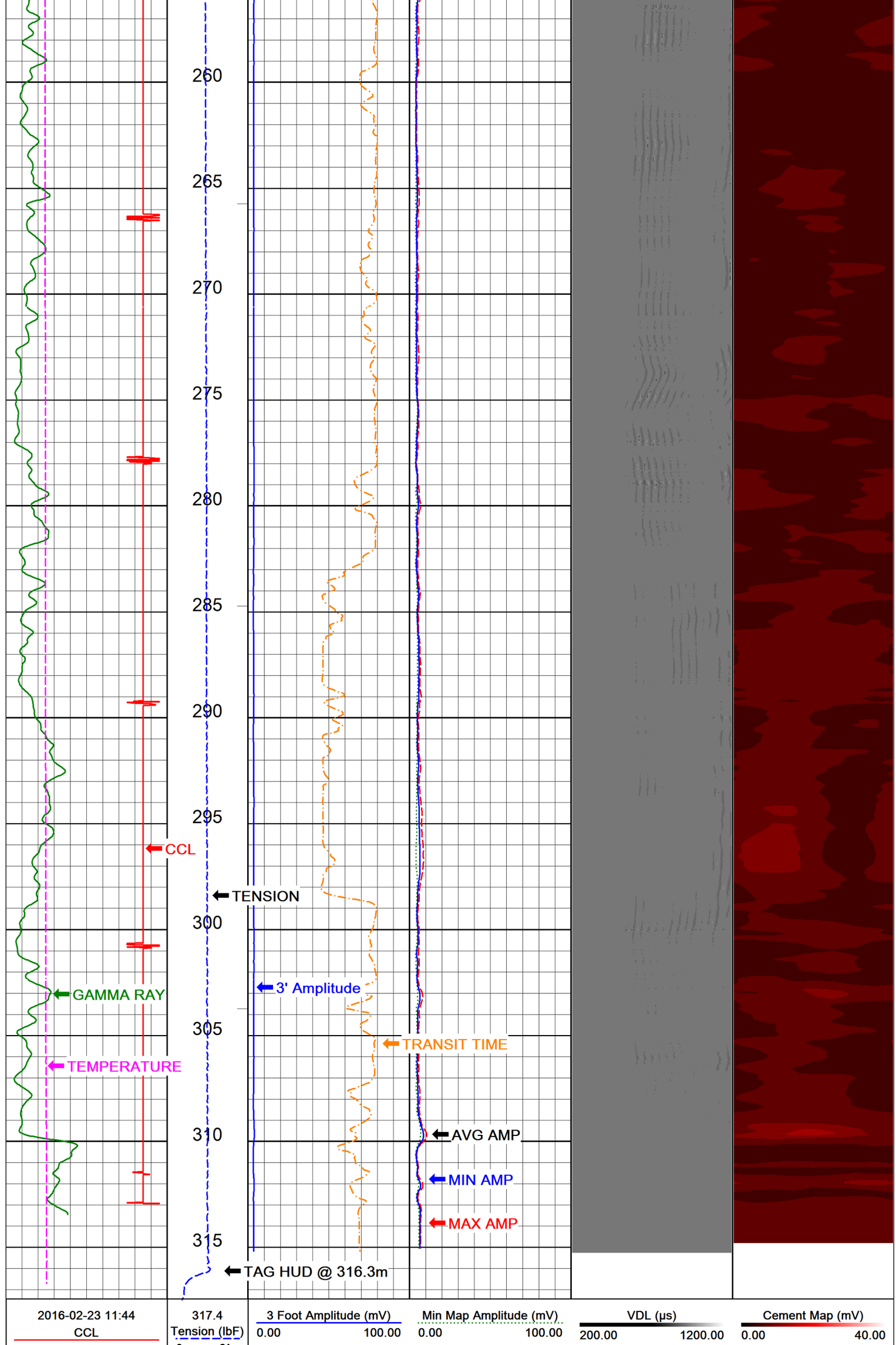



TENSION
FLUID LEVEL
TRANSIT TIME
TEMPERATURE
AVG AMP
MIN AMP
MAX AMP
3' Amplitude
5
10
15
20
25
30
35
40
45
50
55
60
65


70
75
80
85
90
95
100
105
110
115
120
125


130
135
140
145
150
155
160
165
170
175
180
185
190


195
200
205
210
215
220
225
230
235
240
245
250
255


260
265
270
275
280
285
290
295
300
305
310
315
CCL
TENSION
GAMMA RAY
3' Amplitude
TRANSIT TIME
TEMPERATURE
AVG AMP
MIN AMP
MAX AMP
TAG HUD @ 316.3m
2016-02-23 11:44
CCL
317.4
Tension (lbF)
3 Foot Amplitude (mV)
0.00
100.00
Min Map Amplitude (mV)
0.00
100.00
VDL (µs)
200.00
1200.00
Cement Map (mV)
0.00
40.00

0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 4

0 6(
METERS
1:200

3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
Logging Up
Shutin
File MAIN PASS.pre
Rev. 2014.07.23

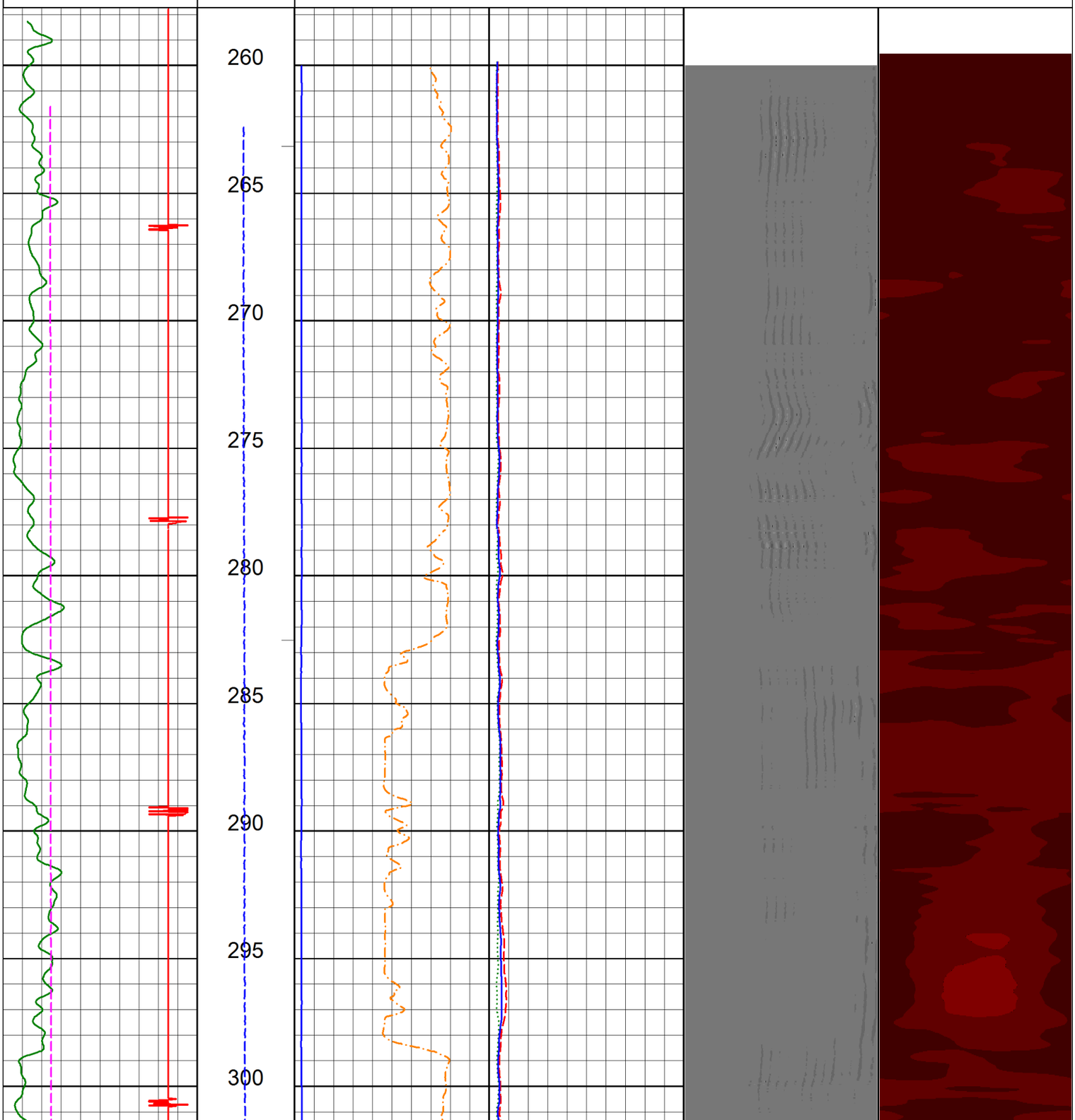
REPEAT PASS

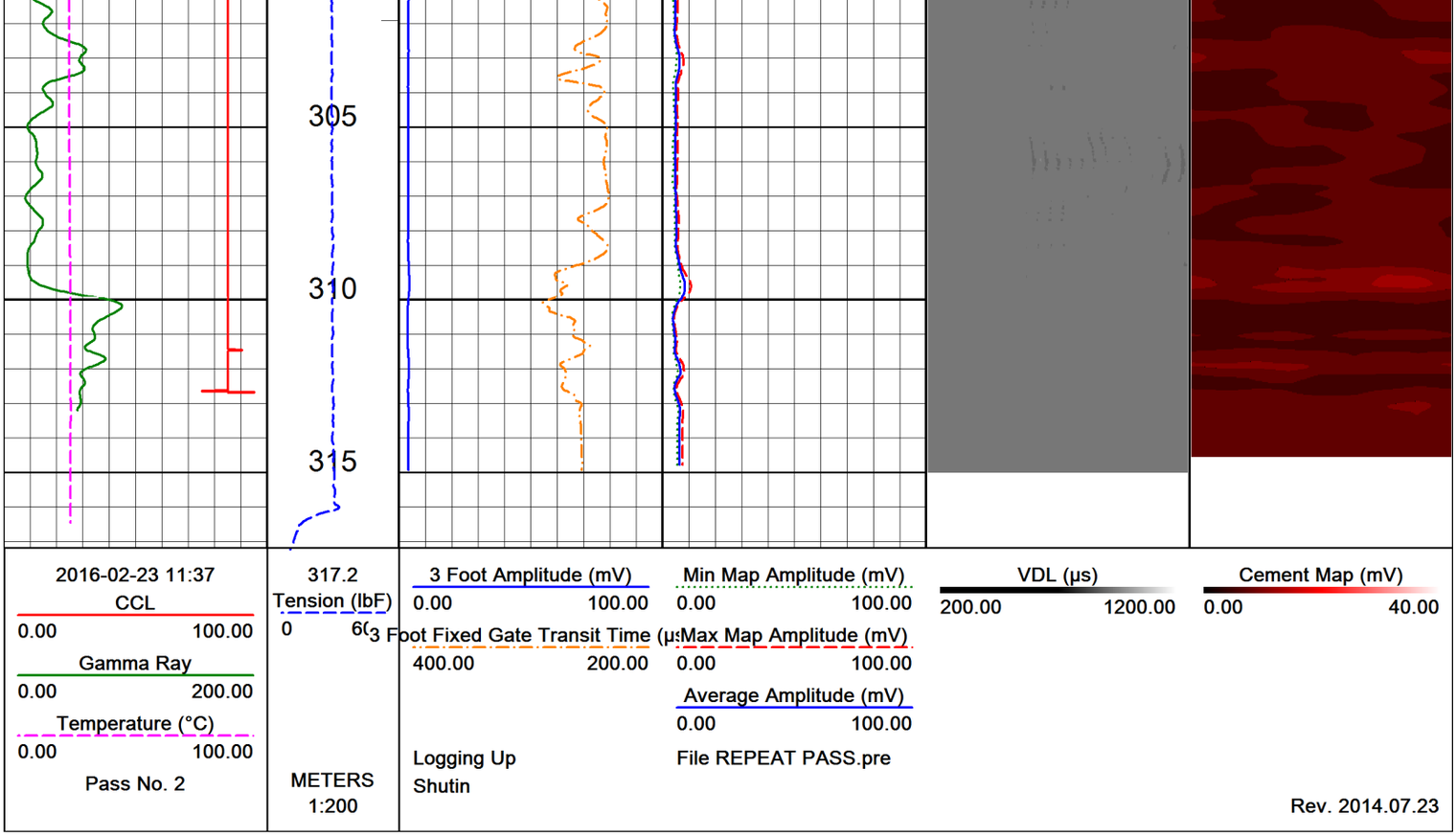
2016-02-23 11:37
CCL
0.00 100.00
Gamma Ray
0.00 200.00
Temperature (°C)
0.00 100.00
Pass No. 2

