Grayling-1/1A

Vic/P54

Well Completion Report

Basic Data

August 2005

GENERAL DATA SHEET

Well:	Grayling-1	**Operator:**	Apache Energy Limited
Well Type:	Exploration	**Partners:**	Apache Northwest Pty Ltd
Basin:	Gippsland		Nexus Energy Vic P54 Pty Ltd
Tenement:	VIC/P54		
Objective:	Volador Formation – *F. longus* section		
Status:	P & A		
Spudded:	20:30hrs 23 December 2004	**Latitude:**	38° 09' 40.26" S
TD Reached:	15:30hrs 25 December 2004	**Longitude:**	148° 17' 35.90" E
Rig Released:	05:00hrs 27 December 2004	**Northing:**	5,775,510.94 mN
		Easting:	613,302.06 mE
Total Depth:	-778.4 mTVDAHD (800.0 mMDRT)		
RT Elevation:	21.5 m above AHD	**Datum:**	GDA94, Spheroid GRS80
Water Depth:	58.5 m below AHD	**Projection:**	MGA Zone 55, CM 147° E
Drill. Contr.:	Diamond Offshore		
Rig (Type):	Ocean Patriot (Semi-Sub)		

MWD/LWD Logs

Bit No.	Log Suite	Interval (mMDRT)	Max °C	Hole Size (mm)	Remarks
2	DGR-EWRP4-ACAL-BAT-PM	113.0 to 800.0	29	406	Drilled 406mm hole section from 113.0 to 800.0 mMDRT. Gap in data due to air retriever line breaking. Periods of poor detection due to downhole noise and some pump noise. All recorded data was recovered at surface.

Hole and Casing Details

Hole Size (mm)	Interval (mMDRT)	Interval (mTVDAHD)	Casing Size (mm)	Depth (mMDRT)	Depth (mTVDAHD)
914	80.0 to 113.3	-58.5 to -91.8	762	112.4	-90.9
406	113.3 to 800.0	-91.8 to -778.4	340	783.9	-762.3

Cement Plugs

Plug No.	Interval (mMDRT)	Tagged
1	170.0 to 100.0	N

Testing: No testing was carried out.

Coring: No conventional cores were cut.

Comments: The surface location is 1.3 m on a bearing of 243.8° (Grid) from the intended Grayling-1 location.

Grayling-1 was abandoned following mechanical problems and drilling commenced in Grayling-1A. After drilling was completed in Grayling-1A the rig returned to the Grayling-1 location to complete plug & abandonment operations.

GENERAL DATA SHEET

Well:	Grayling-1A	**Operator:**	Apache Energy Limited
Well Type:	Exploration	**Partners:**	Apache Northwest Pty Ltd
Basin:	Gippsland		Nexus Energy Vic P54 Pty Ltd
Tenement:	VIC/P54		
Status:	P & A		
Spudded:	16:30hrs 28 December 2004	**Latitude:**	38° 09' 40.28" S
TD Reached	14:30hrs 11 January 2005	**Longitude:**	148° 17' 34.73" E
Rig Released:	23:00hrs 20 January 2005	**Northing:**	5,775,510.58 mN
		Easting:	613,273 .61 mE
Total Depth:	-2891.8 mTVDAHD (2914.0 mMDRT)		
RT Elevation:	21.5 m above AHD	**Datum:**	GDA94, Spheroid GRS80
Water Depth:	58.5 m below AHD	**Projection:**	MGA Zone 55, CM 147° E
Drill. Contr.:	Diamond Offshore		
Rig (Type):	Ocean Patriot (Semi-Sub)		

Wireline Logs

Suite	Run	Log Suite	Interval (mMDRT)	BHT (°C)	Remarks
2	1	RCI-GR	2074.0 to 2077.8	N/A	Tool fished & latched onto pipe. POOH to change out backup RCI tool. One sample.
	2	RCI-GR	2683.7 to 2572.2	N/A	POOH due to communication failure with tool. 20 pressure points and 3 samples collected.
	3	MLR-GR	2569.4 to 2503.9	N/A	

Hole and Casing Details

Hole Size (mm)	Interval (mMDRT)	Interval (mTVDAHD)	Casing Size (mm)	Depth (mMDRT)	Depth (mTVDAHD)
914	80.0 to 114.0	-58.5 to -92.5	762	112.4	-90.9
406	114.0 to 811.0	-92.5 to -789.5	340	796.2	-774.7
216	811.0 to 2914.0	-789.5 to -2891.8			

MWD/LWD Logs

Bit No.	Log Suite	Interval (mMDRT)	Max °C	Hole Size (mm)	Remarks
2	DGR-EWRP4-ACAL-BAT-PM	114.0 to 810.0	28	406	Drilled to section TD at 800.0 mMDRT. All recorded data was recovered at surface.
3	DGR-EWRP4-ACAL-BAT-SLD-CNP	810.0 to 2740.0	85	216	Drilled 216mm hole section from 810.0 mMDRT to 2740.0 mMDRT.
4	DGR-EWRP4-ACAL-BAT-SLD-CNP	2740.0 to 2914.0	107	216	Drill 216mm hole section to TD at 2914.0 mMDRT, all recorded data recovered at surface.

Well Index Sheet (cont.)

Cement Plugs

Plug No.	Interval (mMDRT)	Tagged
1a	2675.0 to 2585.0	N
1b	2585 to 2538.0	Y
2	2110.0 to 1996.0	Y
3	826.0 to 737.0	Y
4	170.0 to 100.0	N

Testing: No testing was carried out.

Coring: No conventional cores were cut.

Comments: Grayling-1A was drilled following abandonment of Grayling-1 due to mechanical problems.

DIAMOND
OFFSHORE

Ocean Patriot

1,500 FSW Semisubmersible

General Description

Design	Trosvik Bingo 3000
Dimensions	334'6" x 239'5"
Normal Operating draft	77'
Towing Draft	33'
VDL Drilling	5,793,748 lbs
VDL Transit	4,272,559 lbs
VDL Survival	4,735,529 lbs
Quarters Capacity	100
Outfitted water depth	1,500 fsw
Minimum water depth	230 fsw
Usable deck space	

Drilling Equipment

Derrick	Unite D'ingen 185' 1,000,000lbs, 14 lines
Drawworks	Oilwell E-3000, 3,000hp Rated depth 25,000'
Rotary Table	Oilwell A49 ½,
Top Drive	Varco TDS-4S
Motion Compensator	Rucker Model 18-400 400,000lb capacity
Pipehandling	Maritime Hydraulic Racking System Varco AR3200 Iron Roughneck

Mud Circulating System

Mud Pumps	3 x National / Oilwell Triplex 1,600hp
Solids Control	4 x Thule VSM 100 shale shakers

Storage Capacities

Liquid mud – surface	1900 bbls
Liquid Mud – Total	2329 bbls
Base Oil	N/A
Brine	N/A
Bulk Sack Storage	540,000lbs
Bulk P Tanks	20,000 cu ft

Power Equipment

Main Power	4 x EMD L12-645 F178 7600KW
Emergency Power	1 x SSCM Poyaud 520KW

Subsea Equipment

BOP's	2 x Cameron UII Double 18 ¾" 15,000 psi
Annulars	2 x Cameron D Type 18 ¾" 10,000 psi
Riser	30 jts 50' Regan FCH-8
Tensioners	6 x double 80,000lbs Rucker/Shaffer 50' stroke. Total 960,000lbs

Cranes

2 x Liebherr BOS 1500/50 43.34 mt boom

1 x Normar BOP Carrier

Mooring System

5 x 12 Ton Bruce .
3 x 12 Ton Stevpris
8 x 5,250' 84mm K3 stud link chain
4 x Pusnes double windlass winches

Miscellaneous

* Rig has worked in WD approaching 3,000 fsw in past

* Rig is well equipped for Xmas tree handling

* For rig move – Minimum of 1 x 125 ST bollard pull AHT required

Contact Information

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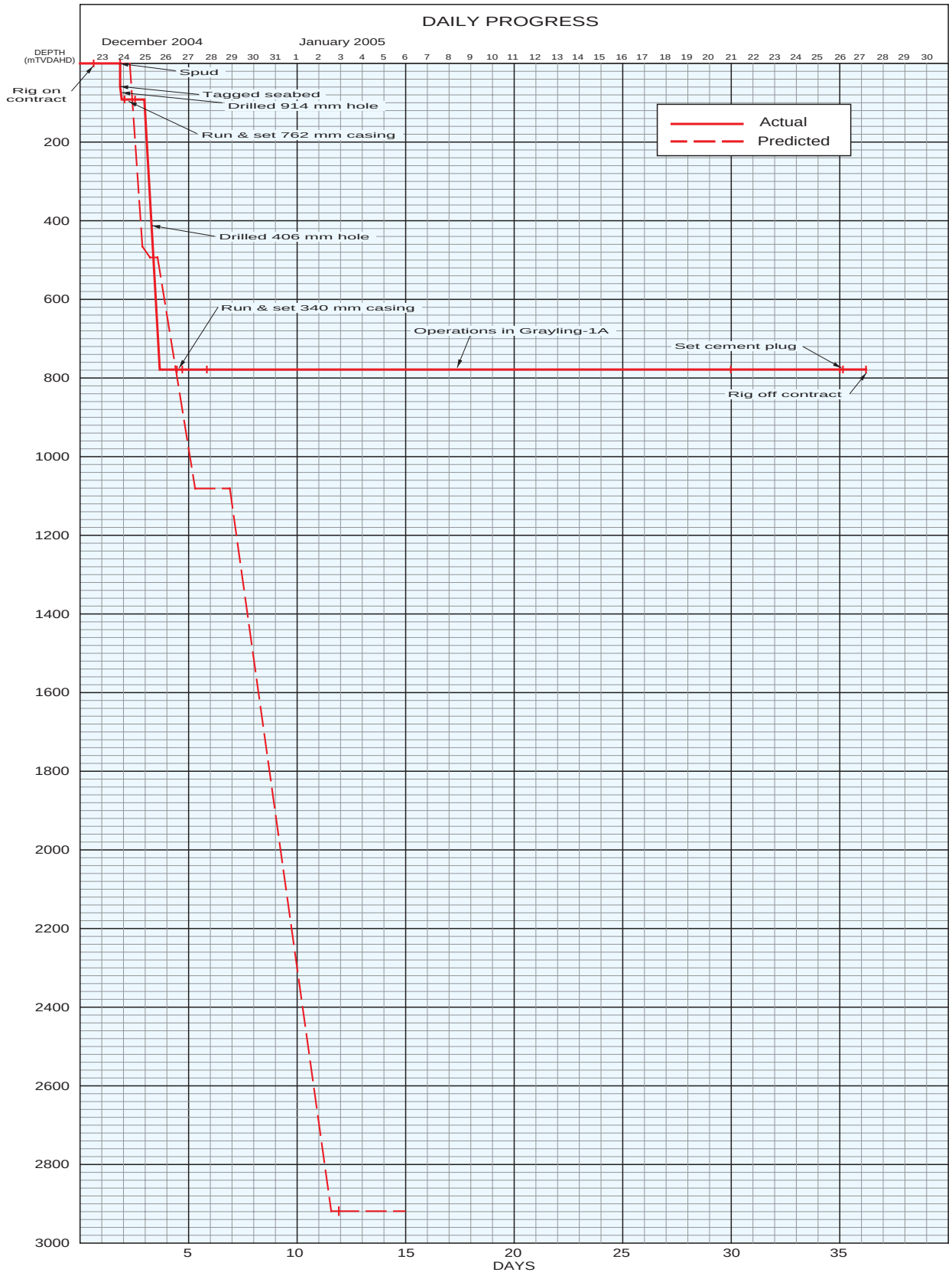
Grayling-1



LATITUDE :	38° 09' 40.26" S	UTM:	5,775,510.94 mN
LONGITUDE :	148° 17' 35.90" E		613,302.06 mE
SPUD DATE :	23 December 2004, 20:30 hrs		
REACHED T.D.:	25 December 2004, 15:30 hrs		
ELEVATION R.T.:	21.5 m above AHD		
WATER DEPTH :	58.5 m below AHD		
SEA BED :	80.0 m below R.T.		
STATUS :	Plugged & Abandoned		
RIG :	Ocean Patriot		
RIG RELEASED :	27 January 2005, 05:00 hrs		

Apache Energy

VIC/P-54

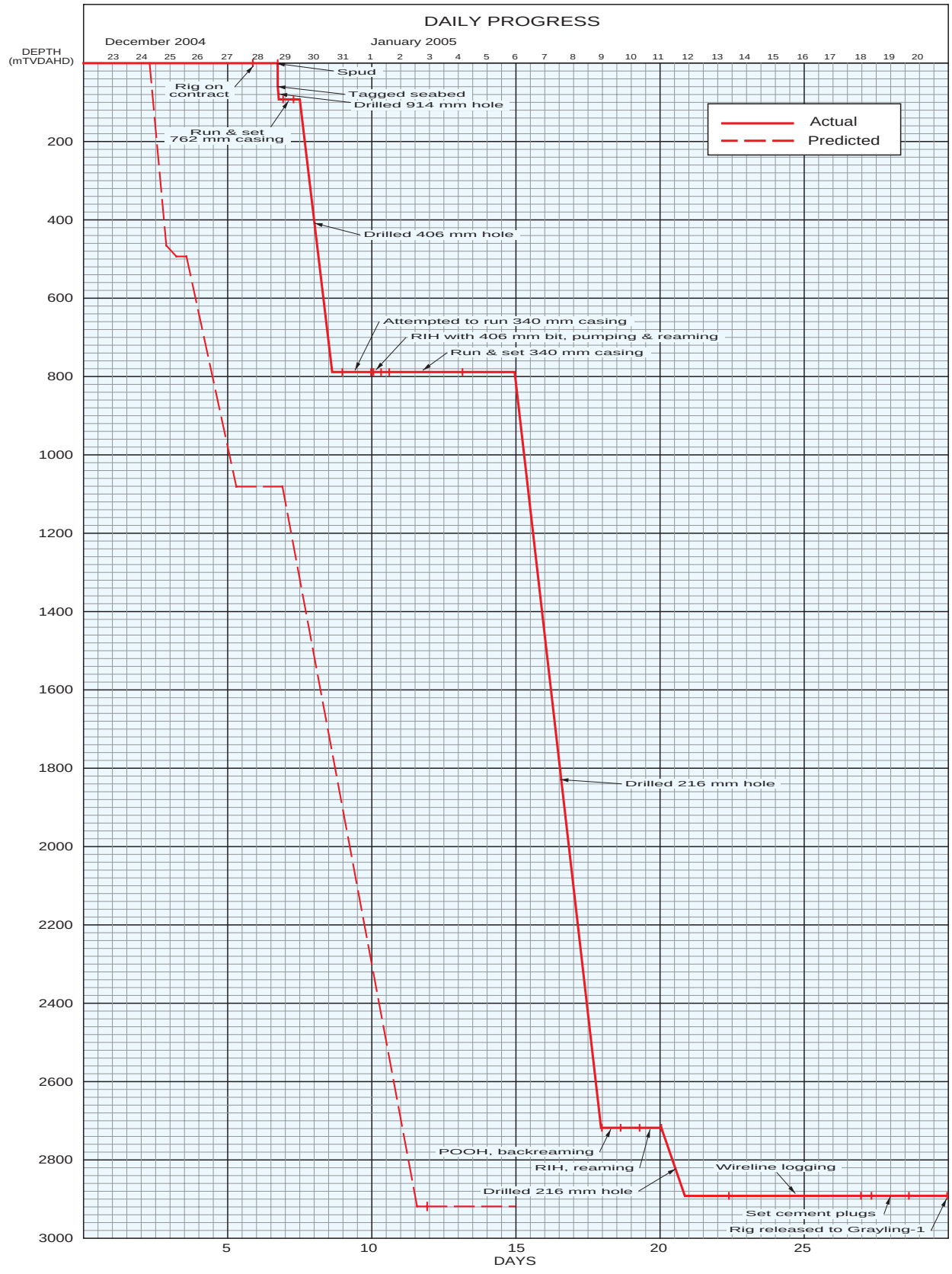
GIPPSLAND BASIN

GRAYLING-1

WELL HISTORY

Author :	WCR	Date :	June 2005
Drawn :	Perth Exploration Dept.	Plan No.	WHu8984

Grayling-1A



LATITUDE :	38° 09' 40.28" S	UTM:	5,775,510.58 mN
LONGITUDE :	148° 17' 34.73" E		613,273.61 mE
SPUD DATE :	28 December 2004, 16:30 hrs		
REACHED T.D.:	11 January 2005, 14:30 hrs		
ELEVATION R.T.:	21.5 m above AHD		
WATER DEPTH :	58.5 m below AHD		
SEA BED :	80.0 m below R.T.		
STATUS :	Plugged & Abandoned		
RIG :	Ocean Patriot		
RIG RELEASED :	20 January 2005, 23:00 hrs		

Apache Energy

VIC/P-54

GIPPSLAND BASIN

GRAYLING-1A

WELL HISTORY

Author :	WCR	Date :	June 2005
Drawn :	Perth Exploration Dept.	Plan No.	WHu8982

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	(m)	(m)		1	22/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			0.50

SUPERVISOR	OIM
D. Kirkwood / K.Corps	S. Freitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 1,501,542.75	DHC: 1,501,542.75
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 1,501,543.00	TOTAL: 1,501,542.75

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
	VIC P/54		

LAST SURVEY			ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD	INC	AZM	(SG)	762.000 (mm) @ (m)	(mm) @ (m)

CURRENT OPERATIONS

Attempting to free anchor No.2 and grapple anchor No.3.

24 HR FORECAST

Complete anchor running. Spud well.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
14:30	18:30	4.00	MIRU	S	01	Rig on tow from Longtom-1 Location. Far Grip on tow bridle. No.5 anchor decked on Pacific Wrangler. Position @ 16:00 hrs travelling @ 1.6 knots. 38° 07.9' South 148° 18' East Position @ 17:00 hrs travelling @ 1.2 knots. 38° 09.2' South 148° 17.5' East
18:30	19:00	0.50	MIRU	S	01	No.5 anchor on bottom @ 18:30 hrs. No.5 PCC ran back in and passed to rig.
19:00	21:00	2.00	MIRU	S	01	No.1 PCC passed to Pacific Wrangler and No.1 anchor ran out. No.1 PCC ran back in and passed to the rig.
21:00	22:00	1.00	MIRU	S	01	No.4 PCC passed to Pacific Wrangler and No.4 anchor ran out. No.4 PCC ran back in and passed to the rig.
22:00	23:30	1.50	MIRU	S	01	No.8 PCC passed to Pacific Wrangler and No.8 anchor ran out. No.8 PCC ran back in and passed to the rig.
23:30	00:00	0.50	MIRU	S	01	Far Grip taken off tow bridle. No.7 PCC passed to Pacific Wrangler and No.7 anchor ran out. No.3 PCC passe to Far Grip. No.3 PCC wrapped around anchor - rectified problem and began running No.3 anchor out.

9.50 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 No.7 PCC ran back in and passed to the rig. No.3 PCC parted - Far Grip rigged up to grapple anchor chain.

00:30 - 01:30 No.6 PCC passed to Pacific Wrangler and No.6 anchor ran out. No.6 PCC ran back in and passed to the rig.

01:30 - 02:00 No.2 PCC passed to Pacific Wrangler and No.2 anchor ran out. Far Grip alongside to change out PCC.

02:00 - 02:30 No.2 anchor hauled onto Pacific Wrangler to check orientation - OK. No.2 anchor ran out.

02:30 - 03:00 Pacific Wrangler began running in No.6 PCC.

03:00 - 03:30 Tension taken on Pacific Wrangler work wire. Brought PCC to stern roller to see if anchor dragging. Anchor not draging.

03:30 - 04:30 Far Grip began grappling for No.3 anchor chain. Pacific Wrangler ran PCC back to anchor and returned back to stuck point.

04:30 - 06:00 Pacific Wrangler reported bite in anchor chain and could not move pennant back to the rig or to the anchor. Attempted to free pennant with tension on anchor chain - no go. Released tension. Far grip continued grapple operations.

No incidents reported. 17 proactive safety measures.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE	
#					SPP:
#					AV (DP): (m/min) AV Riser: (m/min)
#					AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	(m)	(m)		1	22/12/2004

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		Apache	3	
SPERRY MWD	3		DODI	15	
SPERRY Mudlogging	4		DOGC	28	
Diamond 3rd party	2		OMS	2	
SMITH	1		TMS	10	
FUGRO Survey	2		FUGRO ROV	4	
CAMERON	1		Dowell Schlumberger	2	
MO47	2				

Total Personnel on Board: 80

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	54	84	56		194
CEMENT	45	88	43		176
DIESEL	296	578	458		1,332
GEL, FRESH	50	42	42		134
WATER, DRILLING	360	668	0		1,028
WATER, POTABLE	352	235	194		781

Total Water 1,809

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (Running Anchors)	SUPPLY BOAT	Pacific Wrangler (Running Anchors)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,909	651			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	8 / 180	1 / 180 / 3	1.00 / 180 / 3	15 / 180	-18 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005				

INCIDENT REPORT

INCIDENT TYPE NONE
LOST TIME? NO
DAYS W/O LTA 1
INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	(m)	(m)	1.00	2	23/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			1.50

SUPERVISOR	OIM
D. Kirkwood / K.Corps	S. Freitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 342,159.00	DHC: 1,843,701.75
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 342,159.00	TOTAL: 1,843,701.75

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
	VIC P/54		

LAST SURVEY			ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD	INC	AZM	(SG)	762.000 (mm) @ (m)	(mm) @ (m)

CURRENT OPERATIONS

Mixing and pumping cement slurry.

24 HR FORECAST

Run and cement conductor. M/U16" BHA and begin drilling.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	MIRU	S	01	No.7 PCC ran back in and passed to the rig. No.3 PCC parted - Far Grip rigged up to grapple anchor chain.
00:30	01:30	1.00	MIRU	S	01	No.6 PCC passed to Pacific Wrangler and No.6 anchor ran out. No.6 PCC ran back in and passed to the rig.
01:30	02:00	0.50	MIRU	S	01	No.2 PCC passed to Pacific Wrangler and No.2 anchor ran out. Far Grip alongside to change out PCC.
02:00	02:30	0.50	MIRU	S	01	No.2 anchor hauled onto Pacific Wrangler to check orientation - OK. No.2 anchor ran out.
02:30	03:00	0.50	MIRU	S	01	Pacific Wrangler began running in No.6 PCC.
03:00	03:30	0.50	MIRU	S	01	Tension taken on Pacific Wrangler work wire. Brought PCC to stern roller to see if anchor dragging. Anchor not dragging.
03:30	04:30	1.00	MIRU	T	01	Far Grip began grappling for No.3 anchor chain. Pacific Wrangler ran PCC back to anchor and returned back to stuck point.
04:30	06:30	2.00	MIRU	T	01	Pacific Wrangler reported bite in anchor chain and could not not move pennant back to the rig or to the anchor. Attempted to free pennant with tension on anchor chain - no go. Released tension. Far grip continued grapple operations.
06:30	08:00	1.50	MIRU	T	01	Anchor No.2 freed up - chased anchor in and re-ran.
08:00	09:00	1.00	MIRU	T	01	No.2 PCC ran back in and passed to rig. Far Grip grappled anchor No.3 brought onto stern roller - replaced broken PCC.
09:00	10:00	1.00	MIRU	S	01	Anchor No.3 ran out. No.3 PCC ran back and passed back to rig.
10:00	12:00	2.00	MIRU	S	01	Pre-tensioned anchors. Re-ran anchor No.3 - not holding tension.
12:00	13:00	1.00	C-DRL	S	14	Made up side entry sub assembly and and racked back. Made up 762mm running tool to HWDP stand and racked back. Continued pre-tensioning anchors.
13:00	16:00	3.00	C-DRL	S	40	Rigged up 762mm running equipment and made up 762mm conductor string. Re-ran anchor No.3 - anchor wrong way round. Finished pre-tensioning of anchors.
16:00	17:30	1.50	C-DRL	S	40	Rigged down 762 handling equipment. Picked up 762mm casing running tool - ran conductor and landed out on PGB in moonpool.
17:30	18:00	0.50	C-DRL	S	40	Backed out 762mm casing running tool and racked back.
18:00	19:00	1.00	C-DRL	T	40	Laid out 2 joints HWDP (bent whilst racking running tool). Picked up 2 new joints and made up to 762mm casing running tool.
19:00	20:30	1.50	C-DRL	S	14	Re-arranged drill collars in derrick. Picked up 762mm hole opener and made up 660mm bit. Completed making up 762mm BHA and ran in hole. Tagged seabed @ 80m. Anderdrift survey 2degrees.
20:30	22:00	1.50	C-DRL	S	10	Spudded well and drilled from 80m to 113.3m, pumping 8m3 Hi-Vis sweeps every joint.
22:00	22:30	0.50	C-DRL	S	40	Pumped 16m3 Hi-Vis sweep and displaced with seawater. Attempted to take anderdrift survey - no go.
22:30	00:00	1.50	C-DRL	S	40	Spotted 16m3 Hi-Vis around BHA. Broke out connection at rotary table and ran Totco survey on wireline. Inclination - 1 deg.

24.00 = Total Hours Today

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	(m)	(m)	1.00	2	23/12/2004

06:00 UPDATE

00:00 - 00:30 Displaced a further 16m3 Hi-Vis pill around BHA. Performed wiper trip to seabed and back to bottom - Hole condition good.

00:30 - 01:00 Pulled out of hole - racked BHA.

01:00 - 02:00 Held JSA - Rigged up to run 762mm conductor.

02:00 - 03:00 Made up 762mm conductor running tool. RIH to moonpool - made up running tool to conductor housing in PGB.

03:00 - 04:00 Ran conductor/PGB on HWDP to bottom - washed down last 2m. Shoe @ 112m.

04:00 - 04:30 Made up side entry sub and cement hose. Checked bullseye with ROV - +1.5deg.

04:30 - 05:30 Worked conductor string and guide lines while circulating to level conductor/PGB. Bullseye reading - 1deg.

05:30 - 06:00 Pressure tested lines. Pumped 16m3 fluorescent dye ahead. Began mixing and pumping 1.9SG slurry.

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
1 / 1	914.40	Security	XNIC	10426284	28/25/25/25///////	80.00 / 23/12/2004	0-0------

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP

BHA / HOLE CONDITIONS

BHA	1	JAR S/N		JAR HRS		BIT	1

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
					119.73

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Tri-Cone Bit	1	0.57	660.40		7.6	API REG
Hole Opener	1	1.75	916.00		7.6	API REG
Float Sub	1	0.95	244.00	76.20	7.6	API REG
Aderdrift tool	1	2.93				API REG
Drill Collar	3	27.65	241.30	76.20	7.6	API REG
Cross Over	1	1.10	241.30	73.02	6.6	API REG
Drill Collar	3	27.70	225.40	73.05	6.6	API REG
Cross Over	1	1.13	165.10	71.43	4.5	NC50IF
Heavy Weight Drill Pipe	6	55.95	127.00			

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		DODI	15	
SPERRY MWD	3		DOGC	28	
SPERRY Mudlogging	4		OMS	3	
FUGRO Survey	1		TMS	11	
CAMERON	1		FUGRO ROV	4	
Apache	5		Dowell Schlumberger	2	

Total Personnel on Board: 78

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	45	84	58		187
CEMENT	45	88	43		176
DIESEL	289	564	455		1,308
GEL, FRESH	32	42	42		116

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	(m)	(m)	1.00	2	23/12/2004

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
WATER, DRILLING	163	668	0		831
WATER, POTABLE	354	233	193		780

Total Water 1,611

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (13 Pax on, 15 Pax off)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,909	651			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	8 / 180	1 / 180 / 3	1.00 / 180 / 3	15 / 180	10 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005				

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 2

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	174.00 (m)	174.00 (m)	174.00 (m)	2.00	3	24/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			2.50

SUPERVISOR	OIM
D. Kirkwood / K.Corps	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 425,855.00	DHC: 2,269,556.75
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 425,855.00	TOTAL: 2,269,556.75

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
18/12/2004	VIC P/54		

LAST SURVEY			ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD	INC	AZM	(SG)	762.000 (mm) @ 112.00 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS

Drilling ahead 406mm hole section.

24 HR FORECAST

Drill to section TD - POH. Rig up to run 340mm casing.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	S-DRL	S	15	Displaced a further 16m3 Hi-Vis pill around BHA. Performed wiper trip to seabed and back to bottom - Hole condition good.
00:30	01:00	0.50	S-DRL	S	12	Pulled out of hole - racked BHA.
01:00	02:00	1.00	S-DRL	S	40	Held JSA - Rigged up to run 762mm conductor.
02:00	03:00	1.00	S-DRL	S	40	Made up 762mm conductor running tool. RIH to moonpool - made up running tool to conductor housing in PGB.
03:00	04:00	1.00	S-DRL	S	40	Ran conductor/PGB on HWDP to bottom - washed down last 2m. Shoe @ 112m.
04:00	04:30	0.50	S-DRL	S	40	Made up side entry sub and cement hose. Checked bullseye with ROV - +1.5deg.
04:30	05:30	1.00	S-DRL	S	40	Worked conductor string and guide lines while circulating to level conductor/PGB. Bullseye reading - 1deg.
05:30	07:00	1.50	S-DRL	S	41	Pressure tested lines. Pumped 16m3 fluorescent dye ahead. Began mixing and pumping 1.9SG slurry.
07:00	10:30	3.50	S-DRL	S	45	Held conductor in position with running tool while waiting on cement.
10:30	11:30	1.00	S-DRL	S	40	Released running tool. Pulled out of hole and laid out same. Checked bullseye with ROV - 0.75 deg.
11:30	13:30	2.00	S-DRL	S	14	Laid out 762mm Hole Opener BHA and 241mm drill collars.
13:30	17:30	4.00	S-DRL	S	14	Rearranged HWDP in derrick for 406mm hole section. Made up running tools for 476mm wellhead housing. Made up 340mm plug launching head to drill pipe.
17:30	18:30	1.00	S-DRL	S	14	Made up 406mm BHA - changed out string stabilizer (Smaller one changed out from last well).
18:30	19:30	1.00	S-DRL	S	14	Uploaded Sperry MWD tools. Installed guide ropes on BHA.
19:30	20:00	0.50	S-DRL	T	50	Replaced fallen washer from racking arm.
20:00	21:00	1.00	S-DRL	S	12	Ran in hole with 406mm BHA. Tagged cement @ 104.6m.
21:00	21:30	0.50	S-DRL	S	14	Shuffled BHA for drilling out shoe track.
21:30	22:00	0.50	S-DRL	S	10	Drilled out cement and shoe track from 104.6m to 147m.
22:00	23:00	1.00	S-DRL	S	12	POH and reshuffled BHA for drilling ahead.
23:00	00:00	1.00	S-DRL	S	10	Drilled 406mm hole from 147m to 174m. Ave ROP - 27m/hr.
		24.00 = Total Hours Today				

06:00 UPDATE

00:00 - 06:00 Drilled 406mm hole from 174m to 480m, pumping 4.8m3 Hi-Vis sweeps mid-stand and spotting 7.2m3 Hi-Vis on connections. Ave ROP - 51m/hr.

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
1 / 1	914.40	Security	XNIC	10426284	28/25/25/25//////	80.00 / 23/12/2004	0-0------
2 / 1	406.40	Security	FS2563		18/18/18/18/18/18/18///	113.30 / 24/12/2004	2-4-BT-G-D- I-CT-TD

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	174.00 (m)	174.00 (m)	174.00 (m)	2.00	3	24/12/2004

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
2 / 1	2.3 / 6.9	50 / 80	2,800.0	14,500	977	1.50	35.00	23.33	1.00	35.00	23.33

BHA / HOLE CONDITIONS

BHA	2	JAR S/N	70015C	JAR HRS	1.50	BIT	2

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
21.0	72.7	72.7	72.7	N-m	257.96

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit	1	0.43	406.40		6.6	API REG
Positive Displacement Motor	1	8.59	241.30		7.6	API REG
Cross Over	1	0.87	236.50		6.6	API REG
Intergral Blade Stabilizer	1	2.24	374.65		6.6	API REG
Float Sub	1	0.78	205.74	76.20	6.6	API REG
Gamma/Res	1	6.89	203.20		6.6	API REG
Sonic	1	9.00	203.20			API REG
DM	1	2.77	203.20			API REG
Pulser	1	3.12	203.20			API REG
Drill Collar	5	45.82	203.20	73.00	6.6	API REG
Drilling Jar	1	9.86	209.55	76.20	6.6	API REG
Drill Collar	3	27.05	203.20	76.20	6.6	API REG
Cross Over	1	1.13	165.10	73.00	4.5	NC50IF
Heavy Weight Drill Pipe	15	139.41	127.00	76.20	4.5	NC50IF

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	83	6.0	1,313.54
#2	12.0	83	6.0	1,313.54
#				

SPP: 14,500 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 7.074 (kW/cm²)

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		DOGC	28	
SPERRY MWD	3		OMS	3	
SPERRY Mudlogging	4		TMS	11	
CAMERON	1		FUGRO ROV	4	
Apache	3		Dowell Schlumberger	2	
DODI	14		WEATHERFORD	2	

Total Personnel on Board: 76

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	32	84	56		172
CEMENT	50	88	0		138
DIESEL	277	552	432		1,261
GEL, FRESH	56	42	0		98
WATER, DRILLING	609	0	0		609
WATER, POTABLE	359	229	191		779

Total Water 1,388

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (13 Pax on, 15 Pax off)
SUPPLY BOAT	Pacific Wrangler (On Location)		

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	174.00 (m)	174.00 (m)	174.00 (m)	2.00	3	24/12/2004

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,909	651			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	13 / 225	3 / 225 /	1.00 / 225 /	25 / 225	10 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	18/12/2004			18/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 3

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	626.00 (m)	800.00 (m)	800.00 (m)	3.00	4	25/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			3.50

SUPERVISOR	OIM
D. Kirkwood / K.Corps	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 330,065.33	DHC: 2,599,622.08
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 330,065.00	TOTAL: 2,599,622.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
18/12/2004	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 (m) INC 1.410 AZM 130.700	(SG)	762.000 (mm) @ 112.00 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS
Running 340mm casing.

24 HR FORECAST
Run and cement 340mm casing. Run BOP's.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	15:30	15.50	1-DRL	S	10	Drilled 406mm hole from 174m to 800m, pumping 4.8m3 Hi-Vis sweeps mid-stand and spotting 7.2m3 Hi-Vis on connections. Ave ROP - 40.4m/hr.
15:30	17:00	1.50	1-DRL	T	50	Unable to break out TDS. Electrical fault suspected, began trouble shooting problem. (Planned section TD was 805m)
17:00	19:00	2.00	1-DRL	T	50	Called section TD short by 5 meters. Commenced displacement. Pumped 24m3 of Hi-Vis and circulated out while continuing to trouble shoot electrical problem with TDS break out on pipe handler. Lost ability to rotate string - continued to work pipe while trouble shooting.
19:30	20:00	0.50	1-DRL	S	88	Rectified TDS problem. Displaced well to 68.4m3 1.2 Sg 1.15% KCL mud.
20:00	21:00	1.00	1-DRL	S	12	Pulled out of hole to BHA - Hole condition good.
21:00	22:00	1.00	1-DRL	S	14	Racked HWDP and drill collars.
22:00	23:00	1.00	1-DRL	S	14	Down loaded Sperry MWD tools and racked back in derrick.
23:00	00:00	1.00	1-CSG	S	40	Rigged up to run 340mm casing.

23.50 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Held JSA. Continued to rig up to run 340mm casing.

00:30 - 01:30 Made up shoe track and flow checked same. Installed guide ropes on guide lines.

01:30 - 06:00 Ran in hole - stabbed into 762mm conductor and continued to run in hole 600m - filling each joint with PHG.

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
2 / 1	406.40	Security	FS2563		18/18/18/18/18/18/18///	113.30 / 24/12/2004	2-4-BT-G-D- I-CT-TD

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
2 / 1	2.3 / 6.9	50 / 100	2,800.0	20,000	977	15.50	686.70	44.30	17.00	721.70	42.45

BHA / HOLE CONDITIONS

BHA	2	JAR S/N	70015C	JAR HRS	17.00	BIT	2

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
21.0	93.2	93.2	93.2	6,700 N-m	257.96

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit	1	0.43	406.40		6.6	API REG
Positive Displacement Motor	1	8.59	241.30		7.6	API REG
Cross Over	1	0.87	236.50		6.6	API REG
Intergral Blade Stabilizer	1	2.24	374.65		6.6	API REG
Float Sub	1	0.78	205.74	76.20	6.6	API REG
Gamma/Res	1	6.89	203.20		6.6	API REG

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	626.00 (m)	800.00 (m)	800.00 (m)	3.00	4	25/12/2004

BHA / HOLE CONDITIONS

BHA	2	JAR S/N	70015C	JAR HRS	17.00	BIT	2

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Sonic	1	9.00	203.20			API REG
DM	1	2.77	203.20			API REG
Pulser	1	3.12	203.20			API REG
Drill Collar	5	45.82	203.20	73.00	6.6	API REG
Drilling Jar	1	9.86	209.55	76.20	6.6	API REG
Drill Collar	3	27.05	203.20	76.20	6.6	API REG
Cross Over	1	1.13	165.10	73.00	4.5	NC50IF
Heavy Weight Drill Pipe	15	139.41	127.00	76.20	4.5	NC50IF

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	84	6.0	1,358.96
#2	12.0	84	6.0	1,358.96
#3	12.0	82	6.0	1,324.89

SPP: 20,000 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 7.074 (kW/cm²)

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #3		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		DOGC	28	
SPERRY MWD	3		OMS	3	
SPERRY Mudlogging	4		TMS	11	
CAMERON	1		FUGRO ROV	4	
Apache	3		Dowell Schlumberger	2	
DODI	14		WEATHERFORD	2	

Total Personnel on Board: 76

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	32	84	56		172
CEMENT	140	88	0		228
DIESEL	264	552	422		1,238
GEL, FRESH	36	42	0		78
WATER, DRILLING	592	0	0		592
WATER, POTABLE	377	229	190		796

Total Water 1,388

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (Enroute to Melbourne)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,909	651			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	8 / 202	2 / 200 /	1.00 / 202 /	10 / 200	10 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	18/12/2004			18/12/2004

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	626.00 (m)	800.00 (m)	800.00 (m)	3.00	4	25/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE
LOST TIME? NO
DAYS W/O LTA 4
INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
	0.00	0.000	0.000	0.00	0.00	0.00	0.00	
	168.24	0.960	152.160	168.23	-1.25	0.66	-1.25	0.17
	197.54	0.470	169.840	197.53	-1.58	0.79	-1.58	0.54
	394.65	0.430	128.970	394.63	-2.84	1.51	-2.84	0.05
	423.98	0.360	137.160	423.96	-2.98	1.66	-2.98	0.09
	452.05	0.370	121.450	452.03	-3.09	1.80	-3.09	0.11
	479.01	0.580	106.740	478.99	-3.18	2.00	-3.18	0.27
	509.69	0.910	102.300	509.67	-3.27	2.39	-3.27	0.33
	538.17	1.120	101.870	538.14	-3.38	2.88	-3.38	0.22
	568.10	1.340	94.080	568.07	-3.46	3.52	-3.46	0.28
	681.45	1.310	117.170	681.39	-4.15	5.99	-4.15	0.14
	709.64	1.070	117.400	709.57	-4.42	6.51	-4.42	0.26
	735.76	1.210	137.570	735.69	-4.73	6.92	-4.73	0.49
	765.37	1.410	130.700	765.29	-5.20	7.40	-5.20	0.26

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	4.00	5	26/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			4.50

SUPERVISOR	OIM
D. Kirkwood / K.Corps	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 528,731.00	DHC: 3,128,353.08
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 528,731.00	TOTAL: 3,128,353.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS
Waiting on Logging Crew

24 HR FORECAST
Back off running tool. Skid across and re-spud.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	1-CSG	S	40	Held JSA. Continued to rig up to run 340mm casing.
00:30	01:30	1.00	1-CSG	S	40	Made up shoe track and flow checked same. Installed guide ropes on guide lines.
01:30	06:30	5.00	1-CSG	S	40	Ran in hole - stabbed into 762mm conductor and continued to run in hole to 662m - filling each joint with PHG.
06:30	08:30	2.00	1-CSG	S	40	Casing held up at 662m -Unable to run in under own weight. Worked and washed casing down to 685m. Indications of possible ledge.
08:30	09:00	0.50	1-CSG	S	40	Rigged down 340mm casing running gear and changed out to 127mm drill pipe running gear.
09:00	12:00	3.00	1-CSG	S	40	Picked up 476mm wellhead housing joint on running tool and made up to 340mm casing. Worked and washed casing to bottom on 127mm HWDP (Easier to run to bottom from 710m, however still resistance at times) - mad up cement head. Casing shoe @ 783.9m.
12:00	13:00	1.00	1-CSG	S	40	Circulated annulus clean.
13:00	13:30	0.50	1-CSG	S	40	Rigged up cement hose. Broke circulation and pressure tested lines to 28000kPa.
13:30	14:30	1.00	1-CSG	S	40	Dropped first dart and released bottom plug. Mixed and pumped 13.3m3 1.5SG lead slurry and 8.9m3 1.9SG tail slurry. Dropped second dart and released top plug. Displaced 1.6m3 water with cement unit.
14:30	15:00	0.50	1-CSG	S	40	Switched to rig pumps and displaced cement with 52.7m3 SW. Bumped plugs. Pressured up on casing to 26,200kPa before pressure bled down at the same instant a slight jar was felt at the rig floor - (wellhead running tool broke).
15:00	16:00	1.00	1-CSG	T	40	Rigged down cement hose. Attempted to back out running tool - tool would not release from wellhead. ROV vision showed that outer body on runnning tool had parted. Even though setting dogs had released correctly, attempts to pick up running tool re-engaged dogs not allowing tool to release.
16:00	00:00	8.00	1-CSG	T	40	Continued to work a combination of rotation, weight and overpull to the running tool in an attempt to release it - no go. ROV vision clearly showed damage to outer body on running tool.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 06:00 Mobilised Baker logging personnel for back off. Continued to work running tool with combination of rotation, weight and overpull to the running tool in an attempt to release it - no go.

03:00 - 06:00 Backed out top drive - hung off string in elevators in preparation for wireline logging run. Continue efforts to release tool.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:
AV (DP): (m/min) AV Riser: (m/min)
AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	4.00	5	26/12/2004

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		DOGC	28	
SPERRY MWD	3		OMS	3	
SPERRY Mudlogging	4		TMS	11	
CAMERON	1		FUGRO ROV	4	
Apache	3		Dowell Schlumberger	2	
DODI	14		WEATHERFORD	2	

Total Personnel on Board: 76

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	86	84	0		170
CEMENT	119	88	0		207
DIESEL	503	552	158		1,213
GEL, FRESH	36	42	0		78
WATER, DRILLING	386	0	0		386
WATER, POTABLE	376	229	36		641

Total Water 1,027

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (Enroute to Melbourne)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,909	651			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 202	1 / 200 /	/ 202 /	10 / 200	10 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004			26/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 5

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	5.00	6	27/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			5.50

SUPERVISOR	OIM
D. Kirkwood / K.Corps	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 364,618.00	DHC: 3,492,971.08
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 364,618.00	TOTAL: 3,492,971.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS

24 HR FORECAST

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	03:00	3.00	1-CSG	T	40	Mobilised Baker logging personnel for back off. Continued to work running tool with combination of rotation, weight and overpull to the running tool in an attempt to release it - no go.
03:00	06:00	3.00	1-CSG	T	40	Backed out top drive - hung off string in elevators in preparation for wireline logging run. Continued efforts to release tool.
06:00	15:00	9.00	1-CSG	T	40	Continued with attempts to free running tool from 18 3/4" housing. Baker Atlas wireline hands arrived at 09:30. On completion of induction commenced work on building severing tool & prepared slings and sheaves to compensate wireline.
15:00	16:30	1.50	1-CSG	T	40	Radio silence announced & completed JSA on rig floor with all crew. Ran in hole with severing tool to HUD @ 76m. Correlated on depth and fired shot @ 74.5m RT. Good indications at surface of shot fired & pipe free. (Rig up and installation of severing tool into the drillstring proved to be quite difficult due to >40knot winds and heave associated with the inclement weather)
16:30	17:30	1.00	1-CSG	T	40	Pulled out with wireline and rigged down sheaves.
17:30	19:30	2.00	1-CSG	T	40	Laid down Dowell dart launcher / cement head. Pulled out of hole with remainder of HWDP and laid out severed joint.
19:30	20:30	1.00	1-CSG	T	40	Unable to jump ROV due to adverse sea conditions. Pulled weak points on PGB guide posts and recovered guide lines to surface. Prepared to skid rig off Location. ***End of Grayling-1***

20.50 = Total Hours Today

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
TMS	11		Baker Atlas	3	
FUGRO ROV	4		MI	1	
Dowell Schlumberger	2		SPERRY MWD	3	
WEATHERFORD	2		SPERRY Mudlogging	4	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	5.00	6	27/12/2004

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
CAMERON	1		DOGC	28	
Apache	5		OMS	3	
DODI	14				

Total Personnel on Board: 81

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	86	84	0		170
CEMENT	119	88	0		207
DIESEL	495	552	155		1,202
GEL, FRESH	36	42	0		78
WATER, DRILLING	379	0	0		379
WATER, POTABLE	369	229	33		631

Total Water 1,010

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (5 Pax on)
SUPPLY BOAT	Pacific Wrangler (Enroute to rig)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,909	651			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	21 / 230	5 / 230 /	1.00 / 230 /	40 / 230	10 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004			26/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 6

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	6.00	7	20/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			6.50

SUPERVISOR	OIM
H. Everhart/ K.Corps	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 3,492,971.08
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 0.00	TOTAL: 3,492,971.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS

Rigging up cutting frame.

24 HR FORECAST

RIH. Cut wellhead and retrieve same.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
23:00	00:00	1.00	RDMO	T	44	Picked up 241mm drill collars.

1.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:00 Attempted to make up 206mm overshot and extension - overshot crushed while making up with iron roughneck. Connected spears to guidelines 1&2.

02:00 - 02:00 Changed out overshot and installed grapple. Installed spears in guideposts 1&2 with ROV assistance.

03:00 - 04:00 RIH with overshot assembly - picking up 241mm drill collars.

04:00 - 05:30 Repositioned rig over wellhead and latched overshot on HWDP stump.

05:30 - 06:00 Attempted to pull wellhead running tool free from wellhead - no go. Attempted to pump running tool free from wellhead - no go.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		OMS	3	
SPERRY Mudlogging	2		TMS	8	
Baker Atlas	2		FUGRO ROV	7	
SMITH	1		Dowell Schlumberger	2	
Apache	3		Cameron	1	
DODI	15		AMOG	1	
DOGC	33				

Total Personnel on Board: 79

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	335	529	338		1,202

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	6.00	7	20/01/200

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
GEL, FRESH	40	42	56		138
WATER, DRILLING	331	485	400		1,216
WATER, POTABLE	310	268	608		1,186

Total Water 2,402

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (On Location)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,910	650			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 45	0 / 45 /	/ 45 /	3 / 45	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			26/12/2004	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 31

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	7.00	8	21/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			7.50

SUPERVISOR	OIM
H. Everhart/ K.Corps	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 3,492,971.08
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 0.00	TOTAL: 3,492,971.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS

Changing out hydraulic pump on ROV

24 HR FORECAST

Run ROV to bottom and continue cutting wellhead/running tool

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:00	2.00	RDMO	T	44	Attempted to make up 206mm overshot and extension - overshot crushed while making up with iron roughneck. Connected spears to guidelines 1&2.
02:00	03:00	1.00	RDMO	T	44	Changed out overshot and installed grapple. Attached shroud to top of overshot. Installed spears in guideposts 1&2 with ROV assistance.
03:00	04:00	1.00	RDMO	T	44	RIH with overshot assembly - picking up 241mm drill collars.
04:00	05:30	1.50	RDMO	T	44	Repositioned rig over wellhead and latched overshot on HWDP stump.
05:30	07:30	2.00	RDMO	T	44	Attempted to pull wellhead running tool free from wellhead - no go. Attempted to pump running tool free from wellhead - no go. Worked pipe with 15MT down and 18MT up while attempting to pump running tool out of wellhead - no go.
07:30	08:00	0.50	RDMO	T	44	Released shroud with ROV. Aligned non-rotating gaps and landed shroud in wellhead/over running tool. Attempted to work shroud with ROV to push down over RT setting dogs - no go.
08:00	10:00	2.00	RDMO	T	44	Rigged up hydraulic diamond wire cutting tool. Ran cutting tool down on guidewires and landed out on top of PGB with ROV assistance.
10:00	11:00	1.00	RDMO	T	44	Rigged up hydraulic unit. Initial operating problems experienced with hydraulic unit - rectified same.
11:00	14:00	3.00	RDMO	T	44	Positioned ROV behind cutting frame and began cutting 476mm(ID) wellhead housing. 50mm total depth of cut t this point.
14:00	15:00	1.00	RDMO		44	Suspended cutting and ran hooks down on guidelines 3&4 and hooked onto shroud handle with ROV assistance. Attempted to pull shroud free with 5MT (guideline) overpull - no go. Attempted to pull running tool free while pumping - no go. Max overpull - 50MT. Max pump pressure @ 4,900 l/m - 8,300 kPa. Released hooks from shroud with ROV & retrieved to surface.
15:00	21:00	6.00	RDMO	T	44	Positioned ROV behind cutting frame and re-commenced cutting 476mm(ID) wellhead housing. 90mm total depth of cut to this point.
21:00	22:00	1.00	RDMO	T	44	Suspended cutting attempted to attach guidelines 3&4 onto shroud handles for another attempt to pull free.
22:00	00:00	2.00	RDMO	T	44	ROV experienced hydraulic system difficulties. Retrieved ROV to surface and inspected - hydraulic pump failur Began changing out hydraulic pump.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 06:00 Continued to change out hydraulic pump on ROV.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	7.00	8	21/01/2005

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		OMS	3	
SPERRY Mudlogging	2		TMS	9	
Baker Atlas	2		FUGRO ROV	7	
SMITH	1		Dowell Schlumberger	2	
Apache	3		Cameron	1	
DODI	15		AMOG	1	
DOGC	32				

Total Personnel on Board: 79

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	326	519	332		1,177
GEL, FRESH	40	42	56		138
WATER, DRILLING	310	485	400		1,195
WATER, POTABLE	290	266	603		1,159

Total Water 2,354

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (8 Pax on, 8 Pax off)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,910	650			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	6 / 225	0 / 225 / 6	/ 225 / 6	15 / 225	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			26/12/2004	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 32

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	8.00	9	22/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			8.50

SUPERVISOR	OIM
H. Everhart/ K.Corps	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 3,492,971.08
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 0.00	TOTAL: 3,492,971.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS
Cutting 476mm wellhead.

24 HR FORECAST
Cut 476mm wellhead and retrieve same.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	07:30	7.50	RDMO	T	44	Changed out damaged hydraulic pump on ROV.
07:30	08:30	1.00	RDMO	T	44	Jumped ROV and continued cutting 476mm(ID) wellhead housing.
08:30	09:00	0.50	RDMO	T	44	Suspended cutting and ran hooks down on guidelines 3&4 and hooked onto shroud handle with ROV assistance. Pulled shroud free with 7MT overpull and 8,300 kPa pump pressure. Retrieved shroud to surface and secured in moonpool. Pulled 7MT overpull on well head RT and held in upper position, allowing the cut to be made in a 'thinner' section of the running tool.
09:00	14:30	5.50	RDMO	T	44	Continued cutting 476mm(ID) wellhead housing. Total depth of cut - 150mm. Ave ROP - 9.5mm/hr
14:30	20:00	5.50	RDMO	T	44	Thruster failure on ROV. Ceased cutting and retrieved cutting frame and ROV. Changed out vertical thruster servo on ROV and changed out cutting wire on cutting frame. Measured diamond cutters on new and used cutting wire - 10.99mm
20:00	20:30	0.50	RDMO	T	44	Ran cutting frame down on guidewires and landed out on top of PGB with ROV assistance.
20:30	00:00	3.50	RDMO	T	44	Recommenced cutting 476mm(ID) wellhead housing. Total depth of cut - 190mm. Ave ROP - 11.5mm/hr

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 06:00 Continued cutting 476mm wellhead with diamond wire cutting frame. Total depth of cut - 240mm. Ave ROP - 8.5mm/hr.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:
AV (DP): (m/min) AV Riser: (m/min)
AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		OMS	3	
SPERRY Mudlogging	2		TMS	9	
Baker Atlas	2		FUGRO ROV	7	
SMITH	1		Dowell Schlumberger	2	
Apache	3		Cameron	1	
DODI	15		AMOG	1	
DOGC	32				

Total Personnel on Board: 79

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	8.00	9	22/01/200

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	315	519	322		1,156
GEL, FRESH	40	42	56		138
WATER, DRILLING	325	485	400		1,210
WATER, POTABLE	273	263	603		1,139

Total Water 2,349

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (10 Pax on)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,910	650			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 225	0 / 225 / 6	/ 225 / 6	5 / 225	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			26/12/2004	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 33

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	9.00	10	23/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			9.50

SUPERVISOR	OIM
C.Wilson / S.Douglass	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 3,492,971.08
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 0.00	TOTAL: 3,492,971.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
23/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS

Cutting wellhead with diamond wire cutting frame.

24 HR FORECAST

Continue cutting wellhead with diamond wire cutting frame.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	16:00	16.00	RDMO	T	44	Continued cutting 476mm(ID) wellhead with diamond wire cutting frame from 190 mm to 355 mm. Ave ROP - 10.3 mm / hr.
16:00	18:00	2.00	RDMO	T	44	Cutting wire parted. Recovered cutting frame to surface and land on deck.
18:00	19:00	1.00	RDMO	T	44	Cutting wire parted at ferrule. No measurable wear to diamond bands. (OD = 10.99 mm). Observe wear to plastic coating over wire between diamond bands. Waist of wear approx 25% behind trailing edge of each diamond band. Make up new wire.
19:00	19:30	0.50	RDMO	T	44	Moved cutting frame to moonpool and surface test.
19:30	20:00	0.50	RDMO	T	44	Ran cutting frame and umbilical, and land on PGB. Increase overpull on fishing assembly from 7 mt to 10 mt.
20:00	21:30	1.50	RDMO	T	44	Attempted to move lifting chains clear of cutting frame. No go. Strong currents dragging cutting frame hydraulic control lines, and chains across frame.
21:30	00:00	2.50	RDMO	T	44	Waited on tide. ROV remainined on bottom, monitoring sail angle of umbilical. Observed maximum current at 22:30 hrs, falling slowly. Attempted x 2 to resume operations. No go.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Continued wait on currents. Monitor conditions with ROV at sea-bed.

00:30 - 01:00 ROV lifted chains and cutting frame hydraulic control line clear of cutting frame.

01:00 - 01:30 Started hydraulic cutting frame and allow wire to work through existing cut, monitoring progress. Unable to pass previosly cut "zig-zag" section. Assisted cutting frame with ROV - no problems (ie. stalling of wire) when entering old cut with ROV assistance. Observed wire angle and tension OK. Resumed cutting operations. Commenced circulating seawater down drill-pipe at 15 SPM. No observable effect on cutting wire.

01:30 - 06:00 Continued to cut through wellhead from 355 mm to 418 mm. Average ROP = 14 mm / hr. Increased SPM to 20 SPM. No observable effect on cutting wire.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE	
#					SPP:
#					AV (DP): (m/min) AV Riser: (m/min)
#					AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		Baker Atlas	2	
SPERRY Mudlogging	2		SMITH	1	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	9.00	10	23/01/2005

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	3		FUGRO ROV	7	
DODI	15		Dowell Schlumberger	2	
DOGC	32		Cameron	1	
OMS	3		AMOG	1	
TMS	9		BSOC	8	

Total Personnel on Board: 87

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	303	508	316		1,127
GEL, FRESH	40	42	56		138
WATER, DRILLING	307	485	400		1,192
WATER, POTABLE	256	260	592		1,108

Total Water 2,300

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
HELICOPTER	VH-BZU (2 off / 2 on)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,910	650			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 90	1 / 90 / 6	0.50 / 90 / 6	5 / 90	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			23/01/2004	10/10/2004	23/11/2004	23/01/2005

INCIDENT REPORT

INCIDENT TYPE MTI

LOST TIME? NO

DAYS W/O LTA 34

INCIDENT DESCRIPTION Previous back injury incurred on other rig cause discomfort

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	10.00	11	24/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			10.50

SUPERVISOR	OIM
C.Wilson / S.Douglass	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 3,492,971.08
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 0.00	TOTAL: 3,492,971.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
23/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS

Cutting wellhead with hydraulic cutting frame.

24 HR FORECAST

Cut wellhead. Recover Wear bushing. P & A. Anchor Handling.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	RDMO	T	44	Continued waiting on currents. Monitored conditions with ROV at sea-bed.
00:30	01:00	0.50	RDMO	T	44	ROV cleared chains and cutting frame hydraulic control hoses from cutting bed.
01:00	01:30	0.50	RDMO	T	44	Started hydraulic cutting frame and allowed wire to work through existing cut. Monitored progress with ROV. Wire unable to pass through through zig-zag section. Assisted wire through zig zag section with ROV. No problems. Observed wire angle and tensions when at cutting face. All OK.
01:30	18:00	16.50	RDMO	T	44	Resumed cutting operations, circulating at 15 SPM with seawater down drill pipe. Observed wire when commenced circulating - no problems. Continued cutting through wellhead section from 355 mm to 590 mm. Increased circulation to 20 SPM while cutting at 404 mm. Cutting sled moving forward with minimal ROV assistance. Average ROP = 14.2 mm / hr
18:00	22:30	4.50	RDMO	T	44	Continued cutting operations from 590 mm to 630 mm, assisting cutting sled travel with ROV. Average ROP = 8.8 mm / hr.
22:30	00:00	1.50	RDMO	T	44	Removed ROV from cutting frame. Cutting frame hydraulic control hoses dragging across fishing string. Concerned that if wellhead sheared, ROV would be damaged by movement of cutting frame when control hose jumped. Cutting continued without ROV assistance from 630 mm to 636 mm while observing hoses with ROV. Observed continuing filings from cut, and straightening of wire. Average ROP = 4 mm / hr.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:00 Continued cutting wellhead with hydraulic cutting frame, from 636 mm to 645 mm. Occasionally assisted by ROV. Average ROP = 4.5 mm / hr.

02:00 - 06:00 Continued cutting wellhead with hydraulic cutting frame from 645 mm to 663 mm, with permanent assitance from ROV. Average ROP = 4.5 mm / hr.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE	
#1	12.0	25	6.0	401.25	SPP:
#					AV (DP): (m/min) AV Riser: (m/min)
#					AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		DODI	15	
SPERRY Mudlogging	2		DOGC	32	
Baker Atlas	2		OMS	3	
SMITH	1		TMS	9	
Apache	3		FUGRO ROV	7	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	10.00	11	24/01/2005

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Dowell Schlumberger	2		AMOG	1	
Cameron	1		BSOC	8	

Total Personnel on Board: 87

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	288	503	309		1,100
GEL, FRESH	40	42	56		138
WATER, DRILLING	299	485	400		1,184
WATER, POTABLE	242	258	587		1,087

Total Water 2,271

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (On Location)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,909	651			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	5 / 90	1 / 90 / 6	/ /	2 / 90	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			23/01/2004	10/10/2004	24/01/2005	23/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 35

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	11.00	12	25/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			11.50

SUPERVISOR	OIM
C.Wilson / S.Douglass	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 5,259,707.08
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 0.00	TOTAL: 5,259,707.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
23/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS

24 HR FORECAST

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:00	2.00	RDMO	T	44	Continued cutting wellhead with hydraulic cutting frame. Occasionally assisted by ROV.
02:00	06:30	4.50	RDMO	T	44	Continued cutting wellhead with hydraulic cutting frame from 645 mm to 663 mm, with permanent assitance fror ROV.
06:30	08:00	1.50	RDMO	T	44	Cutting wire failed. Wire lost on seabed. (To be recovered later). ROV positioned lifting chains above cutting frame, and frame recovered to surface and placed on deck.
08:00	09:00	1.00	RDMO	T	44	Replaced cutting wire
09:00	10:00	1.00	RDMO	T	44	Lifted cutting frame to moonpool and re-ran, and landed on PGB.
10:00	10:30	0.50	RDMO	T	44	ROV moved lifting gear from cutting frame.
10:30	19:30	9.00	RDMO	T	44	Resumed cutting wellhead with hydraulic cutting frame. Increased overpull to 27 mt. Wellhead severed at 19:20 hrs.
19:30	22:00	2.50	RDMO	T	44	Pulled out of hole and recovered wellhead upper cut section. Laid out fishing assembly and 3 x 229 mm drill collars. SIMOPS - recover cutting frame to surface and commence rigging down associated surface equipment.
22:00	23:30	1.50	RDMO	T	44	Made up fishing spear / grapple assembly and ran in hole and recovered wear bushing with ROV assistance. Pulled out of hole and recovered cut wear bushing. Made service breaks to grapple assembly and laid out same.
23:30	00:00	0.50	RDMO	T	44	Ran in hole with open ended 127 mm drill pipe cementing string to set abandonment cement plug.
		24.00 = Total Hours Today				

06:00 UPDATE

00:00 - 01:00 Continued running in hole with 127 mm drill pipe to 170 m and made up surface cementing lines. Held pre-job JSA for all personnel involved in cement job.

01:00 - 01:30 Broke circulation and confirmed returns with ROV. Pressure tested surface lines and pumped 1.6 m3 seawater. Mixed and pumped 5.4 m3 of 1.9 SG cement slurry. Chased with 0.6 m3 of seawater.

01:30 - 02:00 Rigged down surface cement lines and pulled out of hole to 100 m. Circulated hole clean.

02:00 - 03:00 Continued pull out of hole sideways with 127 mm drill pipe.

03:00 - 04:00 Made up casing cutting assembly and surface tested. RIH with casing cutting assembly. Stabbed into wellhead with ROV assistance. (Difficulties due to flat profile of cut surface, hanging up on stabiliser fins).

04:00 - 05:00 Made up double to TDS and stabbed into wellhead stump with grapple. Tested latch with 25 mt overpull. Established cutting parameters at 11.3 mt overpull, with 30 SPM and 1360 kPa. Started cut at 04:15 hrs. Wellhead released (508 mm casing cut) at 04:50 hrs.

05:00 - 06:00 Pulled out of hole with wellhead cut joint. Laid down cut joint.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE			SPR		
								SPM	PPSR
#					SPP:		PUMPS #		
#					AV (DP): (m/min)	AV Riser: (m/min)	PUMPS #		
#					AV (DC): (m/min)	HP/in2:	PUMPS #		

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	11.00	12	25/01/2005

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
FUGRO ROV	7		SMITH	1	
Dowell Schlumberger	2		Apache	3	
Cameron	1		DODI	15	
BSOC	8		DOGC	32	
MI	1		OMS	3	
SPERRY Mudlogging	2		TMS	9	
Baker Atlas	2				

Total Personnel on Board: 86

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	272	494	302		1,068
GEL, FRESH	40	42	56		138
WATER, DRILLING	307	485	400		1,192
WATER, POTABLE	216	255	582		1,053

Total Water 2,245

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (9 on 10 off)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	0	2,560			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	13 / 90	2 / 90 / 8	1.00 / 90 / 8	2 / 90	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			23/01/2004	10/10/2004	24/01/2005	23/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 36

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	12.00	13	26/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			12.50

SUPERVISOR	OIM
C.Wilson / S.Douglass	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 5,259,707.08
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 0.00	TOTAL: 5,259,707.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
23/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS

Recovering anchors. Far Grip on tow bridle.

24 HR FORECAST

Continue to have recovered anchors.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	01:00	1.00	RDMO	T	44	Continued running in hole with 127 mm drill pipe to 170 m and made up surface cementing lines. Held pre-job JSA for all personnel involved in cement job.
01:00	01:30	0.50	RDMO	T	44	Broke circulation and confirmed returns with ROV. Pressure tested surface lines and pumped 1.6 m3 seawater. Mixed and pumped 5.4 m3 of 1.9 SG cement slurry. Chased with 0.6 m3 of seawater.
01:30	02:00	0.50	RDMO	T	44	Rigged down surface cement lines and pulled out of hole to 100 m. Circulated hole clean.
02:00	03:00	1.00	RDMO	T	44	Continued pull out of hole sideways with 127 mm drill pipe.
03:00	04:00	1.00	RDMO	T	44	Made up casing cutting assembly and surface tested. RIH with casing cutting assembly. Stabbed into wellhead with ROV assistance. (Difficulties due to flat profile of cut surface, hanging up on stabiliser fins).
04:00	05:00	1.00	RDMO	T	44	Made up double to TDS and stabbed into wellhead stump with grapple. Tested latch with 25 mt overpull. Established cutting parameters at 11.3 mt overpull, with 30 SPM and 1360 kPa. Started cut at 04:15 hrs. Wellhead released (508 mm casing cut) at 04:50 hrs. Commenced de-ballasting rig at @04:30 hrs. Stopped de-ballasting @04:55 hrs.
05:00	06:00	1.00	RDMO	T	44	Pulled out of hole with wellhead cut joint. Laid down cut joint. Re-commenced de-ballasting rig at 05:25 hrs.
06:00	08:30	2.50	RDMO	T	44	Re-dressed casing cutter assembly for 762 mm casing. Ran in hole with casing cutting assembly.
08:30	11:00	2.50	RDMO	T	44	Stabbed into 762 mm wellhead housing joint, and confirmed latch with 23 mt overpull. Established cutting parameters holding 9 mt overpull. Cut 762 mm casing at 81.9 m. Stopped de-ballasting rig at 09:05 hrs.
11:00	13:30	2.50	RDMO	T	44	Pulled out of hole with 762 mm cut casing stump and PGB. Landed PGB on skid trolley in moonpool. Released 762 mm casing and laid out same. Moved PGB from below rotary.
13:30	16:00	2.50	RDMO	T	44	Laid out 2 x 165 mm drill collars, 4 joints 127 mm heavy weight drill pipe, and 18 x joints 127 mm drill pipe from derrick.
16:00	18:30	2.50	RDMO	S	44	De-ballasted rig from 18 m to 10 m transit draft. Made service breaks to 508 mm x 762 mm casing cutters / grapple assembly. (Cranes shut down while ballasting through 17 m critical draft, from 17:00 hrs to 18:30 hrs.)
18:30	19:00	0.50	RDMO	S	44	Laid out 2 x 165 mm drill collars and 508 mm x 762 mm casing cutter assembly.
19:00	00:00	5.00	RDMO	S	44	Anchor Handling Operations. #2 Anchor: 18:56 PCC passed to Far Grip. 19:03 - 19:19 Far Grip chased to anchor. 19:19 - 19:26 Rig slacked off chain and Far Grip hauled anchor to roller. 19:26 - 20:58 Rig heaved in chain and anchor bolstered. PCC passed to rig. # 6 Anchor: 19:07 PCC passed to Pacific Wrangler. 19:15 - 19:23 Pacific Wrangler chased to anchor. 19:19 - 19:28 Rig slacked off chain and Pacific Wrangler hauled anchor to roller. 19:28 - 20:28 Rig heaved in chain and anchor bolstered. PCC passed to rig. # 7 Anchor: 20:37 PCC passed to Pacific Wrangler. 20:46 - 20:56 Pacific Wrangler chased to anchor. 20:56 - 20:59 Rig slacked off chain and Pacific Wrangler hauled anchor to roller. 20:59 - 22:05 Rig heaved in chain and anchor bolstered. PCC passed to rig. # 3 Anchor: 21:11 PCC passed to Far Grip. 21:17 - 21:28 Far Grip chased to anchor. 21:28 - 21:36 Rig slacked

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	12.00	13	26/01/2005

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
19:00	00:00	5.00	RDMO	S	44	off chain and Far Grip hauled anchor to roller. 21:36 - 23:18 Rig heaved in chain and anchor bolstered. PCC passed to rig. # 8 Anchor: 23:24 PCC passed to Pacific Wrangler. 23:30 - 24:00 Pacific Wrangler chased to anchor. Far Grip connected to tow bridle at 23:55 hrs

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 05:00 Continued anchor handling operations. Last anchor bolstered at 05:00 hrs, and rig off contract.

7 Anchor: 00:00 - 00:55 Rig heaved in chain and anchor bolstered. PCC passed to rig.

4 Anchor: 01:07 PCC passed to Pacific Wrangler. 01:12 - 01:21 Pacific Wrangler chased to anchor. 01:21 - 01:24 Rig slacked off chain and Pacific Wrangler unseated anchor. 01:24 - 02:20 Rig heaved in chain and anchor bolstered. PCC passed to rig.

1 Anchor: 02:35 PCC passed to Pacific Wrangler. 02:38 - 02:48 Pacific Wrangler chased to anchor. 02:48 - 02:52 Rig slacked off chain and Pacific Wrangler unseated anchor. 02:52 - 03:57 Rig heaved in chain and anchor bolstered. PCC passed to rig.

5 Anchor: 03:10 - 03:35 Rig heaving in chain. 04:06 PCC passed to Pacific Wrangler. 04:10 - 04:18 Pacific Wrangler chased to anchor. 04:10 - 04:20 Pacific Wrangler unseated anchor. 04:20 - 05:00 Rig heaved in chain and anchor bolstered. PCC passed to rig.

COMMENCE TOW AT 05:00 hrs.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		OMS	3	
SPERRY Mudlogging	2		TMS	9	
Baker Atlas	2		FUGRO ROV	4	
SMITH	1		Dowell Schlumberger	2	
Apache	3		Cameron	1	
DODI	17		BSOC	8	
DOGC	30				

Total Personnel on Board: 83

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	7	80	170		257
DIESEL	261	487	302		1,050
GEL, FRESH	40	42	56		138
WATER, DRILLING	296	485	400		1,181
WATER, POTABLE	199	252	582		1,033

Total Water 2,214

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
HELICOPTER	VH-BZU (1 on 4 off)	SUPPLY BOAT	Pacific Wrangler (Handling Anchors)
SUPPLY BOAT	Far Grip (On Tow bridle)		

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	12.00	13	26/01/200

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	0	2,560			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	8 / 68	1 / 68 / 8	1.00 / 68 / 8	2 / 68	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			23/01/2004	10/10/2004	24/01/2005	23/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE
LOST TIME? NO
DAYS W/O LTA 37
INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	13.00	14	27/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			13.50

SUPERVISOR	OIM
C.Wilson / S.Douglass	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 5,259,707.08
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 0.00	TOTAL: 5,259,707.08

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
23/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 765.37 INC 1.410 AZM 130.700	(SG)	340.000 (mm) @ 783.90 (m)	(mm) @ (m)

CURRENT OPERATIONS
Rig off contract at 05:00 hrs

24 HR FORECAST

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	05:00	5.00	RDMO	S	44	Continued to recover anchors. Last anchor bolstered at 05:00 hrs - rig off contract and handed over to BSOC. # 7 Anchor: 00:00 - 00:55 Rig heaved in chain and anchor bolstered. PCC passed to rig. # 4 Anchor: 01:07 PCC passed to Pacific Wrangler. 01:12 - 01:21 Pacific Wrangler chased to anchor. 01:21 - 01:24 Rig slacked off chain and Pacific Wrangler unseated anchor. 01:24 - 02:20 Rig heaved in chain and anchor bolstered. PCC passed to rig # 1 Anchor: 02:35 PCC passed to Pacific Wrangler. 02:38 - 02:48 Pacific Wrangler chased to anchor. 02:48 - 02:52 Rig slacked off chain and Pacific Wrangler unseated anchor. 02:52 - 03:57 Rig heaved in chain and anchor bolstered. PCC passed to rig. # 5 Anchor: 03:10 - 03:35 Rig heaving in chain. 04:06 PCC passed to Pacific Wrangler. 04:10 - 04:18 Pacific Wrangler chased to anchor. 04:10 - 04:20 Pacific Wrangler unseated anchor. 04:20 - 05:00 Rig heaved in chain and anchor bolstered. PCC passed to rig. COMMENCE TOW AT 05:00 hrs.

5.00 = Total Hours Today

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:
AV (DP): (m/min) AV Riser: (m/min)
AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
MI	1		OMS	3	
SPERRY Mudlogging	2		TMS	9	
Baker Atlas	2		FUGRO ROV	4	
SMITH	1		Dowell Schlumberger	2	
Apache	3		Cameron	1	
DODI	17		BSOC	8	
DOGC	30				

Total Personnel on Board: 83

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1		23/12/2004	(m)	800.00 (m)	800.00 (m)	13.00	14	27/01/200

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	7	80	170		257
DIESEL	259	482	284		1,025
GEL, FRESH	40	42	56		138
WATER, DRILLING	296	485	400		1,181
WATER, POTABLE	199	251	575		1,025

Total Water 2,206

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Tow bridle) - off hire at 05:00 hrs	SUPPLY BOAT	Pacific Wrangler (Handling Anchors) - off hire at 05:00 hr

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	0	2,560			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	8 / 68	1 / 68 / 8	1.00 / 68 / 8	2 / 68	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / (kPa)	5/01/2005 / (kPa)	/ (kPa)			23/01/2004	10/10/2004	24/01/2005	23/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 38

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	(m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	(m)	(m)		1	27/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			0.25

SUPERVISOR	OIM
D. Kirkwood / K.Corps	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 0.00
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 0.00	TOTAL: 0.00

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY			ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD	INC	AZM	(SG)	(mm) @ (m)	762.000 (mm) @ 112.00 (m)

CURRENT OPERATIONS

Picking up drill pipe and racking back.

24 HR FORECAST

Make up conductor string to PGB. Spud well.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
20:30	22:30	2.00	MIRU	T	01	Skidded rig 10m starboard-aft from Grayling-1 location (not final position). Made up 914mm Hole opener BHA. Wind speed: 40-45 knots Seas: 5-6m
22:30	00:00	1.50	MIRU	T	73	Unable to launch ROV or skid rig due to adverse weather conditions. Wind speed: 35-45 knots Seas: 5m

3.50 = Total Hours Today

06:00 UPDATE

00:00 - 01:00 Waited on weather - Unable to skid rig or launch ROV. Unable to use cranes due to high wind speeds in excess of 40 knots. Wind Speed: 35-35 knots. Seas: 5m

01:00 - 03:00 Wind speeds dropped to below 35 knots. Picked up 241mm drill collars and racked back.

03:00 - 06:00 Seas too rough to launch ROV or skid rig. Picked up 127mm drill pipe and racked back.

No incidents reported. 15 proactive safety measures.

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS
Apache	5	
DODI	14	
DOGC	28	
OMS	3	
TMS	11	
FUGRO ROV	4	

COMPANY	QTY	HOURS
Dowell Schlumberger	2	
MI	1	
SPERRY MWD	3	
SPERRY Mudlogging	4	
CAMERON	1	
WEATHERFORD	2	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	(m)	(m)		1	27/12/2004

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
BAKER ATLAS	3				

Total Personnel on Board: 81

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	86	84	0		170
CEMENT	119	88	0		207
DIESEL	495	552	155		1,202
GEL, FRESH	36	42	0		78
WATER, DRILLING	379	0	0		379
WATER, POTABLE	369	369	33		771

Total Water 1,150

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (Enroute to rig)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	2,110	450			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	21 / 230	5 / 230 /	1.00 / 230 /	40 / 230	10 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004			26/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 6

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	34.00 (m)	114.00 (m)	114.00 (m)	1.00	2	28/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			1.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 469,191.00	DHC: 469,191.00
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 469,191.00	TOTAL: 469,191.00

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY			ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD	INC	AZM	(SG)	762.000 (mm) @ 112.37 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS

Releasing running tool

24 HR FORECAST

Release running tool. M/U 406.4 mm BHA and drill ahead

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	01:00	1.00	MIRU	T	73	Waited on weather - Unable to skid rig or launch ROV. Unable to use cranes due to high wind speeds in excess of 40 knots. Wind Speed: 35-45 knots. Seas: 5m
01:00	03:00	2.00	MIRU	T	73	Wind speeds dropped to below 35 knots. Picked up 241mm drill collars and racked back.
03:00	07:30	4.50	MIRU	T	73	Seas too rough to launch ROV or skid rig. Picked up 127mm drill pipe and racked back. Built spud mud and prepared guidelines for PGB
07:30	10:00	2.50	MIRU	T	01	Moved rig over Grayling - 1A location while rig picked up 660 x 914 mm BHA in preparation for spud
10:00	10:30	0.50	C-DRL	T	12	POOH and racked back 660 x 914 mm BHA
10:30	11:00	0.50	C-CSG	T	12	Made up 762 mm running tool on HWDP and racked back in derrick
11:00	15:30	4.50	C-CSG	T	40	Rigged up to run 762 mm casing. Ran 3 joints down through PGB in moonpool. Attempted to make up running tool but hi torque encountered. Changed out running tool, made up to 762 mm casing and landed out casing in PGB in moonpool. Skidded PGB and casing to port of moonpool
15:30	16:30	1.00	C-DRL	T	12	Ran in hole with 660 x 914 mm BHA and tagged seabed at 80 m. Took Anderdrift survey - 0 deg
16:30	18:30	2.00	C-DRL	T	10	Drilled 660 x 914 mm hole to 114 m
18:30	19:00	0.50	C-DRL	T	88	Pumped 7.9 m3 PHG and displaced out of hole with seawater. Attempted to take Anderdrift survey - no survey. Displaced hole with 31.8 m3 PHG
19:00	20:00	1.00	C-DRL	T	12	Pulled out of hole from 114 - 83 m. No drag or problems. Ran back to TD. No problems encountered. Pulled out of hole and racked back BHA
20:00	22:00	2.00	C-CSG	T	40	Moved PGB over rotary, ran in hole with running tool and 2 x singles of 127 mm DP below running tool. Made up running tool to 762 mm conductor housing and installed guidelines
22:00	23:00	1.00	C-CSG	T	40	Ran in hole with PGB and 762 mm casing, stabbed into seabed with ROV assistance and positioned casing with 508 mm shoe at 112.37 m. Bullseye reading was 1/4 deg Stbd Fwd.
23:00	00:00	1.00	C-CSG	T	40	Held JSA. Rigged up cement line to side entry sub in string. Broke circulation with cement unit and tested cement line to 13,789 kPa

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 01:00 Cement 762 mm casing. CIP at 01:08 hrs

01:00 - 01:30 Rigged down cement hose and installed blank on Side Entry sub

01:30 - 06:00 Waited on surface cement samples to harden

One incident reported from workboat. 23 proactive safety measures.

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
1 / 1	914.40				22/20/20/20//////	80.00 / 28/12/2004	1-1-NO-A-1- I-NO-TD

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	34.00 (m)	114.00 (m)	114.00 (m)	1.00	2	28/12/2004

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
1 / 1	4.0 / 4.0	60 / 60	1,391.4	5,512	451	2.00	34.00	17.00	2.00	34.00	16.76

BHA / HOLE CONDITIONS

BHA	1	JAR S/N		JAR HRS		BIT	1

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
				2,700 N-m	63.95

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Tri-Cone Bit	4	0.57	660.40			
Hole Opener	3	1.75	914.40			
Bit Sub	1	0.95	238.13			
Anderdrift	1	3.26	241.30			
Spirall Drill Collar	3	27.66	241.30			
Cross Over	1	0.93	214.30			
Spirall Drill Collar	3	27.70	203.20			
Cross Over	1	1.13	215.90			

MUD PROPERTIES

MUD TYPE	SPUD MUD

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
120	24/27	33/82	11.0/	1.0/2.0	/	/85.6	9.20/0.60	0.25/0.50	800	80			3.1

DENS	1.05	ECD		PP		DAILY COST	8,411	CUM COST	8,411	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	86	6.0	1,389.25
#2	12.0	86	6.0	1,389.25
#3	12.0	86	6.0	1,389.25

SPP: 5,512 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 1.621 (kW/cm²)

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #3		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	14		MI	1	
DOGC	28		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	11		CAMERON	1	
FUGRO ROV	4		WEATHERFORD	2	

Total Personnel on Board: 78

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	86	84	0		170
CEMENT	119	88	0		207
DIESEL	481	491	149		1,121
GEL, FRESH	34	42	0		76
WATER, DRILLING	246	688	0		934
WATER, POTABLE	347	274	34		655

Total Water 1,589

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	BZU (Pax on 12, Pax off 16)
SUPPLY BOAT	Pacific Wrangler (On Location)		

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	34.00 (m)	114.00 (m)	114.00 (m)	1.00	2	28/12/2004

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	2,110	450			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	15 / 17	3 / /	3.00 / 225 /	/	10 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004			26/12/2004

INCIDENT REPORT

INCIDENT TYPE MTI
LOST TIME? NO
DAYS W/O LTA 7

INCIDENT DESCRIPTION Crewman on Far Grip had fingers crushed by door.

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	392.89 (m)	507.00 (m)	507.00 (m)	2.00	3	29/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			2.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 335,946.33	DHC: 805,137.33
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 335,946.00	TOTAL: 805,137.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 451.80 (m) INC 0.180 AZM 136.700	(SG)	762.000 (mm) @ 112.37 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS
Drilling 406.4 mm hole at 640 m

24 HR FORECAST
Drill to section TD at 810 m. POOH and run casing

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	01:00	1.00	C-CSG	T	41	Cemented 762 mm casing in place with 508 mm shoe at 112.37m. No returns observed by ROV during cementing and no flurosine dye seen. CIP at 01:08 hrs. Checked float holding - OK
01:00	01:30	0.50	C-CSG	T	41	Rigged down cement hose and installed blank on Side Entry sub
01:30	06:00	4.50	C-CSG	T	45	Waited on surface cement samples to harden before disengaging running tool
06:00	07:00	1.00	C-CSG	T	40	Released running tool from housing. Bullseye reading Zero deg. Pulled out of hole and laid down running tool
07:00	07:30	0.50	C-CSG	T	14	Picked up deep Sea Express surface head and broke off pup joint and TIW valve
07:30	09:00	1.50	C-CSG	T	14	Laid down 660 mm BHA
09:00	11:30	2.50	S-DRL	T	12	Picked up 406 mm BHA and ran in hole. Tagged cement at 109 m
11:30	12:00	0.50	S-DRL	T	42	Drilled out cement and shoe at 112 m
12:00	13:00	1.00	S-DRL	T	10	Drilled 406 mm hole from 112 - 147 m
13:00	13:30	0.50	S-DRL	T	12	Pulled out of hole from 147 m, picked up rest of BHA and ran back in hole to 147 m
13:30	19:30	6.00	S-DRL	T	10	Drilled 406 mm hole from 147 - 430 m. Pumped 8 m3 PHG sweep mid stand and spotted 8 m3 PHG around BHA prior to connection. Average ROP = 47.17 m/hr
19:30	21:30	2.00	S-DRL	T	50	TDS saver sub broke at wrong connection while breaking connection. Changed out saver sub and dies on pipe handler
21:30	00:00	2.50	S-DRL	T	10	Continued drilling 406 mm hole from 430 - 507 m. Pumped 8 m3 PHG mid stand and spotted 8 m3 PHG around BHA prior to connection. Average ROP = 30.8 m/hr
	24.00 = Total Hours Today					

06:00 UPDATE

00:00 06:00 Drilled 406 mm hole from 507 - 640 m. Pumped 8 m3 PHG mid stand and at connection. Average ROP = 22.17 m/hr

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
2 / 2	406.40	Reed	T11C	M26755	16/22/22/22///////	114.00 / 29/12/2004	0-0------

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
2 / 2	0.4 / 4.7	69 / 85	4,104.0	19,292	3,847	6.70	393.00	58.66	6.70	393.00	58.66

BHA / HOLE CONDITIONS

BHA	2	JAR S/N	700-15C	JAR HRS	6.70	BIT	

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
18.0	86.0	86.0	86.0	4,500 N-m	257.98

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Tri-Cone Bit		0.45	406.40			
Positive Displacement Motor		8.59	241.30			
Cross Over		0.87	236.00			

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	392.89 (m)	507.00 (m)	507.00 (m)	2.00	3	29/12/2004

BHA / HOLE CONDITIONS

BHA	2	JAR S/N	700-15C	JAR HRS	6.70	BIT	

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Intergral Blade Stabilizer		2.24	209.55			
Float Sub		0.78	206.40			
Logging while Drilling		21.78	206.40			
Spirall Drill Collar	5	45.82	203.20			
Drilling Jar		9.86	209.55			
Spirall Drill Collar	3	27.05	209.55			
Cross Over		1.13	215.90			
Heavy Weight Drill Pipe	15	139.41	165.10			

MUD PROPERTIES

MUD TYPE: SPUD MUD

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
120	25/25	30/78	12.0/	1.0/1.0	/	/84.5	9.50/0.80	0.35/0.75	800	80			3.7

DENS	1.06	ECD		PP		DAILY COST	6,119	CUM COST	14,530	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	90	6.0	1,453.60
#2	12.0	63	6.0	1,018.28
#3	12.0	90	6.0	1,453.60

SPP: 19,292 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 40.815 (kW/cm

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #3		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	14		MI	1	
DOGC	28		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	11		CAMERON	1	
FUGRO ROV	4		WEATHERFORD	2	

Total Personnel on Board: 78

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	86	84	0		170
CEMENT	75	0	0		75
DIESEL	470	480	146		1,096
GEL, FRESH	48	0	0		48
WATER, DRILLING	493	103	0		596
WATER, POTABLE	328	274	32		634

Total Water 1,230

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (On Location)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	2,110	450			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	7 / 10	2 / /	2.00 / 202 /	/	0 (°C)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	392.89 (m)	507.00 (m)	507.00 (m)	2.00	3	29/12/2004

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004			26/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 8

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
	80.00	0.000	0.000	0.00	0.00	0.00	0.00	
	140.83	0.930	20.340	60.83	0.46	0.17	0.46	0.46
	167.34	0.940	25.970	87.33	0.86	0.34	0.86	0.10
	196.50	0.550	24.920	116.49	1.20	0.51	1.20	0.40
	221.10	0.330	17.120	141.09	1.38	0.58	1.38	0.28
	253.41	0.440	25.800	173.40	1.52	0.66	1.58	0.12
	282.65	0.460	31.920	202.64	1.52	0.77	1.78	0.05
	336.05	0.370	36.750	256.04	2.10	0.98	2.10	0.05
	364.95	0.350	34.820	284.94	2.25	1.09	2.25	0.02
	424.97	0.090	37.930	344.96	2.43	1.22	2.43	0.13
	451.80	0.180	136.700	371.79	2.42	1.27	2.42	0.24

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	303.00 (m)	810.00 (m)	810.00 (m)	3.00	4	30/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			3.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 348,912.00	DHC: 1,154,049.33
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 348,912.00	TOTAL: 1,154,049.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 768.30 (m) INC 0.180 AZM 151.290	(SG)	762.000 (mm) @ 112.37 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS

Installing guideropes on shoe joint of 340 mm casing

24 HR FORECAST

Run, land and cement 340 mm casing. Run BOP

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	14:30	14.50	S-DRL	T	10	Drilled 406.4 mm hole from 507 - 810 m. Pumped 5 m3 PHG mid stand and spotted 5m3 PHG around BHA at connection. Average ROP = 20.89 m/hr
14:30	15:30	1.00	S-DRL	T	88	Pumped 23.8 m3 of PHG and circulated out of hole. Displaced hole with 47.7 m3 PHG and 50.9 m3 of 1.15 SG KCl/Polymer mud
15:30	19:30	4.00	S-DRL	T	12	Pulled out of hole from 810 m. Drag of 9 - 13 MT. Max drag of 18 MT
19:30	21:30	2.00	S-DRL	T	12	Continued to pull out of hole with BHA. Laid down FEWD, motor and bit. Bit and stab balled.
21:30	22:30	1.00	S-CSG	T	12	Picked up cement stand from derrick. Broke out SES and TIW valve. Made up DeepSea Express cement tool on stand and racked back in derrick
22:30	23:30	1.00	S-CSG	T	40	Held JSA with crew. Rigged up to run 340 mm casing. Changed out inertia reel for casing stabber as existing one had been shock loaded
23:30	00:00	0.50	S-CSG	T	40	Picked up joint of 340 mm casing to change out box coupling to no-cross coupling. Attempted to back out coupling and crushed casing with tongs as coupling was very tight. Laid out damaged joint

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 03:00 Picked up another joint of 340 mm casing and attempted to break coupling off joint to install no-cross coupling - no success and crushed joint in process. Laid damaged joint back down on deck

03:00 - 04:30 Picked up intermediate joint from shoe track, broke out box end coupling and re-installed on joint with threadlock. Laid joint back down on deck

04:30 - 06:00 Made up tam packer to TDS, picked up shoe joint. backed out shoe and threadlocked back. Ran shoe joint and tested shoe - OK. Ran intermediate joint and picked up float joint. Threadlocked all shoe track connections and tested float - OK. Started installing guideropes on shoe joint

No incidents reported. 33 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
2 / 2	406.40	Reed	T11C	M26755	16/22/22/22///////	114.00 / 29/12/2004	1-1-BU-A-E- I-NO-TD

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
2 / 2	2.6 / 9.9	73 / 86	4,104.0	19,981	3,847	12.50	303.00	24.24	19.20	696.00	36.25

BHA / HOLE CONDITIONS

BHA	2	JAR S/N	700-15C	JAR HRS	19.20	BIT	

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
18.0	91.0	91.0	91.0	4,500 N-m	257.98

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Tri-Cone Bit		0.45	406.40			
Positive Displacement Motor		8.59	241.30			

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	303.00 (m)	810.00 (m)	810.00 (m)	3.00	4	30/12/2004

BHA / HOLE CONDITIONS

BHA	2	JAR S/N	700-15C	JAR HRS	19.20	BIT	

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Cross Over		0.87	236.00			
Intergral Blade Stabilizer		2.24	209.55			
Float Sub		0.78	206.40			
Logging while Drilling		21.78	206.40			
Spirall Drill Collar	5	45.82	203.20			
Drilling Jar		9.86	209.55			
Spirall Drill Collar	3	27.05	209.55			
Cross Over		1.13	215.90			
Heavy Weight Drill Pipe	15	139.41	165.10			

MUD PROPERTIES

MUD TYPE: SPUD MUD

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
120	27/26	35/80	12.0/	1.0/1.0	/	/85.0	9.50/0.75	0.40/0.80	800	60			3.1

DENS	1.05	ECD		PP		DAILY COST	21,516	CUM COST	36,046	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	82	6.0	1,324.89
#2	12.0	82	6.0	1,324.89
#3	12.0	82	6.0	1,324.89

SPP: 19,981 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 40.815 (kW/cm

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #3		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	13		MI	1	
DOGC	27		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	12		CAMERON	1	
FUGRO ROV	4		WEATHERFORD	2	

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	68	84	0		152
CEMENT	75	0	0		75
DIESEL	452	473	143		1,068
GEL, FRESH	8	0	0		8
WATER, DRILLING	246	0	0		246
WATER, POTABLE	308	186	30		524

Total Water 770

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	BZU (Pax on 3, Pax off 4)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,970	590			

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	303.00 (m)	810.00 (m)	810.00 (m)	3.00	4	30/12/2004

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	5 / 7	1 / /	1.50 / 90 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004	10/10/2004	23/11/2004	26/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 9

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
MWD	482.27	0.030	52.240	402.26	2.39	1.31	2.39	0.18
MWD	511.26	0.030	38.480	431.25	2.40	1.32	2.40	0.01
MWD	539.81	0.230	62.330	459.80	2.43	1.37	2.43	0.21
MWD	568.55	0.410	43.670	488.54	2.53	1.49	2.53	0.21
MWD	654.00	0.340	93.970	573.98	2.74	1.96	2.74	0.11
MWD	684.56	0.330	108.870	604.54	2.70	2.13	2.70	0.09
MWD	711.79	0.320	104.030	631.77	2.66	2.28	2.66	0.03
MWD	741.44	0.200	130.910	661.42	2.60	2.40	2.60	0.17
MWD	768.30	0.180	151.290	688.28	2.54	2.45	2.54	0.08

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	810.00 (m)	810.00 (m)	4.00	5	31/12/2004

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			4.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 332,147.00	DHC: 1,486,196.33
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 332,147.00	TOTAL: 1,486,196.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 768.30 INC 0.180 AZM 151.290	(SG)	762.000 (mm) @ 112.37 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS

Washing and reaming 406.4 mm hole at 627 m

24 HR FORECAST

Run Wiper trip to TD. Run 340 mm casing

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	03:00	3.00	S-CSG	T	40	Picked up joint of 340 mm casing and attempted to break coupling off joint to install no-cross coupling - no success and crushed joint in process. Laid damaged joint back down on deck
03:00	04:00	1.00	S-CSG	T	40	Picked up joint to become intermediate joint for shoe track, broke out box end coupling and re-installed on joint with threadlock. Laid joint back down on deck
04:00	10:30	6.50	S-CSG	T	40	Made up tam packer to TDS, picked up shoe joint. Backed out shoe and threadlocked in place. Ran shoe joint and tested shoe - OK. Ran intermediate joint and picked up float joint. Threadlocked all shoe track connections and tested float - OK. Installed guideropes on shoe joint and ran in hole with 340mm casing. Casing took weight and required working at 474 and 490m. Casing took 32 MT weight at 510m. Inflated Tam packer and started to pump casing down
10:30	11:00	0.50	S-CSG	T	40	Attempted to make-up next joint of casing to be run. Cross threaded and damaged both pin and box. Laid down on deck two damaged joints of 340 mm casing
11:00	15:30	4.50	S-CSG	T	40	Continued running 340mm casing. Inflated Tam packer and pumped casing down. Worked and pumped casing down to 520m. Unable to pass 520 m
15:30	23:00	7.50	S-CSG	T	40	Pulled out of hole laying down 340 mm casing to deck. Racked back float, intermediate and shoe joints in derrick NOTE - The 6 casing centralizers on the shoe track were lost in hole
23:00	00:00	1.00	S-CSG	T	40	Picked up DeepSea Express cement stand from derrick and laid down on deck to install a second dart which had arrived on rig (had previously only loaded one dart for a single plug job as that is all that was avaiable at the time).

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Continued to lay out DeepSea Express cement head to deck. Made stand of 127 mm HWDP back up and racked in derrick

00:30 - 01:30 Picked up 406.4 mm bit and BHA. Installed guide ropes above bit

01:30 - 03:30 Ran in hole with 406.4 mm bit and BHA to 486 m.

03:30 - 04:30 Reamed 406.4 mm hole from 486 - 541 m

04:30 - 06:00 Continued to run in hole from 541 - 627 m, pumping and reaming where necessary to acheive good hole with no drag

No incidents reported. 19 proactive safety measures for day

MUD PROPERTIES

MUD TYPE: SPUD MUD

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
120	25/25	32/60	12.0/	1.0/1.0	/	/85.0	9.50/0.70	0.35/0.75	800	80			3.1

DENS	1.05	ECD		PP		DAILY COST	4,780	CUM COST	40,826	% OIL	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	810.00 (m)	810.00 (m)	4.00	5	31/12/2004

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	70	6.0	1,131.84
#3	12.0	70	6.0	1,131.84
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #3		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	13		MI	1	
DOGC	28		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	11		CAMERON	1	
FUGRO ROV	4		WEATHERFORD	2	

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	68	84	0		152
CEMENT	75	0	0		75
DIESEL	435	466	143		1,044
GEL, FRESH	8	0	0		8
WATER, DRILLING	231	0	0		231
WATER, POTABLE	293	182	30		505

Total Water 736

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On route to Melbourne)	HELICOPTER	BZU (Pax on 8, Pax off 8)
SUPPLY BOAT	Pacific Wrangler (On Location)	HELICOPTER	JGU (Frieght only)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,883	677			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	8 / 10	2 / /	1.50 / 90 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004	10/10/2004	23/11/2004	26/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 10

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	810.00 (m)	810.00 (m)	5.00	6	1/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			5.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 470,847.00	DHC: 1,957,043.33
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 470,847.00	TOTAL: 1,957,043.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
26/12/2004	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 768.30 INC 0.180 AZM 151.290	(SG)	762.000 (mm) @ 112.37 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS

Pumping 1.15 SG KCl mud to fill annulus

24 HR FORECAST

Wait on new wellhead housing to arrive on rig

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	S-CSG	T	40	Continued to lay out DeepSea Express cement head to deck. Made stand of 127 mm HWDP back up and racke in derrick
00:30	01:30	1.00	S-CSG	T	15	Picked up 406mm bit and BHA. Installed guide ropes above bit
01:30	03:30	2.00	S-CSG	T	15	Ran in hole with 406mm bit and BHA to 486m
03:30	04:30	1.00	S-CSG	T	15	Reamed 406mm hole from 486 - 541m
04:30	08:00	3.50	S-CSG	T	15	Continued to run in hole from 541 - 810m, pumping and reaming where necessary to acheive good hole with no drag. Hole acting as if pushing junk (casing centralizers) ahead of bit
08:00	08:30	0.50	S-CSG	T	10	Drilled 406mm hole from 810 - 811m with high RPM to ensure junk was clear of hole. No surface indications of junk on bottom at end of drilling
08:30	09:30	1.00	S-CSG	T	88	Swept well with 15.9 m3 of PHG and displaced out of hole with seawater. Displaced well with 79 m3 of 1.15 SG KCl mud
09:30	11:30	2.00	S-CSG	T	15	Pulled out of hole from 811m and racked back BHA in derrick. Hole condition good, no overpull. Jetted 762mm wellhead on way out of hole
11:30	12:00	0.50	S-CSG	T	40	Made up DeepSea Express cement head on stand of 127mm HWDP and racked back in derrick
12:00	13:30	1.50	S-CSG	T	40	Rigged up to run 340mm casing and ran 340mm shoe track. Installed centralizers and guidelines
13:30	14:00	0.50	S-CSG	T	40	Held JSA with crew on running casing. Made up Tam packer to TDS
14:00	19:30	5.50	S-CSG	T	40	Ran in hole with 340mm casing. Tagged tight spot at 608 m. Circulated and worked casing through tight hole from 608 - 707m. Suspect casing centralizers coming off and holding up casing
19:30	21:00	1.50	S-CSG	T	40	Removed Tam Packer from TDS. Picked up 476mm wellhead housing joint and attempted to make up to string. Cross threaded and damaged threads on box end coupling and pin on wellhead housing joint. Laid down wellhead housing joint to inspect pin end threads
21:00	00:00	3.00	S-CSG	T	40	Removed no-cross coupling from pin end of wellhead housing joint to inspect pin end threads. Threads damaged beyond repair. No back-up wellhead housing on board rig (primary was run on Grayling-1)

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 03:00 Rigged up manual casing tongs on deck and removed 340 mm casing pup joint from end of wellhead housing joint. Threads on swedge from 208 mm to 340 mm also damaged. Worked casing string to ensure string free

03:00 - 06:00 Built 63.6 m3 of 1.15 SG KCl mud to spot around casing. Made Tam packer back up to TDS in preparation for spotting mud around casing. Continued to work casing string

No incidents reported. 11 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
3 / 3	406.40	Reed	T11C	M26755	16/22/22/22//////	810.00 / 1/01/2005	1-1-NO-A-E- I-NO-TD

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	810.00 (m)	810.00 (m)	5.00	6	1/01/2005

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP

BHA / HOLE CONDITIONS

BHA	3	JAR S/N	700-15C	JAR HRS	1.00	BIT	

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
14.5	91.0	91.0	91.0	N-m	227.80

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Tri-Cone Bit		0.45	406.40			
Cross Over	1	0.95	236.00			
Float Sub	1	0.78	206.40			
Spirall Drill Collar	1	9.35	203.20			
Intergral Blade Stabilizer	1	2.35	374.65			
Spirall Drill Collar	4	36.47	203.20			
Drilling Jar	1	9.86	209.55			
Spirall Drill Collar	3	27.05	209.55			
Cross Over	1	1.13	215.90			
Heavy Weight Drill Pipe	15	139.41	165.10			

MUD PROPERTIES

MUD TYPE: SPUD MUD

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
53	13/11	10/18	5.8/	1.0/6.5	/	/22.8	8.50/0.70	0.05/0.95	37,000	360			1.1

DENS	1.15	ECD	1.15	PP		DAILY COST	3,710	CUM COST	44,536	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	13		MI	1	
DOGC	28		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	11		CAMERON	1	
FUGRO ROV	4		WEATHERFORD	2	

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	68	84	0		152
CEMENT	75	0	0		75
DIESEL	425	459	143		1,027
GEL, FRESH	1	0	0		1
WATER, DRILLING	240	0	0		240
WATER, POTABLE	287	98	30		415

Total Water 655

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (In Melbourne)	SUPPLY BOAT	Pacific Wrangler (On Location)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	810.00 (m)	810.00 (m)	5.00	6	1/01/2005

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,883	677			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	13 / 15	3 / /	1.50 / 225 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	26/12/2004	10/10/2004	23/11/2004	26/12/2004

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 11

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	0.91 (m)	811.00 (m)	811.00 (m)	6.00	7	2/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			6.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 331,329.00	DHC: 2,288,372.33
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 331,329.00	TOTAL: 2,288,372.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/02/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 768.30 INC 0.180 AZM 151.290	(SG)	762.000 (mm) @ 112.37 (m)	340.000 (mm) @ 810.00 (m)

CURRENT OPERATIONS
Waiting on wellhead housing to arrive from town

24 HR FORECAST
Run and land casing, cement. Run BOP

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	03:00	3.00	S-CSG	T	40	Rigged up manual casing tongs on deck and removed 340mm casing pup joint from end of wellhead housing joint. Threads on swedge from 508mm to 340mm also damaged whilst breaking out this pup - another welhead housing joint will be required. Meanwhile worked casing string to ensure string free
03:00	06:00	3.00	S-CSG	T	40	Built volume of 1.15 SG KCl mud to spot around casing. Made Tam packer back up to TDS in preparation for spotting mud around casing. Continued to work casing string
06:00	06:30	0.50	S-CSG	T	40	Pumped 65.2 m3 of 1.15 SG KCl / polymer mud down casing and filled casing annulus up leaving 35.8 m3 mud inside casing while working casing
06:30	00:00	17.50	S-CSG	T	72	Continued to work casing without pumping while waiting on 476mm wellhead housing to come from town Completed derrick inspection Section 1 - A frame and crown Completed rig service, lube and grease, all equipment apart from travelling block Mixed two pits of KCL / Polymer mud Repaired automatic fingers in derrick (from STOP card) Repaired air leak on drawworks low clutch control handle General rig maintenance and cleaning

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 06:00 Continued to work casing without pumping while waiting on 476.25 mm wellhead housing to come from town

No incidents reported. 16 proactive safety measures for day

MUD PROPERTIES

MUD TYPE: SPUD MUD

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
53	18/12	9/11	5.8/	1.0/6.6	/	/4.0	8.50/0.05	0.10/0.90	39,000	360			0.2

DENS	1.16	ECD	1.16	PP		DAILY COST	31,932	CUM COST	76,468	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:
AV (DP): (m/min) AV Riser: (m/min)
AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		DODI	13	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	0.91 (m)	811.00 (m)	811.00 (m)	6.00	7	2/01/2005

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
DOGC	28		MI	1	
OMS	3		SPERRY MWD	2	
TMS	11		SPERRY Mudlogging	5	
FUGRO ROV	4		CAMERON	1	
Dowell Schlumberger	2		WEATHERFORD	2	

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	43	84	0		127
CEMENT	75	0	0		75
DIESEL	414	452	143		1,009
GEL, FRESH	1	0	0		1
WATER, DRILLING	118	0	0		118
WATER, POTABLE	284	94	30		408

Total Water 526

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On route from Melbourne to Rig)	HELICOPTER	BZU (Pax on 1, Pax off 1)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,883	677			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	15 / 15	3 / /	3.00 / 225 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 12

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	7.00	8	3/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			7.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 404,318.00	DHC: 2,692,690.33
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 404,318.00	TOTAL: 2,692,690.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/02/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 768.30 INC 0.180 AZM 151.290	(SG)	340.000 (mm) @ 796.02 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Slipping and cutting drilling line

24 HR FORECAST

Lay down 406.4 mm BHA. Run BOP, land and latch

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	09:30	9.50	S-CSG	T	72	Continued to work casing without pumping while waiting on 476mm wellhead housing to come from town
09:30	10:00	0.50	S-CSG	T	40	Attempted to break out coupling on casing joint in rotary for installation of no-cross coupling. No success. Picked up string and broke off last joint of 340 mm casing ran and laid down same
10:00	10:30	0.50	S-CSG	T	40	Picked up replacement joint of 340mm casing and made up to string. Attempted to break out coupling for installation of no-cross coupling with no success
10:30	11:00	0.50	S-CSG	T	72	Prepared new 476mm wellhead housing and installed slip-on style no-cross coupling. Installed running tool
11:00	13:30	2.50	S-CSG	T	40	Picked up 476mm wellhead housing and made up to string - first two attempts using slip-on syle no-cross coupling unsuccessful (met with resistance), removed sleeve and made up with chain tongs and then casing tong. Installed wear bushing. Attempted to make up running tool to joint of 127mm HWDP in order to install cementing assembly below. Flared box end at underneath of running tool whilst making up (correct torque used)
13:30	16:00	2.50	S-CSG	T	72	Investigated problem with running tool connection. Decision made to run assembly (backup running tool sitll in Grayling-1 and replacement still in customs)
16:00	17:00	1.00	S-CSG	T	40	Made up Dowell DeepSea Express cement stinger on running tool. Made up running tool to wellhead housing, ran in hole with 340mm casing and wellhead housing and landed out in 762mm wellhead. Shoe at 796m. Tested connection with 22.7 MT overpull - good connection. Bullseye reading was 3/4 deg Stbd Aft before and after landing out casing
17:00	17:30	0.50	S-CSG	T	41	Rigged up cement line. Attempted to circulate with rig pumps - no success
17:30	18:30	1.00	S-CSG	T	41	Switched to Dowell and attempted to clear cement head with pressure - no success. Rigged down cement line
18:30	23:00	4.50	S-CSG	T	20	Backed off 476mm running tool. Broke down cement head to troubleshoot blockage. Found connection above lower valve blocked with cement. Cleared cement blockage
23:00	00:00	1.00	S-CSG	T	40	Made up cement head. Landed out running string in wellhead and made up. Took 23 MT overpull to check - OK. Rigged up cement line

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Circulated 110% casing contents with seawater prior to cementing

00:30 - 02:00 Dowell mixed and pumped cement slurry as per program

02:00 - 02:30 Rig displaced cement, bumped plug with 6890 kPa. CIP at 02:20 hrs. Estimated TOC at 308 m

02:30 - 03:00 Dowell pressure tested casing to 20670 kPa for 15 mins

03:00 - 04:00 Rigged down cement hose and released running tool. Bullseye reading 1/4 deg Stb Aft. Pulled out of hole and laid down DeepSea Express plug launcher and wellhead housing running tool

04:00 - 06:00 Held JSA. Slipped and cut 42.67 m of drilling line

No incidents reported. 32 proactive safety measures for day

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	7.00	8	3/01/2005

MUD PROPERTIES

MUD TYPE: SPUD MUD

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
53	16/12	9/11	5.8/	1.0/6.6	/	/4.0	8.50/0.05	0.10/0.90	39,000	360			0.2

DENS	1.16	ECD	1.16	PP		DAILY COST	10,501	CUM COST	86,969	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
FUGRO ROV	4		WEATHERFORD	2	
Dowell Schlumberger	2		Apache	5	
MI	1		DODI	13	
SPERRY MWD	2		DOGC	28	
SPERRY Mudlogging	5		OMS	3	
CAMERON	1		TMS	11	

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	43	84	0		127
CEMENT	75	0	0		75
DIESEL	398	451	143		992
GEL, FRESH	1	0	0		1
WATER, DRILLING	862	0	0		862
WATER, POTABLE	287	94	30		411

Total Water 1,273

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On route to Melbourne)	SUPPLY BOAT	Pacific Wrangler (On Location)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,883	677			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	10 / 10	1 / /	1.00 / 90 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 13

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	8.00	9	4/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			8.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 2,692,690.33
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 0.00	TOTAL: 2,692,690.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 768.30 INC 0.180 AZM 151.290	(SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Pressure testing BOP and choke manifold to 27560 kPa

24 HR FORECAST

Run in hole and drill 216 mm hole to 2944 m

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	S-CSG	T	41	Circulated 110% casing contents with seawater prior to cementing
00:30	02:00	1.50	S-CSG	T	41	Dowell mixed and pumped cement slurry as per program. Pumped 12.9 m3 of 1.5 SG lead slurry and 7.1 m3 of 1.9 SG tail slurry
02:00	02:30	0.50	S-CSG	T	41	Rig displaced cement, bumped plug with 6890 kPa. CIP at 02:20 hrs. Estimated TOC at 308 m
02:30	03:00	0.50	S-CSG	T	41	Dowell pressure tested casing to 20670 kPa for 15 mins
03:00	04:00	1.00	S-CSG	S	41	Rigged down cement hose and released running tool. Bullseye reading 1/4 deg Stb Aft. Pulled out of hole and laid down DeepSea Express plug launcher and wellhead housing running tool
04:00	06:30	2.50	S-CSG	S	51	Held JSA. Slipped and cut 42.67 m of drilling line
06:30	07:00	0.50	S-CSG	S	40	Laid down DeepSea Express cement head
07:00	10:00	3.00	S-NUP	S	14	Laid down 406mm BHA
10:00	11:00	1.00	S-NUP	S	43	Rigged up to run riser and BOP
11:00	12:00	1.00	S-NUP	S	43	Held JSA meeting and picked up double of riser and left hanging above rotary table
12:00	15:00	3.00	S-NUP	S	43	Held JSA meeting on running BOP's. Moved rig 12 m off location. Moved and positioned BOPs under rotary. Rigged up guidelines and ran BOP's and riser
15:00	17:00	2.00	S-NUP	S	43	Rigged up test line and tested riser kill and choke lines to 2067 / 27560 kPa for 5 / 10 mins. Picked up slip joint and landing joint and made up to string
17:00	20:00	3.00	S-NUP	S	43	Made up choke, kill and booster line goosenecks to slip joint. Tested kill and choke lines on slip joint to 2067 / 27560 kPa for 5 / 10 mins. Installed SDL ring while moving rig back over location.
20:00	21:00	1.00	S-NUP	S	43	Rigged up storm loops on pod hoses and adjusted rig position with BOP just above guideposts
21:00	22:00	1.00	S-NUP	S	43	Landed out BOPs on wellhead. Took 22.7 MT overpull to confirm latch. Bullseyes reading PGB - 1/4 deg, BOP - 1 deg, Riser - 1/2 deg. After landing out, no change to bullseyes
22:00	00:00	2.00	S-NUP	S	43	Unbolted slip joint and scoped out. Laid down landing joint and picked up diverter

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Continued installing diverter

00:30 - 01:30 Rigged down all riser handling equipment

01:30 - 02:00 Picked up weight set test plug, ran in hole and landed out in wellhead

02:00 - 06:00 Pressure tested BOP's and choke manifold to 1722 / 27560 kPa for 5 / 10 mins

No incidents reported. 27 proactive safety measures for day

Fugro Surveyor fixed position of Grayling - 1A as follows

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	8.00	9	4/01/2005

06:00 UPDATE

Datum GDA 94
Latitude 38 deg 09 min 40.28 sec South
Longtitude 148 deg 17 min 34.73 sec East
Easting 613273.61
Northing 5775510.58

MUD PROPERTIES

MUD TYPE: KCL/POLYMER

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
40	10/5	4/4	7.0/	1.0/6.2	/	/4.0	8.50/0.05	0.05/0.85	36,000	300			0.3

DENS	1.15	ECD	1.15	PP		DAILY COST		CUM COST		% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:
AV (DP): (m/min) AV Riser: (m/min)
AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	13		MI	1	
DOGC	28		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	11		Fugro Surveyor	1	
FUGRO ROV	2				

Total Personnel on Board: 73

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	42	84	0		126
CEMENT	54	0	0		54
DIESEL	387	445	143		975
GEL, FRESH	40	0	0		40
WATER, DRILLING	794	0	0		794
WATER, POTABLE	289	86	30		405

Total Water 1,199

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (In Melbourne)	HELICOPTER	BZU (Pax on 11, Pax off 15)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,868	692			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	4 / 7	1 / /	1.00 / /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
22/12/2004 / 27,600 (kPa)	22/12/2004 / 27,600 (kPa)	/ (kPa)	22/12/2004	5/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	8.00	9	4/01/2005

INCIDENT REPORT

INCIDENT TYPE	NONE	INCIDENT DESCRIPTION
LOST TIME?	NO	
DAYS W/O LTA	14	

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	9.00	10	5/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			9.25

SUPERVISOR	OIM
C. Wilson / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 3,071,921.33
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 0.00	TOTAL: 3,071,921.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/02/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 768.30 INC 0.180 AZM 151.290	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS
Drilling 216 mm hole at 917 m

24 HR FORECAST
Drill 216 mm hole to 2944 m

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	S-NUP	S	43	Installed diverter
00:30	01:30	1.00	S-NUP	S	43	Rigged down riser running equipment
01:30	02:00	0.50	S-NUP	S	43	Picked up test plug and ran in hole landing out in wellhead
02:00	09:30	7.50	S-NUP	S	43	Tested BOP's and choke manifold to 1722 / 27560 kPa for 5 / 10 mins from drill floor on Blue pod. Function tested BOP's from toolpushers office on Yellow pod
09:30	10:30	1.00	S-NUP	S	43	Unseated test plug, pulled out of hole and laid test plug down
10:30	13:00	2.50	S-NUP	S	43	Rigged up and tested TIW valves, TDS valves and #3 standpipe valve to 1722 / 27560 kPa for 5 / 10 mins
13:00	14:00	1.00	S-NUP	S	43	Rigged up and tested 340 mm casing against shear rams to 2067 / 27560 kPa for 5 / 15 mins
14:00	14:30	0.50	S-NUP	S	43	Rigged down test lines from TDS
14:30	16:00	1.50	P-DRL	S	14	Picked up 216 mm bit and MWD / BHA
16:00	17:00	1.00	P-DRL	S	32	Programed MWD and loaded radioactive sources
17:00	19:30	2.50	P-DRL	S	14	Continued to pick up BHA. Tested MWD - OK. While testing MWD, function tested and pumped through diverter - OK
19:30	21:00	1.50	P-DRL	S	12	Continued to run in hole with 216 mm BHA on 127 mm DP. Tagged cement / float at 768.5 m
21:00	22:00	1.00	P-DRL	S	42	Drilled cement, float, tagged shoe at 796 m and drilled through same. Pumped 6.3 m3 of HiVis PHG then started displacing hole to 1.15 SG kCl / Polymer mud while drilling shoe track. Hole displaced to new mud before drilling new hole
22:00	23:00	1.00	P-DRL	S	10	Drilled 3 m of new hole from 811 - 814 m
23:00	00:00	1.00	P-DRL	S	88	Circulated and worked pipe to clean cuttings out of hole and get even mud weight of 1.15 SG all round

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Continued to circulate to get uniform mud weight all way around hole. Displaced choke and kill lines to 1.15 SG mud

00:30 - 01:00 Dowell broke circulation and tested surface lines to 10335 kPa

01:00 - 01:30 Performed FIT to 1.8 SG EMW. Pressured up to 5078 kPa using 1.15 SG mud

01:30 - 02:00 Checked choke line frictions and took slow pump rates

02:00 - 06:00 Drilled 216 mm hole from 814 - 917 m. Took survey every connection

No incidents reported. 24 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
4 / 4	215.90	Hycalog	DSX104	110859	14/14/14/14/14/////	811.00 / 5/01/2005	0-0------

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	9.00	10	5/01/2005

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP

BHA / HOLE CONDITIONS

BHA	4	JAR S/N	DAH02122	JAR HRS	1.00	BIT	4

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	91.0	91.0	91.0	N-m	290.65

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.22	216.00		4.5	
Positive Displacement Motor	1	7.62	162.00		4.5	
Intergral Blade Stabilizer	1	1.63	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.53	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

MUD PROPERTIES

MUD TYPE: KCL/POLYMER

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
41	10/8	5/6	6.6/	1.0/6.5	/	/4.0	8.50/0.05	0.05/0.75	42,000	360			0.4

DENS	1.15	ECD	1.15	PP		DAILY COST		CUM COST		% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#3	12.0	65	6.0	1,048.56
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #3		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	105 / 105	105 / 105				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		FUGRO ROV	2	
DODI	14		Dowell Schlumberger	2	
DOGC	27		MI	1	
OMS	3		SPERRY MWD	3	
TMS	11		SPERRY Mudlogging	4	

Total Personnel on Board: 72

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	114	0	0		114
CEMENT	54	0	0		54
DIESEL	378	435	143		956
GEL, FRESH	40	0	0		40
WATER, DRILLING	776	0	0		776
WATER, POTABLE	287	82	30		399

Total Water 1,175

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (In Melbourne)	HELICOPTER	BZU (Pax on 1, Pax off 2)
SUPPLY BOAT	Pacific Wrangler (On Location)		

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	811.00 (m)	811.00 (m)	9.00	10	5/01/2005

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,982	578			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	15 / 17	25 / /	2.50 / 225 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 15

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	767.00 (m)	1,578.00 (	1,578.00 (	10.00	11	6/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT	GRAYLING	(m)			10.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA					

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 366,636.00	DHC: 3,754,932.33
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 366,636.00	TOTAL: 3,754,932.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 1,688.59 (m) INC 0.840 AZM 172.370	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Drilling 216 mm hole at 1830 m

24 HR FORECAST

Drill 216 mm hole to TD at 2944 m

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	P-DRL	S	88	Continued to circulate to get uniform mud weight all way around hole. Displaced choke and kill lines to 1.15 SG mud
00:30	01:00	0.50	P-DRL	S	42	Dowell broke circulation and tested surface lines to 10335 kPa. Performed FIT to 1.8 SG EMW. Pressured up to 5078 kPa using 1.15 SG mud
01:00	01:30	0.50	P-DRL	S	88	Checked choke line frictions and took slow pump rates
01:30	00:00	22.50	P-DRL	S	10	Drilled 216 mm hole from 814 - 1578 m. Ave. ROP 33.9 m/hr Took survey every connection

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 06:00 Drilled 216 mm hole from 1578 - 1830 m. Average ROP 42 m/hr Took survey every connection

No incidents reported. 25 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
4 / 4	215.90	Hycalog	DSX104	110859	14/14/14/14/14/////	811.00 / 5/01/2005	0-0------

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
4 / 4	0.7 / 12.2	50 / 70	2,103.0	17,225	3,329	22.50	767.00	34.09	22.50	767.00	34.09

BHA / HOLE CONDITIONS

BHA	4	JAR S/N		JAR HRS		BIT	4

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	113.0	113.0	113.0	9,316 N-m	290.65

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.22	216.00		4.5	
Positive Displacement Motor	1	7.62	162.00		4.5	
Intergral Blade Stabilizer	1	1.63	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.53	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	767.00 (m)	1,578.00 (	1,578.00 (	10.00	11	6/01/2005

MUD PROPERTIES

MUD TYPE: KCL/POLYMER

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
52	15/12	8/13	5.8/	1.0/10.0	/	1.00/40.0	9.00/0.50	0.15/0.85	50,000	360			4.2

DENS	1.20	ECD	1.22	PP		DAILY COST	4,780	CUM COST	111,091	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#3	12.0	65	6.0	1,048.56
#				

SPP: 17,225 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 18.098 (kW/cm

SPR

	SPM	PPSR
PUMPS #1	40	2,756
PUMPS #3	40	2,756
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		FUGRO ROV	2	
DODI	16		Dowell Schlumberger	2	
DOGC	25		MI	1	
OMS	3		SPERRY MWD	3	
TMS	10		SPERRY Mudlogging	4	

Total Personnel on Board: 71

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	108	0	0		108
CEMENT	54	0	0		54
DIESEL	369	426	143		938
GEL, FRESH	40	0	0		40
WATER, DRILLING	633	0	0		633
WATER, POTABLE	289	78	30		397

Total Water 1,030

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (In Melbourne)	HELICOPTER	BZU (Pax on 1, Pax off 2)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,694	866			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	15 / 22	3 / /	3.50 / 225 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 16

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	767.00 (m)	1,578.00 (	1,578.00 (	10.00	11	6/01/2005

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
MWD	799.47	0.070	125.090	719.45	2.48	2.49	2.48	0.12
MWD	828.00	0.330	254.000	747.98	2.45	2.43	2.45	0.40
MWD	855.73	0.220	282.740	775.71	2.44	2.30	2.44	0.19
MWD	884.02	0.250	268.520	804.00	2.45	2.19	2.45	0.07
MWD	912.98	0.030	338.300	832.96	2.46	2.12	2.46	0.25
MWD	941.54	0.240	248.400	861.52	2.44	2.06	2.44	0.25
MWD	969.38	0.230	227.080	889.36	2.38	1.97	2.38	0.09
MWD	997.56	0.080	133.420	917.54	2.33	1.94	2.33	0.26
MWD	1,026.77	0.070	257.570	946.75	2.31	1.94	2.31	0.14
MWD	1,055.08	0.120	94.500	975.06	2.13	1.95	2.31	0.20
MWD	1,083.61	0.120	106.140	1,003.59	2.29	2.01	2.29	0.03
MWD	1,112.94	0.100	285.840	1,032.92	2.29	2.01	2.29	0.23
MWD	1,142.03	0.200	104.600	1,062.01	2.29	2.04	2.29	0.31
MWD	1,170.51	0.200	103.080	1,090.49	2.26	2.13	2.26	0.01
MWD	1,198.86	0.140	149.130	1,118.84	2.22	2.20	2.22	0.15
MWD	1,227.73	0.200	97.520	1,147.71	2.19	2.27	2.19	0.16
MWD	1,258.25	0.230	146.710	1,178.23	2.13	2.35	2.13	0.18
MWD	1,286.99	0.140	124.270	1,206.97	2.06	2.41	2.06	0.12
MWD	1,314.43	0.170	97.460	1,234.41	2.04	2.48	2.04	0.08
MWD	1,343.18	0.270	148.880	1,263.16	1.97	2.56	1.97	0.22
MWD	1,373.25	0.240	126.950	1,293.23	1.87	2.65	1.87	0.10
MWD	1,402.00	0.300	107.680	1,321.98	1.81	2.77	1.81	0.11
MWD	1,430.54	0.660	87.990	1,350.52	1.80	3.00	1.80	0.41
MWD	1,459.18	0.600	82.700	1,379.16	1.82	3.32	1.82	0.09
MWD	1,487.74	0.570	116.200	1,407.72	1.78	3.59	1.78	0.36
MWD	1,544.86	0.590	114.950	1,464.83	1.53	4.11	1.53	0.01
MWD	1,573.59	0.540	97.040	1,493.56	1.45	4.38	1.45	0.19
MWD	1,602.19	0.430	108.020	1,522.16	1.40	4.62	1.40	0.15
MWD	1,631.00	0.690	124.850	1,550.97	1.27	4.86	1.27	0.32
MWD	1,688.59	0.840	172.370	1,608.55	0.65	5.20	0.65	0.33

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	864.00 (m)	2,442.00 (	2,442.00 (	11.00	12	7/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			11.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 350,679.00	DHC: 4,105,611.33
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 350,679.00	TOTAL: 4,105,611.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,405.89 (m) INC 0.860 AZM 73.760	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS
Drilling 216 mm hole at 2573 m

24 HR FORECAST
Drill to TD at 2944 m. POOH for logging

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:00	24.00	P-DRL	S	10	Drilled 216 mm hole from 1578 - 2442 m. Average ROP 36 m/hr. Took surveys every connection

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 06:00 Continue drilled 216 mm hole from 2422 - 2573 m at average ROP of 25 m/hr. Took surveys every connection

One incident reported. 21 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
4 / 4	215.90	Hycalog	DSX104	110859	14/14/14/14/14/////	811.00 / 5/01/2005	3-7-WT-T-D- 2-NR-PR

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
4 / 4	0.6 / 10.2	191 / 254	2,116.0	18,283	3,517	16.10	864.00	53.66	38.60	1,631.00	42.25

BHA / HOLE CONDITIONS

BHA	4	JAR S/N	DAH 02122	JAR HRS	33.70	BIT	4

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	130.0	125.0	127.0	10,705 N-m	290.65

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.22	216.00		4.5	
Positive Displacement Motor	1	7.62	162.00		4.5	
Intergral Blade Stabilizer	1	1.63	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.53	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
51	15/14	9/15	6.2/	1.0/11.0	/	0.50/26.0	9.00/0.40	0.10/0.80	53,500	380			5.0

DENS	1.20	ECD	1.24	PP		DAILY COST	5,883	CUM COST	116,974	% OIL	

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	864.00 (m)	2,442.00 (	2,442.00 (	11.00	12	7/01/2005

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#3	12.0	65	6.0	1,048.56
#				

SPP: 18,283 (kPa)
AV (DP): (m/min) AV Riser: (m/min)
AV (DC): (m/min) HP/in2: 19.237 (kW/cm

SPR

	SPM	PPSR
PUMPS #1	40	3,445
PUMPS #3	40	3,445
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		FUGRO ROV	2	
DODI	15		Dowell Schlumberger	2	
DOGC	26		MI	1	
OMS	3		SPERRY MWD	3	
TMS	10		SPERRY Mudlogging	4	

Total Personnel on Board: 71

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	108	0	0		108
CEMENT	54	0	0		54
DIESEL	354	413	143		910
GEL, FRESH	40	0	0		40
WATER, DRILLING	530	0	0		530
WATER, POTABLE	291	74	30		395

Total Water 925

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (In Melbourne)	HELICOPTER	BZU (Pax on 6, Pax off 6)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,822	738			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	12 / 20	3 / /	2.50 / 245 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

INCIDENT REPORT

INCIDENT TYPE FIRST AID
INCIDENT DESCRIPTION Man cut hand while using disc grinder
LOST TIME? NO
DAYS W/O LTA 17

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
MWD	1,717.50	1.150	175.090	1,637.46	0.15	5.26	3.22	0.33
MWD	1,746.31	1.330	177.780	1,666.26	-0.47	5.29	3.73	0.20
MWD	1,771.77	1.710	183.220	1,691.71	-1.14	5.28	4.24	0.48

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	864.00 (m)	2,442.00 (	2,442.00 (	11.00	12	7/01/2005

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
MWD	1,801.27	1.830	193.590	1,721.20	-2.04	5.15	4.85	0.35
MWD	1,829.67	1.850	191.490	1,749.59	-2.93	4.95	5.41	0.07
MWD	1,859.53	2.000	189.680	1,779.43	-3.92	4.77	6.05	0.16
MWD	1,886.70	2.120	182.090	1,806.58	-4.89	4.67	6.74	0.33
MWD	1,913.17	1.880	179.200	1,833.03	-5.81	4.66	7.45	0.29
MWD	1,943.38	2.080	169.630	1,863.23	-6.85	4.76	8.31	0.38
MWD	1,970.53	2.150	161.300	1,890.36	-7.81	5.02	9.22	0.35
MWD	2,002.66	2.180	162.430	1,922.47	-8.97	5.39	10.35	0.05
MWD	2,031.55	2.300	163.070	1,951.33	-10.04	5.73	11.40	0.13
MWD	2,059.86	2.410	156.940	1,979.62	-11.14	6.13	12.49	0.29
MWD	2,088.00	2.150	158.770	2,007.74	-12.17	6.55	13.56	0.29
MWD	2,116.02	2.170	149.890	2,035.74	-13.12	7.01	14.58	0.36
MWD	2,176.47	1.960	136.280	2,096.15	-14.86	8.29	16.74	0.26
MWD	2,205.27	2.090	136.580	2,124.93	-15.60	9.00	17.76	0.14
MWD	2,234.27	1.800	118.620	2,153.91	-16.20	9.76	18.71	0.69
MWD	2,262.36	1.770	112.230	2,181.99	-16.57	10.55	19.50	0.21
MWD	2,319.97	1.350	98.170	2,239.58	-17.01	12.04	20.78	0.29
MWD	2,348.57	1.200	81.030	2,268.17	-17.01	12.67	21.19	0.43
MWD	2,377.25	1.240	77.360	2,296.85	-16.89	13.27	21.48	0.09
MWD	2,405.89	0.860	73.760	2,325.48	-16.76	13.78	21.70	0.40

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	298.00 (m)	2,740.00 (	2,740.00 (	12.00	13	8/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			12.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 427,976.00	DHC: 4,533,587.33
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 427,976.00	TOTAL: 4,533,587.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,705.88 (m) INC 1.520 AZM 22.170	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Backreaming out of hole at 1690 m

24 HR FORECAST

Complete pull out of hole. Rig up and run logs

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	07:00	7.00	P-DRL	S	10	Continued drill 216 mm hole from 2442 - 2599 m at average ROP of 22.4 m/hr. Took surveys every connection
07:00	08:00	1.00	P-DRL	S	88	Circulated out gas in mud. Max gas peak of 11.83 %
08:00	22:30	14.50	P-DRL	S	10	Continued drill 216 mm hole from 2599 - 2740 m at average ROP of 9.7 m/hr. Took surveys every connection
22:30	23:30	1.00	P-DRL	S	88	Circulated bottoms up at 2740 m. Boosted riser. Flow checked 15 mins - OK
23:30	00:00	0.50	P-DRL	S	12	Pulled out of hole wet from 2740 - 2700 m. No drag or overpull

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:30 Pulled out of hole from 2700 - 2235 m. 30K overpull and tight hole at 2235 m

02:30 - 06:00 Backreamed out of hole from 2235 - 1690 m

No incidents reported. 25 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
4 / 4	215.90	Hycalog	DSX104	110859	14/14/14/14/14/////	811.00 / 5/01/2005	3-7-WT-T-D- 2-NR-PR

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
4 / 4	1.4 / 10.6	52 / 100	2,092.0	19,711	3,495	17.70	298.00	16.84	56.30	1,929.00	34.26

BHA / HOLE CONDITIONS

BHA	4	JAR S/N	DAH 02122	JAR HRS	51.40	BIT	4

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	145.0	138.0	143.0	12,798 N-m	290.65

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.22	216.00		4.5	
Positive Displacement Motor	1	7.62	162.00		4.5	
Intergral Blade Stabilizer	1	1.63	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.53	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	298.00 (m)	2,740.00 (	2,740.00 (	12.00	13	8/01/2005

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
57	16/14	8/16	5.2/	1.0/11.0	/	0.50/28.5	8.50/0.25	0.10/0.90	53,000	360			5.0

DENS	1.22	ECD	1.25	PP		DAILY COST	9,060	CUM COST	126,034	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#2	12.0	65	6.0	1,048.56
#				

SPP: 19,711 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 18.900 (kW/cm

SPR

	SPM	PPSR
PUMPS #1	40	3,445
PUMPS #2		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	16		MI	1	
DOGC	25		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	10		Baker Atlas	9	
FUGRO ROV	2		Petrotech	1	

Total Personnel on Board: 81

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	108	0	84		192
CEMENT	54	0	170		224
DIESEL	338	0	412		750
GEL, FRESH	40	0	56		96
WATER, DRILLING	470	0	623		1,093
WATER, POTABLE	299	0	666		965

Total Water 2,058

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	BZU (Pax on 13, Pax off 3)
SUPPLY BOAT	Pacific Wrangler (On route to Melbourne)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,822	738			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	5 / 7	25 / /	1.50 / 140 /	/	-1 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 18

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	298.00 (m)	2,740.00 (	2,740.00 (	12.00	13	8/01/2005

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
MWD	2,434.61	0.820	69.480	2,354.20	-16.63	14.18	21.85	0.08
MWD	2,463.45	0.680	71.560	2,383.04	-16.51	14.54	21.98	0.15
MWD	2,492.41	0.810	69.680	2,411.99	-16.38	14.89	22.11	0.14
MWD	2,546.50	0.520	57.730	2,466.08	-16.12	15.46	22.27	0.18
MWD	2,576.79	0.690	53.300	2,496.37	-15.93	15.72	22.29	0.17
MWD	2,607.25	1.040	24.250	2,526.82	-15.57	15.98	22.18	0.54
MWD	2,635.53	1.270	21.760	2,555.10	-15.05	16.20	21.91	0.25
MWD	2,664.67	1.480	19.520	2,584.23	-14.39	16.45	21.56	0.22
MWD	2,693.52	1.470	19.440	2,613.07	-13.69	16.69	21.18	0.01
MWD	2,705.88	1.520	22.170	2,625.43	-13.39	16.81	21.02	0.21

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	298.00 (m)	2,740.00 (	2,740.00 (	12.00	13	8/01/2005

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			12.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 427,976.00	DHC: 4,533,587.33
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 427,976.00	TOTAL: 4,533,587.33

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
2/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,705.88 (m) INC 1.520 AZM 22.170	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Backreaming out of hole at 1690 m

24 HR FORECAST

Complete pull out of hole. Rig up and run logs

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	07:00	7.00	P-DRL	S	10	Continued drill 216 mm hole from 2442 - 2599 m at average ROP of 22.4 m/hr. Took surveys every connection
07:00	08:00	1.00	P-DRL	S	88	Circulated out gas in mud. Max gas peak of 11.83 %
08:00	22:30	14.50	P-DRL	S	10	Continued drill 216 mm hole from 2599 - 2740 m at average ROP of 9.7 m/hr. Took surveys every connection
22:30	23:30	1.00	P-DRL	S	88	Circulated bottoms up at 2740 m. Boosted riser. Flow checked 15 mins - OK
23:30	00:00	0.50	P-DRL	S	12	Pulled out of hole wet from 2740 - 2700 m. No drag or overpull

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:30 Pulled out of hole from 2700 - 2235 m. 30K overpull and tight hole at 2235 m

02:30 - 06:00 Backreamed out of hole from 2235 - 1690 m

No incidents reported. 25 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
4 / 4	215.90	Hycalog	DSX104	110859	14/14/14/14/14/////	811.00 / 5/01/2005	3-7-WT-T-D- 2-NR-PR

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
4 / 4	1.4 / 10.6	52 / 100	2,092.0	19,711	3,495	17.70	298.00	16.84	56.30	1,929.00	34.26

BHA / HOLE CONDITIONS

BHA	4	JAR S/N	DAH 02122	JAR HRS	51.40	BIT	4

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	145.0	138.0	143.0	12,798 N-m	290.65

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.22	216.00		4.5	
Positive Displacement Motor	1	7.62	162.00		4.5	
Intergral Blade Stabilizer	1	1.63	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.53	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,740.00 (	2,740.00 (	13.00	14	9/01/2005

BHA / HOLE CONDITIONS

BHA	4	JAR S/N		JAR HRS		BIT	4

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.22	216.00		4.5	
Positive Displacement Motor	1	7.62	162.00		4.5	
Intergral Blade Stabilizer	1	1.63	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.53	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
50	16/14	9/15	5.2/	1.0/11.0	/	0.25/30.0	9.00/0.10	0.10/1.10	52,500	380			5.0

DENS	1.22	ECD	1.25	PP		DAILY COST	12,790	CUM COST	138,824	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#2	12.0	65	6.0	1,048.56
#				

SPP: 19,711 (kPa)
AV (DP): (m/min) AV Riser: (m/min)
AV (DC): (m/min) HP/in2: 18.900 (kW/cm

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	16		MI	1	
DOGC	25		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	10		Baker Atlas	9	
FUGRO ROV	2		Petrotech	1	

Total Personnel on Board: 81

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	108	0	84		192
CEMENT	54	0	170		224
DIESEL	323	0	409		732
GEL, FRESH	40	0	56		96
WATER, DRILLING	440	0	623		1,063
WATER, POTABLE	307	0	666		973

Total Water 2,036

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (In Melbourne)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,822	738			

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,740.00 (	2,740.00 (	13.00	14	9/01/2005

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	7 / 7	2 / /	2.00 / 90 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	2/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 19

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,740.00 (	2,740.00 (	14.00	15	10/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			14.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 348,573.80	DHC: 5,169,487.13
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 348,574.00	TOTAL: 5,169,487.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
9/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,705.88 INC 1.520 AZM 22.170	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Drilling 216 mm hole at 2803 m. Average ROP = 14 m/hr

24 HR FORECAST

Drill 216 mm hole to 2944 m. Backream out of hole

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:30	2.50	P-DRL	S	12	Picked up stand with MWD and motor. Laid down motor, picked up new 171.5 mm PD motor and reset angle on motor ro Zero. Made up new 216 mm PDC bit. Ran in hole and changed out batteries on MWD
02:30	06:00	3.50	P-DRL	T	12	Attempted download of MWD. Acoustic caliper tool not functioning. Changed out ACAL tool and attempted download. Tool still not functioning. Found loose connection in pin connector and fault in software . Changed out connector and downloaded MWD - OK
06:00	07:00	1.00	P-DRL	S	51	Serviced and greased top drive, fixed oil leaks on racking arm, replaced blower hose on top drive
07:00	07:30	0.50	P-DRL	T	50	Continued to repair oil leaks on racking arm
07:30	08:30	1.00	P-DRL	S	12	Ran in hole with BHA to 178 m. Tested MWD and motor - OK
08:30	09:30	1.00	P-DRL	S	12	Continued to run in the hole with 127 mm DP to 810 m.
09:30	10:30	1.00	P-DRL	S	88	Circulated with no rotation to ream out any obstructions with motor from 810 - 840 m while logging shoe track with acoustic caliper. Caliper of shoe track from 779 - 817 m was 246 - 261mm
10:30	14:30	4.00	P-DRL	S	12	Continued to run in hole from 840m - 2422 m
14:30	23:30	9.00	P-DRL	T	23	Reamed hole from 2422 - 2733 m due to tight hole. Pipe stuck and hole packed off at 2652 m. Worked pipe free and continued reaming.
23:30	00:00	0.50	P-DRL	T	88	Pipe stuck at 2733 m. Worked pipe free and circulated to clean up hole.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 01:30 Continued to ream 216 mm hole from 2733 - 2740 m

01:30 - 06:00 Broke in new bit profile and drilled 216 mm hole from 2740 - 2803 m. Average ROP = 14 m/hr

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
5 / 5	215.90	Security DBS	FM37432	10669060	12/12/12/13/13/13////	2,740.00 / 10/01/2005	0-0------

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
5 / 5	1.0 / 5.9	65 / 162	2,030.0	19,248	3,643	7.50			7.50		

BHA / HOLE CONDITIONS

BHA	5	JAR S/N	DAH 02122	JAR HRS	128.90	BIT	

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	148.0	141.0	145.0	12,798 N-m	289.94

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.24	216.00		4.5	
Positive Displacement Motor	1	6.67	162.00		4.5	
Intergral Blade Stabilizer	1	1.77	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,740.00 (	2,740.00 (	14.00	15	10/01/200

BHA / HOLE CONDITIONS

BHA	5	JAR S/N	DAH 02122	JAR HRS	128.90	BIT	

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Logging while Drilling	1	27.61	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
46	16/14	9/16	5.2/	1.0/11.5	/	0.25/30.0	8.50/0.15	0.10/1.20	56,000	400			4.7

DENS	1.24	ECD	1.26	PP		DAILY COST	8,762	CUM COST	147,586	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#2	12.0	65	6.0	1,048.56
#3	12.0	65	6.0	1,048.56
#				

SPP: 19,248 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 19.118 (kW/cm

SPR

	SPM	PPSR
PUMPS #2		
PUMPS #3		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
TMS	10		Baker Atlas	9	
FUGRO ROV	2		Petrotech	1	
Dowell Schlumberger	2		Apache	5	
MI	1		DODI	16	
SPERRY MWD	3		DOGC	25	
SPERRY Mudlogging	4		OMS	3	

Total Personnel on Board: 81

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	108	0	84		192
CEMENT	54	0	170		224
DIESEL	311	0	408		719
GEL, FRESH	40	0	56		96
WATER, DRILLING	403	0	623		1,026
WATER, POTABLE	321	0	660		981

Total Water 2,007

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (In Melbourne)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,822	738			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	15 / 15	3 / /	3.00 / 90 /	/	0 (°C)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,740.00 (	2,740.00 (	14.00	15	10/01/200

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	9/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 20

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	174.00 (m)	2,914.00 (	2,914.00 (	15.00	16	11/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			15.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 363,525.00	DHC: 5,533,012.13
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 363,525.00	TOTAL: 5,533,012.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
9/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 (m) INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Circulate and raise mud weight to 1.26 SG

24 HR FORECAST

Raise mud weight to 1.26 SG. Pull out of hole to log

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	01:30	1.50	P-DRL	S	23	Continued to ream 216 mm hole from 2733 - 2740 m
01:30	18:30	17.00	P-DRL	S	10	Broke in new bit profile and drilled 216 mm hole from 2740 - 2906 m. Average ROP = 9.76 m/hr
18:30	19:30	1.00	P-DRL	T	50	Replaced piston in mud pump #2. Replaced leaking sightglass in mud pump #3 suction pulsation dampner
19:30	20:30	1.00	P-DRL	S	10	Continued drilling 216 mm hole from 2906 - 2914 m. Average ROP = 8.00 m/hr
20:30	22:00	1.50	P-DRL	S	88	Circulated hole to clean shakers, conditioned mud and boosted riser prior to pull out of hole
22:00	00:00	2.00	P-DRL	S	12	Flow checked well - OK. Pulled out of hole wet from 2914 - 2684 m. Overpulled 18 MT at 2856 m, 22.7 MT at 2785 m, 27.3 MT at 2728 m

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:30 Logged 216 mm hole with MWD while pulling out of hole from 2684 - 2585 m. Pulling speed of 75 m/hr used

02:30 - 04:00 Worked tight hole at 2585 m trying to rack back stand and re-connect top drive. Max overpull 45.5 MT

04:00 - 05:00 Ran in hole from 2585 - 2719 m. 13 - 14 MT drag running in hole

05:00 - 05:30 Worked string through tight hole from 2719 - 2690 m. Max overpull 45.5 MT

05:30 - 06:00 Ran in hole from 2690 - 2914 m

No incidents reported. 28 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
5 / 5	215.90	Security DBS	FM3743	10669060	12/12/12/13/13/13////	2,740.00 / 10/01/2005	0-0------

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
5 / 5	5.0 / 11.4	55 / 101	2,112.0	20,721	3,912	15.40	174.00	11.30	24.40	181.00	7.42

BHA / HOLE CONDITIONS

BHA	5	JAR S/N	DAH 02122	JAR HRS	144.30	BIT	

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	156.8	140.9	150.0	10,197 N-m	289.94

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.24	216.00		4.5	
Positive Displacement Motor	1	6.67	162.00		4.5	
Intergral Blade Stabilizer	1	1.77	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.61	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	174.00 (m)	2,914.00 (	2,914.00 (	15.00	16	11/01/200

BHA	5	JAR S/N	DAH 02122	JAR HRS	144.30	BIT	

BHA / HOLE CONDITIONS

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

MUD PROPERTIES

MUD TYPE: KCL/POLYMER

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
43	14/14	9/15	5.2/	1.0/11.0	/	0.25/32.0	9.00/0.15	0.10/1.20	49,000	400			4.5

DENS	1.23	ECD	1.25	PP		DAILY COST	7,499	CUM COST	155,085	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#2	12.0	65	6.0	1,048.56
#				

SPP: 20,721 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 21.356 (kW/cm

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		Dowell Schlumberger	2	
DODI	16		MI	1	
DOGC	25		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	
TMS	10		Baker Atlas	10	
FUGRO ROV	2		Petrotech	1	

Total Personnel on Board: 82

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	108	0	84		192
CEMENT	54	0	170		224
DIESEL	295	0	404		699
GEL, FRESH	40	0	56		96
WATER, DRILLING	391	0	623		1,014
WATER, POTABLE	354	0	660		1,014

Total Water 2,028

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	BZU (Pax on 2, Pax off 1)
SUPPLY BOAT	Pacific Wrangler (In Melbourne)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,881	679			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	5 / 7	2 / /	1.00 / 90 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	9/01/2005

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	174.00 (m)	2,914.00 (	2,914.00 (	15.00	16	11/01/200

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 21

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

SURVEYS

TYPE	MD	DEG	AZI	TVD	N/S	E/W	V. SECT	D.L.
MWD	2,712.30	1.490	18.240	2,631.84	-13.23	16.87	20.93	0.50
MWD	2,741.40	1.940	16.750	2,660.93	-12.40	17.13	20.46	0.47
MWD	2,770.20	2.120	14.280	2,689.71	-11.42	17.40	19.87	0.21
MWD	2,799.25	2.300	13.410	2,718.74	-10.33	17.67	19.20	0.19
MWD	2,827.82	2.760	14.380	2,747.28	-9.11	17.97	18.45	0.49
MWD	2,855.28	2.920	15.440	2,774.71	-7.79	18.32	17.65	0.18
MWD	2,880.32	3.280	15.630	2,799.71	-6.49	18.68	16.88	0.43
MWD	2,914.00	3.280	15.630	2,833.34	-4.63	19.20	15.77	

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	16.00	17	12/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			16.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 376,704.00	DHC: 5,909,716.13
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 376,704.00	TOTAL: 5,909,716.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
9/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS
Pulling out of hole at 1400 m

24 HR FORECAST
Pull out of hole. Run logs

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:30	2.50	P-DRL	U	32	Logged 216 mm hole with MWD while pulling out of hole from 2684 - 2585 m. Pulling speed of 75 m/hr used
02:30	04:00	1.50	P-DRL	T	12	Worked tight hole at 2585 m trying to rack back stand and re-connect top drive. Max overpull 45.5 MT
04:00	05:00	1.00	P-DRL	T	12	Ran in hole from 2585 - 2719 m. 13 - 14 MT drag running in hole
05:00	05:30	0.50	P-DRL	T	12	Worked string through tight hole from 2719 - 2690 m. Max overpull 45.5 MT
05:30	06:00	0.50	P-DRL	T	12	Ran in hole from 2690 - 2914 m
06:00	09:00	3.00	P-DRL	T	88	Circulated clean and weighted mud up to 1.28 SG
09:00	10:30	1.50	P-DRL	S	12	Pulled out of hole from 2914 - 2573 m. Max drag 27.3 MT
10:30	13:30	3.00	P-DRL	S	23	Pulled out of hole reaming with mud motor (pumping) from 2575 - 2116 m
13:30	14:30	1.00	P-DRL	S	32	Logged 216 mm hole with MWD while pulling out of hole from 2116 - 2070 m. Pulling speed of 75 m/hr used
14:30	17:00	2.50	P-DRL	S	23	Continued to pull out of hole reaming with mud motor (pumping) from 2070 - 1226 m
17:00	17:30	0.50	P-DRL	S	88	Circulated bottoms up at 1226 m
17:30	19:00	1.50	P-DRL	S	12	Pulled out of hole wet from 1226 - 847m.
19:00	20:00	1.00	P-DRL	S	32	Logged 340 mm shoe track with MWD while pulling out of hole from 847 - 809 m bit depth. Pulling speed of 75 m/hr used. Caliper of shoe track from 779 - 817 m was 246 - 261mm. No change from previous caliper run
20:00	20:30	0.50	P-DRL	S	88	Pulled out of hole from 809 - 765 m. Circulated bottoms up to clean shakers
20:30	00:00	3.50	P-DRL	S	12	Ran in hole from 765 - 2520 m. Worked through tight spots at 2040 m, 2070 m, 2315 m, 2350 m. Max drag going in hole of 45.5 MT

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Continued to run in hole to 2719 m.

00:30 - 02:30 Circulated hole clean, boosted riser, conditioned and weighted up mud to 1.32 SG

02:30 - 06:00 Pulled out of hole wet to 2000 m. Pumped slug and continued pull out of hole to 1400 m. 13.6 MT overpull at 2566 m.

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
5 / 5	215.90	Security DBS	FM3743	10669060	12/12/12/13/13/13////	2,740.00 / 10/01/2005	0-0------

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP
5 / 5	/	/ 142	2,030.0	20,544	3,761				24.40	181.00	7.42

BHA	5	JAR S/N	DAH 02122	JAR HRS	144.30	BIT	

BHA / HOLE CONDITIONS

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
13.6	159.0	136.0	150.0	33,700 N-m	289.94

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.24	216.00		4.5	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	16.00	17	12/01/200

BHA / HOLE CONDITIONS

BHA	5	JAR S/N	DAH 02122	JAR HRS	144.30	BIT	

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Positive Displacement Motor	1	6.67	162.00		4.5	
Intergral Blade Stabilizer	1	1.77	209.00	65.00	4.5	NC50 IF
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.61	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
44	15/16	8/15	4.8/	1.0/12.0	/	0.25/30.0	8.50/0.10	0.10/1.10	50,000	400			3.4

DENS	1.28	ECD	1.31	PP		DAILY COST	5,088	CUM COST	160,173	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#2	12.0	65	6.0	1,048.56
#				

SPP: 20,544 (kPa)

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2: 19.735 (kW/cm

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Baker Atlas	10		TMS	10	
Petrotech	1		FUGRO ROV	2	
Apache	5		Dowell Schlumberger	2	
DODI	16		MI	1	
DOGC	25		SPERRY MWD	3	
OMS	3		SPERRY Mudlogging	4	

Total Personnel on Board: 82

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	132	0	0		132
CEMENT	54	80	0		134
DIESEL	278	557	0		835
GEL, FRESH	40	42	0		82
WATER, DRILLING	500	485	0		985
WATER, POTABLE	332	270	0		602

Total Water 1,587

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On route to Melbourne)	HELICOPTER	JGO (Freight only)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,877	683			

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	16.00	17	12/01/200

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	2 / 7	1 / /	1.50 / 225 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	9/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 22

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	17.00	18	13/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			17.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 315,686.00	DHC: 6,225,402.13
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 315,686.00	TOTAL: 6,225,402.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
9/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Running in hole with wireline strip over assembly at 167.5 m

24 HR FORECAST

Run in hole and fish RCI tool

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	P-DRL	U	12	Ran in hole from 2560 - 2719 m. No drag encountered in this section of hole
00:30	02:30	2.00	P-DRL	U	88	Weighted up mud system from 1.28 - 1.32 SG. Boosted riser until clean shakers as cutting came back over shakers with heavier mud
02:30	08:00	5.50	P-DRL	S	12	Pulled out of hole wet from 2719 - 2000 m. Hole condition good. Pumped slug and continued pull out of hole
08:00	09:30	1.50	P-DRL	S	12	Continued pull out of hole with BHA
09:30	10:30	1.00	P-DRL	S	14	Unloaded radioactive sources. Broke off bit. Laid down MWD and mud motor
10:30	11:30	1.00	P-EVAL	S	32	Cleaned rig floor. Held JSA. Rigged up compensator line and wireline sheaves
11:30	20:00	8.50	P-EVAL	S	32	Picked up wireline tools and ran in hole with Run #1 - RCI. Completed 6 pressure point readings before hydrostatic gauges observed to be inconsistant and unreliable. Decision made to continue with PVT sampling program. At first sample point of 2074 m for total of 2 hrs incorporating clean up, sampling and attempt at bubbl point / compressibility data. When attempted to move to next sampling point, found tool stuck
20:00	22:00	2.00	P-EVAL	T	32	RCI tool stuck at 2074 m. Worked string and attempted to free tool without success
22:00	00:00	2.00	P-EVAL	T	32	Held PJSM. Rigged down compensator line. Rigged up tools and sheave in crown to start strip over wireline operations

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:30 Continued to rig up sheaves and tools to strip over wireline

02:30 - 06:00 Held JSA. Started run in hole with 127 mm HWDP and DP while stripping over wireline to 167.5 m

No incidents reported. 27 proactive safety measures for day

BIT DATA

BIT / RUN	SIZE	MANUF.	TYPE	SERIAL NO.	JETS OR TFA	DEPTH IN / DATE IN	I-O-D-L-B-G-O-R
5 / 5	215.90	Security DBS	FM3743	10669060	12/12/12/13/13/13////	2,740.00 / 10/01/2005	6-4-BT-N-D- I-BU-TD

BIT OPERATIONS

BIT / RUN	WOB	RPM	FLOW	PRESS	P BIT	HRS	24Hr PROG	24Hr ROP	CUM HRS	CUM PROG	CUM ROP

BHA / HOLE CONDITIONS

BHA	5	JAR S/N		JAR HRS		BIT	

BHA WT. BELOW JARS	STRING WT. UP	STRING WT. DN	STRING WT. ROT	TORQUE / UNITS	BHA LENGTH
					289.94

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Polycrystalline Diamond Bit		0.24	216.00		4.5	
Positive Displacement Motor	1	6.67	162.00		4.5	
Intergral Blade Stabilizer	1	1.77	209.00	65.00	4.5	NC50 IF

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	17.00	18	13/01/200

BHA / HOLE CONDITIONS

BHA	5	JAR S/N		JAR HRS		BIT	

ITEM DESCRIPTION	NO. JTS	LENGTH	O.D.	I.D.	CONN SIZE	CONN TYPE
Float Sub	1	0.62	163.00		4.5	NC50 IF
Logging while Drilling	1	27.61	171.00		4.5	NC50 IF
Intergral Blade Stabilizer	1	2.05	209.00	65.00	4.5	NC50 IF
Spirall Drill Collar	9	83.68	165.00	73.00	4.5	NC50 IF
Drilling Jar	1	9.51	162.00		4.5	NC50 IF
Spirall Drill Collar	2	18.61	165.00	73.00	4.5	NC50 IF
Heavy Weight Drill Pipe	15	139.18	127.00	76.00	4.5	NC50 IF

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
44	15/16	10/15	5.0/	1.0/13.5	/	0.25/32.0	8.50/0.15	0.10/1.10	50,000	380			3.9

DENS	1.32	ECD	1.31	PP		DAILY COST	5,890	CUM COST	166,063	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#1	12.0	65	6.0	1,048.56
#2	12.0	65	6.0	1,048.56
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #1		
PUMPS #2		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Baker Atlas	10		FUGRO ROV	2	
Petrotech	1		Dowell Schlumberger	2	
Apache	5		MI	1	
DODI	17		SPERRY MWD	3	
DOGC	25		SPERRY Mudlogging	4	
OMS	3		Santos	4	
TMS	9				

Total Personnel on Board: 86

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	132	0	0		132
CEMENT	54	80	0		134
DIESEL	262	552	0		814
GEL, FRESH	40	42	0		82
WATER, DRILLING	488	485	0		973
WATER, POTABLE	335	268	0		603

Total Water 1,576

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (In Melbourne)	HELICOPTER	BZU (Pax on 6, Pax off 2)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,976	584			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 7	1 / /	1.00 / 90 /	/	-1 (°C)

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	17.00	18	13/01/200

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	9/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 23

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	18.00	19	14/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			18.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 306,891.00	DHC: 6,532,293.13
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 306,891.00	TOTAL: 6,532,293.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
9/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS
Pulling out of hole with RCI tool at 1368 m

24 HR FORECAST
Retrieve RCI tool. Wiper trip with bit

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:30	2.50	P-EVAL	T	32	Continued to rig up sheaves and tools for stripping over wireline
02:30	13:30	11.00	P-EVAL	T	32	Held JSA. Ran in hole with 127 mm HWDP and DP while stripping over wireline to 2033 m
13:30	14:30	1.00	P-EVAL	T	32	Circulated bottoms up at 2033 m. Max gas = 1.45 %. Some coal cavings back at shakers
14:30	15:00	0.50	P-EVAL	T	32	Continued to run in hole from 2033 - 2061 m
15:00	16:00	1.00	P-EVAL	T	32	Latched fish at 2061 m and pulled out of hole to 2033 m. Attached T-bar to wireline and cut wireline
16:00	18:00	2.00	P-EVAL	T	32	Worked pipe while re-terminating wireline
18:00	19:00	1.00	P-EVAL	T	32	Made up side entry sub and secured wireline to same at 2071 m
19:00	23:00	4.00	P-EVAL	U	32	Logged 216 mm hole with RCI tool. Coorelated depths with GR before taking 2 pressure readings. While moving tool to to new pressure point depth, RCI tool malfunctioned. Suspected electrical short in tool downhole
23:00	00:00	1.00	P-EVAL	T	32	Pulled out of hole to side entry sub at 2071 m. Checked electrical connect "torpedo" in wireline above side entry sub - OK

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:00 Rigged down side entry sub. Rigged up T-bar and sheared wireline weakline.

02:00 - 04:00 Tied knot in wireline, pulled join over sheaves to wireline winch drum and pulled wireline out of hole

04:00 - 06:00 Pulled out of hole with 127 mm DP and RCI tool to 1368 m

No incidents reported. 33 proactive safety measures for day

MUD PROPERTIES

MUD TYPE: KCL/POLYMER

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
43	16/15	10/15	/	1.0/13.5	/	/34.0	8.50/0.15	0.10/1.20	50,000	400			3.9

DENS	1.32	ECD	1.31	PP		DAILY COST		CUM COST	166,063	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE			SPR SPM	SPR PPSR
#					SPP:	PUMPS #		
#					AV (DP): (m/min) AV Riser: (m/min)	PUMPS #		
#					AV (DC): (m/min) HP/in2:	PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Baker Atlas	10		Petrotech	1	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	18.00	19	14/01/200

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Apache	5		FUGRO ROV	2	
DODI	17		Dowell Schlumberger	2	
DOGC	25		MI	1	
OMS	3		SPERRY Mudlogging	2	
TMS	9				

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	115	0	0		115
CEMENT	54	80	0		134
DIESEL	398	398	0		796
GEL, FRESH	40	42	0		82
WATER, DRILLING	488	485	0		973
WATER, POTABLE	343	267	0		610

Total Water 1,583

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (In Melbourne)	HELICOPTER	BZU (Pax on 4, Pax off 13)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,823	737			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	10 / 10	1 / /	1.50 / 215 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	9/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 24

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	19.00	20	15/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			19.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 333,683.00	DHC: 6,865,976.13
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 333,683.00	TOTAL: 6,865,976.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
9/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Making gamma ray depth coorelation for RCI tool

24 HR FORECAST

Take 36 pressure points and 4 samples with RCI tool

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:00	2.00	P-EVAL	T	32	Rigged down side entry sub. Rigged up T-bar and sheared wireline weakline. Seepage losses of mud to hole of 0.16 m3 per hour
02:00	04:00	2.00	P-EVAL	U	32	Tied knot in wireline, pulled join over sheaves to wireline winch drum and pulled wireline out of hole
04:00	10:00	6.00	P-EVAL	T	32	Pulled out of hole with 127 mm DP and RCI tool. Recovered 100% of RCI tool string. Removed sample chambe chamber was empty
10:00	11:00	1.00	P-EVAL	T	32	Laid down all RCI tool string
11:00	12:00	1.00	P-EVAL	U	32	Rigged down wireline sheave at crown. Rigged up sheave on V-door A frame for PCL logging run
12:00	14:00	2.00	P-EVAL	U	32	Made up RCI-GR tool string with Simphor circulating XO. Hung wireline in sheave at A frame
14:00	15:00	1.00	P-EVAL	U	32	Surface checked RCI tools with wet connect. Pumped 10 litres of fresh water into lower chamber
15:00	17:00	2.00	P-EVAL	T	32	Troubleshoot communication problem within RCI tool string
17:00	00:00	7.00	P-EVAL	U	32	Ran in hole with logging run # 2, RCI-GR on PCL. Ran in hole on 127 mm DP to 1899 m at 2 mins / stand in casing and 3 mins / stand in open hole No further seepage mud losses to hole detected

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 01:00 Continued to run in hole with RCI-GR on 127 mm DP at 3 mins/stand from 1899 - 2036 m

01:00 - 03:00 Rigged up Side Entry Sub and ran in hole with wireline wet connect. Worked wireline up and down to get inherent torque out of wireline before clamping wireline to side entry sub. Latched wet connect into top of logging tools and clamped wireline to side entry sub

03:00 - 05:30 Continued running in hole slowly with logging tools, side entry sub and wireline from 2036 - 2570 m.

05:30 - 06:00 Work string from 2570 - 2535 m to make GR coorelation for depth

No further seepage mud losses to hole detected

One incident reported. 30 proactive safety measures for day

MUD PROPERTIES

MUD TYPE: KCL/POLYMER

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
44	14/17	9/14	/	1.0/13.5	/	0.25/34.0	8.50/0.15	0.10/1.20	51,000	400			3.9

DENS	1.32	ECD	1.32	PP		DAILY COST		CUM COST	166,063	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	19.00	20	15/01/200

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
DODI	17		MI	1	
DOGC	25		SPERRY Mudlogging	2	
OMS	3		Baker Atlas	10	
TMS	9		Petrotech	1	
FUGRO ROV	2		Apache	5	
Dowell Schlumberger	2				

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	115	0	36		151
CEMENT	54	0	170		224
DIESEL	388	0	356		744
GEL, FRESH	40	0	56		96
WATER, DRILLING	470	0	518		988
WATER, POTABLE	349	0	639		988

Total Water 1,976

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (On route to Melbourne)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,823	737			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 10	1 / /	1.50 / 180 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	2/01/2005	10/10/2004	23/11/2004	9/01/2005

INCIDENT REPORT

INCIDENT TYPE FIRST AID

INCIDENT DESCRIPTION 14" Impellor from pump dropped on mans foot

LOST TIME? NO

DAYS W/O LTA 25

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	20.00	21	16/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			20.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 267,601.00	DHC: 7,133,577.13
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 267,601.00	TOTAL: 7,133,577.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS
Checking RCI tool after latching wet connect

24 HR FORECAST
Complete RCI log. Run VSP log

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	01:00	1.00	P-EVAL	U	32	Continued to run in hole with RCI-GR on 127 mm DP at 3 mins/stand from 1899 - 2036 m drill pipe depth
01:00	03:00	2.00	P-EVAL	U	32	Rigged up Side Entry Sub and ran in hole with wireline wet connect. Worked wireline up and down to get inherent torque out of wireline before clamping wireline to side entry sub. Latched wet connect into top of logging tools and clamped wireline to side entry sub
03:00	05:30	2.50	P-EVAL	U	32	Continued running in hole slowly with logging tools, side entry sub and wireline from 2036 - 2572 m RCI packer depth
05:30	06:30	1.00	P-EVAL	U	32	Worked string over 57 m to make GR coorelation for depth
06:30	17:30	11.00	P-EVAL	U	32	Obtained 20 formation pressure points with RCI from 2572 - 2683 m RCI packer depth. Obtained two samples at 2633 m and 2572 m packer depth
17:30	22:30	5.00	P-EVAL	T	32	While freeing RCI tool from wall after taking sample at 2572 m, lost communications to tool from surface. Re-gained communication and attempted to take another sample at 2574 m. RCI tool intermittantly lost communication with surface and, due to hole condtions, tool was being worked up and down to ensure tool was free inbetween attempts to obtain a sample.
22:30	23:00	0.50	P-EVAL	U	32	Flushed formation fluids through RCI tool and obtained sample at 2574 m
23:00	23:30	0.50	P-EVAL	T	32	Took 9 MT down to free RCI tool after sample taken at 2574 m after tool had been stationary for 70 mins. At this time, lost communication with tool again. Trouble shoot communication problem with RCI tool and surface.
23:30	00:00	0.50	P-EVAL	T	32	Pulled out of hole from 2574 - 2474 m due to bad communication with tool.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:00 Continued to pull out of hole with 127 mm DP from 2474 m to Side Entry Sub at 2055 m, RCI packer depth, for troubleshooting communication problems to RCI tool from surface.

02:00 - 03:30 Inspected wireline at side entry sub - in good condition and no apparent damage. Disconnected wireline wet connect from top of RCI tool and pulled wireline wet connect to surface.

03:30 - 04:30 Inspected wet connect and tested wireline drum electrical continuity to wet connect - both OK. Changed out wet connect and sinker bar for new one

04:30 - 05:30 Ran in hole with new wet connect on wireline. Worked wireline up and down to remove any residual torque in wireline. Latched wet connect into top of RCI tool at 2033 m

05:30 - 06:00 Baker Atlas running checks on RCI tool through wet connect before clamping wireline to side entry sub

No incidents reported. 23 proactive safety measures for day

MUD PROPERTIES

MUD TYPE: KCL/POLYMER

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
48	14/14	8/13	/	1.0/13.5	/	0.25/34.0	8.50/0.15	0.10/1.20	50,000	400			3.9

DENS	1.32	ECD	1.32	PP		DAILY COST		CUM COST	166,063	% OIL	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	20.00	21	16/01/200

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Baker Atlas	10		TMS	9	
Petrotech	1		FUGRO ROV	2	
Apache	5		Dowell Schlumberger	2	
DODI	17		MI	1	
DOGC	25		SPERRY Mudlogging	2	
OMS	3				

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	115	0	36		151
CEMENT	54	0	170		224
DIESEL	378	0	354		732
GEL, FRESH	40	0	56		96
WATER, DRILLING	404	0	518		922
WATER, POTABLE	360	0	628		988

Total Water 1,910

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (In Melbourne)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,823	737			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	12 / 15	1 / /	3.00 / 225 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	16/01/2005	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 26

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	21.00	22	17/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			21.25

SUPERVISOR	OIM
H. Everhart / J. Wrenn	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 525,372.00	DHC: 7,658,949.13
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 525,372.00	TOTAL: 7,658,949.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	(mm) @ (m)

CURRENT OPERATIONS

Running in hole with cement stinger for abandonment plugs

24 HR FORECAST

Set five abandonment plugs laying down DP while WOC

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:00	2.00	P-EVAL	T	32	Continued to pull out of hole with 127 mm DP from 2474 m to Side Entry Sub at 2055 m, RCI packer depth, for troubleshooting communication problems to RCI tool from surface.
02:00	03:30	1.50	P-EVAL	T	32	Inspected wireline at side entry sub - in good condition and no apparent damage. Disconnected wireline wet connect from top of RCI tool and pulled wireline wet connect to surface.
03:30	04:30	1.00	P-EVAL	T	32	Inspected wet connect and tested wireline drum electrical continuity to wet connect - both OK. Changed out wet connect and sinker bar for new one
04:30	05:30	1.00	P-EVAL	T	32	Ran in hole with new wet connect on wireline. Worked wireline up and down to remove any residual torque in wireline. Latched wet connect into top of RCI tool at 2033 m
05:30	06:30	1.00	P-EVAL	T	32	Baker Atlas running checks on RCI tool through wet connect before clamping wireline to side entry sub. Unable to get Gamma Ray / Telemetry working
06:30	07:30	1.00	P-EVAL	T	32	Pulled out of hole with wireline wet connect and disconnected wireline side entry sub
07:30	09:00	1.50	P-EVAL	U	32	Circulated bottoms up prior to pulling out of hole at 2033 m DP depth. Max gas of 5.27%. Flow checked well - OK Pumped slug
09:00	12:30	3.50	P-EVAL	U	32	Pulled out of hole with DP and RCI-GR logging tools
12:30	13:30	1.00	P-EVAL	U	32	Pulled out of hole with wireline tools. Removed sample chambers. Laid down Simphor circulating XO and RCI-GR logging tools
13:30	14:00	0.50	P-EVAL	U	32	Rigged down wireline sheave from A frame. Rigged up compensator line and wireline sheaves on travelling block
14:00	22:00	8.00	P-EVAL	U	32	Made up tools and ran Log #2 MLR conventionally.
22:00	22:30	0.50	P-EVAL	S	32	MLR at surface. Laid down logging tools to deck
22:30	23:30	1.00	P-EVAL	S	32	Rigged down compensator line and wireline sheaves from derrick
23:30	00:00	0.50	RDMO	S	12	Made up cementing stand for P & A and racked back in derrick while catwalk was being cleared of all logging tools and 89 mm

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 02:00 Made up 89 mm mule shoe on 89 mm DP and ran in hole picking up 18 joints of 89 mm DP

02:00 - 06:00 Continued to run in hole with 89 mm DP on 127 mm DP to 2750 m

No incidents reported. 31 proactive safety measures for day

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
47	15/16	8/12	/	1.0/13.5	/	0.25/34.0	8.50/0.10	0.10/1.20	50,000	400			3.9

DENS	1.32	ECD	1.32	PP		DAILY COST		CUM COST	166,063	% OIL	

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	21.00	22	17/01/200

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
105 / 105	145 / 145	145 / 145				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Baker Atlas	10		TMS	9	
Petrotech	1		FUGRO ROV	2	
Apache	5		Dowell Schlumberger	2	
DODI	17		MI	1	
DOGC	25		SPERRY Mudlogging	2	
OMS	3				

Total Personnel on Board: 77

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	115	0	36		151
CEMENT	54	0	170		224
DIESEL	370	0	352		722
GEL, FRESH	40	0	56		96
WATER, DRILLING	404	0	518		922
WATER, POTABLE	371	0	628		999

Total Water 1,921

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	SUPPLY BOAT	Pacific Wrangler (On rioute to Rig)

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,823	737			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 7	2 / /	1.00 / 225 /	/	0 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	16/01/2005	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 27

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	22.00	23	18/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			22.25

SUPERVISOR	OIM
H. Everhart / K. Corps	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 381,841.00	DHC: 8,040,790.13
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 381,841.00	TOTAL: 8,040,790.13

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	(mm) @ (m)

CURRENT OPERATIONS

Set P&A plug 3# across 340mm casing shoe.

24 HR FORECAST

Set P&A plug #4. Lay out DP. Prepare to pull BOP's.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	02:00	2.00	RDMO	S	44	Made up 89 mm mule shoe on 89 mm DP and ran in hole picking up 18 joints of 89 mm DP
02:00	06:00	4.00	RDMO	S	44	Continued to run in hole on 127 mm DP to 2775 m
06:00	07:00	1.00	RDMO	S	44	Circulated bottoms up until background gas <1%. Max gas 25.5%
07:00	07:30	0.50	RDMO	S	44	Spotted 4m3 Hi-Vis on bottom.
07:30	08:00	0.50	RDMO	S	44	POH from 2775m to 2675m. Rigged up side entry sub and cement hose.
08:00	09:00	1.00	RDMO	S	44	Held JSA. Pressure tested lines. Pumped balanced plug #1A from 2675m to 2585m with 3.2m3 1.9SG slurry and displaced same.
09:00	09:30	0.50	RDMO	S	44	Rigged down cement hose. Racked side entry stand and pulled back to 2585m. Rigged up side entry sub and cement hose.
09:30	10:30	1.00	RDMO	S	44	Pressure tested lines. Pumped balanced plug #1B from 2585m to 2495m with 3.2m3 1.9SG slurry and displaced same.
10:30	11:00	0.50	RDMO	S	44	Rigged down cement hose and POH to 2441m.
11:00	11:30	0.50	RDMO	S	44	Circulated bottoms up.
11:30	14:00	2.50	RDMO	S	44	WOC. POH to 2211m - Laid out 127mm DP.
14:00	15:00	1.00	RDMO	S	44	RIH. Washed down last 2 stands and tagged plug #1B @ 2538m with 4MT.
15:00	16:00	1.00	RDMO	S	44	Circulated bottoms up. Spotted 14.3m3 inhibited mud on bottom.
16:00	16:30	0.50	RDMO	S	44	POH from 2538m to 2110m. Rigged up side entry sub and cement hose.
16:30	17:30	1.00	RDMO	U	44	Held JSA. Pressure tested lines. Pumped balanced plug #2 from 2110m to 2010m with 3.6m3 1.9SG slurry and displaced same.
17:30	18:00	0.50	RDMO	S	44	POH from 2110m to 1952m.
18:00	19:00	1.00	RDMO	U	44	Circulated bottoms up - flushed choke, kill and booster lines.
19:00	22:00	3.00	RDMO	S	44	WOC. POH to 1235m - Laid out 25 stands 127mm DP.
22:00	00:00	2.00	RDMO	U	44	RIH from 1235m to 1981m.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 00:30 Made up TDS. Washed down and tagged plug #2 @ 1996m with 5MT.

00:30 - 01:00 Spotted 43.7m3 inhibited mud on bottom.

01:00 - 05:00 POH to 1000m - laid out 127mm DP.

05:00 - 05:30 POH to 826m - racked 127mm DP. Rigged up side entry sub and cement hose.

05:30 - 06:00 Pressure tested lines. Pumped balanced plug #3 from 826m to 726m with 6m3 1.9SG slurry and displaced same.

No incidents reported. 25 proactive safety measures.

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	22.00	23	18/01/200

MUD PROPERTIES

MUD TYPE: IDCAP/KCL/POLYM

VIS	PV/YP	GELS	WL/HTHP	FC/T.SOL	OIL/WAT	%Sand/MBT	Ph/pM	Pf/Mf	Cl	Ca	H2S	KCL	LGS
47	15/18	9/13	/	1.0/13.5	/	0.25/34.0	10.00/0.10	0.10/1.40	50,000	420			3.9

DENS	1.32	ECD	1.32	PP		DAILY COST		CUM COST	166,063	% OIL	

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Baker Atlas	5		TMS	9	
Apache	2		FUGRO ROV	2	
DODI	17		Dowell Schlumberger	2	
DOGC	26		MI	1	
OMS	3		SPERRY Mudlogging	2	

Total Personnel on Board: 69

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	115	0	36		151
CEMENT	54	80	170		304
DIESEL	360	541	350		1,251
GEL, FRESH	40	42	56		138
WATER, DRILLING	343	485	400		1,228
WATER, POTABLE	354	274	622		1,250

Total Water 2,478

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (8 Pax on, 16 Pax off)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,823	737			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	5 / 90	1 / 90 /	0.50 / 90 /	15 / 90	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	16/01/2005	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 28

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	23.00	24	19/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			23.25

SUPERVISOR	OIM
H. Everhart / K. Corps	B. Scott

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 339,217.33	DHC: 8,380,007.47
PERMIT # VIC P/54	CWC: 0	CWC: 0.00	CWC: 0.00
	TOTAL: 0	TOTAL: 339,217.00	TOTAL: 8,380,007.47

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

Removing choke and kill lines

24 HR FORECAST

Pull and lay out riser. Set back BOP's. R/U to cut casing.

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	00:30	0.50	RDMO	S	44	Made up TDS. Washed down and tagged plug #2 @ 1996m with 5MT.
00:30	01:00	0.50	RDMO	S	44	Spotted 43.7m3 inhibited mud on bottom.
01:00	05:00	4.00	RDMO	S	44	POH to 1000m - laid out 127mm DP.
05:00	05:30	0.50	RDMO	S	44	POH to 826m - racked 127mm DP. Rigged up side entry sub and cement hose.
05:30	06:00	0.50	RDMO	S	44	Pressure tested lines. Pumped balanced plug #3 from 826m to 726m with 6m3 1.9SG slurry and displaced same.
06:00	07:00	1.00	RDMO	S	44	Rigged down cement hose and POH to 690m and circulated bottoms up.
07:00	08:00	1.00	RDMO	S	44	WOC - Laid out excess drill pipe.
08:00	10:30	2.50	RDMO	S	44	WOC - RIH HWDP and 152mm DC and laid out same.
10:30	11:00	0.50	RDMO	S	44	RIH and tagged P&A plug #3 @ 737m with 5MT.
11:00	11:30	0.50	RDMO	S	44	Displaced well to inhibited mud.
11:30	12:30	1.00	RDMO	S	44	Pumped slug and POH to 518m - racked 127mm DP
12:30	14:30	2.00	RDMO	S	44	POH to 174m - laid out 127mm drill pipe and side entry sub.
14:30	15:00	0.50	RDMO	S	44	Rigged up cement hose to 89mm drill pipe. Pressure tested lines. Pumped balanced plug #4 from 170m to 100m with 5.4m3 1.9SG slurry and displaced same.
15:00	16:30	1.50	RDMO	S	44	Rigged down cement hose. POH from 170m to 100m. Rigged up reverse circulating hose and reverse circulated well clean. Rigged down reverse circulating hose.
16:30	17:30	1.00	RDMO	S	44	Flushed C&K lines, booster line and surface lines with SW. Displaced riser to SW.
17:30	18:30	1.00	RDMO	S	44	POH - laid out 89mm DP.
18:30	20:00	1.50	RDMO	S	44	Made up BOP jetting sub and wear bushing RT. RIH - jetted BOP stack and pulled wear bushing with 18.2MT overpull.
20:00	21:00	1.00	RDMO	S	44	POH - Laid out wear bushing RT and jetting sub.
21:00	21:30	0.50	RDMO	S	44	Cleared 89mm handling equipment from rig floor.
21:30	23:30	2.00	RDMO	S	51	Slipped and cut drill line.
23:30	00:00	0.50	RDMO	S	51	Rigged up to pull riser and BOP's.

24.00 = Total Hours Today

06:00 UPDATE

00:00 - 01:00 Held JSA. Rigged up to pull BOP and riser.

01:00 - 01:30 Pulled diverter and laid out same.

01:30 - 03:30 Made up landing joint. Stroked and pinned slip joint.

03:30 - 04:30 Unlatched the BOP's and pulled clear form the wellhead/PGB with ROV assistance. Nippled down pod line storm loops. Secured SDL ring and released from riser.

04:30 - 06:00 Removed choke, kill and booster lines.

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	23.00	24	19/01/200

06:00 UPDATE

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE			SPR		
								SPM	PPSR
#					SPP:		PUMPS #		
#					AV (DP): (m/min)	AV Riser: (m/min)	PUMPS #		
#					AV (DC): (m/min)	HP/in2:	PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
SPERRY Mudlogging	2		DOGC	26	
SMITH	1		OMS	3	
Cameron	1		TMS	9	
AMOG	1		FUGRO ROV	7	
Baker Atlas	2		Dowell Schlumberger	2	
Apache	2		MI	1	
DODI	17				

Total Personnel on Board: 74

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	350	540	340		1,230
GEL, FRESH	40	42	56		138
WATER, DRILLING	319	485	400		1,204
WATER, POTABLE	332	270	613		1,215

Total Water 2,419

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (8 Pax on, 3 Pax off)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,823	737			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	8 / 90	1 / 90 /	0.50 / 90 /	20 / 90	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	16/01/2005	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

INCIDENT DESCRIPTION

LOST TIME? NO

DAYS W/O LTA 29

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

APACHE ENERGY LIMITED
DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	24.00	25	20/01/200

RIG	FIELD NAME	AUTH TMD	PLANNED DOW	DOM	DOL
UNSPECIFIED OCEAN PATRIOT 186	GRAYLING	2,944.00 (m)			24.25

SUPERVISOR	OIM
H. Everhart / K. Corps	S. DeFreitas

COUNTRY	DISTRICT	STATE / PROV	COUNTY / PARRISH	RIG PHONE NO	RIG FAX NO
AUSTRALIA				+61	

AFE #	AFE COSTS	DAILY COSTS	CUMULATIVE COSTS
	DHC: 0	DHC: 0.00	DHC: 8,380,007.47
PERMIT #	CWC: 0	CWC: 0.00	CWC: 0.00
VIC P/54	TOTAL: 0	TOTAL: 0.00	TOTAL: 8,380,007.47

LST SFTY MEETING	BLOCK	FORMATION	BHA HRS OF SERVICE
16/01/2005	VIC P/54		

LAST SURVEY	ACTUAL LEAKOFF EMW	LAST CASING	NEXT CASING
TMD 2,914.00 INC 3.280 AZM 15.630	1.80 (SG)	340.000 (mm) @ 796.24 (m)	177.800 (mm) @ 2,944.00 (m)

CURRENT OPERATIONS

24 HR FORECAST

OPERATIONS SUMMARY

FROM	TO	HRS	PHASE	C	CODE	ACTIVITY SUMMARY
00:00	01:00	1.00	RDMO	S	44	Held JSA. Rigged up to pull BOP and riser.
01:00	01:30	0.50	RDMO	S	44	Pulled diverter and laid out same.
01:30	03:30	2.00	RDMO	S	44	Made up landing joint. Stroked and pinned slip joint.
03:30	04:30	1.00	RDMO	S	44	Unlatched the BOP's and pulled clear from the wellhead/PGB with ROV assistance. Nippled down pod line storm loops. Secured SDL ring and released from riser.
04:30	07:00	2.50	RDMO	S	44	Removed choke, kill and booster lines.
07:00	08:00	1.00	RDMO	S	44	Laid out landing joint and slip joint.
08:00	10:30	2.50	RDMO	S	44	POH - Laid out 2 riser joints and landed BOP's on carriage.
10:30	12:00	1.50	RDMO	S	44	Removed riser double from BOP's. Removed guide lines from BOP's.
12:00	12:30	0.50	RDMO	S	44	Skidded BOP carriage clear of rotary table.
12:30	13:00	0.50	RDMO	S	44	Broke out riser double and laid out same.
13:00	13:30	0.50	RDMO	S	44	Rigged down riser handling equipment.
13:30	14:00	0.50	RDMO	S	44	Made up 762mm x 508mm casing cutting and retrieval tool.
14:00	15:00	1.00	RDMO	S	44	RIH and stabbed into wellhead with ROV assistance.
15:00	19:00	4.00	RDMO	S	44	Cut 762mm and 508mm casing below seabed.
19:00	19:30	0.50	RDMO	S	44	POH with casing cuttoff and PGB. Prepared to reposition rig to Grayling-1.
19:30	20:00	0.50	RDMO	S	44	Repositioned rig over Grayling-1 location. POH with Grayling-1A PGB and casing cutoff and landed in moonpool.
20:00	20:30	0.50	RDMO	S	44	Released casing cutting and retrieval tool from wellhead.
20:30	21:30	1.00	RDMO	S	44	Removed knives and laid out casing cutter assembly.
21:30	22:30	1.00	RDMO	S	44	Made up 476mm wellhead R/T and engaged in wellhead.
22:30	23:00	0.50	RDMO	S	44	Release 762mm x 508mm casing cutoff from PGB and laid out same. ***End of Grayling-1A***

23.00 = Total Hours Today

MUD PUMPS / HYDRAULICS

	STROKE	SPM	LINER	FLOW RATE
#				
#				
#				

SPP:

AV (DP): (m/min) AV Riser: (m/min)

AV (DC): (m/min) HP/in2:

SPR

	SPM	PPSR
PUMPS #		
PUMPS #		
PUMPS #		

SOLIDS CONTROL

SHAKER #1	SHAKER #2	SHAKER #3	DESILTER HRS	DESANDER HRS	CENT #1 HRS	CENT #2 HRS
/	/	/				

APACHE ENERGY LIMITED

DAILY DRILLING REPORT

WELL NAME	API #	SPUD DATE	24 HRS PROG	TMD	TVD	DFS	REPT NO	DATE
Grayling-1A		28/12/2004	(m)	2,914.00 (	2,914.00 (	24.00	25	20/01/200

PERSONNEL DATA

COMPANY	QTY	HOURS	COMPANY	QTY	HOURS
Dowell Schlumberger	2		Apache	3	
MI	1		DODI	15	
SPERRY Mudlogging	2		DOGC	33	
SMITH	1		OMS	3	
Cameron	1		TMS	8	
AMOG	1		FUGRO ROV	7	
Baker Atlas	2				

Total Personnel on Board: 79

MATERIALS ON LOCATION

MATERIALS	RIG	WORKBOAT 1	WORKBOAT 2	OTHER	TOTAL
BARITE BULK	97	0	36		133
CEMENT	17	80	170		267
DIESEL	249	529	424		1,202
GEL, FRESH	40	42	56		138
WATER, DRILLING	301	485	583		1,369
WATER, POTABLE	318	268	967		1,553

Total Water 2,922

SUPPORT CRAFT

NAME/TYPE	REMARKS	NAME/TYPE	REMARKS
SUPPLY BOAT	Far Grip (On Location)	HELICOPTER	VH-BZU (15 Pax on, 10 Pax off)
SUPPLY BOAT	Pacific Wrangler (On Location)		

DECKLOG

MAX VDL	ACT VDL	AVL VDL	LEG PEN (BOW)	LEG PEN (PORT)	LEG PEN (S'BOARD)
2,560	1,875	685			

WEATHER

TIME	WIND SPEED / DIR	SWELL HT / DIR / PER	WAVE HT / DIR/ PER	CURRENT SPEED / DIR	TEMP
00:00	3 / 45	0 / 45 /	/ 45 /	5 / 45	12 (°C)

SAFETY DRILLS

RAMS	ANNULARS	CASING	BOP DRILL	NEXT BOP PRESS TEST	FIRE DRILL	H2S DRILL	MAN OVERBOARD	ABAN DRILL
5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	5/01/2005 / 27,560 (kPa)	22/12/2004	19/01/2005	16/01/2005	10/10/2004	23/11/2004	16/01/2005

INCIDENT REPORT

INCIDENT TYPE NONE

LOST TIME? NO

DAYS W/O LTA 30

INCIDENT DESCRIPTION

DATUM SECTION

RT TO AHD	21.50 (m)	AIR GAP	21.50	WATER DEPTH	58.50 (m)

DAILY GEOLOGICAL REPORT

Date:	28 December 2004	**Rig:**	Ocean Patriot
Report Number:	6	**Bit Diameter:**	N/A
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	N/A
Spud Date:	23-Dec-2004 20:30 Hours	**Integrity Test:**	N/A
Days From Spud:	4.4	**Mud Weight:**	9.30 ppg
Depth @ 0600 Hrs:	0.0 mMDRT 0.0 mTVDAHD	**Mud Type:**	SW/Gel Sweeps
Lag Depth:	0.0 mMDRT	**Mud Chlorides:**	40000 mg/L
Last Depth:	N/A		
Progress:	0 m		
Water Depth:	56.0 m	**Last Survey:**	0.00 mMDRT
RT:	25.0 m	**Deviation:**	Inc. 0.00° Az. 0.00°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Sever heavy weight drill pipe, pull anchors, skid rig, secure anchors, wait on weather.

NEXT 24 HOURS: Re-spud well.

CURRENT OPERATION @ 06:00 HRS (28-Dec-2004): Waiting on weather prior to spudding Grayling-1A,

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **Returns to seabed.**
ROP (Range):
Av. ROP:

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY
No Gas Data

REMARKS
This is the first Daily Geological Report for Grayling-1. The report number matches the Daily Drilling Report.

The Ocean Patriot came on hire for Grayling-1 when at 18:30 hours when the first anchor was run on the 22 December 2004. After running anchors a bottom hole assembly consisting of a 26" (660 mm) bit and 36" (914 mm) hole opener was made up and Grayling-1 was spudded at 20:30 hours on the 23 December 2004. The 660 mm (26") by 914 mm (36") hole section was drilled to a section TD of 113.3 mMDRT. At section TD a 16 m3 gel pill was pumped and the hole swept clean. The drilling assembly was then pulled out of hole and racked back.

The rig floor was then rigged up to run 762 mm (30") conductor and 508 mm (20") tapered casing. The conductor was lowered onto the seafloor and the casing was set at 112.0 mMDRT, washing down the final 2 m. Cemented casing with 1.9 SG slurry.

A 406 mm (16") drilling assembly consisting of a Hycalog PDC bit, heavy weight drill pipe and MWD tools for the acquisition of gamma ray, resistivity, sonic and directional data was then made up and run into hole

tagging cement at 104.6 m. The cement and shoe track where drilled out to 147.0 mm and the 16" hole drilled to section TD of 800 mMDRT, pumping 4.8 m^3 Hi-Vis sweeps and spotting 7.2 m^3 Hi-Vis on connections. The well was then displaced to 68.4 m^3 of 1.2 sg (10 ppg) 1.15% KCl mud and the drilling assembly pulled to surface and racked back.

The rig floor was then rigged up to run 340 mm (13 3/8") casing and the casing run down to 783.9 mMDRT and cemented with 13.3 m^3 of 1.5 sg (12.5 ppg) lead slurry and 8.9 m^3 of 1.9 sg (15.8 ppg) cement slurry. The cement hose was rigged down and while attempting to back out running tool it was noted that it would not release from the wellhead. Attempts to work the running tool out of hole were to no avail. A severing tool was run in hole on wireline to 76 mMDRT and after depth correcting to 74.5 mMDRT a shot was fired, successfully freeing the pipe. After pulling the severing tool out of hole the cement head and heavy weight drill pipe were pulled to surface and the severed joint laid out.

Operations on Grayling-1 were abandoned at 01:00 hrs on the 28 December 2004. Anchors were pulled and the rig skidded to the new location for spudding of Grayling-1A and anchors secured. As of 06:00 hours, Grayling-1A has not been spudded due to adverse weather conditions.

The final well coordinates for Grayling-1 are as follows:

Projection: MGA, Zone 55, CM 147 East
UTM: 613,302.06 mE
5,775,510.94 mN

Datum: GDA90
Latitude: 38°09'40.26" S
Longitude: 148°17' 35.90" E

Rig heighting depths are:

RT-Seabed: 78.32 m
RT-AHD: 21.5 m
Water Depth: 56.82 m

The final rig heading is 44.18° True. This position is 1.3 m at a bearing of 243.8° (T) from the intended Grayling-1 position.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	30 December 2004	**Rig:**	Ocean Patriot
Report Number:	3	**Bit Diameter:**	16 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	30" x 20" @ 112.3 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**Integrity Test:**	N/A
Days From Spud:	1.6	**Mud Weight:**	8.80 ppg
Depth @ 0600 Hrs:	639.0 mMDRT 639.0 mTVDAHD	**Mud Type:**	SW/Gel Sweeps
Lag Depth:	639.0 mMDRT	**Mud Chlorides:**	800 mg/L
Last Depth:	114.0 m MDRT		
Progress:	525.0 m		
Water Depth:	58.5 m	**Last Survey:**	0.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.00° Az. 0.00°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Waited on cement to harden, picked up 16" (406 mm) bottom hole assembly and ran in hole, tagged cement at 109.0 mMDRT, drilled out cement and shoe track to 112.0 mMDRT, drilled 16" (406 mm) to 06:00 hrs depth of 639.0 mMDRT.

NEXT 24 HOURS: Drill 16" (406 mm) hole to section TD, run and cement 13 $^{3}/_{8}$" (340 mm) casing.

CURRENT OPERATION @ 06:00 HRS (30-Dec-2004): Drilling ahead 16" (406 mm) hole.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **Returns to seabed.**
ROP (Range):
Av. ROP:

REMARKS
While waiting on cement to harden a 16" (406 mm) bottom hole assembly was made up comprising a Hycalog Tricone bit, 9 $^{5}/_{8}$" motor and MWD tools for the acquisition of gamma ray and resistivity, sonic and directional data. On hardening of cement the running tool was disengaged and pulled out of hole and laid out.

The 16" (406 mm) drilling assembly was then picked up and run into the hole, tagging top of cement at 109.0 mMDRT. The cement and shoe track were drilled out to 112.0 mMDRT and the hole continued to 147.0 mMDRT. The drillstring was then pulled back to the casing shoe and extra drill collars were added to the string. The drillstring was then run back to bottom and drilling continued to 06:00 hours depth of 639.0 mMDRT with intermittent sweeps performed.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	31 December 2004	**Rig:**	Ocean Patriot
Report Number:	4	**Bit Diameter:**	16.00 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	30" @ 112.4 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**Integrity Test:**	N/A
Days From Spud:	2.6	**Mud Weight:**	8.8 ppg
Depth @ 0600 Hrs:	810.0 mMDRT 788.5 mTVDAHD	**Mud Type:**	SW/Gel Sweeps
Lag Depth:	0.0 mMDRT	**Mud Chlorides:**	800 mg/L
Last Depth:	639.0 m MDRT		
Progress:	171.0 m		
Water Depth:	58.5 m	**Last Survey:**	768.30 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.18° Az. 151.29°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Drilled 16" (406 mm) to section TD of 810.0 mMDRT, circulated hole clean, displaced to KCl/ Polymer mud and pulled out, laid down bottom hole assembly and rigged up rig floor to run 13 $^{3}/_{8}$" (240 mm) casing, run casing.

NEXT 24 HOURS: Complete running 13 $^{3}/_{8}$" (340 mm) casing and cement, run stack and riser.

CURRENT OPERATION @ 06:00 HRS (31-Dec-2004): Running 13 $^{3}/_{8}$" (340 mm) casing.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL:	114.0 to 810.0 mMDRT (-92.5 to -788.5 mTVDAHD)
ROP (Range):	10.0 to 493.0 m/h
Av. ROP:	61.0 m/h

Returns to Seabed.

REMARKS

The 16" (406 mm) hole was continued to section TD of 810.0 mMDRT. At section TD the hole was circulated clean and 28 m^3 of pre hydrated gel (PHG) was spotted on bottom before displacing the hole to 47.7 m^3 of PHG and 50.9 m^3 of 1.15 SG (9.6 ppg) of KCL/ Polymer mud. The drillstring was then pulled to surface recording a maximum drag of 18 mT. At surface the MWD tools and motor were laid out and the rig floor rigged up to run 13 $^{3}/_{8}$" (340 mm) casing.

Two joints of casing were damaged and laid out while attempting to change out the box end coupling to a no-cross coupling. After breaking out the box end coupling on an intermediate joint from the shoe track, a tam packer to top drive system (TDS) was made up. The shoe and float joints were then run and tested then guide ropes on shoe joint were installed. At 06:00 hours commenced running 13 $^{3}/_{8}$" (240 mm) casing.

WELLSITE GEOLOGISTS

John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	01 January 2005	**Rig:**	Ocean Patriot
Report Number:	5	**Bit Diameter:**	16 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	30" x 20" @ 112.3 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**Integrity Test:**	N/A
Days From Spud:	3.6	**Mud Weight:**	8.80 ppg
Depth @ 0600 Hrs:	610.0 mMDRT **wiper trip depth* -588.5 mTVDAHD	**Mud Type:**	SW/Gel Sweeps
Lag Depth:	810.0 mMDRT	**Mud Chlorides:**	800 mg/L
Last Depth:	810.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	768.30 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.18° Az. 151.29°

OPERATIONS SUMMARY

24 HOUR SUMMARY: The 13 $^{3}/_{8}$" (240 mm) casing was run down to 520.0 mMDRT (requiring pumping and working from 510.0 mMDRT) where it hung up. The casing was pulled to surface and laid out and the final three joints of casing racked back.

A 16" (406 mm) bottom hole assembly on heavy weight drill pipe was then made up and run in hole for a wiper trip.

NEXT 24 HOURS: Wipe hole to section TD of 810.0 mMDRT, displace well with PHG and 1.15 sg (9.6 ppg) KCL/PHPA mud, pull 16" (406 mm) drilling assembly to surface and rack back, rig up drillfloor to rerun 13 $^{3}/_{8}$" (240 mm) casing, run casing.

CURRENT OPERATION @ 06:00 HRS (01-Jan-2005): Performing wiper trip in 16" (406 mm) hole.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No drilling.**
ROP (Range):
Av. ROP:

REMARKS

The 13 $^{3}/_{8}$" (340 mm) casing was run down to 510.0 mMDRT where it hung up. 32 mT of downweight was applied, the Tam packer inflated and the casing string worked and pumped down to 520.0 mMDRT where it again hung up. Several attempts were made to work the casing string through this point but these were unsuccessful. The casing was pulled to surface and laid out, and the float, intermediate and shoe joints were racked back in the derrick.

A bottom hole assembly was made up consisting of a 16" (406mm) Hycalog Tri-cone bit and heavy weight drill pipe and run into hole for a wiper trip. By 06:00 hours, 610.0 m of the hole had been wiped.

WELLSITE GEOLOGISTS

John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	02 January 2005	**Rig:**	Ocean Patriot
Report Number:	6	**Bit Diameter:**	N/A
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	30" x 20" @ 112.3 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**Integrity Test:**	N/A
Days From Spud:	4.6	**Mud Weight:**	9.60 ppg
Depth @ 0600 Hrs:	811.0 mMDRT -789.5 mTVDAHD	**Mud Type:**	SW/Gel Sweeps
Lag Depth:	811.0 mMDRT	**Mud Chlorides:**	37000 mg/L
Last Depth:	810.0 mMDRT		
Progress:	1.0 m		
Water Depth:	58.5 m	**Last Survey:**	768.30 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.18° Az. 151.29°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Wiped 16" (406 mm) hole to section TD of 810.0 mMDRT and the hole deepened to 811.0 mMDRT to clean out suspected junk. Pulled out of hole and racked back 16" (406 mm) bottom hole assembly.

Rigged up rig floor to run 13 $^{3}/_{8}$" (340 mm) casing. Ran casing down to 709.0 mMDRT, circulating and working from 608.0 to 707.0 mMDRT. Cross threaded the 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint will attempting to install, working casing string while waiting on new wellhead casing joint to arrive.

NEXT 24 HOURS: Work casing string and wait for new wellhead housing joint to arrive.

CURRENT OPERATION @ 06:00 HRS (02-Jan-2005): Waiting on new 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint to arrive from Melbourne while continuing to work casing.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL:	810.0 to 811.0 mMDRT (788.5 to -789.5 m TVDAHD)
ROP (Range):	11.2 to 18.6 m/h
Av. ROP:	14.0 m/h

REMARKS

The 16" (406 mm) hole was wiped to section TD of 810.0 mMDRT and the hole deepened to 811.0 mMDRT to clean out suspected junk. The well was then displaced with 79 m^3 of 1.15 SG (9.6 ppg) KCL mud and the drillstring pulled to surface.

At surface the bottomhole assembly was racked back in the derrick and the rig floor rigged up to run 13 $^{3}/_{8}$" (340 mm) casing. The casing was run down to 709.0 mMDRT requiring circulating and working from 608.0 to 707.0 mMDRT. While attempting to install the 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint at 709.0 mMDRT the box end coupling was cross threaded and was deemed unrepairable. This was the only remaining wellhead housing joint available as the other joint had been used on the Grayling-1 well.

While waiting on a new 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint to arrive from Melbourne, 63.6 m^3 of 1.15 sg (9.6 ppg) mud was built and spotted around the casing to maintain hole stability. Current operation, continuing to work casing.

WELLSITE GEOLOGISTS

John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	03 January 2005	**Rig:**	Ocean Patriot
Report Number:	7	**Bit Diameter:**	
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	30" x 20" @ 112.3 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**Integrity Test:**	N/A
Days From Spud:	5.6	**Mud Weight:**	9.70 ppg
Depth @ 0600 Hrs:	811.0 mMDRT 789.5 mTVDAHD	**Mud Type:**	SW/Gel Sweeps
Lag Depth:	811.0 mMDRT	**Mud Chlorides:**	39000 mg/L
Last Depth:	811.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	768.30 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.18° Az. 151.29°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Continued to work casing while waiting on new 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint to arrive.

NEXT 24 HOURS: Install new wellhead housing joint, complete running casing and cement, commence installation of stack and riser.

CURRENT OPERATION @ 06:00 HRS (03-Jan-2005): Working casing while waiting on new 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint to arrive.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No drilling.**
ROP (Range):
Av. ROP:

REMARKS
Continued to work casing while waiting on new 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint to arrive.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	04 January 2005	**Rig:**	Ocean Patriot
Report Number:	8	**Bit Diameter:**	N/A
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**Integrity Test:**	N/A
Days From Spud:	6.6	**Mud Weight:**	9.70 ppg
Depth @ 0600 Hrs:	811.0 mMDRT 789.5 mTVDAHD	**Mud Type:**	KCl-IDcapD
Lag Depth:	811.0 mMDRT	**Mud Chlorides:**	39000 mg/L
Last Depth:	811.0 m MDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	768.30 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.18° Az. 151.29°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Successfully made up the 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint, waited on operations while problems with wellhead running tool were investigated.

The Dowell DeepSea Express cement stinger was then made up, run in hole and landed out. The cement lines were rigged up and a blockage was noted in the cement head while attempting to circulate with rig pumps. The blockage was discovered above the lower valve on the cement head and was cleaned out.

Casing contents were then circulated with seawater and the casing cemented and pressure tested successfully. The cement hose was rigged down, the running tool released and drill line slipped and cut.

NEXT 24 HOURS: Complete laying out bottom hole assembly, acquire Fugro survey, skid off location and run riser and stack.

CURRENT OPERATION @ 06:00 HRS (04-Jan-2005): Laying out bottom hole assembly.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No drilling.**
ROP (Range):
Av. ROP:

REMARKS

On arrival, the 18 $^{3}/_{4}$" (476.25 mm) wellhead housing joint was successfully made up to the string. A wear bushing was then fitted and a while attempting to make up the wellhead running tool on 127 mm heavy weight drillpipe the box end underneath the tool flared. Drilling operations were ceased while the problem was investigated.

After it was deemed acceptable to continue operations, the Dowell DeepSea Express cement stinger was then made up and run in hole with the 13 $^{3}/_{8}$" (340 mm) casing and the wellhead housing was landed out in the 30" (762mm) wellhead. The connection was tested with 22.7 mT overpull and the cement lines rigged up. While attempting to circulate the cement lines with rig pumps a blockage was noted in the cement head. Attempts were made to clear the blockage with pressure but these were unsuccessful. The 18 $^{3}/_{4}$" (476.25 mm) running tool was backed off and the cement head broken down systematically to find blockage. The

connection above the lower valve was found to be blocked with cement. This was cleaned out, the running string again landed out and tested and the cement lines re-rigged.

The casing contents were circulated with seawater prior to cementing casing in place with 12.9 m^3 of 1.5 sg (12.5 ppg) lead slurry and 7.0 m^3 of 1.9 sg (15.8 ppg) cement slurry. The casing was pressure tested to 20670 kPa and the cement hose rigged down and running tool released.

A rig floor safety meeting was then held and 42.67 m of drilling line was slipped and cut.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	05 January 2005	**Rig:**	Ocean Patriot
Report Number:	9	**Bit Diameter:**	N/A
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**Integrity Test:**	N/A
Days From Spud:	7.6	**Mud Weight:**	9.60 ppg
Depth @ 0600 Hrs:	811.0 mMDRT 789.5 mTVDAHD	**Mud Type:**	KCl-IdcapD
Lag Depth:	811.0 mMDRT	**Mud Chlorides:**	36000 mg/L
Last Depth:	811.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	768.30 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.18° Az. 151.29°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Ran riser and stack and successfully landed and latched, installed diverter and landed out weight test plug in wellhead, commenced pressure testing BOPs.

NEXT 24 HOURS: Complete pressure testing BOPs, make up 8 ½" (216 mm) bottom hole assembly and run into hole. Drill float, cement and shoe track and 3 metres of new formation, displace choke and kill lines to mud, perform Formation Integrity Test (FIT) to 1.80 SG (15.0 ppg) EMW, drill ahead 8 ½" (216 mm) hole.

CURRENT OPERATION @ 06:00 HRS (05-Jan-2005): Pressure testing choke manifold and BOPs to 27,600 kPa.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No drilling.**
ROP (Range):
Av. ROP:

REMARKS

After slip and cutting the drill line the rig was skidded 12 metres off location and BOPs and riser were run. Choke and kill lines were tested to 27,560 kPa and the rig was repositioned over the Grayling 1A location and BOP's landed out and latched. The landing joint was laid out and a diverter installed before rigging down all riser handling equipment. A weight set test plug was then run into hole and landed out in the wellhead prior to commencing pressure testing of BOPs.

The final well coordinates for Grayling-1A are as follows:

Projection: MGA, Zone 55, CM 147 East
UTM: 613,273.61 mE
5,775,510.58 mN

Datum: GDA90
Latitude: 38°09'40.28" S
Longitude: 148°17' 34.73" E

Rig heighting depths are:

RT-Seabed: 80.0 m

RT-AHD: 21.5 m
Water Depth: 58.5 m

The final rig heading is 43.53° (T). The drill stem position is 29.6 m at a bearing of 268.2° (T) from the intended Grayling-1 design position.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	06 January 2005	**Rig:**	Ocean Patriot
Report Number:	10	**Bit Diameter:**	8.5 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.0 ppg EMW @ 814.0 mMDRT
Days From Spud:	8.6	**Mud Weight:**	9.6 ppg
Depth @ 0600 Hrs:	917.0 mMDRT -895.5 mTVDAHD	**Mud Type:**	KCl-IdcapD
Lag Depth:	910.0 mMDRT	**Mud Chlorides:**	42000 mg/L
Last Depth:	811.0 mMDRT		
Progress:	106.0 m		
Water Depth:	58.5 m	**Last Survey:**	912.98 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.03° Az. 338.30°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Completed pressure testing BOPs, made up 216 mm (8 ½") and run in to top cement. Drill out float, cement and shoe track and 3 metres of new formation while displace choke and kill lines to mud, perform Formation Integrity Test (FIT) to 1.80 sg (15.0 ppg) EMW, drill ahead 8 ½" (216 mm) hole.

NEXT 24 HOURS: Continue drilling the 216 mm (8 ½") hole.

CURRENT OPERATION @ 06:00 HRS (06-Jan-2005): Drilling ahead 8 ½" (216 mm) hole.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 811.0 to 910.0 mMDRT (-789.5 to -888.5 mTVDAHD)
ROP (Range): 5.0 to 127.0 m/h
Av. ROP: 36.0 m/h

CALCISILTITE grading in part to CALCILUTITE
CALCISILTITE (10 - 100%, decreasing with depth): medium light grey to light grey, trace to 10% clay, minor calcite crystal fragments, grades to Argillaceous Calcilutite and in part Calcarenite, trace micropyrite, trace Foraminifera fossil fragments, soft to firm, amorphous to locally sub blocky. Locally pale yellowish brown to pale brownish grey, medium light grey, trace calcite crystal fragments, trace micropyrite, grades to Limestone, firm to moderately hard, sub blocky.
CALCILUTITE (60 to 90%): medium grey to light grey, 10 to 15% clay, minor calcite crystal fragments, grades to Argillaceous Calcilutite, trace to 5% micropyrite nodules and laminae, trace Foraminifera fossil fragments, trace burrow casts, trace to 5% limestone fragments and calcite spicules, soft to firm, amorphous to locally sub blocky.

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY

Background Gas							
INTERVAL (mMDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
811.0 - 910.0	0.08	686	15	9	3	0	0

Gas Peak							
INTERVAL (mMDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
812.0 - 812.0	0.03	263	10	13	8	9	23

REMARKS

A 216 mm (8 ½") drilling assembly consisting of a Hycalog DSX PDC bit, 6 ¾" motor with 8 ¼" stab and Sperry Sun LWD tools for the acquisition of porosity, density, sonic and caliper data was made up and run into the hole.

The cement was tagged at 768.5 mMDRT and whilst drilling out the float and shoe track, the well was displaced to 1.15 SG (9.6 ppg) KCL/ IDCAP mud. On displacing, 3.0 m of new formation was drilled to 814.0 mMDRT before conducting a Formation Integrity Test (FIT) to 1.8 SG EMW and drilling the 216 mm (8 ½") hole ahead to 06:00 hours depth.

WELLSITE GEOLOGISTS

John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	07 January 2005	**Rig:**	Ocean Patriot
Report Number:	11	**Bit Diameter:**	8.5 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.0 ppg EMW @ 814.0 mMDRT
Days From Spud:	9.6	**Mud Weight:**	9.9 ppg
Depth @ 0600 Hrs:	1830.0 mMDRT -1808.4 mTVDAHD	**Mud Type:**	KCl-IdcapD
Lag Depth:	1810.0 mMDRT	**Mud Chlorides:**	50000 mg/L
Last Depth:	917.0 mMDRT		
Progress:	913.0 m		
Water Depth:	58.5 m	**Last Survey:**	1055.08 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 0.12° Az. 94.50°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Drilling ahead 8 ½" (216 mm) hole.

NEXT 24 HOURS: Drill ahead 8 ½" (216 mm) hole to TD or bit change required.

CURRENT OPERATION @ 06:00 HRS (07-Jan-2005): Drilling ahead 8 ½" (216 mm) hole.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 910.0 to 1080.0 mMDRT (-888.5 to -1058.5 mTVDAHD)
ROP (Range): 36.0 to 92.0 m/h
Av. ROP: 62.0 m/h

CALCILUTITE grading in part to CALCISILTITE with thin interbeds of LIMESTONE and SILTY DOLOMITE.
CALCILUTITE (54 to 89%): medium light grey to light grey, rare pale yellowish brown to pale brownish grey locally, dominantly silty with trace very fine quartz increasing locally up to 10%, trace to 15% clay, minor calcite crystal fragments, grades to argillaceous calcilutite and in part calcarenite, trace micropyrite, trace pyrite nodules, trace black lithics, trace red lithics, local trace limonite stained in part, trace foraminifera fossil fragments, soft to firm, amorphous to locally sub blocky.
CALCISILTITE (10 to 44%): medium light grey to light grey, silt, 5 to 10% trace very fine quartz, dominantly silty, trace to 10% clay, grades to argillaceous calcilutite, trace micropyrite, trace to 1% pyrite nodules, trace black lithics, trace red lithics, soft to firm, amorphous to locally sub blocky.
LIMESTONE (Nil to 1%): white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, soft to firm, 5 to 10% black lithics, sub blocky.
SILTY DOLOMITE (Nil to 1%): dark yellowish orange to light brown, 10 to 15% silt, trace very fine quartz, trace black lithics, trace micropyrite, microcrystalline, hard to very hard, blocky.

INTERVAL: 1080.0 to 1220.0 mMDRT (-1058.5 to -1198.5 mTVDAHD)
ROP (Range): 22.0 to 106.0 m/h
Av. ROP: 57.0 m/h

CALCILUTITE grading in part to CALCISILTITE with rare CHERT beds and LIMESTONE.
CALCILUTITE (38 to 89%): medium grey to light grey, 5 to 10% silt, minor calcite crystal fragments, 10 to 20% clay matrix, grades to argillaceous calcilutite in part, trace to 5% micropyrite, trace fossil fragments, soft to firm, sub blocky, locally blocky.
CALCISILTITE (10 to 60%): white very light grey, very fine to medium grained, trace very fine to fine grained quartz, local trace very fine greenish grey glauconite, trace micropyrite, rare fossil fragments (forams), up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, sub

blocky.
CHERT (1%, between 1080.0 to 1100.0 mMDRT): opaque to translucent pale brown, trace to 5% micropyrite, hard to very hard, angular.
LIMESTONE (1 to 4%): white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, soft to firm, 5 to 10% black lithics, sub blocky.

INTERVAL: 1220.0 to 1400.0 mMDRT (-1198.5 to -1278.5 mTVDAHD)
ROP (Range): 17.0 to 128.0 m/h
Av. ROP: 58.0 m/h

ARGILLACEOUS CALCISILTITE grading in part to CALCILUTITE.
ARGILLACEOUS CALCISILTITE (85 to 95%): light grey to medium grey, 10 to 20% silt, trace very fine quartz, grades in part to Calcilutite, minor micropyrite, local trace nodular pyrite, trace fossil fragments, trace red lithics, 30 to 40% argillaceous matrix, trace crystalline calcite veining, soft to firm in part, amorphous to sub blocky.
CALCILUTITE (5 to 15%): white very light grey, very fine to medium grained, trace very fine to fine grained quartz, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.

INTERVAL: 1400.0 to 1508.0 mMDRT (-1378.5 to -1486.5 mTVDAHD)
ROP (Range): 27.0 to 102.0 m/h
Av. ROP: 70.0 m/h

ARGILLACEOUS CALCISILTITE grading to CALCILUTITE with trace LIMESTONE.
ARGILLACEOUS CALCISILTITE (70 to 83%): medium dark to medium grey, light grey, trace to 15% clay, trace very fine quartz, grades to Calcilutite, minor micropyrite, local trace nodular pyrite, trace pyrite laminae and veining, trace red lithics, trace white shell fragments, 10 to 30% argillaceous matrix, trace gastropod fossil fragments and bioclasts, weak trace greenish blue glauconite, trace to 5% clear to very pale yellow brown nodular limestone with trace micropyrite inclusions, soft to firm in part, amorphous to sub blocky.
CALCILUTITE (3 to 29%): white to very light grey, trace very fine grained quartz, trace Limestone replaced fossil shells, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcisiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.
LIMESTONE (1 to 5%): white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, 5 to 10% black lithics, trace carbonaceous flecks, soft to firm, sub blocky to blocky.

INTERVAL: 1508.0 to 1558.0 mMDRT (-1486.5 to -1536.5 mTVDAHD)
ROP (Range): 12.0 to 140.0 m/h
Av. ROP: 81.0 m/h

SANDSTONE with SILTSTONE and COAL interbeds.
CALCAREOUS SANDSTONE (10 to 45%): off white to light grey to very pale translucent brown, mottled green, dominantly very fine to fine, trace to 10% medium to very coarse grains, well sorted, sub spherical, sub rounded, abundant calcareous clay matrix and carbonate grains, trace to 10% dusky dark green glauconite, trace to 5% micropyrite, friable to soft, poor visual and inferred porosity, no show.
SANDSTONE (10 to 45%): clear, pale grey, transparent, translucent, fine to coarse grained, predominantly medium grained, poorly sorted, sub angular to sub rounded, sub elongate, moderate siliceous cement, common lithic inclusions, trace white matrix on grains, dominantly loose grains, trace brittle aggregates, poor visual and inferred porosity, no show.
SILTSTONE (5 to 15%): dark brownish black to dark brown, minor medium brown, abundant disseminated pyrite, common coal fragments and laminae, locally grades to carbonaceous Siltstone and Coal, laminated, firm to friable, sub blocky.
COAL (1 to 5%): black to dark brown, earthy, sub vitreous in part, firm, uneven fracture, sub blocky.

INTERVAL: 1558.0 to 1670.0 mMDRT (-1536.5 to -1648.5 mTVDAHD)
ROP (Range): 2.0 to 120.0 m/h
Av. ROP: 66.0 m/h

Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, CLAYSTONE and LIGNITE with minor COAL stringers.
SANDSTONE (15 to 70%): light grey, transparent, translucent, clear, fine to very coarse, trace pebbles, dominantly fine to medium grained, bi-modal, moderately sorted, sub spherical, sub angular, weak siliceous cement, 5% white to pale brownish grey clay matrix, trace to 5% pyrite nodules, dominantly loose, fair to poor visual and inferred porosity, no show.
CARBONACEOUS SILTSTONE (2 to 65%): dark brownish black to dark brown, minor medium brown to brownish grey, abundant to common disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Siltstone and Coal, laminated, firm to friable, sub blocky.
SILTSTONE (1 to 65%): moderate to dark yellowish brown, medium to dark brownish grey, trace to 10% disseminated and nodular pyrite, 5 to 10% fine carbonaceous fragments and laminae, locally grades to Carbonaceous Siltstone, laminated, firm to friable, sub blocky.
CLAYSTONE (5 to 35%): moderate yellowish brown to brownish grey, trace to 5% carbonaceous flecks and laminae, locally 10% silt, soft to firm, sub blocky.
LIGNITE (5 to 65%) : dark reddish brown, dark brownish black, black in part, grades to Coal, silty in part, sub vitreous to earthy, sub blocky to fissile, brittle to firm.
COAL (1 to 5%): black to dark brown, earthy, sub vitreous in part, firm to brittle, uneven to sub conchoidal fracture, sub blocky.

INTERVAL: 1670.0 to 1740.0 mMDRT (-1648.5 to -1718.5 mTVDAHD)
ROP (Range): 23.0 to 104.0 m/h
Av. ROP: 62.0 m/h

Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, CLAYSTONE and COAL stringers.
CALCAREOUS CLAYSTONE (5 to 60%): medium to light grey, trace bluish grey, 10 to 35% calcareous, trace very fine quartz grains, firm to soft, sub blocky.
COAL (2 to 40%): black, grey black, reddish black in part, sub vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub blocky to blocky.
SANDSTONE (5 to 58%): light grey, transparent, translucent, clear, very fine to very coarse, dominantly fine to medium grained, bi-modal, moderately sorted, sub spherical, sub angular, weak siliceous cement, 5% white to pale brownish grey clay matrix, trace pyrite nodules, dominantly loose, fair to poor visual and inferred porosity, very fine grained aggregates have 25% white clay matrix, moderately hard, poor visual porosity, no show.
CARBONACEOUS SILTSTONE (2 to 25%): dark brownish black to dark brown, minor medium brown to brownish grey, abundant to common disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Siltstone and Coal, laminated, firm to friable, sub blocky.
SILTSTONE (25 to 70%): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% fine carbonaceous specks and laminae, locally grades to Carbonaceous Siltstone, laminated, trace to 5% micro-micaceous, 5% lithic specks, firm to friable, sub blocky.

INTERVAL: 1740.0 to 1810.0 mMDRT (-1718.5 to -1778.5 mTVDAHD)
ROP (Range): 40.0 to 110.0 m/h
Av. ROP: 68.0 m/h

Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, ARGILLACEOUS SILTSTONE, CALCAREOUS CLAYSTONE and COAL.
SANDSTONE (5 to 50%): clear, translucent, transparent, fine to medium, sub spherical, sub rounded to sub angular, well sorted, weak siliceous cement, trace nodular pyrite, dominantly loose, fair inferred and visual porosity, no show.
ARGILLACEOUS SILTSTONE (5 to 30%): light to medium brownish grey, trace to 25% clay, grades to Silty Claystone, slightly calcareous, trace mica, trace black specks, soft, slightly dispersive, sub blocky.
CARBONACEOUS SILTSTONE (4 to 35%): dark greyish black, dark brownish black to dark brown, trace disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally

grades to Coal, laminated, firm to friable, sub blocky.
SILTSTONE (19 to 44%): medium to dark brownish grey, moderate yellowish brown, speckled in part, trace to 10% disseminated and nodular pyrite, trace to locally 10% fine carbonaceous specks and laminae, locally grades to Carbonaceous Siltstone, laminated, trace to 5% micro-micaceous, 5% lithic specks, firm to friable, sub blocky.
CALCAREOUS CLAYSTONE (1 to 15%): medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.
COAL (1 to 20%): black, grey black, reddish black in part, sub vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub blocky to blocky.

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY

Background Gas

INTERVAL (mMDRT)	Total Gas (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	iC4 (ppm)	nC4 (ppm)	C5 (ppm)
910.0 - 1080.0	0.34	2077	27	20	10	10	23
1080.0 - 1220.0	0.22	135	4	1	0	1	2
1220.0 - 1400.0	0.14	1148	16	5	2	1	2
1400.0 - 1508.0	0.13	1090	20	7	3	3	4
1508.0 - 1670.0	0.18	1742	77	20	2	3	1
1670.0 - 1740.0	0.55	3980	148	203	4	2	0
1740.0 - 1830.0	0.48	3306	122	42	3	2	1

Gas Peak

INTERVAL (m MDRT)	Total Gas (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	iC4 (ppm)	nC4 (ppm)	C5 (ppm)
1083.0 - 1083.0	0.46	3044	45	40	26	24	34
1518.0 - 1518.0	0.56	4899	258	57	9	12	7
1537.0 - 1537.0	0.64	6357	306	66	8	10	5
1632.5 - 1632.5	0.91	7533	313	101	15	23	5
1650.0 - 1650.0	0.63	6704	292	67	7	9	1
1673.0 - 1673.0	0.63	4387	164	32	4	3	1
1683.5 - 1683.5	1.04	9859	309	34	4	4	2
1729.0 - 1729.0	0.64	4855	190	364	7	6	5
1747.0 - 1747.0	0.62	3978	145	22	2	1	0
1777.5 - 1777.5	0.65	5521	194	45	3	1	1

REMARKS
Drilled ahead 8 ½" (216 mm) hole to 06:00 hours depth of 1830.0 mMDRT.

WELLSITE GEOLOGISTS
John Sonego / Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	08 January 2005	**Rig:**	Ocean Patriot
Report Number:	12	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 m MDRT
Days From Spud:	10.6	**Mud Weight:**	10.00 ppg
Depth @ 0600 Hrs:	2573.0 mMDRT -2551.1 mTVDAHD	**Mud Type:**	KCL-IDCAP
Lag Depth:	2550.0 mMDRT	**Mud Chlorides:**	53500 mg/L
Last Depth:	1830.0 mMDRT		
Progress:	743.0 m		
Water Depth:	58.5 m	**Last Survey:**	1943.38 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 2.08° Az. 169.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Drilled ahead 8 ½" (216 mm) hole to TD.

NEXT 24 HOURS: Drill ahead 8 ½" (216 mm) hole to TD, pull out of hole, rig up for wireline logging.

CURRENT OPERATION @ 06:00 HRS (08-Jan-2005): Drilling ahead 8 ½" (216 mm) hole.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 1810.0 to 1880.0 mMDRT (-1788.4 to -1848.7 mTVDAHD)
ROP (Range): 23.0 to 93.0 m/h
Av. ROP: 58.0 m/h

Interbedded SILTSTONE (carbonaceous in part) and COAL with rare SANDSTONE.
SILTSTONE (50 to 87%): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix, grades in part to Silty Claystone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.
CARBONACEOUS SILTSTONE (5 to 30%, decreasing with depth): mottled white to dark yellowish brown, 10 to 15% silt, trace to 5% very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 10 to 20% clay matrix, firm to friable, sub blocky to blocky.
COAL (2 to 10%): dusky brown to brownish black, minor moderate brown, earthy lustre, blocky, local sub conchoidal fracture, argillaceous in part, grading to Carbonaceous Claystone, local pyritization, local ferruginisation, lignitic in part.
SANDSTONE (2 to 5%): white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30% argillaceous matrix, trace black lithic grains, local siderite cement, trace micropyrite, poor inferred porosity. No shows.
CALCAREOUS CLAYSTONE (1 to 4%) : medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.

INTERVAL: 1880.0 to 1910.0 mMDRT (-1838.7 to -1868.7 mTVDAHD)
ROP (Range): 28.0 to 96.0 m/h
Av. ROP: 62.0 m/h

SILTSTONE (carbonaceous in part) grading to SILTY CLAYSTONE with depth, with thin COAL seams and hard PYRITIC SANDSTONE and SANSTONE stringers.
SILTY CLAYSTONE (27 to 67%, increasing with depth): light to medium brownish grey, moderate yellowish brown, trace to locally 10% carbonaceous specks and laminae, laminated in part, 40 to 50% medium

brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.
PYRITIC SANDSTONE (1%, between 1890.0 to 1910.0 mMDRT): moderate yellow, agglomerates, 10 to 20% medium quartz, angular, trace angular feldspar, poorly sorted, 50 to 60% pyrite cement, trace siderite cement, very hard, no inferred porosity.
SILTSTONE (32 to 62%, decreasing with depth): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix, grades in part to Silty Claystone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.
CARBONACEOUS SILTSTONE (2 to 5%): mottled white to dark yellowish brown, 10 to 15% silt, trace to 5% very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 10 to 20% clay matrix, firm to friable, sub blocky to blocky.
COAL (2%): dusky brown to brownish black, minor moderate brown, earthy lustre, blocky, local sub conchoidal fracture, argillaceous in part, grading to Carbonaceous Claystone, local pyritization, local ferruginisation, lignitic in part.
SANDSTONE (2 to 3%): white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30% argillaceous matrix, trace black lithic grains, local siderite cement, trace micropyrite, poor inferred porosity. No shows.

INTERVAL: 1910.0 to 2000.0 mMDRT (-1868.7 to -1958.7 mTVDAHD)
ROP (Range): 14.0 to 84.0 m/h
Av. ROP: 54.0 m/h

SILTSTONE (carbonaceous in part) grading to SILTY CLAYSTONE and CALCAREOUS CLAYSTONE with rare COAL and SANDSTONE beds.
SILTSTONE (5 to 26%, decreasing with depth): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix, grades in part to Silty Claystone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.
CALCAREOUS CLAYSTONE (2 to 3%): medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.
SILTY CLAYSTONE (68 to 88%): light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to 5% calcareous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.
SANDSTONE (2 to 4%): white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30% argillaceous matrix, trace black lithic grains, trace micropyrite, poor inferred porosity. No shows.
COAL (1 to 2%, between 1960.0 to 1990.0 mMDRT): black, grey black in part, sub vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub blocky to blocky.
CARBONACEOUS SILTSTONE (1 to 3%): mottled white to dark yellowish brown, 10 to 15% silt, trace very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common micropyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.

INTERVAL: 2000.0 to 2040.0 mMDRT (-1958.7 to -1998.6 mTVDAHD)
ROP (Range): 18.0 to 122.0 m/h
Av. ROP: 62.0 m/h

SILTY CLAYTONE intergradational and interbedded with SILTSTONE (carbonaceous in part) with rare COAL seams and SANDSTONE beds.
SILTY CLAYSTONE (20 to 63%, decreasing with depth): light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to 5% calcareous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.
CARBONACEOUS SILTSTONE (12 to 18%): mottled white to dark yellowish brown, 10 to 20% silt, trace very fine quartz, grades to Sandy Claystone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20

to 30% clay matrix, firm to friable, sub blocky to blocky.
SANDSTONE (6 to 12%): white to very light grey, loose, rare friable aggregate, very fine to medium grained, predominantly fine, angular to sub angular, moderately sorted, abundant argillaceous matrix, common feldspathic and black lithic grains, trace micropyrite cement, trace siderite cement, trace wispy black diffuse carbonaceous laminae, moderate visual porosity. No shows.
SILTSTONE (19 to 53%, increasing with depth): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.
COAL (2 to 3%): black, grey black, sub vitreous, vitreous in part, angular fracture, conchoidal fracture associated with vitreous fragments, trace pyrite, grades to carbonaceous claystone in part.

INTERVAL: 2040.0 to 2110.0 mMDRT (-1998.6 to -2068.6 mTVDAHD)
ROP (Range): 24.0 to 104.0 m/h
Av. ROP: 62.0 m/h

Interbedded SANDY SILTSTONE and SILTY CLAYSTONE (grading to SILTSTONE and CARBONACEOUS in part) with thin SANDSTONE laminae and COAL seams.
SANDY SILTSTONE (9 to 64%, increasing with depth): white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.
SILTY CLAYSTONE (8 to 22%): light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to trace carbonaceous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5 to 10% lithic specks, 5 to 10% micropyrite, trace coal fragments, soft to firm, sub blocky to blocky.
CARBONACEOUS SILTSTONE (Nil to 12%, decreasing with depth): mottled white to dark yellowish brown, 10 to 20% silt, trace very fine quartz, grades to Sandy Claystone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.
SANDSTONE (Nil to 10%, decreasing with depth): white to very light grey, loose, rare friable aggregate, very fine to medium grained, predominantly fine, angular to sub angular, moderately sorted, abundant argillaceous matrix, common feldspathic and black lithic grains, trace micropyrite cement, trace siderite cement, trace wispy black diffuse carbonaceous laminae, moderate visual porosity. No shows.
SILTSTONE (10 to 44%): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.
COAL (2 to 4%): black, grey black, sub vitreous, vitreous in part, angular fracture, conchoidal fracture associated with vitreous fragments, trace pyrite, grades to carbonaceous claystone in part.