Tension (lbF)
0 600
METERS
1:200
257.8

3 Foot Amplitude (mV)
0.00 100.00
3 Foot Fixed Gate Transit Time (µs
400.00 200.00
Min Map Amplitude (mV)
0.00 100.00
Max Map Amplitude (mV)
0.00 100.00
Average Amplitude (mV)
0.00 100.00
Logging Up
Shutin
File REPEAT PASS.pre
Rev. 2014.07.23

VDL (µs)
200.00 1200.00
Cement Map (mV)
0.00 40.00





Calibration Summary

Serial Number:DIGITAL RBT --- 4.000in --- Plumb Rd 3

Calibration Date: 2016-02-23

Waveforms	Free Pipe (mV)	Gain	Shift	Gate (us)	Width (us)	Polarity
Cal Pulse	100	1	0	242	95	Reversed
3 Foot	81	0.460614	3.25333	261	46	Normal
5 Foot	81	0.417005	3.22755	376	35	Normal
2 Foot	81	631.858	30.5549	200	50	Normal
Map1	81	0.430394	3.26665	201	40	Normal
Map2	81	0.42825	3.35097	204	39	Normal
Map3	81	0.425832	3.33071	204	39	Normal
Map4	81	0.422613	3.33714	204	40	Normal
Map5	81	0.423522	3.32787	203	39	Normal
Map6	81	0.424771	3.35524	204	39	Normal
Map7	81	0.42594	3.31447	203	39	Normal
Map8	81	0.428104	3.33524	204	39	Normal

KINETIC™

Company INGAUGE

Well PLUMB ROAD 3

Field

Area NARRABRI **Country** AUSTRALIA

Location

Appendix 12 – Deviation Survey

VERTICALITY ANALYSIS

PLUMB-ROAD-1

COMPANY	INGAUGE	**FIELD**	NARRABRI	**STATE**	NSW
WELL	PLUMB-ROAD-1	**LOCATION**	PLUMB-ROAD-1	**COUNTRY**	

LOCATION: PLUMB-ROAD-1
FIELD: NARRABRI
STATE: NSW
WELL: PLUMB-ROAD-1
COMPANY: INGAUGE

PERMANENT DATUM
PERMANENT DATUM ELEVATION
LOG MEASURED FROM RT
DRILLING MEASURED FROM RT

ELEVATIONS:
KB
DF
GL

REMARKS:
1. CS137
2. CZ3956

LICENSE	SECTION	TOWNSHIP	RANGE

OTHER SERVICES:
1. 2.
3.

DATE	02/13/17			RECORDED BY	DMB		
TIME	12:27:			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V035		
DEPTH-DRILLER	642			RIG NUMBER			
DEPTH-LOGGER	636.70			TOOL TYPE			
BIT SIZE	15.5			TOOL SERIAL NO.			
CASING TYPE	STEEL			LATITUDE			
CASING OD	17.01			LONGITUDE			
CASING BOTTOM	156.02			SAMPLE INT.	.01		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09792			FEET OR METER	M		
WATER LEVEL				SOURCE TYPE		SOURCE ID	

IMPORTANT NOTE

The following interpretations are opinions based upon inferences from borehole logs, Kinetic Logging Services Pty Ltd cannot and does not guarantee the correctness or accuracy of any interpretations. Therefore Kinetic Logging Services Pty Ltd shall not be liable or responsible for any loss, damage, cost or expense incurred or sustained by anyone resulting from any interpretations.

DEVIATION LIST

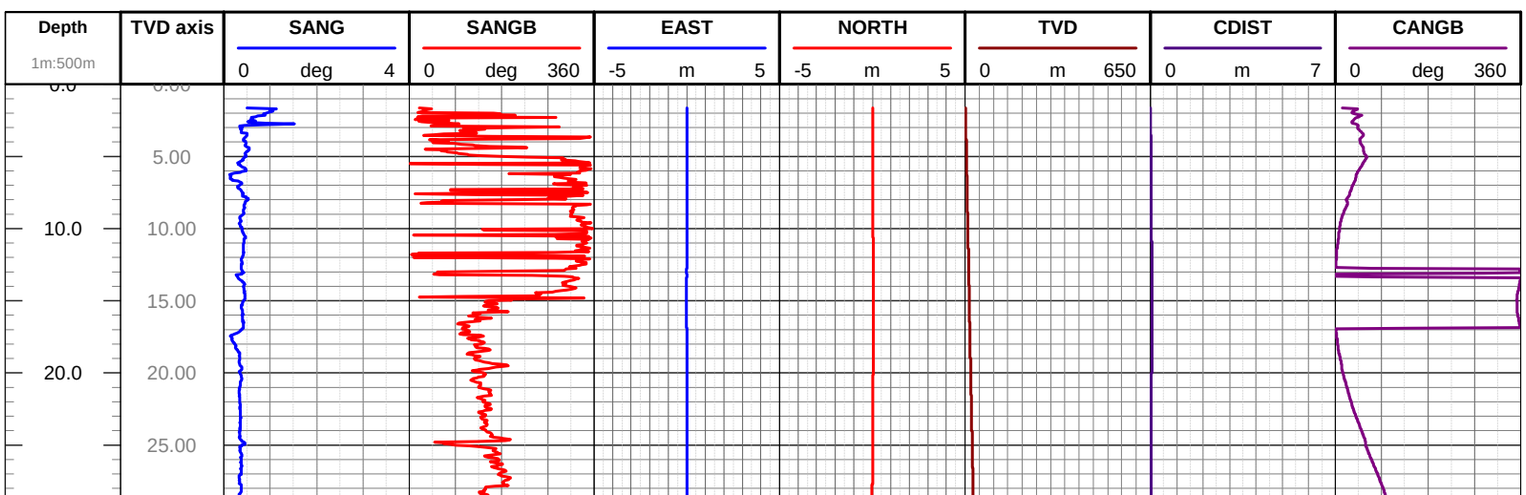
MNEMONIC DESCRIPTORS

SANGB	SAMPLE ANGLE BEARING	**NORTH**	BOREHOLE NORTH DEVIATION
SANG	SAMPLE SLANT ANGLE (0 DEG = VERTICAL DOWN)	**CDIST**	DEVIATED CLOSURE DISTANCE
TVD	TRUE VERTICAL DEPTH	**CANGB**	DEVIATED CLOSURE ANGLE BEARING
EAST	BOREHOLE EAST DEVIATION		

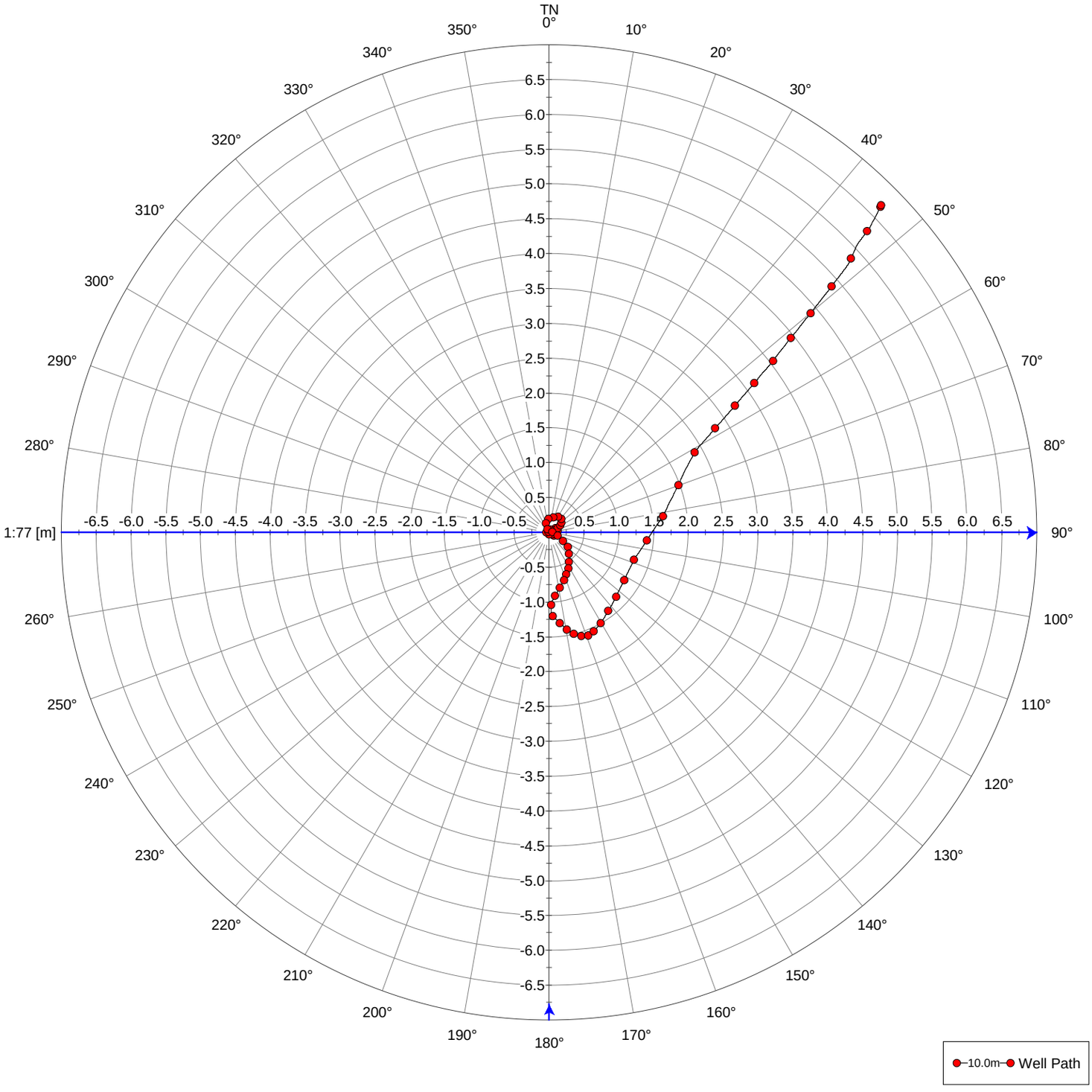
ALL CO-ORDINATES ARE PRESENTED ORIENTED TO TRUE NORTH MAGNETIC DECLINATION **10.83**

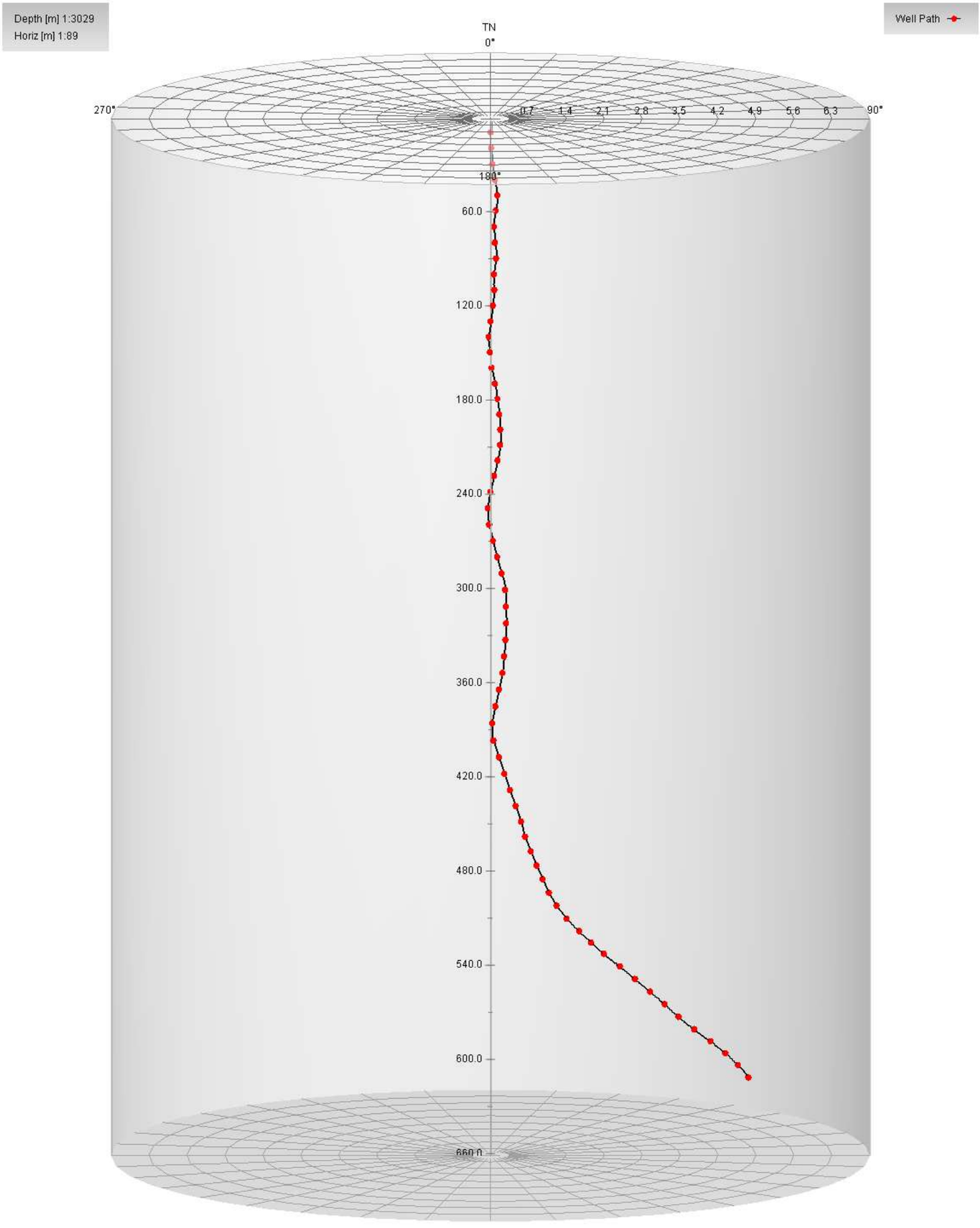
Depth	CANGB	CDIST	EAST	NORTH	SANG	SANGB	TVD
m	deg	m	m	m	deg	deg	m
0.00	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25
10.00	8.38353	0.0348836	0.00508598	0.0345108	0.381883	357.852	9.9997
20.00	14.8623	0.0410373	0.0105259	0.0396644	0.339853	150.434	19.9995
30.00	104.785	0.0371553	0.0359252	-0.00948163	0.34429	158.56	29.9993
40.00	101.305	0.0811038	0.0795301	-0.0158996	0.345343	85.0299	39.9991
50.00	79.7073	0.125601	0.123579	0.0224419	0.379025	29.6194	49.9989
60.00	56.4524	0.110601	0.0921775	0.0611211	0.3745	259.8	59.9987
70.00	69.9006	0.0648986	0.0609461	0.0223024	0.319405	160.45	69.9985
80.00	99.0937	0.0803483	0.0793384	-0.012699	0.329055	102.612	79.9983

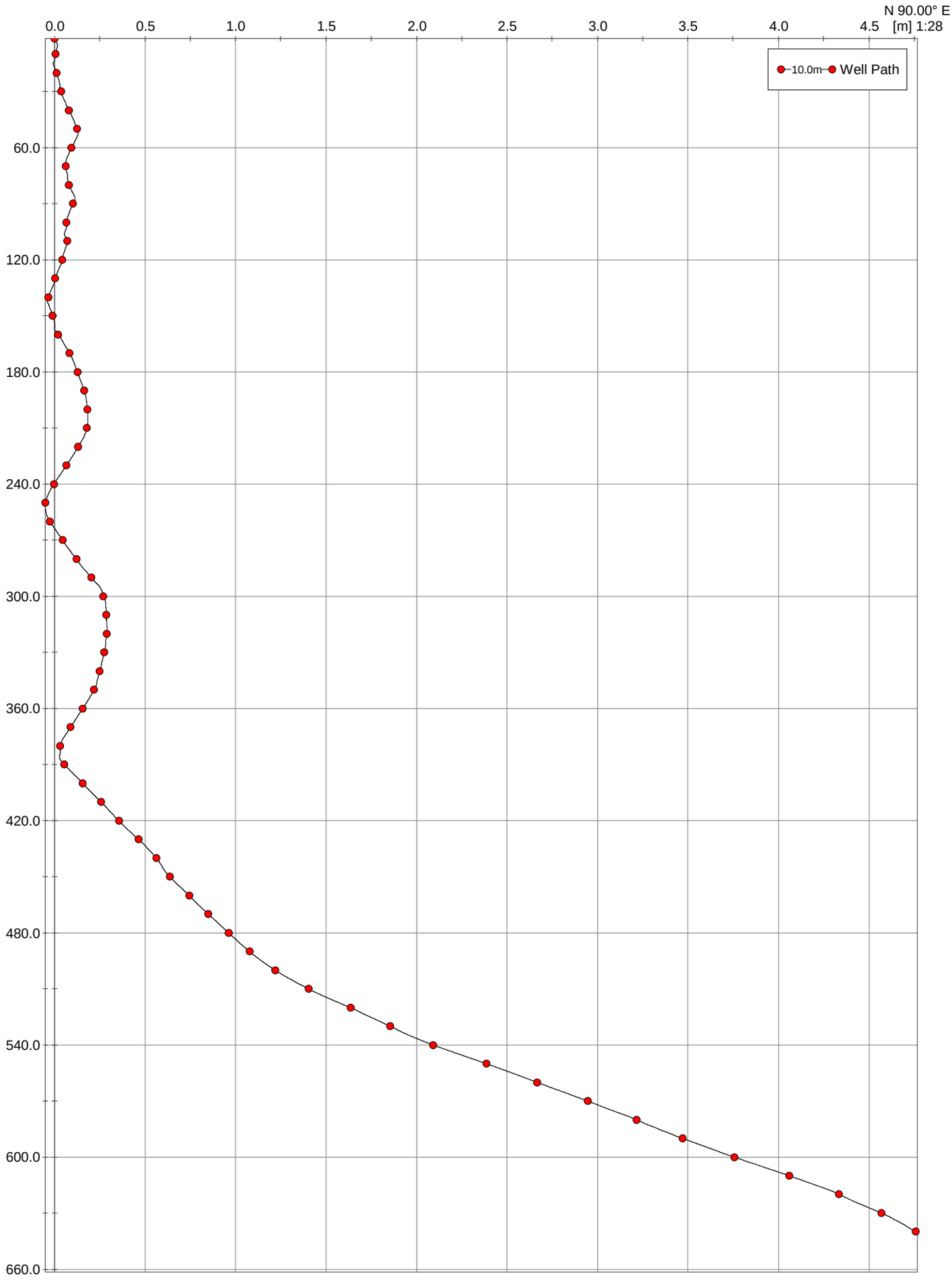
90.00	102.279	0.104662	0.102268	-0.0222581	0.372047	193.793	89.9981
100.00	123.875	0.0790825	0.0656587	-0.0440793	0.334375	79.7963	99.998
110.00	108.589	0.0752913	0.0713636	-0.0240006	0.344198	13.4693	109.998
120.00	123.654	0.0507315	0.0422287	-0.0281144	0.262652	186.297	119.998
130.00	173.75	0.0289485	0.00315162	-0.0287764	0.375608	289.97	129.998
140.00	268.165	0.0353494	-0.0353312	-0.00113204	0.323747	277.793	139.997
150.00	302.876	0.013012	-0.0109281	0.00706325	0.256043	44.3408	149.997
160.00	29.2415	0.0422005	0.0206146	0.0368228	0.440048	96.1927	159.997
170.00	71.2968	0.0880601	0.0834098	0.0282379	0.357536	80.3884	169.997
180.00	65.0376	0.139522	0.126489	0.0588816	0.335839	46.6518	179.997
190.00	58.4641	0.191493	0.163212	0.100157	0.306147	38.0459	189.997
200.00	52.1475	0.229261	0.181023	0.140682	0.267678	14.293	199.996
210.00	43.2614	0.260733	0.178687	0.189874	0.301697	335.684	209.996
220.00	30.7554	0.256918	0.131381	0.220784	0.37068	284.013	219.996
230.00	16.6776	0.227622	0.0653244	0.218047	0.387271	258.749	229.996
240.00	358.738	0.19229	-0.00423459	0.192244	0.430718	241.011	239.996
250.00	339.429	0.141282	-0.049642	0.132274	0.483628	190.955	249.995
260.00	332.699	0.0536545	-0.0246093	0.047678	0.512841	135.449	259.995
270.00	84.7988	0.0451747	0.0449887	0.00409528	0.4311	116.349	269.995
280.00	112.041	0.130028	0.120525	-0.0487964	0.561348	130.538	279.994
290.00	120.962	0.236598	0.202885	-0.121722	0.716762	134.685	289.993
300.00	127.772	0.341854	0.270222	-0.209391	0.498901	156.152	299.993
310.00	137.434	0.422863	0.286044	-0.311436	0.694913	177.588	309.992
320.00	145.798	0.513331	0.288548	-0.424557	0.682284	183.57	319.992
330.00	152.074	0.587491	0.275137	-0.519082	0.565274	191.705	329.991
340.00	157.426	0.651728	0.250178	-0.601798	0.464002	201.987	339.991
350.00	162.271	0.718759	0.218877	-0.684622	0.645976	213.361	349.99
360.00	168.864	0.808622	0.156174	-0.793398	0.76045	210.721	359.99
370.00	174.44	0.911537	0.08831	-0.907249	0.817007	208.062	369.989
380.00	178.364	1.04237	0.0297678	-1.04194	0.913685	189.546	379.988
390.00	177.392	1.20455	0.0548016	-1.2033	0.828889	136.748	389.986
400.00	173.189	1.31049	0.155427	-1.30124	0.891102	135.307	399.985
410.00	169.552	1.41572	0.256736	-1.39224	0.8501	132.676	409.984
420.00	166.296	1.50133	0.355673	-1.45859	0.661151	114.864	419.983
430.00	162.735	1.5606	0.463177	-1.49028	0.602701	94.8049	429.983
440.00	159.17	1.58215	0.562611	-1.47874	0.50716	64.8275	439.982
450.00	155.773	1.55181	0.636795	-1.41513	0.727886	48.4226	449.982
460.00	150.239	1.49768	0.743431	-1.30014	0.91289	35.1774	459.981
470.00	143.022	1.41362	0.850308	-1.12928	1.28131	29.6214	469.979
480.00	133.766	1.33325	0.962827	-0.922235	1.49641	25.3674	479.976
490.00	122.595	1.27887	1.07744	-0.688925	1.61299	25.036	489.972
500.00	108.004	1.28192	1.21915	-0.396226	2.07348	26.646	499.967
510.00	94.697	1.40923	1.4045	-0.115396	2.14838	35.7349	509.961
520.00	81.835	1.65226	1.63551	0.234662	2.72296	24.7945	519.952
530.00	69.8564	1.97538	1.85455	0.68027	2.78851	26.3542	529.94
540.00	61.2976	2.38585	2.09269	1.14583	3.02028	34.426	539.926
550.00	57.9293	2.81455	2.38503	1.49443	2.6066	43.7434	549.916
560.00	55.7371	3.22592	2.6661	1.81616	2.46157	42.1	559.907
570.00	54.0054	3.64139	2.94615	2.14007	2.33016	42.3447	569.898
580.00	52.5521	4.04993	3.21526	2.46252	2.16444	35.3493	579.889
590.00	51.1836	4.45212	3.46891	2.79071	2.53171	38.7153	589.88
600.00	50.0607	4.89936	3.75646	3.14527	2.5683	41.7724	599.87
610.00	48.9552	5.38107	4.05838	3.53348	2.98886	40.908	609.857
620.00	47.7913	5.85186	4.33449	3.93147	3.08833	24.5514	619.846
630.00	46.5467	6.2917	4.56736	4.3272	2.25593	40.9913	629.835
640.00	45.5104	6.6712	4.75908	4.67504	2.93603	22.9921	639.826
650.00	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25