INTERVAL: 2110.0 to 2158.0 mMDRT (-2068.6 to -2116.5 mTVDAHD)
ROP (Range): 17.0 to 96.0 m/h
Av. ROP: 58.0 m/h

SANDY SILTSTONE with interbeds of SILTY CLAYSTONE, SILTSTONE and trace COAL.
SANDY SILTSTONE (64 to 81%) : white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.
SILTY CLAYSTONE (12 to 25%): light to medium brownish grey, rare pale brown, 10 to 20% silt, rare very fine quartz, 5 to 10% micromicaceous, trace black lithics, trace micropyrite, trace to 5% carbonaceous claystone and coal fragments, firm, sub blocky to blocky.
SILTSTONE (5 to 9%): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.
COAL (1 to 3%): black, grey black, sub vitreous, vitreous in part, angular fracture, conchoidal fracture associated with vitreous fragments, trace pyrite, grades to carbonaceous claystone in part.

INTERVAL: 2158.0 to 2214.0 mMDRT (-2116.5 to -2172.5 mTVDAHD)
ROP (Range): 15.0 to 128.0 m/h
Av. ROP: 72.0 m/h

Dominantly interbedded SANDY SILTSTONE, SANDSTONE and CARBONACEOUS SILTSTONE with minor stringers and interbeds of SILTY CLAYSTONE, SILTSTONE and COAL.
SANDY SILTSTONE (15 to 82%): white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.
SANDSTONE (2 to 65%): light grey off white, translucent, clear, fine to minor coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 15% dispersive clay matrix, trace pyrite nodules, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.
CARBONACEOUS SILTSTONE (10 to 15%): dark yellowish brown to light olive grey, pale brown in part, 10 to 20% silt, trace very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common black carbonaceous fragments and laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.
SILTY CLAYSTONE (Trace to 9%): light to medium brownish grey, rare pale brown, 10 to 20% silt, rare very fine quartz, 5 to 10% micromicaceous, trace black lithics, trace micropyrite, trace to 5% carbonaceous claystone and coal fragments, firm, sub blocky to blocky.
COAL (1 to 6%): black, grey black, vitreous to sub vitreous, firm to brittle, uneven to angular fracture, trace conchoidal, grading to Carbonaceous Claystone in part, sub blocky to blocky.
SILTSTONE (2 to 5%): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.

INTERVAL: 2214.0 to 2232.0 mMDRT (-2172.5 to -2190.5 mTVDAHD)
ROP (Range): 35.0 to 81.0 m/h
Av. ROP: 62.0 m/h

Interbedded CARBONACEOUS SILTSTONE and SANDSTONE with minor interbeds of SILTSTONE and SANDY SILTSTONE.
CARBONACEOUS SILTSTONE (26 to 50%): dark yellowish brown to mottled dark olive grey, mottled brown, trace to 5% very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common very fine black carbonaceous fragments and laminae, speckled, rare Coal fragments, 10 to 15% clay matrix, firm to friable, sub blocky to blocky. Grades to Siltstone.
SANDSTONE (20 to 57%): light grey off white, translucent, clear, fine to minor coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 15% dispersive clay matrix, trace pyrite nodules, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.
SILTSTONE (7 to 25%): medium dark brownish grey, dark yellowish brown, medium olive brownish grey, 10 to 30% clay, grades to Silty Claystone, trace to 5% very fine quartz, 5 to 10% micropyrite, trace black lithics, trace to 10% wispy black carbonaceous laminae, trace red lithics, sub block to blocky.
SANDY SILTSTONE (10 to 15%): white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.

INTERVAL: 2232.0 to 2295.0 mMDRT (-2190.5 to -2253.5 mTVDAHD)
ROP (Range): 24.0 to 96.0 m/h
Av. ROP: 53.0 m/h

Interbedded SANDSTONE, SILTSTONE and CLAYSTONE.
SANDSTONE (10 to 60%): light grey off white, translucent, clear, dominantly fine grained, sub spherical, well sorted, sub angular, weak siliceous cement, 10 to 35% dispersive clay matrix, trace pyrite nodules,

trace coal laminae, trace mica flakes, generally loose, friable aggregates, fair to poor visual and inferred porosity, no show.
SANDY CLAYSTONE (5 to 35%): white, light grey in part, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone, in part grades to Sandy Siltstone, trace mica, trace black lithics, local trace thin carbonaceous laminae, soft to firm, inferred dispersive.
SILTY CLAYSTONE (Trace to 40%, increasing with depth): mottled medium light grey to white, 10 to 30% silt, gradational to Sandy Claystone, trace black lithics, common carbonaceous specks, soft to firm, dispersive.
SANDY SILTSTONE (10 to 50%): white, light grey in part, aggregated in part, 10 to 20% fine to medium quartz, trace altered feldspar, angular to sub angular, 10 to 40% white clay matrix, grades to Sandy Claystone, trace mica, trace black lithics, rare chlorite, local trace thin carbonaceous laminae, soft to firm, friable in part, dispersive, poor visual porosity, no shows.
CARBONACEOUS SILTSTONE (2 to 10%): dark yellowish brown to mottled dark olive grey, mottled brown, trace to 5% very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common very fine black carbonaceous fragments and laminae, speckled, rare Coal fragments, 10 to 15% clay matrix, firm to friable, sub blocky to blocky. Grades to Siltstone.
SILTSTONE (10 to 40%, decreasing with depth): light olive grey to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.

INTERVAL: 2295.0 to 2420.0 mMDRT (-2253.5 to -2378.4 mTVDAHD)
ROP (Range): 13.0 to 89.0 m/h
Av. ROP: 46.0 m/h

Interbedded and intergradational SANDSTONE, SILTSTONE, ARGILLACEOUS SILTSTONE, SANDY CLAYSTONE and SILTY CLAYSTONE.
SANDY CLAYSTONE (1 to 25%): white, light grey to very pale yellowish brown, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone and Argillaceous Sandstone, trace mica, trace white lithics, trace carbonaceous laminae and specks, soft to firm, sub blocky, dispersive.
SILTY CLAYSTONE (2 to 65%): mottled medium light grey to white, pale brownish grey, 10 to 30% very fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.
SANDSTONE (15 to 80%): clear, light grey, translucent, fine to medium, well sorted, sub spherical to spherical, sub rounded to sub angular, very weak siliceous cement, 5 to 10% dispersive white clay matrix, trace nodular pyrite, trace mica, dominantly loose, friable to occasional hard aggregates, fair to poor inferred and fair visual porosity, no show.
SILTSTONE (4 to 20%): mottled medium dark to medium light grey, locally very light grey to white, occasionally brownish grey, trace to 25% very fine quartz, locally gradational to Silty Sandstone, 5 to 25% argillaceous, locally gradational to Silty Claystone, 5 to 10% very fine carbonaceous specks and trace laminae, trace white and rare red lithic specks, trace micro mica, firm to soft, sub blocky.
ARGILLACEOUS SILTSTONE (1 to 25%): dark brownish grey to dark yellowish brown, trace to 10% clay matrix, grades to Claystone, trace to 10% fine carbonaceous specks and fragments, 5% carbonaceous laminae, grades to Carbonaceous Siltstone in part, firm, sub fissile to sub blocky.

INTERVAL: 2420.0 to 2534.0 mMDRT (-2378.4 to -2492.4 mTVDAHD)
ROP (Range): 17.0 to 74.0 m/h
Av. ROP: 41.0 m/h

Interbedded SILTSTONE, ARGILLACEOUS SILTSTONE and SILTY CLAYSTONE with minor to trace SANDSTONE and SANDY CLAYSTONE stringers.
SILTSTONE (25 to 50%): mottled medium dark to medium light grey, brownish grey, trace to 15% very fine quartz, 5 to 25% argillaceous, locally gradational to Silty Claystone, 5 to 15% fine carbonaceous specks and trace wispy laminae, trace white and rare red lithic specks, trace micro mica, firm to soft, sub blocky.
ARGILLACEOUS SILTSTONE (10 to 40%): dark brownish grey to dark yellowish brown, moderate yellowish brown, trace to 10% clay matrix, grades to Siltstone, trace to 10% fine carbonaceous specks and fragments, 5% carbonaceous laminae, 5% lithic specks, trace to 5% disseminated pyrite, firm, sub fissile to sub blocky.
SILTY CLAYSTONE (10 to 25%): mottled medium light grey to white, pale brownish grey, 10 to 30% very

fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.
SANDSTONE (2 to 18%): light grey off white, translucent, clear, very fine to coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 25% dispersive clay matrix, grades to Argillaceous Sandstone in part, trace weathered feldspars, trace pyrite nodules, trace to 5% carbonaceous laminae and specks, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.
SANDY CLAYSTONE (3 to 5%): white, light grey to very pale yellowish brown, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone and Argillaceous Sandstone, trace mica, trace white lithics, trace carbonaceous laminae and specks, soft to firm, sub blocky, dispersive.

INTERVAL: 2534.0 to 2557.0 mMDRT (-2492.4 to -2551.1 mTVDAHD)
ROP (Range): 7.0 to 58.0 m/h
Av. ROP: 21.0 m/h

HIGHLY WEATHERED VOLCANIC
HIGHLY WEATHERED VOLCANIC (100%): white, pale yellow white, minor greenish grey, reddish brown, mottled dusky green, bit crushed, soft to hard, aggregated in part, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, minor chlorite, trace micropyrite, localised nodular pyrite, minor pale blue green and light grey microcrystalline angular aggregates, hard.

HYDROCARBON FLUORESCENCE
2060.0 to 2070.0 m (No Direct) associated with Sandy Siltstone, no direct fluorescence, weak diffuse to very slow turquoise solvent cut, thin turquoise residual ring.

2110.0 to 2150.0 m (No Direct) associated with Sandy Siltstone, no direct fluorescence, weak diffuse to very slow turquoise solvent cut, thin turquoise residual ring.

GAS SUMMARY

Background Gas							
INTERVAL (m MDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
1810.0 - 1880.0	0.36	2166	67	15	3	2	3
1880.0 - 1910.0	0.35	2499	80	15	3	0	2
1910.0 - 2000.0	0.22	1643	53	10	3	1	0
2000.0 - 2040.0	0.21	1378	55	11	3	0	4
2040.0 - 2110.0	0.41	2941	151	29	4	1	3
2110.0 - 2158.0	0.26	1508	91	27	5	5	5
2158.0 - 2214.0	0.54	4199	236	53	8	7	6
2214.0 - 2232.0	0.64	5469	355	70	7	4	1
2232.0 - 2420.0	0.5	4008	230	54	7	6	2
2420.0 - 2534.0	0.55	4402	252	64	11	6	5

Gas Peak							
INTERVAL (m MDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
1854.5 - 1854.5	0.48	3329	100	20	3	1	2
2076.0 - 2076.0	20.65	184793	20705	15018	2812	4208	2474
2175.0 - 2175.0	1.2	9730	500	89	10	8	11
2339.0 - 2339.0	1.5	13796	993	294	34	40	15
2339.0 - 2339.0	1.5	13796	993	294	34	40	15
2522.5 - 2522.5	0.79	7289	326	72	10	6	1

REMARKS
Drilled ahead 8 ½" (216 mm) hole to 06:00 hours TD of 2573.0 mMDRT (-2551.1 mTVDAHD).

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	09 January 2005	**Rig:**	Ocean Patriot
Report Number:	13	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	11.6	**Mud Weight:**	10.16 ppg
Depth @ 0600 Hrs:	2740.0 mMDRT -2718.03 mTVDAHD	**Mud Type:**	KCL-IDCAP
Lag Depth:	2740.0 mMDRT	**Mud Chlorides:**	53000 mg/L
Last Depth:	2573.0 mMDRT		
Progress:	167.0 m		
Water Depth:	58.5 m	**Last Survey:**	2558.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 1.52° Az. 22.17°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Drilled 216mm (8 ½") hole to 2740mMDRT. POOH.

NEXT 24 HOURS: Pull out of hole, prepare the rig floor for wireline logging. Commence Run#1: RCI-GR. Complete logging operations.

CURRENT OPERATION @ 06:00 HRS (09-Jan-2005): POOH.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 2557.0 to 2582.0 mMDRT (-2515.4 to -2539.4 mTVDAHD)
ROP (Range): 6.0 to 65.0 m/h
Av. ROP: 32.0 m/h

WEATHERED VOLCANIC interbedded with CLAYSTONE grading in part to SILSTSTONE.
HIGHLY WEATHERED VOLCANIC (35 to 80%, decreasing with depth): white, pale yellow white, minor greenish grey, reddish brown, mottled dusky green, bit crushed, soft to hard, aggregated in part, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, minor chlorite, trace micropyrite, localized nodular pyrite, minor pale blue green and light grey microcrystalline angular aggregates, hard.
CLAYSTONE (20 to 50%): brownish black to brownish grey, trace silt, hard, angular, brittle, local pyritisation.
SILTSTONE (Nil to 5%): pale brown to light olive grey (5Y 5/2), brownish grey in part, 10 to 15% silt, trace black lithics, local trace micropyrite, 30 to 40% clay matrix, firm to moderately hard.

INTERVAL: 2582.0 to 2608.0 mMDRT (-2539.4 to -2565.4 mTVDAHD)
ROP (Range): 13.0 to 71.0 m/h
Av. ROP: 34.0 m/h

Interbedded SANDSTONE and CLAYSTONE (grading to SILTSTONE in part) with thin interbeds of WEATHERED VOLCANICS.
HIGHLY WEATHERED VOLCANIC (5 to 20%, cavings?): white, pale yellow white, minor greenish grey, reddish brown, mottled dusky green, bit crushed, soft to hard, aggregated in part, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, minor chlorite, trace micropyrite, localized nodular pyrite, minor pale blue green and light grey microcrystalline angular aggregates, hard.
CLAYSTONE (5 to 20%): brownish black to olive black, trace silt, trace red oxide staining, local trace pyritisation, angular brittle in part, firm to very hard.
SILTSTONE (10 to 15%): pale brown to light olive grey (5Y 5/2), brownish grey in part, 10 to 15% silt, trace black lithics, local trace micropyrite, 30 to 40% clay matrix, firm to moderately hard.

SANDSTONE 1 (80%, between 2582.0 to 2588.0 mMDRT): translucent to white, loose, very fine to fine, dominantly fine, sub angular to sub rounded, well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, excellent visual porosity, shows.
SANDSTONE 2 (45 to 60% below 2600.0 mMDRT): translucent to white, loose, fine to coarse, dominantly medium, sub angular to sub rounded, moderately well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, good visual porosity, shows.

INTERVAL: 2608.0 to 2635.0 mMDRT (-2565.4 to -2592.4 mTVDAHD)
ROP (Range): 8.0 to 27.0 m/h
Av. ROP: 16.0 m/h

Interbedded CLAYSTONE (grading to SILTSTONE in part) and SANDSTONE.
CLAYSTONE (75 to 88%): light brownish grey to light olive grey, trace to 5% silt, trace micromicaceous, trace to 2% Coal fragments, black to dark brown lustre, earthy, sub vitreous to vitreous in part, uneven fracture, grades to Carbonaceous Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.
SANDSTONE (2%): translucent to white, dominantly aggregated, very fine to fine, dominantly fine, sub angular to sub rounded, poorly sorted, trace to 5% siliceous cement, up to 5% pyrite cement, local trace nodular pyrite, weak trace siderite, weak calcareous, very hard, poor visual porosity, no show.
SILTSTONE (18 to 23%): pale brown to light olive grey (5Y 5/2), brownish grey in part, 10 to 15% silt, trace black lithics, local trace micropyrite, 30 to 40% clay matrix, firm to moderately hard.

INTERVAL: 2635.0 to 2675.0 mMDRT (-2592.4 to -2674.4 mTVDAHD)
ROP (Range): 1.0 to 23.0 m/h
Av. ROP: 12.0 m/h

Interbedded SANDSTONE and COALY CLAYSTONE, CLAYSTONE (calcareous in part) grading to SILTSTONE in part.
SANDSTONE (15 to 60%): translucent to white, loose in part, dominantly aggregated, loose grains fine to medium, dominantly fine, sub angular to sub rounded, poorly sorted, trace to 5% siliceous cement, up to 5% pyrite cement, local trace nodular pyrite, aggregates, extremely hard, fine to coarse grained, dominantly medium, angular to sub-angular, rare rounded, poorly sorted, 10 to 15% siliceous cement, trace pyrite cement, rare nodules, 10 to 20% white clay matrix, very hard dark grey fragments, trace black lithics, very weak calcareous, poor visual porosity, shows from 2635.0 to 2660.0 mMDRT.
COALY CLAYSTONE (4 to 50%): light brownish grey to brownish grey, trace black laminae, trace to 5% silt, trace micromicaceous, trace to 3% Coal fragments, dark brown lustre, earthy, sub vitreous to vitreous in part, uneven fracture, grades to Carbonaceous Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.
SILTSTONE (10 to 47%): pale brown to brownish grey, 10 to 20% silt, rare very fine to fine quartz, trace to 5% micropyrite, trace micromicaceous, trace Coal fragments, dull, black to dark brown lustre, earthy, sub vitreous, uneven fracture, grades to Carbonaceous Claystone in part, local trace thin wispy carbonaceous laminae, firm to moderately hard in part.
CALCAREOUS CLAYSTONE (5 to 10%, below 2650.0 mMDRT): greenish grey to light bluish grey, yellowish grey in part, trace silt, trace black lithics, firm to moderately hard, weak calcareous, angular to sub blocky.
CLAYSTONE (10 to 48%): pale orange to light brown, yellowish grey in part, trace silt, trace carbonaceous veins, trace mica, rare black lithics, soft to firm, dispersive in part.

INTERVAL: 2675.0 to 2740.0 mMDRT (-2674.4 to -2739.4 mTVDAHD)
ROP (Range): 3.0 to 32.0 m/h
Av. ROP: 13.0 m/h

Interbedded SANDSTONE, COALY CLAYSTONE, CLAYSTONE, SILTY CLAYSTONE, SILTSTONE and minor VOLCANICS.
CLAYSTONE (10 to 60%): pale orange to light brown, yellowish grey in part, trace to 10% silt, grades to Silty Claystone, trace to 10% very fine to silt quartz, sucrosic in part, trace to 5% very fine quartz, trace carbonaceous veins, trace mica, rare black lithics, soft to firm, dispersive in part.
COALY CLAYSTONE (Nil to 30%, grades to Silty Claystone below 2710mMDRT): moderate brown to

greyish brown, moderate to dark yellowish brown, trace to 15% silt, grades to Silty Claystone, weak trace very fine quartz, trace micromicaceous, trace mica, trace to 10% Coal fragments, dark brown lustre, earthy, sub vitreous, uneven fracture, trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.
SILTY CLAYSTONE (15 to 60%, below 2710 mMDRT): moderate brown to greyish brown, dark yellowish brown, trace to 15% silt, weak trace very fine quartz, trace micromicaceous, trace mica, trace to 10% Coal fragments, dark brown lustre, earthy, sub vitreous, uneven fracture, trace to 5% carbonaceous laminae, gradational to Coaly Claystone, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.
SANDSTONE (15 to 35%): clear, light grey, light yellowish brown, off white, very fine to fine, well sorted, sub rounded, spherical to sub spherical, weak siliceous cement, 5 to 15% clay and 5 to 15% silty matrix, trace carbonaceous and coal laminae and specks, trace micro pyrite, dominantly loose grains, friable to brittle aggregates, poor visual and inferred porosity, no show.
SILTSTONE (4 to 29%): pale brown to brownish grey, medium grey, 10 to 20% very fine to fine quartz, trace to 5% micropyrite, trace micromicaceous, trace Coal fragments, dull, black to dark brown lustre, earthy, sub vitreous, uneven fracture, local trace carbonaceous laminae, firm to moderately hard in part.
VOLCANIC (15% 2680 to 2685mMDRT, trace below 2685mMDRT): white, pale yellow white, speckled greenish grey, mottled reddish brown and white, mottled dusky green, bit crushed, soft to moderately hard, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, trace mica, abundant chlorite associated with greenish grey fragments, greyish blue green siliceous fragments, very hard, very weak calcareous, local pyritisation, trace pyrite nodules, trace black lithics, trace siderite, soft (bit crushed) to very hard.

HYDROCARBON FLUORESCENCE

2590.0 to 2610.0 mMDRT (1 to 3%): dull to moderate yellow direct fluorescence, diffuse, very slow pale blue solvent cut and crush cut, thin diffuse white residual ring.

2635.0 to 2660.0 mMDRT (1 to 4%): dull to moderate yellow, rare bluish green direct fluorescence, moderately slow, diffuse pale blue solvent cut, thin diffuse white to pale blue residual ring.

GAS SUMMARY

Background Gas

INTERVAL (mMDRT)	Total Gas (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	iC4 (ppm)	nC4 (ppm)	C5 (ppm)
2557.0 - 2582.0	1.09	8959	530	118	17	19	11
2582.0 - 2600.0	2.7	30869	1735	470	62	70	33
2600.0 - 2635.0	0.42	2813	190	56	10	10	8
2635.0 - 2675.0	0.19	1383	74	22	5	6	6
2675.0 - 2740.0	0.31	2417	207	61	9	10	8

Gas Peak INTERVAL (mMDRT)	Total Gas (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	iC4 (ppm)	nC4 (ppm)	C5 (ppm)
2574.0 - 2574.0	11.9	113537	6473	1931	239	300	133
2592.5 - 2592.5	4.63	45926	2652	739	90	115	48

REMARKS

Continued to drill 216mm (8 ½") hole to 2740.0 mMDRT (-2718.03 mTVDAHD) where slow ROPs prompted a decision to pull out of hole. Circulated bottoms up, flow checked the hole and pulled out of hole wet to 2235.0 mMDRT where tight hole was encountered. The drillstring was then backreamed out of hole to the 06:00 hours depth of 1690.0 mMDRT.

WELLSITE GEOLOGISTS

John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	10 January 2005	**Rig:**	Ocean Patriot
Report Number:	14	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	12.6	**Mud Weight:**	10.16 ppg
Depth @ 0600 Hrs:	2740.0 mMDRT -2718.0 mTVDAHD	**Mud Type:**	KCl-IdcapD
Lag Depth:	2740.0 mMDRT	**Mud Chlorides:**	52500 mg/L
Last Depth:	2740.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	2558.0 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 1.52° Az. 22.17°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Backreamed out of hole to 1053.0 mMDRT, boosted riser and pumped slug. Continued to pull out of hole to 1026.0 mMDRT where further tight hole was encountered, backreamed to casing shoe. Flow checked well, pumped slug and pulled to surface.

At surface downloaded and laid out MWD tools and racked back bottom hole assembly after breaking out the 8 ½" (216 mm) bit. Rigged up rig floor for wireline. Rigged up and commenced Run#1: RCI-GR, unable to pass 818.0 mMDRT. POOH and rigged down wireline.

NEXT 24 HOURS: Run into section TD at 2740.0 mMDRT and drill 8 ½" (216 mm) hole to TD.

CURRENT OPERATION @ 06:00 HRS (10-Jan-2005): Making up 8 ½" (216 mm) drilling assembly.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No drilling.**
ROP (Range):
Av. ROP:

REMARKS

The drillstring was backreamed out of hole from 1690.0 mMDRT to 1053.0 mMDRT where the riser was boosted and a slug pumped prior to continuing to pull to surface. Further tight hole was encountered at 1026.0 mMDRT resulting in the drillstring being backreamed to the casing shoe where the well was flow checked, a slug pumped and the drillstring pulled to surface. At surface the Sperry Sun MWD tools were downloaded and laid out and the bottom hole assembly racked back after breaking out the 8 ½" (216 mm) bit.

A Pre-Job Safety Meeting (PJSM) was then held and the rig floor rigged up to run wireline logging. Run#1: RCI-GR was rigged up and run in to 818.0 mMDRT where it hung up. Repeated attempts to work the tool string through hang up depth (RIH speeds of 5 to 45 metres/minute) were unsuccessful. The RCI tool was then pulled to surface, laid out, and wireline logging equipment rigged down.

A 216 mm (8 ½") drilling assembly consisting of a Security DBS PDC bit, new 6 ¾" motor with 8 ¼" stab and Sperry Sun LWD tools for the acquisition of gamma ray, resistivity, porosity, density, sonic and caliper data was made up.

WELLSITE GEOLOGISTS

John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	11 January 2005	**Rig:**	Ocean Patriot
Report Number:	15	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.0 ppg EMW @ 814.0 mMDRT
Days From Spud:	13.6	**Mud Weight:**	10.3 ppg
Depth @ 0600 Hrs:	2803.0 mMDRT 2802.5 mTVDAHD	**Mud Type:**	KCl-IdcapD
Lag Depth:	2790.0 mMDRT	**Mud Chlorides:**	56000 mg/L
Last Depth:	2740.0 mMDRT		
Progress:	63.0 m		
Water Depth:	58.5 m	**Last Survey:**	2770.2 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 2.12° Az. 14.28°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Completed making up 8 ½" (216 mm) bottom hole assembly and ran in hole to 2740.0 mMDRT, drilled ahead.

NEXT 24 HOURS: Drill ahead 8 ½" (216 mm) hole to TD, pull out of hole, rig up for wireline logging.

CURRENT OPERATION @ 06:00 HRS (11-Jan-2005): Drilling ahead 8 ½" (216 mm) hole.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 2740.0 to 2750.0 mMDRT (-2718.0 to -2728.0 mTVDAHD)
ROP (Range): 3.0 to 43.0 m/h
Av. ROP: 20.0 m/h

Gradational SILTY CLAYSTONE and SILTSTONE interbedded with minor CLAYSTONE and trace SANDSTONE.
SILTSTONE (20 to 30%): greyish brown to dark dusky brown, moderate to dark yellowish brown, brownish black in part, 5 to 10% clay, locally argillaceous, trace to 5% very fine to fine quartz, trace micropyrite, trace to 5% Coal fragments, dull, black to very dark brown lustre, earthy, sub vitreous, uneven fracture, trace carbonaceous laminae and very fine specks, firm to moderately hard in part, sub blocky.
CLAYSTONE (10 to 20%): pale orange to light brown, yellowish brown in part, trace to 10% silt, grades to Silty Claystone, sucrosic and waxy in part, 5% very fine to silt quartz, very poor trace carbonaceous, trace mica, soft to firm, dispersive in part.
SILTY CLAYSTONE (58%): pale to dark yellowish brown, moderate brown to greyish brown, trace to 25% silt, grades to Siltstone, weak trace very fine quartz, trace micromicaceous, trace to 5% Coal fragments and laminae, waxy in part, soft to moderately firm, sub blocky to blocky.
SANDSTONE (2%): clear, light grey, light yellowish brown, off white, very fine to fine, well sorted, sub rounded, spherical to sub spherical, weak siliceous cement, 5 to 15% clay and 5 to 15% silty matrix, trace carbonaceous and coal laminae and specks, trace micro pyrite, dominantly loose grains, friable to brittle aggregates, poor visual and inferred porosity, no show.

INTERVAL: 2750.0 to 2790.0 mMDRT (-2728.0 to -2768.0 mTVDAHD)
ROP (Range): 8.0 to 48.0 m/h
Av. ROP: 29.0 m/h

Fining upwards SANDSTONE sequence with SILTSTONE interbeds.
SANDSTONE (15 to 75%): clear, translucent, transparent, off white, fine to very coarse, sub angular to sub rounded, poorly sorted, moderate siliceous cement, trace to 5% pyrite cement, secondary calcite cementation, trace to 5% feldspar laths, trace calcite grains, common fractured grains, poor to fair visual

and inferred porosity, white mineral fluorescence.
SILTSTONE (15 to 25%): greyish brown to dark dusky brown, moderate to dark yellowish brown, brownish black in part, 5 to 10% clay, locally argillaceous, trace to 5% very fine to fine quartz, trace micropyrite, trace to 5% carbonaceous laminae and very fine specks, firm to moderately hard in part, sub blocky.
SANDY SILTSTONE (3 to 35%, decreasing with depth): mottled pale yellowish brown and grey, mottled brownish grey, 5 to 20% very fine quartz, locally grades to Silty Sandstone, trace to 5% very fine white specks, 5% very fine black carbonaceous specks, sucrosic texture in part, slight waxy sheen, firm to moderately hard, sub fissile to sub blocky.
SILTY SANDSTONE (2 to 35%, decreasing with depth): pale yellowish brown, minor off white, dominantly very fine to silt, well sorted, sub rounded, spherical, siliceous, dominantly pale yellowish brown silty matrix, locally white clay matrix, trace carbonaceous specks, abundant very fine white lithics, locally has a recrystalised fabric and sucrosic texture, firm, very poor visual and inferred porosity, trace show.

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY

Background Gas							
INTERVAL (mMDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
2740.0 - 2750.0	0.49	3485	284	100	16	17	9
2750.0 - 2790.0	0.49	3812	233	88	19	26	44

Gas Peak							
INTERVAL (mMDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
2751.0 - 2751.0	1.21	8978	699	228	34	41	24

REMARKS
Completed making up 8 ½" (216 mm) bottom hole assembly, ran in hole to 2422.0 mMDRT where tight hole was encountered. The drillstring was then reamed to 2733.0 mMDRT where the hole packed off resulting in stuck pipe. The pipe was worked free and reaming was continued to 2740.0 mMDRT. The 8 ½" (216 mm) was then drilled ahead to 06:00 hours depth of 2803.0 mMDRT.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	12 January 2005	**Rig:**	Ocean Patriot
Report Number:	16	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	14.6	**Mud Weight:**	10.21 ppg
Depth @ 0600 Hrs:	2914.0 mMDRT -2891.8 mTVDAHD	**Mud Type:**	KCl-IdcapD
Lag Depth:	2914.0 mMDRT	**Mud Chlorides:**	49000 mg/L
Last Depth:	2803.0 mMDRT		
Progress:	111.0 m		
Water Depth:	58.5 m	**Last Survey:**	2880.32 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 3.28° Az. 15.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Continued drilling 8 ½" (216 mm) hole to TD of 2914.0 mMDRT (-2891.8 mTVDAHD). Circulated hole clean, conditioned mud and boosted riser, flow checked well and pulled out of hole wet to 2585.0 mMDRT (conducting MAD run over the interval 2684.0 to 2585.0 mMDRT) until tight hole was encountered that was unable to be worked.

Ran back in hole to 2719.0 mMDRT, attempted to work drillstring past 2690.0 mMDRT unsuccessfully, ran back to TD.

NEXT 24 HOURS: Circulate hole clean, pull out of hole, backreaming where necessary.

CURRENT OPERATION @ 06:00 HRS (12-Jan-2005): Running back to bottom.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 2790.0 to 2799.0 mMDRT (-2768.0 to -2777.0 mTVDAHD)
ROP (Range): 8.0 to 40.0 m/h
Av. ROP: 16.0 m/h

Interbedded SANDSTONE with SILTSTONE interbeds grading to SILTY SANDSTONE in part.
SANDSTONE (15%): clear, translucent, transparent, off white, fine to very coarse, sub angular to sub rounded, poorly sorted, moderate siliceous cement, trace to 5% pyrite cement, secondary calcite cementation, trace to 5% feldspar laths, trace calcite grains, common fractured grains, poor to fair visual and inferred porosity, white mineral fluorescence.
SILTSTONE (30%): greyish brown to dark dusky brown, moderate to dark yellowish brown, brownish black in part, 5 to 10% clay, locally argillaceous, trace to 5% very fine to fine quartz, trace micropyrite, trace to 5% carbonaceous laminae and very fine specks, firm to moderately hard in part, sub blocky.
SILTY SANDSTONE (55%): pale yellowish brown, minor off white, dominantly very fine to silt, well sorted, sub rounded, spherical, siliceous, dominantly pale yellowish brown silty matrix, locally white clay matrix, trace carbonaceous specks, abundant very fine white lithics, locally has a recrystalized fabric and sucrosic texture, firm, very poor visual and inferred porosity, trace show.

INTERVAL: 2799.0 to 2860.0 mMDRT (-2777.0 to -2837.9 mTVDAHD)
ROP (Range): 4.0 to 32.0 m/h
Av. ROP: 12.0 m/h

Interbedded SANDSTONE and SILTSTONE (grading in part to SILTY CLAYSTONE) with rare interbeds of WEATHERED VOLCANICS.
SANDSTONE 1(5 to 25%, above 2825.0 mMDRT): clear, translucent, transparent, off white, fine to very coarse, dominantly fine, sub angular to sub rounded, poorly sorted, moderate siliceous cement, trace to 5% pyrite cement, local trace nodular pyrite, trace mica, secondary calcite cementation, trace to 5% feldspar laths, trace calcite, common fractured grains, rare aggregates, trace black lithics, poor to fair visual and inferred porosity, white mineral fluorescence to 2825.0 mMDRT.
SANDSTONE 2 (30 to 50%, below 2825.0 mMDRT): clear, translucent, off white, dominantly aggregated, loose in part, fine to very coarse, dominantly medium, trace feldspar grains, sub angular to sub rounded, poorly sorted, 5 to 10% siliceous cement, trace to 5% pyrite cement, local trace nodular pyrite, trace mica, secondary calcite cementation, 10 to 20% white clay, increasing to 30 to 40% with depth, weak trace calcareous, common fractured coarse grains, trace black lithics, moderately hard, friable in part, poor inferred porosity in aggregates, fair porosity developed where sample dominantly loose, no shows.
SILTSTONE (28 to 68%): greyish brown to dark dusky brown, moderate to dark yellowish brown, trace dark greenish grey in part, 10 to 15% very fine to fine quartz, trace micropyrite, trace micromicaceous, trace to 5% carbonaceous laminae and very fine specks, rare coal fragments, carbonaceous claystone in part, greenish black to greyish black lustre, trace micromicaceous, brittle, uneven fracture, earthy to sub vitreous, firm to moderately hard in part, sub blocky to blocky.
SILTY CLAYSTONE (15 to 47%): moderate brown (5YR 4/4), greyish brown in part, silt, trace very fine to fine sand, trace micromicaceous, trace mica, rare micropyrite, trace carbonaceous laminae, rare coaly fragments, greyish black to greenish black, carbonaceous claystone in part, uneven fracture, earthy, sub vitreous in part, dispersive, sub blocky in part, soft to moderately firm.
CLAYSTONE (2 to 10%): weathered volcanic?, greyish blue green, dark greenish grey, pale olive in part, rare off white, pale brown in part, bit crushed in part, trace silt, trace micromicaceous, weak trace carbonaceous laminae, trace to 5% micromica, weak trace micropyrite, local very weak calcareous, local trace siliceous in part, blocky, moderately hard to hard.

INTERVAL: 2860.0 to 2914.0 mMDRT (-2837.9 to -2891.8 mTVDAHD)
ROP (Range): 1.0 to 37.0 m/h
Av. ROP: 13.0 m/h

Interbedded and gradational CLAYSTONE, SANDSTONE and SILTSTONE with trace VOLCANICS.
SILTY CLAYSTONE (20 to 60%): pale brown to yellowish grey, dusky brown in part, trace to 5% silt, trace carbonaceous fragments and laminae, 5 to 10% micromicaceous, rare mica, soft to moderately firm, sub blocky to blocky, dispersive in part.
SANDSTONE (15 to 55%, below 2890 mMDRT becomes Argillaceous Sandstone): off white to translucent, dominantly loose, rare aggregates, fine to very coarse, dominantly medium, rare coarse to very course pitted quartz, sub rounded to rounded, dominantly sub rounded, grades in part to Sandy Siltstone, poor to moderately sorted, trace to 5% feldspar grains, trace siderite cement, trace siliceous cement, trace micropyrite, trace mica, 10 to 20% white clay dispersed in sample, very weak trace calcareous, sucrosic in part, moderately hard to hard, poor visual porosity, no shows.
SILTSTONE (10 to 39%): speckled white to light grey, medium grey, light brownish grey to moderate brown in part, grades in part to Silty Sandstone, 10 to 15% silt, weak trace very fine quartz, 10 to 20% white clay matrix, trace to 5% siliceous cement, trace siderite cement, trace micropyrite, trace mica, trace to 5% micromicaceous, metamorphic texture, hard to very hard, blocky to locally angular.
ARGILLACEOUS SANDSTONE (10 to 25%): off white to translucent, light grey in part, dominantly loose, very fine to medium, dominantly fine, rare coarse, sub angular to sub rounded, dominantly sub angular, grades in part to Sandy Siltstone, poorly sorted, trace micropyrite, trace mica, trace black lithics, rare carbonaceous claystone fragments, trace red lithics, 30 to 40% white clay dispersed in sample, very weak trace calcareous, soft, dispersive, poor visual porosity, no shows.
CLAYSTONE (5 to 15%): greenish black to greyish black, trace silt, trace micromicaceous, local trace carbonaceous, moderately hard, blocky, angular in part.
VOLCANIC (Nil to 1%): greenish black to dark greenish grey, siliceous, very hard, angular, pale green in part, chloritic in part, soft to moderately hard in part.

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY

Background Gas							
INTERVAL (mMDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
2790.0 - 2799.0	0.32	2343	161	49	7	9	7
2799.0 - 2860.0	0.19	1449	119	42	5	7	6
2860.0 - 2914.0	0.23	1621	129	47	7	8	7

Gas Peak							
INTERVAL (mMDRT)	**Total Gas (%)**	**C1 (ppm)**	**C2 (ppm)**	**C3 (ppm)**	**iC4 (ppm)**	**nC4 (ppm)**	**C5 (ppm)**
2834.5 - 2834.5	0.67	1481	141	388	6	8	9
2911.0 - 2911.0	0.86	4350	268	78	3	11	6

REMARKS

Continued drilling 8 ½" (216 mm) hole to TD at 2914.0 mMDRT (-2891.8 mTVDAHD) reached at 20:36 hours on the 11 January 2005. At TD, the hole was circulated clean, the mud conditioned and the riser boosted. The well was then flow checked and the drill string pulled wet to 2585.0 mMDRT (conducting MAD run over the interval 2684.0 to 2585.0 mMDRT) until tight hole was encountered, recording a maximum overpull of 45.5 mT.

The drillstring was then run back in hole to 2719.0 mMDRT and worked to 2690.0 mMDRT, with a maximum overpull of 45.5 mT encountered. Repeated attempts to pass 2690.0 mMDRT were unsuccessful and the drillstring was then run back to TD.

WELLSITE GEOLOGISTS
John Sonego / Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	13 January 2005	**Rig:**	Ocean Patriot
Report Number:	17	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	15.6	**Mud Weight:**	11.00 ppg
Depth @ 0600 Hrs:	2914.0 mMDRT 2891.8 mTVDAHD	**Mud Type:**	KCl-IdcapD
Lag Depth:	2914.0 mMDRT	**Mud Chlorides:**	50000 mg/L
Last Depth:	2914.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	2914.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 3.28° Az. 15.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Ran in hole to 2914.0 mMDRT and increased mud weight to 1.28 SG (10.7 ppg). POOH to 765.0 mMDRT, conducting a MAD run between 2116.0 to 2070.0 mMDRT and acquiring Acoustic Caliper data over the 13 $^{3}/_{8}$" (340 mm) casing shoe between 817.0 to 779.0 mMDRT.

Circulated bottoms up and then ran the drillstring back to 2719.0 mMDRT for a wiper trip. At 2719.0 mMDRT mud weight was increased to 1.32 SG (11.0 ppg), the riser was boosted and the drillstring pulled to 06:00 hours depth of 1458.0 mMDRT.

NEXT 24 HOURS: Pull out of hole, download MWD and lay out BHA and MWD tools. Rig up and run wireline logs Suite 2: Run#1: RCI-GR.

CURRENT OPERATION @ 06:00 HRS (13-Jan-2005): Pulling out of hole.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No new lithology drilled.**
ROP (Range):
Av. ROP:

GAS SUMMARY
No Gas Data

REMARKS
At TD, the hole was circulated clean and the mud weight increased to 1.28 sg (10.7 ppg). The well was then flow checked and the drill string pulled wet to 1226.0 mMDRT (max drag of 27.3 mT) conducting a MAD run over the interval 2116.0 to 2070.0 mMDRT. At 1226.0 mMDRT, the hole was circulated clean and the drill string pulled wet to 765.0 mMDRT acquiring Acoustic Caliper data over the 13 $^{3}/_{8}$" (340 mm) casing shoe between 817.0 to 779.0 mMDRT.

Bottoms up were circulated and the drillstring was then run back in hole for a wiper trip to 2719.0 mMDRT working through tight spots at 2040.0, 2070.0, 2315.0 and 2350.0 mMDRT (max drag recorded while running in 45.5 mT). The hole was circulated clean and the mud weight increased to 1.32 sg (11.0 ppg) prior to boosting the riser and pulling out of hole.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	14 January 2005	**Rig:**	Ocean Patriot
Report Number:	18	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 $^{3}/_{8}$" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	16.6	**Mud Weight:**	11.00 ppg
Depth @ 0600 Hrs:	2914.0 mMDRT 2981.8 mTVDAHD	**Mud Type:**	KCL-IDCAP
Lag Depth:	2914.0 mMDRT	**Mud Chlorides:**	50000 mg/L
Last Depth:	2914.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	2914.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 3.28° Az. 15.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: POOH. Downloaded MWD recorded data and laid out MWD and bottom hole assembly. Rigged up and ran in hole with Run 1: RCI-GR tool. RCI tool stuck at 2074.0 mMDRT after completing first PVT sample. Rigged up rig floor and commenced fishing operations.

NEXT 24 HOURS: RIH to top of RCI tool. Latch on to fish and recover.

CURRENT OPERATION @ 06:00 HRS (14-Jan-2005): RIH at 167.5 mMDRT to recover RCI-GR tool.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No new lithology drilled.**
ROP (Range):
Av. ROP:

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY
No Gas Data

REMARKS
The drillstring was pulled to surface and the Sperry Sun LWD tools were downloaded and laid out. After laying out the bottom hole assembly the rig floor was cleared and a JSA held prior to rigging up for wireline.

Run 1: RCI-GR was run down to the first pressure point at 2067.0 mMDRT. While attempting the first pressure point it was noted that no pressure readings could be obtained from the primary quartz dyne gauge (L Gauge). A decision was made to continue taking pressures with the secondary quartz dyne gauge attached to the pump (K Gauge). On the third pressure abnormalities in hydrostatic pressure readings were noted (hydrostatic pressure was decreasing with depth), hence the reliability of the pressure data obtained was deemed questionable. Attempts to troubleshoot the problem were unsuccessful. It was decided to attain all PVT samples and then pull out of hole and change out the primary quartz dyne before attempting further pressure points.

The first PVT sample was obtained at 2074.0 mMDRT and upon retracting the probe, the tool was found to be stuck. Repeated attempts to pull tool free (up to maximum tool tension 5600lbs) were unsuccessful.

The rig floor was then rigged up to strip over wireline. At 06:00 hours, 167.5 m of wireline had been stripped.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	15 January 2005	**Rig:**	Ocean Patriot
Report Number:	19	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 $^{3}/_{8}$" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	17.6	**Mud Weight:**	11.00 ppg
Depth @ 0600 Hrs:	2914.0 mMDRT -2891.8 mTVDAHD	**Mud Type:**	KCL-IDCAP
Lag Depth:	2914.0 mMDRT	**Mud Chlorides:**	50000 mg/L
Last Depth:	2914.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	2914.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 3.28° Az. 15.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: RIH and latch on to RCI tool. Circulated bottoms up with a max gas 1.45%. Establish electrical communication with RCI tool and conduct RCI logging obtaining data at 2077.0 and 2077.8 mMDRT. RCI tool failed. Break weak point and retrieve tool to surface.

NEXT 24 HOURS: Retrieve RCI tool. Conduct wiper trip.

CURRENT OPERATION @ 06:00 HRS (15-Jan-2005): Pulling out of hole with RCI tool.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No new lithology drilled.**
ROP (Range):
Av. ROP:

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY
No Gas Data

REMARKS
Continued to run into hole, stripping over wireline to 2033.0 mMDRT where bottoms up were circulated (max gas 1.45%) with slips set. The drillstring was then run down to 2067.0 mMDRT where latching of the RCI tool was confirmed with 4000 lbs tension. The mechanical and electrical cables were spliced and the side entry sub fitted to the drillstring. A connection was then made up and a gamma ray correlation pass was conducted over the interval 2035.0 to 2065.0 mMDRT before commencing RCI sampling.

Pressures were then obtained from 2077.0 and 2077.8 mMDRT. While moving to 2074.0 mMDRT to obtain a fluid sample, the RCI tool failed. The reason for tool failure was deemed to be an electrical shortage. The side entry sub was pulled to surface and the electrical conductivity of the torpedo checked. No problems were able to be detected from the torpedo, however, attempts to reestablish functionality of the tool were unsuccessful. The weak point was pulled and the wireline equipment rigged down. By 06:00 hours the fish (RCI tool) was pulled out of the hole to 1368.0 mMDRT.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	16 January 2005	**Rig:**	Ocean Patriot
Report Number:	20	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 $^{3}/_{8}$" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	18.6	**Mud Weight:**	11.00 ppg
Depth @ 0600 Hrs:	2914.0 mMDRT 2891.8 mTVDAHD	**Mud Type:**	KCL-IDCAP
Lag Depth:	2914.0 mMDRT	**Mud Chlorides:**	51000 mg/L
Last Depth:	2914.0 mMDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	2914.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 3.28° Az. 15.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: POOH with fish. Made up backup RCI tool. RIH.

NEXT 24 HOURS: Complete RCI logging run. POOH.

CURRENT OPERATION @ 06:00 HRS (16-Jan-2005): Conducting GR correlation pass.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No new lithology drilled.**
ROP (Range):
Av. ROP:

HYDROCARBON FLUORESCENCE
No Shows

GAS SUMMARY
No Gas Data

REMARKS
Completed pulling out of hole with fish (RCI tool). At surface laid out fish (primary RCI tool) before picking up and making up backup RCI tool. Surface tested tool, identifying communications problems with tool associated with WA module. Ran tool without one WA module (6 sample chambers), limiting tool to 6 sample chambers and two tanks of 4 and 10 litre volumes. Ran RCI tool in hole to 2035.0 mMDRT. Rigged up wireline sheaves and installed the side entry sub prior to attaching the wet connection to the RCI tool. Tested communication with RCI tool before continuing to run in hole to 2572.0 mMDRT, conducting gamma ray correlation pass while running in hole. As of 06:00 hours at 2571.4 mMDRT.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	17 January 2005	**Rig:**	Ocean Patriot
Report Number:	21	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 3/8" @ 796.2 m MDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 m MDRT
Days From Spud:	19.6	**Mud Weight:**	11.00 ppg
Depth @ 0600 Hrs:	2914.0 mMDRT -2891.8 mTVDAHD	**Mud Type:**	KCL-IDCAP
Lag Depth:	2914.0 mMDRT	**Mud Chlorides:**	51000 mg/L
Last Depth:	2914.0 m MDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	2914.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 3.28° Az. 15.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: Completed 20 pretests and obtained 2 samples. Recurring communications outage with RCI tool while obtaining sample at 2574.0 mMDRT. POOH to Side Entry Sub (2035.0 mMDRT). Check and replace wet connect. RIH. Latch on to RCI.

NEXT 24 HOURS: POOH, conduct MLR.

CURRENT OPERATION @ 06:00 HRS (17-Jan-2005): Conducting tool checks prior to gamma ray correlation pass.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No new lithology drilling.**
ROP (Range):
Av. ROP:

HYDROCARBON FLUORESCENCE
No Shows

REMARKS
Completed gamma ray correlation pass and commenced the RCI pretest and sampling program. Twenty pretests (between 2572.0 and 2683.7 mMDRT) and two samples at 2633.0 and 2572.0 mMDRT were completed. While moving off the wall at sample location 2572.0 mMDRT a downward force on pipe of 15000 lb was experienced resulting in loss communications on the RCI-GR.

All surface equipment and wiring was tested and communications were able to be reestablished with the RCI tool. Attempts to obtain a sample at 2574.0 mMDRT were hampered by continued sporadic loss of signal to the RCI tool. No specific reason for the problem could be identified. Despite continued loss of communications a sample was finally attained at 2574.0 mMDRT and the drill pipe was then pulled to 2035.0 mMDRT to check the wet connect at the Side Entry Sub.

At 2035.0 mMDRT, the condition of the wireline cable at the Side Entry Sub was checked (for knotting) before the wet connection to the RCI tool was broken and retrieved to surface and checked and found to be operational. The wet connect was replaced and run back in hole, successfully latching on to the RCI tool on the second attempt. As of 06:00 hours testing communication with RCI tool.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

DAILY GEOLOGICAL REPORT

Date:	18 January 2005	**Rig:**	Ocean Patriot
Report Number:	22	**Bit Diameter:**	8.50 in
Report Period:	06:00 - 06:00 Hours	**Last Casing:**	13 $^{3}/_{8}$" @ 796.2 mMDRT
Spud Date:	28-Dec-2004 16:30 Hours	**FIT:**	15.00 ppg EMW @ 814.0 mMDRT
Days From Spud:	20.6	**Mud Weight:**	11.00 ppg
Depth @ 0600 Hrs:	2914.0 mMDRT 2981.8 mTVDAHD	**Mud Type:**	KCL-IDCAP
Lag Depth:	2914.0 mMDRT	**Mud Chlorides:**	50000 mg/L
Last Depth:	2914.0 m MDRT		
Progress:	0 m		
Water Depth:	58.5 m	**Last Survey:**	2914.00 mMDRT
RT:	21.5 m	**Deviation:**	Inc. 3.28° Az. 15.63°

OPERATIONS SUMMARY

24 HOUR SUMMARY: POOH with RCI tool. Complete MLR (VSP Checkshot survey) on wireline. Make up and RIH with cement stinger.

NEXT 24 HOURS: Complete P&A program.

CURRENT OPERATION @ 06:00 HRS (18-Jan-2005): RIH with cement stinger.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: **No new lithology drilled.**
ROP (Range):
Av. ROP:

REMARKS
On reestablishing communication after replacing the wet connect, the RCI tool was run down to 2074.0 mMDRT. While preparing for a gamma ray correlation it was determined that the gamma ray module had failed and it was decided to pull out of hole. At surface the RCI tool was laid out, and the rig floor was rigged up for Backer Atlas VSP-Checkshots using the MLR (Multi Level Receiver).

The MLR was run in hole, tagging bottom at 2901.0 mMDRT. Three checkshots, and a gamma ray correlation pass (between 2500.0 to 2550.0 mMDRT) were conducted while running into hole. A total of 173 levels were taken before loss of signal at 395.0 mMDRT. The MLR tool was then pulled to surface and laid out and the rig floor cleared for plug and abandonment operations.

A 3.5" (89 mm) cement stinger was then run in hole. As of 06:00 hours at 2600.0 mMDRT.

WELLSITE GEOLOGISTS
John Sonego Paul Slijderink

APACHE ENERGY LIMITED

Bits Summary Report

Legal Well Name: Grayling-1
Common Well Name: Grayling-1
Event Name: OFFSHORE-ORIG DRLG
Contractor Name: UNSPECIFIED
Rig Name: OCEAN PATRIOT

Spud Date: 23/12/2004
Start: 22/12/2004
End:
Rig Release:
Rig Number:

Bit No/ Run	Size (mm)	Make/ Type	IADC Code	Serial Number	TFA (mm²) JETS (/32")	TMD In/ Out (m)	Total Drilled (m)	Cum./ Tot Rot Hours	ROP	WOB Min/Max (Tonnes)	RPM	Pump Press (kPa)	Pump Output (L/min)	deltaP Bit (kPa)	Nozzle Velocity (m/s)	HHP (kW/cm²)	API Cond. I O D L B G O R
1/	914.40	Security /	1-1-1	10426284	1,315.8	80.00/											-- -
1		XNIC			28/25/25/25/	113.30											- - -
					/ / / /												
	Remarks																
2/	25.40	Security /	PDC		1,122.3	113.30/	721.70	17.00	42.45	2.3/	50	20,000	2,800.0	977	41.6	7.074	2-4-BT-G
1		FS2563			18/18/18/18/18	800.00		17.00		6.9	100						D- I-CT-TD
					18/18/ / /												
	Remarks																

APACHE ENERGY LIMITED

Bits Summary Report

Legal Well Name: Grayling-1A
Common Well Name: Grayling-1A
Event Name: OFFSHORE-ORIG DRLG
Contractor Name: UNSPECIFIED
Rig Name: OCEAN PATRIOT

Spud Date: 28/12/2004
Start: 28/12/2004
End:
Rig Release:
Rig Number: 186

Bit No/ Run	Size (mm)	Make/ Type	IADC Code	Serial Number	TFA (mm²) JETS (/32")	TMD In/ Out (m)	Total Drilled (m)	Cum./ Tot Rot Hours	ROP	WOB Min/Max (Tonnes)	RPM	Pump Press (kPa)	Pump Output (L/min)	deltaP Bit (kPa)	Nozzle Velocity (m/s)	HHP (kW/cm²)	API Cond. I O D L B G O R
1/	406.40	Security /		10426284	833.3	80.00/	34.00	2.00	16.76	4.0/	60	5,512	1,391.4	451	27.8	1.621	1-1-NO-A
1		XNIC			22/20/20/20/ / / / /	114.00		2.00		4.0	60						1- I-NO-TD
	Remarks																
2/	406.40	Reed /	1-1-5	M26755	845.2	114.00/	696.00	19.20	36.25	0.4/	69	19,981	4,104.0	3,847	80.9	40.815	1-1-BU-A
2		T11C			16/22/22/22/ / / / /	810.00		21.20		9.9	86						E- I-NO-TD
	Remarks																
3/	406.40	Reed /	1-1-5	M26755	845.2	810.00/											1-1-NO-A
3		T11C			16/22/22/22/ / / / /	811.00		21.20									E- I-NO-TD
	Remarks																
4/	215.90	Hycalog /	M223	110859	484.9	811.00/	1,929.00	56.30	34.26	0.6/	50	19,711	2,092.0	3,495	71.9	18.900	3-7-WT-T
4		DSX104			14/14/14/14/14 / / / /	2,740.00		77.50		12.2	254						D- 2-NR-PR
	Remarks																
5/	215.90	Security DBS /	M433	10669060	464.6	2,740.00/	181.00	24.40	7.42	/		20,544	2,030.0	3,761	72.8	19.735	6-4-BT-N
5		FM37432			12/12/12/13/13 13/ / / /	2,914.00		101.90		11.4	162						D- I-BU-TD
	Remarks	Balled up. Start of ring out															

Fluids Recap

Apache Energy

Grayling-1
Gippsland Basin
Exploration
VIC-P-54

Prepared by:

MI SWACO

M-I *L.L.C.*

ONE-TRAX

DRILLING FLUID DATA MANAGEMENT SYSTEM

Operator:	Apache Energy	**Spud Date:**	23/12/2004
Well Name:	Grayling-1	**TD Date:**	25/12/2004
Field/Area:	Gippsland Basin	**Location Code:**	7001
Description:	Exploration	**Project Engineer:**	Nigel Warman
Location:	VIC-P-54	**Sales Engineer:**	Jasdeep Singh
Warehouse:	Melbourne	**Sales Engineer:**	-
Contractor:	Diamond Offshore	**M-I Well No.**	16143

Comments: Only one mud engineer deployed/Abandoned after 13 3/8 csg due to tool failure.

Type	Size mm	Depth m	TVD m	Hole mm	Max MW sp.gr.	Fluid 1	Fluid2	Drilling Problem	Days	Cost $
Casing	762	112	112	914	1.06	Spud Mud	Spud Mud	None	0.5	8901.33
Casing	340	784	784	406	1.05	Spud Mud	Spud Mud	None	3	22940.83
Open Hole	.			216						

Total Depth: 800 m	TVD: 800 m	Water Depth: 22 m	Drilling Days: 5	Total Cost:	29,871.19

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

CONTENTS:

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

DISCUSSION
BY
INTERVAL

DRILLING FLUIDS RECAP FOR APACHE ENERGY GRAYLING 1

SUMMARY:

Apache Energy Ltd was the operator of vertical exploration wildcat gas well, Grayling-1, Vic/P54, Victoria, Australia using Ocean Patriot semi submersible rig owned by Diamond Offshore. The three primary targets were gas in F Longus (2245-2645 m), T Lilliei (2695-2825 m), & N Senectus (2844-2944 m).

The Ocean Patriot arrived on location on the 22nd December 2004 after towing 3.5 NM from Longtom-2.

Grayling-1 was spudded on the 23rd December 2004 at 21:00 hrs. The 914 (36 x 26″) hole was drilled to 113 m using sea water and Gel sweeps in 2 hours. The 762mm (30″ x 20″) conductor casing was run and cemented in place with no troubles at 112m.

The 406 mm (16″) hole was drilled to 800 m with sea water and PHG gel sweeps and 340 mm (13⅜″) casing was set at 784 m with some stickiness while running to bottom and cemented. The cement plug could not be bumped and the 18¾″ running tool could not be backed off after repeated efforts.

The landing string was cut by Baker Atlas and rig skidded by 20m/20m to start again.

FORMATION TOPS:

No cuttings sampled

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

Interval I	80 - 113 meters	91 mm Hole	762mm casing

MUD TYPE : Seawater / PHG sweeps

MUD RELATED HOLE PROBLEMS: None

MUD PROPERTIES :

Mud Weight	:	1.06 sg
YP	:	10-15 k Pa
API FL	:	14
Funnel Vis	:	> 120 se/qt
Hardness	:	40 mg/l
MBT	:	28 ppb

OPERATIONS:

Grayling-1 was spudded on 23rd December 2004. The 914mm hole was drilled with a 26" bit and 36 " hole opener to 113 in 2 hours using 1200gpm flowrate. The 762mm casing was lowered and cemented in place without incident.

MUD

Initally 146.2m^3 of 28 ppb Gel was mixed once all anchors were set with no time for hydration as rig was towed in drilling draft. Also 58.8m^3 of PHG weighted to 1.2 sg was stored in another pit as Kill mud for any shallow gas. While drilling, seawater was pumped from the slug pit (sea chest) and the hole was swept with 7.95m^3 PHG mud each tool joint and the hole displaced with 15.9 m^3 of PHG. At TD the string was POOH and casing lowered & cemented in place. A total of 47.7m^3 (300 bbl) of PHG was used for this section. This volume of PHG was rebuilt during drilling to keep pits full at all times.

SOLIDS CONTROL:

None used as returns were directed to seabed.

OBSERVATIONS AND RECOMMENDATIONS:

Unflocculated gel gives a better hole cleaning and stability than flocculating gel with Sea water or lime. The mud program could be changed accordingly.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

Interval II	113 m-800 m	406mm Hole section	340mm casing

MUD TYPE : Seawater / PHG sweeps

MUD RELATED HOLE PROBLEMS: None

MUD PROPERTIES:

Mud Weight	:	1.05 sg
YP	:	10-12 kPa
API FL	:	N / C
Mud Weight	:	1.05 sg
YP	:	10-12 kPa
API FL	:	N / C

OPERATIONS:

The 406 mm drilling assembly was made up and run in hole. The BHA included a MWD logging suite with a motor, directional, gamma ray, and resistivity tools. Cement was tagged and the shoe track drilled with sea water pumped at 800 gpm. A 50 bbl gel sweep was pumped after drilling cement and further drilling was progressed using sea water. A sweep regime of 30 bbl Prehydrated Gel each 15m drilled was followed, with 50 bbl of PHG spotted prior to connections to cover the BHA when drilling was less than 100 m/hr or only 75 bbl of PHG was pumped on connections if the drilling rate was good. At 630 m due to shortage of drill water, it was decided to pump 50 bbl PHG sweeps at connection only. At section TD of 800m a 150 bbl sweep was pumped and chased out by sea water. The hole was displaced with 300 bbl PHG followed by 320 bbl of 1.2 sg PHG containing 5% KCl prior to pull out of hole to run casing. The hole was reported to be good during trip out. 13⅜" casing was run to 784 m with some hole stickiness from 600 m to 700 m. The casing was cemented without bumping the plug. The running tool could not be released even after repeated efforts. The cause was attributed to the excessive pressure of 4000 psi planned to test casing at the end of cement job. This failed the tool at 3800 psi.

MUD:

58.8m^3 of weighted PHG (1.2 sg) & 145.9m^3 of PHG mud from previous section was carried over to this section. Also 80 ppb of KCl brine was mixed in 80 bbl of DW in Pit 2 for spotting in the hole during WOC.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

SOLIDS CONTROL:

No solids control was used as returns were to seabed.

OBSERVATIONS AND RECOMMENDATIONS:

No changes are recommended as the PHG sweep system is the most cost effective way to drill this interval. Provision of adequate drill water should be made.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

Interval III	800-800 m	216 mm Section	

MUD TYPE : KCl / IDCAP D / HIBTROL

MUD RELATED HOLE PROBLEMS : None

MUD PROPERTIES :

Mud Weight	:	1.12 sg
YP	:	13 lb/100 ft2
PV	:	10 cP
API FL	:	6.2 cc
KCl	:	8% by Wt
Funnel Vis	:	40 sec/qt
6 RPM	:	5
Hardness	:	300 mg/l
Drill Solids	:	0 %
PH	:	8.5

OPERATIONS:

This section could not be drilled due to 13⅜" casing running tool getting stuck in the well head while cementing.

MUD:

Mixing of KCl-IDCAP was started while cementing and was abandoned when informed about the complications due to the setting tool. A total of 135m^3 of new mud costing $10,546.79 was mixed in Pit 4 & 5 and stored. This volume was transferred to Grayling 1A.

SOLIDS CONTROL:

Shakers were dressed with 105 mesh screens.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

DAILY DISCUSSION
REPORT

MI SWACO	Operator : Apache Energy	Field/Area : Gippsland Basin	Daily Discussion
	Well Name : Grayling-1	Description : Exploration	
	Contractor : Diamond Offshore	Location : VIC-P-54	M-I Well : **16143**

22/12/2004	TD = 0 m	Day 0

23/12/2004	TD = 79 m	Day 1

Run anchors. Made preparations for spudding. Spud Grayling-1 at 21:00 Hrs with 26 inch bit & 36 inch hole opener.
Dressed shakers with 105 mesh screens (6 old & 10 new). Started filling tanks with DW at 12:30 hrs. Mixed 146 m3 of 28 ppb Gel for spudding. Also mixed 58.8 m3 of 1.2 sg PHG Kill Mud.

24/12/2004	TD = 113 m	Day 2

Drilled to 113 m with SW & Gel sweeps. Displace hole to PHG. POOH. Run 30x20 conductor casing & cemented. WOC. Made up 16" bit & BHA. Start drill ahead @ 21:30 hrs.
Pumped 50 bbl PHG sweeps every joint and 50 bbl at TD. Displaced hole with 100 bbl PHG before POOH. Mixed 80 bbl of 80 ppb KCl brine for using in next section. Build up PHG volume in Pits.

25/12/2004	TD = 800 m	Day 3

Drilled to 800 m with 1200 gpm SW and PHG sweeps. Pumped 150 bbl sweep at TD and displaced hole with 300 bbl PHG & 320 bbl of 1.2 sg/5% KCl Gel mud. POOH is in progress.
Gel Sweeps: Pumped 30 bbl mid stand & 50 bbl on connections OR 75 bbl on connections depending on drilling rate.

26/12/2004	TD = 800 m	Day 4

POOH. Run 13-3/8 csg to 784 m. Filled casing with 170 bbl PHG and then with SW. Circulated hole. Cemented csg. WOC. Unable to back off setting tool.
Dumped and cleaned tanks for new mud mixing. Adjusted Defoamer inventory from 32 to 28. Kept 18 m3 PHG on bottom of tanks for blending with new mud. Started mixing new mud but stopped due to uncertainity of operations.

27/12/2004	TD = 784 m	Day 5

Attempted to release 18 3/4 RT from well head. Cut the pipe and skidding rig to re-spud the well.
Pit 4 & Pit 5 contains partially mixed KCl-IDCAP mud and will be used later. Plan to use Pit 1, Pit 2 & Pit 3 for mixing Gel if re-spudded. No plan to mix Kill Mud.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

COST
BY
INTERVAL

MI SWACO

PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1
Contractor : Diamond Offshore
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

SUMMARY OF PRODUCT USAGE FOR INTERVAL 22/12/2004 - 23/12/2004, 0 - 113 m

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - SODA ASH	25 KG BG	3	11.63	34.89
2 - CAUSTIC SODA (DRY)	25 KG DM	4	19.35	77.40
3 - SODIUM BICARBONATE	25 KG BG	1	9.58	9.58
4 - M-I BAR BULK	1 MT BK	10	231.16	2311.60
5 - M-I GEL BULK	1 MT BK	17	246.71	4194.07

SUB TOTAL:	6627.54
TAX:	0.00
WATER-BASED MUD TOTAL COST:	6627.54

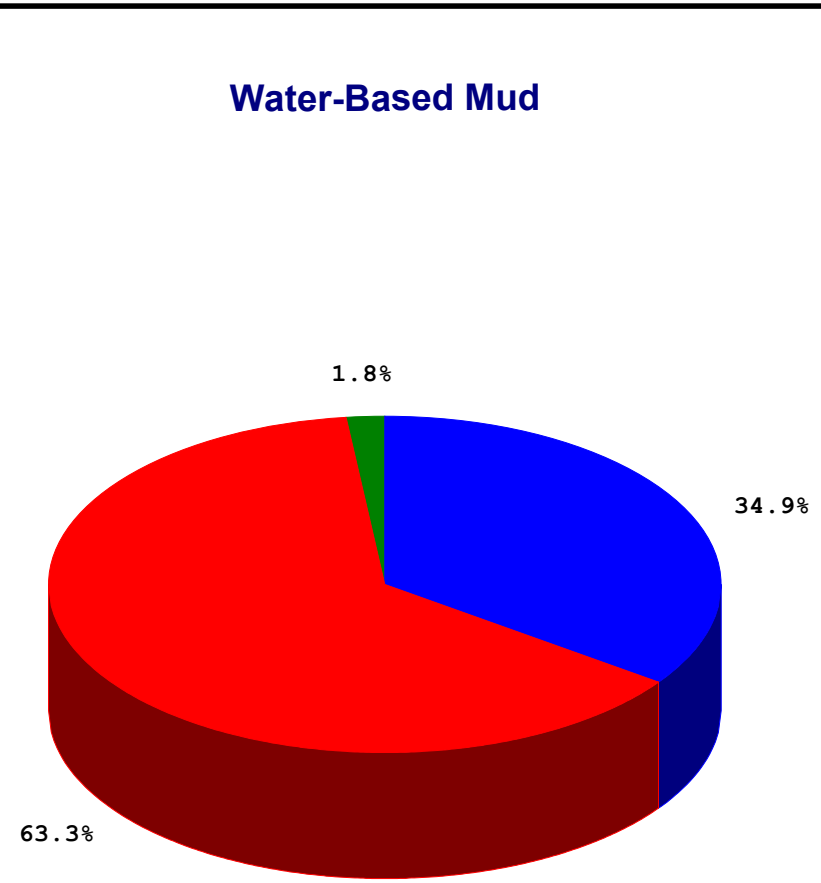
TOTAL MUD COST FOR INTERVAL: 6627.54

Operator : Apache Energy
Well Name : Grayling-1
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

Cost Analysis

BREAKDOWN OF COST BY PRODUCT GROUP 22/12/2004 - 23/12/2004, 0 - 113 m

Water-Based Mud Products	$	%
1-Common Chemicals	121.87	1.8
2-Visc/Fluid Loss	4194.07	63.3
3-Weight Material	2311.60	34.9
Water-Based Mud Total Cost: $	6627.54	100.0



PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1
Contractor : Diamond Offshore
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

SUMMARY OF PRODUCT USAGE FOR INTERVAL 24/12/2004 - 25/12/2004, 113 - 800 m

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - CALCIUM CHLORIDE	25 KG BG	6	10.06	60.36
2 - SODA ASH	25 KG BG	8	11.63	93.04
3 - CAUSTIC SODA (DRY)	25 KG DM	7	19.35	135.45
4 - M-I BAR BULK	1 MT BK	12	231.16	2773.92
5 - M-I GEL BULK	1 MT BK	34	246.71	8469.55
6 - POTASSIUM CHLORIDE	1 MT BG	3	388.21	1164.63

SUB TOTAL:	12696.95
TAX:	0.00
WATER-BASED MUD TOTAL COST:	12696.95

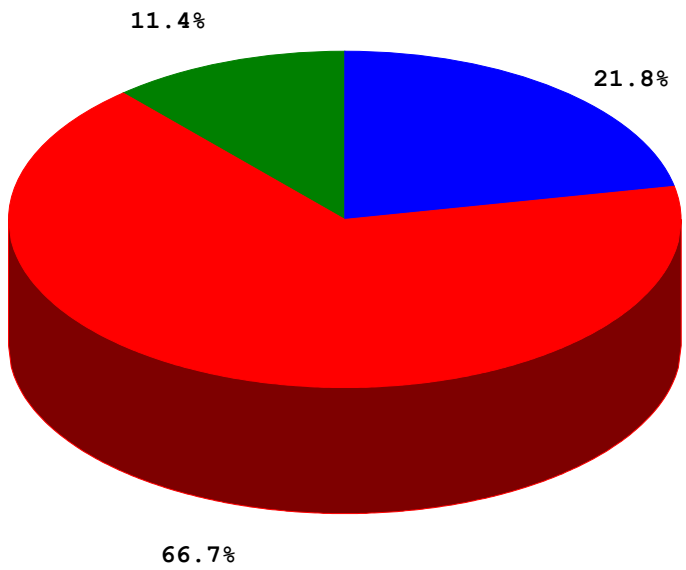
TOTAL MUD COST FOR INTERVAL: 12696.95

Operator : Apache Energy
Well Name : Grayling-1
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

Cost Analysis

BREAKDOWN OF COST BY PRODUCT GROUP 24/12/2004 - 25/12/2004, 113 - 800 m

Water-Based Mud Products	$	%
1-Common Chemicals	1453.48	11.4
2-Visc/Fluid Loss	8469.55	66.7
3-Weight Material	2773.92	21.8
Water-Based Mud Total Cost: $	12696.95	100.0



PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1
Contractor : Diamond Offshore
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

SUMMARY OF PRODUCT USAGE FOR INTERVAL 26/12/2004 - 27/12/2004, 800 - 800 m

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - DUOTEC	25 KG BG	14	194.97	2729.58
2 - SODA ASH	25 KG BG	2	11.63	23.26
3 - M-I BAR BULK	1 MT BK	5	231.16	1111.88
4 - POTASSIUM CHLORIDE	1 MT BG	8	388.21	3105.68
5 - IDCAP D	25 KG BG	7	197.36	1381.52
6 - POTASSIUM HYDROXIDE	25 KG CN	2	30.23	60.46
7 - HIBTROL	25 KG BG	24	88.93	2134.32

SUB TOTAL:	10546.70
TAX:	0.00
WATER-BASED MUD TOTAL COST:	10546.7

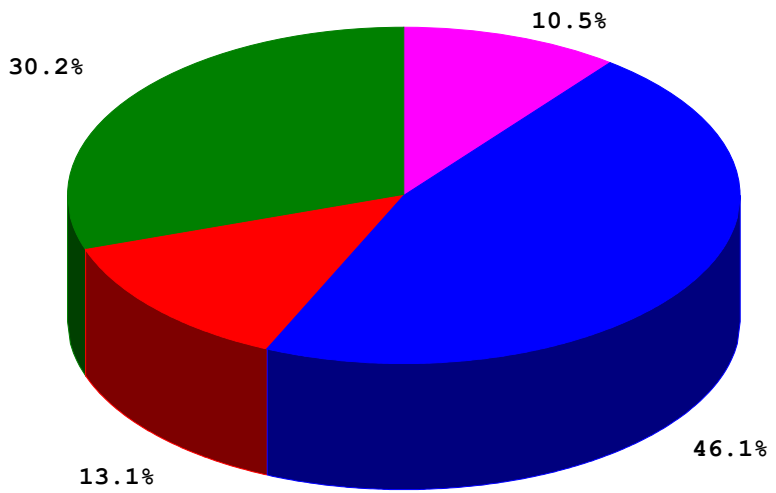
TOTAL MUD COST FOR INTERVAL: 10546.7

Operator : Apache Energy
Well Name : Grayling-1
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

Cost Analysis

BREAKDOWN OF COST BY PRODUCT GROUP 26/12/2004 - 27/12/2004, 800 - 800 m

Water-Based Mud Products	$	%
1-Common Chemicals	3189.40	30.2
2-Lubricant	1381.52	13.1
3-Visc/Fluid Loss	4863.90	46.1
4-Weight Material	1111.88	10.5
Water-Based Mud Total Cost: $	10546.70	100.0



DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

DAILY VOLUME
SUMMARY SHEET

Apache Energy
Grayling 1

36" Top Hole. Pre-Hydrated Gel

Hole volume zero due to SW

	Mud Volume Status m3					Mud Volume Built m3					Mud Volume Lost m3						
Date 2004	Depth	Hole	Surf Active	Res	Total Vol	Water	Mud Built	Bar Chems	Daily Total	Cum Built	Solids Equip	Surf	Dump	Hole	Sweeps Plugs	Daily Total	Cummul Lost
23-Dec	0	0	0	205	205	194.4		10.6	205	205						0	0
24-Dec	113	0	0	252.2	252.2	90.4		4.8	95.2	300.2					48	48	48

16" Pre-Hydrated Gel

Hole volume zero due to SW

	Mud Volume Status m3					Mud Volume Built m3					Mud Volume Lost m3						
Date 2004	Depth	Hole	Surf Active	Res	Total Vol	Water	Mud Received	Bar Chems	Daily Total	Cum Built	Solids Equip	Surf	Dump	Hole	Sweeps Plugs	Daily Total	Cummul Lost
25-Dec	800	96.5	0	55.5	152	252	252.2	16	520.2	520.2					368.2	368.2	368.2

8.5" KCL/Idcap D

	Mud Volume Status m3					Mud Volume Built m3								Mud Volume Lost m3							
Date 2003	Depth	Hole	Surf Active	Res	Total Vol	Water	Mud Received	Casing Cement	Mud Built	Chemical	Bar	Daily Total	Cum Built	Solids Equip	Centrifuge	Dump	Hole	Sweeps Plugs	Other	Daily Total	Cummul Lost
26-Dec	800	0	0	140.4	140.4	116.9	152			5.5		274.4	274.4			134				134	134
27-Dec	800			134.9	134.9					0.3		0.3	274.7			5.8				5.8	139.8

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

TOTAL
MATERIAL
COST

MI SWACO

PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1
Contractor : Diamond Offshore
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

SUMMARY OF PRODUCT USAGE FOR INTERVAL 22/12/2004 - 27/12/2004, 0 - 800 m

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - CALCIUM CHLORIDE	25 KG BG	6	10.06	60.36
2 - DUOTEC	25 KG BG	14	194.97	2729.58
3 - SODA ASH	25 KG BG	13	11.63	151.19
4 - CAUSTIC SODA (DRY)	25 KG DM	11	19.35	212.85
5 - SODIUM BICARBONATE	25 KG BG	1	9.58	9.58
6 - M-I BAR BULK	1 MT BK	27	231.16	6197.40
7 - M-I GEL BULK	1 MT BK	51	246.71	12663.62
8 - POTASSIUM CHLORIDE	1 MT BG	11	388.21	4270.31
9 - IDCAP D	25 KG BG	7	197.36	1381.52
10 - POTASSIUM HYDROXIDE	25 KG CN	2	30.23	60.46
11 - HIBTROL	25 KG BG	24	88.93	2134.32
SUB TOTAL:				29871.19
TAX:				0.00
WATER-BASED MUD TOTAL COST:				29871.19

TOTAL MUD COST FOR INTERVAL: 29871.19

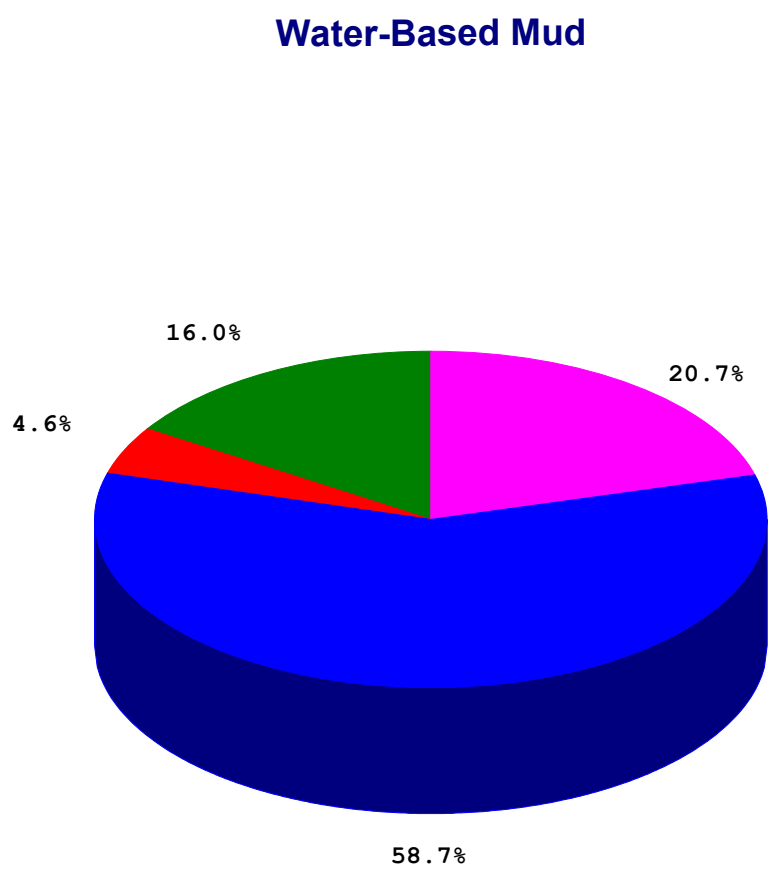
MI SWACO ONE-TRAX

Operator : Apache Energy
Well Name : Grayling-1
Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54

Cost Analysis

BREAKDOWN OF COST BY PRODUCT GROUP 22/12/2004 - 27/12/2004, 0 - 800 m

Water-Based Mud Products	$	%
1-Common Chemicals	4764.75	16.0
2-Lubricant	1381.52	4.6
3-Visc/Fluid Loss	17527.52	58.7
4-Weight Material	6197.40	20.7
Water-Based Mud Total Cost: $	29871.19	100.0



DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

HYDRAULICS
REPORT

HYDRAULICS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland Basin
Well Name : Grayling-1
Description : Exploration
Contractor : Diamond Offshore
Location : VIC-P-54

Date		22/12/2004	23/12/2004	24/12/2004	25/12/2004	26/12/2004	27/12/2004		
Depth	m	120	79	113	650	800	784		
Days Since Spud			1	2	3	4	5		
*RHEOLOGICAL PROPERTIES									
Mud Wt	sp.gr.	1.07	1.06	1.06	1.05	1.05	1.12		
Plastic Visc	cP		12	12	9	9	10		
Yield Point	Pa		14.5	15.5	15.5	16.	6.5		
3-rpm Rdg	Fann deg		27	28	28	30	4		
np Value		.	.3704	.3551	.2928	.2863	.5208		
Kp Value	Pa·s^n	.	4.3434	5.0106	6.8746	7.337	.9534		
na Value		.	.0394	.0381	.029	.0184	.3573		
Ka Value	Pa·s^n	.	27.0158	28.0767	28.4944	31.0633	2.383		
*FLOW DATA									
Flow Rate	L/min	0	0	0	3882	3882	0		
Pump Pressure	kPa	0	0	0	19305	19305	0		
Pump	kWatt	*	*	*	1248	1248	*		
*PRESSURE LOSSES									
Drill String	kPa	*	*	*	4810	333	*		
Bit	kPa	*	*	*	1934	1934	*		
Annulus	kPa	*	*	*	183	755	*		
Total System	kPa	*	*	*	6927	3022	*		
*BIT HYDRAULICS									
Nozzles	1/32"		3x32	7x18	7x18	7x18			
Nozzles	1/32"								
Bit Pressure	%	*	*	*	10	10	*		
Bit	kWatt	*	*	*	125	125	*		
Bit HSI	(index)	*	*	*	.84	.84	*		
Jet Velocity	m/s	*	*	*	58	58	*		
Impact Force	Newton	*	*	*	399	399	*		
DRILL COLLARS ANNULUS									
Velocity	m/min	*	*	*	40	100	*		
Critical Vel	m/min	*	*	*	129	131	*		
Reynolds Number		*	*	*	319	1917	*		
Crit Re (Lam - Tran)		*	*	*	3069	3078	*		
*DRILL PIPE ANNULUS									
Velocity	m/min	*	*	*	33	100	*		
Critical Vel	m/min	*	*	*	128	131	*		
Reynolds Number		*	*	*	224	1917	*		
Crit Re (Lam - Tran)		*	*	*	3069	3078	*		
*HOLE CLEANING									
Slip Velocity	m/min	*	*	*	7	9	*		
Rising Velocity	m/min	*	*	*	26	92	*		
Lifting Capacity	%	*	*	*	78	91	*		
Cutting Conc	%	*	*	*	0.0	0.0	*		
Penetration Rate	m/h	0	0	0	0	0	0		
CASING SHOE PRESSURES									
ECD	sp.gr.	*	*	*	1.05	1.06	*		
ECD+Cuttings	sp.gr.	*	*	*	1.05	1.06	*		
TOTAL DEPTH PRESSURES									
ECD	sp.gr.	*	*	*	1.07	1.15	*		
ECD+Cuttings	sp.gr.	*	*	*	1.07	1.15	*		

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

DRILLING
FLUIDS
SUMMARY

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland Basin
Well Name : Grayling-1
Description : Exploration
Contractor : Diamond Offshore
Location : VIC-P-54

Date		22/12/2004	23/12/2004	24/12/2004	25/12/2004	26/12/2004	27/12/2004
Depth/TVD	m	120/120	79/79	113/113	650/650	800/800	784/784
Activity			Drilling	Drilling	POOH	WOC	Skidding Rig
Mud Type			SW/Gel Swee	SW/Gel Swee	SW/Gel Swee	SW/Gel Swee	KCL/Polymer
Hole Size	mm	914	914	406	406	0	0
Circ Volume	m³				96.5		
Flow Rate	L/min	0	0	0	3882	3882	0
Circ Pressure	kPa	0	0	0	19305	19305	0
Avg ROP	m/hr	0	0	0	0	0	0
Sample From		Pit	Pit 4	Pit 4	Pit 4	Pit 1	Pit 4
Flow Line Temp	°C	-					
Mud Weight	sp.gr.	1.07@ 20 °C	1.06@15 °C	1.06@20 °C	1.05@20 °C	1.05@20 °C	1.12@20 °C
Funnel Viscosity	s/L	120	> 120	> 120	> 100	> 100	40
PV	cP		12	12	9	9	10
YP	Pa		14.5	15.5	15.5	16	6.5
R600/R300/R200		/ /	53/41/37	55/43/39	49/40/36	50/41/37	33/23/18
R100/R6/R3		/ /	31/28/27	32/30/28	31/28/28	32/30/30	14/5/4
10s/10m/30m Gel	Pa	//	34/64/92	35/65/100	33/68/75	35/65/75	5/10/12
API Fluid Loss	cc/30 min		14	13.6	14	14	6.2
HTHP Fluid Loss	cc/30 min		-	-	-		-
Cake API/HT	mm	/	1/-	1/-	1/-	1/	1/-
Solids	%Vol		1	1	1	1	5.9
Oil/Water	%Vol	/	/99	/99	/99	/99	/94.1
Sand	%Vol			0	0		0.25
MBT	kg/m³		79.88	80	78.45	78	17
pH			9.5	9.5	9	9	8.5
Alkal Mud (Pm)			0.75	0.8	0.75	0.8	0.1
Pf/Mf		/	0.48/0.88	0.5/0.9	0.33/0.7	0.4/0.8	0.1/0.9
Chlorides	mg/l		800	700	800	800	40000
Hardness Ca			40	40	40	40	300
Daily Mud Cost	$	0.00	6627.54	3044.90	9652.05	10243.88	302.82
Cuml Mud Cost	$	0.00	6627.54	9672.44	19324.49	29568.37	29871.19
Sales Engineer		Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh
Products Used			Soda / 3	CaCl2 / 6	Soda / 5	IDCAP / 7	BARITE / 1.31
			Caustic / 4	Soda / 3	Caustic / 4	KOH / 2	
			Bicarb / 1	Caustic / 3	BARITE / 12	Hibtrol / 24	
			BARITE / 10	Gel / 7	Gel / 27.33	Duotec / 14	
			Gel / 17	KCl / 3		Soda / 2	
						BARITE / 3.5	
						KCl / 8	

REMARKS

22/12/2004:
23/12/2004:
24/12/2004:
25/12/2004:
26/12/2004:
27/12/2004:

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

PRODUCT CONSUMPTION

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1
Location : VIC-P-54
Field/Area: Gippsland Basin

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

	DATES											
Product	Product	Dec 22, 2004		Dec 23, 2004		Dec 24, 2004		Dec 25, 2004		Dec 26, 2004		Page
Name	Price	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	10.06		0.00		0.00	6	60.36		0.00		0.00	60.36
CITRIC ACID	35.51		0.00		0.00		0.00		0.00		0.00	0.00
DUOTEC	194.97		0.00		0.00		0.00		0.00	14	2729.58	2729.58
LIME	8.95		0.00		0.00		0.00		0.00		0.00	0.00
OS-1	32.42		0.00		0.00		0.00		0.00		0.00	0.00
SODA ASH	11.63		0.00	3	34.89	3	34.89	5	58.15	2	23.26	151.19
MIX II MEDIUM	26.19		0.00		0.00		0.00		0.00		0.00	0.00
CAUSTIC SODA (DRY)	19.35		0.00	4	77.40	3	58.05	4	77.40		0.00	212.85
KWIK SEAL FINE	27.08		0.00		0.00		0.00		0.00		0.00	0.00
ANTIFOAM A	68.59		0.00		0.00		0.00		0.00		0.00	0.00
SODIUM BICARBONATE	9.58		0.00	1	9.58		0.00		0.00		0.00	9.58
M-I BAR BULK	231.16		0.00	10	2311.60		0.00	12	2773.92	4	809.06	5894.58
M-I GEL BULK	246.71		0.00	17	4194.07	7	1726.97	27	6742.58		0.00	12663.62
CONQOR 404	1023.81		0.00		0.00		0.00		0.00		0.00	0.00
POTASSIUM CHLORIDE	388.21		0.00		0.00	3	1164.63		0.00	8	3105.68	4270.31
GUAR GUM	60.00		0.00		0.00		0.00		0.00		0.00	0.00
NUT PLUG MEDIUM	13.53		0.00		0.00		0.00		0.00		0.00	0.00
M-I BAR	4.51		0.00		0.00		0.00		0.00		0.00	0.00
DUO-VIS	225.72		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL NT	9.18		0.00		0.00		0.00		0.00		0.00	0.00
PIPE-LAX W	342.92		0.00		0.00		0.00		0.00		0.00	0.00
GLUTE 25	91.89		0.00		0.00		0.00		0.00		0.00	0.00
KWIK SEAL MEDIUM	27.08		0.00		0.00		0.00		0.00		0.00	0.00
MIX II FINE	25.15		0.00		0.00		0.00		0.00		0.00	0.00
POLY PLUS DRY	75.81		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL	4.82		0.00		0.00		0.00		0.00		0.00	0.00
CONQOR 303A	362.54		0.00		0.00		0.00		0.00		0.00	0.00
DEFOAM A	67.67		0.00		0.00		0.00		0.00		0.00	0.00
GLYDRIL LC	563.96		0.00		0.00		0.00		0.00		0.00	0.00
GLYDRIL MC	359.64		0.00		0.00		0.00		0.00		0.00	0.00
KWIK SEAL COARSE	27.08		0.00		0.00		0.00		0.00		0.00	0.00
IDCAP D	197.36		0.00		0.00		0.00		0.00	7	1381.52	1381.52
MIX II COARSE	25.61		0.00		0.00		0.00		0.00		0.00	0.00
POTASSIUM HYDROXIDE	30.23		0.00		0.00		0.00		0.00	2	60.46	60.46
HIBTROL	88.93		0.00		0.00		0.00		0.00	24	2134.32	2134.32
OMYA CARB 40	20.08		0.00		0.00		0.00		0.00		0.00	0.00
POLYPAC UL	88.72		0.00		0.00		0.00		0.00		0.00	0.00
Cumulative Engineering			0.00		0.00		0.00		0.00		0.00	0.00
Daily Product			0.00		6627.54		3044.90		9652.05		10243.88	29568.37
Daily Sales Tax			0		0		0		0		0	0.00
Cumulative Product			0.00		6627.54		9672.44		19324.49		29568.37	29568.37
Cumulative Cost			0.00		6627.54		9672.44		19324.49		29568.37	29568.37

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1
Location : VIC-P-54
Field/Area: Gippsland Basin

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

	DATES											
Product	Previous	Dec 27, 2004										Page
Name	Page	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	60.36		0.00									60.36
CITRIC ACID	0.00		0.00									0.00
DUOTEC	2729.58		0.00									2729.58
LIME	0.00		0.00									0.00
OS-1	0.00		0.00									0.00
SODA ASH	151.19		0.00									151.19
MIX II MEDIUM	0.00		0.00									0.00
CAUSTIC SODA (DRY)	212.85		0.00									212.85
KWIK SEAL FINE	0.00		0.00									0.00
ANTIFOAM A	0.00		0.00									0.00
SODIUM BICARBONATE	9.58		0.00									9.58
M-I BAR BULK	5894.58	1	302.82									6197.40
M-I GEL BULK	12663.6		0.00									12663.62
CONQOR 404	0.00		0.00									0.00
POTASSIUM CHLORIDE	4270.31		0.00									4270.31
GUAR GUM	0.00		0.00									0.00
NUT PLUG MEDIUM	0.00		0.00									0.00
M-I BAR	0.00		0.00									0.00
DUO-VIS	0.00		0.00									0.00
M-I GEL NT	0.00		0.00									0.00
PIPE-LAX W	0.00		0.00									0.00
GLUTE 25	0.00		0.00									0.00
KWIK SEAL MEDIUM	0.00		0.00									0.00
MIX II FINE	0.00		0.00									0.00
POLY PLUS DRY	0.00		0.00									0.00
M-I GEL	0.00		0.00									0.00
CONQOR 303A	0.00		0.00									0.00
DEFOAM A	0.00		0.00									0.00
GLYDRIL LC	0.00		0.00									0.00
GLYDRIL MC	0.00		0.00									0.00
KWIK SEAL COARSE	0.00		0.00									0.00
IDCAP D	1381.52		0.00									1381.52
MIX II COARSE	0.00		0.00									0.00
POTASSIUM HYDROXIDE	60.46		0.00									60.46
HIBTROL	2134.32		0.00									2134.32
OMYA CARB 40	0.00		0.00									0.00
POLYPAC UL	0.00		0.00									0.00
Cumulative Engineering			0.00									0.00
Daily Product			302.82									29871.19
Daily Sales Tax			0									0.00
Cumulative Product			29871.19									29871.19
Cumulative Cost			29871.19									29871.19

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1

DAILY
MUD
REPORTS

WATER-BASED MUD REPORT No.

Date	22/12/2004	**Depth/TVD**	0 m / 0 m
Spud Date	23/12/2004	**Mud Type**	
Water Depth	22	**Activity**	

Operator : Apache Energy
Report For : David Kirkwood/Kristian Corps
Well Name : Grayling-1
Contractor : Diamond Offshore
Report For : Sean Defritas/Ray Breaud

Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54
M-I Well No. : 16143

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 914 mm		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 1/32"		762mm @112m (112TVD)		Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size mm	Length m	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
				Pump stk/min		
Drill Pipe Size mm	Length m	Intermediate	Total Circulating Vol	Flow Rate	L/min	
				Bottoms Up		
Drill Collar Size mm	Length m	Production or Liner	In Storage	Total Circ Time		
				Circulating Pressure		

MUD PROPERTIES

Sample From		Pit@12:00	
Flow Line Temp	°C	-	
Depth/TVD	m	120/120	
Mud Weight	sp.gr.	1.07@20°C	
Funnel Viscosity	s/L	120	
Rheology Temp	°C	49	
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1		0
VSM Shaker 2		0
VSM Shaker 3		0
VSM Shaker 4		0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	
Viscosity	
Filtrate	

REMARKS AND TREATMENT

REMARKS

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		Dumped	0	Bentonite	/	Bit HHP (kWatt / HSI)	
		Shakers	0	Drill Solids	/	Bit Jet Vel (m/s)	
		Evaporation	0	Weight Material	NA/ NA	Ann. Vel DP (m/min)	
		Centrifuge	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Formation	0	Inert/React		Crit Vel DP (m/min)	
		Left in Hole	0	Average SG		Crit Vel DC (m/min)	
		Other	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh	08-9422 7540	08-9325 4822	$ 0.00	$ 0.00

WATER-BASED MUD REPORT No. 1

Date	23/12/2004	**Depth/TVD**	79 m / 79 m
Spud Date	23/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	22	**Activity**	Drilling

Operator : Apache Energy
Report For : David Kirkwood/Kristian Corps
Well Name : Grayling-1
Contractor : Diamond Offshore
Report For : Sean Defritas/Ray Breaud

Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54
M-I Well No. : 16143

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 914 mm 26" w/ 36" HO		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x32 / 1/32"		762mm @112m (112TVD)	(Tot)/.3(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	12 m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
203 mm	27 m		.3	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
241 mm	40 m		205	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 4@19:00	
Flow Line Temp	°C		
Depth/TVD	m	79/79	
Mud Weight	sp.gr.	1.06@15°C	
Funnel Viscosity	s/L	> 120	
Rheology Temp	°C	49	
R600/R300		53/41	
R200/R100		37/31	
R6/R3		28/27	
PV	cP	12	
YP	Pa	14.5	
10s/10m/30m Gel	Pa	34/64/92	
API Fluid Loss	cc/30 min	14	
HTHP FL Temp	cc/30 min	-@-°C	
Cake API/HTHP	mm	1/-	
Solids	%Vol	1	
Oil/Water	%Vol	/99	
Sand	%Vol		
MBT	kg/m³	79.88	
pH		9.5	
Alkal Mud (Pm)		0.75	
Pf/Mf		0.48/0.88	
Chlorides	mg/l	800	
Hardness Ca	mg/l	40	

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
SODA ASH	25 KG BG	3
CAUSTIC SODA (DRY)	25 KG DM	4
SODIUM BICARBONATE	25 KG BG	1
M-I BAR BULK	1 MT BK	10
M-I GEL BULK	1 MT BK	17

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04-1.07
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Dressed shakers with 105 mesh screens (6 old & 10 new). Started filling tanks with DW at 12:30 hrs. Mixed 146 m3 of 28 ppb Gel for spudding. Also mixed 58.8 m3 of 1.2 sg PHG Kill Mud.

REMARKS

Run anchors. Made preparations for spudding. Spud Grayling-1 at 21:00 Hrs with 26 inch bit & 36 inch hole opener.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service	24	Oil Added	0	NaCl	./ 1.3	np/na Values	0.370/0.039
Drilling		Water Added	194.4	KCl	./ .	kp/ka (Pa·s^n)	2.080/12.935
Tripping		Mud Received	0	Low Gravity	3.7/ 95.8	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Dumped	0	Bentonite	3./ 77.9	Bit HHP (kWatt / HSI)	/ 1
		Formation	0	Drill Solids	.7/ 17.9	Bit Jet Vel (m/s)	
		Left in Hole	0	Weight Material	NA/ NA	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React	.1997	Crit Vel DP (m/min)	
				Average SG	2.6	Crit Vel DC (m/min)	
				Carb/BiCarb (m mole/L)	9.6/ 15.2	ECD @ 79 (sp.gr.)	1.06

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh	08-9422 7540	08-9325 4822	$ 6,627.54	$ 6,627.54

WATER-BASED MUD REPORT No. 2

Date	24/12/2004	**Depth/TVD**	113 m / 113 m
Spud Date	23/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	22	**Activity**	Drilling

Operator : Apache Energy
Report For : David Kirkwood/Kristian Corps
Well Name : Grayling-1
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54
M-I Well No. : 16143

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 406 mm PDC		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 7x18 / 1/32"		762mm @112m (112TVD)	12.6(Tot)/7.7(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m	340mm @784m (784TVD)		Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	10 m		7.7	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
203 mm	90 m		252.2	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 4@09:00
Flow Line Temp	°C	
Depth/TVD	m	113/113
Mud Weight	sp.gr.	1.06@20°C
Funnel Viscosity	s/L	> 120
Rheology Temp	°C	49
R600/R300		55/43
R200/R100		39/32
R6/R3		30/28
PV	cP	12
YP	Pa	15.5
10s/10m/30m Gel	Pa	35/65/100
API Fluid Loss	cc/30 min	13.6
HTHP FL Temp	cc/30 min	-@-°C
Cake API/HTHP	mm	1/-
Solids	%Vol	1
Oil/Water	%Vol	/99
Sand	%Vol	0
MBT	kg/m³	80
pH		9.5
Alkal Mud (Pm)		0.8
Pf/Mf		0.5/0.9
Chlorides	mg/l	700
Hardness Ca	mg/l	40

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
CALCIUM CHLORIDE	25 KG BG	6
SODA ASH	25 KG BG	3
CAUSTIC SODA (DRY)	25 KG DM	3
M-I GEL BULK	1 MT BK	7
POTASSIUM CHLORIDE	1 MT BG	3

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04-1.07
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Pumped 50 bbl PHG sweeps every joint and 50 bbl at TD. Displaced hole with 100 bbl PHG before POOH. Mixed 80 bbl of 80 ppb KCl brine for using in next section. Build up PHG volume in Pits.

REMARKS

Drilled to 113 m with SW & Gel sweeps. Displace hole to PHG. POOH. Run 30x20 conductor casing & cemented. WOC. Made up 16" bit & BHA. Start drill ahead @ 21:30 hrs.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	./ 1.1	np/na Values	0.355/0.038
Drilling	3	Water Added	90.4	KCl	./ .	kp/ka (Pa·s^n)	2.399/13.443
Tripping	9	Mud Received	0	Low Gravity	3.7/ 96.	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Dumped	0	Bentonite	3./ 78.	Bit HHP (kWatt / HSI)	/ 1
Running Casing	3	Formation	0	Drill Solids	.7/ 18.	Bit Jet Vel (m/s)	
Cementing	3	Left in Hole	0	Weight Material	NA/ NA	Ann. Vel DP (m/min)	
Wait on Cement	6	Other	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Sweeps	48	Inert/React	.2001	Crit Vel DP (m/min)	
				Average SG	2.6	Crit Vel DC (m/min)	128
				Carb/BiCarb (m mole/L)	10./ 15.8	ECD @ 100 (sp.gr.)	1.06

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh	08-9422 7540	08-9325 4822	$ 3,044.90	$ 9,672.44

WATER-BASED MUD REPORT No. 3

Date	25/12/2004	**Depth/TVD**	800 m / 800 m
Spud Date	23/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	22	**Activity**	POOH

Operator : Apache Energy
Report For : David Kirkwood/Kristian Corps
Well Name : Grayling-1
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54
M-I Well No. : 16143

DRILLING ASSEMBLY

Bit Size 406 mm PDC		
Nozzles 7x18 / 1/32"		
Drill Pipe Size	Length	
127 mm	571 m	
Drill Pipe Size	Length	
127 mm	139 m	
Drill Collar Size	Length	
203 mm	90 m	

CASING

Surface	762mm @112m (112TVD)
Intermediate	340mm @784m (784TVD)
Intermediate	
Production or Liner	

MUD VOLUME (m³)

Hole	96.5
Active Pits	
Total Circulating Vol	96.5
In Storage	55.5

CIRCULATION DATA

Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Pump Cap	16.176 L/stk	16.176 L/stk
Pump stk/min	80@97%	80@97%
Flow Rate	3882 L/min	
Bottoms Up	23.3 min	5601 stk
Total Circ Time	24.9 min	5965 stk
Circulating Pressure	19305 kPa	

MUD PROPERTIES

Sample From		Pit 4@10:00
Flow Line Temp	°C	
Depth/TVD	m	650/650
Mud Weight	sp.gr.	1.05@20°C
Funnel Viscosity	s/L	> 100
Rheology Temp	°C	49
R600/R300		49/40
R200/R100		36/31
R6/R3		28/28
PV	cP	9
YP	Pa	15.5
10s/10m/30m Gel	Pa	33/68/75
API Fluid Loss	cc/30 min	14
HTHP FL Temp	cc/30 min	-@-°C
Cake API/HTHP	mm	1/-
Solids	%Vol	1
Oil/Water	%Vol	/99
Sand	%Vol	0
MBT	kg/m³	78.45
pH		9
Alkal Mud (Pm)		0.75
Pf/Mf		0.33/0.7
Chlorides	mg/l	800
Hardness Ca	mg/l	40

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
SODA ASH	25 KG BG	5
CAUSTIC SODA (DRY)	25 KG DM	4
M-I BAR BULK	1 MT BK	12
M-I GEL BULK	1 MT BK	27

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04-1.07
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Gel Sweeps: Pumped 30 bbl mid stand & 50 bbl on connections OR 75 bbl on connections depending on drilling rate.

REMARKS

Drilled to 800 m with 1200 gpm SW and PHG sweeps. Pumped 150 bbl sweep at TD and displaced hole with 300 bbl PHG & 320 bbl of 1.2 sg/5% KCl Gel mud. POOH is in progress.

TIME DISTR

	Last 24 Hrs
Rig Up/Service	
Drilling	23
Tripping	1
Non-Productive Tim	

MUD VOL ACCTG (m³)

Oil Added	0
Water Added	252
Mud Received	0
Dumped	0
Formation	0
Left in Hole	0
Other	0
Sweeps	368.2

SOLIDS ANALYSIS (%/kg/m³)

NaCl	./ 1.3
KCl	./ .
Low Gravity	3.1/ 79.6
Bentonite	3./ 78.3
Drill Solids	./ 1.3
Weight Material	NA/ NA
Chemical Conc	- / .
Inert/React	.0146
Average SG	2.6
Carb/BiCarb (m mole/L)	6.6/ 33.

MUD RHEOLOGY & HYDRAULICS

np/na Values	0.293/0.029
kp/ka (Pa·s^n)	3.292/13.643
Bit Loss (kPa / %)	1934 / 1
Bit HHP (kWatt / HSI)	125 / 1
Bit Jet Vel (m/s)	58
Ann. Vel DP (m/min)	33.24
Ann. Vel DC (m/min)	39.98
Crit Vel DP (m/min)	128
Crit Vel DC (m/min)	129
ECD @ 800 (sp.gr.)	1.07

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh	08-9422 7540	08-9325 4822	$ 9,652.05	$ 19,324.49

WATER-BASED MUD REPORT No. 4

Date	26/12/2004	**Depth/TVD**	800 m / 800 m
Spud Date	23/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	22	**Activity**	WOC

Operator : Apache Energy
Report For : David Kirkwood/Kristian Corps
Well Name : Grayling-1
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54
M-I Well No. : 16143

DRILLING ASSEMBLY

Bit Size 406 mm PDC		
Nozzles 7x18 / 1/32"		
Drill Pipe Size	Length	
127 mm	80 m	
Drill Pipe Size	Length	
340 mm	704 m	
Drill Collar Size	Length	
mm	m	

CASING

Surface	762mm @112m (112TVD)
Intermediate	340mm @784m (784TVD)
Intermediate	
Production or Liner	

MUD VOLUME (m³)

Hole	93.4(Tot)/91.4(Bit)
Active Pits	
Total Circulating Vol	91.3
In Storage	140.4

CIRCULATION DATA

Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Pump Cap	16.176 L/stk	16.176 L/stk
Pump stk/min	80@97%	80@97%
Flow Rate	3882 L/min	
Bottoms Up	9.2 min	2212 stk
Total Circ Time	23.5 min	5645 stk
Circulating Pressure	19305 kPa	

MUD PROPERTIES

Sample From		Pit 1@04:00	
Flow Line Temp	°C		
Depth/TVD	m	800/800	
Mud Weight	sp.gr.	1.05@20°C	
Funnel Viscosity	s/L	> 100	
Rheology Temp	°C	49	
R600/R300		50/41	
R200/R100		37/32	
R6/R3		30/30	
PV	cP	9	
YP	Pa	16.	
10s/10m/30m Gel	Pa	35/65/75	
API Fluid Loss	cc/30 min	14	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	1	
Oil/Water	%Vol	/99	
Sand	%Vol		
MBT	kg/m³	78	
pH		9	
Alkal Mud (Pm)		0.8	
Pf/Mf		0.4/0.8	
Chlorides	mg/l	800	
Hardness Ca	mg/l	40	

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	14
SODA ASH	25 KG BG	2
M-I BAR BULK	1 MT BK	4
POTASSIUM CHLORIDE	1 MT BG	8
IDCAP D	25 KG BG	7
POTASSIUM HYDROXIDE	25 KG CN	2
HIBTROL	25 KG BG	24

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04-1.07
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Dumped and cleaned tanks for new mud mixing. Adjusted Defoamer inventory from 32 to 28. Kept 18 m3 PHG on bottom of tanks for blending with new mud. Started mixing new mud but stopped due to uncertainity of operations.

REMARKS

POOH. Run 13-3/8 csg to 784 m. Filled casing with 170 bbl PHG and then with SW. Circulated hole. Cemented csg. WOC. Unable to back off setting tool.

TIME DISTR	Last 24 Hrs
Rig Up/Service	
Drilling	
Tripping	3
Non-Productive Tim	
Running Casing	6
Cementing	15

MUD VOL ACCTG	(m³)
Oil Added	0
Water Added	116.8
Mud Received	0
Dumped	3.2
Left in Hole	0
Other	0
Sweeps	0
Dump on Sea Bed	130.8

SOLIDS ANALYSIS (%/kg/m³)	
NaCl	./ 1.3
KCl	./ .
Low Gravity	3.1/ 79.6
Bentonite	3./ 77.8
Drill Solids	.1/ 1.8
Weight Material	NA/ NA
Chemical Conc	- / .
Inert/React	.0204
Average SG	2.6
Carb/BiCarb (m mole/L)	8./ 40.

MUD RHEOLOGY & HYDRAULICS	
np/na Values	0.286/0.018
kp/ka (Pa·s^n)	3.513/14.873
Bit Loss (kPa / %)	1934 / 1
Bit HHP (kWatt / HSI)	125 / 1
Bit Jet Vel (m/s)	58
Ann. Vel DP (m/min)	
Ann. Vel DC (m/min)	100.4
Crit Vel DP (m/min)	
Crit Vel DC (m/min)	131
ECD @ 784 (sp.gr.)	1.15

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh	08-9422 7540	08-9325 4822	$ 10,243.88	$ 29,568.37

WATER-BASED MUD REPORT No. 5

Date	27/12/2004	**Depth/TVD**	800 m / 800 m
Spud Date	23/12/2004	**Mud Type**	KCL/Polymer
Water Depth	22	**Activity**	Skidding Rig

Operator : Apache Energy
Report For : David Kirkwood/Kristian Corps
Well Name : Grayling-1
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland Basin
Description : Exploration
Location : VIC-P-54
M-I Well No. : 16143

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size mm		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 1/32"		762mm @113m (112TVD)	56.1	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size mm	Length m	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
		340mm @800m (800TVD)		Pump stk/min		
Drill Pipe Size mm	Length m	Intermediate	Total Circulating Vol	Flow Rate	L/min	
				Bottoms Up		
Drill Collar Size mm	Length m	Production or Liner	In Storage	Total Circ Time		
			134.9	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 4@10:00
Flow Line Temp	°C	
Depth/TVD	m	784/784
Mud Weight	sp.gr.	1.12@20°C
Funnel Viscosity	s/L	40
Rheology Temp	°C	49
R600/R300		33/23
R200/R100		18/14
R6/R3		5/4
PV	cP	10
YP	Pa	6.5
10s/10m/30m Gel	Pa	5/10/12
API Fluid Loss	cc/30 min	6.2
HTHP FL Temp	cc/30 min	-@-°C
Cake API/HTHP	mm	1/-
Solids	%Vol	5.9
Oil/Water	%Vol	/94.1
Sand	%Vol	0.25
MBT	kg/m³	17
pH		8.5
Alkal Mud (Pm)		0.1
Pf/Mf		0.1/0.9
Chlorides	mg/l	40000
Hardness Ca	mg/l	300

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
M-I BAR BULK	1 MT BK	1

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105	0
VSM Shaker 2	105	0
VSM Shaker 3	105	0
VSM Shaker 4	105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15-1.2
Viscosity	6rpm 8-10
Filtrate	<6

REMARKS AND TREATMENT

Pit 4 & Pit 5 contains partially mixed KCl-IDCAP mud and will be used later. Plan to use Pit 1, Pit 2 & Pit 3 for mixing Gel if re-spudded. No plan to mix Kill Mud.

REMARKS

Attempted to release 18 3/4 RT from well head. Cut the pipe and skidding rig to re-spud the well.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	./ .2	np/na Values	
Drilling		Water Added	0	KCl	3.1/ 81.5	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	1.1/ 29.6	Bit Loss (kPa / %)	
Non-Productive Tim		Dumped	5.8	Bentonite	.6/ 15.4	Bit HHP (kWatt / HSI)	
Running Casing		Left in Hole	0	Drill Solids	.5/ 14.2	Bit Jet Vel (m/s)	
Cementing		Other	0	Weight Material	1.6/ 67.5	Ann. Vel DP (m/min)	
		Sweeps	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Dump on Sea Bed	0	Inert/React	.7439	Crit Vel DP (m/min)	
				Average SG	3.54	Crit Vel DC (m/min)	
				Carb/BiCarb (m mole/L)	2./ 31.6		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh	08-9422 7540	08-9325 4822	$ 302.82	$ 29,871.19

Fluids Recap

Apache Energy

Grayling-1A
Gippsland
Exploration
Victoria

Prepared by: **Nigel Warman**

MI SWACO

M-I *L.L.C.*

ONE-TRAX

DRILLING FLUID DATA MANAGEMENT SYSTEM

Operator:	Apache Energy	**Spud Date:**	28/12/2004
Well Name:	Grayling-1A	**TD Date:**	12/01/2005
Field/Area:	Gippsland	**Location Code:**	7001
Description:	Exploration	**Project Engineer:**	Nigel Warman
Location:	Victoria	**Sales Engineer:**	Jasdeep Singh
Warehouse:	Melbourne	**Sales Engineer:**	Geoff Pike
Contractor:	Diamond Offshore	**M-I Well No.**	16150

Comments:

Type	Size mm	Depth m	TVD m	Hole mm	Max MW sp.gr.	Fluid 1	Fluid2	Drilling Problem	Days	Cost $
Casing	762	112	112	914	1.05	Spud Mud	Spud Mud	None	1	4803.40
Casing	340	796	796	406	1.12	Spud Mud	Spud Mud	None	6	43517.81
Open Hole	.	2915	2915	216	1.32	KCL/Polymer	KCL/Polymer	Excessive Torque/Dra	23	74942.79

Total Depth: 2915 m TVD: 2915 m Water Depth: 59 m Drilling Days: 30 Total Cost: 123,263.99

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

CONTENTS:

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

DISCUSSION
BY
INTERVAL

DRILLING FLUIDS RECAP FOR APACHE ENERGY GRAYLING 1A

SUMMARY:

Apache Energy Ltd was the operator of vertical exploration wildcat gas well, Grayling-1A, Vic/P54, Victoria, Australia using Ocean Patriot semi submersible rig owned by Diamond Offshore. The three primary targets were gas in F Longus (2245-2645 m), T Lilliei (2695-2825 m), & N Senectus (2844-2944 m).

The Ocean Patriot was skidded from Grayling 1 to Grayling 1A after complications with the 13⅜" running tool on Grayling 1.

Grayling-1A was spudded on the 28th December 2004 at 16:30 hrs. The 914mm (36 x 26") hole was drilled to 114 m using sea water and Gel sweeps in 2 hours. The 762mm (30" x 20") conductor casing was run and cemented in place with no troubles at 112 m.

The 406 mm (16") hole was drilled to 813 m with sea water and gel sweeps and the 340 mm (13⅜") casing was set at 796 m, with some stickiness while running to bottom, after two attempts and cemented.

The 8½" hole was drilled to 2915 m, where the hole was logged and then P & A.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

Interval I	80 - 114 meters	914 mm Hole	762 mm casing

MUD TYPE : Seawater / PHG sweeps

MUD RELATED HOLE PROBLEMS : None

MUD PROPERTIES:

Mud Weight	:	1.06 sg
YP	:	10-15 k Pa
API FL	:	14 cc/30 min
Funnel Vis	:	> 120 sec/qt
Hardness	:	40 mg/l
MBT	:	85 Kg/m3

OPERATIONS:

Grayling-1A was spudded on 28th December 2004. The 914mm hole was drilled with a 26 inch bit and 36 inch hole opener to 114m in 2 hrs using 1200 gpm Sea Water flow rate. The 762mm casing was lowered and cemented in place with no troubles to 112m.

MUD

Initially 229.4 m^3 of 28 ppb Gel was mixed in three pits as two other pits were used to store partially mixed KCl-Polymer mud from Grayling 1. No Kill mud was mixed due to tanks space limitation and also as Grayling 1 didn't show any signs of shallow gas presence. A total of 70.1 m^3 of PHG was used for this section and the balance 159.3 m^3 of PHG was transferred to next section.

SOLIDS CONTROL:

None used as returns were directed to seabed.

OBSERVATIONS AND RECOMMENDATIONS:

Unflocculated gel gives a better hole cleaning and stability than flocculating gel with Sea water or lime. The mud program could be changed accordingly.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

Interval II	114 m-810 m	406 mm Hole section	340 mm casing

MUD TYPE : Seawater / PHG sweeps

MUD RELATED HOLE PROBLEMS : None

MUD PROPERTIES:

Mud Weight	:	1.05 sg
YP	:	10-12 kPa
API FL	:	12 cc/30 min
Funnel Vis	:	> 120 sec/qt
Hardness	:	80 mg/l
MBT	:	85 Kg/m3

OPERATIONS:

The 406 mm tricone Hycalog bit drilling assembly was made up and run in hole. The BHA included a MWD logging suite with a motor, directional, gamma ray, and resistivity tools. Cement was tagged and the shoe track drilled with sea water pumped at 800 gpm. A 7.95m^3 gel sweep was pumped after drilling cement and further drilling was progressed using sea water. A sweep regime of 4.77m^3 Prehydrated Gel each 15 m drilled was followed, with 7.95 m3 bbl of PHG spotted prior to connections to cover the BHA. At section TD of 810 m 23.85m^3 sweep was pumped and chased out by sea water. The hole was displaced with 47.7m^3 PHG followed by 50.88 m3 of 1.15 sg PHG containing 5 % KCl prior to pull out of hole to run casing. The hole was reported to be slightly tight and the stabilizers were found to be balled up. 13⅜" casing was run to 530m and had to be pulled out of hole due to hitting against a ledge. A bit wiper trip was made to clean the hole and the 12 centralizers found left in the hole were pushed to bottom.

13⅜" casing was again lowered in the hole to 710 m and the well head joint was damaged during make up. The hole was displaced with 1.15 sg KCl-IDCAP mud while waiting on the new well head spares. On getting the new spares the casing was further run to bottom and cemented in place.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

MUD:

159.3 m^3 of PHG mud from previous section was carried over to this section. The gel was mixed on the run as sweeps were pumped. The total volume of PHG used for this section was 658m^3 while drilling. The casing was filled up with 45m^3 of PHG while running in hole on the first attempt. Further 84.6m^3 of PHG was mixed with all the Bentonite available on board to do the wiper trip to clear the ledge. Three PHG sweeps of 8m^3 were pumped while reaming down and then an 18m^3 to sweep the hole at bottom. The hole was displaced with 68.5 m3 of KCl-IDCAP mud prior to pull out of hole. During the second attempt to run the casing, the casing was filled with 33.7m^3 of PHG. The casing could not be landed in the well head due to damaged landing joint. The well was displaced with 70m^3 8% KCl-IDCAP mud while casing in the hole and waiting on the spares for fixing the landing string.

SOLIDS CONTROL:

No solids control was used as returns were to seabed.

OBSERVATIONS AND RECOMMENDATIONS:

No changes are recommended as the PHG sweep system is the most cost effective way to drill this interval.

The cost of this section was higher than planned due to usage of KCl-IDCAP mud instead of PHG because of shortage of Bentonite on board.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

Interval III	813 – 2915 meters	216 mm Section	P & A

MUD TYPE : KCl / IDCAP D / HIBTROL

MUD RELATED HOLE PROBLEMS : None

MUD PROPERTIES :

Mud Weight	:	1.15 -1.34 sg
YP	:	18-33 Pa
PV	:	18-21 cP
API FL	:	4 – 5.5 cc/30 min
KCl	:	8 % by Wt
Funnel Vis	:	41 – 46 sec/qt
6 RPM	:	8 - 11
Hardness	:	200-1100 mg/l
Drill Solids	:	1-1.5% by Vol
pH	:	8.0 - 10

OPERATIONS:

The 340mm casing shoe track and rat hole were drilled out with a 216mm bit to 813m and the hole was displaced to 1.15 sg 8% KCl/Idcap D/Hibtrol mud while drilling through the shoe. As the cement drilled out was quite soft the 10.2m^3 of contaminated mud interface had to be dumped. The hole was circulated clean and a FIT test was conducted. A formation integrity of 1.8 sg mud weight equivalent was obtained.

Drilling resumed with good rates of penetration between 50-75 m/hr through mostly soft shales. The fault was not intersected at circa 1657 m and no losses or abnormal pressures were encountered due to this. Drilling continued with good ROPs and without mud problems. At 2,067m increasing gas levels forced an increase in mud weight from 1.175 to 1.22 sg. This brought the rising gas levels under control.

Drilling continued onwards into the volcanic sequences, but with reduced ROPs, to 2470m where it was decided to pull the bit and run logs. The trip out was initially problem free but after approximately 10 stands the hole became progressively tighter. This resulted in circulating out to the 340 mm shoe at 810m. At this point the RCI logging tool was rigged up and run into the hole. However it was

impossible to get this past 810m, the rat hole of the 340 mm casing shoe. This was pulled and a new bit picked up, the previous was ⅛" under gauge. The area from 810-840m was worked and cleared of obstructions and the string then ran to bottom with the last stands requiring washing to bottom due to the under gauge hole. As a result of numerous slugs the weight had risen to 1.26sg but for stability it was initially decided to stay with this weight but due to the problems getting on bottom it was decided to reduce the weight back to 1.22sg and drill another 200m to section TD. At 2915m the hole was circulated clean and sections re-logged with MWD on the trip out. The hole however became tighter with 100k over-pulls. The string was ran back to bottom to check that at TD there were no hole problems. This was so and at 2915m the mud weight was increased from 1.22 to 1.28sg. Whilst circulating and conditioning mud, large amounts of coal were seen at the shakers, this was most likely in conjunction with the under gauge hole the cause of the hole tightness problems.

As the increase in mud density from 1.22 to 1.28sg had made the trip out easier it was decided to raise the density again to 1.32sg. The RCI log was rigged up and run without problem; however it became stuck at 2,074m. The cable was fished over and stripped over the tool. The tool was engaged in the overshoot assembly and the tool was logged on drill pipe. At this time static losses of 1 bbl/hour were reported. Logging on drill pipe continued until tool failure, this was pulled and repaired and then run on drill pipe again taking samples and pressure points. At 2,077m the tool failed and then pulled, the seismic tool was run and then pulled and the start of the four-plug abandonment program started.

The cement stinger and mule shoe was run to 2,775m and a hi-vis pill spotted on bottom and then the four-plug program started.

MUD:

The mud system was treated with Sodium Bicarbonate while drilling through the cement rat hole. Once the mud was sheared through the bit, the low end rheology and Idcap concentration was enhanced of the active system. Also the system was constantly treated with OS-1 as the compressed air used to unsettle the cuttings in the cuttings box aerated the mud and introduced foam into the sandtraps and the cuttings box.

The mud weight slowly crept up from 1.15 to 1.2sg due to solids incorporation. The centrifuge and desilter were run continuously and volume lost was made up with unweighted premixes to weight under control at 1.17sg. But the mud system

showed signs of accumulation of low gravity solids as evident by higher MBT readings obtained.

Potassium content was depleting while drilling through the claystones and was maintained at 8 % by wt by adding KCl directly to system. The fluid loss was kept below 6 cc per 30 minutes by treating the system with Hibtrol.

As drilling continued the mud was maintained in specification with pre-mix from the reserve pits. Shaker screens were fined up from 145s to 165s and the de-silter run as required. Major mud density changes occurred at 2,067m from 1.175 to 1.22sg due to rising gas levels and from 1.22 to 1.28 sg at 2,470m due to tight hole. The density finally changing at 2,470 again to drill to TD to 1.32sg. This final density change probably induced the seepage losses of 1-2 bbls/hr.

With the hole problems at 2,740m it was decided to reduce the API fluid loss with additions of Hibtrol, also fine calcium carbonate, Omyacarb 40, was added to strengthen the filter cake.

When necessary mud density reductions used a combination of the desilter and pre-mix and drill water with rheology restored with Duotec.

SOLIDS CONTROL:

All four shakers were dressed with 105 mesh screens initially and handled the flow comfortably. At 1100 m the shaker screens were changed to 145 mesh and shakers handled the flow quite good until the booster pump was started. This gave severe whole mud losses over the shakers forcing us to change the screens back to 105 mesh on one of the shakers. By 2325m the back screens were changed out to 165 mesh, this in conjunction with 145s on the front was retained to TD. This combination was a compromise and allowed the booster pump to be run without any losses from the shaker screens.

The header box was dumped regularly of cuttings while flow checking and the sandtrap was dumped partially to keep solids down. The desilter and centrifuge were run from 1500 m onwards continuously. The centrifuge didn't gave much cut with only 11.6 ppg discarded with 9.8 ppg mud weight (note the mud is weighed as ppg but reported as density in SG). As a result the centrifuge was not used and the desilter was the main source of secondary solids removal.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

OBSERVATIONS AND RECOMMENDATIONS:

It appears that a higher mud weight (1.32sg) was beneficial to stabilising the coals, but induced small, manageable seepage losses of 1-2 bbls/hr. Maybe drilling the section with a mud weight of between 1.27 – 1.32sg should be recommended for future wells in this area.

As there was no Potassium Chloride depletion, it can be recommended to drill with 5-6% by weight on future holes, rather than the 8% by weight used on this well.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

DAILY DISCUSSION
REPORT

MI SWACO	Operator : Apache Energy	Field/Area : Gippsland	Daily Discussion
	Well Name : Grayling-1A	Description : Exploration	
	Contractor : Diamond Offshore	Location : Victoria	M-I Well : **16150**

28/12/2004	TD = 114 m	Day 1

Skidded rig 20m/20m to Grayling 1A. WOW to do ROV survey. Made up 36" BHA and spud at 16:30 Hrs. Drill to 114 m. POOH.
Mixed PHG in Pits 1, 2 & 3. Pit 4 & 5 contains 134.9 m3 KCl-IDCAP mud mixed on Grayling-1, to be used in 8.5" section. Pumped 50 bbl PHG sweeps every single & displaced hole to PHG prior to POOH.

29/12/2004	TD = 430 m	Day 2

Run and cemented casing at 112.37 m. Made up 16 inch BHA and drilled to 430 m.
Continued to mix PHG in Pit 1, 2 & 3. Pumped 30 bbl PHG mid stand and 50 bbl on connections.

30/12/2004	TD = 810 m	Day 3

Drilled to section TD of 810 m. Pumped 150 bbl sweep & displaced hole with 300 bbl PHG & 320 bbl of 9.6 ppg PHG containing 5% KCl. POOH.
Continued Gel sweep regime as per drilling conditions. Saved 200 bbl of PHG for filling casing.

31/12/2004	TD = 810 m	Day 4

Run casing to 530 m. Ledge. P/O casing to R/I with bit to condition hole.
Filled casing with 45 m3 of PHG during casing and washing down casing. Mixed 84.6 m3 more Gel with the available bentonite on board.

1/01/2005	TD = 810 m	Day 5

RIH with 16 inch bit and reamed down to bottom PHG sweeps pushing centralizers down. Pumped 117 bbl PHG sweep at TD and displaced well with KCl-Polymer mud. POOH. Hole good. R/I casing to bottom.
Added Duotec to 73.5 m3 of KCl-Polymer mud to increase YP and added barite to weight to 1.15 sg. Pumped 68.3 m3 of KCl-Polymer mud into hole before POOH. Used 8 m3 of PHG as sweeps during reaming, 18.3 me to sweep hole at bottom & 33.7 m3 PHG to fill casing. Left with 14.3 m3 of Gel in Pit 3. Mud check represents mud in hole prior to POOH.

2/01/2005	TD = 810 m	Day 6

Run casing. Waiting on spare casing landing joint to replace damaged joint while make up.
Pumped 64.7 m3 of KCl-Idcap mud after increasing its YP with Duotec & raising KCl content to 8% to keep hole stable while working on the casing landing joint. Mud Check indicates mud pumped in hole. Mixed Pit 4 & 5 with KCl-Idcap mud for next section (148.9 m3).

3/01/2005	TD = 810 m	Day 7

Received casing hanger joint. Run casing to bottom. Rigging up to cement casing.
Received chemicals & DW from Far Grip

4/01/2005	TD = 796.24 m	Day 8

Cleaned cementing head. Cemented casing as per plan. Lay down BHA. Running BOP stack.
Mixing new mud. Constraint of Derrickman engaged with BOP operations.

5/01/2005	TD = 813 m	Day 9

Completed BOP testing. R/I with 8.5 inch bit and motor BHA. Started drilling cement @ 21:00.
Finished mixing 224 m3 of 8% KCl Polymer mud. PHG volume for sweeps during cement. Hibtrol stock adjusted by 10 sacks due to extra shown as received on Longtom 2.

6/01/2005	TD = 1519 m	Day 10

Drilled to 813 m. Circulated Hole clean. Conducted FIT (1.8 sg MWE). Drilled ahead to 1519 m..Changed screens to 16 x new 145 mesh at 1100 M but changed back to 105 mesh on one shaker to handle booster pump. Started centrifuge at 1200 m, discarding 10.6 ppg stream. Dumped header box of cutting 3 times.
Displaced to KCl-Polymer mud while drilling through the shoe. Dumped 10.1 m3 of contaminated mud due to soft cement. Added 6 sacks of Bicarb to treat out cement. Added Idcap & Duotec to active to build properties. Maintained depleting KCl content by adding KCl to active. Cuttings showing good inhibition. Trying to maintain MWt by dumping/dilution.

7/01/2005	TD = 2325 m	Day 11

Driling ahead without problems. See increase in gas level at 2067M, increase mud weight from 9.8 to 10.2 ppg with the result of lowering gas levels. Continue to drill towards resevoirat report time depth of 2325m.
Maintain KCL/Polymer Idacap system with additions of un weighted pre-mix and adding Idcap,Hibtrol and KOH directly to active.KCL at 8% but being maintained with KCL additions as needed.

8/01/2005	TD = 2727 m	Day 12

Continue to drill 8 1/2" hole, drill through volcanic sequence and into the resevoir with lower ROPs. Mud weight in hole is 1.22 SG.
Continue to add Idcap and Hibtrol directly to active and also from premix reserve volume.Control weight to 1.22 SG with pre-mix and desilter and centrifuge if needed. Maintaining 8% KCL from pre-mix additions. Attempt to fine up screens to 165s on shaker 2 and 3. Presently OK with 165s on shaker#2. 165s fitted on #3 at report time.

9/01/2005	TD = 2740 m	Day 13

Continue to drill ahead to 2740m. Circulate bottoms up and POOH. Pull first 10 stands dry then slug pipe and continue to POOH. Hole became tight so circulated out to shoe and slug pipe again. Rig up and run wireline logs.
Continue to treat mud as necessary to maintain properties. Control weight to 1.22 SG with pre-mix and by finning screens to 165s at the back of shakers 2 and 3.

10/01/2005	TD = 2740 m	Day 14

Unable to get logging tools past the 13 3/8" casing shoe. POOH and pick up new bit,previous 1/8" undergauge. RIH and work area from 810 to 840m with pumps and continue to RIH to bottom, need to wash and work to bottom last stands. Start to reduce mud weight.
Build reserve voulme in R4 in readiness to drill and extra 200 m to TD. Prior to getting to bottom the mud weight was reduced from 10.5 to 10.2 ppg using the desilter with discharge weight of 12.2 ppg and with drill water additions, increase was due to two slugs in the hole.

11/01/2005	TD = 2915 m	Day 15

Continue to drill ahead 8 1/2" hole to TD of 2915m. Slow ROPs for most of section. Continue to control mud weight to 1.22 SG with finer shaker screens, dilution volume and desilter.
Added Duotec to offset water additions. Also added Hibtrol to reduce API fluid loss. Near TD added Calcium Carbonate to system to make filter cake thin and strong. Treated mud with O2 scavenger and some biocide.

12/01/2005	TD = 2915 m	Day 16

Circulate hole clean and POOH wet and re-log with MWD. Hole became progressively tighter with upto 100k overpulls. RIH to bottom to check hole was free. Circulate at TD and raise mud weight to 10.7 ppg, see substaintial amounts of coal at shakers which probably caused hole tightness.
Raise mud weight from 10.2 to 10.7 ppg to increase hole stability in prescence of coal seams. POOH to run wireline logs.
Received chemicals from the Far Grip

13/01/2005	TD = 2915 m	Day 17

POOH to 820m and MWD log, RIH to 2700m and weigh up system from 10.7ppg to 11.0ppg, POOH and rig up to run wireline logs. Continue to log with the RCI tool.
Received 48MT barite from Far Grip.

14/01/2005	TD = 2915 m	Day 18

Continue to run RCI tool but became stuck at 2074m. Rig up and run fishing tools and strip over wireline cable. Observe static losses of 1 bbl/hr from trip tank to well. Latch onto RCI and log on drill pipe

15/01/2005	TD = 2915 m	Day 19

Continue to log on drill pipe with RCI until tool failure, POOH with tool and prepare to RIH to do wiper trip and condition mud. The wiper trip was abandoned and the RCI run in the hole drill pipe conveyed.
Weighed up pit 4 to 10.5 ppg as reserve volume for active. Added drill water to active to reduce weight back to 11.0 ppg

16/01/2005	TD = 2915 m	Day 20

Continue to log with RCI taking samples and pressure points.

17/01/2005	TD = 2915 m	Day 21

Continue to attempt to regain comms with RCI tool, unable to do so. Circulate bottoms up at 2077m and POOH with tool to retrieve samples. Rig up and run siesmic on wireline.
Maintain mud weight at 11.0 ppg.

18/01/2005	TD = 2915 m	Day 22

Finish siesmic log and rig down wireline. Pick up mule shoe and RIH to 2,775m and set first of 4 abandonment cement plugs. Dump cement contaminated mud as needed.
Make up Hi-Vis mud in slug pit for cement job.
Add Glute 25 as needed and OS-1.

19/01/2005	TD = 2915 m	Day 23

Finish cement plug program, displace riser to sea water and discharge surface volume.
Prepare to pull riser and BOP

20/01/2005	TD = 2915 m	Day 24

Continue to pull riser and BOP, RIH with casing cutter and cut surface casing.
Clean and wash out pits and sand traps.
Received chemicals for next well from Far Grip.

21/01/2005	TD = 2915 m	Day 25

Skid rig over on anchors to Grayling-1 to retreive PGB and running tools. Cut casing with ROV and hydraulic cutter.

22/01/2005	TD = 2915 m	Day 26

Continue to cut surface casing on Grayling-1 @ approx 20mm/hour.

23/01/2005	TD = 2915 m	Day 27

Continue to cut surface casing on Grayling-1 using ROV.

24/01/2005	TD = 2915 m	Day 28

Continue to cut surface casing on Grayling-1 using ROV.

MI SWACO	**Operator :** Apache Energy **Well Name :** Grayling-1A **Contractor :** Diamond Offshore	**Field/Area :** Gippsland **Description :** Exploration **Location :** Victoria	**Daily Discussion** M-I Well : **16150**

25/01/2005	TD = 2915 m	Day 29

Continue to cut surface casing on Grayling-1 using ROV
Costs for inventory adjustment

26/01/2005	TD = 2915 m	Day 30

Cut well head and retrieve same. RIH with drill pipe and ser cement plug. RIH with casing cutter and cut 20 and 30" casings, retrieve PGB.
Laydown tools and ballast rig up in readiness to move to new location.

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

COST
BY
INTERVAL

PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1A
Contractor : Diamond Offshore
Field/Area : Gippsland
Description : Exploration
Location : Victoria

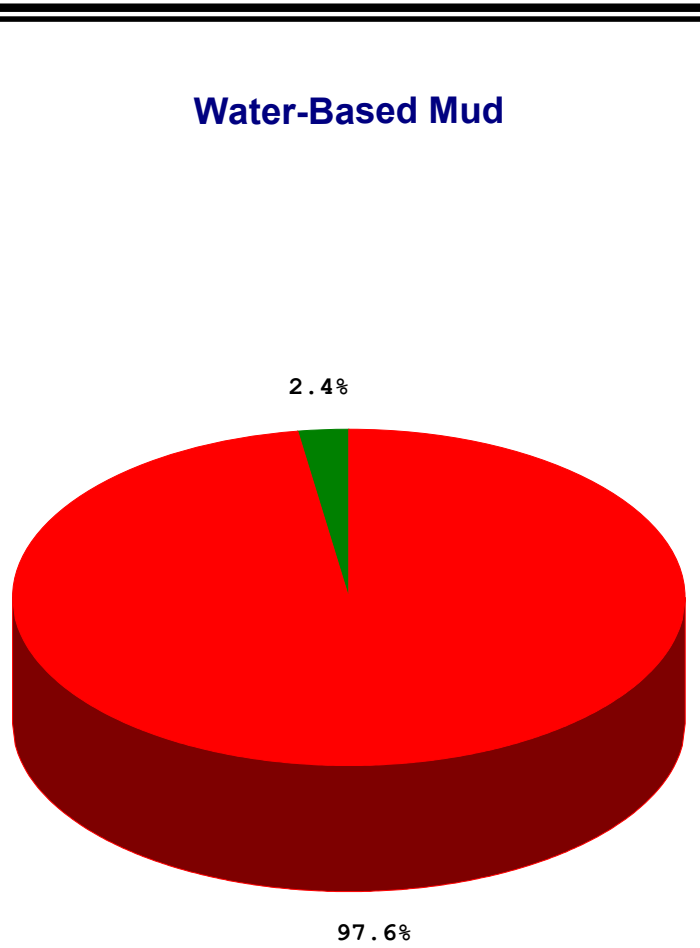
SUMMARY OF PRODUCT USAGE FOR INTERVAL 28/12/2004 - 28/12/2004, 0 - 114 m

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - CAUSTIC SODA (DRY)	25 KG DM	5	19.35	96.75
2 - SODIUM BICARBONATE	25 KG BG	2	9.58	19.16
3 - M-I GEL BULK	1 MT BK	19	246.71	4687.49

SUB TOTAL:	4803.40
TAX:	0.00
WATER-BASED MUD TOTAL COST:	4803.4
TOTAL MUD COST FOR INTERVAL:	4803.4

BREAKDOWN OF COST BY PRODUCT GROUP 28/12/2004 - 28/12/2004, 0 - 114 m

Water-Based Mud Products	$	%
1-Common Chemicals	115.91	2.4
2-Visc/Fluid Loss	4687.49	97.6
Water-Based Mud Total Cost: $	4803.40	100.0



MI SWACO

PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1A
Contractor : Diamond Offshore
Field/Area : Gippsland
Description : Exploration
Location : Victoria

SUMMARY OF PRODUCT USAGE FOR INTERVAL 29/12/2004 - 3/01/2005, 114 - 810 m

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - CALCIUM CHLORIDE	25 KG BG	2	10.06	20.12
2 - DUOTEC	25 KG BG	25	194.97	4874.25
3 - SODA ASH	25 KG BG	11	11.63	127.93
4 - CAUSTIC SODA (DRY)	25 KG DM	8	19.35	154.80
5 - M-I BAR BULK	1 MT BK	44	231.16	10067.02
6 - M-I GEL BULK	1 MT BK	57	246.71	14178.42
7 - POTASSIUM CHLORIDE	1 MT BG	19	388.21	7375.99
8 - GLUTE 25	25 LT CN	1	91.89	91.89
9 - IDCAP D	25 KG BG	22	197.36	4341.92
10 - POTASSIUM HYDROXIDE	25 KG CN	5	30.23	151.15
11 - HIBTROL	25 KG BG	24	88.93	2134.32

SUB TOTAL:	43517.81
TAX:	0.00
WATER-BASED MUD TOTAL COST:	43517.81

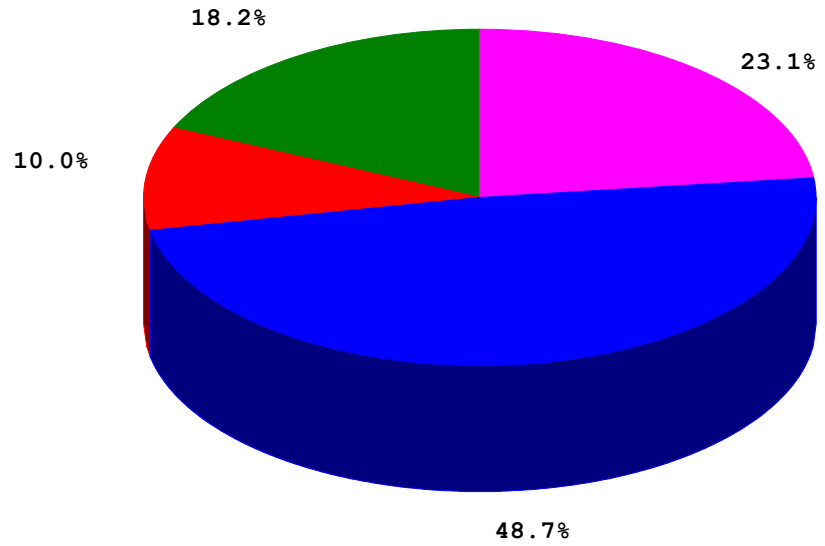
TOTAL MUD COST FOR INTERVAL: 43517.81

Operator : Apache Energy
Well Name : Grayling-1A
Field/Area : Gippsland
Description : Exploration
Location : Victoria

Cost Analysis

BREAKDOWN OF COST BY PRODUCT GROUP 29/12/2004 - 3/01/2005, 114 - 810 m

Water-Based Mud Products	$	%
1-Common Chemicals	7921.88	18.2
2-Encapsulator	4341.92	10.0
3-Visc/Fluid Loss	21186.99	48.7
4-Weight Material	10067.02	23.1
Water-Based Mud Total Cost: $	43517.81	100.0



MI SWACO

PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1A
Contractor : Diamond Offshore
Field/Area : Gippsland
Description : Exploration
Location : Victoria

SUMMARY OF PRODUCT USAGE FOR INTERVAL 4/01/2005 - 26/01/2005, 810 - 2915

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - CALCIUM CHLORIDE	25 KG BG	6	10.06	60.36
2 - DUOTEC	25 KG BG	77	194.97	15012.69
3 - OS-1	25 KG BG	36	32.42	1167.12
4 - SODA ASH	25 KG BG	13	11.63	151.19
5 - SODIUM BICARBONATE	25 KG BG	10	9.58	95.80
6 - M-I BAR BULK	1 MT BK	74	231.16	17135.89
7 - M-I GEL BULK	1 MT BK	2	246.71	557.56
8 - POTASSIUM CHLORIDE	1 MT BG	36	388.21	13975.56
9 - GLUTE 25	25 LT CN	8	91.89	735.12
10 - DEFOAM A	5 GA CN	7	67.67	473.69
11 - IDCAP D	25 KG BG	82	197.36	16183.52
12 - POTASSIUM HYDROXIDE	25 KG CN	20	30.23	604.60
13 - HIBTROL	25 KG BG	88	88.93	7825.84
14 - OMYA CARB 40	25 KG BG	48	20.08	963.84

SUB TOTAL:	74942.79
TAX:	0.00
WATER-BASED MUD TOTAL COST:	74942.79

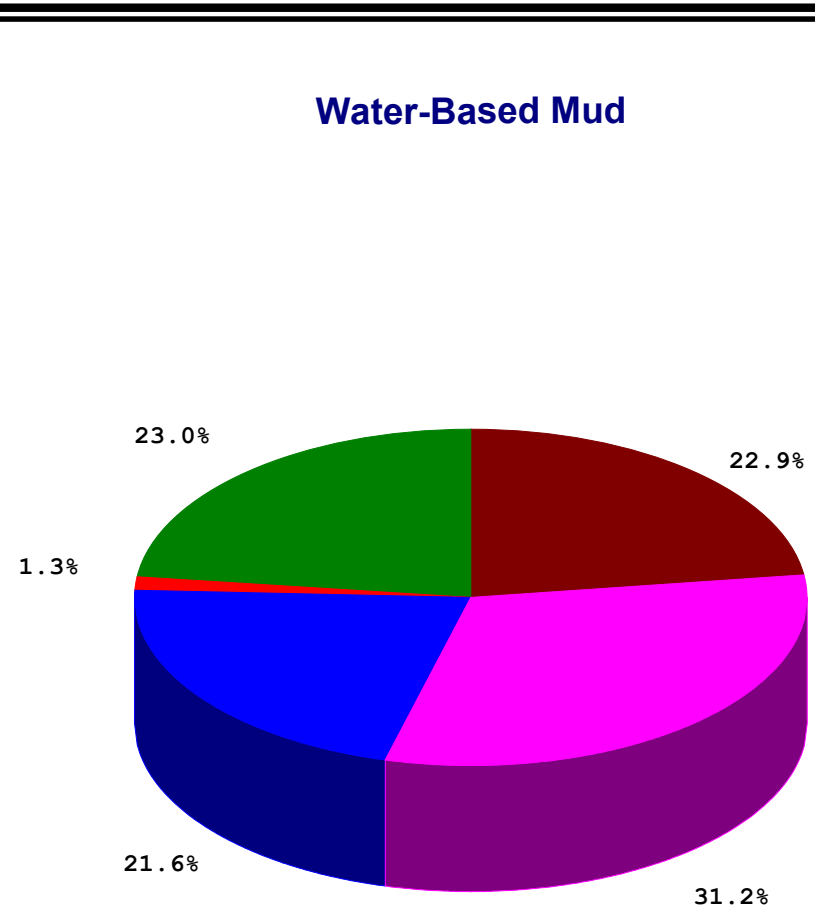
TOTAL MUD COST FOR INTERVAL: 74942.79

Operator : Apache Energy
Well Name : Grayling-1A
Field/Area : Gippsland
Description : Exploration
Location : Victoria

Cost Analysis

BREAKDOWN OF COST BY PRODUCT GROUP 4/01/2005 - 26/01/2005, 810 - 2915 m

Water-Based Mud Products	$	%
1-Common Chemicals	17263.44	23.0
2-Lost Circ Material	963.84	1.3
3-Lubricant	16183.52	21.6
4-Visc/Fluid Loss	23396.09	31.2
5-Weight Material	17135.89	22.9
Water-Based Mud Total Cost: $	74942.78	100.0



DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

DAILY VOLUME
SUMMARY SHEET

Apache Energy
GRAYLING-1A

36" Top Hole. Pre-Hydrated Gel

Hole volume zero due to SW

	Mud Volume Status m3					Mud Volume Built m3					Mud Volume Lost m3						
Date	Depth	Hole	Surf Active	Premix	Total Vol	Water	Mud Received	Bar Chems	Daily Total	Cum Built	Solids Equip	Surf	Dump	Hole	Sweeps Plugs	Daily Total	Cummul Lost
28-Dec-04	114	0	0	159.3	159.3	220.3		9.1	229.4	229.4					70.1	70.1	70.1

16" Pre-Hydrated Gel

Hole volume zero due to SW

	Mud Volume Status m3					Mud Volume Built m3					Mud Volume Lost m3						
Date	Depth	Hole	Surf Active	Premix	Total Vol	Water	Mud Received	Bar Chems	Daily Total	Cum Built	Solids Equip	Surf	Dump	Hole	Sweeps Plugs	Daily Total	Cummul Lost
29-Dec-04	490	0	0	147.2	147.2	183.2	159.3	5.8	348.3	348.3			201.1			201.1	201.1
30-Dec-04	810	0		59.4	59.4	286		23.7	309.7	658			397.5			397.5	598.6
31-Dec-04	810			84.6	84.6	66.3		3.9	70.2	728.2			45			45	643.6
1-Jan-05	810	0	0	14.3	14.3		74.3	0.5	74.8	803			2.9		142.2	145.1	788.7
2-Jan-05	810			14.3	14.3	5.3	55.2	4.2	64.7	867.7				64.7		64.7	853.4
3-Jan-05	810			14.3	14.3				0	867.7						0	853.4

8.5" KCl/Idcap D

	Mud Volume Status m3					Mud Volume Built m3							Mud Volume Lost m3							
Date	Depth	Hole	Surf Active	Res	Total Vol	Water	Mud Received	Casing Cement	Mud Built	Chemical	Bar	Daily Total	Cum Built	Solids Equip	Centrifuge	Dump	Hole	Sweeps Plugs	Other	Daily Total	Cummul Lost
4-Jan-05	810	0	0	235.5	235.5	69.9	163.2			2.4		235.5	235.5							0	0
5-Jan-05	810	0	15.4	226	241.4					5.9		5.9	241.4							0	0
6-Jan-05	1519	88.7	78.2	137.3	304.2	106				10.1		116.1	357.5			45.3		8		53.3	53.3
7-Jan-05	2325	115.5	72.2	126.5	314.2	12.2				1.1		13.3	370.8	3.3						3.3	56.6
8-Jan-05	2727	128.9	75.2	55.1	259.2					3.4		3.4	374.2	18.4		40				58.4	115
9-Jan-05	2740	137.5	67.8	48.6	253.9					2		2	376.2	7.3						7.3	122.3
10-Jan-05	2740	129.6	63.6	94.8	288	43.8				2.4		46.2	422.4	12.1						12.1	134.4
11-Jan-05	2915	135.2	72.4	62.2	269.8	7				1.3		8.3	430.7	26.5						26.5	160.9
12-Jan-05	2915	142.2	77.8	44.8	264.8					2.4		2.4	433.1	7.4						7.4	168.3
13-Jan-05	2915	143.9	74.9	44.8	263.6					3		3	436.1	4.2						4.2	172.5
14-Jan-05	2915	138	79.1	44.8	261.9							0	436.1	1.7						1.7	174.2
15-Jan-05	2915	141.9	72.9	48.6	263.4	3.2				3.8		7	443.1				5.5			5.5	179.7
16-Jan-05	2915	136.2	78.6	48.6	263.4							0	443.1							0	179.7
17-Jan-05	2915	143.9	70.7	38.2	252.8							0	443.1				10.6			10.6	190.3
18-Jan-05	2915	123.4	79.2	28.2	230.8					0.3		0.3	443.4			7.3	15			22.3	212.6
19-Jan-05	2915	128.9			128.9					0.1		0.1	443.5			102				102	314.6
20-Jan-05	2915	132.7			132.7					4.5		4.5	448			0.7				0.7	315.3

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

TOTAL
MATERIAL
COST

MI SWACO

PRODUCT SUMMARY

Operator : Apache Energy
Well Name : Grayling-1A
Contractor : Diamond Offshore
Field/Area : Gippsland
Description : Exploration
Location : Victoria

SUMMARY OF PRODUCT USAGE FOR INTERVAL 28/12/2004 - 26/01/2005, 0 -- 2915 m

WATER-BASED MUD	SIZE	AMOUNT	UNIT COST ($)	PROD COST ($)
1 - CALCIUM CHLORIDE	25 KG BG	8	10.06	80.48
2 - DUOTEC	25 KG BG	102	194.97	19886.94
3 - OS-1	25 KG BG	36	32.42	1167.12
4 - SODA ASH	25 KG BG	24	11.63	279.12
5 - CAUSTIC SODA (DRY)	25 KG DM	13	19.35	251.55
6 - SODIUM BICARBONATE	25 KG BG	12	9.58	114.96
7 - M-I BAR BULK	1 MT BK	118	231.16	27202.91
8 - M-I GEL BULK	1 MT BK	79	246.71	19423.47
9 - POTASSIUM CHLORIDE	1 MT BG	55	388.21	21351.55
10 - GLUTE 25	25 LT CN	9	91.89	827.01
11 - DEFOAM A	5 GA CN	7	67.67	473.69
12 - IDCAP D	25 KG BG	104	197.36	20525.44
13 - POTASSIUM HYDROXIDE	25 KG CN	25	30.23	755.75
14 - HIBTROL	25 KG BG	112	88.93	9960.16
15 - OMYA CARB 40	25 KG BG	48	20.08	963.84

SUB TOTAL:	123263.99
TAX:	0.00
WATER-BASED MUD TOTAL COST:	123263.99

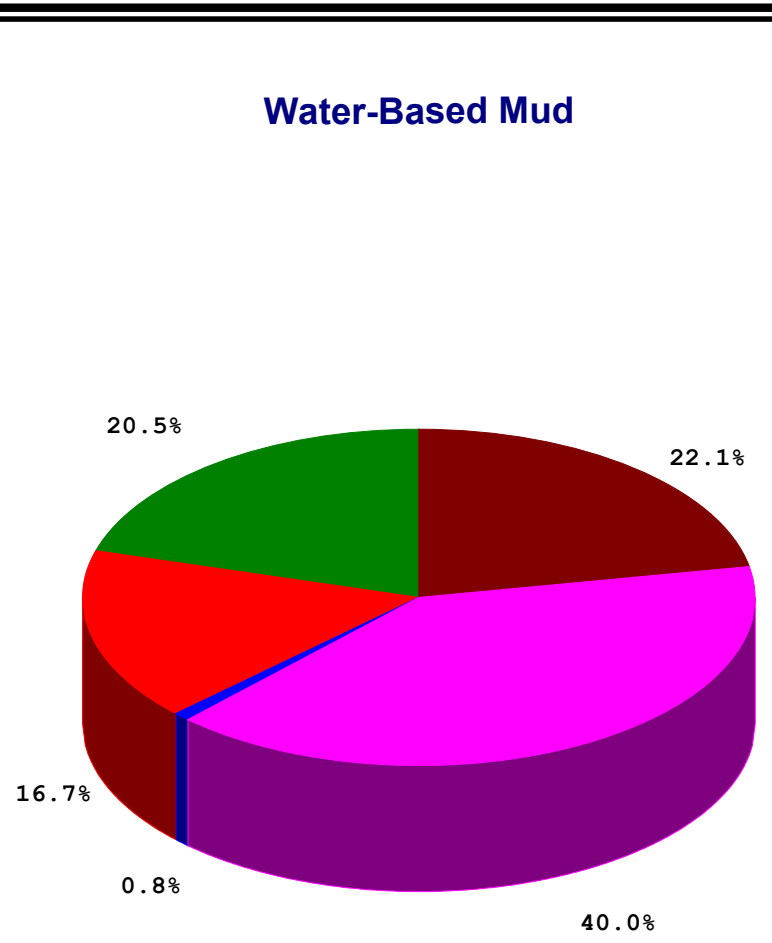
TOTAL MUD COST FOR INTERVAL: 123263.99

Operator : Apache Energy
Well Name : Grayling-1A
Field/Area : Gippsland
Description : Exploration
Location : Victoria

Cost Analysis

BREAKDOWN OF COST BY PRODUCT GROUP 28/12/2004 - 26/01/2005, 0 - 2915 m

Water-Based Mud Products	$	%
1-Common Chemicals	25301.23	20.5
2-Encapsulator	20525.44	16.7
3-Lost Circ Material	963.84	0.8
4-Visc/Fluid Loss	49270.57	40.0
5-Weight Material	27202.91	22.1
Water-Based Mud Total Cost: $	123263.99	100.0



DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

HYDRAULICS
REPORT

HYDRAULICS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		28/12/2004	29/12/2004	30/12/2004	31/12/2004	1/01/2005	2/01/2005	3/01/2005	4/01/2005
Depth	m	114	370	810	810	810	810	810	810
Days Since Spud		1	2	3	4	5	6	7	8
*RHEOLOGICAL PROPERTIES									
Mud Wt	sp.gr.	1.05	1.06	1.05	1.05	1.15	1.16	1.16	1.15
Plastic Visc	cP	24	25	27	25	13	16	16	10
Yield Point	Pa	27.5	25.	26.5	25.	11.	12.	12.	5.
3-rpm Rdg	Fann deg	27	26	30	27	8	7	7	3
np Value		.3827	.415	.4195	.415	.4557	.4854	.4854	.585
Kp Value	Pa·s^n	7.7486	6.0135	6.2369	6.0135	2.178	2.0677	2.0677	.5557
na Value		.1977	.1977	.1977	.2029	.2885	.363	.363	.3953
Ka Value	Pa·s^n	20.8686	20.0957	23.1873	20.6912	5.3319	4.1313	4.1313	1.6796
*FLOW DATA									
Flow Rate	L/min	0	4222	4222	0	0	0	0	0
Pump Pressure	kPa	0	17236	17236	0	0	0	0	0
Pump	kWatt	*	1212	*	*	*	*	*	*
*PRESSURE LOSSES									
Drill String	kPa	*	6625	*	*	*	*	*	*
Bit	kPa	*	2310	*	*	*	*	*	*
Annulus	kPa	*	138	*	*	*	*	*	*
Total System	kPa	*	9073	*	*	*	*	*	*
*BIT HYDRAULICS									
Nozzles	1/32"		7x18	7x18					
Nozzles	1/32"								
Bit Pressure	%	*	13	*	*	*	*	*	*
Bit	kWatt	*	162	*	*	*	*	*	*
Bit HSI	(index)	*	1.09	*	*	*	*	*	*
Jet Velocity	m/s	*	63	*	*	*	*	*	*
Impact Force	Newton	*	476	*	*	*	*	*	*
DRILL COLLARS ANNULUS									
Velocity	m/min	*	43	*	*	*	*	*	*
Critical Vel	m/min	*	168	*	*	*	*	*	*
Reynolds Number		*	236	*	*	*	*	*	*
Crit Re (Lam - Tran)		*	2901	*	*	*	*	*	*
*DRILL PIPE ANNULUS									
Velocity	m/min	*	36	*	*	*	*	*	*
Critical Vel	m/min	*	163	*	*	*	*	*	*
Reynolds Number		*	180	*	*	*	*	*	*
Crit Re (Lam - Tran)		*	2901	*	*	*	*	*	*
*HOLE CLEANING									
Slip Velocity	m/min	*	3	*	*	*	*	*	*
Rising Velocity	m/min	*	33	*	*	*	*	*	*
Lifting Capacity	%	*	91	*	*	*	*	*	*
Cutting Conc	%	*	0.0	*	*	*	*	*	*
Penetration Rate	m/h	0	0	0	0	0	0	0	0
CASING SHOE PRESSURES									
ECD	sp.gr.	*	1.06	*	*	*	*	*	*
ECD+Cuttings	sp.gr.	*	1.06	*	*	*	*	*	*
TOTAL DEPTH PRESSURES									
ECD	sp.gr.	*	1.09	*	*	*	*	*	*
ECD+Cuttings	sp.gr.	*	1.09	*	*	*	*	*	*

MI SWACO

HYDRAULICS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		5/01/2005	6/01/2005	7/01/2005	8/01/2005	9/01/2005	10/01/2005	11/01/2005	12/01/2005
Depth	m	810	1519	2325	2727	2740	2675	2915	820
Days Since Spud		9	10	11	12	13	14	15	16
*RHEOLOGICAL PROPERTIES									
Mud Wt	sp.gr.	1.15	1.2	1.22	1.222	1.22	1.24	1.23	1.28
Plastic Visc	cP	10	15	15	16	16	16	14	15
Yield Point	Pa	7.5	12.5	14.	14.	14.5	14.5	14.5	16.
3-rpm Rdg	Fann deg	4	7	8	9	8	8	8	8
np Value		.4854	.4594	.4317	.4475	.4389	.4389	.4066	.3996
Kp Value	Pa·s^n	1.2923	2.4316	3.1072	2.8821	3.1095	3.1095	3.6335	4.1491
na Value		.3769	.363	.3573	.3237	.3469	.3673	.3573	.3769
Ka Value	Pa·s^n	2.3078	4.1313	4.7661	5.6638	4.8474	4.6889	4.7661	4.6156
*FLOW DATA									
Flow Rate	L/min	2265	2265	2265	2265	2265	2103	2103	2103
Pump Pressure	kPa	0	16547	22300	22300	22300	22300	22300	22300
Pump	kWatt		624	841	841	841	781	781	781
*PRESSURE LOSSES									
Drill String	kPa	3226	4989	6381	7325	2840	6482	6429	3316
Bit	kPa	96563	100761	102441	102609	102441	3911	3879	4037
Annulus	kPa	101	981	1891	2279	75	2249	2401	259
Total System	kPa	99889	106732	110713	112212	105355	12642	12709	7612
*BIT HYDRAULICS									
Nozzles	1/32"	14	14	14	14	14	3x12	3x12	3x12
Nozzles	1/32"						3x13	3x13	3x13
Bit Pressure	%	*	609	459	460	459	18	17	18
Bit	kWatt	3643	3801	3864	3871	3864	137	136	141
Bit HSI	(index)	86.09	89.83	91.33	91.48	91.33	3.24	3.21	3.34
Jet Velocity	m/s	389	389	389	389	389	75	75	75
Impact Force	Newton	1722	1796	1826	1829	1826	334	331	345
DRILL COLLARS ANNULUS									
Velocity	m/min	40	148	148	148	40	138	138	138
Critical Vel	m/min	76	129	137	135	106	139	136	139
Reynolds Number		893	3162	2887	2994	505	2485	2576	2458
Crit Re (Lam - Tran)		2805	2841	2879	2857	2869	2869	2913	2923
*DRILL PIPE ANNULUS									
Velocity	m/min	14	94	94	94	14	88	88	138
Critical Vel	m/min	62	114	121	121	89	122	120	139
Reynolds Number		180	1847	1677	1681	1681	1458	1497	2458
Crit Re (Lam - Tran)		2805	2841	2879	2857	2869	2869	2913	2923
*HOLE CLEANING									
Slip Velocity	m/min	7	5	4	4	4	4	4	4
Rising Velocity	m/min	7	90	90	90	9	83	83	134
Lifting Capacity	%	52	95	95	96	68	95	95	97
Cutting Conc	%	0.0	0.0	1.13	0.42	1.75	0.46	0.46	0.45
Penetration Rate	m/h	0	0	40	15	15	15	15	15
CASING SHOE PRESSURES									
ECD	sp.gr.	1.16	1.22	1.24	1.25	1.23	1.26	1.25	1.31
ECD+Cuttings	sp.gr.	1.16	1.22	1.26	1.25	1.25	1.27	1.26	1.31
TOTAL DEPTH PRESSURES									
ECD	sp.gr.	1.16	1.27	1.3	1.31	1.25	1.33	1.31	1.31
ECD+Cuttings	sp.gr.	1.16	1.27	1.32	1.31	1.27	1.33	1.32	1.32

HYDRAULICS SUMMARY

Operator : Apache Energy
Well Name : Grayling-1A
Contractor : Diamond Offshore

Field/Area : Gippsland
Description : Exploration
Location : Victoria

Date		13/01/2005	14/01/2005	15/01/2005	16/01/2005	17/01/2005	18/01/2005		
Depth	m	2915	2915	2915	2915	2915	2915		
Days Since Spud		17	18	19	20	21	22		
*RHEOLOGICAL PROPERTIES									
Mud Wt	sp.gr.	1.32	1.32	1.32	1.32	1.32	1.32		
Plastic Visc	cP	15	16	14	14	15	15		
Yield Point	Pa	16.	15.	17.5	14.	16.	18.		
3-rpm Rdg	Fann deg	8	8	8	7	8	9		
np Value		.3996	.4306	.3626	.415	.3996	.372		
Kp Value	Pa·s^n	4.1491	3.3464	5.4496	3.3676	4.1491	5.3492		
na Value		.3769	.3673	.3863	.4054	.3769	.3705		
Ka Value	Pa·s^n	4.6156	4.6889	4.5457	3.8557	4.6156	5.2471		
*FLOW DATA									
Flow Rate	L/min	0	0	0	0	0	0		
Pump Pressure	kPa	22300	22300	22300	22300	22300	22300		
Pump	kWatt	*	*	*	*	*	*		
*PRESSURE LOSSES									
Drill String	kPa	*	*	*	*	*	*		
Bit	kPa	*	*	*	*	*	*		
Annulus	kPa	*	*	*	*	*	*		
Total System	kPa	*	*	*	*	*	*		
*BIT HYDRAULICS									
Nozzles	1/32"	3x12	3x12	3x12	3x12	3x12	3x12		
Nozzles	1/32"	3x13	3x13	3x13	3x13	3x13	3x13		
Bit Pressure	%	*	*	*	*	*	*		
Bit	kWatt	*	*	*	*	*	*		
Bit HSI	(index)	*	*	*	*	*	*		
Jet Velocity	m/s	*	*	*	*	*	*		
Impact Force	Newton	*	*	*	*	*	*		
DRILL COLLARS ANNULUS									
Velocity	m/min	*	*	*	*	*	*		
Critical Vel	m/min	*	*	*	*	*	*		
Reynolds Number		*	*	*	*	*	*		
Crit Re (Lam - Tran)		*	*	*	*	*	*		
*DRILL PIPE ANNULUS									
Velocity	m/min	*	*	*	*	*	*		
Critical Vel	m/min	*	*	*	*	*	*		
Reynolds Number		*	*	*	*	*	*		
Crit Re (Lam - Tran)		*	*	*	*	*	*		
*HOLE CLEANING									
Slip Velocity	m/min	*	*	*	*	*	*		
Rising Velocity	m/min	*	*	*	*	*	*		
Lifting Capacity	%	*	*	*	*	*	*		
Cutting Conc	%	*	*	*	*	*	*		
Penetration Rate	m/h	15	15	15	15	15	15		
CASING SHOE PRESSURES									
ECD	sp.gr.	*	*	*	*	*	*		
ECD+Cuttings	sp.gr.	*	*	*	*	*	*		
TOTAL DEPTH PRESSURES									
ECD	sp.gr.	*	*	*	*	*	*		
ECD+Cuttings	sp.gr.	*	*	*	*	*	*		

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

DRILLING
FLUIDS
SUMMARY

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		28/12/2004	29/12/2004	30/12/2004	31/12/2004	1/01/2005	2/01/2005
Depth/TVD	m	114/114	370/370	810/810	810/810	810/810	810/810
Activity		Run Casing	Drilling	Run Casing	Wiper Trip	Run Casing	iting on Equipm
Mud Type		SW/Gel Swee	SW/Gel Swee	SW/Gel Swee	SW/Gel Swee	SW/Gel Swee	KCl-Idcap
Hole Size	mm	914	406	406	406	406	406
Circ Volume	m³						
Flow Rate	L/min	0	4222	4222	0	0	0
Circ Pressure	kPa	0	17236	17236	0	0	0
Avg ROP	m/hr	0	0	0	0	0	0
Sample From		Pit 3	Pit 3	Pit 3	Pit 3	Pit 4	Pit 5
Flow Line Temp	°C						
Mud Weight	sp.gr.	1.05@20 °C	1.06@20 °C	1.05@20 °C	1.05@20 °C	1.15@20 °C	1.16@20 °C
Funnel Viscosity	s/L	> 120	> 120	> 120	> 120	53	53
PV	cP	24	25	27	25	13	16
YP	Pa	27.5	25	26.5	25	11	12
R600/R300/R200		103/79/70	100/75/66	107/80/72	100/75/68	48/35/29	56/40/34
R100/R6/R3		54/28/27	52/27/26	60/30/30	55/28/27	22/9/8	25/9/7
10s/10m/30m Gel	Pa	33/82/95	30/78/90	35/80/90	32/60/75	10/18/22	9/11/13
API Fluid Loss	cc/30 min	11	12	12	12	5.8	5.8
HTHP Fluid Loss	cc/30 min		-	-			
Cake API/HT	mm	1/	1/-	1/-	1/	1/	1/
Solids	%Vol	2	1	1	1	6.5	6.65
Oil/Water	%Vol	/98	/99	/99	/99	/93.5	/93.35
Sand	%Vol	-	-	-	-		
MBT	kg/m³	85.6	84.5	85	85	22.8	4
pH		9.2	9.5	9.5	9.5	8.5	8.5
Alkal Mud (Pm)		0.6	0.8	0.75	0.7	0	0.05
Pf/Mf		0.25/0.5	0.35/0.75	0.4/0.8	0.35/0.75	0.05/0.95	0.1/0.9
Chlorides	mg/l	800	800	800	800	37000	39000
Hardness Ca		80	80	60	80	360	360
KCl	% by Wt	-	-	-		6.5	8
Carbonates	m mole/lit	5	7	8	7	1	2
Bicarbonates	m mole/lit	15.8	11	12.6	11	15.8	31.6
Sulphite Excess	mg/l						
Daily Mud Cost	$	4803.40	3084.44	14631.94	2080.36	1277.09	22443.97
Cuml Mud Cost	$	4803.40	7887.84	22519.78	24600.14	25877.23	48321.20
Sales Engineer		Jasdeep/-	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh
Products Used		Caustic / 5	Soda / 4	Soda / 4	CaCl2 / 2	Duotec / 4	Duotec / 21
		Bicarb / 2	Caustic / 4	Caustic / 3	Caustic / 1	Soda / 3	ɜARITE / 23.84
		Gel / 19	Gel / 12	ɜARITE / 17.71	Gel / 7.89998	BARITE / 2	KCl / 16
				Gel / 37.57	Glut / 1		IDCAP / 22
				KCl / 3			KOH / 5
							Hibtrol / 24

REMARKS

28/12/2004:
29/12/2004:
30/12/2004:
31/12/2004:
1/01/2005:
2/01/2005:

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		3/01/2005	4/01/2005	5/01/2005	6/01/2005	6/01/2005	6/01/2005
Depth/TVD	m	810/810	810/810	810/810	1519/1519	1180/1180	950/950
Activity		Run Casing	Run BOP	rilling Shoe Trac	Drilling	Drilling	Drilling
Mud Type		KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap
Hole Size	mm	406	406	216	216	216	216
Circ Volume	m³			15.4	166.9	166.9	166.9
Flow Rate	L/min	0	0	2265	2265	2265	2265
Circ Pressure	kPa	0	0	0	16547	16547	16547
Avg ROP	m/hr	0	0	0	0	0	0
Sample From			Pit 4	Pit 4	Pit 3	Pit 3	Pit 3
Flow Line Temp	°C				32	27	24
Mud Weight	sp.gr.	1.16@20 °C	1.15@18 °C	1.15@20 °C	1.2@32 °C	1.175@27 °C	1.16@24 °C
Funnel Viscosity	s/L	53	40	41	52	52	46
PV	cP	16	10	10	15	14	14
YP	Pa	12	5	7.5	12.5	11	9.5
R600/R300/R200		56/40/34	30/20/16	35/25/20	55/40/33	50/36/30	47/33/27
R100/R6/R3		25/9/7	12/4/3	15/5/4	25/9/7	22/8/6	20/7/6
10s/10m/30m Gel	Pa	9/11/13	4/4/5	5/6/7	8/13/17	8/12/15	7/10/11
API Fluid Loss	cc/30 min	5.8	7	6.6	5.8	6.2	6
HTHP Fluid Loss	cc/30 min						
Cake API/HT	mm	1/	1/	1/	1/	1/	1/
Solids	%Vol	6.95	6.2	6.5	10	9.5	7
Oil/Water	%Vol	/93.05	/93.8	/93.5	/90	/90.5	/93
Sand	%Vol				1	1	0.5
MBT	kg/m³	11.4	4	4	40	25.7	20
pH		8.5	8.5	8.5	9	9	9
Alkal Mud (Pm)		0.05	0	0	0.5	0.3	0.37
Pf/Mf		0.1/0.9	0.05/0.85	0.05/0.75	0.15/0.85	0.1/0.85	0.08/0.8
Chlorides	mg/l	39000	36000	42000	50000	46000	44000
Hardness Ca		360	300	360	360	400	380
KCl	% by Wt	8	7	8	8	8	8
Carbonates	m mole/lit	2	1	1	3	2	1.6
Bicarbonates	m mole/lit	31.6	15.8	15.8	15	10	8
Sulphite Excess	mg/l				80	60	0
Daily Mud Cost	$	0.00	4072.69	7981.10	22422.97		
Cuml Mud Cost	$	48321.20	52393.89	60374.99	82797.96		
Sales Engineer		Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh	Jasdeep Singh
Products Used			Duotec / 11	Duotec / 2	Duotec / 27		
			Gel / 2.26	BARITE / 8.53	OS-1 / 12		
			KCl / 2	KCl / 7	Soda / 8		
			KOH / 2	IDCAP / 12	Bicarb / 6		
			Hibtrol / 6	Hibtrol / 6	KCl / 16		
					DefoamA / 1		
					IDCAP / 36		
					KOH / 7		
					Hibtrol / 34		

REMARKS

3/01/2005:
4/01/2005:
5/01/2005:
6/01/2005:

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		7/01/2005	7/01/2005	8/01/2005	8/01/2005	9/01/2005	9/01/2005
Depth/TVD	m	2325/2325	2009/2009	2727/2727	2604/2604	2740/2740	2740/2740
Activity		Drilling 8 1/2"	Drilling 8 1/2"	Drill 8 1/2"	Drill 8 1/2"	OOH FOR LOG	OOH FOR LOG
Mud Type		KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap
Hole Size	mm	216	216	216	216	216	216
Circ Volume	m³	187.7	187.7	204.1	204.1	205.3	205.3
Flow Rate	L/min	2265	2265	2265	2265	2265	2265
Circ Pressure	kPa	22300	22300	22300	22300	22300	22300
Avg ROP	m/hr	40	40	15	15	15	15
Sample From		Pit	Pit	Pit	Pit	Pit	Pit
Flow Line Temp	°C	43	29	50	42		50
Mud Weight	sp.gr.	1.22@28 °C	1.176@26 °C	1.222@28 °C	1.222@27 °C	1.22@26 °C	1.22@26 °C
Funnel Viscosity	s/L	51	52	57	55	50	50
PV	cP	15	13	16	16	16	16
YP	Pa	14	11.5	14	12.5	14.5	15
R600/R300/R200		58/43/36	49/36/30	60/44/38	57/41/35	61/45/38	62/46/38
R100/R6/R3		28/10/8	22/8/7	28/10/9	27/8/7	27/10/8	28/10/8
10s/10m/30m Gel	Pa	9/15/19	8/11/16	8/16/19	7/14/17	9/15/19	9/16/19
API Fluid Loss	cc/30 min	6.2	6.2	5.2	5.2	5.2	5.2
HTHP Fluid Loss	cc/30 min						
Cake API/HT	mm	1/	1/	1/	1/	1/	1/
Solids	%Vol	11	10	11	11	11	11
Oil/Water	%Vol	/89	/90	/89	/89	/89	/89
Sand	%Vol	0.5	0.25	.25	.1	.25	.25
MBT	kg/m³	26	25	28.5	35.6	30	28.5
pH		9	9	8.5	8.5	9	9
Alkal Mud (Pm)		0.4	0.45	0.25	0.25	.10	.15
Pf/Mf		0.1/0.8	0.1/0.9	0.1/0.9	0.1/1.1	0.1/1.1	0.1/1.25
Chlorides	mg/l	53500	54000	53000	53000	52500	52000
Hardness Ca		380	360	360	400	380	400
KCl	% by Wt	8	8	8	8	8.5	8.5
Carbonates	m mole/lit	2		2	2	2	2
Bicarbonates	m mole/lit	10		30	30	10	10
Sulphite Excess	mg/l	10	10	10	15	5	5
Daily Mud Cost	$	2906.84		5290.90		8087.14	
Cuml Mud Cost	$	85704.80		90995.70		99082.84	
Sales Engineer		Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike
Products Used		Duotec / 6		Duotec / 6		Duotec / 9	
		OS-1 / 12		OS-1 / 4		BARITE / 5	
		BARITE / 3		Soda / 3		DefoamA / 4	
		KOH / 4		KCl / 6		IDCAP / 19	
		Hibtrol / 6		DefoamA / 2		Hibtrol / 13	
				IDCAP / 5			
				KOH / 2			
				Hibtrol / 5			

REMARKS

7/01/2005:

8/01/2005:

9/01/2005:

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		10/01/2005	10/01/2005	11/01/2005	11/01/2005	12/01/2005	12/01/2005
Depth/TVD	m	2675/2675	2740/2740	2915/2915	2820/2820	820/820	2915/2915
Activity		Wash to Bottom	Wash to Bottom	Circ at TD	Circ at TD	POOH/Logs	POOH/Logs
Mud Type		KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap
Hole Size	mm	216	216	216	216	216	216
Circ Volume	m³	193.2	193.2	207.6	207.6	220	220
Flow Rate	L/min	2103	2103	2103	2103	2103	2103
Circ Pressure	kPa	22300	22300	22300	22300	22300	22300
Avg ROP	m/hr	15	15	15	15	15	15
Sample From		Pit	Pit	Pit	Pit	Pit	Pit
Flow Line Temp	°C	38		50	48	42	49
Mud Weight	sp.gr.	1.24@23 °C	1.25@23 °C	1.23@24 °C	1.23@23 °C	1.28@24 °C	1.23@23 °C
Funnel Viscosity	s/L	46	50	4	43	44	44
PV	cP	16	18	14	13	15	13
YP	Pa	14.5	13	14.5	15.5	16	15
R600/R300/R200		61/45/38	62/44/38	57/43/38	57/44/37	62/47/40	56/43/38
R100/R6/R3		29/10/8	27/10/8	28/10/8	28/10/8	30/10/8	28/10/8
10s/10m/30m Gel	Pa	9/16/19	9/15/19	9/15/17	9/17/19	8/15/16	9/15/18
API Fluid Loss	cc/30 min	5.2	5.2	5.2	5.2	4.8	5.2
HTHP Fluid Loss	cc/30 min						
Cake API/HT	mm	1/	1/	1/	1/	1/	1/
Solids	%Vol	11.5	11.5	11.0	11.5	12	11.5
Oil/Water	%Vol	/88.5	/88.5	/89	/88.5	/88	/88.5
Sand	%Vol	0.25	0.25	0.25	0.25	0.25	0.25
MBT	kg/m³	30	30	32	30	30	30
pH		8.5	9	9.0	8.5	8.5	9.0
Alkal Mud (Pm)		0.15	.1	.15	.15	0.1	0.15
Pf/Mf		0.1/1.2	0.1/1	0.1/1.2	0.1/1.1	0.1/1.1	0.1/1.1
Chlorides	mg/l	56000	52500	49000	55000	50000	50000
Hardness Ca		400	380	400	380	400	380
KCl	% by Wt	8.0	8.5	8	8	8	8
Carbonates	m mole/lit	2	2	2	2	2	2
Bicarbonates	m mole/lit	30	10	10	31	31	10
Sulphite Excess	mg/l	10	10	10	10	10	10
Daily Mud Cost	$	5066.47		4119.35		2311.60	
Cuml Mud Cost	$	104149.31		108268.66		110580.26	
Sales Engineer		Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike
Products Used		Duotec / 6		Duotec / 6		BARITE / 10	
		Soda / 2		OS-1 / 4			
		KCl / 4		KCl / 1			
		IDCAP / 8		Glut / 2			
		KOH / 1		IDCAP / 2			
		Hibtrol / 8		Hibtrol / 10			
				Omya40 / 48			

REMARKS

10/01/2005:

11/01/2005:

12/01/2005:

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		13/01/2005	13/01/2005	14/01/2005	14/01/2005	15/01/2005	15/01/2005
Depth/TVD	m	2915/2915	2915/2915	2915/2915	2915/2915	2915/2915	2915/2915
Activity		Run Wireline Log	Run Wireline Log	trip over RCI too	Strip over RCI too	un RCI on D.Pip	un RCI on D.Pip
Mud Type		KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap
Hole Size	mm	216	216	216	216	216	216
Circ Volume	m³	218.8	218.8	217.1	217.1	214.8	214.8
Flow Rate	L/min	0	0	0	0	0	0
Circ Pressure	kPa	22300	22300	22300	22300	22300	22300
Avg ROP	m/hr	15	15	15	15	15	15
Sample From		Pit	Pit	Pit	Pit	Pit	Pit
Flow Line Temp	°C						
Mud Weight	sp.gr.	1.32@23 °C	1.32@24 °C	1.32@24 °C	1.32@24 °C	1.32@23 °C	1.34@22 °C
Funnel Viscosity	s/L	44	44	43	43	44	44
PV	cP	15	16	16	15	14	15
YP	Pa	16	15.5	15	16	17.5	17.5
R600/R300/R200		62/47/40	63/47/40	62/46/40	62/47/40	63/49/41	65/50/41
R100/R6/R3		30/10/8	31/10/8	29/10/8	30/10/8	31/10/8	32/10/8
10s/10m/30m Gel	Pa	10/15/17	10/14/17	10/15/17	10/15/17	9/14/16	9/13/16
API Fluid Loss	cc/30 min	5.0	5.0	5.0	5.0	4.8	4.8
HTHP Fluid Loss	cc/30 min						
Cake API/HT	mm	1/	1/	1/	1/	1/	1/
Solids	%Vol	13.5	13.5	13.5	13.5	13.5	14
Oil/Water	%Vol	/86.5	/86.5	/86.5	/86.5	/86.5	/86
Sand	%Vol	0.25	0.25			0.25	0.25
MBT	kg/m³	32	30	34	32	34	34
pH		8.5	8.5	8.5	8.5	8.5	8.5
Alkal Mud (Pm)		0.15	0.1	0.15	0.1	0.15	0.15
Pf/Mf		0.1/1.1	0.1/1.1	0.1/1.2	0.1/1.1	0.1/1.2	0.1/1.2
Chlorides	mg/l	50000	50000	50000	50000	51000	50000
Hardness Ca		380	400	400	380	400	380
KCl	% by Wt	8	8	8	8	8	8
Carbonates	m mole/lit	2	2	2	2	2	2
Bicarbonates	m mole/lit	32	32	30	30	30	30
Sulphite Excess	mg/l	10	10	10	10	10	10
Daily Mud Cost	$	2912.62		0.00		3698.56	
Cuml Mud Cost	$	113492.88		113492.88		117191.44	
Sales Engineer		Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike
Products Used		BARITE / 12.6				BARITE / 16	

REMARKS

13/01/2005:

14/01/2005:

15/01/2005:

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		16/01/2005	16/01/2005	17/01/2005	17/01/2005	18/01/2005	19/01/2005
Depth/TVD	m	2915/2915	2915/2915	2915/2915	2915/2915	2915/ 2915	/
Activity		Logging with RC	Logging with RC	Run Siesmic Log	Run Siesmic Log	Plug and Abandor	Abandon/Pull BO
Mud Type		KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap	KCl-Idcap
Hole Size	mm	216	216	216	216	216	216
Circ Volume	m³	214.8	214.8	214.6	214.6	202.6	128.9
Flow Rate	L/min	0	0	0	0	0	0
Circ Pressure	kPa	22300	22300	22300	22300	22300	22300
Avg ROP	m/hr	15	15	15	15	15	15
Sample From		Pit	Pit	Pit	Pit	Pit	
Flow Line Temp	°C					44	
Mud Weight	sp.gr.	1.32@22 °C	1.32@23 °C	1.32@23 °C	1.32@22 °C	1.32@23 °C	@ °C
Funnel Viscosity	s/L	48	48	47	47	47	
PV	cP	14	13	15	14	15	
YP	Pa	14	14.5	16	14	18	
R600/R300/R200		56/42/36	55/42/36	62/47/40	56/42/36	66/51/43	/ /
R100/R6/R3		29/9/7	28/9/7	30/10/8	29/9/7	33/11/9	/ /
10s/10m/30m Gel	Pa	8/13/15	8/12/15	8/12/15	8/13/15	9/13/17	//
API Fluid Loss	cc/30 min	4.8	4.8	4.8	4.8	6.0	
HTHP Fluid Loss	cc/30 min						
Cake API/HT	mm	1/	1/	1/	1/	1/	/
Solids	%Vol	13.5	13.5	13.5	13.5	13.5	
Oil/Water	%Vol	/86.5	/86.5	/86.5	/86.5	/86.5	/
Sand	%Vol	0.25	0.25	0.25	0.25	0.25	
MBT	kg/m³	34	34	34	34	34	
pH		8.5	8.5	8.5	8.5	10	
Alkal Mud (Pm)		0.15	0.1	0.1	0.15	3.0	
Pf/Mf		0.1/1.2	0.1/1.2	0.1/1.2	0.1/1.2	0.5/1.4	/
Chlorides	mg/l	50000	51000	50000	51000	50000	
Hardness Ca		400	380	400	380	420	
KCl	% by Wt	8	8	8	8	8	
Carbonates	m mole/lit	2	2	2	2	9.9	
Bicarbonates	m mole/lit	30	30	30	30	5.0	
Sulphite Excess	mg/l	10	10	10	10	10	
Daily Mud Cost	$	0.00		0.00		1407.33	152.25
Cuml Mud Cost	$	117191.44		117191.44		118598.77	118751.02
Sales Engineer		Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike
Products Used						Duotec / 4	CaCl2 / 6
						OS-1 / 4	Glut / 1
						Bicarb / 4	
						Glut / 5	

REMARKS

16/01/2005:

17/01/2005:

18/01/2005:
19/01/2005:

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		20/01/2005	21/01/2005	22/01/2005	23/01/2005	24/01/2005	25/01/2005
Depth/TVD	m	/	/	/	/	/	/
Activity		Cut surface casing	rayling-1 abandc	rayling-1 abandc	rayling-1 Abandc	rayling-1 Abandc	rayling-1 Abandc
Mud Type		KCl-Idcap	KCl-Idcap	KCl-Idcap	N/A	N/A	N/A
Hole Size	mm	216	216	216	216	216	216
Circ Volume	m³	132.7	132.7	132.7	132.7	132.7	132.7
Flow Rate	L/min	0	0	0	0	0	0
Circ Pressure	kPa	22300	22300	22300	22300	22300	22300
Avg ROP	m/hr	15	15	15	15	15	15
Sample From							
Flow Line Temp	°C						
Mud Weight	sp.gr.	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C
Funnel Viscosity	s/L						
PV	cP						
YP	Pa						
R600/R300/R200		/ /	/ /	/ /	/ /	/ /	/ /
R100/R6/R3		/ /	/ /	/ /	/ /	/ /	/ /
10s/10m/30m Gel	Pa	//	//	//	//	//	//
API Fluid Loss	cc/30 min						
HTHP Fluid Loss	cc/30 min						
Cake API/HT	mm	/	/	/	/	/	/
Solids	%Vol						
Oil/Water	%Vol	/	/	/	/	/	/
Sand	%Vol						
MBT	kg/m³						
pH							
Alkal Mud (Pm)							
Pf/Mf		/	/	/	/	/	/
Chlorides	mg/l						
Hardness Ca							
KCl	% by Wt						
Carbonates	m mole/lit						
Bicarbonates	m mole/lit						
Sulphite Excess	mg/l						
Daily Mud Cost	$	4392.04	0.00	0.00	0.00	0.00	120.92
Cuml Mud Cost	$	123143.06	123143.06	123143.06	123143.06	123143.06	123263.98
Sales Engineer		Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike	Geoff Pike
Products Used		BARITE / 19					KOH / 4

REMARKS

20/01/2005:
21/01/2005:
22/01/2005:
23/01/2005:
24/01/2005:
25/01/2005:

DRILLING FLUIDS SUMMARY

Operator : Apache Energy
Field/Area : Gippsland
Well Name : Grayling-1A
Description : Exploration
Contractor : Diamond Offshore
Location : Victoria

Date		26/01/2005
Depth/TVD	m	/
Activity		rayling-1 Abandc
Mud Type		N/A
Hole Size	mm	216
Circ Volume	m³	132.7
Flow Rate	L/min	0
Circ Pressure	kPa	22300
Avg ROP	m/hr	15
Sample From		
Flow Line Temp	°C	
Mud Weight	sp.gr.	@ °C
Funnel Viscosity	s/L	
PV	cP	
YP	Pa	
R600/R300/R200		/ /
R100/R6/R3		/ /
10s/10m/30m Gel	Pa	//
API Fluid Loss	cc/30 min	
HTHP Fluid Loss	cc/30 min	
Cake API/HT	mm	/
Solids	%Vol	
Oil/Water	%Vol	/
Sand	%Vol	
MBT	kg/m³	
pH		
Alkal Mud (Pm)		
Pf/Mf		/
Chlorides	mg/l	
Hardness Ca		
KCl	% by Wt	
Carbonates	m mole/lit	
Bicarbonates	m mole/lit	
Sulphite Excess	mg/l	
Daily Mud Cost	$	0.00
Cuml Mud Cost	$	123263.98
Sales Engineer		Geoff Pike
Products Used		

REMARKS

26/01/2005:

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

PRODUCT CONSUMPTION

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1A
Location : Victoria
Field/Area: Gippsland

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

		DATES										
Product	Product	Dec 28, 2004		Dec 29, 2004		Dec 30, 2004		Dec 31, 2004		Jan 1, 2005		Page
Name	Price	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	10.06		0.00		0.00		0.00	2	20.12		0.00	20.12
CITRIC ACID	35.51		0.00		0.00		0.00		0.00		0.00	0.00
DUOTEC	194.97		0.00		0.00		0.00		0.00	4	779.88	779.88
LIME	8.95		0.00		0.00		0.00		0.00		0.00	0.00
OS-1	32.42		0.00		0.00		0.00		0.00		0.00	0.00
SODA ASH	11.63		0.00	4	46.52	4	46.52		0.00	3	34.89	127.93
MIX II MEDIUM	26.19		0.00		0.00		0.00		0.00		0.00	0.00
CAUSTIC SODA (DRY)	19.35	5	96.75	4	77.40	3	58.05	1	19.35		0.00	251.55
KWIK SEAL FINE	27.08		0.00		0.00		0.00		0.00		0.00	0.00
SODIUM BICARBONATE	9.58	2	19.16		0.00		0.00		0.00		0.00	19.16
M-I BAR BULK	231.16		0.00		0.00	18	4093.84		0.00	2	462.32	4556.16
M-I GEL BULK	246.71	19	4687.49	12	2960.52	38	9268.89	8	1949.00		0.00	18865.90
POTASSIUM CHLORIDE	388.21		0.00		0.00	3	1164.63		0.00		0.00	1164.63
GUAR GUM	60.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I BAR	4.51		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL NT	9.18		0.00		0.00		0.00		0.00		0.00	0.00
PIPE-LAX W	342.92		0.00		0.00		0.00		0.00		0.00	0.00
GLUTE 25	91.89		0.00		0.00		0.00	1	91.89		0.00	91.89
KWIK SEAL MEDIUM	27.08		0.00		0.00		0.00		0.00		0.00	0.00
MIX II FINE	25.15		0.00		0.00		0.00		0.00		0.00	0.00
DEFOAM A	67.67		0.00		0.00		0.00		0.00		0.00	0.00
IDCAP D	197.36		0.00		0.00		0.00		0.00		0.00	0.00
POTASSIUM HYDROXIDE	30.23		0.00		0.00		0.00		0.00		0.00	0.00
HIBTROL	88.93		0.00		0.00		0.00		0.00		0.00	0.00
OMYA CARB 40	20.08		0.00		0.00		0.00		0.00		0.00	0.00
POLYPAC UL	88.72		0.00		0.00		0.00		0.00		0.00	0.00
POLY PLUS LIQUID	75.81		0.00		0.00		0.00		0.00		0.00	0.00
Cumulative Engineering			0.00		0.00		0.00		0.00		0.00	0.00
Daily Product			4803.40		3084.44		14631.94		2080.36		1277.09	25877.23
Daily Sales Tax			0		0		0		0		0	0.00
Cumulative Product			4803.40		7887.84		22519.78		24600.14		25877.23	25877.23
Cumulative Cost			4803.40		7887.84		22519.78		24600.14		25877.23	25877.23

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1A
Location : Victoria
Field/Area: Gippsland

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

	DATES											
Product	Previous	Jan 2, 2005		Jan 3, 2005		Jan 4, 2005		Jan 5, 2005		Jan 6, 2005		Page
Name	Page	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	20.12		0.00		0.00		0.00		0.00		0.00	20.12
CITRIC ACID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DUOTEC	779.88	21	4094.37		0.00	11	2144.67	2	389.94	27	5264.19	12673.05
LIME	0.00		0.00		0.00		0.00		0.00		0.00	0.00
OS-1	0.00		0.00		0.00		0.00		0.00	12	389.04	389.04
SODA ASH	127.93		0.00		0.00		0.00		0.00	8	93.04	220.97
MIX II MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
CAUSTIC SODA (DRY)	251.55		0.00		0.00		0.00		0.00		0.00	251.55
KWIK SEAL FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
SODIUM BICARBONATE	19.16		0.00		0.00		0.00		0.00	6	57.48	76.64
M-I BAR BULK	4556.16	24	5510.85		0.00		0.00	9	1971.79		0.00	12038.80
M-I GEL BULK	18865.9		0.00		0.00	2	557.56		0.00		0.00	19423.46
POTASSIUM CHLORIDE	1164.63	16	6211.36		0.00	2	776.42	7	2717.47	16	6211.36	17081.24
GUAR GUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I BAR	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL NT	0.00		0.00		0.00		0.00		0.00		0.00	0.00
PIPE-LAX W	0.00		0.00		0.00		0.00		0.00		0.00	0.00
GLUTE 25	91.89		0.00		0.00		0.00		0.00		0.00	91.89
KWIK SEAL MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
MIX II FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DEFOAM A	0.00		0.00		0.00		0.00		0.00	1	67.67	67.67
IDCAP D	0.00	22	4341.92		0.00		0.00	12	2368.32	36	7104.96	13815.20
POTASSIUM HYDROXIDE	0.00	5	151.15		0.00	2	60.46		0.00	7	211.61	423.22
HIBTROL	0.00	24	2134.32		0.00	6	533.58	6	533.58	34	3023.62	6225.10
OMYA CARB 40	0.00		0.00		0.00		0.00		0.00		0.00	0.00
POLYPAC UL	0.00		0.00		0.00		0.00		0.00		0.00	0.00
POLY PLUS LIQUID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Cumulative Engineering			0.00		0.00		0.00		0.00		0.00	0.00
Daily Product			22443.97		0.00		4072.69		7981.10		22422.97	82797.96
Daily Sales Tax			0		0		0		0		0	0.00
Cumulative Product			48321.20		48321.20		52393.89		60374.99		82797.96	82797.96
Cumulative Cost			48321.20		48321.20		52393.89		60374.99		82797.96	82797.96

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1A
Location : Victoria
Field/Area: Gippsland

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

	DATES											
Product	Previous	Jan 7, 2005		Jan 8, 2005		Jan 9, 2005		Jan 10, 2005		Jan 11, 2005		Page
Name	Page	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	20.12		0.00		0.00		0.00		0.00		0.00	20.12
CITRIC ACID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DUOTEC	12673.0	6	1169.82	6	1169.82	9	1754.73	6	1169.82	6	1169.82	19107.06
LIME	0.00		0.00		0.00		0.00		0.00		0.00	0.00
OS-1	389.04	12	389.04	4	129.68		0.00		0.00	4	129.68	1037.44
SODA ASH	220.97		0.00	3	34.89		0.00	2	23.26		0.00	279.12
MIX II MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
CAUSTIC SODA (DRY)	251.55		0.00		0.00		0.00		0.00		0.00	251.55
KWIK SEAL FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
SODIUM BICARBONATE	76.64		0.00		0.00		0.00		0.00		0.00	76.64
M-I BAR BULK	12038.8	3	693.48		0.00	5	1155.80		0.00		0.00	13888.08
M-I GEL BULK	19423.4		0.00		0.00		0.00		0.00		0.00	19423.46
POTASSIUM CHLORIDE	17081.2		0.00	6	2329.26		0.00	4	1552.84	1	388.21	21351.55
GUAR GUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I BAR	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL NT	0.00		0.00		0.00		0.00		0.00		0.00	0.00
PIPE-LAX W	0.00		0.00		0.00		0.00		0.00		0.00	0.00
GLUTE 25	91.89		0.00		0.00		0.00		0.00	2	183.78	275.67
KWIK SEAL MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
MIX II FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DEFOAM A	67.67		0.00	2	135.34	4	270.68		0.00		0.00	473.69
IDCAP D	13815.2		0.00	5	986.80	19	3749.84	8	1578.88	2	394.72	20525.44
POTASSIUM HYDROXIDE	423.22	4	120.92	2	60.46		0.00	1	30.23		0.00	634.83
HIBTROL	6225.10	6	533.58	5	444.65	13	1156.09	8	711.44	10	889.30	9960.16
OMYA CARB 40	0.00		0.00		0.00		0.00		0.00	48	963.84	963.84
POLYPAC UL	0.00		0.00		0.00		0.00		0.00		0.00	0.00
POLY PLUS LIQUID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Cumulative Engineering			0.00		0.00		0.00		0.00		0.00	0.00
Daily Product			2906.84		5290.90		8087.14		5066.47		4119.35	108268.66
Daily Sales Tax			0		0		0		0		0	0.00
Cumulative Product			85704.80		90995.70		99082.84		104149.31		108268.66	108268.66
Cumulative Cost			85704.80		90995.70		99082.84		104149.31		108268.66	108268.66

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1A
Location : Victoria
Field/Area: Gippsland

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

	DATES											
Product	Previous	Jan 12, 2005		Jan 13, 2005		Jan 14, 2005		Jan 15, 2005		Jan 16, 2005		Page
Name	Page	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	20.12		0.00		0.00		0.00		0.00		0.00	20.12
CITRIC ACID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DUOTEC	19107.0		0.00		0.00		0.00		0.00		0.00	19107.06
LIME	0.00		0.00		0.00		0.00		0.00		0.00	0.00
OS-1	1037.44		0.00		0.00		0.00		0.00		0.00	1037.44
SODA ASH	279.12		0.00		0.00		0.00		0.00		0.00	279.12
MIX II MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
CAUSTIC SODA (DRY)	251.55		0.00		0.00		0.00		0.00		0.00	251.55
KWIK SEAL FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
SODIUM BICARBONATE	76.64		0.00		0.00		0.00		0.00		0.00	76.64
M-I BAR BULK	13888.0	10	2311.60	13	2912.62		0.00	16	3698.56		0.00	22810.86
M-I GEL BULK	19423.4		0.00		0.00		0.00		0.00		0.00	19423.46
POTASSIUM CHLORIDE	21351.5		0.00		0.00		0.00		0.00		0.00	21351.55
GUAR GUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I BAR	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL NT	0.00		0.00		0.00		0.00		0.00		0.00	0.00
PIPE-LAX W	0.00		0.00		0.00		0.00		0.00		0.00	0.00
GLUTE 25	275.67		0.00		0.00		0.00		0.00		0.00	275.67
KWIK SEAL MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
MIX II FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DEFOAM A	473.69		0.00		0.00		0.00		0.00		0.00	473.69
IDCAP D	20525.4		0.00		0.00		0.00		0.00		0.00	20525.44
POTASSIUM HYDROXIDE	634.83		0.00		0.00		0.00		0.00		0.00	634.83
HIBTROL	9960.16		0.00		0.00		0.00		0.00		0.00	9960.16
OMYA CARB 40	963.84		0.00		0.00		0.00		0.00		0.00	963.84
POLYPAC UL	0.00		0.00		0.00		0.00		0.00		0.00	0.00
POLY PLUS LIQUID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Cumulative Engineering			0.00		0.00		0.00		0.00		0.00	0.00
Daily Product			2311.60		2912.62		0.00		3698.56		0.00	117191.44
Daily Sales Tax			0		0		0		0		0	0.00
Cumulative Product			110580.26		113492.88		113492.88		117191.44		117191.44	117191.44
Cumulative Cost			110580.26		113492.88		113492.88		117191.44		117191.44	117191.44

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1A
Location : Victoria
Field/Area: Gippsland

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

	DATES											
Product	Previous	Jan 17, 2005		Jan 18, 2005		Jan 19, 2005		Jan 20, 2005		Jan 21, 2005		Page
Name	Page	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	20.12		0.00		0.00	6	60.36		0.00		0.00	80.48
CITRIC ACID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DUOTEC	19107.0		0.00	4	779.88		0.00		0.00		0.00	19886.94
LIME	0.00		0.00		0.00		0.00		0.00		0.00	0.00
OS-1	1037.44		0.00	4	129.68		0.00		0.00		0.00	1167.12
SODA ASH	279.12		0.00		0.00		0.00		0.00		0.00	279.12
MIX II MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
CAUSTIC SODA (DRY)	251.55		0.00		0.00		0.00		0.00		0.00	251.55
KWIK SEAL FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
SODIUM BICARBONATE	76.64		0.00	4	38.32		0.00		0.00		0.00	114.96
M-I BAR BULK	22810.8		0.00		0.00		0.00	19	4392.04		0.00	27202.90
M-I GEL BULK	19423.4		0.00		0.00		0.00		0.00		0.00	19423.46
POTASSIUM CHLORIDE	21351.5		0.00		0.00		0.00		0.00		0.00	21351.55
GUAR GUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I BAR	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL NT	0.00		0.00		0.00		0.00		0.00		0.00	0.00
PIPE-LAX W	0.00		0.00		0.00		0.00		0.00		0.00	0.00
GLUTE 25	275.67		0.00	5	459.45	1	91.89		0.00		0.00	827.01
KWIK SEAL MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
MIX II FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DEFOAM A	473.69		0.00		0.00		0.00		0.00		0.00	473.69
IDCAP D	20525.4		0.00		0.00		0.00		0.00		0.00	20525.44
POTASSIUM HYDROXIDE	634.83		0.00		0.00		0.00		0.00		0.00	634.83
HIBTROL	9960.16		0.00		0.00		0.00		0.00		0.00	9960.16
OMYA CARB 40	963.84		0.00		0.00		0.00		0.00		0.00	963.84
POLYPAC UL	0.00		0.00		0.00		0.00		0.00		0.00	0.00
POLY PLUS LIQUID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Cumulative Engineering			0.00		0.00		0.00		0.00		0.00	0.00
Daily Product			0.00		1407.33		152.25		4392.04		0.00	123143.06
Daily Sales Tax			0		0		0		0		0	0.00
Cumulative Product			117191.44		118598.77		118751.02		123143.06		123143.06	123143.06
Cumulative Cost			117191.44		118598.77		118751.02		123143.06		123143.06	123143.06

Product Consumption

Operator : Apache Energy
Well Name : Grayling-1A
Location : Victoria
Field/Area: Gippsland

Contractor: Diamond Offshore
M-I Engineer: Jasdeep Singh
Rig Name: Ocean Patriot
Stock Point: Melbourne

	DATES											
Product	Previous	Jan 22, 2005		Jan 23, 2005		Jan 24, 2005		Jan 25, 2005		Jan 26, 2005		Page
Name	Page	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Totals
CALCIUM CHLORIDE	80.48		0.00		0.00		0.00		0.00		0.00	80.48
CITRIC ACID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DUOTEC	19886.9		0.00		0.00		0.00		0.00		0.00	19886.94
LIME	0.00		0.00		0.00		0.00		0.00		0.00	0.00
OS-1	1167.12		0.00		0.00		0.00		0.00		0.00	1167.12
SODA ASH	279.12		0.00		0.00		0.00		0.00		0.00	279.12
MIX II MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
CAUSTIC SODA (DRY)	251.55		0.00		0.00		0.00		0.00		0.00	251.55
KWIK SEAL FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
SODIUM BICARBONATE	114.96		0.00		0.00		0.00		0.00		0.00	114.96
M-I BAR BULK	27202.9		0.00		0.00		0.00		0.00		0.00	27202.90
M-I GEL BULK	19423.4		0.00		0.00		0.00		0.00		0.00	19423.46
POTASSIUM CHLORIDE	21351.5		0.00		0.00		0.00		0.00		0.00	21351.55
GUAR GUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I BAR	0.00		0.00		0.00		0.00		0.00		0.00	0.00
M-I GEL NT	0.00		0.00		0.00		0.00		0.00		0.00	0.00
PIPE-LAX W	0.00		0.00		0.00		0.00		0.00		0.00	0.00
GLUTE 25	827.01		0.00		0.00		0.00		0.00		0.00	827.01
KWIK SEAL MEDIUM	0.00		0.00		0.00		0.00		0.00		0.00	0.00
MIX II FINE	0.00		0.00		0.00		0.00		0.00		0.00	0.00
DEFOAM A	473.69		0.00		0.00		0.00		0.00		0.00	473.69
IDCAP D	20525.4		0.00		0.00		0.00		0.00		0.00	20525.44
POTASSIUM HYDROXIDE	634.83		0.00		0.00		0.00	4	120.92		0.00	755.75
HIBTROL	9960.16		0.00		0.00		0.00		0.00		0.00	9960.16
OMYA CARB 40	963.84		0.00		0.00		0.00		0.00		0.00	963.84
POLYPAC UL	0.00		0.00		0.00		0.00		0.00		0.00	0.00
POLY PLUS LIQUID	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Cumulative Engineering			0.00		0.00		0.00		0.00		0.00	0.00
Daily Product			0.00		0.00		0.00		120.92		0.00	123263.98
Daily Sales Tax			0		0		0		0		0	0.00
Cumulative Product			123143.06		123143.06		123143.06		123263.98		123263.98	123263.98
Cumulative Cost			123143.06		123143.06		123143.06		123263.98		123263.98	123263.98

DRILLING FLUIDS RECAP FOR APACHE ENERGY
GRAYLING 1A

DAILY
MUD
REPORTS

WATER-BASED MUD REPORT No. 1

Date	28/12/2004	**Depth/TVD**	114 m / 114 m
Spud Date	28/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	59	**Activity**	Run Casing

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 914 mm 26" w/ 36" HO		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 1/32"			22.3	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
mm	m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
mm	m		294.3	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 3@18:30	
Flow Line Temp	°C		
Depth/TVD	m	114/114	
Mud Weight	sp.gr.	1.05@20°C	
Funnel Viscosity	s/L	> 120	
Rheology Temp	°C	49	
R600/R300		103/79	
R200/R100		70/54	
R6/R3		28/27	
PV	cP	24	
YP	Pa	27.5	
10s/10m/30m Gel	Pa	33/82/95	
API Fluid Loss	cc/30 min	11	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	2	
Oil/Water	%Vol	/98	
Sand	%Vol	-	
MBT	kg/m³	85.6	
pH		9.2	
Alkal Mud (Pm)		0.6	
Pf/Mf		0.25/0.5	
Chlorides	mg/l	800	
Hardness Ca	mg/l	80	
KCl	% by Wt	-	
Carbonates	m mole/lit	5	
Bicarbonates	m mole/lit	15.8	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
CAUSTIC SODA (DRY)	25 KG DM	5
SODIUM BICARBONATE	25 KG BG	2
M-I GEL BULK	1 MT BK	19

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Mixed PHG in Pits 1, 2 & 3. Pit 4 & 5 contains 134.9 m3 KCl-IDCAP mud mixed on Grayling-1, to be used in 8.5" section. Pumped 50 bbl PHG sweeps every single & displaced hole to PHG prior to POOH.

REMARKS

Skidded rig 20m/20m to Grayling 1A. WOW to do ROV survey. Made up 36" BHA and spud at 16:30 Hrs. Drill to 114 m. POOH.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service	19.5	Oil Added	0	NaCl	./ 1.3	np/na Values	
Drilling	2	Water Added	220.3	KCl	./ .	kp/ka (Pa·s^n)	
Tripping	2.5	Mud Received	134.9	Low Gravity	3.1/ 79.6	Bit Loss (kPa / %)	
Non-Productive Tim		Left in Hole	0	Bentonite	3.3/ 86.4	Bit HHP (kWatt / HSI)	
		Other	0	Drill Solids	-.3/ -6.8	Bit Jet Vel (m/s)	
		Sweeps	70.1	Weight Material	NA/ NA	Ann. Vel DP (m/min)	
		Dump at Sea Bed	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Dumped	0	Inert/React	-.0702	Crit Vel DP (m/min)	
				Average SG	2.6	Crit Vel DC (m/min)	
				Carb/BiCarb (m mole/L)	5./ 15.8		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
- Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 4,803.40	$ 4,803.40

WATER-BASED MUD REPORT No. 2

Date	29/12/2004	**Depth/TVD**	430 m / 430 m
Spud Date	28/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	59	**Activity**	Drilling

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY

Bit Size 406 mm Hycalog Tricone			
Nozzles 7x18 / 1/32"			
Drill Pipe Size	Length		
127 mm	202 m		
Drill Pipe Size	Length		
127 mm	138 m		
Drill Collar Size	Length		
203 mm	90 m		

CASING

Surface
Intermediate
Intermediate
Production or Liner

MUD VOLUME (m³)

Hole
50.6
Active Pits
Total Circulating Vol
50.6
In Storage
282.2

CIRCULATION DATA

Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Pump Cap	16.176 L/stk	16.176 L/stk
Pump stk/min	87@97%	87@97%
Flow Rate	4222 L/min	
Bottoms Up	11.3 min	2953 stk
Total Circ Time	12 min	3127 stk
Circulating Pressure	17236 kPa	

MUD PROPERTIES

Sample From		Pit 3@18:00	
Flow Line Temp	°C		
Depth/TVD	m	370/370	
Mud Weight	sp.gr.	1.06@20°C	
Funnel Viscosity	s/L	> 120	
Rheology Temp	°C	49	
R600/R300		100/75	
R200/R100		66/52	
R6/R3		27/26	
PV	cP	25	
YP	Pa	25.	
10s/10m/30m Gel	Pa	30/78/90	
API Fluid Loss	cc/30 min	12	
HTHP FL Temp	cc/30 min	-@-°C	
Cake API/HTHP	mm	1/-	
Solids	%Vol	1	
Oil/Water	%Vol	/99	
Sand	%Vol	-	
MBT	kg/m³	84.5	
pH		9.5	
Alkal Mud (Pm)		0.8	
Pf/Mf		0.35/0.75	
Chlorides	mg/l	800	
Hardness Ca	mg/l	80	
KCl	% by Wt	-	
Carbonates	m mole/lit	7	
Bicarbonates	m mole/lit	11	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
SODA ASH	25 KG BG	4
CAUSTIC SODA (DRY)	25 KG DM	4
M-I GEL BULK	1 MT BK	12

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Continued to mix PHG in Pit 1, 2 & 3. Pumped 30 bbl PHG mid stand and 50 bbl on connections.

REMARKS

Run and cemented casing at 112.37 m. Made up 16 inch BHA and drilled to 430 m.

TIME DISTR	Last 24 Hrs
Rig Up/Service	
Drilling	
Tripping	
Non-Productive Tim	

MUD VOL ACCTG	(m³)
Oil Added	0
Water Added	183.2
Mud Received	0
Dumped	0
Left in Hole	0
Other	0
Sweeps	201.1
Dump at Sea Bed	0

SOLIDS ANALYSIS (%/kg/m³)	
NaCl	./ 1.3
KCl	./ .
Low Gravity	3.7/ 95.8
Bentonite	3.3/ 84.5
Drill Solids	.4/ 11.3
Weight Material	NA/ NA
Chemical Conc	- / .
Inert/React	.1341
Average SG	2.6
Carb/BiCarb (m mole/L)	7./ 11.

MUD RHEOLOGY & HYDRAULICS	
np/na Values	0.415/0.198
kp/ka (Pa·s^n)	2.879/9.622
Bit Loss (kPa / %)	2310 / 13.4
Bit HHP (kWatt / HSI)	162 / 1.1
Bit Jet Vel (m/s)	63
Ann. Vel DP (m/min)	36.15
Ann. Vel DC (m/min)	43.49
Crit Vel DP (m/min)	163
Crit Vel DC (m/min)	168
ECD @ 430 (sp.gr.)	1.09

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 3,084.44	$ 7,887.84

WATER-BASED MUD REPORT No. 3

Date	30/12/2004	**Depth/TVD**	810 m / 810 m
Spud Date	28/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	59	**Activity**	Run Casing

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 406 mm Hycalog Tricone		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 7x18 / 1/32"			103.2	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size mm	Length m	Intermediate	Active Pits	Pump Cap	16.176 L/stk	16.176 L/stk
				Pump stk/min	87@97%	87@97%
Drill Pipe Size mm	Length m	Intermediate	Total Circulating Vol	Flow Rate	4222 L/min	
				Bottoms Up	min 0 stk	
Drill Collar Size mm	Length m	Production or Liner	In Storage 194.4	Total Circ Time	min 1 stk	
				Circulating Pressure	17236 kPa	

MUD PROPERTIES

Sample From		Pit 3@14:30	
Flow Line Temp	°C		
Depth/TVD	m	810/810	
Mud Weight	sp.gr.	1.05@20°C	
Funnel Viscosity	s/L	> 120	
Rheology Temp	°C	49	
R600/R300		107/80	
R200/R100		72/60	
R6/R3		30/30	
PV	cP	27	
YP	Pa	26.5	
10s/10m/30m Gel	Pa	35/80/90	
API Fluid Loss	cc/30 min	12	
HTHP FL Temp	cc/30 min	-@-°C	
Cake API/HTHP	mm	1/-	
Solids	%Vol	1	
Oil/Water	%Vol	/99	
Sand	%Vol	-	
MBT	kg/m³	85	
pH		9.5	
Alkal Mud (Pm)		0.75	
Pf/Mf		0.4/0.8	
Chlorides	mg/l	800	
Hardness Ca	mg/l	60	
KCl	% by Wt	-	
Carbonates	m mole/lit	8	
Bicarbonates	m mole/lit	12.6	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
SODA ASH	25 KG BG	4
CAUSTIC SODA (DRY)	25 KG DM	3
M-I BAR BULK	1 MT BK	18
M-I GEL BULK	1 MT BK	38
POTASSIUM CHLORIDE	1 MT BG	3

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Continued Gel sweep regime as per drilling conditions. Saved 200 bbl of PHG for filling casing.

REMARKS

Drilled to section TD of 810 m. Pumped 150 bbl sweep & displaced hole with 300 bbl PHG & 320 bbl of 9.6 ppg PHG containing 5% KCl. POOH.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	./ 1.3	np/na Values	
Drilling		Water Added	286	KCl	./ .	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	3.1/ 79.6	Bit Loss (kPa / %)	
Non-Productive Tim		Dumped	0	Bentonite	3.3/ 85.	Bit HHP (kWatt / HSI)	
		Left in Hole	0	Drill Solids	-.2/ -5.4	Bit Jet Vel (m/s)	
		Other	0	Weight Material	NA/ NA	Ann. Vel DP (m/min)	
		Sweeps	397.5	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Dump at Sea Bed	0	Inert/React	-.0636	Crit Vel DP (m/min)	
				Average SG	2.6	Crit Vel DC (m/min)	
				Carb/BiCarb (m mole/L)	8./ 12.6		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 14,631.94	$ 22,519.78

WATER-BASED MUD REPORT No. 4

Date	31/12/2004	**Depth/TVD**	810 m / 810 m
Spud Date	28/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	59	**Activity**	Wiper Trip

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 406 mm Hycalog Tricone		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 1/32"			103.2	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
mm	m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
mm	m		244.6	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 3@21:00	
Flow Line Temp	°C		
Depth/TVD	m	810/810	
Mud Weight	sp.gr.	1.05@20°C	
Funnel Viscosity	s/L	> 120	
Rheology Temp	°C	49	
R600/R300		100/75	
R200/R100		68/55	
R6/R3		28/27	
PV	cP	25	
YP	Pa	25.	
10s/10m/30m Gel	Pa	32/60/75	
API Fluid Loss	cc/30 min	12	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	1	
Oil/Water	%Vol	/99	
Sand	%Vol	-	
MBT	kg/m³	85	
pH		9.5	
Alkal Mud (Pm)		0.7	
Pf/Mf		0.35/0.75	
Chlorides	mg/l	800	
Hardness Ca	mg/l	80	
KCl	% by Wt		
Carbonates	m mole/lit	7	
Bicarbonates	m mole/lit	11	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
CALCIUM CHLORIDE	25 KG BG	2
CAUSTIC SODA (DRY)	25 KG DM	1
M-I GEL BULK	1 MT BK	8
GLUTE 25	25 LT CN	1

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Filled casing with 45 m3 of PHG during casing and washing down casing.
Mixed 84.6 m3 more Gel with the available bentonite on board.

REMARKS

Run casing to 530 m. Ledge. P/O casing to R/I with bit to condition hole.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	./ 1.3	np/na Values	
Drilling		Water Added	91.4	KCl	./ .	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	3.1/ 79.6	Bit Loss (kPa / %)	
Non-Productive Tim		Dumped	0	Bentonite	3.3/ 85.	Bit HHP (kWatt / HSI)	
		Left in Hole	0	Drill Solids	-.2/ -5.4	Bit Jet Vel (m/s)	
		Other	0	Weight Material	NA/ NA	Ann. Vel DP (m/min)	
		Sweeps	45	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Dump at Sea Bed	0	Inert/React	-.0636	Crit Vel DP (m/min)	
				Average SG	2.6	Crit Vel DC (m/min)	
				Carb/BiCarb (m mole/L)	7./ 11.		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 2,080.36	$ 24,600.14

WATER-BASED MUD REPORT No. 5

Date	1/01/2005	**Depth/TVD**	810 m / 810 m
Spud Date	28/12/2004	**Mud Type**	SW/Gel Sweeps
Water Depth	59	**Activity**	Run Casing

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 406 mm Hycalog Tricone		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 1/32"			101.1(Tot)/89.9(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
340 mm	723 m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
mm	m		89.8	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
mm	m		106	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 4@07:00	
Flow Line Temp	°C		
Depth/TVD	m	810/810	
Mud Weight	sp.gr.	1.15@20°C	
Funnel Viscosity	s/L	53	
Rheology Temp	°C	49	
R600/R300		48/35	
R200/R100		29/22	
R6/R3		9/8	
PV	cP	13	
YP	Pa	11.	
10s/10m/30m Gel	Pa	10/18/22	
API Fluid Loss	cc/30 min	5.8	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	6.5	
Oil/Water	%Vol	/93.5	
Sand	%Vol		
MBT	kg/m³	22.8	
pH		8.5	
Alkal Mud (Pm)		0	
Pf/Mf		0.05/0.95	
Chlorides	mg/l	37000	
Hardness Ca	mg/l	360	
KCl	% by Wt	6.5	
Carbonates	m mole/lit	1	
Bicarbonates	m mole/lit	15.8	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	4
SODA ASH	25 KG BG	3
M-I BAR BULK	1 MT BK	2

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Added Duotec to 73.5 m3 of KCl-Polymer mud to increase YP and added barite to weight to 1.15 sg. Pumped 68.3 m3 of KCl-Polymer mud into hole before POOH. Used 8 m3 of PHG as sweeps during reaming, 18.3 me to sweep hole at bottom & 33.7 m3 PHG to fill casing. Left with 14.3 m3 of Gel in Pit 3. Mud check represents mud in hole prior to POOH.

REMARKS

RIH with 16 inch bit and reamed down to bottom PHG sweeps pushing centralizers down. Pumped 117 bbl PHG sweep at TD and displaced well with KCl-Polymer mud. POOH. Hole good. R/I casing to bottom.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.2/ 7.5	np/na Values	0.456/0.288
Drilling		Water Added	0	KCl	2.5/ 64.8	kp/ka (Pa·s^n)	1.043/2.553
Tripping		Mud Received	0	Low Gravity	1.1/ 27.4	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Dumped	2.9	Bentonite	.9/ 22.8	Bit HHP (kWatt / HSI)	/ 1
		Left in Hole	0	Drill Solids	.2/ 4.6	Bit Jet Vel (m/s)	
		Other	0	Weight Material	2.7/ 115.	Ann. Vel DP (m/min)	
		Sweeps	136.3	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Dump at Sea Bed	0	Inert/React	.2	Crit Vel DP (m/min)	
				Average SG	3.76	Crit Vel DC (m/min)	115
				Carb/BiCarb (m mole/L)	1./ 15.8	ECD @ 723 (sp.gr.)	1.15

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 1,277.09	$ 25,877.23

WATER-BASED MUD REPORT No. 6

Date	2/01/2005	**Depth/TVD**	810 m / 810 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Waiting on Equipment

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 406 mm		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 1/32"			101.3(Tot)/88.4(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m		-101.3	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
340 mm	710 m		-12.9	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
mm	m		163.2	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 5@05:30	
Flow Line Temp	°C		
Depth/TVD	m	810/810	
Mud Weight	sp.gr.	1.16@20°C	
Funnel Viscosity	s/L	53	
Rheology Temp	°C	49	
R600/R300		56/40	
R200/R100		34/25	
R6/R3		9/7	
PV	cP	16	
YP	Pa	12.	
10s/10m/30m Gel	Pa	9/11/13	
API Fluid Loss	cc/30 min	5.8	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	6.65	
Oil/Water	%Vol	/93.35	
Sand	%Vol		
MBT	kg/m³	4	
pH		8.5	
Alkal Mud (Pm)		0.05	
Pf/Mf		0.1/0.9	
Chlorides	mg/l	39000	
Hardness Ca	mg/l	360	
KCl	% by Wt	8	
Carbonates	m mole/lit	2	
Bicarbonates	m mole/lit	31.6	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	21
M-I BAR BULK	1 MT BK	24
POTASSIUM CHLORIDE	1 MT BG	16
IDCAP D	25 KG BG	22
POTASSIUM HYDROXIDE	25 KG CN	5
HIBTROL	25 KG BG	24

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Pumped 64.7 m3 of KCl-Idcap mud after increasing its YP with Duotec & raising KCl content to 8% to keep hole stable while working on the casing landing joint. Mud Check indicates mud pumped in hole. Mixed Pit 4 & 5 with KCl-Idcap mud for next section (148.9 m3).

REMARKS

Run casing. Waiting on spare casing landing joint to replace damaged joint while make up.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	./.	np/na Values	0.485/0.363
Drilling		Water Added	107	KCl	3./ 78.9	kp/ka (Pa·s^n)	0.990/1.978
Tripping		Mud Received	0	Low Gravity	.2/ 6.5	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Dumped	0	Bentonite	.2/ 4.	Bit HHP (kWatt / HSI)	/ 1
		Left in Hole	64.7	Drill Solids	.1/ 2.5	Bit Jet Vel (m/s)	
		Other	0	Weight Material	3.4/ 140.8	Ann. Vel DP (m/min)	
		Sweeps	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Dump at Sea Bed	0	Inert/React	.6197	Crit Vel DP (m/min)	
				Average SG	4.09	Crit Vel DC (m/min)	124
				Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 710 (sp.gr.)	1.16

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 22,443.97	$ 48,321.20

WATER-BASED MUD REPORT No. 7

Date	3/01/2005	**Depth/TVD**	810 m / 810 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Run Casing

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 406 mm		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 1/32"			101.3(Tot)/88.4(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m		-101.3	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
340 mm	710 m		-12.9	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
mm	m		163.2	Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m	810/810	
Mud Weight	sp.gr.	1.16@20°C	
Funnel Viscosity	s/L	53	
Rheology Temp	°C	49	
R600/R300		56/40	
R200/R100		34/25	
R6/R3		9/7	
PV	cP	16	
YP	Pa	12.	
10s/10m/30m Gel	Pa	9/11/13	
API Fluid Loss	cc/30 min	5.8	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	6.95	
Oil/Water	%Vol	/93.05	
Sand	%Vol		
MBT	kg/m³	11.4	
pH		8.5	
Alkal Mud (Pm)		0.05	
Pf/Mf		0.1/0.9	
Chlorides	mg/l	39000	
Hardness Ca	mg/l	360	
KCl	% by Wt	8	
Carbonates	m mole/lit	2	
Bicarbonates	m mole/lit	31.6	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Received chemicals & DW from Far Grip

REMARKS

Received casing hanger joint. Run casing to bottom. Rigging up to cement casing.

TIME DISTR	Last 24 Hrs
Rig Up/Service	
Drilling	
Tripping	
Non-Productive Tim	

MUD VOL ACCTG	(m³)
Oil Added	0
Water Added	0
Mud Received	0
Dumped	0
Left in Hole	0
Other	0
Sweeps	0
Dump at Sea Bed	0

SOLIDS ANALYSIS (%/kg/m³)	
NaCl	./.
KCl	3./ 78.7
Low Gravity	.9/ 22.3
Bentonite	.4/ 11.4
Drill Solids	./ .9
Weight Material	3.1/ 128.2
Chemical Conc	- / 10.
Inert/React	.0799
Average SG	3.85
Carb/BiCarb (m mole/L)	2./ 31.6

MUD RHEOLOGY & HYDRAULICS	
np/na Values	0.485/0.363
kp/ka (Pa·s^n)	0.990/1.978
Bit Loss (kPa / %)	/ 1
Bit HHP (kWatt / HSI)	/ 1
Bit Jet Vel (m/s)	
Ann. Vel DP (m/min)	
Ann. Vel DC (m/min)	
Crit Vel DP (m/min)	
Crit Vel DC (m/min)	124
ECD @ 710 (sp.gr.)	1.16

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 48,321.20

WATER-BASED MUD REPORT No. 8

Date	4/01/2005	**Depth/TVD**	796.24 m / 796.24 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Run BOP

Operator : Apache Energy
Report For : Chris Wilson/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Ray Breaud/Troy

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 406 mm		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 1/32"			70.1	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size mm	Length m	Intermediate	Active Pits -70.1	Pump Cap	L/stk	L/stk
				Pump stk/min		
Drill Pipe Size mm	Length m	Intermediate	Total Circulating Vol -70.1	Flow Rate	L/min	
				Bottoms Up		
Drill Collar Size mm	Length m	Production or Liner	In Storage 235.5	Total Circ Time		
				Circulating Pressure		

MUD PROPERTIES

Sample From		Pit 4@16:00	
Flow Line Temp	°C		
Depth/TVD	m	810/810	
Mud Weight	sp.gr.	1.15@18°C	
Funnel Viscosity	s/L	40	
Rheology Temp	°C	49	
R600/R300		30/20	
R200/R100		16/12	
R6/R3		4/3	
PV	cP	10	
YP	Pa	5.	
10s/10m/30m Gel	Pa	4/4/5	
API Fluid Loss	cc/30 min	7	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	6.2	
Oil/Water	%Vol	/93.8	
Sand	%Vol		
MBT	kg/m³	4	
pH		8.5	
Alkal Mud (Pm)		0	
Pf/Mf		0.05/0.85	
Chlorides	mg/l	36000	
Hardness Ca	mg/l	300	
KCl	% by Wt	7	
Carbonates	m mole/lit	1	
Bicarbonates	m mole/lit	15.8	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	11
M-I GEL BULK	1 MT BK	2
POTASSIUM CHLORIDE	1 MT BG	2
POTASSIUM HYDROXIDE	25 KG CN	2
HIBTROL	25 KG BG	6

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.04
Viscosity	> 100
Filtrate	NA

REMARKS AND TREATMENT

Mixing new mud. Constraint of Derrickman engaged with BOP operations.

REMARKS

Cleaned cementing head. Cemented casing as per plan. Lay down BHA. Running BOP stack.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	./ 1.8	np/na Values	
Drilling		Water Added	69.9	KCl	2.7/ 70.5	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	.3/ 7.8	Bit Loss (kPa / %)	
Non-Productive Tim		Dumped	0	Bentonite	.2/ 4.	Bit HHP (kWatt / HSI)	
		Left in Hole	0	Drill Solids	.1/ 3.8	Bit Jet Vel (m/s)	
		Other	0	Weight Material	3.1/ 131.5	Ann. Vel DP (m/min)	
		Sweeps	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Dump at Sea Bed	0	Inert/React	.9566	Crit Vel DP (m/min)	
				Average SG	4.06	Crit Vel DC (m/min)	
				Carb/BiCarb (m mole/L)	1./ 15.8		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 4,072.69	$ 52,393.89

WATER-BASED MUD REPORT No. 9

Date	5/01/2005	**Depth/TVD**	813 m / 813 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Drilling Shoe Track

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY

Bit Size 216 mm		
Nozzles 14 / 1/32"		
Drill Pipe Size	Length	
127 mm	489 m	
Drill Pipe Size	Length	
127 mm	139 m	
Drill Collar Size	Length	
165 mm	151 m	

CASING

Surface
Intermediate
Intermediate
Production or Liner

MUD VOLUME (m³)

Hole
65.3(Tot)/63.4(Bit)
Active Pits
15.4
Total Circulating Vol
78.8
In Storage
226

CIRCULATION DATA

Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Pump Cap	16.176 L/stk	16.176 L/stk
Pump stk/min	70@97%	70@97%
Flow Rate	2265 L/min	
Bottoms Up	25.4 min	3560 stk
Total Circ Time	34.8 min	4871 stk
Circulating Pressure	kPa	

MUD PROPERTIES

Sample From		Pit 4@17:00	
Flow Line Temp	°C		
Depth/TVD	m	810/810	
Mud Weight	sp.gr.	1.15@20°C	
Funnel Viscosity	s/L	41	
Rheology Temp	°C	49	
R600/R300		35/25	
R200/R100		20/15	
R6/R3		5/4	
PV	cP	10	
YP	Pa	7.5	
10s/10m/30m Gel	Pa	5/6/7	
API Fluid Loss	cc/30 min	6.6	
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	
Solids	%Vol	6.5	
Oil/Water	%Vol	/93.5	
Sand	%Vol		
MBT	kg/m³	4	
pH		8.5	
Alkal Mud (Pm)		0	
Pf/Mf		0.05/0.75	
Chlorides	mg/l	42000	
Hardness Ca	mg/l	360	
KCl	% by Wt	8	
Carbonates	m mole/lit	1	
Bicarbonates	m mole/lit	15.8	
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	2
M-I BAR BULK	1 MT BK	9
POTASSIUM CHLORIDE	1 MT BG	7
IDCAP D	25 KG BG	12
HIBTROL	25 KG BG	6

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	0
VSM Shaker 2	105/105/105/105	0
VSM Shaker 3	105/105/105/105	0
VSM Shaker 4	105/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Finished mixing 224 m3 of 8% KCl Polymer mud. PHG volume for sweeps during cement. Hibtrol stock adjusted by 10 sacks due to extra shown as received on Longtom 2.

REMARKS

Completed BOP testing. R/I with 8.5 inch bit and motor BHA. Started drilling cement @ 21:00.