DEVIATION PLOT




Depth [m] 1:3029
Horiz [m] 1:89
Well Path
TN
0°
270°
90°
180°
0.7
1.4
2.1
2.8
3.5
4.2
4.9
5.6
6.3
60.0
120.0
180.0
240.0
300.0
360.0
420.0
480.0
540.0
600.0
660.0


N 90.00° E
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
[m] 1:28
10.0m
Well Path
60.0
120.0
180.0
240.0
300.0
360.0
420.0
480.0
540.0
600.0
660.0

VERTICALITY ANALYSIS

PLUMB ROAD 2

COMPANY	TDC	**FIELD**	NARRABRI	**STATE**	NSW
WELL	PLUMB ROAD 2	**LOCATION**	PLUMB ROAD 2	**COUNTRY**	AUSTRALIA

LOCATION: PLUMB ROAD 2
FIELD: NARRABRI
STATE: NSW
WELL: PLUMB ROAD 2
COMPANY: TDC

PERMANENT DATUM
PERMANENT DATUM ELEVATION
LOG MEASURED FROM RT
DRILLING MEASURED FROM RT

ELEVATIONS:
KB
DF
GL

REMARKS:
1. Log top measured from Rotary Table
2.

LICENSE	SECTION	TOWNSHIP	RANGE

OTHER SERVICES:
1. 2.
3.

DATE	18-02-2017			RECORDED BY	DMB		
TIME	06-48			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V035		
DEPTH-DRILLER	388m			RIG NUMBER			
DEPTH-LOGGER	390.24m			TOOL TYPE	9057C		
BIT SIZE	15.5cm			TOOL SERIAL NO.	361		
CASING TYPE	STEEL			LATITUDE			
CASING OD	17.01cm			LONGITUDE			
CASING BOTTOM	154.75m			SAMPLE INT.	.01m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09792			FEET OR METER	M		
WATER LEVEL				SOURCE TYPE		SOURCE ID	

IMPORTANT NOTE

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DEVIATION LIST

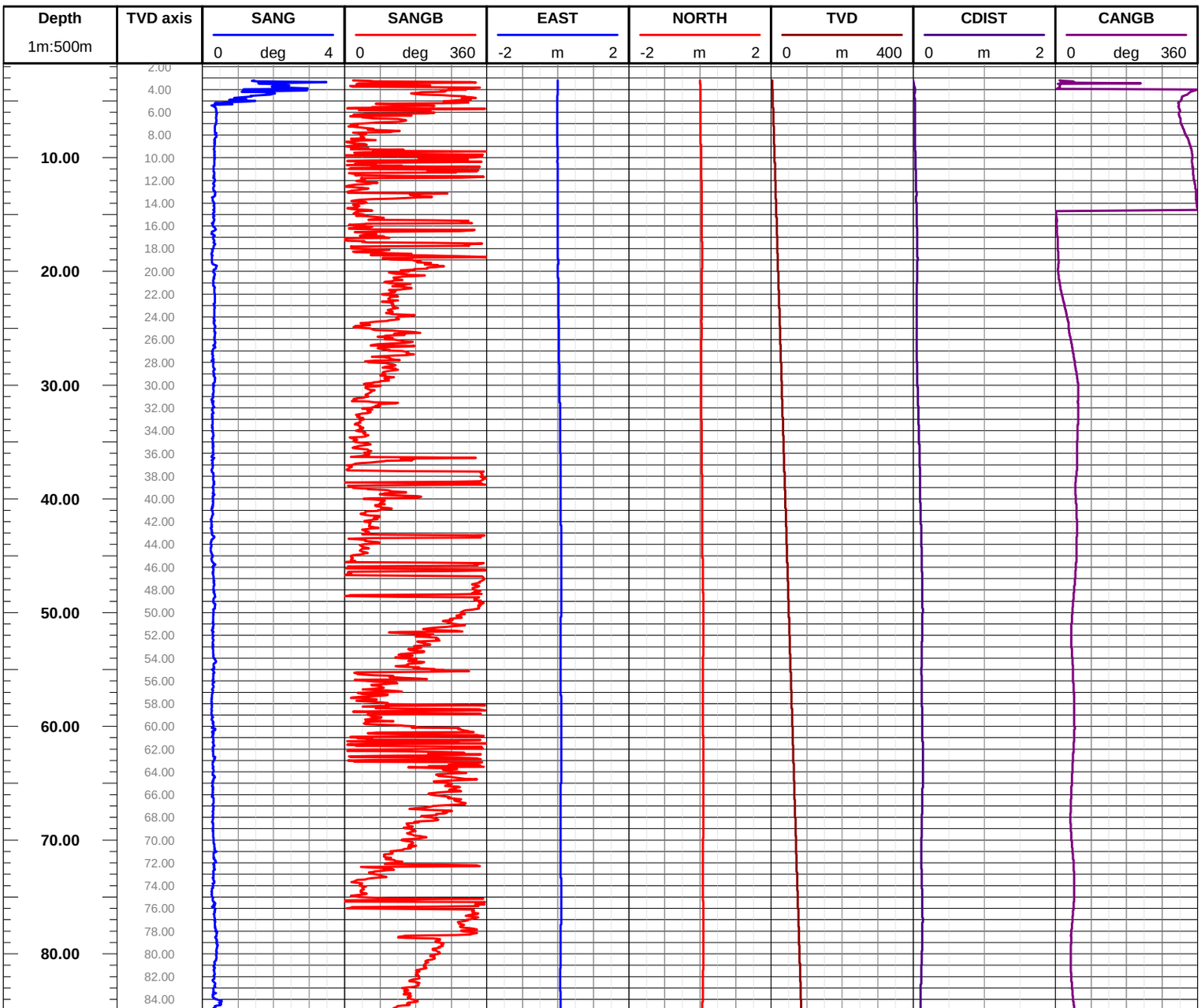
MNEMONIC DESCRIPTORS

SANGB	SAMPLE ANGLE BEARING	**NORTH**	BOREHOLE NORTH DEVIATION
SANG	SAMPLE SLANT ANGLE (0 DEG = VERTICAL DOWN)	**CDIST**	DEVIATED CLOSURE DISTANCE
TVD	TRUE VERTICAL DEPTH	**CANGB**	DEVIATED CLOSURE ANGLE BEARING
EAST	BOREHOLE EAST DEVIATION		

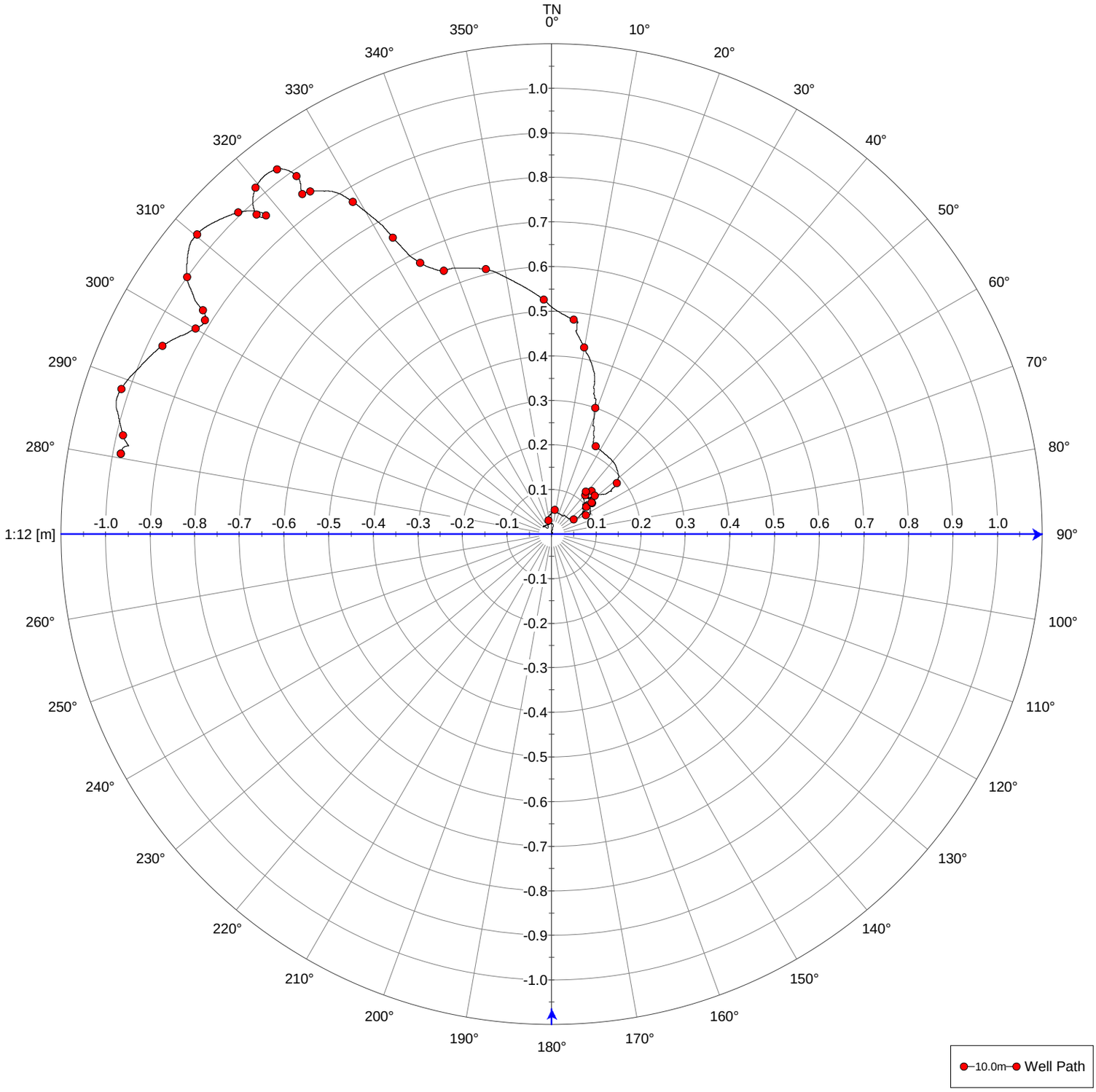
ALL CO-ORDINATES ARE PRESENTED ORIENTED TO TRUE NORTH MAGNETIC DECLINATION **10.83deg**