TIME DISTR

TIME DISTR	Last 24 Hrs
Rig Up/Service	
Drilling	
Tripping	
Non-Productive Tim	

MUD VOL ACCTG (m³)

Oil Added	0
Water Added	0
Mud Received	0
Dumped	0
Left in Hole	0
Other	0
Sweeps	0
Dump at Sea Bed	0

SOLIDS ANALYSIS (%/kg/m³)

NaCl	.1/ 3.2
KCl	3.1/ 81.1
Low Gravity	.4/ 11.4
Bentonite	.2/ 4.
Drill Solids	.3/ 7.4
Weight Material	2.8/ 119.1
Chemical Conc	- / .
Inert/React	1.8479
Average SG	3.99
Carb/BiCarb (m mole/L)	1./ 15.8

MUD RHEOLOGY & HYDRAULICS

np/na Values	0.485/0.377
kp/ka (Pa·s^n)	0.619/1.105
Bit Loss (kPa / %)	96563 / 1
Bit HHP (kWatt / HSI)	3643 / 1
Bit Jet Vel (m/s)	389
Ann. Vel DP (m/min)	34.71
Ann. Vel DC (m/min)	40.06
Crit Vel DP (m/min)	72
Crit Vel DC (m/min)	76
ECD @ 780 (sp.gr.)	1.16

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 7,981.10	$ 60,374.99

WATER-BASED MUD REPORT No. 10

Date	6/01/2005	**Depth/TVD**	1519 m / 1519 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Drilling

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY

Bit Size 216 mm Hycalog DX 104			
Nozzles 14 / 1/32"			
Drill Pipe Size	Length		
127 mm	1228 m		
Drill Pipe Size	Length		
127 mm	139 m		
Drill Collar Size	Length		
165 mm	151 m		

CASING

Surface	
Intermediate	
Intermediate	
Production or Liner	

MUD VOLUME (m³)

Hole	88.7
Active Pits	78.2
Total Circulating Vol	166.9
In Storage	137.3

CIRCULATION DATA

Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Pump Cap	16.176 L/stk	16.176 L/stk
Pump stk/min	70@97%	70@97%
Flow Rate	2265 L/min	
Bottoms Up	33.5 min	4697 stk
Total Circ Time	73.7 min	10314 stk
Circulating Pressure	16547 kPa	

MUD PROPERTIES

Sample From		Pit 3@21:00	Pit 3@12:30
Flow Line Temp	°C	32	27
Depth/TVD	m	1519/1519	1180/1180
Mud Weight	sp.gr.	1.2@32°C	1.175@27°C
Funnel Viscosity	s/L	52	52
Rheology Temp	°C	49	49
R600/R300		55/40	50/36
R200/R100		33/25	30/22
R6/R3		9/7	8/6
PV	cP	15	14
YP	Pa	12.5	11.
10s/10m/30m Gel	Pa	8/13/17	8/12/15
API Fluid Loss	cc/30 min	5.8	6.2
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	10	9.5
Oil/Water	%Vol	/90	/90.5
Sand	%Vol	1	1
MBT	kg/m³	40	25.7
pH		9	9
Alkal Mud (Pm)		0.5	0.3
Pf/Mf		0.15/0.85	0.1/0.85
Chlorides	mg/l	50000	46000
Hardness Ca	mg/l	360	400
KCl	% by Wt	8	8
Carbonates	m mole/lit	3	2
Bicarbonates	m mole/lit	15	10
Sulphite Excess	mg/l	80	60

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	27
OS-1	25 KG BG	12
SODA ASH	25 KG BG	8
SODIUM BICARBONATE	25 KG BG	6
POTASSIUM CHLORIDE	1 MT BG	16
DEFOAM A	5 GA CN	1
IDCAP D	25 KG BG	36
POTASSIUM HYDROXIDE	25 KG CN	7
HIBTROL	25 KG BG	34

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	24
VSM Shaker 2	145/145/145/145	24
VSM Shaker 3	145/145/145/145	24
VSM Shaker 4	145/145/145/145	24
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Displaced to KCl-Polymer mud while drilling through the shoe. Dumped 10.1 m3 of contaminated mud due to soft cement. Added 6 sacks of Bicarb to treat out cement. Added Idcap & Duotec to active to build properties. Maintained depleting KCl content by adding KCl to active. Cuttings showing good inhibition. Trying to maintain MWt by dumping/dilution.

REMARKS

Drilled to 813 m. Circulated Hole clean. Conducted FIT (1.8 sg MWE). Drilled ahead to 1519 m..Changed screens to 16 x new 145 mesh at 1100 M but changed back to 105 mesh on one shaker to handle booster pump. Started centrifuge at 1200 m, discarding 10.6 ppg stream. Dumped header box of cutting 3 times.

TIME DISTR

TIME DISTR	Last 24 Hrs
Rig Up/Service	
Drilling	
Tripping	
Non-Productive Tim	

MUD VOL ACCTG (m³)

Oil Added	0
Water Added	106
Mud Received	0
Dumped	17.5
Left in Hole	0
Other	0
Sweeps	8
Dump at Sea Bed	0
Shakers	27.8

SOLIDS ANALYSIS (%/kg/m³)

NaCl	.4/ 15.
KCl	3./ 78.
Low Gravity	4.2/ 110.2
Bentonite	1.2/ 31.2
Drill Solids	3./ 78.9
Weight Material	2.3/ 96.4
Chemical Conc	- / .
Inert/React	1.754
Average SG	3.16
Carb/BiCarb (m mole/L)	3./ 15.

MUD RHEOLOGY & HYDRAULICS

np/na Values	0.459/0.363
kp/ka (Pa·s^n)	1.164/1.978
Bit Loss (kPa / %)	100761 / 1
Bit HHP (kWatt / HSI)	3801 / 1
Bit Jet Vel (m/s)	389
Ann. Vel DP (m/min)	94.48
Ann. Vel DC (m/min)	148.43
Crit Vel DP (m/min)	114
Crit Vel DC (m/min)	129
ECD @ 1519 (sp.gr.)	1.27

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Jasdeep Singh -	61-8-9422 7540	61-8-9325 4822	$ 22,422.97	$ 82,797.96

WATER-BASED MUD REPORT No. 11

Date	7/01/2005	**Depth/TVD**	2325 m / 2325 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Drilling 8 1/2"

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY

Bit Size 216 mm Hycalog DX 104			
Nozzles 14 / 1/32"			
Drill Pipe Size	Length		
127 mm	2034 m		
Drill Pipe Size	Length		
127 mm	139 m		
Drill Collar Size	Length		
165 mm	151 m		

CASING

Surface
Intermediate
Intermediate
Production or Liner

MUD VOLUME (m³)

Hole	115.5
Active Pits	72.2
Total Circulating Vol	187.7
In Storage	126.5

CIRCULATION DATA

Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Pump Cap	16.176 L/stk	16.176 L/stk
Pump stk/min	70@97%	70@97%
Flow Rate	2265 L/min	
Bottoms Up	42.1 min	5891 stk
Total Circ Time	82.9 min	11600 stk
Circulating Pressure	22300 kPa	

MUD PROPERTIES

		Pit@20:30	Pit@13:00
Sample From			
Flow Line Temp	°C	43	29
Depth/TVD	m	2325/2325	2009/2009
Mud Weight	sp.gr.	1.22@28°C	1.176@26°C
Funnel Viscosity	s/L	51	52
Rheology Temp	°C	120	120
R600/R300		58/43	49/36
R200/R100		36/28	30/22
R6/R3		10/8	8/7
PV	cP	15	13
YP	Pa	14.	11.5
10s/10m/30m Gel	Pa	9/15/19	8/11/16
API Fluid Loss	cc/30 min	6.2	6.2
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	11	10
Oil/Water	%Vol	/89	/90
Sand	%Vol	0.5	0.25
MBT	kg/m³	26	25
pH		9	9
Alkal Mud (Pm)		0.4	0.45
Pf/Mf		0.1/0.8	0.1/0.9
Chlorides	mg/l	53500	54000
Hardness Ca	mg/l	380	360
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	
Bicarbonates	m mole/lit	10	
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	6
OS-1	25 KG BG	12
M-I BAR BULK	1 MT BK	3
POTASSIUM HYDROXIDE	25 KG CN	4
HIBTROL	25 KG BG	6

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	105/105/105/105	24
VSM Shaker 2	145/145/145/145	24
VSM Shaker 3	145/145/145/145	24
VSM Shaker 4	145/145/145/145	24
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Maintain KCL/Polymer Idacap system with additions of un weighted pre-mix and adding Idcap,Hibtrol and KOH directly to active.KCL at 8% but being maintained with KCL additions as needed.

REMARKS

Driling ahead without problems. See increase in gas level at 2067M, increase mud weight from 9.8 to 10.2 ppg with the result of lowering gas levels. Continue to drill towards resevoirat report time depth of 2325m.

TIME DISTR	Last 24 Hrs
Rig Up/Service	
Drilling	24
Tripping	
Non-Productive Tim	

MUD VOL ACCTG	(m³)
Oil Added	0
Water Added	12.2
Mud Received	0
Dumped	0
Left in Hole	0
Other	0
Sweeps	0
Dump at Sea Bed	0
Shakers	3.3

SOLIDS ANALYSIS (%/kg/m³)	
NaCl	.6/ 21.4
KCl	2.9/ 75.2
Low Gravity	5./ 129.7
Bentonite	.5/ 13.
Drill Solids	4.5/ 116.6
Weight Material	2.5/ 103.2
Chemical Conc	- / .
Inert/React	3.987
Average SG	3.13
Carb/BiCarb (m mole/L)	2./ 10.

MUD RHEOLOGY & HYDRAULICS	
np/na Values	0.432/0.357
kp/ka (Pa·s^n)	1.488/2.282
Bit Loss (kPa / %)	102441 / 1
Bit HHP (kWatt / HSI)	3864 / 1
Bit Jet Vel (m/s)	389
Ann. Vel DP (m/min)	94.48
Ann. Vel DC (m/min)	148.43
Crit Vel DP (m/min)	121
Crit Vel DC (m/min)	137
ECD @ 2325 (sp.gr.)	1.3

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 2,906.84	$ 85,704.80

WATER-BASED MUD REPORT No. 12

Date	8/01/2005	**Depth/TVD**	2727 m / 2727 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Drill 8 1/2"

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm Hycalog DX 104		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 14 / 1/32"			128.9	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	16.176 L/stk	16.176 L/stk
127 mm	2436 m		75.2	Pump stk/min	70@97%	70@97%
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	2265 L/min	
127 mm	139 m		204.1	Bottoms Up	46.3 min	6487 stk
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time	90.1 min	12613 stk
165 mm	151 m		55.1	Circulating Pressure	22300 kPa	

MUD PROPERTIES

		Pit@20:30	Pit@08:15
Sample From			
Flow Line Temp	°C	50	42
Depth/TVD	m	2727/2727	2604/2604
Mud Weight	sp.gr.	1.222@28°C	1.222@27°C
Funnel Viscosity	s/L	57	55
Rheology Temp	°C	120	120
R600/R300		60/44	57/41
R200/R100		38/28	35/27
R6/R3		10/9	8/7
PV	cP	16	16
YP	Pa	14.	12.5
10s/10m/30m Gel	Pa	8/16/19	7/14/17
API Fluid Loss	cc/30 min	5.2	5.2
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	11	11
Oil/Water	%Vol	/89	/89
Sand	%Vol	.25	.1
MBT	kg/m³	28.5	35.6
pH		8.5	8.5
Alkal Mud (Pm)		0.25	0.25
Pf/Mf		0.1/0.9	0.1/1.1
Chlorides	mg/l	53000	53000
Hardness Ca	mg/l	360	400
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	30	30
Sulphite Excess	mg/l	10	15

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	6
OS-1	25 KG BG	4
SODA ASH	25 KG BG	3
POTASSIUM CHLORIDE	1 MT BG	6
DEFOAM A	5 GA CN	2
IDCAP D	25 KG BG	5
POTASSIUM HYDROXIDE	25 KG CN	2
HIBTROL	25 KG BG	5

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	145/145/105/105	24
VSM Shaker 2	165/165/145/145	24
VSM Shaker 3	165/165/145/145	24
VSM Shaker 4	105/105/105/105	24
D-Sander		0
D-Silter		6

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Continue to add Idcap and Hibtrol directly to active and also from premix reserve volume.Control weight to 1.22 SG with pre-mix and desilter and centrifuge if needed. Maintaining 8% KCL from pre-mix additions. Attempt to fine up screens to 165s on shaker 2 and 3. Presently OK with 165s on shaker#2. 165s fitted on #3 at report time.

REMARKS

Continue to drill 8 1/2" hole, drill through volcanic sequence and into the resevoir with lower ROPs. Mud weight in hole is 1.22 SG.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.6/ 20.7	np/na Values	0.447/0.324
Drilling	24	Water Added	0	KCl	2.9/ 75.2	kp/ka (Pa·s^n)	1.380/2.712
Tripping		Mud Received	0	Low Gravity	5./ 130.	Bit Loss (kPa / %)	102609 / 1
Non-Productive Tim		Dumped	40	Bentonite	.6/ 15.8	Bit HHP (kWatt / HSI)	3871 / 1
		Centrifuge	0	Drill Solids	4.4/ 114.2	Bit Jet Vel (m/s)	389
		Left in Hole	0	Weight Material	2.5/ 103.6	Ann. Vel DP (m/min)	94.48
		Other	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	148.43
		Sweeps	0	Inert/React	3.5617	Crit Vel DP (m/min)	121
		Dump at Sea Bed	0	Average SG	3.13	Crit Vel DC (m/min)	135
		Shakers	18.4	Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 2727 (sp.gr.)	1.31

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 5,290.90	$ 90,995.70

WATER-BASED MUD REPORT No. 13

Date	9/01/2005	**Depth/TVD**	2740 m / 2740 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	POOH FOR LOGS

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm Hycalog DX 104		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 14 / 1/32"			137.5(Tot)/27.6(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	16.176 L/stk	16.176 L/stk
127 mm	9 m		67.8	Pump stk/min	70@97%	70@97%
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	2265 L/min	
127 mm	139 m		95.4	Bottoms Up	11.6 min	1624 stk
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time	42.1 min	5895 stk
165 mm	151 m		48.6	Circulating Pressure	22300 kPa	

MUD PROPERTIES

Sample From		Pit@20:30	Pit@10:00
Flow Line Temp	°C		50
Depth/TVD	m	2740/2740	2740/2740
Mud Weight	sp.gr.	1.22@26°C	1.22@26°C
Funnel Viscosity	s/L	50	50
Rheology Temp	°C	120	120
R600/R300		61/45	62/46
R200/R100		38/27	38/28
R6/R3		10/8	10/8
PV	cP	16	16
YP	Pa	14.5	15.
10s/10m/30m Gel	Pa	9/15/19	9/16/19
API Fluid Loss	cc/30 min	5.2	5.2
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	11	11
Oil/Water	%Vol	/89	/89
Sand	%Vol	.25	.25
MBT	kg/m³	30	28.5
pH		9	9
Alkal Mud (Pm)		.10	.15
Pf/Mf		.10/1.1	.10/1.25
Chlorides	mg/l	52500	52000
Hardness Ca	mg/l	380	400
KCl	% by Wt	8.5	8.5
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	10	10
Sulphite Excess	mg/l	5	5

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	9
M-I BAR BULK	1 MT BK	5
DEFOAM A	5 GA CN	4
IDCAP D	25 KG BG	19
HIBTROL	25 KG BG	13

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	145/145/105/105	24
VSM Shaker 2	165/165/145/145	24
VSM Shaker 3	165/165/145/145	24
VSM Shaker 4	105/105/105/105	24
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Continue to treat mud as necessary to maintain properties. Control weight to 1.22 SG with pre-mix and by finning screens to 165s at the back of shakers 2 and 3.

REMARKS

Continue to drill ahead to 2740m. Circulate bottoms up and POOH. Pull first 10 stands dry then slug pipe and continue to POOH. Hole became tight so circulated out to shoe and slug pipe again. Rig up and run wireline logs.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.6/ 19.9	np/na Values	0.439/0.347
Drilling		Water Added	0	KCl	2.9/ 75.2	kp/ka (Pa·s^n)	1.489/2.321
Tripping	16	Mud Received	0	Low Gravity	5./ 130.4	Bit Loss (kPa / %)	102441 / 1
Non-Productive Tim		Left in Hole	0	Bentonite	.7/ 17.5	Bit HHP (kWatt / HSI)	3864 / 1
Wireline Logs	8	Other	0	Drill Solids	4.3/ 112.9	Bit Jet Vel (m/s)	389
		Sweeps	0	Weight Material	2.5/ 104.	Ann. Vel DP (m/min)	13.69
		Dump at Sea Bed	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	40.06
		Shakers	7.3	Inert/React	3.3452	Crit Vel DP (m/min)	89
		Dumped	0	Average SG	3.13	Crit Vel DC (m/min)	106
		Centrifuge	0	Carb/BiCarb (m mole/L)	2./ 10.	ECD @ 300 (sp.gr.)	1.25

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 8,087.14	$ 99,082.84

WATER-BASED MUD REPORT No. 14

Date	10/01/2005	**Depth/TVD**	2740 m / 2740 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Wash to Bottom

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x12 /3x13 / 1/32"			129.6(Tot)/127.2(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	16.176 L/stk	16.176 L/stk
127 mm	2384 m		63.6	Pump stk/min	65@97%	65@97%
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	2103 L/min	
127 mm	139 m		190.8	Bottoms Up	49.3 min	6410 stk
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time	90.7 min	11793 stk
165 mm	151 m		94.8	Circulating Pressure	22300 kPa	

MUD PROPERTIES

Sample From		Pit@20:30	Pit@10:00
Flow Line Temp	°C	38	
Depth/TVD	m	2675/2675	2740/2740
Mud Weight	sp.gr.	1.24@23°C	1.25@23°C
Funnel Viscosity	s/L	46	50
Rheology Temp	°C	120	120
R600/R300		61/45	62/44
R200/R100		38/29	38/27
R6/R3		10/8	10/8
PV	cP	16	18
YP	Pa	14.5	13.
10s/10m/30m Gel	Pa	9/16/19	9/15/19
API Fluid Loss	cc/30 min	5.2	5.2
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	11.5	11.5
Oil/Water	%Vol	/88.5	/88.5
Sand	%Vol	0.25	0.25
MBT	kg/m³	30	30
pH		8.5	9
Alkal Mud (Pm)		0.15	.1
Pf/Mf		0.1/1.2	.1/1.0
Chlorides	mg/l	56000	52500
Hardness Ca	mg/l	400	380
KCl	% by Wt	8.0	8.5
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	30	10
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	6
SODA ASH	25 KG BG	2
POTASSIUM CHLORIDE	1 MT BG	4
IDCAP D	25 KG BG	8
POTASSIUM HYDROXIDE	25 KG CN	1
HIBTROL	25 KG BG	8

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	145/145/105/105	24
VSM Shaker 2	165/165/145/145	24
VSM Shaker 3	165/165/145/145	24
VSM Shaker 4	105/105/105/105	24
D-Sander		0
D-Silter		3

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Build reserve voulme in R4 in readiness to drill and extra 200 m to TD. Prior to getting to bottom the mud weight was reduced from 10.5 to 10.2 ppg using the desilter with discharge weight of 12.2 ppg and with drill water additions, increase was due to two slugs in the hole.

REMARKS

Unable to get logging tools past the 13 3/8" casing shoe. POOH and pick up new bit,previous 1/8" undergauge. RIH and work area from 810 to 840m with pumps and continue to RIH to bottom, need to wash and work to bottom last stands. Start to reduce mud weight.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.7/ 25.	np/na Values	0.439/0.367
Drilling		Water Added	43.8	KCl	2.9/ 74.8	kp/ka (Pa·s^n)	1.489/2.245
Tripping	22	Mud Received	0	Low Gravity	4.7/ 121.9	Bit Loss (kPa / %)	3911 / 1
Non-Productive Tim		Left in Hole	0	Bentonite	.7/ 18.5	Bit HHP (kWatt / HSI)	137 / 1
Wireline Logs	2	Other	0	Drill Solids	4./ 103.4	Bit Jet Vel (m/s)	75
		Sweeps	0	Weight Material	3.2/ 132.8	Ann. Vel DP (m/min)	87.72
		Dump at Sea Bed	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	137.81
		Shakers	12.1	Inert/React	3.0627	Crit Vel DP (m/min)	122
		Dumped	0	Average SG	3.24	Crit Vel DC (m/min)	139
		Centrifuge	0	Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 2675 (sp.gr.)	1.33

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 5,066.47	$ 104,149.31

WATER-BASED MUD REPORT No. 15

Date	11/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Circ at TD

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			135.2	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	16.176 L/stk	16.176 L/stk
127 mm	2624 m		72.4	Pump stk/min	65@97%	65@97%
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	2103 L/min	
127 mm	139 m		207.6	Bottoms Up	52 min	6766 stk
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time	98.7 min	12831 stk
165 mm	151 m		62.2	Circulating Pressure	22300 kPa	

MUD PROPERTIES

Sample From		Pit@20:00	Pit@08:00
Flow Line Temp	°C	50	48
Depth/TVD	m	2915/2915	2820/2820
Mud Weight	sp.gr.	1.23@24°C	1.23@23°C
Funnel Viscosity	s/L	4	43
Rheology Temp	°C	120	120
R600/R300		57/43	57/44
R200/R100		38/28	37/28
R6/R3		10/8	10/8
PV	cP	14	13
YP	Pa	14.5	15.5
10s/10m/30m Gel	Pa	9/15/17	9/17/19
API Fluid Loss	cc/30 min	5.2	5.2
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	11.0	11.5
Oil/Water	%Vol	/89	/88.5
Sand	%Vol	0.25	0.25
MBT	kg/m³	32	30
pH		9.0	8.5
Alkal Mud (Pm)		.15	.15
Pf/Mf		0.1/1.2	0.1/1.1
Chlorides	mg/l	49000	55000
Hardness Ca	mg/l	400	380
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	10	31
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	6
OS-1	25 KG BG	4
POTASSIUM CHLORIDE	1 MT BG	1
GLUTE 25	25 LT CN	2
IDCAP D	25 KG BG	2
HIBTROL	25 KG BG	10
OMYA CARB 40	25 KG BG	48

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	24
VSM Shaker 2	165/165/145/145	24
VSM Shaker 3	165/165/145/145	24
VSM Shaker 4	165/105/105/105	24
D-Sander		0
D-Silter		8

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Added Duotec to offset water additions. Also added Hibtrol to reduce API fluid loss. Near TD added Calcium Carbonate to system to make filter cake thin and strong. Treated mud with O2 scavenger and some biocide.

REMARKS

Continue to drill ahead 8 1/2" hole to TD of 2915m. Slow ROPs for most of section. Continue to control mud weight to 1.22 SG with finer shaker screens, dilution volume and desilter.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.4/ 14.7	np/na Values	0.407/0.357
Drilling	24	Water Added	7	KCl	2.9/ 75.2	kp/ka (Pa·s^n)	1.740/2.282
Tripping		Mud Received	0	Low Gravity	4.5/ 116.5	Bit Loss (kPa / %)	3879 / 1
Non-Productive Tim		Left in Hole	0	Bentonite	.8/ 21.4	Bit HHP (kWatt / HSI)	136 / 1
Wireline Logs		Other	0	Drill Solids	3.7/ 95.	Bit Jet Vel (m/s)	75
		Sweeps	0	Weight Material	3.2/ 133.1	Ann. Vel DP (m/min)	87.72
		Dump at Sea Bed	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	137.81
		Shakers	17	Inert/React	2.6397	Crit Vel DP (m/min)	120
		Dumped	0	Average SG	3.26	Crit Vel DC (m/min)	136
		Centrifuge	0	Carb/BiCarb (m mole/L)	2./ 10.	ECD @ 2915 (sp.gr.)	1.31

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 4,119.35	$ 108,268.66

WATER-BASED MUD REPORT No. 16

Date	12/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	POOH/Logs

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY

Bit Size 216 mm DBS FM 37432			
Nozzles 3x12 /3x13 / 1/32"			
Drill Pipe Size	Length		
127 mm	529 m		
Drill Pipe Size	Length		
127 mm	139 m		
Drill Collar Size	Length		
165 mm	151 m		

CASING

Surface	
Intermediate	
Intermediate	
Production or Liner	

MUD VOLUME (m³)

Hole	142.2(Tot)/65.4(Bit)
Active Pits	77.8
Total Circulating Vol	143.2
In Storage	44.8

CIRCULATION DATA

Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Pump Cap	16.176 L/stk	16.176 L/stk
Pump stk/min	65@97%	65@97%
Flow Rate	2103 L/min	
Bottoms Up	28.2 min	3661 stk
Total Circ Time	68.1 min	8852 stk
Circulating Pressure	22300 kPa	

MUD PROPERTIES

Sample From		Pit@20:00	Pit@08:00
Flow Line Temp	°C	42	49
Depth/TVD	m	820/820	2915/2915
Mud Weight	sp.gr.	1.28@24°C	1.23@23°C
Funnel Viscosity	s/L	44	44
Rheology Temp	°C	120	120
R600/R300		62/47	56/43
R200/R100		40/30	38/28
R6/R3		10/8	10/8
PV	cP	15	13
YP	Pa	16.	15.
10s/10m/30m Gel	Pa	8/15/16	9/15/18
API Fluid Loss	cc/30 min	4.8	5.2
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	12	11.5
Oil/Water	%Vol	/88	/88.5
Sand	%Vol	0.25	0.25
MBT	kg/m³	30	30
pH		8.5	9.0
Alkal Mud (Pm)		0.1	0.15
Pf/Mf		0.1/1.1	0.10/1.1
Chlorides	mg/l	50000	50000
Hardness Ca	mg/l	400	380
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	31	10
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
M-I BAR BULK	1 MT BK	10

SOLIDS EQUIP

	Size	Hr
VSM Shaker 1	165/145/105/105	24
VSM Shaker 2	165/165/145/145	24
VSM Shaker 3	165/165/145/145	24
VSM Shaker 4	165/105/105/105	24
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Raise mud weight from 10.2 to 10.7 ppg to increase hole stability in prescence of coal seams. POOH to run wireline logs.
Received chemicals from the Far Grip

REMARKS

Circulate hole clean and POOH wet and re-log with MWD. Hole became progressively tighter with upto 100k overpulls. RIH to bottom to check hole was free. Circulate at TD and raise mud weight to 10.7 ppg, see substaintial amounts of coal at shakers which probably caused hole tightness.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/ 16.	np/na Values	0.400/0.377
Drilling		Water Added	0	KCl	2.9/ 74.4	kp/ka (Pa·s^n)	1.987/2.210
Tripping	24	Mud Received	0	Low Gravity	3.4/ 87.5	Bit Loss (kPa / %)	4037 / 1
Non-Productive Tim		Left in Hole	0	Bentonite	.9/ 22.8	Bit HHP (kWatt / HSI)	141 / 1
Wireline Logs		Other	0	Drill Solids	2.5/ 64.7	Bit Jet Vel (m/s)	75
		Sweeps	0	Weight Material	5.3/ 221.5	Ann. Vel DP (m/min)	32.23
		Dump at Sea Bed	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	137.81
		Shakers	7.4	Inert/React	1.9176	Crit Vel DP (m/min)	103
		Dumped	0	Average SG	3.58	Crit Vel DC (m/min)	139
		Centrifuge	0	Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 820 (sp.gr.)	1.31

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 2,311.60	$ 110,580.26

WATER-BASED MUD REPORT No. 17

Date	13/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Run Wireline Logs

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x12 /3x13 / 1/32"			143.9(Tot)/27.6(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	9 m		74.9	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m		102.5	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m		44.8	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit@20:00	Pit@08:00
Flow Line Temp	°C		
Depth/TVD	m	2915/2915	2915/2915
Mud Weight	sp.gr.	1.32@23°C	1.32@24°C
Funnel Viscosity	s/L	44	44
Rheology Temp	°C	120	120
R600/R300		62/47	63/47
R200/R100		40/30	40/31
R6/R3		10/8	10/8
PV	cP	15	16
YP	Pa	16.	15.5
10s/10m/30m Gel	Pa	10/15/17	10/14/17
API Fluid Loss	cc/30 min	5.0	5.0
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	13.5	13.5
Oil/Water	%Vol	/86.5	/86.5
Sand	%Vol	0.25	0.25
MBT	kg/m³	32	30
pH		8.5	8.5
Alkal Mud (Pm)		0.15	0.1
Pf/Mf		0.1/1.1	0.1/1.1
Chlorides	mg/l	50000	50000
Hardness Ca	mg/l	380	400
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	32	32
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
M-I BAR BULK	1 MT BK	13

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Received 48MT barite from Far Grip.

REMARKS

POOH to 820m and MWD log, RIH to 2700m and weigh up system from 10.7ppg to 11.0ppg, POOH and rig up to run wireline logs. Continue to log with the RCI tool.

TIME DISTR	Last 24 Hrs
Rig Up/Service	
Drilling	
Tripping	9
Non-Productive Tim	
Wireline Logs	15

MUD VOL ACCTG	(m³)
Oil Added	0
Water Added	0
Mud Received	0
Left in Hole	0
Other	0
Sweeps	0
Dump at Sea Bed	0
Shakers	4.2
Dumped	0
Centrifuge	0

SOLIDS ANALYSIS (%/kg/m³)	
NaCl	.5/ 15.8
KCl	2.8/ 73.1
Low Gravity	3.9/ 101.9
Bentonite	.9/ 23.3
Drill Solids	3./ 78.6
Weight Material	6.3/ 263.6
Chemical Conc	- / .
Inert/React	2.1842
Average SG	3.58
Carb/BiCarb (m mole/L)	2./ 31.6

MUD RHEOLOGY & HYDRAULICS	
np/na Values	0.400/0.377
kp/ka (Pa·s^n)	1.987/2.210
Bit Loss (kPa / %)	/ 1
Bit HHP (kWatt / HSI)	/ 1
Bit Jet Vel (m/s)	
Ann. Vel DP (m/min)	
Ann. Vel DC (m/min)	
Crit Vel DP (m/min)	87
Crit Vel DC (m/min)	106
ECD @ 300 (sp.gr.)	1.32

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 2,912.62	$ 113,492.88

WATER-BASED MUD REPORT No. 18

Date	14/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Strip over RCI tool

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x12 /3x13 / 1/32"			138(Tot)/107.2(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	1783 m		79.1	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m		186.3	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m		44.8	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit@19:00	Pit@08:00
Flow Line Temp	°C		
Depth/TVD	m	2915/2915	2915/2915
Mud Weight	sp.gr.	1.32@24°C	1.32@24°C
Funnel Viscosity	s/L	43	43
Rheology Temp	°C	120	120
R600/R300		62/46	62/47
R200/R100		40/29	40/30
R6/R3		10/8	10/8
PV	cP	16	15
YP	Pa	15.	16.
10s/10m/30m Gel	Pa	10/15/17	10/15/17
API Fluid Loss	cc/30 min	5.0	5.0
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	13.5	13.5
Oil/Water	%Vol	/86.5	/86.5
Sand	%Vol		
MBT	kg/m³	34	32
pH		8.5	8.5
Alkal Mud (Pm)		0.15	0.1
Pf/Mf		0.1/1.2	0.1/1.1
Chlorides	mg/l	50000	50000
Hardness Ca	mg/l	400	380
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	30	30
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Continue to run RCI tool but became stuck at 2074m. Rig up and run fishing tools and strip over wireline cable. Observe static losses of 1 bbl/hr from trip tank to well. Latch onto RCI and log on drill pipe

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/ 15.8	np/na Values	0.431/0.367
Drilling		Water Added	0	KCl	2.8/ 73.1	kp/ka (Pa·s^n)	1.602/2.245
Tripping		Mud Received	0	Low Gravity	3.9/ 101.9	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Left in Hole	0	Bentonite	1./ 25.5	Bit HHP (kWatt / HSI)	/ 1
Wireline Logs	9	Other	1.7	Drill Solids	2.9/ 76.4	Bit Jet Vel (m/s)	
Fishing	15	Sweeps	0	Weight Material	6.3/ 263.6	Ann. Vel DP (m/min)	
		Dump at Sea Bed	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Shakers	0	Inert/React	1.9969	Crit Vel DP (m/min)	118
		Dumped	0	Average SG	3.58	Crit Vel DC (m/min)	134
		Centrifuge	0	Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 2074 (sp.gr.)	1.32

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 113,492.88

WATER-BASED MUD REPORT No. 19

Date	15/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Run RCI on D.Pipe

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			141.9(Tot)/67.9(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	605 m		72.9	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m		140.8	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m		48.6	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit@19:30	Pit@08:00
Flow Line Temp	°C		
Depth/TVD	m	2915/2915	2915/2915
Mud Weight	sp.gr.	1.32@23°C	1.34@22°C
Funnel Viscosity	s/L	44	44
Rheology Temp	°C	120	120
R600/R300		63/49	65/50
R200/R100		41/31	41/32
R6/R3		10/8	10/8
PV	cP	14	15
YP	Pa	17.5	17.5
10s/10m/30m Gel	Pa	9/14/16	9/13/16
API Fluid Loss	cc/30 min	4.8	4.8
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	13.5	14
Oil/Water	%Vol	/86.5	/86
Sand	%Vol	0.25	0.25
MBT	kg/m³	34	34
pH		8.5	8.5
Alkal Mud (Pm)		0.15	0.15
Pf/Mf		0.1/1.2	0.1/1.2
Chlorides	mg/l	51000	50000
Hardness Ca	mg/l	400	380
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	30	30
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
M-I BAR BULK	1 MT BK	16

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Weighed up pit 4 to 10.5 ppg as reserve volume for active. Added drill water to active to reduce weight back to 11.0 ppg

REMARKS

Continue to log on drill pipe with RCI until tool failure, POOH with tool and prepare to RIH to do wiper trip and condition mud. The wiper trip was abandoned and the RCI run in the hole drill pipe conveyed.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/ 17.2	np/na Values	0.363/0.386
Drilling		Water Added	3.2	KCl	2.8/ 73.1	kp/ka (Pa·s^n)	2.609/2.176
Tripping	20	Mud Received	0	Low Gravity	3.9/ 101.2	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Left in Hole	0	Bentonite	1./ 25.6	Bit HHP (kWatt / HSI)	/ 1
Wireline Logs	4	Other	0	Drill Solids	2.9/ 75.7	Bit Jet Vel (m/s)	
Fishing		Sweeps	0	Weight Material	6.3/ 262.8	Ann. Vel DP (m/min)	
		Dump at Sea Bed	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Shakers	0	Inert/React	1.9779	Crit Vel DP (m/min)	102
		Dumped	0	Average SG	3.59	Crit Vel DC (m/min)	140
		Formation	5.5	Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 896 (sp.gr.)	1.32

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 3,698.56	$ 117,191.44

WATER-BASED MUD REPORT No. 20

Date	16/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Logging with RCI

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x12 /3x13 / 1/32"			136.2(Tot)/125.5(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	2333 m		78.6	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m		204.1	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m		48.6	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit@19:30	Pit@08:00
Flow Line Temp	°C		
Depth/TVD	m	2915/2915	2915/2915
Mud Weight	sp.gr.	1.32@22°C	1.32@23°C
Funnel Viscosity	s/L	48	48
Rheology Temp	°C	49	49
R600/R300		56/42	55/42
R200/R100		36/29	36/28
R6/R3		9/7	9/7
PV	cP	14	13
YP	Pa	14.	14.5
10s/10m/30m Gel	Pa	8/13/15	8/12/15
API Fluid Loss	cc/30 min	4.8	4.8
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	13.5	13.5
Oil/Water	%Vol	/86.5	/86.5
Sand	%Vol	0.25	0.25
MBT	kg/m³	34	34
pH		8.5	8.5
Alkal Mud (Pm)		0.15	0.1
Pf/Mf		0.1/1.2	0.1/1.2
Chlorides	mg/l	50000	51000
Hardness Ca	mg/l	400	380
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	30	30
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Continue to log with RCI taking samples and pressure points.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/ 15.8	np/na Values	0.415/0.405
Drilling		Water Added	0	KCl	2.8/ 73.1	kp/ka (Pa·s^n)	1.612/1.846
Tripping		Mud Received	0	Low Gravity	3.9/ 101.9	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Centrifuge	0	Bentonite	1./ 25.5	Bit HHP (kWatt / HSI)	/ 1
Wireline Logs	24	DeSilter	0	Drill Solids	2.9/ 76.4	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	6.3/ 263.6	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React	1.9969	Crit Vel DP (m/min)	117
		Dump at Sea Bed	0	Average SG	3.58	Crit Vel DC (m/min)	135
		Shakers	0	Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 2624 (sp.gr.)	1.32

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 117,191.44

WATER-BASED MUD REPORT No. 21

Date	17/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Run Siesmic Log

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			143.9(Tot)/27.6(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	9 m		70.7	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m		98.3	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m		38.2	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit@19:30	Pit@08:00
Flow Line Temp	°C		
Depth/TVD	m	2915/2915	2915/2915
Mud Weight	sp.gr.	1.32@23°C	1.32@22°C
Funnel Viscosity	s/L	47	47
Rheology Temp	°C	49	49
R600/R300		62/47	56/42
R200/R100		40/30	36/29
R6/R3		10/8	9/7
PV	cP	15	14
YP	Pa	16.	14.
10s/10m/30m Gel	Pa	8/12/15	8/13/15
API Fluid Loss	cc/30 min	4.8	4.8
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm	1/	1/
Solids	%Vol	13.5	13.5
Oil/Water	%Vol	/86.5	/86.5
Sand	%Vol	0.25	0.25
MBT	kg/m³	34	34
pH		8.5	8.5
Alkal Mud (Pm)		0.1	0.15
Pf/Mf		0.1/1.2	0.1/1.2
Chlorides	mg/l	50000	51000
Hardness Ca	mg/l	400	380
KCl	% by Wt	8	8
Carbonates	m mole/lit	2	2
Bicarbonates	m mole/lit	30	30
Sulphite Excess	mg/l	10	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Maintain mud weight at 11.0 ppg.

REMARKS

Continue to attempt to regain comms with RCI tool, unable to do so. Circulate bottoms up at 2077m and POOH with tool to retrieve samples.
Rig up and run siesmic on wireline.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/ 15.8	np/na Values	0.400/0.377
Drilling		Water Added	0	KCl	2.8/ 73.1	kp/ka (Pa·s^n)	1.987/2.210
Tripping	6	Mud Received	0	Low Gravity	3.9/ 101.9	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Centrifuge	0	Bentonite	1./ 25.5	Bit HHP (kWatt / HSI)	/ 1
Wireline Logs	18	DeSilter	0	Drill Solids	2.9/ 76.4	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	6.3/ 263.6	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React	1.9969	Crit Vel DP (m/min)	87
		Dump at Sea Bed	0	Average SG	3.58	Crit Vel DC (m/min)	106
		Shakers	0	Carb/BiCarb (m mole/L)	2./ 31.6	ECD @ 300 (sp.gr.)	1.32

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 117,191.44

WATER-BASED MUD REPORT No. 22

Date	18/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Plug and Abandon

Operator : Apache Energy
Report For : Harry Everhart/John Wrenn
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x12 /3x13 / 1/32"			138.4(Tot)/102.8(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	1652 m		79.2	Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m		182	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m		28.2	Circulating Pressure		

MUD PROPERTIES

Sample From		Pit@19:00
Flow Line Temp	°C	44
Depth/TVD	m	2915/2915
Mud Weight	sp.gr.	1.32@23°C
Funnel Viscosity	s/L	47
Rheology Temp	°C	49
R600/R300		66/51
R200/R100		43/33
R6/R3		11/9
PV	cP	15
YP	Pa	18.
10s/10m/30m Gel	Pa	9/13/17
API Fluid Loss	cc/30 min	6.0
HTHP FL Temp	cc/30 min	
Cake API/HTHP	mm	1/
Solids	%Vol	13.5
Oil/Water	%Vol	/86.5
Sand	%Vol	0.25
MBT	kg/m³	34
pH		10
Alkal Mud (Pm)		3.0
Pf/Mf		0.5/1.4
Chlorides	mg/l	50000
Hardness Ca	mg/l	420
KCl	% by Wt	8
Carbonates	m mole/lit	9.9
Bicarbonates	m mole/lit	5.0
Sulphite Excess	mg/l	10

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
DUOTEC	25 KG BG	4
OS-1	25 KG BG	4
SODIUM BICARBONATE	25 KG BG	4
GLUTE 25	25 LT CN	5

SOLIDS EQUIP

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Make up Hi-Vis mud in slug pit for cement job.
Add Glute 25 as needed and OS-1.

REMARKS

Finish siesmic log and rig down wireline. Pick up mule shoe and RIH to 2,775m and set first of 4 abandonment cement plugs. Dump cement contaminated mud as needed.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/ 15.8	np/na Values	0.372/0.371
Drilling		Water Added	0	KCl	2.8/ 73.1	kp/ka (Pa·s^n)	2.561/2.512
Tripping	6	Mud Received	0	Low Gravity	3.9/ 101.9	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Centrifuge	0	Bentonite	1./ 25.5	Bit HHP (kWatt / HSI)	/ 1
Cementing	18	DeSilter	0	Drill Solids	2.9/ 76.4	Bit Jet Vel (m/s)	
Fishing		Left in Hole	15	Weight Material	6.3/ 263.6	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- / .	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React	1.9969	Crit Vel DP (m/min)	127
		Dump at Sea Bed	0	Average SG	3.58	Crit Vel DC (m/min)	145
		Shakers	0	Carb/BiCarb (m mole/L)	9.9/ 5.	ECD @ 1943 (sp.gr.)	1.32

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 1,407.33	$ 118,598.77

WATER-BASED MUD REPORT No. 23

Date	19/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Abandon/Pull BOP

Operator : Apache Energy
Report For : Harry Everhart/Kristian Corps
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x12 /3x13 / 1/32"			143.9(Tot)/27.6(Bit)	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	9 m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m		27.6	Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
CALCIUM CHLORIDE	25 KG BG	6
GLUTE 25	25 LT CN	1

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Finish cement plug program, displace riser to sea water and discharge surface volume. Prepare to pull riser and BOP

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/	np/na Values	0.372/0.371
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	2.561/2.512
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	/ 1
Non-Productive Tim		Centrifuge	0	Bentonite	/	Bit HHP (kWatt / HSI)	/ 1
Cementing	24	DeSilter	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	/	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React		Crit Vel DP (m/min)	
		Dump at Sea Bed	0	Average SG		Crit Vel DC (m/min)	
		Shakers	0	Carb/BiCarb (m mole/L)	/	ECD @ 1792 (sp.gr.)	1.32

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 152.25	$ 118,751.02

WATER-BASED MUD REPORT No. 24

Date	20/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Cut surface casing

Operator : Apache Energy
Report For : Harry Everhart/Kristian Corps
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			147.7	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
M-I BAR BULK	1 MT BK	19

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Continue to pull riser and BOP, RIH with casing cutter and cut surface casing.
Clean and wash out pits and sand traps.
Received chemicals for next well from Far Grip.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service	24	Oil Added	0	NaCl	.5/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		Centrifuge	0	Bentonite	/	Bit HHP (kWatt / HSI)	
Cementing		DeSilter	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	/	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React		Crit Vel DP (m/min)	
		Dump at Sea Bed	0	Average SG		Crit Vel DC (m/min)	
		Shakers	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 4,392.04	$ 123,143.06

WATER-BASED MUD REPORT No. 25

Date	21/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Grayling-1 abandon

Operator : Apache Energy
Report For : Harry Everhart/Kristian Corps
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			147.7	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Skid rig over on anchors to Grayling-1 to retreive PGB and running tools. Cut casing with ROV and hydraulic cutter.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service	24	Oil Added	0	NaCl	.5/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		Centrifuge	0	Bentonite	/	Bit HHP (kWatt / HSI)	
Cementing		DeSilter	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	/	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React		Crit Vel DP (m/min)	
		Dump at Sea Bed	0	Average SG		Crit Vel DC (m/min)	
		Shakers	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 123,143.06

WATER-BASED MUD REPORT No. 26

Date	22/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	KCl-Idcap
Water Depth	59	**Activity**	Grayling-1 abandon

Operator : Apache Energy
Report For : Harry Everhart/Kristian Corps
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-16(
Nozzles 3x12 /3x13 / 1/32"			147.7	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Continue to cut surface casing on Grayling-1 @ approx 20mm/hour.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service	24	Oil Added	0	NaCl	.5/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		DeSilter	0	Bentonite	/	Bit HHP (kWatt / HSI)	
Cementing		Left in Hole	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Other	0	Weight Material	/	Ann. Vel DP (m/min)	
		Sweeps	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Dump at Sea Bed	0	Inert/React		Crit Vel DP (m/min)	
		Shakers	0	Average SG		Crit Vel DC (m/min)	
		Dumped	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 123,143.06

WATER-BASED MUD REPORT No. 27

Date	23/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	N/A
Water Depth	59	**Activity**	Grayling-1 Abandon

Operator : Apache Energy
Report For : Chris Wilson/Stuart Douglass
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			147.7	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Continue to cut surface casing on Grayling-1 using ROV.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		Centrifuge	0	Bentonite	/	Bit HHP (kWatt / HSI)	
Cut casing	24	DeSilter	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	/	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React		Crit Vel DP (m/min)	
		Dump at Sea Bed	0	Average SG		Crit Vel DC (m/min)	
		Shakers	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 123,143.06

WATER-BASED MUD REPORT No. 28

Date	24/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	N/A
Water Depth	59	**Activity**	Grayling-1 Abandon

Operator : Apache Energy
Report For : Chris Wilson/Stuart Douglass
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			147.7	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Continue to cut surface casing on Grayling-1 using ROV.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		Centrifuge	0	Bentonite	/	Bit HHP (kWatt / HSI)	
Cut casing	24	DeSilter	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	/	Ann. Vel DP (m/min)	
		Other	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React		Crit Vel DP (m/min)	
		Dump at Sea Bed	0	Average SG		Crit Vel DC (m/min)	
		Shakers	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 123,143.06

WATER-BASED MUD REPORT No. 29

Date	25/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	N/A
Water Depth	59	**Activity**	Grayling-1 Abandon

Operator : Apache Energy
Report For : Chris Wilson/Stuart Douglass
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			147.7	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt
POTASSIUM HYDROXIDE	25 KG CN	4

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

Costs for inventory adjustment

REMARKS

Continue to cut surface casing on Grayling-1 using ROV

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		Centrifuge	0	Bentonite	/	Bit HHP (kWatt / HSI)	
Cut casing	24	DeSilter	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	/	Ann. Vel DP (m/min)	
Cementing		Other	0.1	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React		Crit Vel DP (m/min)	
		Dump at Sea Bed	0	Average SG		Crit Vel DC (m/min)	
		Shakers	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 120.92	$ 123,263.98

WATER-BASED MUD REPORT No. 30

Date	26/01/2005	**Depth/TVD**	2915 m / 2915 m
Spud Date	28/12/2004	**Mud Type**	N/A
Water Depth	59	**Activity**	Grayling-1 Abandon

Operator : Apache Energy
Report For : Chris Wilson/Stuart Douglass
Well Name : Grayling-1A
Contractor : Diamond Offshore
Report For : Barry Scott/Troy Williams

Field/Area : Gippsland
Description : Exploration
Location : Victoria
M-I Well No. : 16150

DRILLING ASSEMBLY		CASING	MUD VOLUME (m³)	CIRCULATION DATA		
Bit Size 216 mm DBS FM 37432		Surface	Hole	Pump Make	OILWELL 1700PT	NATIONAL 12P-160
Nozzles 3x12 /3x13 / 1/32"			147.7	Pump Size	152.4 X 304.8mm	152.4 X 304.8mm
Drill Pipe Size	Length	Intermediate	Active Pits	Pump Cap	L/stk	L/stk
127 mm	m			Pump stk/min		
Drill Pipe Size	Length	Intermediate	Total Circulating Vol	Flow Rate	L/min	
127 mm	139 m			Bottoms Up		
Drill Collar Size	Length	Production or Liner	In Storage	Total Circ Time		
165 mm	151 m			Circulating Pressure		

MUD PROPERTIES

Sample From			
Flow Line Temp	°C		
Depth/TVD	m		
Mud Weight	sp.gr.		
Funnel Viscosity	s/L		
Rheology Temp	°C		
R600/R300			
R200/R100			
R6/R3			
PV	cP		
YP	Pa		
10s/10m/30m Gel	Pa		
API Fluid Loss	cc/30 min		
HTHP FL Temp	cc/30 min		
Cake API/HTHP	mm		
Solids	%Vol		
Oil/Water	%Vol		
Sand	%Vol		
MBT	kg/m³		
pH			
Alkal Mud (Pm)			
Pf/Mf			
Chlorides	mg/l		
Hardness Ca	mg/l		
KCl	% by Wt		
Carbonates	m mole/lit		
Bicarbonates	m mole/lit		
Sulphite Excess	mg/l		

PRODUCTS USED LAST 24 HRS

Products	Size	Amt

SOLIDS EQUIP	Size	Hr
VSM Shaker 1	165/145/105/105	0
VSM Shaker 2	165/165/145/145	0
VSM Shaker 3	165/165/145/145	0
VSM Shaker 4	165/105/105/105	0
D-Sander		0
D-Silter		0

MUD PROPERTY SPECIFICATIONS

Weight	1.15
Viscosity	40-60
Filtrate	< 6

REMARKS AND TREATMENT

REMARKS

Cut well head and retrieve same. RIH with drill pipe and ser cement plug. RIH with casing cutter and cut 20 and 30" casings, retrieve PGB.
Laydown tools and ballast rig up in readiness to move to new location.

TIME DISTR	Last 24 Hrs	MUD VOL ACCTG	(m³)	SOLIDS ANALYSIS (%/kg/m³)		MUD RHEOLOGY & HYDRAULICS	
Rig Up/Service		Oil Added	0	NaCl	.5/	np/na Values	
Drilling		Water Added	0	KCl	/	kp/ka (Pa·s^n)	
Tripping		Mud Received	0	Low Gravity	/	Bit Loss (kPa / %)	
Non-Productive Tim		Centrifuge	0	Bentonite	/	Bit HHP (kWatt / HSI)	
Cut casing	22	DeSilter	0	Drill Solids	/	Bit Jet Vel (m/s)	
Fishing		Left in Hole	0	Weight Material	/	Ann. Vel DP (m/min)	
Cementing	2	Other	0	Chemical Conc	- /	Ann. Vel DC (m/min)	
		Sweeps	0	Inert/React		Crit Vel DP (m/min)	
		Dump at Sea Bed	0	Average SG		Crit Vel DC (m/min)	
		Shakers	0	Carb/BiCarb (m mole/L)	/		

M-I ENGR / PHONE	RIG PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
Geoff Pike -	61-8-9422 7540	61-8-9325 4822	$ 0.00	$ 123,263.98

APACHE ENERGY LIMITED
CASING RECORD

Well Name:	**Grayling-1**			PERMIT:	**VIC/P 54**	DATE:	
CASING:	**762**	RIG:	**Ocean Patriot**		RKB-s'bed (m):		**80.00**
HOLE SIZE:	**914mm**	TD (m):	**113.6**		RKB-MLS(m):		**0.00**
SHOE DEPTH (m):	**112.37**	TVD (m)	**113.6**		RKB-WellHead		**77.91**

JTS	SIZE	WEIGHT (lb/ft)	GRADE	CONN./RANGE	Burst (psi)	Collapse (psi)	Tension (tonnes)
3	**762**	**310**	**X52**	**Lynx**	**0**	**0**	

MILL CERTIFICATE Nos./PO's

DESCRIPTION	LENGTH (m)	BOTTOM (mRKB)	TOP (mRKB)
Shoe Jt	11.42	**112.37**	**100.95**
Intermediate Joint	**11.39**	**100.95**	**89.56**
Wellhead Housing	**11.67**	**89.56**	**77.89**
RT to Top of wellhead	**77.91**	**77.91**	**0.00**
total length	**112.39**		
Casing run time (hrs): 2.5	Average running speed /joint (min):		**50**

CENTRALISER DETAILS:	Bow	Semi rigid	Rigid	Turbolisers	Other
Number installed:	**-**	**-**	**-**	**-**	**-**
Interval (m):					

PIP TAG DEPTH (mRKB):	MLS Depth:	**0.00**	MLS length (m):	**0**

Total Casing on Board:	**6**	Casing Damage Details:	None
Total Casing Run in Hole:	**3**		
Total Casing Leftover:	**3**		

Pup Joints on Board:	0	Number Run:	**0**	No. returned:	**0**

Equipment used: 2 x 762mm elevators

Service Company: No. of Personnel:

Comments

Casing was run and landed in the PGB prior to drilling the 914mm hole and racked back in the moonpool

Supervisors:	**D.Kirkwood/ K.Corps**

APACHE ENERGY LIMITED
CASING RECORD

Well Name:	**Grayling-1**			PERMIT:	**VIC/P 54**	DATE:	**12-Nov-04**
CASING:	**13 3/8**	RIG:	**Ocean Patriot**		RKB-s'bed (m):	**80.0**	
HOLE SIZE:	**16**	TD (m):	**1009**		RKB-MLS(m):	**77.5**	
SHOE DEPTH (m):	**783.9**	TVD (m)	**995.2**		RKB-WellHead	**75.3**	

JTS	SIZE	WEIGHT (lb/ft)	GRADE	CONN./RANGE	Burst (psi)	Collapse (psi)	Tension (tonnes)
100	**340mm**	**47**	**L-80**	**New Vam**	**8150**	**5080**	**645**

MILL CERTIFICATE Nos./PO's

DESCRIPTION	LENGTH (m)	BOTTOM (mRKB)	TOP (mRKB)
Shoe Joint	**13.27**	**783.93**	**770.66**
Float Collar Joint (X/O BTC to New Vam)	**13.12**	**770.66**	**757.54**
53 Joints of Intermediate casing	**669.72**	**757.54**	**87.82**
Wellhead Joint	**10.07**	**87.82**	**77.75**
Hang-off Point	**0.00**	**77.75**	**77.75**
Wellhead above Hang-off point	**1.04**	**77.75**	**76.71**
Running Tool	**0.37**	**76.71**	**76.34**
Landing String	**76.34**	**76.34**	**0.00**
		0.00	
total length	**783.93**		
Casing run time (hrs): **7.5**	Average running speed /joint (min):		**8**

CENTRALISER DETAILS:	Bow	Semi rigid	Rigid	Turbolisers	Double Bow
Number installed:					**14**
Interval (m):					**995.25 - 855.75**

PIP TAG DEPTH (mRKB):	MLS Depth: **77.50**	MLS length (m):	**0**

Total Casing on Board:	**70**	Casing Damage Details:	None
Total Casing Run in Hole:	**53**		
Total Casing Leftover:	**17**		

Pup Joints on Board:	0	Number Run:	**0**	No. returned:	**0**

Equipment used: single jt elevator, 150 ton side door elevator, safety clamp, 16 K casing tong, Tam packer

Service Company: **Weatherford** No. of Personnel: **2**

Comments

Casing running was slow, required to work and wash casing casing down over last 100m.

Supervisors: **H.Everhart / C. Wilson**

APACHE ENERGY LIMITED
CASING RECORD

Well Name:	**Grayling-1A**			PERMIT:	**VIC/P 54**	DATE:	
CASING:	**762**	RIG:	**Ocean Patriot**		RKB-s'bed (m):		**80.00**
HOLE SIZE:	**914mm**	TD (m):	**113.6**		RKB-MLS(m):		**0.00**
SHOE DEPTH (m):	**112.37**	TVD (m)	**113.6**		RKB-WellHead		**77.89**

JTS	SIZE	WEIGHT (lb/ft)	GRADE	CONN./RANGE	Burst (psi)	Collapse (psi)	Tension (tonnes)
3	**762**	**310**	**X52**	**Lynx**	**0**	**0**	

MILL CERTIFICATE Nos./PO's

DESCRIPTION	LENGTH (m)	BOTTOM (mRKB)	TOP (mRKB)
Shoe Jt	11.42	**112.37**	**100.95**
Intermediate Joint	**11.39**	**100.95**	**89.56**
Wellhead Housing	**11.67**	**89.56**	**77.89**
RT to Top of wellhead	**77.89**	**77.89**	**0.00**
total length	**112.37**		
Casing run time (hrs): 2.5	Average running speed /joint (min):		**50**

CENTRALISER DETAILS:	Bow	Semi rigid	Rigid	Turbolisers	Other
Number installed:	**-**	**-**	**-**	**-**	**-**
Interval (m):					

PIP TAG DEPTH (mRKB):	MLS Depth:	**0.00**	MLS length (m):	**0**

Total Casing on Board:	**3**	Casing Damage Details:	None
Total Casing Run in Hole:	**3**		
Total Casing Leftover:	**0**		

Pup Joints on Board:	0	Number Run:	**0**	No. returned:	**0**

Equipment used:	2 x 762mm elevators
Service Company:	No. of Personnel:

Comments

Casing was run and landed in the PGB prior to drilling the 914mm hole and racked back in the moonpool
762mm running tool was unable to be made-up due to high torque. Back-up running tool was used
Original running tool to be sent to shore for repair and replacement

Supervisors:	**D.Kirkwood/ K.Corps**

APACHE ENERGY LIMITED
CASING RECORD

Well Name:	**Grayling-1A**			PERMIT:	**VIC/P 54**	DATE:	**4-Jan-05**
CASING:	**13 3/8**	RIG:	**Ocean Patriot**		RKB-s'bed (m):		**80.00**
HOLE SIZE:	**16**	TD (m):	**811**		RKB-MLS(m):		**78.35**
SHOE DEPTH (m):	**796.24**	TVD (m)	**811**		RKB-WellHead		**77.01**

JTS	SIZE	WEIGHT (lb/ft)	GRADE	CONN./RANGE	Burst (psi)	Collapse (psi)	Tension (tonnes)
72	**340**	**68**	**L-80**	**Butt**	**4905**	**2264**	**705**

MILL CERTIFICATE Nos./PO's

DESCRIPTION	LENGTH (m)	BOTTOM (mRKB)	TOP (mRKB)
Shoe Joint	**13.27**	**796.24**	**782.97**
Intermediate joint	**12.33**	**782.97**	**770.64**
Float Collar Joint	**13.09**	**770.64**	**757.55**
56 Joints of Intermediate casing	**669.28**	**757.55**	**88.26**
Wellhead Joint	**10.28**	**88.26**	**77.98**
Hang-off Point	**0.00**	**77.98**	**77.98**
Wellhead above Hang-off point	**0.98**	**77.98**	**77.00**
Running Tool	**0.67**	**77.00**	**76.33**
Landing String	**76.34**	**76.33**	**-0.01**
		-0.01	
total length	**796.24**		

Casing run time (hrs): **6.5** — Average running speed /joint (min): **7**

CENTRALISER DETAILS:	Bow	Semi rigid	Rigid	Turbolisers	Double Bow
Number installed:	**7**				
Interval (m):	**796.24 -733.54**				

PIP TAG DEPTH (mRKB):	MLS Depth: **78.35**	MLS length (m): **0**

Total Casing on Board:	**72**	Casing Damage Details:	5 joints damaged
Total Casing Run in Hole:	**59**	3 Joints cross-threaded	
Total Casing Leftover:	**13**	2 Joints "egged" due to too much torque trying to remove coupling	

Pup Joints on Board:	0	Number Run:	**0**	No. returned:	**0**

Equipment used: single jt elevator, 150 ton side door elevator, safety clamp, 16 K casing tong, Tam packer

Service Company: **Weatherford** — No. of Personnel: **2**

Comments

Casing ran well to 462m on the first run then met resistance. Was able to wash to 520m then no progress
Performed wiper trip then re-ran casing. Casing was run down to 608m. The casing was then washed
and worked to 707m. Appeared as though casing was hanging-up on junk (centralizers).
Threads on wellhead housing were crossed. Made-up new wellhead housing and ran casing to bottom.

Supervisors: **C. Wilson / J. Wrenn**

APACHE ENERGY LIMITED

WELL CEMENTING REPORT

WELL #	Grayling-1	PERMIT #	VicP54	Rig Name:	Ocean Patri	Date:	25-Dec-04

Last Csg (mm):	0	Set at (m):	0.00	Wt (kg/m):	0	Grade:	0
This Csg (mm):	762	Set at (m):	112.20	Wt (kg/m):	546	Grade:	X52
Hole size (mm):	919	Depth (m):	113.30				
Cement Co:	Dowell	Cementer:	E.Llagas	Co Reps:	D.Kirkwood/K.Corps		

Mud type:	SW	Density (sg):	1.02	Visc(secs):		Yield Pt:	

Cement Data

Source Details:							
Lead from (m):	N/A	Lead to (m):	N/A	Excess		Cement type:	
Density (sg):		Yield Ratio		Sacks No:		Slurry m^3:	
Additives:							
Tail from (m):	113	Tail to (m):	80	Excess	300	Cement type	Class G
Density (sg):	1.90	Yield Ratio	1.17	Sacks No:	1089	Slurry m^3:	32.0
Additives:	1.5% CaCl2						
Pre-flush type:	SW	Density(sg):	1.02	Vol (m^3)	3.2		
Cement Volume:							
Caliper (mm):						Total Cement Volume (m^3):	32.0

Mix water data

Lead Type:		Density(sg):	1.00	Lt/sx:		Vol m^3:	
Base chlorides:		Additives:					
Tail Type:	SW	Density(sg):	1.00	Lt/sx:		Vol m^3:	4.80
Base chlorides:		Additives:	1.5%CaCl				

Displacement Details

	Behind (m^3)	Displ (m^3)
Cement Pump		4.45
Rig Pump		
Rate (bpm)		4 bpm
Theoretical Volume (m^3)	4.45	

Job Time Details

	lead	tail
Lab. Test "t" time		1.56
Exposure Time		
Actual VolumePumped (m^3)	4.45	

Job Summary:

Operation	time (hr)	Rate (m^3/m)	kPa
Pump 0.8m3 seawater ahead	5:31 AM	1.11	1,300
Test line	5:33 AM		13,800
Pump 2.4m3 seawater with dye	5:38 AM	1.11	1,300
Mix and pump cement	5:41 AM	0.64	970
Displace 4.8m3 seawater with cement unit	6:50 AM	1.11	1,650
CIP	6:55 AM		

Comments:

APACHE ENERGY LIMITED

WELL CEMENTING REPORT

WELL #	Grayling-1	PERMIT #	VIC/P 54	Rig Name:	Ocean Patric	Date:	26-Dec-04

Last Csg (mm):	762	Set at (m):	112.00	Wt (kg/m):	301	Grade:	N80
This Csg (mm):	340	Set at (m):	783.90	Wt (kg/m):	101	Grade:	L80
Hole size (mm):	409	Depth (m):	800.00				
Cement Co:	Dowell	Cementer:	E.Llagas	Co Reps:	D.Kirkwood/K.Corps		

Mud type:	Seawater & PH(	Density (sg):	1.05	Visc(secs):	138	Yield Pt:	14

Cement Data

Source Details:							
Lead from (m):	895.5	Lead to (m):	395.5	Excess	10	Cement type:	Class G
Density (sg):	1.5	Yield Ratio	2.15	Sacks No:	253	Slurry m^3:	16.0
Additives:	DO47 Antifoam - 0.01gal/sk, DO75 Extender - 0.42gal/sk						
Tail from (m):	995.25	Tail to (m):	895.5	Excess	30	Cement type:	Class G
Density (sg):	1.90	Yield Ratio	1.16	Sacks No:	144	Slurry m^3:	5.0
Additives:	DO47 Antifoam - 0.03gal/sk, D193 Fluid Loss - 0.25gal/sk, D145A Dispersant - 0.05gal/sk						
Pre-flush type:	Seawater	Density(sg):	1.05	Vol (m^3)	3.17		
Cement Volume:							
Caliper (mm):	8.757			Total Cement Volume (m^3):			21.0

Mix water data

Lead Type:	SW	Density(sg):	1.00	Lt/sx:	50.00	Vol m^3:	12.60
Base chlorides:	30000	Additives:					
Tail Type:	DW	Density(sg):	1.00	Lt/sx:	19.55	Vol m^3:	2.81
Base chlorides:	500	Additives:					

Displacement Details

	Behind (m^3)	Displ (m^3)
Cement Pump	1.59	
Rig Pump		32.50
Rate (bpm)		10
Theoretical Volume (m^3)	34.10	

Job Time Details

	lead	tail
Lab. Test "t" time	5:40	3:30
Exposure Time		
Actual VolumePumped (m^3)	34.57	

Job Summary:

Operation	time (hr)	Rate (m^3/m)	kPa
Pumped 1.59m3 of seawater	1:35 PM	0.76	2,359
Pressure tested lines to 34500kpa	1:38 PM		34,500
Pumped 1.59m3 of seawater	1:43 PM	0.76	2,359
Dropped bottom dart	1:46 PM		
Mixed & pumped lead slurry	1:50 PM	0.57	648
Mixed & pumped tail	2:15 PM	0.57	869
Dropped top dart	2:17 PM		20,700
Displaced 1.59m3 of seawater with the cement unit	2:20 PM	0.57	648
Displaced with rig pumps	2:25 PM	1.59	4,209
Cement in place	2:45 PM		

Comments:

Coupling on the primary cement pump dragged in 3 air lines (gear selection lines) that limited pumping to one pump. Job went well on one pump. No problems with cement delivery. Plugs did not bump

APACHE ENERGY LIMITED

WELL CEMENTING REPORT

WELL #	Grayling-1A	PERMIT #	VicP/54	Rig Name:	Ocean Patri	Date:	28-Dec-04

Last Csg (mm):	0	Set at (m):	0.00	Wt (kg/m):	0	Grade:	0
This Csg (mm):	762	Set at (m):	112.37	Wt (kg/m):	546	Grade:	X52
Hole size (mm):	919	Depth (m):	114.00				
Cement Co:	Dowell	Cementer:	E.Llagas	Co Reps:	C. Wilson / J. Wrenn		

Mud type:	SW	Density (sg):	1.02	Visc(secs):		Yield Pt:	

Cement Data

Source Details:							
Lead from (m):	N/A	Lead to (m):	N/A	Excess		Cement type:	
Density (sg):		Yield Ratio		Sacks No:		Slurry m^3:	
Additives:							
Tail from (m):	113	Tail to (m):	80	Excess	300	Cement type	Class G
Density (sg):	1.90	Yield Ratio	1.18	Sacks No:	1038	Slurry m^3:	36.3
Additives:	2.0% CaCl2, 0.01 gps D047						
Pre-flush type:	SW	Density(sg):	1.02	Vol (m^3)	3.2		
Cement Volume:							
Caliper (mm):				Total Cement Volume (m^3):			36.3

Mix water data

Lead Type:		Density(sg):		Lt/sx:		Vol m^3:	
Base chlorides:		Additives:					
Tail Type:	SW	Density(sg):	1.02	Lt/sx:		Vol m^3:	19.08
Base chlorides:		Additives:	2.0%CaCl, 0.01 gps D047				

Displacement Details

	Behind (m^3)	Displ (m^3)
Cement Pump		4.85
Rig Pump		
Rate (bpm)		7 bpm
Theoretical Volume (m^3)	4.85	

Job Time Details

	lead	tail
Lab. Test "t" time		
Exposure Time		
Actual VolumePumped (m^3)	4.85	

Job Summary:

Operation	time (hr)	Rate (m^3/m)	kPa
Pump 0.8m3 seawater ahead	11:46 PM	0.95	833
Test line	11:53 PM		13,780
Pump 2.4m3 seawater with dye	12:02 AM	0.95	833
Mix and pump cement slurry	12:05 AM	0.71	992
Displace 4.8m3 seawater with cement unit	1:02 AM	1.11	1,205
CIP	1:08 AM		

Comments:

Job went very well. Good cement delivery and no problems

APACHE ENERGY LIMITED

WELL CEMENTING REPORT

WELL #	Grayling-1A	PERMIT #	VIC/P 54	Rig Name:	Ocean Patric	Date:	1-Jan-05

Last Csg (mm):	762	Set at (m):	112.40	Wt (kg/m):	301	Grade:	X52
This Csg (mm):	340	Set at (m):	796.20	Wt (kg/m):	101	Grade:	L80
Hole size (mm):	409	Depth (m):	811.00				
Cement Co:	Dowell	Cementer:	D. Green	Co Reps:	C. Wilson / J. Wrenn		

Mud type:	SW & PHG	Density (sg):	1.05	Visc(secs):	138	Yield Pt:	14

Cement Data

Source Details:							
Lead from (m):	696	Lead to (m):	396	Excess	10	Cement type:	Class G
Density (sg):	1.5	Yield Ratio	2.23	Sacks No:	204	Slurry m^3:	12.9
Additives:	DO47 Antifoam - 0.01gal/sk, DO75 Extender - 0.42gal/sk						
Tail from (m):	796	Tail to (m):	696	Excess	30	Cement type:	Class G
Density (sg):	1.90	Yield Ratio	1.18	Sacks No:	216	Slurry m^3:	7.1
Additives:	DO47 Antifoam - 0.03gal/sk, D193 Fluid Loss - 0.30gal/sk, D145A Dispersant - 0.03gal/sk						
Pre-flush type:	Seawater	Density(sg):	1.05	Vol (m^3)	1.58		
Cement Volume:							
Caliper (mm):	16.000			Total Cement Volume (m^3):			20.0

Mix water data

Lead Type:	SW	Density(sg):	1.03	Lt/sx:	49.78	Vol m^3:	9.82
Base chlorides:	4000	Additives:					
Tail Type:	SW	Density(sg):	1.03	Lt/sx:	20.17	Vol m^3:	4.15
Base chlorides:	4000	Additives:					

Displacement Details

	Behind (m^3)	Displ (m^3)
Cement Pump	1.59	
Rig Pump		52.53
Rate (bpm)		10
Theoretical Volume (m^3)	54.12	

Job Time Details

	lead	tail
Lab. Test "t" time	> 8.00	3.93
Exposure Time		
Actual VolumePumped (m^3)	53.76	

Job Summary:

Operation	time (hr)	Rate (m^3/m)	kPa
Pumped 0.79 m3 of seawater	12:40 AM	0.63	551
Pressure tested lines to 27560 kPa	12:45 AM		27,560
Pumped 0.79 m3 of seawater	12:53 AM	0.63	551
Dropped bottom dart	12:57 AM		
Mixed & pumped lead slurry	12:57 AM	0.59	758
Mixed & pumped tail	1:30 AM	0.81	1,033
Dropped top dart	1:44 AM		
Displaced 1.59m3 of seawater with the cement unit	1:45 AM	0.79	648
Displaced with rig pumps, bumped plug	1:51 AM	1.59	4,209
Cement in place, tested casing with cement unit	2:22 AM		20,670

Comments:

Cement job went very well. Good delivery of cement from rig. Lead could not be pumped as fast as liked due to viscosity of D075 going through LAS. Bumped plug ahead of calculated volume

Wellname:	Grayling - 1A
Company:	Apache Energy
Date:	6-Jan-04
Prepared By:	Harry Everhart / John Wrenn
Revision:	1

Leak-off / Formation Integrity Test

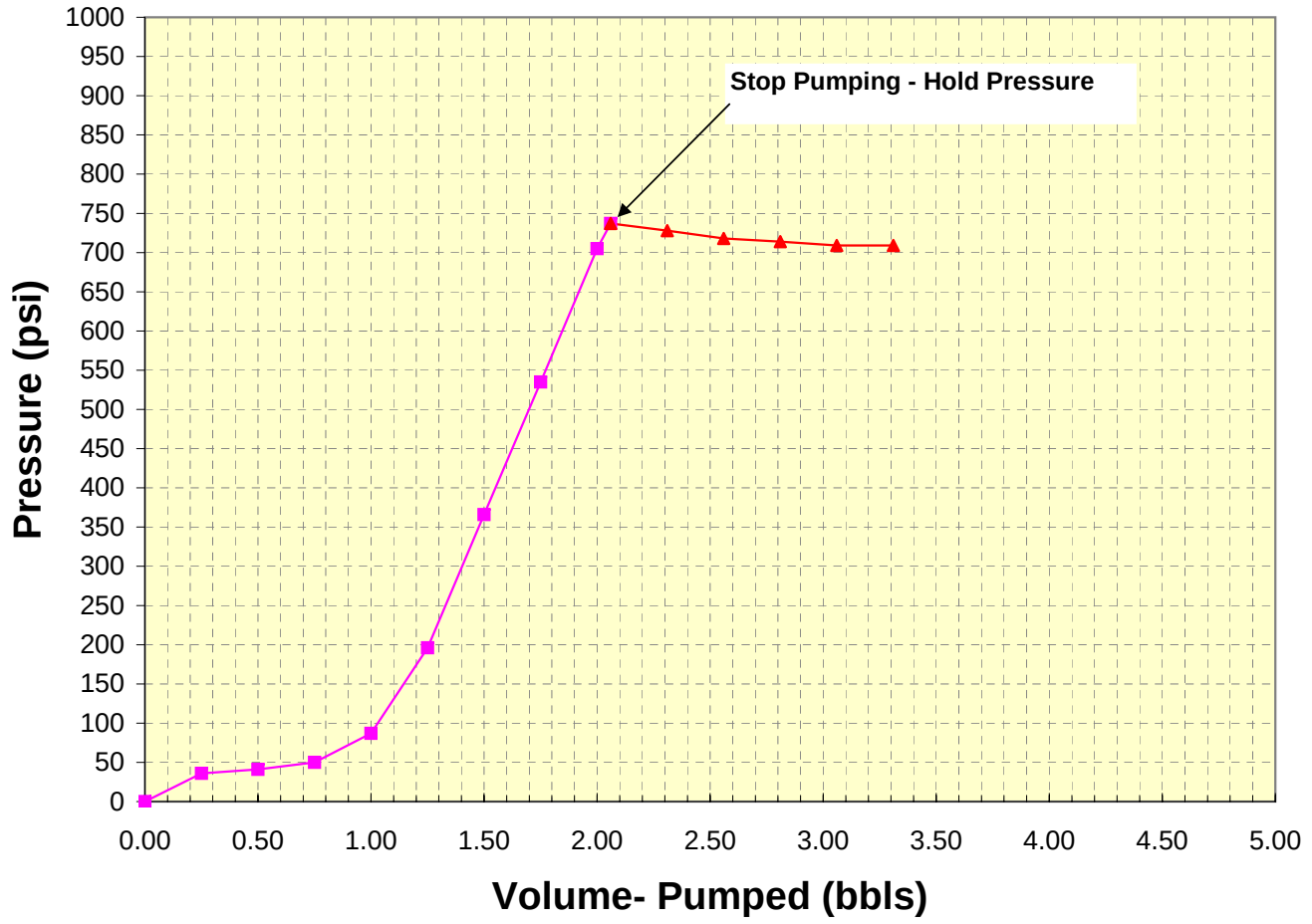
Casing Size:	13.375	in
Hole Size:	16	in
Shoe Depth:	796	mRT TVD
Hole Depth:	814	mRT TVD
Mud Weight:	1.15	SG
Pump Rate:	0.25	bpm
Leakoff pressure:	737	psi
Volume Pumped:	2.1	bbls
EMW =	***1.80***	SG EMW

Casing Test		Leak Off Test	
Volume	**Pressure**	**Volume**	**Pressure**
0.00	0	0.00	0
0.00	0	0.25	36
		0.50	41
		0.75	50
		1.00	87
		1.25	196
		1.50	366
		1.75	535
		2.00	705
		2.06	737

Pressure Stabilisation

Maximum Volume Pumped 2.06

Minutes	Pressure
0	737
1	728
2	718
3	714
4	709
5	709



APACHE ENERGY LIMITED

ABANDONMENT PLUG CEMENTING REPORT

WELL #	Grayling 1			PERMIT #	VIC/P 54		
Rig Name:	Ocean Patriot			Date:	26-Jan-05		
Csg OD (mm):	340	Set at (m):	783.90	Wt (kg/m):	101.23	Grade:	L80
Hole size (mm):	0	Depth (m):	0.00				
Cement Co:	Dowell	Cementer:	D. Green	Co Reps:	C Wilson / S Douglass		

Plug # 1a	26/1/05		Operations	Time
From (m)	170	Ahead (m3)	Pumped 1.5 m3 seawater ahead	0:53
To (m)	100	Behind (m3)	Pressure tested lines to 14700 kPa	0:56
Excess %	0 %	Density SG	Pumped 0.3 m3 seawater ahead	1:03
Density SG	1.90	Lit / sx	Mix & pumped 5.41m3 1.9SG slurry	1:10
Volume m^3	5.40	Mix Water	Displace with 0.6 m3 seawater behind	1:20
Sacks	162	Base Cl_2		
Yield	1.19	Tag Depth(m)		
Mix Water additives :		0		

Comment : Neat G class cement in seawater

APACHE ENERGY LIMITED

ABANDONMENT PLUG CEMENTING REPORT

WELL #	Grayling - 1A			PERMIT #	VIC/P 54		
Rig Name:	Ocean Patriot			Date:	18-Jan-05		
Csg OD (mm):	340	Set at (m):	796.00	Wt (kg/m):	101.23	Grade:	L80
Hole size (mm):	216	Depth (m):	2914.00				
Cement Co:	Dowell	Cementer:	D. Green	Co Reps:	H. Everhart / K. Corps		

Plug # 1a	18/1/05		Operations	Time
From (m)	2675	Ahead (m3)	Pumped 1.6m3 water ahead	8:15
To (m)	2585	Behind (m3)	Pressure tested lines to 27,600 kPa	8:17
Excess %		Density SG	Pumped 0.8m3 water ahead	8:23
Density SG		Lit / sx	Mix & pumped 2.62m3 1.9S slurry	8:36
Volume m^3		Mix Water	Pumped 0.47m3 water behind	8:43
Sacks		Base Cl_2	Displaced with 11.92m3 of 1.79sg mud.	8:46
Yield		Tag Depth(m)	CIP @	0.38
Mix Water additives :		0.01 gps D047, 0.1 gps D145A, 0.01 gps D110, 0.80 gps D193		
Comment :				

Plug # 1b	18/1/05		Operations	Time
From (m)	2585	Ahead (m3)	Pumped 1.6m3 water ahead	9:37
To (m)	2495	Behind (m3)	Pressure tested lines to 27,600 kPa	9:39
Excess %		Density SG	Pumped 0.8m3 water ahead	9:50
Density SG		Lit / sx	Mix & pumped 2.62m3 1.9S slurry	9:54
Volume m^3		Mix Water	Pumped 0.47m3 water behind	10:01
Sacks		Base Cl_2	Displaced with 11.92m3 of 1.79sg mud.	10:04
Yield		Tag Depth(m)	CIP @	10:22
Mix Water additives :		0.01 gps D047, 0.1 gps D145A, 0.01 gps D110, 0.80 gps D193		
Comment :	tagged at 2538m			

Plug # 2	18/1/05		Operations	Time
From (m)	2110	Ahead (m3)	Pumped 1.6m3 water ahead	17:05
To (m)	2010	Behind (m3)	Pressure tested lines to 27,600 kPa	17:08
Excess %		Density SG	Pumped 0.8m3 water ahead	17:10
Density SG		Lit / sx	Mix & pumped 2.62m3 1.9S slurry	17:14
Volume m^3		Mix Water	Pumped 0.47m3 water behind	17:26
Sacks		Base Cl_2	Displaced with 11.92m3 of 1.79sg mud.	17:29
Yield		Tag Depth(m)	CIP @	17:40
Mix Water additives :		0.01 gps D047, 0.1 gps D145A, 0.80 gps D193		
Comment :	tagged at 1996m			

Plug # 3	19/1/05		Operations	Time
From (m)	826	Ahead (m3)	Pumped 1.6m3 water ahead	5:30
To (m)	726	Behind (m3)	Pressure tested lines to 10,300 kPa	5:33
Excess %		Density SG	Pumped 1.6m3 water ahead	5:38
Density SG		Lit / sx	Mix & pumped 6m3 1.9S slurry	5:42
Volume m^3		Mix Water	Pumped 0.17m3 water behind	5:57
Sacks		Base Cl_2	Displaced with 5.6m3 of 1.79sg mud.	5:58
Yield		Tag Depth(m)	CIP @	6:03
Mix Water additives :		0.01 gps D047, 0.03 gps D145A, 0.30 gps D193		
Comment : tagged at 737m				

Plug # 4	19/1/05		Operations	Time
From (m)	170	Ahead (m3)	Pumped 0.8m3 water ahead	14:45
To (m)	100	Behind (m3)	Pressure tested lines to 27,600 kPa	14:47
Excess %		Density SG	Pumped 0.8m3 water ahead	14:54
Density SG		Lit / Sx	Mix & pumped 1.2m3 1.9S slurry	15:00
Volume m^3		Mix Water	Pumped 0.4m3 water behind	15:12
Sacks		Base Cl_2	CIP @	15:15
Yield		Tag Depth(m)		
Mix Water additives :		0.01 gps D047		
Comment :				

APACHE ENERGY LIMITED

ABANDONMENT PLUG CEMENTING REPORT

WELL #	Grayling - 1A			PERMIT #	VIC/P 54		
Rig Name:	Ocean Patriot			Date:	18-Jan-05		
Csg OD (mm):	340	Set at (m):	796.00	Wt (kg/m):	101.23	Grade:	L80
Hole size (mm):	216	Depth (m):	2914.00				
Cement Co:	Dowell	Cementer:	D. Green	Co Reps:	H. Everhart / K. Corps		

Plug # 1a	18/1/05		Operations	Time
From (m)		Ahead (m3)	Pumped 1.6m3 water ahead	8:15
To (m)		Behind (m3)	Pressure tested lines to 27,600 kPa	8:17
Excess %		Density SG	Pumped 0.8m3 water ahead	8:23
Density SG		Lit / sx	Mix & pumped 2.62m3 1.9S slurry	8:36
Volume m^3		Mix Water	Pumped 0.47m3 water behind	8:43
Sacks		Base Cl_2	Displaced with 11.92m3 of 1.79sg mud.	8:46
Yield		Tag Depth(m)	CIP @	0.38
Mix Water additives :	0.01 gps D047, 0.1 gps D145A, 0.01 gps D110, 0.80 gps D193			
Comment :				

Plug # 1b	18/1/05		Operations	Time
From (m)		Ahead (m3)	Pumped 1.6m3 water ahead	9:37
To (m)		Behind (m3)	Pressure tested lines to 27,600 kPa	9:39
Excess %		Density SG	Pumped 0.8m3 water ahead	9:50
Density SG		Lit / sx	Mix & pumped 2.62m3 1.9S slurry	9:54
Volume m^3		Mix Water	Pumped 0.47m3 water behind	10:01
Sacks		Base Cl_2	Displaced with 11.92m3 of 1.79sg mud.	10:04
Yield		Tag Depth(m)	CIP @	10:22
Mix Water additives :	0.01 gps D047, 0.1 gps D145A, 0.01 gps D110, 0.80 gps D193			
Comment :				

Plug # 2	18/1/05		Operations	Time
From (m)		Ahead (m3)	Pumped 1.6m3 water ahead	17:05
To (m)		Behind (m3)	Pressure tested lines to 27,600 kPa	17:08
Excess %		Density SG	Pumped 0.8m3 water ahead	17:10
Density SG		Lit / sx	Mix & pumped 2.62m3 1.9S slurry	17:14
Volume m^3		Mix Water	Pumped 0.47m3 water behind	17:26
Sacks		Base Cl_2	Displaced with 11.92m3 of 1.79sg mud.	17:29
Yield		Tag Depth(m)	CIP @	17:40
Mix Water additives :	0.01 gps D047, 0.1 gps D145A, 0.80 gps D193			
Comment :				

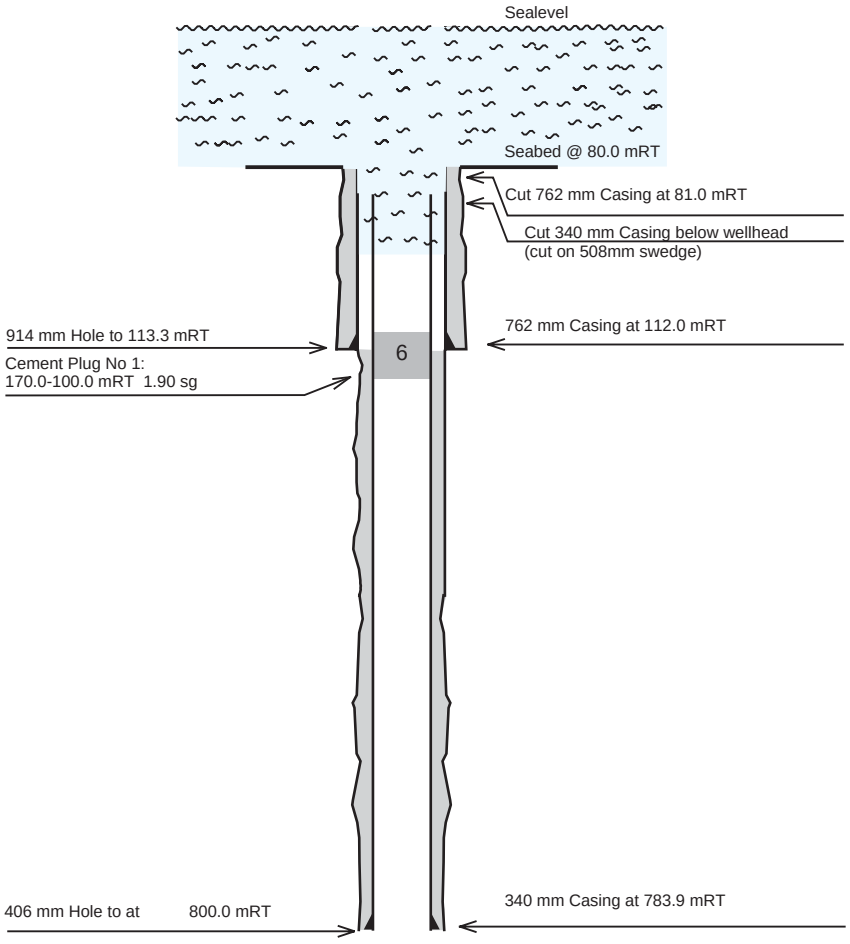
Plug # 3	19/1/05	Operations	Time
From (m)	Ahead (m3)	Pumped 1.6m3 water ahead	5:30
To (m)	Behind (m3)	Pressure tested lines to 10,300 kPa	5:33
Excess %	Density SG	Pumped 1.6m3 water ahead	5:38
Density SG	Lit / sx	Mix & pumped 6m3 1.9S slurry	5:42
Volume m^3	Mix Water	Pumped 0.17m3 water behind	5:57
Sacks	Base Cl_2	Displaced with 5.6m3 of 1.79sg mud.	5:58
Yield	Tag Depth(m)	CIP @	6:03
Mix Water additives :	0.01 gps D047, 0.03 gps D145A, 0.30 gps D193		
Comment :			

Plug # 4	19/1/05	Operations	Time
From (m)	Ahead (m3)	Pumped 0.8m3 water ahead	14:45
To (m)	Behind (m3)	Pressure tested lines to 27,600 kPa	14:47
Excess %	Density SG	Pumped 0.8m3 water ahead	14:54
Density SG	Lit / Sx	Mix & pumped 1.2m3 1.9S slurry	15:00
Volume m^3	Mix Water	Pumped 0.4m3 water behind	15:12
Sacks	Base Cl_2	CIP @	15:15
Yield	Tag Depth(m)		
Mix Water additives :	0.01 gps D047		
Comment :			

Vic / P-54

GRAYLING-1

ABANDONMENT SCHEMATIC



LOCATION

Lat:	38°09' 40.26" S
Long:	148°17' 35.90" E
Datum:	GDA 94, Spheroid GRS80

ELEVATIONS

RT - AHD Elevation:	21.5 m
Water Depth:	58.5 m

WELL TRACK DETAILS

914 mm Hole to:	113.3 mRT
762 mm Casing at:	112.0 mRT
406 mm Hole to:	800.0 mRT
340 mm Casing at:	783.9 mRT

ABANDONMENT PLUGS

GRAYLING-1

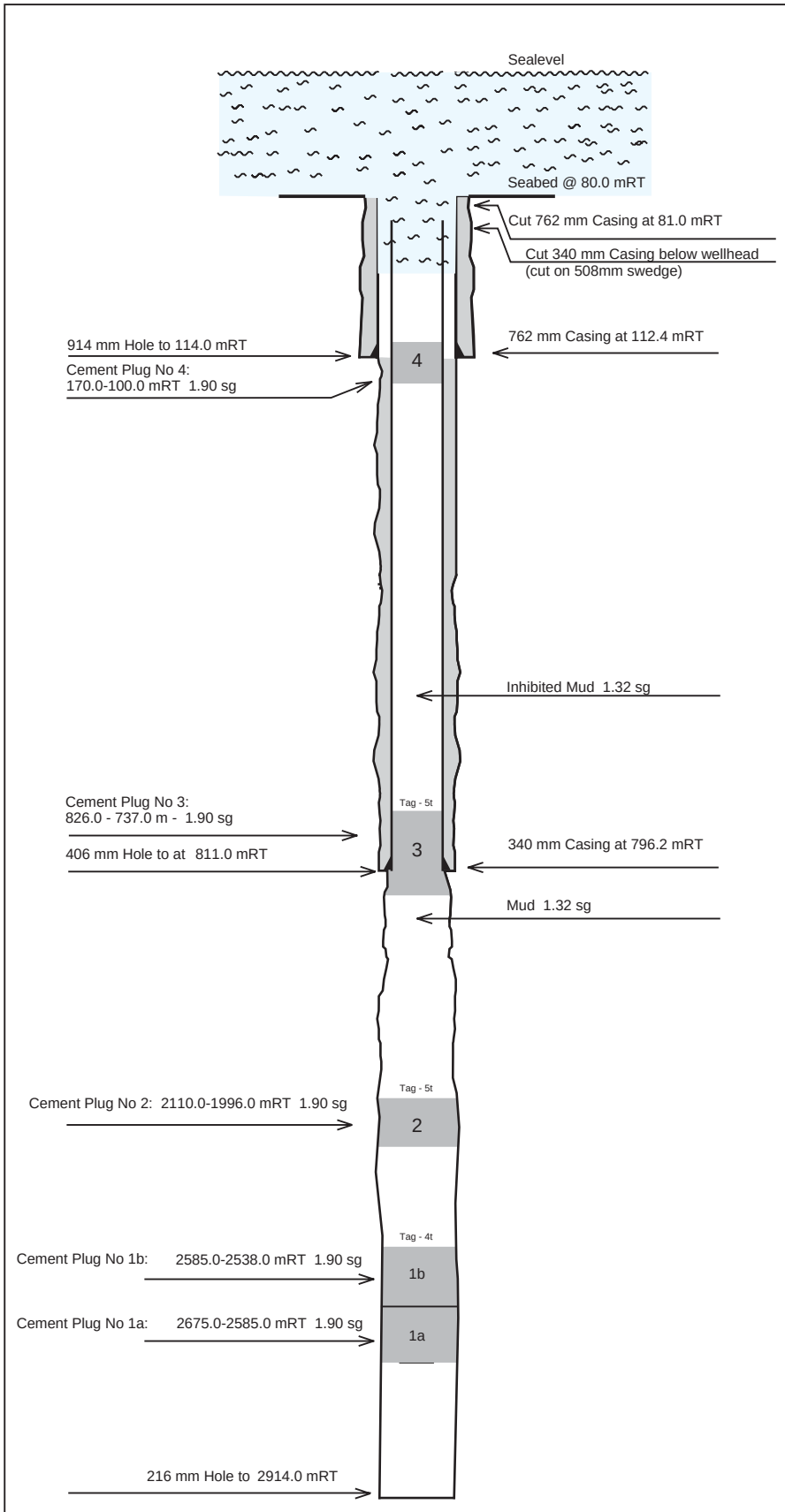
P&A Plug No1:	170.0-100.0 mRT

All depths mMDRT	Scale: NOT TO SCALE
Drawn by: J.MELING	Date: JUNE 2005
File Name: ABANDGRAYLING1.DGN	

Vic / P-54

GRAYLING-1A

ABANDONMENT SCHEMATIC



LOCATION

Lat:	38°09' 40.28" S
Long:	148°17' 34.73" E
Datum:	GDA 94, Spheroid GRS80

ELEVATIONS

RT - AHD Elevation:	21.5 m
Water Depth:	58.5 m

WELL TRACK DETAILS

914 mm Hole to:	114.0 mRT
762 mm Casing at:	112.4 mRT
406 mm Hole to:	811.0 mRT
340 mm Casing at:	796.2 mRT
216 mm Hole to:	2914.0 mRT

ABANDONMENT PLUGS

GRAYLING-1A

P&A Plug No1a:	2675.0-2585.0 mRT
P&A Plug No1b:	2585.0-2538.0 mRT
P&A Plug No2:	2110.0-1996.0 mRT
P&A Plug No3:	826.0-737.0 mRT
P&A Plug No4:	170.0-100.0 mRT

All depths mMDRT	Scale: NOT TO SCALE
Drawn by: J.MELING	Date: JUNE 2005
File Name: ABANDGRAYLING1A.DGN	

REPORT FOR THE
OCEAN PATRIOT RIG MOVE TO THE
GRAYLING-1 AND 1A LOCATIONS

FUGRO SURVEY JOB NO. - P0165

Client	:	Apache Energy Limited Level 3 256 St George's Terrace Perth, 6000 Western Australia
Date of Survey	:	09 – 11 December 2004
	:	19 – 24 December 2004
	:	03 – 05 January 2005

0	Final			19 January 2005
Rev	Description	Checked	Approved	Date

CONTENTS

FIGURES

TABLES

APPENDICES

ABSTRACT

Fugro Survey Pty Ltd (Fugro) were contracted by Apache Energy Limited (Apache) to provide survey positioning services for the semi-submersible Mobile Offshore Drilling Unit (MODU), Ocean Patriot. Positioning services on the Ocean Patriot were supplied for the periods 9 to 11 December 2004, 19 to 24 December 2004, and 3 to 5 January 2005. Positioning for the move from Longtom-2 to Grayling-1 occurred during the second phase of survey operations. The Ocean Patriot was re-positioned at Grayling-1A during the third phase of survey operations, subsequent to the rig skidding off location at Grayling-1. Grayling-1/1A is in Permit Vic/P-54 in Bass Strait, offshore Victoria, Australia.

Surface positioning was achieved using Fugro's Starfix Differential GPS and Starfix Seis Navigation Software.

The final surface position of the Ocean Patriot drillstem at the Grayling-1 location is:

Location Name:	**Grayling-1**
Geocentric Datum of Australia 1994 (GDA94)	
Latitude:	38° 09' 40.26" S
Longitude:	148° 17' 35.90" E
Map Grid of Australia 1994 (MGA94) Zone 55 (CM 147° E)	
Easting (m):	613302.06
Northing (m):	5775510.94
Rig Heading:	44.18° (True)

This position is 1.3m on a bearing of 243.8° (Grid) from the proposed Grayling-1 location.

The final surface position of the Ocean Patriot drillstem at the Grayling-1A location is:

Location Name:	**Grayling-1A**
Geocentric Datum of Australia 1994 (GDA94)	
Latitude:	38° 09' 40.28" S
Longitude:	148° 17' 34.73" E
Map Grid of Australia 1994 (MGA94) Zone 55 (CM 147° E)	
Easting (m):	613273.61
Northing (m):	5775510.58
Rig Heading:	43.53° (True)

This position is 29.6m on a bearing of 268.2° (Grid) from the proposed Grayling-1 location.

The Grayling-1A surface position is 28.4m on a bearing of 269.3° (Grid) from the Grayling-1 surface location.

All coordinates in this report are referenced to the Geocentric Datum of Australia 1994 (GDA94) and projected onto the Map Grid of Australia 1994 (MGA94) Zone 55 (CM 147° E), unless otherwise stated.

All times in this report are quoted in Australian Eastern Daylight Saving Time (EDST), unless otherwise stated.

1.0 INTRODUCTION

Fugro Survey Pty Ltd (Fugro) were contracted by Apache Energy Limited (Apache) to provide survey positioning services for the semi-submersible Mobile Offshore Drilling Unit (MODU), *Ocean Patriot*. Positioning services on the *Ocean Patriot* were supplied for the periods 9 to 11 December 2004, 19 to 24 December 2004, and 3 to 5 January 2005.

Positioning for the move from Longtom-2 to Grayling-1 occurred during the second phase of survey operations. Subsequent surface positioning at the Grayling-1A location occurred during the third phase of survey operations. Grayling-1/1A is located in Permit Vic/P-54 in Bass Strait, offshore Victoria, Australia. A general location diagram is shown as Figure 1-1.

This report details the equipment used, survey parameters adopted, survey methodology and results obtained. A section on safety is included in Section 3.0.

1.1 Scope of Work

Personnel and equipment were provided on a 24 hour per day basis for:

- Installation and maintenance of survey equipment on board the semi-submersible MODU *Ocean Patriot* and Anchor Handling Vessels (AHVs) *Far Grip* and *Pacific Wrangler*.
- Calibration of the SG Brown Gyrocompass and verification of the Starfix Differential GPS system on board the *Ocean Patriot*.
- Differential GPS check of the *Ocean Patriot* drillstem position at the Longtom-2 location.
- Navigation for the *Ocean Patriot*, *Far Grip* and *Pacific Wrangler* during anchor handling operations, using Fugro's Starfix Differential GPS and Starfix Seis Navigation Software.
- Final surface positioning of the *Ocean Patriot* drillstem at the Grayling-1/1A location using Fugro's Starfix Differential GPS.
- Reporting of the *Ocean Patriot* drillstem position at the Grayling-1/1A location.

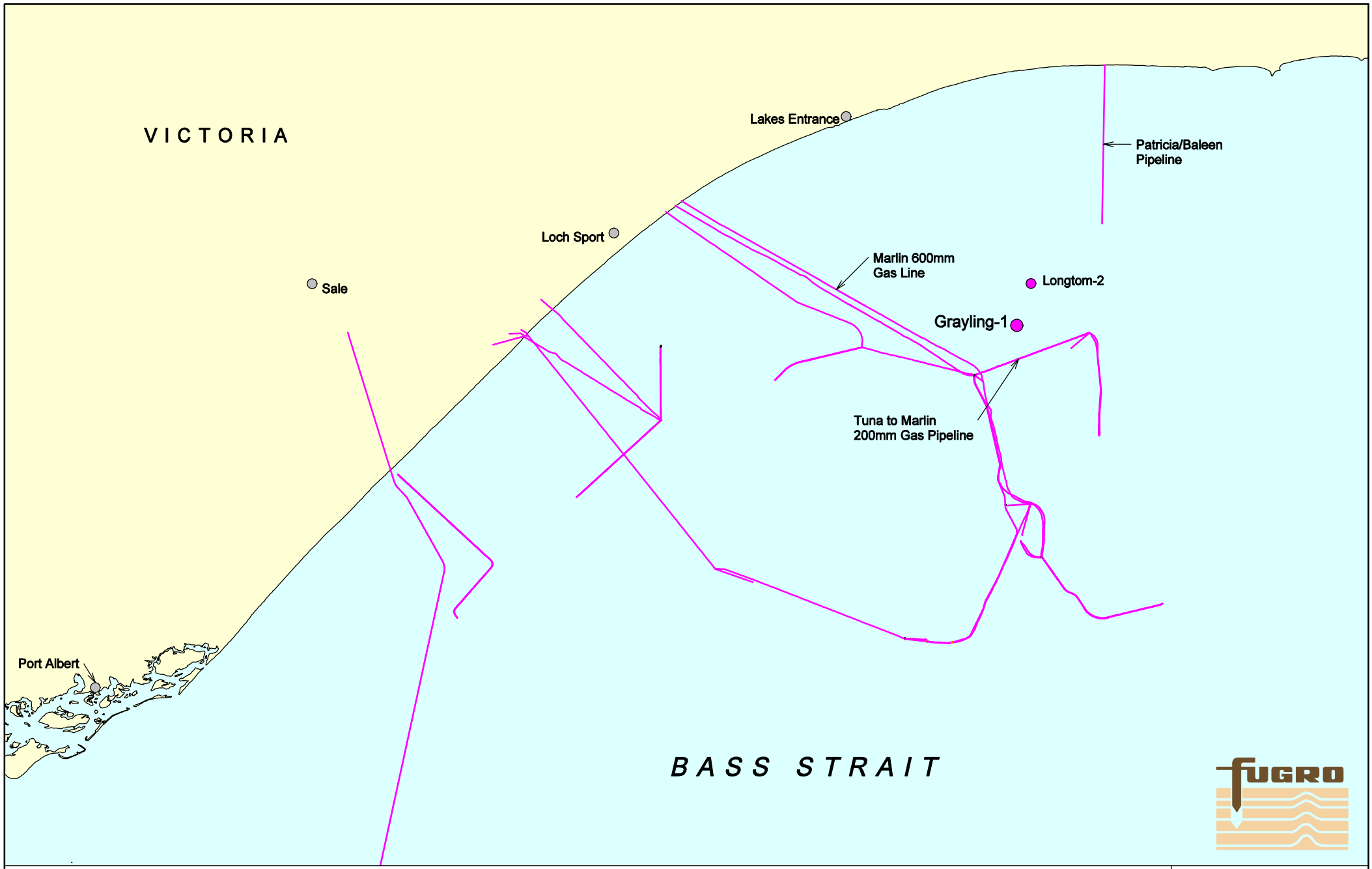
1.2 Summary of Events

Fugro personnel O. Friedlieb and L. Clarke travelled from Perth to Melbourne on 9 December 2004. On arrival on board the *Ocean Patriot* on 10 December 2004, personnel were advised by the Apache Drilling Representative that they would depart the *Ocean Patriot* due to extended drilling operations at the Longtom-2 location. Fugro personnel departed the *Ocean Patriot* and returned to Perth on 11 December 2004.

Fugro personnel O. Friedlieb and I. Walker travelled from Perth to Melbourne on 19 December 2004. Personnel arrived on board the *Ocean Patriot* on 20 December 2004 whilst it was at Longtom-2.

By 21 December 2004, the calibrations and equipment function tests were complete.

Anchor recovery at Longtom-2 commenced on 22 December 2004. The positioning of the drillstem at the Grayling-1 location was finalised between 23:00 and 23:59 on 23 December 2004.



GENERAL LOCATION DIAGRAM

FIGURE 1–1

u:\p0165_grayling-1_apache_ocean_patriot\dgn\figures\report\figure1-1.dgn

Fugro personnel departed the *Ocean Patriot* and returned to Perth on 24 December 2004.

O. Friedlieb returned to the *Ocean Patriot* on 4 January 2005, following well abandonment at Grayling-1 and subsequent drilling at the Grayling-1A location. The positioning of the drillstem at the Grayling-1A location was finalised between 10:30 and 11:30 on 4 January 2005.

O. Friedlieb departed the *Ocean Patriot* and returned to Perth on 5 January 2005.

For a detailed summary of events, refer to the Daily Operations Reports included in Appendix A.

2.0 RESULTS

2.1 *Ocean Patriot* Drillstem Position

The final surface position of the *Ocean Patriot* drillstem at the Grayling-1 location was observed between 23:00 and 23:59 on 23 December 2004. The final surface position of the *Ocean Patriot* drillstem at the Grayling-1A location was observed between 10:30 and 11:30 on 4 January 2005. Differential GPS observations were recorded from the primary (Starfix Spot/MRDGPS) and secondary (Starfix ApSat) positioning systems. The final *Ocean Patriot* drillstem position was computed within the Starfix Seis Navigation Software.

The primary Differential GPS source (Starfix Spot/MRDGPS) data were used for the final *Ocean Patriot* drillstem positioning report. GPS observations were differentially corrected using a multi-reference station solution with RTCM data corrections broadcast from Melbourne, Bathurst and Cobar in Australia.

The final surface position of the *Ocean Patriot* drillstem at the Grayling-1/1A locations is summarised in Table 2-1 and Table 2-2.

GDA94			
Position	**Method**	**Latitude**	**Longitude**
Grayling-1	MRDGPS	38° 09' 40.26" S	148° 17' 35.90" E
Grayling-1A	MRDGPS	38° 09' 40.28" S	148° 17' 34.73" E
Proposed Location	-	38° 09' 40.24" S	148° 17' 35.95" E

TABLE 2-1 : GEOGRAPHICAL COORDINATES FOR GRAYLING-1/1A

MGA94, Zone 55, CM 147° E			
Position	**Method**	**Easting (m)**	**Northing (m)**
Grayling-1	MRDGPS	613302.06	5775510.94
Grayling-1A	MRDGPS	613273.61	5775510.58
Proposed Location	-	613303.20	5775511.50

TABLE 2-2 : GRID COORDINATES FOR GRAYLING-1/1A

The Grayling-1 surface position is 1.3m on a bearing of 243.8° (Grid) from the proposed Grayling-1 location.

The Grayling-1A surface position is 29.6m on a bearing of 268.2° (Grid) from the proposed Grayling-1 location.

The Grayling-1A surface position is 28.4m on a bearing of 269.3° (Grid) from the Grayling-1 surface location.

A copy of the final positioning report for Grayling-1 and Grayling-1A is contained in Appendix B.

2.2 *Ocean Patriot* Heading

The heading of the *Ocean Patriot* at the Grayling-1 location was established by calculating the average heading during one hour of corrected gyrocompass readings observed between 23:00 and 23:59 on 23 December 2004.

The heading of the *Ocean Patriot* at the Grayling-1A location was established by calculating the average heading during one hour of corrected gyrocompass readings observed between 10:30 and 11:30 on 4 January 2005. During this period, gyrocompass readings were recorded at ten-second intervals in Starfix Seis.

The *Ocean Patriot's* heading at Grayling-1/1A is shown in Table 2-3.

Description	Method	Heading (True)	Heading (Grid)
Grayling-1	Gyrocompass	44.18°	44.98°
Grayling-1A	Gyrocompass	43.53°	44.33°
Proposed Heading	-	45.00°	45.80°

TABLE 2-3 : *OCEAN PATRIOT* HEADING AT GRAYLING-1/1A

2.3 *Ocean Patriot* Anchor Positions

The approximate locations of the *Ocean Patriot's* anchors at the Grayling-1/1A locations are shown in Table 2-4 and Table 2-5.

GDA94					
MGA94, Zone 55 CM 147° E					
Anchor	**Easting (m)**	**Northing (m)**	**Range (m)**	**Azimuth**	**Deployed By**
1	614157	5775761	838.1	72.3°	*Pacific Wrangler*
2	614168	5775131	900.6	114.4°	*Pacific Wrangler*
3	613525	5774589	907.3	165.4°	*Far Grip*
4	613055	5774573	929.5	194.9°	*Pacific Wrangler*
5	612318	5775277	970.7	255.0°	*Pacific Wrangler*
6	612341	5775785	958.6	285.4°	*Pacific Wrangler*
7	613089	5776446	909.8	345.4°	*Pacific Wrangler*
8	613556	5776400	871.9	15.7°	*Pacific Wrangler*

TABLE 2-4 : *OCEAN PATRIOT* ANCHOR POSITIONS AT GRAYLING-1

The approximate coordinates of the *Ocean Patriot*'s anchors are calculated from the azimuth from the fairlead position to the AHVs stern position at the time of anchor deployment. The range from the fairlead position to the anchor, as obtained from the on board chain counter, corrected for catenary.

3.0 SAFETY

All work undertaken by Fugro personnel during the project was performed within the guidelines of Fugro's Safety Policy, as defined in Fugro's Safety Manual (SMS-P01) and Offshore Survey Safety Practices (SMS-SP26).

Fugro personnel worked within all project safety guidelines and plans adopted by Apache Energy Limited and Diamond Offshore Drilling.

No safety incidents involving Fugro personnel were reported during the project.

Fugro Engineer L. Clarke attended the Diamond Offshore Drilling general induction upon arrival on board the *Ocean Patriot* on 9 December 2004. Surveyor Ian Walker attended the Diamond Offshore Drilling general induction upon arrival on board the *Ocean Patriot* on 20 December 2004.

The pre-rig move meeting on board the *Ocean Patriot* was attended by O. Friedlieb and I. Walker on 20 December 2004.

A Project Specific Safety Plan was developed for positioning services on the *Ocean Patriot* for the Grayling-1 rig move.

4.0 SURVEY PROCEDURES

Calibration of the SG Brown Gyrocompass and verification of the Starfix Differential GPS system was performed on board the *Ocean Patriot* on 20 December 2004. A Differential GPS check of the *Ocean Patriot* drillstem position at Longtom-2 was observed. Survey equipment on board the *Far Grip* and *Pacific Wrangler* was determined operational on 21 December 2004.

The *Ocean Patriot* tow from Longtom-2 to the Grayling-1 location was conducted with the *Far Grip* connected to the tow bridle. The *Pacific Wrangler* was connected to Anchor 5 throughout the duration of the tow.

The *Far Grip* and *Pacific Wrangler* manoeuvred the *Ocean Patriot* onto the Anchor 5 run-line extending from the proposed Anchor 5 drop location to Fairlead 5 on the *Ocean Patriot*. The *Pacific Wrangler* continued towards the proposed Anchor 5 drop location with the chain released from Fairlead 5 on the *Ocean Patriot*. The *Far Grip* remained on the tow bridle and continued along the Anchor 5 run-line to the proposed Grayling-1 location. After Anchor 5 had been deployed by the *Pacific Wrangler*, the *Far Grip* approximately positioned the rig over the proposed Grayling-1 location.

The *Pacific Wrangler* proceeded to run Anchors 1 and 4 prior to the *Far Grip* returning the tow bridle to the *Ocean Patriot*. Following deployment of Anchor 8 by the *Pacific Wrangler*, Anchors 1, 4, 5 and 8 were successfully cross tensioned.

Following deployment of Anchor 7 by the *Pacific Wrangler*, the *Far Grip* encountered problems with Anchor 3 when the PCC parted from the anchor chain. *Pacific Wrangler* continued with deployment of Anchors 6 and 2. The *Pacific Wrangler* encountered problems chasing back on Anchor 2, which was subsequently recovered and re-deployed at an altered design heading of 110°.

The *Far Grip* re-commenced deployment of Anchor 3 following repairs to the PCC. It was discovered that Anchor 2 was not secure during cross tensioning. Anchor 2 was re-deployed by the *Far Grip* which resulted in successful cross tensioning (200 ton) of all anchors on board the *Ocean Patriot*.

The *Ocean Patriot* was positioned over the proposed Grayling-1 location with all anchoring and pre-tensioning completed at 15:23 on 23 December 2004. Final positioning of the *Ocean Patriot* drillstem was recorded between 23:00 and 23:59 on 23 December 2004. The final position of the *Ocean Patriot* drillstem at the Grayling-1 location was issued to the Apache Drilling Supervisor (refer Appendix B).

Subsequent positioning of the *Ocean Patriot* drillstem occurred between 10:30 and 11:30 on 4 January 2004, subsequent to well abandonment at the Grayling-1 location and re-commencement of drilling at the Grayling-1A location. The final position of the *Ocean Patriot* drillstem at the Grayling-1A location was issued to the Apache Drilling Supervisor (refer Appendix B).

5.0 EQUIPMENT CALIBRATIONS

5.1 Gyrocompass Calibration

Calibration of the SG Brown gyrocompass was performed between 19:44 and 19:52 on 20 December 2004.

The Wild T2 Theodolite was setup on the *Ocean Patriot* helideck and a reference object (derrick) established along the rig centreline. A series of angles were observed between the derrick and the sun and the time of observations recorded. The azimuth of the sun and observed angle at each measurement epoch were used to calculate the *Ocean Patriot's* True Heading. Simultaneous gyrocompass observations were logged within Starfix Seis.

The Calculated (C) heading was compared to the Observed (O) gyrocompass heading to determine the gyrocompass C-O calibration value.

A mean C-O calibration result of 0.22° was input to Starfix Seis and applied to all gyrocompass readings throughout the duration of the project.

Details of the observations and gyrocompass calibration reduction results are included in Appendix C.

5.2 Differential GPS Check

A Differential GPS check of the *Ocean Patriot* drillstem position at Longtom-2 was conducted between 20:47 and 20:57 on 20 December 2004. A comparison between the previously published coordinates and observed coordinates is presented in Table 5-1 and Table 5-2.

GDA94			
Position	**Method**	**Latitude**	**Longitude**
Longtom-2 (Established)	MRDGPS	38° 06' 11.89" S	148° 19' 00.92" E
Longtom-2 (Observed)	MRDGPS	38° 06' 11.89" S	148° 19' 00.82" E
Difference	-	00° 00' 00.00" N	000° 00' 00.10" W
Primary Navigation	MRDGPS	38° 06' 11.89" S	148° 19' 00.82" E
Secondary Navigation	ApSat	38° 06' 11.89" S	148° 19' 00.86" E
Difference	-	00° 00' 00.00" S	000° 00' 00.04" E

TABLE 5-1 : DIFFERENTIAL GPS CHECK (GDA94 GEOGRAPHICAL COORDINATES)

MGA94, Zone 55 CM 147° E			
Position	**Method**	**Easting (m)**	**Northing (m)**
Longtom-2 (Established)	MRDGPS	615462.43	5781904.33
Longtom-2 (Observed)	MRDGPS	615459.84	5781904.47
Difference	-	2.59	-0.14
Primary Navigation	MRDGPS	615459.84	5781904.47
Secondary Navigation	ApSat	615460.85	5781904.28
Difference	-	-1.01	0.19

TABLE 5-2 : DIFFERENTIAL GPS CHECK (MGA94 GRID COORDINATES)

The secondary position is 1.03m on a bearing of 100.7° (Grid) from the primary observed location.

Details of the Differential GPS check at the Longtom-2 location are provided in Appendix D.

A positioning checklist was completed for the Grayling-1 location to confirm the proposed rig position and to ensure that the correct geodetic datum, transformation and projection parameters were being used. Geodetic calculations were performed using both Starfix Seis Software and Norcom Geodetic Software. This checklist (FSHY48-1) is shown in Appendix E.

6.0 SURVEY PARAMETERS

6.1 Geodetic Parameters

Well coordinates are referenced to the Geocentric Datum of Australia 1994 (GDA94). The Global Positioning System (GPS) operates on the World Geodetic System 1984 (WGS84) datum. Fugro's Differential GPS Reference Stations are currently defined in the International Terrestrial Reference Frame 2000 (ITRF2000 Epoch 2004.75). Due to the continual refinement of the WGS84 Reference Frame, the WGS84 and ITRF2000 Reference Frames are essentially identical.

Datum	**:**	**World Geodetic System 1984 (WGS84)**
Reference Spheroid	:	World Geodetic System 1984
Semi-Major Axis	:	6378137.000m
Inverse flattening	:	298.257223563

Datum	**:**	**Geocentric Datum of Australia 1994 (GDA94)**
Reference Spheroid	:	Geodetic Reference System 1980 (GRS80)
Semi-Major Axis	:	6378137.000m
Inverse flattening	:	298.257222101

The following seven parameter datum transformation (Table 6-1) has been used in Fugro's software to transform WGS84 (ITRF2000 Epoch 2004.50) coordinates to GDA94 coordinates. These parameters are calculated from the 14 parameter transformation defined by Geoscience Australia. Fugro follows the Coordinate Frame Rotation convention (as defined by UKOOA) for datum transformations.

Transformation Parameters from WGS84 (ITRF2000 Epoch 2004.50) to GDA94			
dX	-0.0266m	rX	+0.0134"
dY	-0.0303m	rY	+0.0124"
dZ	-0.0339m	rZ	+0.0140"
		dS	+0.0055ppm

TABLE 6-1 : WGS84 TO GDA94 TRANSFORMATION PARAMETERS

All grid projection coordinates are referenced to the Map Grid of Australia 1994.

Projection	**:**	Map Grid of Australia 1994 (MGA94)
Projection Type	:	Universal Transverse Mercator (UTM)
Latitude of Origin	:	0° North
Central Meridian	:	147° East (Zone 55)
Central Scale Factor	:	0.9996
False Easting	:	500000.000m
False Northing	:	10000000.000m
Units	:	Metres

6.2 Differential GPS Reference Stations

Fugro's Differential GPS Reference Stations are currently defined in the ITRF2000 (Epoch 2004.75) datum and are shown in Table 6-2.

ITRF2000 (EPOCH 2004.75)				
Description	**Site ID**	**Latitude**	**Longitude**	**Height (m)**
Melbourne	385	37° 48' 29.0098" S	144° 57' 48.0278" E	82.061
Bathurst	336	33° 25' 46.8838" S	149° 34' 01.9676" E	756.657
Cobar	316	31° 29' 57.4360" S	145° 50' 20.3430" E	270.161

TABLE 6-2 : FUGRO DIFFERENTIAL GPS REFERENCE STATIONS

7.0 EQUIPMENT AND PERSONNEL

7.1 Equipment Listing

Survey equipment used for positioning the *Ocean Patriot* was as follows:

Ocean Patriot

2 x Starfix Demodulators (1 Optus link, 1 APSat link)
2 x Trimble 4000 series GPS receivers
2 x Pentium IV computers, running Fugro's Starfix Seis navigation software suite (1 spare)
4 x 15" monitors (2 Seis, 1 Helm, 1 spare)
1 x SG Brown gyro compass
1 x Tokimex gyro compass (spare)
2 x Uninterruptible power supply units (UPS)
2 x Teledesign radio modem (1 spare)
1 x Theodolite, tripod and dark glass
1 x Printer

AHVs (complete system per vessel, plus one complete set of spares)

1 x Pentium III computers, running Starfix Seis (Remote)
1 x Monitor
1 x Starfix Spot DGPS receiver
1 x Fluxgate compass
1 x Teledesign radio modem
1 x Uninterruptible power supply unit (UPS)

All systems were provided complete with all necessary cabling, connectors, power supplies, antennae, accessories, manuals and consumables.

Refer to Figure 7-1 for an equipment flow diagram for the *Ocean Patriot* and Figure 7-2 for the equipment flow diagram for the AHVs.

7.2 Vessels

The vessels used for anchor handling and towing the *Ocean Patriot* were the *Pacific Wrangler* and the *Far Grip*. Refer to Figure 7-3, Figure 7-4 and Figure 7-5 for the vessel offset diagrams.

7.3 Personnel

Fugro personnel involved in the *Ocean Patriot* positioning operations were as follows:

O. Friedlieb	Party Chief / Surveyor	08 - 10 December 2004
		19 - 24 December 2004
		03 - 05 January 2005
L. Clarke	Engineer	08-10 December 2004
I. Walker	Engineer	19-24 December 2004

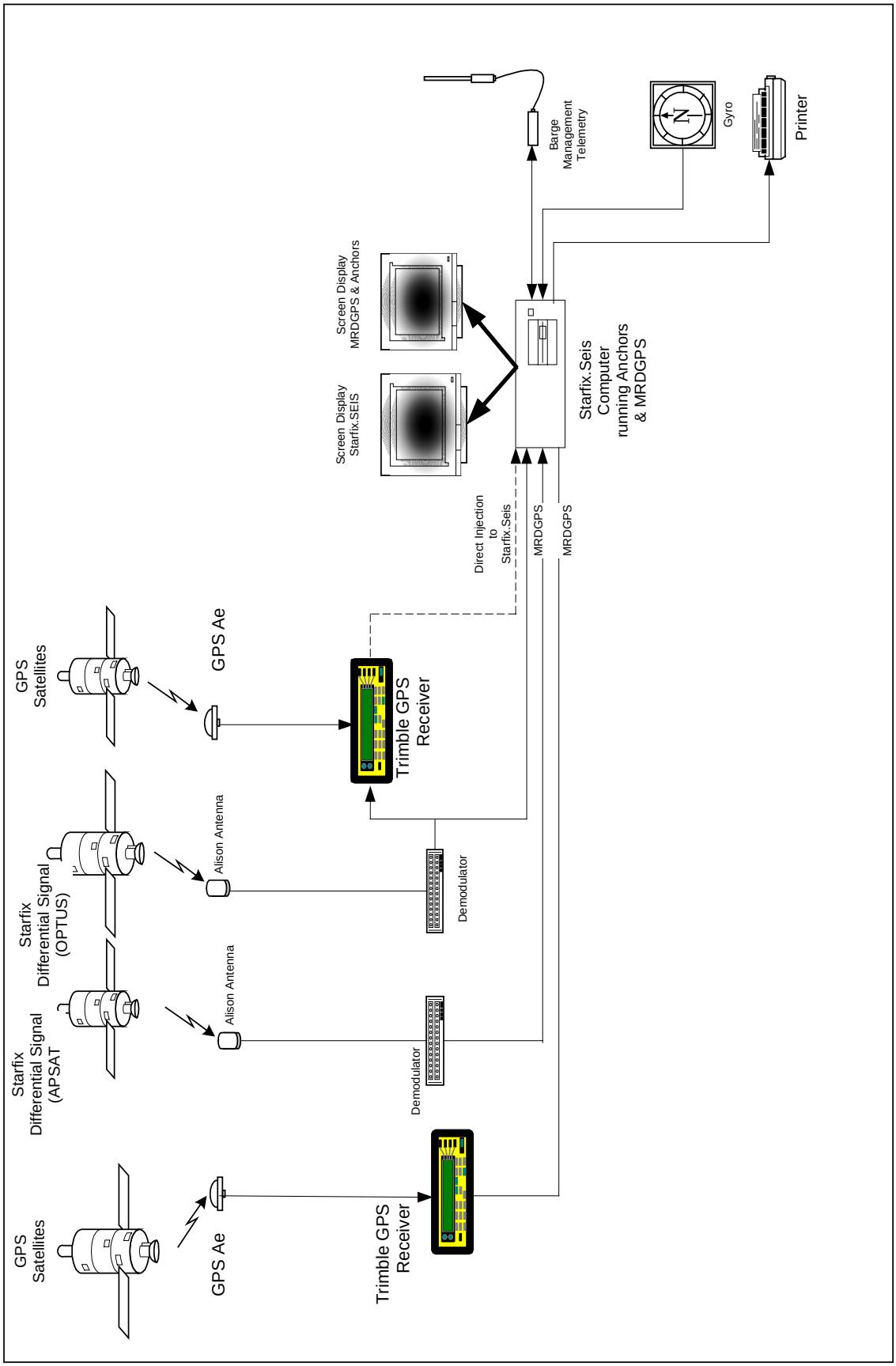


FIGURE 7-1 : EQUIPMENT FLOW DIAGRAM – MODU *OCEAN PATRIOT*

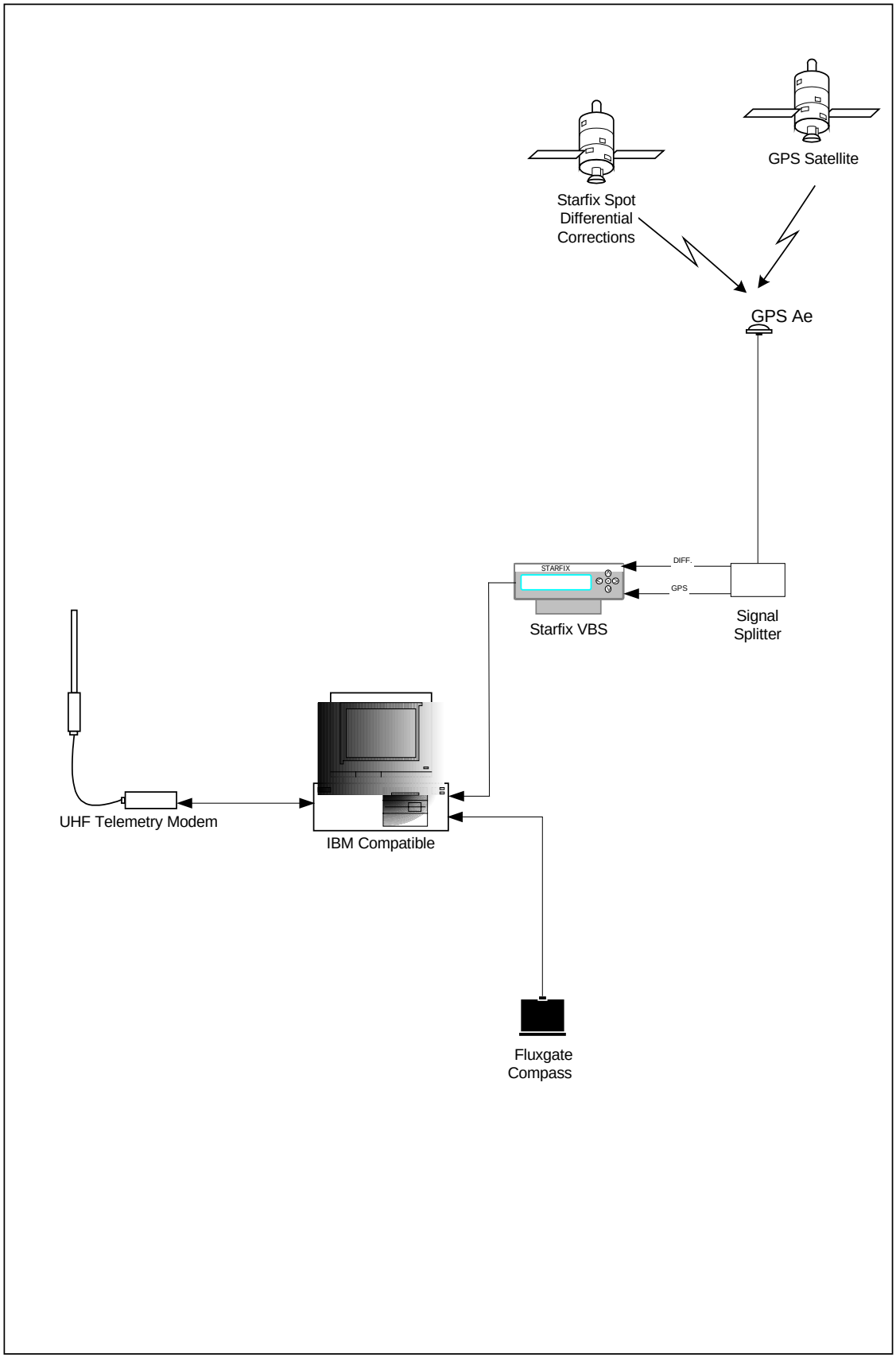
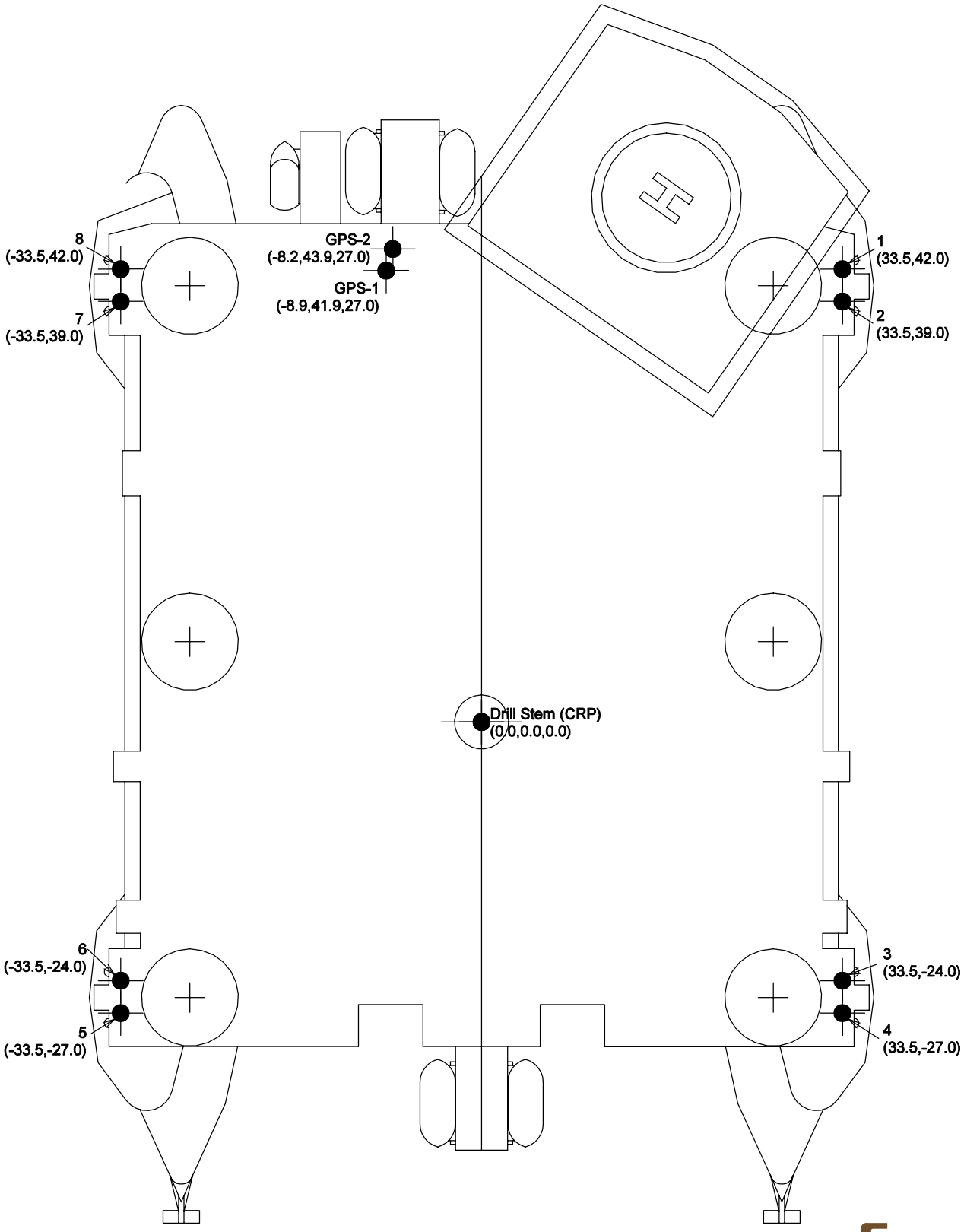


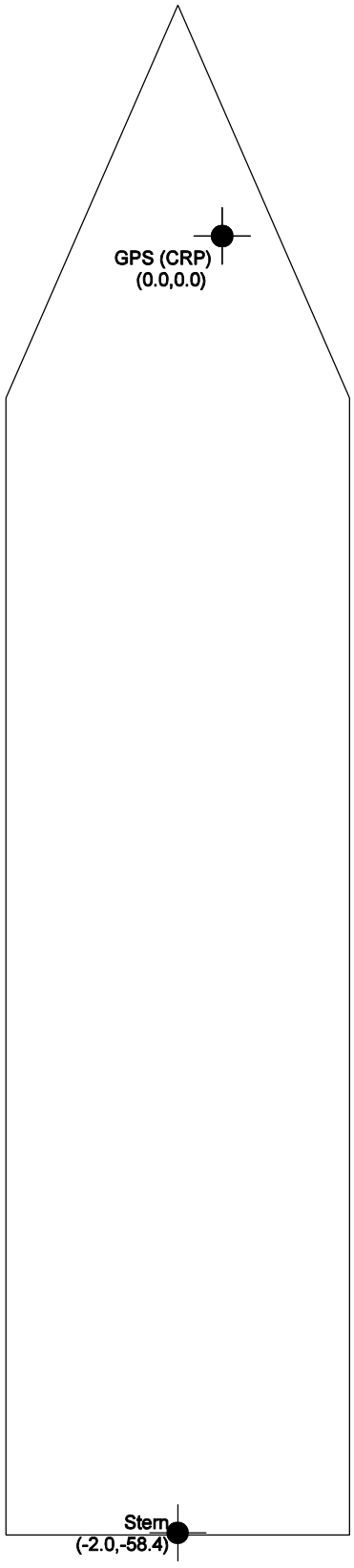
FIGURE 7-2 : EQUIPMENT FLOW DIAGRAM – AHVS



VESSEL OFFSET DIAGRAM – OCEAN PATRIOT

FIGURE 7–3

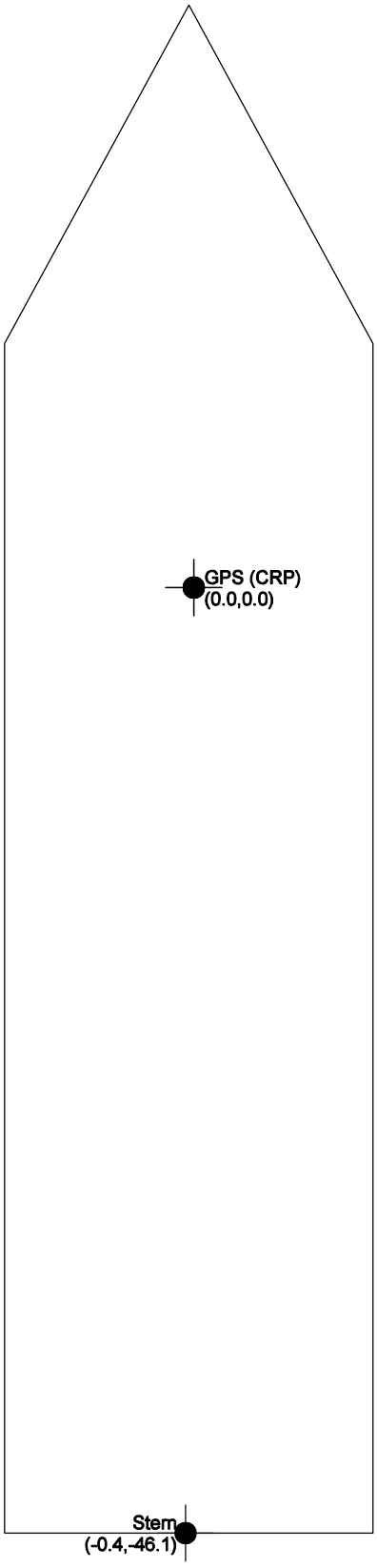
u:\p0165_grayling-1_apache_ocean_patriot\dgn\figures\report\figure7-3.dgn



VESSEL OFFSET DIAGRAM – PACIFIC WRANGLER

FIGURE 7–4

u:\p0165_grayling-1_apache_ocean_patriot\dgn\figures\report\figure7-4.dgn



VESSEL OFFSET DIAGRAM – FAR GRIP

FIGURE 7–5

u:\p0165_grayling-1_apache_ocean_patriot\dgn\figures\report\figure7-5.dgn

8.0 CONCLUSIONS

The *Ocean Patriot* was successfully positioned at both the Grayling-1 and Grayling-1A locations.

9.0 DISTRIBUTION

Copies of this report have been distributed as follows:

Apache Energy Limited	: 1 paper copy
Attn: Mr Jo Meling	: 1 electronic copy
Fugro Survey Pty Ltd	: 1 paper copy
	: 1 electronic copy

APPENDIX A
DAILY OPERATIONS REPORTS

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 09-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
2000	2359	Fugro personnel O.Friedlieb and L.Clarke depart Perth to Melbourne.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
				O.Friedlieb	Surveyor / PC
				L.Clarke	Engineer

VEHICLES: 2 x Taxi		
CONSUMABLES:		
ACCOMMODATION:		

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-01

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 10-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0000	0030	Fugro personnel O.Friedlieb and L.Clarke depart Perth to Melbourne.
0030	0100	Check-in at Holiday Inn, Tullamarine Airport, Melbourne.
0700	0800	Arrive at Bristows Helicopter Terminal, Essendon Airport.
0800	0930	Transit from Essendon Airport to MODU Ocean Patriot at the Longtom-2 location.
0930	1000	Arrive onboard the Ocean Patriot. L.Clarke attends rig induction.
1200	1215	Apache Company Representative Chris Wilson advises that Fugro personnel will depart Ocean General at 0900 on 11 December 2004 and return to Perth. Sidetrack will be performed on current drilling operations at the Longtom-2 location.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	L.Clarke	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION: 2 X HOTEL					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-02

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 11-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0830	0845	Fugro personnel attend pre-flight safety briefing onboard Ocean Patriot.
0945	1115	Depart Ocean Patriot at the Longtom-2 location for Essendon Airport onboard Bristow Helicopters.
1115	1130	Charter vehicle from Essendon Airport to Melbourne Airport.
1500	1900	Transit from Melbourne to Perth.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	L.Clarke	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0164-03

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 19-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
1715	2045	Fugro personnel O.Friedlieb and I.Walker depart Perth to Melbourne.
2100	2115	Check-in at Holiday Inn, Tullamarine Airport, Melbourne.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis		Starfix.Seis (remote)		O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS		Fluxgate compass		I.Walker	Engineer
Gyro Compass		Radio Modem			
Radio Modem		UPS			
UPS					
Theodolite					
Printer					
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-04

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 20-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0700	0800	Arrive at Bristows Helicopter Terminal, Essendon Airport.
0800	0930	Transit from Essendon Airport to MODU Ocean Patriot at the Longtom-2 location.
0930	1000	Arrive onboard the Ocean Patriot. I.Walker attends rig induction.
1030	1500	Survey equipment operational onboard the Ocean Patriot.
1600	1630	Pre-rig move meeting with Survey, Tow Master, OIM and Apache Representative.
1940	1955	Perform Gyrocompass Calibration on Ocean Patriot helideck. Mean C-O = 0.22° input into Seis.
2047	2057	Positioning System Check Fix at the Longtom-2 location. Differences from previously established well co-ordinates ΔE = 2.6 metres, ΔN = -0.1 metres.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-05

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 21-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
1200		Pacific Wrangler ETA alongside Ocean Patriot advised as 1530.
1200	1215	Geodesy, Gyrocompass Calibration, DGPS Check Fix and Anchor Calculations re-checked and signed.
1245	1445	Pacific Wrangler and Far Grip survey systems online and operational.
1500		Ocean Patriot Radio Operator received Navigation Warning: Two large orange floats with approximately 100 metres of surface rope anchored in position 38° 36.15' S, 148° 19.39' E. Position input into Starfix Seis – Navigation Hazard located south of the Esso Field, no impact on Grayling-1 rig positioning operation.
1830		Tow Master I. Kerr advises that run-in at Grayling-1 location will occur on Anchor 5.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-06

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 22-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0145		AHVs Far Grip and Pacific Wrangler requested to approach rig to commence anchor-handling operations.
0250		Commence recovery of anchors. Pennant Chain Chaser (PCC) 6 passed from Ocean Patriot to Pacific Wrangler.
0300		PCC2 passed to Far Grip.
0315		Anchor 6 off the seabed.
0320		Anchor 2 off the seabed.
0445		PCC6 returned to Ocean Patriot.
0455		PCC7 passed to Pacific Wrangler.
0505		PCC2 returned to Ocean Patriot.
0520		PCC3 passed to Far Grip. Anchor 7 off the seabed.
0550		Anchor 3 off the seabed.
0640		PCC7 returned to Ocean Patriot.
0645		PCC8 passed to Pacific Wrangler.
0700		PCC3 returned to Ocean Patriot.
0745		Far Grip connected to the Ocean Patriot tow bridle.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-07

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 22-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0755		Anchor 8 off the seabed.
0855		PCC8 returned to Ocean Patriot.
0914		PCC4 passed to Pacific Wrangler.
0945		Anchor 4 off the seabed.
1115		PCC4 returned to Ocean Patriot.
1135		PCC1 passed to Pacific Wrangler.
1155		Anchor 1 off the seabed.
1215		Ocean Patriot commences heaving on Anchor 5.
1328		PCC1 returned to Ocean Patriot.
1343		PCC5 passed to Pacific Wrangler
1400		Tow route created for Far Grip from Longtom-2 to Grayling-1 location.
1414		Anchor 5 off the seabed. Ocean Patriot continues heaving on Anchor 5.
1437		Ocean Patriot ceased heaving on Anchor 5 @ 120 metres chain out. Ocean Patriot commences tow to the Grayling-1 location.
1715		Far Grip shortening tow bridle near Grayling-1 location.
1815		Ocean Patriot Fairlead 5 paid out 750m to Pacific Wrangler (Anchor 5).

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-07

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 22-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
1825		Anchor 5 on the seabed. Approximate co-ordinates 612213E, 5775250N.
1838		Ocean Patriot positioned at the approximate Grayling-1 location.
1903		PCC5 returned to Ocean Patriot.
1930		PCC1 passed to Pacific Wrangler.
1958		Anchor 1 on the seabed. Approximate co-ordinates 614225E, 5775782N.
2054		PCC1 returned to Ocean Patriot.
2100		PCC4 passed to Pacific Wrangler.
2130		Anchor 4 on the seabed. Approximate co-ordinates 613034E, 5774500N.
2200		PCC4 returned to Ocean Patriot.
2215		Far Grip returns tow bridle to Ocean Patriot.
2224		PCC8 passed to Pacific Wrangler.
2245		PCC3 passed to Far Grip.
2249		Anchor 8 on the seabed. Approximate co-ordinates 613574E, 5776475N.
2310		PCC8 returned to Ocean Patriot.
2322		PCC7 passed to Pacific Wrangler.
2351		Anchor 7 on the seabed. Approximate co-ordinates 613073E, 5776507N.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-07

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 23-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0001		PCC3 destroyed as Far Grip attempts to run-out Anchor 3.
0015		PCC7 returned to Ocean Patriot.
0025		PCC6 passed to Pacific Wrangler.
0055		Anchor 6 on the seabed. Approximate co-ordinates 612308E, 5775794N.
0125		PCC6 returned to Ocean Patriot.
0140		PCC2 passed to Pacific Wrangler.
0225		Anchor 2 on the seabed. Approximate co-ordinates 614283E, 5775261N.
0245		Pacific Wrangler having problems chasing back on Anchor 2.
0330		Far Grip commences grappling for Anchor 3.
0440		Pacific Wrangler caught in chain approximately 300 metres from Anchor 2.
0500		Anchor 3 chain on Far Grip deck, working chain towards anchor.
0635		Anchor 2 at Pacific Wrangler's stern roller.
0640		Anchor 3 on Far Grip's deck.
0735		Anchor 2 design heading altered to 100°.
0745		Pacific Wrangler commences re-running Anchor 2.
0752		Anchor 2 on the seabed. Approximate co-ordinates 614217E, 5775109N.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-08

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 23-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0900		PCC2 returned to Ocean Patriot.
0905		Commence skidding Ocean Patriot across to Grayling-1 design location.
0920		Ocean Patriot within positioning tolerance at the Grayling-1 location. Commence cross tensioning of Anchors 1, 2, 5 and 6.
0925		Far Grip resumes running Anchor 3.
0940		Anchor 3 on the seabed. Approximate co-ordinates 613561E, 5774457N.
1010		Complete cross tensioning of Anchors 1, 2, 5 and 6 to 200 tonnes.
1015		PCC3 returned to Ocean Patriot. Cross tensioning Anchors 3, 4, 7, 8.
1115		Anchor 3 not holding under tension.
1140		PCC3 passed to Far Grip.
1210		Anchor 3 off the seabed, commence chasing back to Ocean Patriot.
1240		Electrical problem with Anchor 3 winch.
1310		Resume heaving in on Anchor 3.
1346		Anchor 3 on the seabed. Approximate co-ordinates 613556E, 5774426N.
1424		Anchor 3 not holding under tension. Far Grip commences chasing out to Anchor 3.
1442		Anchor 3 recovered by Far Grip.
1502		Anchor 3 on the seabed. Approximate co-ordinates 613542E, 5774520N.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-08

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 23-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
1523		Ocean Patriot anchors successfully pre-tensioned at 200 tonnes.
1553		PCC3 returned to Ocean Patriot.
1845		Apache Drilling Representative advises that final positioning data can be collected following pre-spud.
2300		Commence Final Fix of Ocean Patriot drill-stem position at the Grayling-1 location. Seis logging/fixing. MRDGPS logging.
2359		Complete Final Fix of Ocean Patriot drill-stem position at the Grayling-1 location. Final position is 613302.06mE, 5775510.94mN. Rig heading 44.18° True. Final position is 1.3 metres @ 243,8° Grid from the design location.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-08

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 24-DEC-2004
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0045		Grayling-1 Final Positioning Report submitted to Apache Drilling Representative.
0800		Survey systems powered down and secured.
0830		Attend pre-flight safety briefing prior to departure from the Ocean Patriot.
0930		Fugro personnel depart the Ocean Patriot.
1100		Arrive at Essendon Heliport onboard Bristow Helicopters.
1530		Depart Melbourne for Perth.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2	I.Walker	Engineer
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-09

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 03-JAN-2005
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
1310	1700	O.Friedlieb departs Perth to Melbourne.
1730		Check-in at the Holiday Inn, Tullamarine.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis		Starfix.Seis (remote)		O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS		Fluxgate compass			
Gyro Compass		Radio Modem			
Radio Modem		UPS			
UPS					
Theodolite					
Printer					
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION: X1					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-10

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 04-JAN-2005
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0715	0800	Check-in at Bristow's Heliport, Essendon Airport. Attend pre-flight safety briefing.
0800	0925	Arrive onboard the Ocean Patriot at the Grayling-1 location.
0935		Power up survey systems onboard the Ocean Patriot.
0945		Discuss rig operations with Drilling Representative and Drilling Superintendent. Final Fix required as soon as possible prior to rig skidding off location to drop the stack. If timing does not permit, Final Fix will be undertaken when rig skids back onto location at approximately 1800 hrs.
0953		SGBrown Gyrocompass correction confirmed as 0.22 in Seis from the previous Ocean Patriot rig move operation.
1010		Regular comparisons performed between survey gyrocompass and Ocean Patriot gyrocompass (C.Plath Navigat II) as survey gyrocompass settles. Survey gyrocompass = 45.2, Patriot gyrocompass = 44.5.
1030		Commence final fix at the Grayling-1 location. Seis and MRDGPS logging.
1130		Complete final fix at the Grayling-1 location. Final drill-stem position is 38° 09' 40.28"S, 148° 17' 34.73"E, 613273.61mE, 5775510.58mN. Rig heading 43.53° True. Drill-stem position is 29.6 metres @ 268.2° Grid from the design location.
1215		Issue Final Fix Report to Apache Company Representative.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2		
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-11

DAILY OPERATIONS REPORT

CLIENT: APACHE ENERGY LTD	LOCATION: BASS STRAIT	DATE: 05-JAN-2005
PROJECT: RIG MOVE TO GRAYLING-1	VESSEL: OCEAN PATRIOT	JOB NO: P0165

FROM	TO	SUMMARY OF OPERATIONS
0830		Attend pre-flight safety briefing prior to departure from the Ocean Patriot.
0930		O.Friedlieb departs the Ocean Patriot.
1100		Arrive at Essendon Heliport onboard Bristow Helicopters.
1210		Depart Melbourne for Perth.

RIG EQUIPMENT	NO.	AHT EQUIPMENT	NO.	PERSONNEL	TITLE
Starfix.Seis	1	Starfix.Seis (remote)	2	O.Friedlieb	Surveyor / PC
Starfix.Spot DGPS	2	Fluxgate compass	2		
Gyro Compass	1	Radio Modem	2		
Radio Modem	1	UPS	2		
UPS	1				
Theodolite	1				
Printer	1				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					

AUTHORISED CONTRACT CHANGES / COMMENTS:

Party Chief Signature:	Client Representative Signature:	D O R Number
		P0165-12

APPENDIX B
FINAL POSITIONING REPORT

RIG POSITION FIELD REPORT
Grayling-1

Client : **Apache Energy Ltd.** **Job Number :** **P0165**

Rig : **Ocean Patriot** **Date:** **6-Jan-05**

Project : **Grayling-1 Rig Positioning, Permit Vic/P-54, Victoria**

Attention : **D.Kirkwood** **Apache Drilling Supervisor**

The surface location of the drill stem on the Ocean Patriot was derived from 60 minutes of observations of the Primary Differential GPS data, between 2300 hrs and 2359 hrs on completion of all anchor pre-tensioning and ballasting down operations.
The results of the observations are as follows:

Geographical Coordinates						**Grid Coordinates**	
Latitude	**38**	**°**	**09**	**'**	**40.26 " South**	**Easting**	**613302.06**
Longitude	**148**	**°**	**17**	**'**	**35.90 " East**	**Northing**	**5775510.94**

The drill stem position is **1.3 m** at a bearing of **243.8 °** Grid from the design location.

The Client supplied design location for Grayling-1

Geographical Coordinates						Grid Coordinates	
Latitude	38	°	9	'	40.24 " South	Easting	613303.20
Longitude	148	°	17	'	35.95 " East	Northing	5775511.50

The Ocean Patriot's rig heading, derived from the mean of 60 minutes observation of the gyro heading is:

44.18 ° True 44.98 ° Grid

All coordinates in this field report are quoted in the following coordinate system:				
Datum :	GDA94 (ITRF2000)	Projection :	MGA	
Spheroid :	GRS80	Zone (Central Meridian)	55	147 ° East

The approximate positions of the rig anchors corrected for catenary are as follows:

Anchor	Easting	Northing	Azimuth(°)
1	614157	5775761	72.3 °
2	614168	5775131	114.4 °
3	613525	5774589	165.4 °
4	613055	5774573	194.9 °
5	612318	5775277	255.0 °
6	612341	5775785	285.4 °
7	613089	5776446	345.4 °
8	613556	5776400	15.7 °

Party Chief/Surveyor: O.Friedlieb / I.Walker

Client Representative: N/A

RIG POSITION FIELD REPORT
Grayling-1A

Client : **Apache Energy Ltd.** **Job Number :** **P0165**

Rig : **Ocean Patriot** **Date:** **6-Jan-05**

Project : **Grayling-1A Rig Positioning, Permit Vic/P-54, Victoria**

Attention : **C.Wilson** **Apache Drilling Supervisor**

The surface location of the drill stem on the Ocean Patriot was derived from 60 minutes of observations of the Primary Differential GPS data, between 1030 hrs and 1130 hrs on completion of all anchor pre-tensioning and ballasting down operations.
The results of the observations are as follows:

Geographical Coordinates					**Grid Coordinates**	
Latitude	**38 °**	**09 '**	**40.28 " South**		**Easting**	**613273.61**
Longitude	**148 °**	**17 '**	**34.73 " East**		**Northing**	**5775510.58**

The drill stem position is **29.6 m** at a bearing of **268.2 °** Grid from the design location.

The Client supplied design location for Grayling-1

Geographical Coordinates					Grid Coordinates	
Latitude	38 °	9 '	40.24 " South		Easting	613303.20
Longitude	148 °	17 '	35.95 " East		Northing	5775511.50

The Ocean Patriot's rig heading, derived from the mean of 60 minutes observation of the gyro heading is:

43.53 ° True 44.33 ° Grid

All coordinates in this field report are quoted in the following coordinate system:

Datum :	GDA94 (ITRF2000)	Projection :	MGA	
Spheroid :	GRS80	Zone (Central Meridian)	55	147 ° East

The approximate positions of the rig anchors corrected for catenary are as follows:

Anchor	Easting	Northing	Azimuth(°)
1	614160	5775762	72.8 °
2	614170	5775130	113.7 °
3	613524	5774587	163.8 °
4	613054	5774573	193.3 °
5	612322	5775278	254.6 °
6	612315	5775792	285.9 °
7	613083	5776472	347.2 °
8	613556	5776401	17.5 °

Party Chief/Surveyor: O.Friedlieb

Client Representative: N/A

APPENDIX C
GYROCOMPASS CALIBRATION

GYRO COMPASS CALIBRATION - CALCULATION SUMMARY

Client : Apache Energy Ltd. **Job Number :** P0165
Rig : Ocean Patriot **Date:** 20-Dec-04
Project : Grayling-1 Rig Positioning, Permit Vic/P-54, Victoria

Deg	Min	Sec	
0	0	0	Correction Angle (RO to Lubberline)

Obs. No.	Date	UTC	Instrument Position						Calculated Sun Azimuth at UTC				Observed Direction to Sun				Calc'd Vessel Hdg	Obs'd Vessel Hdg	Sun Semi Diameter	(C-O) Degrees
			Latitude			Longitude														
			Deg	Min	Sec	Deg	Min	Sec	Deg	Min	Sec	Dec. Deg	Deg	Min	Sec	Dec. Deg				
1	20-Dec-04	8:44:35	-38	6	12	148	19	1	245	30	33	245.509	199	39	25	199.657	45.852	45.7	0.2713	0.18
2	20-Dec-04	8:45:20	-38	6	12	148	19	1	245	24	3	245.401	200	28	15	200.471	44.930	44.7	0.2713	0.26
3	20-Dec-04	8:46:50	-38	6	12	148	19	1	245	199	43	245.184	199	43	42	199.728	45.455	45.0	0.2713	0.46
4	*20-Dec-04*	*8:47:18*	*-38*	*6*	*12*	*148*	*19*	*1*	*245*	*199*	*40*	*245.116*	*199*	*40*	*40*	*199.678*	*45.438*	*45.5*	*0.2713*	*-0.06*
5	20-Dec-04	8:47:50	-38	6	12	148	19	1	245	200	5	245.039	200	5	8	200.086	44.953	45.2	0.2713	-0.22
6	20-Dec-04	8:48:43	-38	6	12	148	19	1	244	199	48	244.911	199	48	58	199.816	45.094	44.0	0.2713	1.09
7	20-Dec-04	8:49:50	-38	6	12	148	19	1	244	200	31	244.748	200	31	36	200.527	44.222	44.7	0.2713	-0.45
8	20-Dec-04	8:50:55	-38	6	12	148	19	1	244	200	2	244.590	200	2	24	200.040	44.550	44.5	0.2713	0.05
9	20-Dec-04	8:51:20	-38	6	12	148	19	1	244	199	34	244.530	199	34	58	199.583	44.947	44.5	0.2713	0.45
10	20-Dec-04	8:51:55	-38	6	12	148	19	1	244	198	52	244.445	198	52	7	198.869	45.576	45.2	0.2713	0.41

Surveyor : O.Friedlieb / I.Walker

Client Rep : N/A

Required Starfix.Seis Gyro Correction =

NOTE:Gyro correction of +0.00°
Entered During calibration
Hence new correction 0.22

Mean	**0.22**
Std. Deviation	**0.43**
Maximum	**1.09**
Minimum	**-0.45**
Range	**1.54**

APPENDIX D
DIFFERENTIAL GPS CHECK

RIG POSITIONING
DGPS CHECK LIST (PRE RIG MOVE)

Client : **Apache Energy Ltd.** **Job Number :** **P0165**

Rig : **Ocean Patriot** **Date:** **20-Dec-04**

Project : **Grayling-1 Rig Positioning, Permit Vic/P-54, Victoria**

1) ESTABLISHED WELL COORDINATES

The surface location of the drill stem on the Ocean Patriot was observed for 10 minutes between 20:47 hrs and 20:57 hours on 20 December 2004 to verify the accuracy of the DGPS system against the established well coordinates.

	Easting	Northing
Established Well Coordinates	615462.43	5781904.33
Observed Coordinates	615459.84	5781904.47
Differences	2.6	-0.1

Ensure agreement OK(?) Y / N
If No, Check and ensure that rig has not moved off location.

2) PRIMARY/SECONDARY NAV SYSTEMS

From the data logged above, compare the observed coordinates for both Primary and Secondary navigation systems.

	Easting	Northing
Primary Navigation	615459.84	5781904.47
Secondary Navigation	615460.85	5781904.28
Differences	-1.01	0.19

Ensure agreement OK(?) Y / N
If No, Check antenna offsets and gyro calibration.

Party Chief/Surveyor: _____ Client Representative : _____
O.Friedlieb / I.Walker N/A

APPENDIX E
GEODETIC CALCULATIONS CHECKLIST

RIG POSITIONING
GEODESY AND COORDINATE CHECK LIST

Client :	**Apache Energy Ltd.**	**Job Number :**	**P0165**
Rig :	**Ocean Patriot**	**Date:**	**24/December/2004**
Project :	**Grayling-1 Rig Positioning, Permit Vic/P-54, Victoria**		

1. CONFIRMATION OF PROPOSED RIG COORDINATES and HEADING.

Well Name	**Grayling-1**	Ensure agreement with Client onsite prior to any positioning
Well Location – Latitude	38 9 40.24 S	Operations. OK (?) Y / ~~N~~
Well Location – Longitude	148 17 35.95 E	
Rig Heading (True)	45 ° T	

2. GEODETIC PARAMETERS (WGS84 to LOCAL DATUM)

DATUM:	Dx	-0.0266	Ensure agreement with Client onsite prior to positioning Operations.
(WGS84 to	Dy	-0.0303	OK (?) Y / ~~N~~
Local Datum)	Dz	-0.0339	
	Rx	0.013416	
Projection:	Ry	0.012379	
	Rz	0.013999	
	Ds	0.00552 ppm	
UTM Zone		55	
Central Meridian		147 ° East	

3. CHECK TRANSFORMATION OF SITE COORDINATES.

Well Location – Easting	613303.2	Ensure agreement with PCNav / Starfix.Seis. OK (?) Y / ~~N~~
Well Location – Northing	5775511.5	If not, CHECK and RECALC.
Convergence at Location	0.80	
Rig Heading (° Grid)	45.80	

4. MEAS. ANT. OFFSETS from ANT. TO D/STEM (Rel. to Datum) (Measure two (2) separate directions, verifying closure.)	**NAV #1 SYSTEM**	**NAV #2 SYSTEM**
Delta X(m)	-8.9	-8.2
Delta Y(m)	41.9	43.9
Angle between Rig Centreline and Antenna(s) (Grid)	348.008	349.4
Distance between Drill Stem and Antenna(s)	42.83	44.66

5. MANUAL COORDINATE VERIFICATION FOR ANTENNAS		**NAV #1 SYSTEM**	**NAV #2 SYSTEM**
Proposed Drill Stem Position	Easting	613303.2	613303.2
	Northing	5775511.5	5775511.5
Drill Stem to Antenna	Proposed Hdg (G)	45.80	45.80
Brg (G) = Prop. Hdg. + Angle btwn centreline and antenna		33.81	35.22
	Distance (m)	42.83	44.66
Calculated Antenna	Easting	613327.03	613328.96
Coordinates (Local)	Northing	5775547.09	5775547.98
	Latitude	38 9 39.0755 S	38 9 39.0457 S
	Longitude	148 17 36.9039 E	148 17 36.9824 E
Calculated Proposed Antenna Coords (WGS 84)	Latitude	38 9 39.0571 S	38 9 39.0273 S
	Longitude	148 17 36.9124 E	148 17 36.9909 E

Surveyor : O.Friedlieb / I.Walker Client Rep N/A Date : 24/12/04

6. POST RIG MOVE – OBSERVED ANTENNA COORD

Observed WGS84 Antenna Positions		**NAV.SYS #1**	**NAV.SYS #2**
	Latitude	38° 09" 39.0670"S	38° 09" 39.0390"S
	Longitude	148° 17' 36.8447"E	148° 17' 36.9730"E

Ensure agreement between calculated and observed coordinates. If NO,check calcs.,antenna offsets.OK (?) Y/ ~~N~~

Surveyor : O.Friedlieb / I.Walker Client Rep N/A Date : 24/12/04

APPENDIX F

WELL LOCATION FORM

APACHE ENERGY LTD	VIC/P-54 : Grayling-1	
TARGET INFORMATION		

WELL LOCATION FORM

GDA

The original of this form must be signed and dated by the appropriate staff and accompanied by a copy of the location plot.

WARNING: **By signing this form you are indicating that you have read and agree with the information that it contains. If there is any doubt please consult relevant personnel, before you sign off.**

Well Name: GRAYLING-1

Permit : VIC/P-54

Seismic Survey: Northern Fields 3D

Line No. (Or Inline): **3708** S.P. (or Crossline): **7845**

Location approved (at primary objective)

Project Geologist:

Project Geophysicist:

Exploration Manager:

Reference To:

Spheroid: **GRS80** Projection: MGA Zone 55 Datum: GDA94

Co-ordinates:

Surface location

Lats:	38° 09' 40.24" S	UTM	5775511.5 mN
Longs:	148° 17' 35.95" E		613303.2 mE

Primary Objective Intersection : Top Volador Fm *F. longus* section (Formation)

Lats:	38° 09' 40.24" S	UTM	5775511.5 mN
Longs:	148° 17' 35.95" E		613303.2 mE

Total Depth (TD) **mRT** **-2919 mAHD**

Co-ordinates originated by:

UKOOA co-ordinates referenced to (CDP? Source? Antenna? Bin Centre?):

Petrosys co-ordinates consistent with UKOOA? (Y/N):

Landmark co-ordinates consistent with UKOOA? (Y/N):

Shot to trace relationship consistent with UKOOA? [N/A for 3D] (Y/N):

Conversion flip-flop checked by:

Co-ordinates plotted Lats & Longs: (UTM):

Plot checked by draftsman:

Plot checked by Project Geologist:

Plot checked by Project Geophysicist:

AP to D co-ordinates checked by -

Project Geologist:

Exploration Manager:

Apache Northwest Ltd

Cuttings Descriptions Report

Well Name : Grayling-1A	**Print Date** 12/01/2005
Wellsite Geologist(s) : J Sonego P Slijderink	

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
Main				
811.0 - 815.0	100.0	**CALCISILTITE:** medium light grey to light grey, trace to 10% clay, minor calcite crystal fragments, grades to argillaceous calcilutite and in part calcarenite, trace micropyrite, trace Foraminifera fossil fragments, soft to firm, amorphous to locally sub blocky. Upto 50% cement contamination.		
815.0 - 820.0	100.0	**CALCISILTITE:** As above.		
820.0 - 830.0	100.0	**CALCISILTITE:** as above	51	7
830.0 - 840.0	60.0	**CALCILUTITE:** medium grey to light grey, 10 to 15% clay, minor calcite crystal fragments, grades to argillaceous calcilutite, trace to 5% micropyrite, trace Foraminifera fossil fragments, trace Limestone fragments, soft to firm, amorphous to locally sub blocky.		
	40.0	**CALCISILTITE:** as above		
840.0 - 850.0	80.0	**CALCILUTITE:** as above	61	8
	20.0	**CALCISILTITE:** as above		
850.0 - 860.0	70.0	**CALCILUTITE:** as above, trace burrow casts, 5% limestone fragments and calcite spicules.		
	30.0	**CALCISILTITE:** as above		
860.0 - 870.0	85.0	**CALCILUTITE:** as above, trace calcite crystales.		
	15.0	**CALCISILTITE:** as above		
870.0 - 880.0	90.0	**CALCILUTITE:** medium grey to light grey, 10 to 15% clay, minor calcite crystal fragments, grades to argillaceous calcilutite, trace to 5% micropyrite nodules and laminae, trace Foraminifera fossil fragments, trace Limestone fragments, soft to firm, amorphous to locally sub blocky.	66	7
	10.0	**CALCISILTITE:** as above, locally pale yellowish brown to pale brownish grey, medium light grey, trace calcite crystal fragments, trace micropyrite, grades to Limestone, firm to moderately hard, sub blocky.		
880.0 - 890.0	90.0	**CALCILUTITE:** as above		
	10.0	**CALCISILTITE:** as above		
890.0 - 900.0	90.0	**CALCILUTITE:** as above	64	3
	10.0	**CALCISILTITE:** as above, dominantly medium dark grey to light grey.		
900.0 - 910.0	90.0	**CALCILUTITE:** as above		
	10.0	**CALCISILTITE:** as above		
910.0 - 920.0	79.0	**CALCILUTITE:** medium grey to light grey, 20 to 30% clay, minor calcite crystal fragments, grades to argillaceous calcilutite, trace to 5% micropyrite, trace Foraminifera fossil fragments, trace Limestone fragments, soft to firm, amorphous to locally sub blocky.		
	20.0	**CALCISILTITE:** medium light grey to light grey, trace very fine quartz, dominantly silty, trace to 10% clay, minor calcite crystal fragments, grades to argillaceous calcilutite and in part calcarenite, trace micropyrite, trace pyrtite nodules, trace black lithics, trace red lithics, local trace limonite stained in part, trace Foraminifera		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		fossil fragments, soft to firm, amorphous to locally sub blocky.		
	1.0	**LIMESTONE:** white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, soft to firm, 5 to 10% black lithics, sub blocky.		
920.0 - 930.0	74.0	**CALCILUTITE:** as above	52	6
	25.0	**CALCISILTITE:** as above, silicified in part, hard angular.		
	1.0	**LIMESTONE:** as above		
930.0 - 940.0	54.0	**CALCILUTITE:** as above		
	45.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
940.0 - 950.0	64.0	**CALCILUTITE:** as above	62	2
	35.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
950.0 - 960.0	70.0	**CALCILUTITE:** as above		
	30.0	**CALCISILTITE:** as above, trace to 2% pyrite nodules, soft to moderately firm, sub blocky to amorphous.		
960.0 - 970.0	55.0	**CALCILUTITE:** as above		
	44.0	**CALCISILTITE:** medium light grey to light grey, silt, 5 to 10% trace very fine quartz, dominantly silty, trace to 10% clay, grades to argillaceous calcilutite, trace micropyrite, trace pyrtite nodules, trace black lithics, trace red lithics, soft to firm, amorphous to locally sub blocky.		
	1.0	**LIMESTONE:** white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, soft to firm, 5 to 10% black lithics, sub blocky.		
970.0 - 980.0	55.0	**CALCILUTITE:** medium grey to light grey, 5 to 10% silt, 10 to 15% clay, minor calcite crystal fragments, grades to argillaceous calcilutite in part, trace to 5% micropyrite, trace fossil fragments, soft to firm, amorphous to locally sub blocky.	62	2
	44.0	**CALCISILTITE:** as above, dominantly silt, rare trace very fine quartz.		
	1.0	**LIMESTONE:** as above		
		Calcsiltite finer graned than at 970-980 mMDRT		
980.0 - 990.0	65.0	**CALCILUTITE:** as above		
	34.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
990.0 - 1000.0	64.0	**CALCILUTITE:** as above	70	6
	34.0	**CALCISILTITE:** as above, 5 to 10% very fine quartz, soft to moderately firm, sub blocky to blocky.		
	1.0	**LIMESTONE:** as above		
	1.0	**SILTY DOLOMITE:** dark yellowish orange to light brown, 10 to 15% silt, trace very fine quartz, trace black lithics, trace micropyrite, microcrystalline, hard to very hard, blocky.		
		Sample >Sand fraction in calcisiltite.		
1000.0 - 1010.0	70.0	**CALCILUTITE:** as above		
	29.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
1010.0 - 1020.0	70.0	**CALCILUTITE:** as above		
	29.0	**CALCISILTITE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1010.0 - 1020.0	1.0	**LIMESTONE:** as above		
1020.0 - 1030.0	75.0	**CALCILUTITE:** as above	55	1
	24.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above, trace pyrite veining.		
1030.0 - 1040.0	80.0	**CALCILUTITE:** as above, locally pale yellowish brown to pale brownish grey.		
	19.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
1040.0 - 1050.0	80.0	**CALCILUTITE:** light grey to medium grey, 5 to 10% silt, trace very fine quartz, 10 to 15% clay matrix, grades to argillaceous calcilutite in part, trace to 5% micropyrite, trace fossil fragments, firm to moderately hard, sub blocky to blocky.	66	3
	19.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
1050.0 - 1060.0	85.0	**CALCILUTITE:** as above		
	14.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
1060.0 - 1070.0	89.0	**CALCILUTITE:** as above		
	10.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
1070.0 - 1080.0	89.0	**CALCILUTITE:** white very light grey, very fine to medium grained, trace very fine to fine grained quartz, local trace very fine greenish grey glauconite, trace micropyrite, rare fossil fragments (forams), 10 to 15% argillaceous matrix, sub rounded, soft to moderately firm, sub blocky.	87	10
	10.0	**CALCISILTITE:** as above		
	1.0	**LIMESTONE:** as above		
1080.0 - 1090.0	87.0	**CALCILUTITE:** as above		
	10.0	**CALCISILTITE:** as above		
	2.0	**LIMESTONE:** as above		
	1.0	**CHERT:** opaque to translucent pale brown, trace to 5% mycropyrite, hard to very hard, angular.		
1090.0 - 1100.0	87.0	**CALCILUTITE:** as above	85	8
	10.0	**CALCISILTITE:** as above		
	2.0	**LIMESTONE:** as above		
	1.0	**CHERT:** as above		
1100.0 - 1110.0	85.0	**CALCILUTITE:** as above.		
	11.0	**CALCISILTITE:** medium grey to light grey, mottled white in part, 5 to 10% silt, trace to 5% very fine quartz, 10 to 15% clay, grades to argillaceous calcilutite in part, trace to 5% micropyrite, trace nodular pyrite, trace black lithics, trace red lithics, trace fossil fragments, soft to firm, sub blocky to blocky.		
	4.0	**LIMESTONE:** as above		
1110.0 - 1120.0	88.0	**CALCILUTITE:** as above		
	9.0	**CALCISILTITE:** as above		
	3.0	**LIMESTONE:** as above		
1120.0 - 1130.0	82.0	**CALCILUTITE:** as above	92	4

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1120.0 - 1130.0	15.0	**CALCISILTITE:** as above	92	4
	3.0	**LIMESTONE:** as above		
1130.0 - 1140.0	67.0	**CALCILUTITE:** medium grey to light grey, 5 to 10% silt, minor calcite crystal fragments, 10 to 20% clay matrix, grades to argillaceous calcilutite in part, trace to 5% micropyrite, trace fossil fragments, soft to firm, sub blocky, locally blocky.		
	30.0	**CALCISILTITE:** white very light grey, very fine to medium grained, trace very fine to fine grained quartz, local trace very fine greenish grey glauconite, trace micropyrite, rare fossil fragments (forams), up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, sub blocky.		
	3.0	**LIMESTONE:** as above		
1140.0 - 1150.0	57.0	**CALCILUTITE:** as above	94	2
	40.0	**CALCISILTITE:** as above		
	3.0	**LIMESTONE:** as above		
1150.0 - 1160.0	60.0	**CALCILUTITE:** as above		
	38.0	**ARGILLACEOUS CALCISILTITE:** light grey to medium grey, 10 to 15% silt, grades in part to silty marl, common micropyrite, trace nodular pyrite, weak trace moderate green glauconite, minor fossil fragments, trace black lithics, 20 to 30% argillaceous matix, soft to firm, amorphous to sub blocky.		
	2.0	**LIMESTONE:** as above		
1160.0 - 1170.0	60.0	**ARGILLACEOUS CALCISILTITE:** as above		
	38.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1170.0 - 1180.0	71.0	**ARGILLACEOUS CALCISILTITE:** as above	95	2
	28.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1180.0 - 1190.0	80.0	**ARGILLACEOUS CALCISILTITE:** as above		
	18.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1190.0 - 1200.0	80.0	**ARGILLACEOUS CALCISILTITE:** as above, trace nodular pyrite.	91	3
	19.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1200.0 - 1210.0	89.0	**ARGILLACEOUS CALCISILTITE:** as above		
	10.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1210.0 - 1220.0	88.0	**ARGILLACEOUS CALCISILTITE:** light grey to medium grey, 10 to 15% silt, rare very fine quartz, common micropyrite, local trace nodular pyrite, minor fossil fragments, trace black lithics, common micropyrite, trace limonite, 20 to 30% argillaceous matrix, soft to moderately firm, sub blocky to blocky.		
	10.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
	1.0	**CHERT:** opaque to translucent pale brown, trace to 5% mycropyrite, hard to very hard, angular.		
1220.0 - 1230.0	88.0	**ARGILLACEOUS CALCISILTITE:** as above	82	4
	11.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1230.0 - 1240.0	88.0	**ARGILLACEOUS CALCISILTITE:** as above.		
	12.0	**CALCILUTITE:** white very light grey, very fine to medium grained, trace very fine to fine grained quartz, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.		
1240.0 - 1250.0	90.0	**ARGILLACEOUS CALCISILTITE:** as above	84	5
	10.0	**CALCILUTITE:** as above		
1250.0 - 1260.0	90.0	**ARGILLACEOUS CALCISILTITE:** as above		
	10.0	**CALCILUTITE:** as above		
1260.0 - 1270.0	88.0	**ARGILLACEOUS CALCISILTITE:** as above		
	12.0	**CALCILUTITE:** as above		
1270.0 - 1280.0	85.0	**ARGILLACEOUS CALCISILTITE:** light grey fo medium grey, 10 to 20% silt, trace very fine quartz, grades in part to Calcilutite, minor micropyrite, local trace nodular pyrite, trace fossil fragments, trace red lithics, 30 to 40% argillaceous matix, trace crystalline calcite veining, soft to firm in part, amorphous to sub blocky.	78	3
	15.0	**CALCILUTITE:** as above		
1280.0 - 1290.0	92.0	**ARGILLACEOUS CALCISILTITE:** as above.		
	8.0	**CALCILUTITE:** as above		
1290.0 - 1300.0	95.0	**ARGILLACEOUS CALCISILTITE:** as above	84	4
	5.0	**CALCILUTITE:** as above		
1300.0 - 1310.0	95.0	**ARGILLACEOUS CALCISILTITE:** as above		
	5.0	**CALCILUTITE:** as above		
1310.0 - 1320.0	93.0	**ARGILLACEOUS CALCISILTITE:** as above		
	5.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, 5 to 10% black lithics, trace carbonaceous flecks, soft to firm, sub blocky to blocky.		
1320.0 - 1330.0	95.0	**ARGILLACEOUS CALCISILTITE:** as above	87	5
	3.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1330.0 - 1340.0	95.0	**ARGILLACEOUS CALCISILTITE:** as above.		
	5.0	**LIMESTONE:** as above		
	3.0	**CALCILUTITE:** as above		
1340.0 - 1350.0	95.0	**ARGILLACEOUS CALCISILTITE:** light grey fo medium grey, 10 to 15% silt, trace very fine quartz, grades in part to Calcilutite, minor micropyrite, local trace nodular pyrite, trace red lithics, 30 to 40% argillaceous matrix, trace gastropod fossil fragments, weak trace greenish blue glauconite, soft to firm in part, amorphous to sub blocky.	95	3
	3.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1350.0 - 1360.0	95.0	**ARGILLACEOUS CALCISILTITE:** as above		
	3.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1360.0 - 1370.0	90.0	**ARGILLACEOUS CALCISILTITE:** as above		
	8.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1370.0 - 1380.0	90.0	**ARGILLACEOUS CALCISILTITE:** as above	89	3
	8.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1380.0 - 1390.0	85.0	**ARGILLACEOUS CALCISILTITE:** light grey fo medium grey, with depth depth becoming medium dark grey, 10 to 15% silt, trace very fine quartz, grades to Calcilutite, minor micropyrite, local trace nodular pyrite, trace red lithics, trace white sheel fragments, 30 to 40% argillaceous matrix, trace gastropod fossil fragments and bioclasts, weak trace greenish blue glauconite, soft to firm in part, amorphous to sub blocky.		
	14.0	**CALCILUTITE:** white to very light grey, trace very fine grained quartz, trace Limestone replaced fossil shells, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.		
	1.0	**LIMESTONE:** as above		
1390.0 - 1400.0	85.0	**ARGILLACEOUS CALCISILTITE:** as above, 5% clear to very pale yellow brown nodular limestone with trace micropyrite inclusions.	67	2
	13.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1400.0 - 1410.0	83.0	**ARGILLACEOUS CALCISILTITE:** as above, decreasing argillaceous content, grading to Calcisiltite.		
	15.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1410.0 - 1420.0	80.0	**ARGILLACEOUS CALCISILTITE:** as above		
	18.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1420.0 - 1430.0	75.0	**ARGILLACEOUS CALCISILTITE:** as above	74	2
	23.0	**CALCILUTITE:** as above		
	2.0	**LIMESTONE:** as above		
1430.0 - 1440.0	75.0	**ARGILLACEOUS CALCISILTITE:** medium dark to medium grey, light grey, trace to 15% clay, trace very fine quartz, grades to Calcilutite, minor micropyrite, local trace nodular pyrite, trace pyrite laminae and veining, trace red lithics, trace white shell fragments, 10 to 30% argillaceous matrix, trace gastropod fossil fragments and bioclasts, weak trace greenish blue glauconite, trace to 5% clear to very pale yellow brown nodular limestone with trace micropyrite inclusions, soft to firm in part, amorphous to sub blocky.		
	23.0	**CALCILUTITE:** white to very light grey, trace very fine grained quartz, trace Limestone replaced fossil shells, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.		
	2.0	**LIMESTONE:** as above		
1440.0 - 1450.0	70.0	**ARGILLACEOUS CALCISILTITE:** as above	82	4
	29.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1450.0 - 1460.0	70.0	**ARGILLACEOUS CALCISILTITE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1450.0 - 1460.0	29.0	**CALCILUTITE:** white to very light grey, trace pale yellowish brown, trace very fine grained quartz, trace Limestone replaced fossil shells, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.		
	1.0	**LIMESTONE:** as above		
1460.0 - 1470.0	60.0	**ARGILLACEOUS CALCISILTITE:** as above, trace pale greenish grey.		
	39.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1470.0 - 1480.0	65.0	**ARGILLACEOUS CALCISILTITE:** as above	81	3
	34.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1480.0 - 1490.0	75.0	**ARGILLACEOUS CALCISILTITE:** as above		
	24.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1490.0 - 1500.0	74.0	**ARGILLACEOUS CALCISILTITE:** as above	73	4
	25.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1500.0 - 1510.0	70.0	**ARGILLACEOUS CALCISILTITE:** as above		
	29.0	**CALCILUTITE:** as above		
	1.0	**LIMESTONE:** as above		
1510.0 - 1520.0	54.0	**ARGILLACEOUS CALCISILTITE:** medium dark to medium grey, light grey, trace to 15% clay, trace very fine quartz, grades to Calcilutite, minor micropyrite, local trace nodular pyrite, trace pyrite laminae and veining, trace red lithics, trace white shell fragments, 10 to 30% argillaceous matrix, trace gastropod fossil fragments and bioclasts, weak trace greenish blue glauconite, trace to 5% clear to very pale yellow brown nodular limestone with trace micropyrite inclusions, soft to firm in part, amorphous to sub blocky.		
	20.0	**CALCAREOUS SANDSTONE:** off white to light grey to very pale translucent brown, mottled green, dominantly very fine to fine, trace to 10% medium to very coarse grains, well sorted, sub spherical, sub rounded, abundant calcareous clay matrix and carbonate grains, trace to 10% dusky dark green glauconite, trace to 5% micropyrite, friable to soft, poor visual and inferred porosity, no show.		
	15.0	**CALCILUTITE:** white to very light grey, trace pale yellowish brown, trace very fine grained quartz, trace Limestone replaced fossil shells, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcsiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.		
	10.0	**SILTSTONE:** dark brownish black to dark brown, minor medium brown, abundant disseminated pyrite, common coal fragments and laminae, locally grades to carbonaceous Siltstone and Coal, laminated, firm to friable, sub blocky.		
	1.0	**COAL:** black to dark brown, earthy, sub vitreous in part, firm, uneven fracture, sub blocky.		
1520.0 - 1530.0	40.0	**CALCAREOUS SANDSTONE:** as above	57	3
	20.0	**ARGILLACEOUS CALCISILTITE:** as above		
	20.0	**CALCILUTITE:** as above		
	15.0	**SILTSTONE:** as above		
	5.0	**COAL:** as above		
1530.0 - 1540.0	45.0	**SANDSTONE:** clear, pale grey, transparent, translucent, fine to coarse grained, predominantly medium grained, poorly sorted, sub angular to sub rounded, sub elongate, moderate siliceous cement, common lithic inclusions, trace white matrix		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		on grains, dominantly loose grains, trace brittle aggregates, poor visual and inferred porosity, no show.		
	23.0	**CALCILUTITE:** as above.		
	15.0	**CALCAREOUS SANDSTONE:** as above		
	10.0	**ARGILLACEOUS CALCISILTITE:** as above		
	5.0	**SILTSTONE:** as above		
	2.0	**COAL:** as above		
1540.0 - 1550.0	45.0	**SANDSTONE:** as above, dominantly fine grained.	22	2
	28.0	**CALCILUTITE:** as above		
	10.0	**CALCAREOUS SANDSTONE:** as above		
	10.0	**ARGILLACEOUS CALCISILTITE:** as above		
	5.0	**SILTSTONE:** as above		
	2.0	**COAL:** as above		
1550.0 - 1560.0	87.0	**SANDSTONE:** clear, transparent, translucent, minor opaque, light grey, fine to very coarse grained, sub angular, sub elongate to sub spherical, poorly sorted, moderate to weak siliceous cement, trace white clay matrix, trace lithic inclusion, trace pyrite nodules, loose, brittle aggregates, generally clean, fair visual and fair to poor inferred porosity.		
	10.0	**CALCILUTITE:** medium to light grey, trace very fine quartz, trace micropyrite and nodular pyrite, trace red lithics, 10 to 20% argillaceous matrix, trace gastropod fossil fragments and bioclasts, weak trace dusky greenish glauconite, soft to firm in part, amorphous to sub blocky.		
	1.0	**CALCAREOUS SANDSTONE:** as above		
	1.0	**SILTSTONE:** as above		
	1.0	**COAL:** as above		
1560.0 - 1570.0	70.0	**CALCILUTITE:** as above, grading to Calcareous Claystone.		
	28.0	**SANDSTONE:** as above, very fine to very coarse.		
	1.0	**SILTSTONE:** as above		
	1.0	**COAL:** as above		
1570.0 - 1580.0	68.0	**SANDSTONE:** clear, translucent, transparent, dominantly fine to medium grained, 10% coarse to very coarse, well sorted, sub spherical, sub angular, weak siliceous cement, trace white clay matrix, generally clean, coarse grains exhibit lihic inclusions, fair visual and inferred porosity, no show.	19	3
	30.0	**CALCILUTITE:** as above		
	1.0	**SILTSTONE:** as above		
	1.0	**COAL:** as above		
1580.0 - 1590.0	70.0	**SANDSTONE:** as above, fine to pebbles, dominantly medium to coarse grained, trace to 5% nodular pyrite,		
	15.0	**CALCILUTITE:** as above		
	14.0	**CARBONACEOUS SILTSTONE:** dark brownish black to dark brown, minor medium brown to brownish grey, abundant to common disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Siltstone and Coal, laminated, firm to friable, sub blocky.		
	1.0	**COAL:** black to dark brown, earthy, sub vitreous in part, firm, uneven fracture, sub blocky.		
1590.0 - 1600.0	64.0	**CARBONACEOUS SILTSTONE:** as above	19	3
	15.0	**SANDSTONE:** as above		
	10.0	**CALCILUTITE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1590.0 - 1600.0	10.0	**CLAYSTONE:** moderate yellowish brown to brownish grey, trace to 5% carbonaceous flecks and laminae, locally 10% silt, soft to firm, sub blocky.	19	3
	1.0	**COAL:** as above		
1600.0 - 1610.0	40.0	**CARBONACEOUS SILTSTONE:** dark brownish black to dark brown, minor medium brown to brownish grey, abundant to common disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Siltstone and Coal, laminated, firm to friable, sub blocky.		
	35.0	**CLAYSTONE:** as above		
	20.0	**SANDSTONE:** as above		
	5.0	**COAL:** as above		
1610.0 - 1620.0	65.0	**SANDSTONE:** light grey, transparent, translucent, clear, fine to very coarse, dominantly fine to medium grained, bi-modal, moderately sorted, sub spherical, sub angular, weak siliceous cement, 5% white to pale brownish grey clay matrix, trace pyrite nodules, dominantly loose, fair to poor visual and inferred porosity, no show.		
	25.0	**LIGNITE:** dark reddish brown, dark brownish black, black in part, grades to Coal, silty in part, sub vitreous to earthy, sub blocky to fissile, brittle to firm.		
	5.0	**CARBONACEOUS SILTSTONE:** as above		
	5.0	**CLAYSTONE:** as above		
1620.0 - 1630.0	65.0	**LIGNITE:** as above	10	2
	28.0	**SANDSTONE:** as above		
	5.0	**COAL:** black, reddish black, sub vitreous, sub conchoidal fracture, sub fissile, firm to brittle.		
	2.0	**CARBONACEOUS SILTSTONE:** as above		
1630.0 - 1640.0	65.0	**SILTSTONE:** moderate to dark yellowish brown, medium to dark brownish grey, trace to 10% disseminated and nodular pyrite, 5 to 10% fine carbonaceous fragments and laminae, locally grades to Carbonaceous Siltstone, laminated, firm to friable, sub blocky.		
	15.0	**CARBONACEOUS SILTSTONE:** as above		
	15.0	**SANDSTONE:** as above		
	4.0	**LIGNITE:** as above		
	1.0	**COAL:** as above		
1640.0 - 1650.0	50.0	**SANDSTONE:** light grey, transparent, translucent, clear, fine to very coarse, dominantly fine to medium grained, bi-modal, moderately sorted, sub spherical, sub angular, weak siliceous cement, 5% white to pale brownish grey clay matrix, trace pyrite nodules, dominantly loose, fair to poor visual and inferred porosity, no show.	15	1
	45.0	**SILTSTONE:** as above		
	5.0	**CLAYSTONE:** moderate yellowish brown to brownish grey, trace to 5% carbonaceous flecks and laminae, locally 10% silt, soft to firm, sub blocky.		
1650.0 - 1660.0	50.0	**CARBONACEOUS SILTSTONE:** dark brownish black to dark brown, minor medium brown to brownish grey, mottled, abundant to common disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Siltstone and Coal, laminated, firm to friable, sub blocky.		
	30.0	**SILTSTONE:** moderate to dark yellowish brown, medium to dark brownish grey, trace to 10% disseminated and nodular pyrite, 5 to 10% fine carbonaceous fragments and laminae, locally grades to Carbonaceous Siltstone, laminated, firm to friable, sub blocky.		
	10.0	**CLAYSTONE:** moderate yellowish brown to brownish grey, trace to 5% carbonaceous flecks and laminae, locally 10% silt, soft to firm, sub blocky.		
	5.0	**COAL:** as above		
	5.0	**SANDSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1660.0 - 1670.0	75.0	**CALCAREOUS CLAYSTONE:** medium to medium dark grey, light grey, trace bluish grey, 10 to 35% calcareous, trace very fine quartz grains, firm to soft, sub blocky.		
	10.0	**SANDSTONE:** as above		
	10.0	**SILTSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**COAL:** as above		
1670.0 - 1680.0	40.0	**COAL:** black, grey black, reddish black in part, sub vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub blocky to blocky.	22	0
	25.0	**CARBONACEOUS SILTSTONE:** as above		
	20.0	**SILTSTONE:** as above		
	10.0	**CALCAREOUS CLAYSTONE:** as above		
	5.0	**SANDSTONE:** as above		
1680.0 - 1690.0	45.0	**CALCAREOUS CLAYSTONE:** as above		
	30.0	**SILTSTONE:** as above		
	15.0	**SANDSTONE:** as above		
	5.0	**COAL:** as above		
	5.0	**CARBONACEOUS SILTSTONE:** as above		
1690.0 - 1700.0	55.0	**SILTSTONE:** moderate to dark yellowish brown, medium to dark brownish grey, locally argillaceous, 10% disseminated and nodular pyrite, 5 to 15% fine carbonaceous fragments and laminae, locally grades to Carbonaceous Siltstone, laminated, firm to friable, sub blocky.	14	0
	25.0	**COAL:** as above		
	10.0	**CALCAREOUS CLAYSTONE:** as above		
	8.0	**SANDSTONE:** as above		
	2.0	**CARBONACEOUS SILTSTONE:** dark brownish black to dark brown, minor medium brown to brownish grey, abundant to common disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Siltstone and Coal, laminated, firm to friable, sub blocky.		
1700.0 - 1710.0	70.0	**SILTSTONE:** moderate to dark yellowish brown, medium to dark brownish grey, locally argillaceous, 10% disseminated and nodular pyrite, 5 to 15% fine carbonaceous fragments and laminae, laminated, locally grades to Carbonaceous Siltstone, trace to 5% mica, locally micro-micaceous, firm to friable, sub blocky.		
	15.0	**COAL:** as above		
	5.0	**SANDSTONE:** as above		
	5.0	**CALCAREOUS CLAYSTONE:** as above		
	5.0	**CARBONACEOUS SILTSTONE:** as above		
1710.0 - 1720.0	58.0	**SANDSTONE:** light grey, transparent, translucent, clear, very fine to very coarse, dominantly fine to medium grained, bi-modal, moderately sorted, sub spherical, sub angular, weak siliceous cement, 5% white to pale brownish grey clay matrix, trace pyrite nodules, dominantly loose, fair to poor visual and inferred porosity, very fine grained aggregates have 25% white clay matrix, moderately hard, poor visual porosity, no show.		
	25.0	**SILTSTONE:** as above		
	10.0	**CARBONACEOUS SILTSTONE:** as above		
	5.0	**CALCAREOUS CLAYSTONE:** as above		
	2.0	**COAL:** as above		
1720.0 - 1730.0	65.0	**SILTSTONE:** light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% fine carbonaceous	12	2

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		specks and laminae, locally grades to Carbonaceous Siltstone, laminated, trace to 5% micro-micaceous, 5% lithic specks, firm to friable, sub blocky.		
	25.0	**CALCAREOUS CLAYSTONE:** medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.		
	5.0	**SANDSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**COAL:** as above		
1730.0 - 1740.0	60.0	**CALCAREOUS CLAYSTONE:** as above		
	25.0	**SILTSTONE:** as above		
	10.0	**SANDSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**COAL:** as above		
1740.0 - 1750.0	40.0	**SILTSTONE:** as above	11	1
	30.0	**ARGILLACEOUS SILTSTONE:** light to medium brownish grey, trace to 25% clay, grades to Silty Claystone, slightly calcareous, trace mica, trace black specks, soft, slightly dispersive, sub blocky.		
	15.0	**CALCAREOUS CLAYSTONE:** medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.		
	10.0	**SANDSTONE:** as above		
	4.0	**CARBONACEOUS SILTSTONE:** as above		
	1.0	**COAL:** as above		
1750.0 - 1760.0	50.0	**SANDSTONE:** clear, translucent, transparent, fine to medium, sub spherical, sub rounded to sub angular, well sorted, weak siliceous cement, trace nodular pyrite, dominantly loose, fair inferred and visual porosity, no show.		
	20.0	**COAL:** black, grey black, reddish black in part, sub vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub blocky to blocky.		
	19.0	**SILTSTONE:** moderate to dark yellowish brown, medium to dark brownish grey, locally argillaceous, 10% disseminated and nodular pyrite, 5 to 15% fine carbonaceous fragments and laminae, laminated, locally grades to Carbonaceous Siltstone, trace to 5% mica, locally micro-micaceous, firm to friable, sub blocky.		
	5.0	**ARGILLACEOUS SILTSTONE:** as above		
	4.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
1760.0 - 1770.0	44.0	**SILTSTONE:** as above		
	30.0	**SANDSTONE:** as above		
	10.0	**CARBONACEOUS SILTSTONE:** as above		
	10.0	**COAL:** as above		
	5.0	**ARGILLACEOUS SILTSTONE:** as above		
	1.0	**CALCAREOUS CLAYSTONE:** as above		
1770.0 - 1780.0	44.0	**SILTSTONE:** medium to dark brownish grey, moderate yellowish brown, speckled in part, trace to 10% disseminated and nodular pyrite, trace to locally 10% fine carbonaceous specks and laminae, locally grades to Carbonaceous Siltstone, laminated, trace to 5% micro-micaceous, 5% lithic specks, firm to friable, sub blocky.	10	1
	35.0	**CARBONACEOUS SILTSTONE:** dark greyish black, dark brownish black to dark brown, trace disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Coal, laminated, firm to friable, sub blocky.		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1770.0 - 1780.0	10.0	**COAL:** as above	10	1
	5.0	**SANDSTONE:** as above		
	5.0	**ARGILLACEOUS SILTSTONE:** as above		
	1.0	**CALCAREOUS CLAYSTONE:** as above		
1780.0 - 1790.0	44.0	**SILTSTONE:** as above		
	35.0	**CARBONACEOUS SILTSTONE:** as above		
	10.0	**COAL:** as above		
	5.0	**SANDSTONE:** as above		
	5.0	**ARGILLACEOUS SILTSTONE:** as above		
	1.0	**CALCAREOUS CLAYSTONE:** as above		
1790.0 - 1800.0	50.0	**SILTSTONE:** medium to dark brownish grey, moderate yellowish brown, speckled in part, trace to 10% disseminated and nodular pyrite, trace to locally 10% fine carbonaceous specks and laminae, locally grades to Carbonaceous Siltstone, laminated, trace to 5% micro-micaceous, 5% lithic specks, trace weak calcareous, firm to friable, sub blocky.	9	1
	30.0	**CARBONACEOUS SILTSTONE:** as above		
	10.0	**COAL:** dusky brown to brownish black, minor moderate brown, earthy to subvitreous lustre, blocky to sub conchoidal fracture, slightly argillaceous in part, lignitic.		
	5.0	**SANDSTONE:** white to light grey, loose, fine to medium, dominantly fine, trace feldspar, angular to sub angular, poorly sorted, trace silica cement, common white to light brownish grey argillaceous matrix, silty in part, trace micopyrite, poor inferred porosity, no shows.		
	4.0	**ARGILLACEOUS SILTSTONE:** as above.		
	1.0	**CALCAREOUS CLAYSTONE:** as above		
1800.0 - 1810.0	47.0	**SILTSTONE:** as above		
	35.0	**CARBONACEOUS SILTSTONE:** as above, local trace nodular pyrite.		
	8.0	**COAL:** as above, grading in part to carbonaceous clasystone and carbonaceous siltstone.		
	5.0	**SANDSTONE:** as above		
	4.0	**ARGILLACEOUS SILTSTONE:** as above		
	1.0	**CALCAREOUS CLAYSTONE:** medium to light grey, trace bluish grey, 10 to 20% calcareous, trace very fine quartz grains, grading to claystone in part, preferential pyritization along veining, firm to soft, sub blocky.		
1810.0 - 1820.0	50.0	**SILTSTONE:** as above.		
	30.0	**CARBONACEOUS SILTSTONE:** as above		
	10.0	**COAL:** as above		
	5.0	**SANDSTONE:** as above		
	1.0	**CALCAREOUS CLAYSTONE:** as above		
1820.0 - 1830.0	73.0	**SILTSTONE:** light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix, grades in part to Silty Claystone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.	8	2
	18.0	**CARBONACEOUS SILTSTONE:** mottled white to dark yellowish brown, 10 to 15% silt, trace to 5% very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 10 to 20% clay matrix, firm to friable, sub blocky to blocky.		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
1820.0 - 1830.0	5.0	**SANDSTONE:** as above	8	2
	3.0	**COAL:** as above, local micropyritisation.		
	1.0	**CALCAREOUS CLAYSTONE:** as above		
1830.0 - 1840.0	74.0	**SILTSTONE:** as above		
	18.0	**CARBONACEOUS SILTSTONE:** as above		
	3.0	**SANDSTONE:** as above		
	3.0	**CALCAREOUS CLAYSTONE:** as above		
	2.0	**COAL:** as above		
1840.0 - 1850.0	74.0	**SILTSTONE:** as above	6	1
	18.0	**CARBONACEOUS SILTSTONE:** as above		
	3.0	**SANDSTONE:** as above		
	3.0	**CALCAREOUS CLAYSTONE:** as above		
	2.0	**COAL:** dusky brown to brownish black, minor moderate brown, earthy lustre, blocky, local sub choncoidal fracture, argillaceous in part, grading to Carbonaceous Claystone, local pyritzation, local ferruginisation, lignitic in part.		
1850.0 - 1860.0	80.0	**SILTSTONE:** as above		
	12.0	**CARBONACEOUS SILTSTONE:** as above		
	4.0	**CALCAREOUS CLAYSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above		
1860.0 - 1870.0	84.0	**SILTSTONE:** as above		
	10.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
1870.0 - 1880.0	87.0	**SILTSTONE:** as above, 30 to 40% clay matrix.	9	1
	8.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30% argillaceous matrix, trace black lithic grains, trace micropyrite, poor inferred porosity. No shows.		
	1.0	**CALCAREOUS CLAYSTONE:** as above		
1880.0 - 1890.0	62.0	**SILTSTONE:** as above		
	27.0	**SILTY CLAYSTONE:** light to medium brownish grey, moderate yellowish brown, trace to locally 10% carbonaceous specks and laminae, laminated in part, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.		
	5.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
1890.0 - 1900.0	49.0	**SILTSTONE:** light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix,	6	1

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		grades in part to Argillaceous Siltstone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.		
	43.0	**SILTY CLAYSTONE:** as above.		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above, siderite cemented in part.		
	1.0	**PYRITIC SANDSTONE:** moderate yellow, agglomerates, 10 to 20% medium quartz, angular, trace angular feldspar, poorly sorted, 50 to 60% pyrite cement, trace siderite cement, very hard, no inferred porosity.		
1900.0 - 1910.0	60.0	**SILTY CLAYSTONE:** as above.		
	32.0	**SILTSTONE:** as above		
	3.0	**SANDSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**CARBONACEOUS SILTSTONE:** as above, trace carbonaceous claystone veining.		
	1.0	**PYRITIC SANDSTONE:** as above		
1910.0 - 1920.0	68.0	**SILTY CLAYSTONE:** as above		
	26.0	**SILTSTONE:** as above		
	3.0	**CALCAREOUS CLAYSTONE:** medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.		
	2.0	**SANDSTONE:** as above		
	1.0	**CARBONACEOUS SILTSTONE:** as above		
1920.0 - 1930.0	73.0	**SILTY CLAYSTONE:** as above	7	2
	20.0	**SILTSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**SANDSTONE:** as above		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
1930.0 - 1940.0	82.0	**SILTY CLAYSTONE:** as above		
	10.0	**SILTSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	3.0	**SANDSTONE:** as above, trace micropyrite cement.		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
1940.0 - 1950.0	84.0	**SILTY CLAYSTONE:** light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to 5% calcareous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.	8	1
	8.0	**SILTSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	3.0	**SANDSTONE:** as above		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
1950.0 - 1960.0	84.0	**SILTY CLAYSTONE:** as above		
	8.0	**SILTSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	3.0	**SANDSTONE:** white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30%		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		argillaceous matrix, trace black lithic grains, trace micropyrite, poor inferred porosity. No shows.		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
1960.0 - 1970.0	87.0	**SILTY CLAYSTONE:** as above		
	5.0	**SILTSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**SANDSTONE:** as above		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
	1.0	**COAL:** black, grey black in part, sub vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub blocky to blocky.		
1970.0 - 1980.0	87.0	**SILTY CLAYSTONE:** as above	9	1
	5.0	**SILTSTONE:** as above		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**SANDSTONE:** as above		
1980.0 - 1990.0	90.0	**SILTY CLAYSTONE:** as above		
	5.0	**SILTSTONE:** as above		
	2.0	**CARBONACEOUS SILTSTONE:** mottled white to dark yellowish brown, 10 to 15% silt, trace very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common micropyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.		
	2.0	**SANDSTONE:** as above		
	1.0	**COAL:** as above		
1990.0 - 2000.0	88.0	**SILTY CLAYSTONE:** as above, grading to Siltstone in part.	6	1
	5.0	**SILTSTONE:** as above		
	4.0	**SANDSTONE:** as above		
	3.0	**CARBONACEOUS SILTSTONE:** as above		
2000.0 - 2010.0	63.0	**SILTY CLAYSTONE:** as above		
	19.0	**SILTSTONE:** light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.		
	12.0	**CARBONACEOUS SILTSTONE:** mottled white to dark yellowish brown, 10 to 20% silt, trace very fine quartz, grades to Sandy Claystone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.		
	6.0	**SANDSTONE:** white to very light grey, loose, rare friable aggregate, very fine to medium grained, predominantly fine, angular to sub angular, moderately sorted, abundant argillaceous matrix, common feldspathic and black lithic grains, trace micropyrite cement, trace siderite cement, moderate visual porosity. No shows.		
2010.0 - 2020.0	43.0	**SILTY CLAYSTONE:** as above		
	39.0	**SILTSTONE:** as above		
	12.0	**CARBONACEOUS SILTSTONE:** as above		
	6.0	**SANDSTONE:** as above		
2020.0 - 2030.0	44.0	**SILTSTONE:** as above	7	2

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2020.0 - 2030.0	25.0	**SILTY CLAYSTONE:** as above	7	2
	18.0	**CARBONACEOUS SILTSTONE:** as above		
	10.0	**SANDSTONE:** as above, no shows.		
	3.0	**COAL:** black, grey black, sub vitreous, vitreous in part, angular fracture, choncoidal fracture associated with vitreous fragrments, trace pyrite, grades to carbonaceous claystone in part.		
2030.0 - 2040.0	53.0	**SILTSTONE:** as above		
	20.0	**SILTY CLAYSTONE:** as above		
	12.0	**CARBONACEOUS SILTSTONE:** as above		
	12.0	**SANDSTONE:** white to very light grey, firm to friable aggregates, predominantly returned loose, very fine to predominantly fine grained, angular to sub rounded, poorly sorted, common to abundant white argillaceous matrix, trace wispy, black diffuse carbonaceous laminae, poor visual porosity. No shows.		
	3.0	**COAL:** as above		
2040.0 - 2050.0	44.0	**SILTSTONE:** as above	6	1
	22.0	**SILTY CLAYSTONE:** as above,		
	12.0	**CARBONACEOUS SILTSTONE:** as above		
	10.0	**SANDSTONE:** as above		
	9.0	**SANDY SILTSTONE:** white, 30 to 40% silt, trace very fine to fine quartz, abundant white argillaceous matrix, trace micromicaceous, rare black lithics, soft, dispersive, bit crushed in part, poor visual porosity, no shows.		
	3.0	**COAL:** as above		
2050.0 - 2060.0	40.0	**SANDY SILTSTONE:** as above, sand fraction washing out?		
	30.0	**SILTSTONE:** as above		
	14.0	**SILTY CLAYSTONE:** as above		
	8.0	**CARBONACEOUS SILTSTONE:** as above		
	5.0	**SANDSTONE:** as above		
	3.0	**COAL:** as above		
2060.0 - 2070.0	49.0	**SANDY SILTSTONE:** white, light grey in part, 30 to 40% silt, 10 to 15% fine to medium quartz, angular to sub angular, abundant white clay matrix, trace micromicaceous, trace black lithics, soft, dispersive, bit crushed in part, poor visual porosity, no shows.		
	20.0	**SILTSTONE:** as above		
	14.0	**SILTY CLAYSTONE:** as above		
	8.0	**CARBONACEOUS SILTSTONE:** as above		
	5.0	**SANDSTONE:** as above		
	4.0	**COAL:** as above		
2070.0 - 2080.0	55.0	**SANDY SILTSTONE:** as above, no shows.	6	0
	20.0	**SILTSTONE:** as above **FLUORESCENCE : (Nil Direct)** no direct fluorescence, strong, quick to very slow blue white solvent cut, thin blue white residual ring.		
	12.0	**SILTY CLAYSTONE:** as above		
	8.0	**CARBONACEOUS SILTSTONE:** as above		
	3.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above, no shows.		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2080.0 - 2090.0	55.0	**SANDY SILTSTONE:** as above, light grey to yellowish grey in part, trace olive grey, 5 to 10% micropyrite, no shows.		
	20.0	**SILTSTONE:** as above		
		FLUORESCENCE : (Nil Direct) as above.		
	12.0	**SILTY CLAYSTONE:** as above		
	8.0	**CARBONACEOUS SILTSTONE:** as above		
	3.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above		
2090.0 - 2100.0	70.0	**SANDY SILTSTONE:** as above, local pyrite cementation, forming rare nodules. trace siderite cement.	5	1
	10.0	**SILTSTONE:** as above		
	8.0	**SILTY CLAYSTONE:** light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to trace carbonaceous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5 to 10% lithic specks, 5 to 10% micropyrite, trace coal fragments, soft to firm, sub blocky to blocky.		
	8.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**SANDSTONE:** as above		
	2.0	**COAL:** as above		
2100.0 - 2110.0	64.0	**SANDY SILTSTONE:** as above		
	15.0	**SILTY CLAYSTONE:** as above		
	13.0	**SILTSTONE:** as above		
	4.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**SANDSTONE:** as above		
	2.0	**COAL:** as above		
2110.0 - 2120.0	64.0	**SANDY SILTSTONE:** as above		
		FLUORESCENCE : (Nil Direct) no direct fluorescence, weak diffuse to very slow turquoise solvent cut, thin turquoise residual ring.		
	25.0	**SILTY CLAYSTONE:** light to medium brownish grey, rare pale brown, 10 to 20% silt, rare very fine quartz, 5 to 10% micromicaceous, trace black lithics, trace micropyrite, trace to 5% carbonaceous claystone and coal fragments, firm, sub blocky to blocky.		
	9.0	**SILTSTONE:** as above		
	2.0	**COAL:** as above		
2120.0 - 2130.0	65.0	**SANDY SILTSTONE:** as above, trace weather feldspars, trace mica.	8	1
	23.0	**SILTY CLAYSTONE:** as above		
	9.0	**SILTSTONE:** as above		
	3.0	**COAL:** as above		
		FLUORESCENCE : (Nil Direct) no direct fluorescence, strong, quick to very slow blue white solvent cut, thin blue white residual ring.		
2130.0 - 2140.0	81.0	**SANDY SILTSTONE:** as above		
	12.0	**SILTY CLAYSTONE:** as above		
	5.0	**SILTSTONE:** as above		
	2.0	**COAL:** as above		
		FLUORESCENCE : (Nil Direct) as above.		
2140.0 - 2150.0	79.0	**SANDY SILTSTONE:** white, light grey in part, aggregated in part, bitumenous crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered	8	1

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.		
		FLUORESCENCE : (Nil Direct) no direct fluorescence, weak diffuse to very slow turquoise solvent cut, thin turquoise residual ring.		
	12.0	**SILTY CLAYSTONE:** as above		
	5.0	**SILTSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above		
2150.0 - 2160.0	82.0	**SANDY SILTSTONE:** as above		
	9.0	**SILTY CLAYSTONE:** as above, show.		
	5.0	**SILTSTONE:** light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above		
2160.0 - 2170.0	82.0	**SANDY SILTSTONE:** as above, grading to Sandstone in part.		
	9.0	**SILTY CLAYSTONE:** as above		
	5.0	**SILTSTONE:** as above		
	2.0	**COAL:** as above		
	2.0	**SANDSTONE:** as above.		
2170.0 - 2180.0	74.0	**SANDY SILTSTONE:** as above	6	2
	10.0	**SANDSTONE:** white to light grey, fine to medium quartz, dominantly fine, sub angular to sub rounded, rare angular, trace micropyrite, 20 to 30% white clay matrix, trace Coal fragments, rare red lithics, loose, aggregated in part, poor visual porosity.		
	9.0	**SILTY CLAYSTONE:** as above		
	5.0	**SILTSTONE:** as above		
	2.0	**COAL:** as above		
2180.0 - 2190.0	72.0	**SANDY SILTSTONE:** as above		
	10.0	**SANDSTONE:** as above		
	9.0	**SILTY CLAYSTONE:** as above, grading in part to Carbonaceous Siltstone.		
	5.0	**SILTSTONE:** as above		
	4.0	**COAL:** black, grey black, vitreous to sub vitreous, firm to brittle, uneven to angular fracture, trace chonchoidal, grading to Carbonaceous Claystone in part, sub blocky to blocky.		
2190.0 - 2200.0	50.0	**SANDY SILTSTONE:** as above	8	0
	15.0	**SANDSTONE:** as above		
	10.0	**CARBONACEOUS SILTSTONE:** dark yellowish brown to light olive grey, pale brown in part, 10 to 20% silt, trace very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common black carbonaceous fragments and laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.		
	9.0	**SILTY CLAYSTONE:** as above.		
	6.0	**COAL:** as above		
	5.0	**SILTSTONE:** as above		
2200.0 - 2210.0	65.0	**SANDSTONE:** light grey off white, translucent, clear, fine to minor coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		porosity, no show.		
	15.0	**SANDY SILTSTONE:** white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.		
	15.0	**CARBONACEOUS SILTSTONE:** as above		
	2.0	**SILTSTONE:** light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.		
	2.0	**SILTY CLAYSTONE:** as above		
	1.0	**COAL:** as above		
2210.0 - 2220.0	57.0	**SANDSTONE:** light grey off white, translucent, clear, fine to minor coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 15% dispersive clay matrix, trace pyrite nodules, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.		
	26.0	**CARBONACEOUS SILTSTONE:** as above		
	10.0	**SANDY SILTSTONE:** white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.		
	7.0	**SILTSTONE:** as above		
2220.0 - 2230.0	50.0	**CARBONACEOUS SILTSTONE:** dark yellowish brown to mottled dark olive grey, mottled brown, trace to 5% very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common very fine black carbonaceous fragments and laminae, speckled, rare Coal fragments, 10 to 15% clay matrix, firm to friable, sub blocky to blocky. Grades to Siltstone.	9	1
	25.0	**SILTSTONE:** medium dark brownish grey, dark yellowish brown, medium olive brownish grey, 10 to 30% clay, grades to Silty Claystone, trace to 5% very fine quartz, 5 to 10% micropyrite, trace black lithics, trace to 10% wispy black carbonaceous laminae, trace red lithics, sub block to blocky.		
	20.0	**SANDSTONE:** as above		
	5.0	**SANDY SILTSTONE:** as above		
2230.0 - 2240.0	50.0	**SANDSTONE:** as above		
	35.0	**SILTSTONE:** as above		
	10.0	**CARBONACEOUS SILTSTONE:** as above		
	5.0	**SANDY SILTSTONE:** as above.		
2240.0 - 2250.0	40.0	**SILTSTONE:** as above	8	2
	35.0	**SANDY SILTSTONE:** as above		
	20.0	**SANDSTONE:** as above		
	5.0	**CARBONACEOUS SILTSTONE:** as above		
2250.0 - 2260.0	50.0	**SANDY SILTSTONE:** white, light grey in part, aggregated in part, 10 to 20% fine to medium quartz, trace altered feldspar, angular to sub angular, 10 to 40% white clay matrix, grades to Sandy Claystone, trace mica, trace black lithics, rare chlorite, local trace thin carbonaceous laminae, soft to firm, friable in part, dispersive, poor visual porosity, no shows.		
	28.0	**SILTSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2250.0 - 2260.0	15.0	**SANDSTONE:** as above, becoming dominantly fine grained, 10 to 35% dispersive clay matrix, trace coal laminae, friable, poor visual porosity, no show.		
	5.0	**SANDY CLAYSTONE:** white, light grey in part, 10 to 30% very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Sandy Siltstone, trace mica, trace black lithics, local trace thin carbonaceous laminae, soft to firm, inferred dispersive.		
	2.0	**CARBONACEOUS SILTSTONE:** as above		
2260.0 - 2270.0	45.0	**SANDY SILTSTONE:** as above		
	25.0	**SILTSTONE:** as above		
	20.0	**SANDY CLAYSTONE:** as above		
	10.0	**SANDSTONE:** as above		
2270.0 - 2280.0	60.0	**SANDSTONE:** as above, becoming dominantly fine grained, 10 to 35% dispersive clay matrix, trace coal laminae, friable, poor visual porosity, no show.	7	1
	20.0	**SANDY SILTSTONE:** white, light grey in part, aggregated in part, 10 to 20% fine to medium quartz, trace altered feldspar, angular to sub angular, 10 to 40% white clay matrix, grades to Sandy Claystone, trace mica, trace black lithics, rare chlorite, local trace thin carbonaceous laminae, soft to firm, friable in part, dispersive, poor visual porosity, no shows.		
	15.0	**SILTSTONE:** as above		
	5.0	**SANDY CLAYSTONE:** white, light grey in part, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone, in part grades to Sandy Siltstone, trace mica, trace black lithics, local trace thin carbonaceous laminae, soft to firm, inferred dispersive.		
2280.0 - 2290.0	40.0	**SILTY CLAYSTONE:** mottled medium light grey to white, 10 to 30% silt, gradational to Sandy Claystone, trace black lithics, common carbonaceous specks, soft to firm, dispersive.		
	35.0	**SANDY CLAYSTONE:** medium light grey to white, 10 to 30% silt to locally very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone, ttrace black lithics, local trace thin carbonaceous laminae, soft to firm, dispersive.		
	10.0	**SILTSTONE:** as above		
	10.0	**SANDY SILTSTONE:** as above		
	5.0	**SANDSTONE:** as above		
2290.0 - 2300.0	45.0	**SANDY CLAYSTONE:** white, light grey to very pale yellowish brown, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone and Argillaceous Sandstone, trace mica, trace white lithics, trace carbonaceous laminae and specks, soft to firm, sub blocky, dispersive.	6	0
	40.0	**SILTY CLAYSTONE:** mottled medium light grey to white, pale brownish grey, 10 to 30% very fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.		
	10.0	**SILTSTONE:** mottled medium dark to medium light grey, locally very light grey to white, occasionally brownish grey, trace to 25% very fine quartz, locally gradational to Silty Sandstone, 5 to 25% argillaceous, locally gradational to Silty Claystone, 5 to 10% very fine carbonaceous specks and trace laminae, trace white and rare red lithic specks, trace micro mica, firm to soft, sub blocky.		
	5.0	**SANDSTONE:** light grey off white, translucent, clear, fine to minor coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 15% dispersive clay matrix, trace pyrite nodules, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.		
2300.0 - 2310.0	80.0	**SANDSTONE:** light grey, translucent, mottled grey, dirty, dominantly fine to medium, moderately sorted, sub spherical, sub rounded to sub angular, weak siliceous cement, 5 to 30% white dispersive clay matrix, locally 5 to 10% silty matrix, trace to 10% lithic specks, trace to 5% mica flakes, trace chlorite specks,		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
		trace nodular pyrite, dominantly loose grains, friable to brittle aggregates, poor to fair visual and poor inferred porosity, no show.		
	10.0	**ARGILLACEOUS SILTSTONE:** dark brownish grey to dark yellowish brown, trce to 10% clay matrix, grades to Claystone, trace to 10% fine carbonaceous specks and fragments, 5% carbonaceous laminae, grades to Carbonaceous Siltstone in part, firm, sub fissile to sub blocky.		
	4.0	**SANDY CLAYSTONE:** as above		
	4.0	**SILTSTONE:** as above.		
	2.0	**SILTY CLAYSTONE:** as above		
2310.0 - 2320.0	80.0	**SANDSTONE:** as above		
	10.0	**ARGILLACEOUS SILTSTONE:** as above		
	7.0	**SILTSTONE:** as above		
	2.0	**SILTY CLAYSTONE:** as above		
	1.0	**SANDY CLAYSTONE:** as above		
2320.0 - 2330.0	40.0	**SANDSTONE:** as above	4	1
	20.0	**SILTSTONE:** as above		
	15.0	**SANDY CLAYSTONE:** as above		
	15.0	**SILTY CLAYSTONE:** as above		
	10.0	**ARGILLACEOUS SILTSTONE:** as above		
2330.0 - 2340.0	60.0	**SANDSTONE:** as above, dominantly medium grained, 15% sub angular to angular coarse grains, dominantly loose, no show.		
	20.0	**SILTSTONE:** as above, grading to Silty Claystone.		
	12.0	**SILTY CLAYSTONE:** as above		
	5.0	**SANDY CLAYSTONE:** as above		
	3.0	**ARGILLACEOUS SILTSTONE:** as above		
2340.0 - 2350.0	35.0	**SANDSTONE:** as above	4	1
	35.0	**SILTY CLAYSTONE:** as above		
	20.0	**SANDY CLAYSTONE:** as above		
	5.0	**ARGILLACEOUS SILTSTONE:** as above		
	5.0	**SILTSTONE:** as above		
2350.0 - 2360.0	65.0	**SILTY CLAYSTONE:** mottled medium light grey to white, pale brownish grey, 10 to 30% very fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.		
	20.0	**SANDSTONE:** as above, dominantly very fine to fine, loose.		
	10.0	**SILTSTONE:** as above		
	3.0	**SANDY CLAYSTONE:** as above		
	2.0	**ARGILLACEOUS SILTSTONE:** as above		
2360.0 - 2370.0	66.0	**SILTY CLAYSTONE:** as above, grading to Claystone.		
	15.0	**SANDSTONE:** as above		
	15.0	**SILTSTONE:** as above, increasingly gradational to Silty Claystone.		
	3.0	**SANDY CLAYSTONE:** as above		
	1.0	**ARGILLACEOUS SILTSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2370.0 - 2380.0	50.0	**SANDSTONE:** light grey off white, translucent, clear, fine to coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 25% dispersive clay matrix, grades to Argillaceous Sandstone in part, trace weathered feldspars, trace pyrite nodules, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.	5	1
	20.0	**SILTSTONE:** mottled medium dark to medium light grey, locally very light grey to white, occasionally brownish grey, trace to 25% very fine quartz, locally gradational to Silty Sandstone, 5 to 25% argillaceous, locally gradational to Silty Claystone, 10% fine carbonaceous flecks and trace laminae, trace white and rare red lithic specks, trace micro mica, firm to soft, sub blocky.		
	15.0	**SILTY CLAYSTONE:** mottled medium light grey to white, pale brownish grey, 10 to 30% very fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.		
	13.0	**SANDY CLAYSTONE:** white, light grey to very pale yellowish brown, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone and Argillaceous Sandstone, trace mica, trace white lithics, trace carbonaceous laminae and specks, soft to firm, sub blocky, dispersive.		
	2.0	**ARGILLACEOUS SILTSTONE:** dark brownish grey to dark yellowish brown, trce to 10% clay matrix, grades to Claystone, trace to 10% fine carbonaceous specks and frgaments, 5% carbonaceous laminae, grades to Carbonaceous Siltstone in part, firm, sub fissile to sub blocky.		
2380.0 - 2390.0	30.0	**SANDSTONE:** as above		
	25.0	**SANDY CLAYSTONE:** as above		
	20.0	**SILTSTONE:** as above		
	15.0	**ARGILLACEOUS SILTSTONE:** as above		
	10.0	**SILTY CLAYSTONE:** as above		
2390.0 - 2400.0	35.0	**SANDSTONE:** as above, very fine to medium.	3	1
	25.0	**ARGILLACEOUS SILTSTONE:** as above		
	15.0	**SILTSTONE:** as above		
	15.0	**SANDY CLAYSTONE:** as above		
	10.0	**SILTY CLAYSTONE:** as above		
2400.0 - 2410.0	40.0	**SANDSTONE:** clear, light grey, translucent, fine to medium, well sorted, sub spherical to spherical, sub rounded, very weak siliceous cement, 5 to 10% dispersive white clay matrix, trace nodular pyrite, trace mica, dominantly loose, friable to occassional hard aggregates, fair to poor inferred and fair visual porosity, no show.		
	20.0	**SILTY CLAYSTONE:** as above		
	15.0	**ARGILLACEOUS SILTSTONE:** as above, 5 to 10% carbonaceous laminae.		
	15.0	**SILTSTONE:** as above		
	10.0	**SANDY CLAYSTONE:** as above		
2410.0 - 2420.0	55.0	**SANDSTONE:** clear, light grey, translucent, fine to medium, well sorted, sub spherical to spherical, sub rounded, very weak siliceous cement, 5 to 10% dispersive white clay matrix, trace nodular pyrite, trace mica, dominantly loose, fribale to occassional hard aggreagtes, fair to poor inferred and fair visual porosity, no show.		
	15.0	**SILTSTONE:** as above		
	15.0	**ARGILLACEOUS SILTSTONE:** as above, 5 to 10% carbonaceous laminae.		
	12.0	**SILTY CLAYSTONE:** as above		
	3.0	**SANDY CLAYSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2420.0 - 2430.0	40.0	**ARGILLACEOUS SILTSTONE:** dark brownish grey to dark yellowish brown, moderate yellowish brown, trace to 10% clay matrix, grades to Siltstone, trace to 10% fine carbonaceous specks and fragments, 5% carbonaceous laminae, 5% lithic specks, trace to 5% disseminated pyrite, firm, sub fissile to sub blocky.	4	2
	25.0	**SILTSTONE:** mottled medium dark to medium light grey, brownish grey, trace to 15% very fine quartz, 5 to 25% argillaceous, locally gradational to Silty Claystone, 5 to 15% fine carbonaceous specks and trace wispy laminae, trace white and rare red lithic specks, trace micro mica, firm to soft, sub blocky.		
	20.0	**SILTY CLAYSTONE:** mottled medium light grey to white, pale brownish grey, 10 to 30% very fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.		
	10.0	**SANDSTONE:** light grey off white, translucent, clear, very fine to coarse, dominantly fine, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 25% dispersive clay matrix, grades to Argillaceous Sandstone in part, trace weathered feldspars, trace pyrite nodules, trace to 5% carbonaceous laminae and specks, trace mica flakes, generally loose, brittle to friable fine aggregates, fair to poor visual and inferred porosity, no show.		
	5.0	**SANDY CLAYSTONE:** white, light grey to very pale yellowish brown, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone and Argillaceous Sandstone, trace mica, trace white lithics, trace carbonaceous laminae and specks, soft to firm, sub blocky, dispersive.		
2430.0 - 2440.0	50.0	**SILTSTONE:** as above		
	20.0	**ARGILLACEOUS SILTSTONE:** as above		
	15.0	**SANDSTONE:** as above		
	10.0	**SILTY CLAYSTONE:** as above		
	5.0	**SANDY CLAYSTONE:** as above		
2440.0 - 2450.0	45.0	**SILTSTONE:** as above	6	1
	20.0	**SILTY CLAYSTONE:** as above		
	18.0	**SANDSTONE:** as above		
	15.0	**ARGILLACEOUS SILTSTONE:** as above		
	2.0	**SANDY CLAYSTONE:** as above		
2450.0 - 2460.0	50.0	**SILTSTONE:** as above		
	25.0	**SILTY CLAYSTONE:** as above		
	20.0	**ARGILLACEOUS SILTSTONE:** as above		
	3.0	**SANDY CLAYSTONE:** as above		
	2.0	**SANDSTONE:** as above		
2460.0 - 2470.0	35.0	**SILTY CLAYSTONE:** as above		
	30.0	**ARGILLACEOUS SILTSTONE:** as above		
	30.0	**SILTSTONE:** as above		
	3.0	**SANDSTONE:** as above		
	2.0	**SANDY CLAYSTONE:** as above		
2470.0 - 2480.0	40.0	**SILTY CLAYSTONE:** as above	5	1
	30.0	**ARGILLACEOUS SILTSTONE:** as above		
	20.0	**SILTSTONE:** as above		
	8.0	**SANDSTONE:** as above		
	2.0	**SANDY CLAYSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2480.0 - 2490.0	30.0	**SILTY CLAYSTONE:** as above		
	30.0	**ARGILLACEOUS SILTSTONE:** as above		
	23.0	**SILTSTONE:** as above		
	15.0	**SANDSTONE:** as above, dominantly fine to medium.		
	2.0	**SANDY CLAYSTONE:** as above		
2490.0 - 2500.0	45.0	**ARGILLACEOUS SILTSTONE:** as above	6	1
	25.0	**SILTY CLAYSTONE:** as above		
	20.0	**SANDSTONE:** as above		
	9.0	**SILTSTONE:** as above		
	1.0	**SANDY CLAYSTONE:** as above		
2500.0 - 2510.0	45.0	**ARGILLACEOUS SILTSTONE:** as above		
	25.0	**SILTY CLAYSTONE:** as above		
	25.0	**SANDSTONE:** as above		
	4.0	**SILTSTONE:** as above		
	1.0	**SANDY CLAYSTONE:** as above		
2510.0 - 2520.0	50.0	**ARGILLACEOUS SILTSTONE:** as above		
	25.0	**SANDSTONE:** as above		
	20.0	**SILTY CLAYSTONE:** as above		
	4.0	**SILTSTONE:** as above		
	1.0	**SANDY CLAYSTONE:** as above		
2520.0 - 2530.0	54.0	**SILTY CLAYSTONE:** as above	4	2
	25.0	**ARGILLACEOUS SILTSTONE:** as above, trace grading to Carbonaceous Siltstone.		
	19.0	**SILTSTONE:** as above		
	1.0	**SANDY CLAYSTONE:** as above		
	1.0	**SANDSTONE:** as above		
2530.0 - 2540.0	60.0	**VOLCANIC:** white, pale yellow white, rare mottled dusky green, bit crushed, soft, diffuse, rarely hard, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, abundant chlorite associated with greenish grey fragments, trace micropyrite, localised nodular pyrite, minor pale blue green and light grey microcrystalline angular aggregates, hard.		
	30.0	**ARGILLACEOUS SILTSTONE:** as above		
	5.0	**SILTY CLAYSTONE:** as above		
	5.0	**SILTSTONE:** as above		
2540.0 - 2550.0	100.0	**VOLCANIC:** white, pale yellow white, speckled greenish grey, mottled reddish brown and white, mottled dusky green, bit crushed, soft to moderately hard, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, trace mica, abundant chlorite associated with greenish grey fragments, greyish blue green siliceous fragments, very hard, trace micropyrite, very weak calcareous, trace pyrite nodules, trace black lithics, soft (bit crushed) to very hard.	3	2
2550.0 - 2560.0	100.0	**VOLCANIC:** as above		
2560.0 - 2570.0	80.0	**VOLCANIC:** as above, bit crushed in part, white, diffuse, soft.		
	20.0	**CLAYSTONE:** brownish black to brownish grey, trace silt, hard, angular, brittle, local pyritisation.		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2570.0 - 2580.0	50.0	**CLAYSTONE:** as above, pale brown in part.	4	1
	35.0	**VOLCANIC:** as above		
	5.0	**SILTSTONE:** pale brown to light olive grey (5Y 5/2), brownish grey in part, 10 to 15% silt, trace black lithics, local trace micropyrite, 30 to 40% clay matrix, firm to moderately hard.		
2580.0 - 2590.0	65.0	**CLAYSTONE:** as above		
	20.0	**VOLCANIC:** as above		
	15.0	**SILTSTONE:** as above		
2590.0 - 2600.0	80.0	**SANDSTONE:** translucent to white, loose, very fine to fine, dominantly fine, sub angular to sub rounded, well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, excellent visual porosity, shows. **FLUORESCENCE : (3%)** dull to moderate yellow direct fluorescence, diffuse, very slow pale blue solvent cut and crush cut, thin diffuse white residual ring.	3	2
	10.0	**SILTSTONE:** as above		
	5.0	**CLAYSTONE:** as above		
	5.0	**VOLCANIC:** as above		
2600.0 - 2605.0	60.0	**SANDSTONE:** as above, 1 to 2% nodular pyrite. **FLUORESCENCE : (2%)** as above.		
	15.0	**VOLCANIC:** as above		
	15.0	**SILTSTONE:** as above		
	10.0	**CLAYSTONE:** as above		
2605.0 - 2610.0	45.0	**SANDSTONE:** translucent to white, loose, fine to coarse, dominantly medium, sub angular to sub rounded, moderately well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, good visual porosity, shows. **FLUORESCENCE : (1%)** as above.		
	20.0	**VOLCANIC:** as above		
	20.0	**CLAYSTONE:** brownish black to olive black, trace silt, trace red oxide staining, local trace pyritisation, angular brittle in part, firm to very hard.		
	15.0	**SILTSTONE:** as above		
2610.0 - 2615.0	56.0	**CLAYSTONE:** light brownish grey to light olive grey, trace to 5% silt, trace micromicaceous, trace to 2% Coal fragments, black to dark brown lustre, earthy, sub vitreous to vitreous in part, uneven fracture, grades to Carbonaceos Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.		
	15.0	**SILTSTONE:** as above.		
	5.0	**SANDSTONE:** as above		
	4.0	**VOLCANIC:** as above		
2615.0 - 2620.0	80.0	**CLAYSTONE:** as above		
	18.0	**SILTSTONE:** as above		
	2.0	**SANDSTONE:** as above, rare agglomerates.		
2620.0 - 2625.0	88.0	**CLAYSTONE:** as above	4	2
	10.0	**SILTSTONE:** as above		
	2.0	**SANDSTONE:** translucent to white, dominantly aggregated, very fine to fine, dominantly fine, sub angular to sub rounded, poorly sorted, trace to 5% siliceous cement, up to 5% pyrite cement, local trace nodular pyrite, weak trace siderite, weak calcareous, very hard, poor visual porosity, no show.		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2625.0 - 2630.0	78.0	**CLAYSTONE:** as above		
	20.0	**SILTSTONE:** as above		
	2.0	**SANDSTONE:** as above		
2630.0 - 2635.0	75.0	**CLAYSTONE:** as above		
	23.0	**SILTSTONE:** light brownish grey to light olive grey, trace to 5% silt, trace micromicaceous, trace to 2% Coal fragments, black to dark brown lustre, earthy, sub vitreous to vitreous in part, uneven fracture, grades to Carbonaceos Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.		
	2.0	**SANDSTONE:** as above		
2635.0 - 2640.0	50.0	**COALY CLAYSTONE:** light brownish grey to brownish grey, trace black laminae, trace to 5% silt, trace micromicaceous, trace to 3% Coal fragments, dark brown lustre, earthy, sub vitreous to vitreous in part, uneven fracture, grades to Carbonaceos Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.		
	35.0	**SILTSTONE:** pale brown to brownish grey, 10 to 20% silt, rare very fine to fine quartz, trace to 5% micropyrite, trace micromicaceous, trace Coal fragments, dull, black to dark brown lustre, earthy, sub vitreous, uneven fracture, grades to Carbonaceos Claystone in part, local trace thin wispy carbonaceous laminae, firm to moderately hard in part.		
	15.0	**SANDSTONE:** translucent to white, loose in part, dominantly aggregated, loose gaines fine to medium, dominantly fine, sub angular to sub rounded, poorly sorted, trace to 5% siliceous cement, up to 5% pyrite cement, local trace nodular pyrite, aggregates, extremely hard, fine to coarse grained, dominantly medium, angular to sub-angular, rare rounded, poorly sorted, 10 to 15% siliceous cement, trace pyrite cement, rare nodules, 10 to 20% white clay matrix, very hard dark grey fragments, trace black lithics, very weak calcareous, poor visual porosity, no shows. **FLUORESCENCE : (4%)** dull to moderate yellow, rare bluish green direct fluorescence, moderately slow, diffuse pale blue solvent cut, thin diffuse white to pale blue residual ring.		
2640.0 - 2645.0	40.0	**SANDSTONE:** as above, trace feldspar, bitumenous crushed, 20 to 30% white clay matrix. **FLUORESCENCE : (3%)** as above.		
	35.0	**SILTSTONE:** as above		
	25.0	**COALY CLAYSTONE:** as above		
2645.0 - 2650.0	45.0	**SANDSTONE:** as above **FLUORESCENCE : (3%)**	4	1
	40.0	**SILTSTONE:** as above.		
	15.0	**COALY CLAYSTONE:** as above		
2650.0 - 2655.0	47.0	**SILTSTONE:** as above		
	40.0	**SANDSTONE:** as above **FLUORESCENCE : (3%)**		
	14.0	**CLAYSTONE:** pale orange to light brown, trace to 5% silt, trace carbaonaceous veins, rare black lithics, soft to firm, dispersive in part.		
	5.0	**CALCAREOUS CLAYSTONE:** greenish grey to light bluish grey, yellowish grey in part, trace silt, trace black lithics, firm to moderately hard, weak calcareous, angular to sub blocky.		
	4.0	**COALY CLAYSTONE:** as above.		
2655.0 - 2660.0	60.0	**SANDSTONE:** translucent to white, loose, very fine to fine, dominantly fine, sub angular to sub rounded, well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, 10 to 20% clay matrix, very weak calcareous, excellent visual porosity, shows. **FLUORESCENCE : (1%)**		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
	15.0	**SILTSTONE:** as above		
	10.0	**CALCAREOUS CLAYSTONE:** as above		
	10.0	**CLAYSTONE:** as above		
	5.0	**COALY CLAYSTONE:** as above.		
2660.0 - 2665.0	35.0	**SANDSTONE:** as above		
	30.0	**COALY CLAYSTONE:** greyish brown to moderate brown (5YR 4/4 and 5YR 3/4), trace to 10% silt, grades to Siltstone in part, weak trace very fine quartz, trace micromicaceous, trace mica, trace to 3% Coal fragments, dark brown lustre, earthy, sub vitreous, uneven fracture, grades to Carbonaceous Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.		
	20.0	**CLAYSTONE:**		
	10.0	**SILTSTONE:** as above		
	5.0	**CALCAREOUS CLAYSTONE:** as above		
2665.0 - 2670.0	35.0	**COALY CLAYSTONE:** as above		
	30.0	**CLAYSTONE:** pale orange to light brown, yellowish grey in part, trace silt, trace carbaonaceous veins, trace mica, rare black lithics, soft to firm, dispersive in part.		
	18.0	**SILTSTONE:** as above		
	15.0	**SANDSTONE:** translucent to white, loose, aggregated, fine to medium, dominantly fine, sub angular to sub rounded, poorly sorted, 5 to 10% siliceous cement, 5 to 10% pyrite cement, locally forming nodules, very hard, 10 to 20% white clay matrix, trace black lithics, very weak calcareous, poor visual porosity, no shows.		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
2670.0 - 2675.0	48.0	**CLAYSTONE:** as above	5	2
	20.0	**SILTSTONE:** as above		
	20.0	**COALY CLAYSTONE:** as above		
	10.0	**SANDSTONE:** translucent to white, loose, very fine to fine, dominantly fine, sub angular to sub rounded, moderately well sorted, trace feldspar, trace pyrite cement, local trace nodular pyrite, weak trace siderite, good visual porosity, no shows.		
	2.0	**CALCAREOUS CLAYSTONE:** as above		
2675.0 - 2680.0	40.0	**CLAYSTONE:** as above		
	20.0	**COALY CLAYSTONE:** as above		
	15.0	**VOLCANIC:** white, pale yellow white, speckled greenish grey, mottled reddish brown and white, mottled dusky green, bit crushed, soft to moderately hard, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, trace mica, abundant chlorite associated with greenish grey fragments, greyish blue green siliceous fragments, very hard, very weak calcareous, local pyritisation, trace pyrite nodules, trace black lithics, trace siderite, soft (bit crushed) to very hard.		
	10.0	**SILTSTONE:** pale brown to brownish grey, 10 to 20% silt, rare very fine to fine quartz, trace to 5% micropyrite, trace micromicaceous, trace Coal fragments, dull, black to dark brown lustre, earthy, sub vitreous, uneven fracture, grades to Carbonaceos Claystone in part, local trace thin wispy carbonaceous laminae, firm to moderately hard in part.		
	10.0	**SANDSTONE:** as above		
	5.0	**CALCAREOUS CLAYSTONE:** as above		
2680.0 - 2685.0	60.0	**CLAYSTONE:** as above		
	15.0	**SANDSTONE:** as above		
	10.0	**SILTSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2680.0 - 2685.0	8.0	**COALY CLAYSTONE:** as above		
	5.0	**CALCAREOUS CLAYSTONE:** as above		
	2.0	**VOLCANIC:** as above		
2685.0 - 2690.0	58.0	**CLAYSTONE:** pale orange to light brown, yellowish grey in part, trace to 10% silt, grades to Silty Claystone, sucrosic in part, trace to 5% very fine quartz, trace carbaonaceous veins, trace mica, rare black lithics, soft to firm, dispersive in part.		
	20.0	**SANDSTONE:** translucent to white, loose, very fine to fine, dominantly fine, sub angular to sub rounded, well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, 10 to 20% clay matrix, very weak calcareous, excellent visual porosity, shows.		
	15.0	**COALY CLAYSTONE:** moderate brown to greyish brown, dark yellowish brown, trace to 15% silt, grades to Silty Claystone, weak trace very fine quartz, trace micromicaceous, trace mica, trace to 10% Coal fragments, dark brown lustre, earthy, sub vitreous, uneven fracture, trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.		
	5.0	**SILTSTONE:** as above		
	2.0	**VOLCANIC:** as above		
2690.0 - 2695.0	40.0	**CLAYSTONE:** as above		
	35.0	**SANDSTONE:** as above		
	20.0	**COALY CLAYSTONE:** as above		
	4.0	**SILTSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2695.0 - 2700.0	40.0	**CLAYSTONE:** as above	4	2
	35.0	**COALY CLAYSTONE:** as above		
	20.0	**SANDSTONE:** as above		
	4.0	**SILTSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2700.0 - 2705.0	40.0	**CLAYSTONE:** as above		
	35.0	**SANDSTONE:** as above		
	20.0	**COALY CLAYSTONE:** as above, carbonaceous in part.		
	4.0	**SILTSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2705.0 - 2710.0	45.0	**CLAYSTONE:** as above, trace to 10% very fine to silt quartz, grades to Silty Claystone.		
	35.0	**SANDSTONE:** as above		
	15.0	**COALY CLAYSTONE:** as above, dominantly moderate to dark yellowish brown		
	4.0	**SILTSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2710.0 - 2715.0	60.0	**CLAYSTONE:** as above		
	20.0	**SANDSTONE:** as above		
	15.0	**SILTY CLAYSTONE:** moderate brown to greyish brown, dark yellowish brown, trace to 15% silt, weak trace very fine quartz, trace micromicaceous, trace mica, trace to 5% Coal fragments, dark brown lustre, earthy, sub vitreous, uneven fracture, trace to 5% carbonaceous laminae,gradational to Coaly Claystone, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.		
	4.0	**SILTSTONE:** as above		
	1.0	**VOLCANIC:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2715.0 - 2720.0	44.0	**CLAYSTONE:** as above		
	25.0	**SANDSTONE:** clear, light grey, light yellowish brown, off white, very fine to fine, well sorted, sub rounded, spherical to sub spherical, weak siliceous cement, 5 to 15% clay and 5 to 15% silty matrix, trace carbonaceous and coal laminae and specks, trace micro pyrite, dominantly loose grains, friable to brittle aggregates, poor visual and inferred porosity, no show.		
	15.0	**SILTY CLAYSTONE:** as above		
	15.0	**SILTSTONE:** pale brown to brownish grey, medium grey, 10 to 20% very fine to fine quartz, trace to 5% micropyrite, trace micromicaceous, trace Coal fragments, dull, black to dark brown lustre, earthy, sub vitreous, uneven fracture, local trace carbonaceous laminae, firm to moderately hard in part.		
	1.0	**VOLCANIC:** as above		
2720.0 - 2725.0	25.0	**CLAYSTONE:** as above	2	1
	25.0	**SANDSTONE:** as above		
	25.0	**SILTY CLAYSTONE:** as above		
	24.0	**SILTSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2725.0 - 2730.0	45.0	**SANDSTONE:** as above		
	29.0	**SILTSTONE:** as above		
	15.0	**SILTY CLAYSTONE:** as above		
	10.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2730.0 - 2735.0	60.0	**SILTY CLAYSTONE:** as above, carbonaceous in part.		
	20.0	**SILTSTONE:** as above		
	10.0	**SANDSTONE:** as above		
	10.0	**CLAYSTONE:** as above		
2735.0 - 2740.0	50.0	**SILTY CLAYSTONE:** as above		
	30.0	**SANDSTONE:** as above		
	10.0	**CLAYSTONE:** as above		
	10.0	**SILTSTONE:** as above		
2740.0 - 2745.0	58.0	**SILTY CLAYSTONE:** pale to dark yellowish brown, moderate brown to greyish brown, trace to 25% silt, grades to Siltstone, weak trace very fine quartz, trace micromicaceous, trace to 5% Coal fragments and laminae, waxy in part, soft to moderately firm, sub blocky to blocky.		
	20.0	**CLAYSTONE:** pale orange to light brown, yellowish brown in part, trace to 10% silt, grades to Silty Claystone, sucrosic and waxy in part, 5% very fine to silt quartz, very poor trace carbaonaceous, trace mica, soft to firm, dispersive in part.		
	20.0	**SILTSTONE:** greyish brown to dark dusky brown, moderate to dark yellowish brown, brownish black in part, 5 to 10% clay, locally argillaceous, trace to 5% very fine to fine quartz, trace micropyrite, trace to 5% Coal fragments, dull, black to very dark brown lustre, earthy, sub vitreous, uneven fracture, trace carbonaceous laminae and very fine specks, firm to moderately hard in part, sub blocky.		
	2.0	**SANDSTONE:** clear, light grey, light yellowish brown, off white, very fine to fine, well sorted, sub rounded, spherical to sub spherical, weak siliceous cement, 5 to 15% clay and 5 to 15% silty matrix, trace carbonaceous and coal laminae and specks, trace micro pyrite, dominantly loose grains, friable to brittle aggregates, poor visual and inferred porosity, no show.		
2745.0 - 2750.0	58.0	**SILTY CLAYSTONE:** as above		
	30.0	**SILTSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2745.0 - 2750.0	10.0	**CLAYSTONE:** as above		
	2.0	**SANDSTONE:** as above		
2750.0 - 2755.0	35.0	**SANDY SILTSTONE:** mottled pale yellowish brown and grey, mottled brownish grey, 5 to 20% very fine quartz, locally grades to Silty Sandstone, trace to 5% very fine white specks, 5% very fine black carbonaceous specks, sucrosic texture in part, slight waxy sheen, firm to moderately hard, sub fissile to sub blocky.		
	30.0	**SILTY SANDSTONE:** pale yellowish brown, minor off white, dominantly very fine to silt, well sorted, sub rounded, spherical, siliceous, dominantly pale yellowish brown silty matrix, locally white clay matrix, trace carbonaceous specks, abundant very fine white lithics, locally has a recrystalized fabric and sucrosic texture, firm, very poor visual and inferred porosity, trace show.		
	15.0	**SILTSTONE:** greyish brown to dark dusky brown, moderate to dark yellowish brown, brownish black in part, 5 to 10% clay, locally argillaceous, trace to 5% very fine to fine quartz, trace micropyrite, trace to 5% carbonaceous laminae and very fine specks, firm to moderately hard in part, sub blocky.		
	10.0	**SILTY CLAYSTONE:** pale to dark yellowish brown, moderate brown to greyish brown, trace to 25% silt, grades to Siltstone, weak trace very fine quartz, trace micromicaceous, trace to 5% Coal fragments and laminae, waxy in part, soft to moderately firm, sub blocky to blocky.		
	10.0	**CLAYSTONE:** pale orange to light brown, yellowish brown in part, trace to 10% silt, grades to Silty Claystone, sucrosic and waxy in part, 5% very fine to silt quartz, very poor trace carbaonaceous, trace mica, soft to firm, dispersive in part.		
2755.0 - 2760.0	30.0	**SANDY SILTSTONE:** as above		
	30.0	**SILTY SANDSTONE:** as above		
	25.0	**SILTSTONE:** as above		
	15.0	**SANDSTONE:** light grey to off white, slightly pale brownish grey, very fine to medium, well sorted, sub rounded, weak siliceous cement, trace to 20% white clay matrix, trace to 10% very fine black specks, friable to moderately hard, poor visual and inferred porosity, no show.		
2760.0 - 2765.0	30.0	**SANDY SILTSTONE:** as above		
	25.0	**SILTY SANDSTONE:** as above		
	25.0	**SANDSTONE:** as above		
	20.0	**SILTSTONE:** as above		
2765.0 - 2770.0	70.0	**SANDSTONE:** clear, translucent, transparent, off white, fine to very coarse, sub angular to sub rounded, poorly sorted, moderate siliceous cement, trace to 5% pyrite cement, secondary calcite cementation, trace to 5% feldspar laths, trace calcite grains, common fractured grains, poor to fair visual and inferred porosity, white mineral fluorescence.		
	15.0	**SILTSTONE:** as above		
	10.0	**SANDY SILTSTONE:** as above		
	5.0	**SILTY SANDSTONE:** as above		
2770.0 - 2775.0	70.0	**SANDSTONE:** as above		
	18.0	**SILTSTONE:** as above		
	10.0	**SANDY SILTSTONE:** as above		
	2.0	**SILTY SANDSTONE:** as above		
2775.0 - 2780.0	75.0	**SANDSTONE:** as above		
	20.0	**SILTSTONE:** as above		
	3.0	**SANDY SILTSTONE:** as above		
	2.0	**SILTY SANDSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2780.0 - 2785.0	75.0	**SANDSTONE:** as above		
	20.0	**SILTSTONE:** greyish brown to dark dusky brown, moderate to dark yellowish brown, brownish black in part, 5 to 10% clay, locally argillaceous, trace to 5% very fine to fine quartz, trace micropyrite, trace to 5% Coal fragments, trace carbonaceous laminae and very fine specks, firm to moderately hard, sub blocky to sub fissile.		
	3.0	**SANDY SILTSTONE:** as above		
	2.0	**SILTY SANDSTONE:** pale yellowish brown, minor off white, dominantly very fine to silt, well sorted, sub rounded, spherical, siliceous, dominantly pale yellowish brown silty matrix, locally white clay matrix, trace carbonaceous specks, abundant very fine white lithics, locally has a recrystalized fabric and sucrosic texture, firm, very poor visual and inferred porosity, trace show.		
2785.0 - 2790.0	75.0	**SANDSTONE:** as above, 5% calcite fragments.		
	15.0	**SILTSTONE:** as above		
	10.0	**SILTY SANDSTONE:** as above		
2790.0 - 2795.0	55.0	**SILTY SANDSTONE:** as above		
	30.0	**SILTSTONE:** as above		
	15.0	**SANDSTONE:** as above		
2795.0 - 2800.0	50.0	**SILTY SANDSTONE:** as above		
	30.0	**SILTSTONE:** greyish brown to dark dusky brown, moderate to dark yellowish brown, light to moderate grey in part, brownish black in part, 5 to 10% clay, locally argillaceous, 5 to 10% very fine to fine quartz, trace micropyrite, trace to 5% Coal fragments, trace carbonaceous laminae and very fine specks, firm to moderately hard, sub blocky to sub fissile.		
	15.0	**SANDSTONE:** as above, trace nodular pyrite.		
	5.0	**CLAYSTONE:** weathered volcanics?, greyish blue green, dark greenish grey, bit crushed in part, trace micromicaceous, very weak calcareous, trace to 5% miromica, trace micropyrite, trace chlorite, moderately hard to hard.		
2800.0 - 2805.0	35.0	**SILTSTONE:** as above		
	35.0	**SANDSTONE:** clear, translucent, transparent, off white, fine to very coarse, dominantly fine, sub angular to sub rounded, poorly sorted, moderate siliceous cement, trace to 5% pyrite cement, local trace nodular pyrite, trace mica, secondary calcite cementation, trace to 5% feldspar laths, trace calcite, common fractured grains, rare aggregates, trace black lithics, poor to fair visual and inferred porosity, white mineral fluorescence.		
	25.0	**SILTY SANDSTONE:** as above		
	5.0	**CLAYSTONE:**		
2805.0 - 2810.0	68.0	**SILTSTONE:** greyish brown to dark dusky brown, moderate to dark yellowish brown, trace dark greenish grey in part, 10 to 15% very fine to fine quartz, trace micropyrite, trace micromicaceous, trace to 5% carbonaceous laminae and very fine specks, rare coal fragments, carbonaceous claystone in part, greenish black to greyish black lustre, trace micromicaceous, brittle, uneven fracture, earthy to sub vitreous, firm to moderately hard in part, sub blocky to blocky.		
	15.0	**SANDSTONE:** as above, grading to Silty Sandstone in part, trace very coarse siliceous grains, very hard.		
	10.0	**SILTY SANDSTONE:** as above		
	7.0	**CLAYSTONE:** as above		
2810.0 - 2815.0	47.0	**SILTY CLAYSTONE:** moderate brown (5YR 4/4), greyish brown in part, silt, trace very fine to fine sand, trace micromicaceous, trace mica, rare micropyrite, trace carbonaceous laminae, rare coaly fragments, greyish black to greenish black, carbonaceous claystone in part, uneven fracture, earthy, sub vitreous in part, dispersive, sub blocky in part, soft to moderately firm.		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2810.0 - 2815.0	45.0	**SILTSTONE:** as above		
	5.0	**SANDSTONE:** as above		
	3.0	**CLAYSTONE:** as above.		
2815.0 - 2820.0	40.0	**SILTY CLAYSTONE:** as above		
	40.0	**SILTSTONE:** speckled white to light grey, medium grey, light brownish grey to moderate brown in part, grades in part to Silty Sandstone, 10 to 25% silt, weak trace very fine quartz, 10 to 20% white clay matrix, 5 to 10% siliceous cement, trace siderite cement, trace micropyrite, trace black carbonaceous laminae, trace mica, trace to 5% micromicaceous, metamorphic texture, hard to very hard, blocky to locally angular.		
	10.0	**SANDSTONE:** as above		
	10.0	**CLAYSTONE:** weathered volcanic?, greyish blue green, dark greenish grey, pale olive in part, rare off white, pale brown in part, bit crushed in part, trace silt, trace micromicaceous, weak trace carbonaceous laminae, trace to 5% micromica, weak trace micropyrite, local very weak calcareous, local trace siliceous in part, blocky, moderately hard to hard.		
2820.0 - 2825.0	52.0	**SILTSTONE:** as above, dominantly light brown to brownish grey.		
	31.0	**SILTY CLAYSTONE:** as above		
	15.0	**SANDSTONE:** as above		
	2.0	**CLAYSTONE:** as above		
2825.0 - 2830.0	41.0	**SILTSTONE:** as above		
	30.0	**SANDSTONE:** clear, translucent, off white, dominantly aggregated, loose in part, fine to very coarse, dominantly medium, trace feldspar grains, sub angular to sub rounded, poorly sorted, 5 to 10% siliceous cement, trace to 5% pyrite cement, local trace nodular pyrite, trace mica, secondary calcite cementation, 10 to 20% white clay, weak trace calcareous, common fractured coarse grains, trace black lithics, moderately hard, friable in part, poor to visual and inferred porosity.		
	25.0	**SILTY CLAYSTONE:** as above		
	4.0	**CLAYSTONE:** as above		
2830.0 - 2835.0	41.0	**SILTSTONE:** as above		
	27.0	**SANDSTONE:** as above		
	25.0	**SILTY CLAYSTONE:** as above		
	7.0	**CLAYSTONE:** as above		
2835.0 - 2840.0	34.0	**SILTSTONE:** as above		
	32.0	**SILTY CLAYSTONE:** as above		
	29.0	**SANDSTONE:** as above		
	5.0	**CLAYSTONE:** as above		
2840.0 - 2845.0	50.0	**SANDSTONE:** clear, translucent, off white, dominantly aggregated, loose in part, fine to very coarse, dominantly medium, angular to sub rounded, dominantly sub angular, rare black lithic inclusions, poorly to moderately sorted, trace to 5% feldspar grains, 5 to 10% siliceous cement, 5 to 10% micropyrite, local trace nodulare pyrite, trace mica, 20 to 30% white clay (possibly being washed out in samples), trace to 5% siderite cement, very weak trace calcareous, common fractured coarse grains, moderately hard to very hard, friable in part, poor inferred porosity, no shows.		
	25.0	**SILTSTONE:** as above		
	20.0	**SILTY CLAYSTONE:** as above		
	5.0	**CLAYSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2845.0 - 2850.0	40.0	**SANDSTONE:** as above		
	35.0	**SILTSTONE:** as above		
	20.0	**SILTY CLAYSTONE:** as above		
	5.0	**CLAYSTONE:** as above		
2850.0 - 2855.0	45.0	**SANDSTONE:** as above,.		
	30.0	**SILTY CLAYSTONE:** as above		
	20.0	**SILTSTONE:** as above		
	5.0	**CLAYSTONE:** variocolored, pale green, greyish blue green, light grey to medium grey in part, trace silt, very weak calcareous, trace micromicaceous, moderately hard to very hard, silicified in part, angular.		
2855.0 - 2860.0	40.0	**SILTY CLAYSTONE:** as above		
	30.0	**SANDSTONE:** off white to translucent, dominantly loose, rare aggregates, fine to very coarse, dominantly fine, rare pebble, angular to sub rounded, dominantly sub angular, poorly to moderately sorted, grades to Sandy Siltstone in part, trace to 5% feldspar grains, trace siliceous cement, trace micropyrite, local trace nodulare pyrite, trace mica, 30 to 40% white clay dispersed in sample, trace siderite cement, very weak trace calcareous, common fractured coarse grains, firm to moderatley hard where aggregated, friable in part, poor visual porosity. no shows.		
	28.0	**SILTSTONE:** as above		
	2.0	**CLAYSTONE:** as above		
2860.0 - 2865.0	35.0	**SILTSTONE:** speckled white to light grey, medium grey, light brownish grey to moderate brown in part, grades in part to Silty Sandstone, 10 to 15% silt, weak trace very fine quartz, 10 to 20% white clay matrix, trace to 5% siliceous cement, trace siderite cement, trace micropyrite, trace mica, trace to 5% micromicaceous, metamorphic texture, hard to very hard, blocky to locally angular.		
	33.0	**SANDSTONE:** as above		
	25.0	**SILTY CLAYSTONE:** as above		
	6.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:** greenish black to dark greenish grey, siliceous, very hard, angular		
2865.0 - 2870.0	45.0	**SILTY CLAYSTONE:** pale brown to yellowish grey, dusky brown in part, trace to 5% silt, trace carbonaceous fragments and laminae, 5 to 10% micromicaceous, rare mica, soft to moderately firm, sub blocky to blocky, dispersive in part.		
	34.0	**SILTSTONE:** as above		
	15.0	**SANDSTONE:** as above		
	5.0	**CLAYSTONE:** greenish black to greyish black, trace silt, trace micromicaceous, local trace carbonaceous, moderately hard, blocky, angular in part.		
	1.0	**VOLCANIC:**		
2870.0 - 2875.0	35.0	**SANDSTONE:** off white to translucent, dominantly loose, rare aggregates, fine to very coarse, dominantly medium, rare coarse to very course pitted quartz, sub rounded to rounded, dominantly subrounded, grades in part to Sandy Siltstone, poor to moderately sorted, trace to 5% feldspar grains, trace siderite cement, trace siliceous cement, trace micropyrite, trace mica, 10 to 20% white clay dispersed in sample, very weak trace calcareous, sucrosic in part, moderately hard to hard, poor visual porosity, no shows.		
	29.0	**SILTSTONE:** as above		
	20.0	**SILTY CLAYSTONE:** as above		
	15.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:**		
2875.0 - 2880.0	55.0	**SANDSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2875.0 - 2880.0	20.0	**SILTY CLAYSTONE:** as above		
	15.0	**CLAYSTONE:** as above		
	10.0	**SILTSTONE:** as above		
2880.0 - 2885.0	35.0	**SILTY CLAYSTONE:** as above		
	30.0	**SILTSTONE:** as above		
	24.0	**SANDSTONE:** as above		
	10.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:** pale green, light greenish grey, siliceous, trace micromicaceous, firm to moderately hard, angular		
2885.0 - 2890.0	44.0	**SILTY CLAYSTONE:** as above		
	25.0	**SANDSTONE:** as above, abundant argillaceous matrix, no shows.		
	15.0	**CLAYSTONE:** as above		
	15.0	**SILTSTONE:** as above		
	1.0	**VOLCANIC:** as above, weather to claystone in part, chloritic in part, soft in part, sub blocky to blocky.		
2890.0 - 2895.0	60.0	**SILTY CLAYSTONE:** as above		
	24.0	**SILTSTONE:** as above		
	10.0	**ARGILLACEOUS SANDSTONE:** off white to translucent, light grey in part, dominantly loose, very fine to medium, dominantly fine, rare coarse, sub angular to sub rounded, dominantly sub angular, grades in part to Sandy Siltstone, poorly sorted, trace micropyrite, trace mica, trace black lithics, rare carbonaceous claystone fragments, trace red lithics, 30 to 40% white clay dispersed in sample, very weak trace calcareous, soft, dispersive, poor visual porosity, no shows.		
	5.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2895.0 - 2900.0	54.0	**SILTY CLAYSTONE:** as above, weak trace calcareous.		
	30.0	**SILTSTONE:** as above		
	10.0	**ARGILLACEOUS SANDSTONE:** as above		
	5.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2900.0 - 2905.0	39.0	**SILTSTONE:** as above		
	30.0	**SILTY CLAYSTONE:** as above		
	25.0	**ARGILLACEOUS SANDSTONE:** as above		
	5.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2905.0 - 2910.0	40.0	**SILTY CLAYSTONE:** as above		
	29.0	**SILTSTONE:** as above		
	25.0	**ARGILLACEOUS SANDSTONE:** as above		
	5.0	**CLAYSTONE:** as above		
	1.0	**VOLCANIC:** as above		
2910.0 - 2914.0	55.0	**SILTY CLAYSTONE:** as above		
	20.0	**ARGILLACEOUS SANDSTONE:** as above		
	19.0	**SILTSTONE:** as above		
	5.0	**CLAYSTONE:** as above		

Interval (m)	%	Lithology / Show Descriptions	Ca (%)	Mg (%)
2910.0 - 2914.0	1.0	**VOLCANIC:** as above Reached TD of 2914.0 mMDRT at 20:36 hours on 11 of January 2005.		