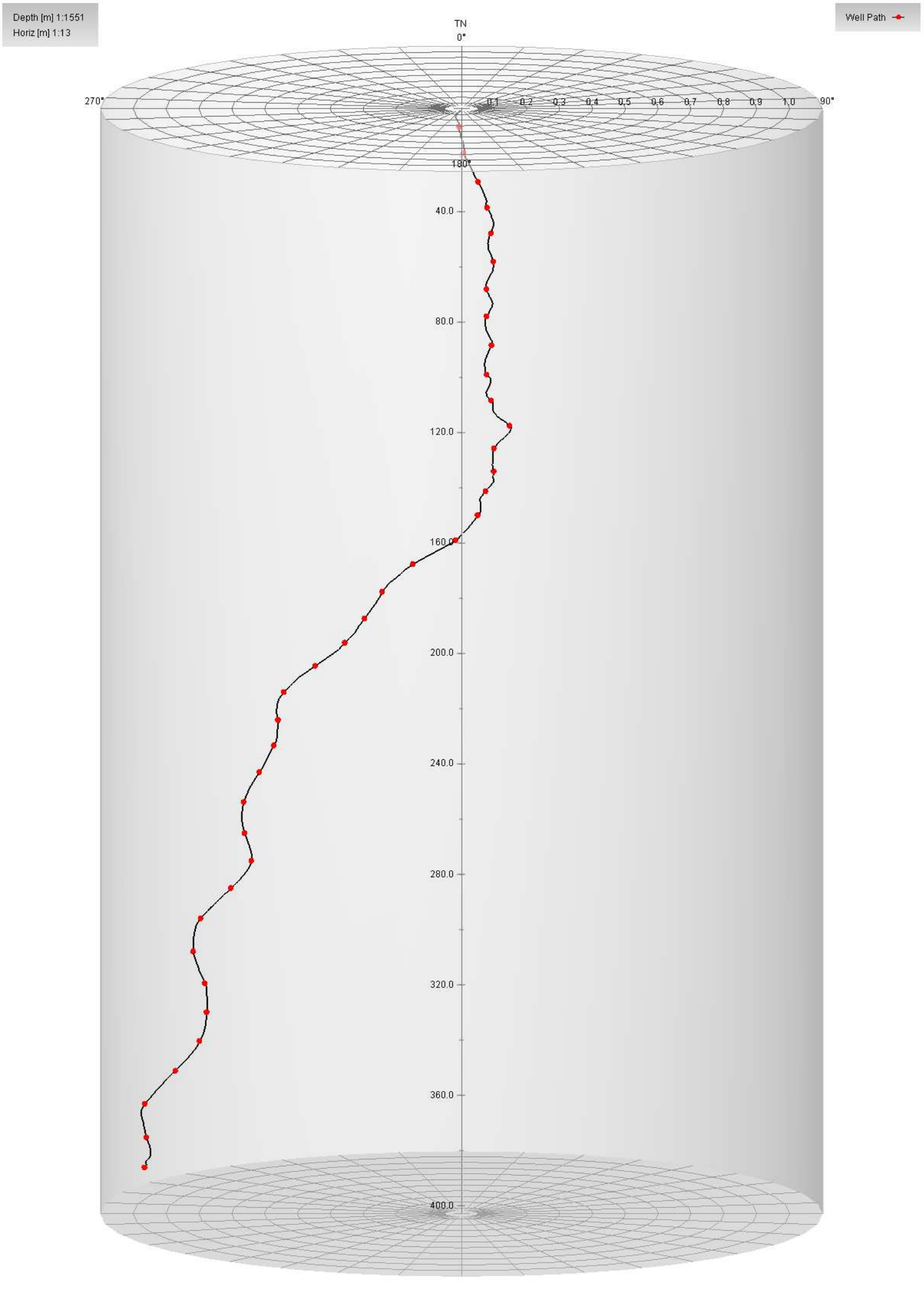
Depth	SANGB	SANG	EAST	NORTH	CDIST	CANGB	TVD
m	deg	deg	m	m	m	deg	m
0.00	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25
10.00	314.424	0.333967	-0.00718408	0.030365	0.0312032	346.689	9.99884
20.00	164.389	0.305575	0.00654592	0.0546398	0.0550305	6.83155	19.9987
30.00	64.0142	0.313404	0.0499383	0.0324442	0.0595522	56.9888	29.9985
40.00	53.152	0.305582	0.0777431	0.0612055	0.098945	51.7874	39.9984
50.00	293.502	0.310766	0.0895384	0.0969409	0.131965	42.7268	49.9982
60.00	177.386	0.308078	0.0968799	0.0863485	0.129776	48.2896	59.9981
70.00	146.375	0.321211	0.0755468	0.0869882	0.115214	40.9734	69.998
80.00	237.962	0.396045	0.0762898	0.0952698	0.122051	38.6869	79.9978

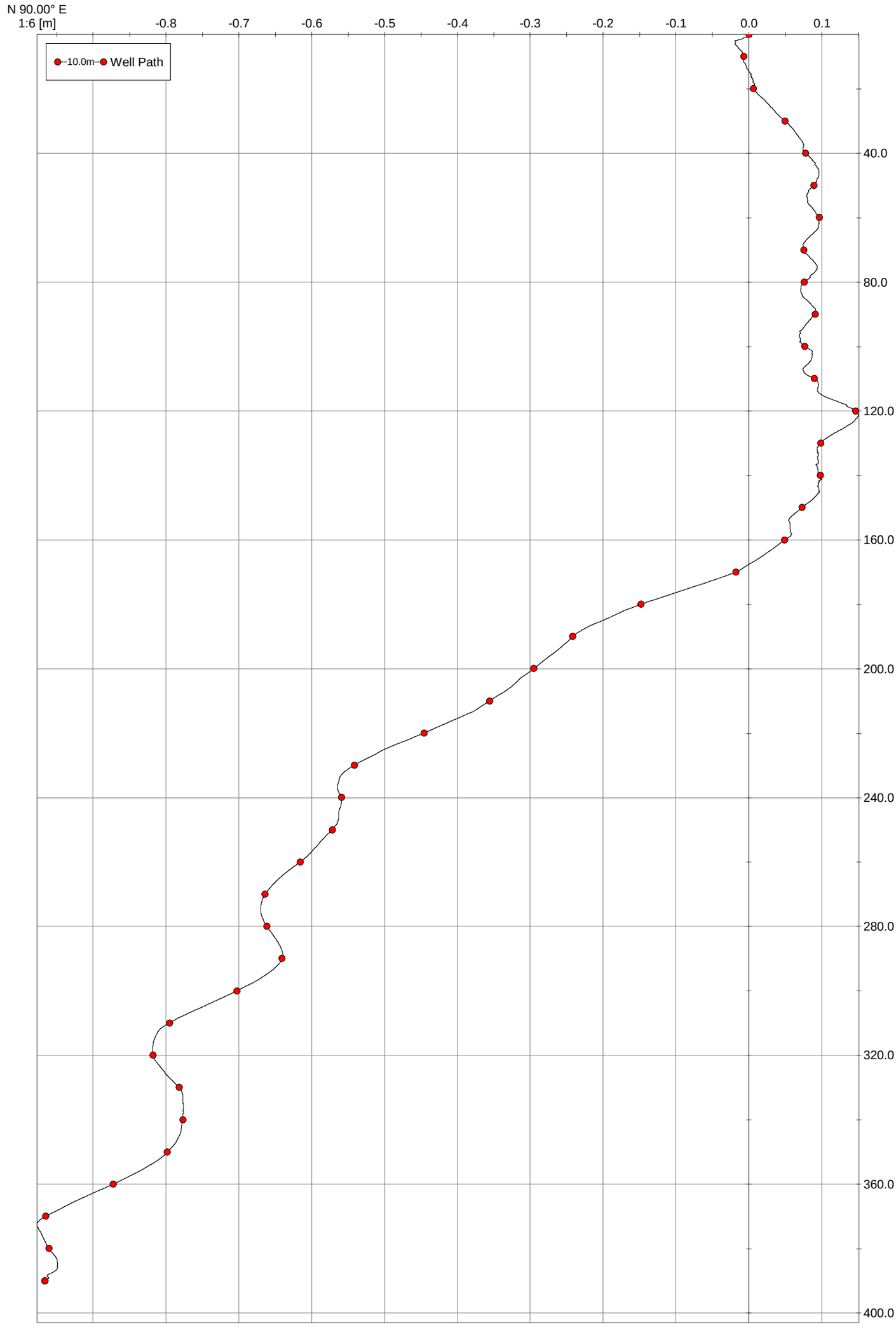
90.00	314.305	0.17052	0.0913022	0.0700198	0.11506	52.5154	89.9976
100.00	86.3274	0.437744	0.0769161	0.0429979	0.0881187	60.7938	99.9975
110.00	43.0376	0.62574	0.0899542	0.0705502	0.11432	51.8933	109.997
120.00	23.2758	0.718192	0.14669	0.114256	0.185936	52.0851	119.997
130.00	320.294	0.327567	0.098552	0.197066	0.220335	26.5695	129.996
140.00	3.54877	0.844969	0.0981708	0.282489	0.299061	19.1634	139.996
150.00	331.448	0.728243	0.0732716	0.417967	0.424341	9.94318	149.995
160.00	282.251	0.387955	0.0492741	0.480788	0.483307	5.85159	159.994
170.00	307.053	0.74489	-0.0175251	0.525759	0.526051	358.091	169.994
180.00	280.502	0.67015	-0.147864	0.594465	0.612578	346.032	179.993
190.00	262.769	0.269651	-0.241428	0.590842	0.638264	337.774	189.992
200.00	303.023	0.385933	-0.294906	0.608472	0.676171	334.142	199.992
210.00	318.615	0.596743	-0.355472	0.665048	0.754088	331.875	209.992
220.00	303.647	0.742997	-0.445321	0.744989	0.867939	329.131	219.991
230.00	252.658	0.378742	-0.541137	0.768315	0.939754	324.842	229.991
240.00	62.9243	0.0821988	-0.558943	0.762443	0.945376	323.755	239.99
250.00	313.962	0.315995	-0.571398	0.802378	0.985041	324.544	249.99
260.00	258.834	0.34201	-0.615687	0.817889	1.02373	323.028	259.99
270.00	205.618	0.392732	-0.663635	0.776572	1.02151	319.484	269.99
280.00	142.196	0.270912	-0.661252	0.717085	0.97543	317.32	279.99
290.00	333.954	0.142384	-0.640457	0.714906	0.959831	318.144	289.99
300.00	256.858	0.542841	-0.70234	0.721565	1.00694	315.774	299.99
310.00	222.319	0.659823	-0.794963	0.672043	1.04096	310.21	309.989
320.00	174.166	0.544464	-0.817407	0.576485	1.00024	305.194	319.988
330.00	143.184	0.352047	-0.781785	0.502367	0.92928	302.724	329.988
340.00	201.775	0.155792	-0.776474	0.479816	0.912762	301.714	339.988
350.00	255.382	0.265258	-0.797772	0.460525	0.921154	299.996	349.988
360.00	238.334	0.601592	-0.871991	0.422603	0.969	295.857	359.988
370.00	212.017	0.889593	-0.964746	0.325823	1.01828	288.661	369.987
380.00	164.937	0.56975	-0.960295	0.221291	0.985462	282.977	379.986
390.00	202.49	0.614669	-0.965745	0.180296	0.98243	280.575	389.986



DEVIATION PLOT




Depth [m] 1:1551
Horiz [m] 1:13
Well Path
TN
0°
270°
90°
180°
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
40.0
80.0
120.0
160.0
200.0
240.0
280.0
320.0
360.0
400.0


N 90.00° E
1:6 [m]
-0.8
-0.7
-0.6
-0.5
-0.4
-0.3
-0.2
-0.1
0.0
0.1
10.0m
Well Path
40.0
80.0
120.0
160.0
200.0
240.0
280.0
320.0
360.0
400.0

VERTICALITY ANALYSIS

PLUMB ROAD 3

COMPANY	TDC	**FIELD**	NARRABRI	**STATE**	NSW
WELL	PLUMB ROAD 3	**LOCATION**	PLUMB ROAD 3	**COUNTRY**	AUSTRALIA

LOCATION: PLUMB ROAD 3
FIELD: NARRABRI
STATE: NSW
WELL: PLUMB ROAD 3
COMPANY: TDC

PERMANENT DATUM
PERMANENT DATUM ELEVATION
LOG MEASURED FROM SLIPS
DRILLING MEASURED FROM GL

ELEVATIONS:
KB
DF
GL

REMARKS:
1.
2.