HALLIBURTON

Sperry Drilling Services

End of Well Report

for

Apache Energy Ltd

Grayling-1

Rig: Ocean Patriot

Field: Exploration

Country: Australia

Job No: AU - FE - 0003298446

Date: 22nd December 2004

HALLIBURTON

Table of Contents

General Information

Company:	Apache Energy Ltd	
Rig:	Ocean Patriot	
Well:	Grayling-1	
Field:	Exploration	
Country:	Australia	
API Number:		
Sperry-Sun Job Number:	AU-FE-0003298446	
Job start date:	22-Dec-04	
Job end date:	27-Dec-04	
North reference:	Grid	
Declination:	13.170	deg
Dip angle:	-68.667	deg
Total magnetic field:	59926.996	nT
Date of magnetic data:	25-Dec-04	
Wellhead coordinates N:	38 deg. 9 min 40.260 sec South	
Wellhead coordinates E:	148 deg. 17 min 35.900 sec East	
Vertical section direction:	Closure	deg
MWD Engineers:	T. Oborne	P. O'Shea
	A. Nijhof	
Company Representatives:	D. Kirkwood	K. Corps
	C. Wilson	
Company Geologist:		
Lease Name:	VIC/P-54	
Unit Number:	174	
State:	Victoria	
County:		

Operational Overview

Sperry Drilling Services were contracted by Apache Energy Ltd to provide Logging While Drilling (LWD) services for the drilling of exploration well Grayling-1 from the Ocean Patriot.

406 mm Hole Section:
This hole section was drilled to 800.0 mMDRT in one bit run using Sperry's Formation Evaluation tool suite (FEWD) comprising Dual Gamma Ray (DGR), Electromagnetic Wave Resistivity (EWR-P4), Acoustic Caliper (ACAL) and Bi-Modal Acoustic Sonic (BAT) for logging purposes and a Position Monitor (PM) for directional control. After running the casing the running tool was unable to be unlatched from the well head. The drill pipe was then cut and the well re-spudded as Grayling-1A.

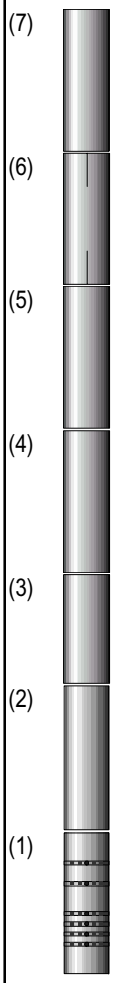
Summary of MWD runs

Run No.	Bit No.	Hole Size (mm)	MWD Service	Start Depth (m)	End Depth (m)	Drill/Wipe Distance (m)	Run Start Date Time	Run End Date Time	BRT Hrs.	Oper. Hrs.	Circ. Hrs.	Max. Temp. (degC)	Serv. Int.	Trip for MWD	Failure Type
0100	2	406.00	DIR-FE	113.00	800.00	687.00	24-Dec-04 19:04	25-Dec-04 22:28	27.40	27.40	18.24	29.00	No	No	
TOTALS ==>						687.00			27.40	27.40	18.24		0	0	

Bitrun Summary

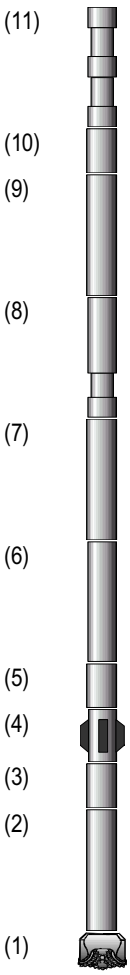
Run Time Data		Drilling Data			Mud Data				
MWD Run :	0100	Start Depth :	113.00	m	Mud Type :	Sea Water			
Rig Bit No:	2	End Depth :	800.00	m	Weight / Visc :	1.04	sg /	0.00	spl
Hole Size :	406.00 mm	Footage :	687.00	m	Chlorides :	0.00	ppm		
Run Start :	24-Dec-04 19:04	Avg. Flow Rate :	1009	gpm	PV / YP :	0.00	cp /	0.00	pa
Run End :	25-Dec-04 22:28	Avg. RPM :	77	rpm	Solids/Sand :		% /		%
BRT Hrs :	27.40	Avg. WOB :	22.00	klb	%Oil / O:W :		% /		
Circ. Hrs :	18.24	Avg. ROP :	62.20	m/hr	pH/Fluid Loss:	0.00	pH /	0.00	cptm
Oper. Hrs :	27.40	Avg. SPP :	2840	psig	Max. Temp. :	29.00	degC		

MWD Schematics



7. 8 DGWD 650 System
   SN :
6. PM
   SN : 134019
   30.04 m From Bit
5. ACAL
   SN : 141729
   27.26 m From Bit
4. BAT
   SN : 136555
   23.06 m From Bit
3. HCIM
   SN : 132884
2. DGR
   SN : 172498
   17.71 m From Bit
1. EWR-P4
   SN : 123481
   14.68 m From Bit

BHA Schematics



	Component	Length (m)	O.D. (mm)	I.D. (mm)
11.	5 x HWDP	139.41	127.000	76.000
10.	Cross Over Sub	1.13	216.000	73.000
09.	3 x Drill Collar	27.05	203.000	73.000
08.	Drilling Jars	9.86	210.000	76.000
07.	5 x Drill Collar	45.82	203.000	71.000
06.	MWD	21.78	203.000	49.000
05.	Float Sub	0.78	203.000	76.000
04.	Integral Blade Stabilizer	2.24	203.000	76.000
03.	Cross Over Sub	0.87	236.000	76.000
02.	9-5/8" SperryDrill	8.59	244.000	49.000
01.	Security FS2563	0.43	406.000	49.000

Comments

Drilled 406mm hole section from 113.3 mMDRT to 800.0 mMDRT. Gap in data due to air retriever line breaking. Periods of poor detection due to downhole noise and some pump noise. All recorded data was recovered at surface.

MWD Performance

Tool OD / Type :	203.00	mm /	FEWD/BAT	
MWD Real-time%:	61.33	%		
MWD Recorded%:	95.00	%		
Min. Inc. :	0.36	deg /	423.98	m
Max. Inc. :	1.41	deg /	765.37	m
Final Az. :	130.70	deg		
Max Op. Press. :	1187	psig		

Directional Survey Data

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
168.24	0.96	152.16	168.23	1.25 S	0.66 E	1.26	TIE-IN
197.54	0.47	169.84	197.53	1.59 S	0.80 E	1.57	0.55
394.65	0.43	128.97	394.63	2.84 S	1.51 E	2.88	0.05
423.98	0.36	137.16	423.96	2.97 S	1.66 E	3.08	0.09
452.05	0.37	121.45	452.03	3.08 S	1.79 E	3.25	0.11
479.01	0.58	106.74	478.99	3.17 S	2.00 E	3.47	0.27
509.69	0.91	102.30	509.67	3.27 S	2.38 E	3.84	0.32
538.17	1.12	101.87	538.14	3.37 S	2.88 E	4.30	0.23
568.10	1.34	94.08	568.07	3.46 S	3.51 E	4.87	0.27
681.45	1.31	117.17	681.39	4.14 S	5.99 E	7.28	0.14
709.64	1.07	117.40	709.57	4.41 S	6.51 E	7.86	0.26
735.76	1.21	137.57	735.69	4.73 S	6.91 E	8.37	0.48
765.37	1.41	130.70	765.29	5.19 S	7.40 E	9.04	0.26
800.00	1.41	130.70	799.91	5.75 S	8.04 E	9.89	0.00

Directional Survey Data

CALCULATION BASED ON Minimum Curvature METHOD

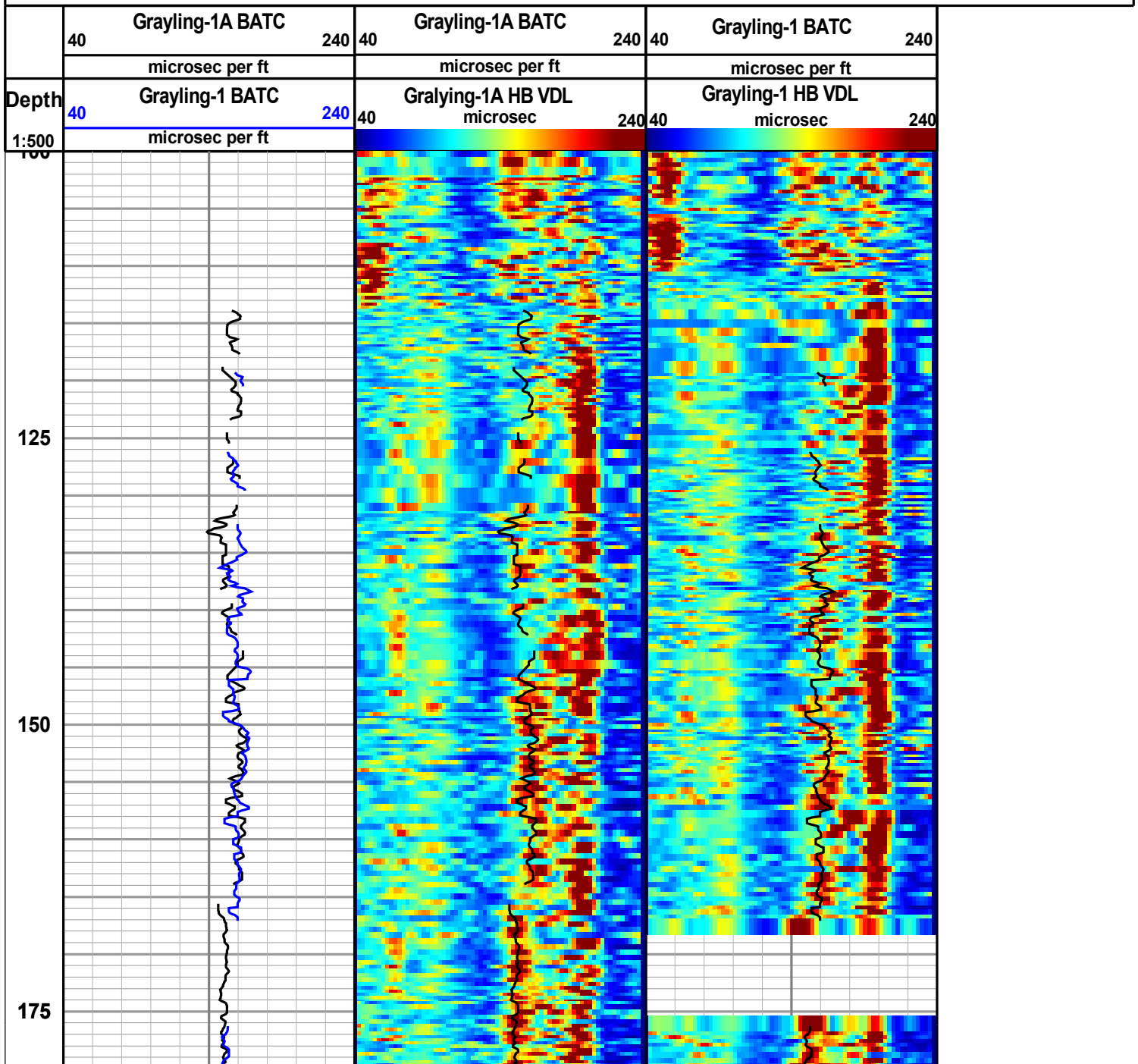
SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

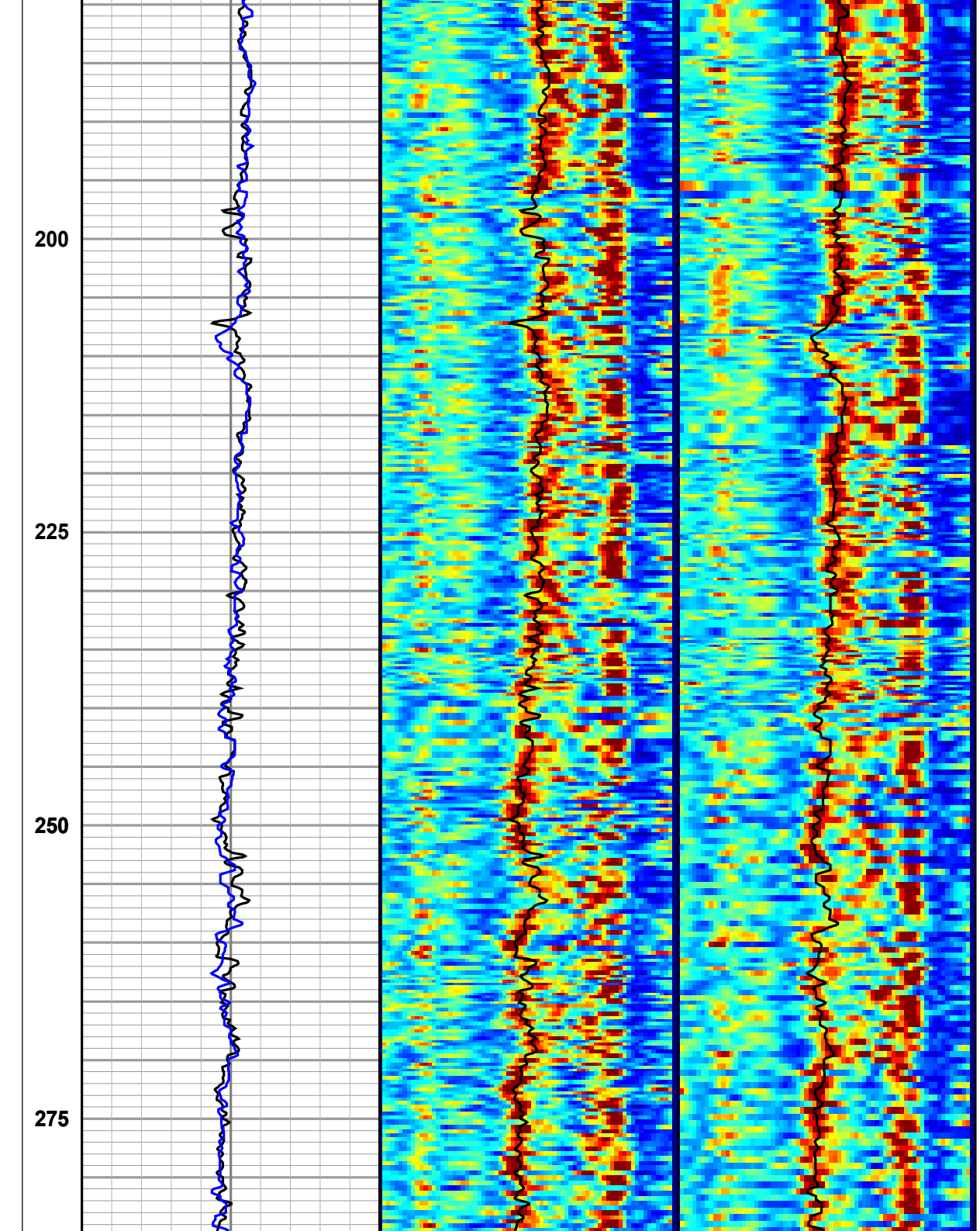
VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG CLOSURE OF 125.57 DEGREES (GRID)
A TOTAL CORRECTION OF 13.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 800.00 METRES
IS 9.89 METRES ALONG 125.57 DEGREES (GRID)

Final survey is projected to TD.
RT-AHD=21.5m

Grayling Comparison of BATC

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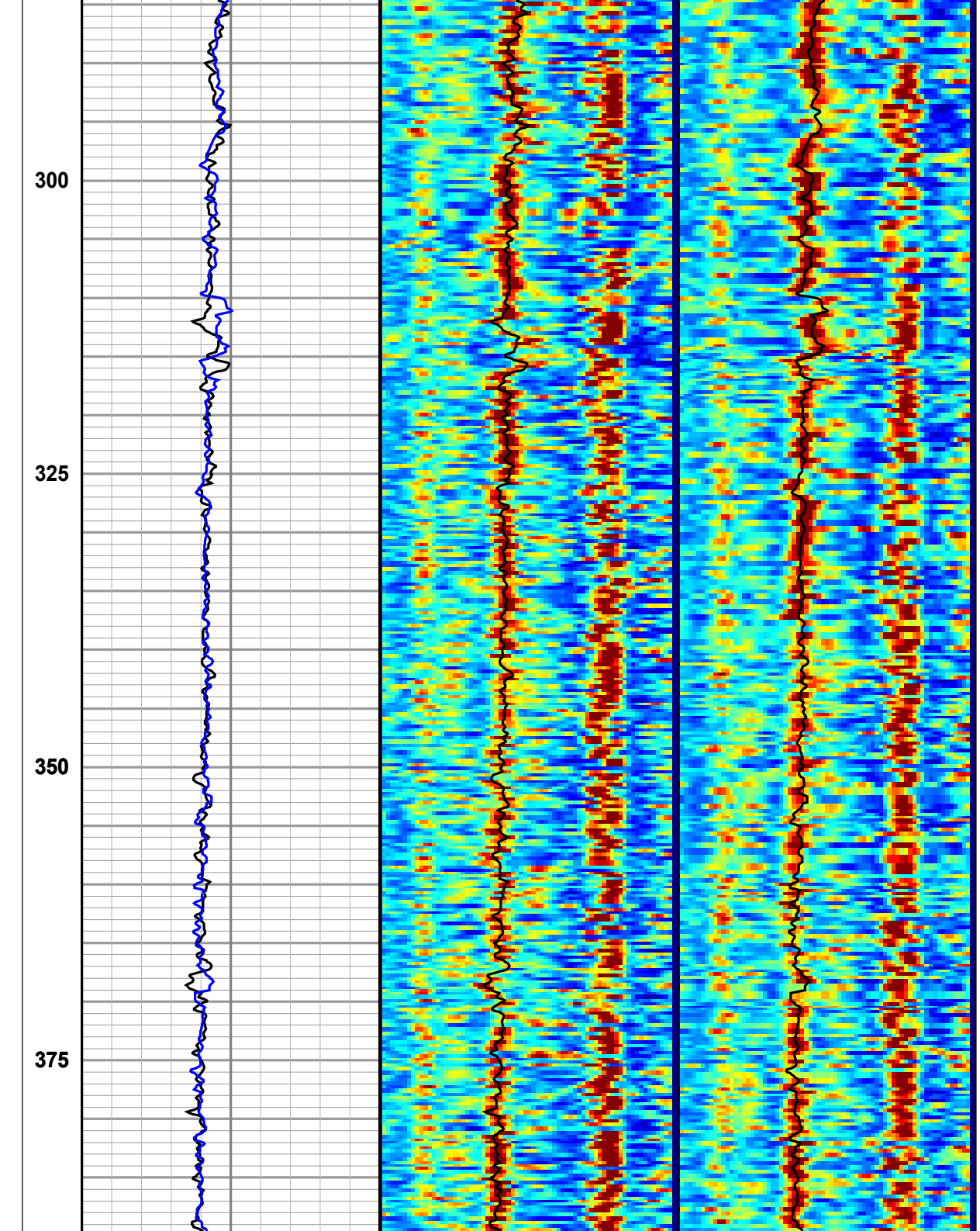
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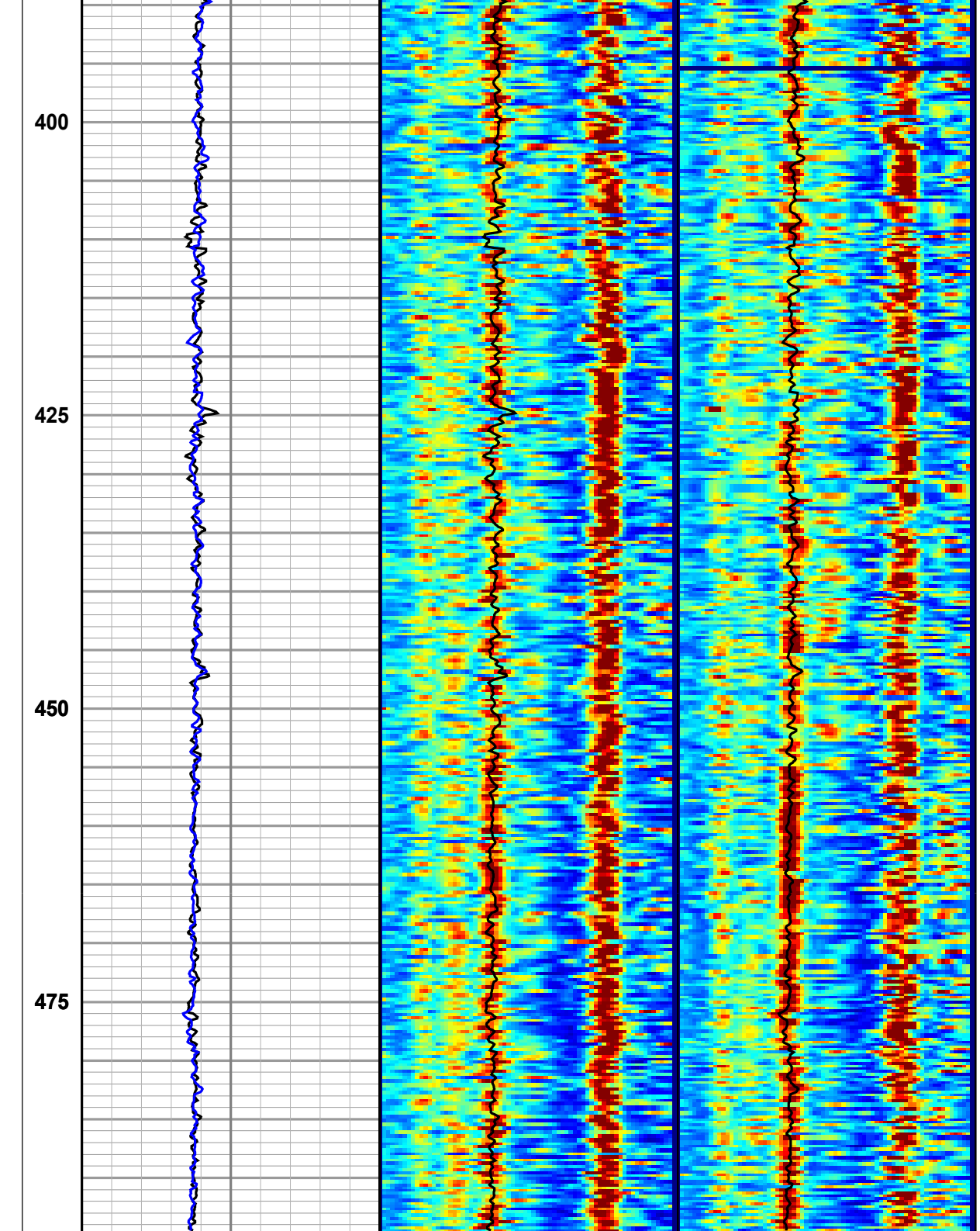
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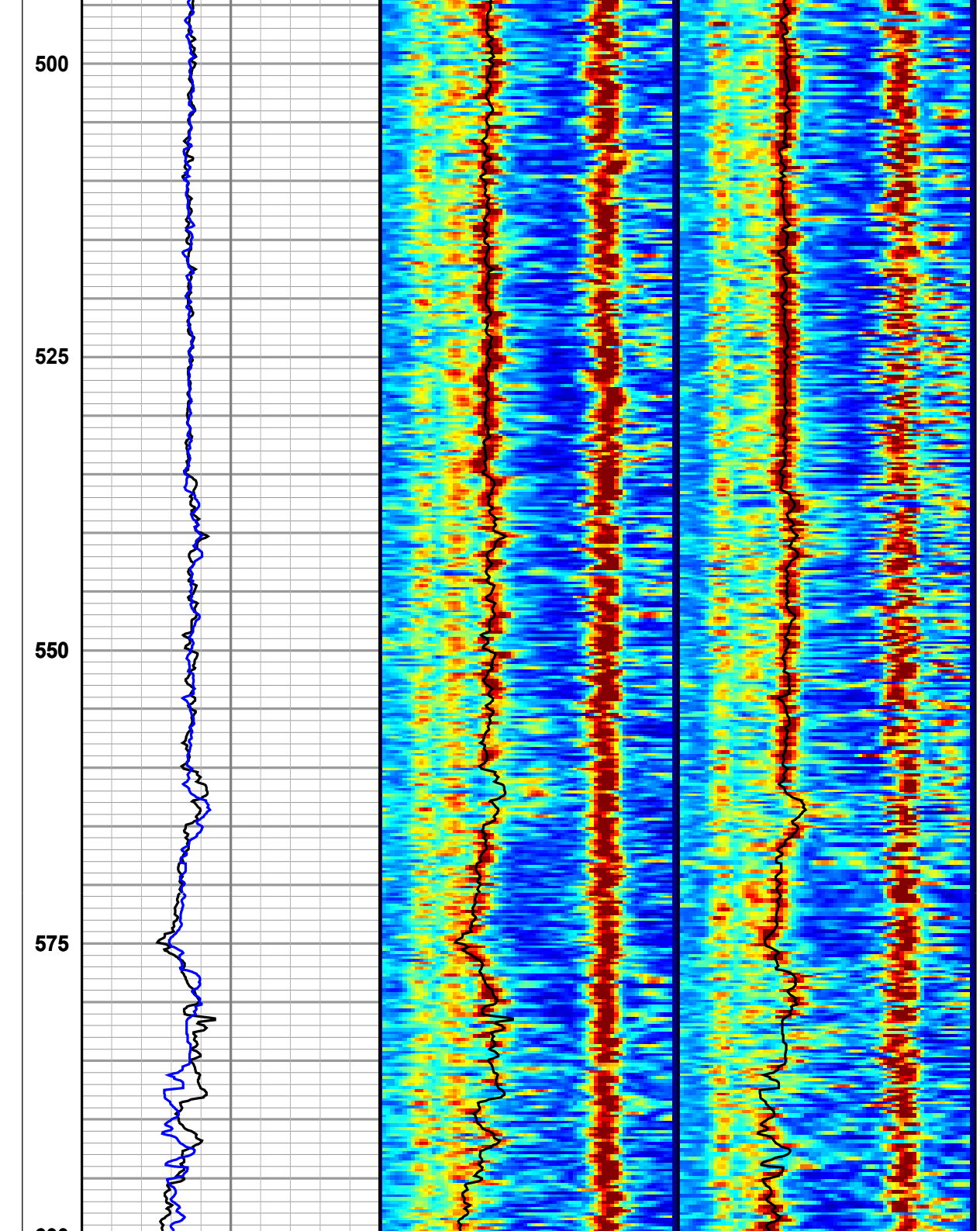
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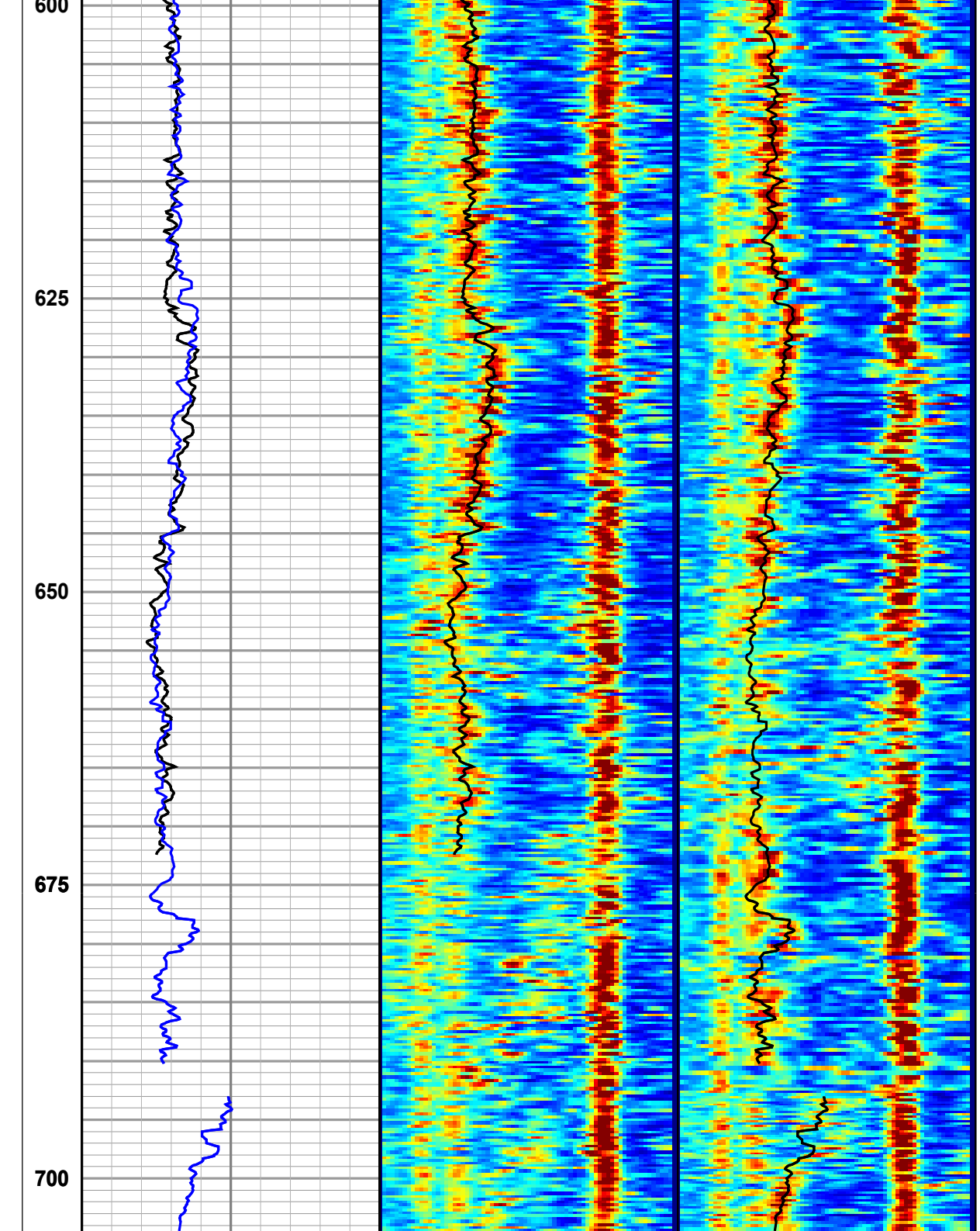
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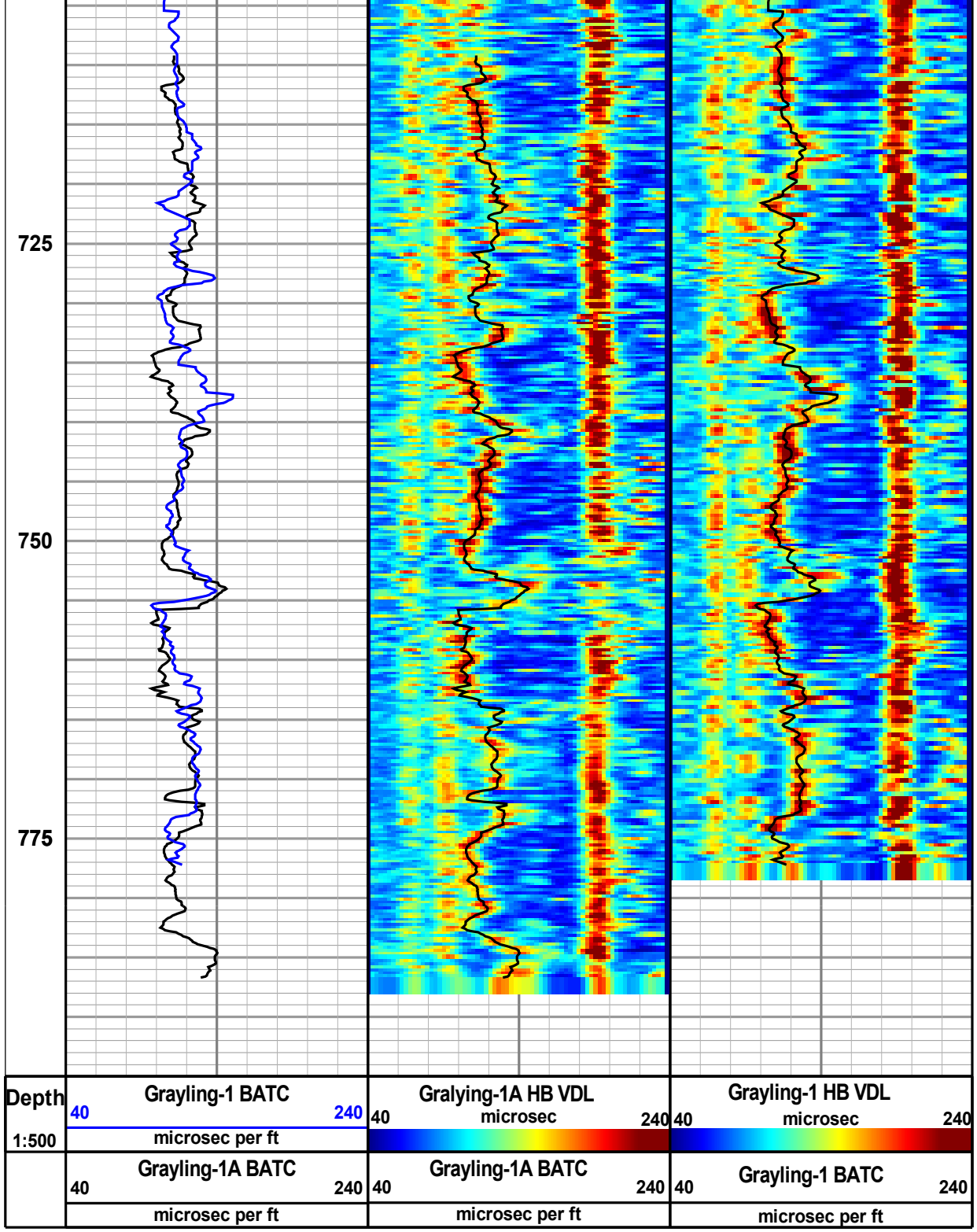
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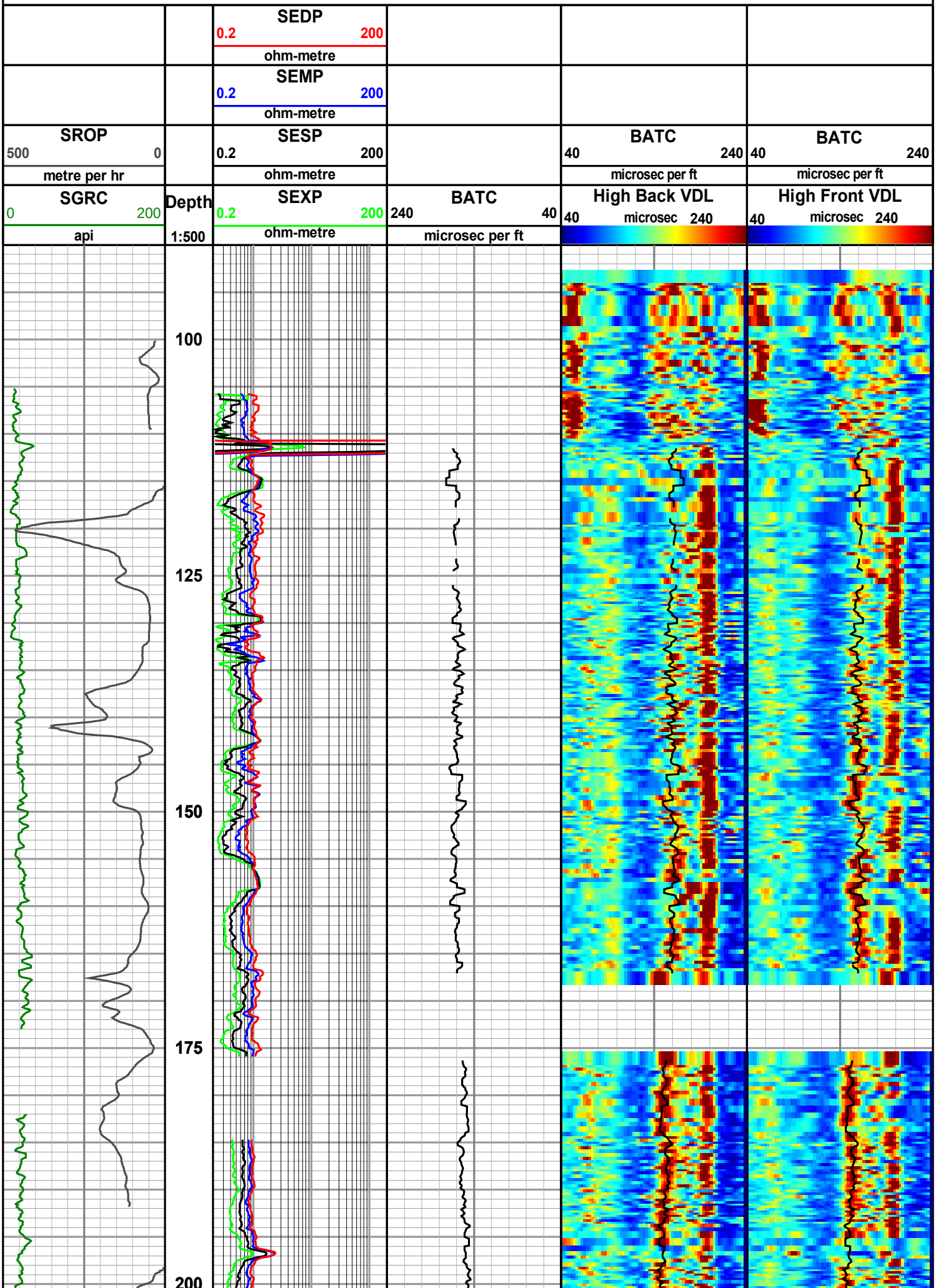
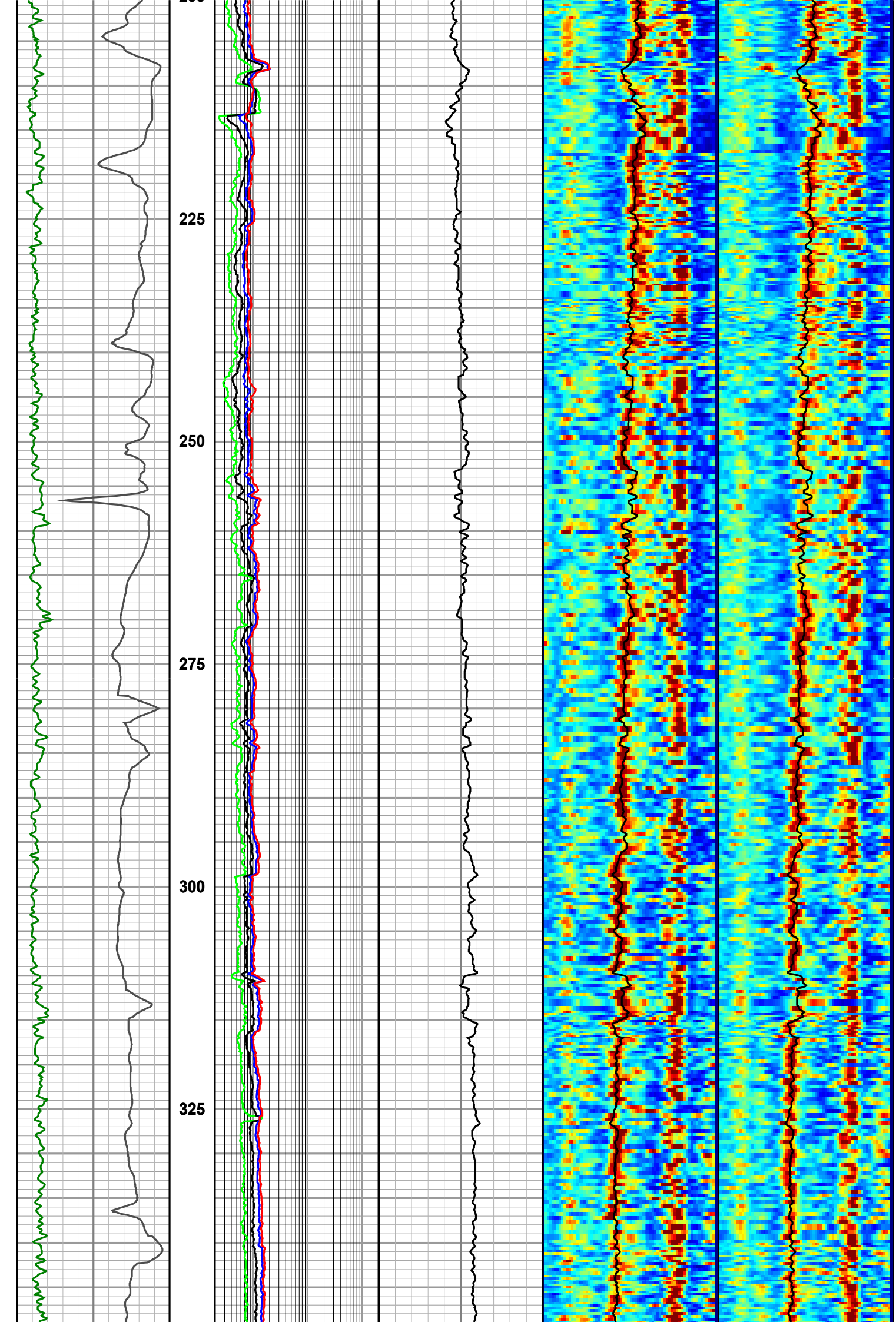
750
775
Depth
1:500
Grayling-1 BATC
40
240
microsec per ft
Gralying-1A HB VDL
40
microsec
240
Grayling-1 HB VDL
40
microsec
240
Grayling-1A BATC
40
240
microsec per ft
Grayling-1A BATC
40
240
microsec per ft
Grayling-1 BATC
40
240
microsec per ft

Grayling-1 BAT QC

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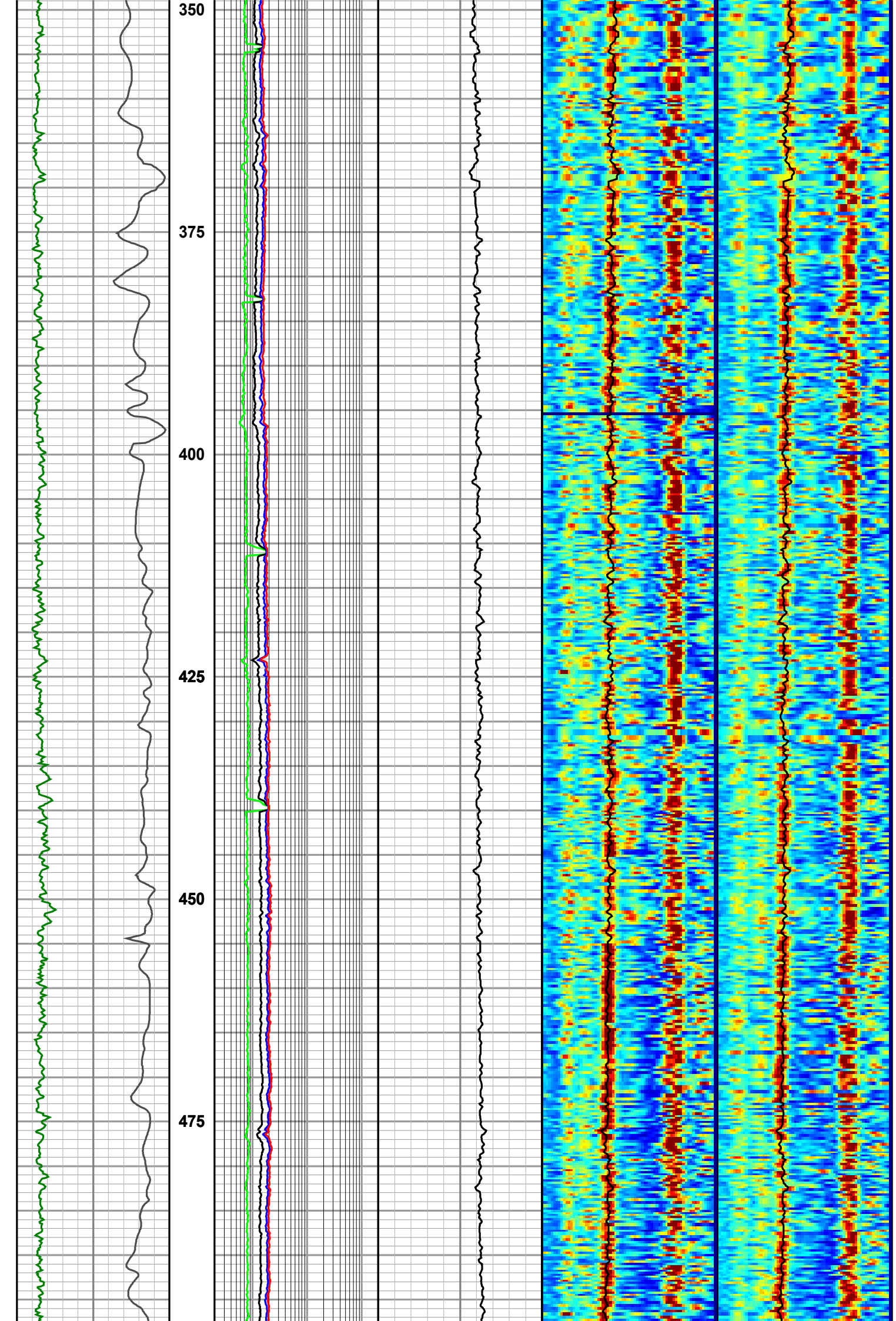
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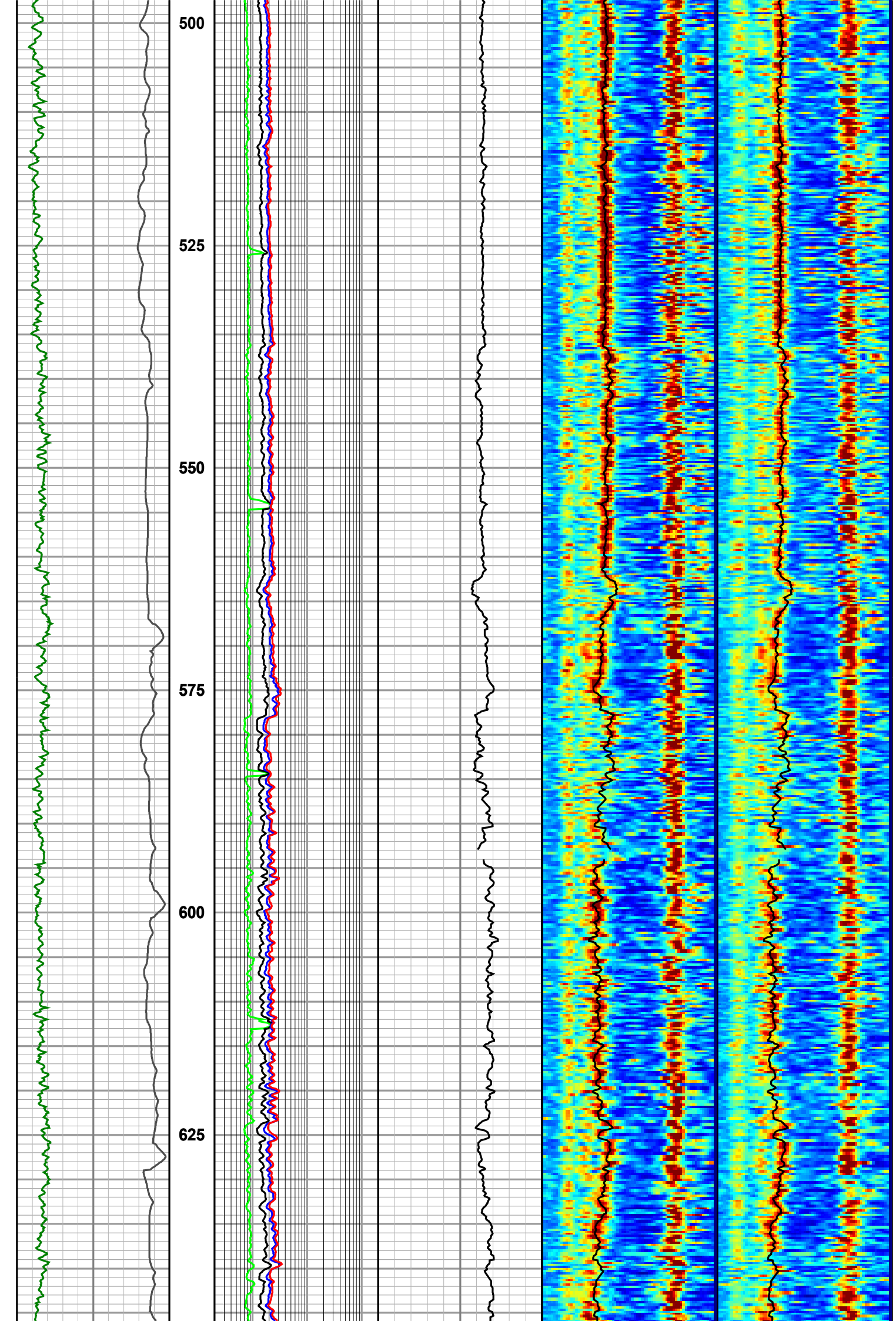
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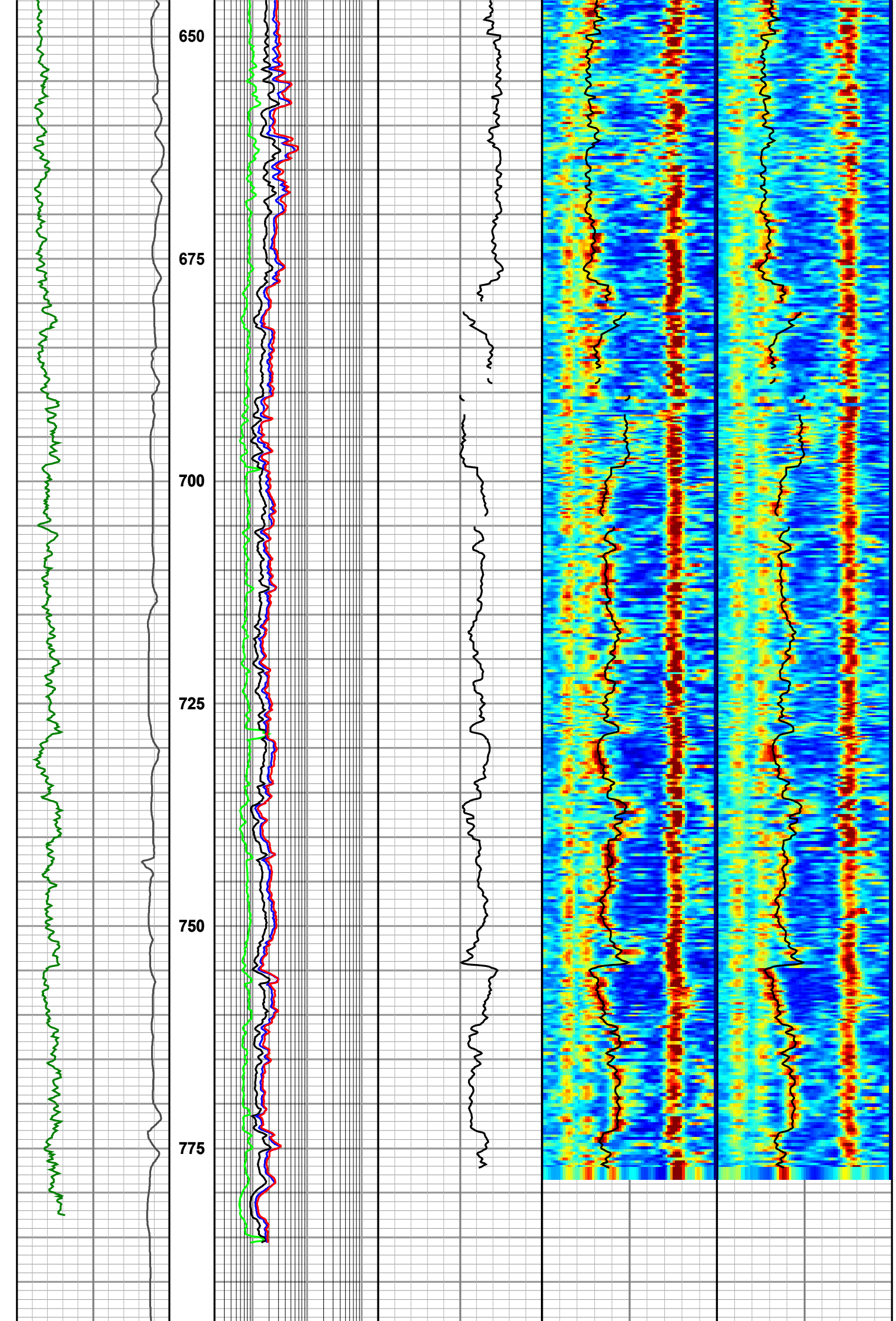
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725
750
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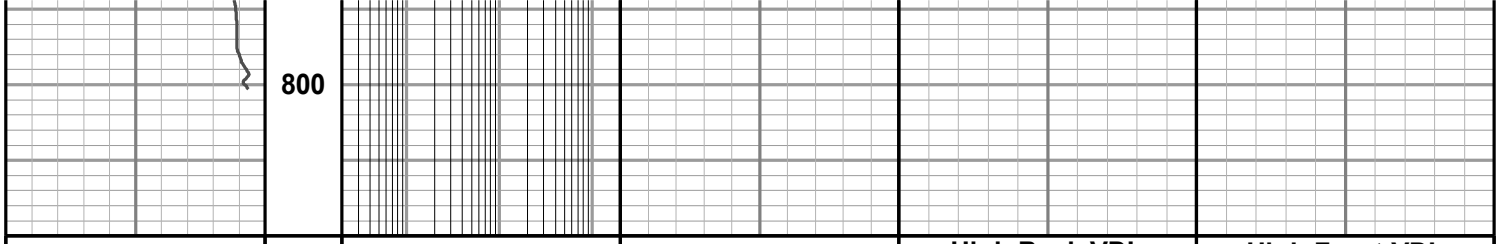


SGRC	Depth	SEXP	BATC	High Back VDL	High Front VDL
0 200		0.2 200	240 40	40 microsec 240	40 microsec 240
api	1:500	ohm-metre	microsec per ft		
SROP		**SESP**		**BATC**	**BATC**
500 0		0.2 200		40 240	40 240
metre per hr		ohm-metre		microsec per ft	microsec per ft
		SEMP			
		0.2 200			
		ohm-metre			
		SEDP			
		0.2 200			
		ohm-metre			

Sperry Drilling Services

1 : 200

MWD

EWR Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
BAT Bi-modal Acoustic Sonic
ACAL Acoustic Caliper

Country : Australia
Field : Exploration
Location : Lat: 38° 9' 40.260" South Long: 148° 17' 35.900" East
Well : Grayling-1
Company : Apache Energy Ltd
Rig : Ocean Patriot

Company : **Apache Energy Ltd**
Rig : **Ocean Patriot**
Well : **Grayling-1**
Field : **Exploration**
Country : **Australia**
DOE Number :

LOCATION
Latitude : **Lat: 38° 9' 40.260" South**
Longitude : **Long: 148° 17' 35.900" East**
UTM Easting = **613,302.06 m**
UTM Northing = **5,775,510.94 m**

Other Services
Surface Data Logging

Permanent Datum : **AHD**
Elevation : **0.00 m**
Log Measured From : **Drill Floor** **21.50 m** Above Permanent Datum
Drilling Measured From : **Drill Floor**

MD LOG

Elev. KB
DF **21.50 m**
GL
WD **58.50 m**

Depth Logged : **113.00 m** To **800.00 m**
Date Logged : **22-Dec-04** To **27-Dec-04**
Total Depth MD : **800.00 m** TVD : **799.91 m**
Spud Date : **23-Dec-04**

Unit No. : **174**
Job No. : **AU-FE-0003298446**
Plot Type : **Final**
Plot Date : **17-May-05**

Run No.	Borehole Record (MD) Size	From	To
2	406.000 mm	113.00 m	800.00 m

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD)

Size	Weight	From	To
762.000 mm	458.00 kgpm	80.00 m	111.80 m
340.000 mm	101.00 kgpm	80.00 m	784.00 m

WELL INFORMATION

MWD Run Number	100																								
Date run completed	25-Dec-04																								
Rig Bit Number	2																								
Bit Size (mm)	406																								
Tool Nominal OD (mm)	203																								
Log Start Depth (MD, m)	113.00																								
Log End Depth (MD, m)	800.00																								
Drill or Wipe	Drilling																								
Drill/Wipe Start Date and Time	24-Dec-04 21:32																								
Drill/Wipe End Date and Time	25-Dec-04 17:20																								
Min Inc (deg) @ Depth (MD, m)	0.36 @ 423.98																								
Max Inc (deg) @ Depth (MD, m)	1.41 @ 765.37																								
Bit TFA(in2) / Bit Type	1.740 / Security FS2563																								
Flow Rate (gpm)	1,009																								
Max AV (mpm) / CV (mpm) @ MWD	39.7 / 40.5																								
Fluid Type	Sea Water																								
Density (sg) / Viscosity (spl)	1.04 / N/A																								
Filtrate CL (ppm)	N/A																								
pH / Fluid Loss (cptm)	N/A / N/A																								
PV (cp) / YP (pa)	N/A / N/A																								
% Solids / % Sand	N/A / N/A																								
% Oil / Oil:Water Ratio	N/A / N/A																								
Rm @ Measured Temp (degC)	N/A @ N/A																								
Rmf @ Measured Temp (degC)	N/A @ N/A																								
Rmc @ Measured Temp (degC)	N/A @ N/A																								
Max Tool Temp (degC) / Source	29.00 / EWR-P4																								

Rm @ Max Tool Temp (degC)	N/A @ N/A				
Lead MWD Engineer	T. Oborne				
Customer Representative	D. Kirkwood				

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM				
Software Version	67.88				
Sub Serial Number	198840				
Insert Serial Number	132884				
Logging String Serial Number	62057XHGVR8				
Date and Time Initialized	24-Dec-04 19:00:00				
Date and Time Read	25-Dec-04 22:28:00				

Directional Sensor Information

Tool Type	PM				
Distance From Bit (m)	30.04				
Software Version	N/A				
Sub Serial Number	111363				
Sonde Serial Number	134019				
Sensor ID Number	2947				
Survey String Serial Number	DM90061055M8				
Toolface Offset (deg)	N/A				

Gamma Ray Sensor Information

Tool Type	DGR				
Distance From Bit (m)	17.71				
Recorded Sample Period (sec)	12				
Software Version	N/A				
Sub Serial Number	10505993				
Insert/Sonde Serial Number	172498				

Resistivity Sensor Information

Tool Type	EWR-P4				
Distance From Bit (m)	14.68				
Recorded Sample Period (sec)	12				
Software Version	1.38				
Sub Serial Number	174309				
Receiver Insert Serial Number	123481				
Transmitter Insert Serial Number	159149				
Receiver Orientation	Down				

Caliper Sensor Information

Tool Type	ACAL				
Distance From Bit (m)	27.26				
Software Version	2.05				
Sub Serial Number	165483				
Insert Serial Number	141729				

Sonic Sensor Information

Tool Type	BAT				
Distance From Bit (m)	23.06				
Recorded Sample Period (sec)	18				
Software Version	4.00				

Sub Serial Number	144401				
Receiver Insert Serial Number	136555				
Transmitter Insert Serial Number	143996				

REMARKS

1. All depths are bit depths and referenced to the drillers pipe tally.

2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and the Binghams Plastic Law for oil based muds.

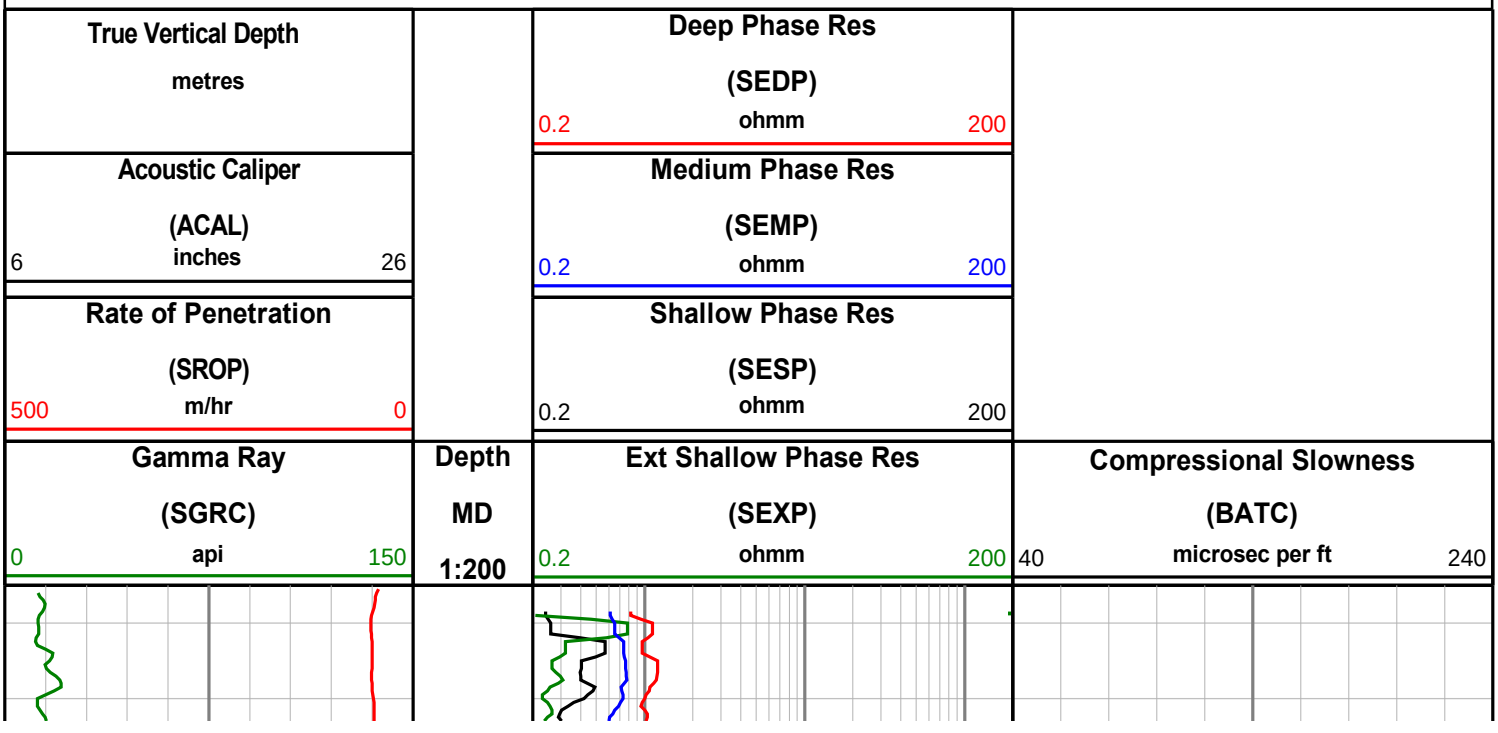
3. Curve mnemonics are:
   - SGRC - Smoothed Gamma Ray Combined, api
   - SEXP - Smoothed Extra Shallow Phase Resistivity, ohm-m
   - SESP - Smoothed Shallow Phase Resistivity, ohm-m
   - SEMP - Smoothed Medium Phase Resistivity, ohm-m
   - SEDP - Smoothed Deep Phase Resistivity, ohm-m
   - SROP - Smoothed Rate of Penetration, m/hr
   - ACAL - Acoustic Caliper, inches
   - BATC - Bi-Modal Acoustic Compressional Slowness, usec/ft

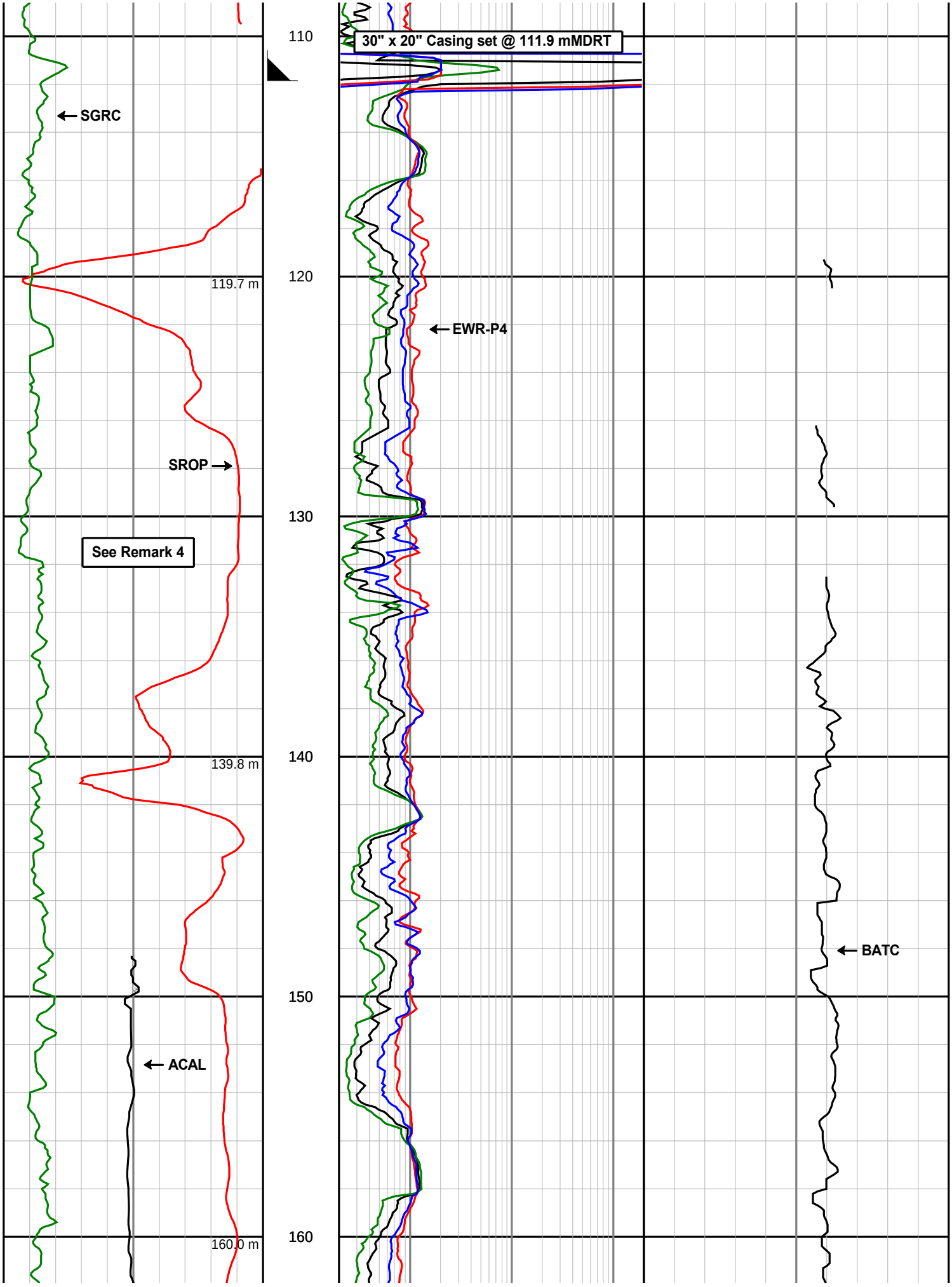
4. Gap in ACAL and BATC data at start of the hole section is due to the hole being washed out beyond tools operational range.

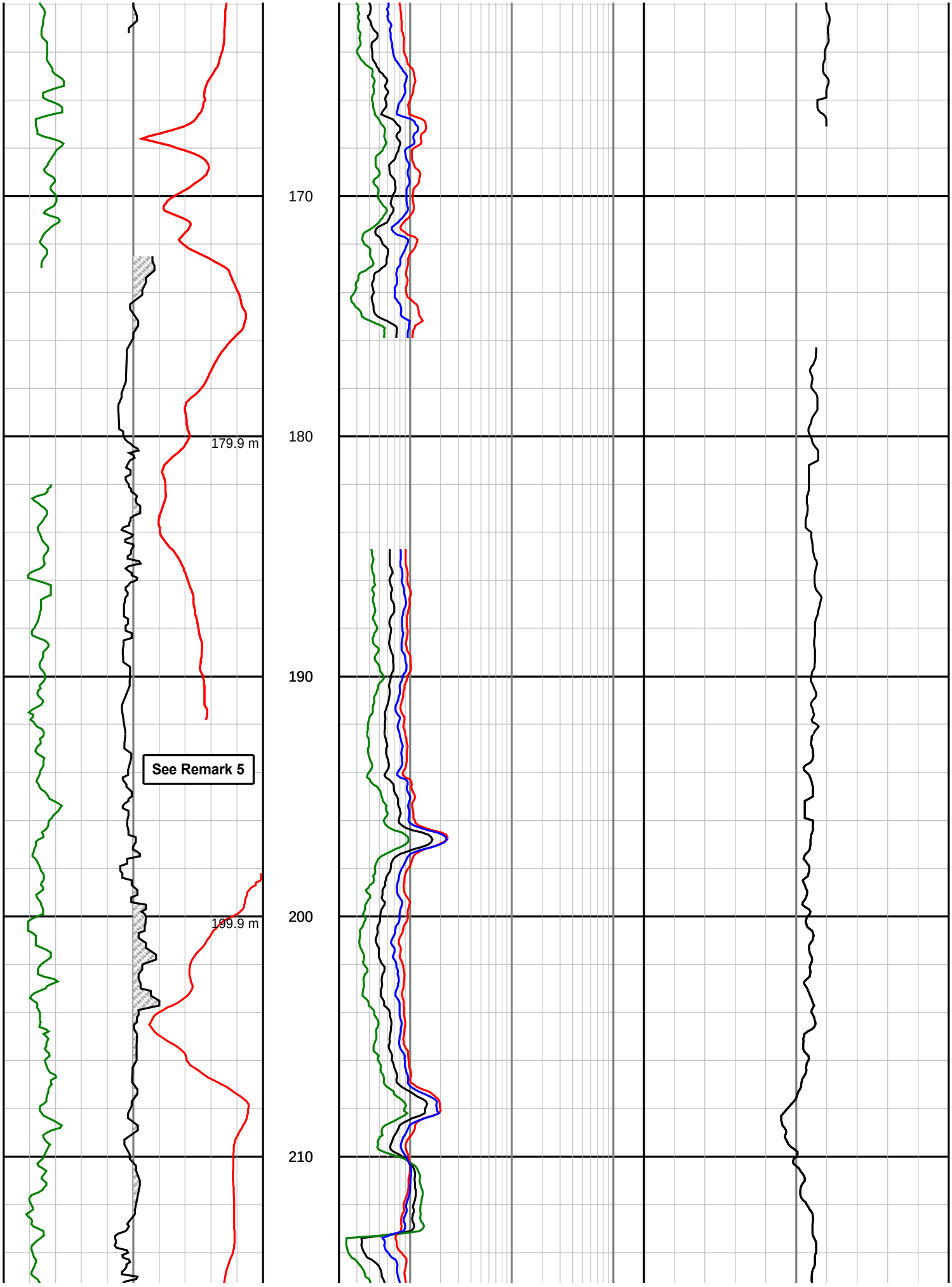
5. Gap in data over the interval 192.0 - 198.0 mMDRT due to break in air-retriever line.

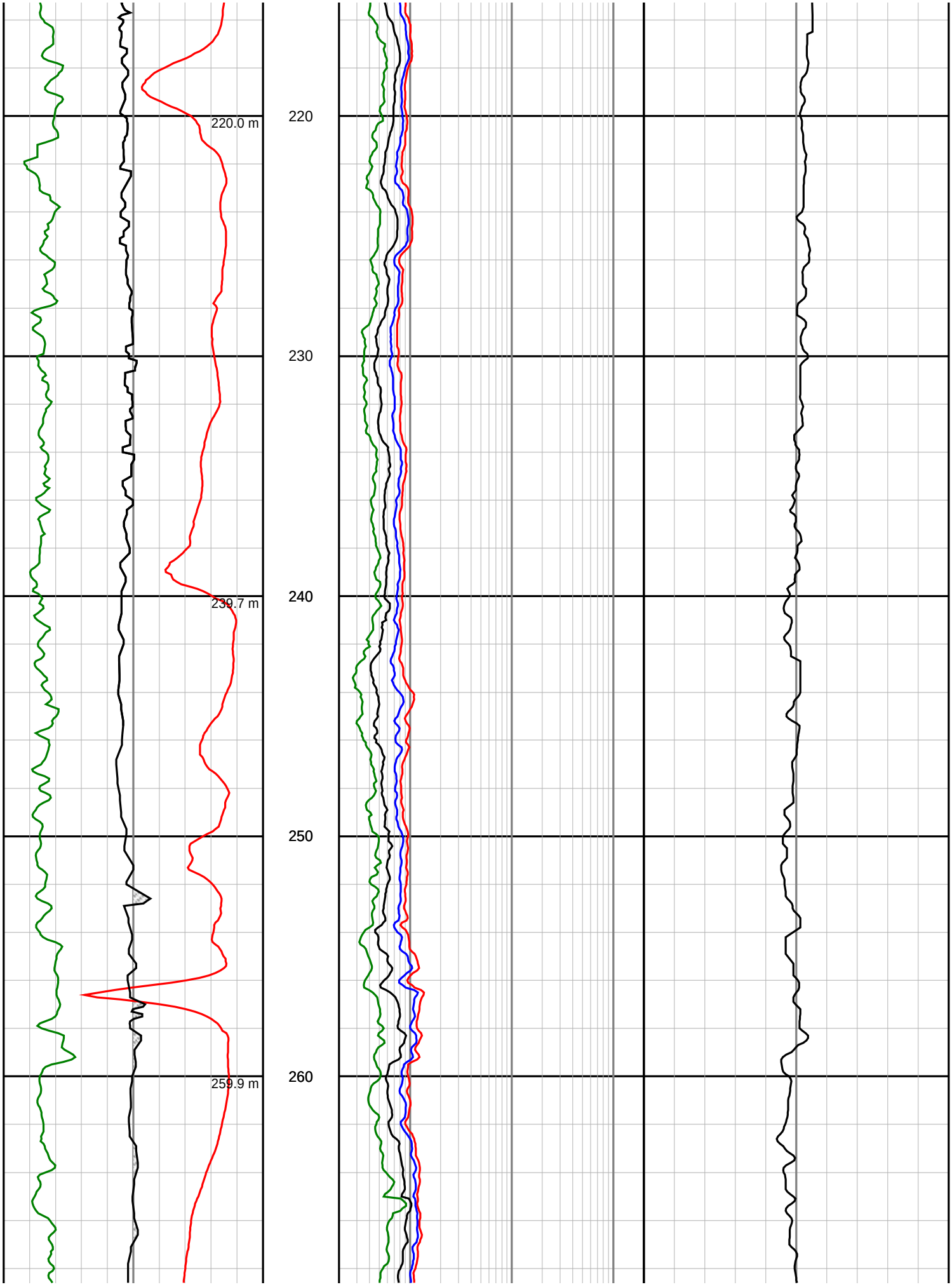
6. Gaps in compressional slowness data are due to weak signal.

WARRANTY

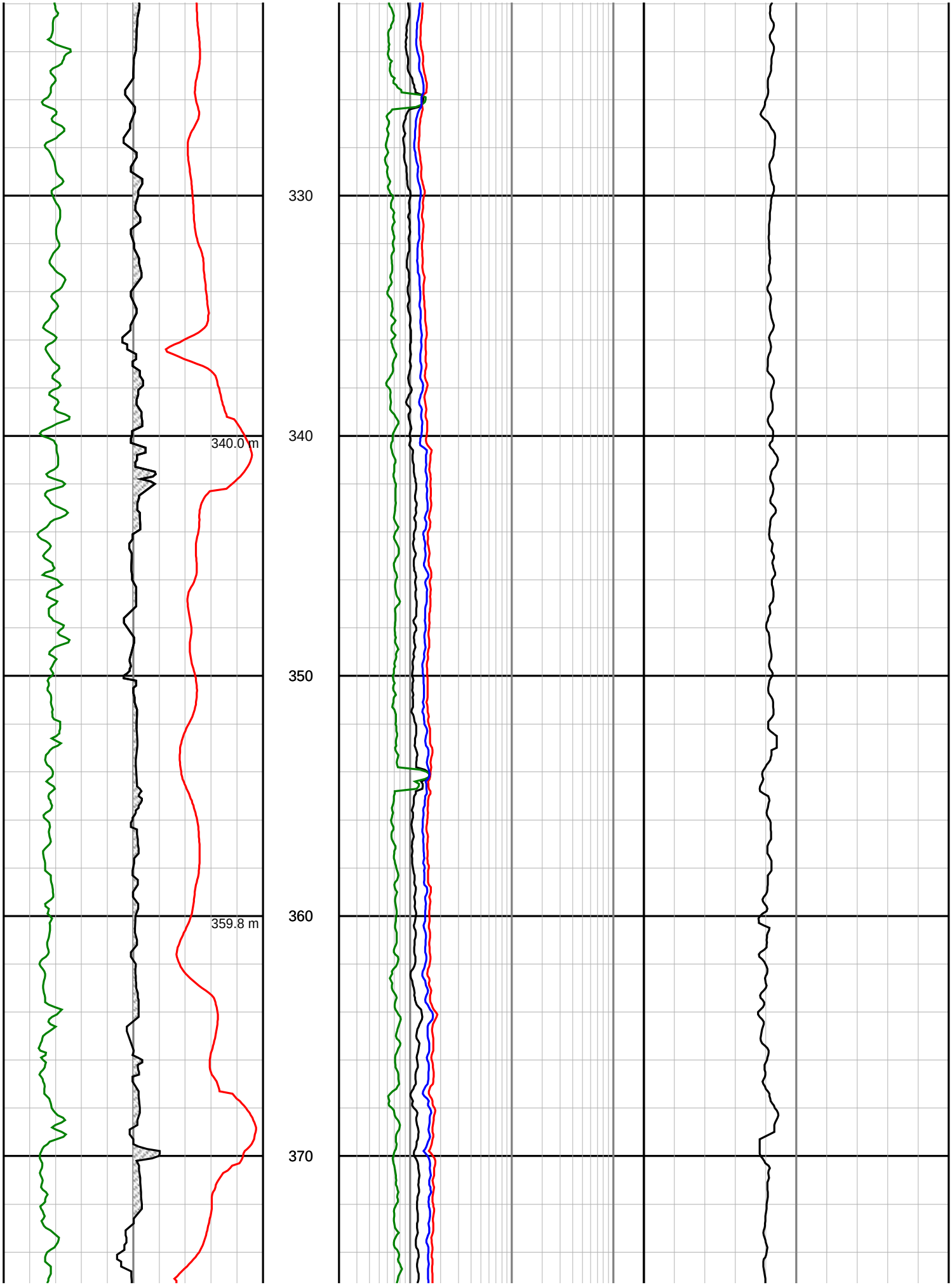


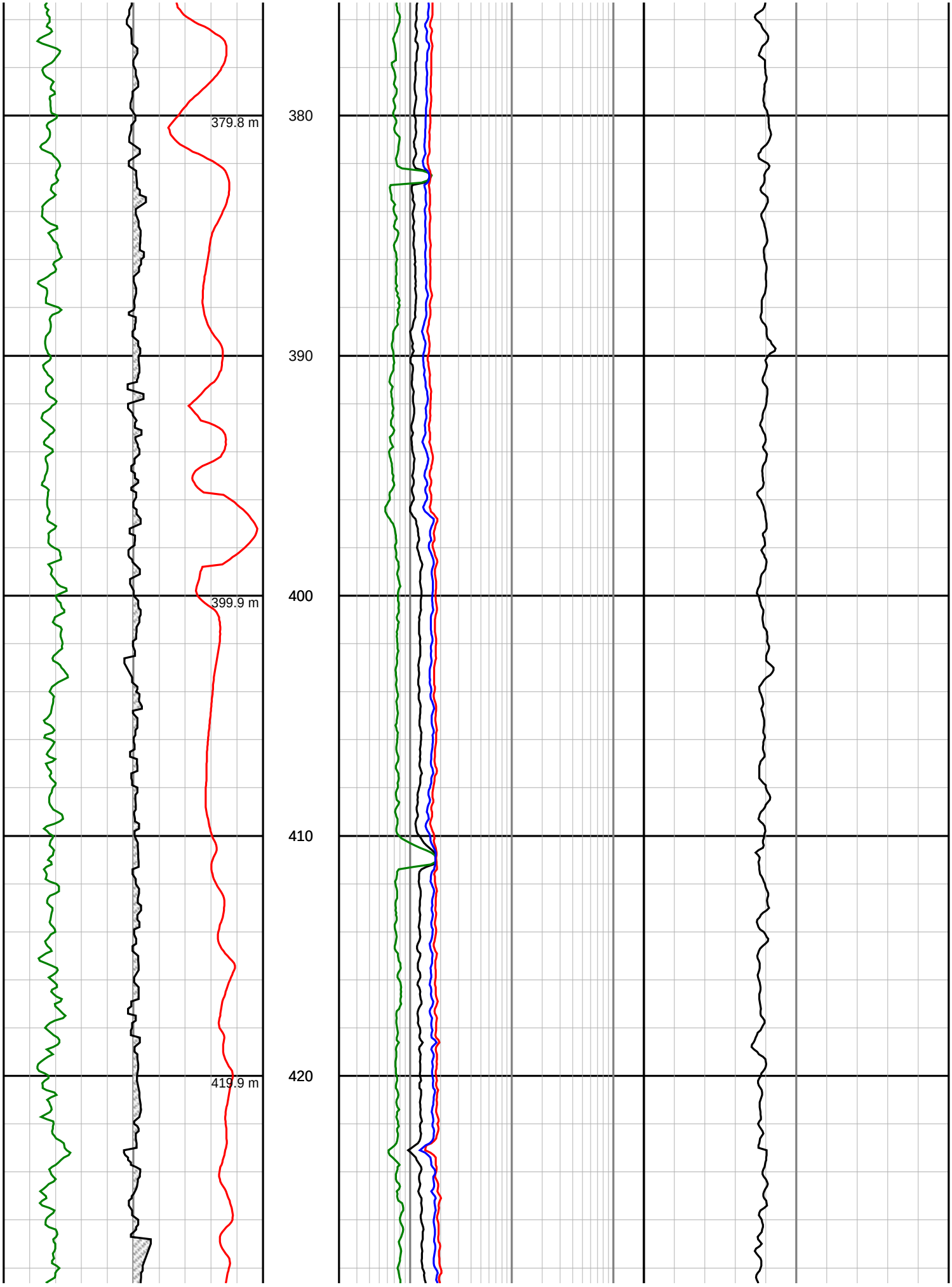

110
120
130
140
150
160
30" x 20" Casing set @ 111.9 mMDRT
SGRC
SROP
EWR-P4
BATC
ACAL
See Remark 4
119.7 m
139.8 m
160.0 m

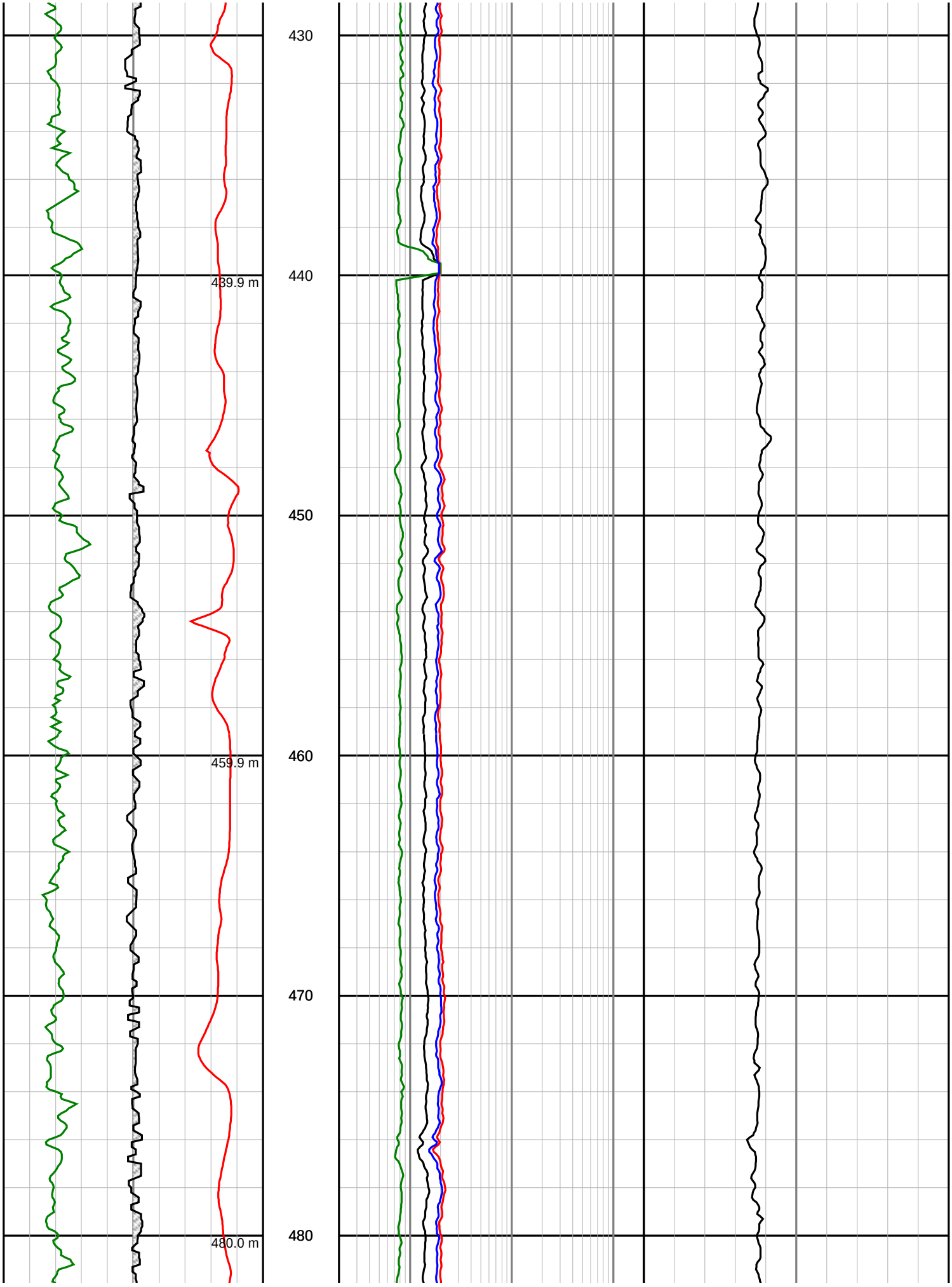

170
180
190
200
210
179.9 m
199.9 m
See Remark 5

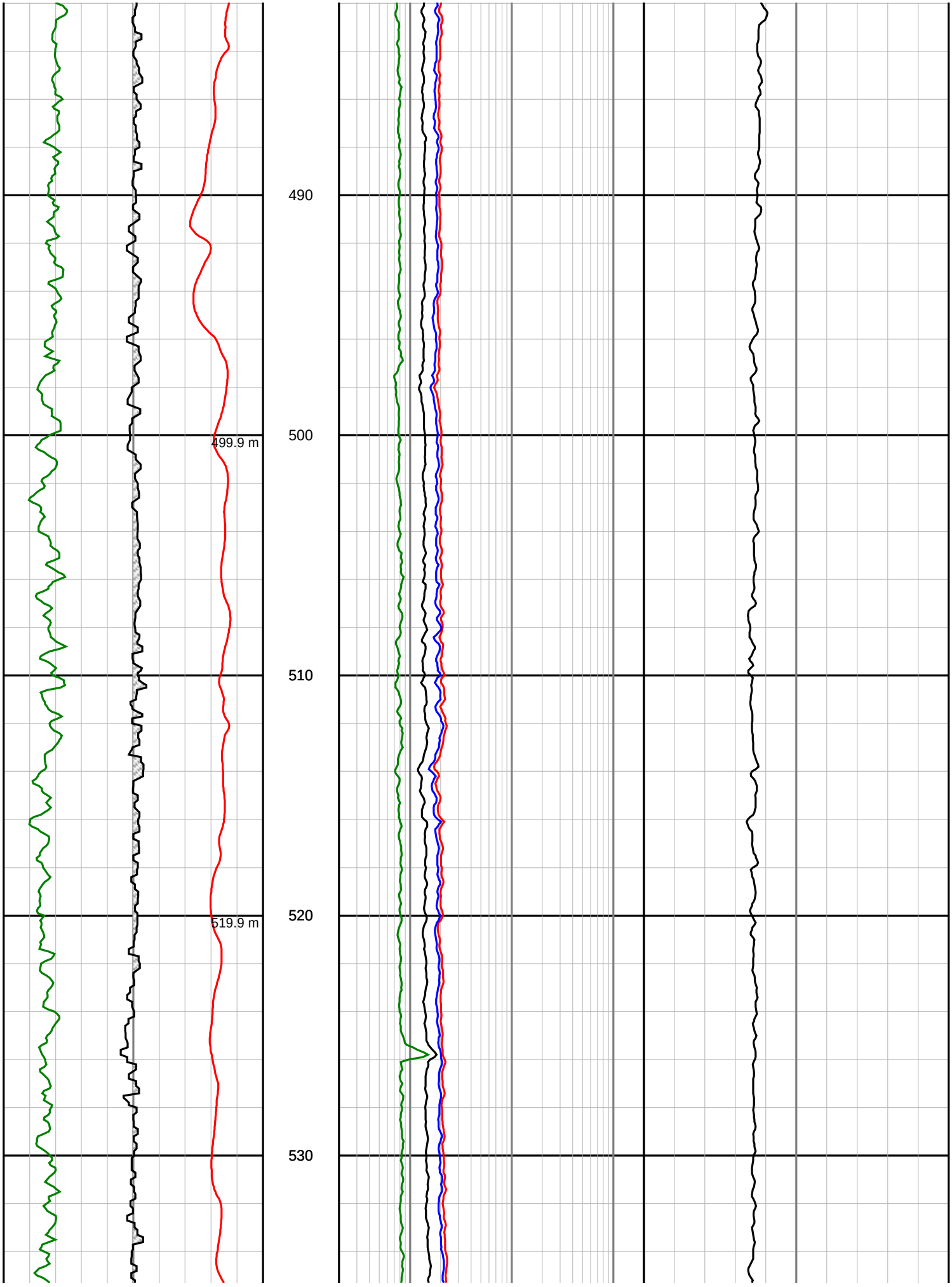

220.0 m
239.7 m
259.9 m
220
230
240
250
260

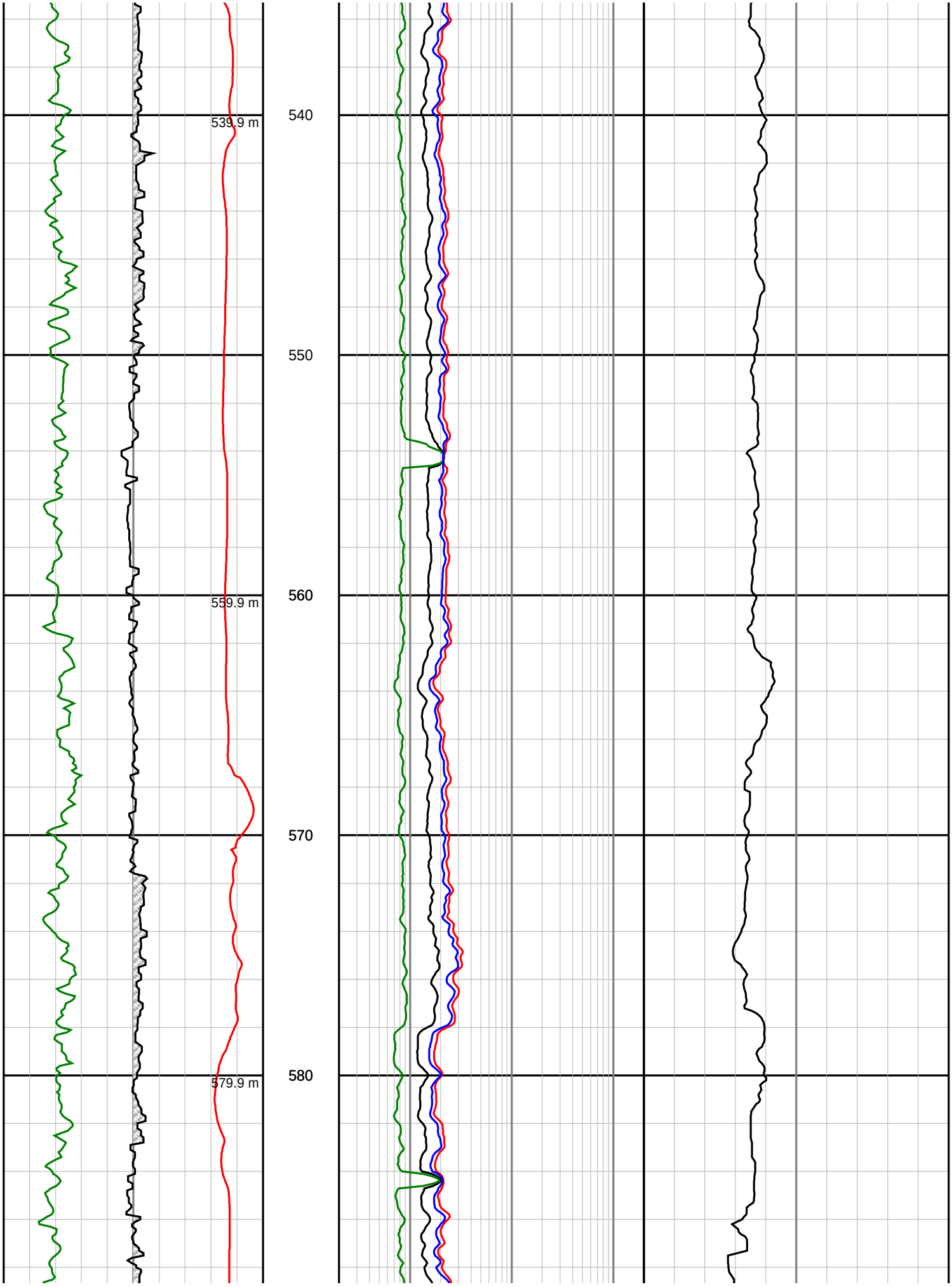

270
280
284.1 m
290
299.9 m
300
310
319.9 m
320

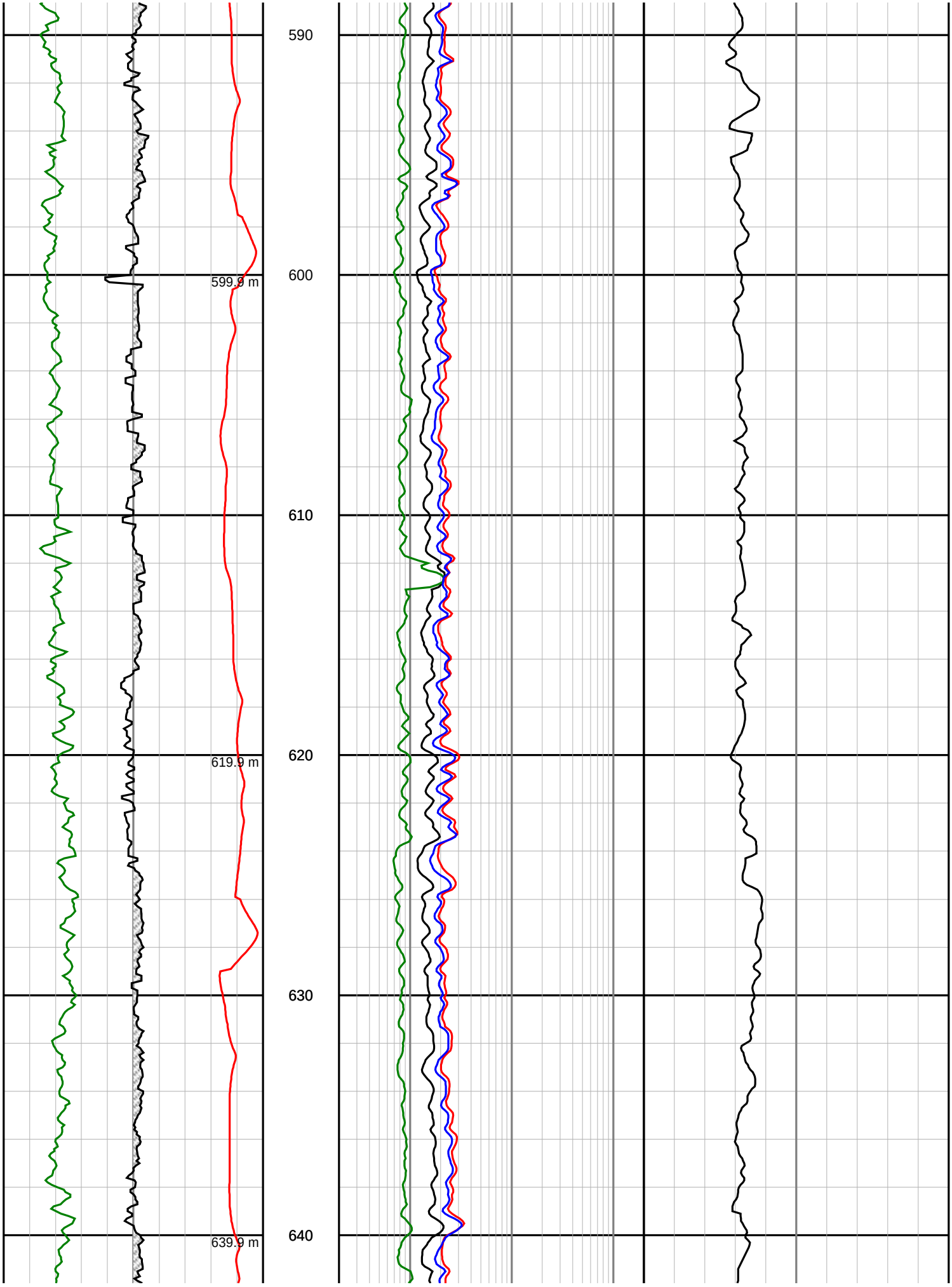

330
340
340.0 m
350
360
359.8 m
370

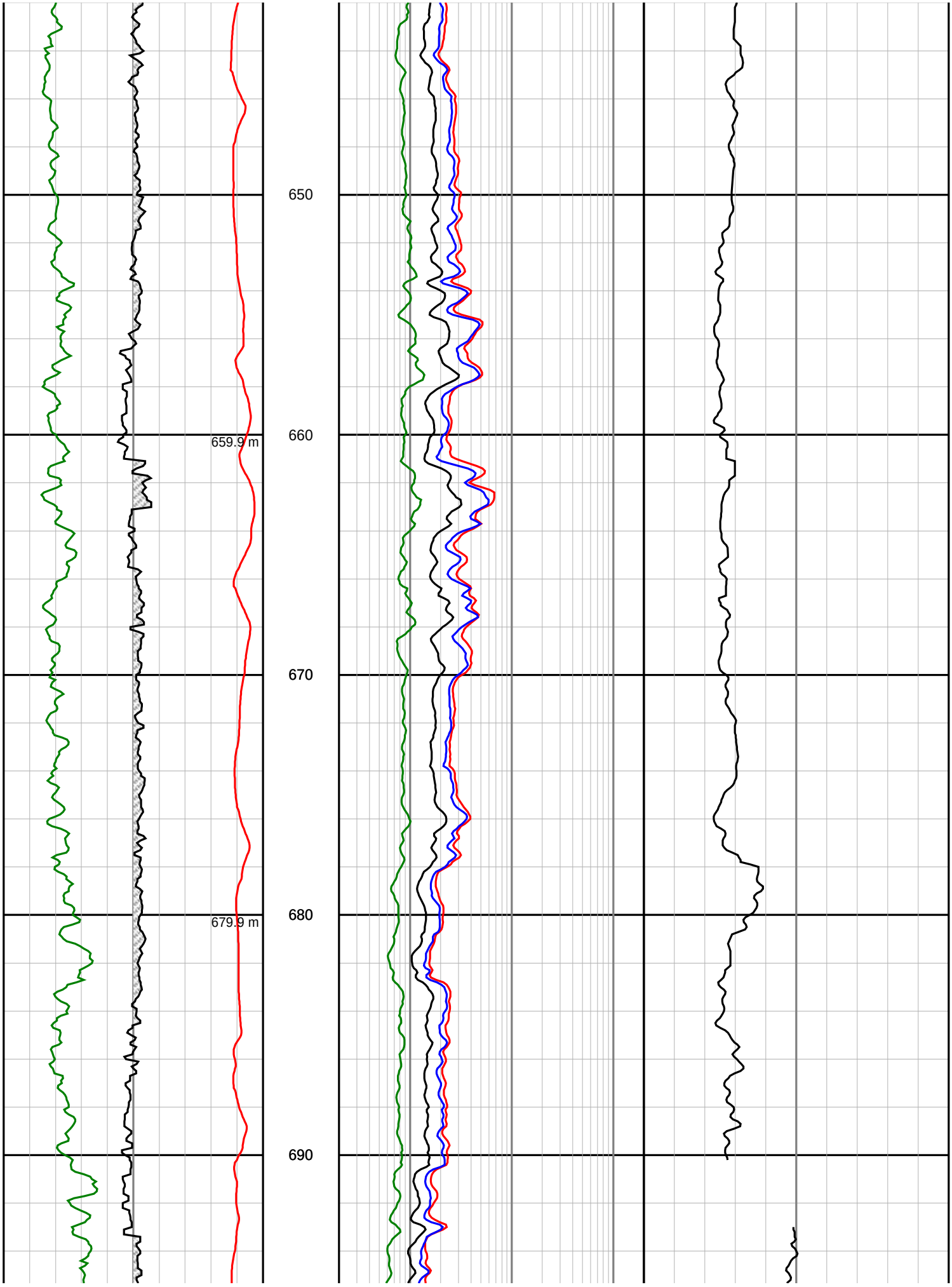

379.8 m
399.9 m
419.9 m
380
390
400
410
420

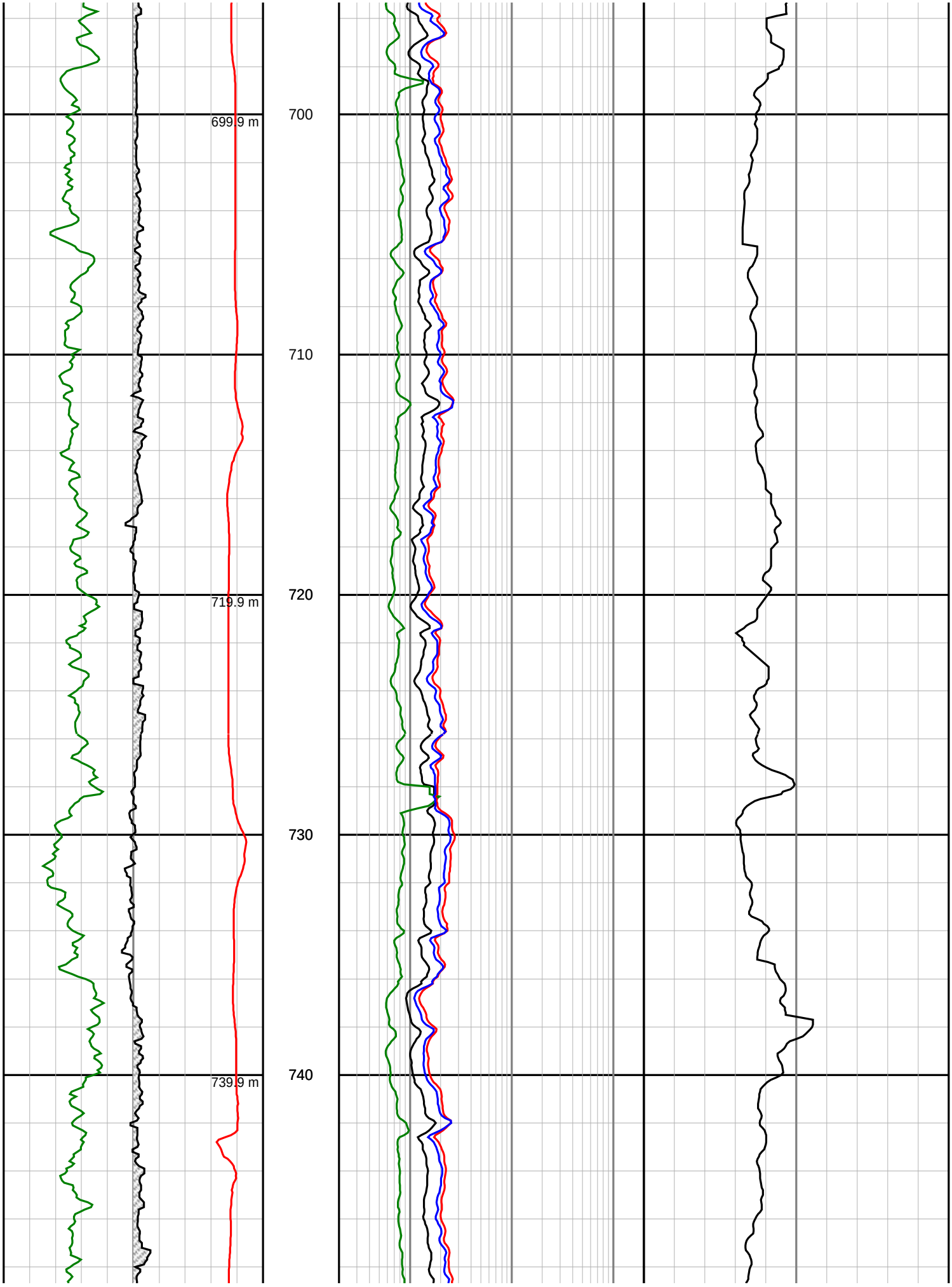

430
439.9 m
440
450
459.9 m
460
470
480.0 m
480

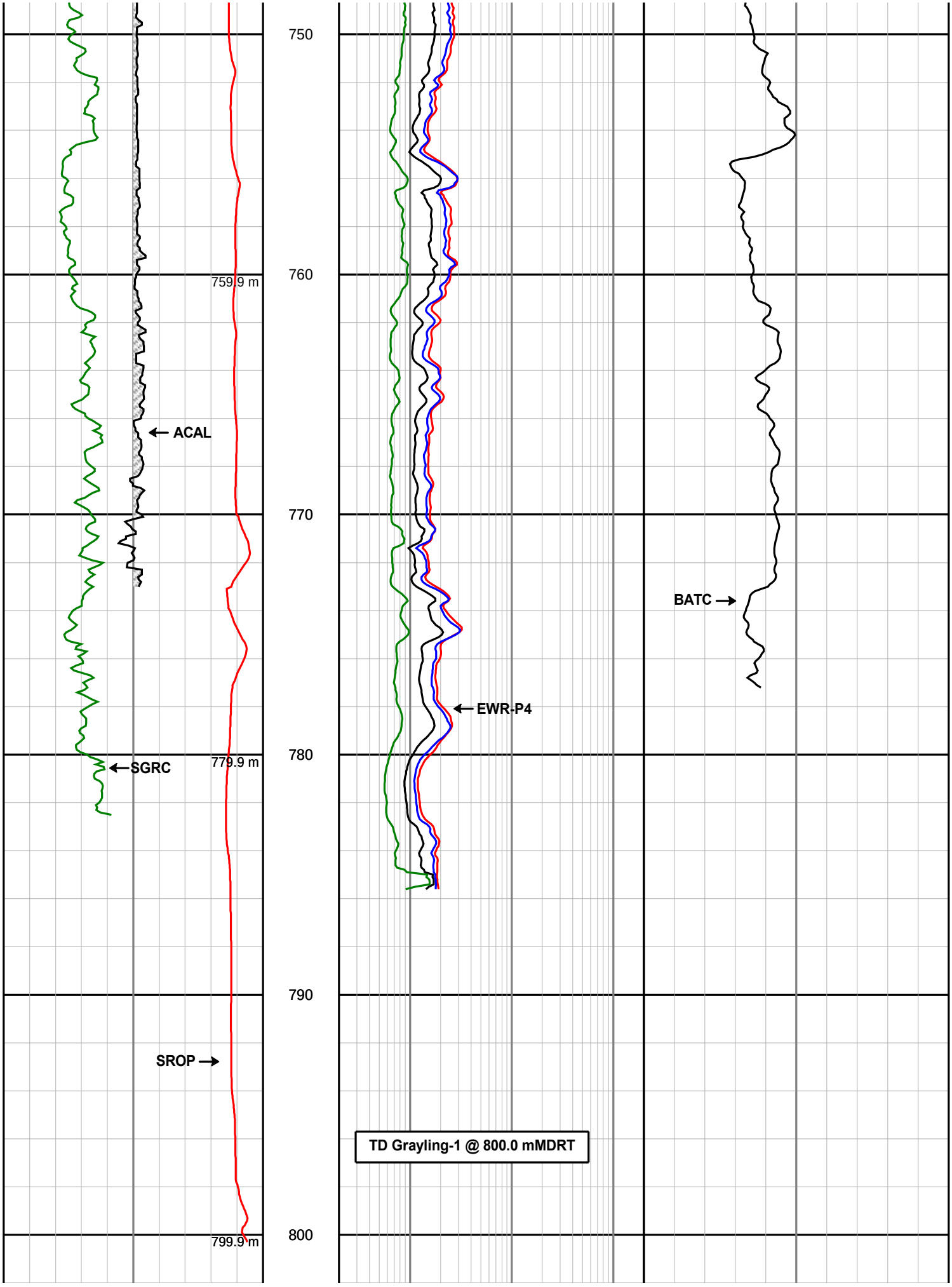

490
499.9 m
500
510
519.9 m
520
530

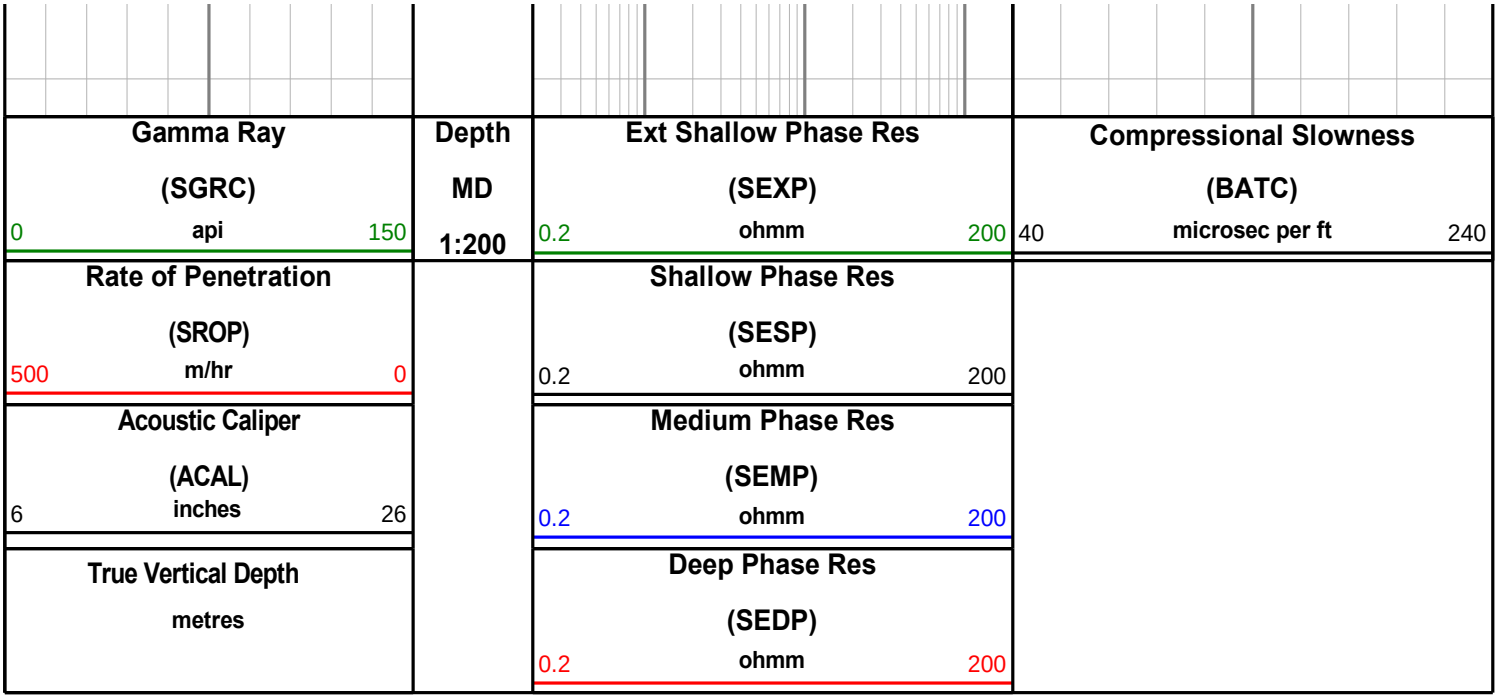

539.9 m
559.9 m
579.9 m
540
550
560
570
580


590
599.9 m
600
610
619.9 m
620
630
639.9 m
640


650
659.9 m
660
670
679.9 m
680
690


699.9 m
719.9 m
739.9 m
700
710
720
730
740


750
760
770
780
790
800
759.9 m
779.9 m
799.9 m
ACAL
SGRC
SROP
EWR-P4
BATC
TD Grayling-1 @ 800.0 mMDRT



INSITE

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Apache Energy Ltd
Grayling-1
Exploration
Victoria
Australia
AU-FE-0003298446
Final survey has been projected to TD. RT-AHD=21.5m

Measured Depth (metres)	*Inclination (degrees)*	*Direction (degrees)*	*Vertical Depth (metres)*	*Latitude (metres)*	*Departure (metres)*	*Vertical Section (metres)*	*Dogleg (deg/30m)*
0.000	0.00	0.00	0.000	0.000 N	0.000 E	0.000	TIE-IN
168.240	0.96	152.16	168.232	1.251 S	0.660 E	1.265	0.17
197.540	0.47	169.84	197.530	1.586 S	0.796 E	1.570	0.55
394.650	0.43	128.97	394.634	2.837 S	1.510 E	2.878	0.05
423.980	0.36	137.16	423.964	2.973 S	1.657 E	3.077	0.09
452.050	0.37	121.45	452.033	3.084 S	1.793 E	3.253	0.11
479.010	0.58	106.74	478.992	3.169 S	1.998 E	3.468	0.27
509.690	0.91	102.30	509.669	3.265 S	2.384 E	3.838	0.32
538.170	1.12	101.87	538.145	3.371 S	2.877 E	4.301	0.23
568.100	1.34	94.08	568.068	3.456 S	3.512 E	4.867	0.27
681.450	1.31	117.17	681.389	4.143 S	5.986 E	7.279	0.14
709.640	1.07	117.40	709.572	4.412 S	6.507 E	7.860	0.26
735.760	1.21	137.57	735.687	4.727 S	6.909 E	8.370	0.48
765.370	1.41	130.70	765.290	5.195 S	7.396 E	9.038	0.26
800.000	1.41	130.70	799.909	5.751 S	8.043 E	9.887	0.00

HALLIBURTON

Grayling-1

CALCULATION BASED ON MINIMUM CURVATURE METHOD

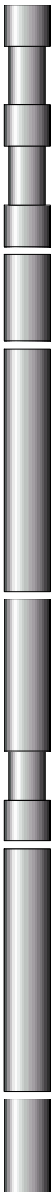
SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A CLOSURE OF 125.57 DEGREES (GRID)
A TOTAL CORRECTION OF 13.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 800.000 METRES
IS 9.887 METRES ALONG 125.57 DEGREES (GRID)

MWD RUN 100 - BHA

	Cumulative Length (m)
HWDP	257.96
Sub	118.55
Drill Collar	117.42
Jar	90.37
Drill Collar	80.51
	34.69



MWD RUN 100 - MWD

	Sensor Measure Point Distance To Bit (m)
8 DGWD 650 System	
PM	30.040
ACAL	27.260
BAT	

MWD

Sub

12.91

Stabilizer

12.13

Sub

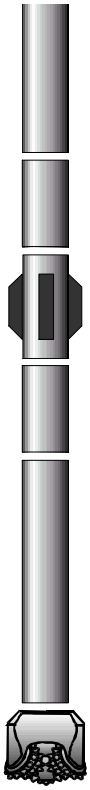
9.89

9.02

Motor

Bit

0.43



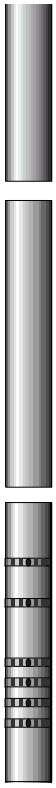
HCIM

DGR

17.710

EWR-P4

14.680



Sperry Drilling Services

1 : 500

MWD

EWR Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
BAT Bi-modal Acoustic Sonic
ACAL Acoustic Caliper

Country : **Australia**
Field : **Exploration**
Location : **Lat: 38° 9' 40.260" South Long: 148° 17' 35.900" East**
Well : **Grayling-1**
Company : **Apache Energy Ltd**
Rig : **Ocean Patriot**

Company : **Apache Energy Ltd**
Rig : **Ocean Patriot**
Well : **Grayling-1**
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Permanent Datum : **AHD**
Elevation : **0.00 m**
Log Measured From : **Drill Floor** **21.50 m** Above Permanent Datum
Drilling Measured From : **Drill Floor**

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Elev. KB
DF **21.50 m**
GL
WD **58.50 m**

Depth Logged : **113.00 m** To **800.00 m**
Date Logged : **22-Dec-04** To **27-Dec-04**
Total Depth MD : **800.00 m** TVD : **799.91 m**
Spud Date : **23-Dec-04**

Unit No. : **174**
Job No. : **AU-FE-0003298446**
Plot Type : **Final**
Plot Date : **17-May-05**

Run No.	Borehole Record (MD) Size	From	To
2	406.000 mm	113.00 m	800.00 m

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD)

Size	Weight	From	To
762.000 mm	458.00 kgpm	80.00 m	111.80 m
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WELL INFORMATION

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Log End Depth (MD, m)	800.00																									
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Drill/Wipe Start Date and Time	24-Dec-04 21:32																									
Drill/Wipe End Date and Time	25-Dec-04 17:20																									
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Max Inc (deg) @ Depth (MD, m)	1.41 @ 765.37																									
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Fluid Type	Sea Water																									
Density (sg) / Viscosity (spl)	1.04 / N/A																									
Filtrate CL (ppm)	N/A																									
pH / Fluid Loss (cptm)	N/A / N/A																									
PV (cp) / YP (pa)	N/A / N/A																									
% Solids / % Sand	N/A / N/A																									
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Rm @ Measured Temp (degC)	N/A @ N/A																									
Rmf @ Measured Temp (degC)	N/A @ N/A																									
Rmc @ Measured Temp (degC)	N/A @ N/A																									
Max Tool Temp (degC) / Source	29.00 / EWR-P4																									

Rm @ Max Tool Temp (degC)	N/A @ N/A				
Lead MWD Engineer	T. Oborne				
Customer Representative	D. Kirkwood				

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Sub Serial Number	198840				
Insert Serial Number	132884				
Logging String Serial Number	62057XHGVR8				
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Date and Time Read	25-Dec-04 22:28:00				

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Tool Type	PM				
Distance From Bit (m)	30.04				
Software Version	N/A				
Sub Serial Number	111363				
Sonde Serial Number	134019				
Sensor ID Number	2947				
Survey String Serial Number	DM90061055M8				
Toolface Offset (deg)	N/A				

Gamma Ray Sensor Information

Tool Type	DGR				
Distance From Bit (m)	17.71				
Recorded Sample Period (sec)	12				
Software Version	N/A				
Sub Serial Number	10505993				
Insert/Sonde Serial Number	172498				

Resistivity Sensor Information

Tool Type	EWR-P4				
Distance From Bit (m)	14.68				
Recorded Sample Period (sec)	12				
Software Version	1.38				
Sub Serial Number	174309				
Receiver Insert Serial Number	123481				
Transmitter Insert Serial Number	159149				
Receiver Orientation	Down				

Caliper Sensor Information

Tool Type	ACAL				
Distance From Bit (m)	27.26				
Software Version	2.05				
Sub Serial Number	165483				
Insert Serial Number	141729				

Sonic Sensor Information

Tool Type	BAT				
Distance From Bit (m)	23.06				
Recorded Sample Period (sec)	18				
Software Version	4.00				

Sub Serial Number	144401				
Receiver Insert Serial Number	136555				
Transmitter Insert Serial Number	143996				

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   - SEDP - Smoothed Deep Phase Resistivity, ohm-m
   - SROP - Smoothed Rate of Penetration, m/hr
   - ACAL - Acoustic Caliper, inches
   - BATC - Bi-Modal Acoustic Compressional Slowness, usec/ft

4. Gap in ACAL and BATC data at start of the hole section is due to the hole being washed out beyond tools operational range.

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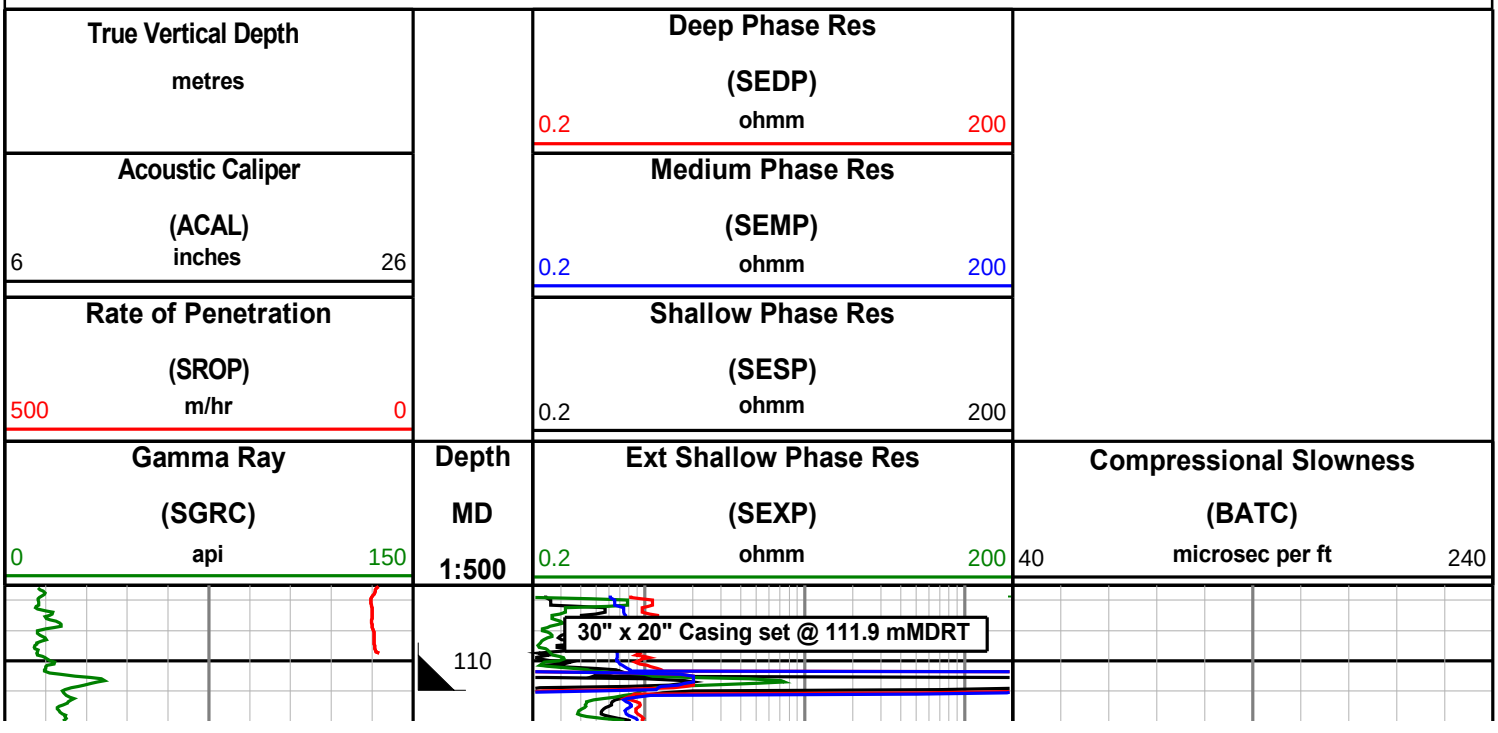
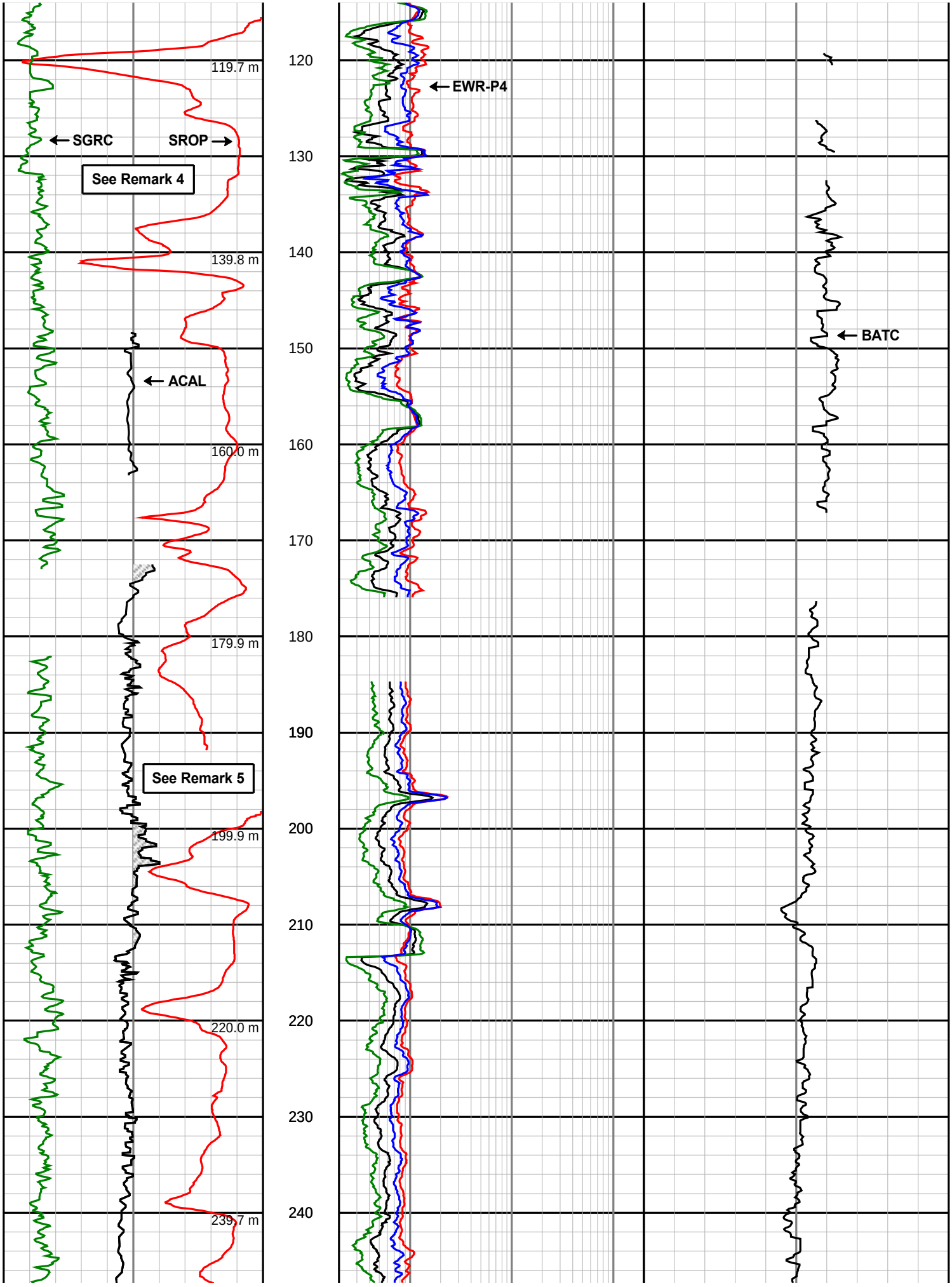
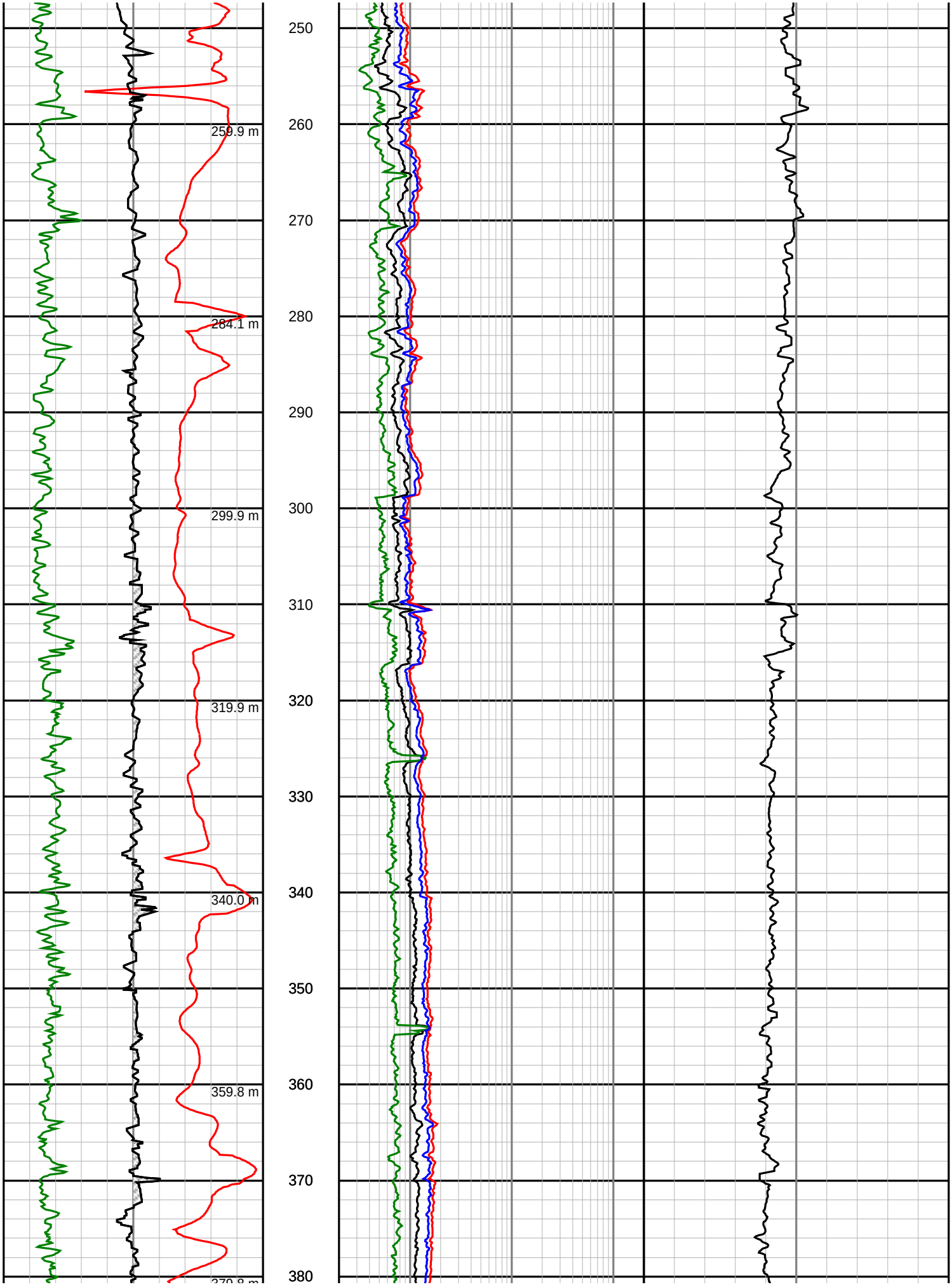
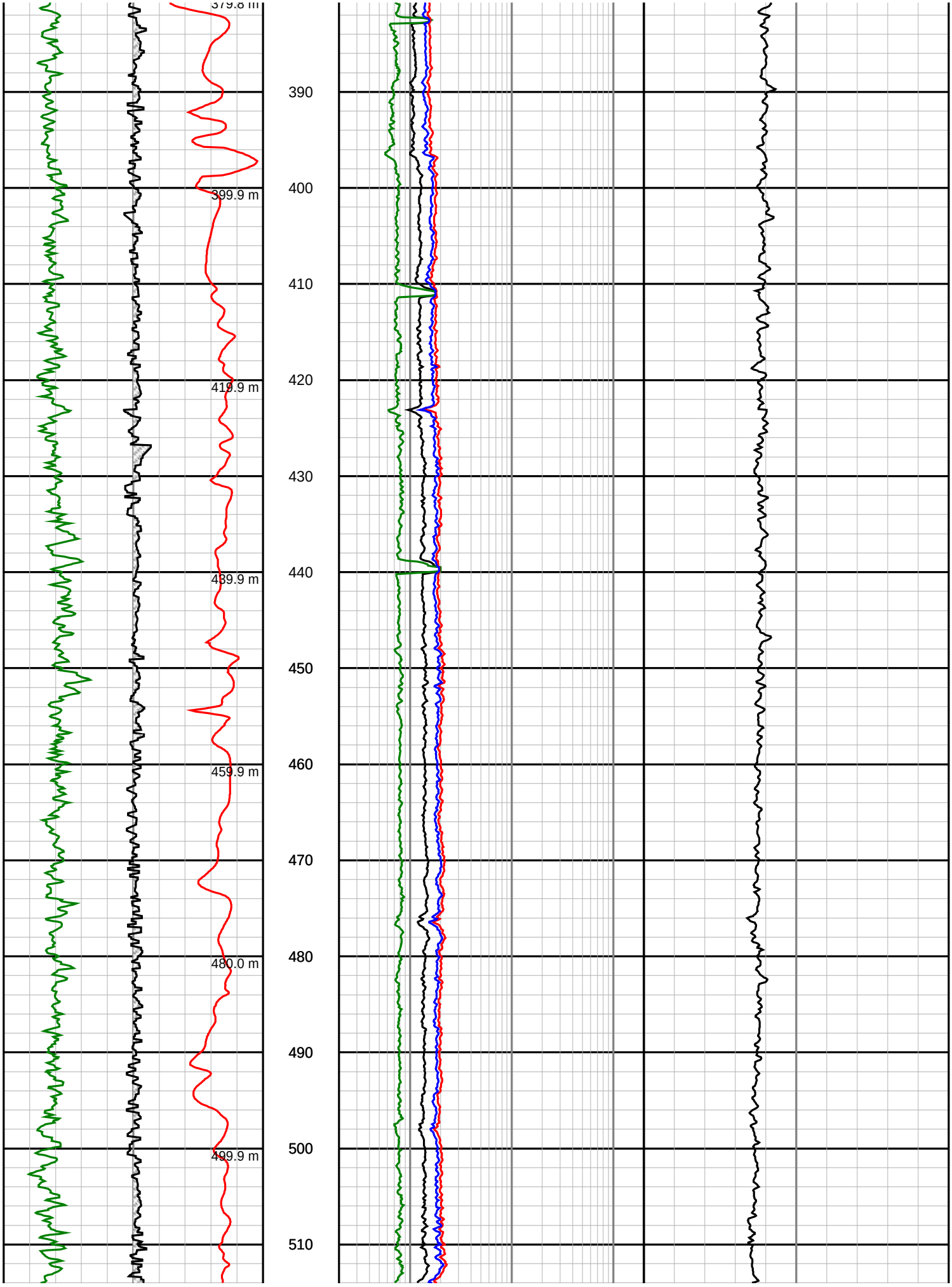
6. Gaps in compressional slowness data are due to weak signal.

WARRANTY




119.7 m
SGRC
SROP
See Remark 4
139.8 m
ACAL
160.0 m
179.9 m
See Remark 5
199.9 m
220.0 m
239.7 m
120
130
140
150
160
170
180
190
200
210
220
230
240
EWR-P4
BATC


259.9 m
284.1 m
299.9 m
319.9 m
340.0 m
359.8 m
250
260
270
280
290
300
310
320
330
340
350
360
370
380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399.9 m
419.9 m
439.9 m
459.9 m
480.0 m
499.9 m
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410
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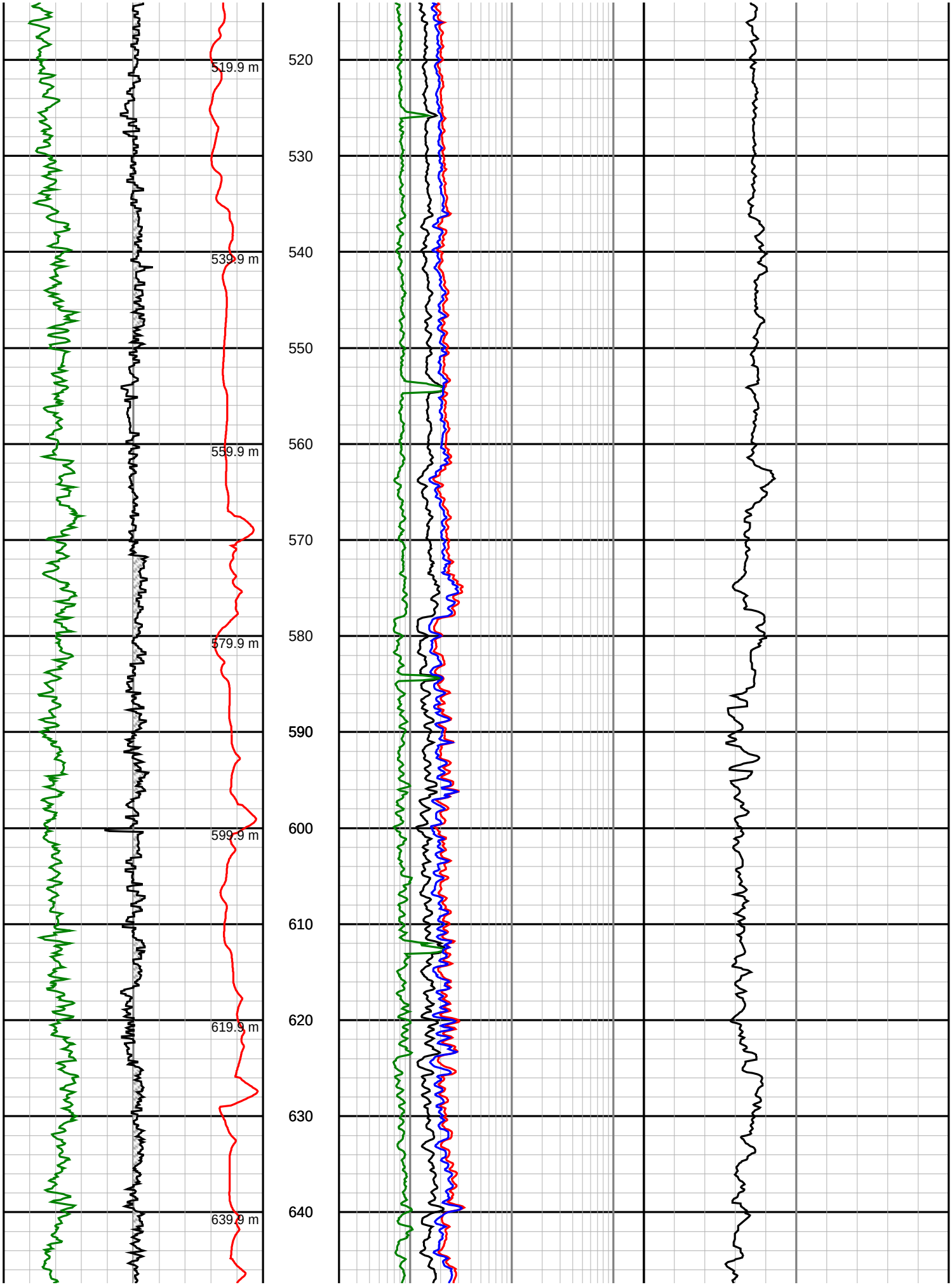
450
460
470
480
490
500
510


519.9 m
539.9 m
559.9 m
579.9 m
599.9 m
619.9 m
639.9 m
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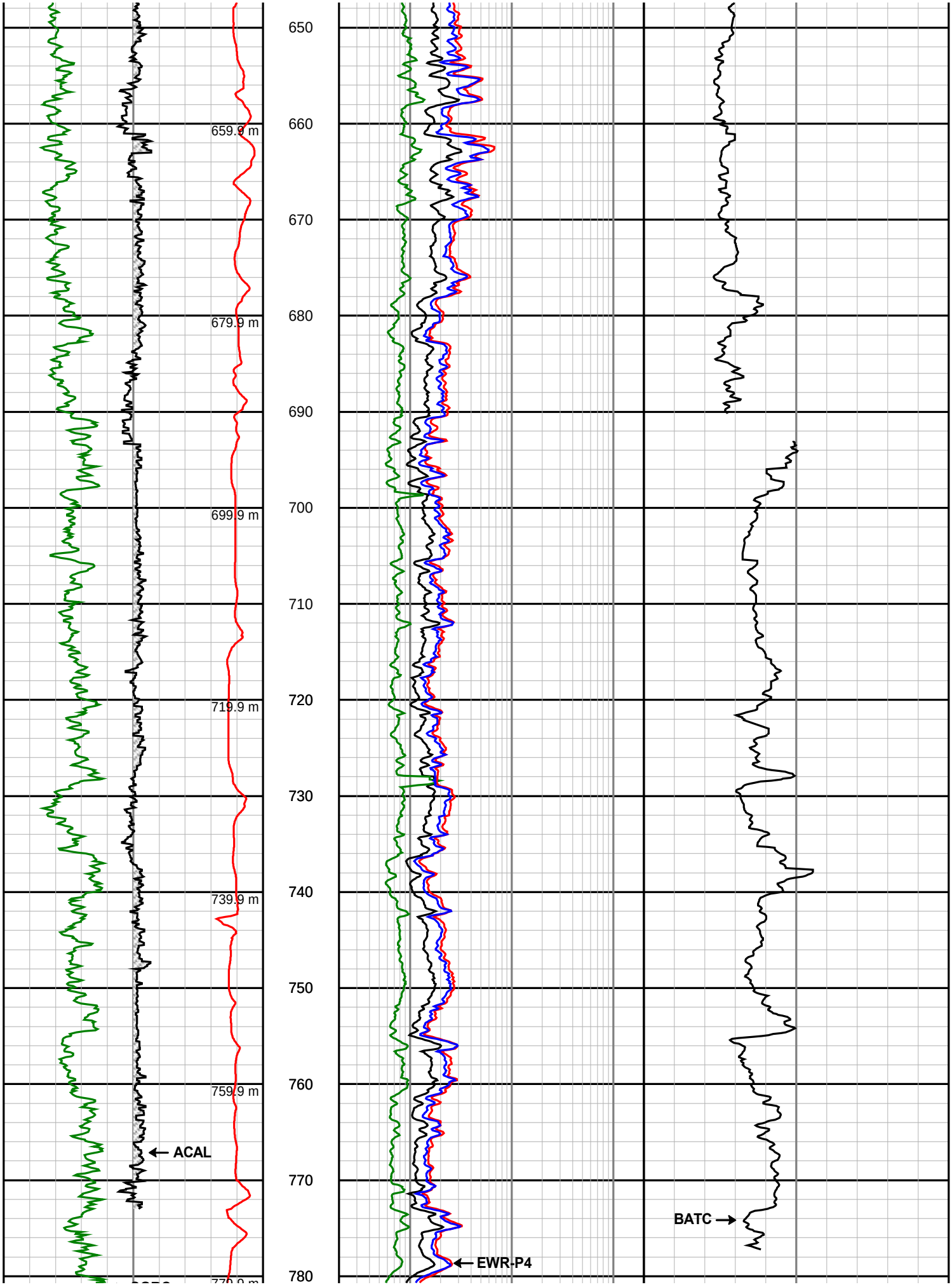
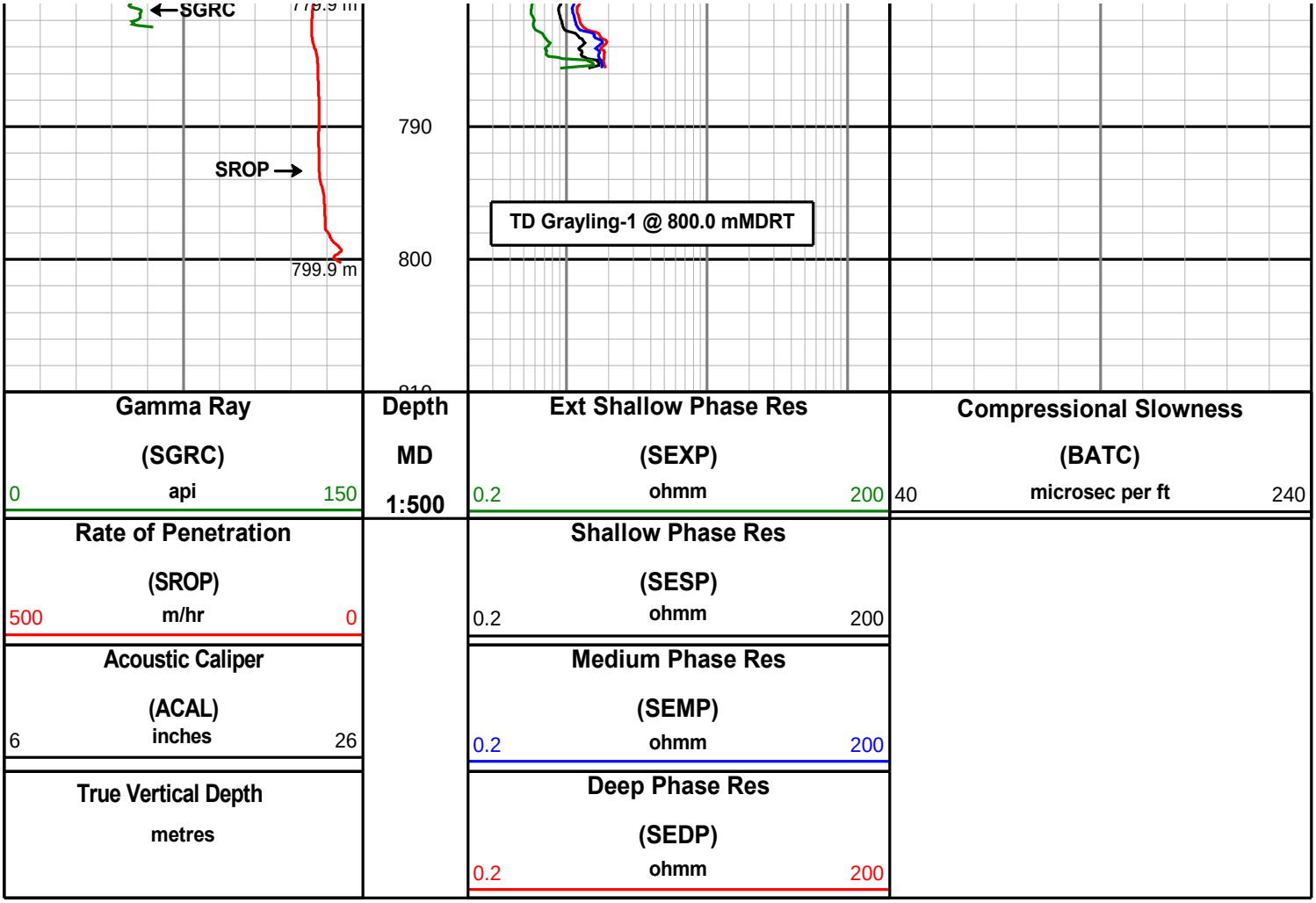
530
540
550
560
570
580
590
600
610
620
630
640


650
660
670
680
690
700
710
720
730
740
750
760
770
780
659.9 m
679.9 m
699.9 m
719.9 m
739.9 m
759.9 m
ACAL
EWR-P4
BATC



INSITE

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Apache Energy Ltd
Grayling-1
Exploration
Victoria
Australia
AU-FE-0003298446
Final survey has been projected to TD. RT-AHD=21.5m

Measured Depth (metres)	*Inclination (degrees)*	*Direction (degrees)*	*Vertical Depth (metres)*	*Latitude (metres)*	*Departure (metres)*	*Vertical Section (metres)*	*Dogleg (deg/30m)*
0.000	0.00	0.00	0.000	0.000 N	0.000 E	0.000	TIE-IN
168.240	0.96	152.16	168.232	1.251 S	0.660 E	1.265	0.17
197.540	0.47	169.84	197.530	1.586 S	0.796 E	1.570	0.55
394.650	0.43	128.97	394.634	2.837 S	1.510 E	2.878	0.05
423.980	0.36	137.16	423.964	2.973 S	1.657 E	3.077	0.09
452.050	0.37	121.45	452.033	3.084 S	1.793 E	3.253	0.11
479.010	0.58	106.74	478.992	3.169 S	1.998 E	3.468	0.27
509.690	0.91	102.30	509.669	3.265 S	2.384 E	3.838	0.32
538.170	1.12	101.87	538.145	3.371 S	2.877 E	4.301	0.23
568.100	1.34	94.08	568.068	3.456 S	3.512 E	4.867	0.27

HALLIBURTON

Grayling-1

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
681.450	1.31	117.17	681.389	4.143 S	5.986 E	7.279	0.14
709.640	1.07	117.40	709.572	4.412 S	6.507 E	7.860	0.26
735.760	1.21	137.57	735.687	4.727 S	6.909 E	8.370	0.48
765.370	1.41	130.70	765.290	5.195 S	7.396 E	9.038	0.26
800.000	1.41	130.70	799.909	5.751 S	8.043 E	9.887	0.00

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A CLOSURE OF 125.57 DEGREES (GRID)
A TOTAL CORRECTION OF 13.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 800.000 METRES
IS 9.887 METRES ALONG 125.57 DEGREES (GRID)

MWD RUN 100 - BHA

Cumulative Length (m)

HWDP — 257.96

Sub — 118.55

Drill Collar — 117.42

Jar — 90.37

80.51

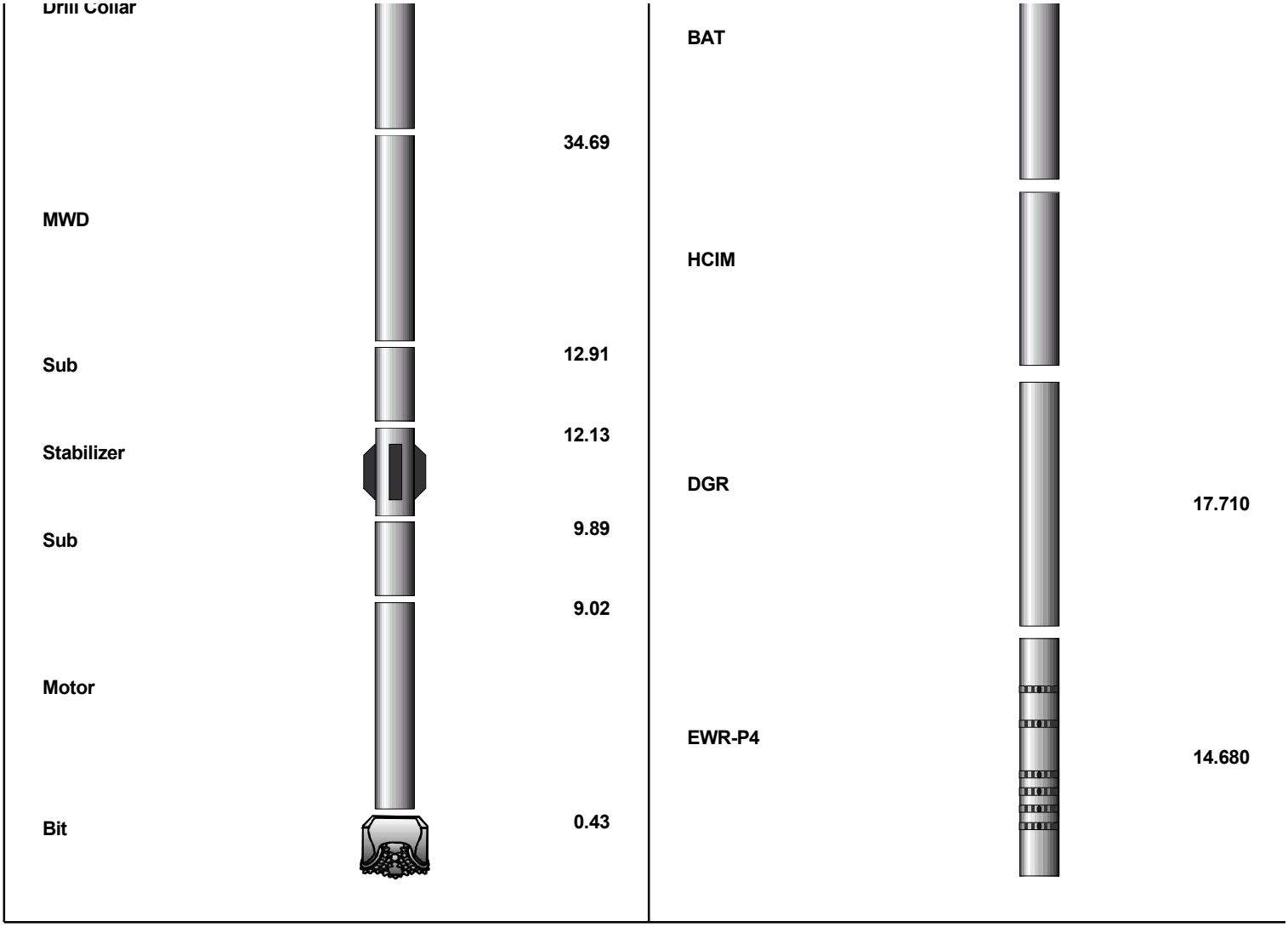
MWD RUN 100 - MWD

Sensor Measure Point Distance To Bit (m)

8 DGWD 650 System

PM — 30.040

ACAL — 27.260


Drill Collar
34.69
MWD
Sub
12.91
Stabilizer
12.13
Sub
9.89
9.02
Motor
Bit
0.43
BAT
HCIM
DGR
17.710
EWR-P4
14.680

HALLIBURTON

Sperry Drilling Services

End of Well Report

for

Apache Energy Ltd

Grayling-1A

Rig: Ocean Patriot

Field: Exploration

Country: Australia

Job No: AU-FE-0003471409

Date: 28th December 2004

HALLIBURTON

Table of Contents

General Information

Company:	Apache Energy Ltd	
Rig:	Ocean Patriot	
Well:	Grayling-1A	
Field:	Exploration	
Country:	Australia	
API Number:		
Sperry-Sun Job Number:	AU-FE-0003471409	
Job start date:	28-Dec-04	
Job end date:	13-Jan-05	
North reference:	Grid	
Declination:	13.170	deg
Dip angle:	-68.666	deg
Total magnetic field:	59926.121	nT
Date of magnetic data:	06-Jan-05	
Wellhead coordinates N:	38 deg. 9 min 40.280 sec South	
Wellhead coordinates E:	148 deg. 17 min 34.730 sec East	
Vertical section direction:	Closure	deg
MWD Engineers:	T. Oborne	P. O'Shea
	A. Nijhof	A.Oraekwuotu
Company Representatives:	C. Wilson	J. Wrenn
Company Geologist:	J. Sonego	P. Slijderink
Lease Name:	VIC/P-54	
Unit Number:	174	
State:	Victoria	
County:		

Operational Overview

Sperry Drilling Services were contracted by Apache Energy Ltd to provide Logging While Drilling (LWD) services for the drilling of exploration well Grayling-1A from the Ocean Patriot.

406 mm Hole Section:
This hole section was drilled to 810.0 mMDRT in one bit run using Sperry's Formation Evaluation tool suite (FEWD) comprising Dual Gamma Ray (DGR), Electromagnetic Wave Resistivity (EWR-P4), Acoustic Caliper (ACAL) and Bi-Modal Acoustic Sonic (BAT) for logging purposes and a Position Monitor (PM) for directional control.

216mm Hole Section:
This hole section drilled to well TD at 2914.0 mMDRT in two bit runs using Sperry's Quad Combo tool suite, comprising of Dual Gamma Ray (DGR), Electromagnetic Wave Resistivity (EWR-P4), Acoustic Caliper (ACAL) and Bi-Modal Acoustic Sonic (BAT), Stabilised Litho Density (SLD) and Compensated Neutron Porosity (CNP) for logging purposes and a PM for directional control.

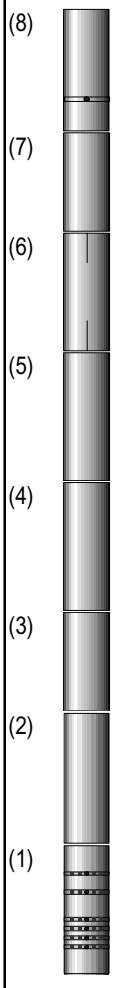
Summary of MWD runs

Run No.	Bit No.	Hole Size (mm)	MWD Service	Start Depth (m)	End Depth (m)	Drill/Wipe Distance (m)	Run Start Date Time	Run End Date Time	BRT Hrs.	Oper. Hrs.	Circ. Hrs.	Max. Temp. (degC)	Serv. Int.	Trip for MWD	Failure Type
0200	2	406.00	DIR-FE-BAT	114.00	810.00	696.00	29-Dec-04 09:59	30-Dec-04 21:36	35.61	35.61	22.79	28.00	No	No	
0300	3	216.00	DIR-FE-QUAD	810.00	2740.00	1930.00	05-Jan-05 16:39	09-Jan-05 16:58	96.32	96.32	70.83	85.00	No	No	
0400	4	216.00	DIR-FE-QUAD	2740.00	2914.00	174.00	10-Jan-05 05:34	13-Jan-05 10:55	77.35	77.35	45.54	107.00	No	No	
TOTALS ==>						2800.00			209.28	209.28	139.16		0	0	

Bitrun Summary

Run Time Data		Drilling Data			Mud Data				
MWD Run :	0200	Start Depth :	114.00	m	Mud Type :	Sea Water			
Rig Bit No:	2	End Depth :	810.00	m	Weight / Visc :	1.04	sg /	N/A	spl
Hole Size :	406.00 mm	Footage :	696.00	m	Chlorides :	N/A	ppm		
Run Start :	29-Dec-04 09:59	Avg. Flow Rate :	1060	gpm	PV / YP :	1.00	cp /	0.00	pa
Run End :	30-Dec-04 21:36	Avg. RPM :	78	rpm	Solids/Sand :	N/A	% /	N/A	%
BRT Hrs :	35.61	Avg. WOB :	8.50	klb	%Oil / O:W :	N/A	% /	N/A	
Circ. Hrs :	22.79	Avg. ROP :	36.30	m/hr	pH/Fluid Loss:	N/A	pH /	1.00	cptm
Oper. Hrs :	35.61	Avg. SPP :	2730	psig	Max. Temp. :	28.00	degC		

MWD Schematics



8. Positive Pulser
SN : 10524383

7. TM
SN : 132884

6. PM
SN : 134019
30.40 m From Bit

5. ACAL
SN : 141729
27.62 m From Bit

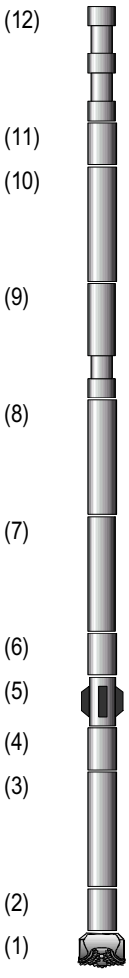
4. BAT
SN : 136555
23.42 m From Bit

3. HCIM
SN : 132884

2. DGR
SN : 172498
18.07 m From Bit

1. EWR-P4
SN : 123481
15.04 m From Bit

BHA Schematics



	Component	Length (m)	O.D. (mm)	I.D. (mm)
12.	15 x HWDP	139.41	127.000	76.000
11.	Cross Over Sub	1.13	216.000	73.000
10.	3 x Drill Collar	27.05	203.000	73.000
09.	Drilling Jars	9.86	210.000	76.000
08.	5 x Drill collar	45.82	203.000	71.000
07.	MWD	21.78	203.000	49.000
06.	Float Sub	0.78	203.000	76.000
05.	Integral Blade Stabilizer	2.24	203.000	76.000
04.	Cross Over Sub	0.87	236.000	76.000
03.	9-5/8" SperryDrill	8.59	244.000	49.000
02.	Bit Sub	0.34	236.000	49.000
01.	Hycalog M26755	0.45	406.000	49.000

Comments

Drilled to section TD at 810.0 mMDRT. All recorded data was recovered at surface.

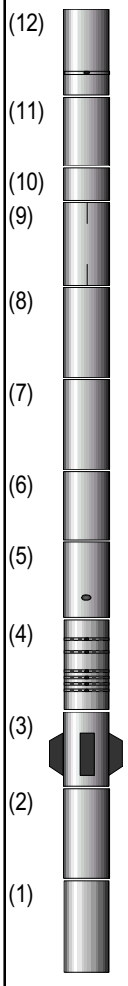
MWD Performance

Tool OD / Type :	203.00	mm /	FEWD/BAT	
MWD Real-time%:	95.33	%		
MWD Recorded%:	100.00	%		
Min. Inc. :	0.03	deg /	482.27	m
Max. Inc. :	0.94	deg /	167.34	m
Final Az. :	151.29	deg		
Max Op. Press. :	1187	psig		

Bitrun Summary

Run Time Data		Drilling Data			Mud Data				
MWD Run :	0300	Start Depth :	810.00	m	Mud Type :	Idecap			
Rig Bit No:	3	End Depth :	2740.00	m	Weight / Visc :	1.20	sg /	57.00	spl
Hole Size :	216.00 mm	Footage :	1930.00	m	Chlorides :	53000	ppm		
Run Start :	05-Jan-05 16:39	Avg. Flow Rate :	550	gpm	PV / YP :	16.00	cp /	14.00	pa
Run End :	09-Jan-05 16:58	Avg. RPM :	75	rpm	Solids/Sand :	11	% /	0.25	%
BRT Hrs :	96.32	Avg. WOB :	12.00	klb	%Oil / O:W :	N/A	% /	N/A:89	
Circ. Hrs :	70.83	Avg. ROP :	37.90	m/hr	pH/Fluid Loss:	8.50	pH /	5.20	cptm
Oper. Hrs :	96.32	Avg. SPP :	2600	psig	Max. Temp. :	85.00	degC		

MWD Schematics



12. Positive Pulser
SN: 104824758407

11. TM
SN: 145125

10. Hang-off Sub
SN: 203840

9. PM
SN: 175717
33.07 m From Bit

8. ACAL
SN: 113417
30.30 m From Bit

7. BAT
SN: 131066
26.51 m From Bit

6. HCIM
SN: 145125

5. CNP
SN: 104127
20.14 m From Bit

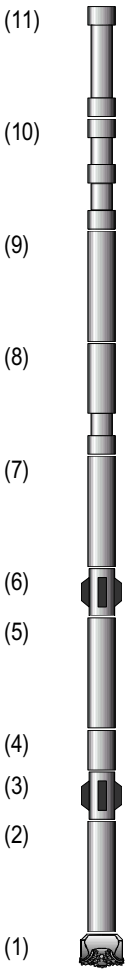
4. EWR-P4
SN: 128946
17.19 m From Bit

3. SLD
SN: 147144
14.40 m From Bit

2. DDS
SN: 741
0.00 m From Bit

1. DGR
SN: 87301
11.06 m From Bit

BHA Schematics



	Component	Length (m)	O.D. (mm)	I.D. (mm)
11.	Drill Pipe (E)	100.00	127.000	108.610
10.	HWDP	139.18	165.100	76.200
09.	Drill Collar	18.61	165.100	73.025
08.	Drilling Jars	9.51	171.450	76.200
07.	Drill Collar	83.68	165.100	73.025
06.	Integral Blade Stabilizer	2.05	171.450	69.850
05.	MWD	27.53	171.450	69.850
04.	Float Sub	0.62	171.450	69.850
03.	Integral Blade Stabilizer	1.63	165.100	69.850
02.	6-3/4" SperryDrill	7.62	171.450	76.200
01.	Hycalog DSX 104	0.22	215.900	76.200

Comments

Drilled 216mm hole section from 810.0 mMDRT to 2740.0 mMDRT.

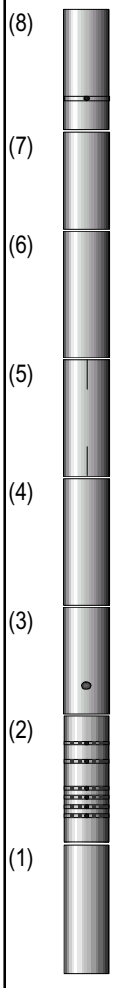
MWD Performance

Tool OD / Type :	171.45	mm /	MPT	
MWD Real-time%:	98.20	%		
MWD Recorded%:	98.00	%		
Min. Inc. :	0.03	deg /	912.98	m
Max. Inc. :	2.41	deg /	2059.86	m
Final Az. :	22.17	deg		
Max Op. Press. :	4672	psig		

Bitrun Summary

Run Time Data		Drilling Data			Mud Data				
MWD Run :	0400	Start Depth :	2740.00	m	Mud Type :	Idecap			
Rig Bit No:	4	End Depth :	2914.00	m	Weight / Visc :	1.23	sg /	43.00	spl
Hole Size :	216.00 mm	Footage :	174.00	m	Chlorides :	49000	ppm		
Run Start :	10-Jan-05 05:34	Avg. Flow Rate :	550	gpm	PV / YP :	14.00	cp /	14.50	pa
Run End :	13-Jan-05 10:55	Avg. RPM :	87	rpm	Solids/Sand :	11	% /	0.25	%
BRT Hrs :	77.35	Avg. WOB :	15.80	klb	%Oil / O:W :	N/A	% /	N/A:89	
Circ. Hrs :	45.54	Avg. ROP :	10.60	m/hr	pH/Fluid Loss:	9.00	pH /	5.20	cptm
Oper. Hrs :	77.35	Avg. SPP :	3006	psig	Max. Temp. :	107.00	degC		

MWD Schematics



8. Positive Pulser
SN : 104824758407

7. TM
SN : 145125

6. ACAL
SN : 078950
29.61 m From Bit

5. PM
SN : 175717
32.36 m From Bit

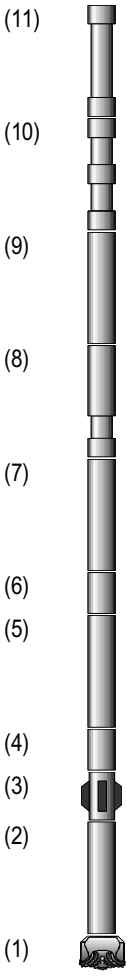
4. BAT
SN : 125819
26.12 m From Bit

3. CNP
SN : 104127
19.37 m From Bit

2. EWR-P4
SN : 128946
16.40 m From Bit

1. DGR
SN : 87301
10.25 m From Bit

BHA Schematics



	Component	Length (m)	O.D. (mm)	I.D. (mm)
11.	Drill Pipe (E)	853.44	127.000	108.610
10.	HWDP	139.18	127.000	76.200
09.	Drill Collar	18.61	165.000	70.000
08.	Drilling Jars	9.51	163.000	76.000
07.	Drill Collar	83.68	165.000	70.000
06.	Cross Over Sub	2.05	165.100	75.000
05.	MWD	27.61	171.000	73.152
04.	Float Sub	0.62	163.576	76.200
03.	Integral Blade Stabilizer	1.77	171.000	70.000
02.	6-3/4" SperryDrill	6.67	171.450	66.040
01.	Security FM37432	0.24	216.000	63.500

Comments

Drill 216mm hole section to TD at 2914.0 mMDRT, all recorded data recovered at surface.

MWD Performance

Tool OD / Type :	171.45	mm /	MPT	
MWD Real-time%:	98.00	%		
MWD Recorded%:	100.00	%		
Min. Inc. :	1.49	deg /	2712.30	m
Max. Inc. :	3.28	deg /	2880.32	m
Final Az. :	15.63	deg		
Max Op. Press. :	3330	psig		

Directional Survey Data

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
80.00	0.00	0.00	80.00	0.00 N	0.00 E	0.00	TIE-IN
140.83	0.93	20.34	140.83	0.46 N	0.17 E	0.06	0.46
167.34	0.94	25.97	167.33	0.86 N	0.34 E	0.13	0.10
196.50	0.55	24.92	196.49	1.20 N	0.50 E	0.21	0.40
221.10	0.33	17.12	221.09	1.37 N	0.58 E	0.24	0.27
253.41	0.44	25.80	253.40	1.58 N	0.66 E	0.27	0.11
282.65	0.46	31.92	282.64	1.78 N	0.77 E	0.33	0.05
336.05	0.37	36.75	336.04	2.10 N	0.98 E	0.47	0.05
364.95	0.35	34.82	364.94	2.24 N	1.09 E	0.54	0.03
424.97	0.09	37.93	424.96	2.43 N	1.22 E	0.62	0.13
451.80	0.18	136.70	451.79	2.42 N	1.27 E	0.67	0.24
482.27	0.03	52.24	482.26	2.39 N	1.31 E	0.71	0.18
511.26	0.03	38.48	511.25	2.40 N	1.32 E	0.72	0.01
539.81	0.23	62.33	539.80	2.43 N	1.37 E	0.77	0.21
568.55	0.41	43.67	568.54	2.53 N	1.50 E	0.86	0.21
654.00	0.34	93.97	653.98	2.73 N	1.96 E	1.27	0.11
684.56	0.33	108.87	684.54	2.70 N	2.13 E	1.44	0.09
711.79	0.32	104.03	711.77	2.66 N	2.28 E	1.60	0.03
741.44	0.20	130.91	741.42	2.60 N	2.40 E	1.73	0.17
768.30	0.18	151.29	768.28	2.53 N	2.46 E	1.80	0.08
799.47	0.07	125.09	799.45	2.48 N	2.50 E	1.85	0.12
828.00	0.33	254.00	827.98	2.45 N	2.43 E	1.79	0.40
855.73	0.22	282.74	855.71	2.44 N	2.30 E	1.67	0.19
884.02	0.25	268.52	884.00	2.45 N	2.19 E	1.56	0.07
912.98	0.03	338.30	912.96	2.45 N	2.12 E	1.49	0.25
941.54	0.24	248.40	941.52	2.43 N	2.06 E	1.44	0.26
969.38	0.23	227.08	969.36	2.37 N	1.97 E	1.36	0.10
997.56	0.08	133.42	997.54	2.32 N	1.94 E	1.34	0.27
1026.77	0.07	257.57	1026.75	2.30 N	1.94 E	1.34	0.14
1055.08	0.12	94.50	1055.06	2.30 N	1.95 E	1.36	0.20
1083.61	0.12	106.14	1083.59	2.29 N	2.01 E	1.42	0.03
1112.94	0.10	285.84	1112.92	2.29 N	2.01 E	1.42	0.22
1142.03	0.20	104.60	1142.01	2.28 N	2.04 E	1.45	0.31
1170.51	0.20	103.08	1170.49	2.25 N	2.13 E	1.55	0.01
1196.45	0.20	97.91	1196.44	2.24 N	2.22 E	1.64	0.02
1198.86	0.14	149.13	1198.84	2.24 N	2.23 E	1.65	1.96
1227.73	0.20	97.52	1227.71	2.20 N	2.30 E	1.72	0.16
1258.25	0.23	146.71	1258.23	2.14 N	2.38 E	1.82	0.18
1286.99	0.14	124.27	1286.97	2.07 N	2.44 E	1.89	0.12
1314.43	0.17	97.46	1314.41	2.05 N	2.51 E	1.97	0.09

Directional Survey Data

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
1343.18	0.27	148.88	1343.16	1.98 N	2.59 E	2.06	0.22
1373.25	0.24	126.95	1373.23	1.88 N	2.68 E	2.16	0.10
1402.00	0.30	107.68	1401.98	1.82 N	2.80 E	2.29	0.11
1430.54	0.66	87.99	1430.52	1.81 N	3.03 E	2.53	0.41
1459.18	0.60	82.70	1459.16	1.83 N	3.34 E	2.82	0.08
1487.74	0.57	116.20	1487.72	1.79 N	3.62 E	3.10	0.35
1544.86	0.59	114.95	1544.83	1.54 N	4.14 E	3.67	0.02
1573.59	0.54	97.04	1573.56	1.46 N	4.41 E	3.95	0.19
1602.19	0.43	108.02	1602.16	1.41 N	4.65 E	4.19	0.15
1631.00	0.69	124.85	1630.97	1.28 N	4.89 E	4.46	0.32
1688.59	0.84	172.37	1688.55	0.66 N	5.23 E	4.93	0.33
1717.50	1.15	175.09	1717.46	0.16 N	5.28 E	5.10	0.33
1746.31	1.33	177.78	1746.26	0.46 S	5.32 E	5.28	0.20
1771.77	1.71	183.22	1771.71	1.14 S	5.31 E	5.43	0.48
1801.27	1.83	193.59	1801.20	2.03 S	5.18 E	5.51	0.34
1829.67	1.85	191.49	1829.59	2.92 S	4.98 E	5.52	0.07
1859.53	2.00	189.68	1859.43	3.91 S	4.80 E	5.58	0.16
1886.70	2.12	182.09	1886.58	4.88 S	4.70 E	5.71	0.33
1913.17	1.88	179.20	1913.04	5.80 S	4.69 E	5.91	0.30
1943.38	2.08	169.63	1943.23	6.83 S	4.79 E	6.25	0.38
1970.53	2.15	161.30	1970.36	7.80 S	5.04 E	6.72	0.35
2002.66	2.18	162.43	2002.47	8.95 S	5.42 E	7.36	0.05
2031.55	2.30	163.07	2031.33	10.03 S	5.76 E	7.94	0.13
2059.86	2.41	156.94	2059.62	11.12 S	6.15 E	8.58	0.29
2088.00	2.15	158.77	2087.74	12.15 S	6.58 E	9.23	0.29
2116.02	2.17	149.89	2115.74	13.10 S	7.03 E	9.90	0.36
2176.47	1.96	136.28	2176.15	14.84 S	8.32 E	11.55	0.26
2205.27	2.09	136.58	2204.93	15.58 S	9.02 E	12.41	0.13
2234.28	1.80	118.62	2233.92	16.18 S	9.78 E	13.29	0.69
2262.36	1.77	112.23	2261.99	16.55 S	10.57 E	14.14	0.21
2319.97	1.35	98.17	2319.58	16.99 S	12.07 E	15.70	0.29
2348.57	1.20	81.03	2348.17	16.99 S	12.70 E	16.31	0.43
2377.25	1.24	77.36	2376.85	16.87 S	13.30 E	16.87	0.09
2405.89	0.86	73.76	2405.48	16.74 S	13.81 E	17.33	0.40
2434.61	0.82	69.48	2434.20	16.61 S	14.21 E	17.69	0.08
2463.45	0.68	71.56	2463.04	16.48 S	14.57 E	18.01	0.16
2492.41	0.81	69.68	2491.99	16.36 S	14.92 E	18.32	0.14
2546.50	0.52	57.73	2546.08	16.09 S	15.49 E	18.81	0.18
2576.79	0.69	53.30	2576.37	15.91 S	15.75 E	19.03	0.17
2607.25	1.04	24.25	2606.82	15.55 S	16.01 E	19.20	0.54

Directional Survey Data

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
2635.53	1.27	21.76	2635.10	15.03 S	16.23 E	19.29	0.25
2664.67	1.48	19.52	2664.23	14.37 S	16.48 E	19.37	0.22
2693.52	1.47	19.44	2693.07	13.67 S	16.72 E	19.45	0.01
2705.88	1.52	22.17	2705.43	13.37 S	16.84 E	19.49	0.21
2712.30	1.49	18.24	2711.84	13.21 S	16.90 E	19.51	0.50
2741.40	1.94	16.75	2740.93	12.38 S	17.16 E	19.57	0.47
2770.20	2.12	14.28	2769.71	11.40 S	17.43 E	19.61	0.21
2799.25	2.30	13.41	2798.74	10.31 S	17.70 E	19.61	0.19
2827.82	2.76	14.38	2827.28	9.09 S	18.00 E	19.62	0.49
2855.28	2.92	15.44	2854.71	7.77 S	18.35 E	19.66	0.18
2880.32	3.28	15.63	2879.71	6.47 S	18.71 E	19.71	0.42
2914.00	3.28	15.63	2913.34	4.61 S	19.23 E	19.78	0.00

Directional Survey Data

CALCULATION BASED ON Minimum Curvature METHOD

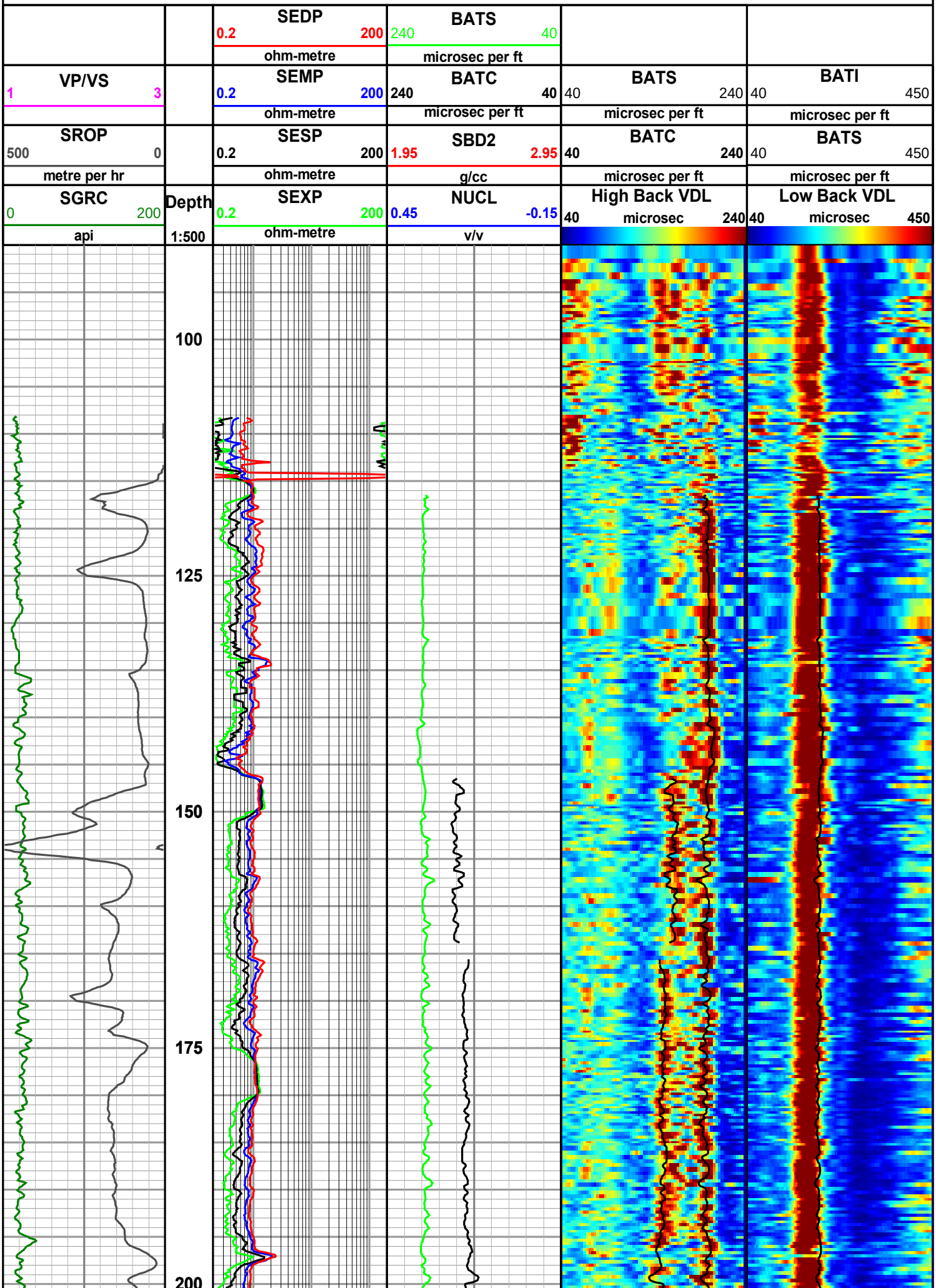
SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

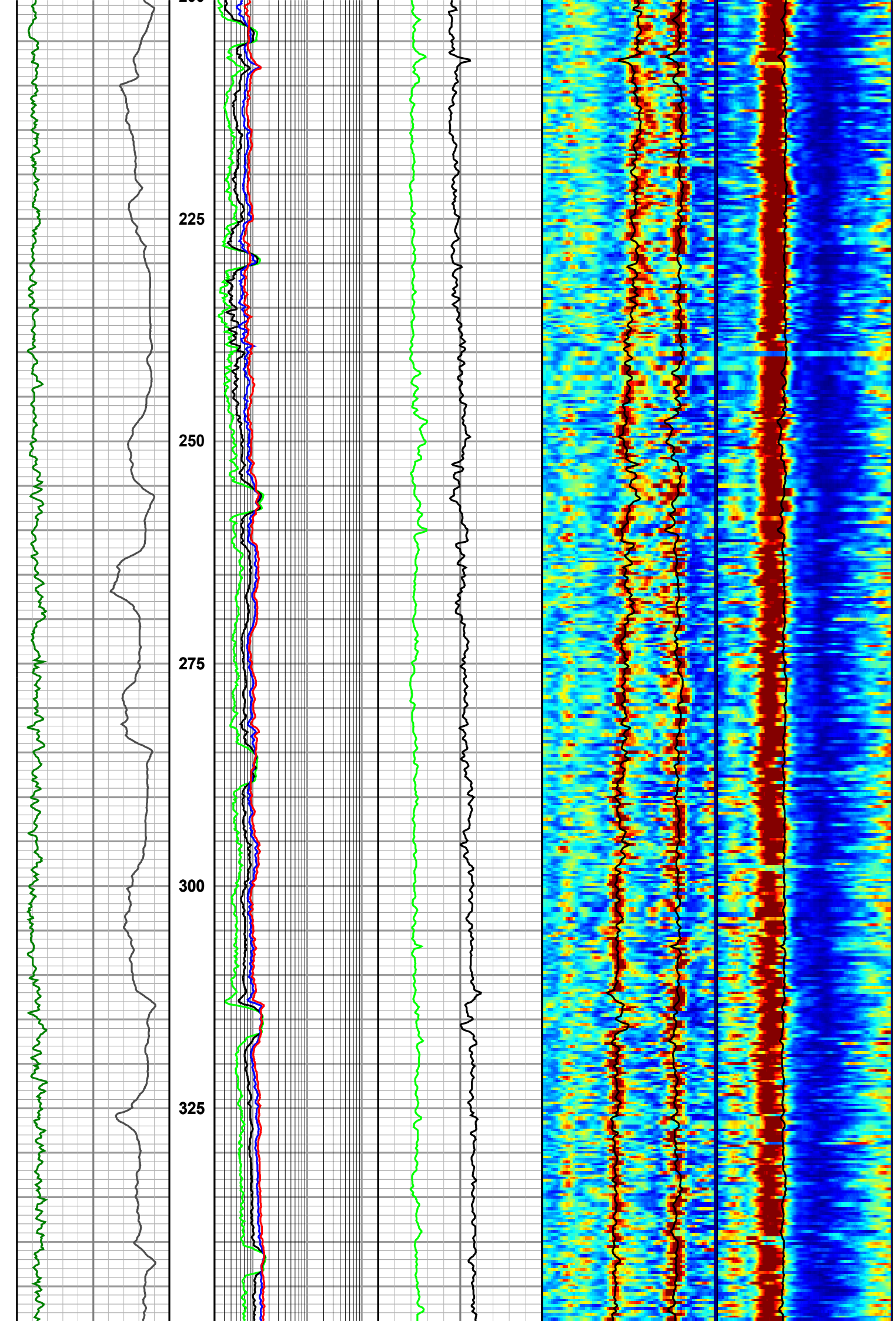
VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG CLOSURE OF 103.49 DEGREES (GRID)
A TOTAL CORRECTION OF 13.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 2914.00 METRES
IS 19.78 METRES ALONG 103.49 DEGREES (GRID)

Final survey has been projected to TD.
RT-AHD=21.5m

Grayling-1A BAT QC

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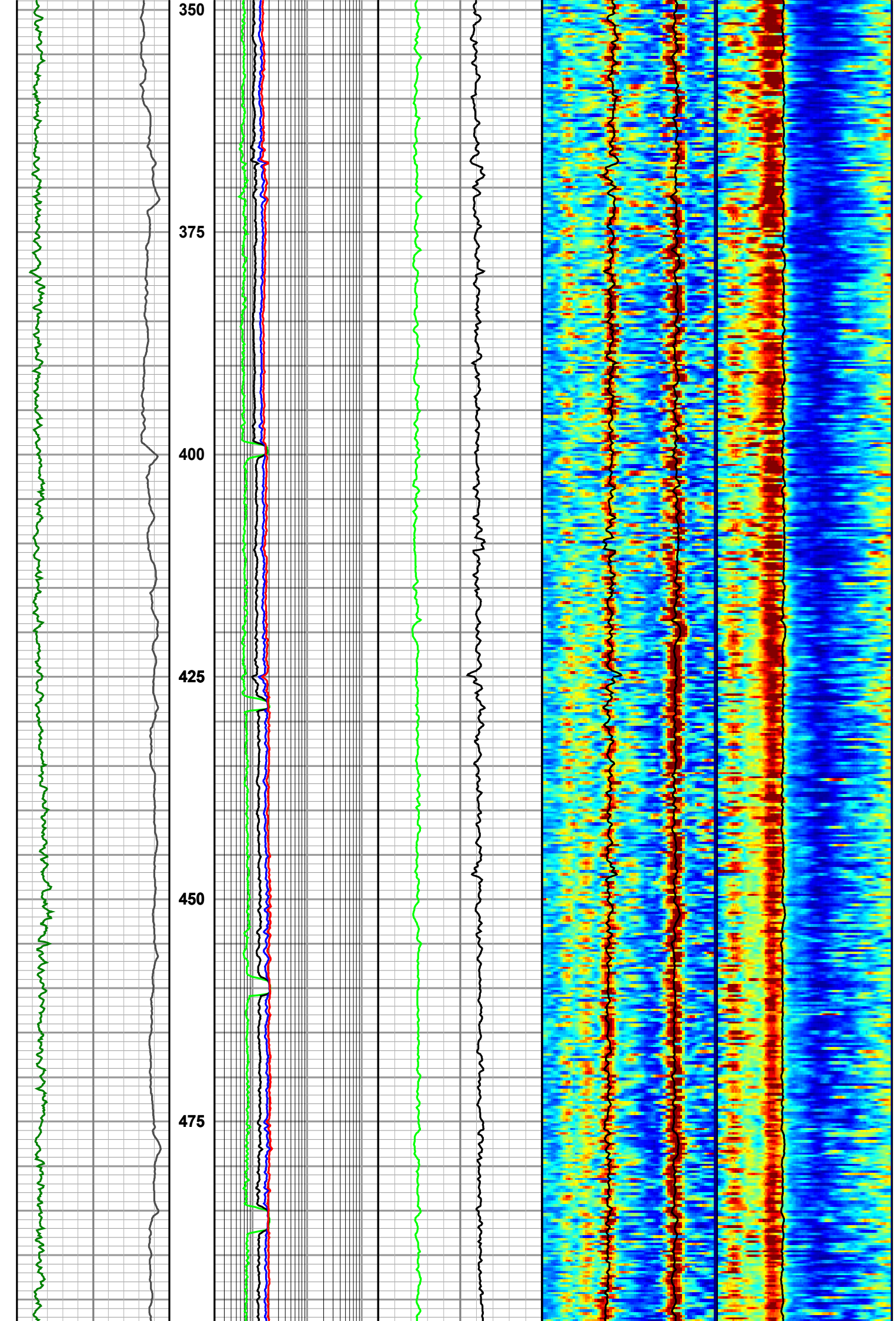
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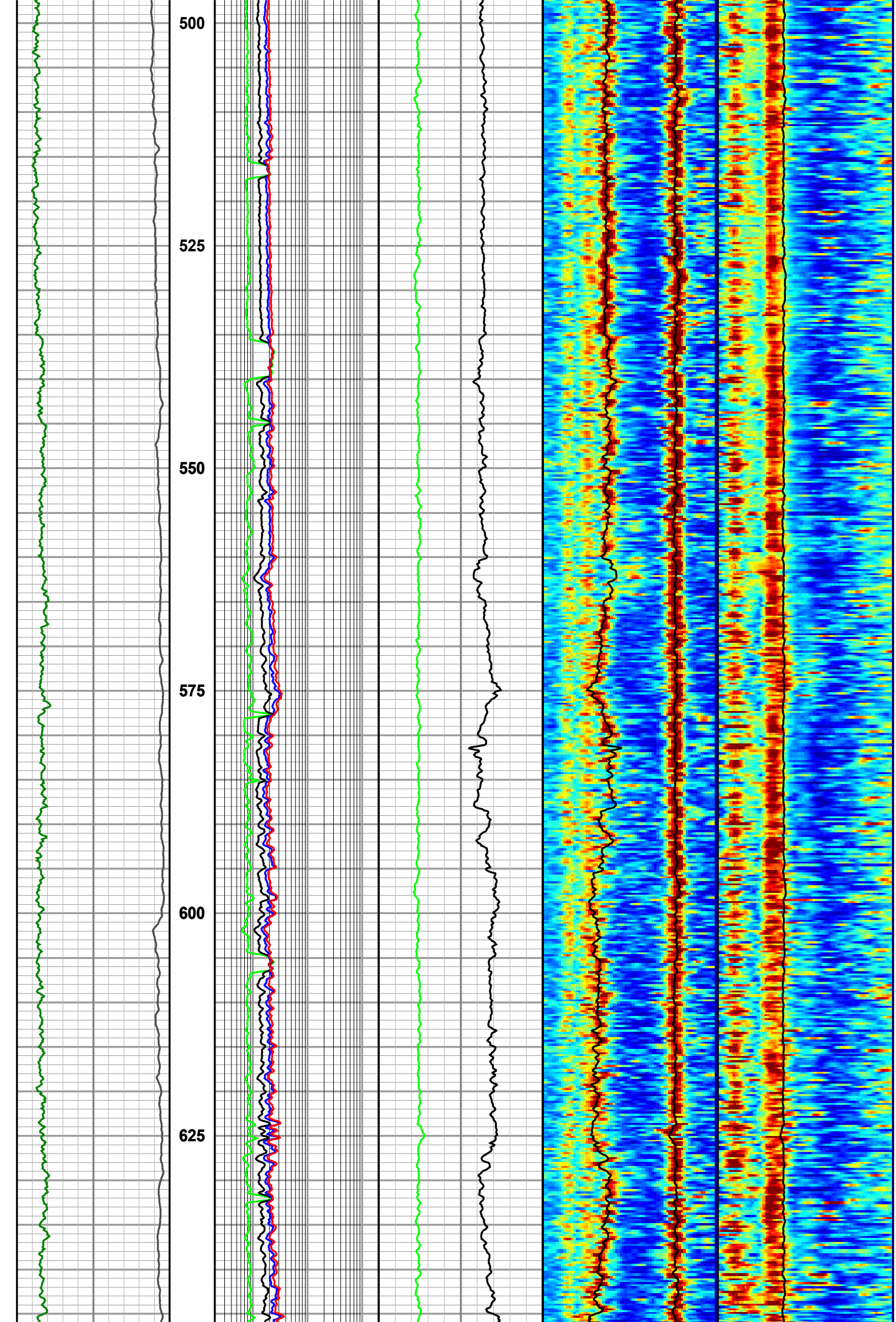
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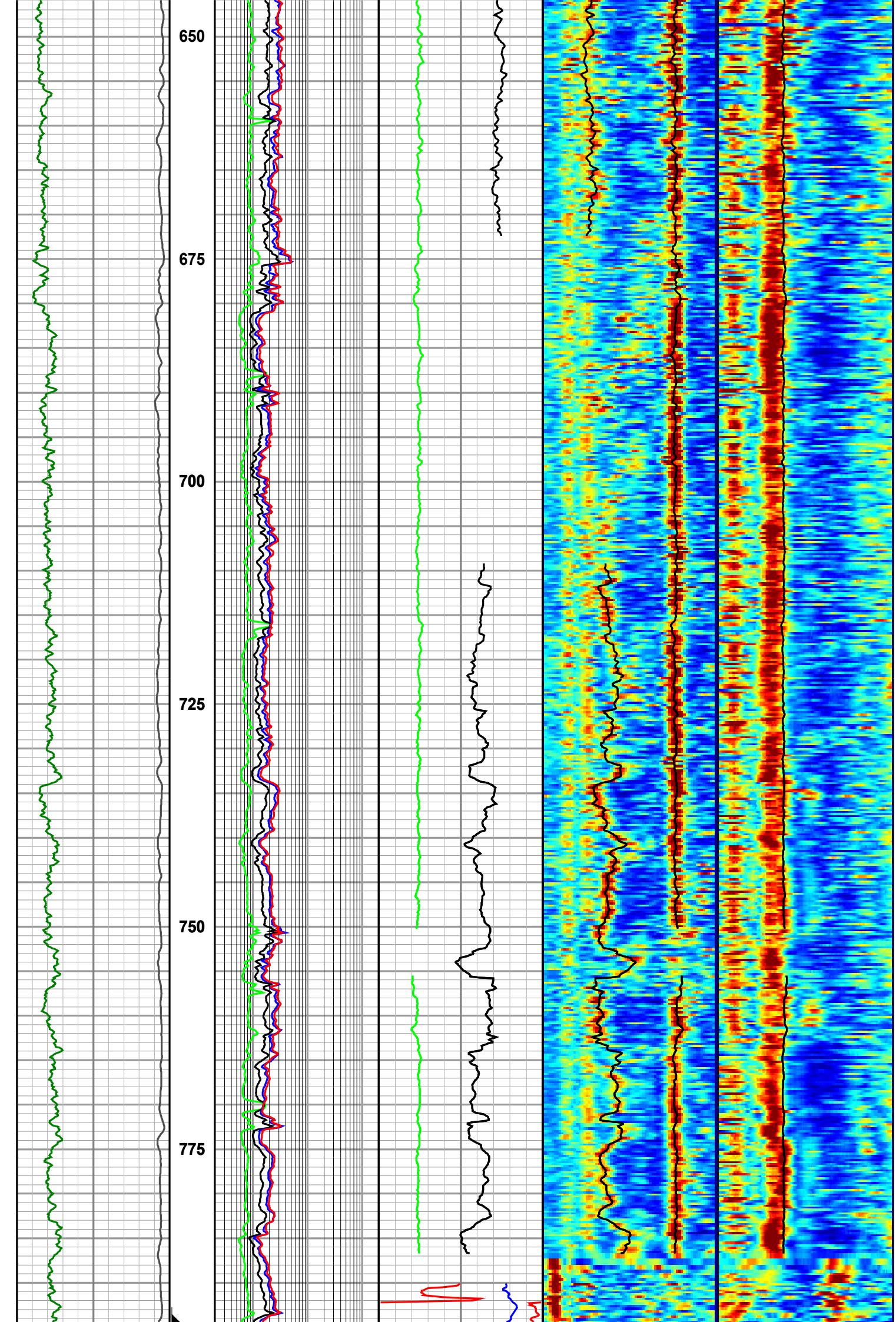
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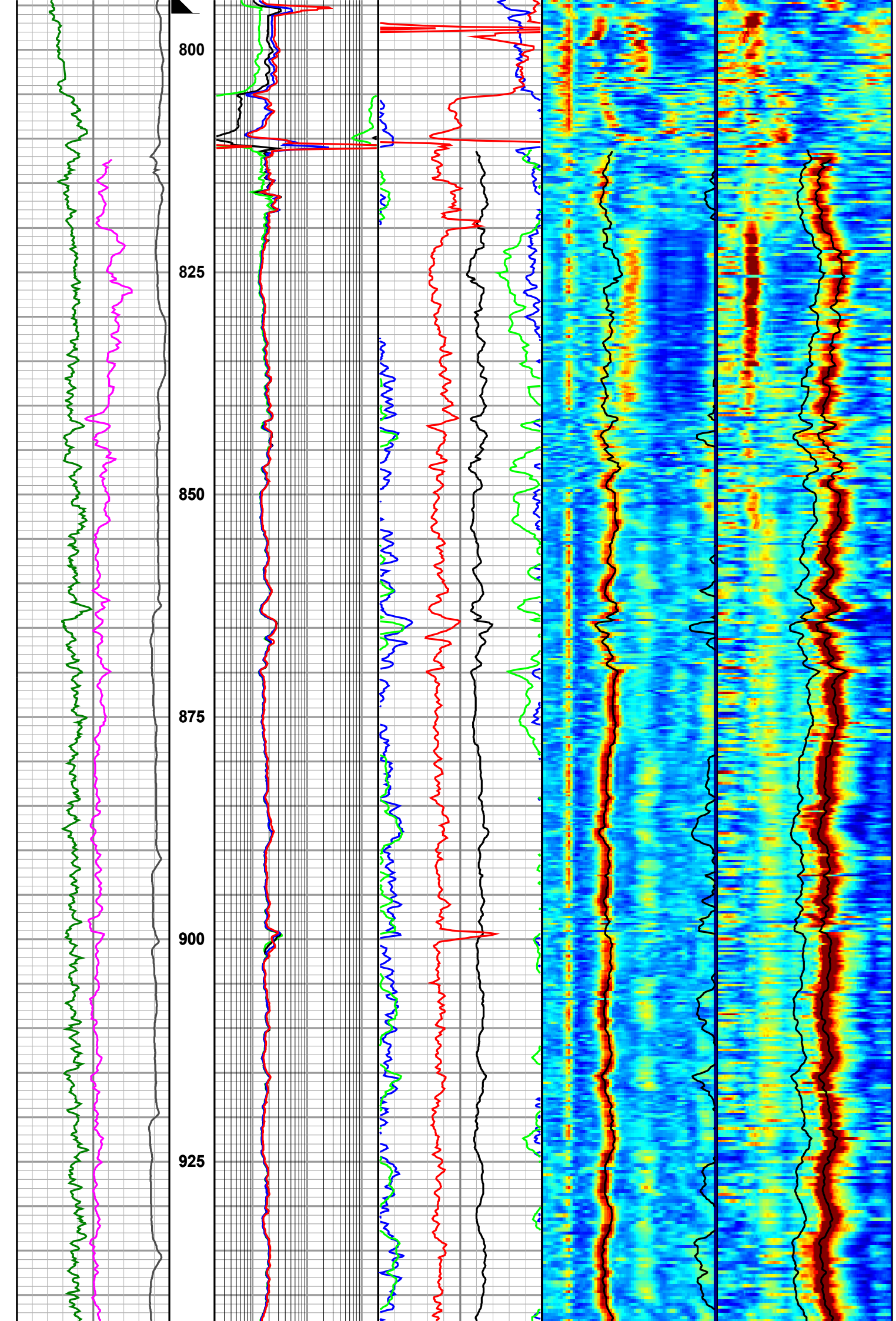
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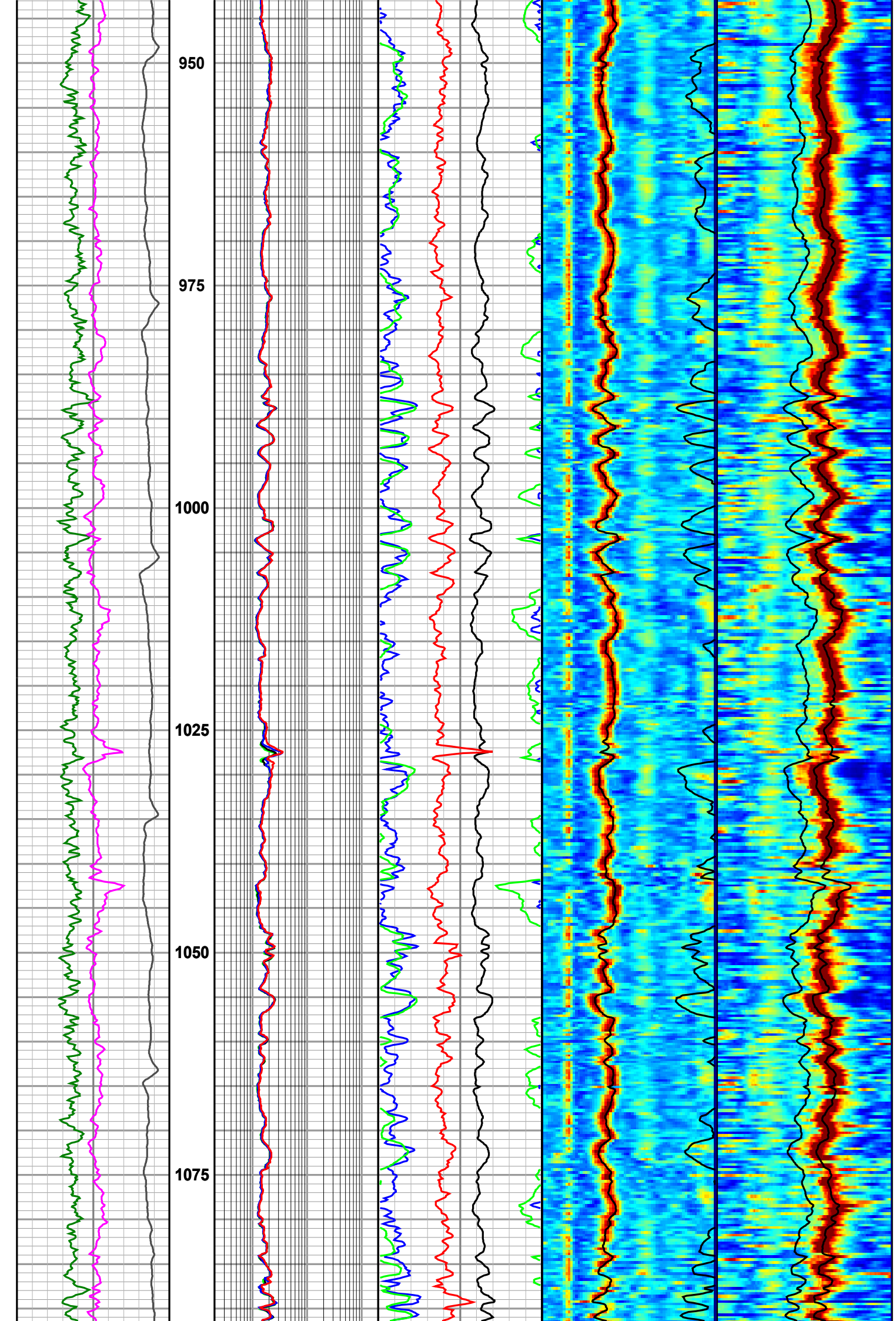
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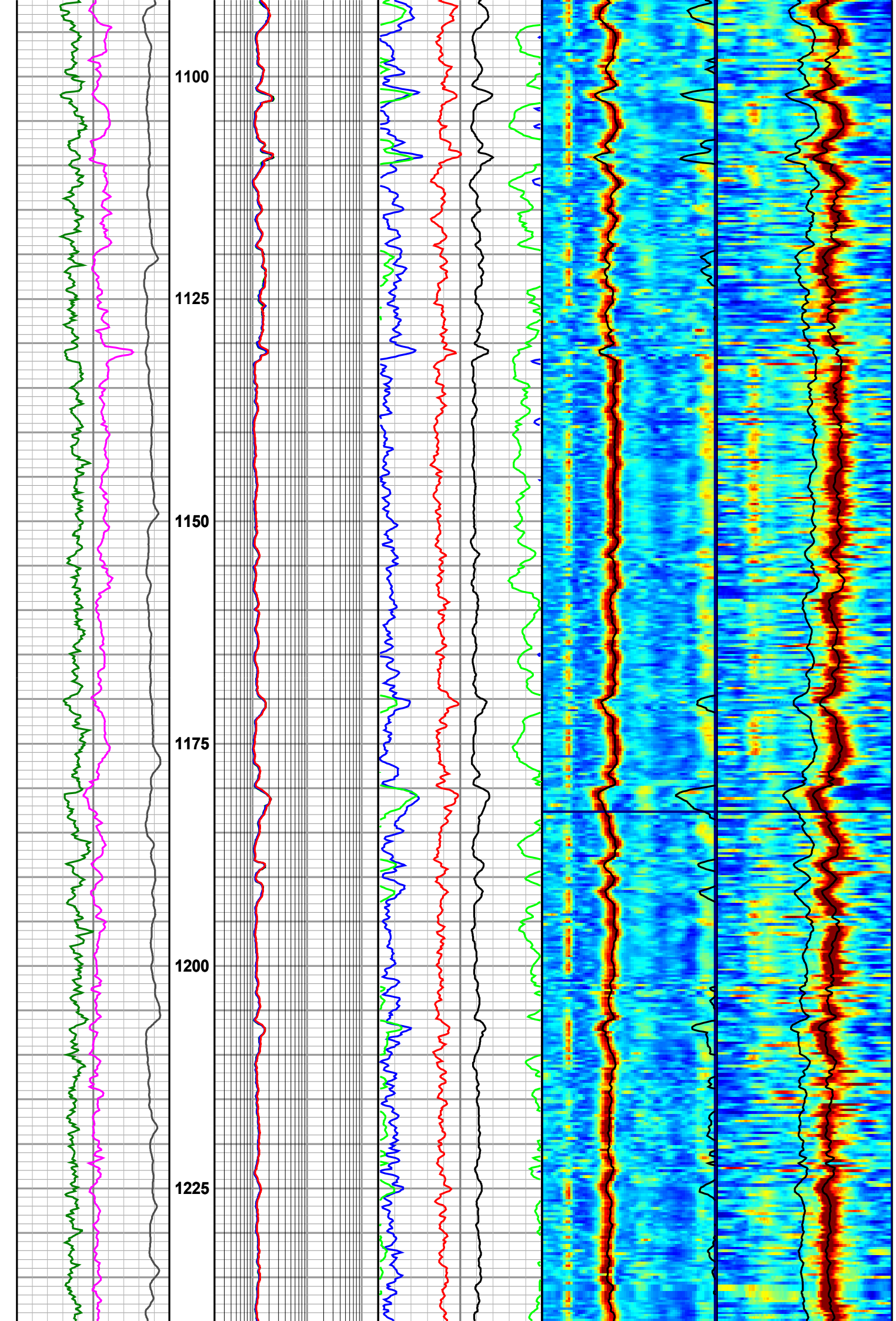
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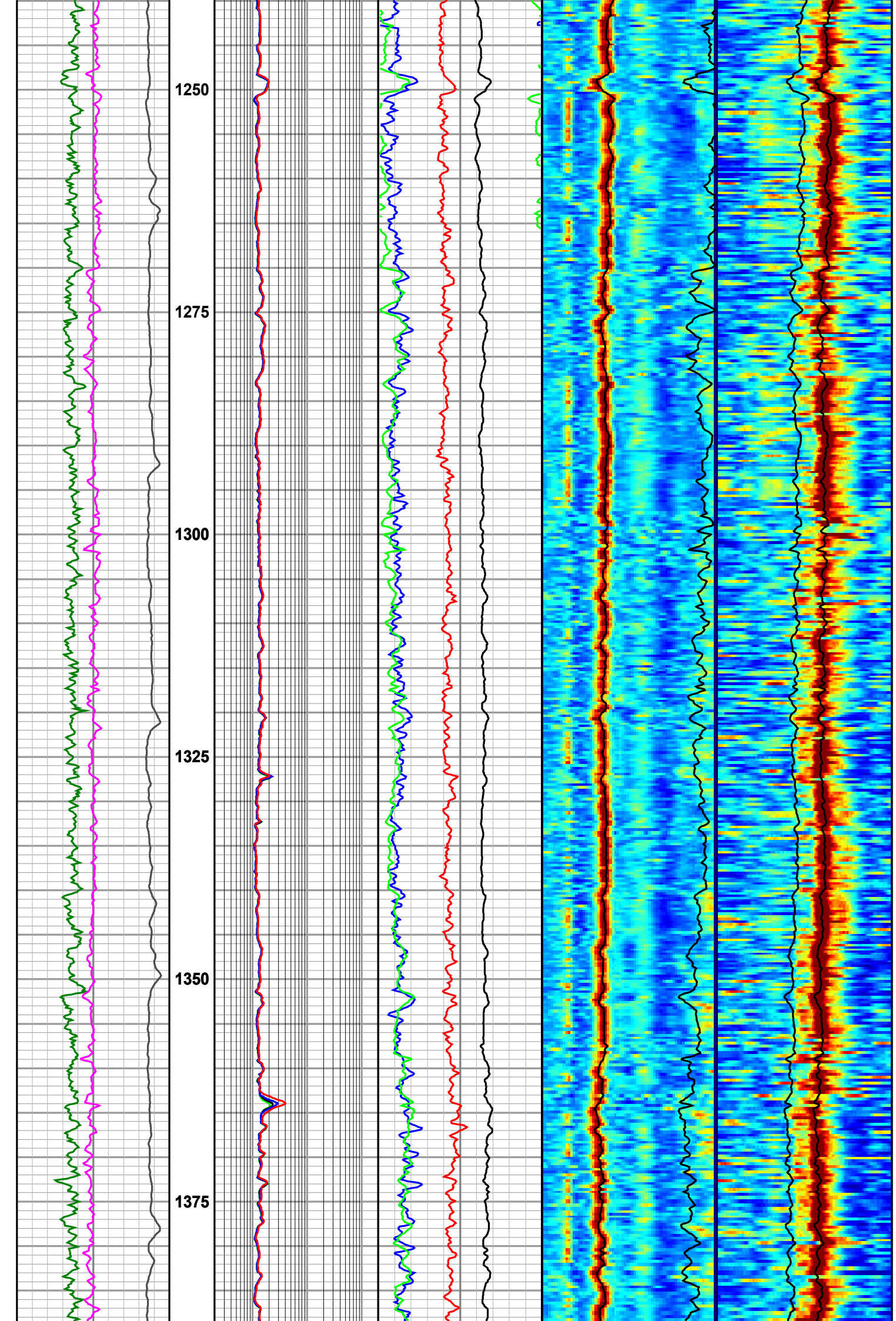
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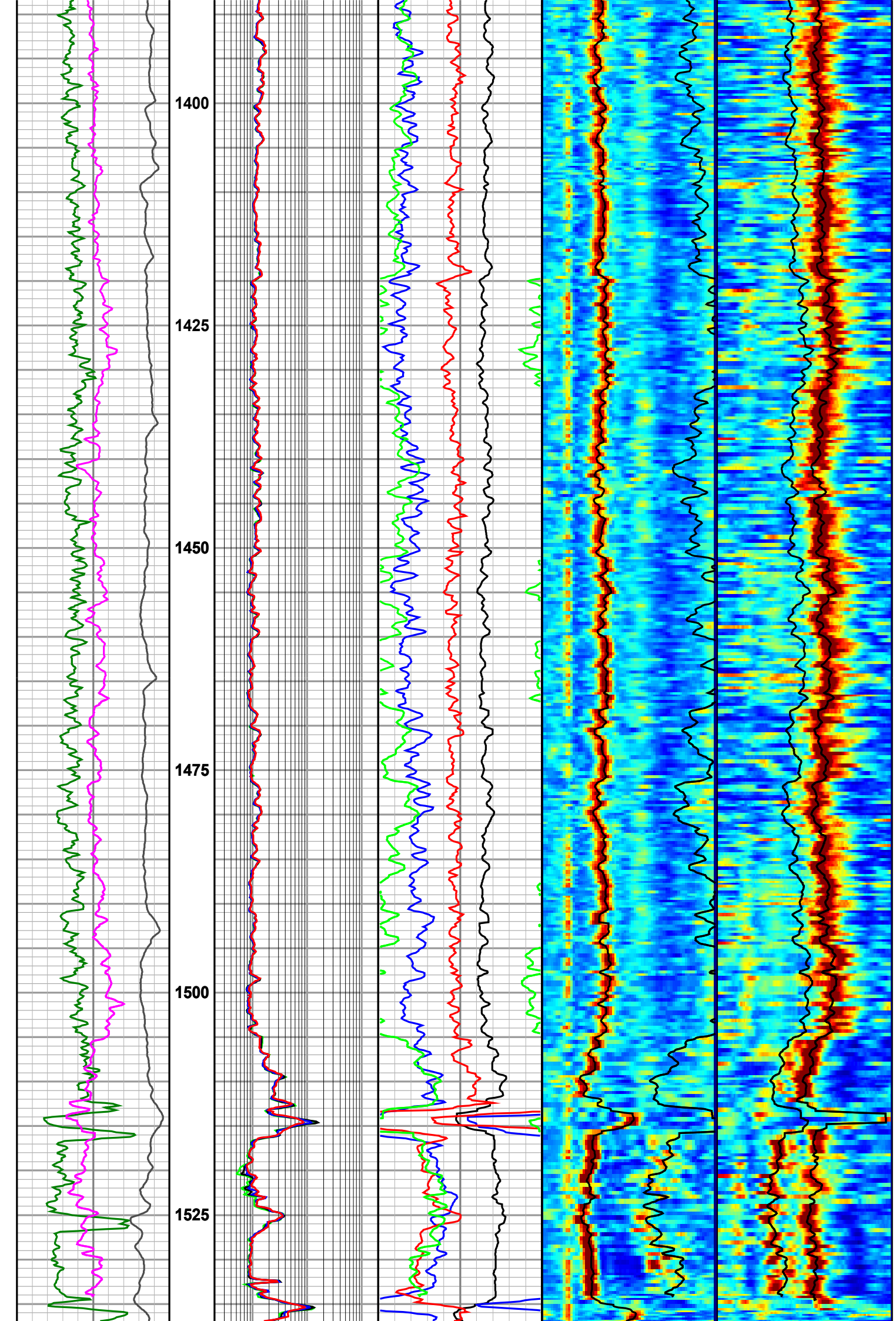
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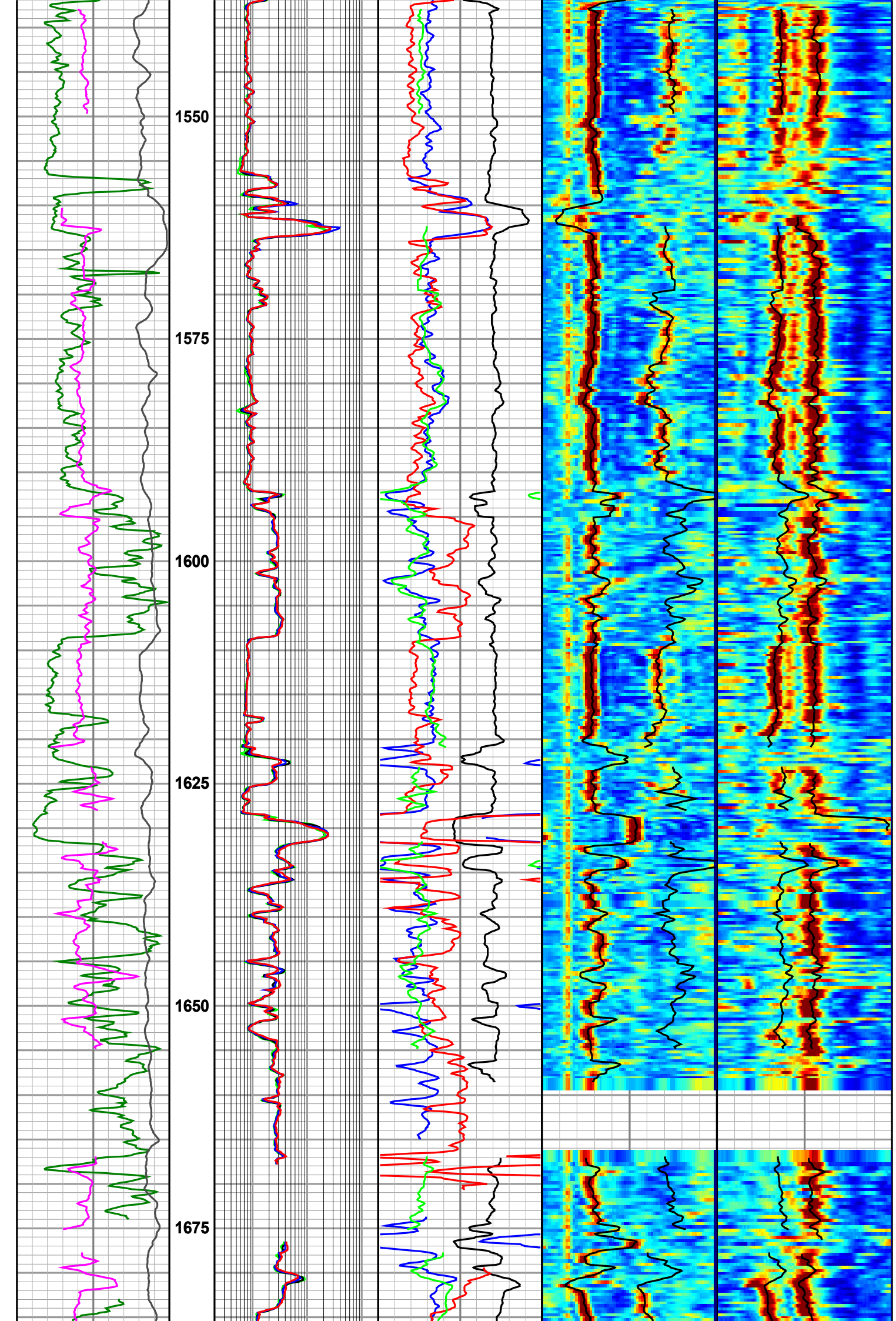
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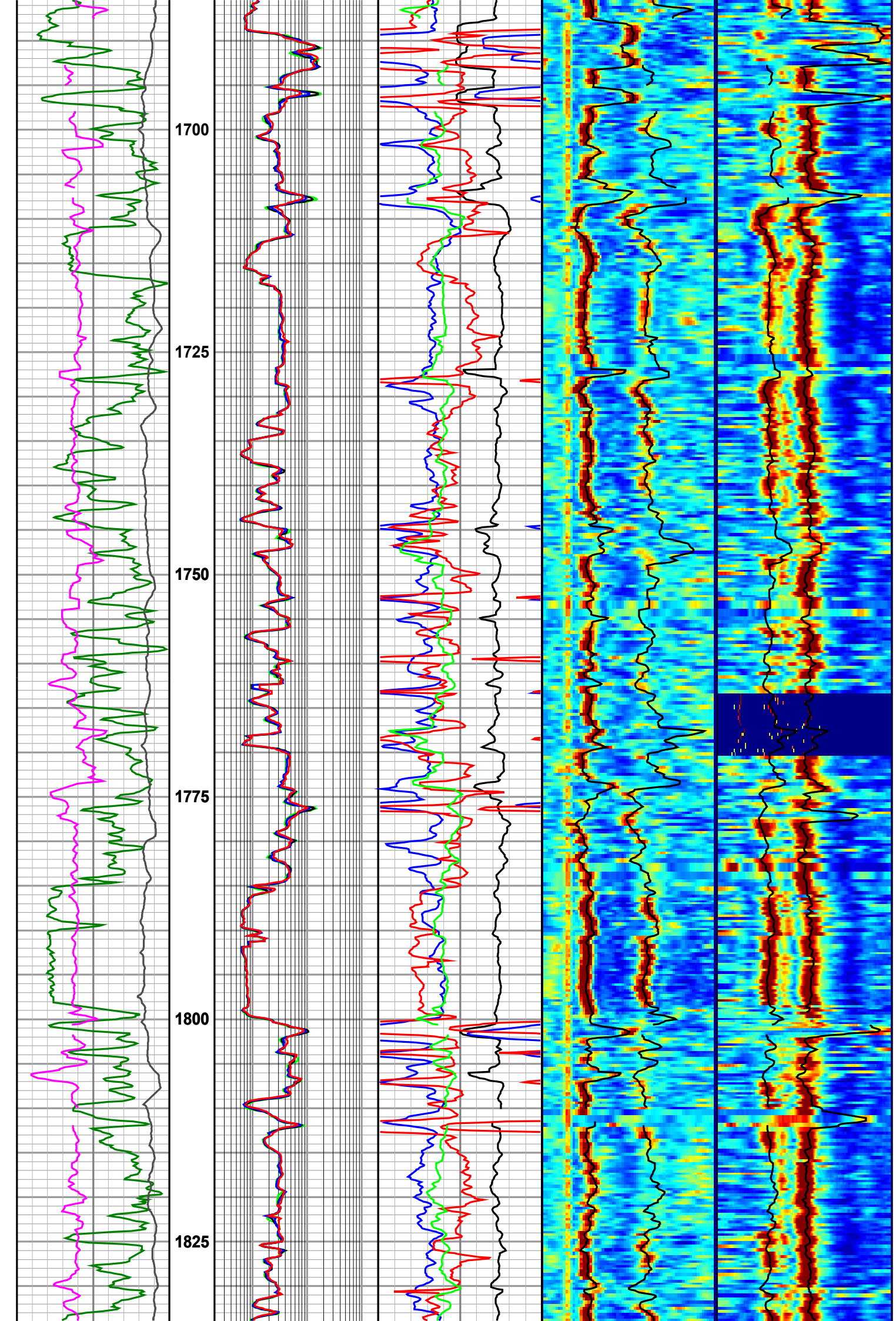
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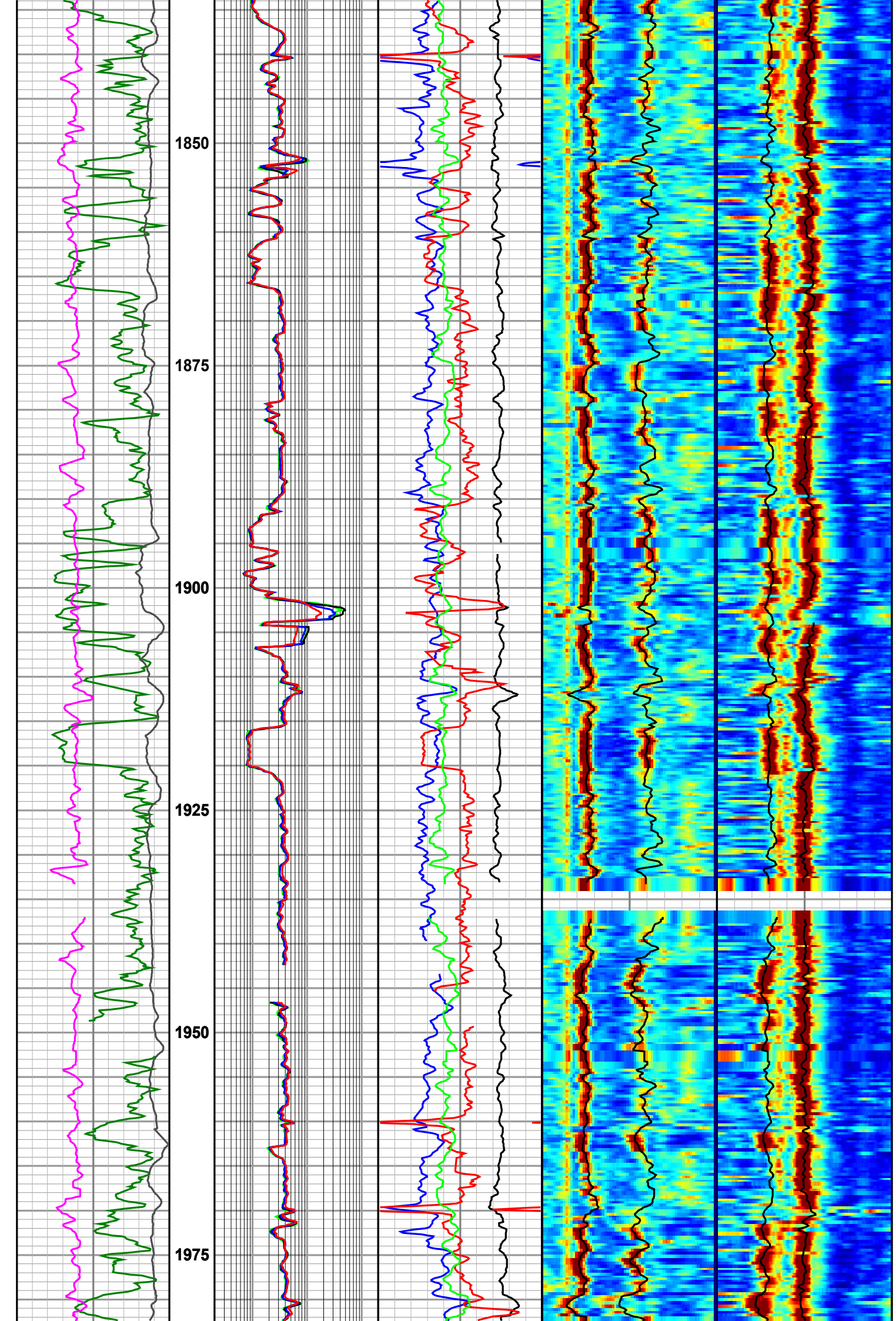
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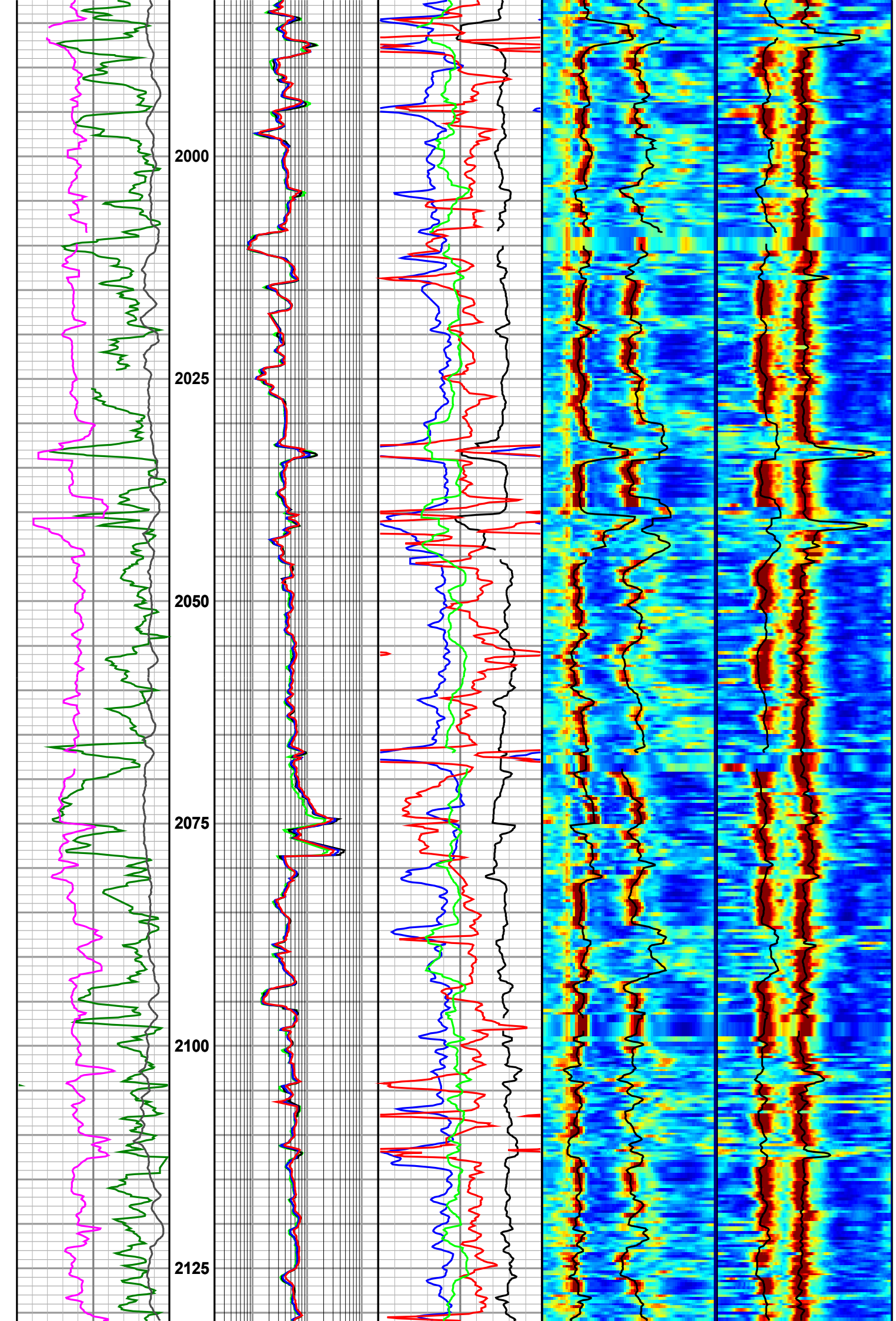
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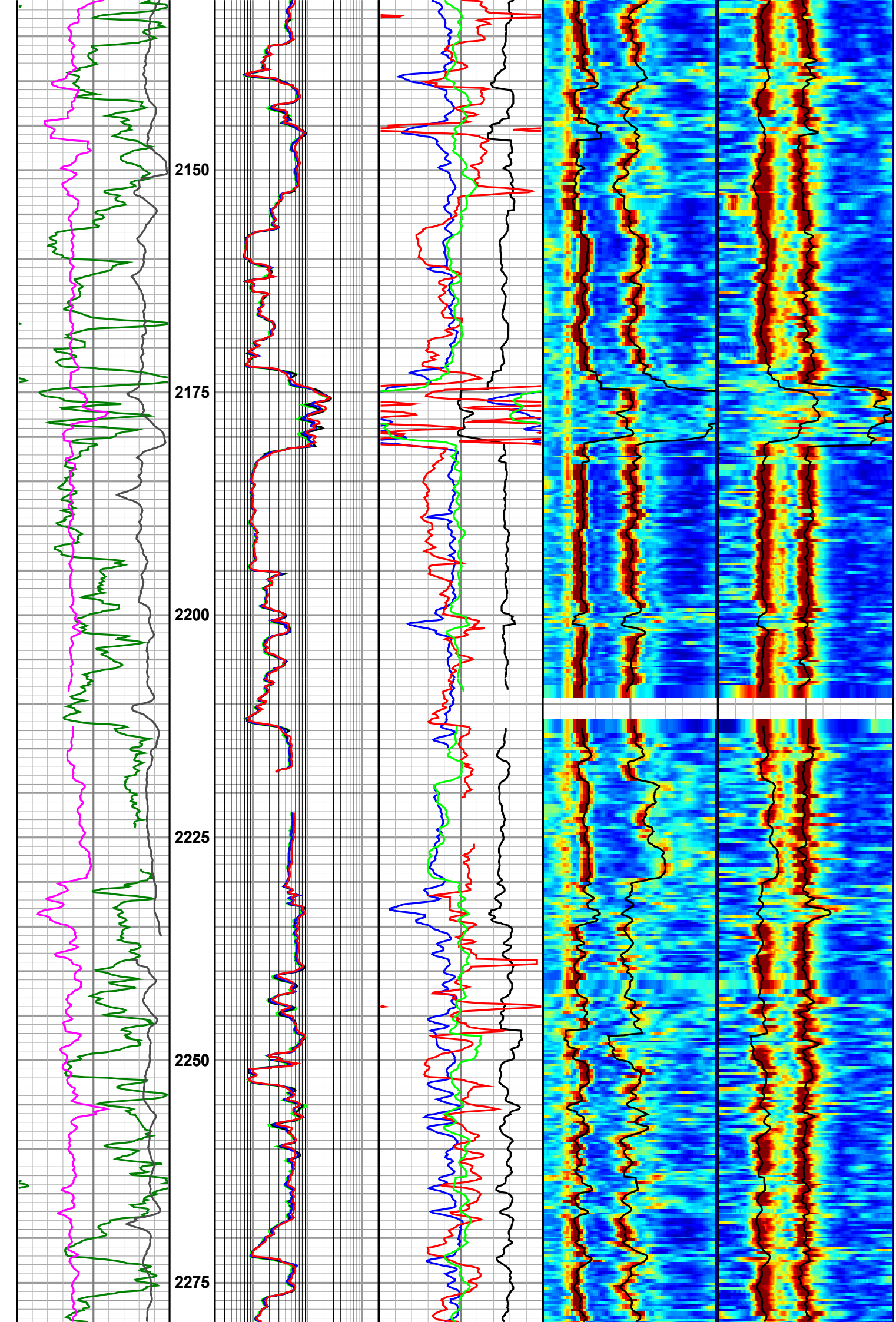
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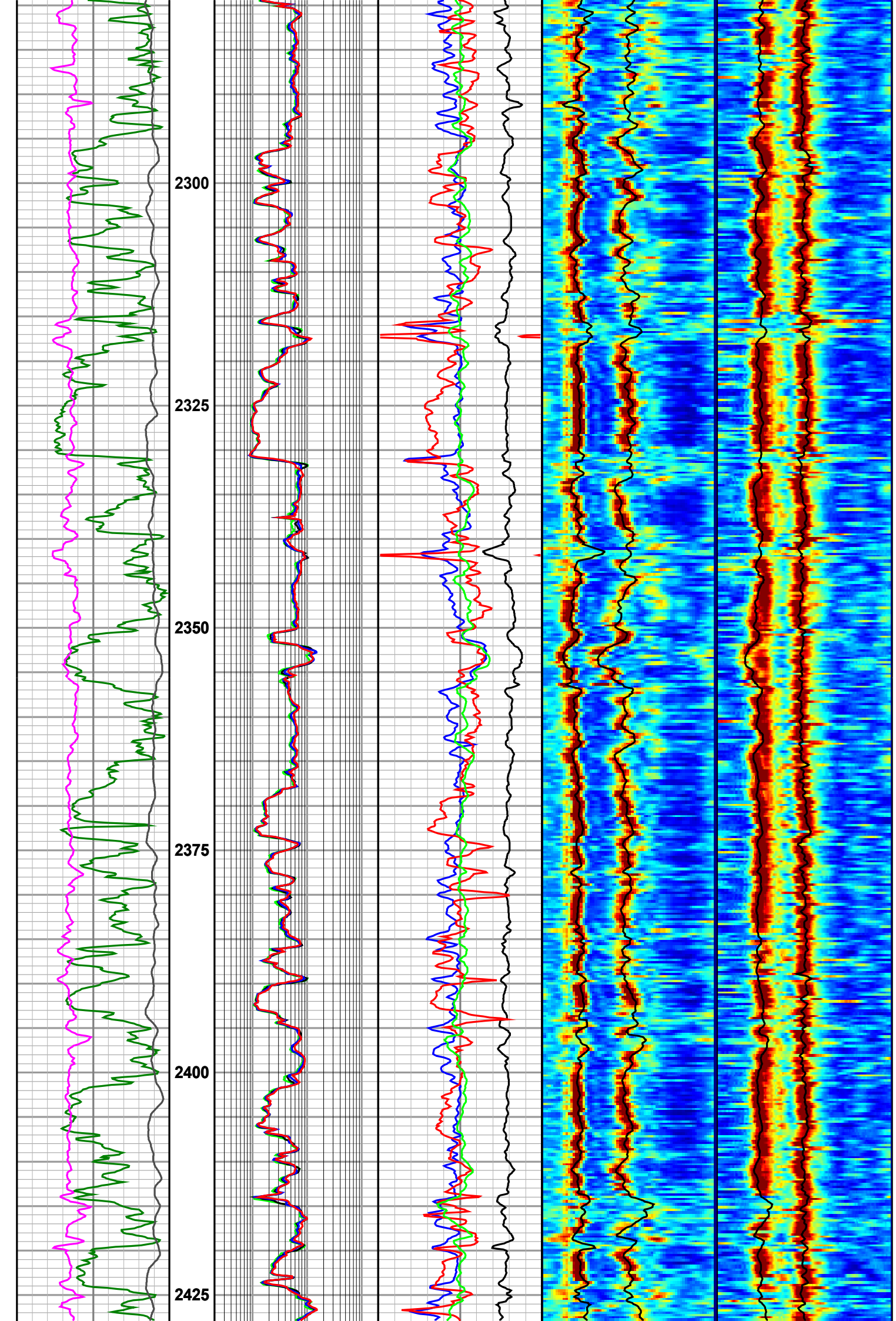
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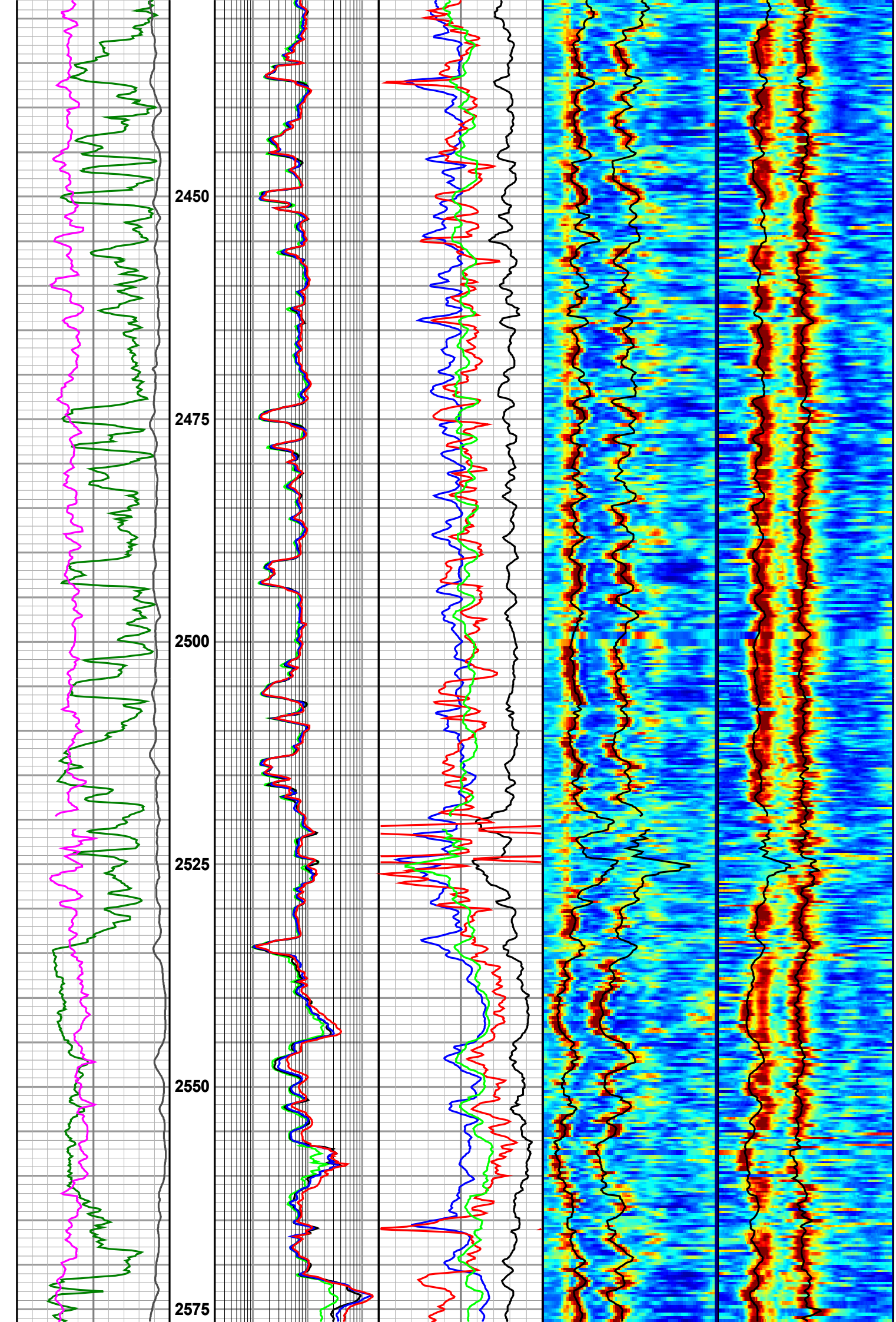
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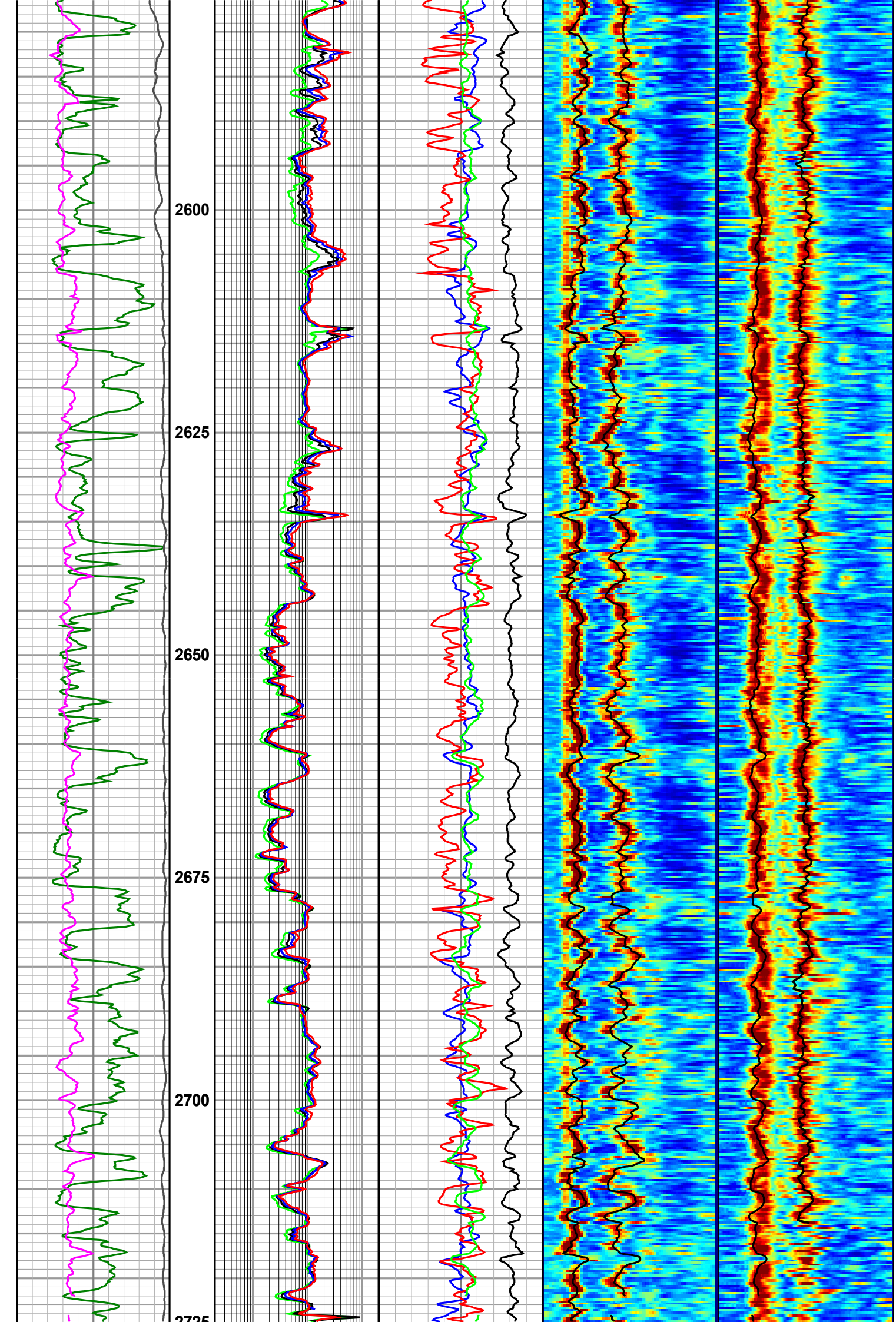
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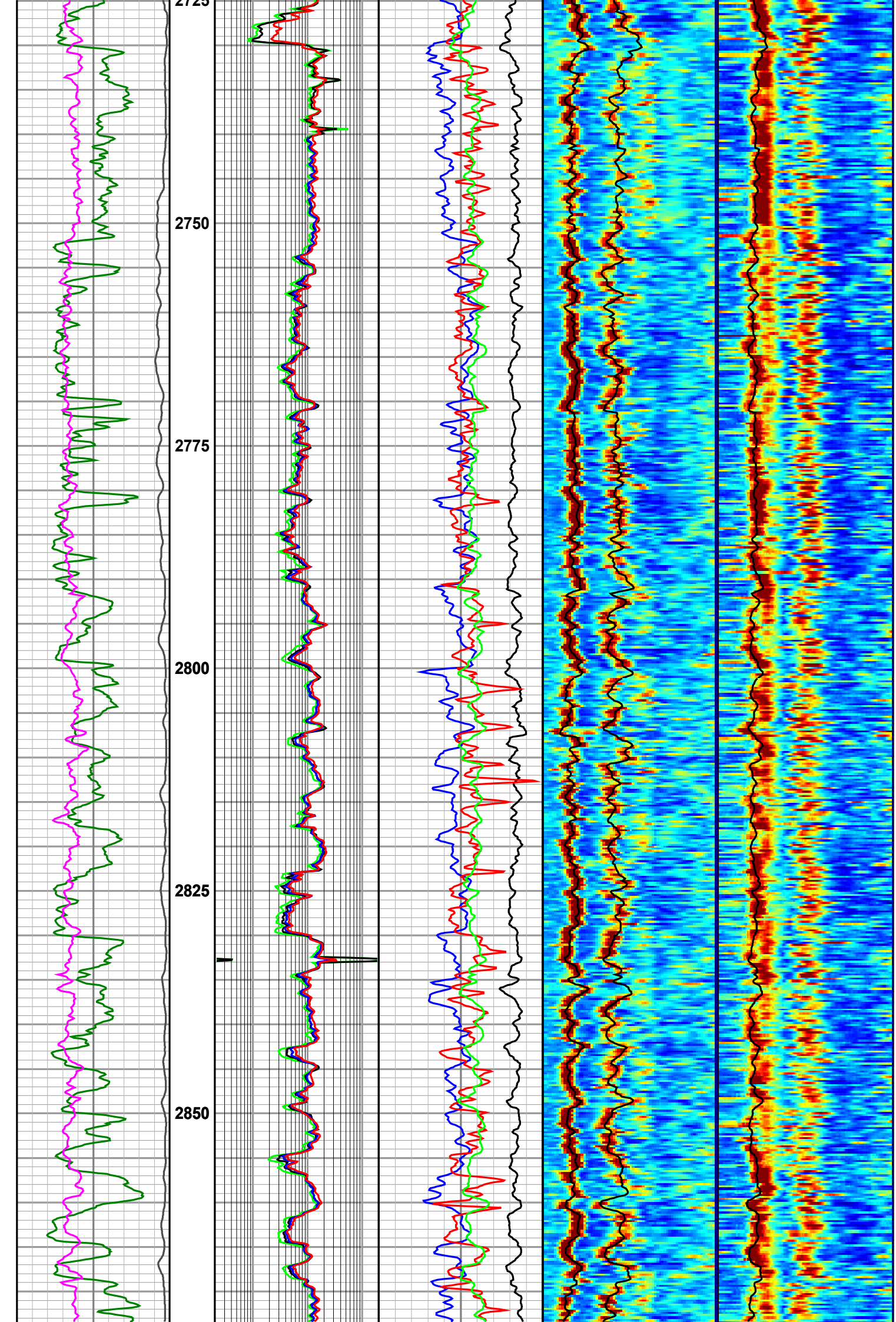
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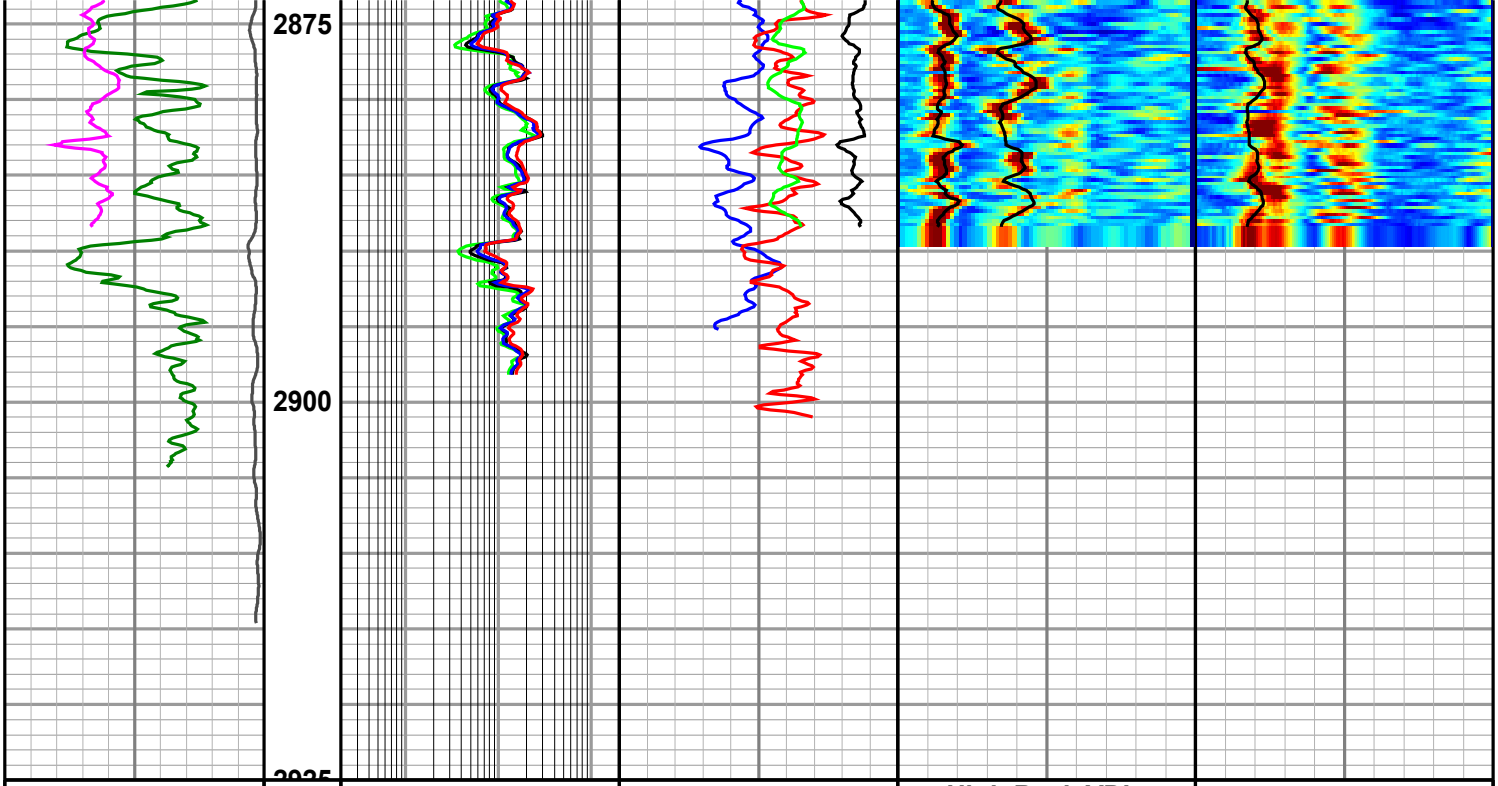


SGRC	Depth	SEXP	NUCL	High Back VDL	Low Back VDL
0 200		0.2 200	0.45 -0.15	40 microsec 240	40 microsec 450
api	1:500	ohm-metre	v/v		

SROP		SESP	SBD2	BATC	BATS
500 0		0.2 200	1.95 2.95	40 240	40 450
metre per hr		ohm-metre	g/cc	microsec per ft	microsec per ft

VP/VS		SEMP	BATC	BATS	BATI
1 3		0.2 200	240 40	40 240	40 450
		ohm-metre	microsec per ft	microsec per ft	microsec per ft

		SEDP	BATS
		0.2 200	240 40
		ohm-metre	microsec per ft

Grayling-1A BAT QC

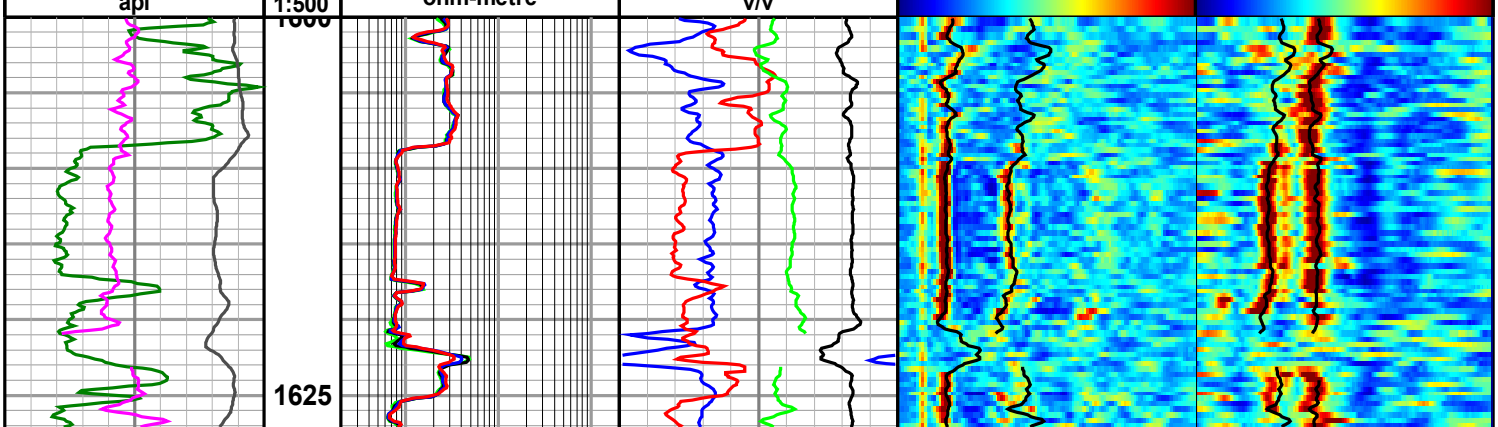
Re-processed VDLs

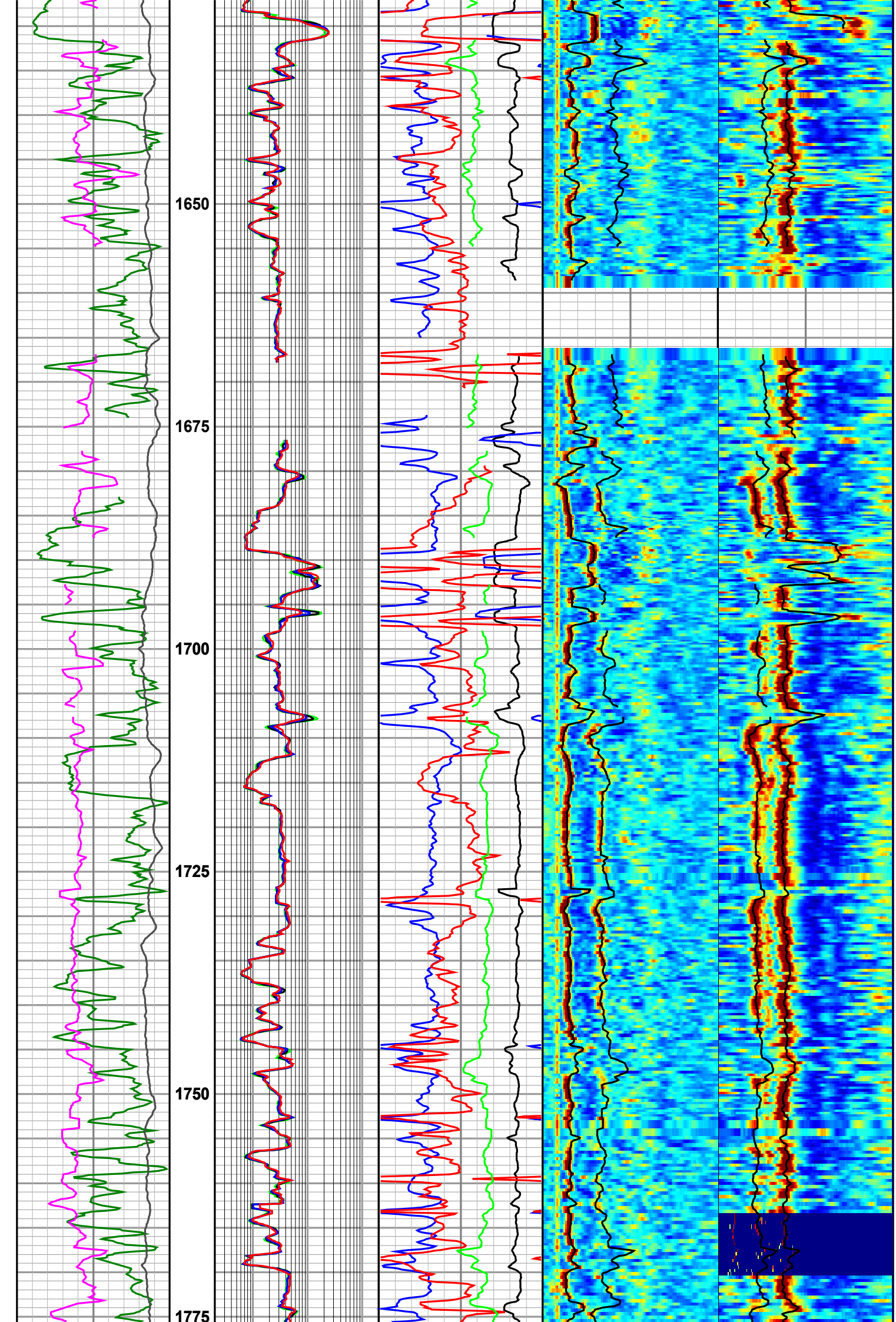
		SEDP	BATS		
		0.2 200	400 40		
		ohm-metre	microsec per ft		

VP/VS		SEMP	BATC	BATS	BATI
1 3		0.2 200	400 40	40 400	40 600
		ohm-metre	microsec per ft	microsec per ft	microsec per ft

SROP		SESP	SBD2	BATC	BATS
500 0		0.2 200	1.95 2.95	40 400	40 600
metre per hr		ohm-metre	g/cc	microsec per ft	microsec per ft

SGRC	Depth	SEXP	NUCL	High Back VDL	Low Back VDL
0 200		0.2 200	0.45 -0.15	40 microsec 400	40 microsec 600
api	1:500	ohm-metre	v/v		

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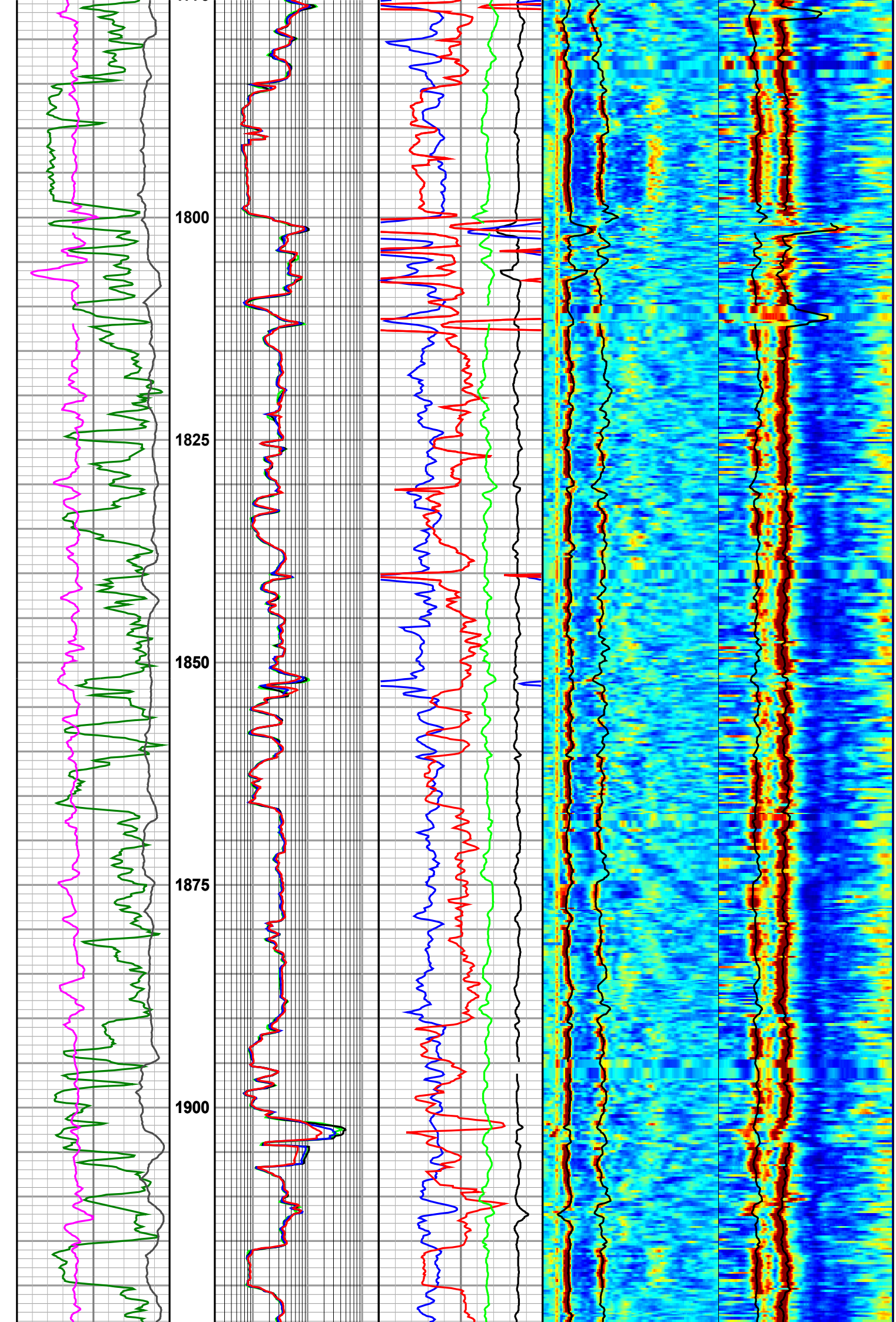
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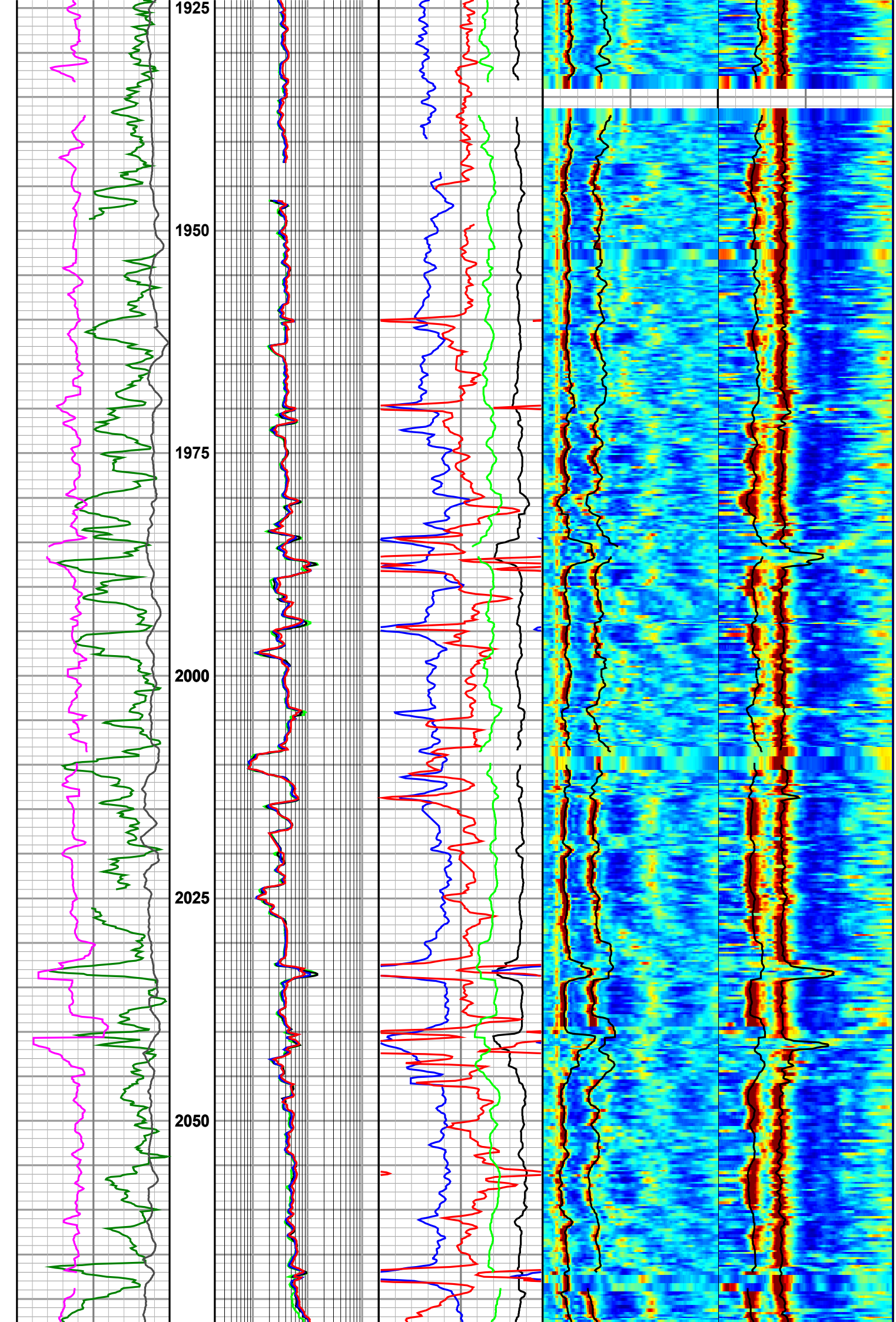
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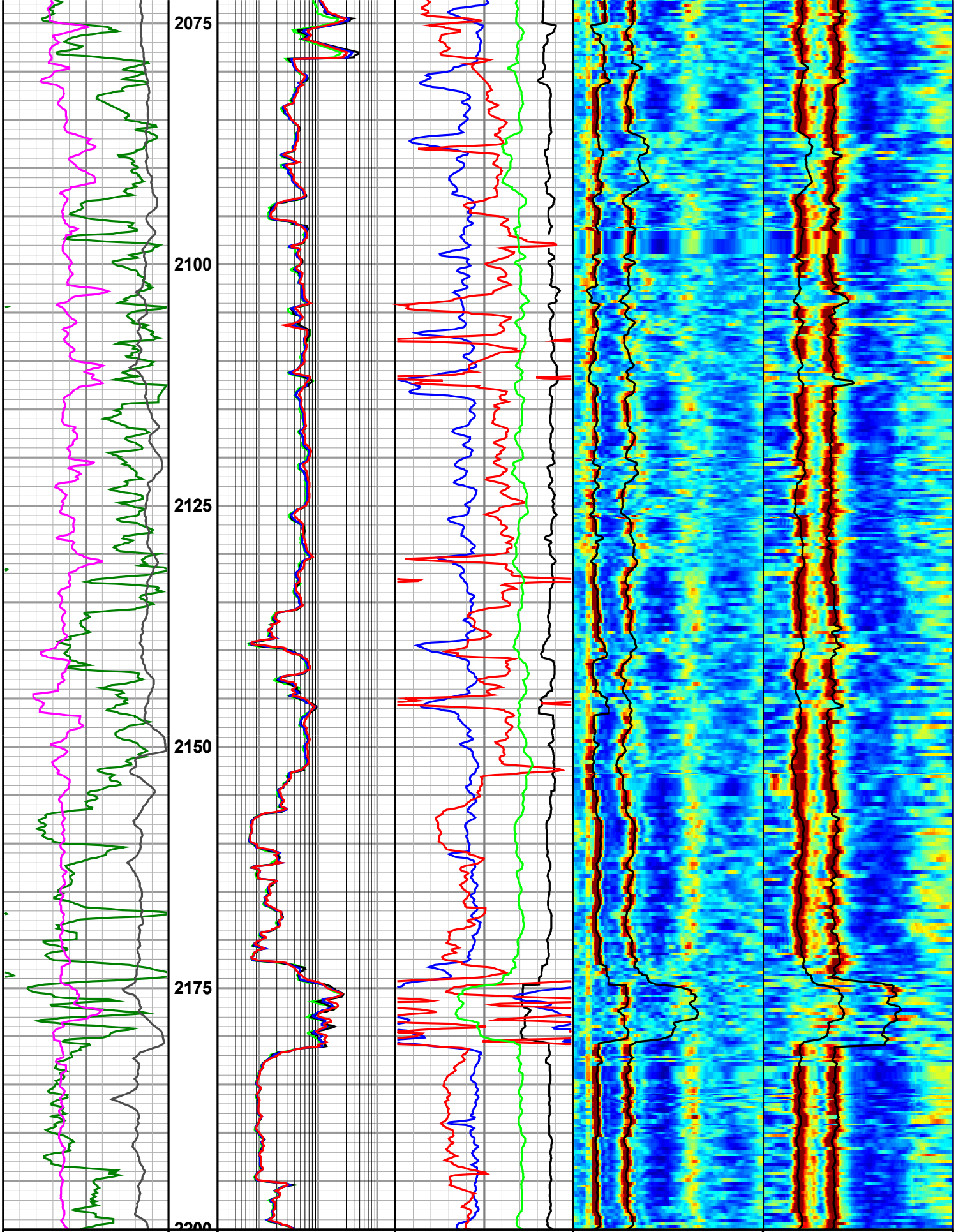

SGRC	Depth	SEXP	NUCL	High Back VDL	Low Back VDL
0 200		0.2 200	0.45 -0.15	40 microsec 400	40 microsec 600
api	1:500	ohm-metre	v/v		
SROP		**SESP**	**SBD2**	**BATC**	**BATS**
500 0		0.2 200	1.95 2.95	40 400	40 600
metre per hr		ohm-metre	g/cc	microsec per ft	microsec per ft
VP/VS		**SEMP**	**BATC**	**BATS**	**BATI**
1 3		0.2 200	400 40	40 400	40 600
		ohm-metre	microsec per ft	microsec per ft	microsec per ft
		SEDP	**BATS**		

		0.2 200 ohm-metre	400 40 microsec per ft		

Sperry Drilling Services

1 : 200

MWD

EWR Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
BAT Bi-modal Acoustic Sonic
ACAL Acoustic Caliper
SLD Stabilized Litho-Density
CNP Compensated Neutron Porosity

Country : **Australia**
Field : **Exploration**
Location : **Lat: 38° 9' 40.280" South**
Long: 148° 17' 34.730" East
Well : **Grayling-1A**
Company : **Apache Energy Ltd**
Rig : **Ocean Patriot**

Company : **Apache Energy Ltd**
Rig : **Ocean Patriot**
Well : **Grayling-1A**
Field : **Exploration**
Country : **Australia**
DOE Number :

LOCATION
Latitude : **Lat: 38° 9' 40.280" South**
Longitude : **Long: 148° 17' 34.730" East**
UTM Easting = **613,273.61 m**
UTM Northing = **5,775,510.58 m**

Other Services
Surface Data Logging

Permanent Datum : **AHD** Elevation : **0.00 m**
Log Measured From : **Drill Floor** **21.50 m** Above Permanent Datum
Drilling Measured From : **Drill Floor**

MD LOG

Elev. KB
DF **21.50 m**
GL
WD **58.50 m**

Depth Logged : **114.00 m** To **2,914.00 m**
Date Logged : **29-Dec-04** To **13-Jan-05**
Total Depth MD : **2,914.00 m** TVD : **2,913.34 m**
Spud Date : **28-Dec-04**

Unit No. : **174**
Job No. : **AU-FE-0003471409**
Plot Type : **Final**
Plot Date : **17-May-05**

Run No.	Borehole Record (MD) Size	From	To
2	406.000 mm	114.00 m	810.00 m
3	216.000 mm	810.00 m	2,740.00 m
4	216.000 mm	2,740.00 m	2,914.00 m

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD) Size	Weight	From	To
762.000 mm	458.00 kgpm	80.00 m	112.30 m
340.000 mm	101.00 kgpm	80.00 m	796.20 m

WELL INFORMATION

MWD Run Number	200	300	400		
Date run completed	30-Dec-04	09-Jan-05	13-Jan-05		
Rig Bit Number	2	3	4		
Bit Size (mm)	406	216	216		
Tool Nominal OD (mm)	203	171	171		
Log Start Depth (MD, m)	114.00	810.00	2,740.00		
Log End Depth (MD, m)	810.00	2,740.00	2,914.00		
Drill or Wipe	Drilling	Drilling	Drilling		
Drill/Wipe Start Date and Time	29-Dec-04 11:30	05-Jan-05 21:33	11-Jan-05 00:37		
Drill/Wipe End Date and Time	30-Dec-04 14:30	08-Jan-05 22:17	11-Jan-05 20:30		
Min Inc (deg) @ Depth (MD, m)	0.03 @ 482.27	0.03 @ 912.98	1.49 @ 2,712.30		
Max Inc (deg) @ Depth (MD, m)	0.94 @ 167.34	2.41 @ 2,059.86	3.28 @ 2,880.32		
Bit TFA(in2) / Bit Type	1.31 / Hycalog M26755	0.75 / Hycalog DSX104	0.72 / Security FM37432		
Flow Rate (gpm)	1060	550	550		
Max AV (mpm) / CV (mpm) @ MWD	43.8 / 29.4	153.6 / 178.3	154.2 / 109.2		
Fluid Type	Sea Water	KCl/Idecap	KCl/Idecap		
Density (sg) / Viscosity (spl)	1.04 / N/A	1.15 / 57.00	1.23 / 43.00		
Filtrate CL (ppm)	N/A	53,500	49,000		
pH / Fluid Loss (cptm)	N/A / N/A	8.50 / 5.2	9.00 / 5.2		
PV (cp) / YP (pa)	N/A / N/A	16 / 14.00	14 / 14.50		
% Solids / % Sand	N/A / N/A	11 / 0.25	11 / 0.25		
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A:89	N\A / N/A:89		
Rm @ Measured Temp (degC)	N/A @ N/A	0.12 @ 22.20	0.09 @ 18.30		
Rmf @ Measured Temp (degC)	N/A @ N/A	0.07 @ 22.20	0.07 @ 18.30		
Rmc @ Measured Temp (degC)	N/A @ N/A	0.18 @ 22.20	0.12 @ 18.30		
Max Tool Temp (degC) / Source	28.00 / EWR-P4	85.00 / EWR-P4	107.00 / EWR-P4		
Rm @ Max Tool Temp (degC)	N/A @ N/A	0.05 @ 85.00	0.03 @ 107.00		

Rm @ Max Tool Temp (degC)	N/A @ N/A	0.05 @ 85.00	0.03 @ 107.00		
Lead MWD Engineer	T. Oborne	T. Oborne	T.Oborne		
Customer Representative	C. Wilson	H.Everhart	H.Everhart		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM	HCIM	HCIM		
Software Version	67.88	67.88	67.88		
Sub Serial Number	198840	GP7912-3	GP7912-3		
Insert Serial Number	132884	145125	145125		
Logging String Serial Number	62057XHGVR8	62271XH1NRLGV6	62271XH1NRLGV6		
Date and Time Initialized	29-Dec-04 09:59:00	05-Jan-05 16:39:07	10-Jan-05 05:34:51		
Date and Time Read	30-Dec-04 21:36:00	09-Jan-05 16:33:51	13-Jan-05 10:55:14		

Directional Sensor Information

Tool Type	PM	PM	PM		
Distance From Bit (m)	30.40	33.07	32.36		
Software Version	N/A	N/A	N/A		
Sub Serial Number	111363	194447	194447		
Sonde Serial Number	134019	175717	175717		
Sensor ID Number	2947	44645	44645		
Survey String Serial Number	DM90061055M8	DM90062415M6	DM90062415M6		
Toolface Offset (deg)	N/A	N/A	N/A		

Gamma Ray Sensor Information

Tool Type	DGR	DGR	DGR		
Distance From Bit (m)	18.07	11.06	10.25		
Recorded Sample Period (sec)	12	12	12		
Software Version	N/A	N/A	N/A		
Sub Serial Number	10505993	115988	115988		
Insert/Sonde Serial Number	172498	87301	87301		

Resistivity Sensor Information

Tool Type	EWR-P4	EWR-P4	EWR-P4		
Distance From Bit (m)	15.04	17.19	16.40		
Recorded Sample Period (sec)	12	402	402		
Software Version	1.38	1.00	1.00		
Sub Serial Number	174309	130859	130859		
Receiver Insert Serial Number	123481	128946	128946		
Transmitter Insert Serial Number	159149	151384	151384		
Receiver Orientation	Down	Down	Down		

Neutron Sensor Information

Tool Type		CNP	CNP		
Distance From Bit (m)		20.14	19.37		
Recorded Sample Period (sec)		30	30		
Sub Serial Number		371573	371573		
Insert Serial Number		104127	104127		
Source Serial Number		4070NK	4070NK		
Source Factor		1.1400	1.1400		
Pin Orientation		Down	Down		

Density Sensor Information

Tool Type		SLD	SLD		

Distance From Bit (m)		14.40	13.61		
Recorded Sample Period (sec)		30	30		
Software Version		11.00	11.00		
Sub Serial Number		127856	127856		
Insert Serial Number		147144	147144		
Sensor ID Number		333	333		
Source Serial Number		1444GW	1444GW		
Pin Orientation		Up	Up		
Stabilizer Blade O.D. (mm)		209.550	209.550		
DPA Offset		N/A	N/A		

Caliper Sensor Information

Tool Type	ACAL	ACAL	ACAL		
Distance From Bit (m)	27.62	30.30	29.61		
Software Version	2.05	2.05	2.05		
Sub Serial Number	165483	170536	142853		
Insert Serial Number	141729	113417	078950		

Sonic Sensor Information

Tool Type	BAT	BAT	BAT		
Distance From Bit (m)	23.42	26.51	26.12		
Recorded Sample Period (sec)	18	18	18		
Software Version	4.00	4.00	4.00		
Sub Serial Number	144401	132327	169872		
Receiver Insert Serial Number	136555	131066	125819		
Transmitter Insert Serial Number	143996	116793	130925		

REMARKS

1. All depths are bit depths and referenced to the drillers pipe tally.

2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and the Binghams Plastic Law for oil based muds.

3. Curve mnemonics are:
SGRC - Smoothed Gamma Ray Combined, api
SEXP - Smoothed Extra Shallow Phase Resistivity, ohm-m
SESP - Smoothed Shallow Phase Resistivity, ohm-m
SEMP - Smoothed Medium Phase Resistivity, ohm-m
SEDP - Smoothed Deep Phase Resistivity, ohm-m
SROP - Smoothed Rate of Penetration, m/hr
ACAL - Acoustic Caliper, inches
BATC - Bi-Modal Acoustic Compressional Slowness, usec/ft
SBD2 - Smoothed Best Bin Bulk Density Compensated, g/cc
SCO2 - Smoothed Best Bin Stand-off Correction, g/cc
SNP2 - Smoothed Best Bin Near Photoelectric Effect, b/e
NUCL - Smoothed Porosity (Limestone Matrix) corrected for Salinity, Temperature and Pressure, v/v
STEM - Smoothed Medium Phase Resistivity Temperature, deg C
RUN_SPD - Running Speed, m/hr
SFXE - Formation Exposure Time, hrs

4. CNP data processed using the CNP-E algorithim using the following parameters and is based on a Limestone Matrix:
MW = 1.15 - 1.20
Formation Salinity = 50,000 ppm Cl
Mud Salinity = 42000 - 54000 ppm Cl
Matrix Density = 2.71 g/cc
Fluid Denisty = 1.00 g/cc

5. CNP data has been reprocessed using data from the Caliper tool for borehole diameter.

6. Gaps in Caliper (ACAL) and Compressional Slowness (BATC) data at the start of the 216mm (8.5") hole section are due to the hole being washed out beyond tools operational range.

7. Gaps in LWD data around 1670.0 and 1945.0 mMDRT are due to the geolograph line breaking.

8. Gaps in Compressional Slowness (BATC) data are due to weak signal.

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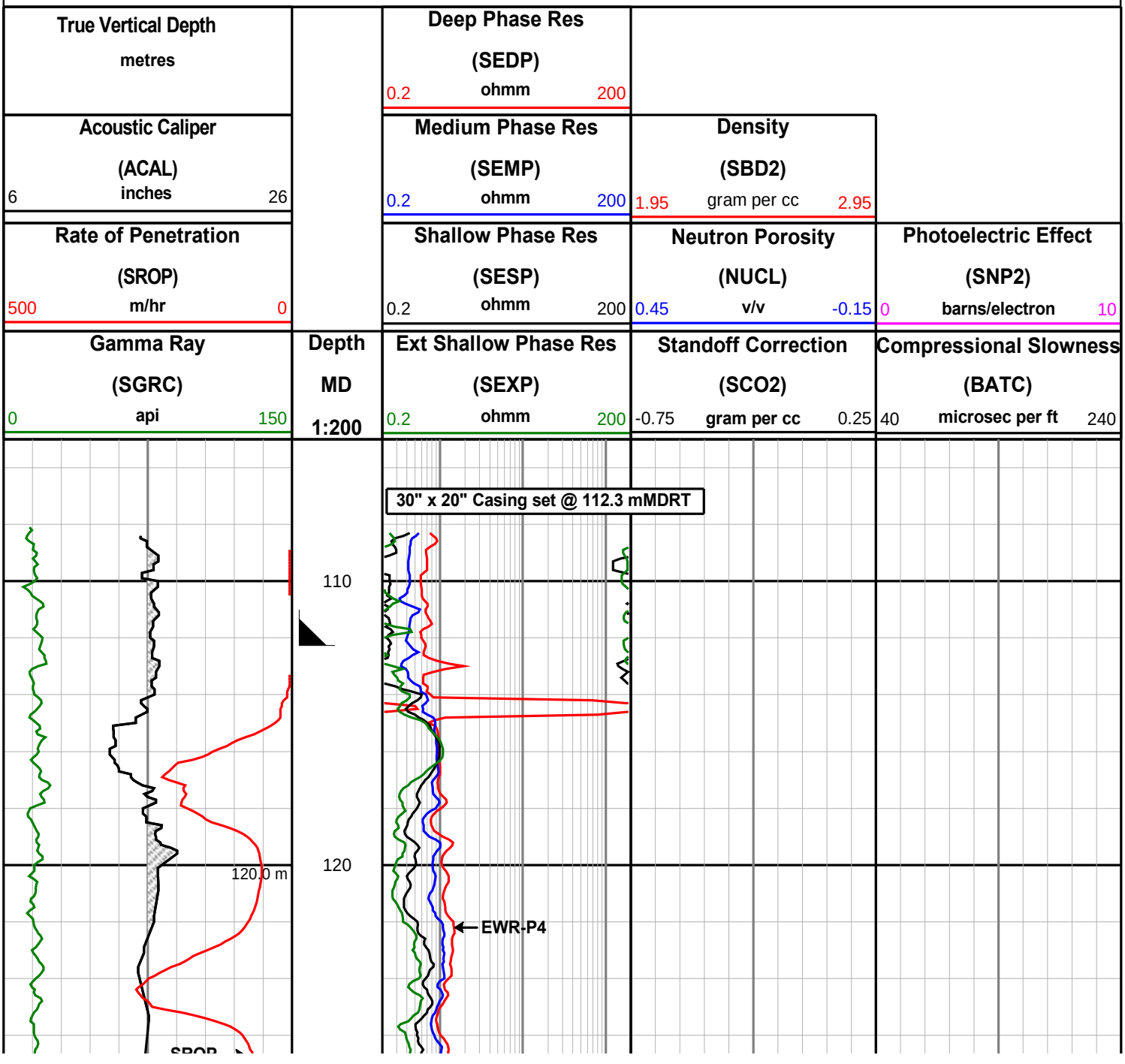
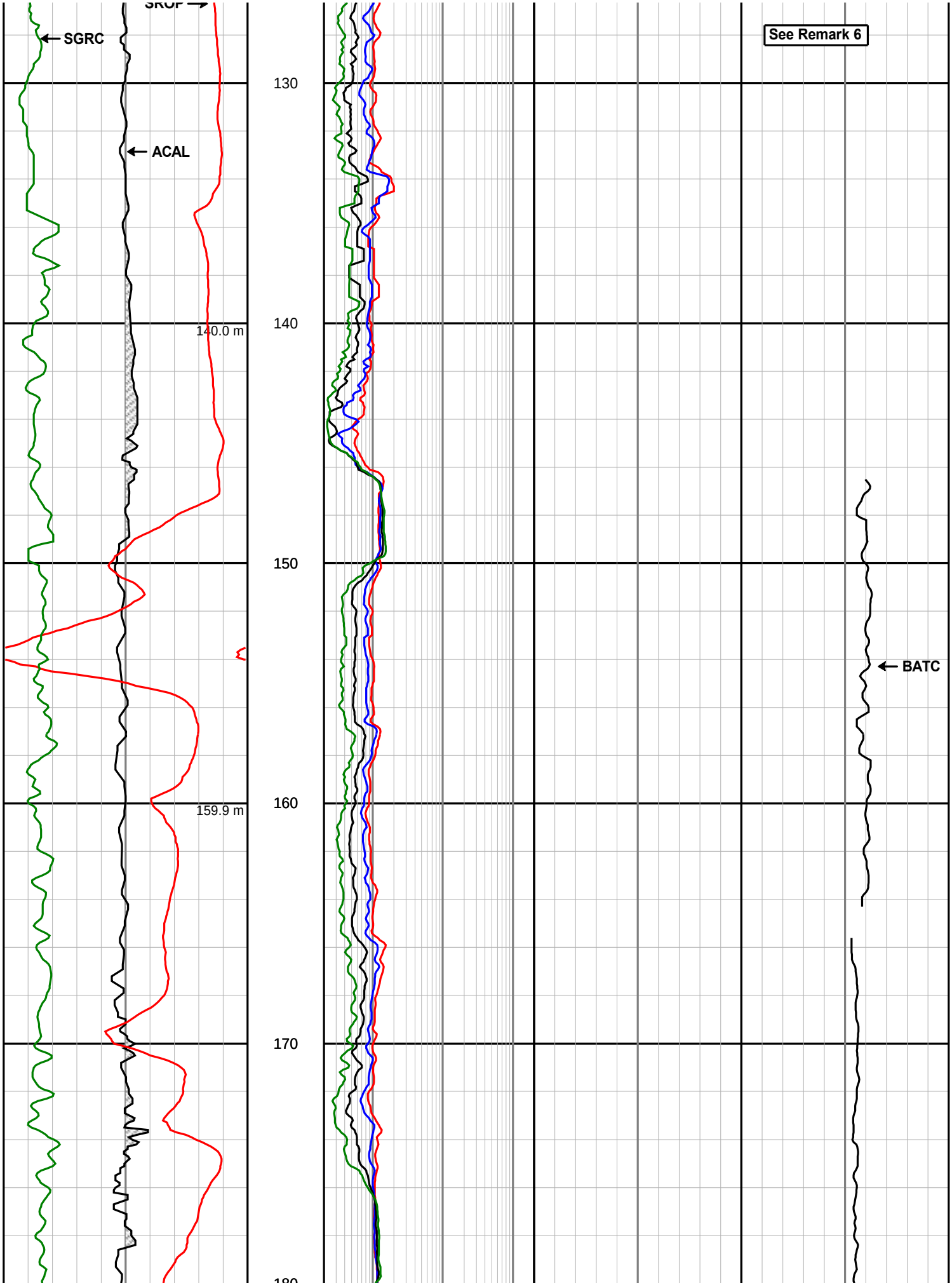
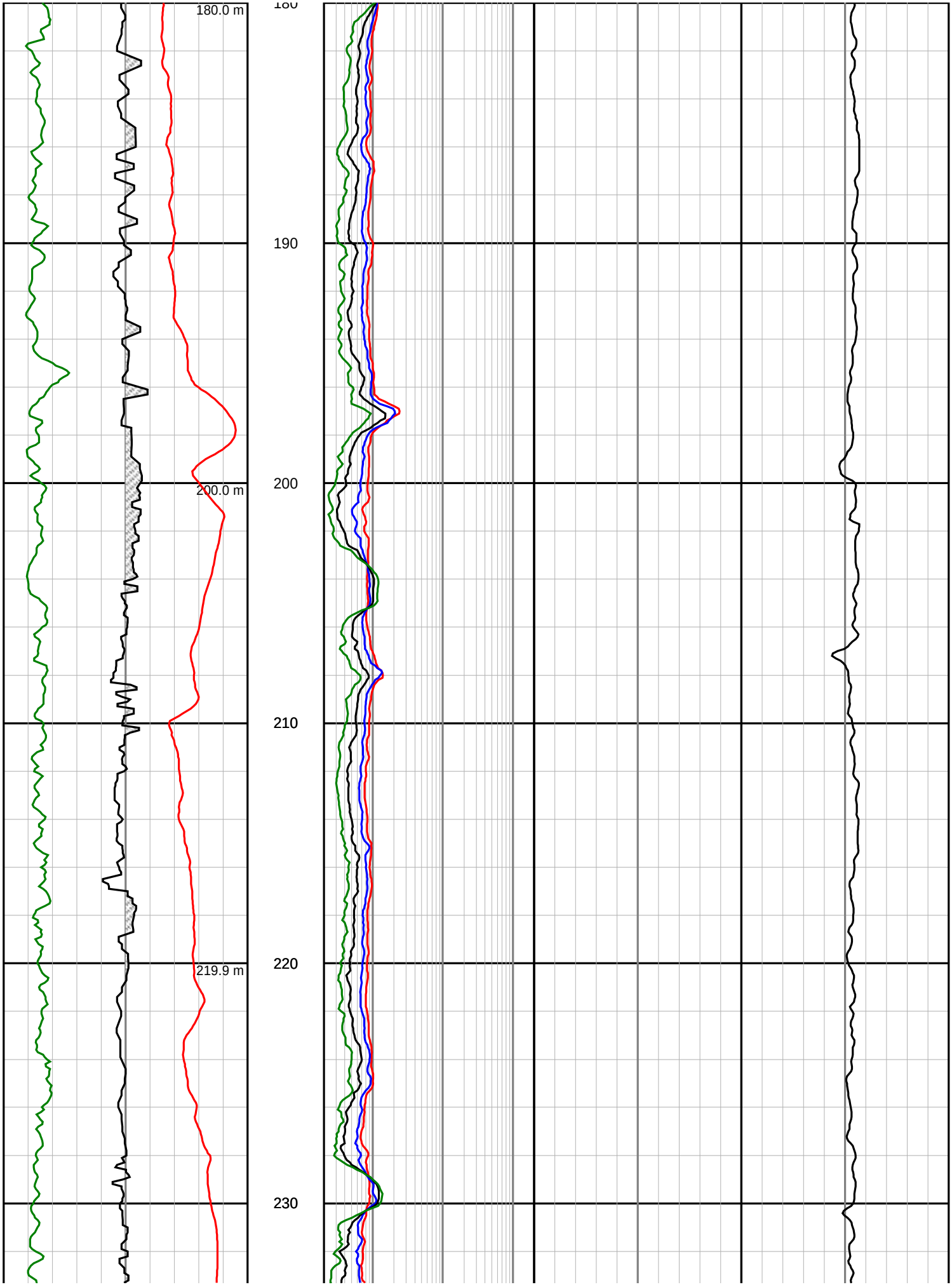
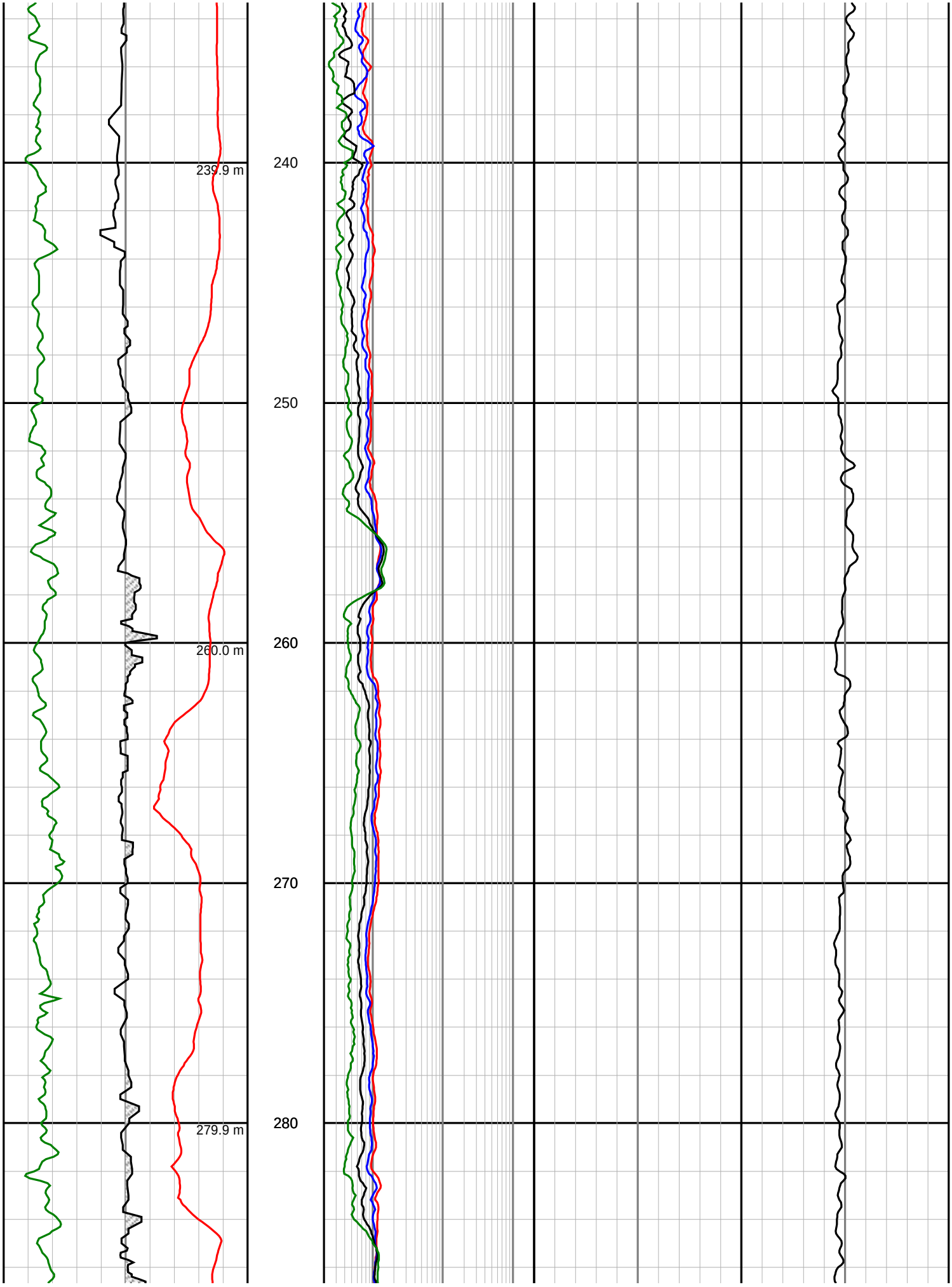
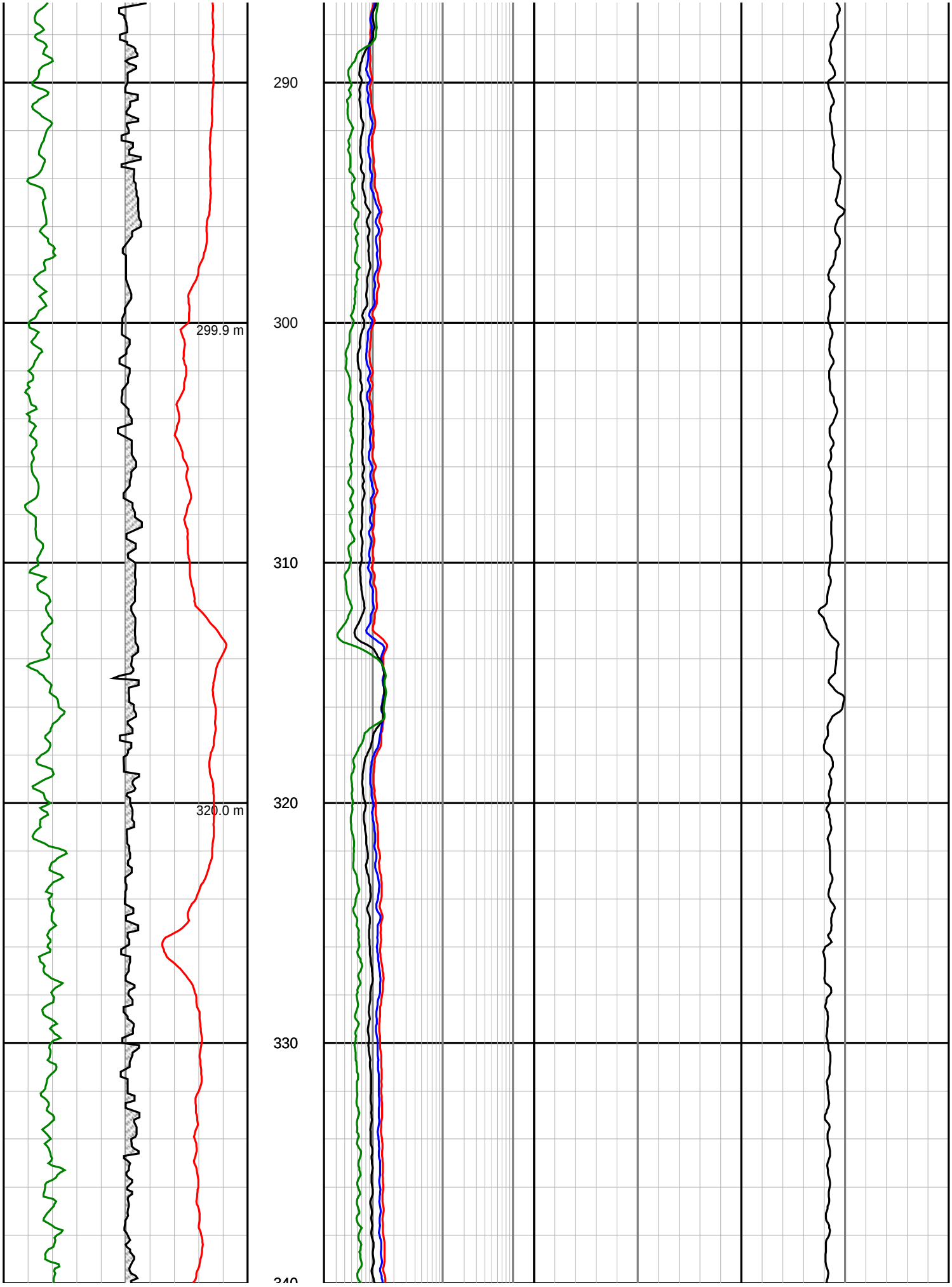
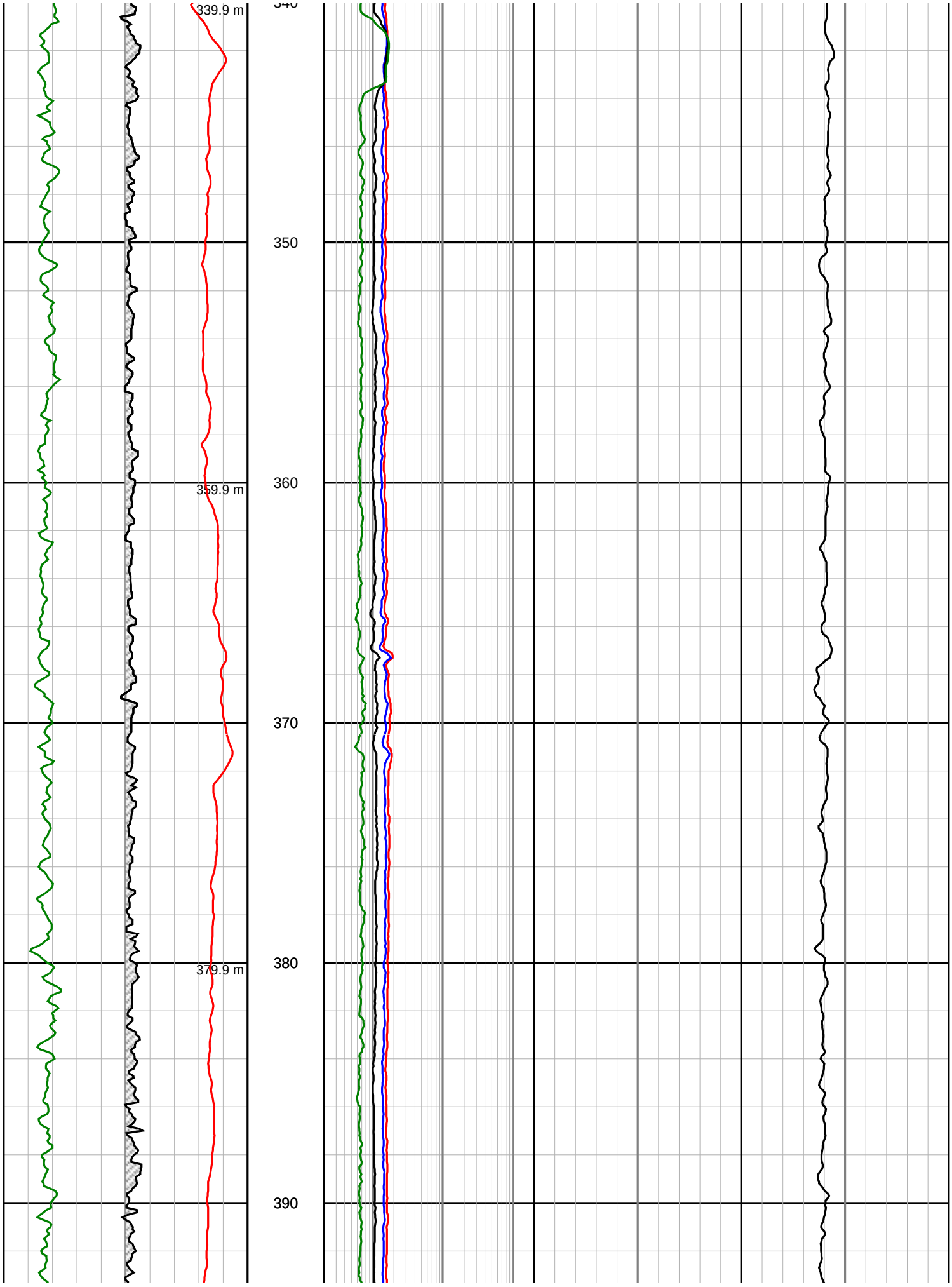


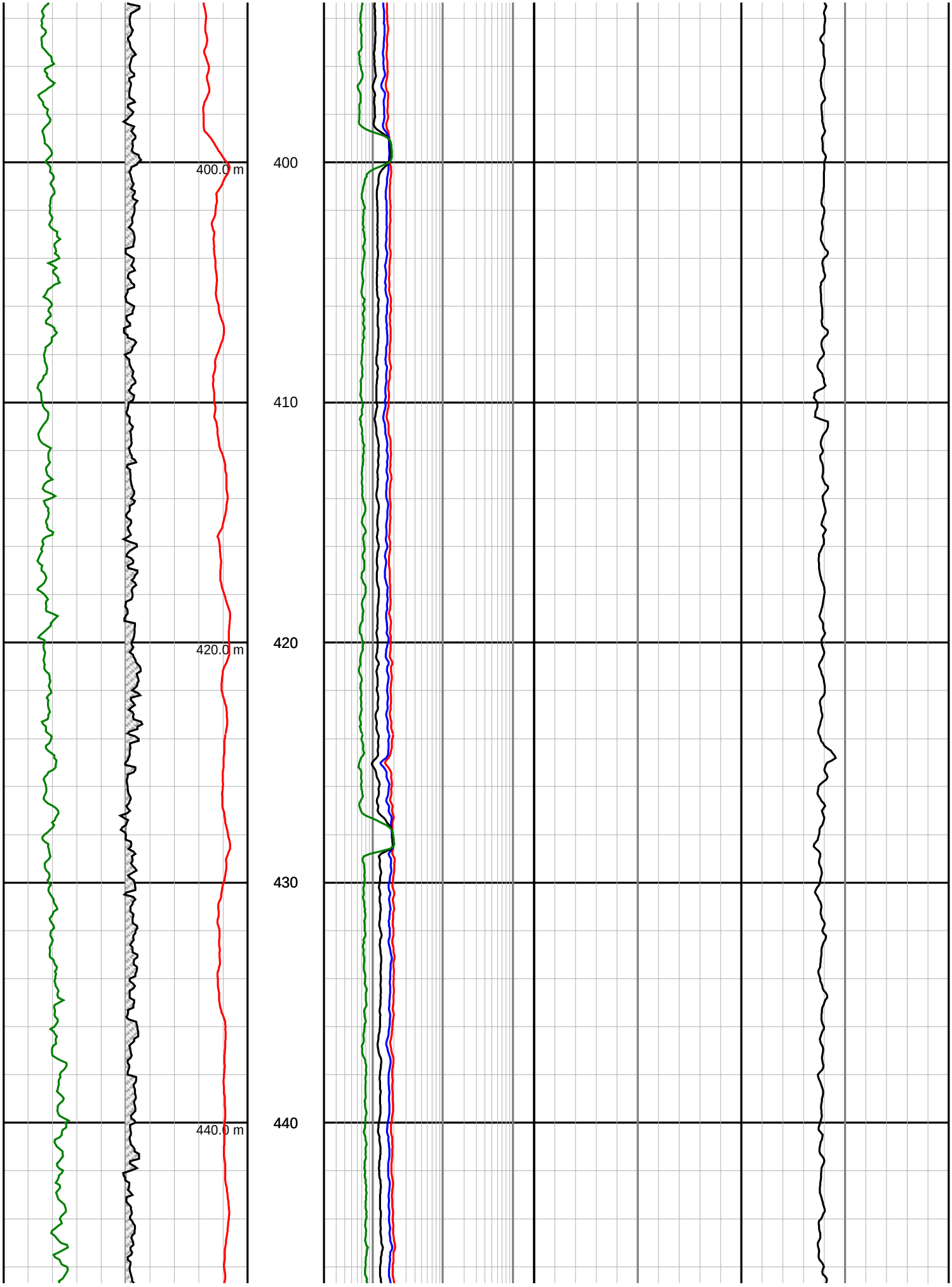

SGRC
ACAL
140.0 m
159.9 m
130
140
150
160
170
See Remark 6
BATC

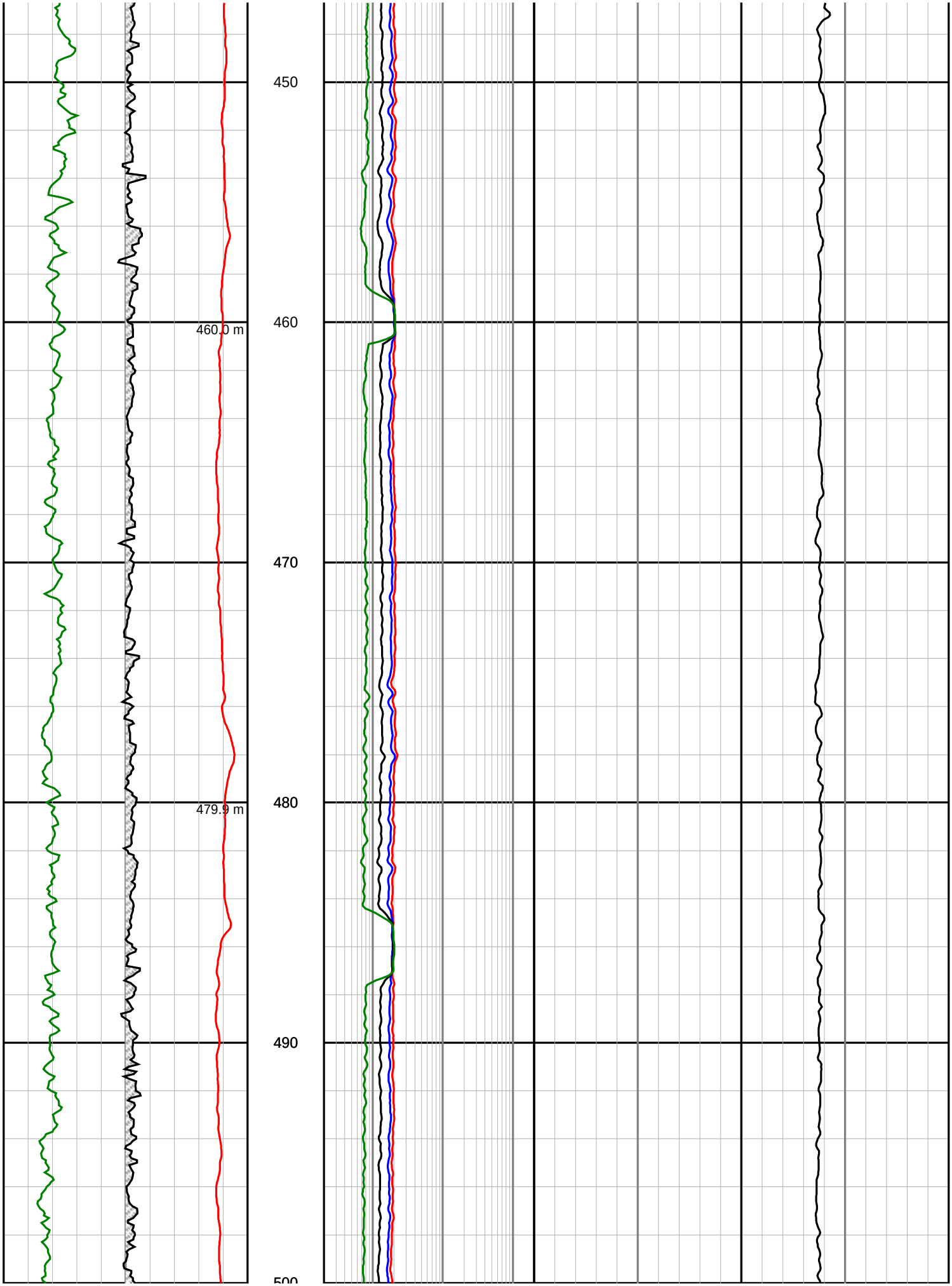

180.0 m
180
190
200.0 m
200
210
219.9 m
220
230

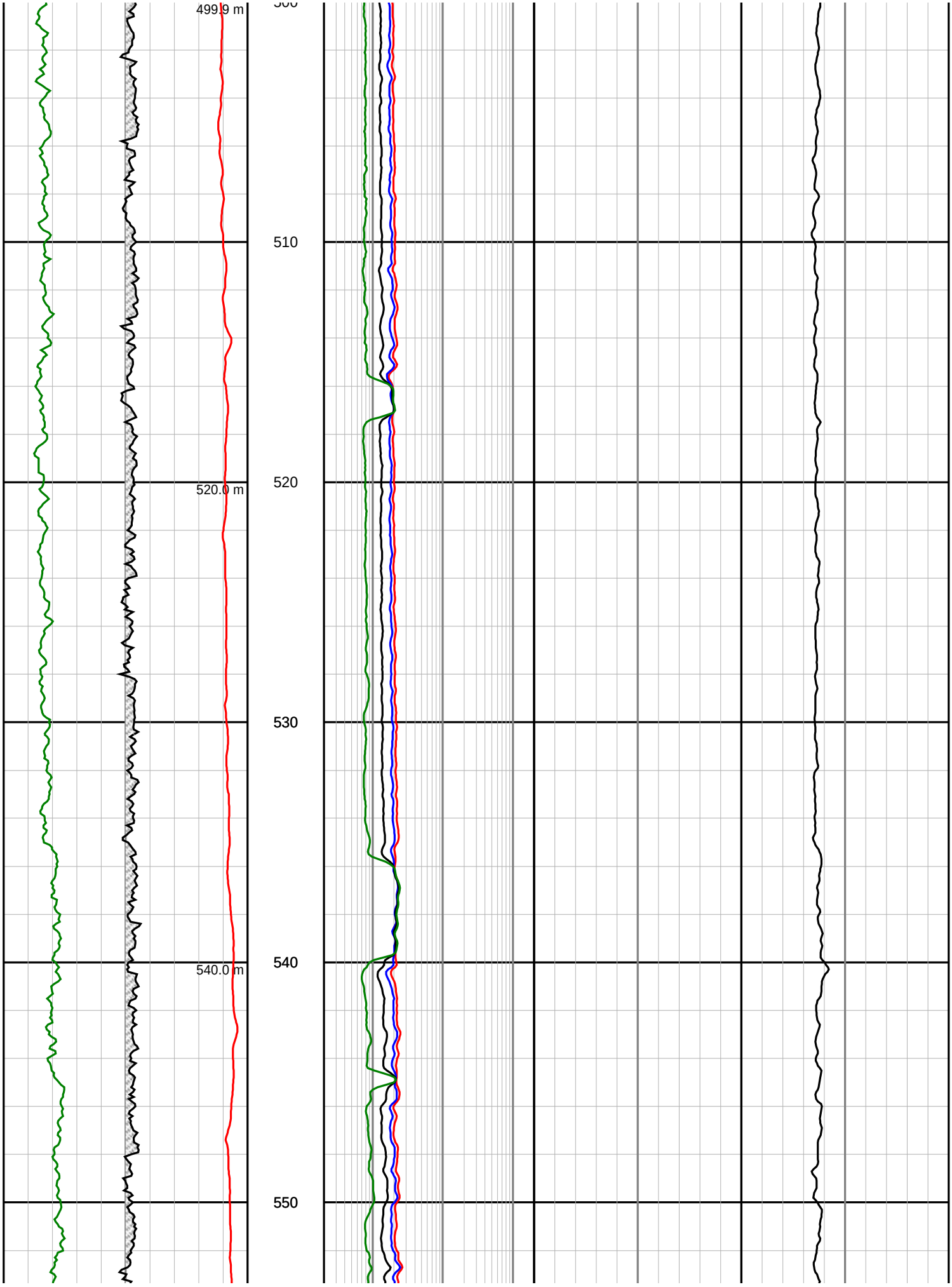

239.9 m
240
250
260.0 m
260
270
279.9 m
280

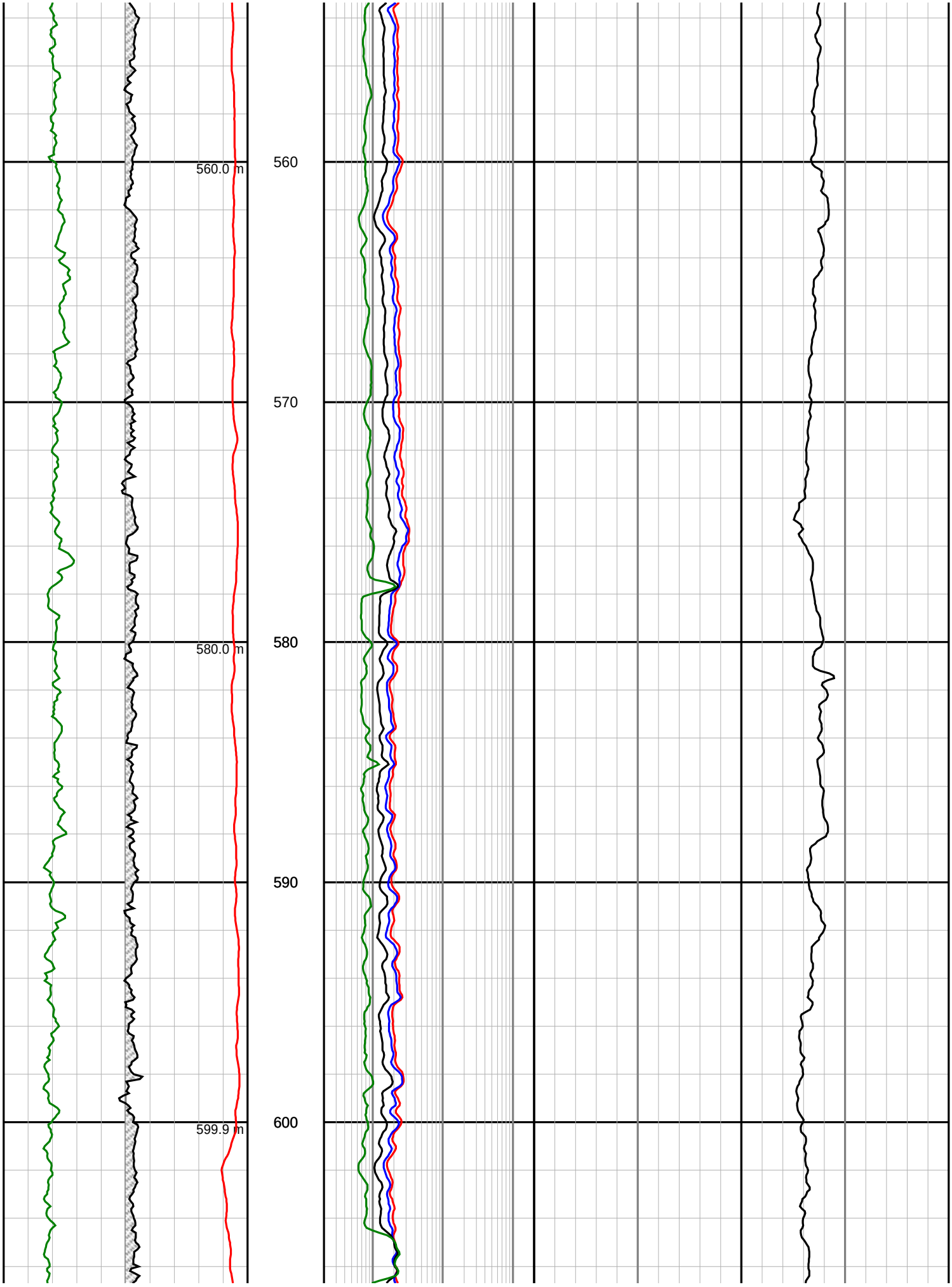

290
299.9 m
300
310
320.0 m
320
330
340

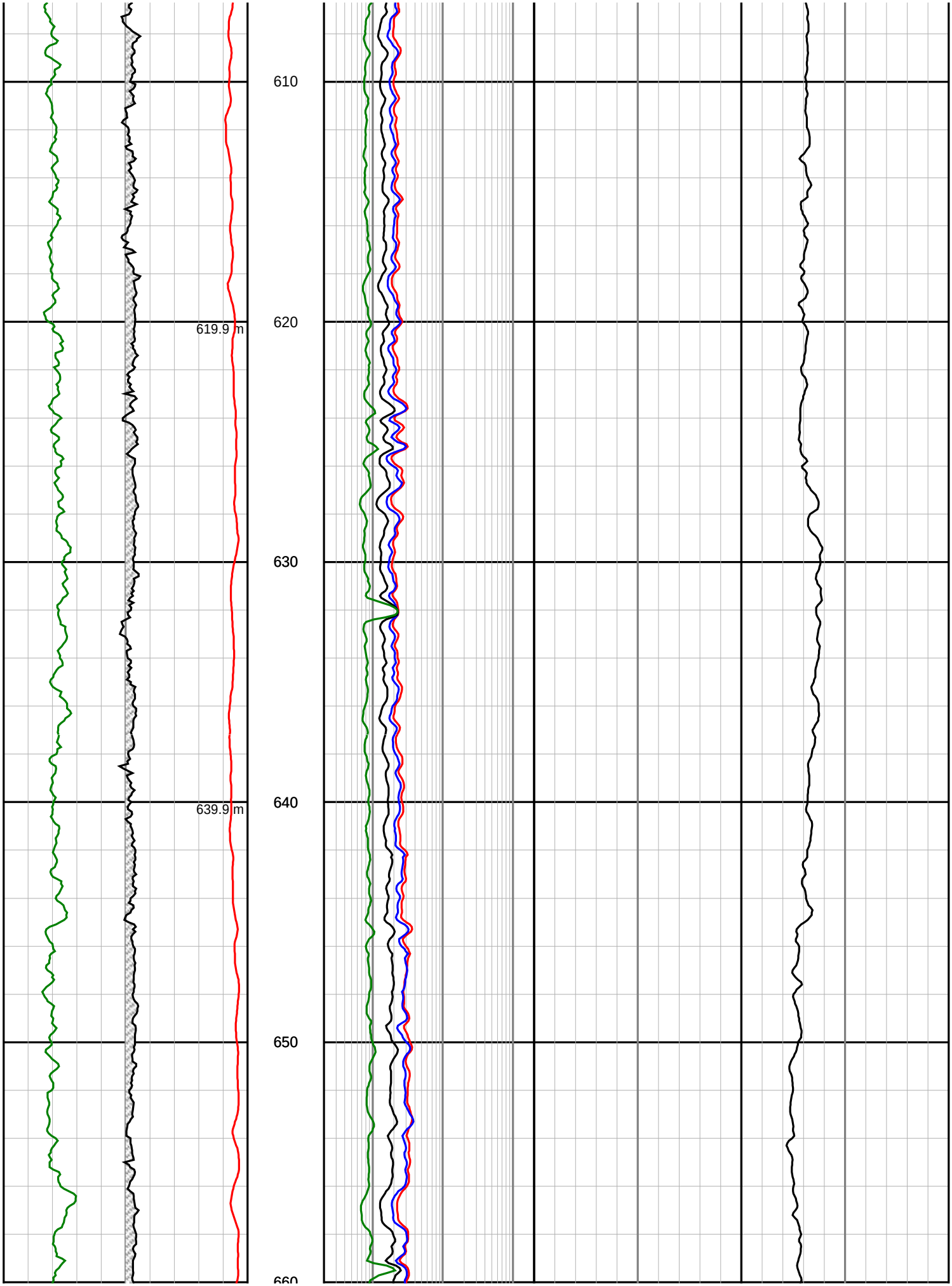

339.9 m
340
350
359.9 m
360
370
379.9 m
380
390

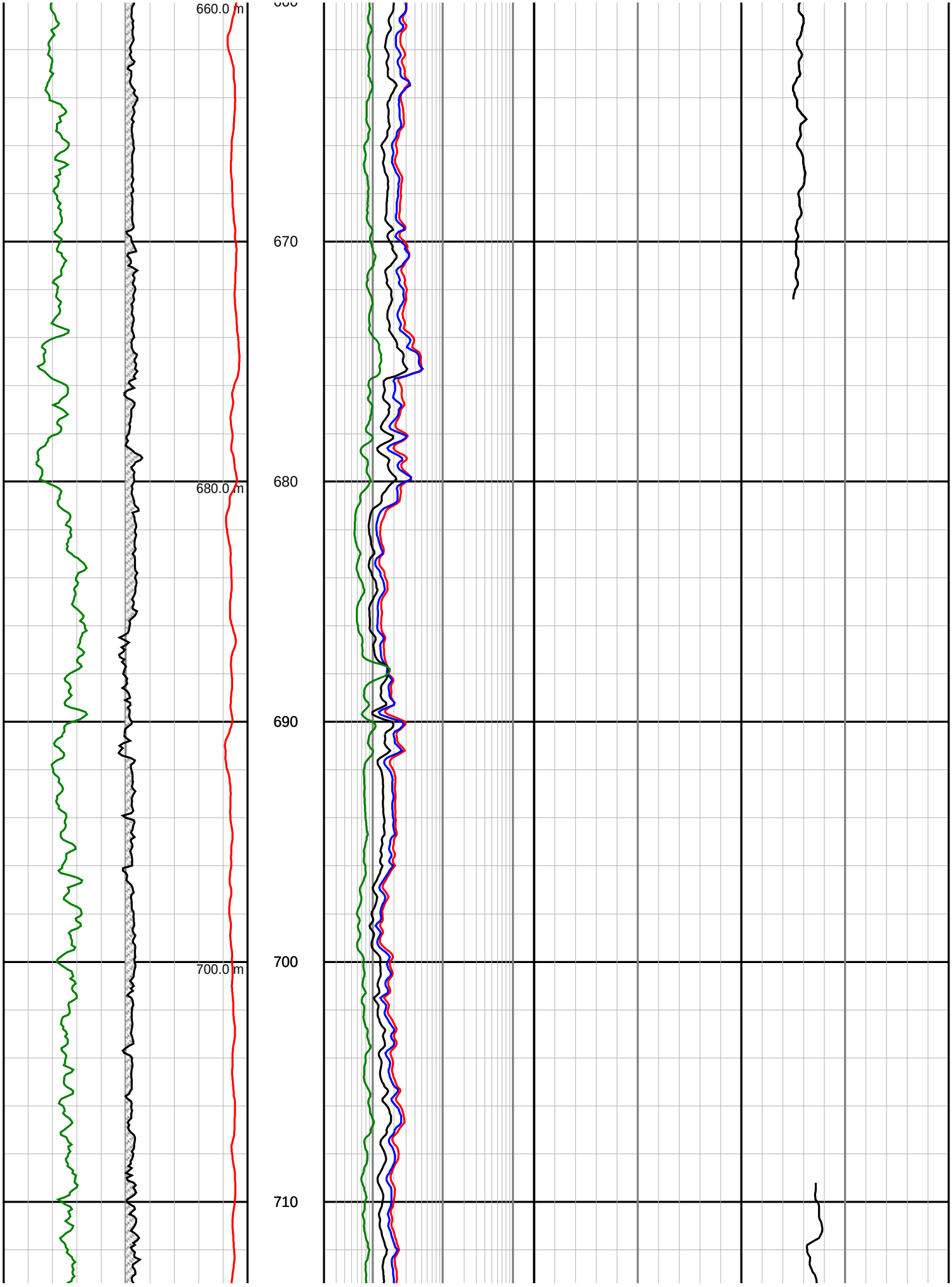

400.0 m
420.0 m
440.0 m
400
410
420
430
440

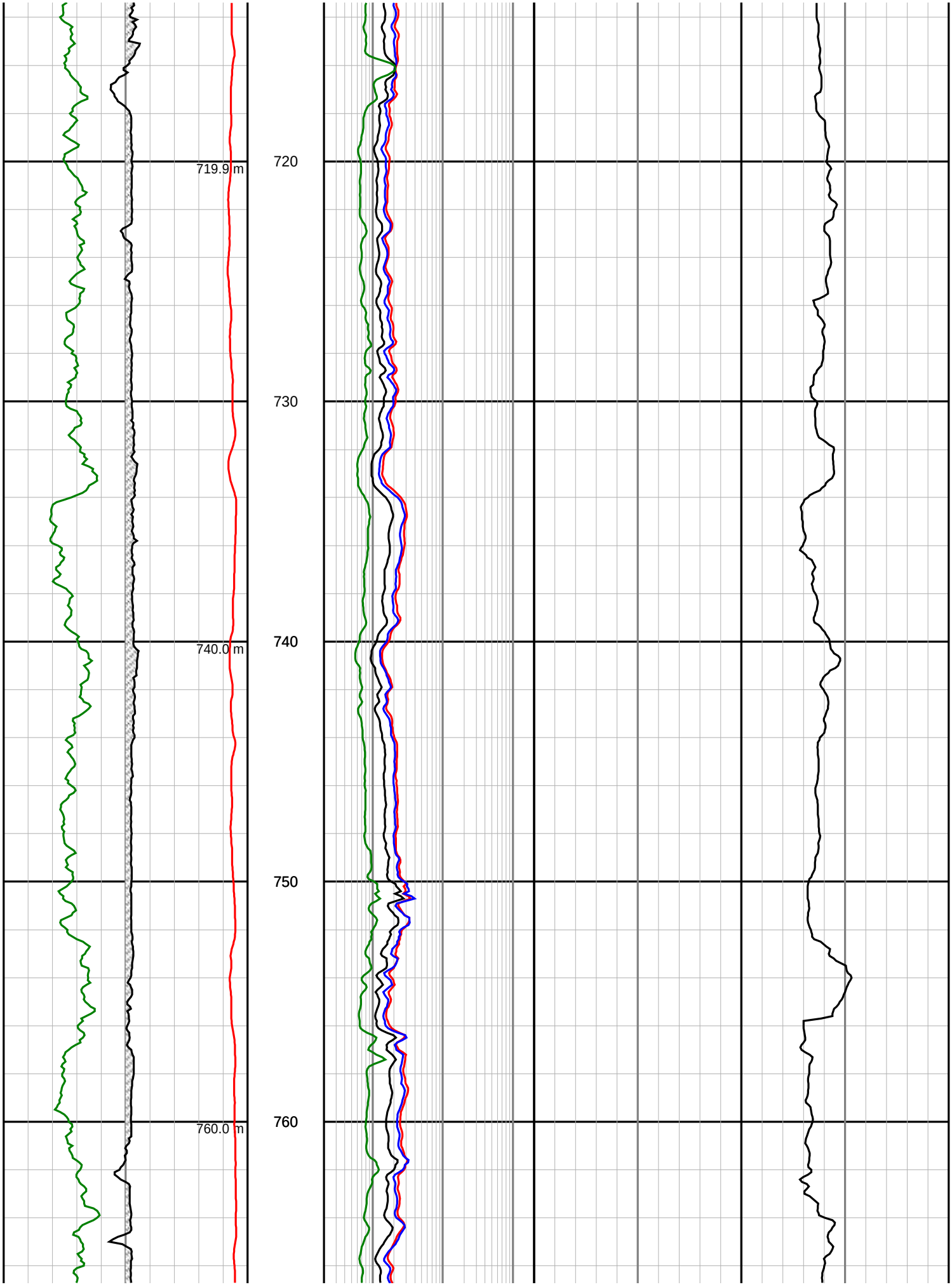

450
460
460.0 m
470
479.9 m
480
490
500

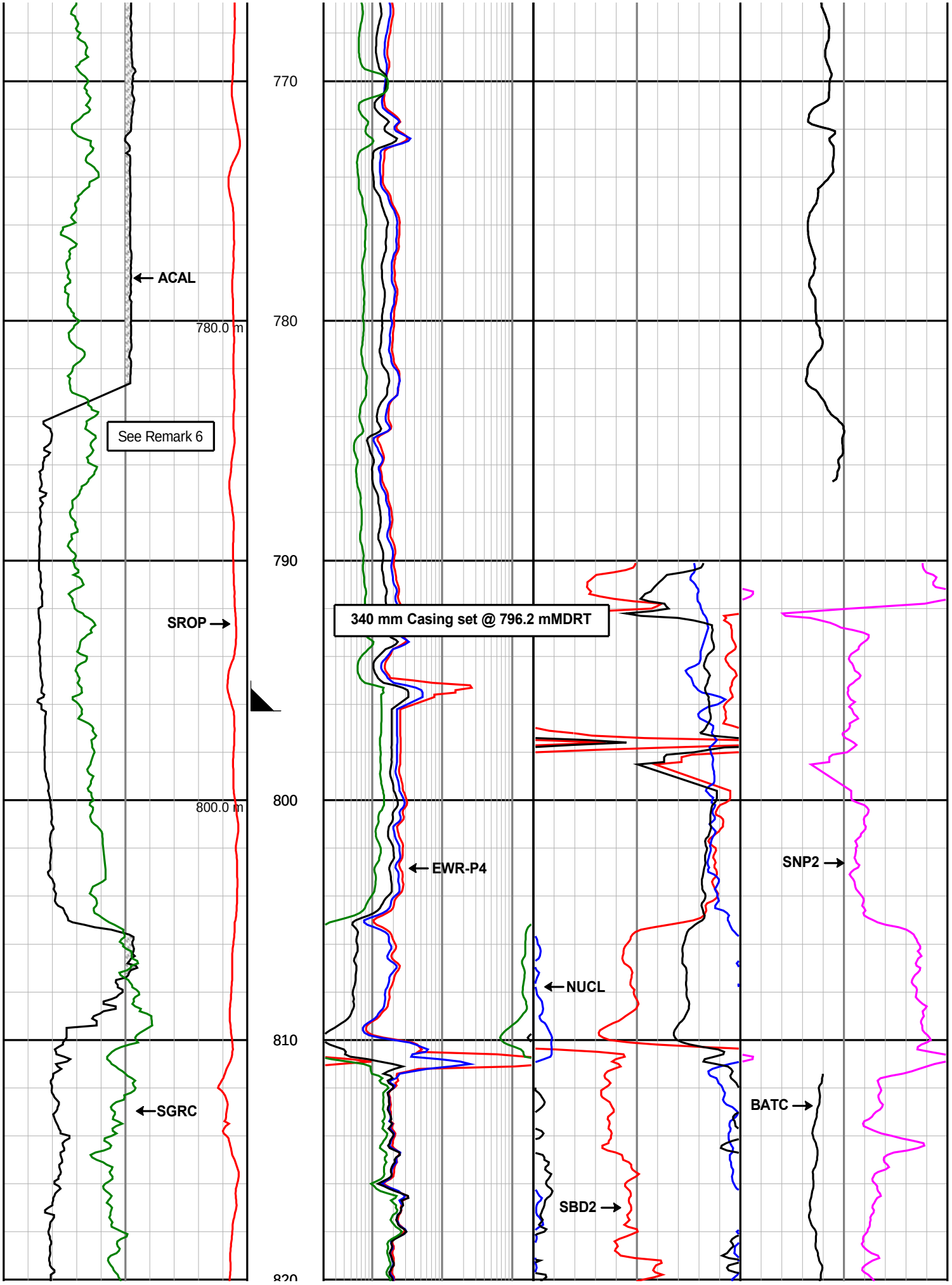

499.9 m
510
520.0 m
520
530
540.0 m
540
550

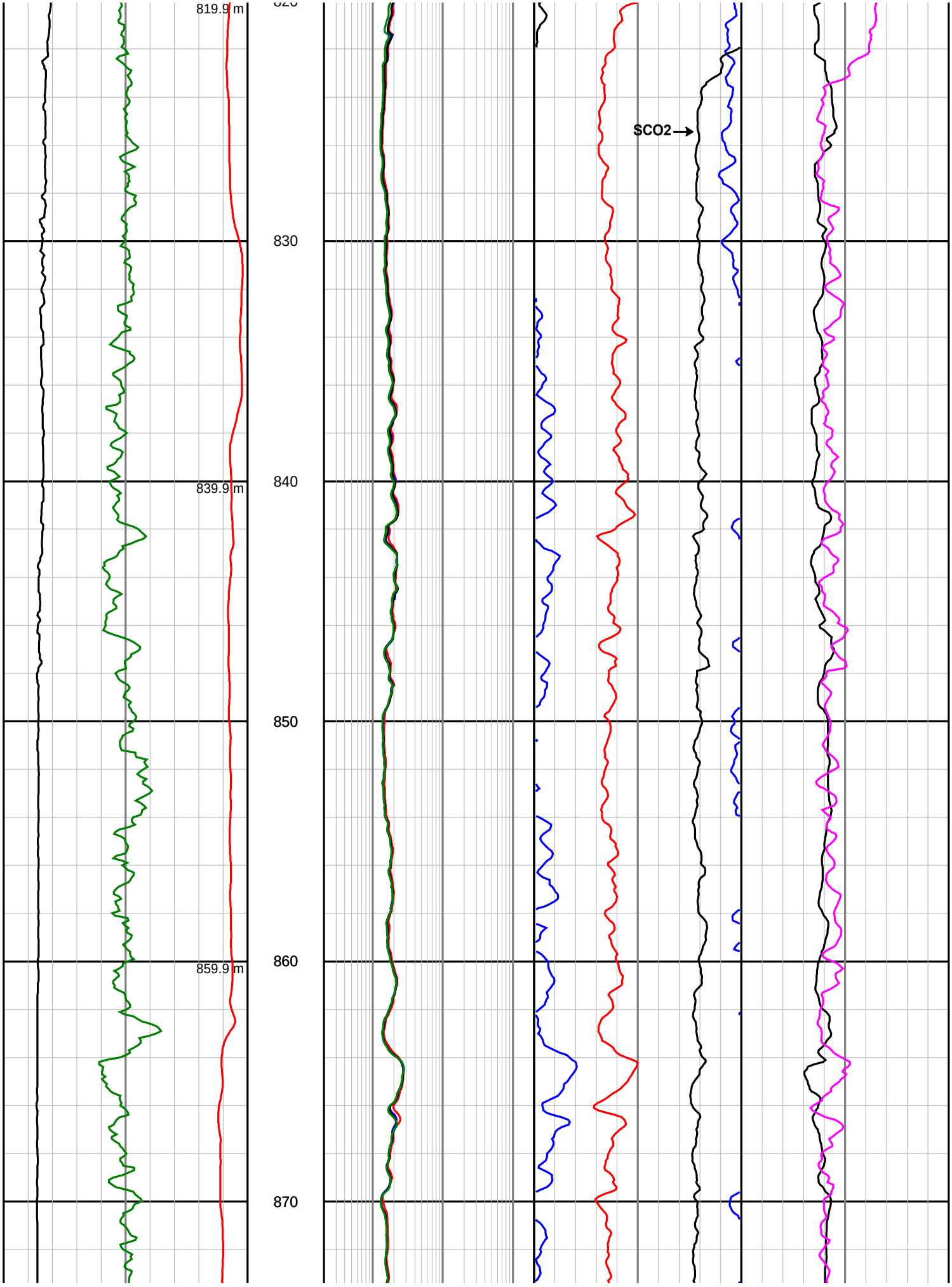

560.0 m
580.0 m
599.9 m
560
570
580
590
600

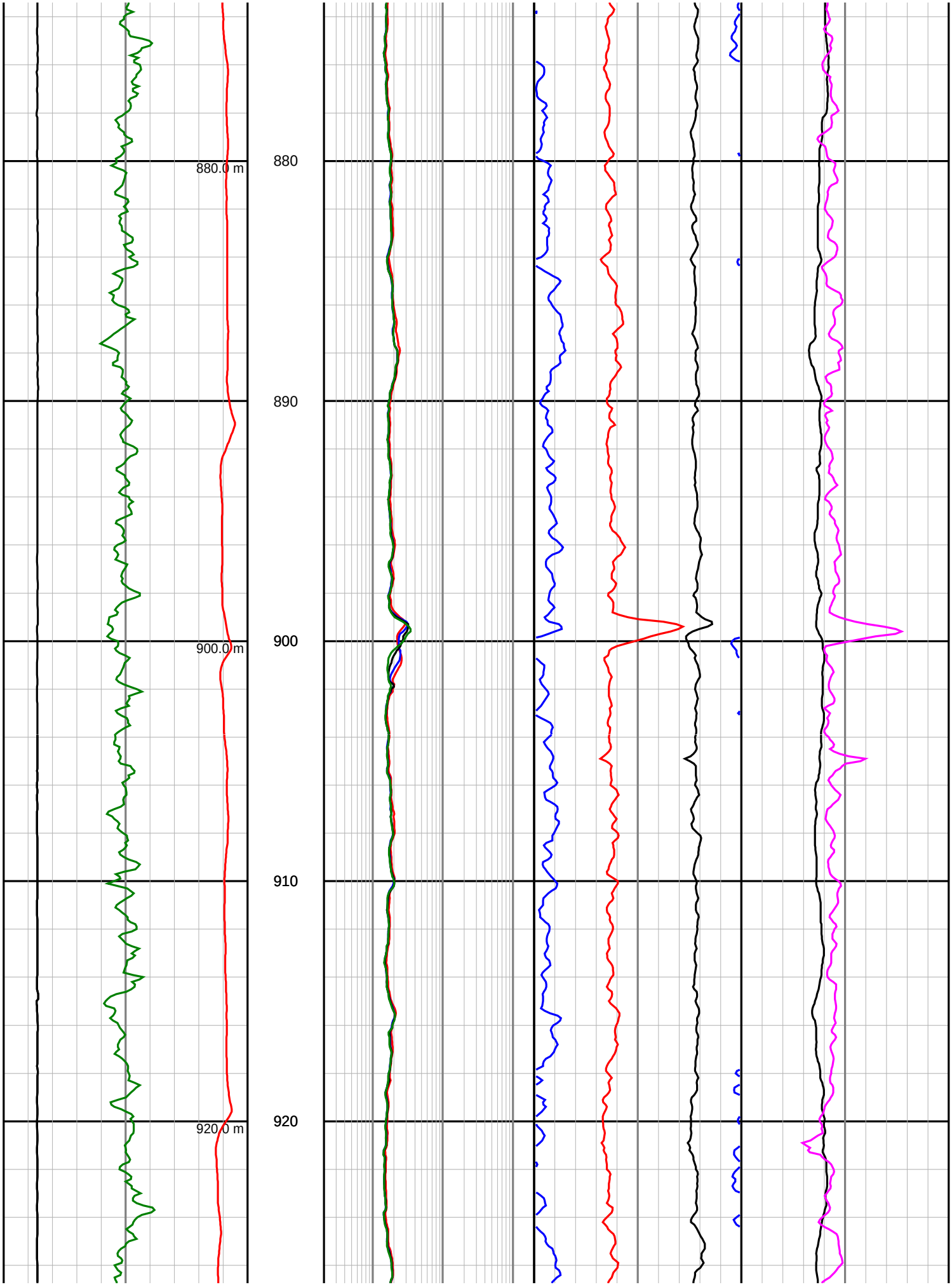

610
620
630
640
650
660
619.9 m
639.9 m

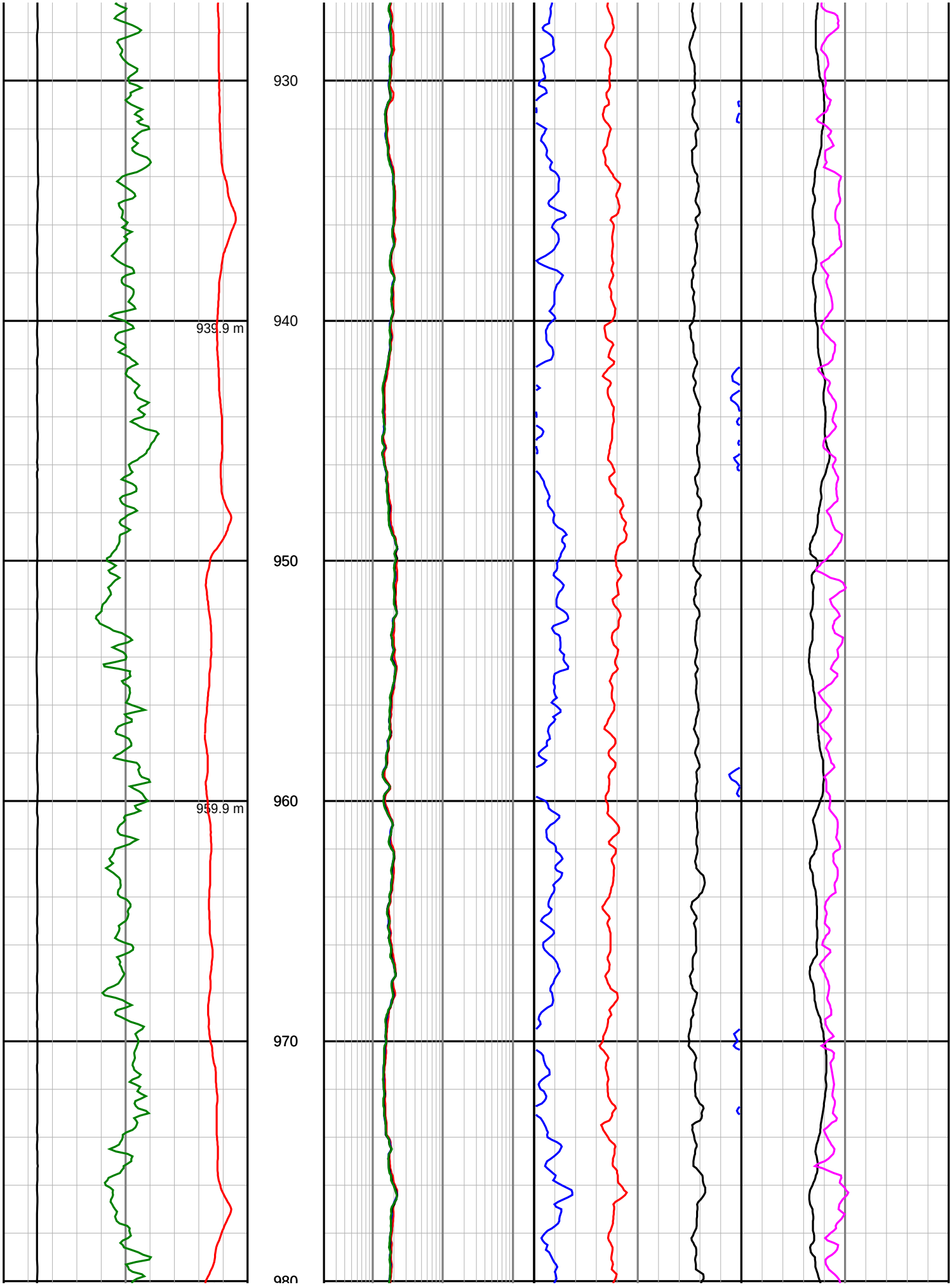

660.0 m
670
680.0 m
680
690
700.0 m
700
710

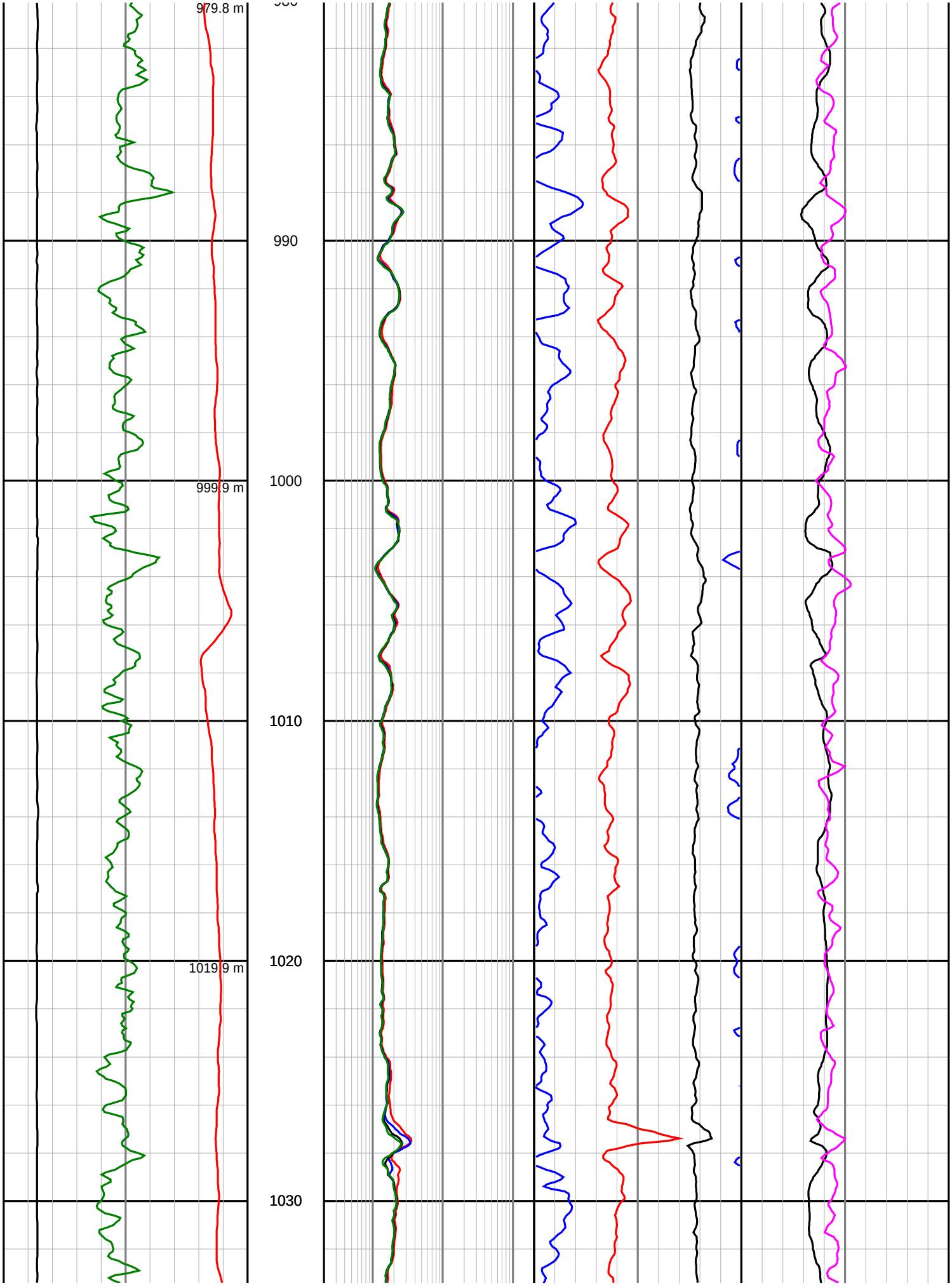

719.9 m
740.0 m
760.0 m
720
730
740
750
760

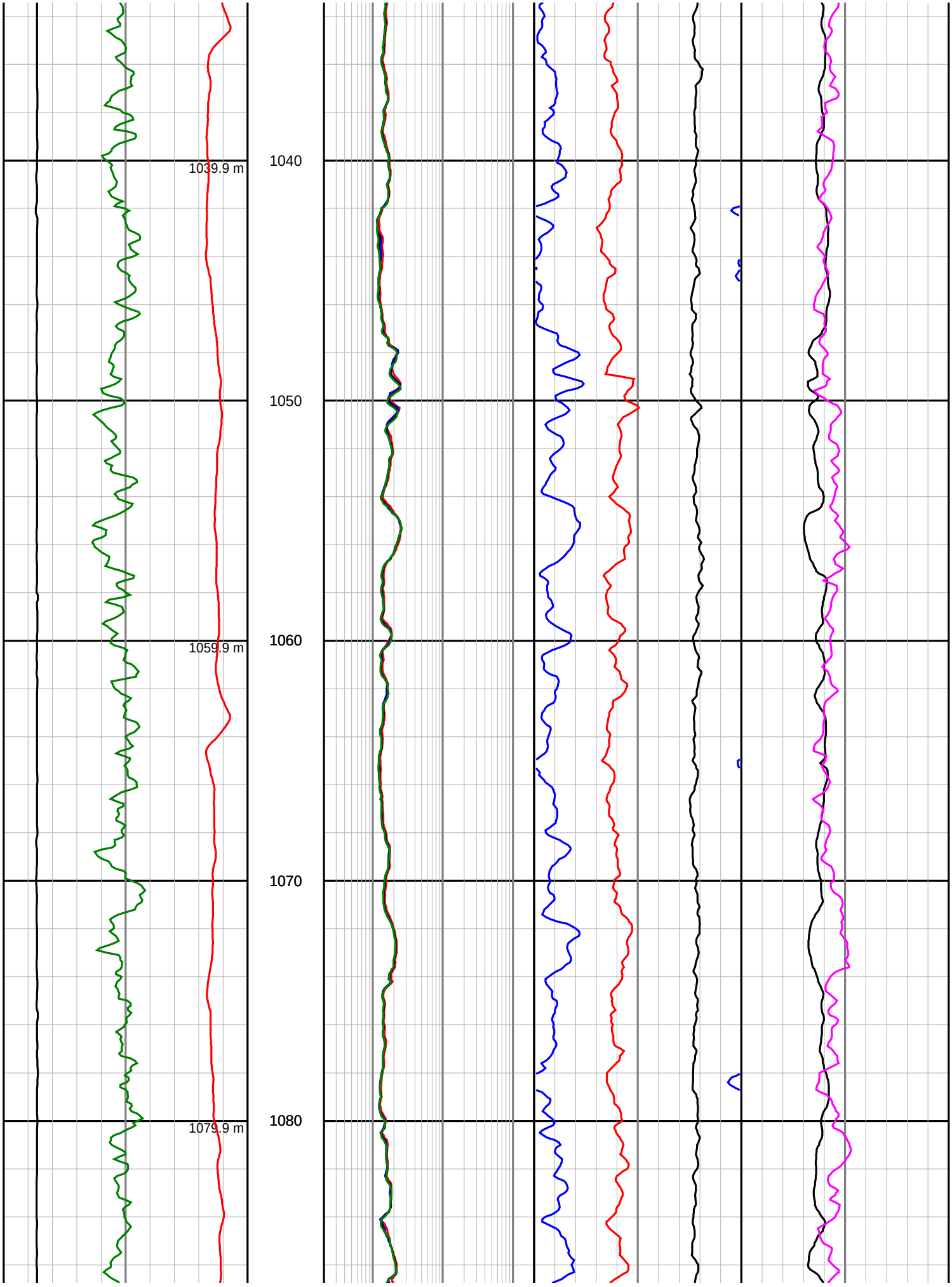

770
780
790
800
810
820
ACAL
780.0 m
See Remark 6
SROP
800.0 m
SGRC
340 mm Casing set @ 796.2 mMDRT
EWR-P4
NUCL
SBD2
SNP2
BATC