LICENSE	SECTION	TOWNSHIP	RANGE

OTHER SERVICES:
1. 2.
3.

DATE	21-02-2017			RECORDED BY	MSA		
TIME	10-24			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V035		
DEPTH-DRILLER	336m			RIG NUMBER			
DEPTH-LOGGER	335.84m			TOOL TYPE	9057C		
BIT SIZE	15.5cm			TOOL SERIAL NO.	361		
CASING TYPE	STEEL			LATITUDE			
CASING OD	17.01cm			LONGITUDE			
CASING BOTTOM	155.16m			SAMPLE INT.	.01m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09792			FEET OR METER	M		
WATER LEVEL				SOURCE TYPE		SOURCE ID	

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DEVIATION LIST

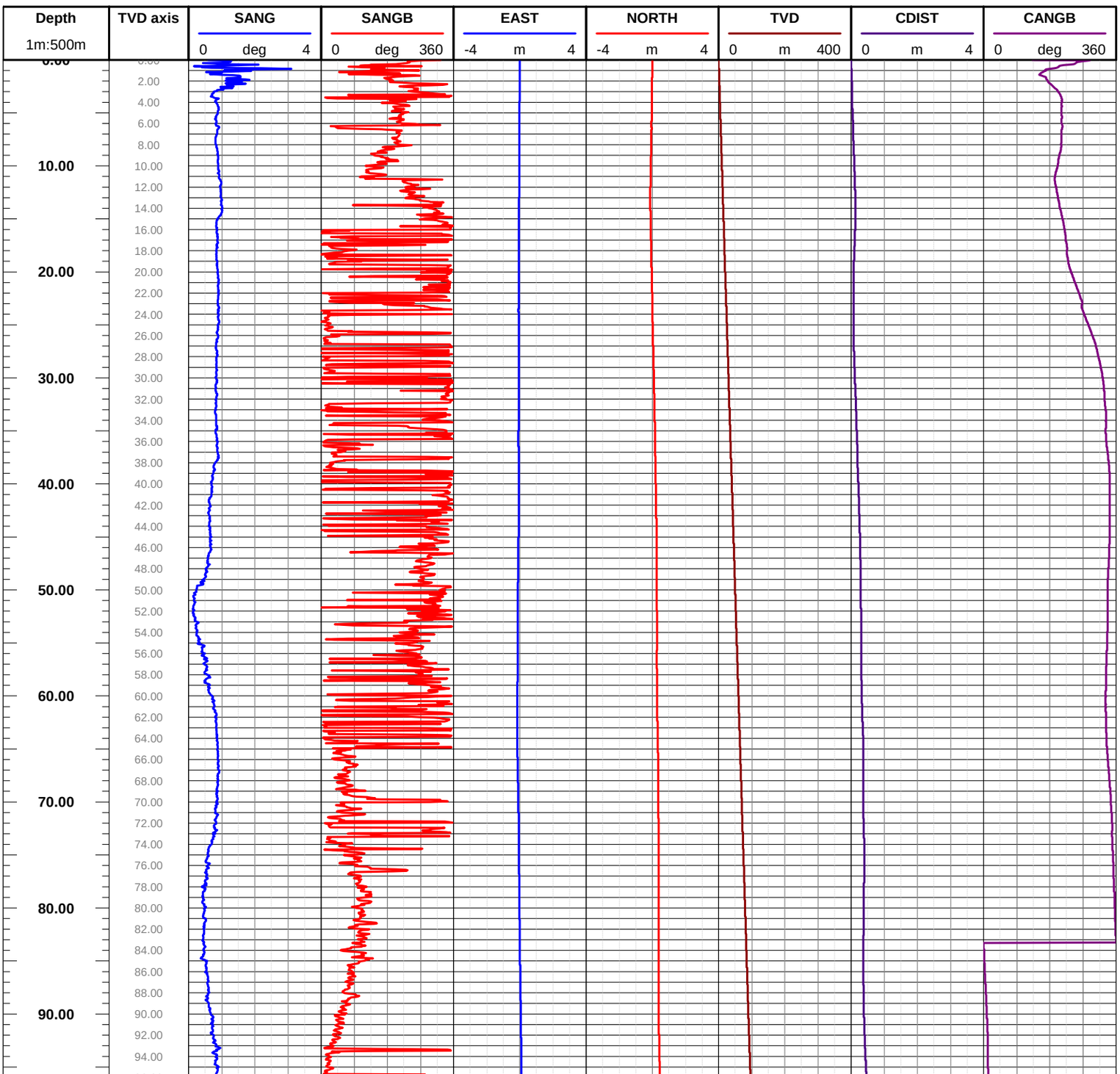
MNEMONIC DESCRIPTORS

SANGB	SAMPLE ANGLE BEARING	**NORTH**	BOREHOLE NORTH DEVIATION
SANG	SAMPLE SLANT ANGLE (0 DEG = VERTICAL DOWN)	**CDIST**	DEVIATED CLOSURE DISTANCE
TVD	TRUE VERTICAL DEPTH	**CANGB**	DEVIATED CLOSURE ANGLE BEARING
EAST	BOREHOLE EAST DEVIATION		

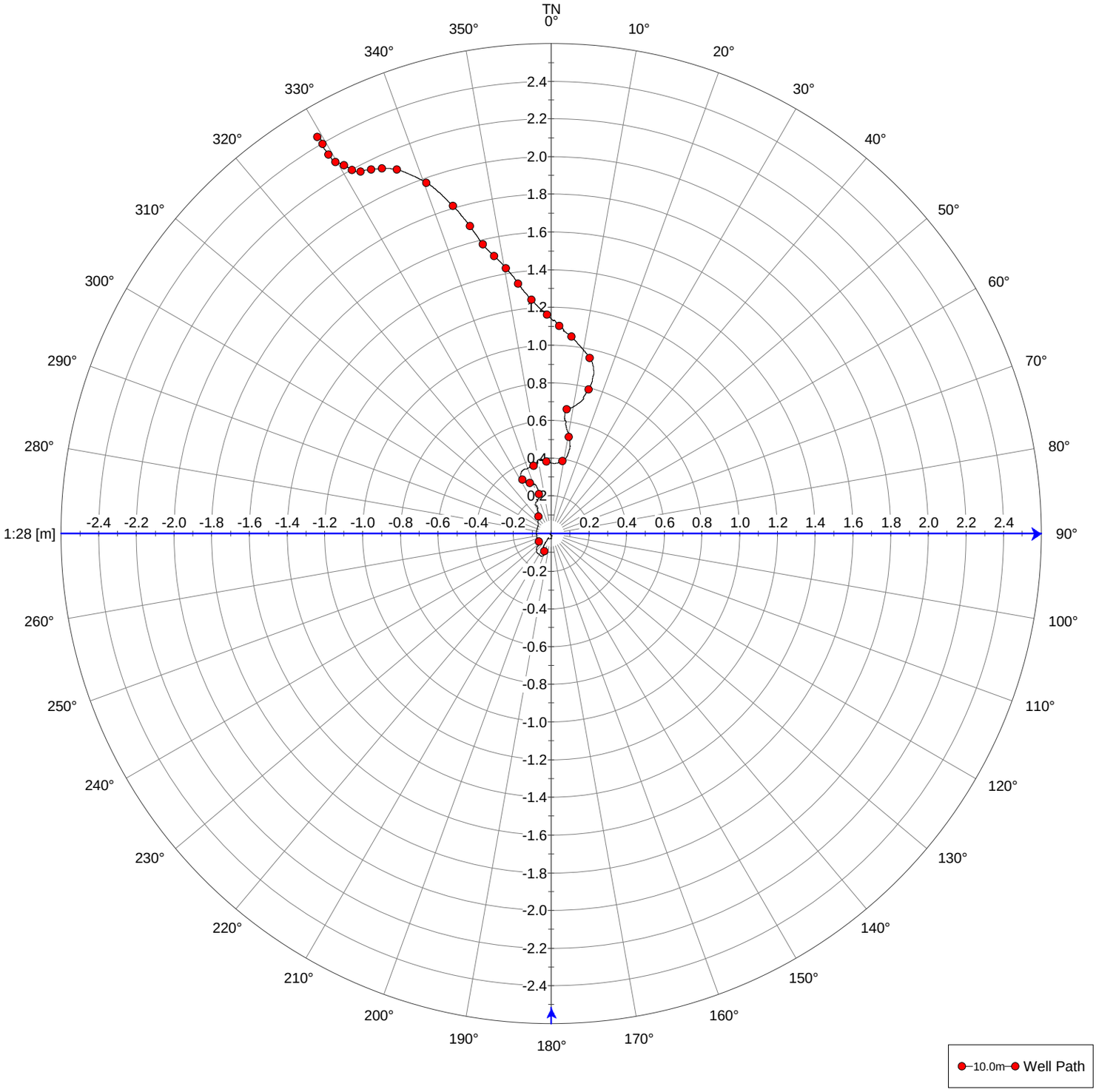
ALL CO-ORDINATES ARE PRESENTED ORIENTED TO TRUE NORTH MAGNETIC DECLINATION **10.83deg**