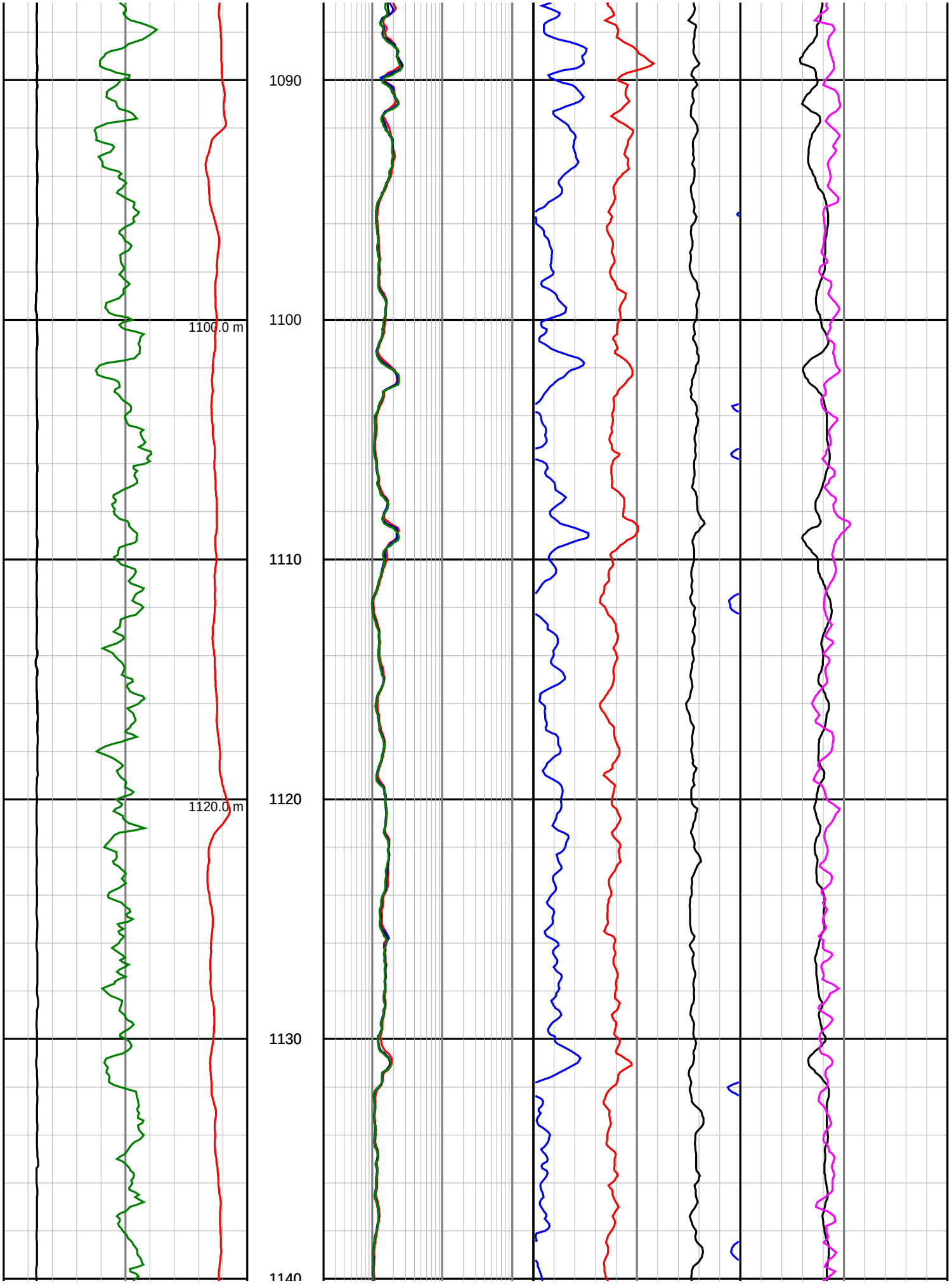

819.9 m
839.9 m
859.9 m
820
830
840
850
860
870
SCO2

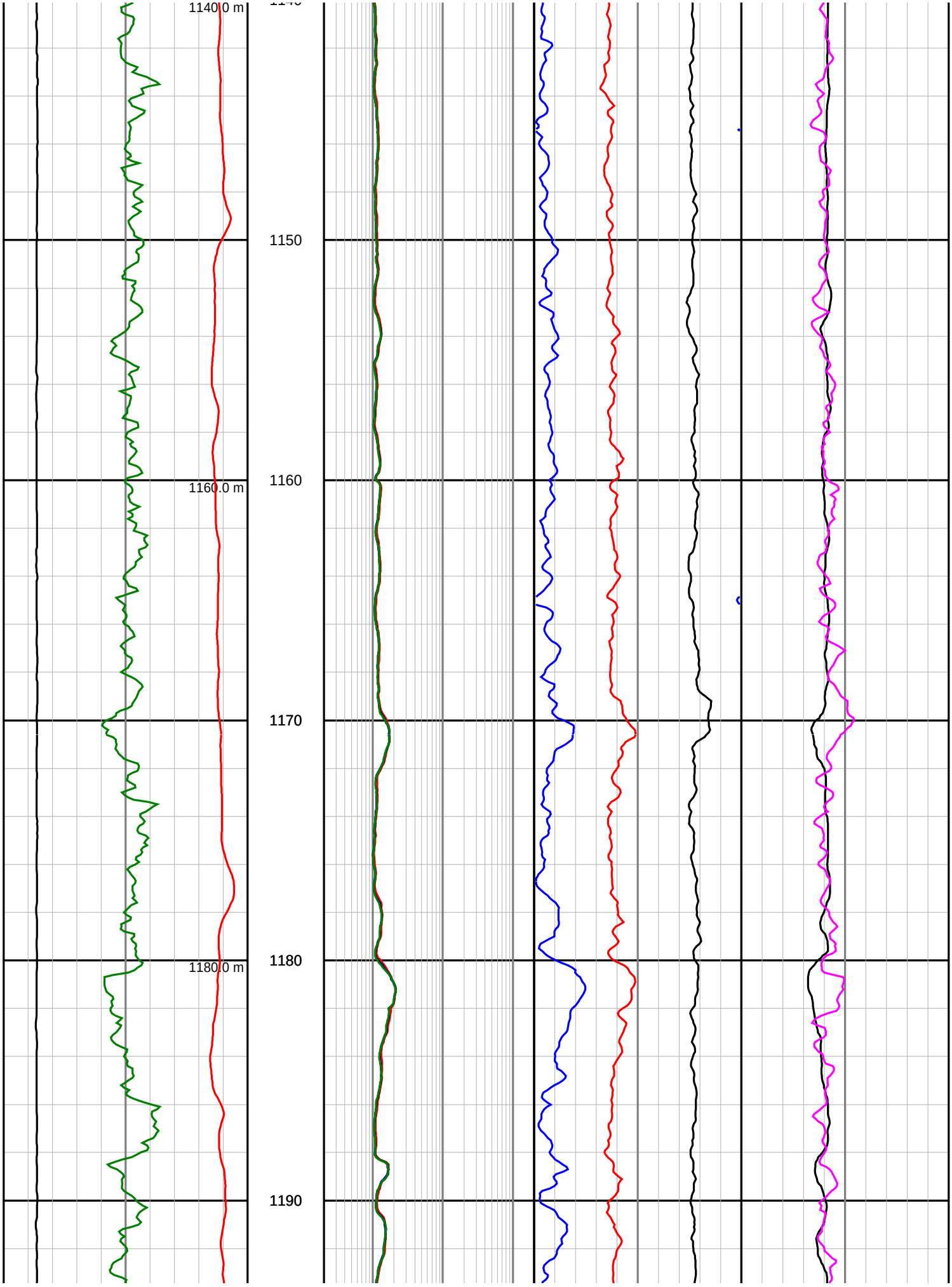

880.0 m
900.0 m
920.0 m
880
890
900
910
920

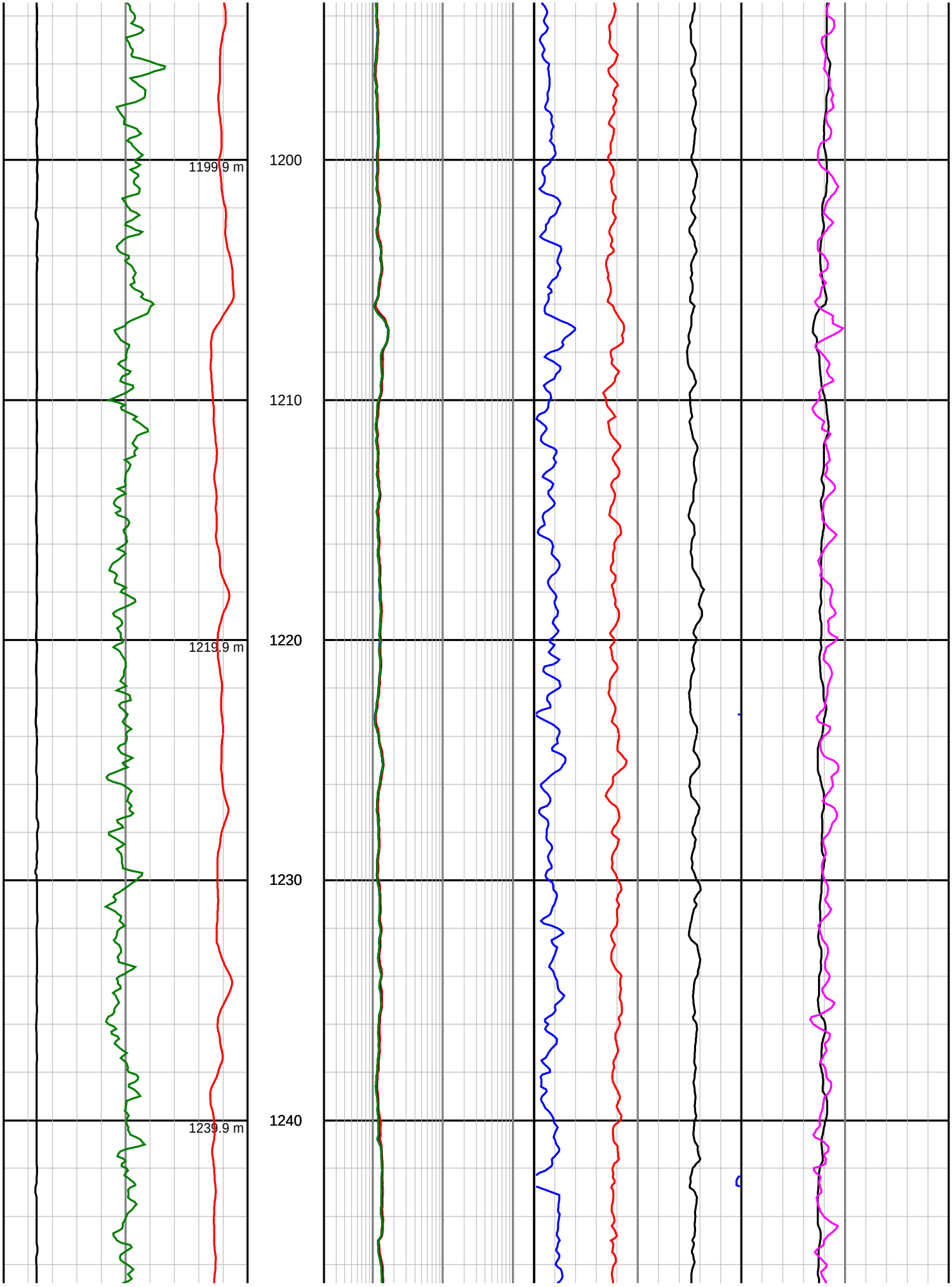

939.9 m
959.9 m
930
940
950
960
970
980

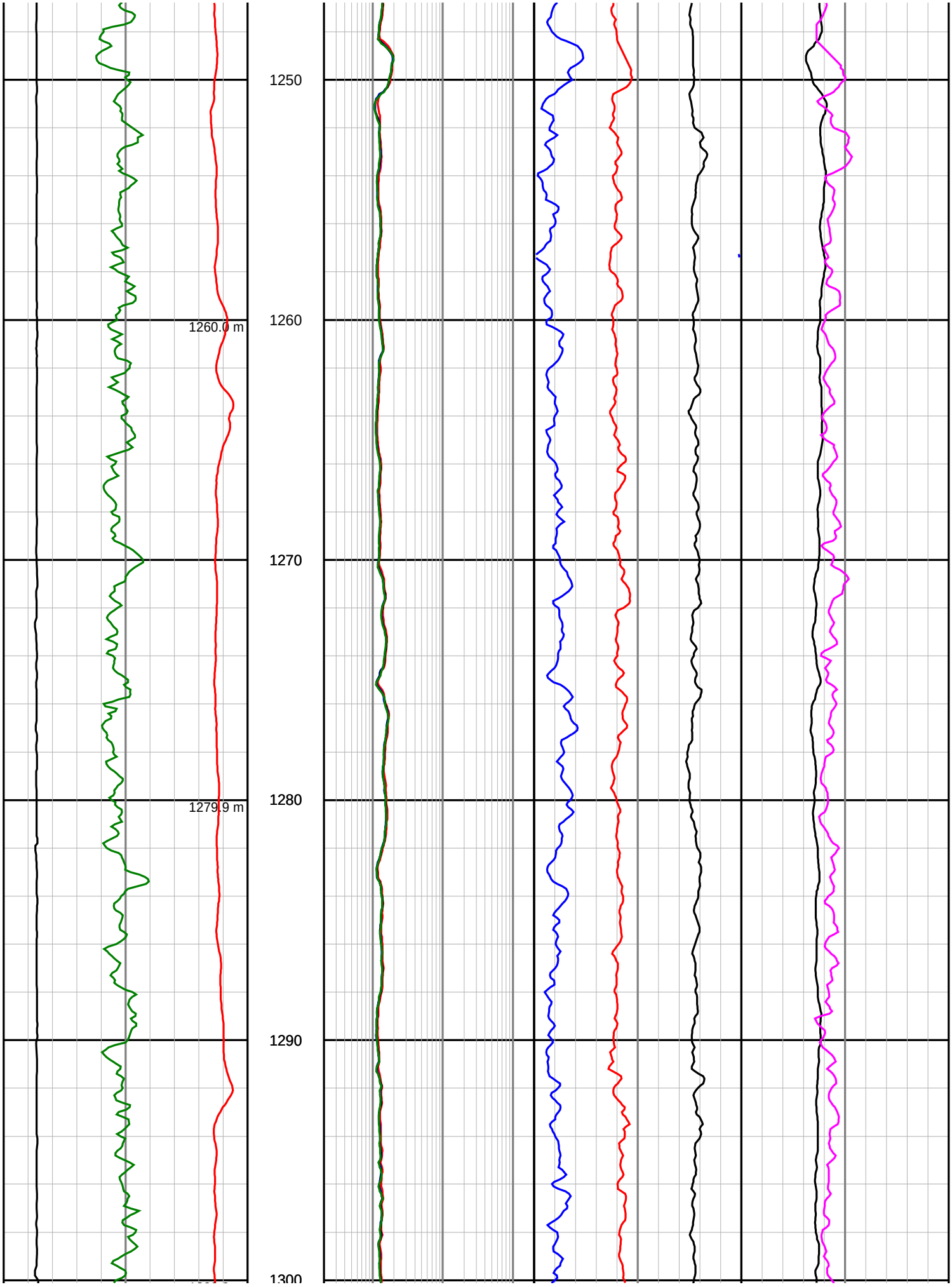

979.8 m
990
999.9 m
1000
1010
1019.9 m
1020
1030

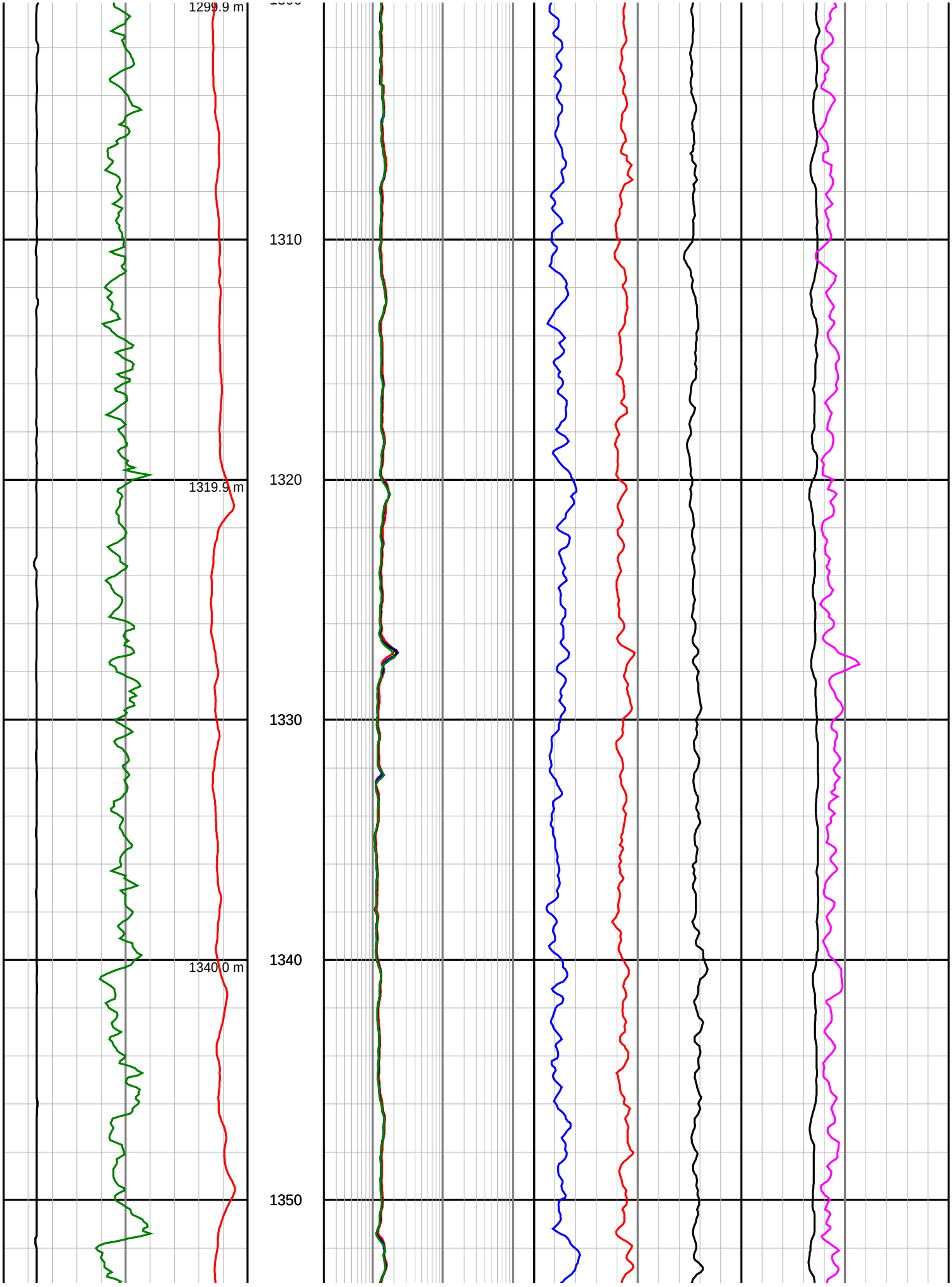

1039.9 m
1040
1050
1059.9 m
1060
1070
1079.9 m
1080

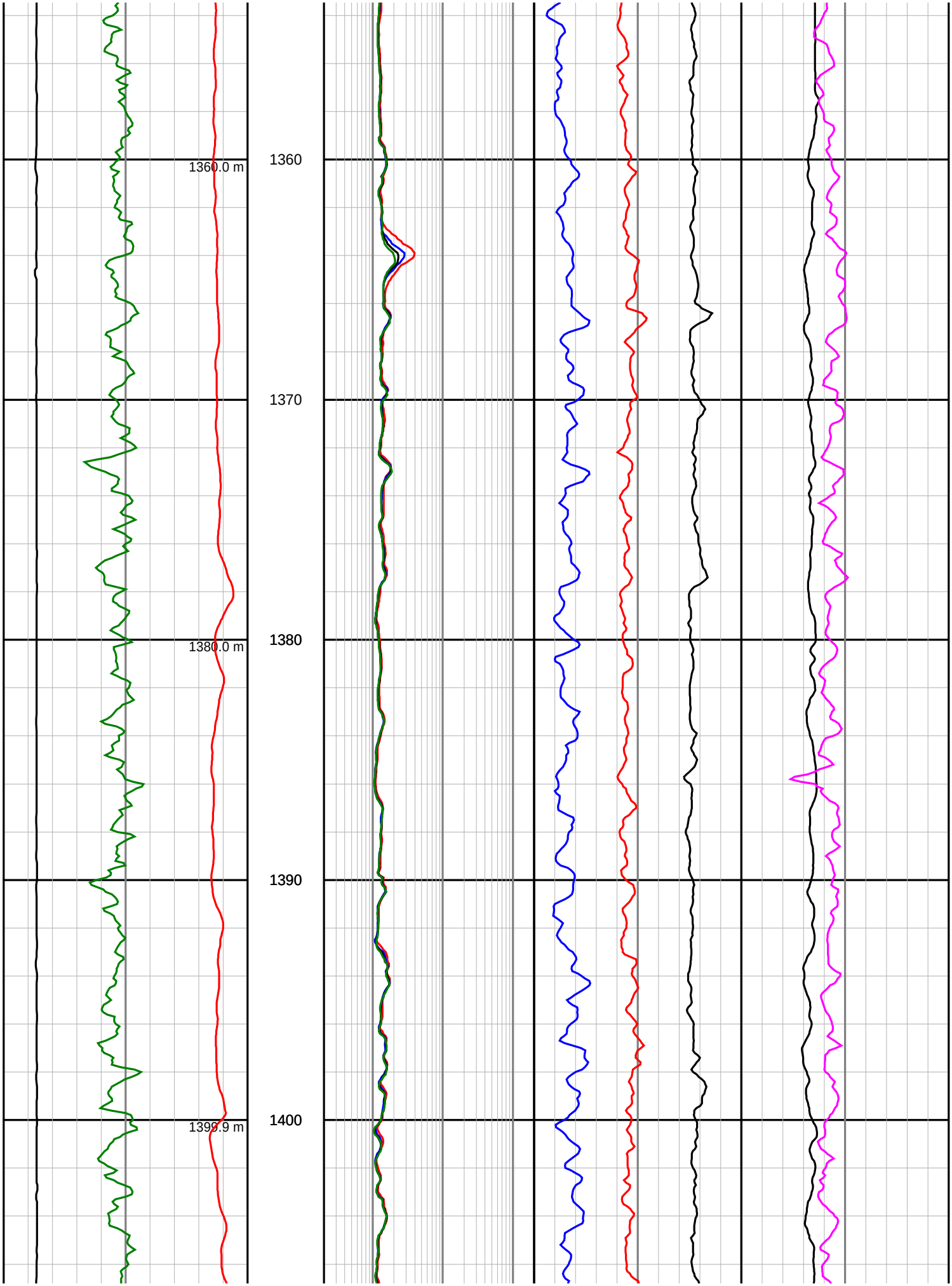

1090
1100
1100.0 m
1110
1120
1120.0 m
1130
1140

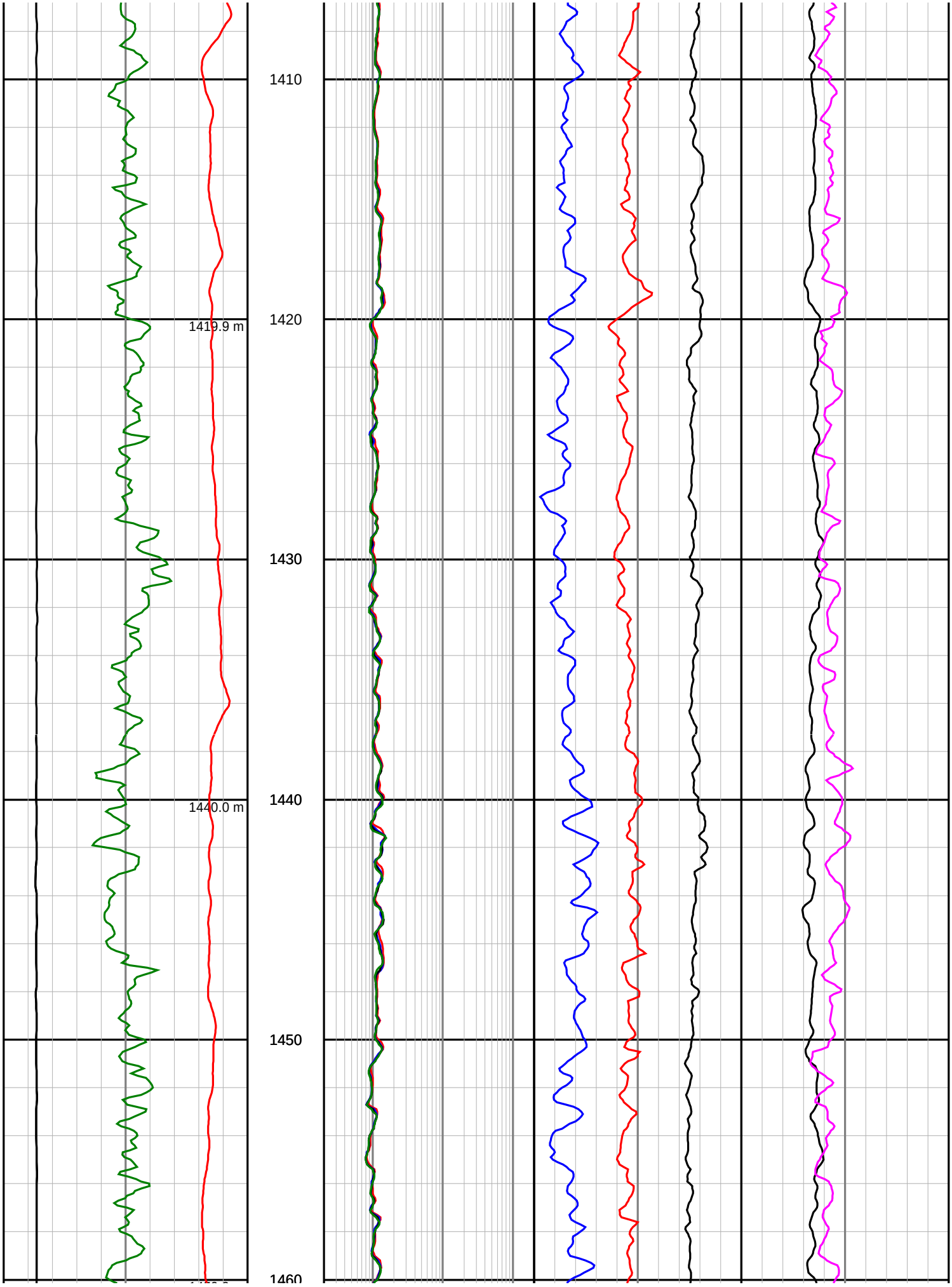

1140.0 m
1150
1160.0 m
1160
1170
1180.0 m
1180
1190

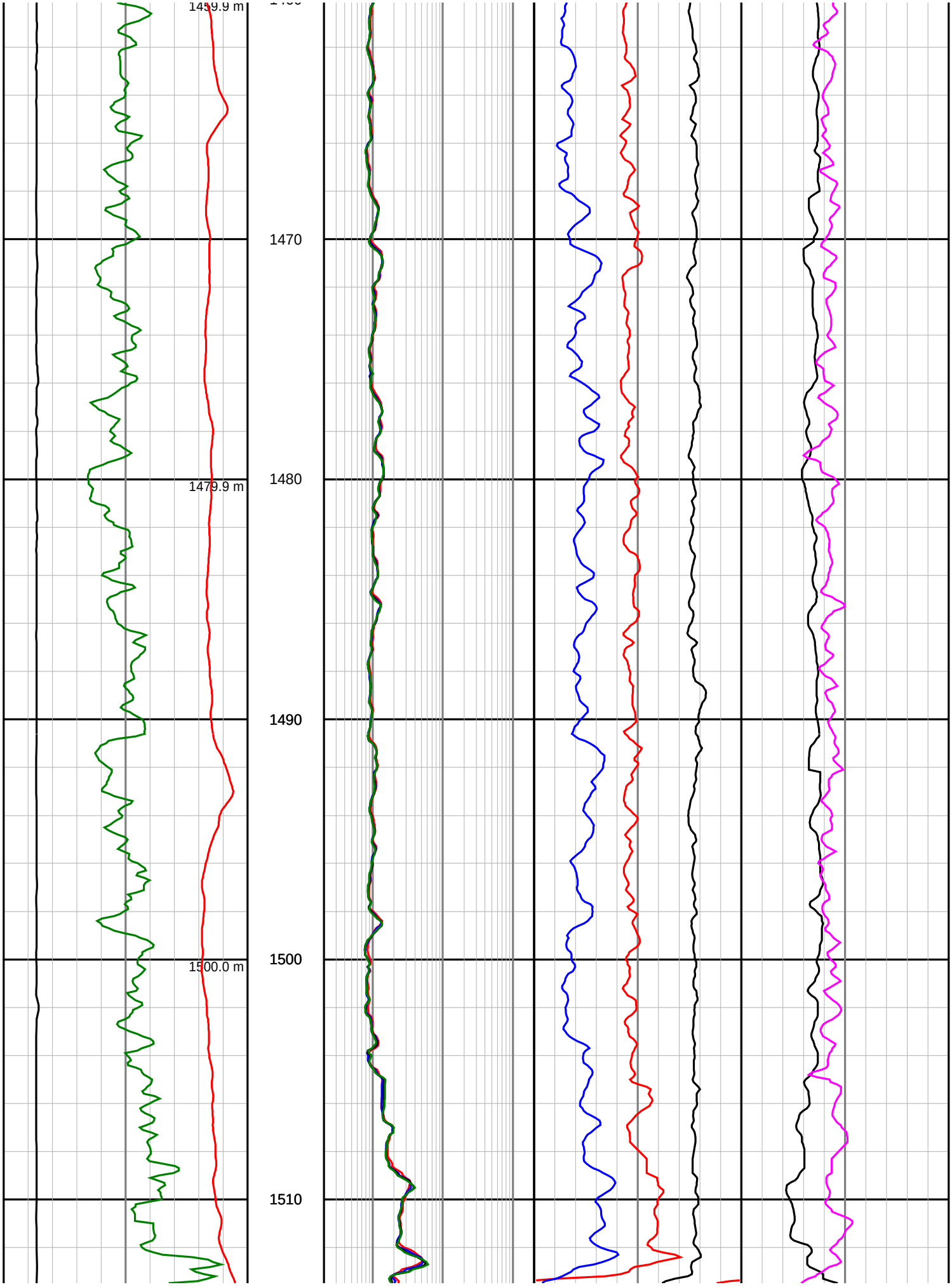

1199.9 m
1200
1210
1219.9 m
1220
1230
1239.9 m
1240

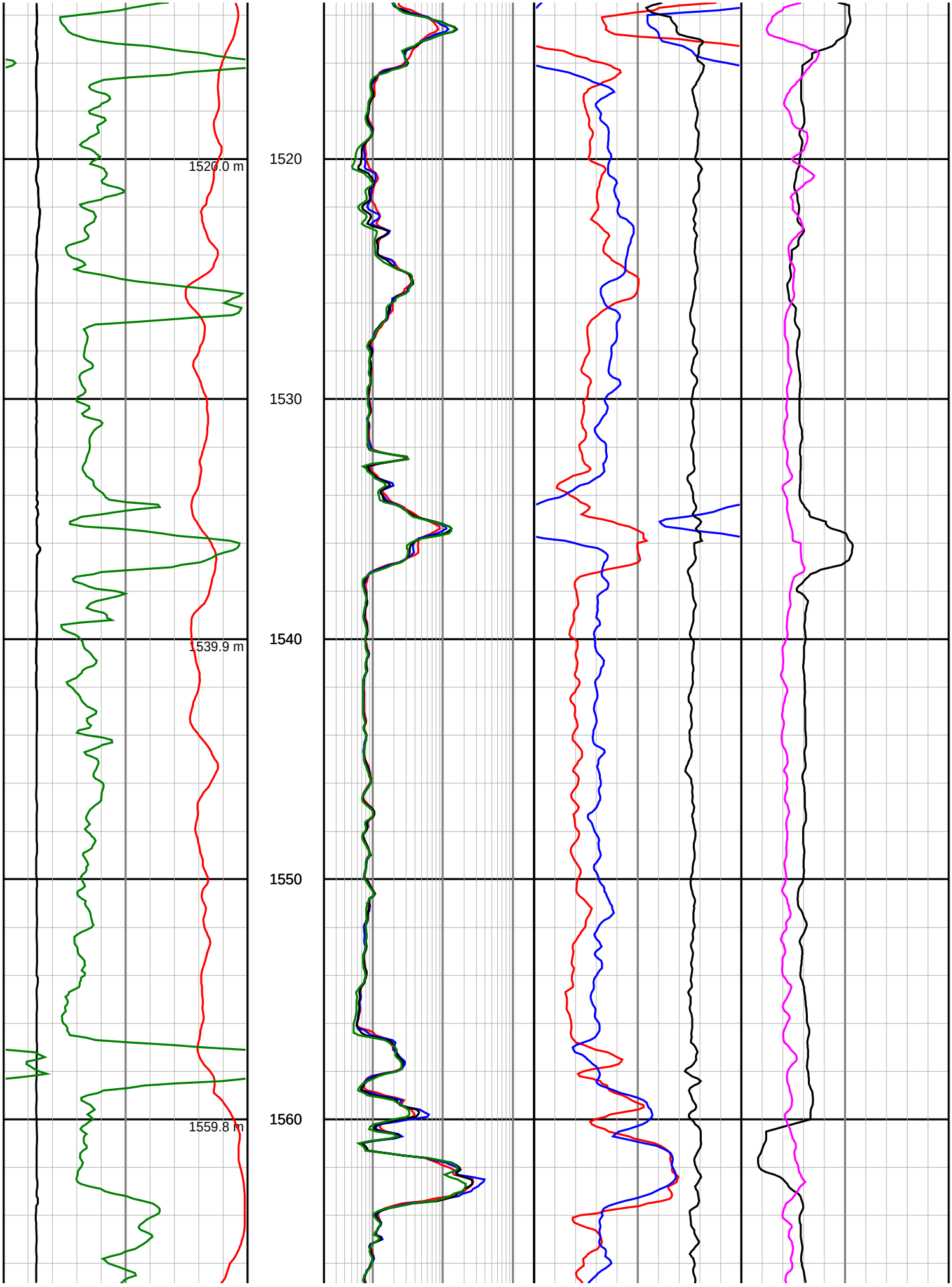

1250
1260
1260.0 m
1270
1279.9 m
1280
1290
1300

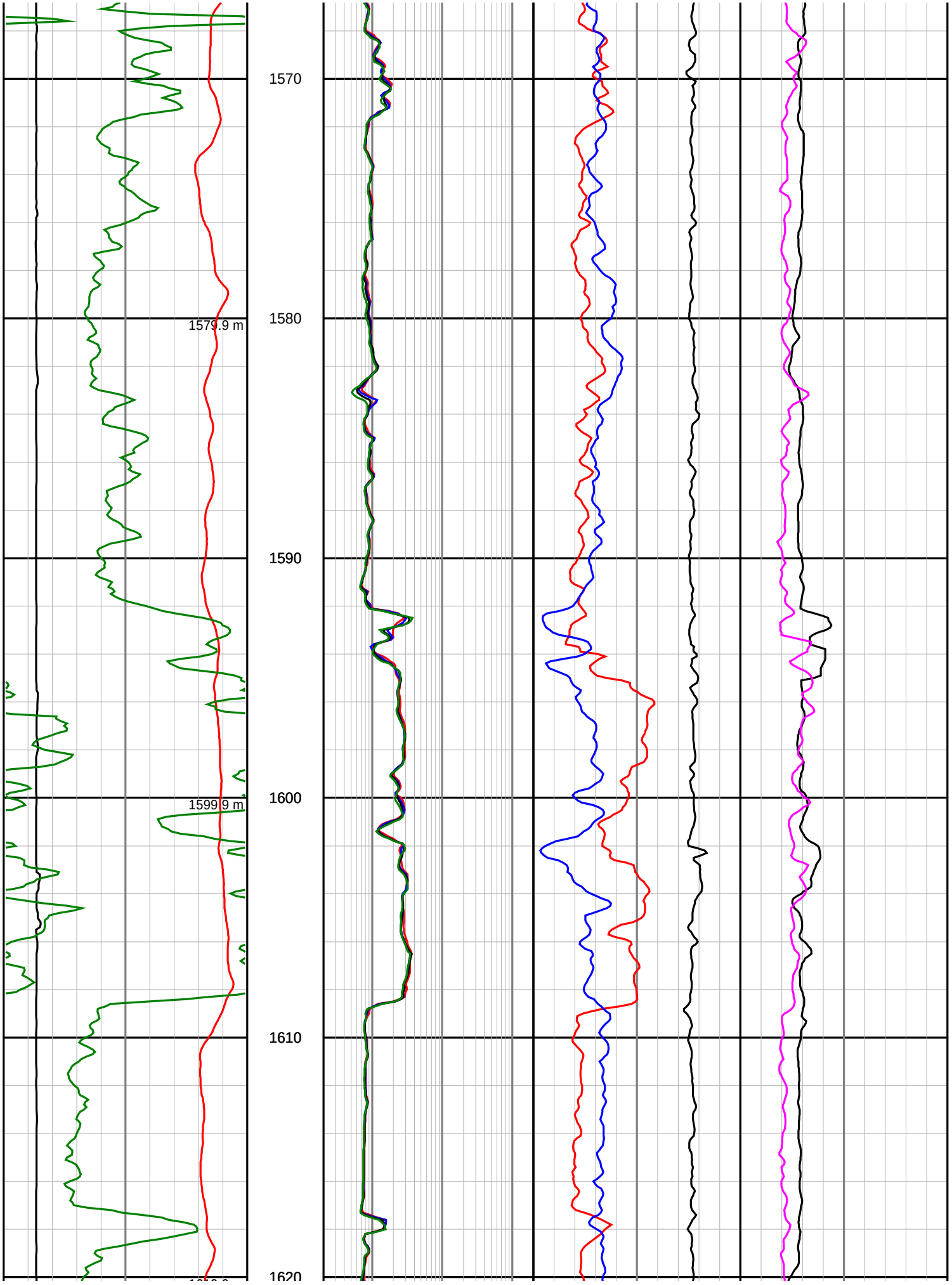

1299.9 m
1310
1319.9 m
1320
1330
1340.0 m
1340
1350

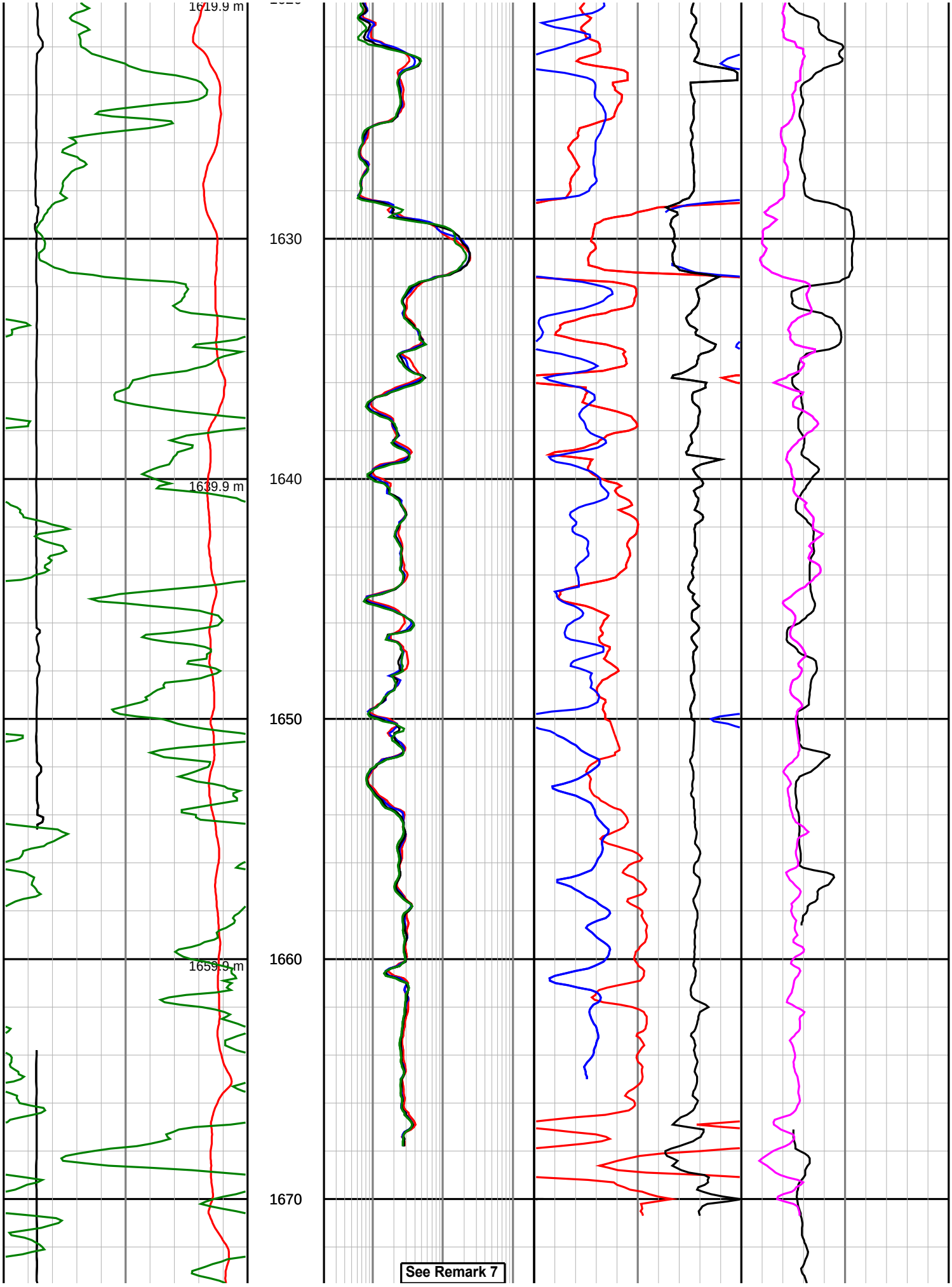

1360.0 m
1380.0 m
1399.9 m
1360
1370
1380
1390
1400

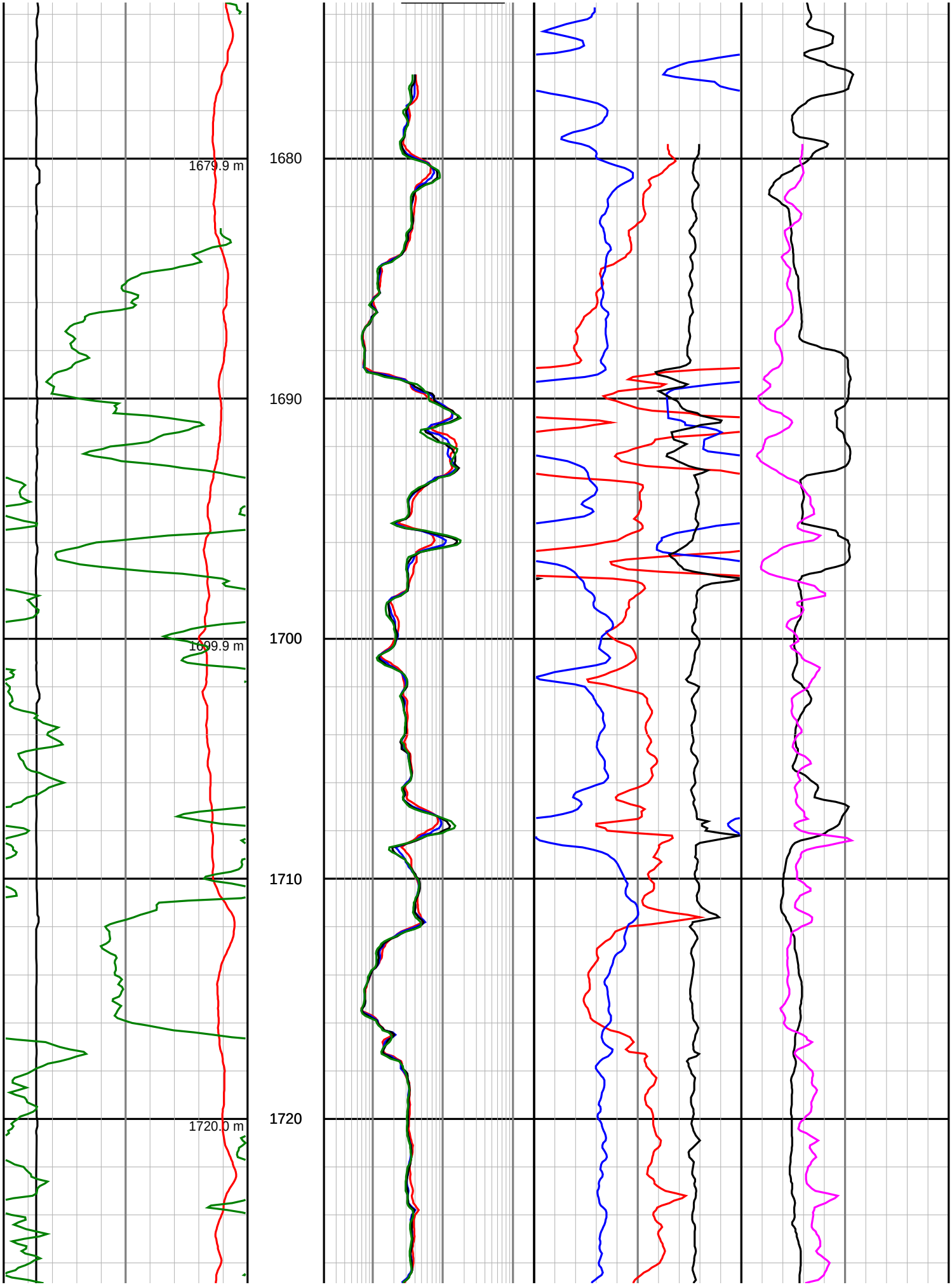

1410
1419.9 m
1420
1430
1440.0 m
1440
1450
1460

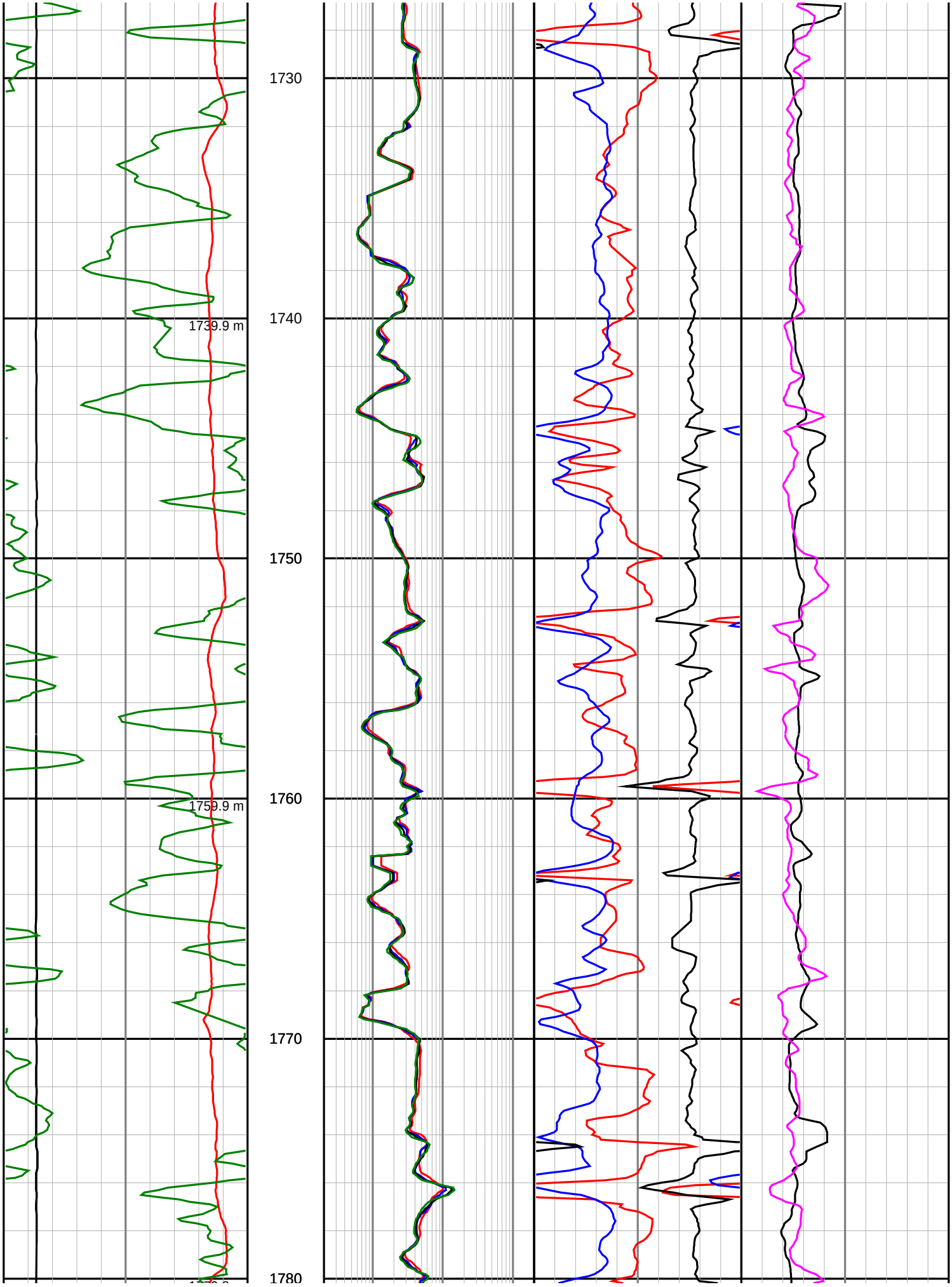

1459.9 m
1470
1479.9 m
1480
1490
1500.0 m
1500
1510

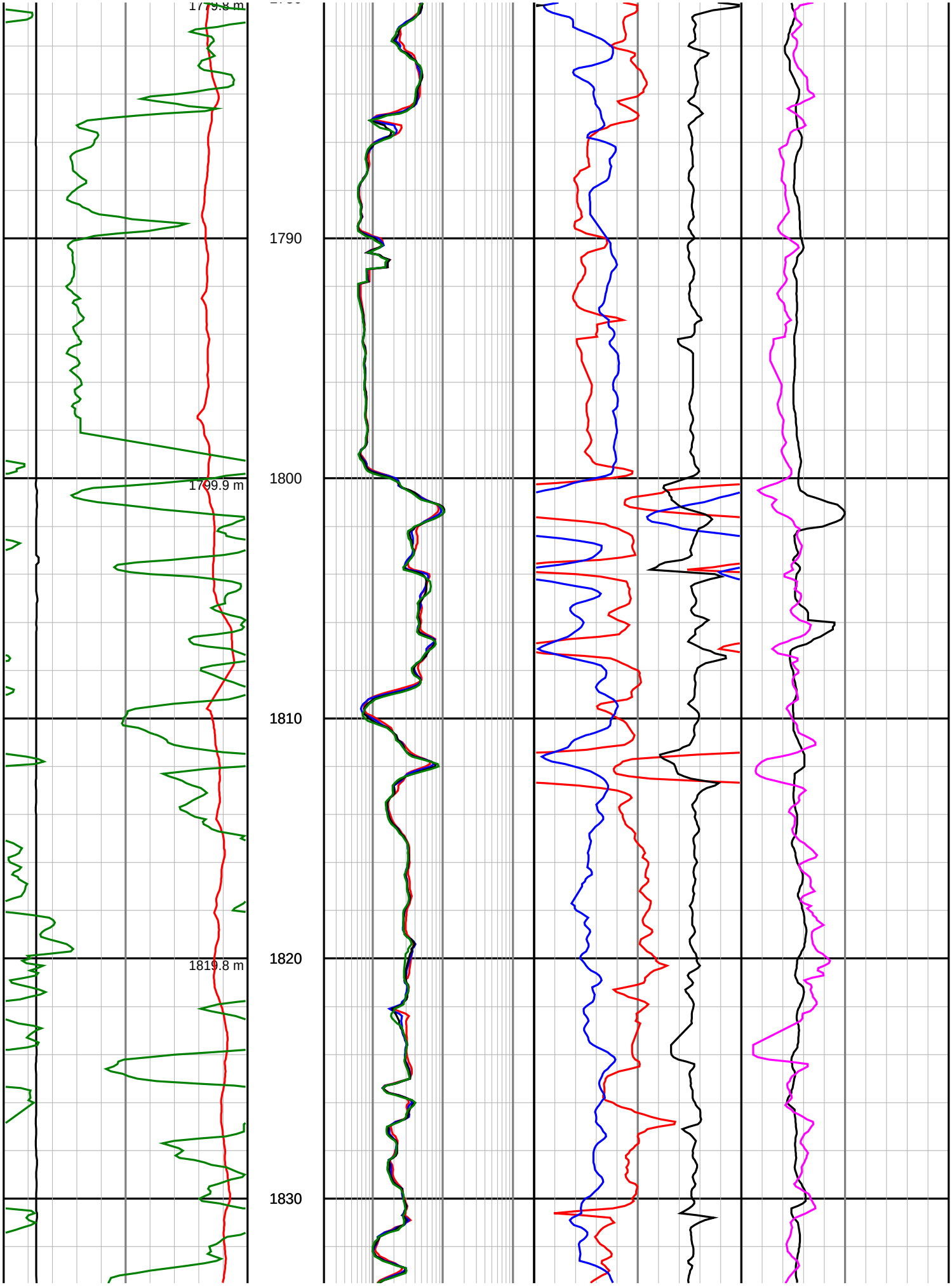

1520.0 m
1539.9 m
1559.8 m
1520
1530
1540
1550
1560

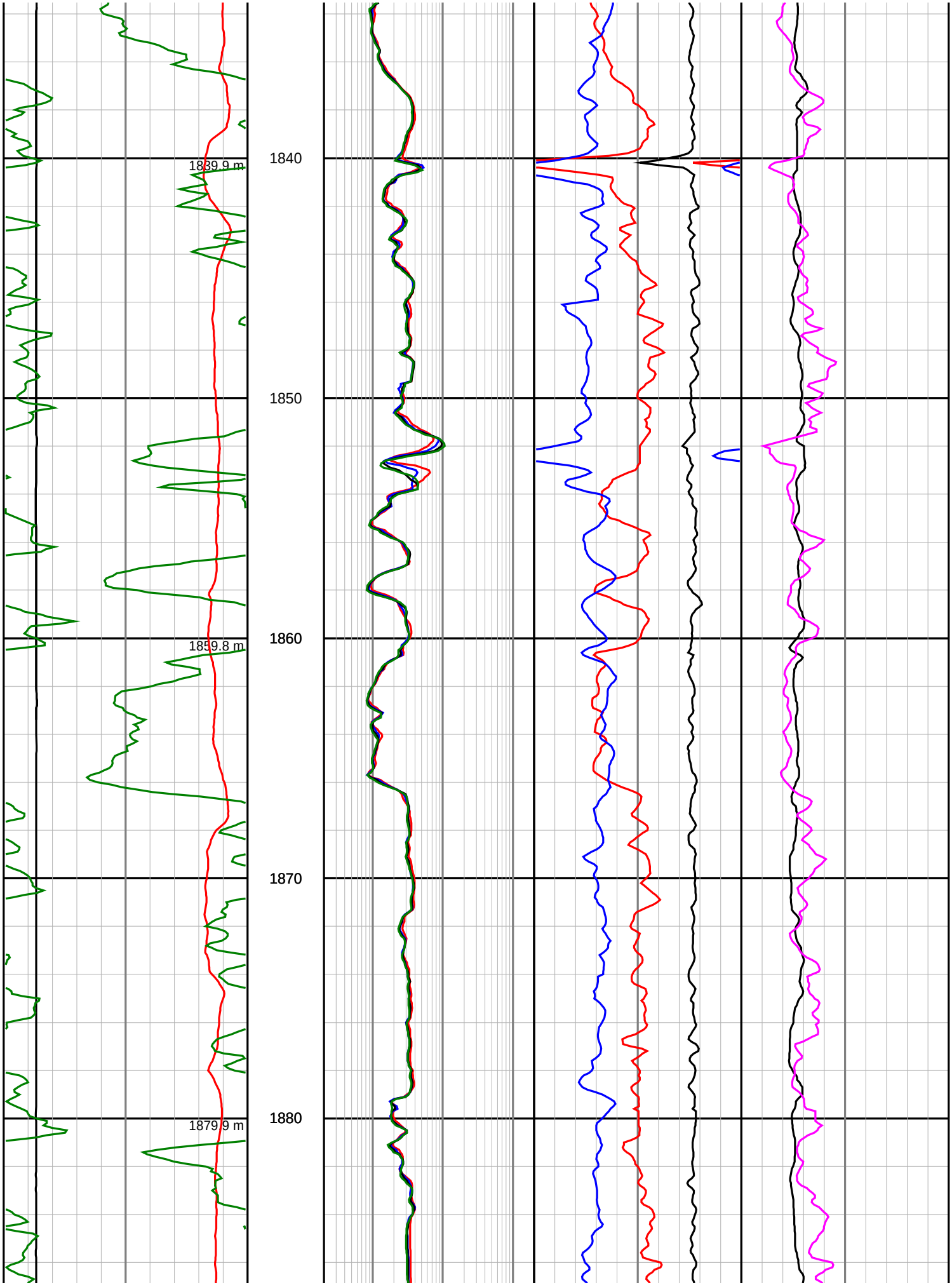

1579.9 m
1599.9 m
1570
1580
1590
1600
1610
1620

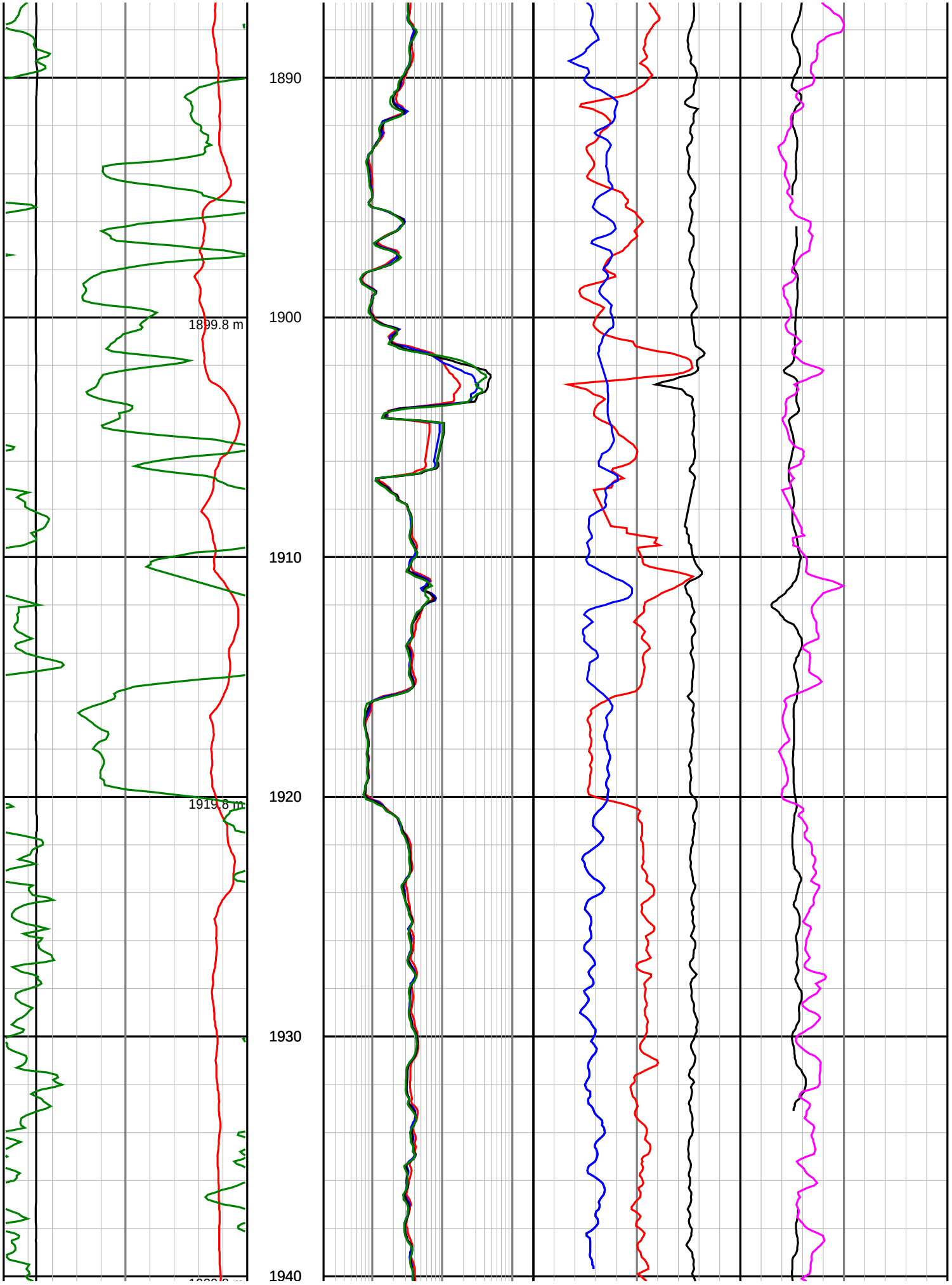

1619.9 m
1630
1639.9 m
1640
1650
1660
1659.9 m
1670
See Remark 7

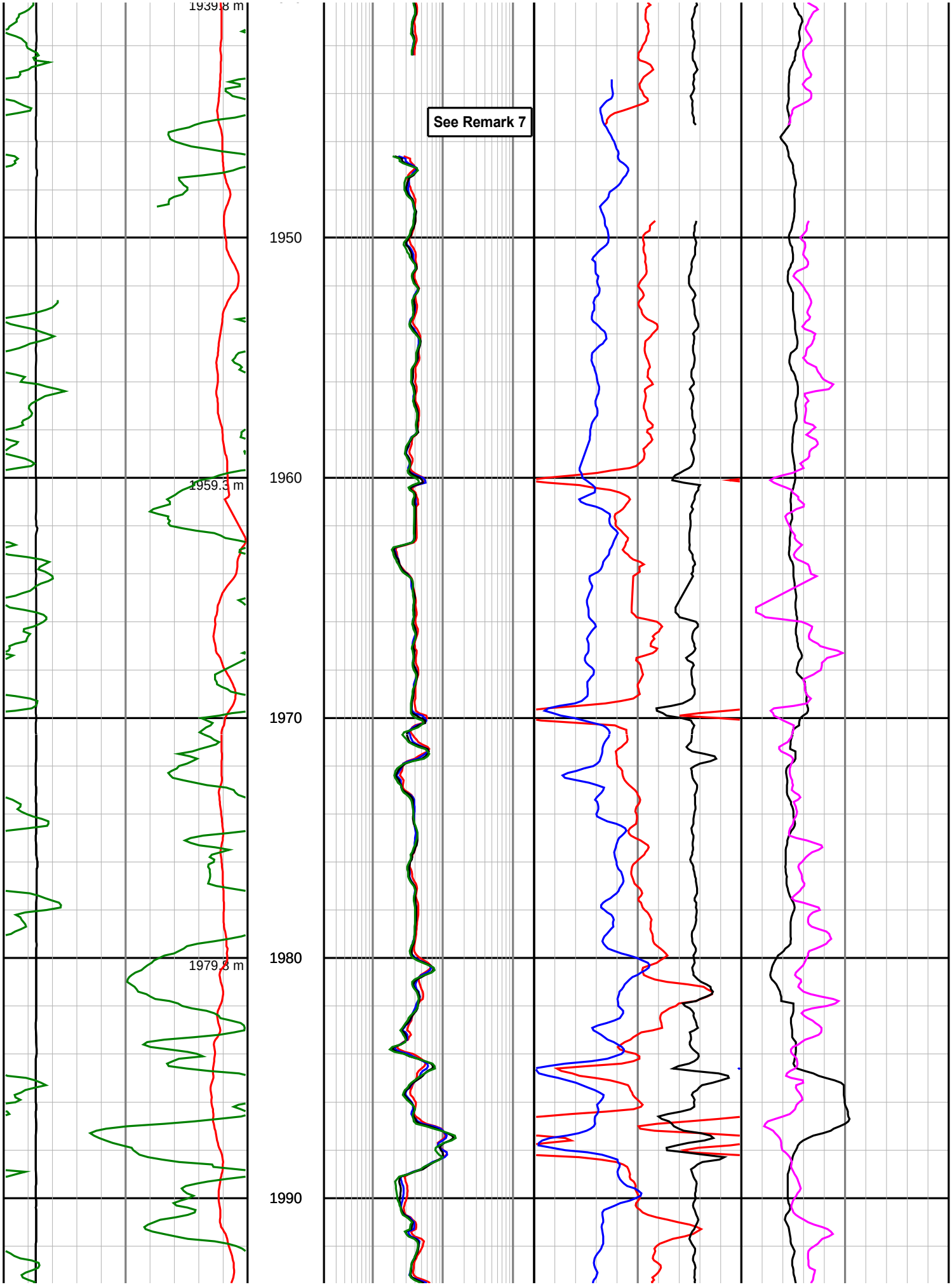

1679.9 m
1680
1690
1699.9 m
1700
1710
1720.0 m
1720

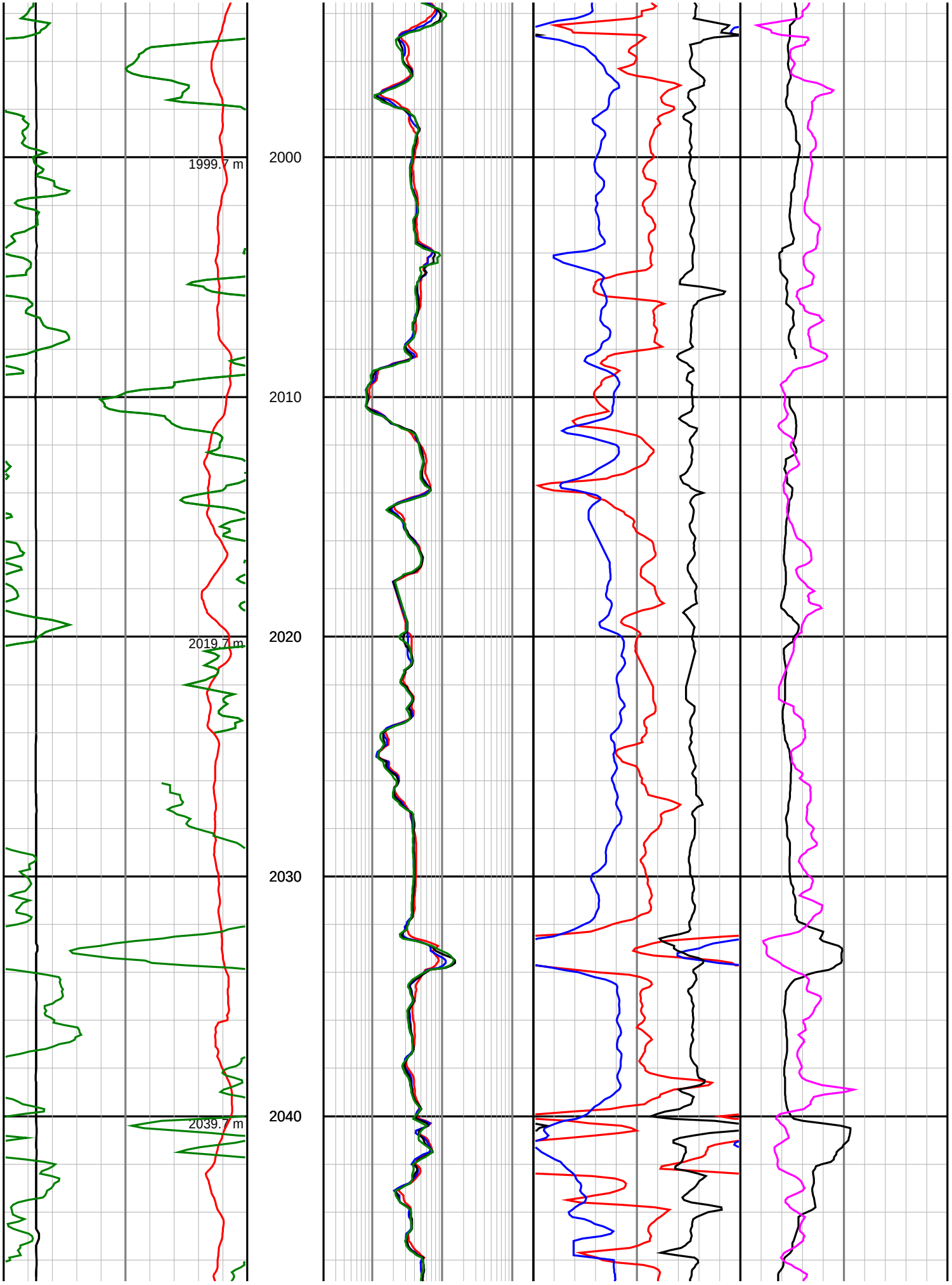

1730
1739.9 m
1740
1750
1759.9 m
1760
1770
1780

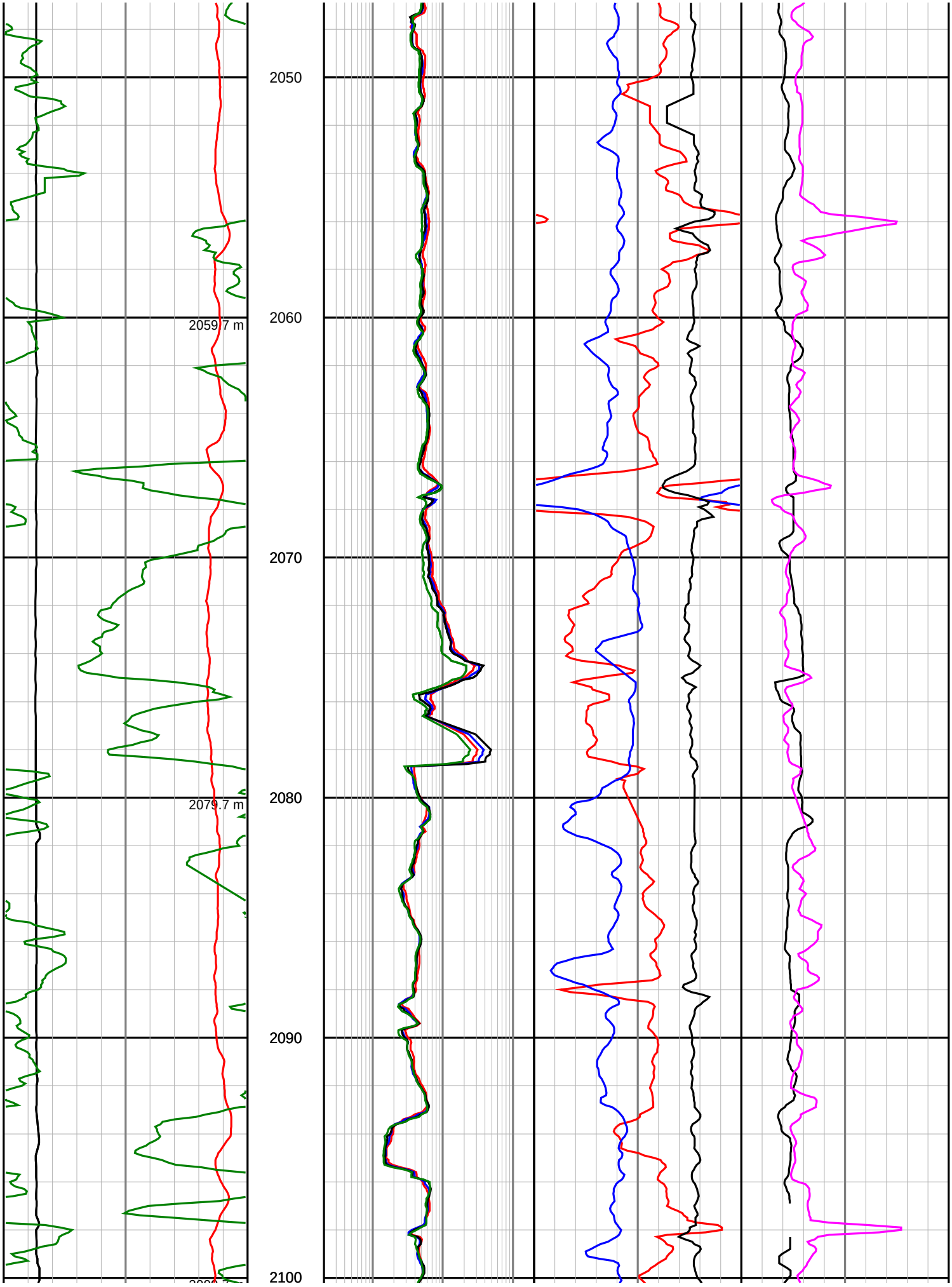

1799.9 m
1819.8 m
1790
1800
1810
1820
1830

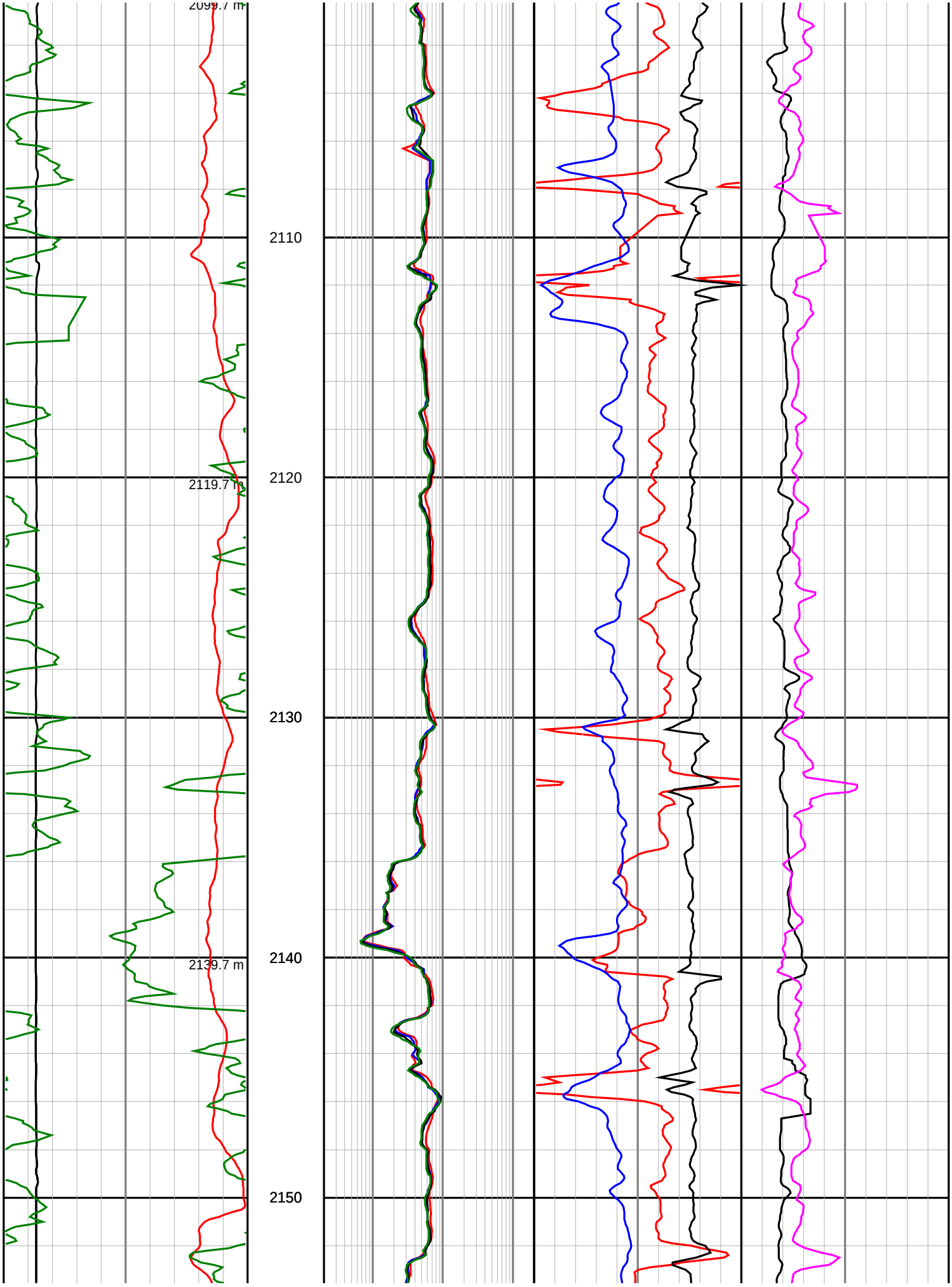

1839.9 m
1859.8 m
1879.9 m
1840
1850
1860
1870
1880

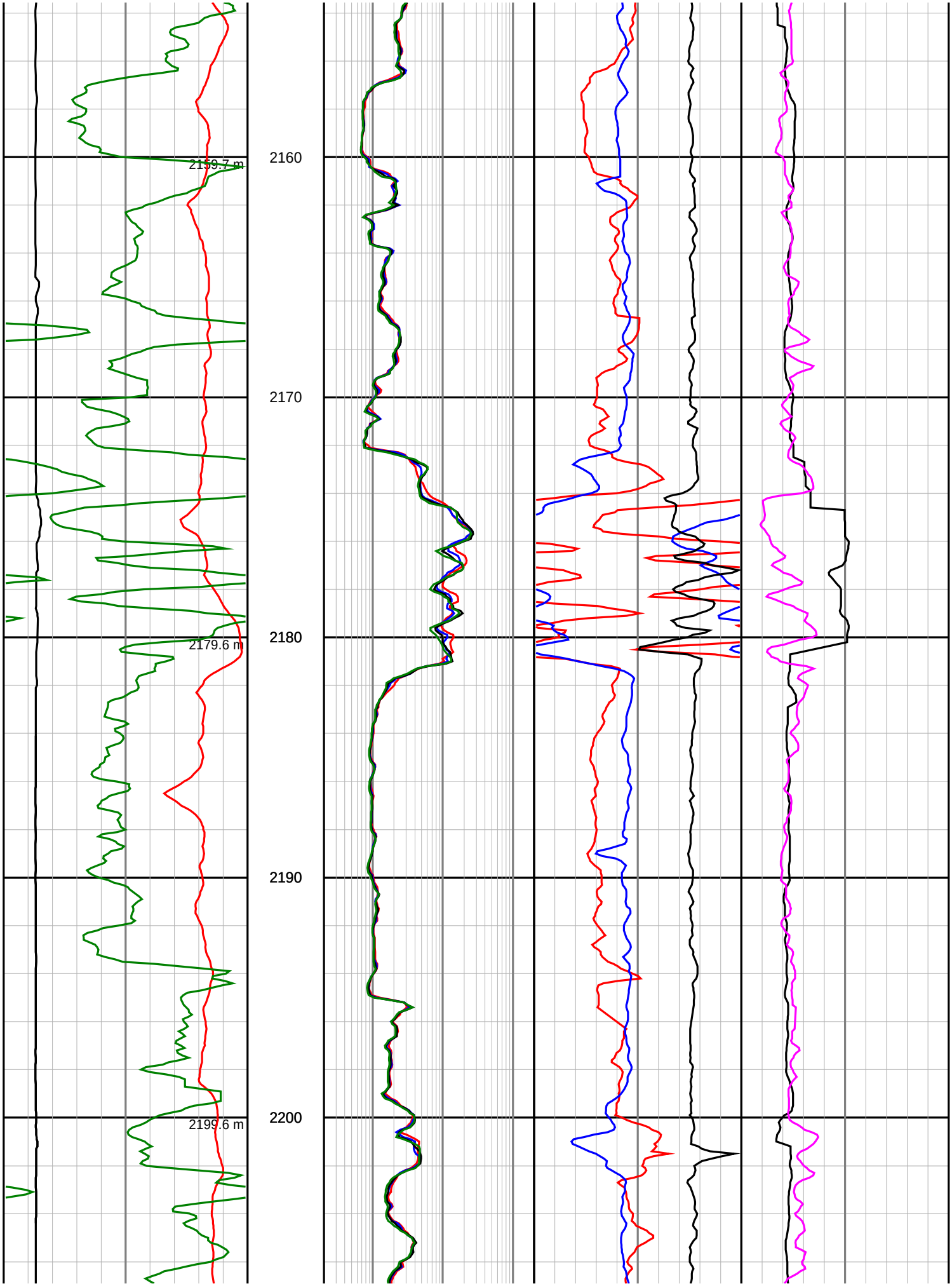

1890
1899.8 m
1900
1910
1919.8 m
1920
1930
1940

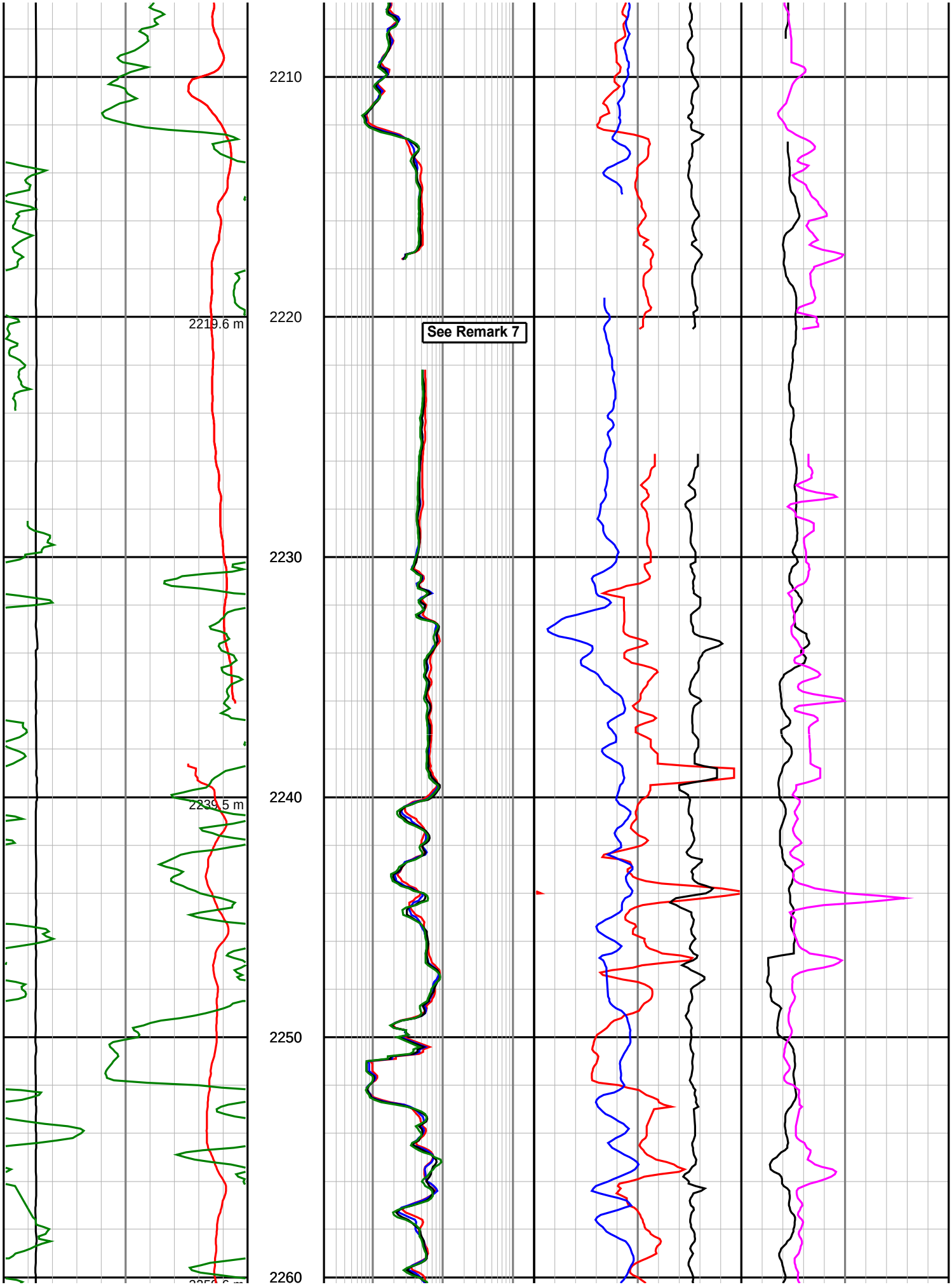

See Remark 7
1950
1960
1970
1980
1990
1959.3 m
1979.8 m

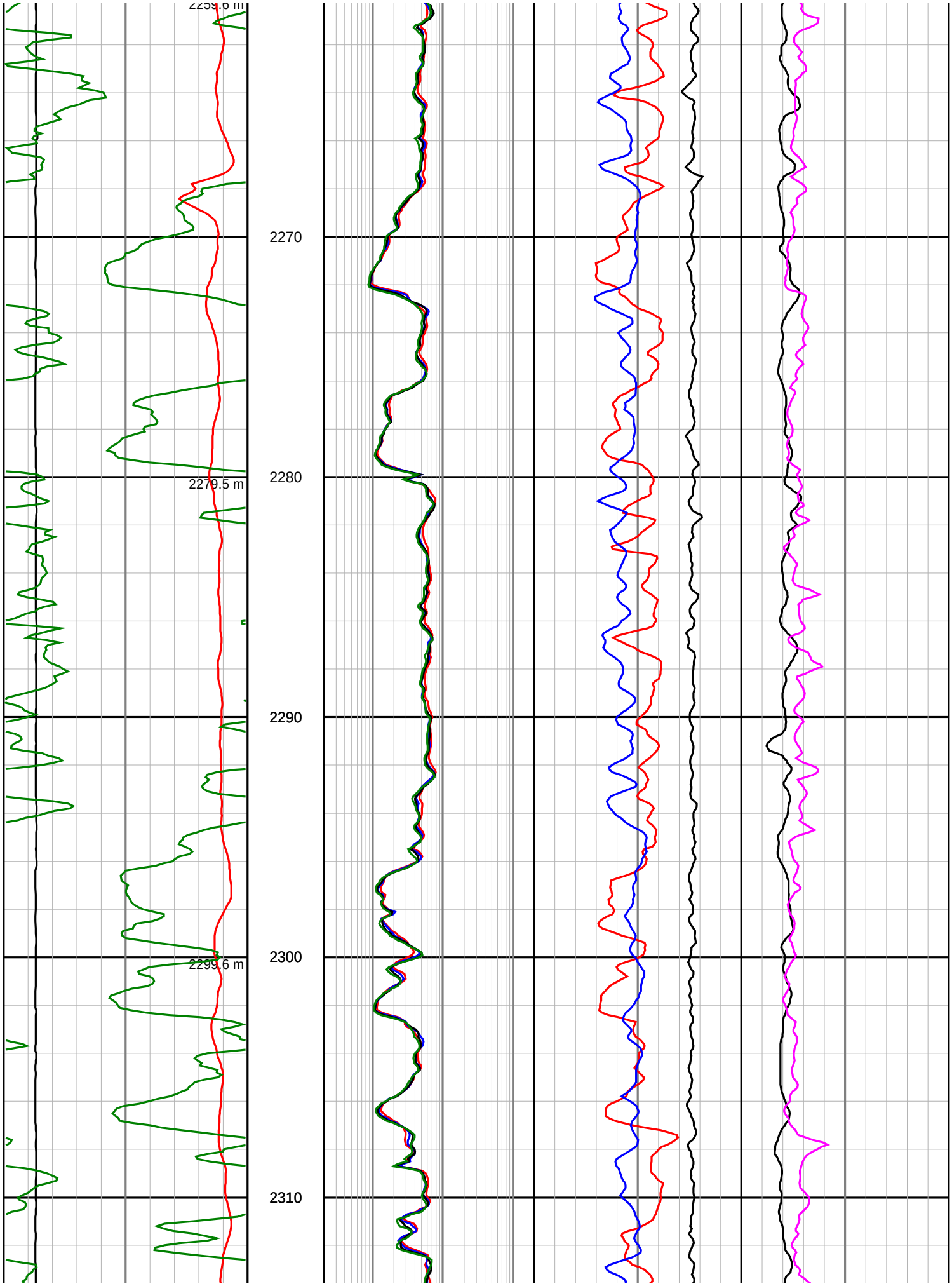

1999.7 m
2000
2010
2019.7 m
2020
2030
2039.7 m
2040

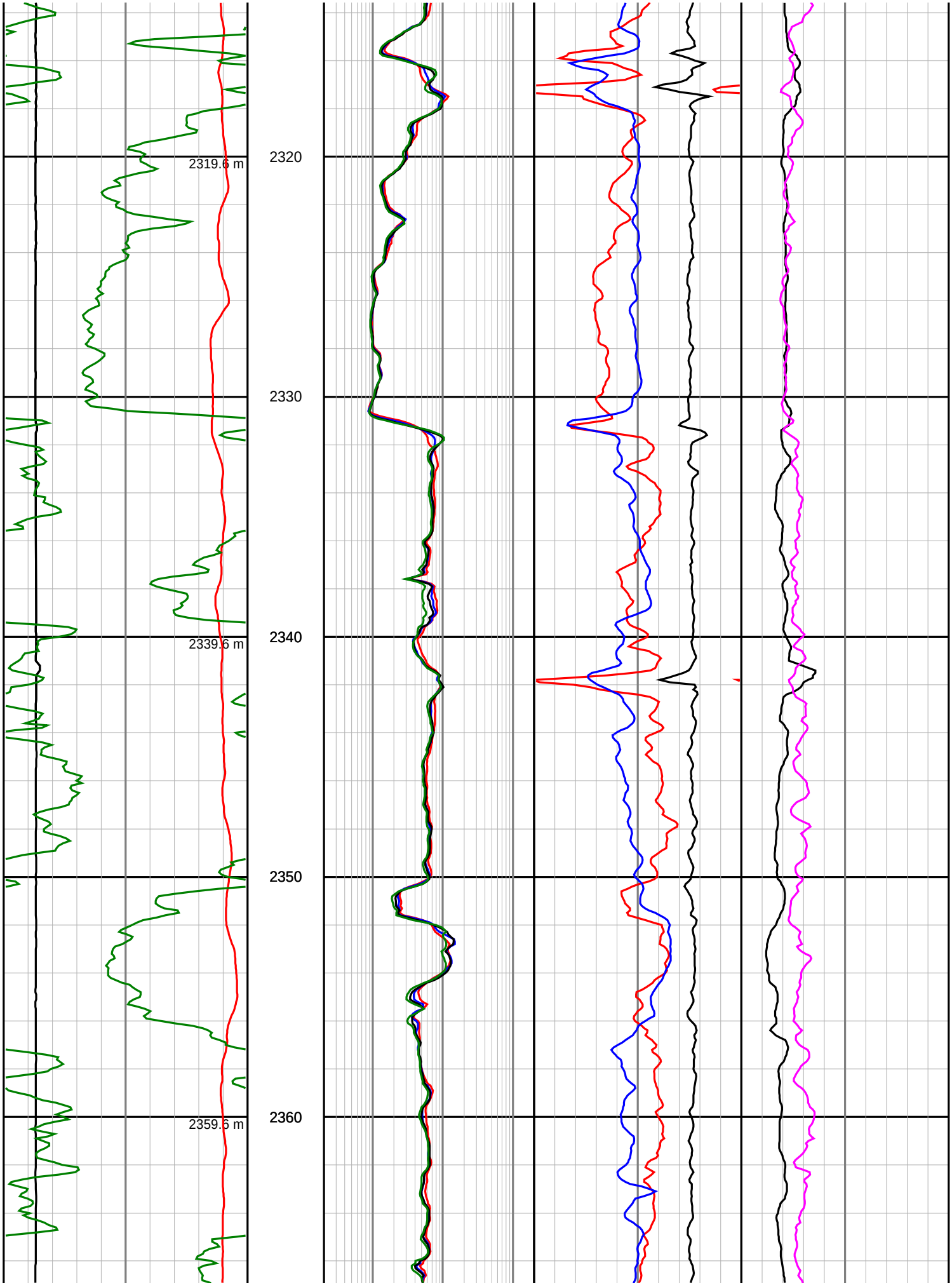

2050
2059.7 m
2060
2070
2079.7 m
2080
2090
2100

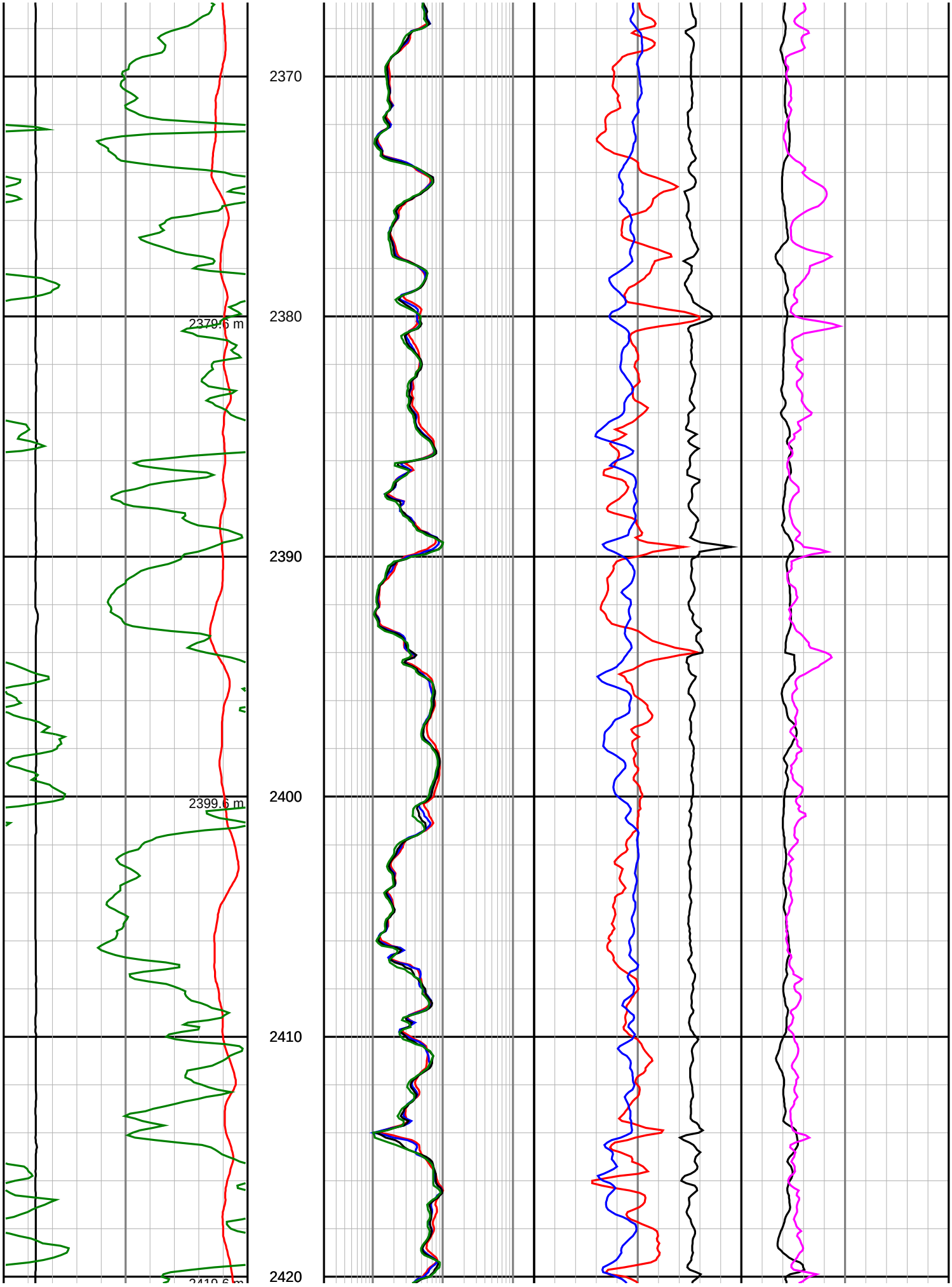

2099.7 m
2110
2119.7 m
2120
2130
2139.7 m
2140
2150

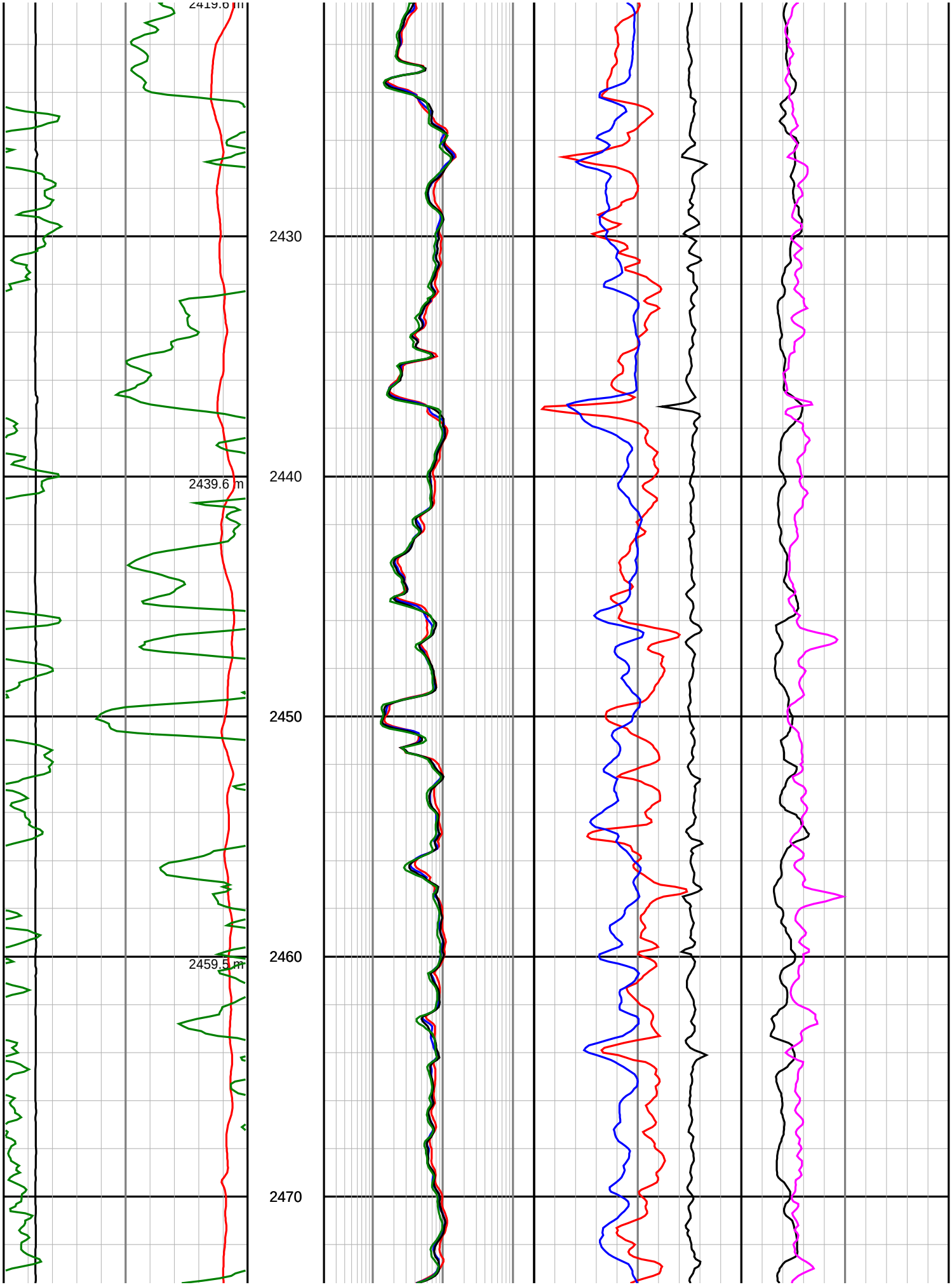

2159.7 m
2160
2170
2179.6 m
2180
2190
2199.6 m
2200

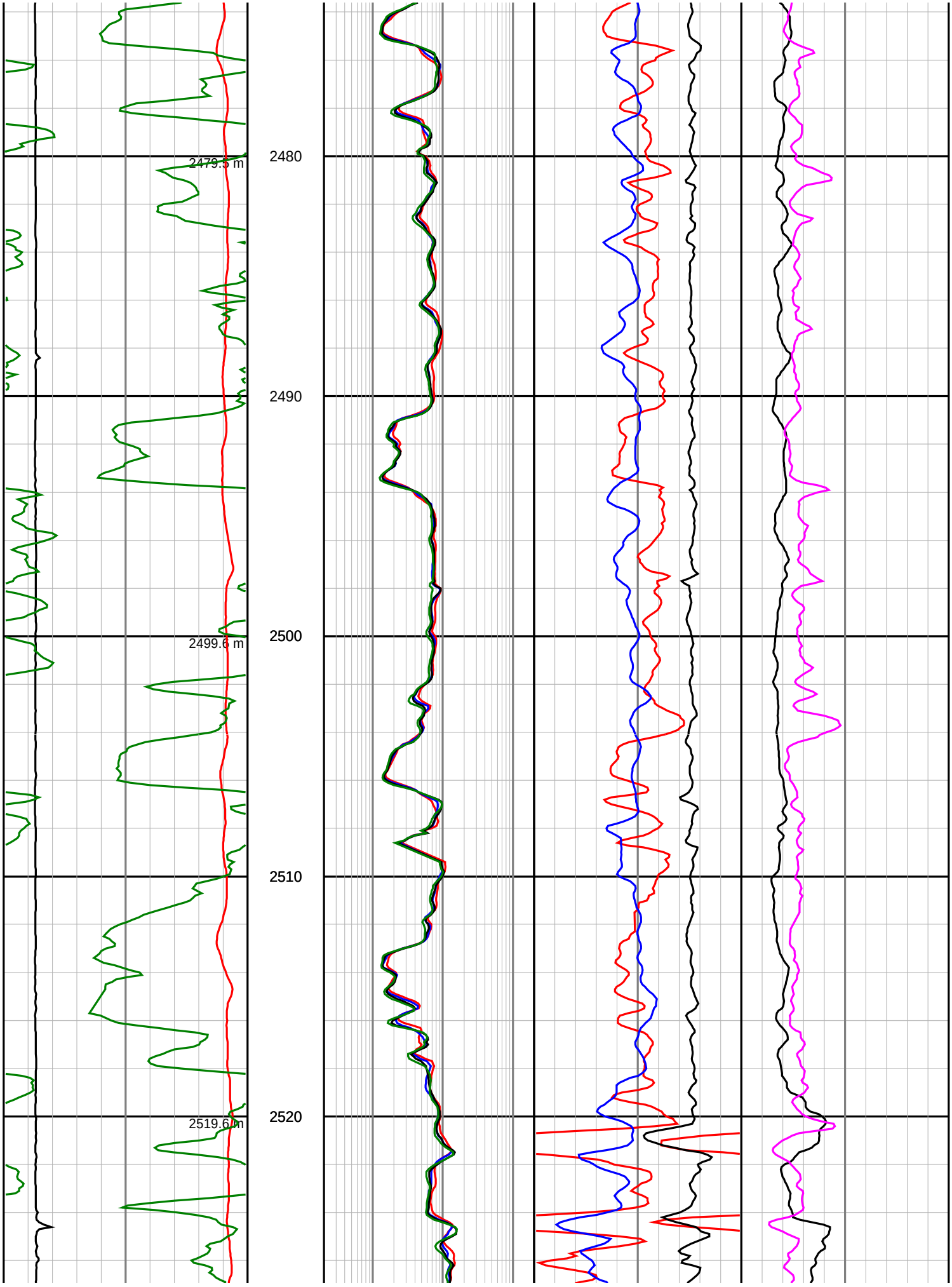

2210
2220
2230
2240
2250
2260
2219.6 m
2239.5 m
See Remark 7

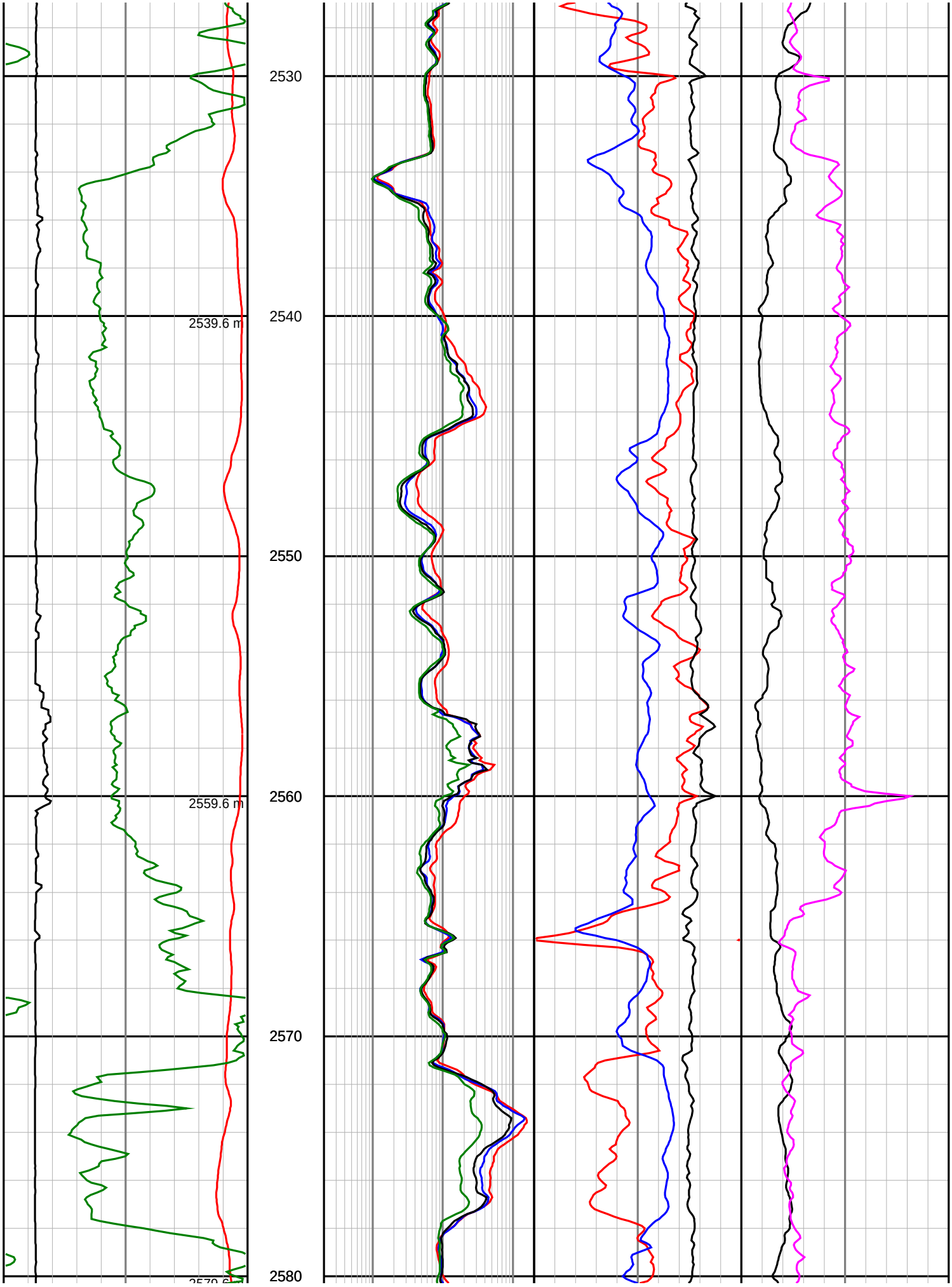

2259.6 m
2279.5 m
2299.6 m
2270
2280
2290
2300
2310

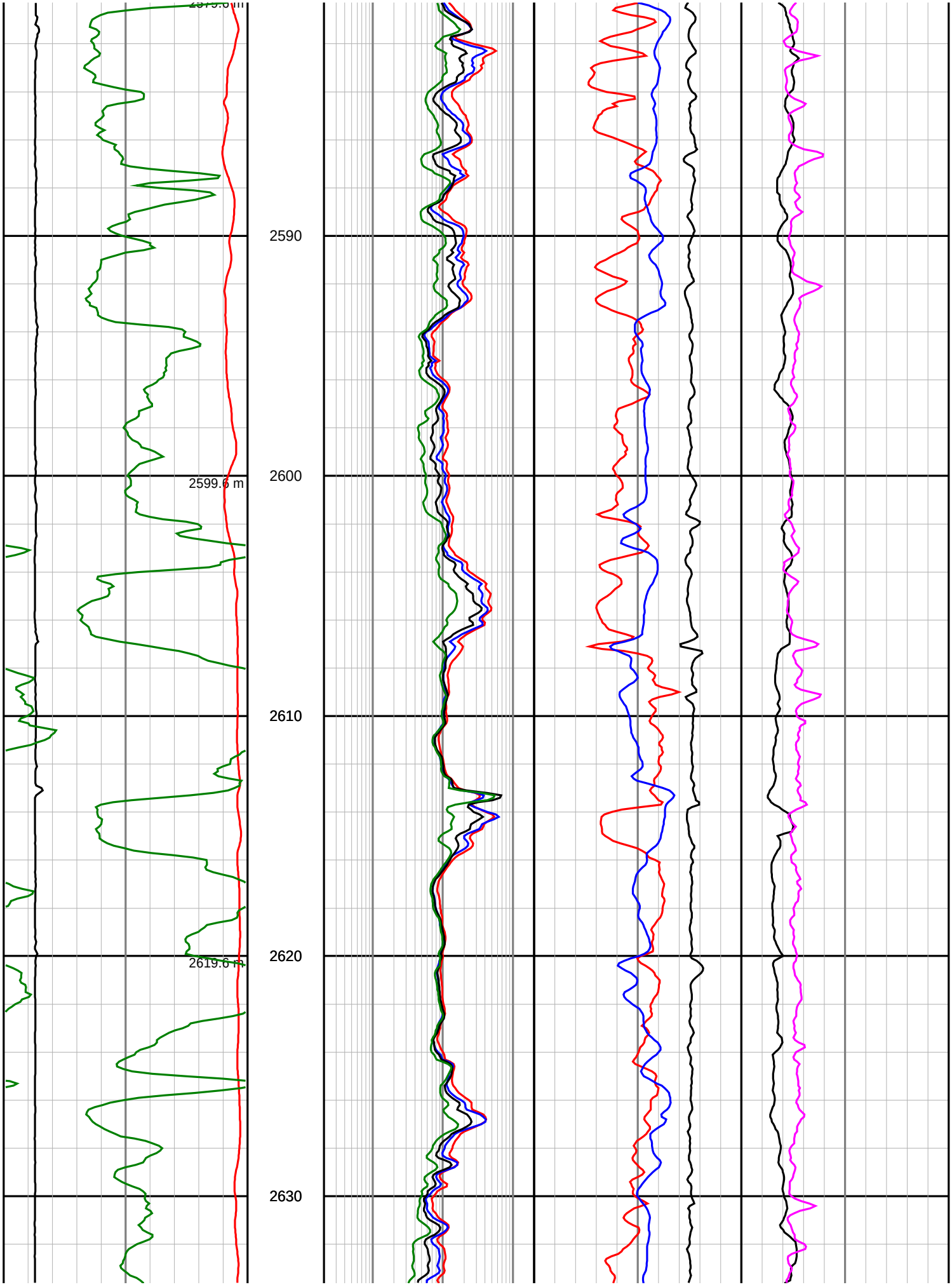

2319.6 m
2320
2330
2339.6 m
2340
2350
2359.6 m
2360

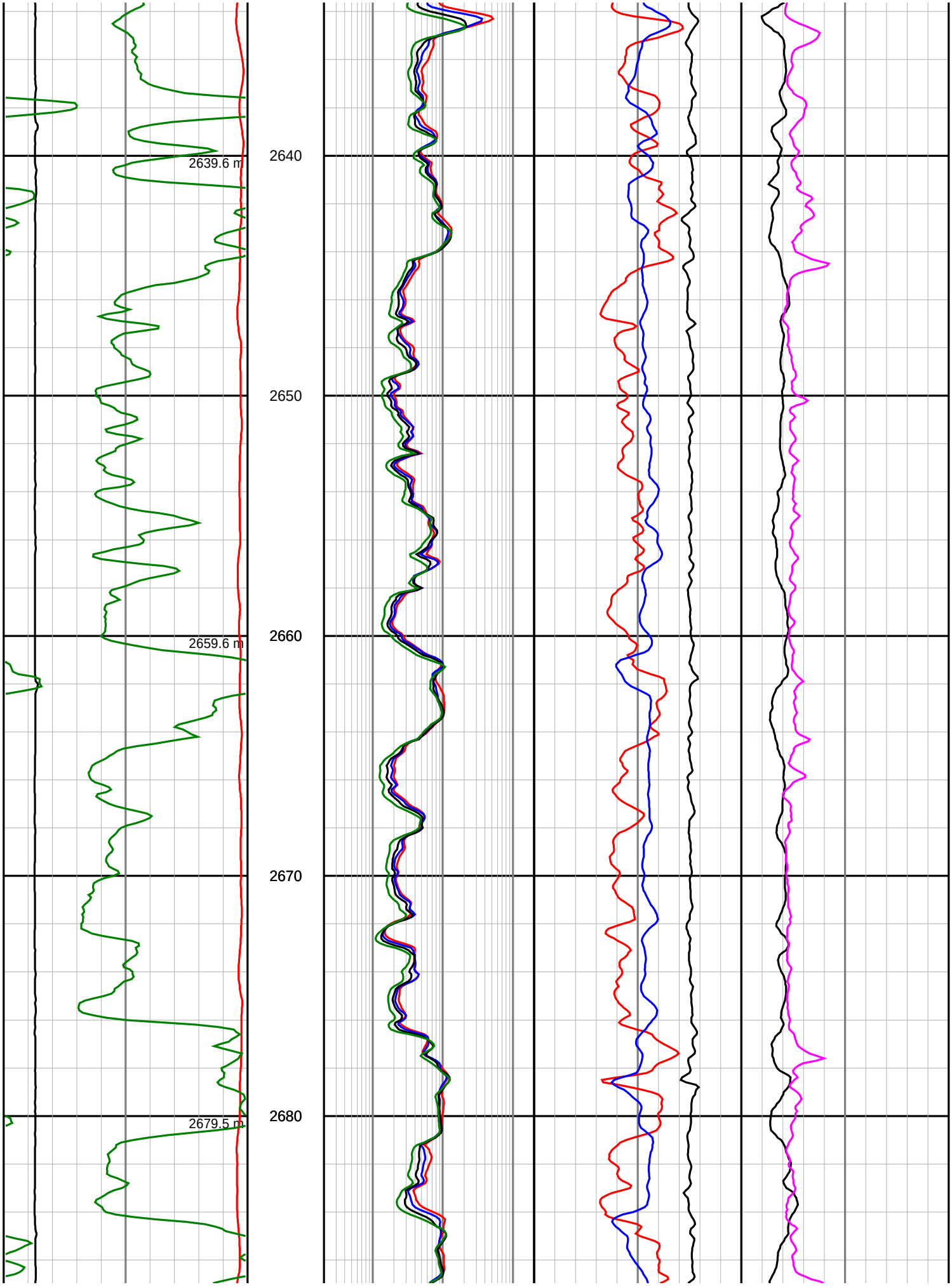

2370
2379.6 m
2380
2390
2399.6 m
2400
2410
2420

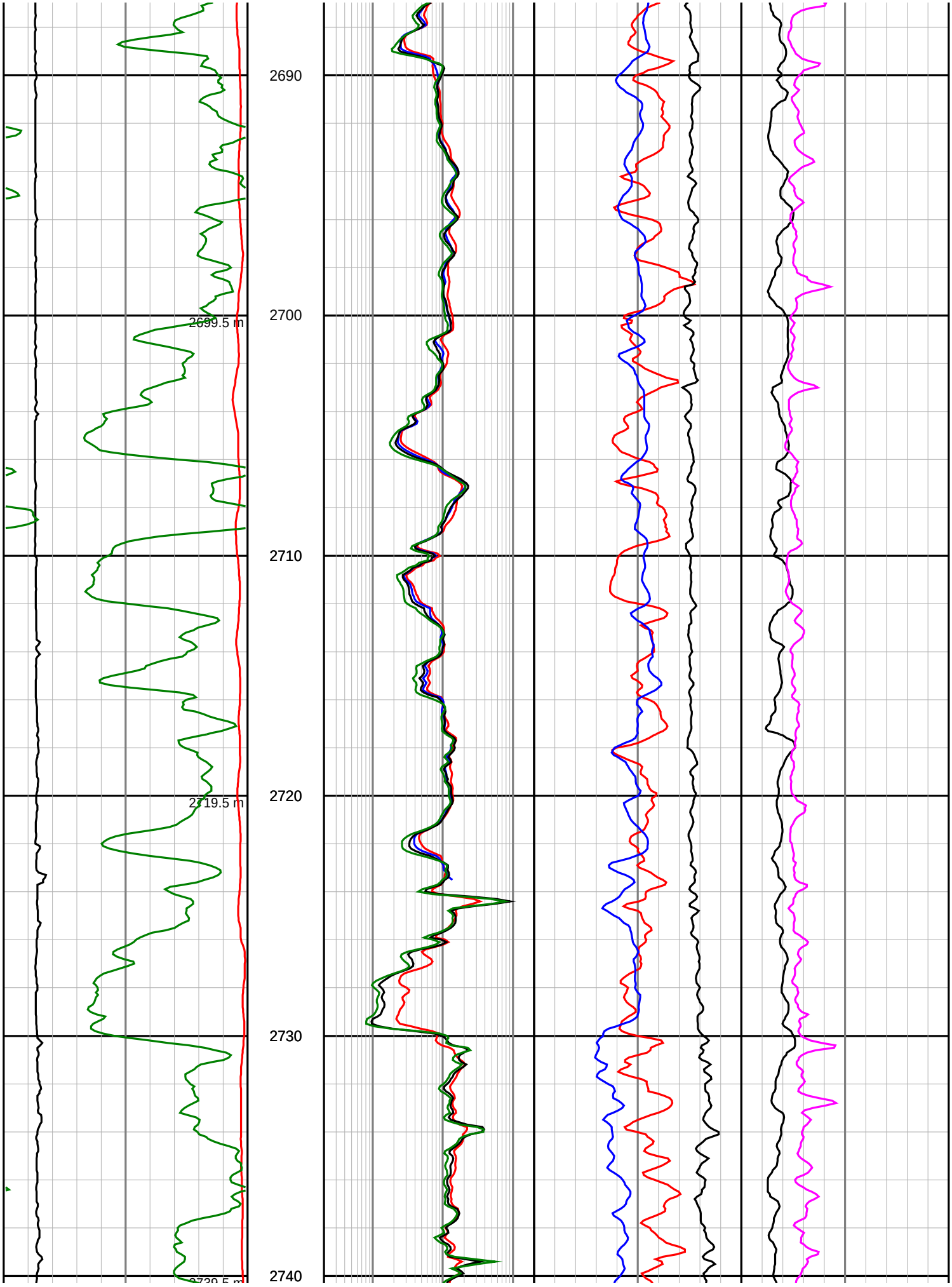

2419.6 m
2430
2439.6 m
2440
2450
2459.5 m
2460
2470

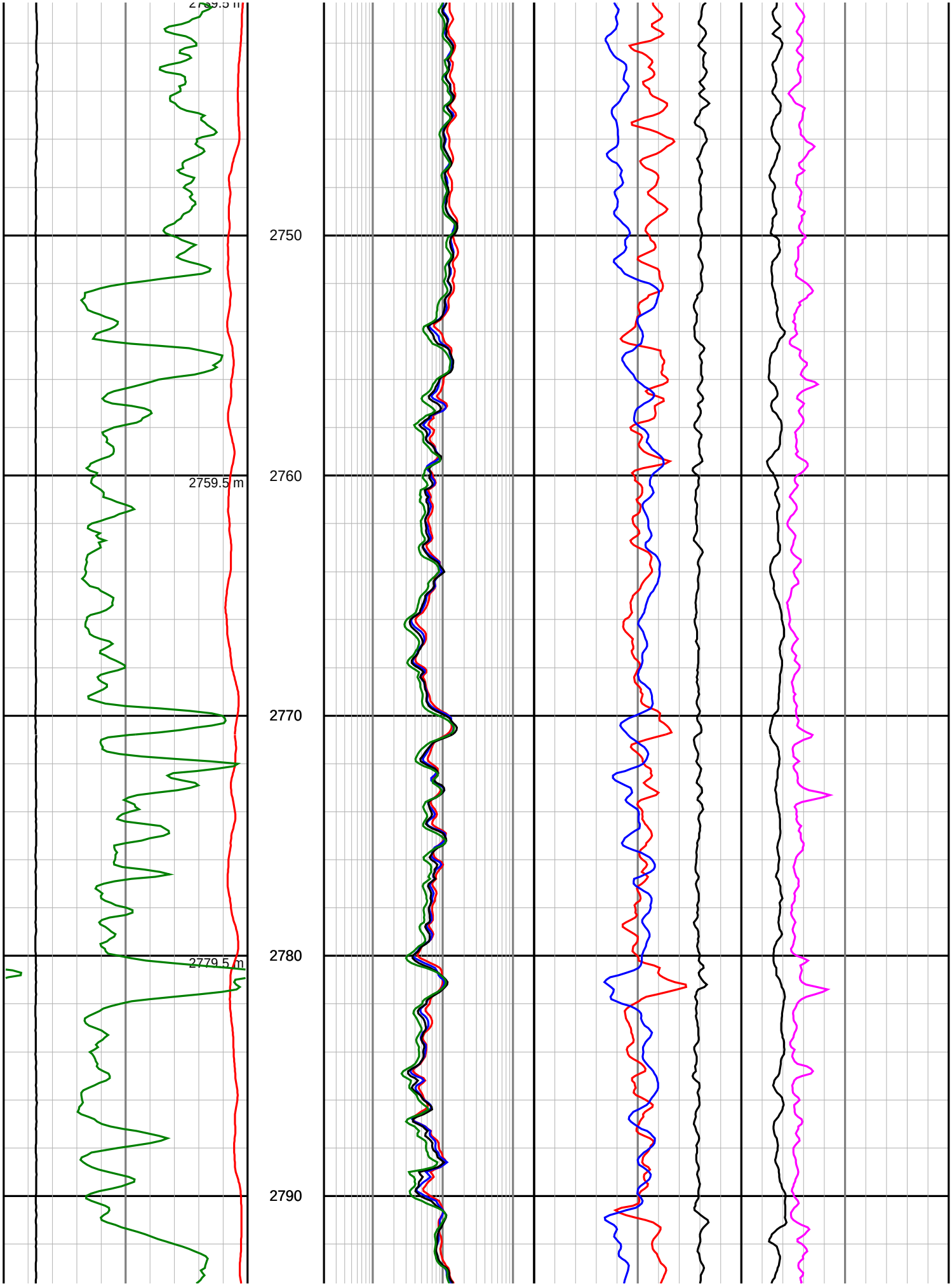

2479.5 m
2480
2490
2499.6 m
2500
2510
2519.6 m
2520

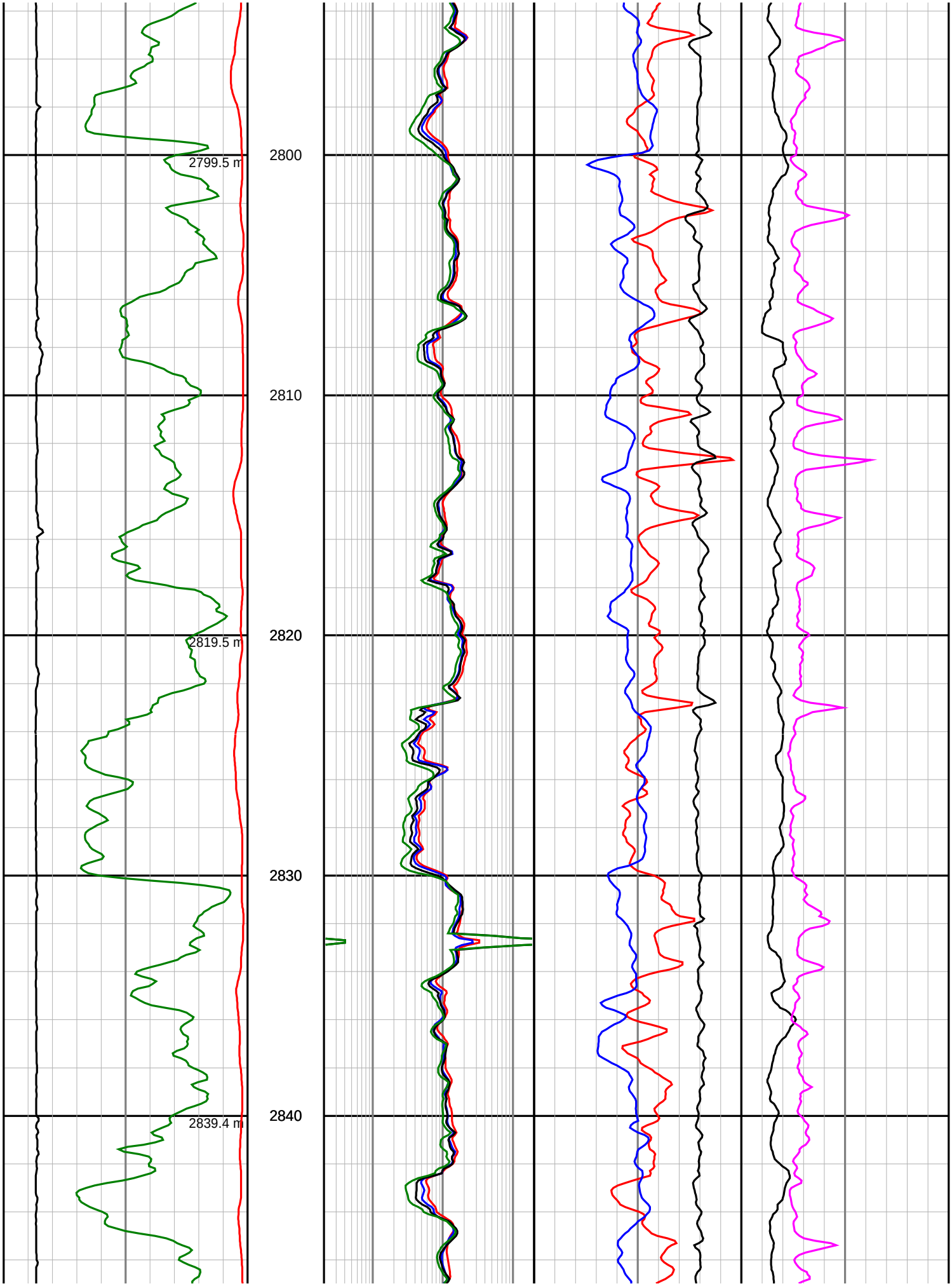

2530
2539.6 m
2540
2550
2559.6 m
2560
2570
2580

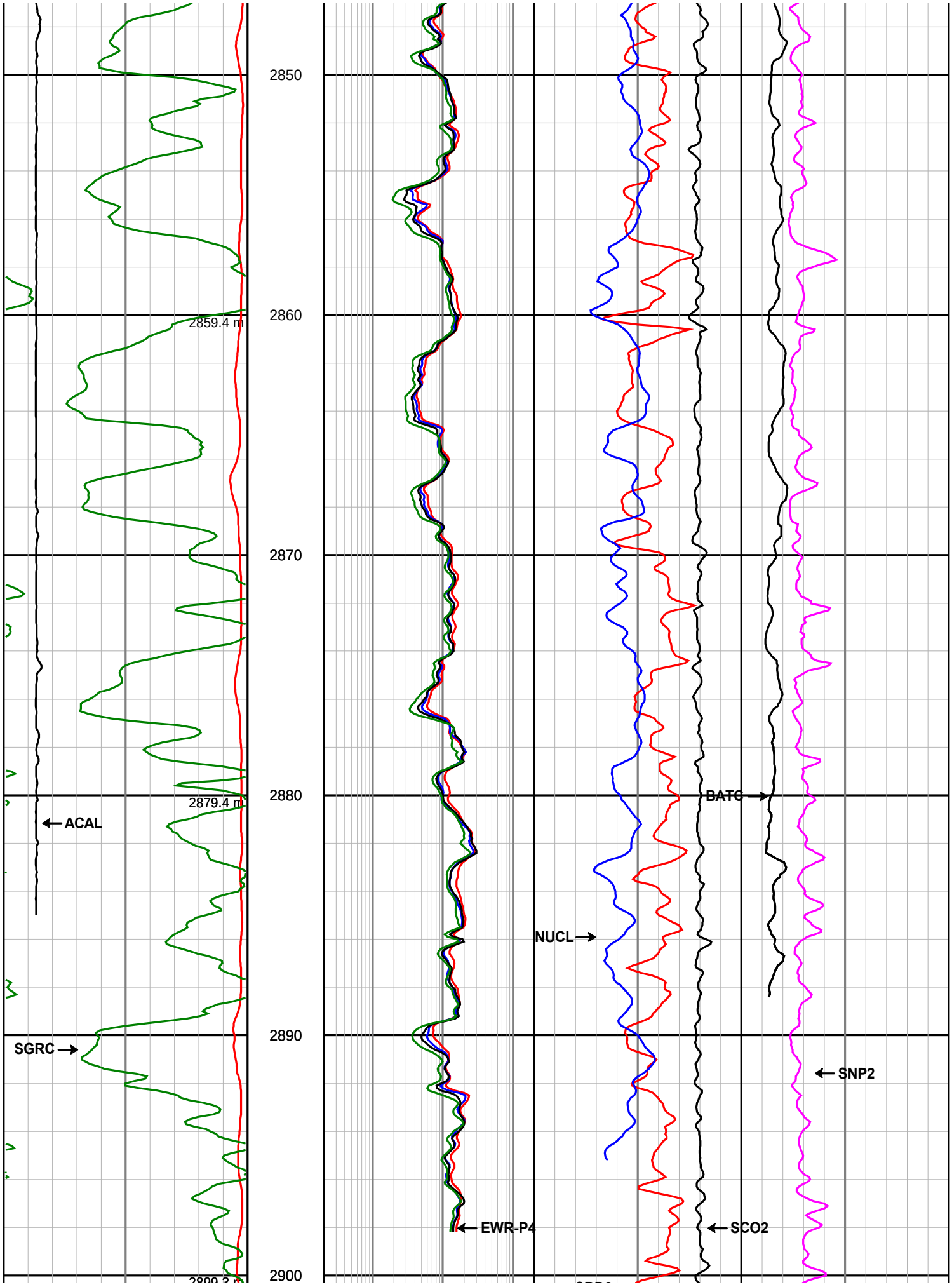

2590
2599.6 m
2600
2610
2619.6 m
2620
2630

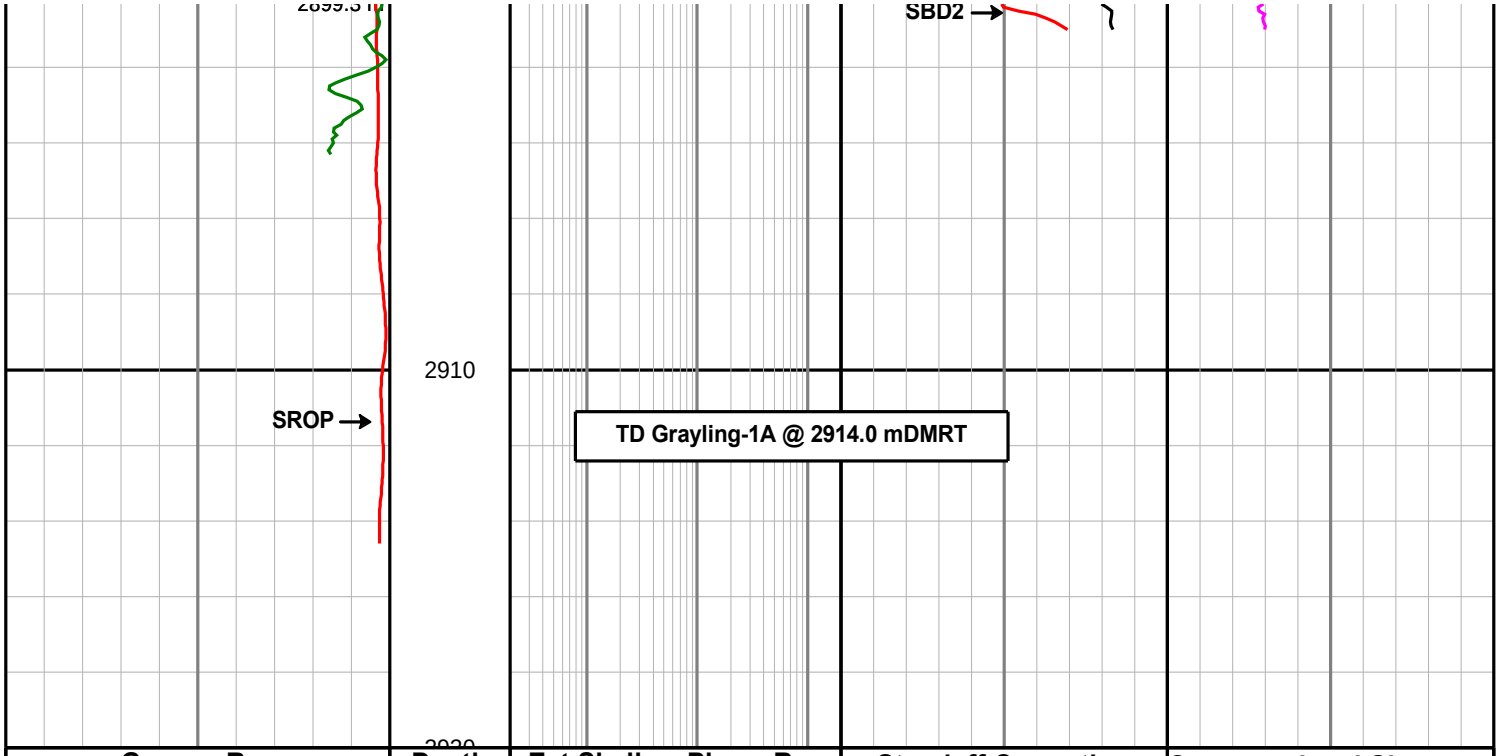

2639.6 m
2659.6 m
2679.5 m
2640
2650
2660
2670
2680


2690
2699.5 m
2700
2710
2719.5 m
2720
2730
2740


2759.5 m
2750
2760
2759.5 m
2770
2780
2779.5 m
2790


2799.5 m
2800
2810
2819.5 m
2820
2830
2839.4 m
2840


2850
2860
2870
2880
2890
2900
2859.4 m
2879.4 m
ACAL
SGRC
EWR-P4
NUCL
BATC
SCO2
SNP2



Gamma Ray (SGRC)	Depth MD	Ext Shallow Phase Res (SEXP)	Standoff Correction (SCO2)	Compressional Slowness (BATC)
0 api 150	1:200	0.2 ohmm 200	-0.75 gram per cc 0.25	40 microsec per ft 240

Rate of Penetration (SROP)	Shallow Phase Res (SESP)	Neutron Porosity (NUCL)	Photoelectric Effect (SNP2)
500 m/hr 0	0.2 ohmm 200	0.45 v/v -0.15	0 barns/electron 10

Acoustic Caliper (ACAL)	Medium Phase Res (SEMP)	Density (SBD2)
6 inches 26	0.2 ohmm 200	1.95 gram per cc 2.95

True Vertical Depth	Deep Phase Res (SEDP)
metres	0.2 ohmm 200

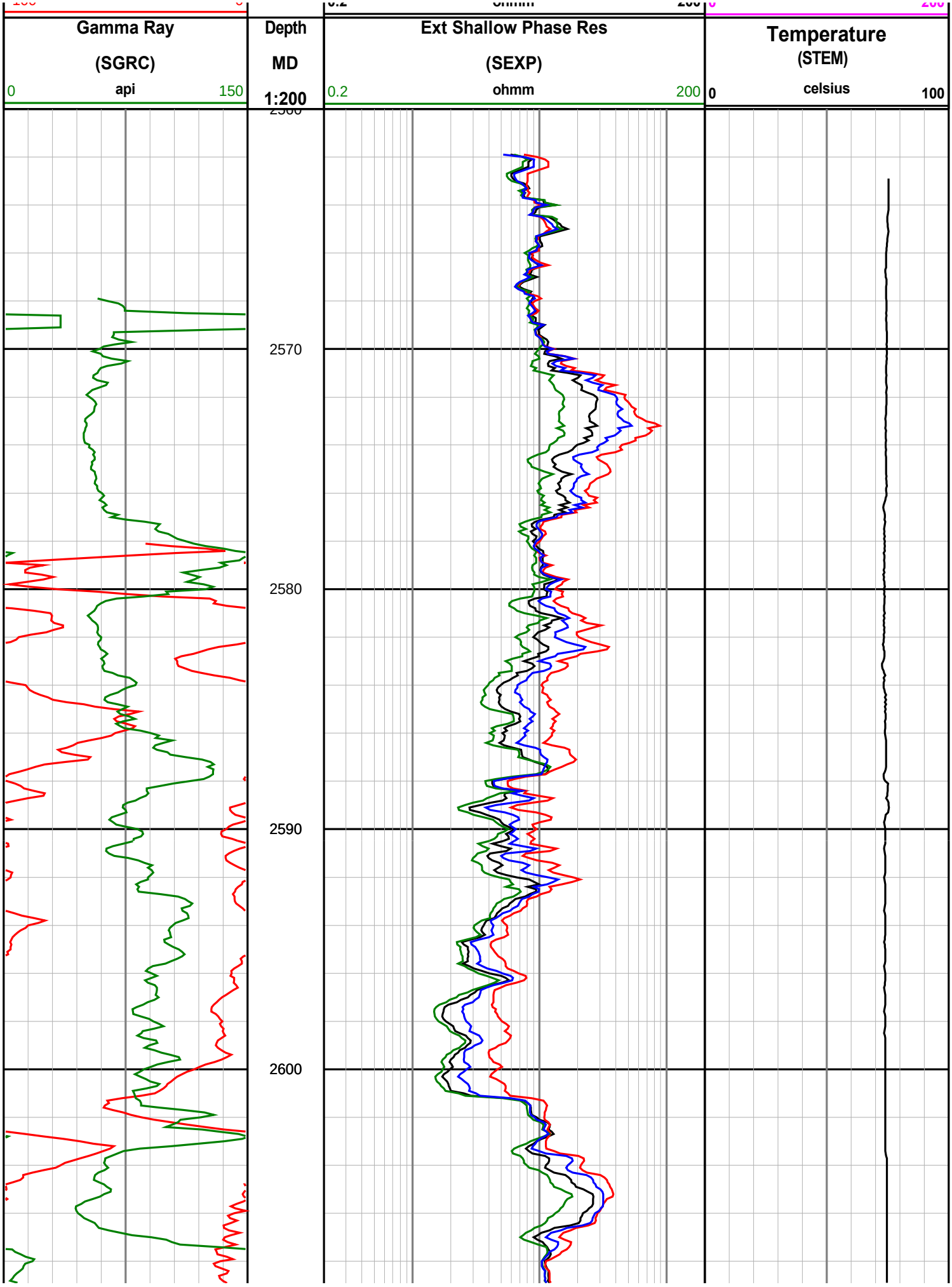
Apache Energy Ltd.

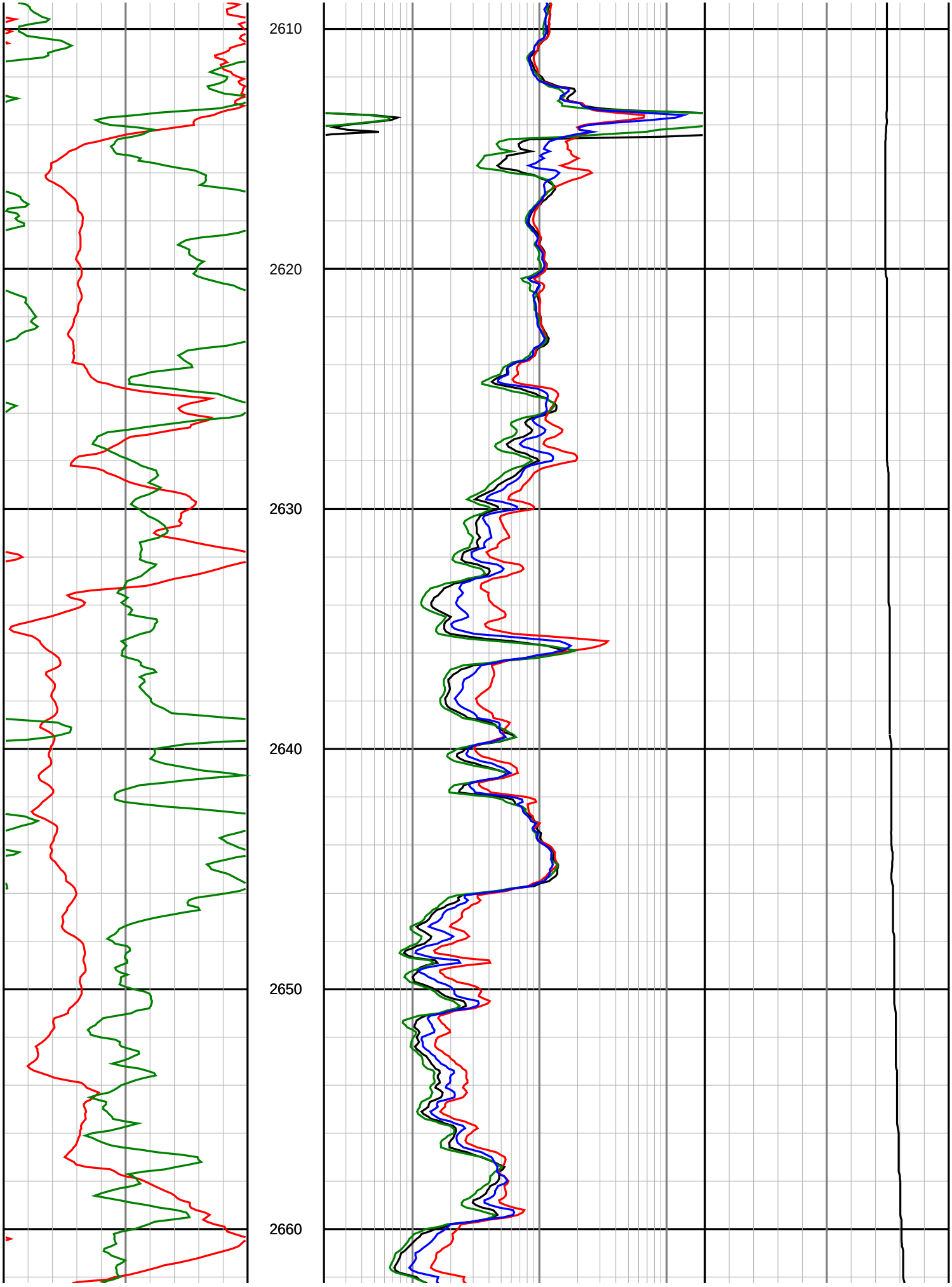
Grayling-1A

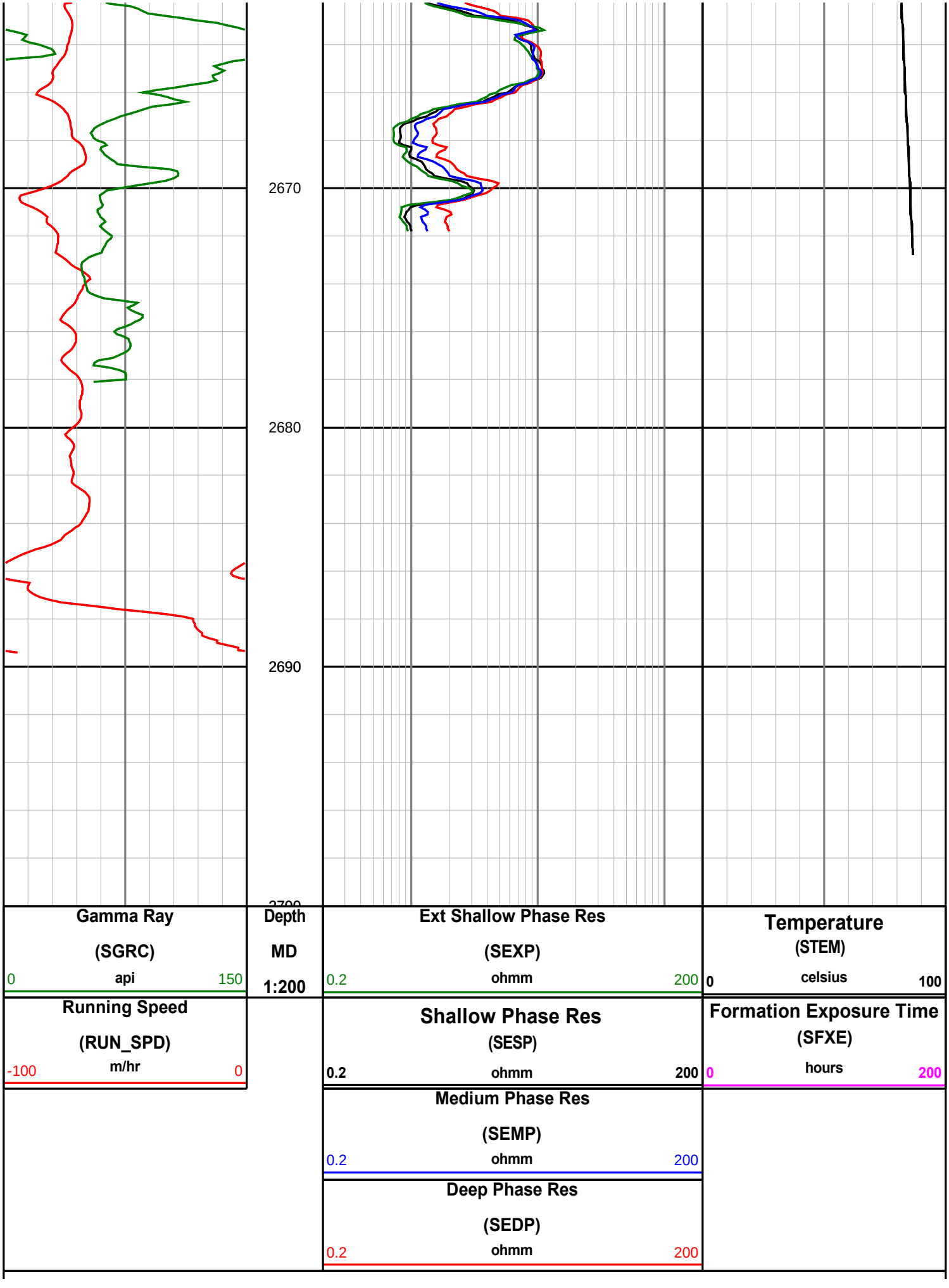
Repeat Section 1 : Wiped after Run 400 while pumping and rotating out of the hole from 2685.0 - 2575.0 mMDRT, 23:59, Jan 11th to 02:35, Jan 12th

Deep Phase Res (SEDP)	
0.2 ohmm 200	
Medium Phase Res (SEMP)	
0.2 ohmm 200	
Running Speed (RUN_SPD)	**Shallow Phase Res (SESP)**
-100 m/hr 0	0.2 ohmm 200

Formation Exposure Time (SFXE)
0 hours 200


Gamma Ray
(SGRC)
0
api
150
Depth
MD
1:200
Ext Shallow Phase Res
(SEXP)
0.2
ohmm
200
Temperature
(STEM)
0
celsius
100
2570
2580
2590
2600

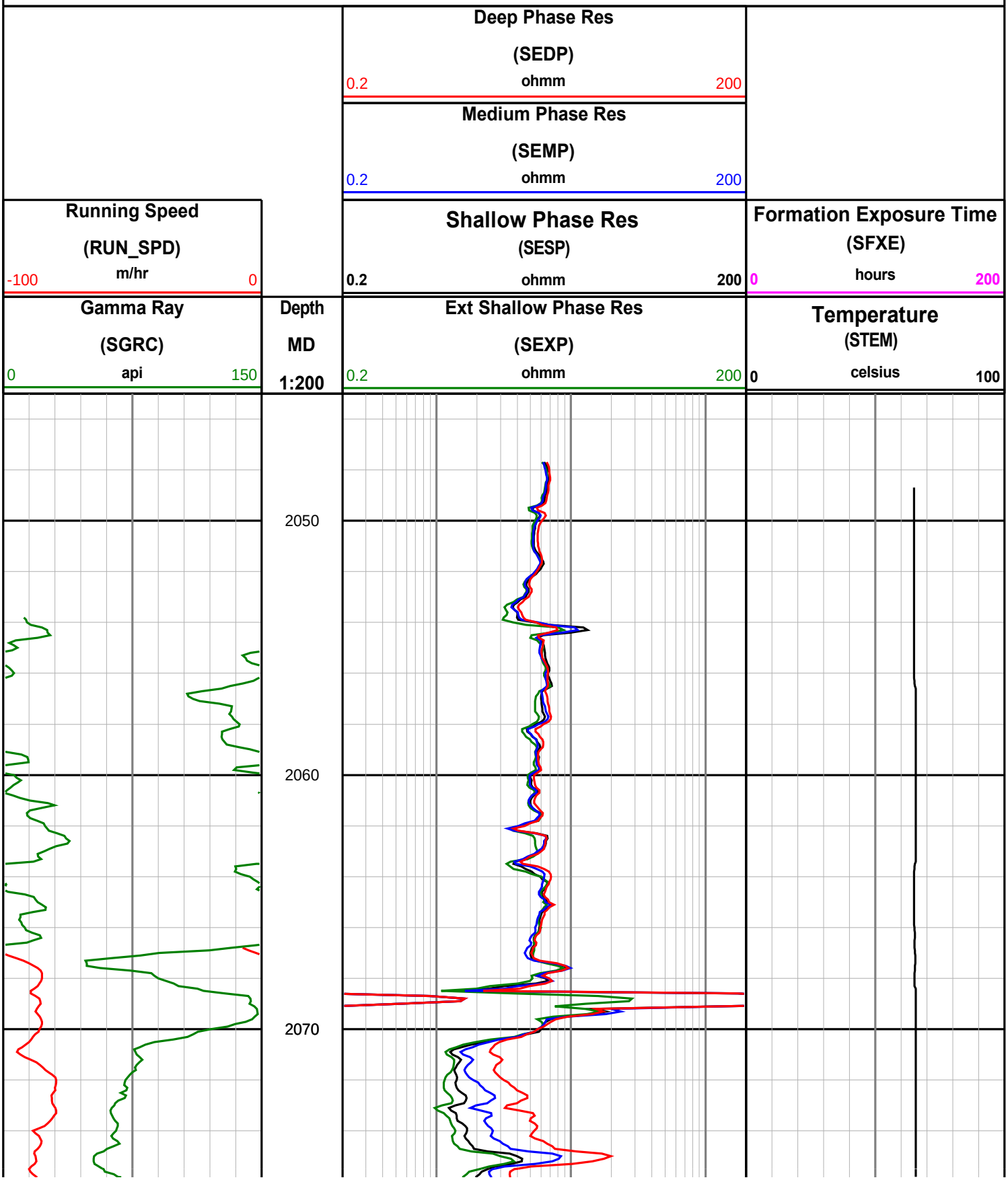

2610
2620
2630
2640
2650
2660

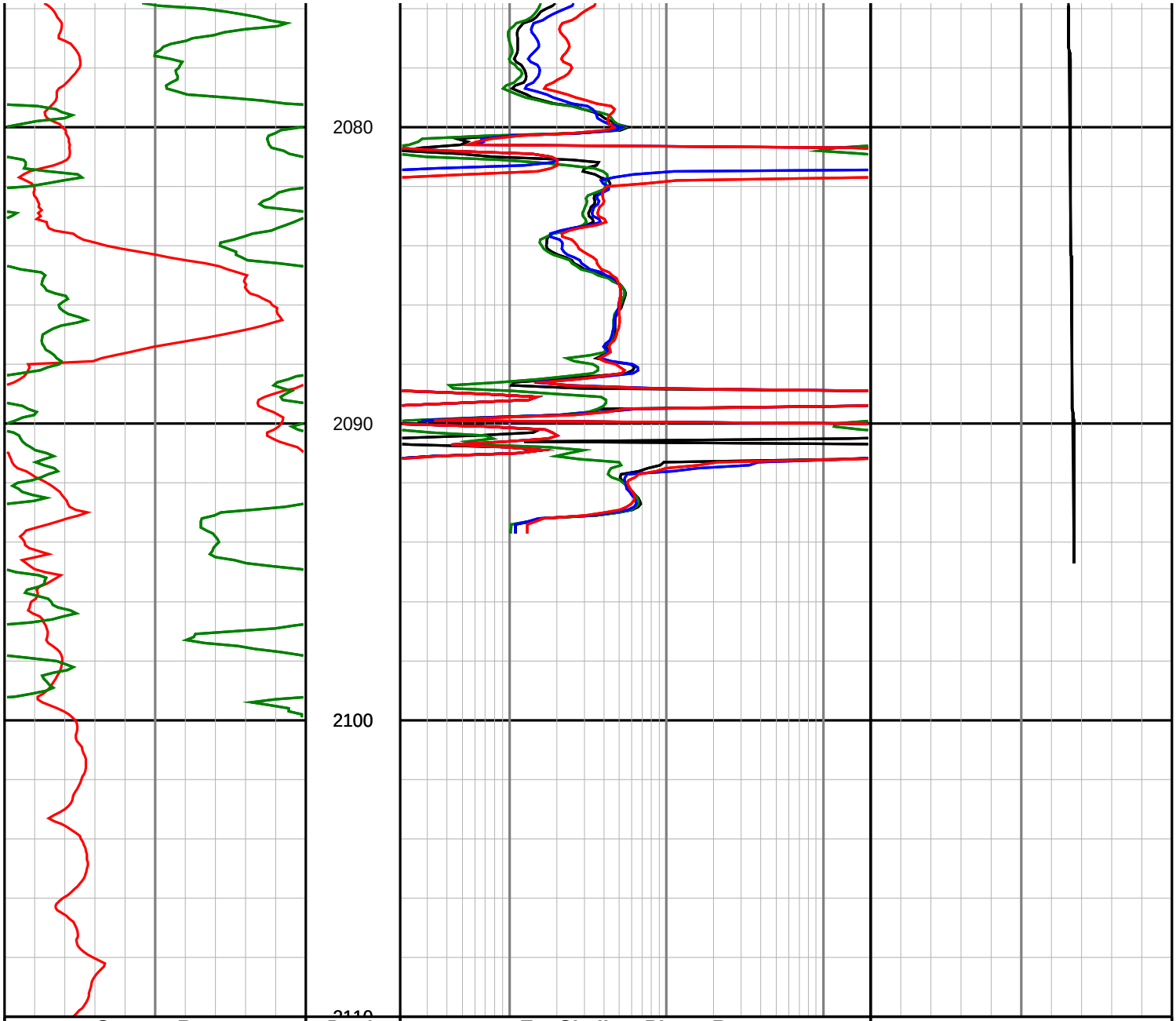

2670
2680
2690
Gamma Ray
(SGRC)
0
api
150
Depth
MD
1:200
Ext Shallow Phase Res
(SEXP)
0.2
ohmm
200
Temperature
(STEM)
0
celsius
100
Running Speed
(RUN_SPD)
-100
m/hr
0
Shallow Phase Res
(SESP)
0.2
ohmm
200
Formation Exposure Time
(SFXE)
0
hours
200
Medium Phase Res
(SEMP)
0.2
ohmm
200
Deep Phase Res
(SEDP)
0.2
ohmm
200

Apache Energy Ltd.

Grayling-1A

Repeat Section 2 : Wiped after Run 400 while pumping out of the hole from 2109.0 - 2070.0 mMDRT, 13:36, 12th Jan to 14:19, 12th Jan.





Gamma Ray
(SGRC)
0 api 150

Depth
MD
1:200

Ext Shallow Phase Res
(SEXP)
0.2 ohmm 200

Temperature
(STEM)
0 celsius 100

Running Speed
(RUN_SPD)
-100 m/hr 0

Shallow Phase Res
(SESP)
0.2 ohmm 200

Formation Exposure Time
(SFXE)
0 hours 200

Medium Phase Res
(SEMP)
0.2 ohmm 200

Deep Phase Res
(SEDP)
0.2 ohmm 200

INSITE

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Apache Energy Ltd
Grayling-1A
Exploration
Victoria
Australia
AU-FE-0003471409
Final survey has been projected to TD. RT-AHD=21.5m

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
80.000	0.00	0.00	80.000	0.000 N	0.000 E	0.000	TIE-IN
140.830	0.93	20.34	140.827	0.462 N	0.171 E	0.059	0.46
167.340	0.94	25.97	167.334	0.858 N	0.341 E	0.131	0.10
196.500	0.55	24.92	196.491	1.199 N	0.504 E	0.211	0.40
221.100	0.33	17.12	221.091	1.375 N	0.575 E	0.238	0.27
253.410	0.44	25.80	253.400	1.577 N	0.657 E	0.271	0.11
282.650	0.46	31.92	282.639	1.777 N	0.768 E	0.332	0.05
336.050	0.37	36.75	336.038	2.097 N	0.984 E	0.468	0.05
364.950	0.35	34.82	364.937	2.244 N	1.090 E	0.536	0.03
424.970	0.09	37.93	424.956	2.431 N	1.223 E	0.622	0.13
451.800	0.18	136.70	451.786	2.416 N	1.266 E	0.667	0.24
482.270	0.03	52.24	482.256	2.386 N	1.306 E	0.713	0.18
511.260	0.03	38.48	511.246	2.397 N	1.317 E	0.721	0.01
539.810	0.23	62.33	539.796	2.429 N	1.373 E	0.768	0.21
568.550	0.41	43.67	568.536	2.531 N	1.495 E	0.864	0.21
654.000	0.34	93.97	653.984	2.734 N	1.959 E	1.267	0.11
684.560	0.33	108.87	684.544	2.699 N	2.133 E	1.445	0.09
711.790	0.32	104.03	711.773	2.655 N	2.282 E	1.600	0.03
741.440	0.20	130.91	741.423	2.602 N	2.401 E	1.728	0.17
768.300	0.18	151.29	768.283	2.534 N	2.456 E	1.798	0.08
799.470	0.07	125.09	799.453	2.479 N	2.496 E	1.849	0.12
828.000	0.33	254.00	827.983	2.445 N	2.431 E	1.794	0.40
855.730	0.22	282.74	855.712	2.435 N	2.301 E	1.670	0.19
884.020	0.25	268.52	884.002	2.446 N	2.187 E	1.556	0.07
912.980	0.03	338.30	912.962	2.451 N	2.122 E	1.492	0.25
941.540	0.24	248.40	941.522	2.435 N	2.063 E	1.438	0.26
969.380	0.23	227.08	969.362	2.374 N	1.966 E	1.358	0.10
997.560	0.08	133.42	997.542	2.322 N	1.938 E	1.343	0.27
1026.770	0.07	257.57	1026.752	2.304 N	1.935 E	1.345	0.14
1055.080	0.12	94.50	1055.061	2.297 N	1.948 E	1.358	0.20
1083.610	0.12	106.14	1083.591	2.287 N	2.005 E	1.417	0.03
1112.940	0.10	285.84	1112.921	2.285 N	2.011 E	1.422	0.22
1142.030	0.20	104.60	1142.011	2.279 N	2.037 E	1.449	0.31
1170.510	0.20	103.08	1170.491	2.255 N	2.134 E	1.550	0.01
1196.455	0.20	97.91	1196.436	2.238 N	2.224 E	1.641	0.02
1198.860	0.14	149.13	1198.841	2.235 N	2.230 E	1.647	1.96
1227.730	0.20	97.52	1227.711	2.197 N	2.298 E	1.722	0.16
1258.250	0.23	146.71	1258.231	2.139 N	2.385 E	1.820	0.18
1286.990	0.14	124.27	1286.971	2.071 N	2.445 E	1.895	0.12
1314.430	0.17	97.46	1314.411	2.047 N	2.512 E	1.965	0.09
1343.180	0.27	148.88	1343.160	1.983 N	2.589 E	2.056	0.22
1373.250	0.24	126.95	1373.230	1.883 N	2.677 E	2.164	0.10
1402.000	0.30	107.68	1401.980	1.824 N	2.797 E	2.295	0.11
1430.540	0.66	87.99	1430.519	1.807 N	3.031 E	2.526	0.41
1459.180	0.60	82.70	1459.157	1.832 N	3.344 E	2.824	0.08

HALLIBURTON

Grayling-1A

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
1487.740	0.57	116.20	1487.716	1.789 N	3.618 E	3.101	0.35
1544.860	0.59	114.95	1544.833	1.540 N	4.139 E	3.666	0.02
1573.590	0.54	97.04	1573.561	1.460 N	4.409 E	3.947	0.19
1602.190	0.43	108.02	1602.160	1.411 N	4.645 E	4.188	0.15
1631.000	0.69	124.85	1630.969	1.278 N	4.891 E	4.458	0.32
1688.590	0.84	172.37	1688.554	0.663 N	5.232 E	4.933	0.33
1717.500	1.15	175.09	1717.460	0.163 N	5.285 E	5.101	0.33
1746.310	1.33	177.78	1746.263	0.461 S	5.322 E	5.283	0.20
1771.770	1.71	183.22	1771.714	1.137 S	5.313 E	5.431	0.48
1801.270	1.83	193.59	1801.200	2.034 S	5.177 E	5.509	0.34
1829.670	1.85	191.49	1829.586	2.922 S	4.980 E	5.524	0.07
1859.530	2.00	189.68	1859.429	3.907 S	4.797 E	5.575	0.16
1886.700	2.12	182.09	1886.581	4.875 S	4.699 E	5.706	0.33
1913.170	1.88	179.20	1913.035	5.798 S	4.687 E	5.910	0.30
1943.380	2.08	169.63	1943.227	6.831 S	4.792 E	6.253	0.38
1970.530	2.15	161.30	1970.359	7.797 S	5.044 E	6.723	0.35
2002.660	2.18	162.43	2002.466	8.949 S	5.421 E	7.359	0.05
2031.550	2.30	163.07	2031.334	10.027 S	5.756 E	7.935	0.13
2059.860	2.41	156.94	2059.620	11.118 S	6.154 E	8.578	0.29
2088.000	2.15	158.77	2087.738	12.154 S	6.577 E	9.230	0.29
2116.020	2.17	149.89	2115.738	13.102 S	7.033 E	9.895	0.36
2176.470	1.96	136.28	2176.149	14.840 S	8.322 E	11.554	0.26
2205.270	2.09	136.58	2204.931	15.577 S	9.023 E	12.407	0.13
2234.278	1.80	118.62	2233.923	16.178 S	9.785 E	13.288	0.69
2262.360	1.77	112.23	2261.991	16.552 S	10.572 E	14.141	0.21
2319.970	1.35	98.17	2319.580	16.985 S	12.069 E	15.697	0.29
2348.570	1.20	81.03	2348.173	16.987 S	12.699 E	16.310	0.43
2377.250	1.24	77.36	2376.846	16.872 S	13.299 E	16.867	0.09
2405.890	0.86	73.76	2405.481	16.743 S	13.809 E	17.333	0.40
2434.610	0.82	69.48	2434.198	16.610 S	14.211 E	17.693	0.08
2463.450	0.68	71.56	2463.036	16.484 S	14.566 E	18.009	0.16
2492.410	0.81	69.68	2491.993	16.359 S	14.920 E	18.324	0.14
2546.500	0.52	57.73	2546.080	16.094 S	15.487 E	18.813	0.18
2576.790	0.69	53.30	2576.368	15.912 S	15.750 E	19.026	0.17
2607.250	1.04	24.25	2606.824	15.551 S	16.010 E	19.195	0.54
2635.530	1.27	21.76	2635.099	15.026 S	16.231 E	19.288	0.25
2664.670	1.48	19.52	2664.230	14.372 S	16.477 E	19.374	0.22
2693.520	1.47	19.44	2693.071	13.672 S	16.724 E	19.452	0.01
2705.880	1.52	22.17	2705.427	13.371 S	16.839 E	19.493	0.21
2712.300	1.49	18.24	2711.844	13.213 S	16.897 E	19.513	0.50
2741.400	1.94	16.75	2740.931	12.383 S	17.157 E	19.572	0.47
2770.200	2.12	14.28	2769.713	11.400 S	17.429 E	19.607	0.21
2799.250	2.30	13.41	2798.741	10.314 S	17.696 E	19.614	0.19
2827.820	2.76	14.38	2827.284	9.089 S	18.000 E	19.624	0.49
2855.280	2.92	15.44	2854.710	7.773 S	18.351 E	19.658	0.18
2880.320	3.28	15.63	2879.713	6.468 S	18.714 E	19.707	0.42
2914.000	3.28	15.63	2913.338	4.613 S	19.233 E	19.779	0.00

HALLIBURTON

Grayling-1A

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A CLOSURE OF 103.49 DEGREES (GRID)
A TOTAL CORRECTION OF 13.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

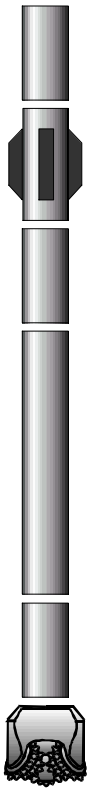
HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 2914.000 METRES
IS 19.779 METRES ALONG 103.49 DEGREES (GRID)

MWD RUN 200 - BHA

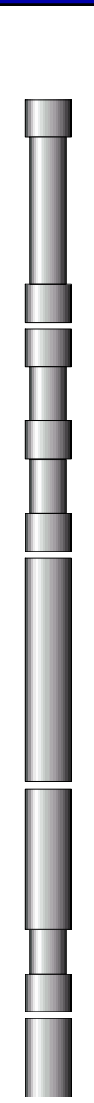
	Cumulative Length (m)
Sub	118.91
	117.78
Drill Collar	
	90.73
Jar	
	80.87
Drill Collar	
	35.05
MWD	

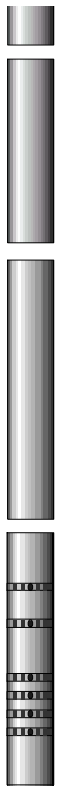
MWD RUN 200 - MWD

	Sensor Measure Point Distance To Bit (m)
Positive Pulser	
TM	
PM	30.400
ACAL	27.620
BAT	

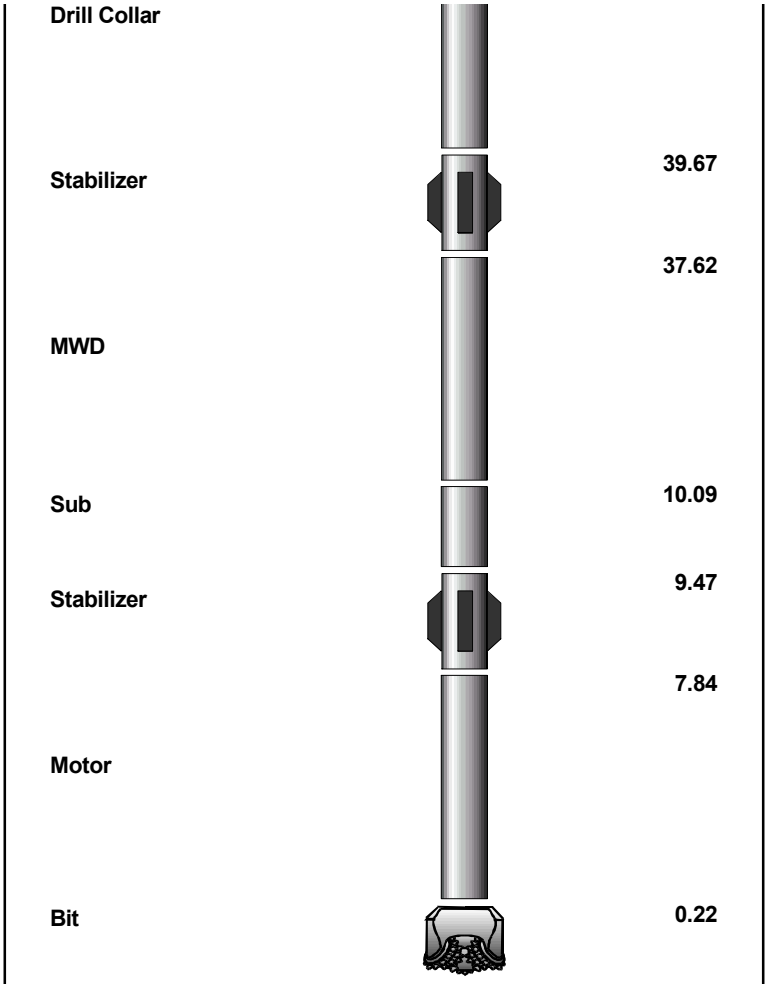


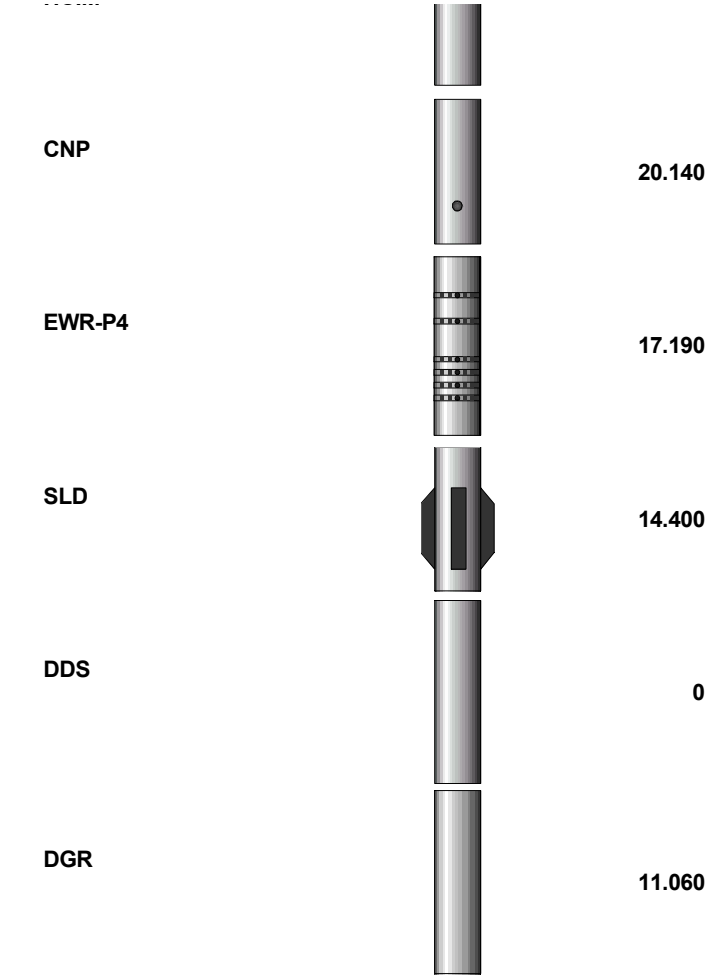
MWD RUN 300 - BHA





MWD RUN 300 - MWD





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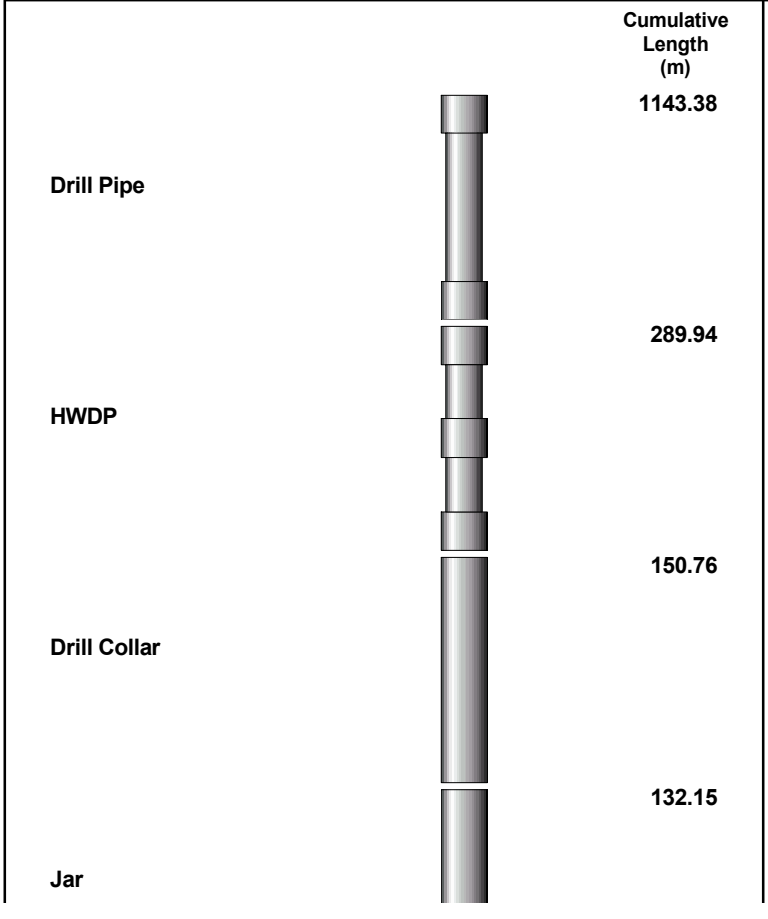
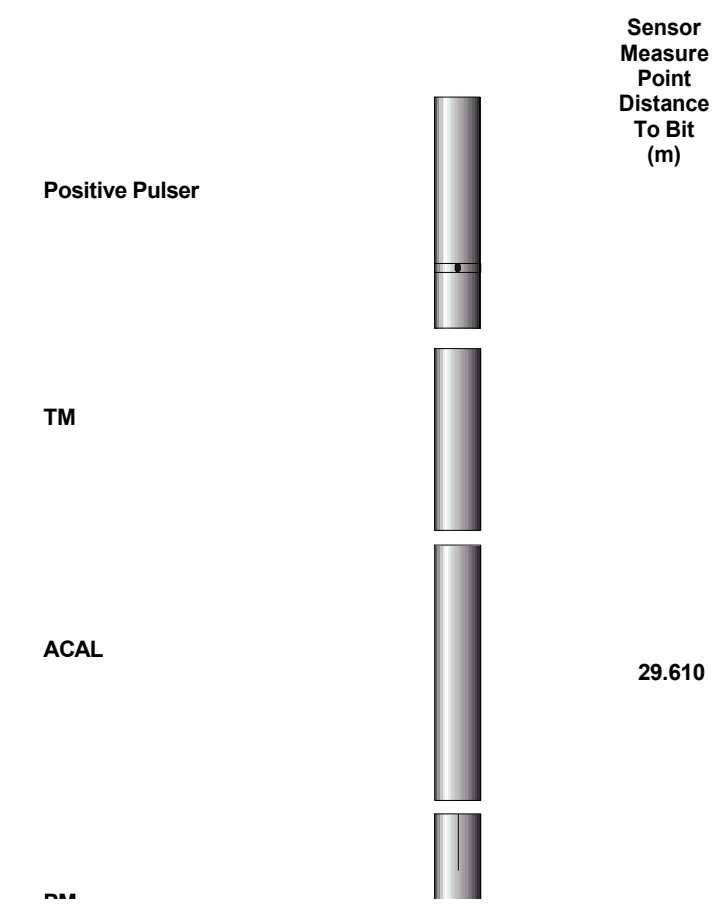


MWD RUN 400 - MWD



Drill Collar	122.64
Sub	38.96
MWD	36.91
Sub	9.30
Stabilizer	8.68
Motor	6.91
Bit	0.24

PM	32.360
BAT	
CNP	19.370
EWR-P4	16.400
DGR	10.250

Sperry Drilling Services

1 : 500

MWD

EWR Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
BAT Bi-modal Acoustic Sonic
ACAL Acoustic Caliper
SLD Stabilized Litho-Density
CNP Compensated Neutron Porosity

Country	: Australia
Field	: Exploration
Location	: Lat: 38° 9' 40.280" South Long: 148° 17' 34.730" East
Well	: Grayling-1A
Company	: Apache Energy Ltd
Rig	: Ocean Patriot

Company : **Apache Energy Ltd**
Rig : **Ocean Patriot**
Well : **Grayling-1A**
Field : **Exploration**
Country : **Australia**
DOE Number :

LOCATION
Latitude : **Lat: 38° 9' 40.280" South**
Longitude : **Long: 148° 17' 34.730" East**
UTM Easting = **613,273.61 m**
UTM Northing = **5,775,510.58 m**

Other Services
Surface Data Logging

Permanent Datum : **AHD** Elevation : **0.00 m**
Log Measured From : **Drill Floor** **21.50 m** Above Permanent Datum
Drilling Measured From : **Drill Floor**

MD LOG

Elev. KB
DF **21.50 m**
GL
WD **58.50 m**

Depth Logged : **114.00 m** To **2,914.00 m**
Date Logged : **29-Dec-04** To **13-Jan-05**
Total Depth MD : **2,914.00 m** TVD : **2,913.34 m**
Spud Date : **28-Dec-04**

Unit No. : **174**
Job No. : **AU-FE-0003471409**
Plot Type : **Final**
Plot Date : **17-May-05**

Run No.	Borehole Record (MD) Size	From	To
2	406.000 mm	114.00 m	810.00 m
3	216.000 mm	810.00 m	2,740.00 m
4	216.000 mm	2,740.00 m	2,914.00 m

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD) Size	Weight	From	To
762.000 mm	458.00 kgpm	80.00 m	112.30 m
340.000 mm	101.00 kgpm	80.00 m	796.20 m

WELL INFORMATION

MWD Run Number	200	300	400		
Date run completed	30-Dec-04	09-Jan-05	13-Jan-05		
Rig Bit Number	2	3	4		
Bit Size (mm)	406	216	216		
Tool Nominal OD (mm)	203	171	171		
Log Start Depth (MD, m)	114.00	810.00	2,740.00		
Log End Depth (MD, m)	810.00	2,740.00	2,914.00		
Drill or Wipe	Drilling	Drilling	Drilling		
Drill/Wipe Start Date and Time	29-Dec-04 11:30	05-Jan-05 21:33	11-Jan-05 00:37		
Drill/Wipe End Date and Time	30-Dec-04 14:30	08-Jan-05 22:17	11-Jan-05 20:30		
Min Inc (deg) @ Depth (MD, m)	0.03 @ 482.27	0.03 @ 912.98	1.49 @ 2,712.30		
Max Inc (deg) @ Depth (MD, m)	0.94 @ 167.34	2.41 @ 2,059.86	3.28 @ 2,880.32		
Bit TFA(in2) / Bit Type	1.31 / Hycalog M26755	0.75 / Hycalog DSX104	0.72 / Security FM37432		
Flow Rate (gpm)	1060	550	550		
Max AV (mpm) / CV (mpm) @ MWD	43.8 / 29.4	153.6 / 178.3	154.2 / 109.2		
Fluid Type	Sea Water	KCl/Idecap	KCl/Idecap		
Density (sg) / Viscosity (spl)	1.04 / N/A	1.15 / 57.00	1.23 / 43.00		
Filtrate CL (ppm)	N/A	53,500	49,000		
pH / Fluid Loss (cptm)	N/A / N/A	8.50 / 5.2	9.00 / 5.2		
PV (cp) / YP (pa)	N/A / N/A	16 / 14.00	14 / 14.50		
% Solids / % Sand	N/A / N/A	11 / 0.25	11 / 0.25		
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A:89	N\A / N/A:89		
Rm @ Measured Temp (degC)	N/A @ N/A	0.12 @ 22.20	0.09 @ 18.30		
Rmf @ Measured Temp (degC)	N/A @ N/A	0.07 @ 22.20	0.07 @ 18.30		
Rmc @ Measured Temp (degC)	N/A @ N/A	0.18 @ 22.20	0.12 @ 18.30		
Max Tool Temp (degC) / Source	28.00 / EWR-P4	85.00 / EWR-P4	107.00 / EWR-P4		
Rm @ Max Tool Temp (degC)	N/A @ N/A	0.05 @ 85.00	0.03 @ 107.00		

Rm @ Max Tool Temp (degC)	N/A @ N/A	0.05 @ 85.00	0.03 @ 107.00		
Lead MWD Engineer	T. Oborne	T. Oborne	T.Oborne		
Customer Representative	C. Wilson	H.Everhart	H.Everhart		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM	HCIM	HCIM		
Software Version	67.88	67.88	67.88		
Sub Serial Number	198840	GP7912-3	GP7912-3		
Insert Serial Number	132884	145125	145125		
Logging String Serial Number	62057XHGVR8	62271XH1NRLGV6	62271XH1NRLGV6		
Date and Time Initialized	29-Dec-04 09:59:00	05-Jan-05 16:39:07	10-Jan-05 05:34:51		
Date and Time Read	30-Dec-04 21:36:00	09-Jan-05 16:33:51	13-Jan-05 10:55:14		

Directional Sensor Information

Tool Type	PM	PM	PM		
Distance From Bit (m)	30.40	33.07	32.36		
Software Version	N/A	N/A	N/A		
Sub Serial Number	111363	194447	194447		
Sonde Serial Number	134019	175717	175717		
Sensor ID Number	2947	44645	44645		
Survey String Serial Number	DM90061055M8	DM90062415M6	DM90062415M6		
Toolface Offset (deg)	N/A	N/A	N/A		

Gamma Ray Sensor Information

Tool Type	DGR	DGR	DGR		
Distance From Bit (m)	18.07	11.06	10.25		
Recorded Sample Period (sec)	12	12	12		
Software Version	N/A	N/A	N/A		
Sub Serial Number	10505993	115988	115988		
Insert/Sonde Serial Number	172498	87301	87301		

Resistivity Sensor Information

Tool Type	EWR-P4	EWR-P4	EWR-P4		
Distance From Bit (m)	15.04	17.19	16.40		
Recorded Sample Period (sec)	12	402	402		
Software Version	1.38	1.00	1.00		
Sub Serial Number	174309	130859	130859		
Receiver Insert Serial Number	123481	128946	128946		
Transmitter Insert Serial Number	159149	151384	151384		
Receiver Orientation	Down	Down	Down		

Neutron Sensor Information

Tool Type		CNP	CNP		
Distance From Bit (m)		20.14	19.37		
Recorded Sample Period (sec)		30	30		
Sub Serial Number		371573	371573		
Insert Serial Number		104127	104127		
Source Serial Number		4070NK	4070NK		
Source Factor		1.1400	1.1400		
Pin Orientation		Down	Down		

Density Sensor Information

Tool Type		SLD	SLD		

Distance From Bit (m)		14.40	13.61		
Recorded Sample Period (sec)		30	30		
Software Version		11.00	11.00		
Sub Serial Number		127856	127856		
Insert Serial Number		147144	147144		
Sensor ID Number		333	333		
Source Serial Number		1444GW	1444GW		
Pin Orientation		Up	Up		
Stabilizer Blade O.D. (mm)		209.550	209.550		
DPA Offset		N/A	N/A		

Caliper Sensor Information

Tool Type	ACAL	ACAL	ACAL		
Distance From Bit (m)	27.62	30.30	29.61		
Software Version	2.05	2.05	2.05		
Sub Serial Number	165483	170536	142853		
Insert Serial Number	141729	113417	078950		

Sonic Sensor Information

Tool Type	BAT	BAT	BAT		
Distance From Bit (m)	23.42	26.51	26.12		
Recorded Sample Period (sec)	18	18	18		
Software Version	4.00	4.00	4.00		
Sub Serial Number	144401	132327	169872		
Receiver Insert Serial Number	136555	131066	125819		
Transmitter Insert Serial Number	143996	116793	130925		

REMARKS

1. All depths are bit depths and referenced to the drillers pipe tally.

2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and the Binghams Plastic Law for oil based muds.

3. Curve mnemonics are:
SGRC - Smoothed Gamma Ray Combined, api
SEXP - Smoothed Extra Shallow Phase Resistivity, ohm-m
SESP - Smoothed Shallow Phase Resistivity, ohm-m
SEMP - Smoothed Medium Phase Resistivity, ohm-m
SEDP - Smoothed Deep Phase Resistivity, ohm-m
SROP - Smoothed Rate of Penetration, m/hr
ACAL - Acoustic Caliper, inches
BATC - Bi-Modal Acoustic Compressional Slowness, usec/ft
SBD2 - Smoothed Best Bin Bulk Density Compensated, g/cc
SCO2 - Smoothed Best Bin Stand-off Correction, g/cc
SNP2 - Smoothed Best Bin Near Photoelectric Effect, b/e
NUCL - Smoothed Porosity (Limestone Matrix) corrected for Salinity, Temperature and Pressure, v/v
STEM - Smoothed Medium Phase Resistivity Temperature, deg C
RUN_SPD - Running Speed, m/hr
SFXE - Formation Exposure Time, hrs

4. CNP data processed using the CNP-E algorithim using the following parameters and is based on a Limestone Matrix:
MW = 1.15 - 1.20
Formation Salinity = 50,000 ppm Cl
Mud Salinity = 42000 - 54000 ppm Cl
Matrix Density = 2.71 g/cc
Fluid Denisty = 1.00 g/cc

5. CNP data has been reprocessed using data from the Caliper tool for borehole diameter.

6. Gaps in Caliper (ACAL) and Compressional Slowness (BATC) data at the start of the 216mm (8.5") hole section are due to the hole being washed out beyond tools operational range.

7. Gaps in LWD data around 1670.0 and 1945.0 mMDRT are due to the geolograph line breaking.

8. Gaps in Compressional Slowness (BATC) data are due to weak signal.

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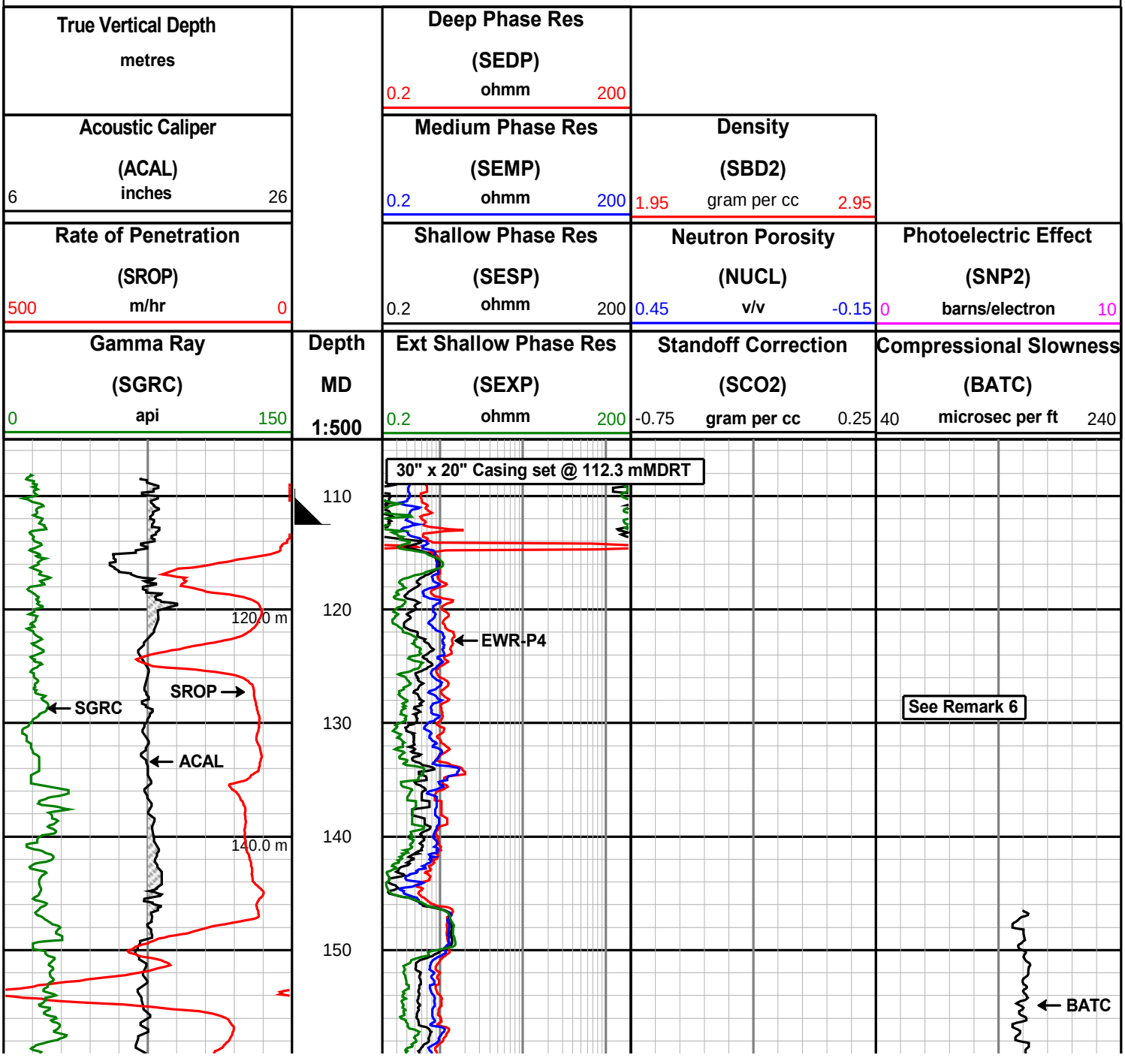

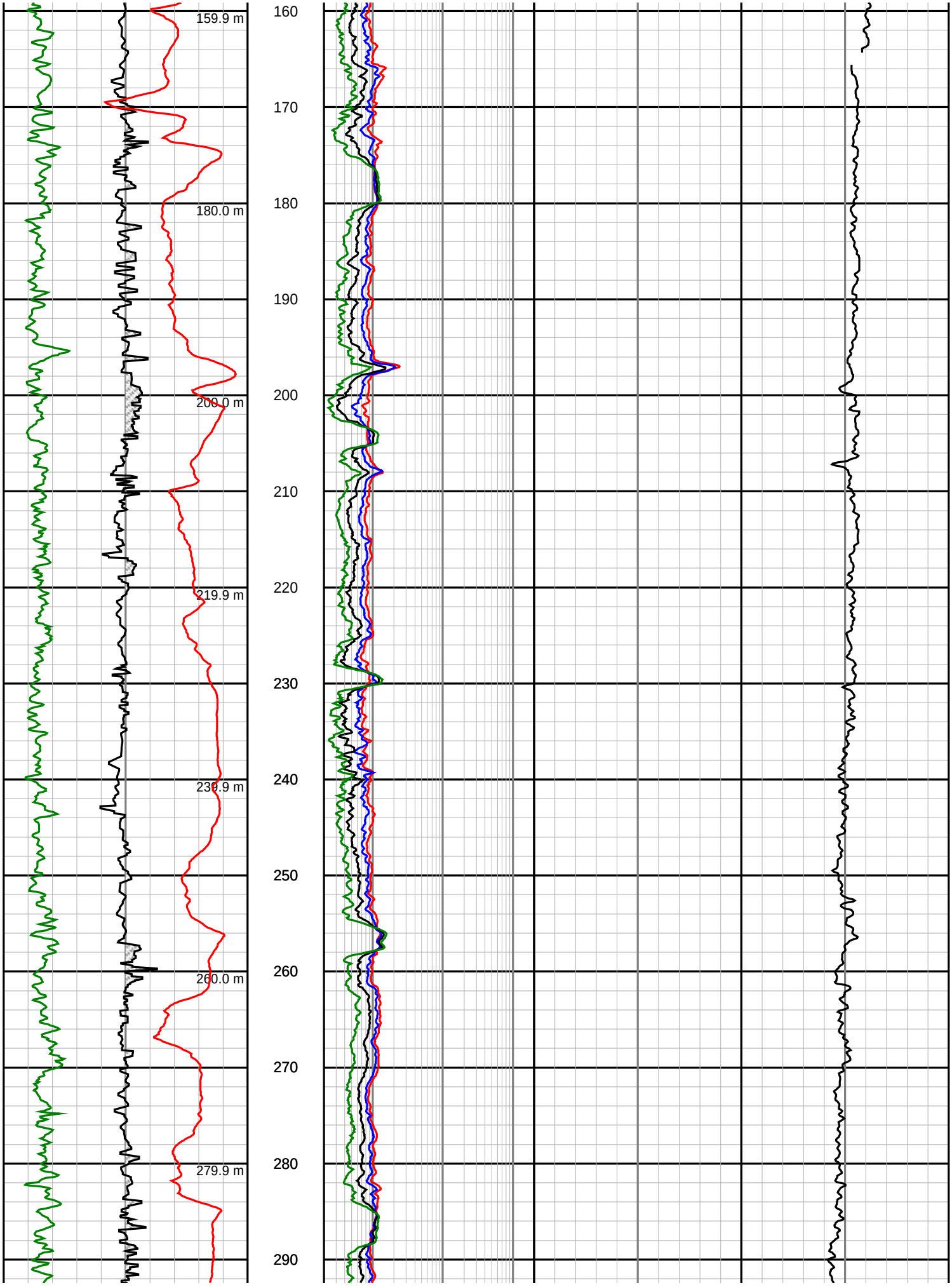
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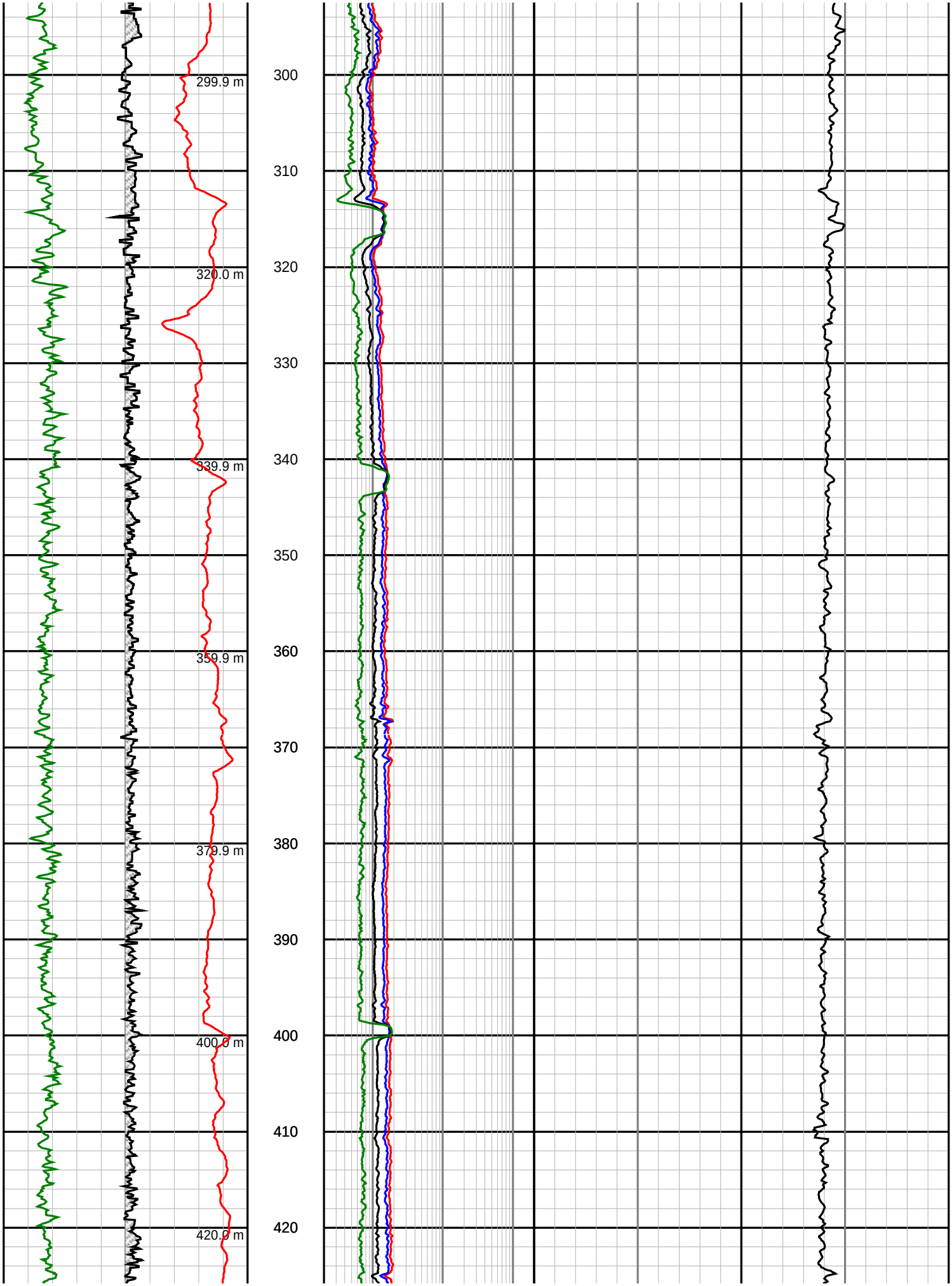
290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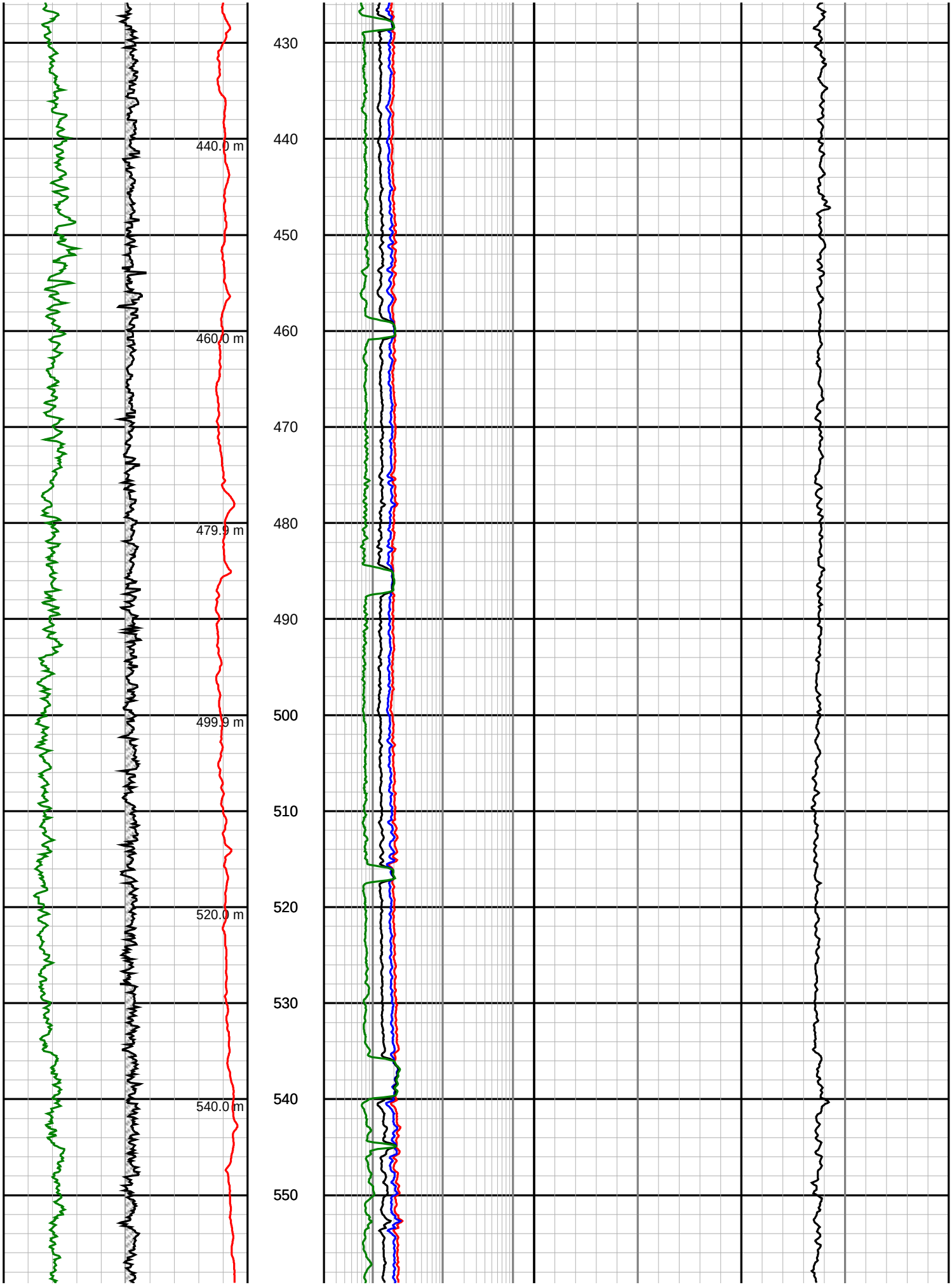
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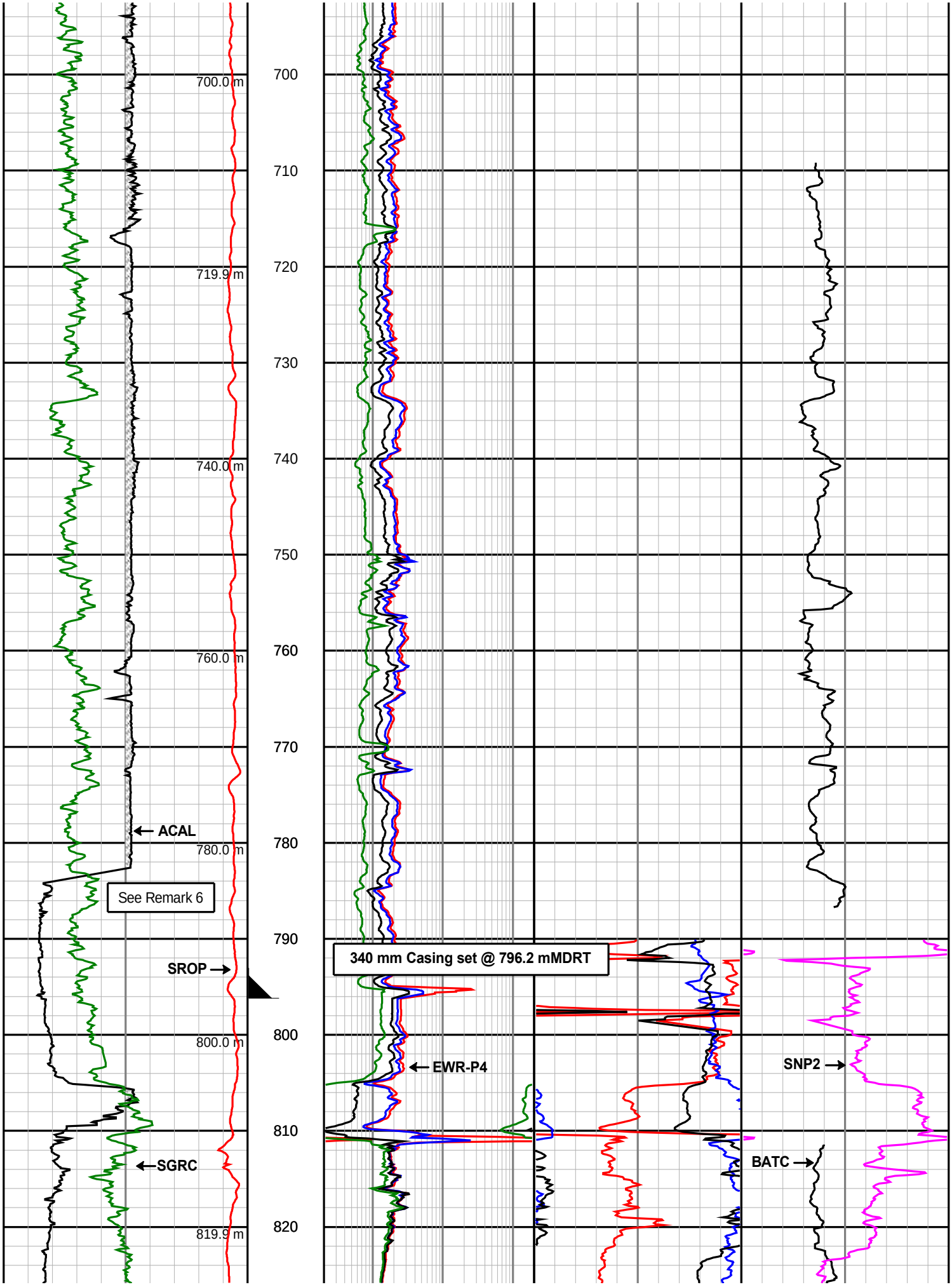
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780
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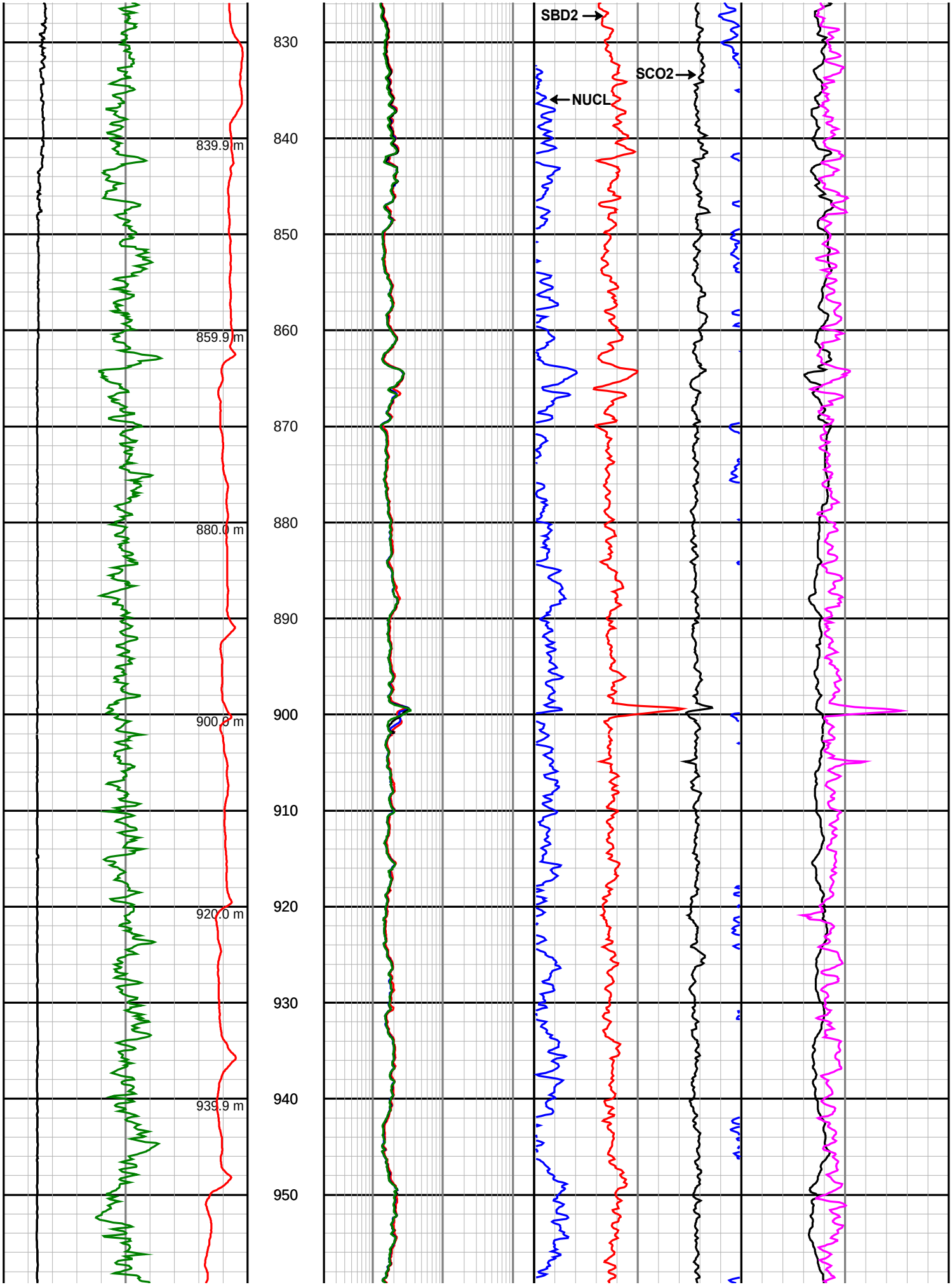
ACAL
See Remark 6
SROP
SGRC
340 mm Casing set @ 796.2 mMDRT
EWR-P4
SNP2
BATC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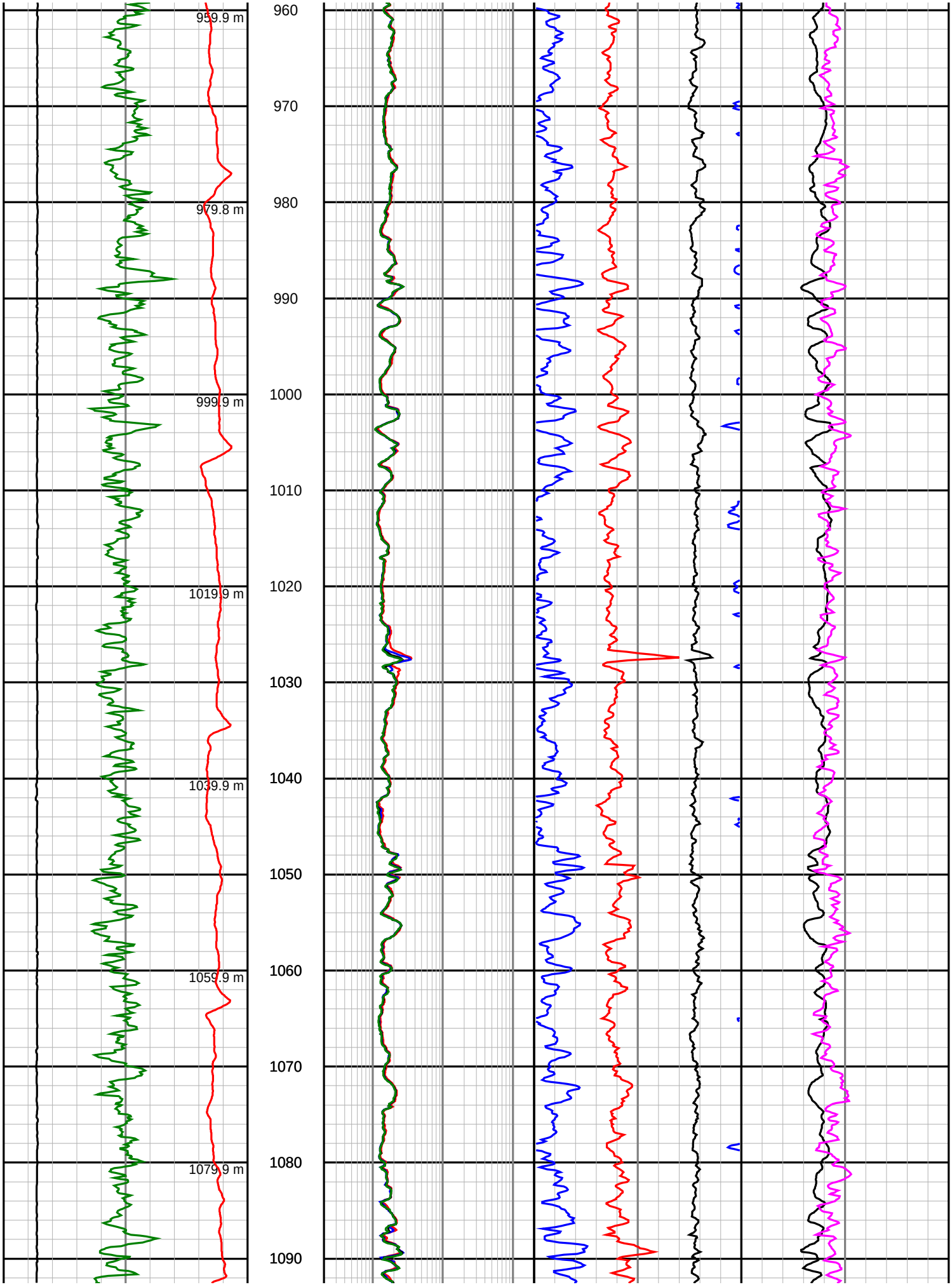
SCO2
NUCL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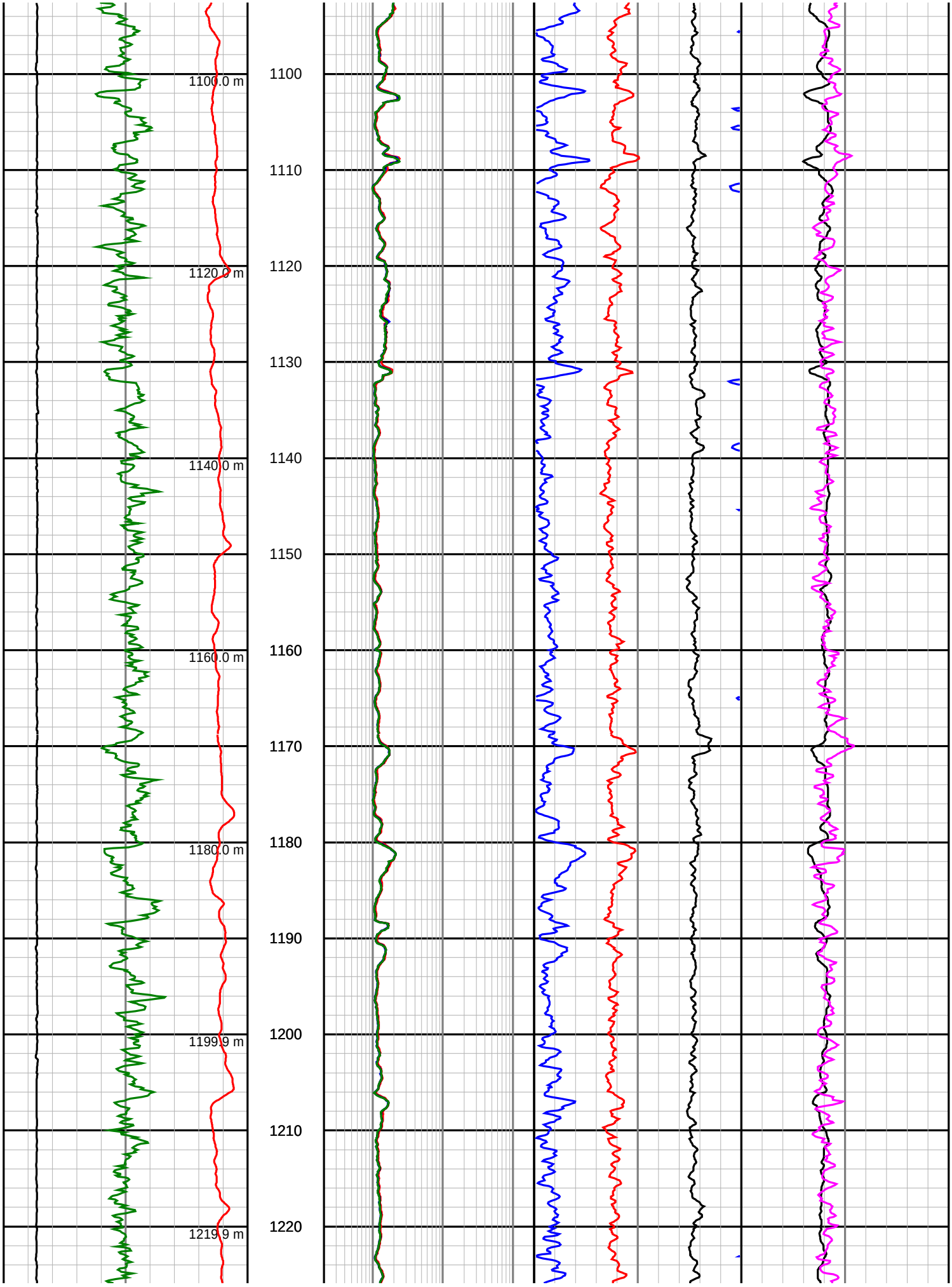
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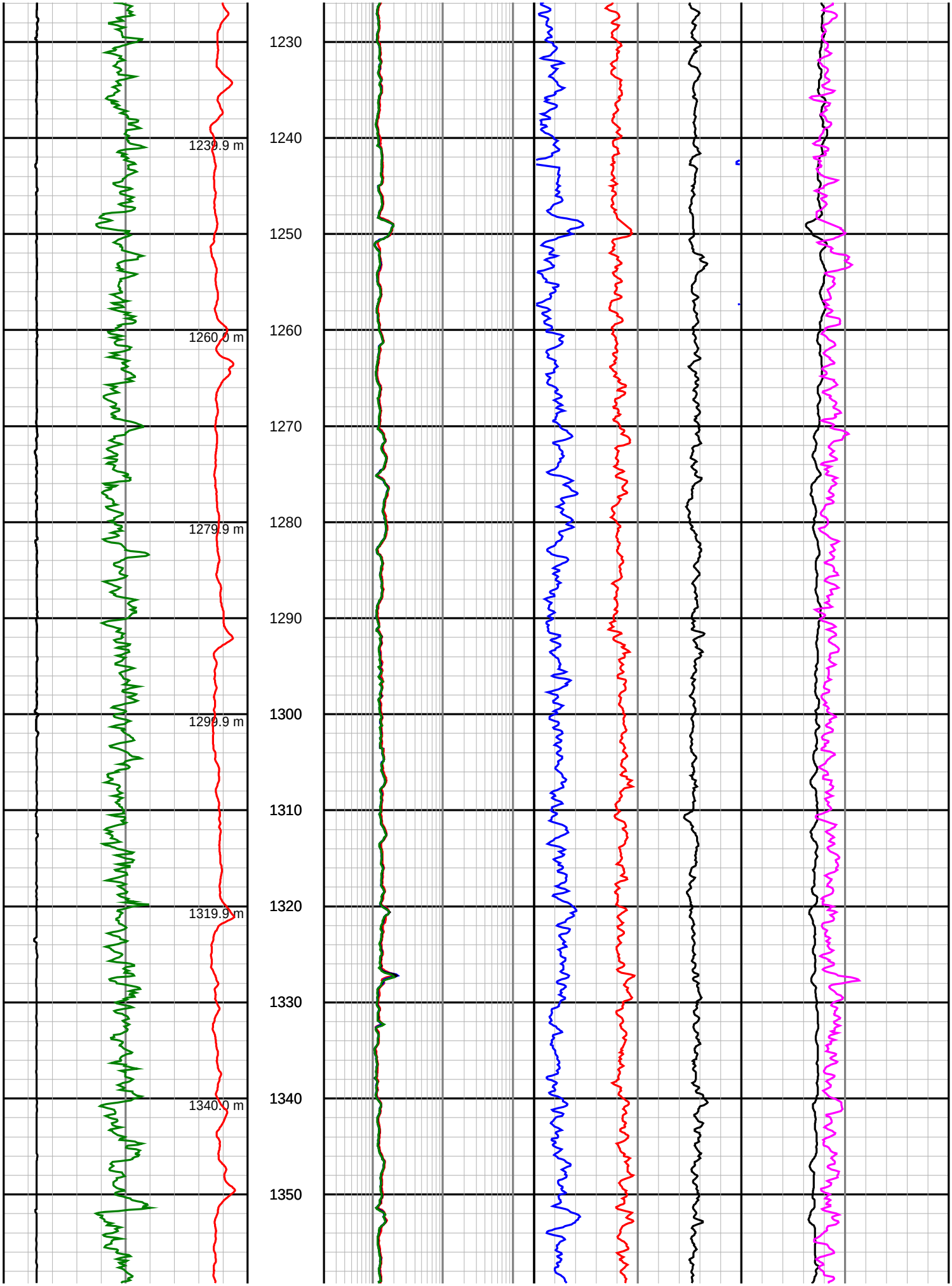
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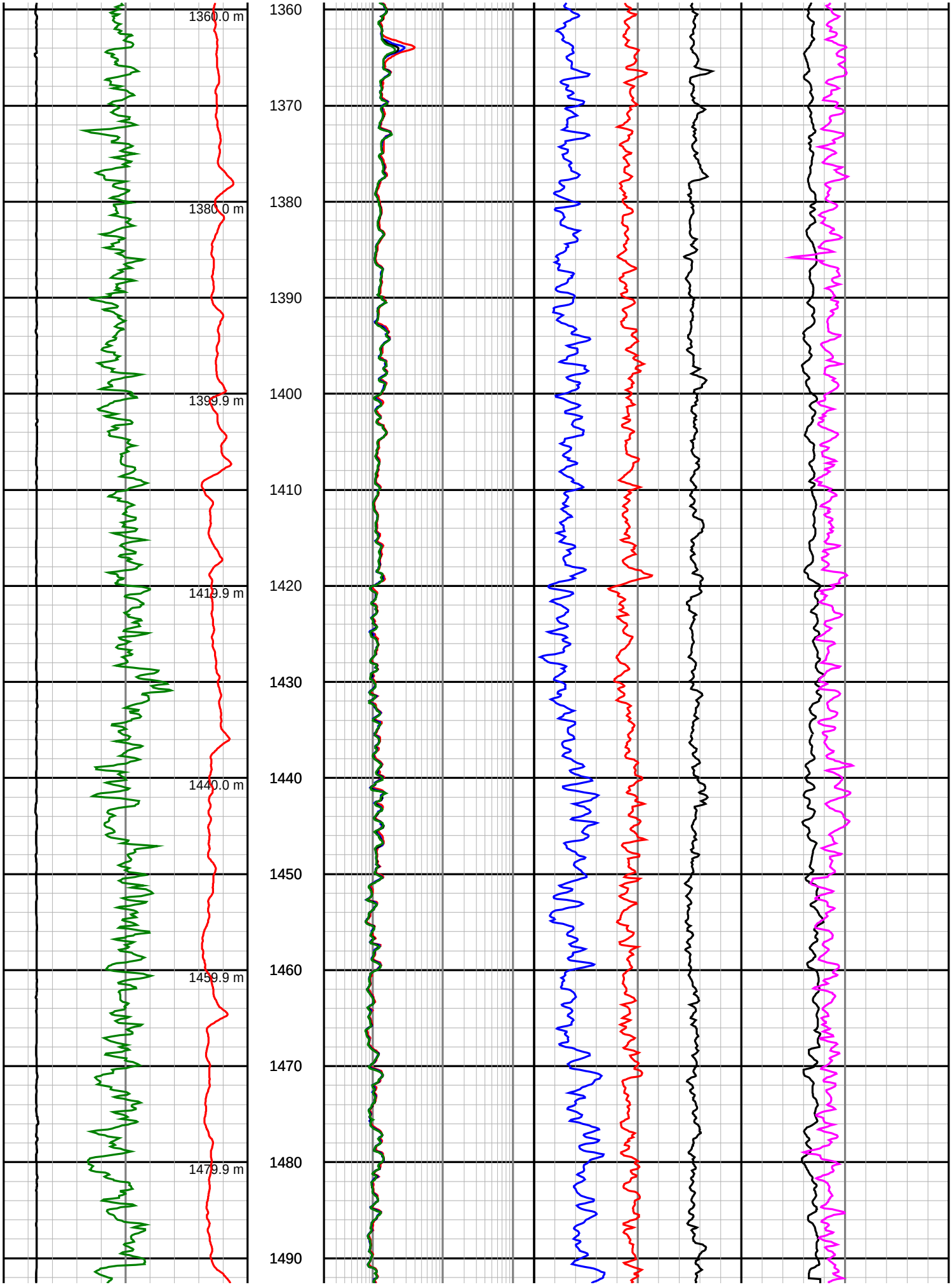
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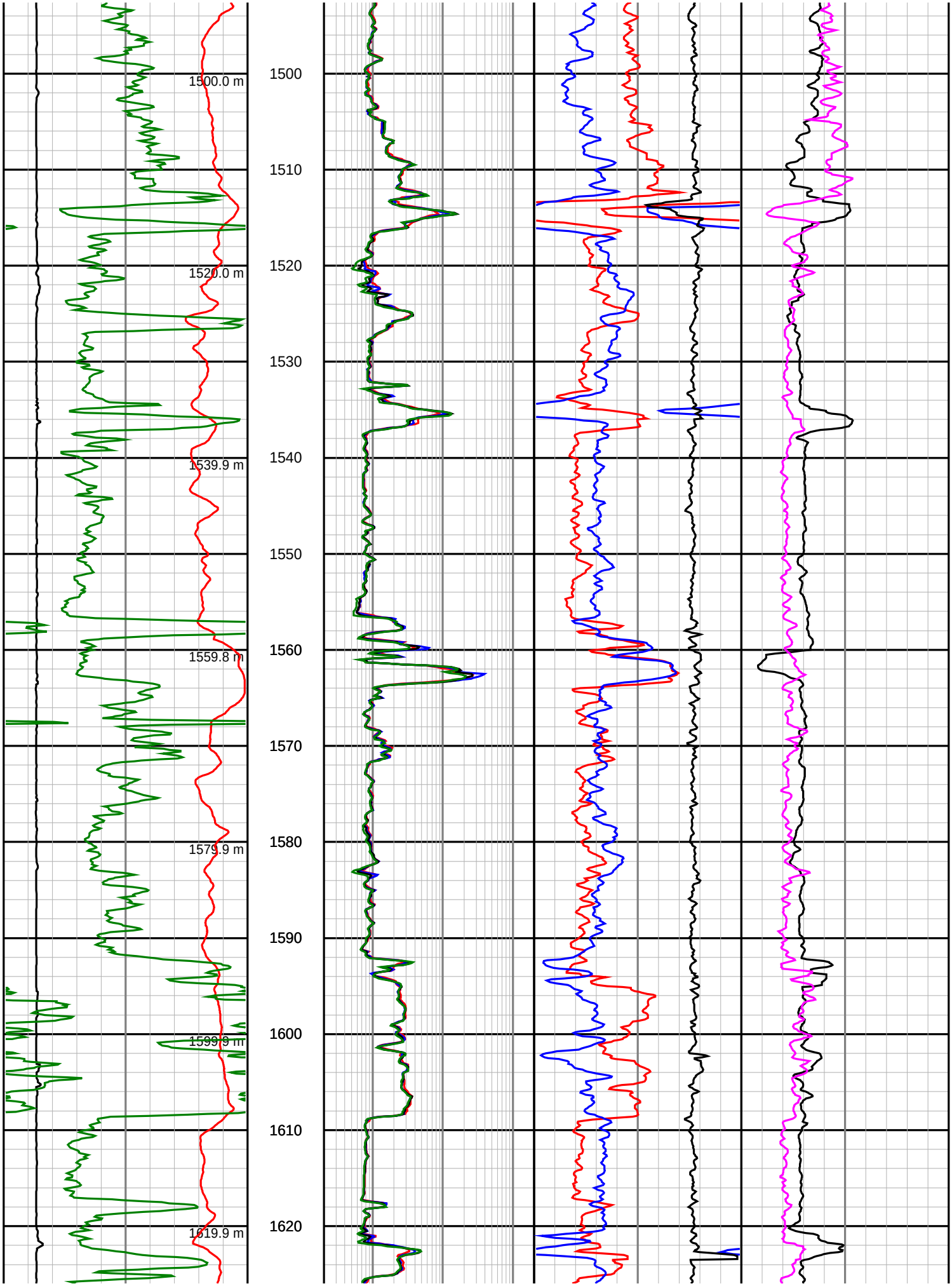
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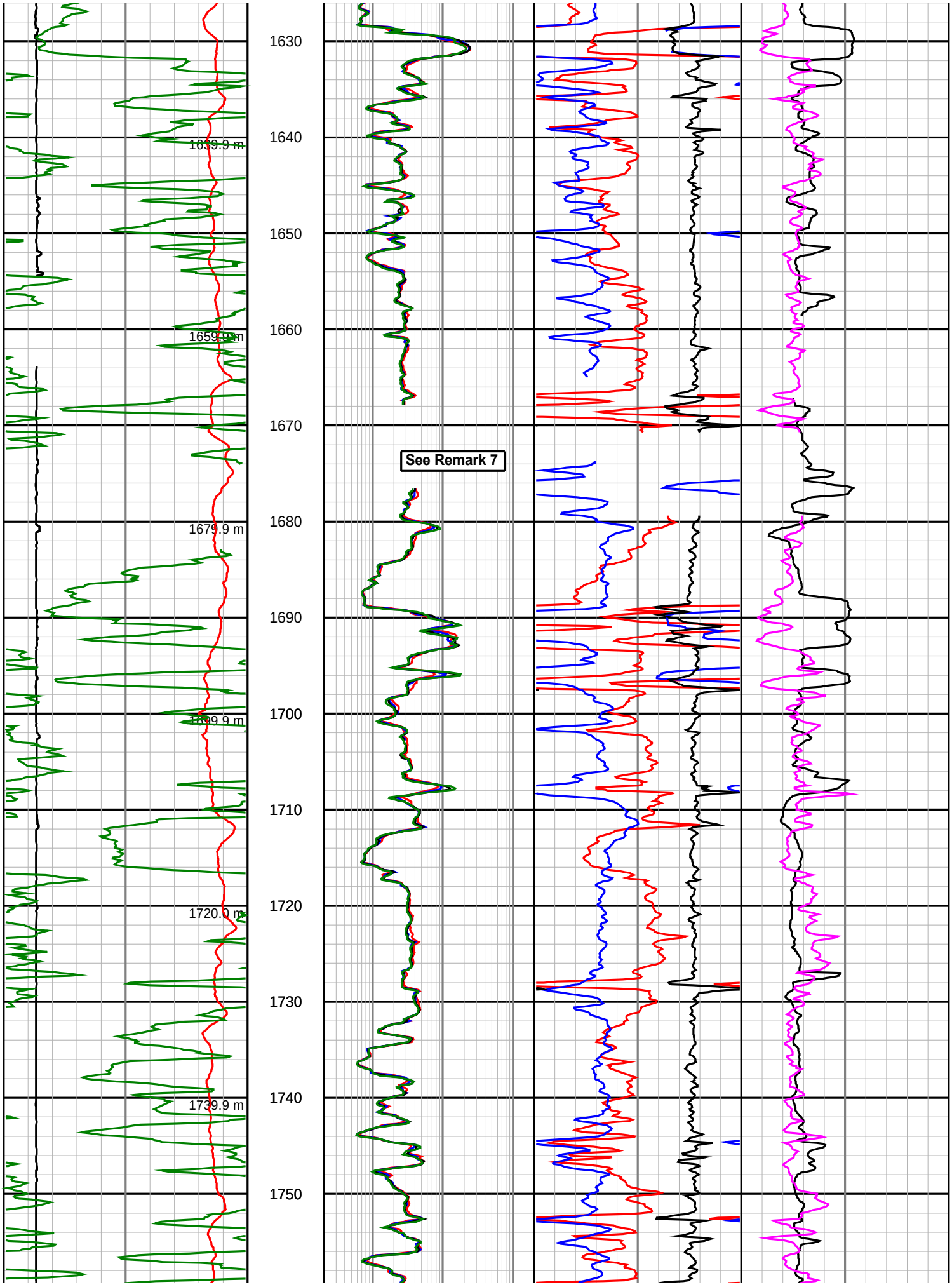
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1720
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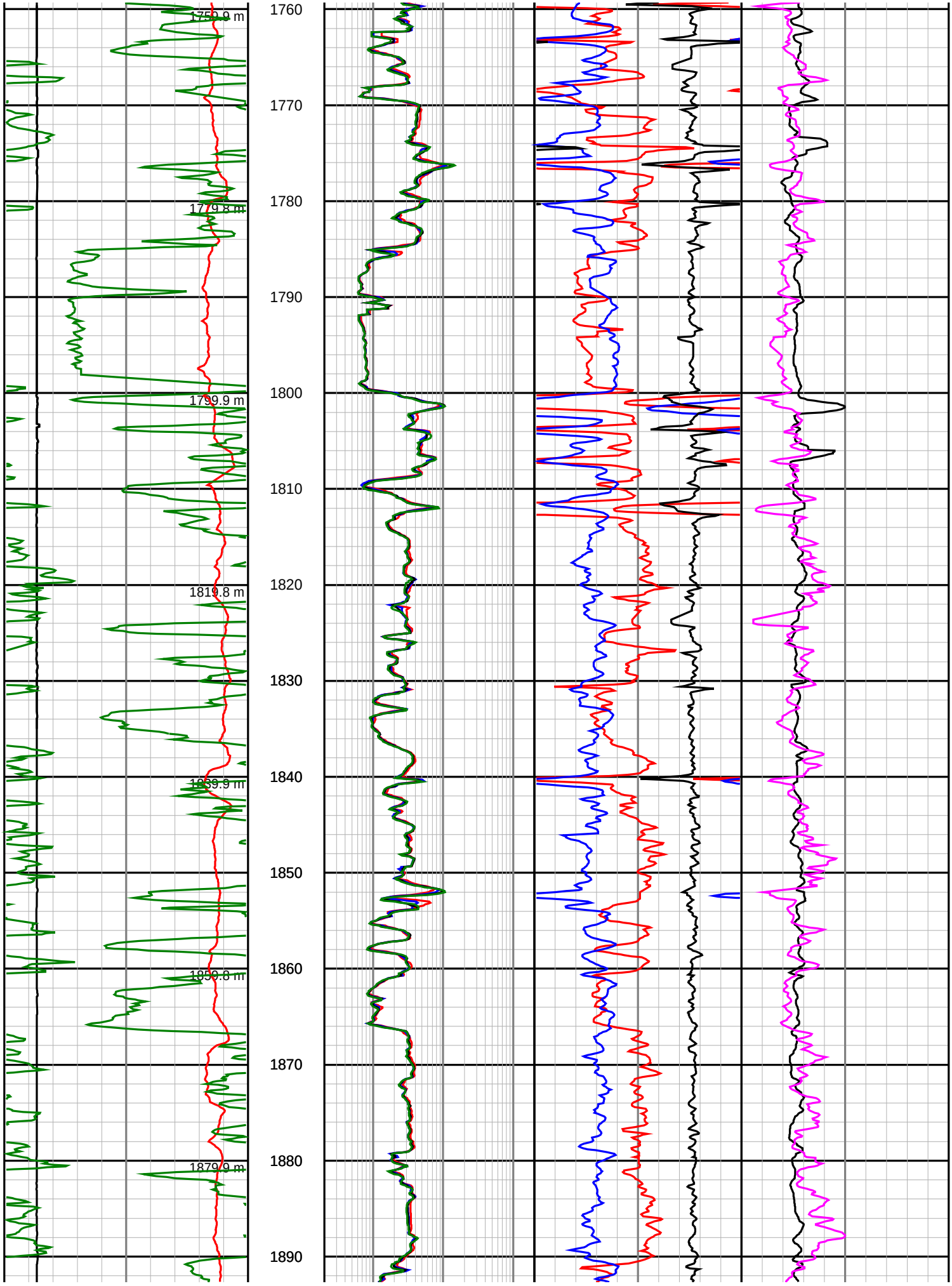
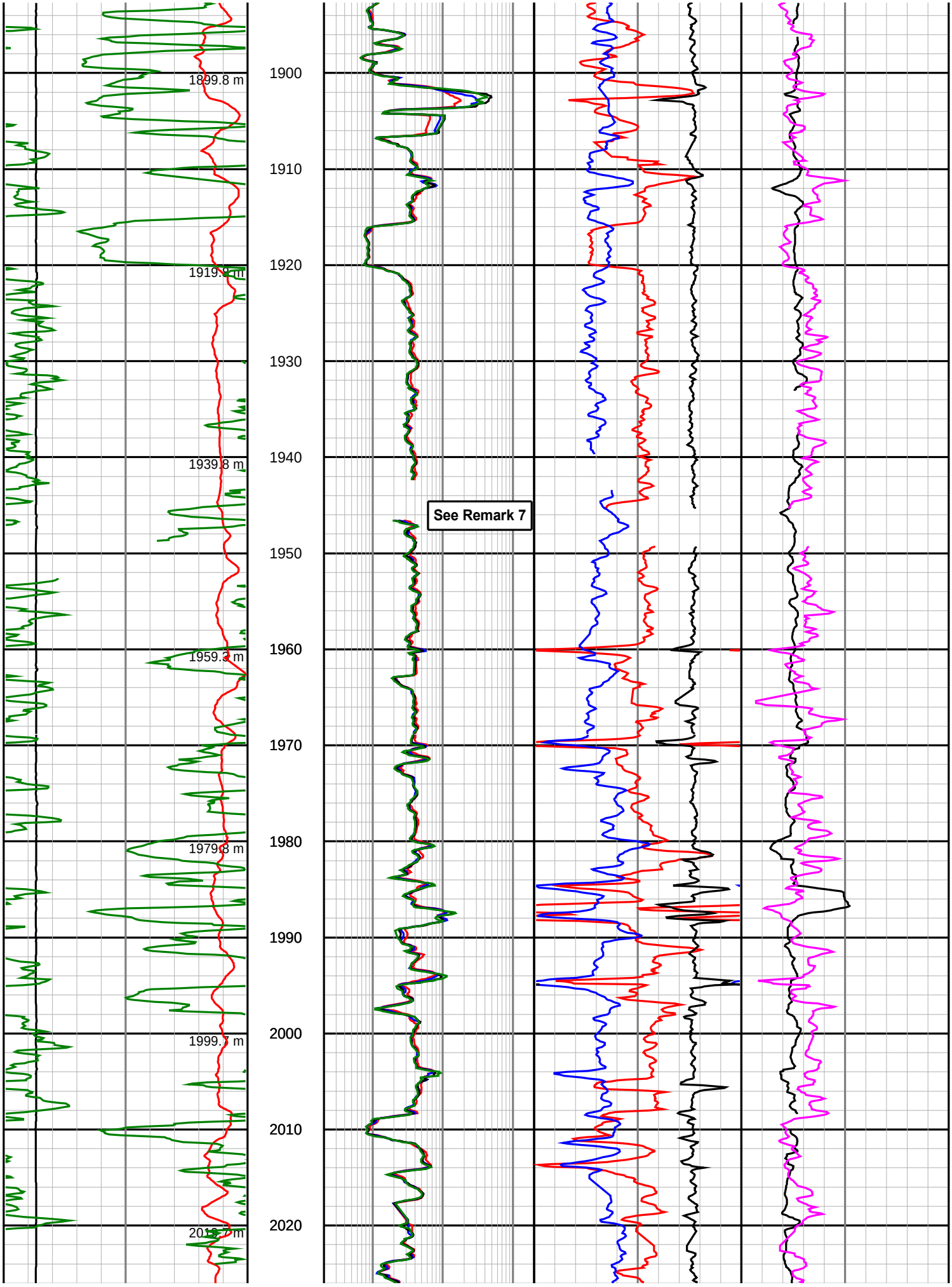
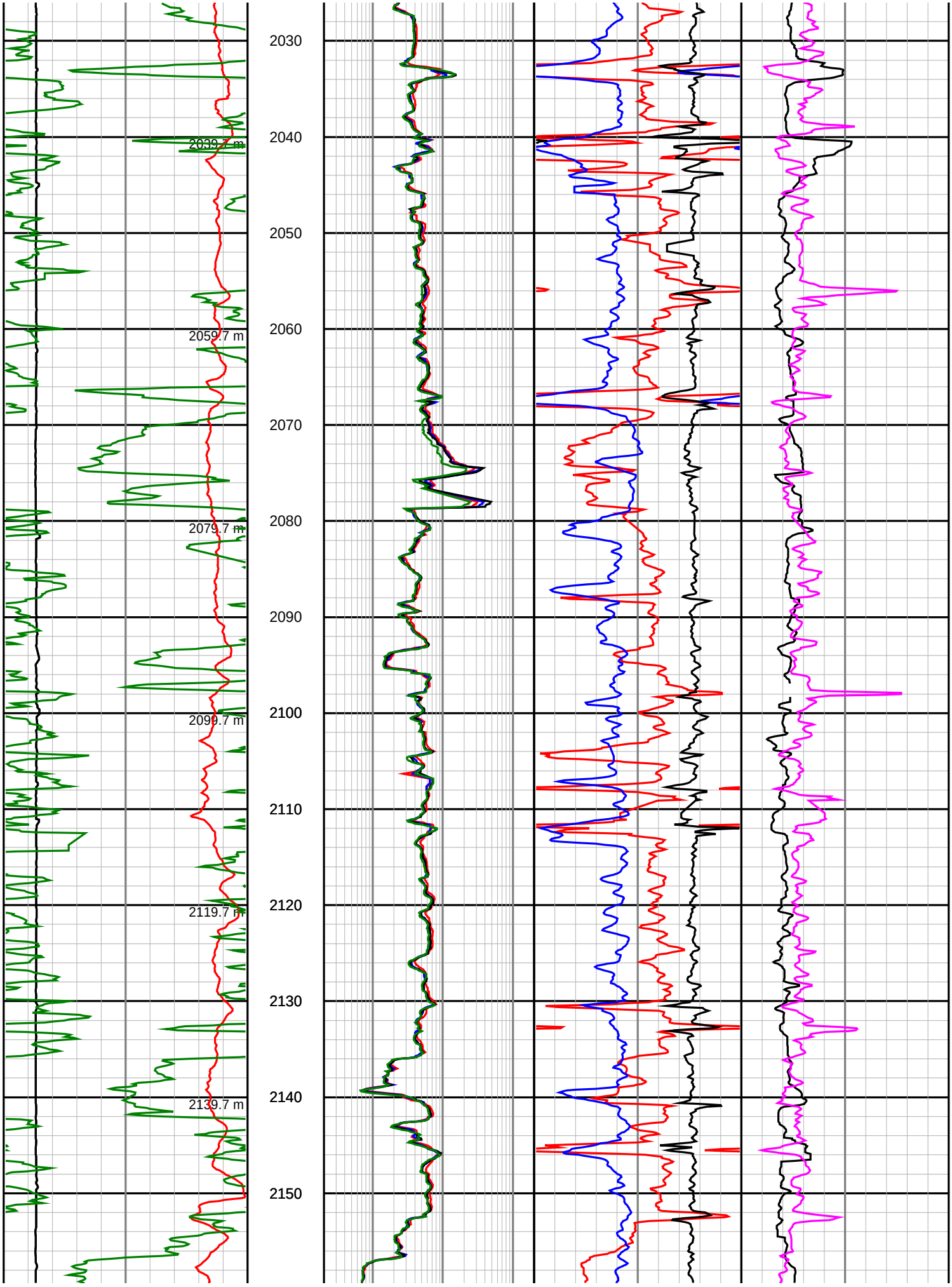
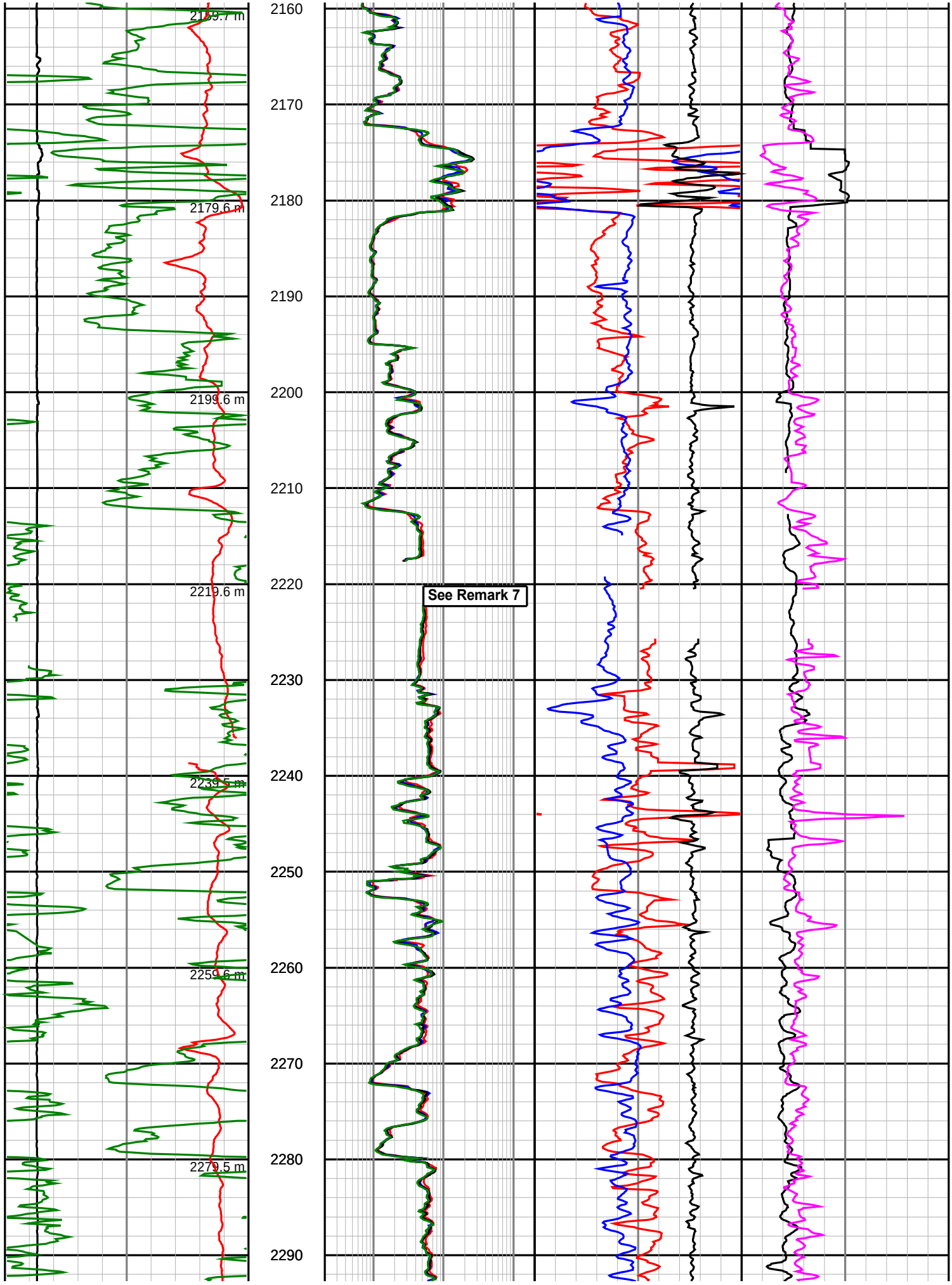
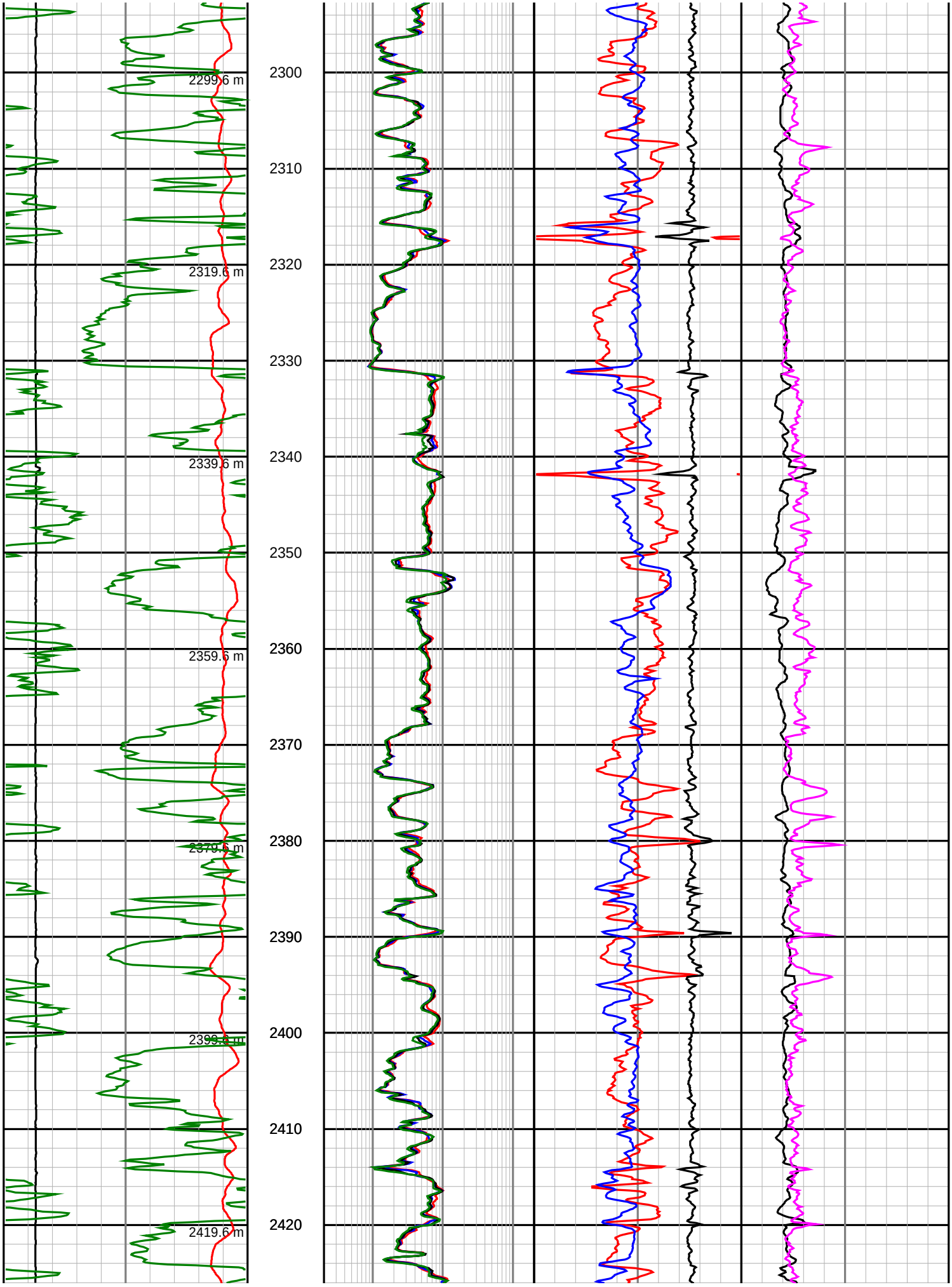
1659.9 m
1679.9 m
1699.9 m
1720.0 m
1739.9 m
See Remark 7


1759.9 m
1779.8 m
1799.9 m
1819.8 m
1839.9 m
1859.8 m
1879.9 m
1760
1770
1780
1790
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890


1899.8 m
1919.8 m
1939.8 m
1959.3 m
1979.8 m
1999.7 m
2019.7 m
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
See Remark 7


2030
2040
2050
2060
2070
2080
2090
2100
2110
2120
2130
2140
2150
2039.7 m
2059.7 m
2079.7 m
2099.7 m
2119.7 m
2139.7 m


2159.7 m
2179.6 m
2199.6 m
2219.6 m
2239.5 m
2259.6 m
2279.5 m
2160
2170
2180
2190
2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
See Remark 7


2299.6 m
2319.6 m
2339.6 m
2359.6 m
2379.6 m
2399.6 m
2419.6 m
2300
2310
2320
2330
2340
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2400
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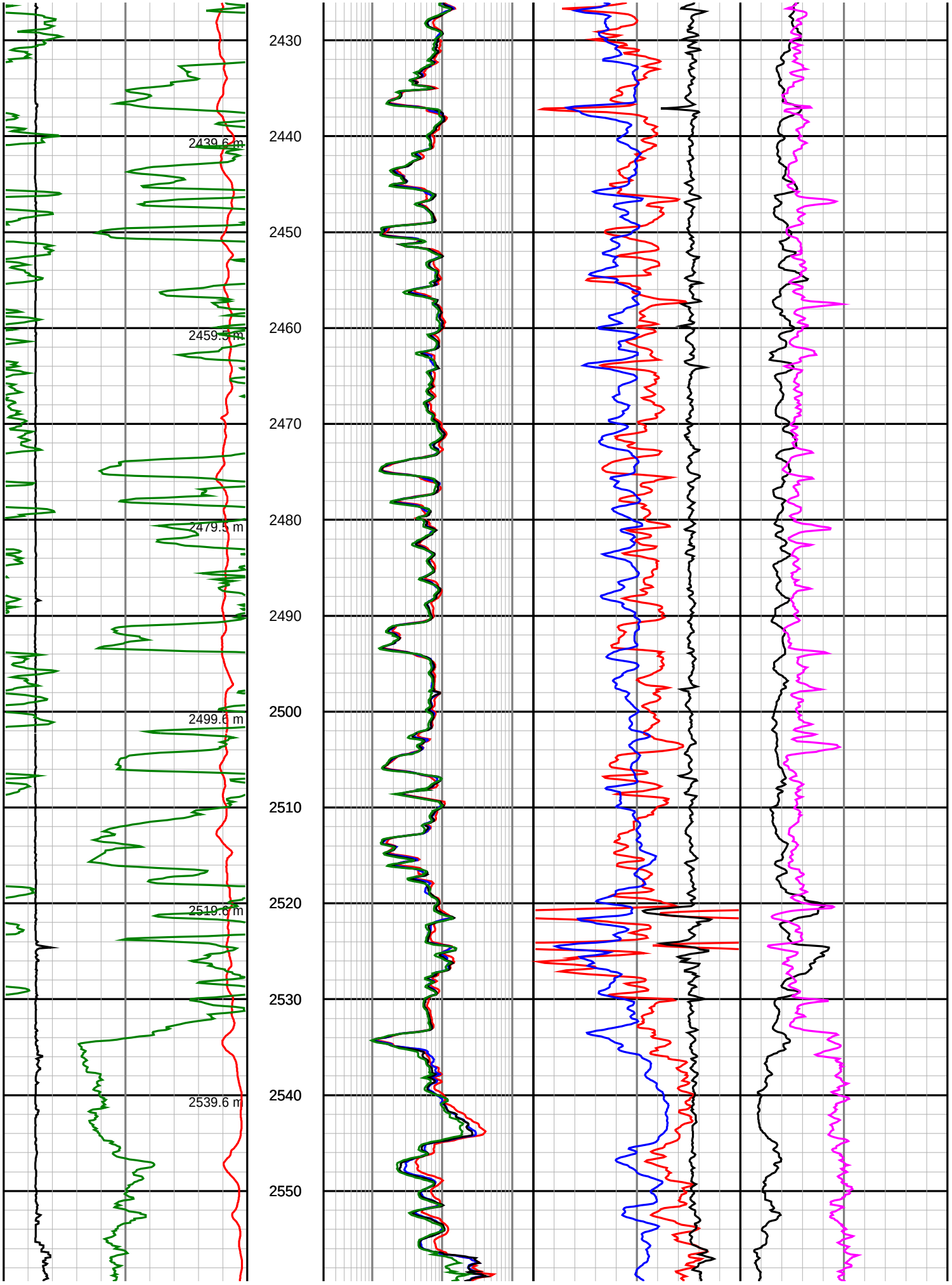
2420


2430
2440
2450
2460
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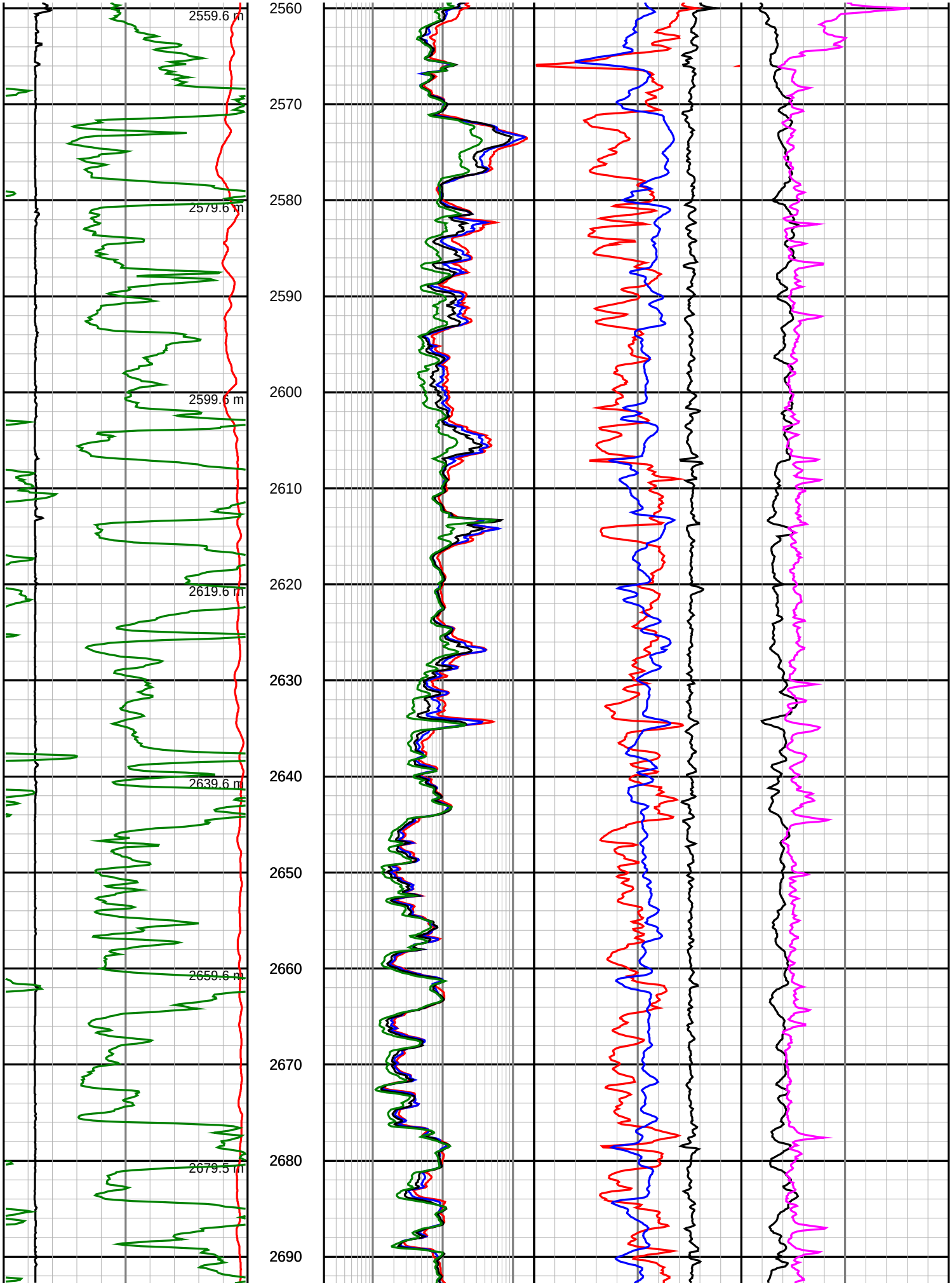
2480
2490
2500
2510
2520
2530
2540
2550
2439.6 m
2459.5 m
2479.5 m
2499.6 m
2519.6 m
2539.6 m


2559.6 m
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2599.6 m
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2659.6 m
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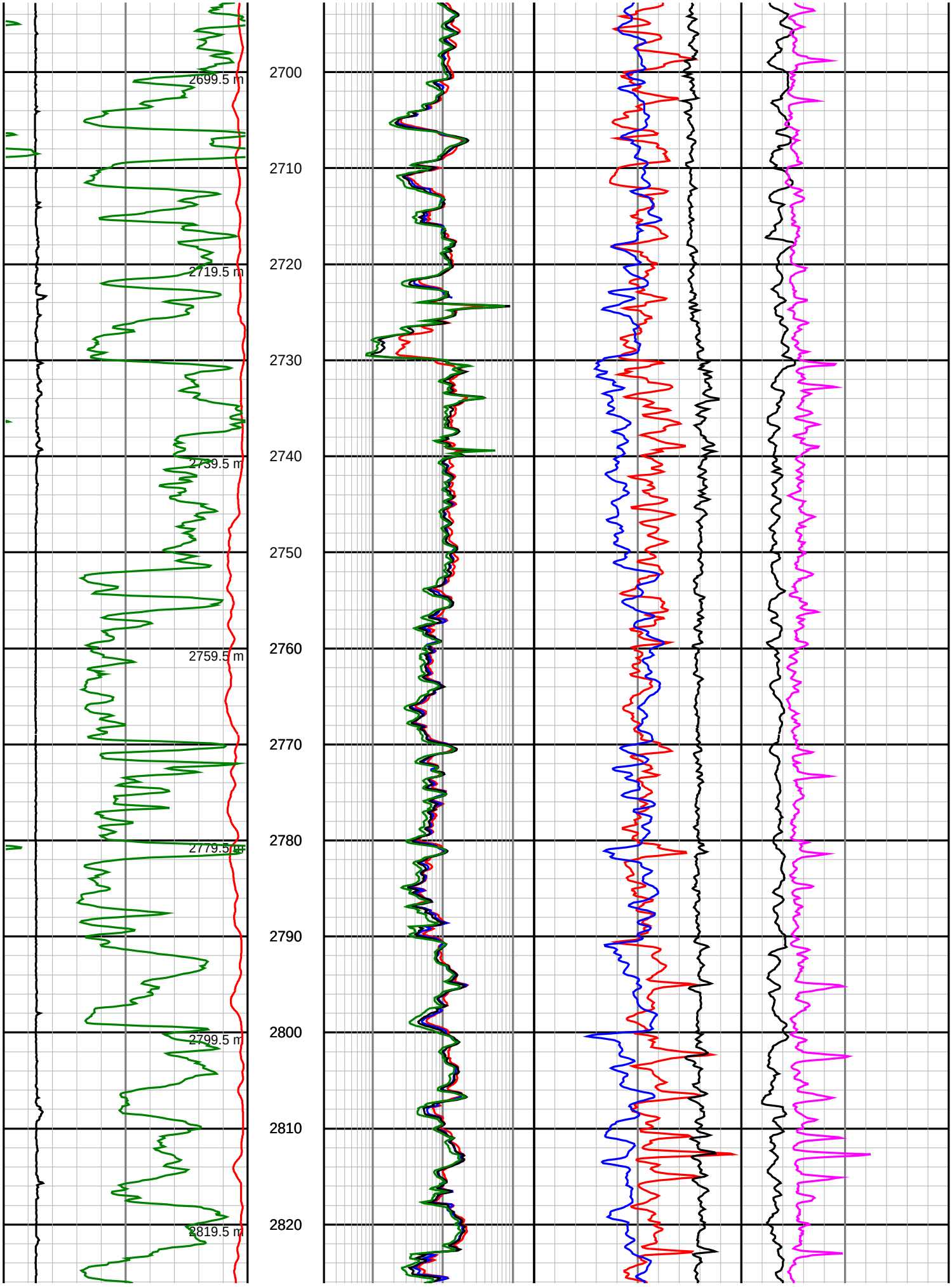
2699.5 m
2719.5 m
2739.5 m
2759.5 m
2779.5 m
2799.5 m
2819.5 m
2700
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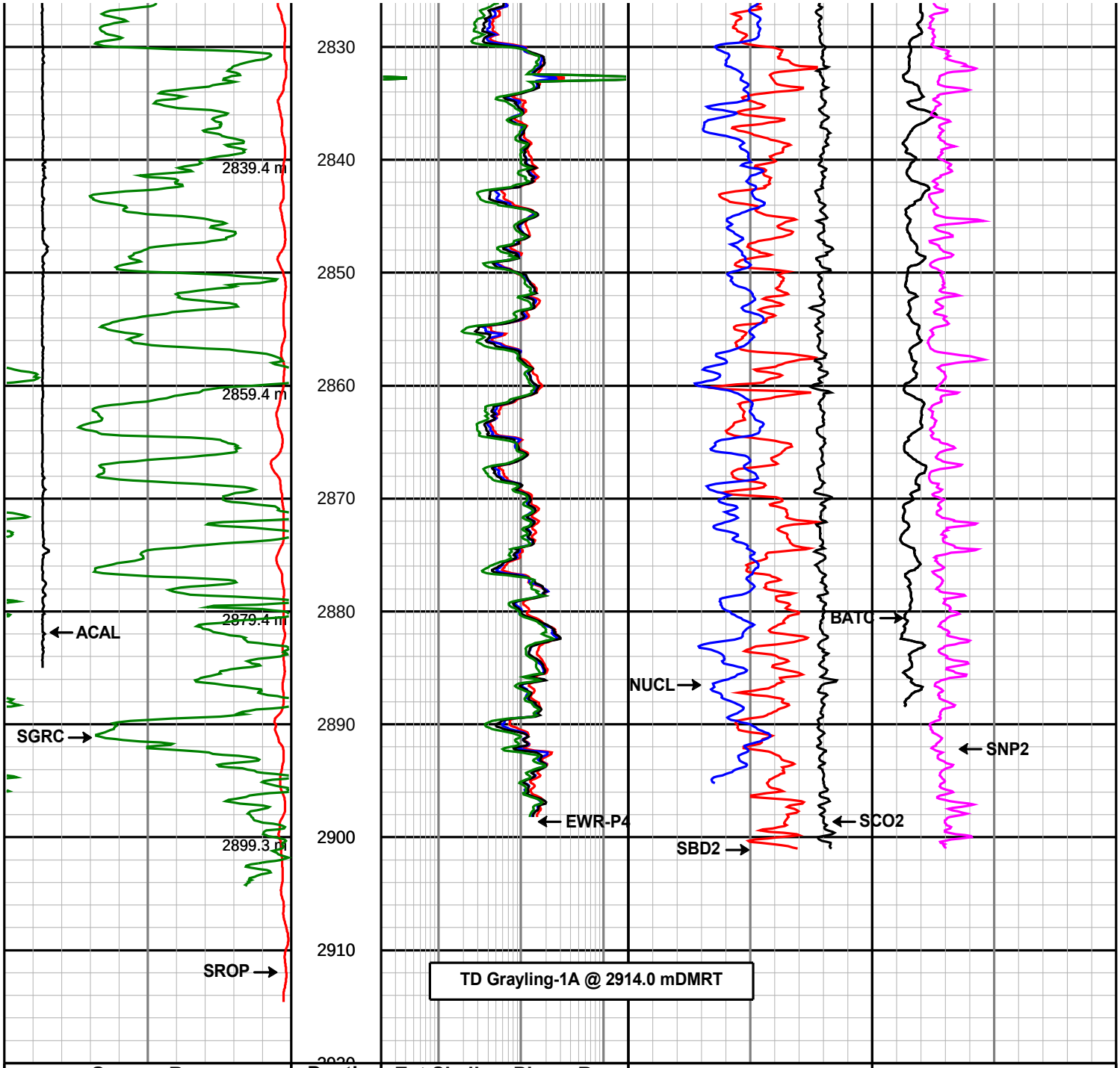
2800
2810
2820

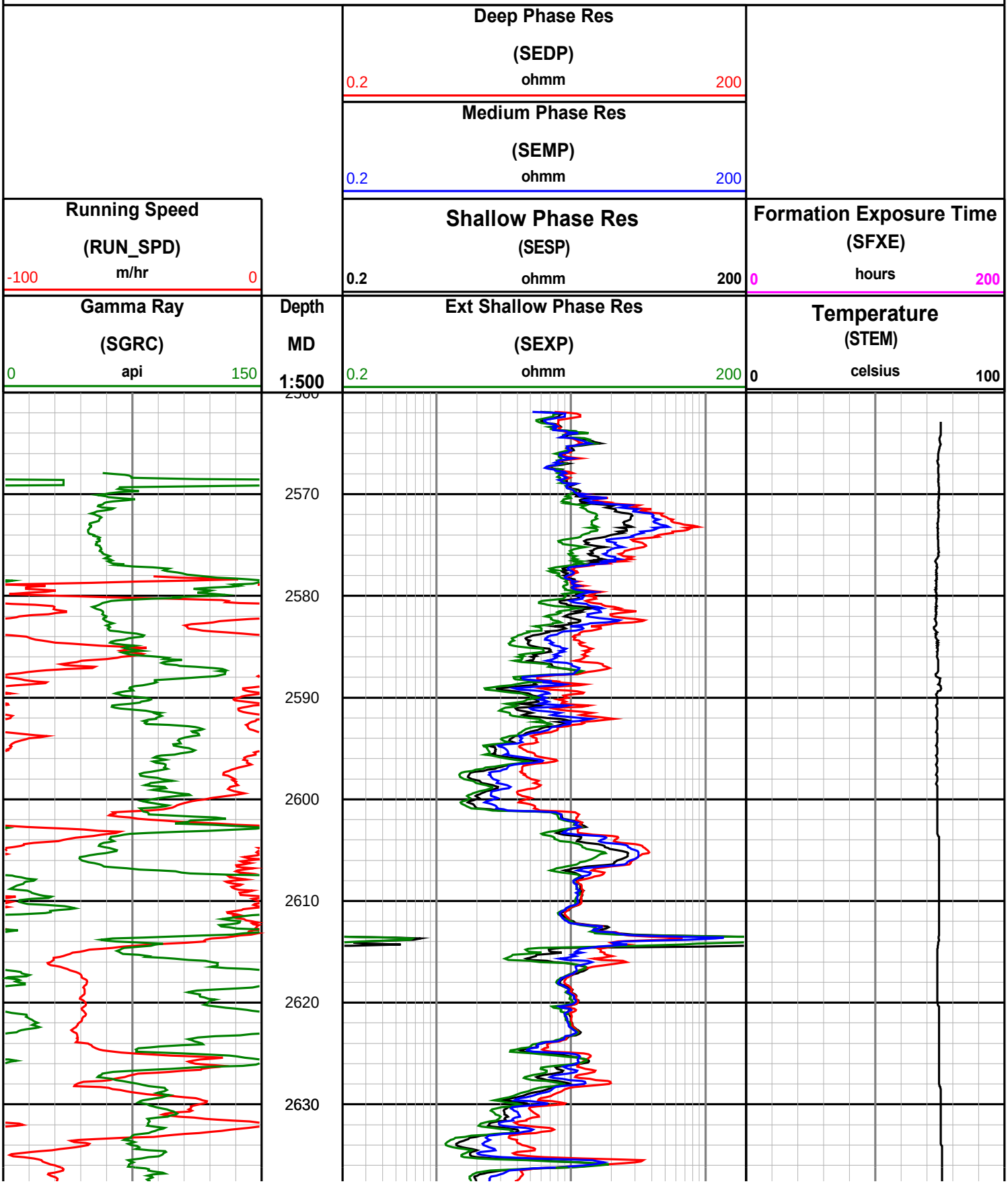


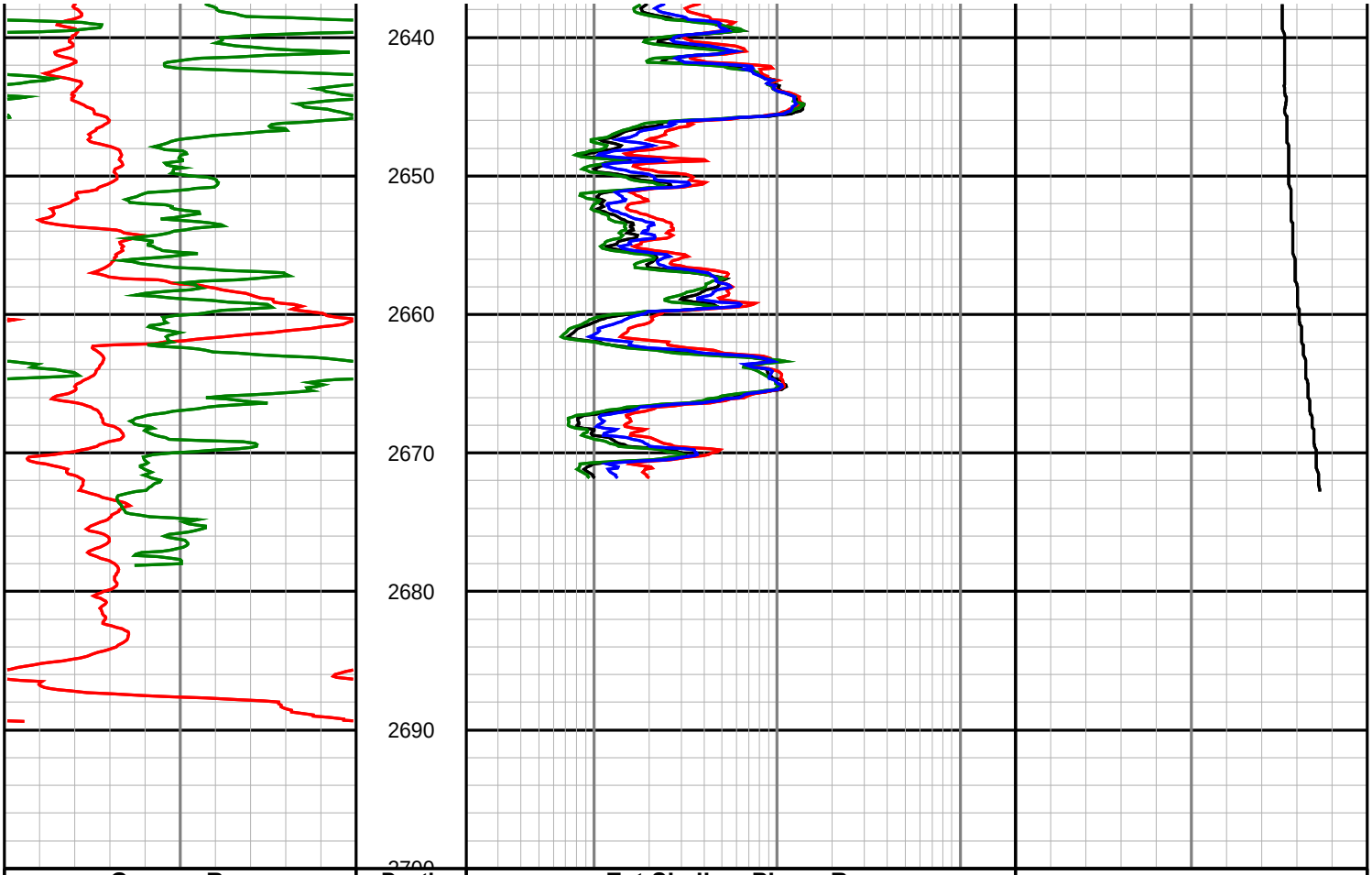
Gamma Ray (SGRC)	Depth MD 1:500	Ext Shallow Phase Res (SEXP)	Standoff Correction (SCO2)	Compressional Slowness (BATC)
0 api 150		0.2 ohmm 200	-0.75 gram per cc 0.25	40 microsec per ft 240
Rate of Penetration (SROP)		**Shallow Phase Res (SESP)**	**Neutron Porosity (NUCL)**	**Photoelectric Effect (SNP2)**
500 m/hr 0		0.2 ohmm 200	0.45 v/v -0.15	0 barns/electron 10
Acoustic Caliper (ACAL)		**Medium Phase Res (SEMP)**	**Density (SBD2)**	
6 inches 26		0.2 ohmm 200	1.95 gram per cc 2.95	
True Vertical Depth		**Deep Phase Res (SEDP)**		
metres		0.2 ohmm 200		

Apache Energy Ltd.

Grayling-1A

Repeat Section 1 : Wiped after Run 400 while pumping and rotating out of the hole from 2685.0 - 2575.0 mMDRT, 23:59, Jan 11th to 02:35, Jan 12th





Gamma Ray (SGRC)	Depth MD	Ext Shallow Phase Res (SEXP)	Temperature (STEM)
0 api 150	1:500	0.2 ohmm 200	0 celsius 100

Running Speed (RUN_SPD)	Shallow Phase Res (SESP)	Formation Exposure Time (SFXE)
-100 m/hr 0	0.2 ohmm 200	0 hours 200

Medium Phase Res (SEMP)	Deep Phase Res (SEDP)
0.2 ohmm 200	0.2 ohmm 200

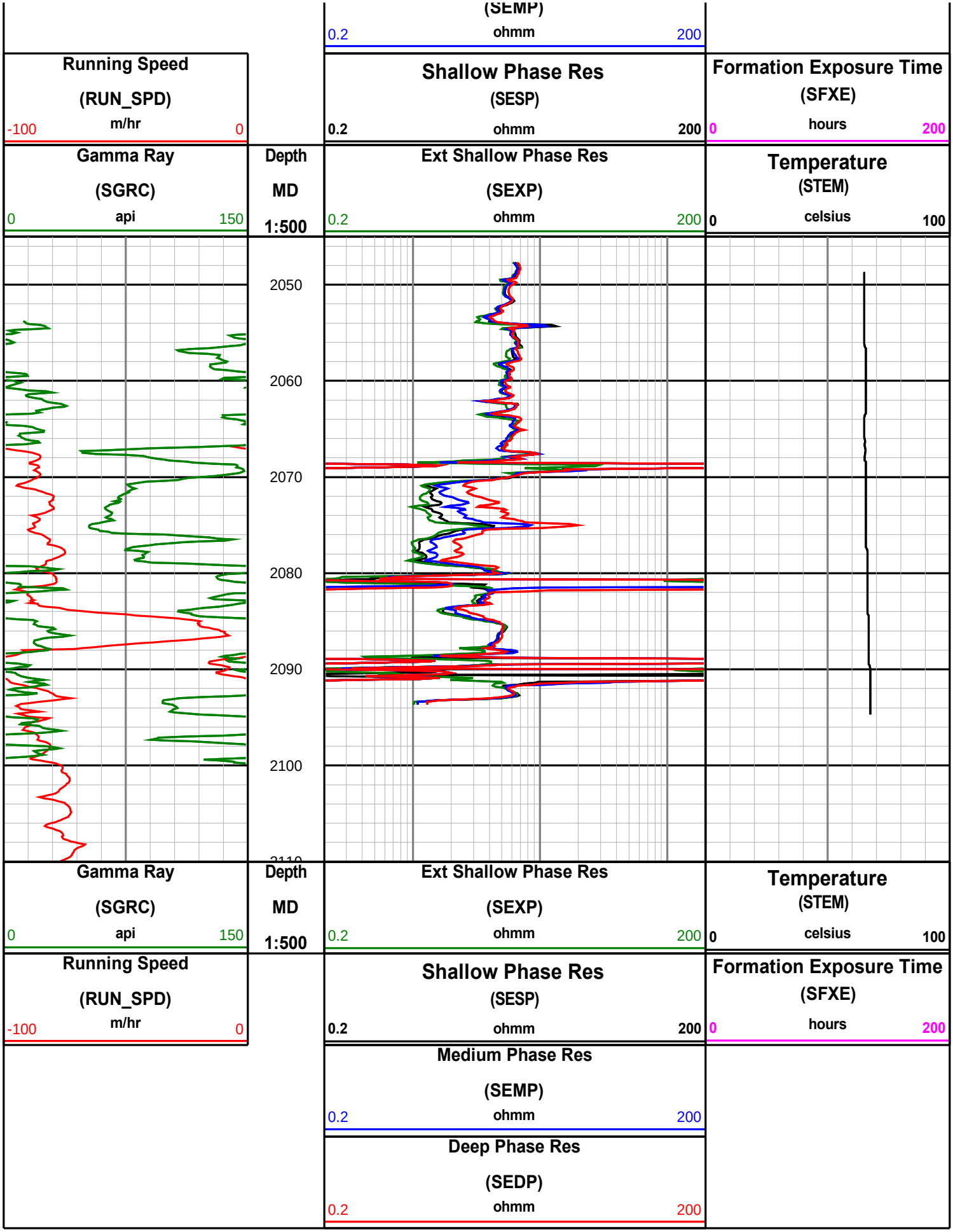
Apache Energy Ltd.

Grayling-1A

Repeat Section 2 : Wiped after Run 400 while pumping out of the hole from 2109.0 - 2070.0 mMDRT, 13:36, 12th Jan to 14:19, 12th Jan.

Deep Phase Res (SEDP)
0.2 ohmm 200

Medium Phase Res


(SEMP)
0.2
ohmm
200
Running Speed
(RUN_SPD)
-100
m/hr
0
Shallow Phase Res
(SESP)
0.2
ohmm
200
Formation Exposure Time
(SFXE)
0
hours
200
Gamma Ray
(SGRC)
0
api
150
Depth
MD
1:500
Ext Shallow Phase Res
(SEXP)
0.2
ohmm
200
Temperature
(STEM)
0
celsius
100
2050
2060
2070
2080
2090
2100
2110
Gamma Ray
(SGRC)
0
api
150
Depth
MD
1:500
Ext Shallow Phase Res
(SEXP)
0.2
ohmm
200
Temperature
(STEM)
0
celsius
100
Running Speed
(RUN_SPD)
-100
m/hr
0
Shallow Phase Res
(SESP)
0.2
ohmm
200
Formation Exposure Time
(SFXE)
0
hours
200
Medium Phase Res
(SEMP)
0.2
ohmm
200
Deep Phase Res
(SEDP)
0.2
ohmm
200

INSITE

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Apache Energy Ltd
Grayling-1A
Exploration
Victoria
Australia
AU-FE-0003471409
Final survey has been projected to TD. RT-AHD=21.5m

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
80.000	0.00	0.00	80.000	0.000 N	0.000 E	0.000	TIE-IN
140.830	0.93	20.34	140.827	0.462 N	0.171 E	0.059	0.46
167.340	0.94	25.97	167.334	0.858 N	0.341 E	0.131	0.10
196.500	0.55	24.92	196.491	1.199 N	0.504 E	0.211	0.40
221.100	0.33	17.12	221.091	1.375 N	0.575 E	0.238	0.27
253.410	0.44	25.80	253.400	1.577 N	0.657 E	0.271	0.11
282.650	0.46	31.92	282.639	1.777 N	0.768 E	0.332	0.05
336.050	0.37	36.75	336.038	2.097 N	0.984 E	0.468	0.05
364.950	0.35	34.82	364.937	2.244 N	1.090 E	0.536	0.03
424.970	0.09	37.93	424.956	2.431 N	1.223 E	0.622	0.13
451.800	0.18	136.70	451.786	2.416 N	1.266 E	0.667	0.24
482.270	0.03	52.24	482.256	2.386 N	1.306 E	0.713	0.18
511.260	0.03	38.48	511.246	2.397 N	1.317 E	0.721	0.01
539.810	0.23	62.33	539.796	2.429 N	1.373 E	0.768	0.21
568.550	0.41	43.67	568.536	2.531 N	1.495 E	0.864	0.21
654.000	0.34	93.97	653.984	2.734 N	1.959 E	1.267	0.11
684.560	0.33	108.87	684.544	2.699 N	2.133 E	1.445	0.09
711.790	0.32	104.03	711.773	2.655 N	2.282 E	1.600	0.03
741.440	0.20	130.91	741.423	2.602 N	2.401 E	1.728	0.17
768.300	0.18	151.29	768.283	2.534 N	2.456 E	1.798	0.08
799.470	0.07	125.09	799.453	2.479 N	2.496 E	1.849	0.12
828.000	0.33	254.00	827.983	2.445 N	2.431 E	1.794	0.40
855.730	0.22	282.74	855.712	2.435 N	2.301 E	1.670	0.19
884.020	0.25	268.52	884.002	2.446 N	2.187 E	1.556	0.07
912.980	0.03	338.30	912.962	2.451 N	2.122 E	1.492	0.25
941.540	0.24	248.40	941.522	2.435 N	2.063 E	1.438	0.26
969.380	0.23	227.08	969.362	2.374 N	1.966 E	1.358	0.10
997.560	0.08	133.42	997.542	2.322 N	1.938 E	1.343	0.27
1026.770	0.07	257.57	1026.752	2.304 N	1.935 E	1.345	0.14
1055.080	0.12	94.50	1055.061	2.297 N	1.948 E	1.358	0.20
1083.610	0.12	106.14	1083.591	2.287 N	2.005 E	1.417	0.03
1112.940	0.10	285.84	1112.921	2.285 N	2.011 E	1.422	0.22
1142.030	0.20	104.60	1142.011	2.279 N	2.037 E	1.449	0.31
1170.510	0.20	103.08	1170.491	2.255 N	2.134 E	1.550	0.01
1196.455	0.20	97.91	1196.436	2.238 N	2.224 E	1.641	0.02
1198.860	0.14	149.13	1198.841	2.235 N	2.230 E	1.647	1.96
1227.730	0.20	97.52	1227.711	2.197 N	2.298 E	1.722	0.16
1258.250	0.23	146.71	1258.231	2.139 N	2.385 E	1.820	0.18
1286.990	0.14	124.27	1286.971	2.071 N	2.445 E	1.895	0.12
1314.430	0.17	97.46	1314.411	2.047 N	2.512 E	1.965	0.09
1343.180	0.27	148.88	1343.160	1.983 N	2.589 E	2.056	0.22
1373.250	0.24	126.95	1373.230	1.883 N	2.677 E	2.164	0.10
1402.000	0.30	107.68	1401.980	1.824 N	2.797 E	2.295	0.11
1430.540	0.66	87.99	1430.519	1.807 N	3.031 E	2.526	0.41
1459.180	0.60	82.70	1459.157	1.832 N	3.344 E	2.824	0.08

HALLIBURTON

Grayling-1A

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
1487.740	0.57	116.20	1487.716	1.789 N	3.618 E	3.101	0.35
1544.860	0.59	114.95	1544.833	1.540 N	4.139 E	3.666	0.02
1573.590	0.54	97.04	1573.561	1.460 N	4.409 E	3.947	0.19
1602.190	0.43	108.02	1602.160	1.411 N	4.645 E	4.188	0.15
1631.000	0.69	124.85	1630.969	1.278 N	4.891 E	4.458	0.32
1688.590	0.84	172.37	1688.554	0.663 N	5.232 E	4.933	0.33
1717.500	1.15	175.09	1717.460	0.163 N	5.285 E	5.101	0.33
1746.310	1.33	177.78	1746.263	0.461 S	5.322 E	5.283	0.20
1771.770	1.71	183.22	1771.714	1.137 S	5.313 E	5.431	0.48
1801.270	1.83	193.59	1801.200	2.034 S	5.177 E	5.509	0.34
1829.670	1.85	191.49	1829.586	2.922 S	4.980 E	5.524	0.07
1859.530	2.00	189.68	1859.429	3.907 S	4.797 E	5.575	0.16
1886.700	2.12	182.09	1886.581	4.875 S	4.699 E	5.706	0.33
1913.170	1.88	179.20	1913.035	5.798 S	4.687 E	5.910	0.30
1943.380	2.08	169.63	1943.227	6.831 S	4.792 E	6.253	0.38
1970.530	2.15	161.30	1970.359	7.797 S	5.044 E	6.723	0.35
2002.660	2.18	162.43	2002.466	8.949 S	5.421 E	7.359	0.05
2031.550	2.30	163.07	2031.334	10.027 S	5.756 E	7.935	0.13
2059.860	2.41	156.94	2059.620	11.118 S	6.154 E	8.578	0.29
2088.000	2.15	158.77	2087.738	12.154 S	6.577 E	9.230	0.29
2116.020	2.17	149.89	2115.738	13.102 S	7.033 E	9.895	0.36
2176.470	1.96	136.28	2176.149	14.840 S	8.322 E	11.554	0.26
2205.270	2.09	136.58	2204.931	15.577 S	9.023 E	12.407	0.13
2234.278	1.80	118.62	2233.923	16.178 S	9.785 E	13.288	0.69
2262.360	1.77	112.23	2261.991	16.552 S	10.572 E	14.141	0.21
2319.970	1.35	98.17	2319.580	16.985 S	12.069 E	15.697	0.29
2348.570	1.20	81.03	2348.173	16.987 S	12.699 E	16.310	0.43
2377.250	1.24	77.36	2376.846	16.872 S	13.299 E	16.867	0.09
2405.890	0.86	73.76	2405.481	16.743 S	13.809 E	17.333	0.40
2434.610	0.82	69.48	2434.198	16.610 S	14.211 E	17.693	0.08
2463.450	0.68	71.56	2463.036	16.484 S	14.566 E	18.009	0.16
2492.410	0.81	69.68	2491.993	16.359 S	14.920 E	18.324	0.14
2546.500	0.52	57.73	2546.080	16.094 S	15.487 E	18.813	0.18
2576.790	0.69	53.30	2576.368	15.912 S	15.750 E	19.026	0.17
2607.250	1.04	24.25	2606.824	15.551 S	16.010 E	19.195	0.54
2635.530	1.27	21.76	2635.099	15.026 S	16.231 E	19.288	0.25
2664.670	1.48	19.52	2664.230	14.372 S	16.477 E	19.374	0.22
2693.520	1.47	19.44	2693.071	13.672 S	16.724 E	19.452	0.01
2705.880	1.52	22.17	2705.427	13.371 S	16.839 E	19.493	0.21
2712.300	1.49	18.24	2711.844	13.213 S	16.897 E	19.513	0.50
2741.400	1.94	16.75	2740.931	12.383 S	17.157 E	19.572	0.47
2770.200	2.12	14.28	2769.713	11.400 S	17.429 E	19.607	0.21
2799.250	2.30	13.41	2798.741	10.314 S	17.696 E	19.614	0.19
2827.820	2.76	14.38	2827.284	9.089 S	18.000 E	19.624	0.49
2855.280	2.92	15.44	2854.710	7.773 S	18.351 E	19.658	0.18
2880.320	3.28	15.63	2879.713	6.468 S	18.714 E	19.707	0.42
2914.000	3.28	15.63	2913.338	4.613 S	19.233 E	19.779	0.00

HALLIBURTON

Grayling-1A

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A CLOSURE OF 103.49 DEGREES (GRID)
A TOTAL CORRECTION OF 13.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

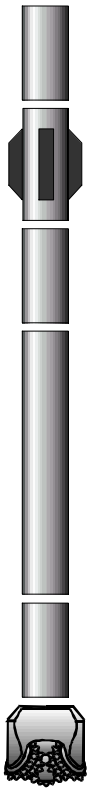
HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 2914.000 METRES
IS 19.779 METRES ALONG 103.49 DEGREES (GRID)

MWD RUN 200 - BHA

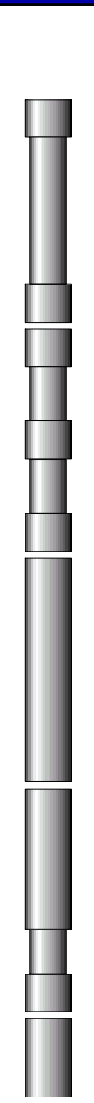
	Cumulative Length (m)
Sub	118.91
	117.78
Drill Collar	
	90.73
Jar	
	80.87
Drill Collar	
	35.05
MWD	

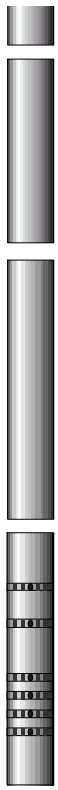
MWD RUN 200 - MWD

	Sensor Measure Point Distance To Bit (m)
Positive Pulser	
TM	
PM	30.400
ACAL	27.620
BAT	

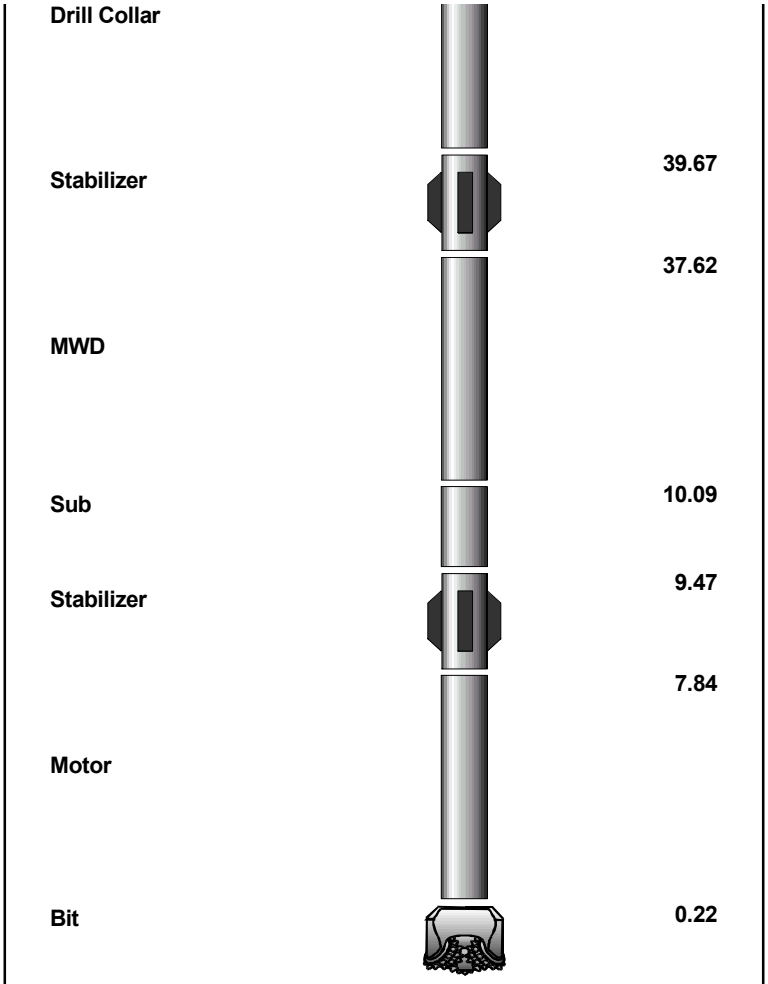


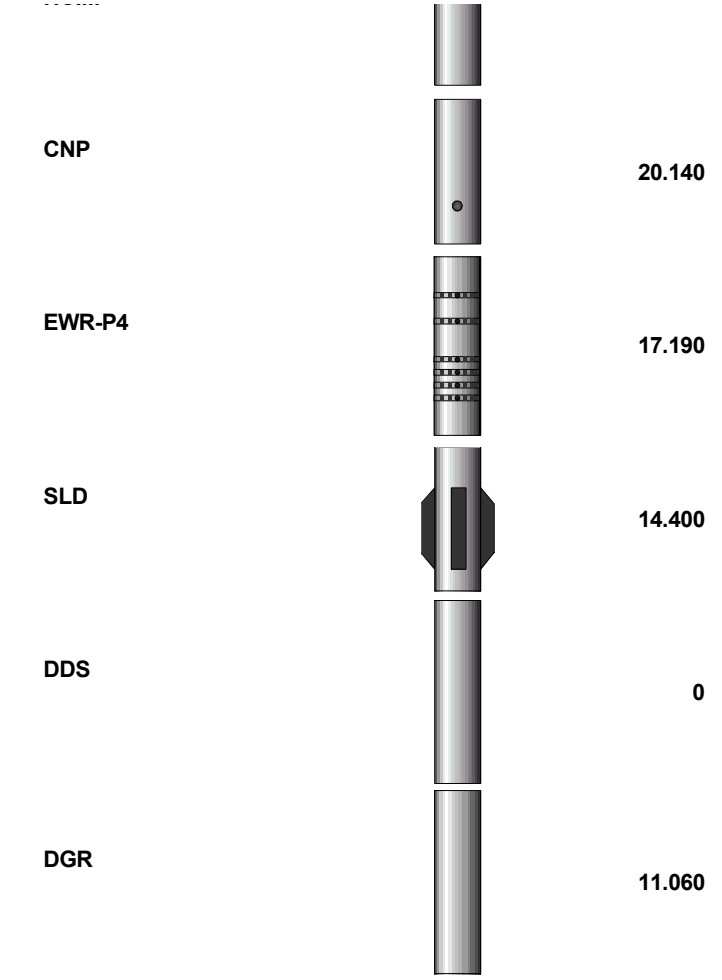
MWD RUN 300 - BHA



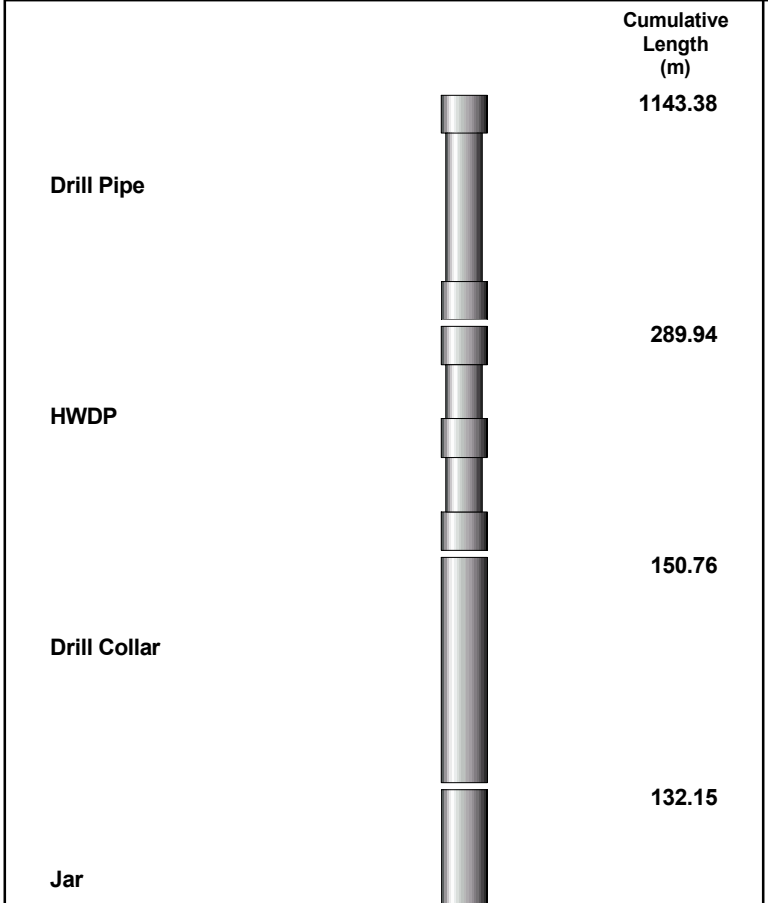


MWD RUN 300 - MWD

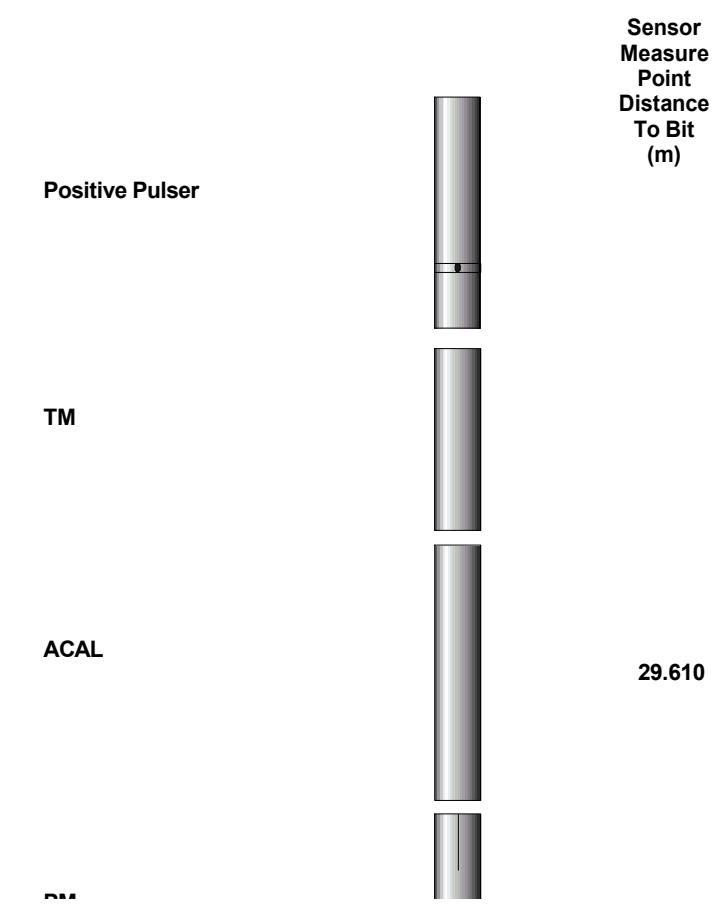




MWD RUN 400 - BHA



MWD RUN 400 - MWD



Drill Collar	122.64
Sub	38.96
MWD	36.91
Sub	9.30
Stabilizer	8.68
Motor	6.91
Bit	0.24

PM	32.360
BAT	
CNP	19.370
EWR-P4	16.400
DGR	10.250

HALLIBURTON

Sperry Drilling Services

End of Well Report
for

APACHE ENERGY LIMITED

Grayling-1
&
Grayling-1A

Rig:	**Ocean Patriot**
Field:	**Exploration**
Country:	**Australia**
Job No:	**AU-FE-0003298446**
Date:	**December 2004 – January 2005**

HALLIBURTON

HALLIBURTON

1 Introduction

The Diamond Offshore Ocean Patriot semi submersible offshore drilling rig was used to drill the well in permit VIC/P-54.