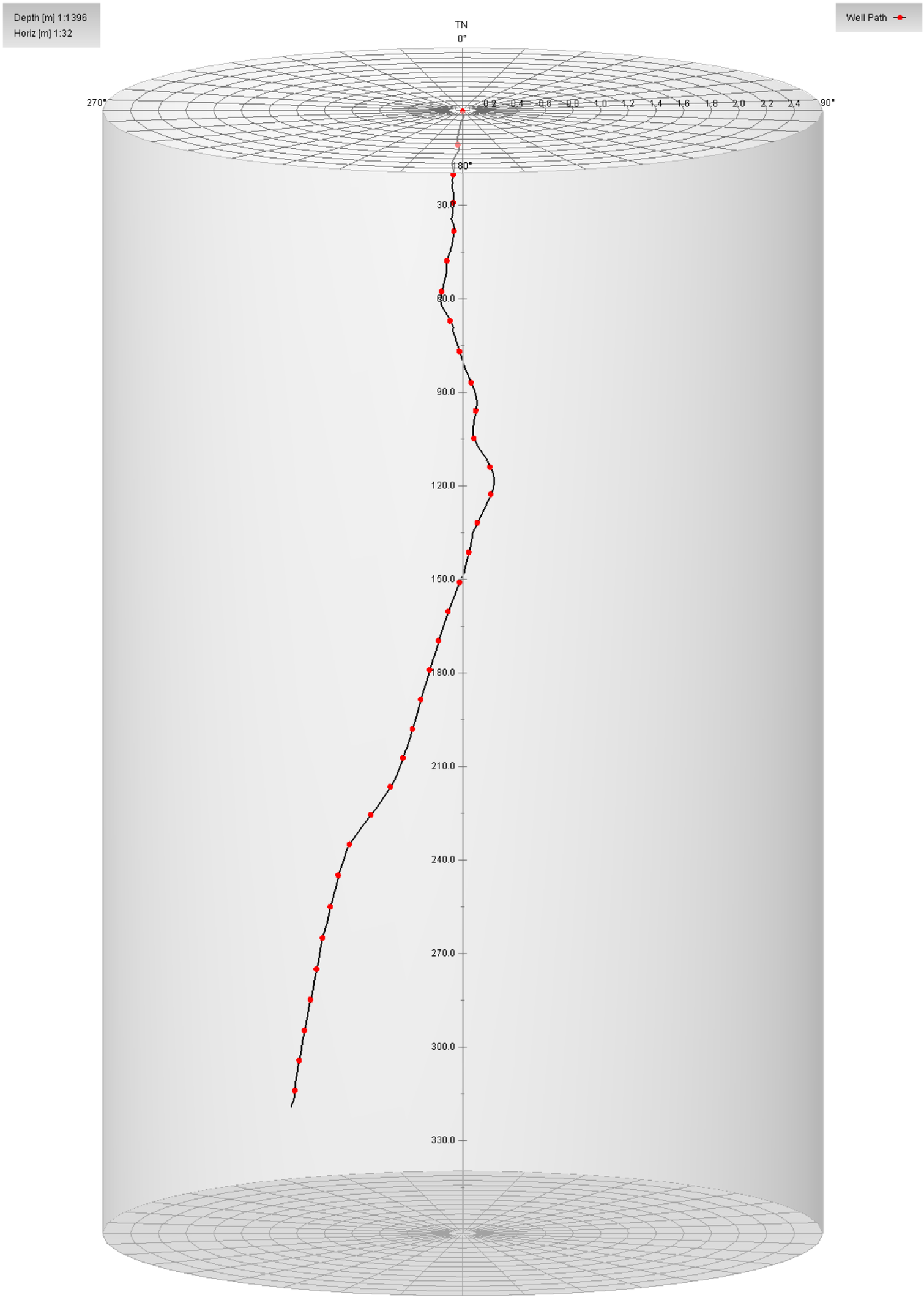
Depth	SANGB	SANG	EAST	NORTH	CDIST	CANGB	TVD
m	deg	deg	m	m	m	deg	m
0.00	342.292	0.592923	0	0	0	0	0
10.00	120.463	0.891468	-0.0358054	-0.0934224	0.100049	200.97	9.99841
20.00	322.922	0.870225	-0.066195	-0.0417546	0.0782638	237.757	19.9971
30.00	359.77	0.832795	-0.0669039	0.0910267	0.112969	323.684	29.996
40.00	352.143	0.692866	-0.0637659	0.208285	0.217827	342.978	39.9949
50.00	322.464	0.233535	-0.114264	0.268015	0.291356	336.91	49.9944
60.00	353.755	0.723622	-0.152129	0.285702	0.32368	331.966	59.9941
70.00	357.546	0.839003	-0.0921692	0.359762	0.371381	345.63	69.993
80.00	93.2124	0.504888	-0.0241605	0.382569	0.383331	356.386	79.9924

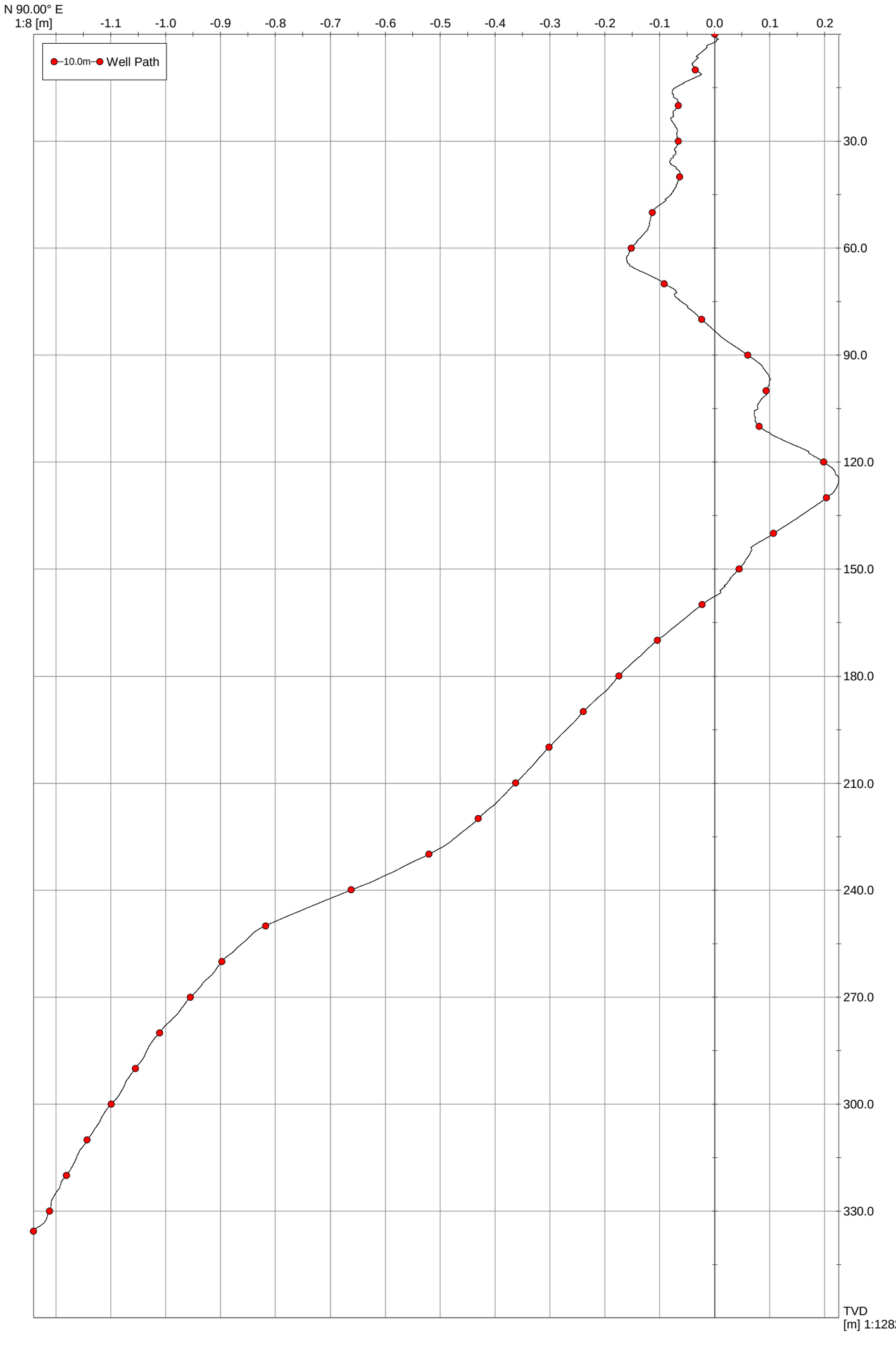
90.00	59.4494	0.674608	0.0601602	0.384206	0.388887	8.89929	89.992
100.00	333.508	0.972142	0.0934653	0.513259	0.521699	10.3206	99.9909
110.00	42.0459	0.579074	0.0810954	0.659146	0.664116	7.0139	109.99
120.00	31.0793	1.15224	0.19812	0.765666	0.790883	14.5074	119.988
130.00	339.019	0.897865	0.203348	0.932744	0.954652	12.2987	129.986
140.00	323.6	0.846792	0.106788	1.04522	1.05066	5.83354	139.985
150.00	308.704	0.505774	0.0437828	1.10292	1.10379	2.27328	149.985
160.00	315.78	0.693601	-0.023692	1.16081	1.16105	358.831	159.984
170.00	315.727	0.68598	-0.105062	1.24104	1.24548	355.161	169.983
180.00	324.306	0.624414	-0.174964	1.3261	1.33759	352.484	179.983
190.00	316.884	0.585095	-0.239591	1.40653	1.42679	350.333	189.982
200.00	315.067	0.503645	-0.302036	1.47222	1.50288	348.406	199.982
210.00	324.931	0.630347	-0.362567	1.53375	1.57602	346.7	209.981
220.00	324.644	0.657277	-0.431037	1.63068	1.68668	345.194	219.981
230.00	316.423	1.00461	-0.521267	1.7386	1.81506	343.31	229.98
240.00	299.374	1.04098	-0.662342	1.86149	1.97582	340.414	239.978
250.00	282.271	0.799298	-0.818106	1.93296	2.09896	337.06	249.976
260.00	271.19	0.26362	-0.898363	1.9384	2.13646	335.134	259.976
270.00	264.016	0.379354	-0.955392	1.9309	2.15433	333.674	269.976
280.00	250.561	0.321622	-1.01142	1.92139	2.17134	332.238	279.976
290.00	287.915	0.281607	-1.05575	1.92873	2.19878	331.305	289.976
300.00	287.3	0.352516	-1.09964	1.95338	2.24163	330.623	299.976
310.00	282.447	0.272848	-1.14373	1.96991	2.27786	329.861	309.975
320.00	317.252	0.480369	-1.18105	2.01218	2.33318	329.589	319.975
330.00	341.614	0.481084	-1.21226	2.06668	2.39598	329.605	329.975



DEVIATION PLOT




Depth [m] 1:1396
Horiz [m] 1:32
Well Path
TN
0°
270°
90°
180°
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
30.0
60.0
90.0
120.0
150.0
180.0
210.0
240.0
270.0
300.0
330.0


N 90.00° E
1:8 [m]
-1.1
-1.0
-0.9
-0.8
-0.7
-0.6
-0.5
-0.4
-0.3
-0.2
-0.1
0.0
0.1
0.2
10.0m
Well Path
30.0
60.0
90.0
120.0
150.0
180.0
210.0
240.0
270.0
300.0
330.0
TVD
[m] 1:1282

Appendix 13 – Casing Talley Sheets

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CASING RUNNING LIST

WELL NAME:	CASING TYPE:
Plumb Road 1	K55

OCR Name :	Scott Hobday	DEPTH:	158.00	SHOE AT	156.02	DATE:	7-Feb-17

Joint Number		Depth		CASING			MAKE UP TORQUE		
From	To	From	To	Size	Grade	Weight	Maximum	Minimum	Optimum
				7	N-80	23	5530	3320	4420

ITEM NAME	ITEM LENGTH	LENGTH RUN	Metres off BOTTOM	RUN YES / NO	COMMENTS
TD			156.02		
Shoe	0.40	0.4	155.62		
1	11.93	12.33	143.69		Centralizer & stop collar mid jnt
Collar	0.40	12.73	143.29		
2	11.64	24.37	131.65		Centralizer
3	11.35	35.72	120.30		
4	11.78	47.50	108.52		Centralizer
5	11.40	58.90	97.12		
6	11.51	70.41	85.61		Centralizer
7	11.16	81.57	74.45		
8	11.86	93.43	62.59		Centralizer
9	11.61	105.04	50.98		
10	11.96	117.00	39.02		
11	11.87	128.87	27.15		Centralizer
12	11.60	140.47	15.55		
13	11.75	152.22	3.80		
anding JNT	5.75	157.97	-1.95		Landing joint to be LEVEL WITH GROUND LEVEL
	0.00				
	0.00				Total jnts on location = 40
	0.00				Total jnts on rack = 15
	0.00				Total jnts to run = 13
	0.00				
	0.00				Baker lock shoe,float collar and joint 2
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
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	0.00				
	0.00				
	0.00				
	0.00				

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CASING RUNNING LIST

WELL NAME:	CASING TYPE:
Plumb Road 1	K55

OCR Name :	Scott Hobday	DEPTH:	642.00	SHOE AT	640.50	DATE:	13-Feb-17

Joint Number		Depth		CASING			MAKE UP TORQUE		
From	To	From	To	Size	Grade	Weight	Maximum	Minimum	Optimum
				4 1/2"	K55	11.6	2250	1350	1800

ITEM NAME	ITEM LENGTH	LENGTH RUN	Metres off BOTTOM	RUN YES / NO	COMMENTS
TD			640.50		
Shoe	0.48	0.48	640.02		
Float Collar 1	0.34	0.82	639.68		
1	11.45	12.27	628.23	**1**	Centralizer & stop collar mid jnt
2	11.24	23.51	616.99	**2**	Centralizer & stop collar mid jnt
Float Collar 2	0.34	23.85	616.65		
3	11.32	35.17	605.33	**3**	Centralizer
4	11.65	46.82	593.68		
5	11.57	58.39	582.11	**4**	Centralizer
6	11.59	69.98	570.52		
7	11.51	81.49	559.01	**5**	Centralizer
8	11.62	93.11	547.39		
9	11.32	104.43	536.07	**6**	Centralizer
10	11.47	115.90	524.60		
11	11.43	127.33	513.17	**7**	Centralizer
12	11.41	138.74	501.76		
13	11.44	150.18	490.32	**8**	Centralizer
14	11.47	161.65	478.85		
15	11.44	173.09	467.41	**9**	Centralizer
16	11.45	184.54	455.96		
17	11.48	196.02	444.48		
18	11.11	207.13	433.37	**10**	Centralizer
19	11.39	218.52	421.98		
20	11.41	229.93	410.57		
21	11.54	241.47	399.03	**11**	Centralizer
22	11.62	253.09	387.41		
23	11.46	264.55	375.95	**12**	Centralizer
24	11.16	275.71	364.79		
25	11.27	286.98	353.52	**13**	Centralizer
26	11.44	298.42	342.08	**14**	Centralizer
27	11.44	309.86	330.64		
28	11.59	321.45	319.05	**15**	Centralizer
29	11.44	332.89	307.61		
30	11.41	344.30	296.20	**16**	Centralizer
31	11.31	355.61	284.89	**17**	Centralizer
32	11.44	367.05	273.45		
33	11.44	378.49	262.01	**18**	Centralizer
34	11.44	389.93	250.57		
35	11.42	401.35	239.15	**19**	Centralizer
36	11.44	412.79	227.71		
37	11.13	423.92	216.58	**20**	Centralizer
38	11.44	435.36	205.14		
39	11.59	446.95	193.55		
40	11.46	458.41	182.09	**21**	Centralizer
41	11.39	469.80	170.70		
42	11.60	481.40	159.10	**22**	Centralizer

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CASING RUNNING LIST

WELL NAME:	CASING TYPE:
Plumb Road 1	K55

OCR Name : Scott Hobday | DEPTH: 642.00 | SHOE AT 640.50 | DATE: 13-Feb-17

Joint Number		Depth		CASING			MAKE UP TORQUE		
From	To	From	To	Size	Grade	Weight	Maximum	Minimum	Optimum
				4 1/2"	K55	11.6	2250	1350	1800

ITEM NAME	ITEM LENGTH	LENGTH RUN	Metres off BOTTOM	RUN YES / NO	COMMENTS
43	11.29	492.69	147.81		
44	11.41	504.10	136.40	**23**	Centralizer
45	11.30	515.40	125.10		
46	11.46	526.86	113.64		
47	11.03	537.89	102.61	**24**	Centralizer
48	11.30	549.19	91.31		
49	11.14	560.33	80.17		
50	11.45	571.78	68.72	**25**	Centralizer
51	11.42	583.20	57.30		
52	11.43	594.63	45.87		
53	11.49	606.12	34.38	**26**	Centralizer
54	11.61	617.73	22.77		
55	11.49	629.22	11.28	**27**	Centralizer
56	11.11	640.33	0.17		
PUP A	2.00	642.33	-1.83		
	0.00				
	0.00				Total jnts on location = 111
	0.00				Total jnts run = 56
	0.00				Total jnts left = 55
	0.00				Total Pups on location = 10 Total to run = 1
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
84	0.00				
85	0.00				
86	0.00				
87	0.00				
88	0.00				
89	0.00				

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CASING RUNNING LIST

WELL NAME:	CASING TYPE:
Plumb Road 2	K55

OCR Name :	Scott Hobday	DEPTH:	156.00	SHOE AT	154.75	DATE:	16-Feb-17

Joint Number		Depth		CASING			MAKE UP TORQUE		
From	To	From	To	Size	Grade	Weight	Maximum	Minimum	Optimum
				7	N-80	23	5530	3320	4420

ITEM NAME	ITEM LENGTH	LENGTH RUN	Metres off BOTTOM	RUN YES / NO	COMMENTS
TD			154.75		
Shoe	0.40	0.4	154.35		
1	11.73	12.13	142.62	**1**	Centralizer & stop collar mid jnt
Collar	0.40	12.53	142.22		
2	11.95	24.48	130.27	**2**	Centralizer
3	11.53	36.01	118.74		
4	11.82	47.83	106.92	**3**	Centralizer
5	11.38	59.21	95.54		
6	11.38	70.59	84.16	**4**	Centralizer
7	11.77	82.36	72.39		
8	11.46	93.82	60.93	**5**	Centralizer
9	11.90	105.72	49.03		
10	11.72	117.44	37.31		
11	11.93	129.37	25.38	**6**	Centralizer
12	11.75	141.12	13.63		
13	11.48	152.60	2.15		
PUP A	3.85	156.45	-1.70		Landing joint to be 0.15m Below GROUND LEVEL
	0.00				
	0.00				Total jnts on location = 27
	0.00				Total jnts on rack = 13
	0.00				Total jnts to run = 13
	0.00				Total jnts left on location = 14
	0.00				Baker lock shoe,float collar and joint 2
	0.00				
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CASING RUNNING LIST

WELL NAME:	CASING TYPE:
Plumb Road 2	K55

OCR Name :	Scott Hobday	DEPTH:	388.00	SHOE AT	387.00	DATE:	17-Feb-17

Joint Number		Depth		CASING			MAKE UP TORQUE		
From	To	From	To	Size	Grade	Weight	Maximum	Minimum	Optimum
				4 1/2"	K55	11.6	2250	1350	1800

ITEM NAME	ITEM LENGTH	LENGTH RUN	Metres off BOTTOM	RUN YES / NO	COMMENTS
TD			387.00		
Shoe	0.48	0.48	386.52		
Float Collar 1	0.34	0.82	386.18		
PUP A	2.02	2.84	384.16	**1**	Centralizer & stop collar mid jnt
PUP B	6.02	8.86	378.14		
Float Collar 2	0.34	9.20	377.80		
1	11.61	20.81	366.19	**2**	Centralizer
2	11.46	32.27	354.73	**3**	Centralizer
3	11.43	43.70	343.30		
4	11.49	55.19	331.81	**4**	Centralizer
5	11.61	66.80	320.20		
6	11.45	78.25	308.75	**5**	Centralizer
7	11.40	89.65	297.35	**6**	Centralizer
8	11.59	101.24	285.76		
9	11.29	112.53	274.47	**7**	Centralizer
10	11.64	124.17	262.83		
11	11.34	135.51	251.49	**8**	Centralizer
12	11.43	146.94	240.06		
13	11.29	158.23	228.77		
14	11.49	169.72	217.28	**9**	Centralizer
15	11.44	181.16	205.84		
16	11.65	192.81	194.19		
17	11.44	204.25	182.75	**10**	Centralizer
18	11.43	215.68	171.32		
19	11.50	227.18	159.82	**11**	Centralizer
20	11.42	238.60	148.40	**12**	Centralizer
21	11.59	250.19	136.81		
22	11.59	261.78	125.22		
23	11.61	273.39	113.61	**13**	Centralizer
24	11.61	285.00	102.00		
25	11.61	296.61	90.39		
26	11.45	308.06	78.94	**14**	Centralizer
27	11.58	319.64	67.36		
28	11.43	331.07	55.93		
29	11.42	342.49	44.51	**15**	Centralizer
30	11.59	354.08	32.92		
31	11.45	365.53	21.47	**16**	Centralizer
32	11.40	376.93	10.07		
33	11.44	388.37	-1.37	**17**	Centralizer
	0.00				Total jnts on location = 55
	0.00				Total jnts run = 33
	0.00				Total jnts left = 22
	0.00				Total Pups on location = 10 Total to run = 2
	0.00				
	0.00				
	0.00				

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CASING RUNNING LIST

WELL NAME:	CASING TYPE:
Plumb Road 3	K55

OCR Name :	Scott Hobday	DEPTH:	156.00	SHOE AT	155.16	DATE:	19-Feb-17

Joint Number		Depth		CASING			MAKE UP TORQUE		
From	To	From	To	Size	Grade	Weight	Maximum	Minimum	Optimum
				7	N-80	23	5530	3320	4420

ITEM NAME	ITEM LENGTH	LENGTH RUN	Metres off BOTTOM	RUN YES / NO	COMMENTS
TD			155.16		
Shoe	0.40	0.4	154.76		
1	11.75	12.15	143.01	**1**	Centralizer & stop collar mid jnt
Collar	0.40	12.55	142.61		
2	11.64	24.19	130.97	**2**	Centralizer
3	11.74	35.93	119.23		
4	11.79	47.72	107.44	**3**	Centralizer
5	11.77	59.49	95.67		
6	11.99	71.48	83.68	**4**	Centralizer
7	11.64	83.12	72.04		
8	11.79	94.91	60.25	**5**	Centralizer
9	11.62	106.53	48.63		
10	11.75	118.28	36.88		
11	11.65	129.93	25.23	**6**	Centralizer
12	11.38	141.31	13.85		
13	11.65	152.96	2.20		
PUP A	3.85	156.81	-1.65		Landing joint to be 0.15m Below GROUND LEVEL
	0.00				
	0.00				Total jnts on location = 14
	0.00				Total jnts on rack = 13
	0.00				Total jnts to run = 13
	0.00				Total jnts left on location = 1
	0.00				Baker lock shoe,float collar and joint 2
	0.00				
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CASING RUNNING LIST

WELL NAME:	CASING TYPE:
Plumb Road 3	K55

OCR Name :	Scott Hobday	DEPTH:	336.00	SHOE AT	336.00	DATE:	21-Feb-17

Joint Number		Depth		CASING			MAKE UP TORQUE		
From	To	From	To	Size	Grade	Weight	Maximum	Minimum	Optimum
				4 1/2"	K55	11.6	2250	1350	1800

ITEM NAME	ITEM LENGTH	LENGTH RUN	Metres off BOTTOM	RUN YES / NO	COMMENTS
TD			336.00		
Shoe	0.48	0.48	335.52		
Float Collar 1	0.34	0.82	335.18		
1	11.61	12.43	323.57	**1**	Centralizer & stop collar mid jnt
Float Collar 2	0.34	12.77	323.23		
2	11.46	24.23	311.77	**2**	Centralizer
3	11.43	35.66	300.34	**3**	Centralizer
4	11.49	47.15	288.85		
5	11.61	58.76	277.24	**4**	Centralizer
6	11.45	70.21	265.79		
7	11.40	81.61	254.39	**5**	Centralizer
8	11.59	93.20	242.80		
9	11.29	104.49	231.51	**6**	Centralizer
10	11.64	116.13	219.87		
11	11.34	127.47	208.53		
12	11.43	138.90	197.10	**7**	Centralizer
13	11.29	150.19	185.81		
14	11.49	161.68	174.32		
15	11.44	173.12	162.88	**8**	Centralizer
16	11.65	184.77	151.23	**9**	Centralizer
17	11.44	196.21	139.79		
18	11.43	207.64	128.36		
19	11.50	219.14	116.86	**10**	Centralizer
20	11.42	230.56	105.44		
21	11.59	242.15	93.85		
22	11.66	253.81	82.19	**11**	Centralizer
23	11.31	265.12	70.88		
24	11.18	276.30	59.70		
25	11.31	287.61	48.39	**12**	Centralizer
26	11.26	298.87	37.13		
27	11.49	310.36	25.64		
28	11.40	321.76	14.24	**13**	Centralizer
PUP C	2.02	323.78	12.22		
29	11.32	335.10	0.90	**14**	Centralizer
	0.00				
	0.00				Total jnts on location = 32
	0.00				Total jnts run = 29
	0.00				Total jnts left = 3
	0.00				Total Pups on location = 8 Total to run = 1
	0.00				
	0.00				
	0.00				
	0.00				
	0.00				
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