A Sperry Drilling Services INSITE (Integrated System for Information Technology and Engineering) mud logging unit was contracted by Apache Energy Ltd for the drilling of the Grayling-1 exploration well. The unit provided a full Surface Data Logging (SDL) network for the job. This included both real-time and lagged data acquisition, data processing, data storage and data presentation.

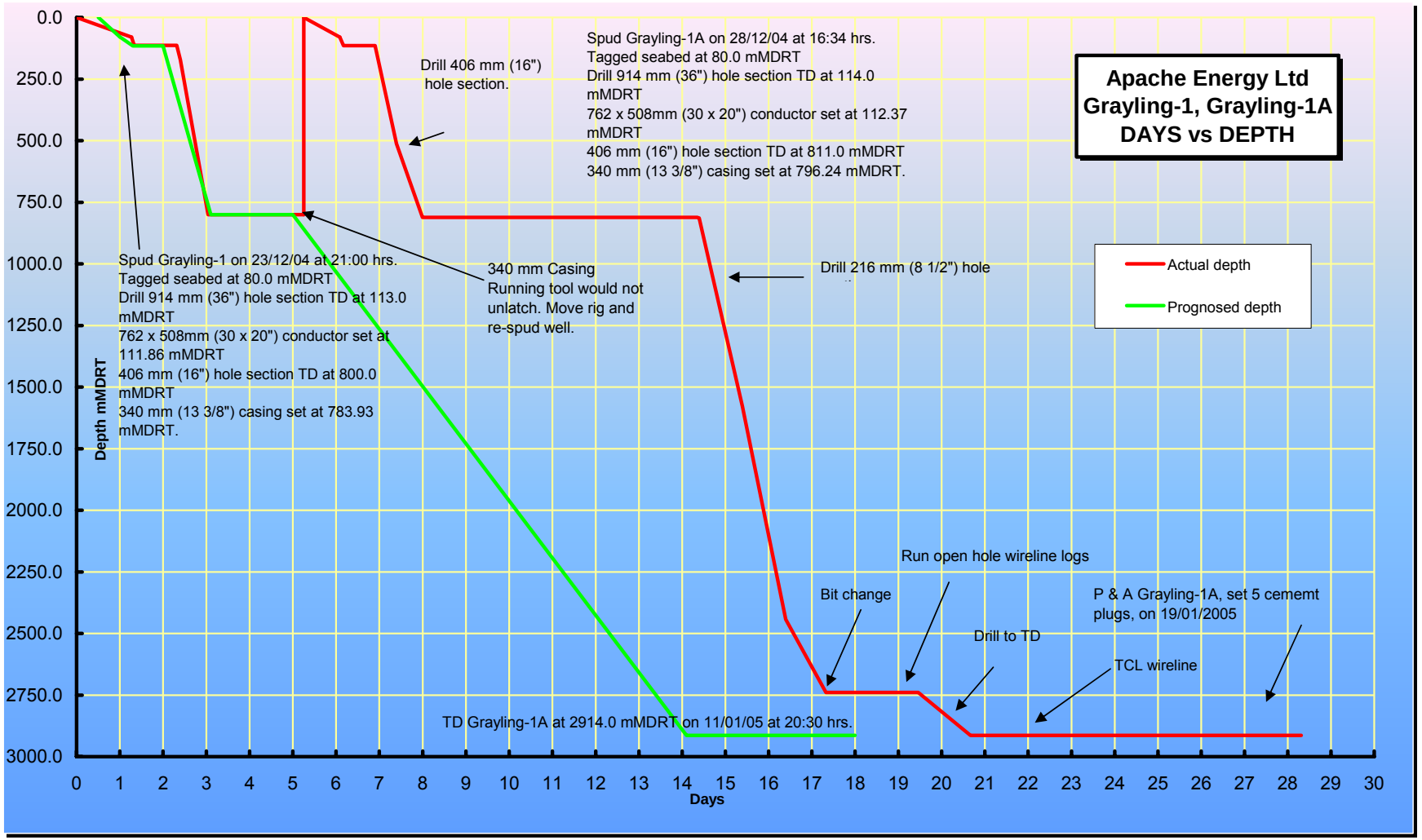
Measurement While Drilling (MWD) and Directional Drilling services were included in the SDL database to provide a comprehensive real time, and post-recorded evaluation of the formations drilled.

Full surface data logging for Grayling-1 commenced when the well was spudded at 21:00 hrs on the 23rd December 2004, and continued for the duration of the well. The well reached a total depth of 800.0 mMDRT at 15:25 hrs on the 25th December 2004. After running and cementing the 340 mm (13 ⅜") casing the casing running tool would not unlatch. Moved the rig 12m port and 12m aft from the original location and re-named the well Grayling-1A.

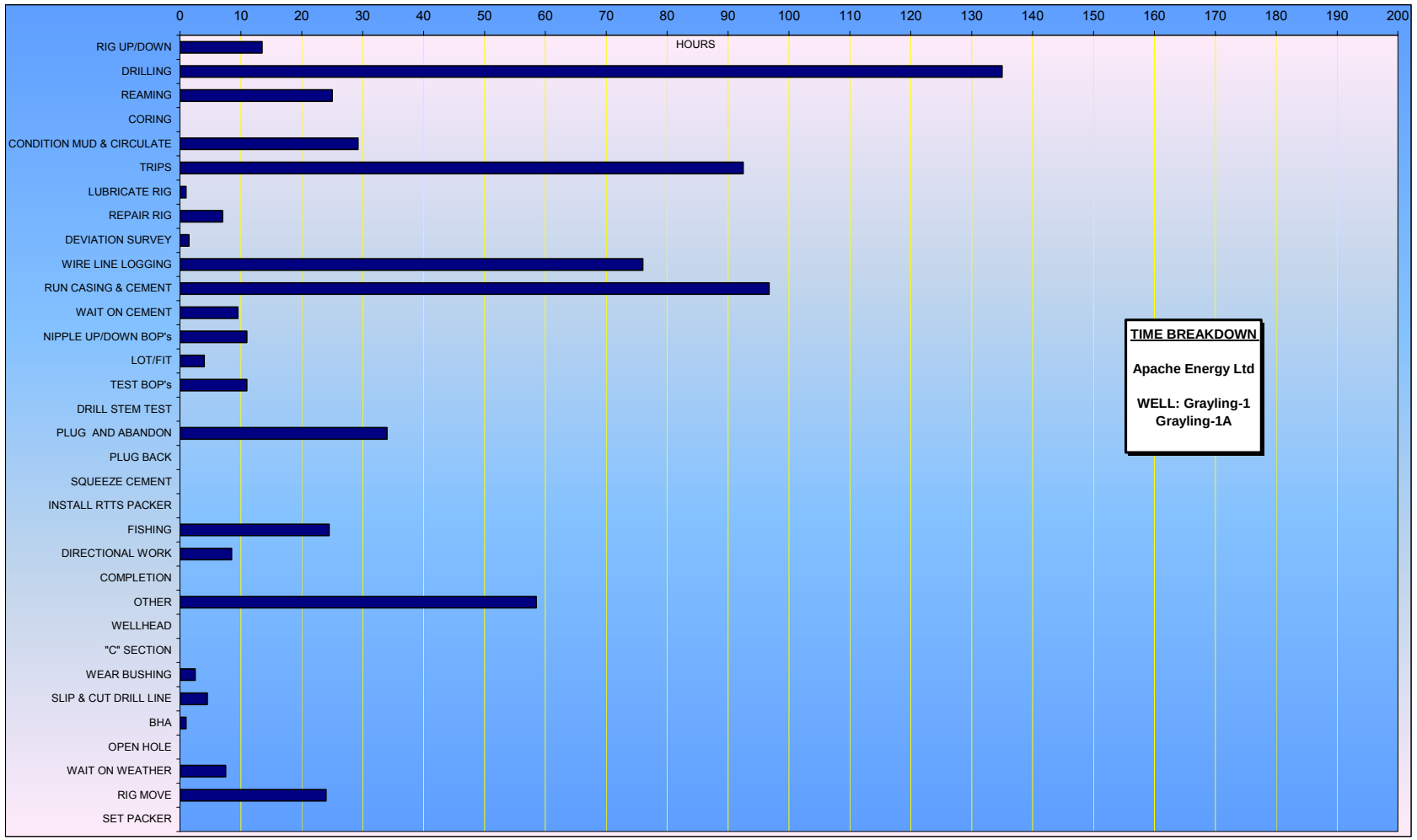
Full surface data logging for Grayling-1A commenced when the well was spudded at 16:34 hrs on the 28th December 2004, and continued for the duration of the well. The well reached a total depth of 2914.0 mMDRT at 20:30 hrs on the 11th January 2005. The well was subsequently plugged and abandoned at 19:00 hrs on the 20th of January 2005, after running wireline logs.

This report is intended as a summary of the information and data collected, processed and monitored as part of the INSITE service agreement.

1.1 Days vs Depth: Grayling-1 and Grayling-1A



1.2 Time Break Down: Grayling-1 and Grayling-1A



2 WELL SUMMARY

2.1 WELL GENERAL INFORMATION

Well Name:	Grayling-1, Grayling-1A
Operator:	Apache Energy Ltd
Classification	Exploration
Permit:	VIC/P-54
Surface Location: Grayling-1	Lat: 38° 09' 40.26" S
	Long: 148° 17' 35.90" E
	UTM Easting: 613 302.06
	UTM Northing: 5 775 510.94
Surface Location: Grayling-1A	Lat: 38° 09' 40.28" S
	Long: 148° 17' 34.73" E
	UTM Easting: 613 273.61
	UTM Northing: 5 775 510.58
Country	Australia
Drilling Rig:	Ocean Patriot
Type of rig	Semi submersible
Contractor:	Diamond Offshore
Depth Measured From	Rig Floor
Permanent Datum	AHD
RT to MSL	21.50 m
Water Depth	58.50 m
Total Depth Grayling-1	800.0 mMDRT
Total Depth Grayling-1A	2914.0 mMDRT

3 Synopsis: Grayling-1/1A

3.1 GEOLOGICAL SUMMARY

The Grayling prospect is a structural closure located 7.4 km south of the Longtom discovery, 5.6 km ESE Sunfish-2, 6.1 km NE of Turrum-1 and 6.5 km WNW of Kahawai-1 in the SE corner of VIC/P-54. The crest of the feature is approximately 37.8 km from the nearest landfall.

The Grayling structure is a NE-SW trending faulted anticline with some fault independent four-way dip closure. It is located within the Rosedale Fault System on the southern edge of the Northern Terrace of the Gippsland Basin. The structure formed in response to NW directed compression and transpression which began in the Early Eocene and continued episodically with varying intensity through to the Pliocene. Major pulses of compression affected the basin during the Lower Oligocene, Middle Miocene and Pliocene. A series of NE to ENE trending anticlines, including the Grayling structure, are the result of this compression. The Grayling prospect is bounded to the north and south two SE-NW trending normal faults with down throws to the SSW. Both of these faults are part of the Rosedale Fault System. At the *F. longus* level there is both fault independent (four-way dip) closure and fault dependent closure. At the deeper Golden Beach Sub-group level there also appears to be fault independent closure again with a greater area of fault dependent closure possible if there is appropriate seal across adjacent faults.

Closure is mapped at the top of the *F.longus* (Maastrichtian) section of the Halibut Sub-group (Volador Formation). In the nearby wells of Remora-1 Sunfish-1 and -2 this section comprises alternating sandstones and shales with minor coal. These were deposited in back-barrier/lower coastal plain environments. Sandstone beds are 4 m to 10 m thick with a trend to be come thicker and more blocky towards the base of the section. Thicker sandstone beds with large scale cross bedding have been interpreted as fluvial point bar deposits. Sandstones are predominantly medium to coarse grained. Dolomite, silica and calcareous cements are recorded as are loose friable aggregates. Average porosities from log analysis are in the order of 19-24% (Sunfish-2) at depths up to 2500 m. Porosity also varies with facies with porosity degradation with depth less marked in in fluvio-deltaic texturally mature and moderately well sorted channel sandstones compared to other facies. The thickness of the Volador Formation (top *F.longus* to top Campanian Volcanics) in Sunfish-1 and -2 is 291 m and 218 m respectively whilst at Remora-1 it is 518 m thick. Although these three are located close to each other the variation indicate significant stratigraphic growth across faults which separate the wells. To the SE at Tuna-1 the same section is 503 m.

The deeper reservoir objective for Grayling are Campanian (*T. lilliei* to *N. senectus* biozones) Golden Beach Sub-group sandstones The top of the Golden Beach Sub-group section in nearby

wells (Sunfish-1 and –2 and Remora-1) is marked by 40-50 m of highly weathered, fine grained basic, volcanics of *T. lilliei* age. The Golden Beach Sub-group sandstones are typically upper delta plain / fluvial deposits in this part of the basin. Log derived porosity verus depth for this interval in Sunfish-1 and –2 and Remora-1 shows a range from ~11% at depths down to 2950 m to ~19% at depths around 2300 m. Intra-Golden Beach Sub-group volcanics (*N. senectus* biozone) are present in both Sunfish-1 and -2 and provide a proven intra-formational top seal. These older volcanics can be expected in Grayling-1 and provide the deepest objective for the well to intersect. The base of these volcanics are in the order of 130-170 m below the base of the younger volcanics.

The key risk for Grayling-1 is lateral cross fault seal. The structure is bound to north and south by two faults with lowside fault closure required to the north and highside fault closure to the south. To the north the Volador Formation reservoir objective is cross-faulted against the lower part of the Volador Formation and the top of the Golden Beach Sub-group. Cross fault seal will be largely dependent upon lithological juxtapositions. The *T. lilliei* age volcanics at the top of the Golden Beach Sub-group are by analogy to the Kipper Field likely to provide good lateral cross fault seal. Sandstone on sandstone juxtapositions, from offset well data in the basin, will not seal.

For the deeper Golden Beach Sub-group objective weathered volcanics are believed to provide good top seal. In Sunfish-1 weathered volcanics of *T.lilliei* age act as the top seal for 10.4 m net oil pay. In the same well older volcanics of *N.senectus* age top seal over 6 m of net gas pay within thin Golden Beach Sub-group sandstones. The deeper Golden Beach Sub-group objective is cross-faulted against deeper part of the Golden Beach Sub-group on the upthrown side of the fault. Goods cross-fault seals can be expected where juxtaposition is against intra-formational shales and/or volcanics.

The source rock for hydrocarbons in the Gippsland is the coals and coaly mudstones of the Golden Beach and Halibut Sub-groups. The presence of several commercial fields in the area demonstrates the effectiveness of the source and migration pathway.

The main risk for Grayling-1 is seal, particularly cross-fault seal. Within the Gippsland Basin interbedded sandstones, siltstones, coals and shales of the Halibut and Golden beach Sub-groups have sealed laterally across faults with favourable cross-fault juxtaposition. Sandstone on sandstone cross-fault juxtapositions have typically not acted as effective seals in the basin. For the deeper Golden Beach Sub-group objective reservoir quality at depth is also a risk.

3.2 DRILLING SUMMARY Grayling-1

914 mm (36") Hole

The 914 mm (36") hole section was drilled in one bit run.

The run included a 660 mm (26") Security XNIC tricone bit, dressed with 1 x 22 and 3 x 20 nozzles run in conjunction with a 914 mm (36") hole opener dressed with 1 x 22, 1 x 24, 1 x 26 jets. The BHA was a conventional rotary drilling assembly. Tagged seabed at 80.0 mMDRT and drilled to section TD at 114.0 mMDRT. The section was drilled using seawater with hi-vis gel sweeps.

The 762 x 508 mm (30" x 20") conductor was set at 112.5 mMDRT.

406 mm (16") Hole

The 406 mm (16") hole section was drilled in one bit run using seawater and hi-vis sweeps.

This run included a Security FS2563 PDC bit, dressed with 7 x 18 nozzles. This bit was run with a Sperry Drilling Services mud motor and MWD tools. RIH and tagged cement in the 762 x 508 mm (30" x 20") casing at 104.6 mMDRT. Drilled out cement and the shoe track and drilled new formation from 113.0 mMDRT. Drilled to hole section TD at 800.0 mMDRT.

The section was drilled using seawater with hi-vis gel sweeps.

At TD a 150bbls PHG sweep was pumped. The well was then displaced with a further 300bbls PHG and 430bbls of 9.6 ppg KCL/PHPA mud.

The 340 mm (13 $^{3}/_{8}$") casing was set at 783.93 mMDRT. After cementing could not unlatch the running tool from the casing. Moved rig 12m port and 12 aft to re-spud the well. The well was re-named Grayling-1A.

3.3 DRILLING SUMMARY Grayling-1A

914 mm (36") Hole

The 914 mm (36") hole section was drilled in one bit run.

The run included a 660 mm (26") Security XNIC tricone bit, dressed with 1 x 22 and 3 x 20 nozzles run in conjunction with a 914 mm (36") hole opener dressed with 1 x 22, 1 x 24, 1 x 26 jets. The BHA was a conventional rotary drilling assembly. Tagged seabed at 80.0 mMDRT and drilled to section TD at 114.0 mMDRT. The section was drilled using seawater with hi-vis gel sweeps.

The 762 x 508 mm (30" x 20") conductor was set at 112.37 mMDRT.

406 mm (16") Hole

The 406 mm (16") hole section was drilled in one bit run using seawater and hi-vis sweeps.

This run included a Hycalog 115 tricone bit, dressed with 1 x 16, 3 x 22 nozzles. This bit was run with a Sperry Drilling Services mud motor and MWD tools. RIH and tagged cement in the 762 x 508 mm (30" x 20") casing at 109.0 mMDRT. Drilled out cement, the shoe track and drilled new formation from 114.0 mMDRT. Drilled to hole section TD at 810.0 mMDRT.

The section was drilled using seawater with hi-vis gel sweeps.

At TD a 150bbls PHG sweep was pumped. The well was then displaced with a further 300bbls PHG followed by 320bbls of 1.2 sg (9.6 ppg) KCL/PHPA mud.

The 340 mm (13 $^{3}/_{8}$") casing was set at 796.24 mMDRT.

216 mm (8 ½") Hole

216 mm (8 ½") hole section was drilled in 2 bit runs.

The first run included a Hycalog DSX104 PDC bit, dressed with 5 X 14 jets. This bit was run with a Sperry Drilling Services Sun mud motor and MWD tools. RIH and tagged cement in the 340 mm (13 3/8") casing at 761 mMDRT. Whilst drilling cement the hole was displaced with 1.15 sg Idcap D mud. After drilling 3 m of new formation from 811.0 mMDRT to 814.0 mMDRT, a FIT was conducted to 1.8 sg (14.99 ppg) using 1.15 sg (9.6 ppg) mud. Drilled ahead to 2740.0 mMDRT. POH due to slow ROP. An attempt to run Wireline logs proved unsuccessful, hanging up at 818.0 mMDRT, it was then determined to instigate a full wiper trip to bottom. A new bit was picked up for the wiper trip and it was decided to continue drilling to TD.

This second run included a Security DBS FM 37432, dressed with 3 x 12, 3 x 13 nozzles. The BHA included a Sperry Drilling Services mud motor and MWD tools. RIH and drilled to 2914.0 mMDRT, Total Depth at 20:30 hours 11th January, 2005. The bit was pulled 26 m short of the proposed TD, due to poor ROP. Prior to POOH the mud was circulated and conditioned. POOH constituted back reaming, doing MWD wipes and working the pipe over tight spots prior to running wireline logs. After three wireline runs the well was then plugged and abandoned.

PROBLEMS ON TRIPS

On pulling the first 8 ½" bit at 2740.0 mMDRT tight hole conditions where experienced. The hole was back reamed from 2700.0 to 1053 mMDRT where bottom's up was circulated. Back reaming continued from 1026.0 m to 796.0 mMDRT. An attempt to run wireline logs failed as the tools could not pass 818.0 mMDRT. A new bit was picked up for the wiper trip and to continue drilling. While RIH the pipe got stuck at 2733.0 mMDRT and had to be worked free. The hole was reamed from 2733.0 to bottom at 2740.0 mMDRT. At TD, when pulling out of hole, a MWD repeat section wipe was performed from 2684.0 mMDRT to 2585.0 mMDRT after which several tight sections were encountered. The pipe was worked over the re-logged section and TIH to bottom at 2914.0

mMDRT. The mud was conditioned and weight increased to 1.28 sg. Drag of 60 k was observed from 2914.0 to 2573.0 mMDRT while POOH. The pipe was back reamed and pumped out of hole from 2575.0 mMDRT to 1226.0 mMDRT, where bottoms up were circulated. POOH continued as a wet trip from 1226.0 mMDRT to 765.0 mMDRT with MWD wipe also being done. TIH from 765.0 mMDRT and worked through tight spots at 2058.0 mMDRT, 2116.0 mMDRT, 2315.0 mMDRT, 2350.0 mMDRT and RIH to bottom. POOH was smooth without any problems.

When wireline was run the tools got stuck at 2061.0 mMDRT. Fishing equipment was rigged up, stripped over wireline and TIH to 2033 mMDRT. Bottoms up were circulated, producing gas peak of 1.45%. The fish was latched at 2061.0 mMDRT and pulled to 2033.0 mMDRT. The wireline was re-terminated and a side entry sub was installed at 2071.0 mMDRT. Logging the hole continued in this way on drill pipe. During the logging operation a mud loss rate of 1 bbl per hr was observed and then levelled off to zero.

WIRELINE PROGRAM

Due to tight hole at 818.0 mMDRT, the first attempt to run wireline after the first bit run of the 8 ½" was unsuccessful. At hole TD all three run Wireline were successfully run on drill pipe, after getting stuck during the first attempt without drill pipe.

Wireline logging programme as follows:

Run # 1 - RCI- GR Failed

Run # 2 - RCI- GR

Run # 3 - RCI- GR

Run # 4 - MLR - GR

ABANDONMENT PROGRAMME

A total of five cement plug were set for the abandonment programme as follows :

Plug # 1a 2675.0 – 2585.0 mMDRT

Plug # 1b 2585.0 – 2495.0 mMDRT

Plug # 2 2110.0 – 2010.0 mMDRT

Plug # 3 826.0 – 726.0 mMDRT

Plug # 4 170.0 – 100.0 mMDRT

4.0 LOGGING SERVICES SUPPLIED

4.1 GEOLOGICAL MONITORING

EQUIPMENT

Auto calcimeter
Company Workstation
Database PC (ADI)
Draw works Depth Encoder
FID Chromatograph
FID Total Gas Detector
Floating Gas Trap
Flow Out Paddle
H2S detectors (x4)
CO2 detector
Hookload and WOB
HP Design jet Printer
Hydrometers
INSITE IRIS Data acquisition PC
Mud Density In/Out
Mud Temperature In/Out
Mud Conductivity Out
Pit Volume Sensors (x7)
Pressure Sensors (x2)
Printrex Printer
Pump Stroke Counters (x3)
Rig Floor Monitor (x2)
Standard Fluoroscope
Standard Stereo Microscope
Toolpusher Monitor
Workstation PC

4.2 SERVICES PROVIDED

Data files in .pdf, ASCII (LAS) format
Formation Evaluation
Geological and Engineering Reporting
Hydraulics Analysis using Planit

Interpreted Lithology
Plots of daily drilling activities
Real Time Drilling Monitoring
Real Time Log Display of MWD/LWD data
Real Time monitoring of drilling fluids
Real Time Tabular Display of Data
Real Time Trip Monitoring
Real Time Display of Data
Sample Collection and Processing
Timers for Hours and Revolutions on drilling assembly

4.3 MONITORED PARAMETERS

Block Position
Choke Pressure
Continuous Gas Percentage in Air
Depth
Flow Out
Gas Analysis (C1-C5)
H2S Gas
CO2 Gas
Hookload
Hydrocarbon Shows
Formation Lithology
Mud Density In and Out
Mud Temperature In and Out
Mud Conductivity out
Mud Volume
MWD data
On/Off Bottom status
Pump Stroke and Volume of Mud Pumped
Rate of Penetration
Revolutions per Minute of Top Drive
Stand Pipe Pressure
Swab\Surge Calculation
Torque and Vibration
Weight on Bit including Drag and Obstructions
Well Volumes and Lag Calculations

4.4 PERSONNEL

INSITE engineers continuously monitored all operations and encountered considerable problems in maintaining the database during the early stages whilst drilling Grayling-1 and Grayling-1A. They provided any well and drilling data upon request, notified the appropriate personnel of any irregularities or anticipated problems, provided daily reports, print outs of data and prepared master logs and final reports.

DATA ENGINEERS	**LOGGING ENGINEERS**
Tony Wyeth	Liam Clarke
Dorian Kuhn	David Hartney
Norman Naidoo	Steve McDonald

4.5 SAMPLE COLLECTION

One extra large bag (600 g) of water-washed cuttings was collected for each interval sampled. A small portion of washed sample was placed into Samplex trays (3 sets) and the remainder air-dried and split into three sets.

The splits were distributed to Apache Energy Ltd (1 x 200g), Victorian DPI (1 x 200g) and AGSO (1 x 200g).

The three sets of Samplex Trays were distributed to Apache Energy Ltd (x1), Victorian DPI (x1) and AGSO (x1)

Mud samples were sent to Apache Energy Ltd.

Sidewall cores/Rotary SWC's were not collected as the hole condition was not conducive to running a successful Wireline Program

Palynology samples were collected at depths designated by the Wellsite Geologist and Air expressed to Apache Energy Ltd. The Geologist maintained a full list of samples on forwarded.

4.6 SAMPLE DISTRIBUTION

All samples collected were sent attention:

Barry Lloyd

Kestrel Information Management

39 McDowell Street

Welshpool

WA 6106

Washed and Dried Samples (3 sets)

Set 1: Washed/Dried Splits

Apache Energy Ltd

Set 2: Washed/Dried Splits

Victorian DPI

Set 3: Washed/Dried Splits

AGSO

Samplex Trays (3 Sets)

Set 1: Samplex Trays

Apache Energy Ltd

Set 2: Samplex Trays

Victorian DPI

Set 3: Samplex Trays

AGSO

Mud Samples

Various Mud Samples

Apache Energy Ltd

Palynology Samples

Apache Energy Ltd

Hot Shot via helicopter directly to Apache Energy Ltd under the direction of the Wellsite Geologist.

5.0 GEOLOGY AND SHOWS

5.1 INTRODUCTION

Sampling of drilled cuttings by Sperry Drilling Services commenced in the 216 mm (8½“) hole section, from 811.0 mMDRT until the total well depth of 2914.0 mMDRT. Spot sample collection for quick inspection, as well as a change in the programmed sampling frequency depended on the rate of penetration and were at the discretion of the Wellsite Geologist.

Samples of washed, air-dried cuttings were collected over the following intervals:

Grayling-1A	
SAMPLE DEPTH mMDRT	SAMPLE FREQUENCY Metres
811.0 – 815.0	4
815.0 – 2610	10
2610.0 – 2910.0	5
2910.0 – 2914.0	4

Cuttings were logged on site by Sperry Drilling Services geologists using a binocular microscope. An ultraviolet light box was used to inspect the fluorescence of cuttings.

Gas was monitored by a Total Hydrocarbon Gas detector (Flame Ionisation Detector – F.I.D), calibrated such that 50 API units, or 10,000 parts per million (ppm) is equivalent to 1% methane gas in air. An on-line F.I.D gas chromatograph recorded the gas breakdown, calibrated to analyse C1, C2, C3, isotopic C4, normal C4 alkanes, neo C5, isotopic C5 and normal C5.

Regular gas system checks were performed to ensure the correct functioning of the gas detection and measurement system. Check gas 2.5% (pure methane) and 10% (pure methane) were used to ascertain correct readings by the total gas detection equipment, and gas mixture was used to check the chromatograph. A successful and accurate chromatograph calibration was done prior to drilling 8½ hole. Subsequent checks with carbide to test for blockages to flow detection detected blockages, all of which were rectified. Before drilling with returns commenced the Total Gas detector was changed out as it was not amplifying the output signal well enough. During the start of the 8½” hole section the Chromatograph malfunctioned and was changed out with the backup system. Both Total Gas detector and Chromatograph worked well for the duration of the well with peaks corresponding to lithology and LWD. The loading of the mud header box with cuttings occasionally caused the gas trap agitator to stall, thus affecting gas readings. The gas detector equipment was thoroughly calibrated with Wellsite geologist witnessing the whole process and ratifying accuracy at all times.

5.2 LITHOLOGICAL SUMMARY for Grayling-1A

<table>
<tr><td colspan="2">Interpretative Depth
811.0 to 910.0 mMDRT</td><td colspan="2">Lithology
CALCISILTITE grading in part to CALCILUTITE</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 35.9
Max. 61.8
Avg. 4.8</td><td>Drilling
Parameters (Avg)

WOB : 5.3MT
RPM(surf): 59
RPM(mot): 162
TRQ : lb/ft</td><td>Maximum
Formation
Gas: 0.17%
Chromatograph
Analysis:
C_1 : 1581ppm
C_2 : 25ppm
C_3 : 17ppm
$C_{4\ TOT}$: 26ppm
$C_{5\ TOT}$: 32ppm</td><td>Average
Formation
Gas: 0.15%
Chromatograph
Analysis:
C_{1avg} : 679ppm
C_{2avg} : 15ppm
C_{3avg} : 12ppm
$C_{4\ TOT}$: 21ppm
$C_{5\ TOT}$: 4ppm</td></tr>
<tr><td colspan="4">CALCISILTITE (10 - 100%, decreasing with depth): medium light grey to light grey, trace to 10% clay, minor calcite crystal fragments, grades to Argillaceous Calcilutite and in part Calcarenite, trace micropyrite, trace Foraminifera fossil fragments, soft to firm, amorphous to locally sub blocky. Locally pale yellowish brown to pale brownish grey, medium light grey, trace calcite crystal fragments, trace micropyrite, grades to Limestone, firm to moderately hard, sub blocky.

CALCILUTITE (60 to 90%): medium grey to light grey, 10 to 15% clay, minor calcite crystal fragments, grades to Argillaceous Calcilutite, trace to 5% micropyrite nodules and laminae, trace Foraminifera fossil fragments, trace burrow casts, trace to 5% limestone fragments and calcite spicules, soft to firm, amorphous to locally sub blocky.</td></tr>
</table>

Interpretative Depth 910.0 to 1080.0 m MDRT		**Lithology** CALCILUTITE grading in part to CALCISILTITE with thin interbeds of LIMESTONE and SILTY DOLOMITE.	
ROP. (metre/hour) **Min.** 36.1 **Max.** 46.0 **Avg.** 41.1	**Drilling Parameters (Avg)** **WOB :** 13.3MT **RPM(surf):** 58 **RPM(mot):** 161 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.59 % **Chromatograph Analysis:** C_1 : 3535ppm C_2 : 45ppm C_3 : 42ppm $C_{4\ TOT}$: 51ppm $C_{5\ TOT}$: 48ppm	**Average Formation Gas:** 0.33% **Chromatograph Analysis:** C_{1avg} : 1595ppm C_{2avg} : 24ppm C_{3avg} : 21ppm $C_{4\ TOT}$: 26ppm $C_{5\ TOT}$: 22ppm

CALCILUTITE (54 to 89%): medium light grey to light grey, rare pale yellowish brown to pale brownish grey locally, dominantly silty with trace very fine quartz increasing locally up to 10%, trace to 15% clay, minor calcite crystal fragments, grades to argillaceous calcilutite and in part calcarenite, trace micropyrite, trace pyrite nodules, trace black lithics, trace red lithics, local trace limonite stained in part, trace foraminifera fossil fragments, soft to firm, amorphous to locally sub blocky.

CALCISILTITE (10 to 44%): medium light grey to light grey, silt, 5 to 10% trace very fine quartz, dominantly silty, trace to 10% clay, grades to argillaceous calcilutite, trace micropyrite, trace to 1% pyrite nodules, trace black lithics, trace red lithics, soft to firm, amorphous to locally sub blocky.

LIMESTONE (Nil to 1%): white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, soft to firm, 5 to 10% black lithics, sub blocky.

SILTY DOLOMITE (Nil to 1%): dark yellowish orange to light brown, 10 to 15% silt, trace very fine quartz, trace black lithics, trace micropyrite, microcrystalline, hard to very hard, blocky.

Interpretative Depth 1080.0 to 1220.0 m MDRT		**Lithology** CALCILUTITE grading in part to CALCISILTITE with rare CHERT beds and LIMESTONE.	
ROP. (metre/hour) **Min.** 21.1 **Max.** 108.1 **Avg.** 57.2	**Drilling Parameters (Avg)** **WOB :** 16.7MT **RPM(surf):** 79 **RPM(mot):** 161 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.46% **Chromatograph Analysis:** C_1 : 3220ppm C_2 : 46ppm C_3 : 43ppm $C_{4\ TOT}$: 58ppm $C_{5\ TOT}$: 33ppm	**Average Formation Gas:** 0.23% **Chromatograph Analysis:** C_{1avg} : 1411ppm C_{2avg} : 30ppm C_{3avg} : 21ppm $C_{4\ TOT}$: 25ppm $C_{5\ TOT}$: 15ppm

CALCILUTITE (38 to 89%): medium grey to light grey, 5 to 10% silt, minor calcite crystal fragments, 10 to 20% clay matrix, grades to argillaceous calcilutite in part, trace to 5% micropyrite, trace fossil fragments, soft to firm, sub blocky, locally blocky.

CALCISILTITE (10 to 60%): white very light grey, very fine to medium grained, trace very fine to fine grained quartz, local trace very fine greenish grey glauconite, trace micropyrite, rare fossil fragments (forams), up to 15% argillaceous matrix, grading to Argillaceous Calcisiltite in part, sub rounded, soft to moderately firm, sub blocky.

CHERT (1%, between 1080.0 to 1100.0 mMDRT): opaque to translucent pale brown, trace to 5% micropyrite, hard to very hard, angular.

LIMESTONE (1 to 4%): white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, soft to firm, 5 to 10% black lithics, sub blocky.

<table>
<tr><td colspan="2">Interpretative Depth
1220.0 - 1400.0 mMDRT</td><td colspan="2">Lithology
ARGILLACEOUS CALCISILTITE grading in part to CALCILUTITE.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 14.1
Max. 132.2
Avg. 57.6</td><td>Drilling
Parameters (Avg)

WOB : 15.6MT
RPM(surf): 78
RPM(mot): 162
TRQ : lb/ft</td><td>Maximum
Formation
Gas: 0.25%
Chromatograph
Analysis:
C_1 : 1754ppm
C_2 : 36ppm
C_3 : 14ppm
$C_{4\ TOT}$: 16ppm
$C_{5\ TOT}$: 20ppm</td><td>Average
Formation
Gas: 0.14%
Chromatograph
Analysis:
C_{1avg} : 974ppm
C_{2avg} : 12ppm
C_{3avg} : 4ppm
$C_{4\ TOT}$: 3ppm
$C_{5\ TOT}$: 3ppm</td></tr>
<tr><td colspan="4">ARGILLACEOUS CALCISILTITE (85 to 95%): light grey to medium grey, 10 to 20% silt, trace very fine quartz, grades in part to Calcilutite, minor micropyrite, local trace nodular pyrite, trace fossil fragments, trace red lithics, 30 to 40% argillaceous matrix, trace crystalline calcite veining, soft to firm in part, amorphous to sub blocky.

CALCILUTITE (5 to 15%): white very light grey, very fine to medium grained, trace very fine to fine grained quartz, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcisiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.</td></tr>
</table>

<table>
<tr><td colspan="2">Interpretative Depth
1400.0 - 1508.0 mMDRT</td><td colspan="2">Lithology
ARGILLACEOUS CALCISILTITE grading to CALCILUTITE with trace LIMESTONE.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 27.1
Max. 104.0
Avg. 70.2</td><td>Drilling
Parameters (Avg)

WOB : 16.0MT
RPM(surf): 75
RPM(mot): 160
TRQ : lb/ft</td><td>Maximum
Formation
Gas: 0.20%
Chromatograph
Analysis:
C_1 : 1916ppm
C_2 : 58ppm
C_3 : 12ppm
$C_{4\ TOT}$: 11ppm
$C_{5\ TOT}$: 16ppm</td><td>Average
Formation
Gas: 0.13%
Chromatograph
Analysis:
C_{1avg} : 1013ppm
C_{2avg} : 15ppm
C_{3avg} : 4ppm
$C_{4\ TOTavg}$: 2ppm
$C_{5\ TOT}$: 3ppm</td></tr>
<tr><td colspan="4">ARGILLACEOUS CALCISILTITE (70 to 83%): medium dark to medium grey, light grey, trace to 15% clay, trace very fine quartz, grades to Calcilutite, minor micropyrite, local trace nodular pyrite, trace pyrite laminae and veining, trace red lithics, trace white shell fragments, 10 to 30% argillaceous matrix, trace gastropod fossil fragments and bioclasts, weak trace greenish blue glauconite, trace to 5% clear to very pale yellow brown nodular limestone with trace micropyrite inclusions, soft to firm in part, amorphous to sub blocky.

CALCILUTITE (3 to 29%): white to very light grey, trace very fine grained quartz, trace Limestone replaced fossil shells, trace micropyrite, up to 15% argillaceous matrix, grading to Argillaceous Calcisiltite in part, sub rounded, soft to moderately firm, amorphous to sub blocky.

LIMESTONE (1 to 5%): white to very light grey, common silt, rare very fine quartz grains, trace micropyrite, 5 to 10% black lithics, trace carbonaceous flecks, soft to firm, sub blocky to blocky.</td></tr>
</table>

<table>
<tr><td colspan="2">Interpretative Depth
1508.0 -1558.0mMDRT</td><td colspan="2">Lithology
SANDSTONE with SILTSTONE and COAL interbeds.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 80.5
Max. 141.5
Avg. 11.3</td><td>Drilling Parameters (Avg)

WOB : 8.4MT
RPM(surf): 75
RPM(mot): 161
TRQ : lb/ft</td><td>Maximum Formation Gas: 0.65%
Chromatograph Analysis:
C_1 : 6357ppm
C_2 : 306ppm
C_3 : 66ppm
$C_{4\ TOT}$: 24ppm
$C_{5\ TOT}$: 18ppm</td><td>Average Formation Gas: .29%
Chromatograph Analysis:
C_{1avg} : 2786ppm
C_{2avg} : 127ppm
C_{3avg} : 29ppm
$C_{4\ TOT}$: 9ppm
$C_{5\ TOT}$: 4ppm</td></tr>
<tr><td colspan="4">CALCAREOUS SANDSTONE (10 to 45%): off white to light grey to very pale translucent brown, mottled green, dominantly very fine to fine, trace to 10% medium to very coarse grains, well sorted, sub spherical, sub rounded, abundant calcareous clay matrix and carbonate grains, trace to 10% dusky dark green glauconite, trace to 5% micropyrite, friable to soft, poor visual and inferred porosity, no show.

SANDSTONE (10 to 45%): clear, pale grey, transparent, translucent, fine to coarse grained, predominantly medium grained, poorly sorted, sub angular to sub rounded, sub elongate, moderate siliceous cement, common lithic inclusions, trace white matrix on grains, dominantly loose grains, trace brittle aggregates, poor visual and inferred porosity, no show.

SILTSTONE (5 to 15%): dark brownish black to dark brown, minor medium brown, abundant disseminated pyrite, common coal fragments and laminae, locally grades to carbonaceous Siltstone and Coal, laminated, firm to friable, sub blocky.

COAL (1 to 5%): black to dark brown, earthy, sub vitreous in part, firm, uneven fracture, sub blocky</td></tr>
</table>

Interpretative Depth 1558.0 - 1670.0 mMDRT		**Lithology** Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, CLAYSTONE and LIGNITE with minor COAL stringers.	
ROP. (metre/hour) **Min.** 1.6 **Max.** 122.5 **Avg.** 65.5	**Drilling Parameters (Avg)** **WOB :** 10.8MT **RPM(surf):** 75 **RPM(mot):** 160 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.91% **Chromatograph Analysis:** C_1 : 7533ppm C_2 : 344ppm C_3 : 101ppm $C_{4\ TOT}$: 38ppm $C_{5\ TOT}$: 18ppm	**Average Formation Gas:** 0.31% **Chromatograph Analysis:** C_{1avg} : 2428ppm C_{2avg} : 115ppm C_{3avg} : 32ppm $C_{4\ TOT}$: 12ppm $C_{5\ TOT}$: 3ppm

SANDSTONE (15 to 70%): light grey, transparent, translucent, clear, fine to very coarse, trace pebbles, dominantly fine to medium grained, bi-modal, moderately sorted, sub spherical, sub angular, weak siliceous cement, 5% white to pale brownish grey clay matrix, trace to 5% pyrite nodules, dominantly loose, fair to poor visual and inferred porosity, no show.

CARBONACEOUS SILTSTONE (2 to 65%): dark brownish black to dark brown, minor medium brown to brownish grey, abundant to common disseminated pyrite, common carbonaceous fragments and laminae, trace to 10% coal fragments, locally grades to Siltstone and Coal, laminated, firm to friable, sub blocky.

SILTSTONE (1 to 65%): moderate to dark yellowish brown, medium to dark brownish grey, trace to 10% disseminated and nodular pyrite, 5 to 10% fine carbonaceous fragments and laminae, locally grades to Carbonaceous Siltstone, laminated, firm to friable, sub blocky.

CLAYSTONE (5 to 35%): moderate yellowish brown to brownish grey, trace to 5% carbonaceous flecks and laminae, locally 10% silt, soft to firm, sub blocky.

LIGNITE (5 to 65%): dark reddish brown, dark brownish black, black in part, grades to Coal, silty in part, sub vitreous to earthy, sub blocky to fissile, brittle to firm.

COAL (1 to 5%): black to dark brown, earthy, sub vitreous in part, firm to brittle, uneven to sub conchoidal fracture, sub blocky.

<table>
<tr><td colspan="2">Interpretative Depth
1670.0 - 1740.0 mMDRT</td><td colspan="2">Lithology
Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, CLAYSTONE and COAL stringers.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 20.5
Max. 105.7
Avg. 62.0</td><td>Drilling
Parameters (Avg)

WOB : 12.9MT
RPM(surf): 77
RPM(mot): 162
TRQ : lb/ft</td><td>Maximum
Formation
Gas: 1.04%
Chromatograph
Analysis:
C_1 : 9859ppm
C_2 : 309ppm
C_3 : 39ppm
$C_{4\ TOT}$: 14ppm
$C_{5\ TOT}$: 46ppm</td><td>Average
Formation
Gas: 0.47%
Chromatograph
Analysis:
C_{1avg} : 3732ppm
C_{2avg} : 135ppm
C_{3avg} : 20ppm
$C_{4\ TOT}$: 5ppm
$C_{5\ TOT}$: 9ppm</td></tr>
<tr><td colspan="4">CALCAREOUS CLAYSTONE (5 to 60%): medium - light grey, trace bluish grey, 10 to 35% calcite, trace very fine quartz grains, firm to soft, sub - blocky.

COAL (2 to 40%): black, grey black, red black in part, sub - vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub - blocky to blocky.

SANDSTONE (5 to 48%): light grey, transparent, translucent, clear, very fine to very coarse, dominantly fine to medium grained, moderately sorted, sub - spherical, sub - angular, weak siliceous cement, 5% white to pale brownish grey clay matrix, trace pyrite nodes, dominantly loose, fair to poor visible and inferred porosity, very fine grained aggregates with 25% white clay matrix, moderately hard, poor visible porosity no show.

CARBONACEOUS SILTSTONE (2 to 25%): dark brownish black to dark brown, minor medium brown to brownish grey, abundant to common disseminated pyrite, common carbonate fragments and laminae, trace to 10% coal fragments, local grading Siltstone and Coal, laminae, firm to friable, sub - blocky

SILTSTONE (20 to 70%): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% fine carbonate specks and laminae, locally grading carbonaceous Siltstone, laminae, trace to 5% micro-mica, 5% lithic specks, firm to friable, sub - blocky.</td></tr>
</table>

Interpretative Depth 1740.0 - 1810.0 mMDRT		**Lithology** Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, ARGILLACEOUS SILTSTONE, CALCAREOUS CLAYSTONE and COAL.	
ROP. (metre/hour) **Min.** 39.9 **Max.** 92.0 **Avg.** 66.4	**Drilling Parameters (Avg)** **WOB :** 14.3MT **RPM(surf):** 77 **RPM(mot):** 162 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.67% **Chromatograph Analysis:** C_1 : 5784ppm C_2 : 203ppm C_3 : 63ppm $C_{4\ TOT}$: 12ppm $C_{5\ TOT}$: 19ppm	**Average Formation Gas:** 0.51% **Chromatograph Analysis:** C_{1avg} : 3682ppm C_{2avg} : 136ppm C_{3avg} : 29ppm $C_{4\ TOT}$: 5ppm $C_{5\ TOT}$: 3ppm

SANDSTONE (5 to 50%): clear, translucent, transparent, clear, dominantly fine to medium grained, well sorted, sub - rounded to sub - angular, weak siliceous cement, trace pyrite nodes, dominantly loose, fair to poor visible and inferred porosity, very fine grained aggregates with 25% white clay matrix, moderately hard, poor visible porosity, no show.

ARGILLACEOUS SILTSTONE (4 to 30%): light to medium brownish grey, trace to 25% clay, grading Silty Claystone, slightly calcareous, trace mica, trace blue carbonaceous specks, soft, slightly dispersive, sub - blocky.

CARBONACEOUS SILTSTONE (4 to 35%): dark greenish black, dark brownish black to dark brown, trace disseminated pyrite common carbonaceous fragments and laminae, trace to 10% coal fragment, locally grading Coal, laminae, firm to friable sub - blocky.

SILTSTONE (19 to 50%): medium to dark brownish grey, moderate yellowish brown, speck in part, trace to 10% disseminated and nodular pyrite, trace to locally 10% fine carbonaceous specks and laminae, locally grading carbonaceous Siltstone, laminae, trace to 5% micro-mica, 5% lithic specks, firm to friable, sub - blocky.

CALCAREOUS CLAYSTONE (1 to 15%): medium to light grey, trace bluish grey, 10 to 20% calcite, grading Claystone, trace very fine quartz grains, firm - soft, sub - blocky.

COAL (1 to 20%): black, red black in part, sub - vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub - blocky to blocky.

<table>
<tr><td colspan="2">Interpretative Depth
1810.0 to 1880.0 m MDRT</td><td colspan="2">Lithology
Interbedded SILTSTONE (carbonaceous in part) and COAL with rare SANDSTONE.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 22.1
Max. 93.6
Avg. 57.8</td><td>Drilling Parameters (Avg)

WOB : 11.2MT
RPM(surf): 74
RPM(mot): 162
TRQ : lb/ft</td><td>Maximum Formation Gas: 0.48%
Chromatograph Analysis:
C_1 : 3472ppm
C_2 : 126ppm
C_3 : 37ppm
$C_{4\ TOT}$: 15ppm
$C_{5\ TOT}$: 20ppm</td><td>Average Formation Gas: 0. 35%
Chromatograph Analysis:
C_{1avg} : 1881ppm
C_{2avg} : 61ppm
C_{3avg} : 15ppm
$C_{4\ TOT}$: 3ppm
$C_{5\ TOT}$: 3ppm</td></tr>
<tr><td colspan="4">SILTSTONE (50 to 87%): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix, grades in part to Silty Claystone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.
CARBONACEOUS SILTSTONE (5 to 30%, decreasing with depth): mottled white to dark yellowish brown, 10 to 15% silt, trace to 5% very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 10 to 20% clay matrix, firm to friable, sub blocky to blocky.
COAL (2 to 10%): dusky brown to brownish black, minor moderate brown, earthy lustre, blocky, local sub conchoidal fracture, argillaceous in part, grading to Carbonaceous Claystone, local pyritization, local ferruginisation, lignitic in part.
SANDSTONE (2 to 5%): white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30% argillaceous matrix, trace black lithic grains, local siderite cement, trace micropyrite, poor inferred porosity. No shows.
CALCAREOUS CLAYSTONE (1 to 4%): medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.</td></tr>
</table>

Interpretative Depth 1880.0 to 1910.0 m MDRT		**Lithology** SILTSTONE (carbonaceous in part) grading to SILTY CLAYSTONE with depth, with thin COAL seams and hard PYRITIC SANDSTONE and SANSTONE stringers.	
ROP. (metre/hour) **Min.** 26.7 **Max.** 97.4 **Avg.** 62.1	**Drilling Parameters (Avg)** **WOB :** 12.9MT **RPM(surf):** 78 **RPM(mot):** 163 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.42% **Chromatograph Analysis:** C_1 : 2950ppm C_2 : 97ppm C_3 : 21ppm $C_{4\ TOT}$: 8ppm $C_{5\ TOT}$: 5ppm	**Average Formation Gas:** 0.36% **Chromatograph Analysis:** C_{1avg} : 2259ppm C_{2avg} : 72ppm C_{3avg} : 14ppm $C_{4\ TOT}$: 4ppm $C_{5\ TOT}$: 2ppm

SILTY CLAYSTONE (27 to 67%, increasing with depth): light to medium brownish grey, moderate yellowish brown, trace to locally 10% carbonaceous specks and laminae, laminated in part, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.

PYRITIC SANDSTONE (1%, between 1890.0 to 1910.0 mMDRT): moderate yellow, agglomerates, 10 to 20% medium quartz, angular, traces angular feldspar, poorly sorted, 50 to 60% pyrite cement, trace siderite cement, very hard, no inferred porosity.

SILTSTONE (32 to 62%, decreasing with depth): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix, grades in part to Silty Claystone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.

CARBONACEOUS SILTSTONE (2 to 5%): mottled white to dark yellowish brown, 10 to 15% silt, trace to 5% very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 10 to 20% clay matrix, firm to friable, sub blocky to blocky.

COAL (2%): dusky brown to brownish black, minor moderate brown, earthy lustre, blocky, local sub conchoidal fracture, argillaceous in part, grading to Carbonaceous Claystone, local pyritization, local ferruginisation, lignitic in part.

SANDSTONE (2 to 3%): white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30% argillaceous matrix, trace black lithic grains, local siderite cement, trace micropyrite, poor inferred porosity. No shows.

Interpretative Depth 1910.0 to 2000.0 m MDRT		**Lithology** SILTSTONE (carbonaceous in part) grading to SILTY CLAYSTONE and CALCAREOUS CLAYSTONE with rare COAL and SANDSTONE beds.	
ROP. (metre/hour) **Min.** 14.1 **Max.** 86.4 **Avg.** 54.1	**Drilling Parameters (Avg)** **WOB :** 14.2MT **RPM(surf):** 74 **RPM(mot):** 163 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.45% **Chromatograph Analysis:** C_1 : 3629ppm C_2 : 115ppm C_3 : 20ppm $C_{4\ TOT}$: 13ppm $C_{5\ TOT}$: 14ppm	**Average Formation Gas:** 0.32% **Chromatograph Analysis:** C_{1avg} : 2022ppm C_{2avg} : 70ppm C_{3avg} : 12ppm $C_{4\ TOT}$: 4ppm $C_{5\ TOT}$: 3ppm

SILTSTONE (5 to 26%, decreasing with depth): light to medium brownish grey, moderate yellowish brown, trace to 10% disseminated and nodular pyrite, trace to locally 10% carbonaceous specks and laminae, laminated in part, 10 to 20% medium brownish grey clay matrix, grades in part to Silty Claystone, trace to 5% micro-micaceous, 5% lithic specks, very weak calcareous, firm to very firm, sub blocky to blocky.

CALCAREOUS CLAYSTONE (2 to 3%): medium to light grey, trace bluish grey, 10 to 20% calcareous, grading to claystone, trace very fine quartz grains, firm to soft, sub blocky.

SILTY CLAYSTONE (68 to 88%): light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to 5% calcareous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.

SANDSTONE (2 to 4%): white to very light grey, dominantly trace friable aggregates, very fine to fine grained, minor medium, angular to sub angular, poorly sorted, 20 to 30% argillaceous matrix, trace black lithic grains, trace micropyrite, poor inferred porosity. No shows.

COAL (1 to 2%, between 1960.0 to 1990.0 mMDRT): black, grey black in part, sub vitreous, firm to brittle, uneven to angular fracture, trace to 5% pyrite, sub blocky to blocky.

CARBONACEOUS SILTSTONE (1 to 3%): mottled white to dark yellowish brown, 10 to 15% silt, trace very fine quartz, grades to Siltstone in part, trace disseminated pyrite, common micropyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.

Interpretative Depth 2000.0 to 2040.0 m MDRT		**Lithology** SILTY CLAYTONE intergradational and interbedded with SILTSTONE (carbonaceous in part) with rare COAL seams and SANDSTONE beds.	
ROP. (metre/hour) **Min.** 124.6 **Max.** 62.0 **Avg.** 61.7	**Drilling Parameters (Avg)** **WOB :** 15.1MT **RPM(surf):** 76 **RPM(mot):** 163 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.44% **Chromatograph Analysis:** C_1 : 3265ppm C_2 : 126ppm C_3 : 21ppm $C_{4\ TOT}$: 10ppm $C_{5\ TOT}$: 10ppm	**Average Formation Gas:** 0.23% **Chromatograph Analysis:** C_{1avg} : 1521ppm C_{2avg} : 60ppm C_{3avg} : 10ppm $C_{4\ TOT}$: 3ppm $C_{5\ TOT}$: 2ppm

SILTY CLAYSTONE (20 to 63%, decreasing with depth): light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to 5% calcareous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5% lithic specks, 5 to 10% micropyrite, firm, sub blocky to blocky.

CARBONACEOUS SILTSTONE (12 to 18%): mottled white to dark yellowish brown, 10 to 20% silt, trace very fine quartz, grades to Sandy Claystone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.

SANDSTONE (6 to 12%): white to very light grey, loose, rare friable aggregate, very fine to medium grained, predominantly fine, angular to sub angular, moderately sorted, abundant argillaceous matrix, common feldspathic and black lithic grains, trace micropyrite cement, trace siderite cement, trace wispy black diffuse carbonaceous laminae, moderate visual porosity. No shows.

SILTSTONE (19 to 53%, increasing with depth): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.

COAL (2 to 3%): black, grey black, sub vitreous, vitreous in part, angular fracture, conchoidal fracture associated with vitreous fragments, trace pyrite, grades to carbonaceous claystone in part.

Interpretative Depth 2040.0 to 2110.0 m MDRT		**Lithology** Interbedded SANDY SILTSTONE and SILTY CLAYSTONE (grading to SILTSTONE and CARBONACEOUS in part) with thin SANDSTONE laminae and COAL seams.	
ROP. **(metre/hour)** **Min.** 19.1 **Max.** 108.9 **Avg.** 62.3	**Drilling Parameters (Avg)** **WOB :** 15.9MT **RPM(surf):** 75 **RPM(mot):** 162 **TRQ :** lb/ft	**Maximum Formation Gas:** 20.65% **Chromatograph Analysis:** C_1 : 184793ppm C_2 : 20705ppm C_3 : 15018ppm $C_{4\ TOT}$: 7020ppm $C_{5\ TOT}$: 2474ppm	**Average Formation Gas:** 4.38% **Chromatograph Analysis:** C_{1avg} : 28173ppm C_{2avg} : 2877ppm C_{3avg} : 1880ppm $C_{4\ TOT}$: 828ppm $C_{5\ TOT}$: 271ppm

SANDY SILTSTONE (9 to 64%, increasing with depth): white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.

SILTY CLAYSTONE (8 to 22%): light to medium brownish grey, moderate yellowish brown, rare pale brown, trace to 5% carbonaceous flecks, nil to trace carbonaceous claystone laminae, 40 to 50% medium brownish grey clay matrix, trace to 5% micro-micaceous, 5 to 10% lithic specks, 5 to 10% micropyrite, trace coal fragments, soft to firm, sub blocky to blocky.

CARBONACEOUS SILTSTONE (Nil to 12%, decreasing with depth): mottled white to dark yellowish brown, 10 to 20% silt, trace very fine quartz, grades to Sandy Claystone in part, trace disseminated pyrite, common black carbonaceous fragments and laminae, rare white carbonaceous claystone laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.

SANDSTONE (Nil to 10%, decreasing with depth): white to very light grey, loose, rare friable aggregate, very fine to medium grained, predominantly fine, angular to sub angular, moderately sorted, abundant argillaceous matrix, common feldspathic and black lithic grains, trace micropyrite cement, trace siderite cement, trace wispy black diffuse carbonaceous laminae, moderate visual porosity. No shows.

SILTSTONE (10 to 44%): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.

COAL (2 to 4%): black, grey black, sub vitreous, vitreous in part, angular fracture, conchoidal fracture associated with vitreous fragments, trace pyrite, grades to carbonaceous claystone in part.

Interpretative Depth 2110.0 to 2158.0 m MDRT		**Lithology** SANDY SILTSTONE with interbeds of SILTY CLAYSTONE, SILTSTONE and trace COAL.	
ROP. (metre/hour) **Min.** 15.3 **Max.** 116.5 **Avg.** 62.5	**Drilling Parameters (Avg)** **WOB :** 14.3MT **RPM(surf):** 76 **RPM(mot):** 162 **TRQ :** lb/ft	**Maximum Formation Gas:** 1.20% **Chromatograph Analysis:** C_1 : 11168ppm C_2 : 558ppm C_3 : 118ppm $C_{4\ TOT}$: 50ppm $C_{5\ TOT}$: 22ppm	**Average Formation Gas:** 0.41% **Chromatograph Analysis:** C_{1avg} : 2830ppm C_{2avg} : 161ppm C_{3avg} : 47ppm $C_{4\ TOT}$: 17ppm $C_{5\ TOT}$: 7ppm

SANDY SILTSTONE (64 to 81%): white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.

SILTY CLAYSTONE (12 to 25%): light to medium brownish grey, rare pale brown, 10 to 20% silt, rare very fine quartz, 5 to 10% micromicaceous, trace black lithics, trace micropyrite, trace to 5% carbonaceous claystone and coal fragments, firm, sub blocky to blocky.

SILTSTONE (5 to 9%): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.

COAL (1 to 3%): black, grey black, sub vitreous, vitreous in part, angular fracture, conchoidal fracture associated with vitreous fragments, trace pyrite, grades to carbonaceous claystone in part.

Interpretative Depth 2158.0 to 2214.0 m MDRT		**Lithology** Dominantly interbedded SANDY SILTSTONE, SANDSTONE and CARBONACEOUS SILTSTONE with minor stringers and interbeds of SILTY CLAYSTONE, SILTSTONE and COAL.	
ROP. **(metre/hour)** **Min.** 14.1 **Max.** 133.1 **Avg.** 72.5	**Drilling Parameters (Avg)** **WOB :** 15.2MT **RPM(surf):** 77 **RPM(mot):** 163 **TRQ :** lb/ft	**Maximum Formation Gas:** 1.20% **Chromatograph Analysis:** C_1 : 11168ppm C_2 : 558ppm C_3 : 97ppm $C_{4\ TOT}$: 22ppm $C_{5\ TOT}$: 13ppm	**Average Formation Gas:** 0.58% **Chromatograph Analysis:** C_{1avg} : 5084ppm C_{2avg} : 264ppm C_{3avg} : 54ppm $C_{4\ TOT}$: 15ppm $C_{5\ TOT}$: 6ppm

SANDY SILTSTONE (15 to 82%): white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.

SANDSTONE (2 to 65%): light grey off white, translucent, clear, fine to minor coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 15% dispersive clay matrix, trace pyrite nodules, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.

CARBONACEOUS SILTSTONE (10 to 15%): dark yellowish brown to light olive grey, pale brown in part, 10 to 20% silt, trace very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common black carbonaceous fragments and laminae, rare Coal fragments, 20 to 30% clay matrix, firm to friable, sub blocky to blocky.

SILTY CLAYSTONE (Trace to 9%): light to medium brownish grey, rare pale brown, 10 to 20% silt, rare very fine quartz, 5 to 10% micromicaceous, trace black lithics, trace micropyrite, trace to 5% carbonaceous claystone and coal fragments, firm, sub blocky to blocky.

COAL (1 to 6%): black, grey black, vitreous to sub vitreous, firm to brittle, uneven to angular fracture, trace conchoidal, grading to Carbonaceous Claystone in part, sub blocky to blocky.

SILTSTONE (2 to 5%): light olive grey (5Y 5/2) to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.

Interpretative Depth 2214.0 to 2232.0 m MDRT		**Lithology** Interbedded CARBONACEOUS SILTSTONE and SANDSTONE with minor interbeds of SILTSTONE and SANDY SILTSTONE.	
ROP. (metre/hour) **Min.** 35.1 **Max.** 82.2 **Avg.** 61.2	**Drilling Parameters (Avg)** **WOB :** 16.5MT **RPM(surf):** 79 **RPM(mot):** 163 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.69% **Chromatograph Analysis:** C_1 : 6341ppm C_2 : 395ppm C_3 : 79ppm $C_{4\ TOT}$: 16ppm $C_{5\ TOT}$: 9ppm	**Average Formation Gas:** 0.64% **Chromatograph Analysis:** C_{1avg} : 5381ppm C_{2avg} : 346ppm C_{3avg} : 71ppm $C_{4\ TOT}$: 20ppm $C_{5\ TOT}$: 4ppm

CARBONACEOUS SILTSTONE (26 to 50%): dark yellowish brown to mottled dark olive grey, mottled brown, trace to 5% very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common very fine black carbonaceous fragments and laminae, speckled, rare Coal fragments, 10 to 15% clay matrix, firm to friable, sub blocky to blocky. Grades to Siltstone.

SANDSTONE (20 to 57%): light grey off white, translucent, clear, fine to minor coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 15% dispersive clay matrix, trace pyrite nodules, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.

SILTSTONE (7 to 25%): medium dark brownish grey, dark yellowish brown, medium olive brownish grey, 10 to 30% clay, grades to Silty Claystone, trace to 5% very fine quartz, 5 to 10% micropyrite, trace black lithics, trace to 10% wispy black carbonaceous laminae, trace red lithics, sub block to blocky.

SANDY SILTSTONE (10 to 15%): white, light grey in part, aggregated in part, bit crushed in part, 30 to 40% silt, 10 to 15% fine to medium quartz, trace altered feldspar, angular to sub angular, abundant white clay matrix, trace mica, trace black lithics, trace orange lithics, rare chlorite, local trace thin wispy diffuse carbonaceous laminae, trace carbonaceous claystone and coal fragments, soft to firm, friable in part, dispersive, poor visual porosity, no shows.

<table>
<tr><td colspan="2">Interpretative Depth
2232.0 to 2295.0 m MDRT</td><td colspan="2">Lithology
Interbedded SANDSTONE, SILTSTONE and CLAYSTONE.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 13.7
Max. 98.2
Avg. 54.0</td><td>Drilling Parameters (Avg)

WOB : 16.4MT
RPM(surf): 78
RPM(mot): 163
TRQ : lb/ft</td><td>Maximum Formation Gas: 0.56%
Chromatograph Analysis:
C_1 : 4487ppm
C_2 : 322ppm
C_3 : 73ppm
$C_{4\ TOT}$: 21ppm
$C_{5\ TOT}$: 16ppm</td><td>Average Formation Gas: 0.39%
Chromatograph Analysis:
C_{1avg} : 2687ppm
C_{2avg} : 203ppm
C_{3avg} : 51ppm
$C_{4\ TOT}$: 11ppm
$C_{5\ TOT}$: 4ppm</td></tr>
<tr><td colspan="4">SANDSTONE (10 to 60%): light grey off white, translucent, clear, dominantly fine grained, sub spherical, well sorted, sub angular, weak siliceous cement, 10 to 35% dispersive clay matrix, trace pyrite nodules, trace coal laminae, trace mica flakes, generally loose, friable aggregates, fair to poor visual and inferred porosity, no show.

SANDY CLAYSTONE (5 to 35%): white, light grey in part, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone, in part grades to Sandy Siltstone, trace mica, trace black lithics, local trace thin carbonaceous laminae, soft to firm, inferred dispersive.

SILTY CLAYSTONE (Trace to 40%, increasing with depth): mottled medium light grey to white, 10 to 30% silt, gradational to Sandy Claystone, trace black lithics, common carbonaceous specks, soft to firm, dispersive.

SANDY SILTSTONE (10 to 50%): white, light grey in part, aggregated in part, 10 to 20% fine to medium quartz, trace altered feldspar, angular to sub angular, 10 to 40% white clay matrix, grades to Sandy Claystone, trace mica, trace black lithics, rare chlorite, local trace thin carbonaceous laminae, soft to firm, friable in part, dispersive, poor visual porosity, no shows.

CARBONACEOUS SILTSTONE (2 to 10%): dark yellowish brown to mottled dark olive grey, mottled brown, trace to 5% very fine quartz, trace disseminated pyrite, trace to 5% micromicaceous, common very fine black carbonaceous fragments and laminae, speckled, rare Coal fragments, 10 to 15% clay matrix, firm to friable, sub blocky to blocky. Grades to Siltstone.

SILTSTONE (10 to 40%, decreasing with depth): light olive grey to brownish grey, 20 to 30% silt, trace very fine quartz, 5 to 10% micropyrite, trace black lithics, trace, wispy, black carbonaceous laminae, trace red lithics, sub block to blocky.</td></tr>
</table>

<table>
<tr><td colspan="2">Interpretative Depth
2295.0 to 2420.0 m MDRT</td><td colspan="2">Lithology
Interbedded and intergradational SANDSTONE, SILTSTONE, ARGILLACEOUS SILTSTONE, SANDY CLAYSTONE and SILTY CLAYSTONE.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 11.0
Max. 90.5
Avg. 47.5</td><td>Drilling
Parameters (Avg)

WOB : 14.4MT
RPM(surf): 76
RPM(mot): 162
TRQ : lb/ft</td><td>Maximum
Formation
Gas: 1.50%
Chromatograph
Analysis:
C_1 : 13796ppm
C_2 : 993ppm
C_3 : 294ppm
$C_{4\ TOT}$: 74ppm
$C_{5\ TOT}$: 19ppm</td><td>Average
Formation
Gas: 0.46%
Chromatograph
Analysis:
C_{1avg} : 3161ppm
C_{2avg} : 199ppm
C_{3avg} : 53ppm
$C_{4\ TOT}$: 12ppm
$C_{5\ TOT}$: 4ppm</td></tr>
<tr><td colspan="4">SANDY CLAYSTONE (1 to 25%): white, light grey to very pale yellowish brown, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone and Argillaceous Sandstone, trace mica, trace white lithics, trace carbonaceous laminae and specks, soft to firm, sub blocky, dispersive.

SILTY CLAYSTONE (2 to 65%): mottled medium light grey to white, pale brownish grey, 10 to 30% very fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.

SANDSTONE (15 to 80%): clear, light grey, translucent, fine to medium, well sorted, sub spherical to spherical, sub rounded to sub angular, very weak siliceous cement, 5 to 10% dispersive white clay matrix, trace nodular pyrite, trace mica, dominantly loose, friable to occasional hard aggregates, fair to poor inferred and fair visual porosity, no show.

SILTSTONE (4 to 20%): mottled medium dark to medium light grey, locally very light grey to white, occasionally brownish grey, trace to 25% very fine quartz, locally gradational to Silty Sandstone, 5 to 25% argillaceous, locally gradational to Silty Claystone, 5 to 10% very fine carbonaceous specks and trace laminae, trace white and rare red lithic specks, trace micro mica, firm to soft, sub blocky.

ARGILLACEOUS SILTSTONE (1 to 25%): dark brownish grey to dark yellowish brown, trace to 10% clay matrix, grades to Claystone, trace to 10% fine carbonaceous specks and fragments, 5% carbonaceous laminae, grades to Carbonaceous Siltstone in part, firm, sub fissile to sub blocky.</td></tr>
</table>

<table>
<tr><td colspan="2">Interpretative Depth
2420.0 to 2534.0 m MDRT</td><td colspan="2">Lithology
Interbedded SILTSTONE, ARGILLACEOUS SILTSTONE and SILTY CLAYSTONE with minor to trace SANDSTONE and SANDY CLAYSTONE stringers.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 16.1
Max. 74.8
Avg. 41.3</td><td>Drilling Parameters (Avg)

WOB : 13.5 MT
RPM(surf): 75
RPM(mot): 161
TRQ : lb/ft</td><td>Maximum Formation Gas: 0.88%
Chromatograph Analysis:
C_1 : 8369ppm
C_2 : 412ppm
C_3 : 89ppm
$C_{4\ TOT}$: 31ppm
$C_{5\ TOT}$: 24ppm</td><td>Average Formation Gas: 0.47%
Chromatograph Analysis:
C_{1avg} : 3577ppm
C_{2avg} : 193ppm
C_{3avg} : 51ppm
$C_{4\ TOT}$: 15ppm
$C_{5\ TOT}$: 5ppm</td></tr>
<tr><td colspan="4">SILTSTONE (25 to 50%): mottled medium dark to medium light grey, brownish grey, trace to 15% very fine quartz, 5 to 25% argillaceous, locally gradational to Silty Claystone, 5 to 15% fine carbonaceous specks and trace wispy laminae, trace white and rare red lithic specks, trace micro mica, firm to soft, sub blocky.

ARGILLACEOUS SILTSTONE (10 to 40%): dark brownish grey to dark yellowish brown, moderate yellowish brown, trace to 10% clay matrix, grades to Siltstone, trace to 10% fine carbonaceous specks and fragments, 5% carbonaceous laminae, 5% lithic specks, trace to 5% disseminated pyrite, firm, sub fissile to sub blocky.

SILTY CLAYSTONE (10 to 25%): mottled medium light grey to white, pale brownish grey, 10 to 30% very fine to silt quartz, gradational to Sandy Claystone and Argillaceous Sandstone, trace white lithics, 5% carbonaceous specks, soft to firm, sub blocky, dispersive.

SANDSTONE (2 to 18%): light grey off white, translucent, clear, very fine to coarse, dominantly fine to medium, sub spherical, well sorted, sub angular, weak siliceous cement, trace to 25% dispersive clay matrix, grades to Argillaceous Sandstone in part, trace weathered feldspars, trace pyrite nodules, trace to 5% carbonaceous laminae and specks, trace mica flakes, generally loose, brittle to friable aggregates, fair to poor visual and inferred porosity, no show.

SANDY CLAYSTONE (3 to 5%): white, light grey to very pale yellowish brown, 10 to 30% silt to very fine quartz, trace altered feldspar, 10 to 40% white clay matrix, grades to Silty Claystone and Argillaceous Sandstone, trace mica, trace white lithics, trace carbonaceous laminae and specks, soft to firm, sub blocky, dispersive.</td></tr>
</table>

Interpretative Depth 2534.0 to 2582.0 m MDRT		**Lithology** WEATHERED VOLCANIC interbedded with CLAYSTONE grading in part to SILSTSTONE.	
ROP. (metre/hour) **Min.** 5.6 **Max.** 66.6 **Avg.** 16.4	**Drilling Parameters (Avg)** **WOB :** 16.5MT **RPM(surf):** 65 **RPM(mot):** 161 **TRQ :** lb/ft	**Maximum Formation Gas:** 11.90% **Chromatograph Analysis:** C_1 **:** 119742ppm C_2 **:** 6746ppm C_3 **:** 1992ppm $C_{4\ TOT}$ **:** 576ppm $C_{5\ TOT}$ **:** 144ppm	**Average Formation Gas:** 2.00% **Chromatograph Analysis:** C_{1avg} **:** 10528ppm C_{2avg} **:** 605ppm C_{3avg} **:** 176ppm $C_{4\ TOT}$ **:** 53ppm $C_{5\ TOT}$ **:** 16ppm

HIGHLY WEATHERED VOLCANIC (35 to 80%, decreasing with depth): white, pale yellow white, minor greenish grey, reddish brown, mottled dusky green, bit crushed, soft to hard, aggregated in part, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, minor chlorite, trace micropyrite, localized nodular pyrite, minor pale blue green and light grey microcrystalline angular aggregates, hard.

CLAYSTONE (20 to 50%): brownish black to brownish grey, trace silt, hard, angular, brittle, local pyritization.

SILTSTONE (Nil to 5%): pale brown to light olive grey (5Y 5/2), brownish grey in part, 10 to 15% silt, trace black lithics, local trace micropyrite, 30 to 40% clay matrix, firm to moderately hard.

Interpretative Depth 2582.0 to 2608.0 m MDRT		**Lithology** Interbedded SANDSTONE and CLAYSTONE (grading to SILTSTONE in part) with thin interbeds of HIGHLY WEATHERED VOLCANICS.	
ROP. (metre/hour) **Min.** 11.2 **Max.** 71.4 **Avg.** 33.5	**Drilling Parameters (Avg)** **WOB :** 13.3MT **RPM(surf):** 71 **RPM(mot):** 159 **TRQ :** lb/ft	**Maximum Formation Gas:** 4.63% **Chromatograph Analysis:** C_1 : 47665ppm C_2 : 2652ppm C_3 : 739ppm $C_{4\ TOT}$: 209ppm $C_{5\ TOT}$: 60ppm	**Average Formation Gas:** 2.80% **Chromatograph Analysis:** C_{1avg} : 23905ppm C_{2avg} : 1363ppm C_{3avg} : 391ppm $C_{4\ TOT}$: 118ppm $C_{5\ TOT}$: 31ppm

HIGHLY WEATHERED VOLCANIC (5 to 20%, cavings?): white, pale yellow white, minor greenish grey, reddish brown, mottled dusky green, bit crushed, soft to hard, aggregated in part, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, minor chlorite, trace micropyrite, localised nodular pyrite, minor pale blue green and light grey microcrystalline angular aggregates, hard.

CLAYSTONE (5 to 20%): brownish black to olive black, trace silt, trace red oxide staining, local trace pyritisation, angular brittle in part, firm to very hard.

SILTSTONE (10 to 15%): pale brown to light olive grey (5Y 5/2), brownish grey in part, 10 to 15% silt, trace black lithics, local trace micropyrite, 30 to 40% clay matrix, firm to moderately hard.

SANDSTONE 1 (80%, between 2582.0 to 2588.0 mMDRT): translucent to white, loose, very fine to fine, dominantly fine, sub angular to sub rounded, well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, excellent visual porosity, shows.

SANDSTONE 2 (45 to 60% below 2600.0 mMDRT): translucent to white, loose, fine to coarse, dominantly medium, sub angular to sub rounded, moderately well sorted, sub spherical, trace feldspar, trace siliceous cement, trace pyrite cement, local trace nodular pyrite, weak trace siderite, good visual porosity, shows.

Interpretative Depth 2608.0 to 2635.0 m MDRT		**Lithology** Interbedded CLAYSTONE (grading to SILTSTONE in part) and SANDSTONE.	
ROP. (metre/hour) **Min.** 3.9 **Max.** 293.2 **Avg.** 16.3	**Drilling Parameters (Avg)** **WOB :** 12.6MT **RPM(surf):** 69 **RPM(mot):** 157 **TRQ :** lb/ft	**Maximum Formation Gas:** 1.33% **Chromatograph Analysis:** C_1 : 13062ppm C_2 : 729ppm C_3 : 214ppm $C_{4\ TOT}$: 63ppm $C_{5\ TOT}$: 35ppm	**Average Formation Gas:** 0.58% **Chromatograph Analysis:** C_{1avg} : 4663ppm C_{2avg} : 289ppm C_{3avg} : 85ppm $C_{4\ TOT}$: 29ppm $C_{5\ TOT}$: 12ppm

CLAYSTONE (75 to 88%): light brownish grey to light olive grey, trace to 5% silt, trace micromicaceous, trace to 2% Coal fragments, black to dark brown lustre, earthy, sub vitreous to vitreous in part, uneven fracture, grades to Carbonaceous Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.

SANDSTONE (2%): translucent to white, dominantly aggregated, very fine to fine, dominantly fine, sub angular to sub rounded, poorly sorted, trace to 5% siliceous cement, up to 5% pyrite cement, local trace nodular pyrite, weak trace siderite, weak calcareous, very hard, poor visual porosity, no show.

SILTSTONE (18 to 23%): pale brown to light olive grey (5Y 5/2), brownish grey in part, 10 to 15% silt, trace black lithics, local trace micropyrite, 30 to 40% clay matrix, firm to moderately hard.

<table>
<tr><td colspan="2">Interpretative Depth
2635.0 to 2675.0 m MDRT</td><td colspan="2">Lithology
Interbedded SANDSTONE and COALY CLAYSTONE, CLAYSTONE (calcareous in part) grading to SILTSTONE in part.</td></tr>
<tr><td>ROP.
(metre/hour)

Min. 3.3
Max. 23.3
Avg. 12.0</td><td>Drilling Parameters (Avg)

WOB : 11.4MT
RPM(surf): 82
RPM(mot): 158
TRQ : lb/ft</td><td>Maximum Formation Gas: 0.82%
Chromatograph Analysis:
C_1 : 8204ppm
C_2 : 467ppm
C_3 : 140ppm
$C_{4\ TOT}$: 43ppm
$C_{5\ TOT}$: 25ppm</td><td>Average Formation Gas: 0.24%
Chromatograph Analysis:
C_{1avg} : 1472ppm
C_{2avg} : 91ppm
C_{3avg} : 31ppm
$C_{4\ TOT}$: 14ppm
$C_{5\ TOT}$: 7ppm</td></tr>
<tr><td colspan="4">SANDSTONE (15 to 60%): translucent to white, loose in part, dominantly aggregated, loose grains fine to medium, dominantly fine, sub angular to sub rounded, poorly sorted, trace to 5% siliceous cement, up to 5% pyrite cement, local trace nodular pyrite, aggregates, extremely hard, fine to coarse grained, dominantly medium, angular to sub-angular, rare rounded, poorly sorted, 10 to 15% siliceous cement, trace pyrite cement, rare nodules, 10 to 20% white clay matrix, very hard dark grey fragments, trace black lithics, very weak calcareous, poor visual porosity, shows from 2635.0 to 2660.0 mMDRT.

COALY CLAYSTONE (4 to 50%): light brownish grey to brownish grey, trace black laminae, trace to 5% silt, trace micromicaceous, trace to 3% Coal fragments, dark brown lustre, earthy, sub vitreous to vitreous in part, uneven fracture, grades to Carbonaceous Claystone in part, rare trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.

SILTSTONE (10 to 47%): pale brown to brownish grey, 10 to 20% silt, rare very fine to fine quartz, trace to 5% micropyrite, trace micromicaceous, trace Coal fragments, dull, black to dark brown lustre, earthy, sub vitreous, uneven fracture, grades to Carbonaceous Claystone in part, local trace thin wispy carbonaceous laminae, firm to moderately hard in part.

CALCAREOUS CLAYSTONE (5 to 10%, below 2650.0 mMDRT): greenish grey to light bluish grey, yellowish grey in part, trace silt, trace black lithics, firm to moderately hard, weakly calcareous, angular to sub blocky.

CLAYSTONE (10 to 48%): pale orange to light brown, yellowish grey in part, trace silt, trace carbonaceous veins, trace mica, rare black lithics, soft to firm, dispersive in part.</td></tr>
</table>

Interpretative Depth 2675.0 to 2740.0 m MDRT		**Lithology** Interbedded SANDSTONE, COALY CLAYSTONE, CLAYSTONE, SILTY CLAYSTONE, SILTSTONE and minor VOLCANICS.	
ROP. (metre/hour) **Min.** 3.3 **Max.** 31.5 **Avg.** 12.9	**Drilling Parameters (Avg)** **WOB :** 11.4MT **RPM(surf):** 94 **RPM(mot):** 162 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.72% **Chromatograph Analysis:** C_1 : 6040ppm C_2 : 581ppm C_3 : 148ppm $C_{4\ TOT}$: 58ppm $C_{5\ TOT}$: 24ppm	**Average Formation Gas:** 0.37% **Chromatograph Analysis:** C_{1avg} : 2198ppm C_{2avg} : 194ppm C_{3avg} : 56ppm $C_{4\ TOT}$: 19ppm $C_{5\ TOT}$: 7ppm

CLAYSTONE (10 to 60%): pale orange to light brown, yellowish grey in part, trace to 10% silt, grades to Silty Claystone, trace to 10% very fine to silt quartz, sucrosic in part, trace to 5% very fine quartz, trace carbonaceous veins, trace mica, rare black lithics, soft to firm, dispersive in part.

COALY CLAYSTONE (Nil to 30%, grades to Silty Claystone below 2710mMDRT): moderate brown to greyish brown, moderate to dark yellowish brown, trace to 15% silt, grades to Silty Claystone, weak trace very fine quartz, trace micromicaceous, trace mica, trace to 10% Coal fragments, dark brown lustre, earthy, sub vitreous, uneven fracture, trace carbonaceous laminae, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.

SILTY CLAYSTONE (15 to 60%, below 2710 mMDRT): moderate brown to greyish brown, dark yellowish brown, trace to 15% silt, weak trace very fine quartz, trace micromicaceous, trace mica, trace to 10% Coal fragments, dark brown lustre, earthy, sub vitreous, uneven fracture, trace to 5% carbonaceous laminae, gradational to Coaly Claystone, trace micropyrite, local trace nodular pyrite, soft to moderately firm, sub blocky to blocky.

SANDSTONE (15 to 35%): clear, light grey, light yellowish brown, off white, very fine to fine, well sorted, sub rounded, spherical to sub spherical, weak siliceous cement, 5 to 15% clay and 5 to 15% silty matrix, trace carbonaceous and coal laminae and specks, trace micro pyrite, dominantly loose grains, friable to brittle aggregates, poor visual and inferred porosity, no show.

SILTSTONE (4 to 29%): pale brown to brownish grey, medium grey, 10 to 20% very fine to fine quartz, trace to 5% micropyrite, trace micromicaceous, trace Coal fragments, dull, black to dark brown lustre, earthy, sub vitreous, uneven fracture, local trace carbonaceous laminae, firm to moderately hard in part.

VOLCANIC (15% 2680 to 2685mMDRT, trace below 2685mMDRT): white, pale yellow white, speckled greenish grey, mottled reddish brown and white, mottled dusky green, bit crushed, soft to moderately hard, minor feldspar laths in aggregates, trace to 5% altered yellowish grey feldspar, trace micaceous, trace mica, abundant chlorite associated with greenish grey fragments, greyish blue green siliceous fragments, very hard, very weak calcareous, local pyritisation, trace pyrite nodules, trace black lithics, trace siderite, soft (bit crushed) to very hard.

Interpretative Depth 2740.0 to 2799.0 m MDRT		**Lithology** Interbedded SANDSTONE with SILTSTONE interbeds grading to SILTY SANDSTONE in part.	
ROP. (metre/hour) **Min.** 2.4 **Max.** 48.2 **Avg.** 25.7	**Drilling Parameters (Avg)** **WOB :** 14.2 MT **RPM(surf):** 75 **RPM(mot):**162 **TRQ :** lb/ft	**Maximum Formation Gas:** 1.21% **Chromatograph Analysis:** C_1 : 9200ppm C_2 : 710ppm C_3 : 252ppm $C_{4\ TOT}$: 91ppm $C_{5\ TOT}$: 99ppm	**Average Formation Gas:** 0.49% **Chromatograph Analysis:** C_{1avg} : 3161ppm C_{2avg} : 214ppm C_{3avg} : 70ppm $C_{4\ TOT}$: 15ppm $C_{5\ TOT}$: 11ppm

SANDSTONE (15%): clear, translucent, transparent, off white, fine to very coarse, sub angular to sub rounded, poorly sorted, moderate siliceous cement, trace to 5% pyrite cement, secondary calcite cementation, trace to 5% feldspar laths, trace calcite grains, common fractured grains, poor to fair visual and inferred porosity, white mineral fluorescence.

SILTSTONE (30%): greyish brown to dark dusky brown, moderate to dark yellowish brown, brownish black in part, 5 to 10% clay, locally argillaceous, trace to 5% very fine to fine quartz, trace micropyrite, trace to 5% carbonaceous laminae and very fine specks, firm to moderately hard in part, sub blocky.

SILTY SANDSTONE (55%): pale yellowish brown, minor off white, dominantly very fine to silt, well sorted, sub rounded, spherical, siliceous, dominantly pale yellowish brown silty matrix, locally white clay matrix, trace carbonaceous specks, abundant very fine white lithics, locally has a recrystallized fabric and sucrosic texture, firm, very poor visual and inferred porosity, trace show.

Interpretative Depth 2799.0 to 2914.0 m MDRT		**Lithology** Interbedded SANDSTONE and SILTSTONE (grading in part to SILTY CLAYSTONE) with rare interbeds of WEATHERED VOLCANICS.	
ROP. (metre/hour) **Min.** 1.2 **Max.** 38.3 **Avg.** 12.8	**Drilling Parameters (Avg)** **WOB :** 16.6 MT **RPM(surf):** 93 **RPM(mot):** 162 **TRQ :** lb/ft	**Maximum Formation Gas:** 0.86% **Chromatograph Analysis:** C_1 : 5824ppm C_2 : 377ppm C_3 : 1323ppm $C_{4\ TOT}$: 41ppm $C_{5\ TOT}$: 21ppm	**Average Formation Gas:** 0.28% **Chromatograph Analysis:** C_{1avg} : 1748ppm C_{2avg} : 142ppm C_{3avg} : 61ppm $C_{4\ TOT}$: 15ppm $C_{5\ TOT}$: 8ppm

SANDSTONE 1(5 to 25%, above 2825.0 mMDRT): clear, translucent, transparent, off white, fine to very coarse, dominantly fine, sub angular to sub rounded, poorly sorted, moderate siliceous cement, trace to 5% pyrite cement, local trace nodular pyrite, trace mica, secondary calcite cementation, trace to 5% feldspar laths, trace calcite, common fractured grains, rare aggregates, trace black lithics, poor to fair visual and inferred porosity, white mineral fluorescence to 2825.0 mMDRT.

SANDSTONE 2 (30 to 50%, below 2825.0 mMDRT): clear, translucent, off white, dominantly aggregated, loose in part, fine to very coarse, dominantly medium, trace feldspar grains, sub angular to sub rounded, poorly sorted, 5 to 10% siliceous cement, trace to 5% pyrite cement, local trace nodular pyrite, trace mica, secondary calcite cementation, 10 to 20% white clay, increasing to 30 to 40% with depth, weak trace calcareous, common fractured coarse grains, trace black lithics, moderately hard, friable in part, poor inferred porosity in aggregates, fair porosity developed where sample dominantly loose, no shows.

SILTSTONE (28 to 68%): greyish brown to dark dusky brown, moderate to dark yellowish brown, trace dark greenish grey in part, 10 to 15% very fine to fine quartz, trace micropyrite, trace micromicaceous, trace to 5% carbonaceous laminae and very fine specks, rare coal fragments, carbonaceous claystone in part, greenish black to greyish black lustre, trace micromicaceous, brittle, uneven fracture, earthy to sub vitreous, firm to moderately hard in part, sub blocky to blocky.

SILTY CLAYSTONE (15 to 47%): moderate brown (5YR 4/4), greyish brown in part, silt, trace very fine to fine sand, trace micromicaceous, trace mica, rare micropyrite, trace carbonaceous laminae, rare coaly fragments, greyish black to greenish black, carbonaceous claystone in part, uneven fracture, earthy, sub vitreous in part, dispersive, sub blocky in part, soft to moderately firm.

CLAYSTONE (2 to 10%): weathered volcanic?, greyish blue green, dark greenish grey, pale olive in part, rare off-white, pale brown in part, bit crushed in part, trace silt, trace micromicaceous, weak trace carbonaceous laminae, trace to 5% micromica, weak trace micropyrite, local very weak calcareous, local trace siliceous in part, blocky, moderately hard to hard.

HALLIBURTON

Sperry Drilling Services

1 : 500

BIG MONITORING

Formation Evaluation Log

Country : **Australia**

Field : **Exploration**

Location : **Lat: 38° 9' 40.24" South**
Long: 148° 17' 35.95" East

Well : **Grayling-1**

Company : **Apache Energy Ltd**

Rig : **Ocean Patriot**

LOCATION

Company : **Apache Energy Ltd**

Rig : **Ocean Patriot**

Well : **Grayling-1**

Field : **Exploration**

Country : **Australia**

DOE Number :

Latitude : **38° 9' 40.24" South**

Longitude : **148° 17' 35.95" East**

UTM Easting = **613,302.06 m**

UTM Northing = **5,775,510.94 m**

Other Services

Permanent Datum : **Mean Sea Level** Elevation : **0.00 m**

Log Measured From : **Drill Floor** **21.50 m** Above Permanent Datum

Drilling Measured From : **Drill Floor**

MD LOG

	Elev.
KB	**0.00 m**
DF	**21.50 m**
GL	**0.00 m**
WD	**58.50 m**

Depth Logged : **80.00 m** To **800.00 m** Unit No. : **197** Job No. : **AUFE000329844**

Date Logged : **23-Dec-04** To **25-Dec-04**

Total Depth MD : **800.00 m** TVD : **799.90 m** Plot Type : **Final**

Spud Date : **23-Dec-04** Plot Date : **14-Jun-05**

Borehole Record (MD)

Run No.	Size	From	To
1	914.400 mm	80.00 m	113.00 m
2	406.400 mm	113.00 m	800.00 m

Borehole Record (MD)

Run No.	Size	From	To

Casing Record (MD)

Size	Weight	From	To
762.000 mm	458.00 kg/m	80.00 m	111.86 m
340.000 mm	101.00 kg/m	80.00 m	783.93 m

LEGEND

Abbreviations and Symbols

Drilling Data

BG	Background Gas
BHT	Bottomhole Temp
C	Carbide Test
CB	Core Bit
CG	Connection Gas
CKF	Check For Flow
CO	Circulate Out
DB	Diamond Bit
DC	Depth Correction
DS	Direction Survey
DST	Drillstem Test
FLT	Flowline Temp.
LAT	Logged After Trip
NB	New Bit
NR	No Returns
PDC	Polycrystalline Diamond Compound Bit
PR	Partial Returns
RPM	Revs Per Minute
RRB	Rerun Bit
STG	Short Trip Gas
TB	Turbo Drill
TG	Trip Gas
U	Gas Units
WOB	Weight On Bit

Mud Data

Cl-	Chloride Ion Conc	Rm	Mud Resistivity
FC	Filter Cake	Rmf	Filtrate Resistivity
FL	Filtrate Loss	S	Solids Content
G	Gels	Vis	Funnel Viscosity
pH	Hydrogen Ion Content	MW	Mud Weight
PV	Plastic Viscosity	YP	Yield Point

Engineering Data

	Core No.		Water
	DST No.		Salt Water
	Casing Seat		Fresh Water
	Side Wall Core		Hydrocarbons Smell
	Gas Traces		H2S Smell
	Gas	RFT	Interval Tester
	Oil Traces	E-LOG	Wireline Log Run
	Oil	LOT	Leakoff Test

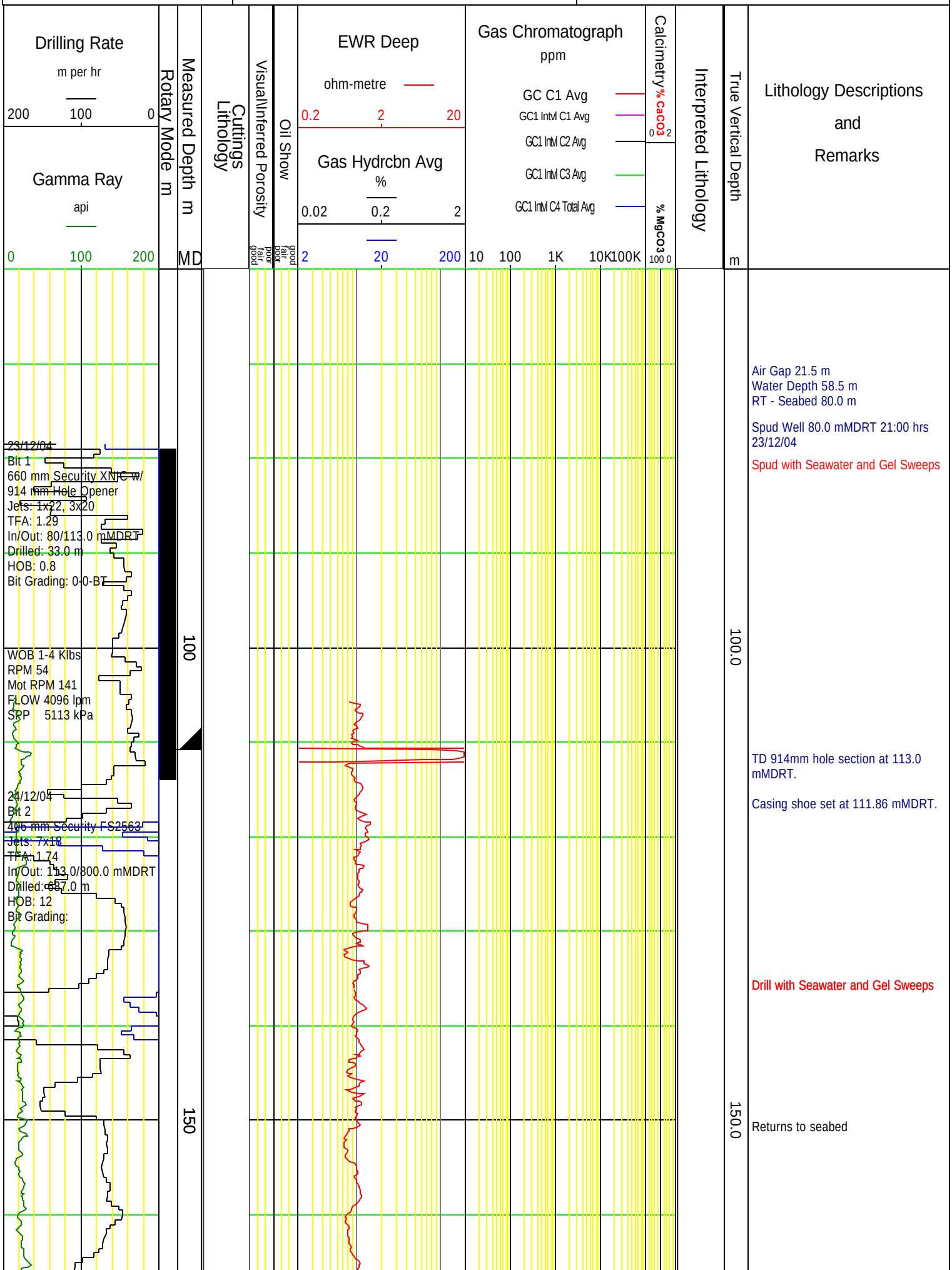
Lithology Symbols

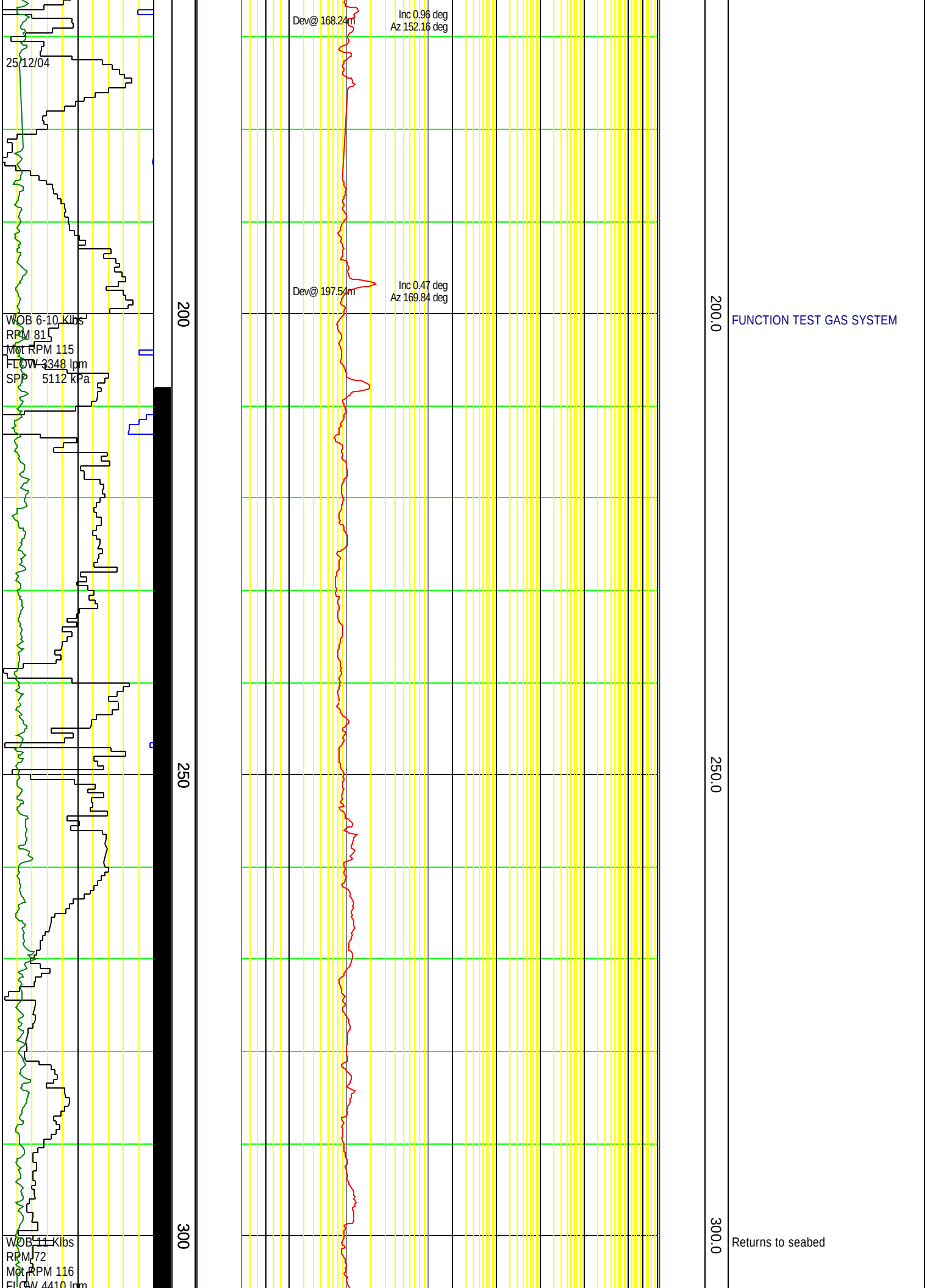
Sandstone	Limestone
Silty Sandstone	Dolomite
Silt	Marl
Siltstone	Tuff
Clay	Volcanics
Claystone	Conglomerate
Shale	Gravel
Calcilutite	Halite
Calcisiltite	COAL
Calcarenite	

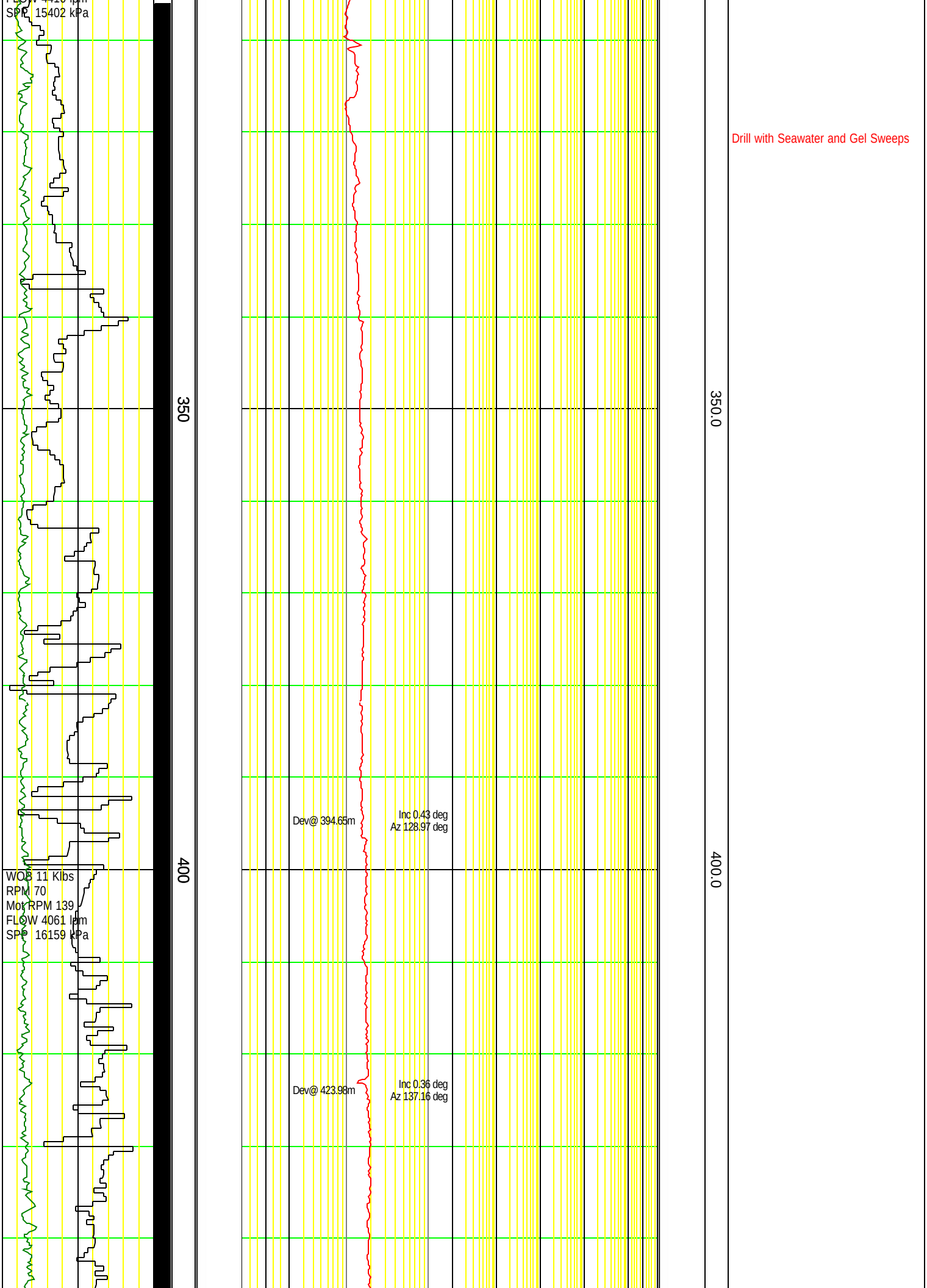
Bitumen

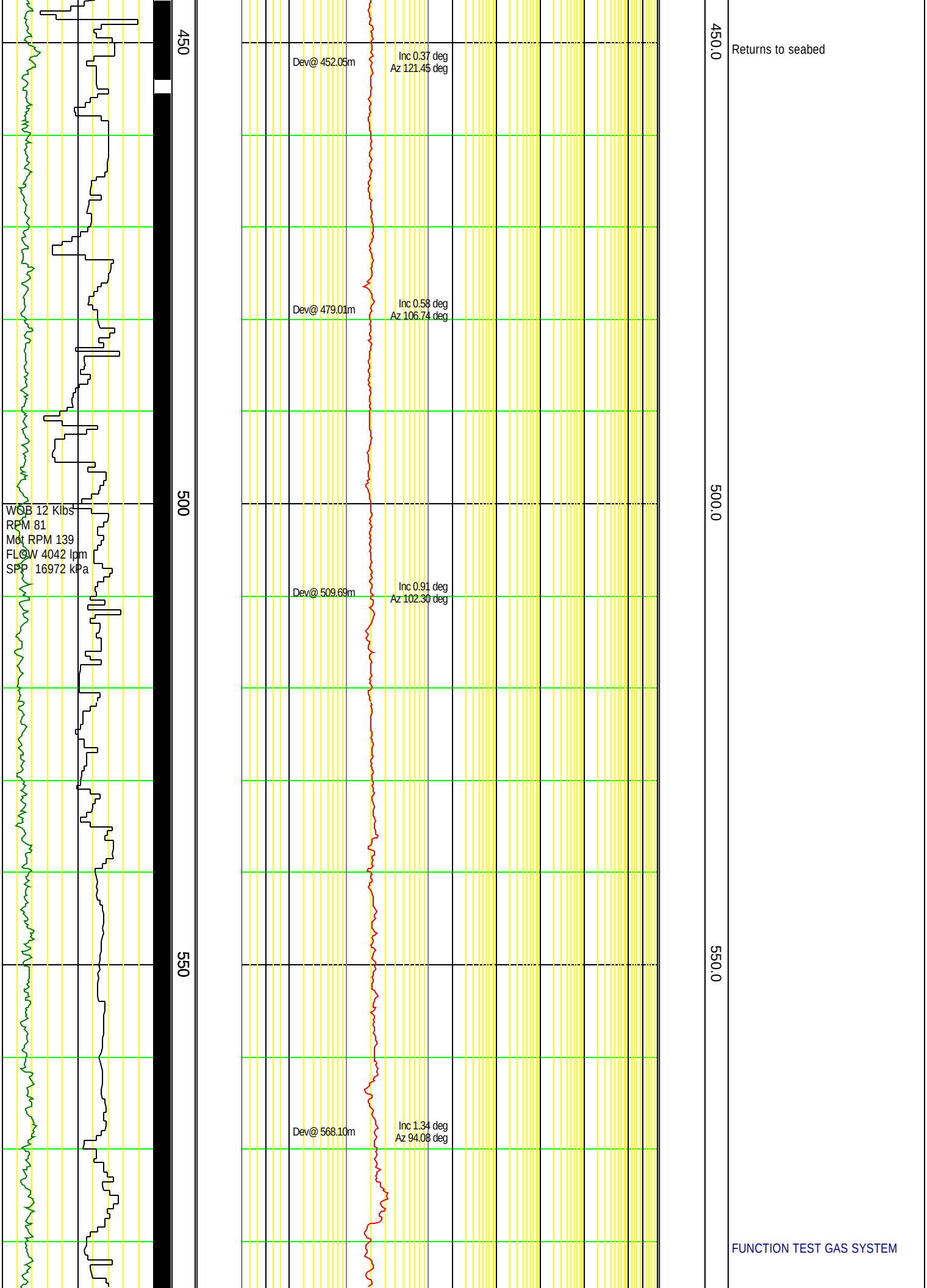
PIT Pressure Integrity Test

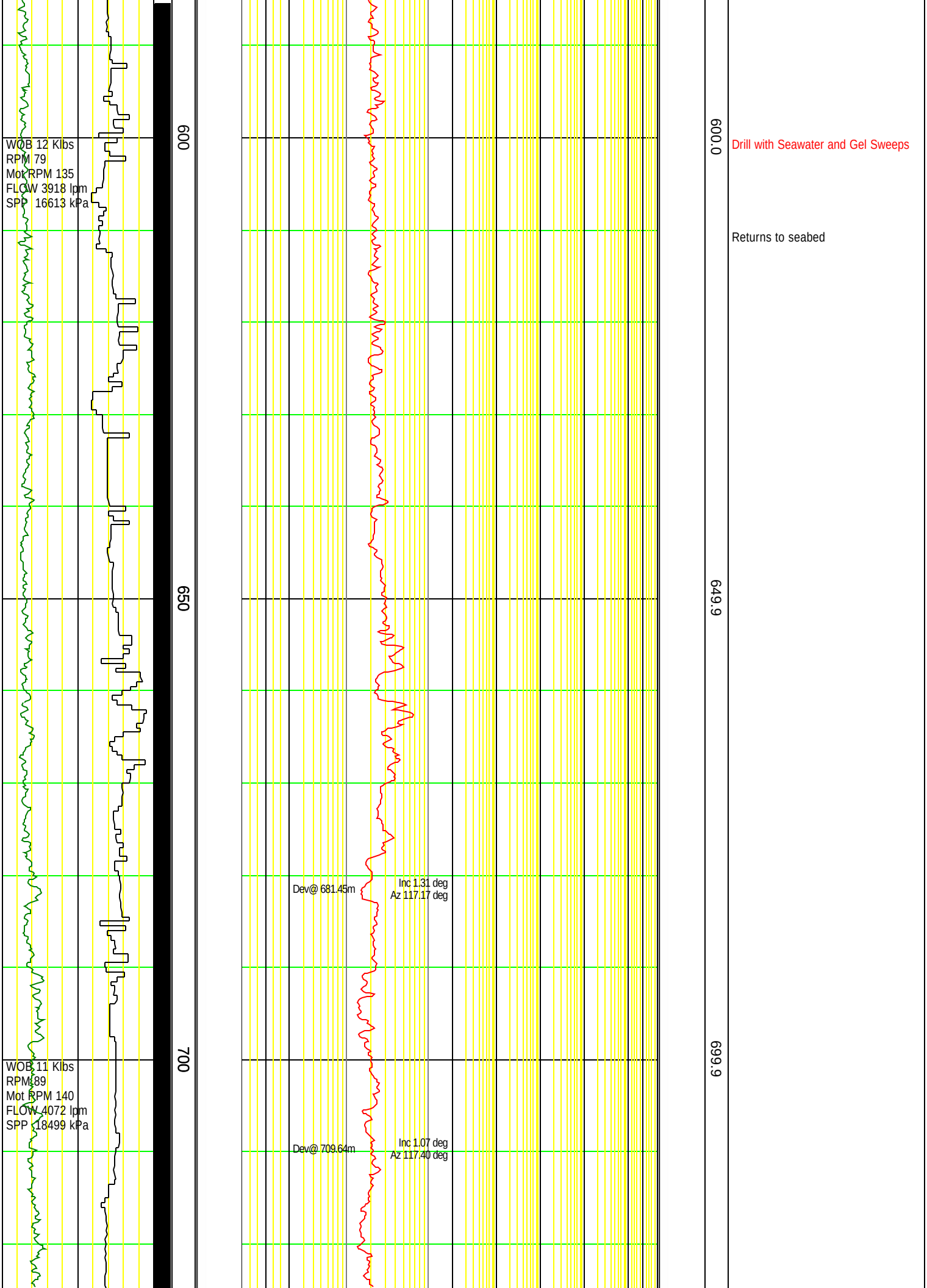
No Sample

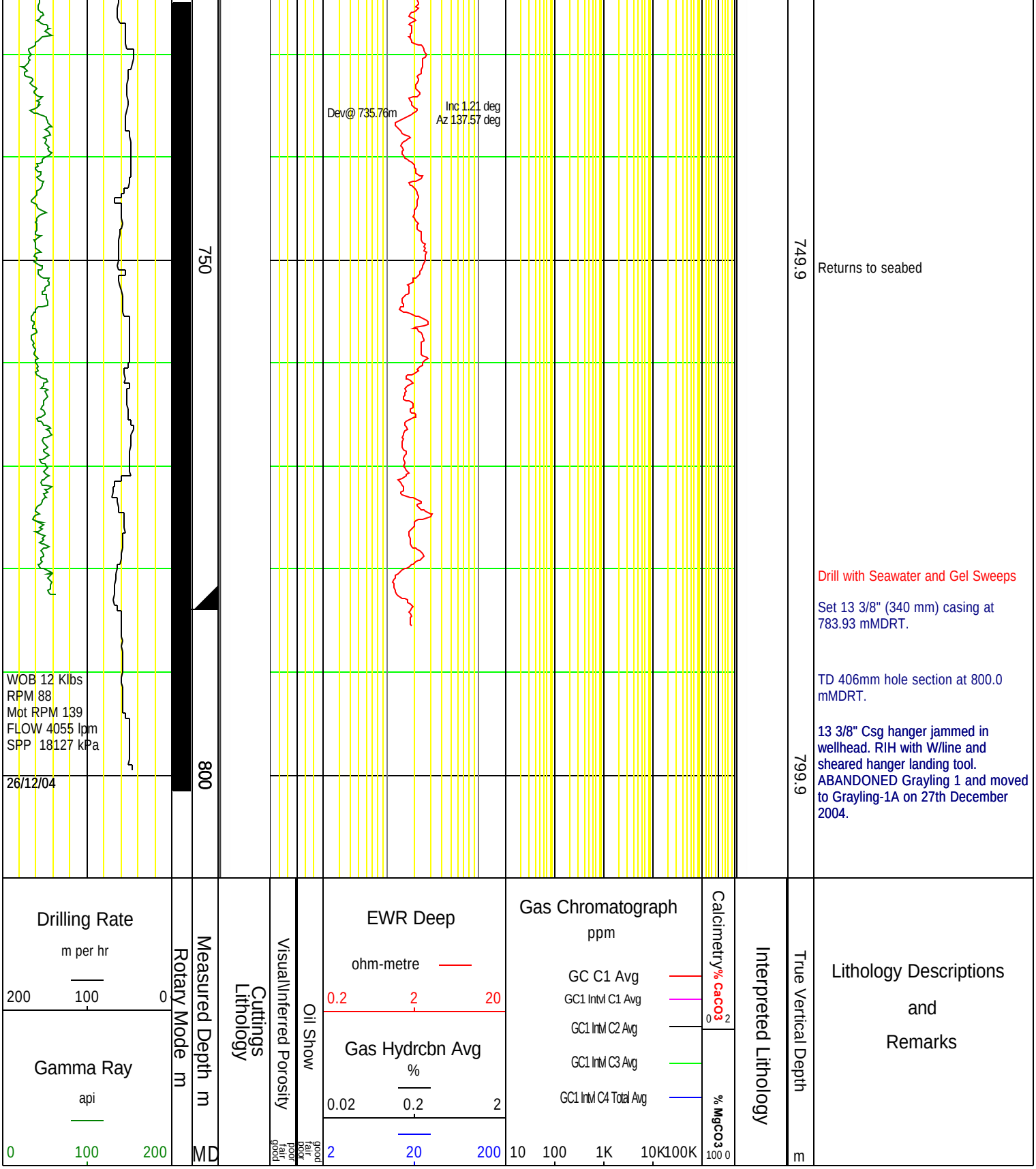



Dev@ 168.24m
Inc 0.96 deg
Az 152.16 deg
25/12/04
Dev@ 197.54m
Inc 0.47 deg
Az 169.84 deg
WOB 6-10 Klbs
RPM 81
Mot RPM 115
FLOW 3348 lpm
SPP 5112 kPa
200
250
300
200.0
250.0
300.0
FUNCTION TEST GAS SYSTEM
WOB 11 Klbs
RPM 72
Mot RPM 116
Returns to seabed


SPP 15402 kPa
350
WOB 11 Klbs
RPM 70
Mot RPM 139
FLOW 4061 lpm
SPP 16159 kPa
400
Dev@ 394.65m
Inc 0.43 deg
Az 128.97 deg
Dev@ 423.98m
Inc 0.36 deg
Az 137.16 deg
350.0
400.0
Drill with Seawater and Gel Sweeps


450
500
550
WOB 12 Klbs
RPM 81
Mot RPM 139
FLOW 4042 lpm
SPP 16972 kPa
Dev@ 452.05m
Inc 0.37 deg
Az 121.45 deg
Dev@ 479.01m
Inc 0.58 deg
Az 106.74 deg
Dev@ 509.69m
Inc 0.91 deg
Az 102.30 deg
Dev@ 568.10m
Inc 1.34 deg
Az 94.08 deg
450.0
500.0
550.0
Returns to seabed
FUNCTION TEST GAS SYSTEM


600
650
700
WOB 12 Klbs
RPM 79
Mot RPM 135
FLOW 3918 lpm
SPP 16613 kPa
WOB 11 Klbs
RPM 89
Mot RPM 140
FLOW 4072 lpm
SPP 18499 kPa
Dev@ 681.45m
Inc 1.31 deg
Az 117.17 deg
Dev@ 709.64m
Inc 1.07 deg
Az 117.40 deg
600.0
649.9
699.9
Drill with Seawater and Gel Sweeps
Returns to seabed


Dev@ 735.76m
Inc 1.21 deg
Az 137.57 deg
750
800
WOB 12 Klbs
RPM 88
Mot RPM 139
FLOW 4055 lpm
SPP 18127 kPa
26/12/04
749.9
799.9
Returns to seabed
Drill with Seawater and Gel Sweeps
Set 13 3/8" (340 mm) casing at 783.93 mMDRT.
TD 406mm hole section at 800.0 mMDRT.
13 3/8" Csg hanger jammed in wellhead. RIH with W/line and sheared hanger landing tool. ABANDONED Grayling 1 and moved to Grayling-1A on 27th December 2004.
Drilling Rate
m per hr
200 100 0
Gamma Ray
api
0 100 200
Rotary Mode m
Measured Depth m
MD
Cuttings Lithology
Visual\Inferred Porosity
poor fair good
Oil Show
poor fair good
EWR Deep
ohm-metre
0.2 2 20
Gas Hydrcbn Avg
%
0.02 0.2 2
2 20 200
Gas Chromatograph
ppm
GC C1 Avg
GC1 Intvl C1 Avg
GC1 Intvl C2 Avg
GC1 Intvl C3 Avg
GC1 Intvl C4 Total Avg
10 100 1K 10K 100K
Calcimetry % caco3
0 2
% Mgco3
100 0
Interpreted Lithology
True Vertical Depth
m
Lithology Descriptions and Remarks

HALLIBURTON

Sperry Drilling Services

1 : 500

BIG MONITORING

Formation Evaluation Log

Country : **Australia**

Field : **Exploration**

Location : **Lat: 38° 9' 40.28" South**
Long: 148° 17' 34.73" East

Well : **Grayling-1A**

Company : **Apache Energy Pty. Ltd.**

Rig : **Ocean Patriot**

LOCATION

Latitude : **38° 9' 40.28" South**
Longitude : **148° 17' 34.73" East**
UTM Easting = **613,273.61 m**
UTM Northing = **5,775,510.58 m**

Other Services

Permanent Datum : **AHD** Elevation : **0.00 m** Elev. KB **80.00 m**

Log Measured From : **Drill Floor** **21.50 m** Above Permanent Datum DF **80.00 m**

Drilling Measured From : **Drill Floor** GL **0.00 m**

WD **58.50 m**

MD LOG

Depth Logged : **80.00 m** To **2,914.00 m** Unit No. : **174** Job No. : **AUFE000329844**

Date Logged : **22-Dec-04** To **06-Jan-05**

Total Depth MD : **2,914.00 m** TVD : **2,913.33 m** Plot Type : **Final**

Spud Date : **23-Dec-04** Plot Date : **14-Jun-05**

Borehole Record (MD)

Run No.	Size	From	To
1	914.000 mm	80.00 m	114.00 m
2	406.000 mm	114.00 m	810.00 m
3	216.000 mm	810.00 m	2,740.00 m
4	216.000 mm	2,740.00 m	2,914.00 m

Borehole Record (MD)

Run No.	Size	From	To
1	762.000 mm	458.00 kgpm	80.00 m	112.30 m
2	340.000 mm	101.00 kgpm	80.00 m	796.24 m

Casing Record (MD)

LEGEND

Abbreviations and Symbols

Drilling Data

BG	Background Gas
BHT	Bottomhole Temp
C	Carbide Test
CB	Core Bit
CG	Connection Gas
CKF	Check For Flow
CO	Circulate Out
DB	Diamond Bit
DC	Depth Correction
DS	Direction Survey
DST	Drillstem Test
FLT	Flowline Temp.
LAT	Logged After Trip
NB	New Bit
NR	No Returns
PDC	Polycrystalline Diamond Compound Bit
PR	Partial Returns
RPM	Revs Per Minute
RRB	Rerun Bit
STG	Short Trip Gas
TB	Turbo Drill
TG	Trip Gas
U	Gas Units
WOB	Weight On Bit

Mud Data

Cl-	Chloride Ion Conc	Rm	Mud Resistivity
FC	Filter Cake	Rmf	Filtrate Resistivity
FL	Filtrate Loss	S	Solids Content
G	Gels	Vis	Funnel Viscosity
pH	Hydrogen Ion Content	MW	Mud Weight
PV	Plastic Viscosity	YP	Yield Point

Engineering Data

	Core No.		Water
	DST No.		Salt Water
	Casing Seat		Fresh Water
	Side Wall Core		Hydrocarbons Smell
	Gas Traces		H2S Smell
	Gas	RFT	Interval Tester
	Oil Traces	E-LOG	Wireline Log Run
	Oil	LOT	Leakoff Test

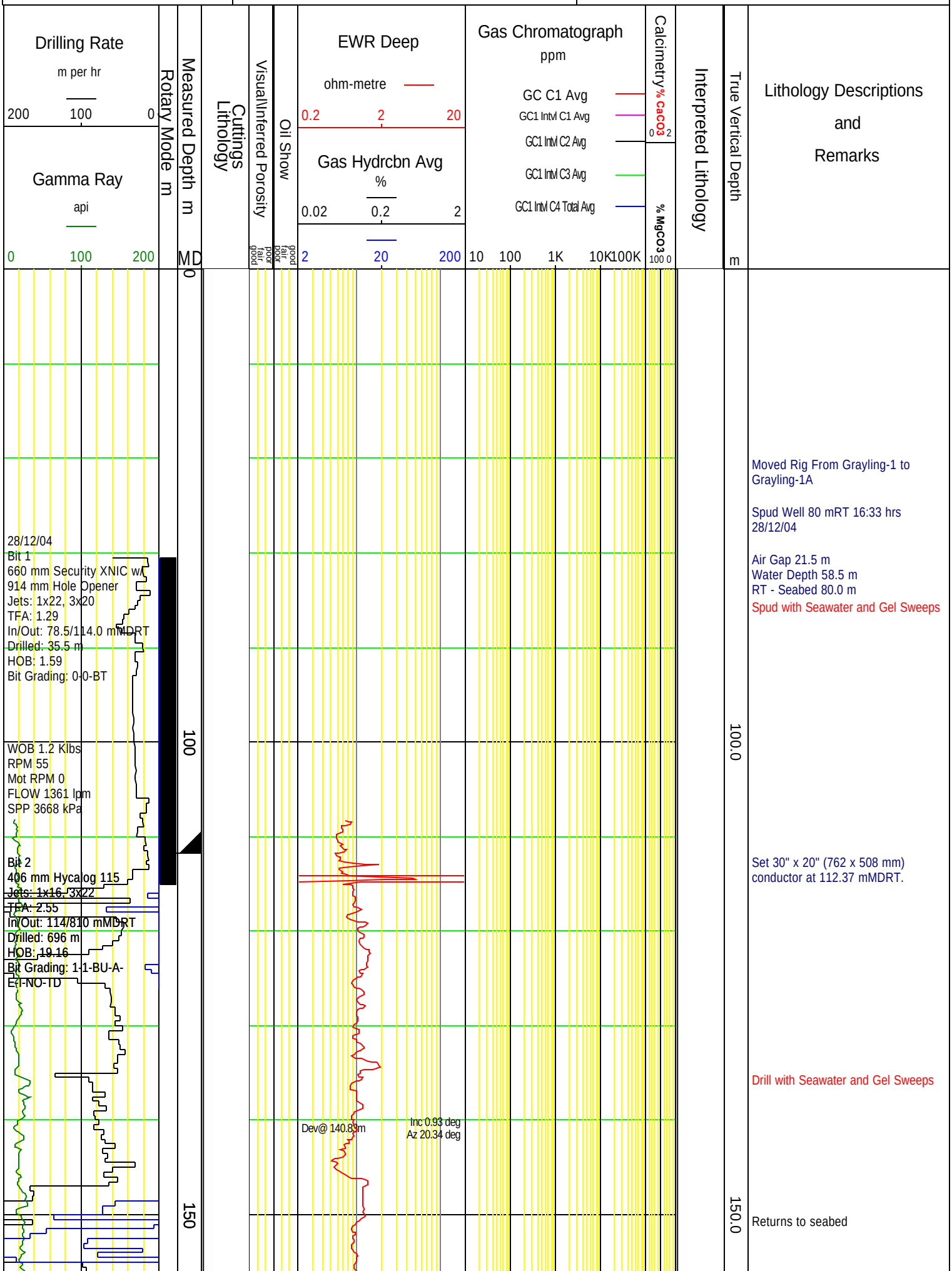
Lithology Symbols

	Sandstone		Limestone
	Silty Sandstone		Dolomite
	Silt		Marl
	Siltstone		Tuff
	Clay		Volcanics
	Claystone		Conglomerate
	Shale		Gravel
	Calcilutite		Halite
	Calcisiltite		COAL
	Calcarenite		

Bitumen

PIT Pressure Integrity Test

No Sample



Lithology Descriptions and Remarks

Moved Rig From Grayling-1 to Grayling-1A

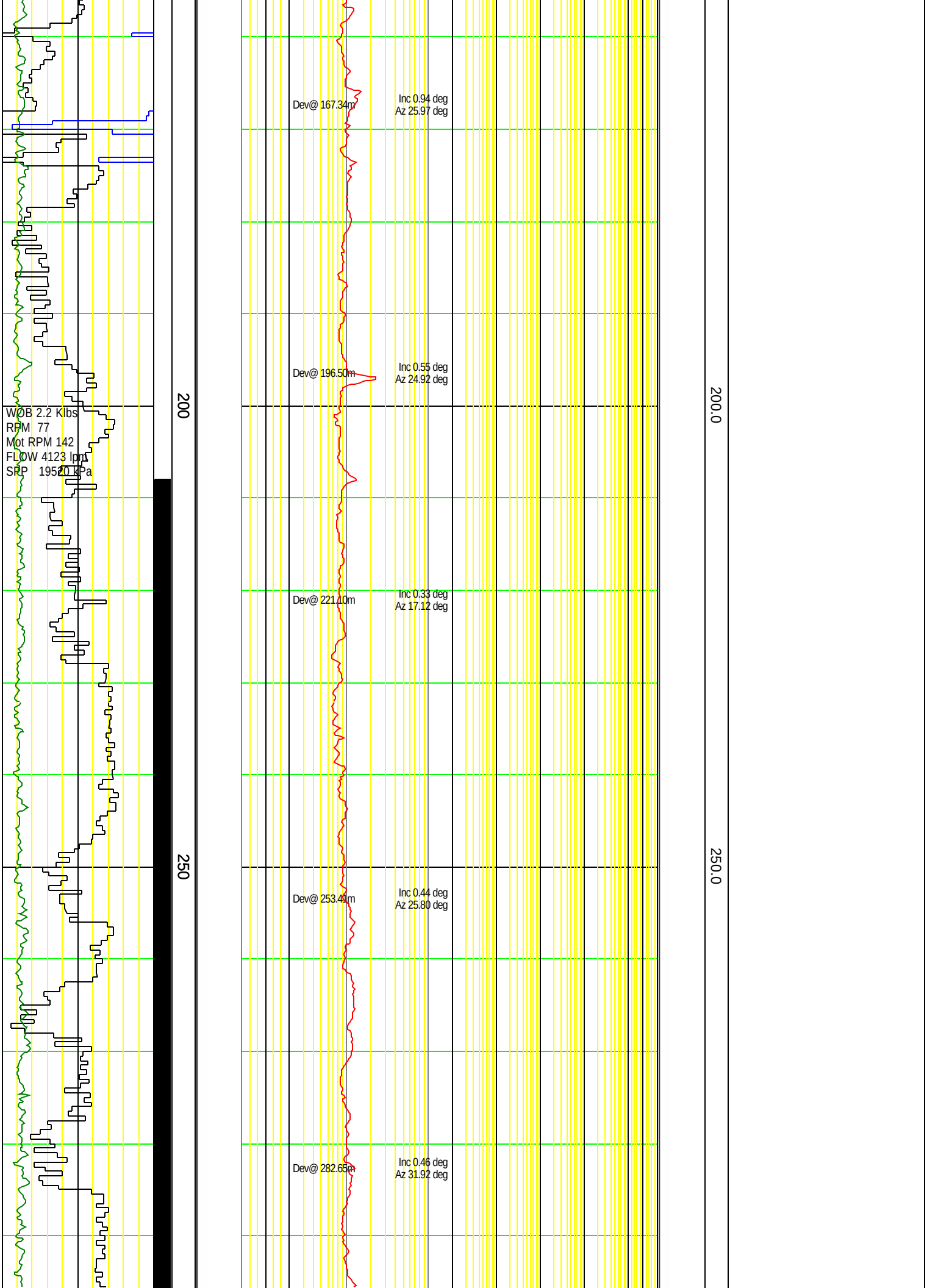
Spud Well 80 mRT 16:33 hrs 28/12/04

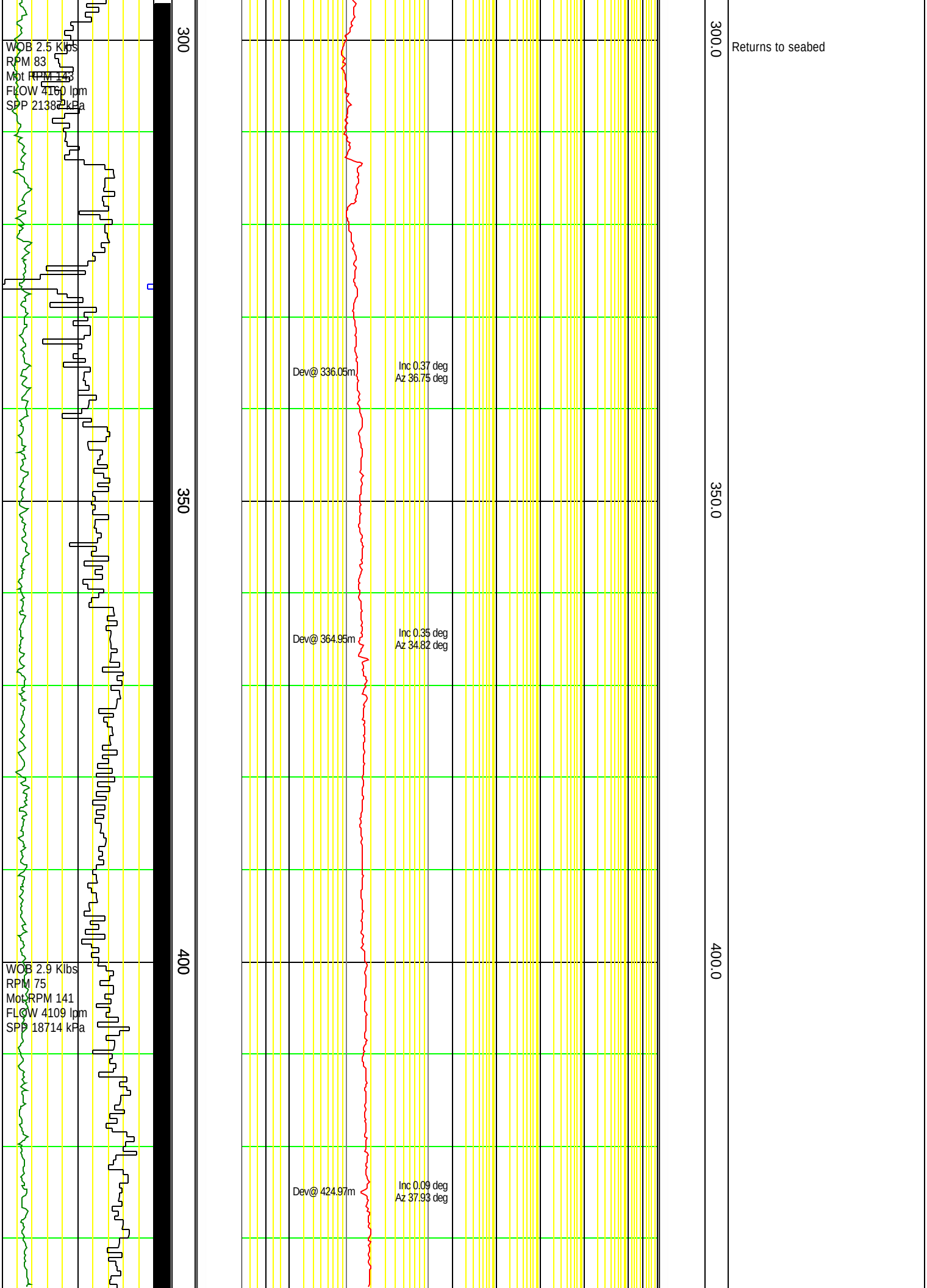
Air Gap 21.5 m
Water Depth 58.5 m
RT - Seabed 80.0 m
Spud with Seawater and Gel Sweeps

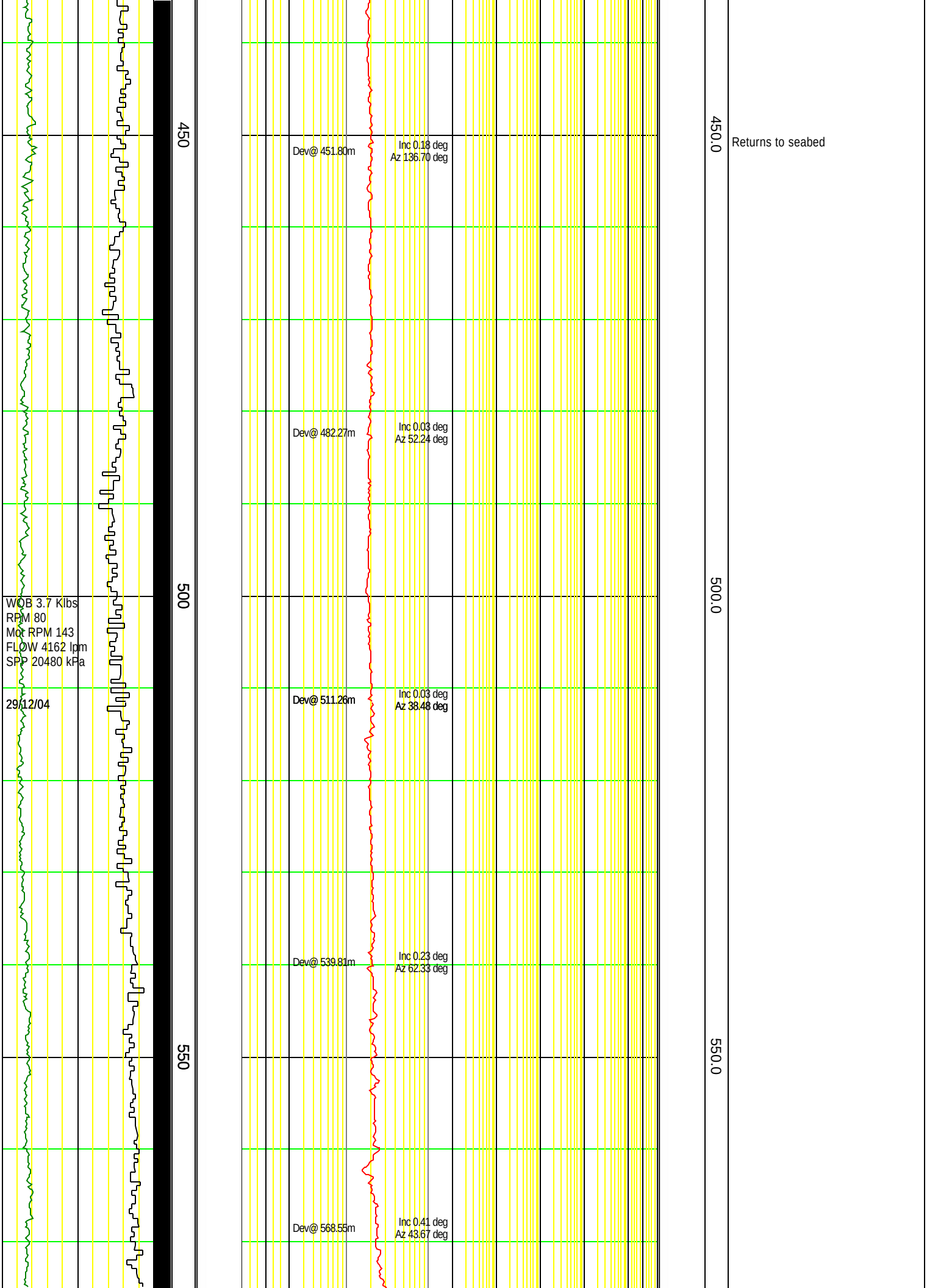
Set 30" x 20" (762 x 508 mm) conductor at 112.37 mMDRT.

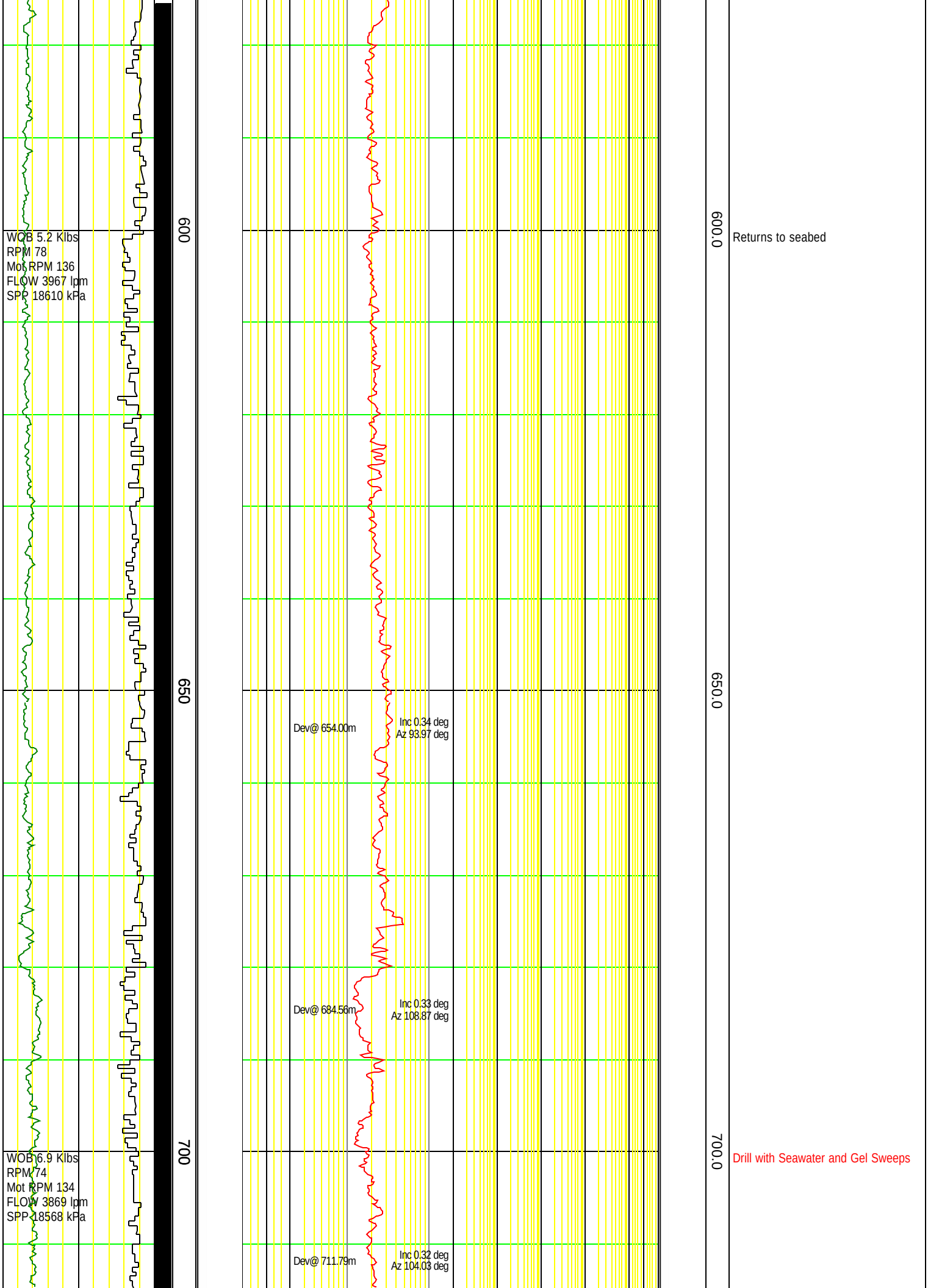
Drill with Seawater and Gel Sweeps

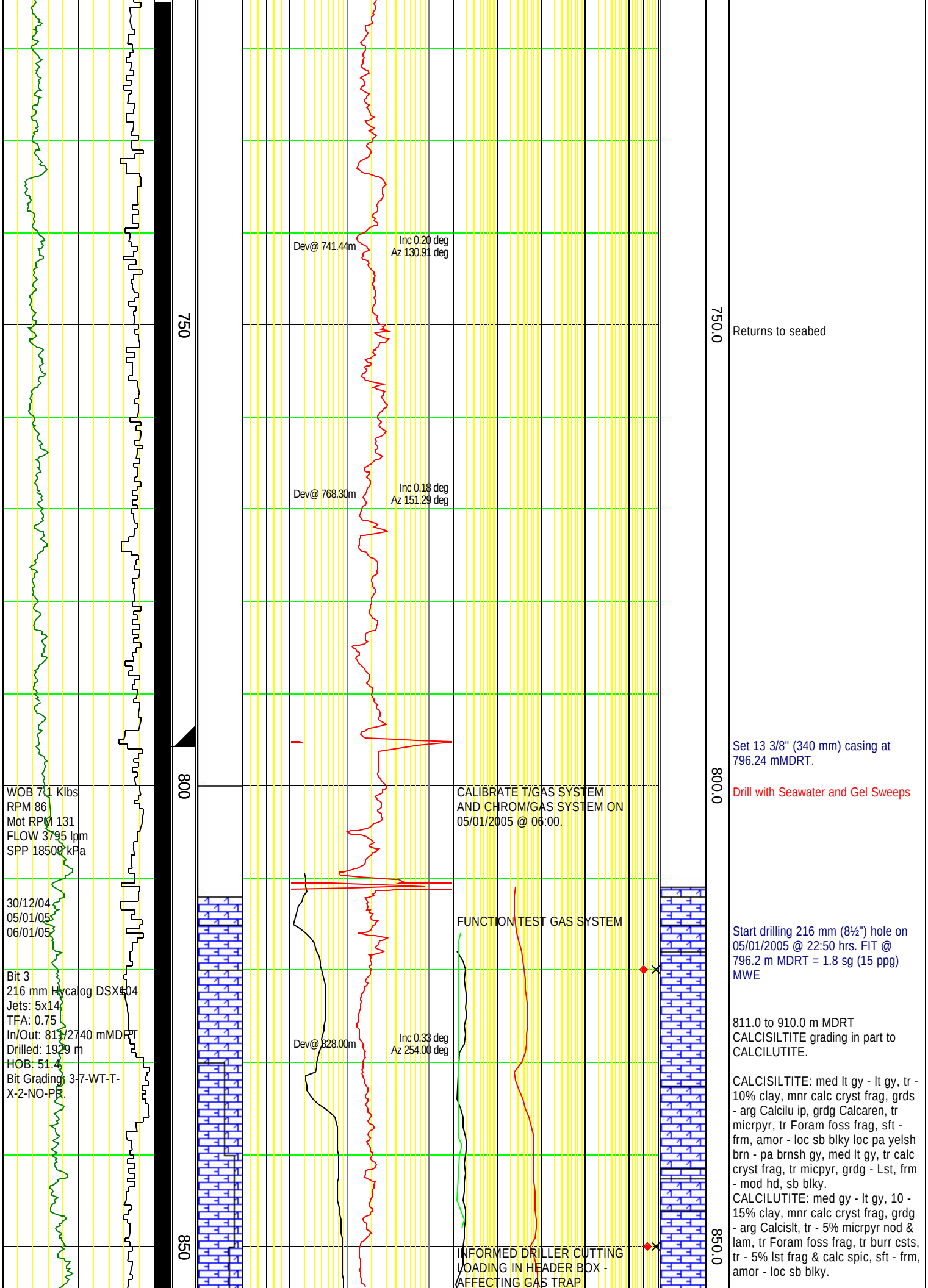
Returns to seabed

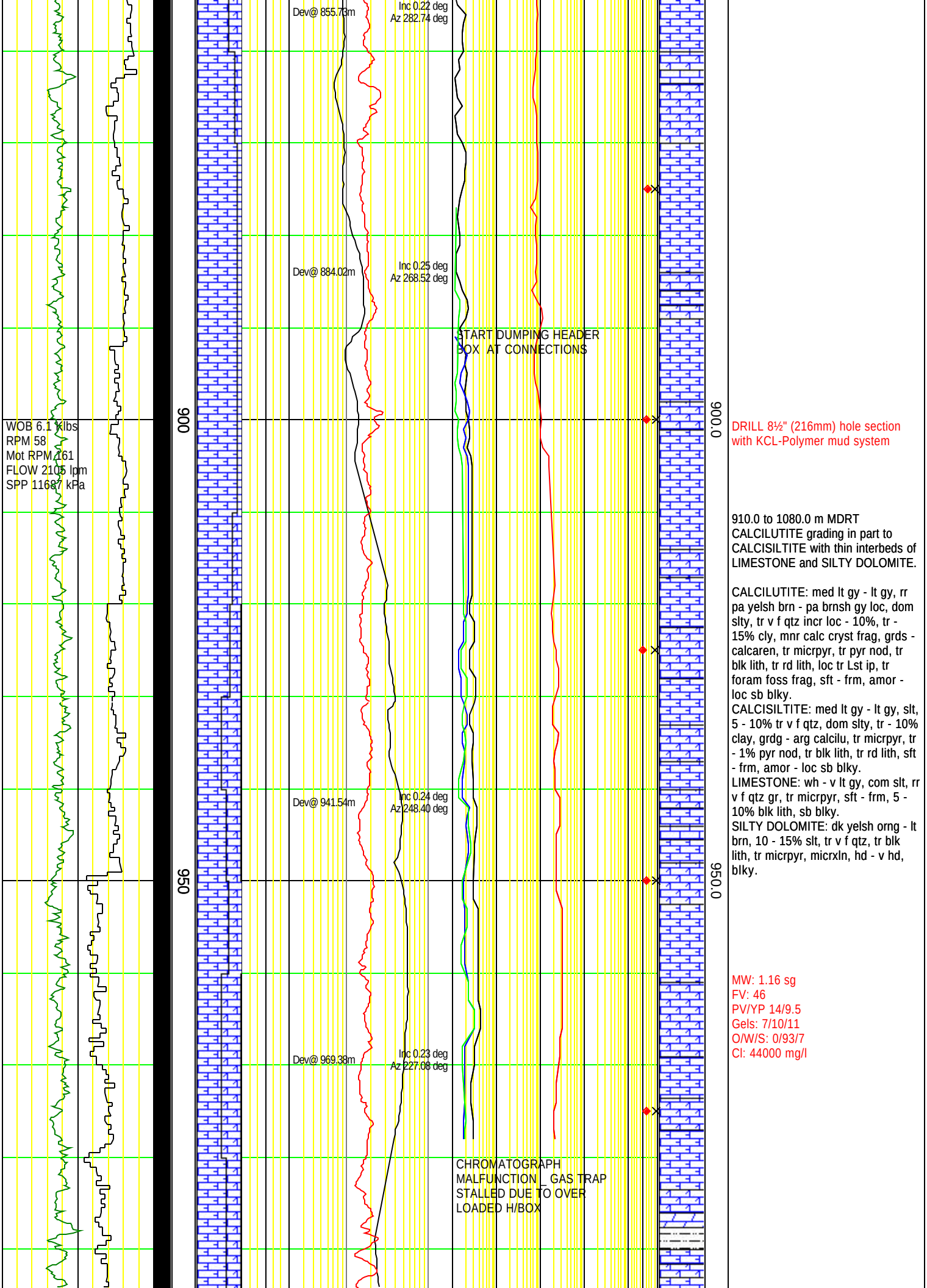

Dev@ 167.34m
Inc 0.94 deg
Az 25.97 deg
Dev@ 196.50m
Inc 0.55 deg
Az 24.92 deg
WOB 2.2 Klbs
RPM 77
Mot RPM 142
FLOW 4123 lpm
SPP 19520 kPa
Dev@ 221.10m
Inc 0.33 deg
Az 17.12 deg
Dev@ 253.41m
Inc 0.44 deg
Az 25.80 deg
Dev@ 282.65m
Inc 0.46 deg
Az 31.92 deg
200
250
200.0
250.0


300
350
400
300.0
350.0
400.0
Returns to seabed
WOB 2.5 Klbs
RPM 83
Mot RPM 143
FLOW 4160 lpm
SPP 21382 kPa
Dev@ 336.05m
Inc 0.37 deg
Az 36.75 deg
Dev@ 364.95m
Inc 0.35 deg
Az 34.82 deg
WOB 2.9 Klbs
RPM 75
Mot RPM 141
FLOW 4109 lpm
SPP 18714 kPa
Dev@ 424.97m
Inc 0.09 deg
Az 37.93 deg


450
500
550
WOB 3.7 Klbs
RPM 80
Mot RPM 143
FLOW 4162 lpm
SPP 20480 kPa
29/12/04
Dev@ 451.80m
Inc 0.18 deg
Az 136.70 deg
Dev@ 482.27m
Inc 0.03 deg
Az 52.24 deg
Dev@ 511.26m
Inc 0.03 deg
Az 38.48 deg
Dev@ 539.81m
Inc 0.23 deg
Az 62.33 deg
Dev@ 568.55m
Inc 0.41 deg
Az 43.67 deg
450.0
500.0
550.0
Returns to seabed


600
650
700
WOB 5.2 Klbs
RPM 78
Mot RPM 136
FLOW 3967 lpm
SPP 18610 kPa
WOB 6.9 Klbs
RPM 74
Mot RPM 134
FLOW 3869 lpm
SPP 18568 kPa
Dev@ 654.00m
Inc 0.34 deg
Az 93.97 deg
Dev@ 684.56m
Inc 0.33 deg
Az 108.87 deg
Dev@ 711.79m
Inc 0.32 deg
Az 104.03 deg
600.0
650.0
700.0
Returns to seabed
Drill with Seawater and Gel Sweeps


750
800
850
750.0
800.0
850.0
Dev@ 741.44m
Inc 0.20 deg
Az 130.91 deg
Dev@ 768.30m
Inc 0.18 deg
Az 151.29 deg
Dev@ 828.00m
Inc 0.33 deg
Az 254.00 deg
WOB 7.1 Klbs
RPM 86
Mot RPM 131
FLOW 3795 lpm
SPP 18509 kPa
30/12/04
05/01/05
06/01/05
Bit 3
216 mm Hycalog DSX604
Jets: 5x14
TFA: 0.75
In/Out: 813/2740 mMDRT
Drilled: 1929 m
HOB: 51.4
Bit Grading: 3-7-WT-T-X-2-NO-PR.
CALIBRATE T/GAS SYSTEM AND CHROM/GAS SYSTEM ON 05/01/2005 @ 06:00.
FUNCTION TEST GAS SYSTEM
INFORMED DRILLER CUTTING LOADING IN HEADER BOX - AFFECTING GAS TRAP
Returns to seabed
Set 13 3/8" (340 mm) casing at 796.24 mMDRT.
Drill with Seawater and Gel Sweeps
Start drilling 216 mm (8½") hole on 05/01/2005 @ 22:50 hrs. FIT @ 796.2 m MDRT = 1.8 sg (15 ppg) MWE
811.0 to 910.0 m MDRT
CALCISILTITE grading in part to CALCILUTITE.
CALCISILTITE: med lt gy - lt gy, tr - 10% clay, mnr calc cryst frag, grds - arg Calcilu ip, grdg Calcaren, tr micrpyr, tr Foram foss frag, sft - frm, amor - loc sb blky loc pa yelsh brn - pa brnsh gy, med lt gy, tr calc cryst frag, tr micpyr, grdg - Lst, frm - mod hd, sb blky.
CALCILUTITE: med gy - lt gy, 10 - 15% clay, mnr calc cryst frag, grdg - arg Calcislt, tr - 5% micrpyr nod & lam, tr Foram foss frag, tr burr csts, tr - 5% lst frag & calc spic, sft - frm, amor - loc sb blky.

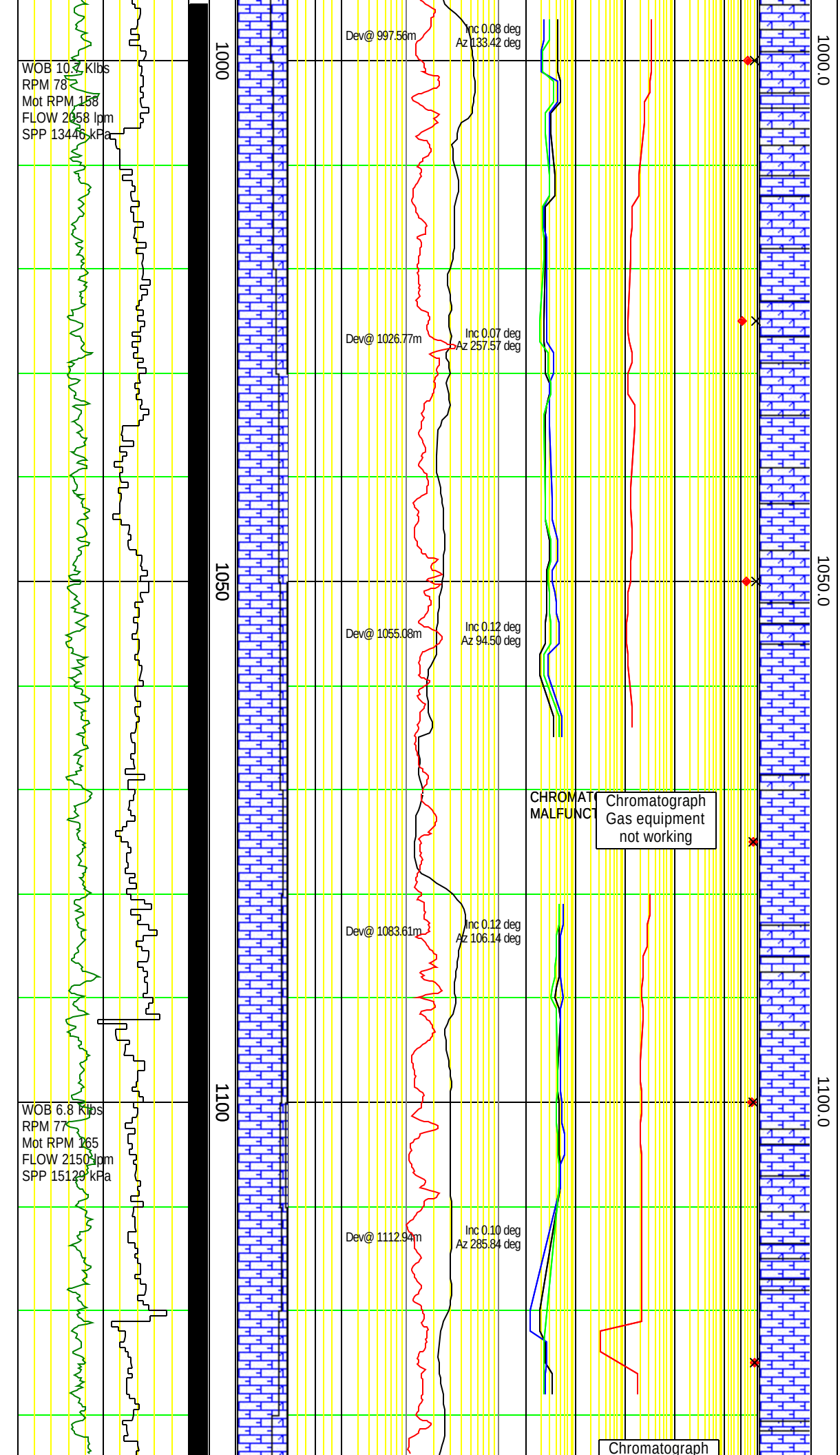


DRILL 8½" (216mm) hole section with KCL-Polymer mud system

910.0 to 1080.0 m MDRT
CALCILUTITE grading in part to CALCISILTITE with thin interbeds of LIMESTONE and SILTY DOLOMITE.

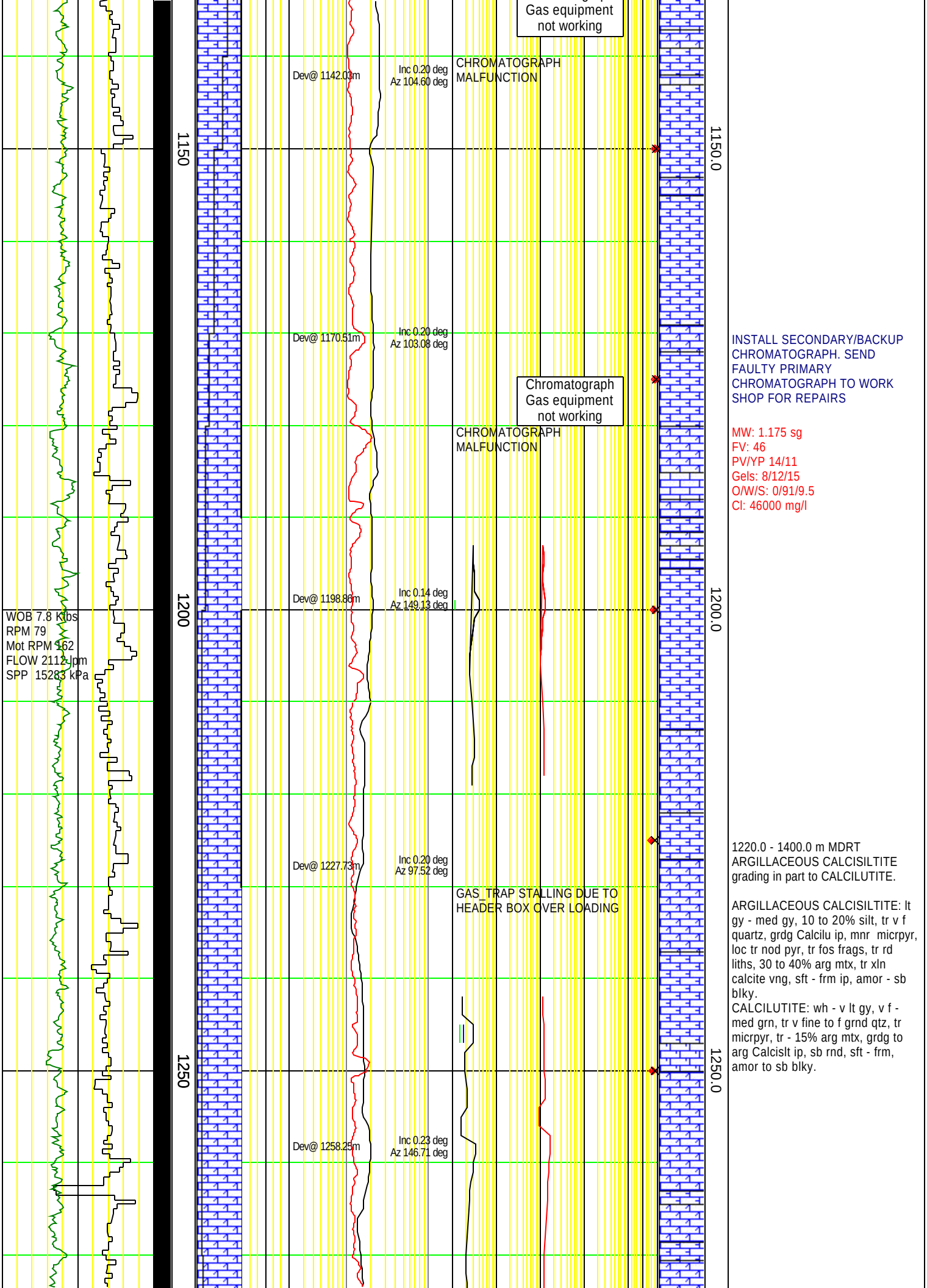
CALCILUTITE: med lt gy - lt gy, rr pa yelsh brn - pa brnsh gy loc, dom slty, tr v f qtz incr loc - 10%, tr - 15% cly, mnr calc cryst frag, grds - calcaren, tr micrpyr, tr pyr nod, tr blk lith, tr rd lith, loc tr Lst ip, tr foram foss frag, sft - frm, amor - loc sb blky.
CALCISILTITE: med lt gy - lt gy, slt, 5 - 10% tr v f qtz, dom slty, tr - 10% clay, grdg - arg calcilu, tr micrpyr, tr - 1% pyr nod, tr blk lith, tr rd lith, sft - frm, amor - loc sb blky.
LIMESTONE: wh - v lt gy, com slt, rr v f qtz gr, tr micrpyr, sft - frm, 5 - 10% blk lith, sb blky.
SILTY DOLOMITE: dk yelsh orng - lt brn, 10 - 15% slt, tr v f qtz, tr blk lith, tr micrpyr, micrxln, hd - v hd, blky.

MW: 1.16 sg
FV: 46
PV/YP 14/9.5
Gels: 7/10/11
O/W/S: 0/93/7
Cl: 44000 mg/l



1080.0 to 1220.0 m MDRT
CALCILUTITE grading in part to CALCISILTITE with rare CHERT beds and LIMESTONE.

CALCILUTITE: med gy - lt gy, 5 - 10% slt, mnr calc cryst frag, 10 - 20% cly mtx, grdg - arg calcilu ip, tr - 5% micrpyr, tr foss frag, sft - frm, sb blky, loc blky.
CALCISILTITE: wh v lt gy, v f - med gr, tr v f - f gr qtz, loc tr v f grnsh gy glauc, tr micrpyr, rr foss frag, 15% arg mtx, grdg - arg Calcisilt ip, sb rnd, sft - mod frm, sb blky.
CHERT: opaq - transl pa brn, tr - 5% micrpyr, hd - v hd, ang.
LIMESTONE: wh - v lt gy, com slt, rr v f qtz gr, tr micrpyr, sft - frm, 5 - 10% blk lith, sb blky.

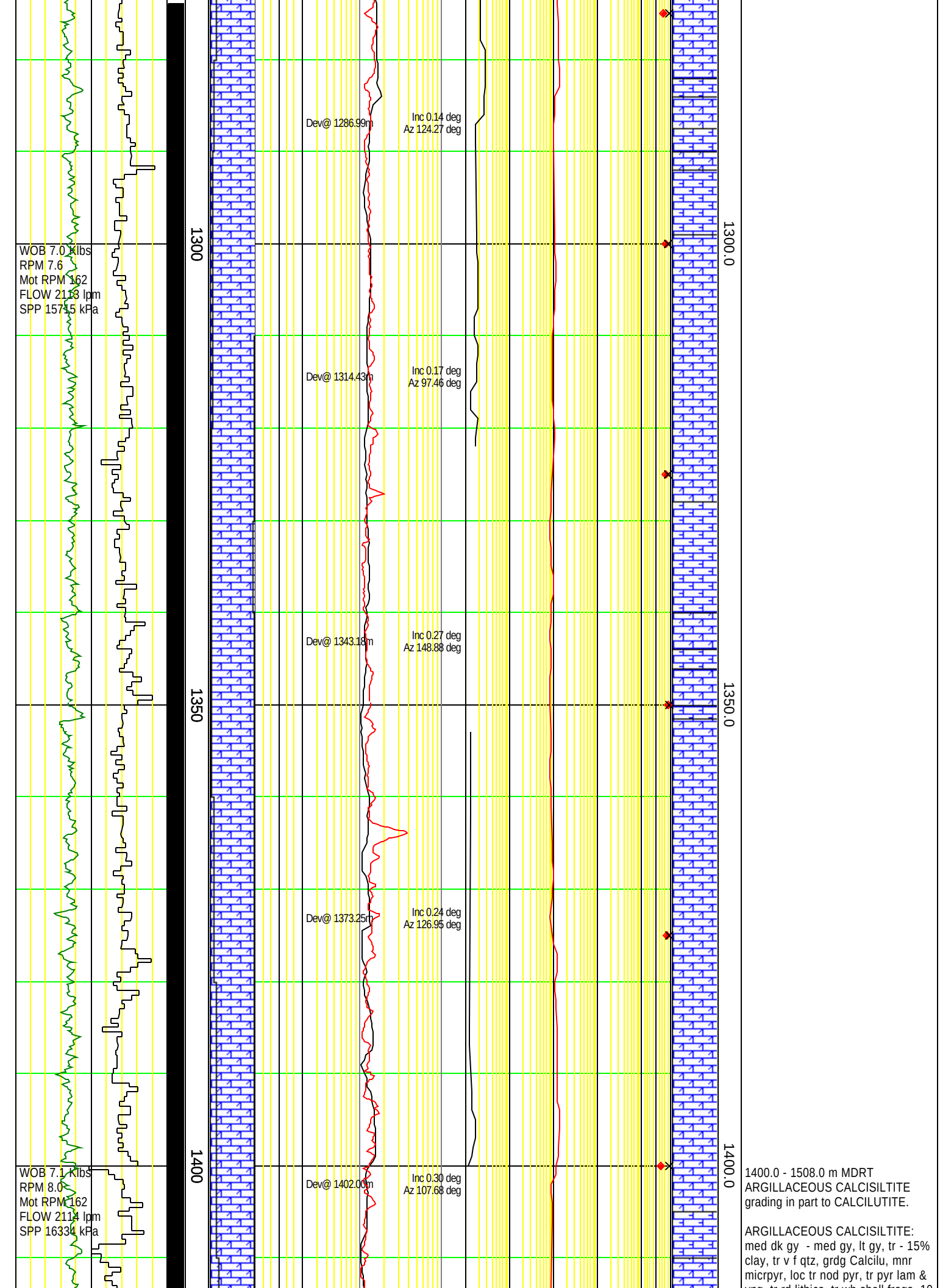


INSTALL SECONDARY/BACKUP CHROMATOGRAPH. SEND FAULTY PRIMARY CHROMATOGRAPH TO WORK SHOP FOR REPAIRS

MW: 1.175 sg
FV: 46
PV/YP 14/11
Gels: 8/12/15
O/W/S: 0/91/9.5
Cl: 46000 mg/l

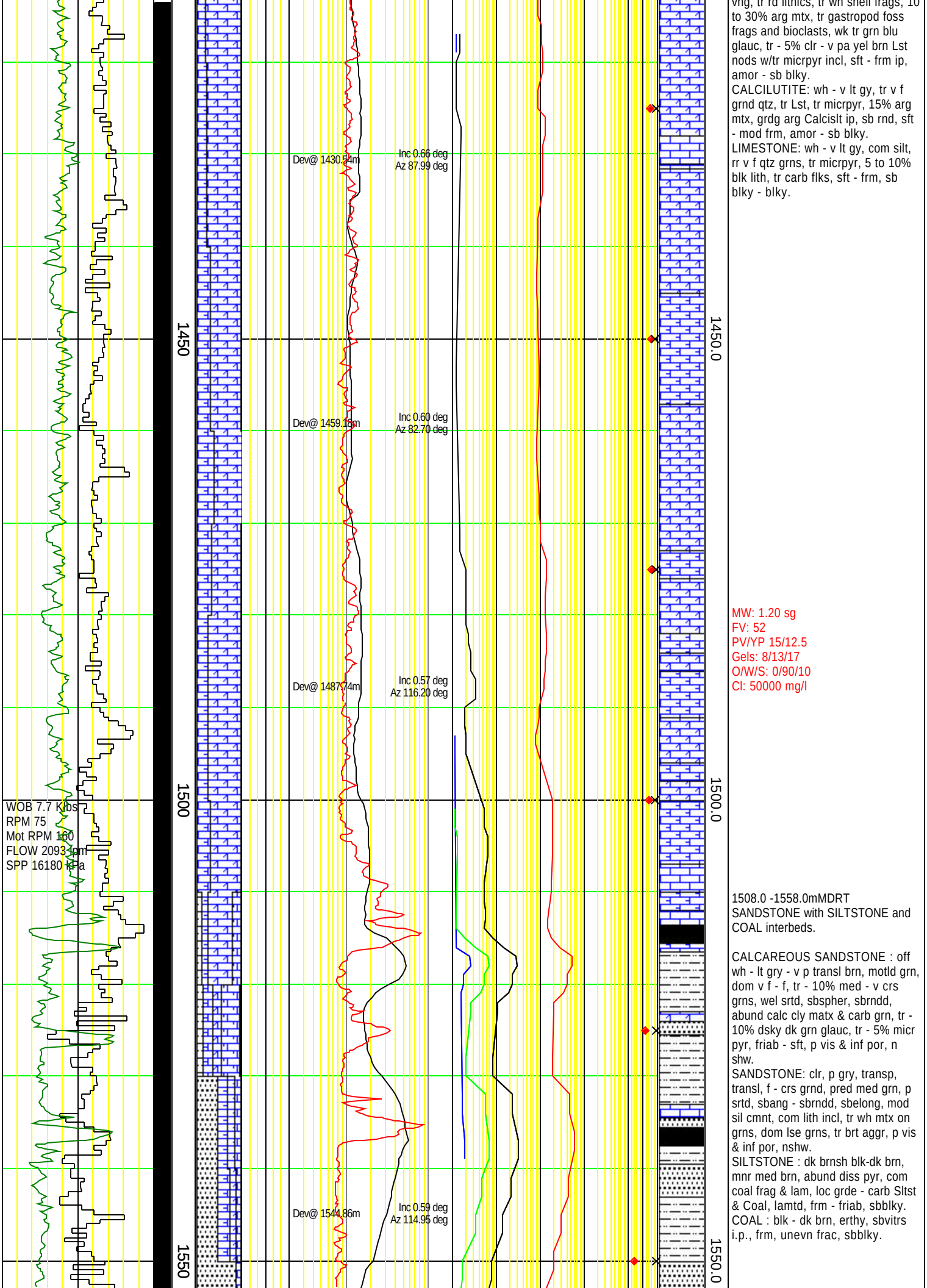
1220.0 - 1400.0 m MDRT
ARGILLACEOUS CALCISILTITE grading in part to CALCILUTITE.

ARGILLACEOUS CALCISILTITE: lt gy - med gy, 10 to 20% silt, tr v f quartz, grdg Calcilu ip, mnr micrpyr, loc tr nod pyr, tr fos frags, tr rd liths, 30 to 40% arg mtx, tr xln calcite vng, sft - frm ip, amor - sb blky.
CALCILUTITE: wh - v lt gy, v f - med grn, tr v fine to f grnd qtz, tr micrpyr, tr - 15% arg mtx, grdg to arg Calcislt ip, sb rnd, sft - frm, amor to sb blky.



1400.0 - 1508.0 m MDRT
ARGILLACEOUS CALCISILTITE grading in part to CALCILUTITE.

ARGILLACEOUS CALCISILTITE: med dk gy - med gy, lt gy, tr - 15% clay, tr v f qtz, grdg Calcilu, mnr micrpyr, loc tr nod pyr, tr pyr lam &

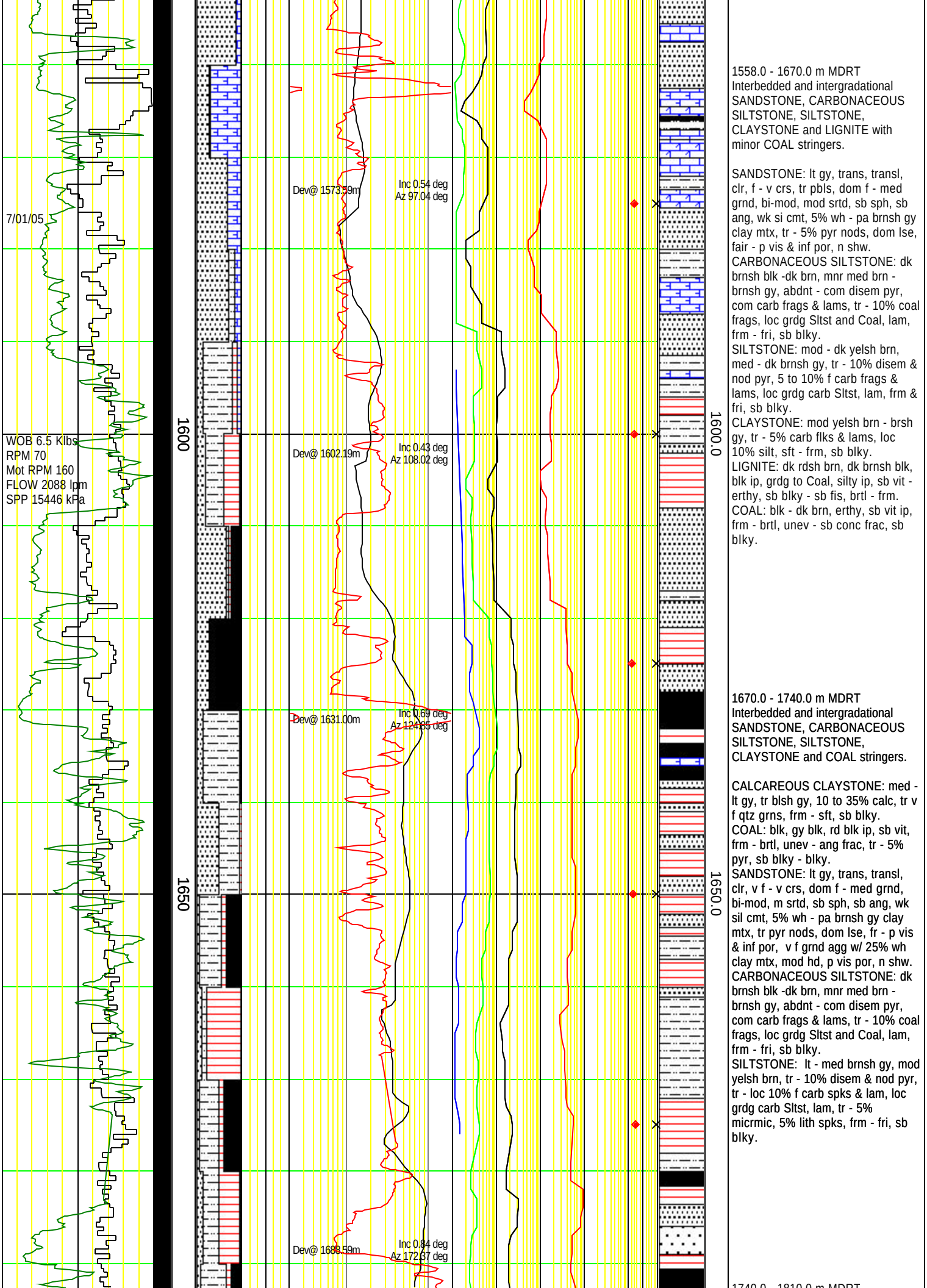


vng, tr rd lithics, tr wh shell frags, 10 to 30% arg mtx, tr gastropod foss frags and bioclasts, wk tr grn blu glauc, tr - 5% clr - v pa yel brn Lst nods w/tr micrpyr incl, sft - frm ip, amor - sb blky.
CALCILUTITE: wh - v lt gy, tr v f grnd qtz, tr Lst, tr micrpyr, 15% arg mtx, grdg arg Calcislt ip, sb rnd, sft - mod frm, amor - sb blky.
LIMESTONE: wh - v lt gy, com silt, rr v f qtz grns, tr micrpyr, 5 to 10% blk lith, tr carb flks, sft - frm, sb blky - blky.

MW: 1.20 sg
FV: 52
PV/YP 15/12.5
Gels: 8/13/17
O/W/S: 0/90/10
Cl: 50000 mg/l

1508.0 -1558.0mMDRT
SANDSTONE with SILTSTONE and COAL interbeds.

CALCAREOUS SANDSTONE : off wh - lt gry - v p transl brn, motld grn, dom v f - f, tr - 10% med - v crs grns, wel srtd, sbspher, sbrndd, abund calc cly matx & carb grn, tr - 10% dsky dk grn glauc, tr - 5% micr pyr, friab - sft, p vis & inf por, n shw.
SANDSTONE: clr, p gry, transp, transl, f - crs grnd, pred med grn, p srtd, sbang - sbrndd, sbelong, mod sil cmnt, com lith incl, tr wh mtx on grns, dom lse grns, tr brt aggr, p vis & inf por, nshw.
SILTSTONE : dk brnsh blk-dk brn, mnr med brn, abund diss pyr, com coal frag & lam, loc grde - carb Sltst & Coal, lamtd, frm - friab, sbblky.
COAL : blk - dk brn, erthy, sbvitrs i.p., frm, unevn frac, sbblky.

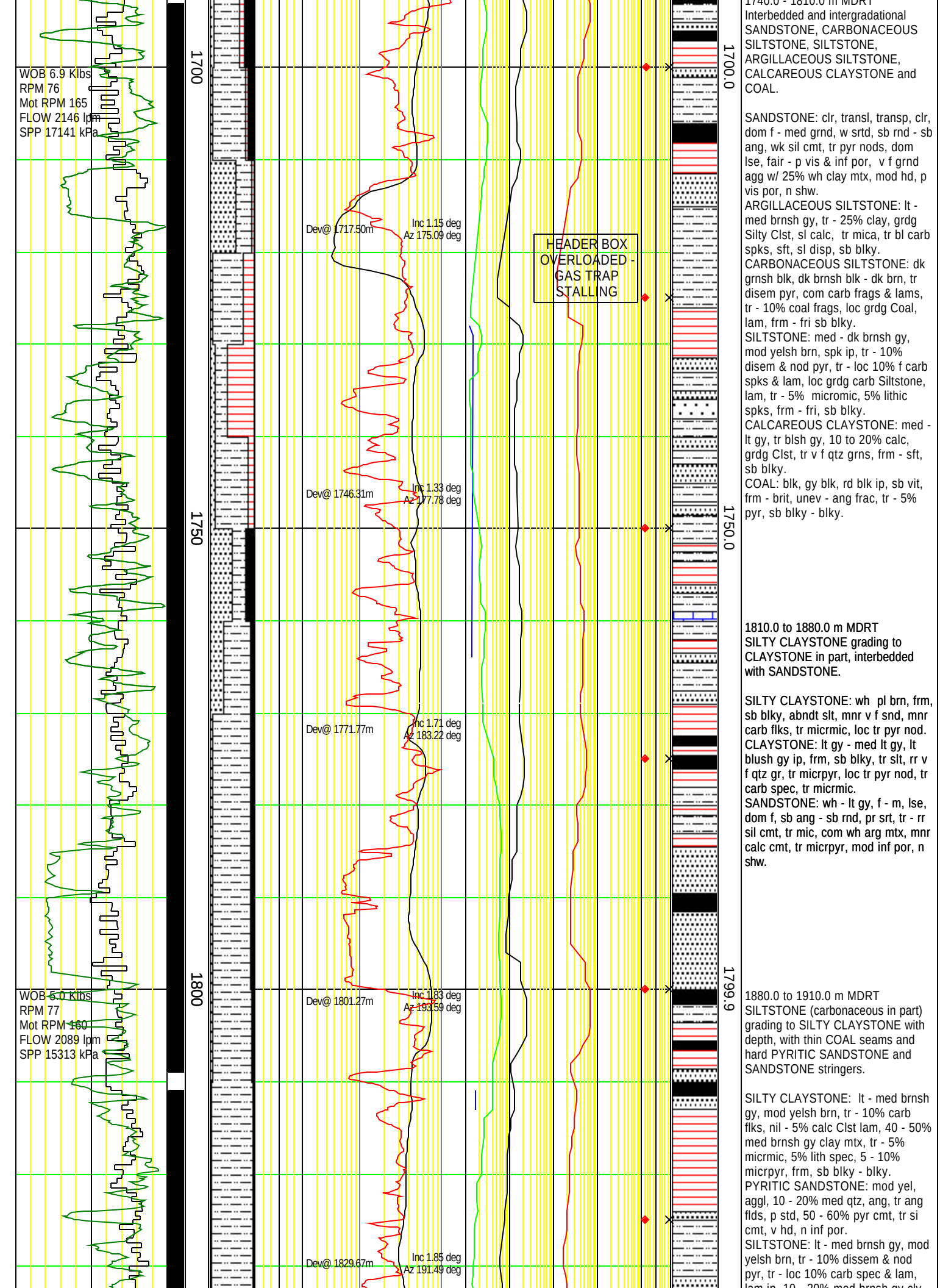


1558.0 - 1670.0 m MDRT
Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, CLAYSTONE and LIGNITE with minor COAL stringers.

SANDSTONE: lt gy, trans, transl, clr, f - v crs, tr pbls, dom f - med grnd, bi-mod, mod srtd, sb sph, sb ang, wk si cmt, 5% wh - pa brnsh gy clay mtx, tr - 5% pyr nods, dom lse, fair - p vis & inf por, n shw.
CARBONACEOUS SILTSTONE: dk brnsh blk -dk brn, mnr med brn - brnsh gy, abdnt - com disem pyr, com carb frags & lams, tr - 10% coal frags, loc grdg Sltst and Coal, lam, frm - fri, sb blky.
SILTSTONE: mod - dk yelsh brn, med - dk brnsh gy, tr - 10% disem & nod pyr, 5 to 10% f carb frags & lams, loc grdg carb Sltst, lam, frm & fri, sb blky.
CLAYSTONE: mod yelsh brn - brsh gy, tr - 5% carb flks & lams, loc 10% silt, sft - frm, sb blky.
LIGNITE: dk rdsh brn, dk brnsh blk, blk ip, grdg to Coal, silty ip, sb vit - erthy, sb blky - sb fis, brtl - frm.
COAL: blk - dk brn, erthy, sb vit ip, frm - brtl, unev - sb conc frac, sb blky.

1670.0 - 1740.0 m MDRT
Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, CLAYSTONE and COAL stringers.

CALCAREOUS CLAYSTONE: med - lt gy, tr blsh gy, 10 to 35% calc, tr v f qtz grns, frm - sft, sb blky.
COAL: blk, gy blk, rd blk ip, sb vit, frm - brtl, unev - ang frac, tr - 5% pyr, sb blky - blky.
SANDSTONE: lt gy, trans, transl, clr, v f - v crs, dom f - med grnd, bi-mod, m srtd, sb sph, sb ang, wk sil cmt, 5% wh - pa brnsh gy clay mtx, tr pyr nods, dom lse, fr - p vis & inf por, v f grnd agg w/ 25% wh clay mtx, mod hd, p vis por, n shw.
CARBONACEOUS SILTSTONE: dk brnsh blk -dk brn, mnr med brn - brnsh gy, abdnt - com disem pyr, com carb frags & lams, tr - 10% coal frags, loc grdg Sltst and Coal, lam, frm - fri, sb blky.
SILTSTONE: lt - med brnsh gy, mod yelsh brn, tr - 10% disem & nod pyr, tr - loc 10% f carb spks & lam, loc grdg carb Sltst, lam, tr - 5% micrmic, 5% lith spks, frm - fri, sb blky.



1740.0 - 1810.0 m MDRT
Interbedded and intergradational SANDSTONE, CARBONACEOUS SILTSTONE, SILTSTONE, ARGILLACEOUS SILTSTONE, CALCAREOUS CLAYSTONE and COAL.

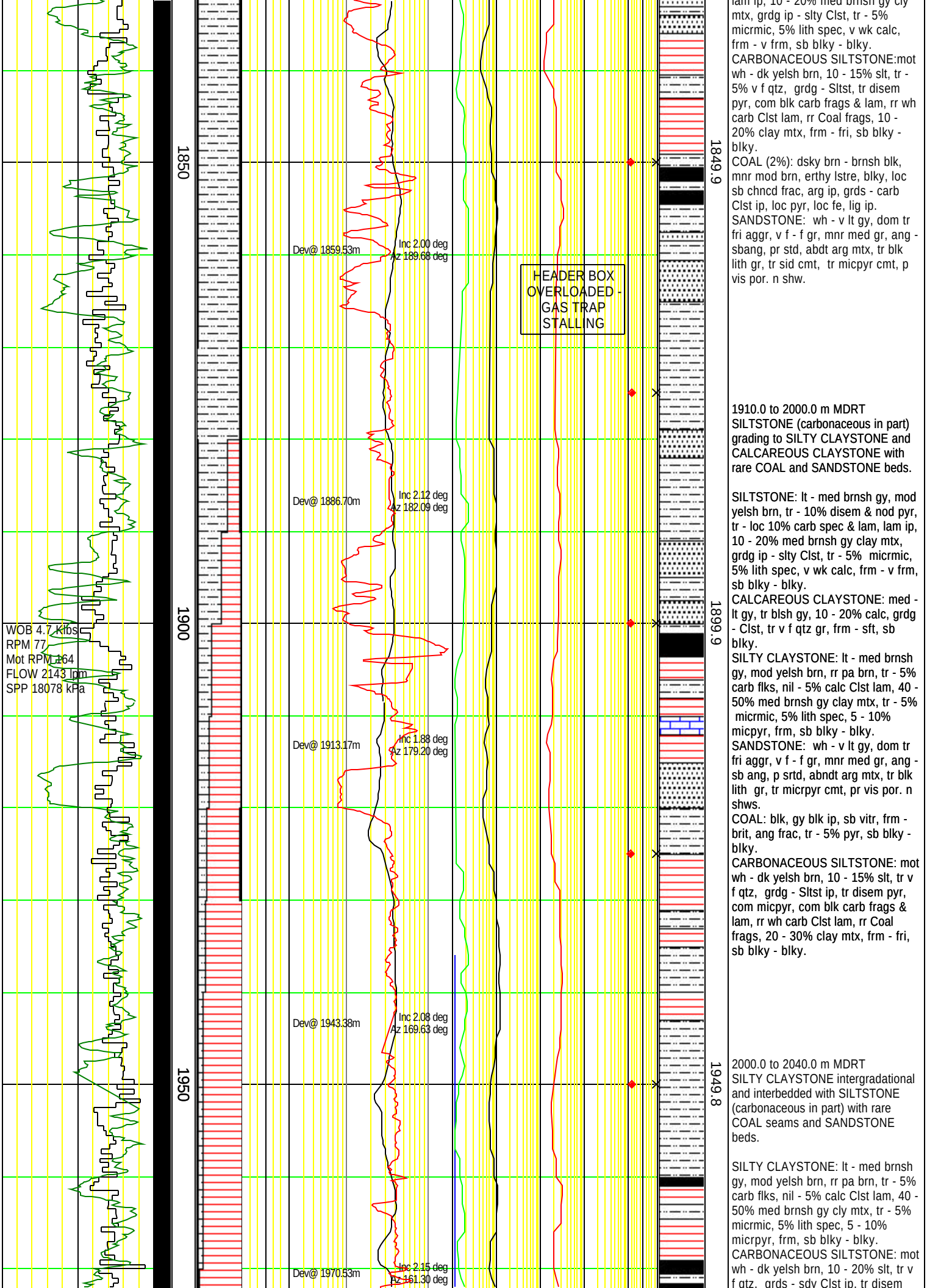
SANDSTONE: clr, transl, transp, clr, dom f - med grnd, w srtd, sb rnd - sb ang, wk sil cmt, tr pyr nods, dom lse, fair - p vis & inf por, v f grnd agg w/ 25% wh clay mtx, mod hd, p vis por, n shw.
ARGILLACEOUS SILTSTONE: lt - med brnsh gy, tr - 25% clay, grdg Silty Clst, sl calc, tr mica, tr bl carb spks, sft, sl disp, sb blky.
CARBONACEOUS SILTSTONE: dk grnsh blk, dk brnsh blk - dk brn, tr disem pyr, com carb frags & lams, tr - 10% coal frags, loc grdg Coal, lam, frm - fri sb blky.
SILTSTONE: med - dk brnsh gy, mod yelsh brn, spk ip, tr - 10% disem & nod pyr, tr - loc 10% f carb spks & lam, loc grdg carb Siltstone, lam, tr - 5% micromic, 5% lithic spks, frm - fri, sb blky.
CALCAREOUS CLAYSTONE: med - lt gy, tr blsh gy, 10 to 20% calc, grdg Clst, tr v f qtz grns, frm - sft, sb blky.
COAL: blk, gy blk, rd blk ip, sb vit, frm - brit, unev - ang frac, tr - 5% pyr, sb blky - blky.

1810.0 to 1880.0 m MDRT
SILTY CLAYSTONE grading to CLAYSTONE in part, interbedded with SANDSTONE.

SILTY CLAYSTONE: wh pl brn, frm, sb blky, abndt slt, mnr v f snd, mnr carb flks, tr micrmic, loc tr pyr nod.
CLAYSTONE: lt gy - med lt gy, lt blush gy ip, frm, sb blky, tr slt, rr v f qtz gr, tr micrpyr, loc tr pyr nod, tr carb spec, tr micrmic.
SANDSTONE: wh - lt gy, f - m, lse, dom f, sb ang - sb rnd, pr srt, tr - rr sil cmt, tr mic, com wh arg mtx, mnr calc cmt, tr micrpyr, mod inf por, n shw.

1880.0 to 1910.0 m MDRT
SILTSTONE (carbonaceous in part) grading to SILTY CLAYSTONE with depth, with thin COAL seams and hard PYRITIC SANDSTONE and SANDSTONE stringers.

SILTY CLAYSTONE: lt - med brnsh gy, mod yelsh brn, tr - 10% carb flks, nil - 5% calc Clst lam, 40 - 50% med brnsh gy clay mtx, tr - 5% micrmic, 5% lith spec, 5 - 10% micrpyr, frm, sb blky - blky.
PYRITIC SANDSTONE: mod yel, aggl, 10 - 20% med qtz, ang, tr ang flds, p std, 50 - 60% pyr cmt, tr si cmt, v hd, n inf por.
SILTSTONE: lt - med brnsh gy, mod yelsh brn, tr - 10% dissem & nod pyr, tr - loc 10% carb spec & lam,



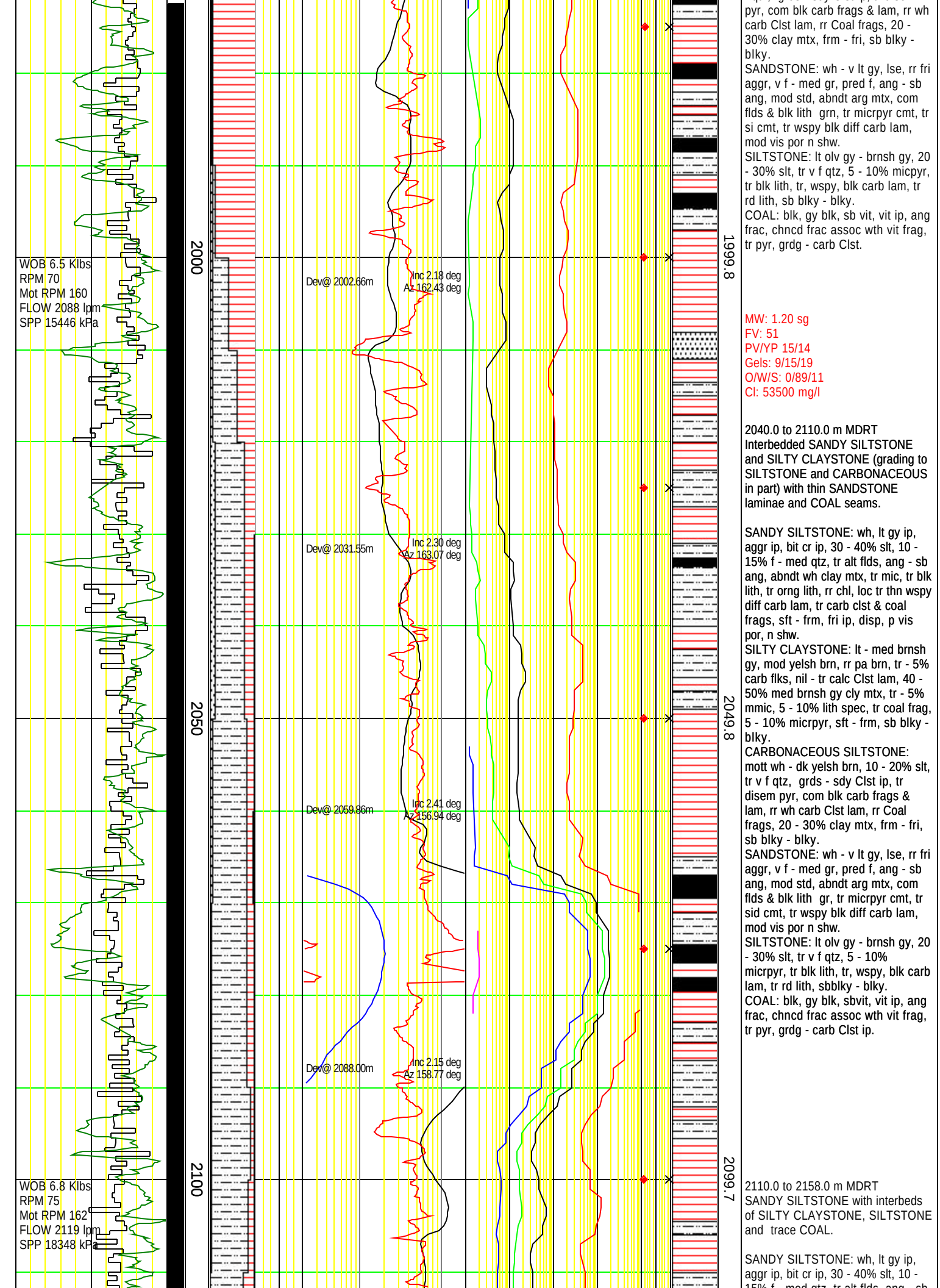
lam ip, 10 - 20% med brnsh gy cly mtx, grdg ip - slty Clst, tr - 5% micrmic, 5% lith spec, v wk calc, frm - v frm, sb blky - blky.
CARBONACEOUS SILTSTONE:mot wh - dk yelsh brn, 10 - 15% slt, tr - 5% v f qtz, grdg - Sltst, tr disem pyr, com blk carb frags & lam, rr wh carb Clst lam, rr Coal frags, 10 - 20% clay mtx, frm - fri, sb blky - blky.
COAL (2%): dsky brn - brnsh blk, mnr mod brn, erthy lstre, blky, loc sb chncd frac, arg ip, grds - carb Clst ip, loc pyr, loc fe, lig ip.
SANDSTONE: wh - v lt gy, dom tr fri aggr, v f - f gr, mnr med gr, ang - sbang, pr std, abdt arg mtx, tr blk lith gr, tr sid cmt, tr micpyr cmt, p vis por. n shw.

1910.0 to 2000.0 m MDRT
SILTSTONE (carbonaceous in part) grading to SILTY CLAYSTONE and CALCAREOUS CLAYSTONE with rare COAL and SANDSTONE beds.

SILTSTONE: lt - med brnsh gy, mod yelsh brn, tr - 10% disem & nod pyr, tr - loc 10% carb spec & lam, lam ip, 10 - 20% med brnsh gy clay mtx, grdg ip - slty Clst, tr - 5% micrmic, 5% lith spec, v wk calc, frm - v frm, sb blky - blky.
CALCAREOUS CLAYSTONE: med - lt gy, tr blsh gy, 10 - 20% calc, grdg - Clst, tr v f qtz gr, frm - sft, sb blky.
SILTY CLAYSTONE: lt - med brnsh gy, mod yelsh brn, rr pa brn, tr - 5% carb flks, nil - 5% calc Clst lam, 40 - 50% med brnsh gy clay mtx, tr - 5% micrmic, 5% lith spec, 5 - 10% micpyr, frm, sb blky - blky.
SANDSTONE: wh - v lt gy, dom tr fri aggr, v f - f gr, mnr med gr, ang - sb ang, p srtd, abndt arg mtx, tr blk lith gr, tr micrpyr cmt, pr vis por. n shws.
COAL: blk, gy blk ip, sb vitr, frm - brit, ang frac, tr - 5% pyr, sb blky - blky.
CARBONACEOUS SILTSTONE: mot wh - dk yelsh brn, 10 - 15% slt, tr v f qtz, grdg - Sltst ip, tr disem pyr, com micpyr, com blk carb frags & lam, rr wh carb Clst lam, rr Coal frags, 20 - 30% clay mtx, frm - fri, sb blky - blky.

2000.0 to 2040.0 m MDRT
SILTY CLAYSTONE intergradational and interbedded with SILTSTONE (carbonaceous in part) with rare COAL seams and SANDSTONE beds.

SILTY CLAYSTONE: lt - med brnsh gy, mod yelsh brn, rr pa brn, tr - 5% carb flks, nil - 5% calc Clst lam, 40 - 50% med brnsh gy cly mtx, tr - 5% micrmic, 5% lith spec, 5 - 10% micrpyr, frm, sb blky - blky.
CARBONACEOUS SILTSTONE: mot wh - dk yelsh brn, 10 - 20% slt, tr v f qtz, grds - sdy Clst ip, tr disem



pyr, com blk carb frags & lam, rr wh carb Clst lam, rr Coal frags, 20 - 30% clay mtx, frm - fri, sb blky - blky.
SANDSTONE: wh - v lt gy, lse, rr fri aggr, v f - med gr, pred f, ang - sb ang, mod std, abndt arg mtx, com flds & blk lith grn, tr micrpyr cmt, tr si cmt, tr wspy blk diff carb lam, mod vis por n shw.
SILTSTONE: lt olv gy - brnsh gy, 20 - 30% slt, tr v f qtz, 5 - 10% micpyr, tr blk lith, tr, wspy, blk carb lam, tr rd lith, sb blky - blky.
COAL: blk, gy blk, sb vit, vit ip, ang frac, chncd frac assoc wth vit frag, tr pyr, grdg - carb Clst.

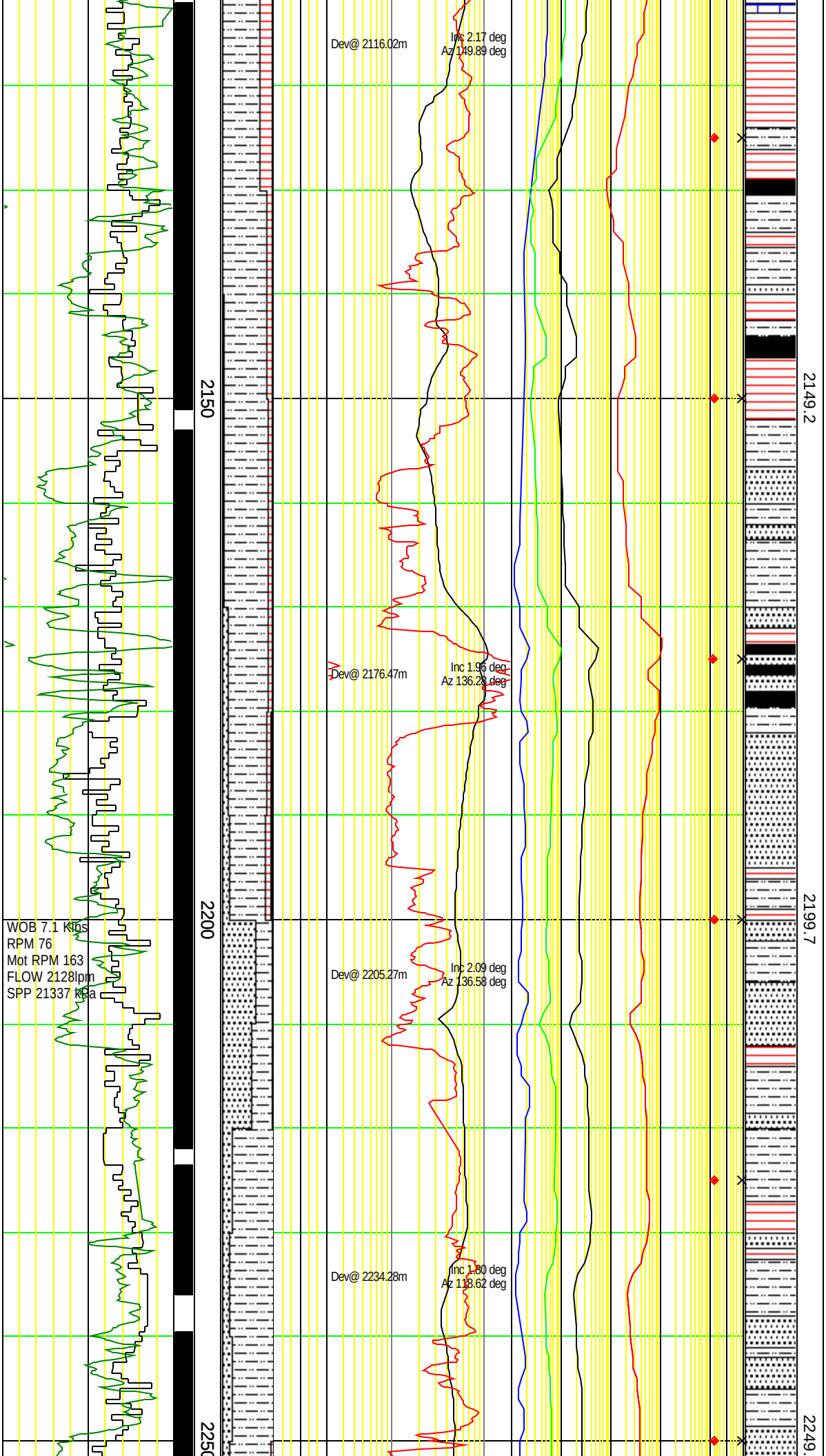
MW: 1.20 sg
FV: 51
PV/YP 15/14
Gels: 9/15/19
O/W/S: 0/89/11
Cl: 53500 mg/l

2040.0 to 2110.0 m MDRT
Interbedded SANDY SILTSTONE and SILTY CLAYSTONE (grading to SILTSTONE and CARBONACEOUS in part) with thin SANDSTONE laminae and COAL seams.

SANDY SILTSTONE: wh, lt gy ip, aggr ip, bit cr ip, 30 - 40% slt, 10 - 15% f - med qtz, tr alt flds, ang - sb ang, abndt wh clay mtx, tr mic, tr blk lith, tr orng lith, rr chl, loc tr thn wspy diff carb lam, tr carb clst & coal frags, sft - frm, fri ip, disp, p vis por, n shw.
SILTY CLAYSTONE: lt - med brnsh gy, mod yelsh brn, rr pa brn, tr - 5% carb flks, nil - tr calc Clst lam, 40 - 50% med brnsh gy cly mtx, tr - 5% mmic, 5 - 10% lith spec, tr coal frag, 5 - 10% micrpyr, sft - frm, sb blky - blky.
CARBONACEOUS SILTSTONE: mott wh - dk yelsh brn, 10 - 20% slt, tr v f qtz, grds - sdy Clst ip, tr disem pyr, com blk carb frags & lam, rr wh carb Clst lam, rr Coal frags, 20 - 30% clay mtx, frm - fri, sb blky - blky.
SANDSTONE: wh - v lt gy, lse, rr fri aggr, v f - med gr, pred f, ang - sb ang, mod std, abndt arg mtx, com flds & blk lith gr, tr micrpyr cmt, tr sid cmt, tr wspy blk diff carb lam, mod vis por n shw.
SILTSTONE: lt olv gy - brnsh gy, 20 - 30% slt, tr v f qtz, 5 - 10% micrpyr, tr blk lith, tr, wspy, blk carb lam, tr rd lith, sbblky - blky.
COAL: blk, gy blk, sbvit, vit ip, ang frac, chncd frac assoc wth vit frag, tr pyr, grdg - carb Clst ip.

2110.0 to 2158.0 m MDRT
SANDY SILTSTONE with interbeds of SILTY CLAYSTONE, SILTSTONE and trace COAL.

SANDY SILTSTONE: wh, lt gy ip, aggr ip, bit cr ip, 30 - 40% slt, 10 -



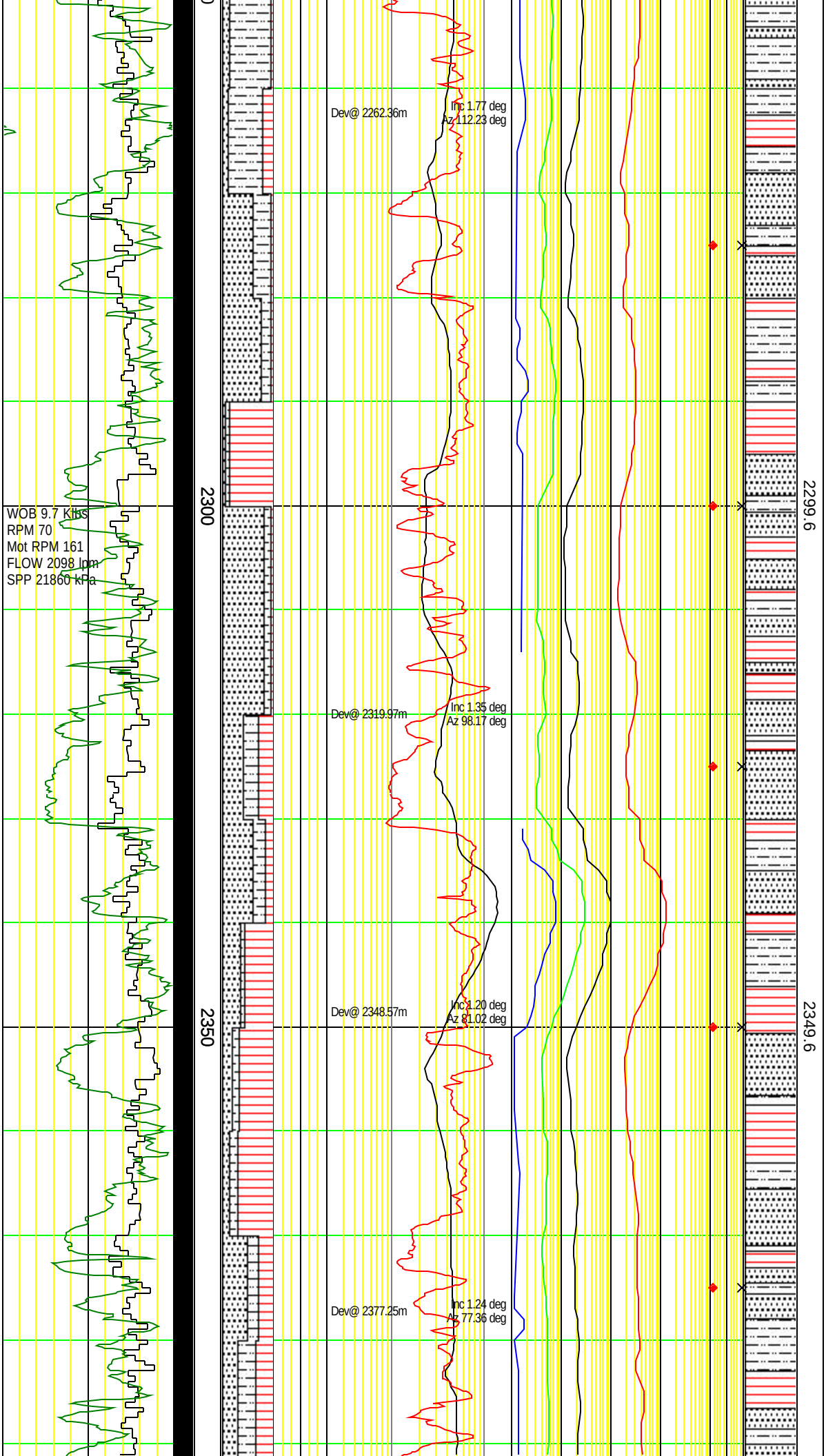
15% f - med qtz, tr alt flds, ang - sb ang, abdt wh clay mtx, tr mic, tr blk lith, tr orng lith, rr chl, loc tr thn wspy diff carb lam, tr carb Clst & coal frags, sft - frm, fri ip, disp, p vis por, n shw.
SILTY CLAYSTONE: lt - med brnsh gy, rr pa brn, 10 - 20% slt, rr v f qtz, 5 - 10% micrmic, tr blk lith spec, tr - 5% carb Clst & coal frag, tr micrpyr, frm, sb blky - blky.
SILTSTONE: lt olv gy - brnsh gy, 20 - 30% slt, tr v f qtz, 5 - 10% micrpyr, tr blk lith, tr, wspy, blk carb lam, tr rd lith, sb blky - blky.
COAL: blk, gy blk, sbvitr, vitr ip, ang frac, chncd frac assoc wth vitr frag, tr pyr, grds - carb Clst ip.

2158.0 to 2214.0 m MDRT
Dominantly interbedded SANDY SILTSTONE, SANDSTONE and CARBONACEOUS SILTSTONE with minor stringers and interbeds of SILTY CLAYSTONE, SILTSTONE and COAL.

SANDY SILTSTONE: wh, lt gy ip, aggr ip, bit cr ip, 30 - 40% slt, 10 - 15% f - med qtz, tr alt flds, ang - sbang, abdt wh clay mtx, tr mic, tr blk lith, tr orng lith, rr chl, loc tr thn wspy diff carb lam, tr carb Clst & coal frags, sft - frm, fri ip, disp, p vis por, n shw.
SANDSTONE: lt gy of wh, transl, clr, f - mnr crs, dom f - med, sb sph, w std, sb ang, wk si cmt, tr - 15% disp clay mtx, tr pyr nod, tr mic flks, gen lse, brtl - fri aggr, fr - p vis & inf por, n shw.
CARBONACEOUS SILTSTONE: lt olv gy - dk yelsh brn, pa brn ip, 10 - 20% slt, tr v f qtz, tr - micrmic, tr disem pyr, com blk carb frags & lam, rr wh carb Clst lam, rr Coal frags, 20 - 30% clay mtx, frm - fri, sb blky - blky.
SILTY CLAYSTONE: lt - med brnsh gy, rr pa brn, 10 - 20% slt, rr v f qtz, 5 - 10% micrmic, tr blk lith spec, tr - 5% carb Clst & coal frag, tr micrpyr, frm, sb blky - blky.
SILTSTONE: lt olv gy - brnsh gy, 20 - 30% slt, tr v f qtz, 5 - 10% micrpyr, tr blk lith, tr, wspy, blk carb lam, tr rd lith, sb blky - blky.
COAL: blk, gy blk, sb vit, vit ip, ang frac, chncd frac assoc wth vitr frag, tr pyr, grdg - carb Clst.

2214.0 to 2232.0 m MDRT
Interbedded CARBONACEOUS SILTSTONE and SANDSTONE with minor interbeds of SILTSTONE and SANDY SILTSTONE.

CARBONACEOUS SILTSTONE: mot dk olv gy - dk mot brn, tr - 5% v f qtz, tr - 5% micrmic, tr disem pyr, com v f blk carb frags & lam, rr wh carb Clst lam, rr Coal frags, 10 - 15% clay mtx, frm - fri, sb blky - blky.
SANDSTONE: lt gy - of wh, transl, clr, f - mnr crs, dom f - med, sb sph, w srtd, sb ang, wk si cmt, tr - 15% disp clay mtx, tr pyr nod, tr mic flks, gen lse, brtl - fri aggr, fr - p vis & inf por, n shw.
SILTSTONE: lt olv gy - brnsh gy, 20 - 30% slt, tr v f qtz, 5 - 10% micpyr, tr blk lith, tr, wspy, blk carb lam, tr rd lith, sb blky - blky.



SANDY SILTSTONE: wh, lt gy i.p., aggr ip, bit cr ip, 30 - 40% slt, 10 - 15% f - med qtz, tr alt flds, ang - sbang, abndt wh clay mtx, tr mic, tr blk lith, tr orng lith, rr chl, loc tr thn wspy diff carb lam, tr carb Clst & coal frags, sft - frm, fri ip, disp, p vis por, n shw.

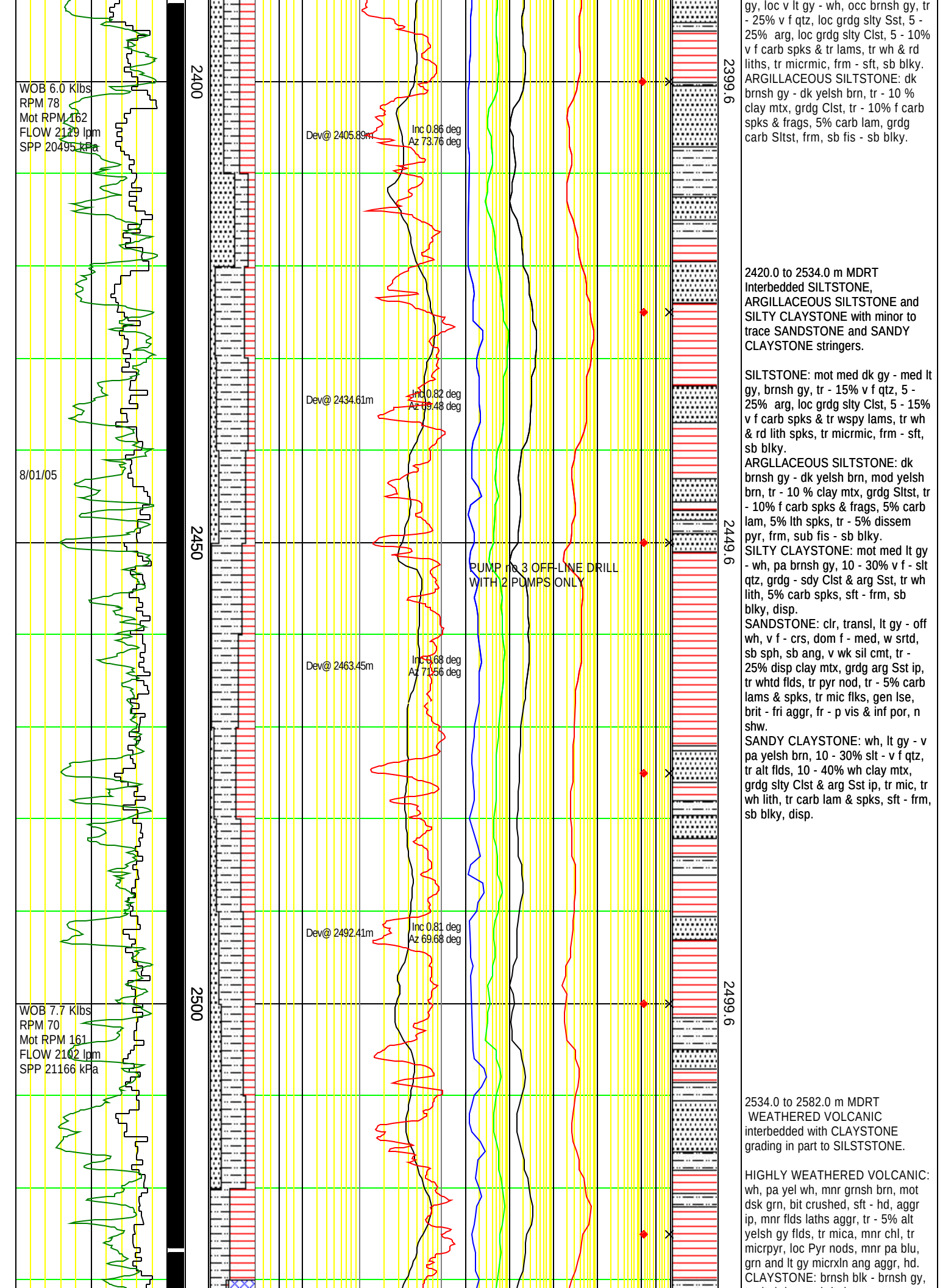
2232.0 to 2295.0 m MDRT
Interbedded SANDSTONE, SILTSTONE and CLAYSTONE.

SANDSTONE: lt gy of wh, trnsl, clr, dom f gr, sb sph, w srtd, sb ang, wk si cmt, 10 - 35% disp clay mtx, tr pyr nod, tr coal lam, tr mic flks, gen lse, brit - fri aggr, fr - p vis & inf por, n shw.
SANDY CLAYSTONE: wh, lt gy i.p., 10 - 30% slt - v f qtz, tr alt flds, 10 - 40% wh clay mtx, grds - Silty Clst, ip grdg - sdy Sltst, tr mic, tr blk lith, loc tr thn carb lam, sft - frm, inf disp.
SILTY CLAYSTONE: mot med lt gy - wh, 10 - 30% slt, grdg - sdy Clst, tr blk lith, com carb spec, sft - frm, disp.
SANDY SILTSTONE: wh, lt gy ip, aggr ip, 10 - 20% f - med qtz, tr alt flds, ang - sb ang, abdnt wh cly mtx, tr mic, tr blk lith, rr chl, loc tr thn diff carb lam, grdg - sdy Clst, sft - frm, fri ip, disp, p vis por, n shw.
CARBONACEOUS SILTSTONE: mot dk olv gy - dk yelsh gy, tr - 5% v f qtz, tr - 5% micrmic, tr disem pyr, com v f blk carb frags & lam, rr wh carb Clst lam, rr Coal frags, 10 - 15% cly mtx, frm - fri, sb blky - blky.
SILTSTONE: lt olv gy - brnsh gy, 20 - 30% slt, tr v f qtz, 5 - 10% micrpyr, tr blk lith, tr, wspy, blk carb lam, tr rd lith, sb blky - blky.

MW: 1.20 sg
FV: 51
PV/YP 15/14
Gels: 9/15/19
O/W/S: 0/89/11
Cl: 53500 mg/l

2295.0 to 2420.0 m MDRT
Interbedded and intergradational SANDSTONE, SILTSTONE, ARGILLACEOUS SILTSTONE, SANDY CLAYSTONE and SILTY CLAYSTONE.

SANDY CLAYSTONE: wh, lt gy - v pa yelsh brn ip, 10 - 30% slt - v f qtz, tr alt flds, 10 - 40% wh clay mtx, grdg sdy Clst & arg Sst ip, tr mic, tr wh lith, tr carb lam, sft - frm, sb blky, disp.
SILTY CLAYSTONE: mot med lt gy - wh, 10 - 30% v f - slt qtz, grdg - sdy Clst & arg Sst, tr wh lith, 5% carb spks, sft - frm, sb blky, disp.
SANDSTONE: clr, transl, lt gy, f - med, w srtd, sb sph - sph, sb rnd - sb ang, v wk si cmt, 5 - 10% disp wh clay mtx, tr pyr nod, tr mic flks, predom lse, fri - occ hd aggr, fr - p vis & inf por, n shw.
SILTSTONE: mot med dk gy - med lt



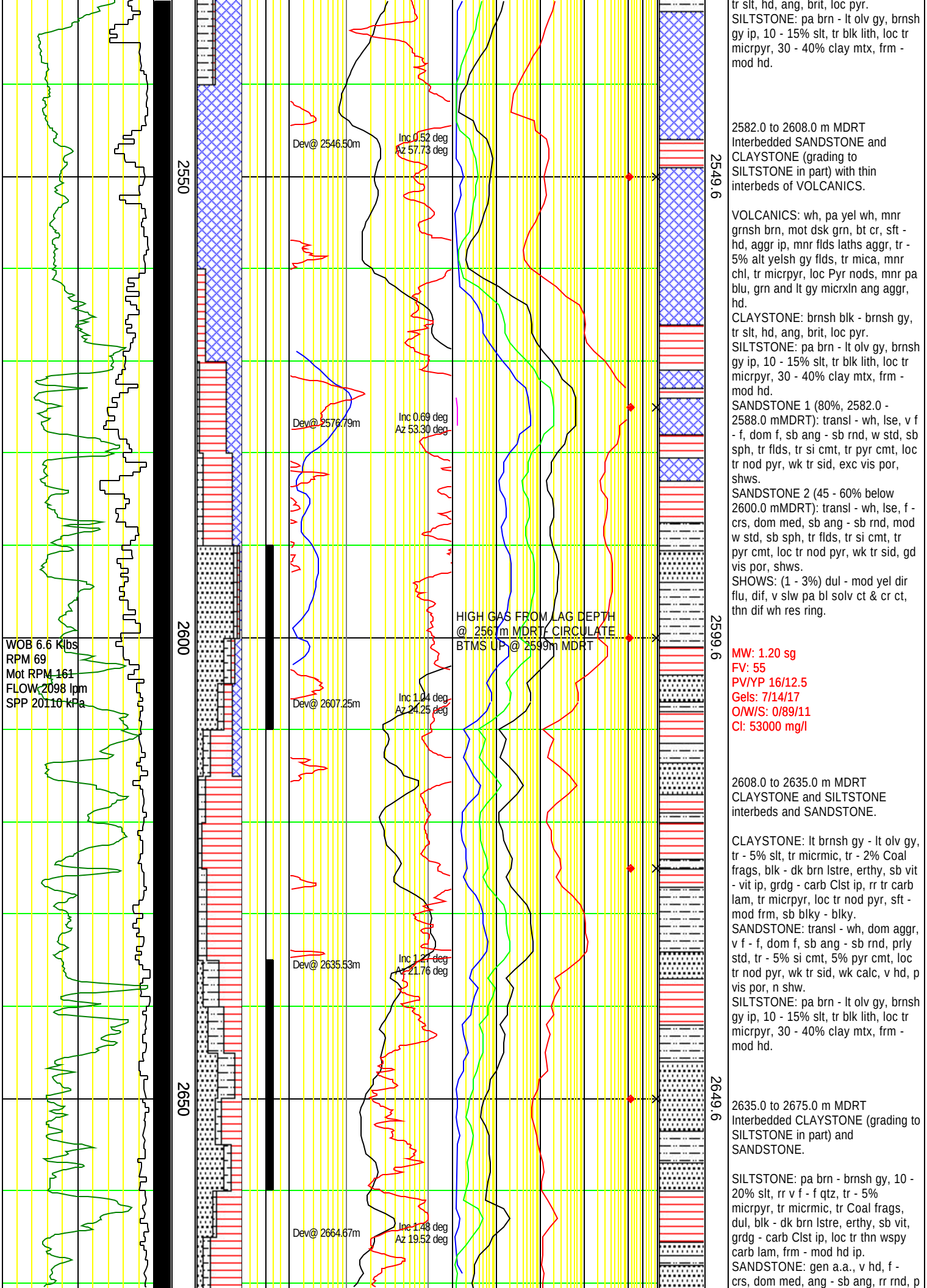
gy, loc v lt gy - wh, occ brnsh gy, tr - 25% v f qtz, loc grdg slty Sst, 5 - 25% arg, loc grdg slty Clst, 5 - 10% v f carb spks & tr lams, tr wh & rd liths, tr micrmic, frm - sft, sb blky.
ARGILLACEOUS SILTSTONE: dk brnsh gy - dk yelsh brn, tr - 10 % clay mtx, grdg Clst, tr - 10% f carb spks & frags, 5% carb lam, grdg carb Sltst, frm, sb fis - sb blky.

2420.0 to 2534.0 m MDRT
Interbedded SILTSTONE, ARGILLACEOUS SILTSTONE and SILTY CLAYSTONE with minor to trace SANDSTONE and SANDY CLAYSTONE stringers.

SILTSTONE: mot med dk gy - med lt gy, brnsh gy, tr - 15% v f qtz, 5 - 25% arg, loc grdg slty Clst, 5 - 15% v f carb spks & tr wspy lams, tr wh & rd lith spks, tr micrmic, frm - sft, sb blky.
ARGLLACEOUS SILTSTONE: dk brnsh gy - dk yelsh brn, mod yelsh brn, tr - 10 % clay mtx, grdg Sltst, tr - 10% f carb spks & frags, 5% carb lam, 5% lth spks, tr - 5% dissem pyr, frm, sub fis - sb blky.
SILTY CLAYSTONE: mot med lt gy - wh, pa brnsh gy, 10 - 30% v f - slt qtz, grdg - sdy Clst & arg Sst, tr wh lith, 5% carb spks, sft - frm, sb blky, disp.
SANDSTONE: clr, transl, lt gy - off wh, v f - crs, dom f - med, w srtd, sb sph, sb ang, v wk sil cmt, tr - 25% disp clay mtx, grdg arg Sst ip, tr whtd flds, tr pyr nod, tr - 5% carb lams & spks, tr mic flks, gen lse, brit - fri aggr, fr - p vis & inf por, n shw.
SANDY CLAYSTONE: wh, lt gy - v pa yelsh brn, 10 - 30% slt - v f qtz, tr alt flds, 10 - 40% wh clay mtx, grdg slty Clst & arg Sst ip, tr mic, tr wh lith, tr carb lam & spks, sft - frm, sb blky, disp.

2534.0 to 2582.0 m MDRT
WEATHERED VOLCANIC interbedded with CLAYSTONE grading in part to SILSTSTONE.

HIGHLY WEATHERED VOLCANIC: wh, pa yel wh, mnr grnsh brn, mot dsk grn, bit crushed, sft - hd, aggr ip, mnr flds laths aggr, tr - 5% alt yelsh gy flds, tr mica, mnr chl, tr micrpyr, loc Pyr nods, mnr pa blu, grn and lt gy micrxln ang aggr, hd.
CLAYSTONE: brnsh blk - brnsh gy,



tr slt, hd, ang, brit, loc pyr.
SILTSTONE: pa brn - lt olv gy, brnsh gy ip, 10 - 15% slt, tr blk lith, loc tr micrpyr, 30 - 40% clay mtx, frm - mod hd.

2582.0 to 2608.0 m MDRT
Interbedded SANDSTONE and CLAYSTONE (grading to SILTSTONE in part) with thin interbeds of VOLCANICS.

VOLCANICS: wh, pa yel wh, mnr grnsh brn, mot dsk grn, bt cr, sft - hd, aggr ip, mnr flds laths aggr, tr - 5% alt yelsh gy flds, tr mica, mnr chl, tr micrpyr, loc Pyr nods, mnr pa blu, grn and lt gy micrxln ang aggr, hd.
CLAYSTONE: brnsh blk - brnsh gy, tr slt, hd, ang, brit, loc pyr.
SILTSTONE: pa brn - lt olv gy, brnsh gy ip, 10 - 15% slt, tr blk lith, loc tr micrpyr, 30 - 40% clay mtx, frm - mod hd.
SANDSTONE 1 (80%, 2582.0 - 2588.0 mMDRT): transl - wh, lse, v f - f, dom f, sb ang - sb rnd, w std, sb sph, tr flds, tr si cmt, tr pyr cmt, loc tr nod pyr, wk tr sid, exc vis por, shws.
SANDSTONE 2 (45 - 60% below 2600.0 mMDRT): transl - wh, lse, f - crs, dom med, sb ang - sb rnd, mod w std, sb sph, tr flds, tr si cmt, tr pyr cmt, loc tr nod pyr, wk tr sid, gd vis por, shws.
SHOWS: (1 - 3%) dul - mod yel dir flu, dif, v slw pa bl solv ct & cr ct, thn dif wh res ring.

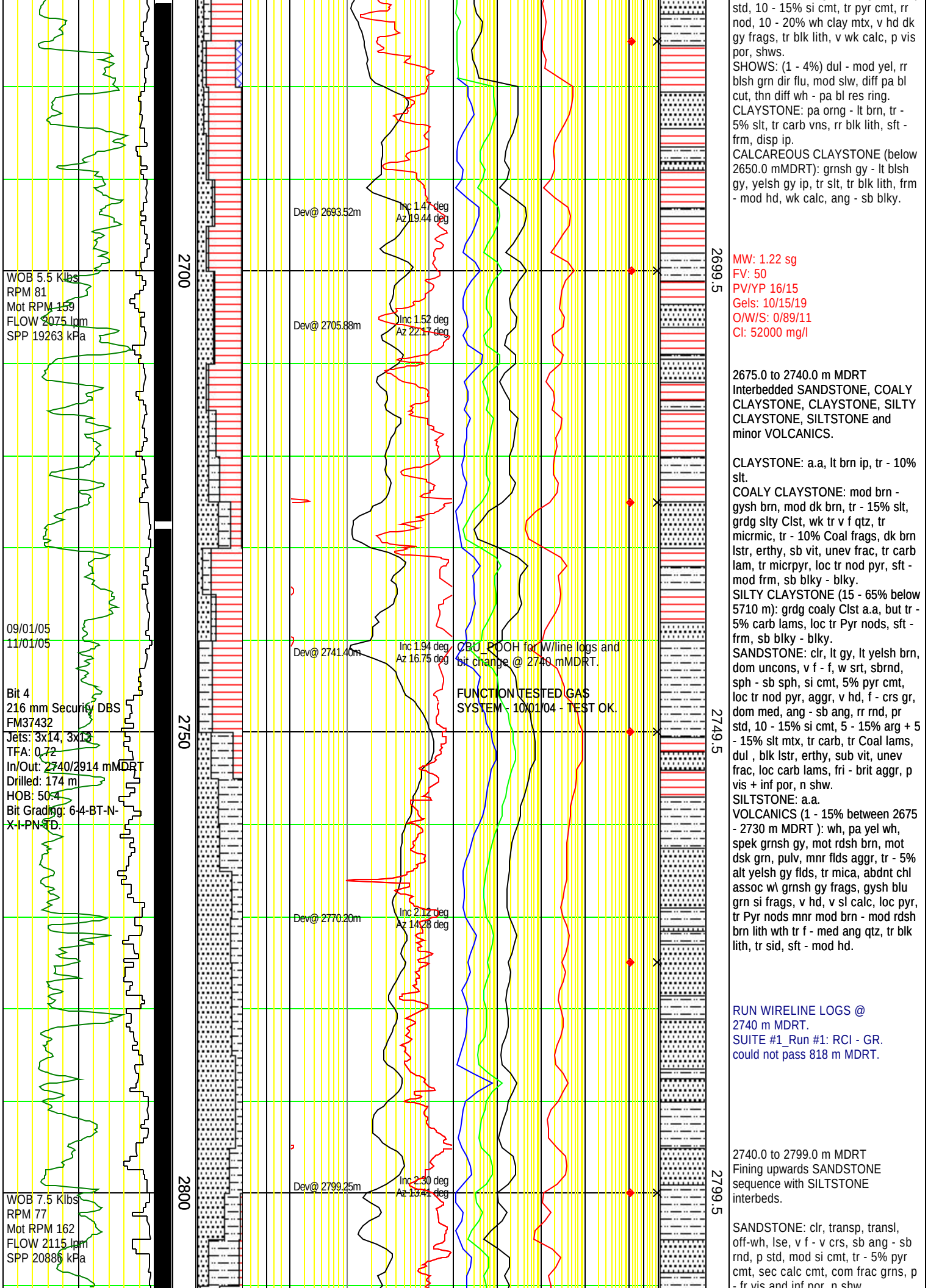
MW: 1.20 sg
FV: 55
PV/YP 16/12.5
Gels: 7/14/17
O/W/S: 0/89/11
Cl: 53000 mg/l

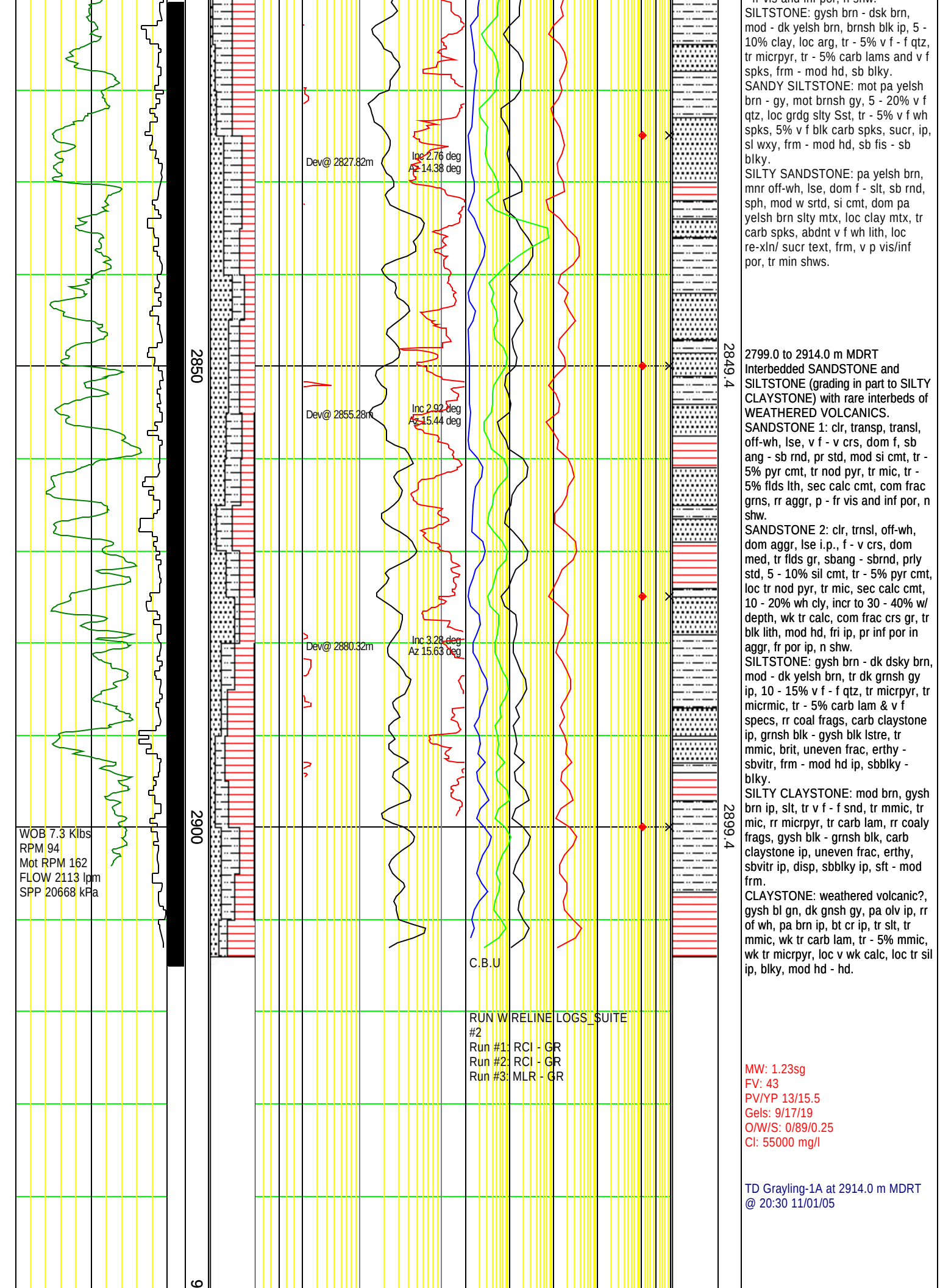
2608.0 to 2635.0 m MDRT
CLAYSTONE and SILTSTONE interbeds and SANDSTONE.

CLAYSTONE: lt brnsh gy - lt olv gy, tr - 5% slt, tr micrmic, tr - 2% Coal frags, blk - dk brn lstre, erthy, sb vit - vit ip, grdg - carb Clst ip, rr tr carb lam, tr micrpyr, loc tr nod pyr, sft - mod frm, sb blky - blky.
SANDSTONE: transl - wh, dom aggr, v f - f, dom f, sb ang - sb rnd, prly std, tr - 5% si cmt, 5% pyr cmt, loc tr nod pyr, wk tr sid, wk calc, v hd, p vis por, n shw.
SILTSTONE: pa brn - lt olv gy, brnsh gy ip, 10 - 15% slt, tr blk lith, loc tr micrpyr, 30 - 40% clay mtx, frm - mod hd.

2635.0 to 2675.0 m MDRT
Interbedded CLAYSTONE (grading to SILTSTONE in part) and SANDSTONE.

SILTSTONE: pa brn - brnsh gy, 10 - 20% slt, rr v f - f qtz, tr - 5% micrpyr, tr micrmic, tr Coal frags, dul, blk - dk brn lstre, erthy, sb vit, grdg - carb Clst ip, loc tr thn wspy carb lam, frm - mod hd ip.
SANDSTONE: gen a.a., v hd, f - crs, dom med, ang - sb ang, rr rnd, p


std, 10 - 15% si cmt, tr pyr cmt, rr nod, 10 - 20% wh clay mtx, v hd dk gy frags, tr blk lith, v wk calc, p vis por, shws.
SHOWS: (1 - 4%) dul - mod yel, rr blsh grn dir flu, mod slw, diff pa bl cut, thn diff wh - pa bl res ring.
CLAYSTONE: pa orng - lt brn, tr - 5% slt, tr carb vns, rr blk lith, sft - frm, disp ip.
CALCAREOUS CLAYSTONE (below 2650.0 mMDRT): grnsh gy - lt blsh gy, yelsh gy ip, tr slt, tr blk lith, frm - mod hd, wk calc, ang - sb blky.
Dev@ 2693.52m
Inc 1.47 deg
Az 19.44 deg
2700
2699.5
MW: 1.22 sg
FV: 50
PV/YP 16/15
Gels: 10/15/19
O/W/S: 0/89/11
Cl: 52000 mg/l
WOB 5.5 Klbs
RPM 81
Mot RPM 159
FLOW 2075 lpm
SPP 19263 kPa
Dev@ 2705.88m
Inc 1.52 deg
Az 22.17 deg
2675.0 to 2740.0 m MDRT
Interbedded SANDSTONE, COALY CLAYSTONE, CLAYSTONE, SILTY CLAYSTONE, SILTSTONE and minor VOLCANICS.
CLAYSTONE: a.a, lt brn ip, tr - 10% slt.
COALY CLAYSTONE: mod brn - gysh brn, mod dk brn, tr - 15% slt, grdg slty Clst, wk tr v f qtz, tr micrmic, tr - 10% Coal frags, dk brn lstr, erthy, sb vit, unev frac, tr carb lam, tr micrpyr, loc tr nod pyr, sft - mod frm, sb blky - blky.
SILTY CLAYSTONE (15 - 65% below 5710 m): grdg coaly Clst a.a, but tr - 5% carb lams, loc tr Pyr nods, sft - frm, sb blky - blky.
SANDSTONE: clr, lt gy, lt yelsh brn, dom uncons, v f - f, w srt, sbrnd, sph - sb sph, si cmt, 5% pyr cmt, loc tr nod pyr, aggr, v hd, f - crs gr, dom med, ang - sb ang, rr rnd, pr std, 10 - 15% si cmt, 5 - 15% arg + 5 - 15% slt mtx, tr carb, tr Coal lams, dul , blk lstr, erthy, sub vit, unev frac, loc carb lams, fri - brit aggr, p vis + inf por, n shw.
SILTSTONE: a.a.
VOLCANICS (1 - 15% between 2675 - 2730 m MDRT): wh, pa yel wh, spek grnsh gy, mot rdsh brn, mot dsk grn, pulv, mnr flds aggr, tr - 5% alt yelsh gy flds, tr mica, abdnt chl assoc w\ grnsh gy frags, gysh blu grn si frags, v hd, v sl calc, loc pyr, tr Pyr nods mnr mod brn - mod rdsh brn lith wth tr f - med ang qtz, tr blk lith, tr sid, sft - mod hd.
09/01/05
11/01/05
Dev@ 2741.40m
Inc 1.94 deg
Az 16.75 deg
CBU. POOH for W/line logs and bit change @ 2740 mMDRT.
FUNCTION TESTED GAS SYSTEM - 10/01/04 - TEST OK.
2750
2749.5
Bit 4
216 mm Security DBS
FM37432
Jets: 3x14, 3x13
TFA: 0.72
In/Out: 2740/2914 mMDRT
Drilled: 174 m
HOB: 50.4
Bit Grading: 6-4-BT-N-X-I-PN-TD.
Dev@ 2770.20m
Inc 2.12 deg
Az 14.28 deg
RUN WIRELINE LOGS @ 2740 m MDRT.
SUITE #1_Run #1: RCI - GR.
could not pass 818 m MDRT.
2740.0 to 2799.0 m MDRT
Fining upwards SANDSTONE sequence with SILTSTONE interbeds.
SANDSTONE: clr, transp, transl, off-wh, lse, v f - v crs, sb ang - sb rnd, p std, mod si cmt, tr - 5% pyr cmt, sec calc cmt, com frac grns, p - fr vis and inf por, n shw.
2800
2799.5
Dev@ 2799.25m
Inc 2.30 deg
Az 13.41 deg
WOB 7.5 Klbs
RPM 77
Mot RPM 162
FLOW 2115 lpm
SPP 20886 kPa

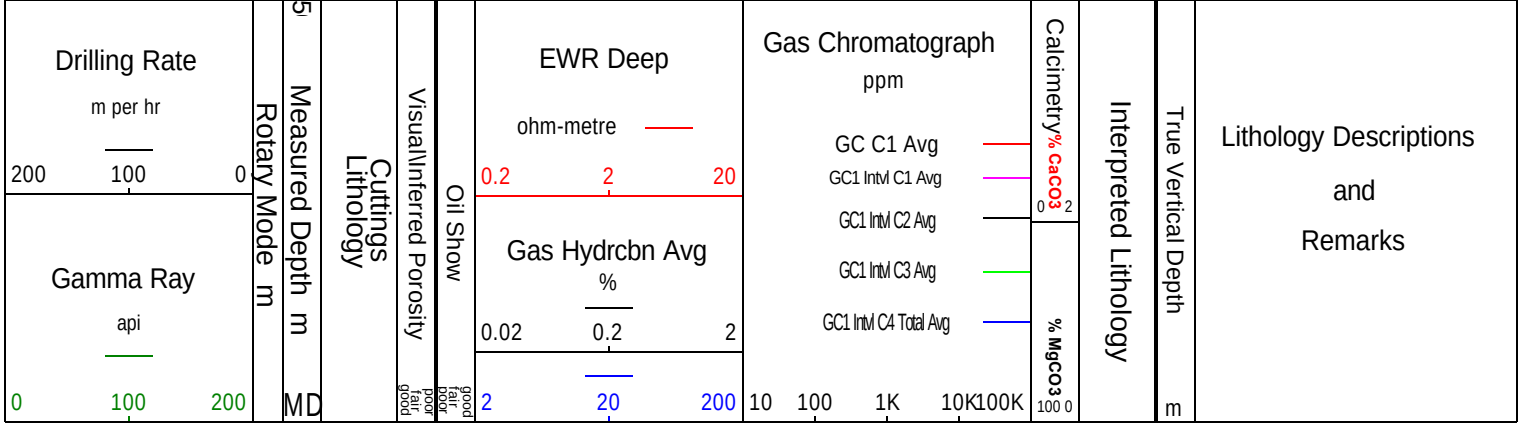


SILTSTONE: gysh brn - dsk brn, mod - dk yelsh brn, brnsh blk ip, 5 - 10% clay, loc arg, tr - 5% v f - f qtz, tr micrpyr, tr - 5% carb lams and v f spks, frm - mod hd, sb blky.
SANDY SILTSTONE: mot pa yelsh brn - gy, mot brnsh gy, 5 - 20% v f qtz, loc grdg slty Sst, tr - 5% v f wh spks, 5% v f blk carb spks, sucr, ip, sl wxy, frm - mod hd, sb fis - sb blky.
SILTY SANDSTONE: pa yelsh brn, mnr off-wh, lse, dom f - slt, sb rnd, sph, mod w srtd, si cmt, dom pa yelsh brn slty mtx, loc clay mtx, tr carb spks, abdnt v f wh lith, loc re-xln/ sucr text, frm, v p vis/inf por, tr min shws.

2799.0 to 2914.0 m MDRT
Interbedded SANDSTONE and SILTSTONE (grading in part to SILTY CLAYSTONE) with rare interbeds of WEATHERED VOLCANICS.
SANDSTONE 1: clr, transp, transl, off-wh, lse, v f - v crs, dom f, sb ang - sb rnd, pr std, mod si cmt, tr - 5% pyr cmt, tr nod pyr, tr mic, tr - 5% flds lth, sec calc cmt, com frac grns, rr aggr, p - fr vis and inf por, n shw.
SANDSTONE 2: clr, trnsl, off-wh, dom aggr, lse i.p., f - v crs, dom med, tr flds gr, sbang - sbrnd, prly std, 5 - 10% sil cmt, tr - 5% pyr cmt, loc tr nod pyr, tr mic, sec calc cmt, 10 - 20% wh cly, incr to 30 - 40% w/ depth, wk tr calc, com frac crs gr, tr blk lith, mod hd, fri ip, pr inf por in aggr, fr por ip, n shw.
SILTSTONE: gysh brn - dk dsky brn, mod - dk yelsh brn, tr dk grnsh gy ip, 10 - 15% v f - f qtz, tr micrpyr, tr micrmic, tr - 5% carb lam & v f specs, rr coal frags, carb claystone ip, grnsh blk - gysh blk lstre, tr mmic, brit, uneven frac, erthy - sbvitr, frm - mod hd ip, sbblky - blky.
SILTY CLAYSTONE: mod brn, gysh brn ip, slt, tr v f - f snd, tr mmic, tr mic, rr micrpyr, tr carb lam, rr coaly frags, gysh blk - grnsh blk, carb claystone ip, uneven frac, erthy, sbvitr ip, disp, sbblky ip, sft - mod frm.
CLAYSTONE: weathered volcanic?, gysh bl gn, dk gnsh gy, pa olv ip, rr of wh, pa brn ip, bt cr ip, tr slt, tr mmic, wk tr carb lam, tr - 5% mmic, wk tr micrpyr, loc v wk calc, loc tr sil ip, blky, mod hd - hd.

MW: 1.23sg
FV: 43
PV/YP 13/15.5
Gels: 9/17/19
O/W/S: 0/89/0.25
Cl: 55000 mg/l

TD Grayling-1A at 2914.0 m MDRT
@ 20:30 11/01/05


Drilling Rate
m per hr
200
100
0
Gamma Ray
api
0
100
200
Rotary Mode
5
Measured Depth m
MD
Cuttings Lithology
Visual\Inferred Porosity
poor
fair
good
Oil Show
poor
fair
good
EWR Deep
ohm-metre
0.2
2
20
Gas Hydrcbn Avg
%
0.02
0.2
2
2
20
200
Gas Chromatograph
ppm
GC C1 Avg
GC1 Intvl C1 Avg
GC1 Intvl C2 Avg
GC1 Intvl C3 Avg
GC1 Intvl C4 Total Avg
10
100
1K
10K
100K
Calcimetry
% CaCO3
0
2
% MgCO3
100
0
Interpreted Lithology
True Vertical Depth
m
Lithology Descriptions
and
Remarks

VELOCITY (CHECKSHOT) SURVEY REPORT

APACHE ENERGY LIMITED

Well: GRAYLING-1A
Field: EXPLORATION
Area: OFFSHORE - AUSTRALIA

Report Status:	Approval Report
Analyst:	Aldrin Muchtar
Reviewed By:	Ardiek Mahargono
Date:	February, 2005
Report reference:	APACHE005

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Data Acquisition

by

Baker Atlas

Data Processing

by

Office:

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In the processing and interpretation of the data, **VSFusion** employees have relied on experience and exercised their best judgement. However, since all interpretations are opinions based on inferences from acoustical or other measurements, we cannot and we do not guarantee the accuracy or the correctness of any interpretations. As such, we shall not be liable for any loss, cost, damages or expenses resulting from reliance on such interpretation.

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FIGURES

ENCLOSURES

CD CONTENTS

DIGITAL DATA:

Grayling-1A_raw.sgy	: Raw Field Data
Grayling-1A_stk.sgy	: Stacked Data
SEISLINK_SEGY I-O TEMPLATE.pdf	: SEGY Description

DISPLAY

enclo1a.pdf	: Field Report of Well Grayling-1A
enclo1b.pdf	: Enclosure 1B as in the Report
enclo2.pdf	: Enclosure 2 as in the Report
enclo3.pdf	: Enclosure 3 as in the Report

LISTINGS:

VELO_LIST.TXT	: Velocity Listing
COMP_LIST.TXT	: Computation Listing

REPORT:

Grayling-1A_Report.pdf	: Velocity Survey Report of Well Grayling-1A

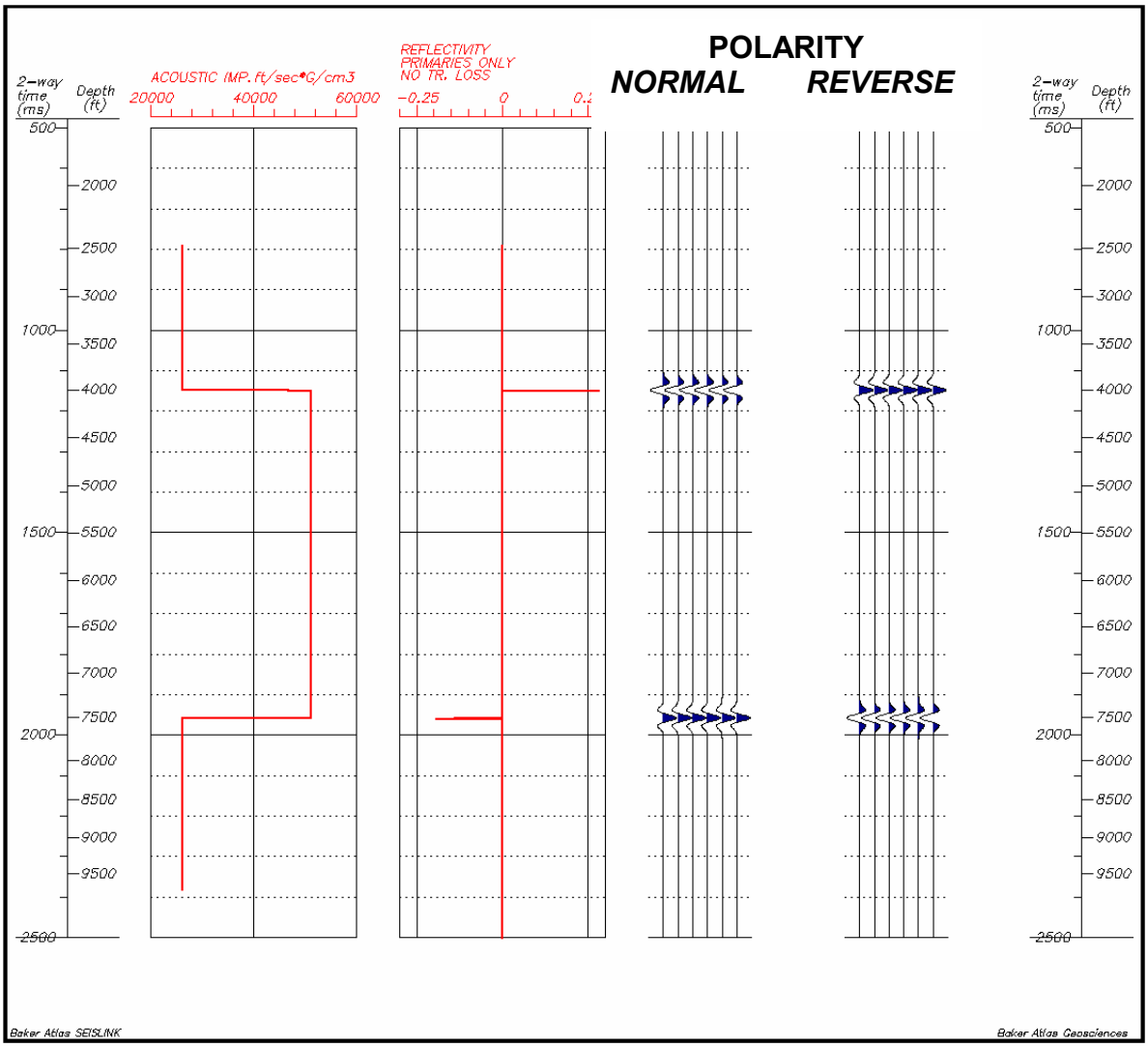
1. INTRODUCTION

BAKER ATLAS conducted a Velocity Checkshot Survey for APACHE ENERGY LIMITED in their GRAYLING-1A well located in the offshore Australia. The wireline service for this survey was also provided by Baker Atlas Logging Services.

All measured depths are referenced to the Derrick Floor (DF) elevation of 21.5 meters above AHD. Seismic Datum for this well is AHD.

The borehole was reported as a very slightly deviated well, therefore, a deviation correction for the checkshot data was applicable for this well.

The polarity convention used in this report is illustrated below.



2. DATA ACQUISITION

Baker Atlas Downhole Seismic Services crew arrived at the well on 17 January 2005. All equipment was tested on site prior to the survey. Baker Atlas employed standard techniques for the Velocity Check shot survey.

The energy source used for this survey was a 4x150 cu.in. sleeve gun array. The energy source was located 46.3m offset from the wellhead on a bearing of 329 degrees North, at a depth of 5m below AHD. A reference phone was positioned 2m below the source for timing and source energy monitoring purposes. Water depth was 56.8m below AHD.

The survey was recorded using a multi level receiver (MLR) string consisting of 5 downhole receivers with an intertool spacing of 15m. Each tool was 3 component gimballed. The VSP data consisted of 4700 files (3 components geophone and 1 component hydrophone), they have been gathered into 179 recorded levels between 94 m and 2900 m measured depth below DF. The data was recorded in one run.

At the start of the survey, the wireline depth sensor was zeroed at the Derrick Floor elevation and the geophone was lowered down the well. During the downtrip the geophone receiver was stopped to check the equipment performance and checkshot data were recorded at depths of 875, 860, 845, 830, 815, 1475, 1460, 1445, 1430, 1415, 2075, 2060, 2045, 2030, 2015, 2675, 2660, 2645, 2630 and 2615m. TD was tagged at 2900m and then recording continued as the geophone was pulled up the well to a depth of 94 meters.

At each downhole station, the wireline cable was stopped and the geophone firmly clamped to the borehole wall by means of the remote control locking arm of the tool. An average of 5 shots were recorded for each depth level.

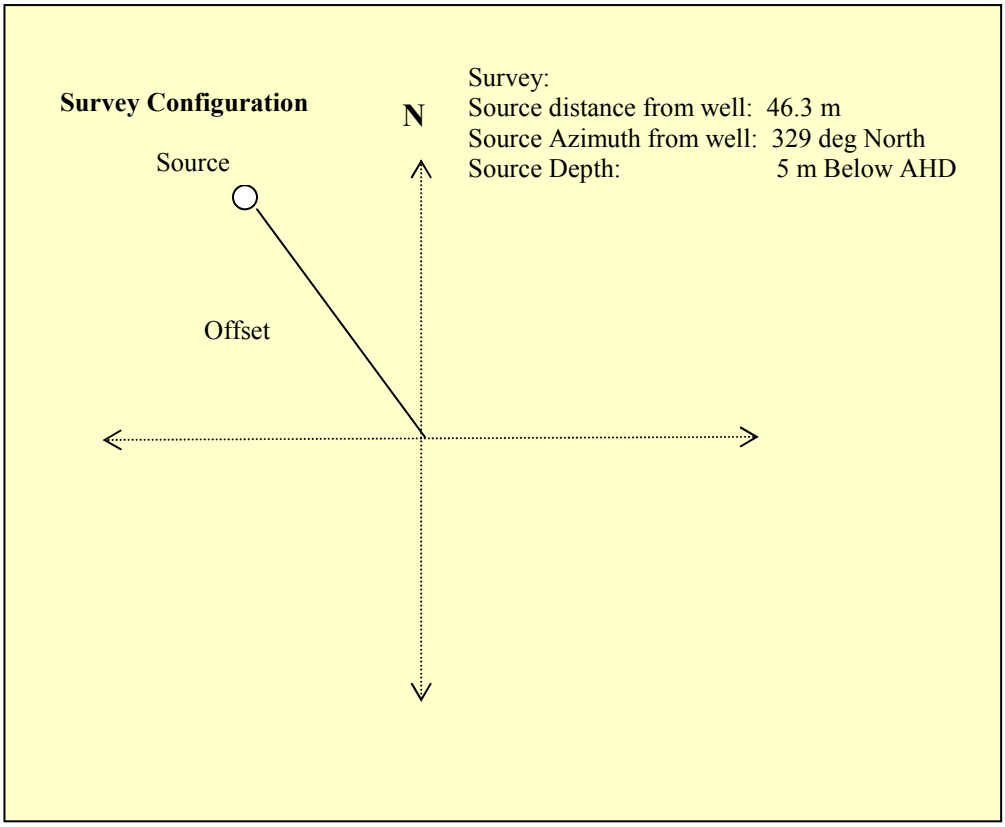
3. VELOCITY CHECKSHOT DATA PROCESSING

3.1. Stacking

The digital data were demultiplexed and displayed. The reference phone (hydrophone) traces were examined and first-break times were picked from these data. Each recorded downhole geophone trace was subsequently shifted by the first-break time value of the corresponding reference phone trace (hydrophone). A time correction of 1.3 ms to account for the time from reference phone to source at water velocity was then applied to the data so that all downhole geophone traces were referenced back to the source. The downhole geophone traces for each depth level were then stacked using a median summation technique.

3.2. Survey Geometry

It is important to accurately describe survey geometry for each trace. Survey geometry was applied to the check shot data prior to the First Break picking.



3.3. First Break Picking

First-break times were picked from stacked vertical geophone component records. The first break picking was performed manually and no filtering was applied. Enclosure 2 displays the stacked seismic data for all levels for the vertical component.

3.4. Velocity Survey Processing

A total of 169 levels have been used in the production of the final velocity computations. Due to poor cementation of the casing to the borehole a total of 10 levels were omitted from the processing due to the subsequent poor signal and unreliable times. Levels affected were between depths of 94m – 365m below DF.

The observed first break times were converted to vertical times using the cosine correction to derive the corrected vertical times from the source gun to the well geophone. The time correction from source energy to datum is performed by dividing the source energy depth with water velocity of 1524 m/sec. This static time has then been applied to all the check level times to correct them back to AHD. These corrections can be seen in the Time/Depth Information Table sheet (Page 12).

4. OPERATION PARAMETERS

Company	: APACHE ENERGY LIMITED
Well Name	: GRAYLING-1A
Well Location	: Offshore - Australia
Wellhead Co-ordinates Latitude	: 38^0 09' 40.28" South
Longitude	148^0 17' 34.73" East
UTM Coordinate	: 5775510.58 m North
	613273.61 m East
Geographic Datum	: GDA94
Projection	: MGA, GRS80 Spheroid, Zone 55, CM 147^0 East
Derrick Floor Elevation	: 21.5 m Above AHD
Datum Plane	: 0.0 m (AHD)
Water Depth at Source	: 56.8 m below AHD
Total Depth Check shot	: 2900 m below AHD
Number of Levels Occupied	: 179 levels
Shallowest Geophone Level	: 94 m (DF)
Deepest Geophone Level	: 2900 m (DF)
Tool in Hole	: 15:39 on 17 January 2005
Tool out of Hole	: 22:05 on 17 January 2005
Net Operating Time	: 6 hours and 26 minutes
Source Type	: Sleeve Gun 4 x 150 Cu. In.
Record Length	: 4 sec.
Sample Rate	: 1 ms
Source Location	: 46.3 m, N 329 DEG from Wellhead
Source Depth	: 5 m below AHD
Seismic Observer	: B. Read
Client Representative	: J. Sonego

5. EQUIPMENT SPECIFICATION

Recording System	DSS 16 data channels SEGY format 1 msec. Sampling rate 4 sec. Record length Filter. High cut : OUT Low cut : OUT Notch : OUT
Downhole Tool	Type : AWS 1300 GM Frequency : 10 hz Preamp Gain : 51 db
Source Type	Sleeve Gun
Gun Volume	4 x 150 Cubic inch
Gun to gun distance	1 m

6. VELOCITY SURVEY

CLIENT	APACHE ENERGY LIMITED
WELL	GRAYLING-1A
AREA	OFFSHORE AUSTRALIA
CONTRACTOR	BAKER ATLAS
SURVEY DATE	17 JANUARY 2005
SURVEY UNITS	M
DATUM ELEVATION	0.00 M ABOVE SEA LEVEL
KB ELEVATION	21.50 M ABOVE SEA LEVEL
RCVR REF. ELEVATION	21.50 M ABOVE DATUM REF
WELL ELEVATION	21.50 M ABOVE DATUM REF
DATUM CORRECT. VELOCITY	1524.00 M /SEC
SOURCE TYPE	SLEEVE GUN
GEOPHONE TYPE	AWS 1300 GM
SAMPLE RATE	1.00 MSEC
WELL CASING	

7. SOURCE / RECEIVER GEOMETRY TABLE

APACHE ENERGY LIMITED
WELL : GRAYLING-1A

SOURCE / RECEIVER GEOMETRY TABLE

RECEIVER REFERENCE ELEVATION = 21.50 M ABOVE DATUM REF.
SOURCE / RECEIVER COORDINATES ARE REFERENCED TO WELLHEAD
SOURCE / RECEIVER (S-R) OFFSET IS PLAN VIEW

RECEIVER				SOURCE				OFFSET
MEASURED DEPTH (DGM) (M)	VERT. DEPTH (M)	X COORD. (M)	Y COORD. (M)	ELEV (ES) (M)	DEPTH (DS) (M)	X COORD. (M)	Y COORD. (M)	(S-R) (M)
94.0	94.0	0.0	0.0	0.0	5.0	-23.8	39.7	46.3
109.0	109.0	0.0	0.0	0.0	5.0	-23.8	39.7	46.3
124.0	124.0	0.0	0.0	0.0	5.0	-23.8	39.7	46.3
139.0	139.0	0.0	0.0	0.0	5.0	-23.8	39.7	46.3
290.0	290.0	0.6	1.4	0.0	5.0	-23.8	39.7	45.5
305.0	305.0	0.7	1.4	0.0	5.0	-23.8	39.7	45.4
320.0	320.0	0.7	1.5	0.0	5.0	-23.8	39.7	45.4
335.0	335.0	0.8	1.6	0.0	5.0	-23.8	39.7	45.3
350.0	350.0	0.9	1.7	0.0	5.0	-23.8	39.7	45.3
365.0	365.0	0.9	1.8	0.0	5.0	-23.8	39.7	45.3
380.0	380.0	1.0	1.8	0.0	5.0	-23.8	39.7	45.3
395.0	395.0	1.0	1.9	0.0	5.0	-23.8	39.7	45.2
410.0	410.0	1.0	1.9	0.0	5.0	-23.8	39.7	45.2
425.0	425.0	1.1	2.0	0.0	5.0	-23.8	39.7	45.2
440.0	440.0	1.1	2.0	0.0	5.0	-23.8	39.7	45.2
455.0	455.0	1.1	2.0	0.0	5.0	-23.8	39.7	45.2
470.0	470.0	1.1	1.9	0.0	5.0	-23.8	39.7	45.3
485.0	485.0	1.1	1.9	0.0	5.0	-23.8	39.7	45.3
500.0	500.0	1.1	1.9	0.0	5.0	-23.8	39.7	45.3
515.0	515.0	1.2	1.9	0.0	5.0	-23.8	39.7	45.3
530.0	530.0	1.2	2.0	0.0	5.0	-23.8	39.7	45.3
545.0	545.0	1.2	2.0	0.0	5.0	-23.8	39.7	45.3
560.0	560.0	1.3	2.0	0.0	5.0	-23.8	39.7	45.3
575.0	575.0	1.4	2.1	0.0	5.0	-23.8	39.7	45.3
590.0	590.0	1.4	2.1	0.0	5.0	-23.8	39.7	45.3
605.0	605.0	1.5	2.2	0.0	5.0	-23.8	39.7	45.3
620.0	620.0	1.6	2.2	0.0	5.0	-23.8	39.7	45.3
635.0	635.0	1.7	2.2	0.0	5.0	-23.8	39.7	45.3
650.0	650.0	1.8	2.3	0.0	5.0	-23.8	39.7	45.3
665.0	665.0	1.8	2.3	0.0	5.0	-23.8	39.7	45.4
680.0	680.0	1.9	2.2	0.0	5.0	-23.8	39.7	45.5
695.0	695.0	2.0	2.2	0.0	5.0	-23.8	39.7	45.5
710.0	710.0	2.1	2.2	0.0	5.0	-23.8	39.7	45.6
725.0	725.0	2.2	2.2	0.0	5.0	-23.8	39.7	45.6
740.0	740.0	2.2	2.1	0.0	5.0	-23.8	39.7	45.7
755.0	755.0	2.3	2.1	0.0	5.0	-23.8	39.7	45.7
770.0	770.0	2.3	2.1	0.0	5.0	-23.8	39.7	45.8
785.0	785.0	2.3	2.0	0.0	5.0	-23.8	39.7	45.8
800.0	800.0	2.3	2.0	0.0	5.0	-23.8	39.7	45.9
815.0	815.0	2.3	2.0	0.0	5.0	-23.8	39.7	45.9
830.0	830.0	2.2	2.0	0.0	5.0	-23.8	39.7	45.8
845.0	845.0	2.2	2.0	0.0	5.0	-23.8	39.7	45.8

---------- RECEIVER ----------				--------- SOURCE ---------				OFFSET
MEASURED DEPTH (DGM) (M)	VERT. DEPTH (M)	X COORD. (M)	Y COORD. (M)	ELEV (ES) (M)	DEPTH (DS) (M)	X COORD. (M)	Y COORD. (M)	(S-R) (M)
860.0	860.0	2.1	2.0	0.0	5.0	-23.8	39.7	45.8
875.0	875.0	2.1	2.0	0.0	5.0	-23.8	39.7	45.7
890.0	890.0	2.0	2.0	0.0	5.0	-23.8	39.7	45.7
905.0	905.0	2.0	2.0	0.0	5.0	-23.8	39.7	45.7
920.0	920.0	1.9	2.0	0.0	5.0	-23.8	39.7	45.7
935.0	935.0	1.9	2.0	0.0	5.0	-23.8	39.7	45.7
950.0	950.0	1.9	2.0	0.0	5.0	-23.8	39.7	45.6
965.0	965.0	1.8	1.9	0.0	5.0	-23.8	39.7	45.6
980.0	980.0	1.8	1.9	0.0	5.0	-23.8	39.7	45.7
995.0	995.0	1.8	1.9	0.0	5.0	-23.8	39.7	45.7
1010.0	1010.0	1.8	1.9	0.0	5.0	-23.8	39.7	45.7
1025.0	1025.0	1.8	1.8	0.0	5.0	-23.8	39.7	45.7
1040.0	1040.0	1.8	1.8	0.0	5.0	-23.8	39.7	45.7
1055.0	1055.0	1.8	1.8	0.0	5.0	-23.8	39.7	45.7
1070.0	1070.0	1.8	1.8	0.0	5.0	-23.8	39.7	45.7
1085.0	1085.0	1.8	1.8	0.0	5.0	-23.8	39.7	45.7
1100.0	1100.0	1.8	1.8	0.0	5.0	-23.8	39.7	45.7
1115.0	1115.0	1.8	1.8	0.0	5.0	-23.8	39.7	45.7
1130.0	1130.0	1.9	1.8	0.0	5.0	-23.8	39.7	45.8
1145.0	1145.0	1.9	1.8	0.0	5.0	-23.8	39.7	45.8
1160.0	1160.0	1.9	1.8	0.0	5.0	-23.8	39.7	45.8
1175.0	1175.0	2.0	1.8	0.0	5.0	-23.8	39.7	45.8
1190.0	1190.0	2.0	1.8	0.0	5.0	-23.8	39.7	45.9
1205.0	1205.0	2.1	1.8	0.0	5.0	-23.8	39.7	45.9
1220.0	1220.0	2.1	1.8	0.0	5.0	-23.8	39.7	46.0
1235.0	1235.0	2.1	1.7	0.0	5.0	-23.8	39.7	46.0
1250.0	1250.0	2.2	1.7	0.0	5.0	-23.8	39.7	46.0
1265.0	1265.0	2.2	1.7	0.0	5.0	-23.8	39.7	46.1
1280.0	1280.0	2.3	1.6	0.0	5.0	-23.8	39.7	46.1
1295.0	1295.0	2.3	1.6	0.0	5.0	-23.8	39.7	46.2
1310.0	1310.0	2.3	1.6	0.0	5.0	-23.8	39.7	46.2
1325.0	1325.0	2.4	1.6	0.0	5.0	-23.8	39.7	46.3
1340.0	1340.0	2.4	1.5	0.0	5.0	-23.8	39.7	46.3
1355.0	1355.0	2.5	1.5	0.0	5.0	-23.8	39.7	46.4
1370.0	1370.0	2.5	1.4	0.0	5.0	-23.8	39.7	46.4
1385.0	1385.0	2.6	1.4	0.0	5.0	-23.8	39.7	46.5
1400.0	1400.0	2.6	1.4	0.0	5.0	-23.8	39.7	46.6
1415.0	1415.0	2.7	1.4	0.0	5.0	-23.8	39.7	46.6
1430.0	1430.0	2.9	1.4	0.0	5.0	-23.8	39.7	46.7
1445.0	1445.0	3.0	1.4	0.0	5.0	-23.8	39.7	46.8
1460.0	1460.0	3.2	1.4	0.0	5.0	-23.8	39.7	46.9
1475.0	1475.0	3.3	1.4	0.0	5.0	-23.8	39.7	47.0
1490.0	1490.0	3.5	1.3	0.0	5.0	-23.8	39.7	47.1
1505.0	1505.0	3.6	1.3	0.0	5.0	-23.8	39.7	47.2
1520.0	1520.0	3.7	1.2	0.0	5.0	-23.8	39.7	47.4
1535.0	1535.0	3.9	1.1	0.0	5.0	-23.8	39.7	47.5
1550.0	1550.0	4.0	1.1	0.0	5.0	-23.8	39.7	47.6
1565.0	1565.0	4.2	1.0	0.0	5.0	-23.8	39.7	47.7
1580.0	1580.0	4.3	1.0	0.0	5.0	-23.8	39.7	47.8
1595.0	1595.0	4.4	1.0	0.0	5.0	-23.8	39.7	47.9
1610.0	1610.0	4.5	0.9	0.0	5.0	-23.8	39.7	48.0
1625.0	1625.0	4.7	0.9	0.0	5.0	-23.8	39.7	48.2
1640.0	1640.0	4.8	0.7	0.0	5.0	-23.8	39.7	48.3
1655.0	1655.0	4.9	0.6	0.0	5.0	-23.8	39.7	48.5
1670.0	1670.0	5.0	0.4	0.0	5.0	-23.8	39.7	48.7
1685.0	1685.0	5.0	0.2	0.0	5.0	-23.8	39.7	48.9

---------- RECEIVER ----------				--------- SOURCE --------------				OFFSET
MEASURED DEPTH (DGM) (M)	VERT. DEPTH (M)	X COORD. (M)	Y COORD. (M)	ELEV (ES) (M)	DEPTH (DS) (M)	X COORD. (M)	Y COORD. (M)	(S-R) (M)
1700.0	1700.0	5.1	0.0	0.0	5.0	-23.8	39.7	49.1
1715.0	1715.0	5.1	-0.2	0.0	5.0	-23.8	39.7	49.3
1730.0	1730.0	5.1	-0.6	0.0	5.0	-23.8	39.7	49.6
1745.0	1745.0	5.1	-0.9	0.0	5.0	-23.8	39.7	49.9
1760.0	1759.9	5.1	-1.3	0.0	5.0	-23.8	39.7	50.2
1775.0	1774.9	5.1	-1.7	0.0	5.0	-23.8	39.7	50.5
1790.0	1789.9	5.1	-2.1	0.0	5.0	-23.8	39.7	50.8
1805.0	1804.9	5.0	-2.6	0.0	5.0	-23.8	39.7	51.2
1820.0	1819.9	4.9	-3.1	0.0	5.0	-23.8	39.7	51.5
1835.0	1834.9	4.8	-3.5	0.0	5.0	-23.8	39.7	51.8
1850.0	1849.9	4.7	-4.0	0.0	5.0	-23.8	39.7	52.2
1865.0	1864.9	4.6	-4.6	0.0	5.0	-23.8	39.7	52.6
1880.0	1879.9	4.6	-5.1	0.0	5.0	-23.8	39.7	53.0
1895.0	1894.9	4.5	-5.6	0.0	5.0	-23.8	39.7	53.4
1910.0	1909.9	4.5	-6.1	0.0	5.0	-23.8	39.7	53.9
1925.0	1924.9	4.6	-6.7	0.0	5.0	-23.8	39.7	54.3
1940.0	1939.9	4.6	-7.2	0.0	5.0	-23.8	39.7	54.8
1955.0	1954.8	4.7	-7.7	0.0	5.0	-23.8	39.7	55.3
1970.0	1969.8	4.9	-8.2	0.0	5.0	-23.8	39.7	55.9
1985.0	1984.8	5.0	-8.8	0.0	5.0	-23.8	39.7	56.4
2000.0	1999.8	5.2	-9.3	0.0	5.0	-23.8	39.7	57.0
2015.0	2014.8	5.4	-9.9	0.0	5.0	-23.8	39.7	57.5
2030.0	2029.8	5.6	-10.4	0.0	5.0	-23.8	39.7	58.1
2045.0	2044.8	5.8	-11.0	0.0	5.0	-23.8	39.7	58.7
2060.0	2059.8	6.0	-11.6	0.0	5.0	-23.8	39.7	59.3
2075.0	2074.7	6.2	-12.1	0.0	5.0	-23.8	39.7	59.9
2090.0	2089.7	6.4	-12.7	0.0	5.0	-23.8	39.7	60.5
2105.0	2104.7	6.7	-13.2	0.0	5.0	-23.8	39.7	61.1
2120.0	2119.7	6.9	-13.7	0.0	5.0	-23.8	39.7	61.6
2135.0	2134.7	7.3	-14.1	0.0	5.0	-23.8	39.7	62.1
2150.0	2149.7	7.6	-14.5	0.0	5.0	-23.8	39.7	62.7
2165.0	2164.7	7.9	-15.0	0.0	5.0	-23.8	39.7	63.2
2180.0	2179.7	8.2	-15.4	0.0	5.0	-23.8	39.7	63.7
2195.0	2194.7	8.6	-15.8	0.0	5.0	-23.8	39.7	64.2
2210.0	2209.7	9.0	-16.1	0.0	5.0	-23.8	39.7	64.8
2225.0	2224.7	9.4	-16.4	0.0	5.0	-23.8	39.7	65.2
2240.0	2239.6	9.8	-16.7	0.0	5.0	-23.8	39.7	65.7
2255.0	2254.6	10.2	-16.9	0.0	5.0	-23.8	39.7	66.0
2270.0	2269.6	10.6	-17.1	0.0	5.0	-23.8	39.7	66.4
2285.0	2284.6	11.0	-17.2	0.0	5.0	-23.8	39.7	66.7
2300.0	2299.6	11.4	-17.3	0.0	5.0	-23.8	39.7	67.0
2315.0	2314.6	11.8	-17.4	0.0	5.0	-23.8	39.7	67.3
2330.0	2329.6	12.1	-17.4	0.0	5.0	-23.8	39.7	67.5
2345.0	2344.6	12.5	-17.4	0.0	5.0	-23.8	39.7	67.7
2360.0	2359.6	12.8	-17.4	0.0	5.0	-23.8	39.7	67.8
2375.0	2374.6	13.1	-17.3	0.0	5.0	-23.8	39.7	67.9
2390.0	2389.6	13.4	-17.3	0.0	5.0	-23.8	39.7	68.0
2405.0	2404.6	13.6	-17.2	0.0	5.0	-23.8	39.7	68.1
2420.0	2419.6	13.8	-17.1	0.0	5.0	-23.8	39.7	68.2
2435.0	2434.6	14.0	-17.1	0.0	5.0	-23.8	39.7	68.2
2450.0	2449.6	14.2	-17.0	0.0	5.0	-23.8	39.7	68.3
2465.0	2464.6	14.4	-16.9	0.0	5.0	-23.8	39.7	68.3
2480.0	2479.6	14.6	-16.9	0.0	5.0	-23.8	39.7	68.4
2495.0	2494.6	14.8	-16.8	0.0	5.0	-23.8	39.7	68.4
2510.0	2509.6	14.9	-16.7	0.0	5.0	-23.8	39.7	68.5
2525.0	2524.6	15.1	-16.7	0.0	5.0	-23.8	39.7	68.5

---------- RECEIVER ----------				--------- SOURCE --------------				OFFSET
MEASURED DEPTH (DGM) (M)	VERT. DEPTH (M)	X COORD. (M)	Y COORD. (M)	ELEV (ES) (M)	DEPTH (DS) (M)	X COORD. (M)	Y COORD. (M)	(S-R) (M)
2540.0	2539.6	15.2	-16.6	0.0	5.0	-23.8	39.7	68.5
2555.0	2554.6	15.4	-16.5	0.0	5.0	-23.8	39.7	68.5
2570.0	2569.6	15.5	-16.4	0.0	5.0	-23.8	39.7	68.5
2585.0	2584.6	15.6	-16.3	0.0	5.0	-23.8	39.7	68.5
2600.0	2599.6	15.8	-16.1	0.0	5.0	-23.8	39.7	68.4
2615.0	2614.6	15.9	-15.9	0.0	5.0	-23.8	39.7	68.3
2630.0	2629.6	16.0	-15.6	0.0	5.0	-23.8	39.7	68.1
2645.0	2644.6	16.1	-15.3	0.0	5.0	-23.8	39.7	68.0
2660.0	2659.6	16.3	-14.9	0.0	5.0	-23.8	39.7	67.8
2675.0	2674.6	16.4	-14.6	0.0	5.0	-23.8	39.7	67.6
2690.0	2689.6	16.5	-14.2	0.0	5.0	-23.8	39.7	67.3
2705.0	2704.5	16.7	-13.9	0.0	5.0	-23.8	39.7	67.1
2720.0	2719.5	16.8	-13.5	0.0	5.0	-23.8	39.7	66.9
2735.0	2734.5	16.9	-13.0	0.0	5.0	-23.8	39.7	66.6
2750.0	2749.5	17.1	-12.5	0.0	5.0	-23.8	39.7	66.3
2765.0	2764.5	17.2	-12.0	0.0	5.0	-23.8	39.7	66.0
2780.0	2779.5	17.3	-11.5	0.0	5.0	-23.8	39.7	65.7
2795.0	2794.5	17.5	-10.9	0.0	5.0	-23.8	39.7	65.3
2810.0	2809.5	17.6	-10.3	0.0	5.0	-23.8	39.7	65.0
2825.0	2824.5	17.8	-9.7	0.0	5.0	-23.8	39.7	64.6
2840.0	2839.4	18.0	-9.0	0.0	5.0	-23.8	39.7	64.2
2855.0	2854.4	18.2	-8.2	0.0	5.0	-23.8	39.7	63.7
2870.0	2869.4	18.4	-7.5	0.0	5.0	-23.8	39.7	63.3
2885.0	2884.4	18.6	-6.7	0.0	5.0	-23.8	39.7	62.9
2900.0	2899.4	18.8	-5.8	0.0	5.0	-23.8	39.7	62.4

8. TIME / DEPTH INFORMATION TABLE

APACHE ENERGY LIMITED
WELL : GRAYLING-1A

TIME / DEPTH INFORMATION TABLE

ALL TIMES ARE ONE-WAY TIMES
* = NOT USED IN VELOCITY COMPUTATIONS

DATUM ELEVATION 0.00 M ABOVE SEA LEVEL
DATUM CORRECT. VELOCITY 1524.00 M /SEC

MEASURED GEOPHONE DEPTH (DGM) (M)	RAW TIME PICK (MS)	SRC-REC DIST. PLAN-VIEW (SRC_REC) (M)	COS(I)	TIME CORRECTION COS (MS)	TIME CORRECTION DATUM (MS)	VERTICAL TIME (TGD) (MS)
94.0	45.7	46.3	0.825	-8.0	3.3	41.0 *
109.0	48.4	46.3	0.872	-6.2	3.3	45.5 *
124.0	51.4	46.3	0.903	-5.0	3.3	49.7 *
139.0	54.6	46.3	0.925	-4.1	3.3	53.8 *
290.0	86.1	45.5	0.985	-1.3	3.3	88.1 *
305.0	88.1	45.4	0.987	-1.1	3.3	90.2 *
320.0	92.2	45.4	0.988	-1.1	3.3	94.4 *
335.0	95.9	45.3	0.989	-1.0	3.3	98.1 *
350.0	98.6	45.3	0.990	-1.0	3.3	100.9 *
365.0	101.8	45.3	0.991	-0.9	3.3	104.2 *
380.0	177.9	45.3	0.992	-1.4	3.3	179.7
395.0	183.0	45.2	0.993	-1.4	3.3	184.9
410.0	188.4	45.2	0.993	-1.3	3.3	190.4
425.0	195.5	45.2	0.994	-1.2	3.3	197.5
440.0	201.9	45.2	0.994	-1.2	3.3	204.0
455.0	207.4	45.2	0.994	-1.1	3.3	209.6
470.0	213.1	45.3	0.995	-1.1	3.3	215.3
485.0	218.7	45.3	0.995	-1.1	3.3	220.9
500.0	224.5	45.3	0.995	-1.0	3.3	226.8
515.0	230.2	45.3	0.996	-1.0	3.3	232.5
530.0	235.6	45.3	0.996	-0.9	3.3	237.9
545.0	240.8	45.3	0.996	-0.9	3.3	243.1
560.0	246.5	45.3	0.996	-0.9	3.3	248.9
575.0	252.1	45.3	0.997	-0.9	3.3	254.5
590.0	258.4	45.3	0.997	-0.8	3.3	260.8
605.0	263.6	45.3	0.997	-0.8	3.3	266.1
620.0	268.7	45.3	0.997	-0.8	3.3	271.2
635.0	274.1	45.3	0.997	-0.8	3.3	276.6
650.0	279.4	45.3	0.997	-0.7	3.3	281.9
665.0	284.8	45.4	0.997	-0.7	3.3	287.4
680.0	289.8	45.5	0.998	-0.7	3.3	292.4
695.0	295.1	45.5	0.998	-0.7	3.3	297.7
710.0	301.0	45.6	0.998	-0.7	3.3	303.7
725.0	307.0	45.6	0.998	-0.7	3.3	309.7
740.0	313.3	45.7	0.998	-0.6	3.3	316.0
755.0	318.7	45.7	0.998	-0.6	3.3	321.4
770.0	324.6	45.8	0.998	-0.6	3.3	327.3
785.0	330.9	45.8	0.998	-0.6	3.3	333.5
800.0	336.4	45.9	0.998	-0.6	3.3	339.1

MEASURED GEOPHONE DEPTH (DGM)	RAW TIME PICK	SRC-REC DIST. PLAN-VIEW (SRC_REC)	COS(I)	TIME CORRECTION COS	DATUM	VERTICAL TIME (TGD)
(M)	(MS)	(M)		(MS)	(MS)	(MS)
815.0	342.5	45.9	0.998	-0.6	3.3	345.2
830.0	347.8	45.8	0.998	-0.6	3.3	350.5
845.0	353.9	45.8	0.998	-0.6	3.3	356.7
860.0	360.2	45.8	0.998	-0.5	3.3	362.9
875.0	366.3	45.7	0.999	-0.5	3.3	369.1
890.0	372.4	45.7	0.999	-0.5	3.3	375.2
905.0	377.7	45.7	0.999	-0.5	3.3	380.5
920.0	383.7	45.7	0.999	-0.5	3.3	386.5
935.0	389.5	45.7	0.999	-0.5	3.3	392.3
950.0	395.2	45.6	0.999	-0.5	3.3	398.0
965.0	401.2	45.6	0.999	-0.5	3.3	404.0
980.0	407.0	45.7	0.999	-0.5	3.3	409.8
995.0	412.5	45.7	0.999	-0.5	3.3	415.3
1010.0	417.9	45.7	0.999	-0.5	3.3	420.7
1025.0	424.0	45.7	0.999	-0.4	3.3	426.9
1040.0	430.2	45.7	0.999	-0.4	3.3	433.0
1055.0	435.9	45.7	0.999	-0.4	3.3	438.8
1070.0	441.9	45.7	0.999	-0.4	3.3	444.7
1085.0	447.4	45.7	0.999	-0.4	3.3	450.3
1100.0	453.3	45.7	0.999	-0.4	3.3	456.2
1115.0	459.3	45.7	0.999	-0.4	3.3	462.2
1130.0	465.7	45.8	0.999	-0.4	3.3	468.6
1145.0	471.3	45.8	0.999	-0.4	3.3	474.2
1160.0	477.2	45.8	0.999	-0.4	3.3	480.1
1175.0	483.3	45.8	0.999	-0.4	3.3	486.2
1190.0	489.6	45.9	0.999	-0.4	3.3	492.5
1205.0	495.6	45.9	0.999	-0.4	3.3	498.5
1220.0	501.7	46.0	0.999	-0.4	3.3	504.6
1235.0	507.3	46.0	0.999	-0.4	3.3	510.2
1250.0	512.8	46.0	0.999	-0.4	3.3	515.7
1265.0	518.8	46.1	0.999	-0.4	3.3	521.7
1280.0	524.5	46.1	0.999	-0.4	3.3	527.4
1295.0	530.3	46.2	0.999	-0.4	3.3	533.3
1310.0	535.6	46.2	0.999	-0.3	3.3	538.5
1325.0	541.5	46.3	0.999	-0.3	3.3	544.5
1340.0	547.2	46.3	0.999	-0.3	3.3	550.2
1355.0	552.5	46.4	0.999	-0.3	3.3	555.4
1370.0	557.7	46.4	0.999	-0.3	3.3	560.7
1385.0	563.6	46.5	0.999	-0.3	3.3	566.5
1400.0	568.8	46.6	0.999	-0.3	3.3	571.7
1415.0	573.9	46.6	0.999	-0.3	3.3	576.9
1430.0	579.5	46.7	0.999	-0.3	3.3	582.5
1445.0	585.0	46.8	0.999	-0.3	3.3	588.0
1460.0	590.2	46.9	0.999	-0.3	3.3	593.2
1475.0	596.1	47.0	0.999	-0.3	3.3	599.1
1490.0	602.1	47.1	0.999	-0.3	3.3	605.1
1505.0	607.2	47.2	0.999	-0.3	3.3	610.1
1520.0	612.7	47.4	0.999	-0.3	3.3	615.7
1535.0	618.0	47.5	1.000	-0.3	3.3	621.0
1550.0	622.5	47.6	1.000	-0.3	3.3	625.5
1565.0	627.6	47.7	1.000	-0.3	3.3	630.6
1580.0	632.0	47.8	1.000	-0.3	3.3	635.0
1595.0	636.3	47.9	1.000	-0.3	3.3	639.2
1610.0	641.8	48.0	1.000	-0.3	3.3	644.8
1625.0	647.2	48.2	1.000	-0.3	3.3	650.1
1640.0	652.8	48.3	1.000	-0.3	3.3	655.7

MEASURED GEOPHONE DEPTH (DGM)	RAW TIME PICK	SRC-REC DIST. PLAN-VIEW (SRC_REC)	COS(I)	TIME CORRECTION COS	DATUM	VERTICAL TIME (TGD)
(M)	(MS)	(M)		(MS)	(MS)	(MS)
1655.0	657.7	48.5	1.000	-0.3	3.3	660.7
1670.0	662.9	48.7	1.000	-0.3	3.3	665.9
1685.0	668.0	48.9	1.000	-0.3	3.3	671.0
1700.0	673.3	49.1	1.000	-0.3	3.3	676.3
1715.0	678.0	49.3	1.000	-0.3	3.3	681.0
1730.0	682.5	49.6	1.000	-0.3	3.3	685.5
1745.0	687.0	49.9	1.000	-0.3	3.3	690.0
1760.0	692.6	50.2	1.000	-0.3	3.3	695.6
1775.0	697.8	50.5	1.000	-0.3	3.3	700.8
1790.0	703.4	50.8	1.000	-0.3	3.3	706.4
1805.0	707.7	51.2	1.000	-0.3	3.3	710.7
1820.0	712.2	51.5	1.000	-0.3	3.3	715.2
1835.0	717.8	51.8	1.000	-0.3	3.3	720.8
1850.0	722.2	52.2	1.000	-0.3	3.3	725.2
1865.0	727.5	52.6	1.000	-0.3	3.3	730.5
1880.0	731.5	53.0	1.000	-0.3	3.3	734.5
1895.0	736.2	53.4	1.000	-0.3	3.3	739.2
1910.0	740.6	53.9	1.000	-0.3	3.3	743.5
1925.0	744.8	54.3	1.000	-0.3	3.3	747.8
1940.0	749.4	54.8	1.000	-0.3	3.3	752.4
1955.0	754.1	55.3	1.000	-0.3	3.3	757.1
1970.0	758.9	55.9	1.000	-0.3	3.3	761.9
1985.0	764.4	56.4	1.000	-0.3	3.3	767.4
2000.0	768.7	57.0	1.000	-0.3	3.3	771.7
2015.0	773.6	57.5	1.000	-0.3	3.3	776.6
2030.0	778.7	58.1	1.000	-0.3	3.3	781.6
2045.0	782.8	58.7	1.000	-0.3	3.3	785.8
2060.0	786.6	59.3	1.000	-0.3	3.3	789.6
2075.0	790.6	59.9	1.000	-0.3	3.3	793.5
2090.0	796.1	60.5	1.000	-0.3	3.3	799.1
2105.0	800.7	61.1	1.000	-0.3	3.3	803.7
2120.0	804.5	61.6	1.000	-0.3	3.3	807.4
2135.0	808.8	62.1	1.000	-0.4	3.3	811.8
2150.0	814.0	62.7	1.000	-0.4	3.3	817.0
2165.0	819.2	63.2	1.000	-0.4	3.3	822.1
2180.0	823.1	63.7	1.000	-0.4	3.3	826.1
2195.0	828.2	64.2	1.000	-0.4	3.3	831.2
2210.0	832.7	64.8	1.000	-0.4	3.3	835.7
2225.0	836.7	65.2	1.000	-0.4	3.3	839.6
2240.0	841.7	65.7	1.000	-0.4	3.3	844.6
2255.0	845.3	66.0	1.000	-0.4	3.3	848.2
2270.0	850.2	66.4	1.000	-0.4	3.3	853.1
2285.0	853.7	66.7	1.000	-0.4	3.3	856.6
2300.0	858.0	67.0	1.000	-0.4	3.3	860.9
2315.0	862.2	67.3	1.000	-0.4	3.3	865.1
2330.0	865.3	67.5	1.000	-0.4	3.3	868.2
2345.0	868.6	67.7	1.000	-0.4	3.3	871.5
2360.0	873.3	67.8	1.000	-0.4	3.3	876.2
2375.0	878.5	67.9	1.000	-0.4	3.3	881.4
2390.0	883.5	68.0	1.000	-0.4	3.3	886.4
2405.0	887.1	68.1	1.000	-0.4	3.3	890.0
2420.0	890.3	68.2	1.000	-0.4	3.3	893.3
2435.0	894.4	68.2	1.000	-0.4	3.3	897.4
2450.0	899.2	68.3	1.000	-0.4	3.3	902.1
2465.0	902.7	68.3	1.000	-0.4	3.3	905.7
2480.0	906.7	68.4	1.000	-0.4	3.3	909.6

MEASURED GEOPHONE DEPTH (DGM)	RAW TIME PICK	SRC-REC DIST. PLAN-VIEW (SRC_REC)	COS(I)	TIME CORRECTION COS	DATUM	VERTICAL TIME (TGD)
(M)	(MS)	(M)		(MS)	(MS)	(MS)
2495.0	910.1	68.4	1.000	-0.3	3.3	913.1
2510.0	913.9	68.5	1.000	-0.3	3.3	916.9
2525.0	917.4	68.5	1.000	-0.3	3.3	920.4
2540.0	921.0	68.5	1.000	-0.3	3.3	924.0
2555.0	924.5	68.5	1.000	-0.3	3.3	927.4
2570.0	929.4	68.5	1.000	-0.3	3.3	932.3
2585.0	934.6	68.5	1.000	-0.3	3.3	937.5
2600.0	938.5	68.4	1.000	-0.3	3.3	941.5
2615.0	942.3	68.3	1.000	-0.3	3.3	945.2
2630.0	946.1	68.1	1.000	-0.3	3.3	949.1
2645.0	948.9	68.0	1.000	-0.3	3.3	951.9
2660.0	952.9	67.8	1.000	-0.3	3.3	955.8
2675.0	956.3	67.6	1.000	-0.3	3.3	959.3
2690.0	960.2	67.3	1.000	-0.3	3.3	963.1
2705.0	964.3	67.1	1.000	-0.3	3.3	967.3
2720.0	967.1	66.9	1.000	-0.3	3.3	970.0
2735.0	970.1	66.6	1.000	-0.3	3.3	973.0
2750.0	974.4	66.3	1.000	-0.3	3.3	977.4
2765.0	979.2	66.0	1.000	-0.3	3.3	982.2
2780.0	983.4	65.7	1.000	-0.3	3.3	986.4
2795.0	986.3	65.3	1.000	-0.3	3.3	989.3
2810.0	988.8	65.0	1.000	-0.3	3.3	991.8
2825.0	991.9	64.6	1.000	-0.3	3.3	995.0
2840.0	996.7	64.2	1.000	-0.3	3.3	999.7
2855.0	1000.7	63.7	1.000	-0.3	3.3	1003.8
2870.0	1003.6	63.3	1.000	-0.2	3.3	1006.7
2885.0	1006.6	62.9	1.000	-0.2	3.3	1009.6
2900.0	1011.0	62.4	1.000	-0.2	3.3	1014.0

9. VELOCITY TABLE

APACHE ENERGY LIMITED
WELL : GRAYLING-1A

VELOCITY TABLE

RECEIVER REFERENCE ELEVATION = 21.50 M ABOVE DATUM REF.

DATUM ELEVATION 0.00 M ABOVE SEA LEVEL
DATUM CORRECT. VELOCITY 1524.00 M /SEC

MEASURED GEOPHONE DEPTH (DGM) (M)	DEPTH CORR. TO DATUM (DGD) (M)	TIME CORR. TO DATUM (TGD) (MS)	AVERAGE VELOCITY (M /SEC)	RMS VELOCITY (M /SEC)	INTERVAL DEPTH (DELDGD) (M)	INTERVAL TIME (DELDGT) (MS)	INTERVAL VELOCITY (M /SEC)
					358.5	179.7	1995.0
380.0	358.5	179.7	1995.0	1995.0	15.0	5.2	2865.9
395.0	373.5	184.9	2019.6	2024.8	15.0	5.5	2724.7
410.0	388.5	190.4	2040.0	2048.4	15.0	7.1	2124.7
425.0	403.5	197.5	2043.0	2051.1	15.0	6.5	2315.6
440.0	418.5	204.0	2051.7	2060.1	15.0	5.6	2676.9
455.0	433.5	209.6	2068.4	2078.9	15.0	5.7	2624.2
470.0	448.5	215.3	2083.1	2095.2	15.0	5.6	2661.2
485.0	463.5	220.9	2097.9	2111.6	15.0	5.9	2557.3
500.0	478.5	226.8	2109.8	2124.3	15.0	5.7	2609.0
515.0	493.5	232.5	2122.1	2137.6	15.0	5.4	2791.1
530.0	508.5	237.9	2137.2	2154.5	15.0	5.2	2874.4
545.0	523.5	243.1	2153.1	2172.5	15.0	5.8	2587.6
560.0	538.5	248.9	2163.2	2183.1	15.0	5.6	2685.4
575.0	553.5	254.5	2174.6	2195.3	15.0	6.3	2375.4
590.0	568.5	260.8	2179.5	2199.8	15.0	5.3	2847.6
605.0	583.5	266.1	2192.7	2214.5	15.0	5.1	2944.2
620.0	598.5	271.2	2206.8	2230.4	15.0	5.4	2767.1
635.0	613.5	276.6	2217.8	2242.2	15.0	5.3	2827.2
650.0	628.5	281.9	2229.3	2254.6	15.0	5.5	2731.4

MEASURED GEOPHONE DEPTH (DGM) (M)	DEPTH CORR. TO DATUM (DGD) (M)	TIME CORR. TO DATUM (TGD) (MS)	AVERAGE VELOCITY (M /SEC)	RMS VELOCITY (M /SEC)	INTERVAL DEPTH (DELDGD) (M)	INTERVAL TIME (DELDGT) (MS)	INTERVAL VELOCITY (M /SEC)
665.0	643.5	287.4	2238.9	2264.6			
					15.0	5.0	3021.4
680.0	658.5	292.4	2252.2	2279.6			
					15.0	5.3	2824.8
695.0	673.5	297.7	2262.4	2290.4			
					15.0	6.0	2505.0
710.0	688.5	303.7	2267.2	2294.9			
					15.0	6.0	2501.2
725.0	703.5	309.7	2271.7	2299.0			
					15.0	6.3	2383.4
740.0	718.5	316.0	2273.9	2300.8			
					15.0	5.4	2768.3
755.0	733.5	321.4	2282.3	2309.4			
					15.0	5.9	2530.7
770.0	748.5	327.3	2286.8	2313.6			
					15.0	6.2	2401.5
785.0	763.5	333.6	2288.9	2315.3			
					15.0	5.5	2719.1
800.0	778.5	339.1	2295.9	2322.4			
					15.0	6.1	2457.9
815.0	793.5	345.2	2298.8	2324.9			
					15.0	5.3	2803.8
830.0	808.5	350.5	2306.5	2332.9			
					15.0	6.1	2441.4
845.0	823.5	356.7	2308.8	2334.8			
					15.0	6.2	2400.9
860.0	838.5	362.9	2310.4	2336.0			
					15.0	6.2	2437.8
875.0	853.5	369.1	2312.5	2337.7			
					15.0	6.1	2464.5
890.0	868.5	375.2	2315.0	2339.8			
					15.0	5.4	2799.1
905.0	883.5	380.5	2321.8	2346.9			
					15.0	6.0	2505.5
920.0	898.5	386.5	2324.6	2349.5			
					15.0	5.8	2596.3
935.0	913.5	392.3	2328.6	2353.3			
					15.0	5.8	2600.1
950.0	928.5	398.1	2332.6	2357.1			
					15.0	5.9	2524.1
965.0	943.5	404.0	2335.4	2359.6			
					15.0	5.8	2580.8
980.0	958.5	409.8	2338.9	2362.9			
					15.0	5.5	2716.9
995.0	973.5	415.3	2343.9	2367.9			
					15.0	5.4	2766.5
1010.0	988.5	420.7	2349.3	2373.5			
					15.0	6.1	2448.7
1025.0	1003.5	426.9	2350.8	2374.6			
					15.0	6.1	2447.4
1040.0	1018.5	433.0	2352.1	2375.6			
					15.0	5.8	2599.0
1055.0	1033.5	438.8	2355.4	2378.7			
					15.0	6.0	2510.1
1070.0	1048.5	444.8	2357.5	2380.5			

MEASURED GEOPHONE DEPTH (DGM) (M)	DEPTH CORR. TO DATUM (DGD) (M)	TIME CORR. TO DATUM (TGD) (MS)	AVERAGE VELOCITY (M /SEC)	RMS VELOCITY (M /SEC)	INTERVAL DEPTH (DELDGD) (M)	INTERVAL TIME (DELDGT) (MS)	INTERVAL VELOCITY (M /SEC)
					15.0	5.5	2721.3
1085.0	1063.5	450.3	2361.9	2385.0	15.0	5.9	2528.2
1100.0	1078.5	456.2	2364.1	2386.9	15.0	6.0	2489.3
1115.0	1093.5	462.2	2365.7	2388.3	15.0	6.3	2362.6
1130.0	1108.5	468.6	2365.7	2387.9	15.0	5.6	2671.3
1145.0	1123.5	474.2	2369.3	2391.5	15.0	5.9	2532.0
1160.0	1138.5	480.1	2371.3	2393.3	15.0	6.1	2478.2
1175.0	1153.5	486.2	2372.6	2394.3	15.0	6.3	2367.2
1190.0	1168.5	492.5	2372.6	2394.0	15.0	6.0	2505.5
1205.0	1183.5	498.5	2374.2	2395.4	15.0	6.1	2443.0
1220.0	1198.5	504.6	2375.0	2395.9	15.0	5.6	2701.7
1235.0	1213.5	510.2	2378.5	2399.5	15.0	5.6	2699.2
1250.0	1228.5	515.7	2382.0	2402.9	15.0	6.0	2507.6
1265.0	1243.5	521.7	2383.4	2404.1	15.0	5.7	2624.0
1280.0	1258.5	527.4	2386.0	2406.6	15.0	5.8	2574.2
1295.0	1273.5	533.3	2388.1	2408.5	15.0	5.3	2838.3
1310.0	1288.5	538.5	2392.5	2413.1	15.0	5.9	2531.1
1325.0	1303.5	544.5	2394.0	2414.4	15.0	5.7	2626.2
1340.0	1318.5	550.2	2396.4	2416.7	15.0	5.3	2857.0
1355.0	1333.5	555.4	2400.8	2421.3	15.0	5.2	2863.1
1370.0	1348.5	560.7	2405.1	2425.8	15.0	5.9	2552.9
1385.0	1363.5	566.5	2406.6	2427.1	15.0	5.2	2894.7
1400.0	1378.5	571.7	2411.1	2431.8	15.0	5.1	2922.8
1415.0	1393.5	576.9	2415.6	2436.6	15.0	5.6	2671.2
1430.0	1408.5	582.5	2418.1	2438.9	15.0	5.5	2729.2
1445.0	1423.5	588.0	2421.0	2441.8	15.0	5.2	2861.8
1460.0	1438.5	593.2	2424.9	2445.8	15.0	5.8	2565.2
1475.0	1453.5	599.1	2426.3	2447.0	15.0	6.1	2477.7

MEASURED GEOPHONE DEPTH (DGM)	DEPTH CORR. TO DATUM (DGD)	TIME CORR. TO DATUM (TGD)	AVERAGE VELOCITY	RMS VELOCITY	INTERVAL DEPTH (DELDGD)	INTERVAL TIME (DELDGT)	INTERVAL VELOCITY
(M)	(M)	(MS)	(M /SEC)	(M /SEC)	(M)	(MS)	(M /SEC)
1490.0	1468.5	605.1	2426.8	2447.3			
					15.0	5.0	2984.5
1505.0	1483.5	610.1	2431.4	2452.2			
					15.0	5.6	2698.1
1520.0	1498.5	615.7	2433.8	2454.6			
					15.0	5.3	2841.5
1535.0	1513.5	621.0	2437.2	2458.1			
					15.0	4.5	3316.7
1550.0	1528.5	625.5	2443.6	2465.4			
					15.0	5.1	2921.6
1565.0	1543.5	630.6	2447.5	2469.4			
					15.0	4.4	3426.7
1580.0	1558.5	635.0	2454.2	2477.3			
					15.0	4.2	3542.5
1595.0	1573.5	639.2	2461.4	2485.9			
					15.0	5.6	2700.1
1610.0	1588.5	644.8	2463.5	2487.8			
					15.0	5.4	2802.6
1625.0	1603.5	650.2	2466.3	2490.5			
					15.0	5.6	2681.2
1640.0	1618.5	655.7	2468.1	2492.2			
					15.0	4.9	3048.5
1655.0	1633.5	660.7	2472.5	2496.8			
					15.0	5.2	2864.7
1670.0	1648.5	665.9	2475.5	2499.9			
					15.0	5.1	2950.7
1685.0	1663.5	671.0	2479.1	2503.7			
					15.0	5.3	2832.8
1700.0	1678.5	676.3	2481.9	2506.4			
					15.0	4.7	3157.6
1715.0	1693.5	681.0	2486.6	2511.5			
					15.0	4.5	3356.5
1730.0	1708.5	685.5	2492.3	2518.0			
					15.0	4.5	3309.8
1745.0	1723.5	690.0	2497.7	2524.0			
					15.0	5.6	2683.4
1760.0	1738.4	695.6	2499.1	2525.3			
					15.0	5.2	2887.7
1775.0	1753.4	700.8	2502.0	2528.2			
					15.0	5.6	2689.8
1790.0	1768.4	706.4	2503.5	2529.5			
					15.0	4.3	3458.8
1805.0	1783.4	710.7	2509.3	2536.2			
					15.0	4.4	3376.3
1820.0	1798.4	715.2	2514.7	2542.3			
					15.0	5.6	2658.4
1835.0	1813.4	720.8	2515.8	2543.2			
					15.0	4.4	3404.8
1850.0	1828.4	725.2	2521.2	2549.3			
					15.0	5.3	2842.3
1865.0	1843.4	730.5	2523.6	2551.5			
					15.0	4.0	3753.1
1880.0	1858.4	734.5	2530.2	2559.6			
					15.0	4.7	3168.4
1895.0	1873.4	739.2	2534.3	2563.9			

MEASURED GEOPHONE DEPTH (DGM) (M)	DEPTH CORR. TO DATUM (DGD) (M)	TIME CORR. TO DATUM (TGD) (MS)	AVERAGE VELOCITY (M /SEC)	RMS VELOCITY (M /SEC)	INTERVAL DEPTH (DELDGD) (M)	INTERVAL TIME (DELDGT) (MS)	INTERVAL VELOCITY (M /SEC)
					15.0	4.3	3450.0
1910.0	1888.4	743.5	2539.7	2570.0			
					15.0	4.2	3554.5
1925.0	1903.4	747.8	2545.4	2576.6			
					15.0	4.6	3259.3
1940.0	1918.4	752.4	2549.8	2581.3			
					15.0	4.8	3151.1
1955.0	1933.3	757.1	2553.5	2585.3			
					15.0	4.8	3149.2
1970.0	1948.3	761.9	2557.3	2589.2			
					15.0	5.5	2729.6
1985.0	1963.3	767.4	2558.5	2590.2			
					15.0	4.3	3454.4
2000.0	1978.3	771.7	2563.5	2595.9			
					15.0	4.9	3068.0
2015.0	1993.3	776.6	2566.7	2599.1			
					15.0	5.0	2971.2
2030.0	2008.3	781.6	2569.3	2601.7			
					15.0	4.1	3618.9
2045.0	2023.3	785.8	2574.9	2608.1			
					15.0	3.8	3959.3
2060.0	2038.3	789.6	2581.5	2616.3			
					15.0	4.0	3777.6
2075.0	2053.2	793.5	2587.5	2623.4			
					15.0	5.5	2701.7
2090.0	2068.2	799.1	2588.3	2623.9			
					15.0	4.6	3259.3
2105.0	2083.2	803.7	2592.1	2628.0			
					15.0	3.8	3995.6
2120.0	2098.2	807.4	2598.6	2636.0			
					15.0	4.3	3458.9
2135.0	2113.2	811.8	2603.2	2641.0			
					15.0	5.2	2884.9
2150.0	2128.2	817.0	2605.0	2642.7			
					15.0	5.2	2903.3
2165.0	2143.2	822.1	2606.9	2644.4			
					15.0	4.0	3794.0
2180.0	2158.2	826.1	2612.6	2651.1			
					15.0	5.1	2948.8
2195.0	2173.2	831.2	2614.6	2653.0			
					15.0	4.5	3325.5
2210.0	2188.2	835.7	2618.5	2657.1			
					15.0	3.9	3799.8
2225.0	2203.2	839.6	2624.0	2663.6			
					15.0	5.0	3001.1
2240.0	2218.1	844.6	2626.2	2665.7			
					15.0	3.6	4124.2
2255.0	2233.1	848.2	2632.7	2673.7			
					15.0	4.9	3078.5
2270.0	2248.1	853.1	2635.2	2676.1			
					15.0	3.5	4335.1
2285.0	2263.1	856.6	2642.1	2684.9			
					15.0	4.3	3484.3
2300.0	2278.1	860.9	2646.3	2689.5			
					15.0	4.2	3542.2

MEASURED GEOPHONE DEPTH (DGM)	DEPTH CORR. TO DATUM (DGD)	TIME CORR. TO DATUM (TGD)	AVERAGE VELOCITY	RMS VELOCITY	INTERVAL DEPTH (DELDGD)	INTERVAL TIME (DELDGT)	INTERVAL VELOCITY
(M)	(M)	(MS)	(M /SEC)	(M /SEC)	(M)	(MS)	(M /SEC)
2315.0	2293.1	865.1	2650.7	2694.3			
					15.0	3.1	4805.4
2330.0	2308.1	868.2	2658.4	2704.9			
					15.0	3.3	4502.4
2345.0	2323.1	871.6	2665.4	2714.0			
					15.0	4.7	3199.8
2360.0	2338.1	876.2	2668.3	2716.8			
					15.0	5.2	2905.9
2375.0	2353.1	881.4	2669.7	2718.0			
					15.0	5.0	2998.8
2390.0	2368.1	886.4	2671.6	2719.6			
					15.0	3.6	4140.3
2405.0	2383.1	890.0	2677.5	2726.9			
					15.0	3.2	4628.1
2420.0	2398.1	893.3	2684.6	2736.2			
					15.0	4.1	3655.9
2435.0	2413.1	897.4	2689.0	2741.1			
					15.0	4.8	3149.6
2450.0	2428.1	902.1	2691.5	2743.4			
					15.0	3.5	4239.6
2465.0	2443.1	905.7	2697.5	2750.9			
					15.0	3.9	3802.4
2480.0	2458.1	909.6	2702.3	2756.3			
					15.0	3.4	4349.3
2495.0	2473.1	913.1	2708.5	2764.0			
					15.0	3.8	3946.5
2510.0	2488.1	916.9	2713.7	2770.0			
					15.0	3.5	4289.2
2525.0	2503.1	920.4	2719.7	2777.3			
					15.0	3.6	4166.4
2540.0	2518.1	924.0	2725.3	2784.1			
					15.0	3.5	4299.7
2555.0	2533.1	927.5	2731.2	2791.3			
					15.0	4.9	3082.0
2570.0	2548.1	932.3	2733.0	2792.9			
					15.0	5.2	2864.1
2585.0	2563.1	937.6	2733.8	2793.3			
					15.0	3.9	3827.5
2600.0	2578.1	941.5	2738.3	2798.4			
					15.0	3.7	4008.8
2615.0	2593.1	945.2	2743.4	2804.2			
					15.0	3.9	3888.4
2630.0	2608.1	949.1	2748.0	2809.5			
					15.0	2.8	5298.8
2645.0	2623.1	951.9	2755.6	2820.1			
					15.0	4.0	3795.2
2660.0	2638.1	955.9	2759.9	2824.9			
					15.0	3.4	4374.4
2675.0	2653.1	959.3	2765.7	2831.9			
					15.0	3.9	3888.9
2690.0	2668.1	963.1	2770.2	2836.9			
					15.0	4.2	3601.8
2705.0	2683.0	967.3	2773.7	2840.7			
					15.0	2.7	5462.5
2720.0	2698.0	970.0	2781.3	2851.5			

MEASURED GEOPHONE DEPTH (DGM) (M)	DEPTH CORR. TO DATUM (DGD) (M)	TIME CORR. TO DATUM (TGD) (MS)	AVERAGE VELOCITY (M /SEC)	RMS VELOCITY (M /SEC)	INTERVAL DEPTH (DELDGD) (M)	INTERVAL TIME (DELDGT) (MS)	INTERVAL VELOCITY (M /SEC)
					15.0	3.0	4980.0
2735.0	2713.0	973.1	2788.1	2860.5			
					15.0	4.4	3420.6
2750.0	2728.0	977.4	2791.0	2863.3			
					15.0	4.8	3113.0
2765.0	2743.0	982.3	2792.6	2864.6			
					15.0	4.1	3643.8
2780.0	2758.0	986.4	2796.1	2868.2			
					15.0	2.9	5133.4
2795.0	2773.0	989.3	2803.0	2877.6			
					15.0	2.5	5997.9
2810.0	2788.0	991.8	2811.1	2889.7			
					15.0	3.2	4704.5
2825.0	2803.0	995.0	2817.1	2897.3			
					15.0	4.7	3161.7
2840.0	2817.9	999.7	2818.8	2898.6			
					15.0	4.1	3690.4
2855.0	2832.9	1003.8	2822.3	2902.2			
					15.0	2.9	5169.8
2870.0	2847.9	1006.7	2829.0	2911.3			
					15.0	3.0	5011.9
2885.0	2862.9	1009.7	2835.5	2919.7			
					15.0	4.4	3436.8
2900.0	2877.9	1014.0	2838.1	2922.2			

10. DATA INTERPOLATED EVERY 10.00 M BELOW DATUM

APACHE ENERGY LIMITED
WELL : GRAYLING-1A

DATUM ELEVATION 0.00 M ABOVE SEA LEVEL
DATUM CORRECT. VELOCITY 1524.00 M /SEC

DATA INTERPOLATED EVERY 10.00 M BELOW DATUM

DATUM	------ TIME ------		-------- VELOCITY --------		
DEPTH (DGD)	1 WAY (TGD)	2 WAY	AVERAGE	INTERVAL	RMS
10.0	5.0	10.0	1995.0	1995.0	1995.0
20.0	10.0	20.1	1995.0	1995.0	1995.0
30.0	15.0	30.1	1995.0	1995.0	1995.0
40.0	20.1	40.1	1995.0	1995.0	1995.0
50.0	25.1	50.1	1995.0	1995.0	1995.0
60.0	30.1	60.2	1995.0	1995.0	1995.0
70.0	35.1	70.2	1995.0	1995.0	1995.0
80.0	40.1	80.2	1995.0	1995.0	1995.0
90.0	45.1	90.2	1995.0	1995.0	1995.0
100.0	50.1	100.3	1995.0	1995.0	1995.0
110.0	55.1	110.3	1995.0	1995.0	1995.0
120.0	60.2	120.3	1995.0	1995.0	1995.0
130.0	65.2	130.3	1995.0	1995.0	1995.0
140.0	70.2	140.4	1995.0	1995.0	1995.0
150.0	75.2	150.4	1995.0	1995.0	1995.0
160.0	80.2	160.4	1995.0	1995.0	1995.0
170.0	85.2	170.4	1995.0	1995.0	1995.0
180.0	90.2	180.5	1995.0	1995.0	1995.0
190.0	95.2	190.5	1995.0	1995.0	1995.0
200.0	100.3	200.5	1995.0	1995.0	1995.0
210.0	105.3	210.5	1995.0	1995.0	1995.0
220.0	110.3	220.6	1995.0	1995.0	1995.0
230.0	115.3	230.6	1995.0	1995.0	1995.0
240.0	120.3	240.6	1995.0	1995.0	1995.0
250.0	125.3	250.6	1995.0	1995.0	1995.0
260.0	130.3	260.7	1995.0	1995.0	1995.0
270.0	135.3	270.7	1995.0	1995.0	1995.0
280.0	140.4	280.7	1995.0	1995.0	1995.0
290.0	145.4	290.7	1995.0	1995.0	1995.0
300.0	150.4	300.8	1995.0	1995.0	1995.0
310.0	155.4	310.8	1995.0	1995.0	1995.0
320.0	160.4	320.8	1995.0	1995.0	1995.0
330.0	165.4	330.8	1995.0	1995.0	1995.0
340.0	170.4	340.9	1995.0	1995.0	1995.0
350.0	175.4	350.9	1995.0	1995.0	1995.0
360.0	180.2	360.5	1997.5	2090.9	1997.6
370.0	183.7	367.4	2014.0	2865.9	2017.5
380.0	187.3	374.6	2028.6	2772.4	2034.7
390.0	191.1	382.3	2040.3	2613.2	2047.9
400.0	195.9	391.7	2042.3	2124.7	2049.8
410.0	200.3	400.6	2046.8	2245.2	2054.3
420.0	204.5	409.1	2053.4	2363.8	2061.2
430.0	208.3	416.5	2064.6	2676.9	2073.9
440.0	212.1	424.1	2074.9	2642.3	2085.4
450.0	215.9	431.7	2084.7	2629.7	2096.2

DATUM DEPTH (DGD)	TIME 1 WAY (TGD)	TIME 2 WAY	VELOCITY AVERAGE	VELOCITY INTERVAL	VELOCITY RMS
460.0	219.6	439.2	2094.5	2661.2	2107.1
470.0	223.5	447.0	2103.1	2592.7	2116.4
480.0	227.4	454.8	2111.0	2565.0	2124.9
490.0	231.2	462.4	2119.3	2609.0	2133.8
500.0	234.9	469.8	2128.8	2724.7	2144.3
510.0	238.4	476.9	2138.9	2803.4	2155.7
520.0	241.9	483.8	2149.4	2874.4	2167.7
530.0	245.7	491.3	2157.5	2680.9	2176.4
540.0	249.5	499.0	2164.3	2601.9	2183.6
550.0	253.2	506.4	2172.0	2685.4	2191.8
560.0	257.3	514.5	2176.8	2475.1	2196.5
570.0	261.4	522.7	2180.8	2436.5	2200.5
580.0	264.9	529.8	2189.7	2847.6	2210.3
590.0	268.3	536.6	2198.9	2909.8	2220.7
600.0	271.7	543.5	2208.0	2916.0	2230.8
610.0	275.4	550.7	2215.3	2767.1	2238.7
620.0	278.9	557.8	2222.8	2806.0	2246.8
630.0	282.5	565.0	2230.3	2812.3	2254.8
640.0	286.1	572.3	2236.7	2731.4	2261.6
650.0	289.6	579.1	2244.7	2913.5	2270.4
660.0	292.9	585.8	2253.2	2989.9	2279.9
670.0	296.5	592.9	2260.0	2824.9	2287.1
680.0	300.3	600.6	2264.5	2607.9	2291.5
690.0	304.3	608.6	2267.6	2504.4	2294.4
700.0	308.3	616.6	2270.7	2501.2	2297.2
710.0	312.4	624.8	2272.7	2423.2	2299.0
720.0	316.5	633.0	2274.8	2434.7	2300.8
730.0	320.1	640.3	2280.3	2768.3	2306.6
740.0	324.0	647.9	2284.2	2608.7	2310.4
750.0	327.9	655.9	2287.0	2510.2	2312.9
760.0	332.1	664.2	2288.4	2401.5	2314.0
770.0	336.0	671.9	2292.0	2599.3	2317.5
780.0	339.7	679.4	2296.2	2676.1	2321.8
790.0	343.8	687.5	2298.1	2457.9	2323.4
800.0	347.5	695.0	2302.1	2672.7	2327.5
810.0	351.1	702.3	2306.7	2742.2	2332.1
820.0	355.2	710.5	2308.3	2441.4	2333.4
830.0	359.4	718.8	2309.5	2414.9	2334.4
840.0	363.5	727.1	2310.6	2406.4	2335.2
850.0	367.6	735.3	2312.0	2437.8	2336.4
860.0	371.7	743.4	2313.6	2455.1	2337.7
870.0	375.7	751.4	2315.7	2509.9	2339.6
880.0	379.3	758.5	2320.2	2799.1	2344.4
890.0	383.1	766.2	2323.0	2600.5	2347.1
900.0	387.1	774.2	2325.0	2518.8	2348.9
910.0	390.9	781.9	2327.7	2596.3	2351.5
920.0	394.8	789.6	2330.4	2598.8	2354.0
930.0	398.7	797.3	2332.9	2588.3	2356.4
940.0	402.6	805.2	2334.7	2524.1	2358.1
950.0	406.5	813.0	2336.9	2560.8	2360.1
960.0	410.4	820.7	2339.4	2600.5	2362.5
970.0	414.0	828.1	2342.7	2716.9	2365.9
980.0	417.7	835.4	2346.3	2749.0	2369.5
990.0	421.4	842.7	2349.5	2713.1	2372.7
1000.0	425.5	850.9	2350.4	2448.7	2373.4
1010.0	429.5	859.1	2351.4	2447.8	2374.2
1020.0	433.6	867.2	2352.5	2469.2	2375.1
1030.0	437.4	874.9	2354.6	2599.0	2377.1
1040.0	441.4	882.7	2356.3	2540.4	2378.6

DATUM DEPTH (DGD)	TIME 1 WAY (TGD)	TIME 2 WAY	VELOCITY AVERAGE	VELOCITY INTERVAL	VELOCITY RMS
1050.0	445.3	890.6	2357.9	2540.0	2380.1
1060.0	449.0	898.0	2360.9	2721.3	2383.1
1070.0	452.8	905.7	2362.9	2592.3	2385.0
1080.0	456.8	913.6	2364.2	2522.2	2386.2
1090.0	460.8	921.6	2365.3	2489.3	2387.1
1100.0	465.0	930.0	2365.7	2405.3	2387.3
1110.0	469.1	938.3	2366.0	2404.8	2387.4
1120.0	472.9	945.8	2368.5	2671.3	2389.8
1130.0	476.8	953.5	2370.2	2578.9	2391.4
1140.0	480.7	961.4	2371.4	2523.7	2392.5
1150.0	484.8	969.5	2372.3	2478.2	2393.2
1160.0	488.9	977.8	2372.6	2404.7	2393.3
1170.0	493.1	986.2	2372.7	2387.1	2393.3
1180.0	497.1	994.2	2373.8	2505.5	2394.2
1190.0	501.2	1002.3	2374.5	2464.4	2394.8
1200.0	505.2	1010.4	2375.4	2479.0	2395.5
1210.0	508.9	1017.8	2377.7	2701.6	2397.8
1220.0	512.6	1025.2	2380.1	2700.0	2400.2
1230.0	516.3	1032.7	2382.1	2668.2	2402.2
1240.0	520.3	1040.7	2383.1	2507.6	2403.0
1250.0	524.2	1048.4	2384.6	2582.3	2404.4
1260.0	528.0	1056.0	2386.3	2616.4	2406.0
1270.0	531.9	1063.8	2387.6	2574.2	2407.3
1280.0	535.6	1071.1	2390.0	2740.4	2409.7
1290.0	539.1	1078.3	2392.7	2787.0	2412.4
1300.0	543.1	1086.2	2393.7	2531.1	2413.3
1310.0	547.0	1093.9	2395.1	2592.3	2414.6
1320.0	550.7	1101.4	2396.9	2658.8	2416.4
1330.0	554.2	1108.4	2399.8	2857.0	2419.4
1340.0	557.7	1115.4	2402.7	2861.0	2422.4
1350.0	561.3	1122.5	2405.3	2811.3	2425.1
1360.0	565.2	1130.4	2406.3	2552.8	2426.0
1370.0	568.8	1137.6	2408.6	2765.7	2428.3
1380.0	572.2	1144.5	2411.5	2898.9	2431.4
1390.0	575.7	1151.3	2414.6	2922.8	2434.6
1400.0	579.3	1158.6	2416.7	2753.7	2436.7
1410.0	583.0	1166.1	2418.4	2679.8	2438.4
1420.0	586.7	1173.4	2420.3	2729.3	2440.3
1430.0	590.3	1180.5	2422.7	2814.2	2442.7
1440.0	593.8	1187.6	2425.0	2812.4	2445.1
1450.0	597.7	1195.4	2425.9	2565.2	2445.9
1460.0	601.7	1203.4	2426.5	2507.5	2446.3
1470.0	605.6	1211.3	2427.2	2543.5	2447.0
1480.0	609.0	1218.0	2430.3	2984.5	2450.2
1490.0	612.6	1225.1	2432.4	2791.2	2452.4
1500.0	616.2	1232.5	2434.1	2719.1	2454.1
1510.0	619.8	1239.5	2436.4	2841.5	2456.4
1520.0	622.9	1245.9	2440.0	3134.5	2460.4
1530.0	626.0	1252.0	2444.0	3249.6	2464.9
1540.0	629.4	1258.9	2446.6	2921.6	2467.6
1550.0	632.5	1265.1	2450.4	3232.6	2471.9
1560.0	635.4	1270.9	2455.0	3443.8	2477.2
1570.0	638.3	1276.5	2459.8	3542.6	2482.9
1580.0	641.7	1283.3	2462.3	2943.1	2485.6
1590.0	645.3	1290.7	2463.8	2715.2	2487.0
1600.0	648.9	1297.8	2465.7	2802.6	2488.8
1610.0	652.6	1305.2	2467.1	2722.1	2490.2
1620.0	656.2	1312.5	2468.6	2731.6	2491.6
1630.0	659.5	1319.1	2471.5	3048.5	2494.7

DATUM DEPTH (DGD)	TIME 1 WAY (TGD)	TIME 2 WAY	VELOCITY AVERAGE	VELOCITY INTERVAL	VELOCITY RMS
1640.0	662.9	1325.9	2473.8	2925.9	2497.1
1650.0	666.4	1332.8	2475.9	2877.5	2499.2
1660.0	669.8	1339.6	2478.3	2950.7	2501.7
1670.0	673.3	1346.6	2480.3	2872.6	2503.8
1680.0	676.8	1353.5	2482.4	2878.3	2505.8
1690.0	679.9	1359.9	2485.5	3157.6	2509.3
1700.0	683.0	1366.0	2489.1	3284.9	2513.2
1710.0	686.0	1371.9	2492.8	3349.2	2517.5
1720.0	689.0	1378.0	2496.4	3309.8	2521.5
1730.0	692.5	1384.9	2498.3	2871.1	2523.4
1740.0	696.2	1392.3	2499.4	2713.2	2524.4
1750.0	699.6	1399.2	2501.4	2887.7	2526.4
1760.0	703.2	1406.5	2502.7	2754.9	2527.6
1770.0	706.8	1413.7	2504.1	2786.7	2529.0
1780.0	709.7	1419.5	2508.0	3458.8	2533.4
1790.0	712.7	1425.3	2511.7	3404.1	2537.7
1800.0	715.8	1431.5	2514.8	3238.3	2541.1
1810.0	719.5	1439.0	2515.6	2658.4	2541.7
1820.0	722.7	1445.5	2518.2	3107.0	2544.5
1830.0	725.8	1451.5	2521.5	3300.6	2548.1
1840.0	729.3	1458.6	2523.0	2842.3	2549.6
1850.0	732.2	1464.5	2526.5	3384.7	2553.6
1860.0	735.0	1470.0	2530.7	3644.6	2558.5
1870.0	738.1	1476.3	2533.4	3168.4	2561.4
1880.0	741.1	1482.2	2536.7	3349.4	2565.1
1890.0	744.0	1488.0	2540.3	3466.6	2569.2
1900.0	746.8	1493.6	2544.1	3554.6	2573.6
1910.0	749.8	1499.6	2547.3	3352.9	2577.2
1920.0	752.9	1505.8	2550.2	3241.0	2580.2
1930.0	756.1	1512.1	2552.7	3151.1	2582.9
1940.0	759.2	1518.5	2555.2	3149.8	2585.5
1950.0	762.5	1525.0	2557.4	3070.3	2587.8
1960.0	766.2	1532.3	2558.2	2729.6	2588.5
1970.0	769.3	1538.6	2560.8	3174.5	2591.2
1980.0	772.3	1544.5	2563.9	3382.4	2594.6
1990.0	775.5	1551.0	2566.0	3068.0	2596.8
2000.0	778.9	1557.7	2567.9	3002.5	2598.7
2010.0	782.1	1564.2	2570.0	3065.2	2600.8
2020.0	784.9	1569.8	2573.6	3618.9	2605.1
2030.0	787.5	1575.0	2577.8	3841.0	2610.1
2040.0	790.0	1580.1	2582.2	3926.5	2615.4
2050.0	792.7	1585.4	2586.2	3777.6	2620.2
2060.0	796.0	1592.1	2587.8	2977.2	2621.8
2070.0	799.6	1599.2	2588.7	2785.7	2622.5
2080.0	802.7	1605.4	2591.3	3259.3	2625.3
2090.0	805.4	1610.8	2595.1	3724.1	2629.7
2100.0	807.9	1615.9	2599.2	3888.0	2634.7
2110.0	810.8	1621.7	2602.2	3458.9	2638.1
2120.0	814.1	1628.2	2604.0	3047.1	2639.8
2130.0	817.6	1635.2	2605.2	2888.2	2640.9
2140.0	821.0	1642.1	2606.5	2903.3	2642.1
2150.0	823.9	1647.8	2609.5	3456.1	2645.4
2160.0	826.7	1653.4	2612.8	3605.7	2649.2
2170.0	830.1	1660.2	2614.2	2948.8	2650.5
2180.0	833.2	1666.4	2616.4	3196.1	2652.7
2190.0	836.2	1672.3	2619.1	3403.8	2655.8
2200.0	838.8	1677.6	2622.8	3799.7	2660.1
2210.0	841.9	1683.8	2625.0	3213.9	2662.4
2220.0	845.1	1690.1	2627.0	3161.0	2664.4

DATUM DEPTH (DGD)	TIME 1 WAY (TGD)	TIME 2 WAY	VELOCITY AVERAGE	VELOCITY INTERVAL	VELOCITY RMS
2230.0	847.5	1695.0	2631.3	4124.3	2669.7
2240.0	850.5	1701.0	2633.8	3344.4	2672.4
2250.0	853.5	1707.1	2636.1	3255.2	2674.7
2260.0	855.9	1711.7	2640.6	4335.0	2680.6
2270.0	858.5	1717.1	2644.0	3711.7	2684.4
2280.0	861.4	1722.8	2646.8	3495.0	2687.5
2290.0	864.2	1728.5	2649.7	3542.3	2690.8
2300.0	866.5	1733.1	2654.2	4325.5	2696.4
2310.0	868.7	1737.3	2659.3	4745.0	2703.3
2320.0	870.9	1741.7	2664.0	4502.5	2709.4
2330.0	873.7	1747.4	2666.8	3515.4	2712.4
2340.0	876.9	1753.8	2668.5	3139.5	2714.1
2350.0	880.3	1760.7	2669.4	2905.9	2714.9
2360.0	883.7	1767.4	2670.6	2969.5	2715.9
2370.0	886.9	1773.7	2672.3	3165.2	2717.6
2380.0	889.3	1778.6	2676.3	4140.2	2722.5
2390.0	891.5	1783.1	2680.8	4465.4	2728.3
2400.0	893.8	1787.6	2685.2	4404.3	2733.8
2410.0	896.5	1793.1	2688.1	3655.9	2737.1
2420.0	899.6	1799.1	2690.2	3290.3	2739.2
2430.0	902.6	1805.2	2692.3	3312.5	2741.3
2440.0	904.9	1809.9	2696.3	4239.6	2746.2
2450.0	907.5	1815.0	2699.7	3927.3	2750.3
2460.0	910.1	1820.1	2703.1	3896.2	2754.2
2470.0	912.4	1824.7	2707.3	4349.3	2759.4
2480.0	914.8	1829.6	2710.9	4062.5	2763.7
2490.0	917.3	1834.6	2714.4	4007.9	2767.8
2500.0	919.6	1839.3	2718.4	4289.1	2772.7
2510.0	922.0	1844.1	2722.3	4203.5	2777.4
2520.0	924.4	1848.8	2726.1	4191.2	2782.0
2530.0	926.7	1853.5	2730.0	4299.7	2786.8
2540.0	929.7	1859.4	2732.1	3376.4	2788.9
2550.0	933.0	1866.0	2733.1	3037.6	2789.8
2560.0	936.5	1873.0	2733.6	2864.1	2790.1
2570.0	939.4	1878.7	2735.9	3468.5	2792.4
2580.0	942.0	1883.9	2739.0	3861.1	2795.9
2590.0	944.5	1888.9	2742.3	4008.8	2799.8
2600.0	947.0	1894.0	2745.5	3924.7	2803.4
2610.0	949.4	1898.9	2749.0	4099.0	2807.5
2620.0	951.3	1902.7	2754.0	5298.8	2814.7
2630.0	953.7	1907.5	2757.6	4156.9	2818.8
2640.0	956.3	1912.6	2760.6	3895.2	2822.3
2650.0	958.6	1917.2	2764.5	4374.3	2827.0
2660.0	961.1	1922.1	2767.7	4025.6	2830.7
2670.0	963.7	1927.4	2770.6	3829.5	2833.9
2680.0	966.5	1932.9	2773.0	3601.7	2836.4
2690.0	968.6	1937.2	2777.3	4719.6	2841.9
2700.0	970.4	1940.9	2782.2	5360.7	2848.9
2710.0	972.5	1944.9	2786.8	4980.1	2854.9
2720.0	975.1	1950.2	2789.5	3779.6	2857.8
2730.0	978.1	1956.2	2791.2	3355.2	2859.5
2740.0	981.3	1962.6	2792.2	3112.9	2860.4
2750.0	984.2	1968.3	2794.2	3465.6	2862.3
2760.0	986.8	1973.5	2797.0	3867.6	2865.4
2770.0	988.7	1977.4	2801.6	5133.3	2871.6
2780.0	990.5	1980.9	2806.8	5709.9	2879.1
2790.0	992.2	1984.4	2811.9	5682.6	2886.5
2800.0	994.3	1988.7	2815.9	4704.5	2891.6
2810.0	997.2	1994.4	2817.9	3502.4	2893.6

DATUM DEPTH (DGD)	TIME 1 WAY (TGD)	TIME 2 WAY	VELOCITY AVERAGE	VELOCITY INTERVAL	VELOCITY RMS
2820.0	1000.3	2000.5	2819.2	3257.5	2894.7
2830.0	1003.0	2006.0	2821.6	3690.4	2897.2
2840.0	1005.1	2010.3	2825.5	4626.4	2902.0
2850.0	1007.1	2014.2	2829.9	5135.9	2908.0
2860.0	1009.1	2018.2	2834.3	5011.9	2913.6
2870.0	1011.7	2023.5	2836.7	3779.5	2916.2

11. DATA INTERPOLATED EVERY 2.00 MS BELOW DATUM

APACHE ENERGY LIMITED
WELL : GRAYLING-1A

DATUM ELEVATION 0.00 M ABOVE SEA LEVEL
DATUM CORRECT. VELOCITY 1524.00 M /SEC

DATA INTERPOLATED EVERY 2.00 MS BELOW DATUM

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
2.0	1.0	2.0	1995.0	1995.0	1995.0
4.0	2.0	4.0	1995.0	1995.0	1995.0
6.0	3.0	6.0	1995.0	1995.0	1995.0
8.0	4.0	8.0	1995.0	1995.0	1995.0
10.0	5.0	10.0	1995.0	1995.0	1995.0
12.0	6.0	12.0	1995.0	1995.0	1995.0
14.0	7.0	14.0	1995.0	1995.0	1995.0
16.0	8.0	16.0	1995.0	1995.0	1995.0
18.0	9.0	18.0	1995.0	1995.0	1995.0
20.0	10.0	19.9	1995.0	1995.0	1995.0
22.0	11.0	21.9	1995.0	1995.0	1995.0
24.0	12.0	23.9	1995.0	1995.0	1995.0
26.0	13.0	25.9	1995.0	1995.0	1995.0
28.0	14.0	27.9	1995.0	1995.0	1995.0
30.0	15.0	29.9	1995.0	1995.0	1995.0
32.0	16.0	31.9	1995.0	1995.0	1995.0
34.0	17.0	33.9	1995.0	1995.0	1995.0
36.0	18.0	35.9	1995.0	1995.0	1995.0
38.0	19.0	37.9	1995.0	1995.0	1995.0
40.0	20.0	39.9	1995.0	1995.0	1995.0
42.0	21.0	41.9	1995.0	1995.0	1995.0
44.0	22.0	43.9	1995.0	1995.0	1995.0
46.0	23.0	45.9	1995.0	1995.0	1995.0
48.0	24.0	47.9	1995.0	1995.0	1995.0
50.0	25.0	49.9	1995.0	1995.0	1995.0
52.0	26.0	51.9	1995.0	1995.0	1995.0
54.0	27.0	53.9	1995.0	1995.0	1995.0
56.0	28.0	55.9	1995.0	1995.0	1995.0
58.0	29.0	57.9	1995.0	1995.0	1995.0
60.0	30.0	59.8	1995.0	1995.0	1995.0
62.0	31.0	61.8	1995.0	1995.0	1995.0
64.0	32.0	63.8	1995.0	1995.0	1995.0
66.0	33.0	65.8	1995.0	1995.0	1995.0
68.0	34.0	67.8	1995.0	1995.0	1995.0
70.0	35.0	69.8	1995.0	1995.0	1995.0
72.0	36.0	71.8	1995.0	1994.9	1995.0
74.0	37.0	73.8	1995.0	1995.0	1995.0
76.0	38.0	75.8	1995.0	1995.0	1995.0
78.0	39.0	77.8	1995.0	1994.9	1995.0
80.0	40.0	79.8	1995.0	1995.0	1995.0
82.0	41.0	81.8	1995.0	1995.0	1995.0
84.0	42.0	83.8	1995.0	1995.0	1995.0
86.0	43.0	85.8	1995.0	1994.9	1995.0
88.0	44.0	87.8	1995.0	1995.0	1995.0
90.0	45.0	89.8	1995.0	1994.9	1995.0

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
92.0	46.0	91.8	1995.0	1995.0	1995.0
94.0	47.0	93.8	1995.0	1995.0	1995.0
96.0	48.0	95.8	1995.0	1995.0	1995.0
98.0	49.0	97.8	1995.0	1994.9	1995.0
100.0	50.0	99.7	1995.0	1995.0	1995.0
102.0	51.0	101.7	1995.0	1994.9	1995.0
104.0	52.0	103.7	1995.0	1995.0	1995.0
106.0	53.0	105.7	1995.0	1995.0	1995.0
108.0	54.0	107.7	1995.0	1994.9	1995.0
110.0	55.0	109.7	1995.0	1995.0	1995.0
112.0	56.0	111.7	1995.0	1995.0	1995.0
114.0	57.0	113.7	1995.0	1994.9	1995.0
116.0	58.0	115.7	1995.0	1995.0	1995.0
118.0	59.0	117.7	1995.0	1995.0	1995.0
120.0	60.0	119.7	1995.0	1994.9	1995.0
122.0	61.0	121.7	1995.0	1995.0	1995.0
124.0	62.0	123.7	1995.0	1995.0	1995.0
126.0	63.0	125.7	1995.0	1994.9	1995.0
128.0	64.0	127.7	1995.0	1995.0	1995.0
130.0	65.0	129.7	1995.0	1995.0	1995.0
132.0	66.0	131.7	1995.0	1994.9	1995.0
134.0	67.0	133.7	1995.0	1994.9	1995.0
136.0	68.0	135.7	1995.0	1995.0	1995.0
138.0	69.0	137.7	1995.0	1994.9	1995.0
140.0	70.0	139.6	1995.0	1995.0	1995.0
142.0	71.0	141.6	1995.0	1994.9	1995.0
144.0	72.0	143.6	1995.0	1994.9	1995.0
146.0	73.0	145.6	1995.0	1995.0	1995.0
148.0	74.0	147.6	1995.0	1994.9	1995.0
150.0	75.0	149.6	1995.0	1994.9	1995.0
152.0	76.0	151.6	1995.0	1995.0	1995.0
154.0	77.0	153.6	1995.0	1994.9	1995.0
156.0	78.0	155.6	1995.0	1994.9	1995.0
158.0	79.0	157.6	1995.0	1995.0	1995.0
160.0	80.0	159.6	1995.0	1994.9	1995.0
162.0	81.0	161.6	1995.0	1995.0	1995.0
164.0	82.0	163.6	1995.0	1994.9	1995.0
166.0	83.0	165.6	1995.0	1994.9	1995.0
168.0	84.0	167.6	1995.0	1995.0	1995.0
170.0	85.0	169.6	1995.0	1994.9	1995.0
172.0	86.0	171.6	1995.0	1994.9	1995.0
174.0	87.0	173.6	1995.0	1995.0	1995.0
176.0	88.0	175.6	1995.0	1995.0	1995.0
178.0	89.0	177.6	1995.0	1994.9	1995.0
180.0	90.0	179.5	1995.0	1995.0	1995.0
182.0	91.0	181.5	1995.0	1995.0	1995.0
184.0	92.0	183.5	1995.0	1994.9	1995.0
186.0	93.0	185.5	1995.0	1995.0	1995.0
188.0	94.0	187.5	1995.0	1994.9	1995.0
190.0	95.0	189.5	1995.0	1994.9	1995.0
192.0	96.0	191.5	1995.0	1995.0	1995.0
194.0	97.0	193.5	1995.0	1994.9	1995.0
196.0	98.0	195.5	1995.0	1994.9	1995.0
198.0	99.0	197.5	1995.0	1994.9	1995.0
200.0	100.0	199.5	1995.0	1995.0	1995.0
202.0	101.0	201.5	1995.0	1994.9	1995.0
204.0	102.0	203.5	1995.0	1994.9	1995.0
206.0	103.0	205.5	1995.0	1995.0	1995.0
208.0	104.0	207.5	1995.0	1994.9	1995.0

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
210.0	105.0	209.5	1995.0	1994.9	1995.0
212.0	106.0	211.5	1995.0	1995.0	1995.0
214.0	107.0	213.5	1995.0	1994.9	1995.0
216.0	108.0	215.5	1995.0	1994.9	1995.0
218.0	109.0	217.5	1995.0	1995.0	1995.0
220.0	110.0	219.4	1995.0	1994.9	1995.0
222.0	111.0	221.4	1995.0	1994.9	1995.0
224.0	112.0	223.4	1995.0	1995.0	1995.0
226.0	113.0	225.4	1995.0	1994.9	1995.0
228.0	114.0	227.4	1995.0	1994.9	1995.0
230.0	115.0	229.4	1995.0	1995.0	1995.0
232.0	116.0	231.4	1995.0	1994.9	1995.0
234.0	117.0	233.4	1995.0	1994.9	1995.0
236.0	118.0	235.4	1995.0	1995.0	1995.0
238.0	119.0	237.4	1995.0	1994.9	1995.0
240.0	120.0	239.4	1995.0	1994.9	1995.0
242.0	121.0	241.4	1995.0	1995.0	1995.0
244.0	122.0	243.4	1995.0	1994.9	1995.0
246.0	123.0	245.4	1995.0	1994.9	1995.0
248.0	124.0	247.4	1995.0	1995.0	1995.0
250.0	125.0	249.4	1995.0	1994.9	1995.0
252.0	126.0	251.4	1995.0	1994.9	1995.0
254.0	127.0	253.4	1995.0	1995.0	1995.0
256.0	128.0	255.4	1995.0	1994.9	1995.0
258.0	129.0	257.3	1995.0	1995.0	1995.0
260.0	130.0	259.3	1995.0	1995.0	1995.0
262.0	131.0	261.3	1995.0	1994.9	1995.0
264.0	132.0	263.3	1995.0	1995.0	1995.0
266.0	133.0	265.3	1995.0	1995.0	1995.0
268.0	134.0	267.3	1995.0	1994.9	1995.0
270.0	135.0	269.3	1995.0	1995.0	1995.0
272.0	136.0	271.3	1995.0	1995.0	1995.0
274.0	137.0	273.3	1995.0	1994.9	1995.0
276.0	138.0	275.3	1995.0	1995.0	1995.0
278.0	139.0	277.3	1995.0	1995.0	1995.0
280.0	140.0	279.3	1995.0	1995.0	1995.0
282.0	141.0	281.3	1995.0	1994.9	1995.0
284.0	142.0	283.3	1995.0	1995.0	1995.0
286.0	143.0	285.3	1995.0	1995.0	1995.0
288.0	144.0	287.3	1995.0	1994.9	1995.0
290.0	145.0	289.3	1995.0	1995.0	1995.0
292.0	146.0	291.3	1995.0	1995.0	1995.0
294.0	147.0	293.3	1995.0	1994.9	1995.0
296.0	148.0	295.3	1995.0	1995.0	1995.0
298.0	149.0	297.2	1995.0	1995.0	1995.0
300.0	150.0	299.2	1995.0	1994.9	1995.0
302.0	151.0	301.2	1995.0	1995.0	1995.0
304.0	152.0	303.2	1995.0	1995.0	1995.0
306.0	153.0	305.2	1995.0	1994.9	1995.0
308.0	154.0	307.2	1995.0	1995.0	1995.0
310.0	155.0	309.2	1995.0	1995.0	1995.0
312.0	156.0	311.2	1995.0	1994.9	1995.0
314.0	157.0	313.2	1995.0	1995.0	1995.0
316.0	158.0	315.2	1995.0	1994.9	1995.0
318.0	159.0	317.2	1995.0	1994.9	1995.0
320.0	160.0	319.2	1995.0	1995.0	1995.0
322.0	161.0	321.2	1995.0	1995.0	1995.0
324.0	162.0	323.2	1995.0	1995.0	1995.0
326.0	163.0	325.2	1995.0	1994.9	1995.0

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
328.0	164.0	327.2	1995.0	1995.0	1995.0
330.0	165.0	329.2	1995.0	1995.0	1995.0
332.0	166.0	331.2	1995.0	1994.9	1995.0
334.0	167.0	333.2	1995.0	1995.0	1995.0
336.0	168.0	335.2	1995.0	1995.0	1995.0
338.0	169.0	337.1	1995.0	1994.9	1995.0
340.0	170.0	339.1	1995.0	1995.0	1995.0
342.0	171.0	341.1	1995.0	1995.0	1995.0
344.0	172.0	343.1	1995.0	1994.9	1995.0
346.0	173.0	345.1	1995.0	1995.0	1995.0
348.0	174.0	347.1	1995.0	1995.0	1995.0
350.0	175.0	349.1	1995.0	1994.9	1995.0
352.0	176.0	351.1	1995.0	1995.0	1995.0
354.0	177.0	353.1	1995.0	1994.9	1995.0
356.0	178.0	355.1	1995.0	1994.9	1995.0
358.0	179.0	357.1	1995.0	1995.0	1995.0
360.0	180.0	359.4	1996.4	2257.9	1996.5
362.0	181.0	362.2	2001.2	2865.9	2002.4
364.0	182.0	365.1	2006.0	2865.9	2008.1
366.0	183.0	368.0	2010.7	2865.9	2013.8
368.0	184.0	370.8	2015.3	2865.9	2019.4
370.0	185.0	373.7	2019.9	2856.3	2024.8
372.0	186.0	376.4	2023.7	2724.7	2029.3
374.0	187.0	379.1	2027.4	2724.7	2033.6
376.0	188.0	381.8	2031.1	2724.7	2037.9
378.0	189.0	384.6	2034.8	2724.7	2042.1
380.0	190.0	387.3	2038.4	2724.7	2046.3
382.0	191.0	389.7	2040.2	2386.9	2048.3
384.0	192.0	391.8	2040.7	2124.7	2048.7
386.0	193.0	393.9	2041.1	2124.7	2049.1
388.0	194.0	396.1	2041.5	2124.7	2049.5
390.0	195.0	398.2	2042.0	2124.7	2049.9
392.0	196.0	400.3	2042.4	2124.7	2050.2
394.0	197.0	402.4	2042.8	2124.7	2050.6
396.0	198.0	404.7	2043.7	2220.7	2051.5
398.0	199.0	407.0	2045.1	2315.6	2052.9
400.0	200.0	409.3	2046.4	2315.6	2054.3
402.0	201.0	411.6	2047.8	2315.6	2055.7
404.0	202.0	413.9	2049.1	2315.6	2057.1
406.0	203.0	416.2	2050.4	2315.6	2058.4
408.0	204.0	418.6	2051.7	2324.7	2059.8
410.0	205.0	421.2	2054.8	2676.9	2063.3
412.0	206.0	423.9	2057.8	2676.8	2066.7
414.0	207.0	426.6	2060.8	2676.9	2070.1
416.0	208.0	429.3	2063.8	2676.8	2073.4
418.0	209.0	431.9	2066.7	2676.9	2076.7
420.0	210.0	434.6	2069.5	2654.6	2079.9
422.0	211.0	437.2	2072.1	2624.2	2082.8
424.0	212.0	439.8	2074.7	2624.2	2085.7
426.0	213.0	442.5	2077.3	2624.2	2088.5
428.0	214.0	445.1	2079.9	2624.2	2091.3
430.0	215.0	447.7	2082.4	2624.2	2094.1
432.0	216.0	450.4	2085.0	2650.3	2097.0
434.0	217.0	453.0	2087.7	2661.3	2100.0
436.0	218.0	455.7	2090.3	2661.2	2102.9
438.0	219.0	458.4	2092.9	2661.3	2105.8
440.0	220.0	461.0	2095.5	2661.2	2108.7
442.0	221.0	463.7	2098.0	2654.1	2111.4
444.0	222.0	466.2	2100.1	2557.3	2113.7

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
446.0	223.0	468.8	2102.2	2557.3	2115.9
448.0	224.0	471.3	2104.2	2557.3	2118.0
450.0	225.0	473.9	2106.2	2557.3	2120.2
452.0	226.0	476.5	2108.2	2557.3	2122.3
454.0	227.0	479.0	2110.2	2567.8	2124.5
456.0	228.0	481.6	2112.4	2609.0	2126.8
458.0	229.0	484.2	2114.6	2609.0	2129.2
460.0	230.0	486.8	2116.7	2609.0	2131.5
462.0	231.0	489.5	2118.9	2609.0	2133.8
464.0	232.0	492.1	2121.0	2609.0	2136.1
466.0	233.0	494.8	2123.4	2691.7	2138.8
468.0	234.0	497.5	2126.3	2791.1	2142.0
470.0	235.0	500.3	2129.1	2791.1	2145.2
472.0	236.0	503.1	2131.9	2791.1	2148.3
474.0	237.0	505.9	2134.7	2791.1	2151.4
476.0	238.0	508.7	2137.5	2797.8	2154.5
478.0	239.0	511.6	2140.6	2874.4	2158.1
480.0	240.0	514.5	2143.6	2874.4	2161.5
482.0	241.0	517.3	2146.7	2874.4	2165.0
484.0	242.0	520.2	2149.7	2874.4	2168.4
486.0	243.0	523.1	2152.6	2874.4	2171.8
488.0	244.0	525.7	2154.6	2627.2	2173.8
490.0	245.0	528.3	2156.4	2587.6	2175.7
492.0	246.0	530.9	2158.1	2587.6	2177.5
494.0	247.0	533.5	2159.8	2587.5	2179.3
496.0	248.0	536.1	2161.6	2587.6	2181.1
498.0	249.0	538.7	2163.3	2593.9	2182.9
500.0	250.0	541.3	2165.4	2685.4	2185.2
502.0	251.0	544.0	2167.5	2685.4	2187.4
504.0	252.0	546.7	2169.5	2685.4	2189.6
506.0	253.0	549.4	2171.6	2685.4	2191.8
508.0	254.0	552.1	2173.6	2685.4	2193.9
510.0	255.0	554.6	2175.0	2536.9	2195.4
512.0	256.0	557.0	2175.8	2375.5	2196.1
514.0	257.0	559.4	2176.6	2375.4	2196.8
516.0	258.0	561.8	2177.3	2375.4	2197.6
518.0	259.0	564.1	2178.1	2375.4	2198.3
520.0	260.0	566.5	2178.9	2375.4	2199.0
522.0	261.0	569.0	2179.9	2453.2	2200.0
524.0	262.0	571.8	2182.5	2847.7	2202.9
526.0	263.0	574.7	2185.0	2847.6	2205.7
528.0	264.0	577.5	2187.5	2847.7	2208.4
530.0	265.0	580.3	2190.0	2847.7	2211.2
532.0	266.0	583.2	2192.5	2847.6	2213.9
534.0	267.0	586.1	2195.2	2934.3	2217.1
536.0	268.0	589.1	2198.0	2944.2	2220.2
538.0	269.0	592.0	2200.8	2944.2	2223.4
540.0	270.0	595.0	2203.6	2944.2	2226.5
542.0	271.0	597.9	2206.3	2944.2	2229.5
544.0	272.0	600.7	2208.5	2802.1	2231.9
546.0	273.0	603.5	2210.5	2767.1	2234.1
548.0	274.0	606.2	2212.6	2767.1	2236.3
550.0	275.0	609.0	2214.6	2767.1	2238.4
552.0	276.0	611.8	2216.6	2767.1	2240.6
554.0	277.0	614.6	2218.7	2790.0	2242.8
556.0	278.0	617.4	2220.8	2827.3	2245.2
558.0	279.0	620.2	2223.0	2827.2	2247.5
560.0	280.0	623.0	2225.2	2827.3	2249.9
562.0	281.0	625.9	2227.3	2827.2	2252.2

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
564.0	282.0	628.7	2229.4	2819.9	2254.5
566.0	283.0	631.4	2231.2	2731.4	2256.3
568.0	284.0	634.2	2233.0	2731.4	2258.2
570.0	285.0	636.9	2234.7	2731.4	2260.0
572.0	286.0	639.6	2236.4	2731.4	2261.8
574.0	287.0	642.4	2238.2	2731.4	2263.6
576.0	288.0	645.3	2240.5	2901.0	2266.1
578.0	289.0	648.3	2243.2	3021.4	2269.2
580.0	290.0	651.3	2245.9	3021.4	2272.2
582.0	291.0	654.3	2248.5	3021.4	2275.2
584.0	292.0	657.3	2251.2	3021.4	2278.2
586.0	293.0	660.2	2253.4	2899.4	2280.6
588.0	294.0	663.1	2255.3	2824.8	2282.7
590.0	295.0	665.9	2257.2	2824.9	2284.7
592.0	296.0	668.7	2259.2	2824.8	2286.8
594.0	297.0	671.5	2261.1	2824.8	2288.8
596.0	298.0	674.3	2262.6	2725.5	2290.4
598.0	299.0	676.8	2263.4	2505.0	2291.1
600.0	300.0	679.3	2264.2	2504.9	2291.9
602.0	301.0	681.8	2265.0	2504.9	2292.6
604.0	302.0	684.3	2265.8	2504.9	2293.4
606.0	303.0	686.8	2266.6	2504.9	2294.1
608.0	304.0	689.3	2267.4	2503.8	2294.8
610.0	305.0	691.8	2268.2	2501.2	2295.5
612.0	306.0	694.3	2268.9	2501.2	2296.2
614.0	307.0	696.8	2269.7	2501.2	2296.9
616.0	308.0	699.3	2270.4	2501.2	2297.6
618.0	309.0	701.8	2271.2	2501.2	2298.3
620.0	310.0	704.3	2271.8	2462.9	2298.8
622.0	311.0	706.6	2272.2	2383.4	2299.1
624.0	312.0	709.0	2272.5	2383.4	2299.4
626.0	313.0	711.4	2272.9	2383.4	2299.7
628.0	314.0	713.8	2273.2	2383.4	2299.9
630.0	315.0	716.2	2273.6	2383.4	2300.2
632.0	316.0	718.6	2274.0	2395.8	2300.5
634.0	317.0	721.3	2275.5	2768.2	2302.2
636.0	318.0	724.1	2277.1	2768.3	2303.8
638.0	319.0	726.9	2278.6	2768.3	2305.4
640.0	320.0	729.6	2280.1	2768.3	2307.0
642.0	321.0	732.4	2281.7	2768.3	2308.5
644.0	322.0	735.0	2282.7	2622.5	2309.6
646.0	323.0	737.6	2283.5	2530.7	2310.3
648.0	324.0	740.1	2284.3	2530.7	2311.0
650.0	325.0	742.6	2285.0	2530.7	2311.7
652.0	326.0	745.2	2285.8	2530.7	2312.4
654.0	327.0	747.7	2286.5	2530.7	2313.1
656.0	328.0	750.1	2287.0	2442.0	2313.5
658.0	329.0	752.5	2287.3	2401.6	2313.8
660.0	330.0	754.9	2287.7	2401.5	2314.1
662.0	331.0	757.3	2288.0	2401.6	2314.3
664.0	332.0	759.7	2288.4	2401.5	2314.6
666.0	333.0	762.1	2288.7	2401.6	2314.9
668.0	334.0	764.7	2289.5	2541.4	2315.6
670.0	335.0	767.4	2290.8	2719.1	2316.9
672.0	336.0	770.1	2292.0	2719.2	2318.2
674.0	337.0	772.8	2293.3	2719.1	2319.5
676.0	338.0	775.6	2294.6	2719.1	2320.8
678.0	339.0	778.3	2295.8	2719.2	2322.0
680.0	340.0	780.8	2296.3	2477.8	2322.5

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
682.0	341.0	783.2	2296.8	2457.9	2322.9
684.0	342.0	785.7	2297.3	2457.9	2323.3
686.0	343.0	788.1	2297.8	2457.9	2323.7
688.0	344.0	790.6	2298.2	2457.9	2324.1
690.0	345.0	793.0	2298.7	2457.9	2324.5
692.0	346.0	795.8	2300.0	2741.9	2325.9
694.0	347.0	798.6	2301.4	2803.8	2327.4
696.0	348.0	801.4	2302.9	2803.8	2328.9
698.0	349.0	804.2	2304.3	2803.8	2330.4
700.0	350.0	807.0	2305.7	2803.8	2331.9
702.0	351.0	809.6	2306.7	2633.1	2332.8
704.0	352.0	812.1	2307.0	2441.4	2333.1
706.0	353.0	814.5	2307.4	2441.4	2333.4
708.0	354.0	817.0	2307.8	2441.4	2333.7
710.0	355.0	819.4	2308.2	2441.4	2334.0
712.0	356.0	821.8	2308.5	2441.4	2334.3
714.0	357.0	824.3	2308.9	2428.1	2334.6
716.0	358.0	826.7	2309.1	2400.9	2334.8
718.0	359.0	829.1	2309.4	2400.9	2335.0
720.0	360.0	831.5	2309.6	2400.9	2335.2
722.0	361.0	833.9	2309.9	2400.9	2335.4
724.0	362.0	836.3	2310.2	2400.9	2335.5
726.0	363.0	838.7	2310.4	2403.8	2335.7
728.0	364.0	841.1	2310.8	2437.9	2336.0
730.0	365.0	843.6	2311.1	2437.8	2336.3
732.0	366.0	846.0	2311.5	2437.8	2336.6
734.0	367.0	848.4	2311.8	2437.8	2336.9
736.0	368.0	850.9	2312.1	2437.8	2337.1
738.0	369.0	853.3	2312.5	2437.8	2337.4
740.0	370.0	855.8	2312.9	2462.5	2337.8
742.0	371.0	858.2	2313.3	2464.5	2338.1
744.0	372.0	860.7	2313.7	2464.5	2338.5
746.0	373.0	863.2	2314.1	2464.5	2338.8
748.0	374.0	865.6	2314.5	2464.5	2339.2
750.0	375.0	868.1	2314.9	2464.5	2339.5
752.0	376.0	870.8	2316.1	2745.7	2340.7
754.0	377.0	873.6	2317.3	2799.1	2342.0
756.0	378.0	876.4	2318.6	2799.1	2343.3
758.0	379.0	879.2	2319.9	2799.1	2344.7
760.0	380.0	882.0	2321.1	2799.1	2346.0
762.0	381.0	884.7	2322.0	2657.7	2346.8
764.0	382.0	887.2	2322.5	2505.5	2347.3
766.0	383.0	889.7	2323.0	2505.4	2347.7
768.0	384.0	892.2	2323.5	2505.5	2348.1
770.0	385.0	894.7	2323.9	2505.5	2348.5
772.0	386.0	897.2	2324.4	2505.4	2349.0
774.0	387.0	899.8	2325.0	2550.4	2349.5
776.0	388.0	902.4	2325.7	2596.3	2350.2
778.0	389.0	905.0	2326.4	2596.3	2350.8
780.0	390.0	907.6	2327.1	2596.3	2351.5
782.0	391.0	910.2	2327.8	2596.3	2352.2
784.0	392.0	912.7	2328.4	2596.3	2352.8
786.0	393.0	915.3	2329.1	2599.1	2353.5
788.0	394.0	917.9	2329.8	2600.2	2354.1
790.0	395.0	920.5	2330.5	2600.1	2354.8
792.0	396.0	923.1	2331.2	2600.2	2355.4
794.0	397.0	925.7	2331.9	2600.2	2356.1
796.0	398.0	928.3	2332.5	2600.1	2356.7
798.0	399.0	930.9	2333.0	2528.1	2357.2

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
800.0	400.0	933.4	2333.5	2524.1	2357.6
802.0	401.0	935.9	2334.0	2524.2	2358.0
804.0	402.0	938.4	2334.5	2524.1	2358.5
806.0	403.0	941.0	2334.9	2524.2	2358.9
808.0	404.0	943.5	2335.4	2524.4	2359.3
810.0	405.0	946.1	2336.0	2580.8	2359.9
812.0	406.0	948.7	2336.6	2580.8	2360.5
814.0	407.0	951.2	2337.2	2580.7	2361.0
816.0	408.0	953.8	2337.8	2580.8	2361.6
818.0	409.0	956.4	2338.4	2580.7	2362.2
820.0	410.0	959.0	2339.0	2607.2	2362.8
822.0	411.0	961.7	2340.0	2716.9	2363.7
824.0	412.0	964.4	2340.9	2716.9	2364.6
826.0	413.0	967.2	2341.8	2716.9	2365.5
828.0	414.0	969.9	2342.7	2716.9	2366.5
830.0	415.0	972.6	2343.6	2716.9	2367.4
832.0	416.0	975.3	2344.6	2750.3	2368.4
834.0	417.0	978.1	2345.6	2766.5	2369.4
836.0	418.0	980.9	2346.6	2766.5	2370.4
838.0	419.0	983.6	2347.6	2766.5	2371.5
840.0	420.0	986.4	2348.6	2766.5	2372.5
842.0	421.0	989.1	2349.4	2686.9	2373.3
844.0	422.0	991.5	2349.6	2448.7	2373.4
846.0	423.0	994.0	2349.9	2448.7	2373.6
848.0	424.0	996.4	2350.1	2448.7	2373.8
850.0	425.0	998.9	2350.3	2448.7	2374.0
852.0	426.0	1001.3	2350.6	2448.7	2374.2
854.0	427.0	1003.8	2350.8	2448.5	2374.3
856.0	428.0	1006.2	2351.0	2447.4	2374.5
858.0	429.0	1008.7	2351.2	2447.4	2374.7
860.0	430.0	1011.1	2351.5	2447.4	2374.9
862.0	431.0	1013.6	2351.7	2447.4	2375.0
864.0	432.0	1016.0	2351.9	2447.4	2375.2
866.0	433.0	1018.5	2352.1	2447.4	2375.4
868.0	434.0	1021.1	2352.7	2598.4	2375.9
870.0	435.0	1023.7	2353.3	2599.0	2376.4
872.0	436.0	1026.3	2353.8	2599.0	2377.0
874.0	437.0	1028.9	2354.4	2599.1	2377.5
876.0	438.0	1031.5	2355.0	2599.0	2378.0
878.0	439.0	1034.0	2355.5	2579.1	2378.5
880.0	440.0	1036.6	2355.8	2510.1	2378.8
882.0	441.0	1039.1	2356.2	2510.1	2379.1
884.0	442.0	1041.6	2356.5	2510.1	2379.4
886.0	443.0	1044.1	2356.9	2510.1	2379.7
888.0	444.0	1046.6	2357.2	2510.1	2380.0
890.0	445.0	1049.2	2357.7	2562.6	2380.5
892.0	446.0	1051.9	2358.5	2721.3	2381.3
894.0	447.0	1054.6	2359.3	2721.2	2382.1
896.0	448.0	1057.3	2360.1	2721.3	2382.9
898.0	449.0	1060.0	2360.9	2721.3	2383.7
900.0	450.0	1062.8	2361.7	2721.2	2384.5
902.0	451.0	1065.3	2362.2	2579.1	2385.0
904.0	452.0	1067.9	2362.6	2528.2	2385.3
906.0	453.0	1070.4	2362.9	2528.2	2385.6
908.0	454.0	1072.9	2363.3	2528.2	2385.9
910.0	455.0	1075.5	2363.6	2528.2	2386.3
912.0	456.0	1078.0	2364.0	2528.2	2386.6
914.0	457.0	1080.5	2364.3	2497.1	2386.8
916.0	458.0	1083.0	2364.6	2489.3	2387.1

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
918.0	459.0	1085.5	2364.8	2489.4	2387.3
920.0	460.0	1088.0	2365.1	2489.3	2387.5
922.0	461.0	1090.4	2365.4	2489.4	2387.7
924.0	462.0	1092.9	2365.7	2489.3	2388.0
926.0	463.0	1095.3	2365.7	2390.9	2388.0
928.0	464.0	1097.7	2365.7	2362.5	2387.9
930.0	465.0	1100.0	2365.7	2362.7	2387.9
932.0	466.0	1102.4	2365.7	2362.7	2387.8
934.0	467.0	1104.8	2365.7	2362.5	2387.8
936.0	468.0	1107.1	2365.7	2362.7	2387.7
938.0	469.0	1109.6	2365.9	2495.0	2387.9
940.0	470.0	1112.3	2366.6	2671.4	2388.6
942.0	471.0	1115.0	2367.2	2671.3	2389.2
944.0	472.0	1117.6	2367.9	2671.4	2389.8
946.0	473.0	1120.3	2368.5	2671.3	2390.5
948.0	474.0	1123.0	2369.2	2671.4	2391.1
950.0	475.0	1125.5	2369.6	2557.9	2391.5
952.0	476.0	1128.1	2369.9	2532.1	2391.8
954.0	477.0	1130.6	2370.2	2532.0	2392.1
956.0	478.0	1133.1	2370.6	2532.1	2392.4
958.0	479.0	1135.7	2370.9	2532.0	2392.7
960.0	480.0	1138.2	2371.3	2532.1	2393.0
962.0	481.0	1140.7	2371.5	2484.0	2393.2
964.0	482.0	1143.2	2371.7	2478.1	2393.3
966.0	483.0	1145.6	2371.9	2478.1	2393.5
968.0	484.0	1148.1	2372.2	2478.1	2393.7
970.0	485.0	1150.6	2372.4	2478.3	2393.9
972.0	486.0	1153.1	2372.6	2478.1	2394.1
974.0	487.0	1155.5	2372.6	2385.3	2394.0
976.0	488.0	1157.8	2372.6	2367.1	2394.0
978.0	489.0	1160.2	2372.6	2367.2	2393.9
980.0	490.0	1162.6	2372.6	2367.2	2393.9
982.0	491.0	1164.9	2372.6	2367.2	2393.8
984.0	492.0	1167.3	2372.6	2367.1	2393.8
986.0	493.0	1169.7	2372.7	2436.4	2393.9
988.0	494.0	1172.2	2373.0	2505.5	2394.1
990.0	495.0	1174.7	2373.2	2505.5	2394.3
992.0	496.0	1177.3	2373.5	2505.5	2394.5
994.0	497.0	1179.8	2373.8	2505.4	2394.8
996.0	498.0	1182.3	2374.0	2505.5	2395.0
998.0	499.0	1184.7	2374.2	2473.5	2395.2
1000.0	500.0	1187.2	2374.4	2443.0	2395.3
1002.0	501.0	1189.6	2374.5	2443.0	2395.4
1004.0	502.0	1192.1	2374.6	2443.1	2395.4
1006.0	503.0	1194.5	2374.8	2443.0	2395.5
1008.0	504.0	1197.0	2374.9	2443.1	2395.6
1010.0	505.0	1199.5	2375.2	2539.6	2395.9
1012.0	506.0	1202.2	2375.9	2701.7	2396.6
1014.0	507.0	1204.9	2376.5	2701.7	2397.2
1016.0	508.0	1207.6	2377.2	2701.7	2397.9
1018.0	509.0	1210.3	2377.8	2701.7	2398.5
1020.0	510.0	1213.0	2378.4	2701.7	2399.1
1022.0	511.0	1215.7	2379.1	2699.6	2399.7
1024.0	512.0	1218.4	2379.7	2699.2	2400.4
1026.0	513.0	1221.1	2380.3	2699.1	2401.0
1028.0	514.0	1223.8	2380.9	2699.2	2401.6
1030.0	515.0	1226.5	2381.5	2699.1	2402.2
1032.0	516.0	1229.1	2382.1	2648.6	2402.7
1034.0	517.0	1231.7	2382.3	2507.6	2402.9

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1036.0	518.0	1234.2	2382.5	2507.6	2403.1
1038.0	519.0	1236.7	2382.8	2507.6	2403.3
1040.0	520.0	1239.2	2383.0	2507.7	2403.5
1042.0	521.0	1241.7	2383.3	2507.6	2403.7
1044.0	522.0	1244.2	2383.6	2540.4	2404.0
1046.0	523.0	1246.8	2384.0	2624.0	2404.5
1048.0	524.0	1249.5	2384.5	2624.1	2404.9
1050.0	525.0	1252.1	2384.9	2624.0	2405.3
1052.0	526.0	1254.7	2385.4	2624.0	2405.8
1054.0	527.0	1257.3	2385.9	2624.0	2406.2
1056.0	528.0	1259.9	2386.2	2595.8	2406.6
1058.0	529.0	1262.5	2386.6	2574.3	2406.9
1060.0	530.0	1265.1	2387.0	2574.2	2407.2
1062.0	531.0	1267.7	2387.3	2574.2	2407.6
1064.0	532.0	1270.2	2387.7	2574.2	2407.9
1066.0	533.0	1272.8	2388.0	2574.2	2408.2
1068.0	534.0	1275.6	2388.7	2769.4	2408.9
1070.0	535.0	1278.4	2389.6	2838.3	2409.8
1072.0	536.0	1281.3	2390.4	2838.3	2410.7
1074.0	537.0	1284.1	2391.2	2838.3	2411.5
1076.0	538.0	1286.9	2392.1	2838.4	2412.4
1078.0	539.0	1289.6	2392.6	2698.7	2413.0
1080.0	540.0	1292.2	2392.9	2531.1	2413.2
1082.0	541.0	1294.7	2393.2	2531.0	2413.4
1084.0	542.0	1297.2	2393.4	2531.1	2413.6
1086.0	543.0	1299.8	2393.7	2531.0	2413.9
1088.0	544.0	1302.3	2393.9	2531.1	2414.1
1090.0	545.0	1304.9	2394.3	2581.3	2414.4
1092.0	546.0	1307.5	2394.7	2626.2	2414.8
1094.0	547.0	1310.1	2395.1	2626.2	2415.2
1096.0	548.0	1312.7	2395.5	2626.2	2415.6
1098.0	549.0	1315.4	2395.9	2626.2	2416.0
1100.0	550.0	1318.0	2396.4	2626.2	2416.4
1102.0	551.0	1320.8	2397.1	2814.6	2417.2
1104.0	552.0	1323.7	2398.0	2856.9	2418.1
1106.0	553.0	1326.5	2398.8	2857.1	2418.9
1108.0	554.0	1329.4	2399.6	2856.9	2419.8
1110.0	555.0	1332.2	2400.4	2856.9	2420.6
1112.0	556.0	1335.1	2401.3	2860.5	2421.5
1114.0	557.0	1338.0	2402.1	2863.2	2422.4
1116.0	558.0	1340.8	2402.9	2863.2	2423.2
1118.0	559.0	1343.7	2403.7	2863.2	2424.1
1120.0	560.0	1346.6	2404.6	2863.2	2424.9
1122.0	561.0	1349.3	2405.2	2761.6	2425.6
1124.0	562.0	1351.9	2405.5	2552.9	2425.8
1126.0	563.0	1354.4	2405.7	2552.9	2426.0
1128.0	564.0	1357.0	2406.0	2552.9	2426.3
1130.0	565.0	1359.5	2406.2	2552.9	2426.5
1132.0	566.0	1362.1	2406.5	2552.9	2426.7
1134.0	567.0	1364.8	2407.0	2707.2	2427.3
1136.0	568.0	1367.7	2407.9	2894.7	2428.2
1138.0	569.0	1370.6	2408.7	2894.8	2429.1
1140.0	570.0	1373.5	2409.6	2894.7	2430.0
1142.0	571.0	1376.4	2410.5	2894.7	2430.8
1144.0	572.0	1379.3	2411.3	2902.3	2431.8
1146.0	573.0	1382.2	2412.2	2922.7	2432.7
1148.0	574.0	1385.1	2413.1	2922.9	2433.6
1150.0	575.0	1388.0	2414.0	2922.7	2434.6
1152.0	576.0	1391.0	2414.9	2922.9	2435.5

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1154.0	577.0	1393.8	2415.7	2888.2	2436.4
1156.0	578.0	1396.5	2416.1	2671.1	2436.8
1158.0	579.0	1399.2	2416.6	2671.1	2437.2
1160.0	580.0	1401.9	2417.0	2671.1	2437.6
1162.0	581.0	1404.5	2417.4	2671.3	2438.1
1164.0	582.0	1407.2	2417.9	2671.1	2438.5
1166.0	583.0	1409.9	2418.4	2701.4	2438.9
1168.0	584.0	1412.6	2418.9	2729.2	2439.5
1170.0	585.0	1415.4	2419.4	2729.2	2440.0
1172.0	586.0	1418.1	2420.0	2729.2	2440.5
1174.0	587.0	1420.8	2420.5	2729.2	2441.0
1176.0	588.0	1423.6	2421.0	2732.8	2441.6
1178.0	589.0	1426.4	2421.8	2861.8	2442.3
1180.0	590.0	1429.3	2422.5	2861.8	2443.1
1182.0	591.0	1432.1	2423.3	2861.8	2443.9
1184.0	592.0	1435.0	2424.0	2861.9	2444.7
1186.0	593.0	1437.9	2424.7	2861.8	2445.4
1188.0	594.0	1440.5	2425.1	2628.8	2445.7
1190.0	595.0	1443.1	2425.3	2565.2	2445.9
1192.0	596.0	1445.6	2425.5	2565.2	2446.1
1194.0	597.0	1448.2	2425.8	2565.2	2446.4
1196.0	598.0	1450.8	2426.0	2565.1	2446.6
1198.0	599.0	1453.3	2426.2	2565.2	2446.8
1200.0	600.0	1455.8	2426.3	2483.2	2446.8
1202.0	601.0	1458.3	2426.4	2477.8	2446.9
1204.0	602.0	1460.8	2426.5	2477.8	2446.9
1206.0	603.0	1463.2	2426.6	2477.7	2447.0
1208.0	604.0	1465.7	2426.7	2477.8	2447.0
1210.0	605.0	1468.2	2426.8	2477.8	2447.1
1212.0	606.0	1471.1	2427.6	2926.0	2447.9
1214.0	607.0	1474.1	2428.5	2984.5	2448.9
1216.0	608.0	1477.1	2429.4	2984.5	2449.9
1218.0	609.0	1480.1	2430.3	2984.5	2450.9
1220.0	610.0	1483.1	2431.2	2984.4	2451.8
1222.0	611.0	1485.8	2431.7	2738.5	2452.3
1224.0	612.0	1488.5	2432.2	2698.1	2452.8
1226.0	613.0	1491.2	2432.6	2698.1	2453.2
1228.0	614.0	1493.9	2433.0	2698.1	2453.6
1230.0	615.0	1496.6	2433.5	2698.1	2454.0
1232.0	616.0	1499.3	2434.0	2741.1	2454.5
1234.0	617.0	1502.2	2434.6	2841.6	2455.2
1236.0	618.0	1505.0	2435.3	2841.6	2455.9
1238.0	619.0	1507.9	2435.9	2841.6	2456.5
1240.0	620.0	1510.7	2436.6	2841.6	2457.2
1242.0	621.0	1513.5	2437.3	2851.6	2457.9
1244.0	622.0	1516.9	2438.7	3316.7	2459.5
1246.0	623.0	1520.2	2440.1	3316.7	2461.1
1248.0	624.0	1523.5	2441.5	3316.7	2462.7
1250.0	625.0	1526.8	2442.9	3316.7	2464.3
1252.0	626.0	1529.9	2444.0	3119.6	2465.5
1254.0	627.0	1532.9	2444.7	2921.6	2466.3
1256.0	628.0	1535.8	2445.5	2921.6	2467.1
1258.0	629.0	1538.7	2446.3	2921.6	2467.9
1260.0	630.0	1541.6	2447.0	2921.5	2468.7
1262.0	631.0	1544.7	2448.1	3106.0	2469.8
1264.0	632.0	1548.2	2449.6	3426.6	2471.6
1266.0	633.0	1551.6	2451.1	3426.6	2473.4
1268.0	634.0	1555.0	2452.7	3426.8	2475.2
1270.0	635.0	1558.4	2454.2	3426.6	2477.0

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1272.0	636.0	1562.0	2455.9	3541.1	2479.0
1274.0	637.0	1565.5	2457.6	3542.5	2481.1
1276.0	638.0	1569.1	2459.3	3542.5	2483.1
1278.0	639.0	1572.6	2461.0	3542.6	2485.1
1280.0	640.0	1575.5	2461.7	2907.7	2485.8
1282.0	641.0	1578.2	2462.1	2700.1	2486.2
1284.0	642.0	1580.9	2462.5	2700.1	2486.5
1286.0	643.0	1583.6	2462.8	2700.1	2486.9
1288.0	644.0	1586.3	2463.2	2700.1	2487.2
1290.0	645.0	1589.0	2463.6	2720.3	2487.6
1292.0	646.0	1591.8	2464.1	2802.6	2488.1
1294.0	647.0	1594.6	2464.7	2802.5	2488.6
1296.0	648.0	1597.4	2465.2	2802.6	2489.1
1298.0	649.0	1600.2	2465.7	2802.6	2489.6
1300.0	650.0	1603.0	2466.2	2802.5	2490.2
1302.0	651.0	1605.7	2466.6	2700.0	2490.5
1304.0	652.0	1608.4	2466.9	2681.2	2490.8
1306.0	653.0	1611.1	2467.2	2681.3	2491.1
1308.0	654.0	1613.8	2467.6	2681.2	2491.4
1310.0	655.0	1616.5	2467.9	2681.3	2491.7
1312.0	656.0	1619.2	2468.4	2773.9	2492.2
1314.0	657.0	1622.3	2469.2	3048.5	2493.1
1316.0	658.0	1625.3	2470.1	3048.6	2494.0
1318.0	659.0	1628.4	2471.0	3048.5	2495.0
1320.0	660.0	1631.4	2471.9	3048.6	2495.9
1322.0	661.0	1634.4	2472.6	2987.3	2496.7
1324.0	662.0	1637.3	2473.2	2864.7	2497.3
1326.0	663.0	1640.2	2473.8	2864.6	2497.9
1328.0	664.0	1643.0	2474.4	2864.7	2498.5
1330.0	665.0	1645.9	2475.0	2864.6	2499.1
1332.0	666.0	1648.8	2475.6	2872.9	2499.7
1334.0	667.0	1651.7	2476.3	2950.8	2500.4
1336.0	668.0	1654.7	2477.0	2950.7	2501.2
1338.0	669.0	1657.6	2477.7	2950.7	2501.9
1340.0	670.0	1660.6	2478.4	2950.7	2502.6
1342.0	671.0	1663.5	2479.1	2949.1	2503.4
1344.0	672.0	1666.3	2479.7	2832.9	2503.9
1346.0	673.0	1669.2	2480.2	2832.8	2504.4
1348.0	674.0	1672.0	2480.7	2832.8	2504.9
1350.0	675.0	1674.8	2481.2	2832.9	2505.4
1352.0	676.0	1677.7	2481.8	2832.8	2506.0
1354.0	677.0	1680.7	2482.6	3066.4	2506.9
1356.0	678.0	1683.9	2483.6	3157.7	2508.0
1358.0	679.0	1687.1	2484.6	3157.6	2509.0
1360.0	680.0	1690.2	2485.6	3157.7	2510.1
1362.0	681.0	1693.4	2486.6	3157.6	2511.2
1364.0	682.0	1696.7	2487.9	3350.5	2512.6
1366.0	683.0	1700.1	2489.1	3356.4	2514.1
1368.0	684.0	1703.4	2490.4	3356.6	2515.5
1370.0	685.0	1706.8	2491.7	3356.4	2516.9
1372.0	686.0	1710.1	2492.9	3333.1	2518.3
1374.0	687.0	1713.4	2494.1	3309.8	2519.7
1376.0	688.0	1716.7	2495.3	3309.8	2521.0
1378.0	689.0	1720.0	2496.4	3309.8	2522.3
1380.0	690.0	1723.4	2497.6	3309.8	2523.6
1382.0	691.0	1726.1	2497.9	2701.8	2523.9
1384.0	692.0	1728.7	2498.2	2683.3	2524.1
1386.0	693.0	1731.4	2498.5	2683.3	2524.4
1388.0	694.0	1734.1	2498.7	2683.5	2524.6

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1390.0	695.0	1736.8	2499.0	2683.3	2524.8
1392.0	696.0	1739.6	2499.4	2761.5	2525.2
1394.0	697.0	1742.4	2499.9	2887.7	2525.7
1396.0	698.0	1745.3	2500.5	2887.7	2526.3
1398.0	699.0	1748.2	2501.0	2887.7	2526.9
1400.0	700.0	1751.1	2501.6	2887.7	2527.4
1402.0	701.0	1754.0	2502.1	2850.0	2527.9
1404.0	702.0	1756.6	2502.3	2689.9	2528.1
1406.0	703.0	1759.3	2502.6	2689.8	2528.4
1408.0	704.0	1762.0	2502.9	2689.8	2528.6
1410.0	705.0	1764.7	2503.1	2689.8	2528.8
1412.0	706.0	1767.4	2503.4	2689.8	2529.1
1414.0	707.0	1770.6	2504.3	3163.8	2530.1
1416.0	708.0	1774.0	2505.7	3458.7	2531.6
1418.0	709.0	1777.5	2507.0	3458.9	2533.2
1420.0	710.0	1780.9	2508.4	3458.7	2534.7
1422.0	711.0	1784.4	2509.7	3435.5	2536.2
1424.0	712.0	1787.8	2510.9	3376.2	2537.6
1426.0	713.0	1791.1	2512.1	3376.3	2539.0
1428.0	714.0	1794.5	2513.3	3376.2	2540.3
1430.0	715.0	1797.9	2514.5	3376.2	2541.7
1432.0	716.0	1800.7	2514.9	2772.6	2542.0
1434.0	717.0	1803.3	2515.1	2658.3	2542.2
1436.0	718.0	1806.0	2515.3	2658.4	2542.4
1438.0	719.0	1808.6	2515.5	2658.4	2542.5
1440.0	720.0	1811.3	2515.7	2658.4	2542.7
1442.0	721.0	1814.1	2516.1	2809.0	2543.1
1444.0	722.0	1817.5	2517.3	3404.8	2544.5
1446.0	723.0	1820.9	2518.5	3404.8	2545.9
1448.0	724.0	1824.3	2519.8	3404.8	2547.3
1450.0	725.0	1827.7	2521.0	3404.8	2548.6
1452.0	726.0	1830.7	2521.6	2955.7	2549.2
1454.0	727.0	1833.5	2522.0	2842.3	2549.7
1456.0	728.0	1836.4	2522.5	2842.3	2550.1
1458.0	729.0	1839.2	2522.9	2842.4	2550.5
1460.0	730.0	1842.0	2523.3	2842.3	2550.9
1462.0	731.0	1845.4	2524.4	3319.8	2552.2
1464.0	732.0	1849.1	2526.1	3753.2	2554.2
1466.0	733.0	1852.9	2527.8	3753.1	2556.2
1468.0	734.0	1856.6	2529.5	3753.1	2558.2
1470.0	735.0	1860.1	2530.7	3443.1	2559.6
1472.0	736.0	1863.2	2531.6	3168.3	2560.5
1474.0	737.0	1866.4	2532.4	3168.3	2561.5
1476.0	738.0	1869.6	2533.3	3168.5	2562.4
1478.0	739.0	1872.7	2534.2	3168.3	2563.3
1480.0	740.0	1876.1	2535.3	3393.3	2564.6
1482.0	741.0	1879.6	2536.6	3450.0	2566.0
1484.0	742.0	1883.0	2537.8	3450.1	2567.4
1486.0	743.0	1886.5	2539.0	3450.0	2568.8
1488.0	744.0	1890.0	2540.3	3497.3	2570.3
1490.0	745.0	1893.5	2541.7	3554.6	2571.8
1492.0	746.0	1897.1	2543.0	3554.6	2573.4
1494.0	747.0	1900.6	2544.4	3554.6	2575.0
1496.0	748.0	1904.1	2545.6	3484.7	2576.4
1498.0	749.0	1907.4	2546.6	3259.4	2577.4
1500.0	750.0	1910.6	2547.5	3259.3	2578.5
1502.0	751.0	1913.9	2548.5	3259.4	2579.5
1504.0	752.0	1917.2	2549.4	3259.3	2580.5
1506.0	753.0	1920.4	2550.3	3190.4	2581.4

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1508.0	754.0	1923.5	2551.1	3151.0	2582.3
1510.0	755.0	1926.7	2551.9	3151.1	2583.1
1512.0	756.0	1929.8	2552.7	3151.0	2583.9
1514.0	757.0	1933.0	2553.4	3151.1	2584.8
1516.0	758.0	1936.1	2554.2	3149.4	2585.6
1518.0	759.0	1939.3	2555.0	3149.2	2586.4
1520.0	760.0	1942.4	2555.8	3149.2	2587.2
1522.0	761.0	1945.6	2556.6	3149.2	2588.1
1524.0	762.0	1948.7	2557.3	3098.9	2588.8
1526.0	763.0	1951.4	2557.5	2729.6	2589.0
1528.0	764.0	1954.1	2557.7	2729.5	2589.2
1530.0	765.0	1956.8	2558.0	2729.6	2589.4
1532.0	766.0	1959.6	2558.2	2729.5	2589.5
1534.0	767.0	1962.3	2558.4	2729.6	2589.7
1536.0	768.0	1965.5	2559.2	3184.9	2590.6
1538.0	769.0	1968.9	2560.4	3454.3	2591.9
1540.0	770.0	1972.4	2561.6	3454.5	2593.2
1542.0	771.0	1975.9	2562.7	3454.3	2594.5
1544.0	772.0	1979.2	2563.7	3342.8	2595.6
1546.0	773.0	1982.3	2564.4	3068.0	2596.3
1548.0	774.0	1985.3	2565.0	3068.0	2597.0
1550.0	775.0	1988.4	2565.7	3068.0	2597.6
1552.0	776.0	1991.5	2566.3	3068.0	2598.3
1554.0	777.0	1994.5	2566.9	3028.9	2598.9
1556.0	778.0	1997.5	2567.4	2971.3	2599.4
1558.0	779.0	2000.4	2568.0	2971.2	2599.9
1560.0	780.0	2003.4	2568.5	2971.2	2600.4
1562.0	781.0	2006.4	2569.0	2971.3	2600.9
1564.0	782.0	2009.6	2569.8	3203.7	2601.8
1566.0	783.0	2013.2	2571.1	3618.9	2603.3
1568.0	784.0	2016.8	2572.5	3618.8	2604.9
1570.0	785.0	2020.4	2573.8	3618.9	2606.4
1572.0	786.0	2024.1	2575.2	3692.9	2608.1
1574.0	787.0	2028.1	2577.0	3959.4	2610.3
1576.0	788.0	2032.1	2578.7	3959.2	2612.4
1578.0	789.0	2036.0	2580.5	3959.2	2614.6
1580.0	790.0	2039.9	2582.1	3880.7	2616.5
1582.0	791.0	2043.7	2583.7	3777.6	2618.3
1584.0	792.0	2047.4	2585.2	3777.6	2620.1
1586.0	793.0	2051.2	2586.7	3777.6	2621.9
1588.0	794.0	2054.5	2587.5	3277.8	2622.8
1590.0	795.0	2057.2	2587.7	2701.7	2622.9
1592.0	796.0	2059.9	2587.8	2701.7	2623.0
1594.0	797.0	2062.6	2588.0	2701.9	2623.1
1596.0	798.0	2065.3	2588.1	2701.7	2623.2
1598.0	799.0	2068.0	2588.3	2701.7	2623.3
1600.0	800.0	2071.2	2589.0	3212.9	2624.2
1602.0	801.0	2074.5	2589.9	3259.3	2625.0
1604.0	802.0	2077.7	2590.7	3259.3	2625.9
1606.0	803.0	2081.0	2591.5	3259.5	2626.8
1608.0	804.0	2084.5	2592.7	3493.2	2628.1
1610.0	805.0	2088.5	2594.4	3995.6	2630.2
1612.0	806.0	2092.5	2596.1	3995.8	2632.3
1614.0	807.0	2096.5	2597.9	3995.6	2634.5
1616.0	808.0	2100.2	2599.2	3691.7	2636.0
1618.0	809.0	2103.6	2600.3	3458.7	2637.2
1620.0	810.0	2107.1	2601.3	3459.0	2638.4
1622.0	811.0	2110.6	2602.4	3459.0	2639.6
1624.0	812.0	2113.9	2603.3	3325.4	2640.5

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1626.0	813.0	2116.8	2603.6	2884.8	2640.8
1628.0	814.0	2119.6	2604.0	2885.0	2641.1
1630.0	815.0	2122.5	2604.3	2885.0	2641.5
1632.0	816.0	2125.4	2604.7	2884.8	2641.8
1634.0	817.0	2128.3	2605.0	2885.7	2642.1
1636.0	818.0	2131.2	2605.4	2903.3	2642.4
1638.0	819.0	2134.1	2605.8	2903.3	2642.7
1640.0	820.0	2137.0	2606.1	2903.1	2643.1
1642.0	821.0	2139.9	2606.5	2903.3	2643.4
1644.0	822.0	2142.8	2606.8	2903.3	2643.7
1646.0	823.0	2146.5	2608.1	3681.2	2645.2
1648.0	824.0	2150.3	2609.6	3794.2	2646.9
1650.0	825.0	2154.1	2611.0	3793.9	2648.6
1652.0	826.0	2157.9	2612.4	3794.2	2650.3
1654.0	827.0	2160.9	2612.9	3014.4	2650.8
1656.0	828.0	2163.8	2613.3	2948.7	2651.2
1658.0	829.0	2166.8	2613.7	2948.7	2651.6
1660.0	830.0	2169.7	2614.1	2948.7	2651.9
1662.0	831.0	2172.7	2614.6	2949.0	2652.3
1664.0	832.0	2176.0	2615.3	3264.6	2653.1
1666.0	833.0	2179.3	2616.2	3325.4	2654.0
1668.0	834.0	2182.6	2617.0	3325.7	2654.9
1670.0	835.0	2185.9	2617.9	3325.4	2655.9
1672.0	836.0	2189.4	2618.9	3482.4	2657.0
1674.0	837.0	2193.2	2620.3	3799.6	2658.7
1676.0	838.0	2197.0	2621.7	3799.8	2660.3
1678.0	839.0	2200.8	2623.1	3799.8	2662.0
1680.0	840.0	2204.3	2624.2	3491.9	2663.1
1682.0	841.0	2207.3	2624.6	3001.0	2663.5
1684.0	842.0	2210.3	2625.1	3001.0	2663.9
1686.0	843.0	2213.3	2625.5	3001.2	2664.4
1688.0	844.0	2216.3	2626.0	3001.0	2664.8
1690.0	845.0	2219.8	2626.9	3439.0	2665.8
1692.0	846.0	2223.9	2628.7	4124.3	2668.0
1694.0	847.0	2228.0	2630.5	4124.3	2670.2
1696.0	848.0	2232.1	2632.2	4124.3	2672.4
1698.0	849.0	2235.5	2633.0	3335.2	2673.3
1700.0	850.0	2238.5	2633.6	3078.4	2673.8
1702.0	851.0	2241.6	2634.1	3078.6	2674.3
1704.0	852.0	2244.7	2634.6	3078.6	2674.8
1706.0	853.0	2247.8	2635.1	3078.4	2675.3
1708.0	854.0	2252.0	2637.0	4189.9	2677.6
1710.0	855.0	2256.3	2638.9	4335.0	2680.1
1712.0	856.0	2260.6	2640.9	4335.2	2682.7
1714.0	857.0	2264.6	2642.5	3972.9	2684.5
1716.0	858.0	2268.1	2643.5	3484.4	2685.6
1718.0	859.0	2271.6	2644.4	3484.1	2686.7
1720.0	860.0	2275.1	2645.4	3484.4	2687.7
1722.0	861.0	2278.5	2646.4	3491.2	2688.8
1724.0	862.0	2282.1	2647.4	3542.2	2690.0
1726.0	863.0	2285.6	2648.5	3542.2	2691.1
1728.0	864.0	2289.2	2649.5	3542.2	2692.2
1730.0	865.0	2292.7	2650.5	3542.2	2693.4
1732.0	866.0	2297.4	2652.9	4665.3	2696.5
1734.0	867.0	2302.2	2655.4	4805.4	2699.9
1736.0	868.0	2307.0	2657.8	4805.4	2703.2
1738.0	869.0	2311.6	2660.0	4572.5	2706.1
1740.0	870.0	2316.1	2662.1	4502.4	2708.9
1742.0	871.0	2320.6	2664.3	4502.4	2711.6

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1744.0	872.0	2324.5	2665.7	3932.1	2713.3
1746.0	873.0	2327.7	2666.3	3200.0	2713.9
1748.0	874.0	2330.9	2666.9	3199.7	2714.6
1750.0	875.0	2334.1	2667.5	3199.7	2715.2
1752.0	876.0	2337.3	2668.2	3199.7	2715.8
1754.0	877.0	2340.3	2668.5	2979.2	2716.1
1756.0	878.0	2343.2	2668.8	2905.8	2716.3
1758.0	879.0	2346.1	2669.0	2906.0	2716.5
1760.0	880.0	2349.0	2669.3	2906.0	2716.7
1762.0	881.0	2351.9	2669.6	2905.8	2717.0
1764.0	882.0	2354.9	2669.9	2960.7	2717.3
1766.0	883.0	2357.9	2670.3	2999.0	2717.6
1768.0	884.0	2360.9	2670.7	2998.8	2717.9
1770.0	885.0	2363.9	2671.0	2998.8	2718.3
1772.0	886.0	2366.9	2671.4	2998.8	2718.6
1774.0	887.0	2370.5	2672.5	3671.6	2719.9
1776.0	888.0	2374.7	2674.2	4140.1	2721.9
1778.0	889.0	2378.8	2675.8	4140.1	2723.9
1780.0	890.0	2383.0	2677.5	4140.4	2725.9
1782.0	891.0	2387.6	2679.6	4611.8	2728.7
1784.0	892.0	2392.2	2681.8	4628.2	2731.6
1786.0	893.0	2396.8	2684.0	4627.9	2734.5
1788.0	894.0	2400.7	2685.4	3922.1	2736.1
1790.0	895.0	2404.4	2686.5	3656.0	2737.3
1792.0	896.0	2408.1	2687.6	3655.8	2738.5
1794.0	897.0	2411.7	2688.6	3656.0	2739.7
1796.0	898.0	2415.1	2689.4	3340.1	2740.4
1798.0	899.0	2418.2	2689.9	3149.7	2740.9
1800.0	900.0	2421.4	2690.4	3149.4	2741.4
1802.0	901.0	2424.5	2690.9	3149.7	2741.9
1804.0	902.0	2427.7	2691.4	3149.7	2742.4
1806.0	903.0	2431.7	2693.0	4088.4	2744.2
1808.0	904.0	2436.0	2694.7	4239.7	2746.3
1810.0	905.0	2440.2	2696.4	4239.5	2748.4
1812.0	906.0	2444.3	2697.9	4098.1	2750.3
1814.0	907.0	2448.1	2699.1	3802.2	2751.7
1816.0	908.0	2451.9	2700.4	3802.5	2753.0
1818.0	909.0	2455.7	2701.6	3802.5	2754.4
1820.0	910.0	2459.7	2703.0	4009.5	2756.1
1822.0	911.0	2464.1	2704.8	4349.4	2758.4
1824.0	912.0	2468.4	2706.6	4349.4	2760.6
1826.0	913.0	2472.8	2708.4	4349.4	2762.8
1828.0	914.0	2476.8	2709.8	3974.4	2764.5
1830.0	915.0	2480.7	2711.1	3946.5	2766.0
1832.0	916.0	2484.6	2712.5	3946.5	2767.6
1834.0	917.0	2488.6	2713.9	3991.0	2769.2
1836.0	918.0	2492.9	2715.6	4289.1	2771.3
1838.0	919.0	2497.2	2717.3	4289.3	2773.4
1840.0	920.0	2501.5	2719.0	4289.1	2775.5
1842.0	921.0	2505.7	2720.6	4211.4	2777.5
1844.0	922.0	2509.9	2722.2	4166.5	2779.4
1846.0	923.0	2514.1	2723.8	4166.3	2781.2
1848.0	924.0	2518.2	2725.3	4170.9	2783.1
1850.0	925.0	2522.5	2727.1	4299.6	2785.2
1852.0	926.0	2526.8	2728.7	4299.8	2787.3
1854.0	927.0	2531.1	2730.4	4299.6	2789.4
1856.0	928.0	2534.8	2731.4	3636.5	2790.4
1858.0	929.0	2537.8	2731.8	3082.0	2790.7
1860.0	930.0	2540.9	2732.2	3082.0	2791.1

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1862.0	931.0	2544.0	2732.5	3082.0	2791.4
1864.0	932.0	2547.1	2732.9	3081.8	2791.7
1866.0	933.0	2550.0	2733.1	2934.3	2791.9
1868.0	934.0	2552.9	2733.3	2864.3	2792.0
1870.0	935.0	2555.7	2733.4	2864.0	2792.0
1872.0	936.0	2558.6	2733.6	2864.3	2792.1
1874.0	937.0	2561.5	2733.7	2864.0	2792.2
1876.0	938.0	2564.8	2734.3	3289.1	2792.8
1878.0	939.0	2568.6	2735.5	3827.6	2794.1
1880.0	940.0	2572.4	2736.6	3827.6	2795.4
1882.0	941.0	2576.2	2737.8	3827.4	2796.7
1884.0	942.0	2580.2	2739.0	3922.4	2798.1
1886.0	943.0	2584.2	2740.4	4008.8	2799.7
1888.0	944.0	2588.2	2741.7	4008.8	2801.2
1890.0	945.0	2592.2	2743.1	4008.8	2802.8
1892.0	946.0	2596.1	2744.3	3914.8	2804.2
1894.0	947.0	2600.0	2745.5	3888.4	2805.6
1896.0	948.0	2603.9	2746.7	3888.4	2806.9
1898.0	949.0	2607.8	2747.9	3888.2	2808.3
1900.0	950.0	2613.0	2750.5	5192.6	2811.9
1902.0	951.0	2618.3	2753.2	5298.8	2815.6
1904.0	952.0	2623.4	2755.7	5156.7	2819.1
1906.0	953.0	2627.2	2756.8	3795.2	2820.3
1908.0	954.0	2631.0	2757.9	3795.2	2821.5
1910.0	955.0	2634.8	2759.0	3795.2	2822.7
1912.0	956.0	2638.7	2760.1	3878.4	2824.0
1914.0	957.0	2643.1	2761.8	4374.3	2826.1
1916.0	958.0	2647.4	2763.5	4374.5	2828.1
1918.0	959.0	2651.8	2765.2	4374.5	2830.2
1920.0	960.0	2655.8	2766.5	4027.1	2831.7
1922.0	961.0	2659.7	2767.7	3888.9	2833.0
1924.0	962.0	2663.6	2768.8	3888.9	2834.3
1926.0	963.0	2667.5	2770.0	3888.9	2835.6
1928.0	964.0	2671.1	2770.9	3642.1	2836.6
1930.0	965.0	2674.7	2771.8	3601.8	2837.5
1932.0	966.0	2678.4	2772.6	3601.8	2838.4
1934.0	967.0	2682.0	2773.5	3601.6	2839.3
1936.0	968.0	2686.9	2775.7	4897.5	2842.1
1938.0	969.0	2692.3	2778.4	5462.6	2846.1
1940.0	970.0	2697.8	2781.2	5462.4	2850.0
1942.0	971.0	2702.8	2783.5	5003.4	2853.1
1944.0	972.0	2707.8	2785.8	4980.0	2856.1
1946.0	973.0	2712.7	2788.0	4980.0	2859.1
1948.0	974.0	2716.3	2788.8	3512.9	2859.8
1950.0	975.0	2719.7	2789.4	3420.7	2860.5
1952.0	976.0	2723.1	2790.1	3420.7	2861.1
1954.0	977.0	2726.5	2790.7	3420.7	2861.7
1956.0	978.0	2729.8	2791.2	3249.0	2862.1
1958.0	979.0	2732.9	2791.5	3112.8	2862.4
1960.0	980.0	2736.0	2791.8	3113.0	2862.7
1962.0	981.0	2739.1	2792.2	3113.0	2862.9
1964.0	982.0	2742.2	2792.5	3113.0	2863.2
1966.0	983.0	2745.7	2793.2	3507.1	2863.9
1968.0	984.0	2749.4	2794.1	3643.8	2864.8
1970.0	985.0	2753.0	2794.9	3643.8	2865.7
1972.0	986.0	2756.7	2795.8	3643.8	2866.6
1974.0	987.0	2761.2	2797.6	4580.3	2868.9
1976.0	988.0	2766.4	2800.0	5133.3	2872.1
1978.0	989.0	2771.5	2802.3	5133.5	2875.3

TIME		DATUM	VELOCITY		
2 WAY	1 WAY (TGD)	DEPTH (DGD)	AVERAGE	INTERVAL	RMS
1980.0	990.0	2777.2	2805.3	5746.1	2879.6
1982.0	991.0	2783.2	2808.5	5998.0	2884.5
1984.0	992.0	2789.0	2811.5	5725.8	2888.7
1986.0	993.0	2793.7	2813.4	4704.6	2891.1
1988.0	994.0	2798.4	2815.3	4704.3	2893.5
1990.0	995.0	2803.0	2817.1	4666.0	2895.9
1992.0	996.0	2806.2	2817.5	3161.6	2896.1
1994.0	997.0	2809.4	2817.8	3161.9	2896.4
1996.0	998.0	2812.5	2818.2	3161.6	2896.7
1998.0	999.0	2815.7	2818.5	3161.9	2897.0
2000.0	1000.0	2819.0	2819.0	3313.0	2897.4
2002.0	1001.0	2822.7	2819.9	3690.4	2898.3
2004.0	1002.0	2826.4	2820.7	3690.4	2899.2
2006.0	1003.0	2830.1	2821.6	3690.4	2900.1
2008.0	1004.0	2834.1	2822.8	4025.6	2901.4
2010.0	1005.0	2839.3	2825.1	5169.9	2904.6
2012.0	1006.0	2844.4	2827.5	5169.7	2907.7
2014.0	1007.0	2849.6	2829.8	5117.9	2910.7
2016.0	1008.0	2854.6	2831.9	5011.7	2913.6
2018.0	1009.0	2859.6	2834.1	5012.0	2916.4
2020.0	1010.0	2864.1	2835.7	4474.6	2918.4
2022.0	1011.0	2867.5	2836.3	3436.8	2918.9
2024.0	1012.0	2870.9	2836.9	3436.8	2919.5
2026.0	1013.0	2874.4	2837.5	3436.8	2920.0
2028.0	1014.0	2877.8	2838.1	3436.8	2920.6

12. DIRECTIONAL SURVEY

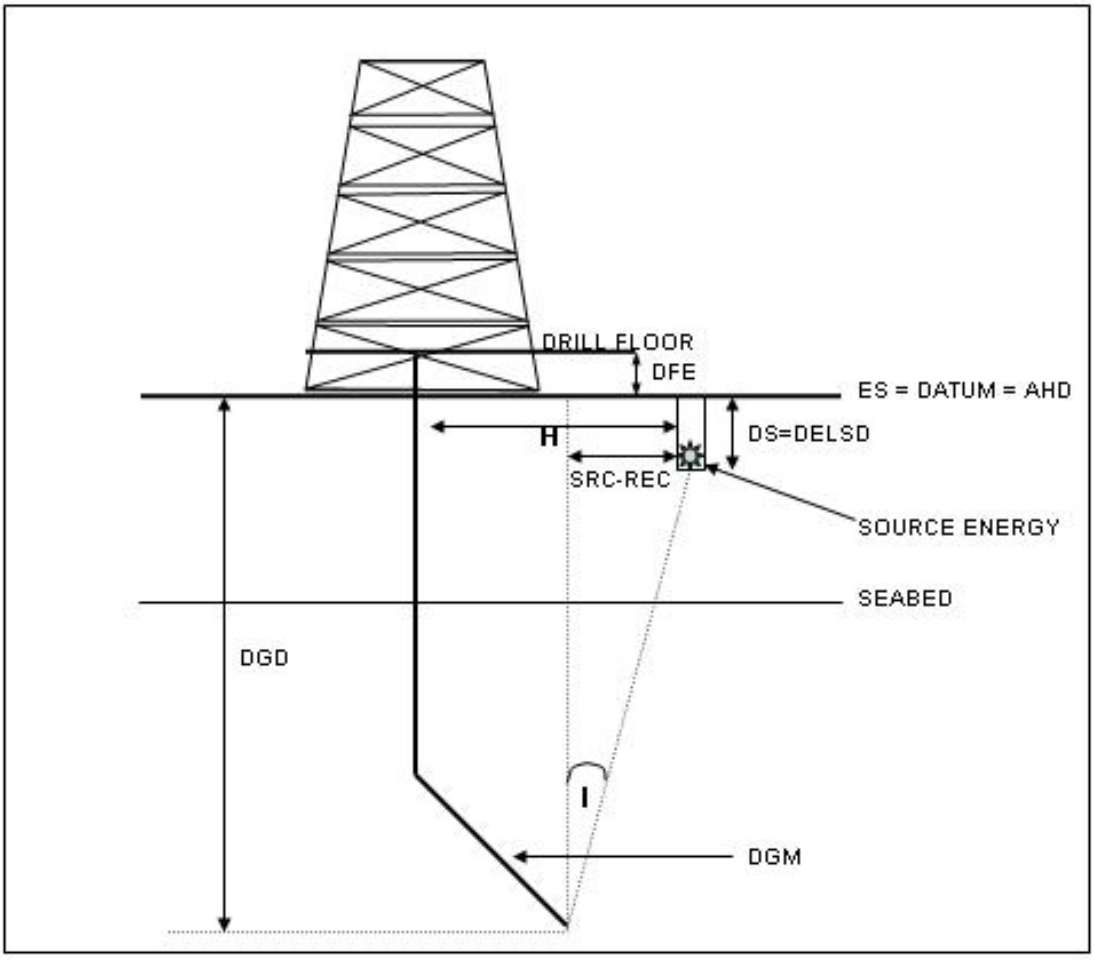
APACHE ENERGY LIMITED
WELL : GRAYLING-1A

DIRECTIONAL SURVEY
CONTRACTOR BAKER ATLAS
SURVEY DATE 17 JANUARY
REFERENCE ELEVATION 21.50 M ABOVE DATUM REF.

MEASURED DEPTH	INCLINATION ANGLE	AZIMUTH ANGLE (FROM NORTH)	VERTICAL DEPTH	N/S COORD. NORTH = +	E/W COORD. EAST = +
(M)	(DEG)	(DEG)	(M)	(M)	(M)
140.83	0.93	20.3	140.83	0.00	0.00
167.34	0.94	26.0	167.34	0.40	0.17
196.50	0.55	24.9	196.49	0.74	0.33
221.10	0.33	17.1	221.09	0.91	0.40
253.41	0.44	25.8	253.40	1.11	0.49
282.65	0.46	31.9	282.64	1.32	0.60
336.05	0.37	36.8	336.04	1.64	0.81
364.95	0.35	34.8	364.94	1.78	0.92
424.97	0.09	37.9	424.96	1.97	1.05
451.80	0.18	136.7	451.79	1.96	1.09
482.27	0.03	52.2	482.26	1.93	1.13
511.26	0.03	38.5	511.25	1.94	1.14
539.81	0.23	62.3	539.80	1.97	1.20
568.55	0.41	43.7	568.54	2.07	1.32
654.00	0.34	94.0	653.99	2.27	1.79
684.56	0.33	108.9	684.55	2.24	1.96
711.79	0.32	104.0	711.78	2.20	2.11
741.44	0.20	130.9	741.43	2.14	2.23
768.30	0.18	151.3	768.29	2.07	2.28
799.47	0.07	125.1	799.46	2.02	2.32
828.00	0.33	254.0	827.99	1.99	2.26
855.73	0.22	282.7	855.71	1.98	2.13
884.02	0.25	268.5	884.00	1.99	2.01
912.98	0.03	338.3	912.96	1.99	1.95
941.54	0.24	248.4	941.52	1.98	1.89
969.38	0.23	227.1	969.36	1.92	1.79
997.56	0.08	133.4	997.54	1.87	1.77
1026.77	0.07	257.6	1026.75	1.85	1.76
1055.08	0.12	94.5	1055.06	1.84	1.78
1083.61	0.12	106.1	1083.59	1.83	1.84
1112.94	0.10	285.8	1112.92	1.83	1.84
1142.03	0.20	104.6	1142.01	1.82	1.87
1170.51	0.20	103.1	1170.49	1.80	1.96
1196.45	0.20	97.9	1196.43	1.78	2.05
1198.86	0.14	149.1	1198.84	1.78	2.06
1227.73	0.20	97.5	1227.71	1.74	2.12
1258.25	0.23	146.7	1258.23	1.69	2.21
1286.99	0.14	124.3	1286.97	1.62	2.27
1314.43	0.17	97.5	1314.41	1.59	2.34
1343.18	0.27	148.9	1343.16	1.53	2.42
1373.25	0.24	126.9	1373.23	1.43	2.50
1402.00	0.30	107.7	1401.98	1.37	2.62

MEASURED DEPTH (M)	INCLINATION ANGLE (DEG)	AZIMUTH ANGLE (FROM NORTH) (DEG)	VERTICAL DEPTH (M)	N/S COORD. NORTH = + (M)	E/W COORD. EAST = + (M)
1430.54	0.66	88.0	1430.52	1.36	2.86
1459.18	0.60	82.7	1459.16	1.38	3.17
1487.74	0.57	116.2	1487.72	1.34	3.45
1544.86	0.59	114.9	1544.83	1.09	3.97
1573.59	0.54	97.0	1573.56	1.01	4.24
1602.19	0.43	108.0	1602.16	0.96	4.47
1631.00	0.69	124.8	1630.97	0.83	4.72
1688.59	0.84	172.4	1688.56	0.21	5.06
1717.50	1.15	175.1	1717.46	-0.29	5.11
1746.31	1.33	177.8	1746.26	-0.91	5.15
1771.77	1.71	183.2	1771.72	-1.59	5.14
1801.27	1.83	193.6	1801.20	-2.48	5.01
1829.67	1.85	191.5	1829.59	-3.37	4.81
1859.53	2.00	189.7	1859.43	-4.36	4.62
1886.70	2.12	182.1	1886.58	-5.33	4.53
1913.17	1.88	179.2	1913.04	-6.25	4.51
1943.38	2.08	169.6	1943.23	-7.29	4.62
1970.53	2.15	161.3	1970.36	-8.25	4.87
2002.66	2.18	162.4	2002.47	-9.41	5.25
2031.55	2.30	163.1	2031.33	-10.49	5.59
2059.86	2.41	156.9	2059.62	-11.58	5.98
2088.00	2.15	158.8	2087.74	-12.61	6.41
2116.02	2.17	149.9	2115.74	-13.56	6.86
2176.47	1.96	136.3	2176.15	-15.30	8.15
2205.27	2.09	136.6	2204.93	-16.04	8.85
2234.28	1.80	118.6	2233.92	-16.64	9.62
2262.36	1.77	112.2	2261.99	-17.01	10.41
2319.97	1.35	98.2	2319.58	-17.45	11.90
2348.57	1.20	81.0	2348.17	-17.45	12.53
2377.25	1.24	77.4	2376.85	-17.33	13.13
2405.89	0.86	73.8	2405.48	-17.21	13.64
2434.61	0.82	69.5	2434.20	-17.07	14.04
2463.45	0.68	71.6	2463.04	-16.95	14.39
2492.41	0.81	69.7	2491.99	-16.82	14.75
2546.50	0.52	57.7	2546.08	-16.56	15.31
2576.79	0.69	53.3	2576.37	-16.38	15.58
2607.25	1.04	24.2	2606.82	-16.01	15.84
2635.53	1.27	21.8	2635.10	-15.49	16.06
2664.67	1.48	19.5	2664.23	-14.83	16.30
2693.52	1.47	19.4	2693.07	-14.13	16.55
2705.88	1.52	22.2	2705.43	-13.83	16.67
2712.30	1.49	18.2	2711.84	-13.67	16.72
2741.40	1.94	16.8	2740.93	-12.84	16.99
2770.20	2.12	14.3	2769.71	-11.86	17.26
2799.25	2.30	13.4	2798.74	-10.77	17.52
2827.82	2.76	14.4	2827.28	-9.55	17.83
2855.28	2.92	15.4	2854.71	-8.23	18.18
2880.32	3.28	15.6	2879.71	-6.93	18.54
2914.00	3.28	15.6	2913.34	-5.07	19.06

Figure 1. NOMENCLATURE CHART
OFFSHORE SURVEY



DFE = Drill Floor Elevation
ES = Source Elevation = Datum = MSL or AHD
DS = Source Depth below AHD
H = Source Well Head Horizontal Distance
DELSD = DS
DGM = Geophone Measured Depth (Measured from DF along Borehole)
DGD = Geophone True vertical Depth (TVD measured from AHD)
TGD = One-Way Corrected Time to AHD
2 TGD = Two-Way Corrected Time to AHD
VE = Elevation Correction Velocity
SRC-REC = Source Receiver Horizontal Distance
DELDGD = Interval Vertical Depth
DELDGT = Interval Time
$\cos I = (DGD - DELSD) / \sqrt{(SRC - REC)^2 + (DGD - DELSD)^2}$

Baker Atlas

ENCLOSURE 1A

BOREHOLE SEISMIC ANALYSIS

FOR

APACHE ENERGY LIMITED

PREPARED BY

BAKER ATLAS

DOWNHOLE SEISMIC SERVICES

WELL	:	**GRAYLING-1A**
LOCATION	:	**OFFSHORE AUSTRALIA**
ENGINEER	:	**B.READ**
DATE	:	**MON 17TH JANUARY 2005**

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FIELD ENGINEER'S LOG

SURVEY INFORMATION

CLIENT	APACHE ENERGY LIMITED
CLIENT REP	J.SONEGO P.SLIJDERINK
WELL NAME	GRAYLING-1A
WELL LOCATION	OFFSHORE AUSTRALIA
FIELD NAME	EXPLORATION
RIG NAME	OCEAN PATRIOT
ENGINEER	B.READ
TYPE OF SERVICE	ZVSP (MLR)
WIRELINE CO. AND DISTRICT	BAKER ATLAS, PERTH
WIRELINE OPERATOR	UNIT 8677

RUN NUMBER	2	TOTAL TRIPS THIS RUN	1
WEATHER / SEAS	CLEAR, CALM	SURVEY DATE	MON 17TH JANUARY 2005
LINEID GRAYLING1A	FILE NAME : RAW	SERVICE ORDER NO.	516568

WELL INFORMATION

WELL HEAD COORDINATES	38 DEG 09' 40.28" S 148 DEG 17' 34.73" E		
NORTHING	N/A	ELEV D.F.	21.5
EASTING	N/A	OPEN HOLE DIAMETER	8.5 IN
RIG HEADING	45 Deg	MAX. TEMPERATURE	258 F
GROUND ELEVATION	-56.8	FLUID TYPE	KCL POLYMER
WATER DEPTH	56.8	CASING : (DIAMETER / DEPTH)	
WELL T.D.	2914 M	1	30" 0 - 112.3 M
REFERENCE DATUM	MEAN SEA LEVEL	2	13 3/8 - 796.2 M
DEVIATED WELL	NO	3	OPEN HOLE
MAXIMUM DEVIATION	N/A	4	OPEN HOLE

DOWNHOLE RECEIVER

RECEIVER TYPE	AWS 1300 GM	ARM LENGTH	STANDARD 6-14"		
SENSOR TYPE	GEOPHONE	SENSOR FREQ.	10 HZ	PREAMP GAIN	51 dB
GIMBALLED	YES	GIMBAL TYPE	1025	ZERO POINT	DRILL FLOOR
RCVR SPACING	15 M	ASSET NO RCV-1	166483	ASSET NO RCV-2	186706
ASSET NO. RCV-3	189237	ASSET NO RCV-4	166476	ASSET NO RCV-5	166202

LOGGING TOOLS USED

1309XA/MLR STRING

BAKER HUGHES

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FIELD ENGINEER'S LOG

RECORDING SYSTEM

RECORDING UNIT ASSET NUMBER	9700LA 302869
SURFACE A/D TYPE AND NUMBER	DSS 16CH A/D
DOWNHOLE A/D TYPE AND ASSET NUMBER	6221XA 189564

SURFACE A/D TOTAL CHANNELS	8	DOWNHOLE A/D TOTAL CHANNELS	16
FLASK TYPE	HIGH TEMP		
SAMPLE RATE	1 MILLISECOND	RECORD LENGTH	4 SECONDS
SWEEP LENGTH	N/A	TRANSMIT OFFSET	N/A
TIME OF START OF RECORD TO TIME BREAK	100 MSECS		
LOW CUT FILTER	DC (0 Hz)	HIGH CUT FILTER	250 Hz
TAPE TYPE	N/A	TAPE FORMAT	N/A

CHANNELS ASSIGNMENT AND GAIN :

CH 1	V	CH 2	H	CH 3	T
CH 4	V	CH 5	H	CH 6	T
CH 7	V	CH 8	H	CH 9	T
CH 10	V	CH 11	H	CH 12	T
CH 13	V	CH 14	H	CH 15	T
CH 16	N/A	CH 17	N/A	CH 18	N/A
CH 19	N/A	CH 20	SIG	CH 21	N/A
CH 22	N/A	CH 23	N/A	CH 24	N/A
CH 25	N/A	CH 26	N/A	CH 26	N/A
CH 28	N/A	CH 29	N/A	CH 30	N/A
CH 31	N/A	CH 32	N/A		

WIRELINE & WTS PANEL

WIRELINE ASSET NO	9520LA 10103244	WIRELINE TYPE	7H47RTZHS
WIRELINE LENGTH	5164 M	WTS TYPE / ASSET NO.	5710XD 172466

TRANSMIT GAIN	42	MODE 2 GAIN 1	10	MODE 2 GAIN 2	17
MODE 2 EQN. 1	66	MODE 2 EQN. 2	57	MODE 2 EQN. 3	OUT
MODE 5 GAIN 1	4	MODE 5 EQN. 1	66	MODE 5 EQN. 1	60

INTERCONNECTS

SPACING DISTANCE	15 M	ASSET NO. INC-1	190274	ASSET NO. INC-2	190275
ASSET NO. INC-3	152532	ASSET NO. INC-4	186728	ASSET NO. INC-5	190271

SPECIAL FEATURES

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PROCESSING INSTRUCTION

SEISMIC DATUM : MEAN SEA LEVEL CORRECTION VELOCITY 1500 M/SEC

LOGS AVAILABLE ON SITE :

SURVEY INSTRUCTIONS RECEIVED

(N) PRIORITY
(N) CALIBRATION
(N) SYNTHETIC
(Y) VSP
(Y) VELOCITY
(N) INVERSION
(N) OFFSET VSP
(N) WALKWAY
(N) PROXIMITY
(N) NORMAL INCIDENCE
(N) 3 COMPONENTS
(N) 3D
(N) NAVIGATION
(N) GYRO

GUN TO HYDROPHONE CORRECTION 1.3 MSECS
HYDROPHONE DELAY = 0.0 MSECS
ZVSP AT 15 M INTERVALS FROM TD (2900M) TO TOP OF CEMENT AT 400M
GR CORRELATION WAS 0 M AT A DEPTH OF 2520 M
A TOTAL OF 173 LEVELS PLUS THREE CHECKSHOTS WERE TAKEN

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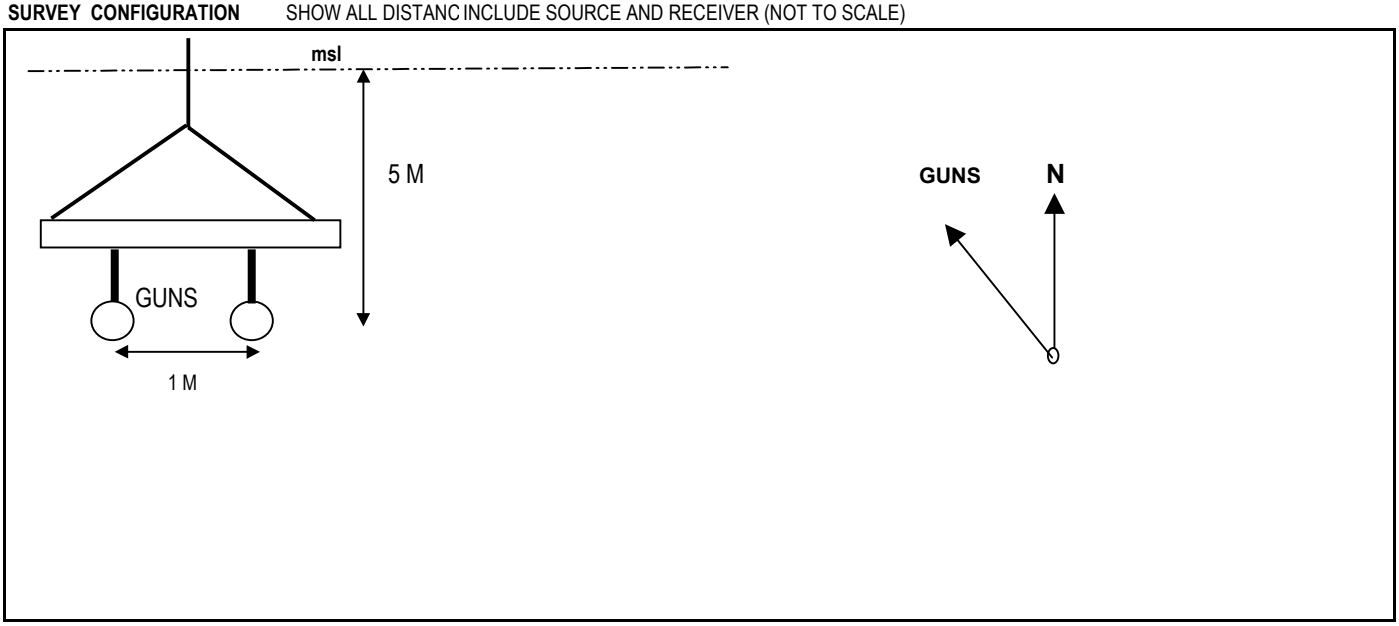
AIRGUN SURVEY

OFFSET NO. 1		OFFSET NO. 2	
DISTANCE FROM WELL	46.3 M	DISTANCE FROM WELL	N/A
AZIMUTH FROM WELL	329 Deg	AZIMUTH FROM WELL	N/A
ELEVATION FROM MSL	-5 M	ELEVATION FROM MSL	N/A
GUN ARRAY TYPE	SLEEVE GUN	GUN ARRAY TYPE	N/A
GUN CONTROLLER	GCU-4 6001LA 123483	GUN CONTROLLER	N/A
WATER DEPTH	58.5 M	WATER DEPTH	N/A
GUN DEPTH	5 M	GUN DEPTH	N/A
NUMBER OF GUNS	4	NUMBER OF GUNS	N/A
GUN SEPERATION	1 M	GUN SEPERATION	N/A
GUN VOLUMES	4 X 150 CU IN	GUN VOLUMES	N/A
GUN UNIT NO.	127901, 127895, 011700, 011702	GUN UNIT NO.	N/A
PIT DIMENSION (L,W,D)	OPEN SEA	PIT DIMENSION (L,W,D)	N/A

COMPRESSORS		COMPRESSORS	
TYPE & S/N :	RUCKER SYSTEM	TYPE & S/N :	N/A
FIRING PRESSURE	1800 PSI	FIRING PRESSURE	N/A

REFERENCE PHONE		REFERENCE PHONE	
TYPE	MP8-D HYDROPHONE	TYPE	N/A
DISTANCE TO SOURCE	2 M	DISTANCE TO SOURCE	N/A
DIRECTION TO SOURCE	DIRECTLY BELOW	DIRECTION TO SOURCE	N/A
DEPTH	7 M	DEPTH	N/A
FREQ.	15 Hz	FREQ.	N/A

SURVEY CONFIGURATION SHOW ALL DISTANC INCLUDE SOURCE AND RECEIVER (NOT TO SCALE)



TOOL STATIONS

Baker Atlas

CLIENT APACHE ENERGY LIMITED
SOURCE 4 x 150 cu in Sleeve Gun
WELL NAME GRAYLING-1A
ENGINEER B.READ
SERVICE ZVSP (MLR)
DATE MON 17TH JANUARY 2005

LEVEL NO	TOOL STATION DEPTH	FILE NUMBER	STATION NO.	TOOL NO	VERTICAL CHAN TIME PICK (MSEC)	TIME AT COMPLETION OF LEVEL	CABLE SLACK	PRE-AMP GAIN	REMARKS (COMMENTS, UH TIME,CHARGE TYPE, DEPTH, ETC)
1	875	1 -- 14	1	5	362.0	Mon 15:39 17/1 2005	0	0	kill files 1 2 3 4 5 6 7 8 9 10 11.
2	860	1 -- 14	1	4	356.0	Mon 15:39 17/1 2005	0	0	kill files 1 2 3 4 5 6 7 8 9 10 11.
3	845	1 -- 14	1	3	350.0	Mon 15:39 17/1 2005	0	0	kill files 1 2 3 4 5 6 7 8 9 10 11.
4	830	1 -- 14	1	2	346.0	Mon 15:39 17/1 2005	0	0	kill files 1 2 3 4 5 6 7 8 9 10 11.
5	815	1 -- 14	1	1	343.0	Mon 15:39 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 1 2 3 4 5 6 7 8 9 10 11.
6	1475	15 -- 17	2	5	595.0	Mon 15:56 17/1 2005	0	0	
7	1460	15 -- 17	2	4	590.0	Mon 16:43 17/1 2005	0	0	
8	1445	15 -- 17	2	3	583.0	Mon 16:43 17/1 2005	0	0	
9	1430	15 -- 17	2	2	579.0	Mon 15:56 17/1 2005	0	0	
10	1415	15 -- 17	2	1	574.0	Mon 15:56 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
11	2075	18 -- 20	3	5	791.0	Mon 15:56 17/1 2005	0	0	
12	2060	18 -- 20	3	4	786.0	Mon 16:43 17/1 2005	0	0	
13	2045	18 -- 20	3	3	781.0	Mon 16:43 17/1 2005	0	0	
14	2030	18 -- 20	3	2	777.0	Mon 16:43 17/1 2005	0	0	
15	2015	18 -- 20	3	1	775.0	Mon 16:43 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
16	2675	21 -- 28	4	5	958.0	Mon 16:43 17/1 2005	0	0	kill files 21 22 23 27 28.
17	2660	21 -- 28	4	4	955.0	Mon 16:59 17/1 2005	0	0	kill files 21 22 23 27 28.
18	2645	21 -- 28	4	3	951.0	Mon 16:59 17/1 2005	0	0	kill files 21 22 23 27 28.
19	2630	21 -- 28	4	2	948.0	Mon 16:59 17/1 2005	0	0	kill files 21 22 23 27 28.
20	2615	21 -- 28	4	1	945.0	Mon 16:59 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 21 22 23 27 28.
21	2900	29 -- 34	5	5	1014.0	Mon 17:35 17/1 2005	0	0	kill file 29.
22	2885	29 -- 34	5	4	1008.0	Mon 17:35 17/1 2005	0	0	kill file 29.
23	2870	29 -- 34	5	3	1005.0	Mon 17:35 17/1 2005	0	0	kill file 29.
24	2855	29 -- 34	5	2	1003.0	Mon 17:35 17/1 2005	0	0	kill file 29.
25	2840	29 -- 34	5	1	999.0	Mon 17:35 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill file 29.
26	2825	35 -- 40	6	5	994.0	Mon 17:46 17/1 2005	0	0	kill file 35.
27	2810	35 -- 40	6	4	990.0	Mon 17:46 17/1 2005	0	0	kill file 35.
28	2795	35 -- 40	6	3	988.0	Mon 17:46 17/1 2005	0	0	kill file 35.
29	2780	35 -- 40	6	2	983.0	Mon 17:46 17/1 2005	0	0	kill file 35.
30	2765	35 -- 40	6	1	984.0	Mon 17:46 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill file 35.
31	2750	41 -- 45	7	5	976.0	Mon 17:57 17/1 2005	0	0	
32	2735	41 -- 45	7	4	973.0	Mon 17:57 17/1 2005	0	0	
33	2720	41 -- 45	7	3	970.0	Mon 17:57 17/1 2005	0	0	
34	2705	41 -- 45	7	2	967.0	Mon 17:57 17/1 2005	0	0	
35	2690	41 -- 45	7	1	962.0	Mon 17:57 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
36	2675	46 -- 50	8	5	960.0	Mon 18:09 17/1 2005	0	0	
37	2660	46 -- 50	8	4	956.0	Mon 18:09 17/1 2005	0	0	

TOOL STATIONS

Baker Atlas

CLIENT APACHE ENERGY LIMITED
SOURCE 4 x 150 cu in Sleeve Gun
WELL NAME GRAYLING-1A
ENGINEER B.READ
SERVICE ZVSP (MLR)
DATE MON 17TH JANUARY 2005

LEVEL NO	TOOL STATION DEPTH	FILE NUMBER	STATION NO.	TOOL NO	VERTICAL CHAN TIME PICK (MSEC)	TIME AT COMPLETION OF LEVEL	CABLE SLACK	PRE-AMP GAIN	REMARKS (COMMENTS, UH TIME,CHARGE TYPE, DEPTH, ETC)
38	2645	46 -- 50	8	3	951.0	Mon 18:09 17/1 2005	0	0	
39	2630	46 -- 50	8	2	948.0	Mon 18:09 17/1 2005	0	0	
40	2615	46 -- 50	8	1	945.0	Mon 18:09 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
41	2600	51 -- 55	9	5	940.0	Mon 18:15 17/1 2005	0	0	
42	2585	51 -- 55	9	4	937.0	Mon 18:15 17/1 2005	0	0	
43	2570	51 -- 55	9	3	931.0	Mon 18:15 17/1 2005	0	0	
44	2555	51 -- 55	9	2	928.0	Mon 18:15 17/1 2005	0	0	
45	2540	51 -- 55	9	1	925.0	Mon 18:15 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
46	2525	56 -- 60	10	5	920.0	Mon 18:23 17/1 2005	0	0	
47	2510	56 -- 60	10	4	916.0	Mon 18:23 17/1 2005	0	0	
48	2495	56 -- 60	10	3	912.0	Mon 18:23 17/1 2005	0	0	
49	2480	56 -- 60	10	2	909.0	Mon 18:23 17/1 2005	0	0	
50	2465	56 -- 60	10	1	905.0	Mon 18:23 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
51	2450	61 -- 65	11	5	903.0	Mon 18:33 17/1 2005	0	0	
52	2435	61 -- 65	11	4	897.0	Mon 18:33 17/1 2005	0	0	
53	2420	61 -- 65	11	3	892.0	Mon 18:33 17/1 2005	0	0	
54	2405	61 -- 65	11	2	888.0	Mon 18:33 17/1 2005	0	0	
55	2390	61 -- 65	11	1	884.0	Mon 18:33 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
56	2375	66 -- 75	12	5	880.0	Mon 18:48 17/1 2005	0	0	kill files 66 67 68 70.
57	2360	66 -- 75	12	4	875.0	Mon 18:48 17/1 0	0	0	kill files 66 67 68 70.
58	2345	66 -- 75	12	3	871.0	Mon 18:48 17/1 2005	0	0	kill files 66 67 68 70.
59	2330	66 -- 75	12	2	868.0	Mon 18:48 17/1 0	0	0	kill files 66 67 68 70.
60	2315	66 -- 75	12	1	865.0	Mon 18:48 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 66 67 68 70.
61	2300	76 -- 80	13	5	861.0	Mon 19:00 17/1 2005	0	0	
62	2285	76 -- 80	13	4	855.0	Mon 19:00 17/1 2005	0	0	
63	2270	76 -- 80	13	3	852.0	Mon 19:00 17/1 2005	0	0	
64	2255	76 -- 80	13	2	847.0	Mon 19:00 17/1 2005	0	0	
65	2240	76 -- 80	13	1	844.0	Mon 19:00 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
66	2225	81 -- 85	14	5	839.0	Mon 19:05 17/1 2005	0	0	
67	2210	81 -- 85	14	4	836.0	Mon 19:05 17/1 2005	0	0	
68	2195	81 -- 85	14	3	832.0	Mon 19:05 17/1 2005	0	0	
69	2180	81 -- 85	14	2	826.0	Mon 19:05 17/1 2005	0	0	
70	2165	81 -- 85	14	1	822.0	Mon 19:05 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
71	2150	86 -- 95	15	5	816.0	Mon 19:14 17/1 2005	0	0	kill files 86 89 90 91 93.
72	2135	86 -- 95	15	4	812.0	Mon 19:14 17/1 2005	0	0	kill files 86 89 90 91 93.
73	2120	86 -- 95	15	3	807.0	Mon 19:14 17/1 2005	0	0	kill files 86 89 90 91 93.

TOOL STATIONS

BAKER HUGHES
Baker Atlas

CLIENT APACHE ENERGY LIMITED
SOURCE 4 x 150 cu in Sleeve Gun
WELL NAME GRAYLING-1A
ENGINEER B.READ
SERVICE ZVSP (MLR)
DATE MON 17TH JANUARY 2005

LEVEL NO	TOOL STATION DEPTH	FILE NUMBER	STATION NO.	TOOL NO	VERTICAL CHAN TIME PICK (MSEC)	TIME AT COMPLETION OF LEVEL	CABLE SLACK	PRE-AMP GAIN	REMARKS (COMMENTS, UH TIME,CHARGE TYPE, DEPTH, ETC)
74	2105	86 - 95	15	2	804.0	Mon 19:14 17/1 2005	0	0	kill files 86 89 90 91 93.
75	2090	86 - 95	15	1	800.0	Mon 19:14 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 86 89 90 91 93.
76	2075	96 - 100	16	5	796.0	Mon 19:20 17/1 2005	0	0	
77	2060	96 - 100	16	4	790.0	Mon 19:20 17/1 2005	0	0	
78	2045	96 - 100	16	3	786.0	Mon 19:20 17/1 2005	0	0	
79	2030	96 - 100	16	2	782.0	Mon 19:20 17/1 2005	0	0	
80	2015	96 - 100	16	1	776.0	Mon 19:20 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
81	2000	101 - 105	17	5	772.0	Mon 19:30 17/1 2005	0	0	
82	1985	101 - 105	17	4	768.0	Mon 19:30 17/1 2005	0	0	
83	1970	101 - 105	17	3	762.0	Mon 19:30 17/1 2005	0	0	
84	1955	101 - 105	17	2	757.0	Mon 19:30 17/1 2005	0	0	
85	1940	101 - 105	17	1	753.0	Mon 19:30 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
86	1925	106 - 110	18	5	748.0	Mon 19:34 17/1 2005	0	0	
87	1910	106 - 110	18	4	743.0	Mon 19:34 17/1 2005	0	0	
88	1895	106 - 110	18	3	739.0	Mon 19:34 17/1 2005	0	0	
89	1880	106 - 110	18	2	734.0	Mon 19:34 17/1 2005	0	0	
90	1865	106 - 110	18	1	731.0	Mon 19:34 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
91	1850	111 - 115	19	5	725.0	Mon 19:43 17/1 2005	0	0	
92	1835	111 - 115	19	4	721.0	Mon 19:43 17/1 2005	0	0	
93	1820	111 - 115	19	3	715.1	Mon 19:43 17/1 2005	0	0	
94	1805	111 - 115	19	2	710.0	Mon 19:43 17/1 2005	0	0	
95	1790	111 - 115	19	1	707.0	Mon 19:43 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
96	1775	116 - 120	20	5	700.0	Mon 19:51 17/1 2005	0	0	
97	1760	116 - 120	20	4	696.0	Mon 19:51 17/1 2005	0	0	
98	1745	116 - 120	20	3	690.0	Mon 19:51 17/1 2005	0	0	
99	1730	116 - 120	20	2	685.0	Mon 19:51 17/1 2005	0	0	
100	1715	116 - 120	20	1	682.0	Mon 19:51 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
101	1700	121 - 127	21	5	676.0	Mon 19:59 17/1 2005	0	0	kill files 121 124.
102	1685	121 - 127	21	4	671.0	Mon 19:59 17/1 2005	0	0	kill files 121 124.
103	1670	121 - 127	21	3	666.0	Mon 19:59 17/1 2005	0	0	kill files 121 124.
104	1655	121 - 127	21	2	660.0	Mon 19:59 17/1 2005	0	0	kill files 121 124.
105	1640	121 - 127	21	1	655.0	Mon 19:59 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 121 124.
106	1625	128 - 139	22	5	649.0	Mon 20:09 17/1 2005	0	0	kill files 128 129 130 131 132 133 134.
107	1610	128 - 139	22	4	644.0	Mon 20:15 17/1 2005	0	0	kill files 128 129 130 131 132 133 134.
108	1595	128 - 139	22	3	639.0	Mon 20:15 17/1 2005	0	0	kill files 128 129 130 131 132 133 134.
109	1580	128 - 139	22	2	635.0	Mon 20:09 17/1 2005	0	0	kill files 128 129 130 131 132 133 134.

TOOL STATIONS

BAKER HUGHES
Baker Atlas

CLIENT APACHE ENERGY LIMITED
SOURCE 4 x 150 cu in Sleeve Gun
WELL NAME GRAYLING-1A
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DATE MON 17TH JANUARY 2005

LEVEL NO	TOOL STATION DEPTH	FILE NUMBER	STATION NO.	TOOL NO	VERTICAL CHAN TIME PICK (MSEC)	TIME AT COMPLETION OF LEVEL	CABLE SLACK	PRE-AMP GAIN	REMARKS (COMMENTS, UH TIME,CHARGE TYPE, DEPTH, ETC)
110	1565	128 - 139	22	1	631.0	Mon 20:09 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 128 129 130 131 132 133 134.
111	1550	140 - 145	23	5	625.0	Mon 20:09 17/1 2005	0	0	kill file 140.
112	1535	140 - 145	23	4	620.0	Mon 20:15 17/1 2005	0	0	kill file 140.
113	1520	140 - 145	23	3	615.0	Mon 20:15 17/1 2005	0	0	kill file 140.
114	1505	140 - 145	23	2	609.0	Mon 20:15 17/1 2005	0	0	kill file 140.
115	1490	140 - 145	23	1	604.0	Mon 20:15 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill file 140.
116	1475	146 - 150	24	5	598.0	Mon 20:15 17/1 2005	0	0	
117	1460	146 - 150	24	4	592.2	Mon 20:20 17/1 2005	0	0	
118	1445	146 - 150	24	3	587.0	Mon 20:20 17/1 2005	0	0	
119	1430	146 - 150	24	2	581.0	Mon 20:20 17/1 2005	0	0	
120	1415	146 - 150	24	1	575.0	Mon 20:20 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
121	1400	151 - 155	25	5	571.0	Mon 20:25 17/1 2005	0	0	
122	1385	151 - 155	25	4	566.0	Mon 20:25 17/1 2005	0	0	
123	1370	151 - 155	25	3	560.0	Mon 20:25 17/1 2005	0	0	
124	1355	151 - 155	25	2	555.0	Mon 20:25 17/1 2005	0	0	
125	1340	151 - 155	25	1	550.0	Mon 20:25 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
126	1325	156 - 163	26	5	544.0	Mon 20:33 17/1 2005	0	0	kill files 156 157 158.
127	1310	156 - 163	26	4	538.0	Mon 20:33 17/1 2005	0	0	kill files 156 157 158.
128	1295	156 - 163	26	3	533.0	Mon 20:33 17/1 2005	0	0	kill files 156 157 158.
129	1280	156 - 163	26	2	527.0	Mon 20:33 17/1 2005	0	0	kill files 156 157 158.
130	1265	156 - 163	26	1	521.0	Mon 20:33 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 156 157 158.
131	1250	164 - 171	27	5	515.0	Mon 20:42 17/1 2005	0	0	kill files 164 165 166.
132	1235	164 - 171	27	4	510.0	Mon 20:42 17/1 2005	0	0	kill files 164 165 166.
133	1220	164 - 171	27	3	504.0	Mon 20:42 17/1 2005	0	0	kill files 164 165 166.
134	1205	164 - 171	27	2	498.0	Mon 20:42 17/1 2005	0	0	kill files 164 165 166.
135	1190	164 - 171	27	1	492.0	Mon 20:42 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 164 165 166.
136	1175	172 - 176	28	5	486.0	Mon 20:46 17/1 2005	0	0	
137	1160	172 - 176	28	4	480.0	Mon 20:46 17/1 2005	0	0	
138	1145	172 - 176	28	3	474.0	Mon 20:46 17/1 2005	0	0	
139	1130	172 - 176	28	2	467.0	Mon 20:46 17/1 2005	0	0	
140	1115	172 - 176	28	1	462.0	Mon 20:46 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
141	1100	177 - 185	29	5	456.0	Mon 20:54 17/1 2005	0	0	kill files 177 178 179 180.
142	1085	177 - 185	29	4	450.0	Mon 20:54 17/1 2005	0	0	kill files 177 178 179 180.
143	1070	177 - 185	29	3	444.0	Mon 20:54 17/1 2005	0	0	kill files 177 178 179 180.
144	1055	177 - 185	29	2	438.0	Mon 20:54 17/1 2005	0	0	kill files 177 178 179 180.
145	1040	177 - 185	29	1	432.0	Mon 20:54 17/1 2005	0	0	Sig Ch Pick = 100.0 ms. kill files 177 178 179 180.

TOOL STATIONS

Baker Atlas

CLIENT APACHE ENERGY LIMITED
SOURCE 4 x 150 cu in Sleeve Gun
WELL NAME GRAYLING-1A
ENGINEER B.READ
SERVICE ZVSP (MLR)
DATE MON 17TH JANUARY 2005

LEVEL NO	TOOL STATION DEPTH	FILE NUMBER	STATION NO.	TOOL NO	VERTICAL CHAN TIME PICK (MSEC)	TIME AT COMPLETION OF LEVEL	CABLE SLACK	PRE-AMP GAIN	REMARKS (COMMENTS, UH TIME,CHARGE TYPE, DEPTH, ETC)
146	1025	186 - 190	30	5	426.0	Mon 21:00 17/1 2005	0	0	
147	1010	186 - 190	30	4	420.0	Mon 21:00 17/1 2005	0	0	
148	995	186 - 190	30	3	414.0	Mon 21:00 17/1 2005	0	0	
149	980	186 - 190	30	2	409.0	Mon 21:00 17/1 2005	0	0	
150	965	186 - 190	30	1	403.0	Mon 21:00 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
151	950	191 - 195	31	5	397.0	Mon 21:09 17/1 2005	0	0	
152	935	191 - 195	31	4	391.0	Mon 21:09 17/1 2005	0	0	
153	920	191 - 195	31	3	385.0	Mon 21:09 17/1 2005	0	0	
154	905	191 - 195	31	2	380.0	Mon 21:09 17/1 2005	0	0	
155	890	191 - 195	31	1	374.0	Mon 21:09 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
156	875	196 - 200	32	5	368.0	Mon 21:15 17/1 2005	0	0	
173	860	196 - 200	32	4	362.0	Mon 21:15 17/1 2005	0	0	
158	845	196 - 200	32	3	356.0	Mon 21:15 17/1 2005	0	0	
159	830	196 - 200	32	2	350.0	Mon 21:15 17/1 2005	0	0	
160	815	196 - 200	32	1	344.0	Mon 21:15 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
161	800	201 - 205	33	5	338.0	Mon 21:21 17/1 2005	0	0	
162	785	201 - 205	33	4	333.0	Mon 21:21 17/1 2005	0	0	
163	770	201 - 205	33	3	327.0	Mon 21:21 17/1 2005	0	0	
164	755	201 - 205	33	2	320.0	Mon 21:21 17/1 2005	0	0	
165	740	201 - 205	33	1	315.0	Mon 21:21 17/1 2005	0	0	Sig Ch Pick = 100.0 ms.
166	725	206 - 210	34	5	309.0	Mon 21:27 17/1 2005	0	0	
167	710	206 - 210	34	4	303.0	Mon 21:27 17/1 2005	0	0	
168	695	206 - 210	34	3	297.0	Mon 21:27 17/1 2005	0	0	
169	680	206 - 210	34	2	291.0	Mon 21:27 42736 2005	0	0	
170	665	206 - 210	34	1	286.0	Mon 21:27 42736 2005	0	0	Sig Ch Pick = 100.0 ms.
171	650	211 - 215	35	5	281.0	Mon 21:34 42736 2005	0	0	
172	635	211 - 215	35	4	276.0	Mon 21:34 42736 2005	0	0	
173	620	211 - 215	35	3	270.1	Mon 21:34 42736 2005	0	0	
174	605	211 - 215	35	2	265.0	Mon 21:34 42736 2005	0	0	
175	590	211 - 215	35	1	259.0	Mon 21:34 42736 2005	0	0	Sig Ch Pick = 100.0 ms.
176	575	216 - 220	36	5	253.0	Mon 21:40 42736 2005	0	0	
177	560	216 - 220	36	4	248.0	Mon 21:40 42736 2005	0	0	
178	545	216 - 220	36	3	242.0	Mon 21:40 42736 2005	0	0	
179	530	216 - 220	36	2	236.0	Mon 21:40 42736 2005	0	0	
180	515	216 - 220	36	1	231.0	Mon 21:40 42736 2005	0	0	Sig Ch Pick = 100.0 ms.
181	500	221 - 226	37	5	226.0	Mon 21:46 42736 2005	0	0	kill file 222.

TOOL STATIONS

BAKER HUGHES
Baker Atlas

CLIENT APACHE ENERGY LIMITED
SOURCE 4 x 150 cu in Sleeve Gun
WELL NAME GRAYLING-1A
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DATE MON 17TH JANUARY 2005

LEVEL NO	TOOL STATION DEPTH	FILE NUMBER	STATION NO.	TOOL NO	VERTICAL CHAN TIME PICK (MSEC)	TIME AT COMPLETION OF LEVEL	CABLE SLACK	PRE-AMP GAIN	REMARKS (COMMENTS, UH TIME,CHARGE TYPE, DEPTH, ETC)
182	485	221 -- 226	37	4	220.0	Mon 21:46 42736 2005	0	0	kill file 222.
183	470	221 -- 226	37	3	214.0	Mon 21:46 42736 2005	0	0	kill file 222.
184	455	221 -- 226	37	2	208.0	Mon 21:46 42736 2005	0	0	kill file 222.
185	440	221 -- 226	37	1	203.0	Mon 21:46 42736 2005	0	0	Sig Ch Pick = 100.0 ms. kill file 222.
186	425	227 -- 231	38	5	196.0	Mon 21:53 42736 2005	0	0	
187	410	227 -- 231	38	4	189.0	Mon 21:53 42736 2005	0	0	
188	395	227 -- 231	38	3	182.0	Mon 21:53 42736 2005	0	0	
189	380	227 -- 231	38	2	179.0	Mon 21:53 42736 2005	0	0	
190	365	227 -- 231	38	1	170.0	Mon 21:53 42736 2005	0	0	Sig Ch Pick = 100.0 ms.
191	350	232 -- 232	39	5	100.0	Mon 21:56 42736 2005	0	0	
192	335	232 -- 232	39	4	102.0	Mon 21:56 42736 2005	0	0	
193	320	232 -- 232	39	3	99.0	0 21:56 42736 2005	0	0	
194	305	232 -- 232	39	2	96.0	Mon 21:56 42736 2005	0	0	
195	290	232 -- 232	39	1	95.0	Mon 21:56 42736 2005	0	0	Sig Ch Pick = 93.0 ms.
196	139	233 -- 235	40	5	61.0	Mon 22:05 42736 2005	0	0	
197	124	233 -- 235	40	4	61.0	Mon 22:05 42736 2005	0	0	
198	109	233 -- 235	40	3	61.0	Mon 22:05 42736 2005	0	0	
199	94	233 -- 235	40	2	47.0	Mon 22:05 42736 2005	0	0	seabed shot
200	79	233 -- 235	40	1	1142.0	Mon 22:05 42736 2005	0	0	Sig Ch Pick = 100.0 ms.

VSfusion
A Baker Hughes - CGG Company

APACHE ENERGY LIMITED

WELL NAME: GRAYLING-1A
ZERO OFFSET VSP SURVEY

ENCLOSURE 1B

WELLBORE & SOURCE - RECEIVERS FIELD GEOMETRY

SHOT BY BAKER ATLAS	17 JANUARY, 2005
PROCESSED BY VSFUSION	JANUARY, 2005
PROJECT CODE APACHE005	

ACQUISITION INFORMATION

-CABLE-

DERRICK FLOOR (DF) ELEVATION	21.5 M ABOVE AHD
WATER DEPTH	56.8 M BELOW AHD
MINIMUM DEPTH (DF)	94 M
MAXIMUM DEPTH (DF)	2900 M

-SOURCE-

ENERGY SOURCE	SLEEVE GUN
NUMBER OF GUN	4
TOTAL GUN VOLUME	600 CU. INCH
GUN DEPTH	5.0 M BELOW AHD
SOURCE DISTANCE FROM WELLHEAD	46.3 M
SOURCE AZIMUTH FROM WELLHEAD	329 DEG. N

-INSTRUMENTS-

RECORDING SYSTEM	DSS 16CH A/D
SAMPLING INTERVAL	1 MS
RECORD LENGTH	4 SECONDS
DOWNHOLE RECEIVER TYPE	AWS 1300 GM
ELECTRIC LOGGING COMPANY	BAKER ATLAS

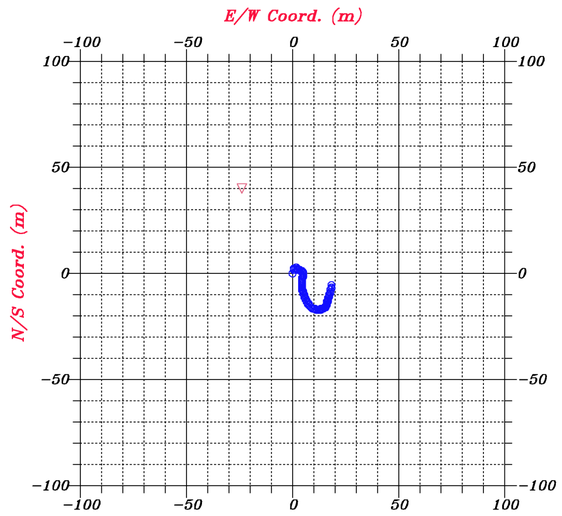
PROCESSING SEQUENCE

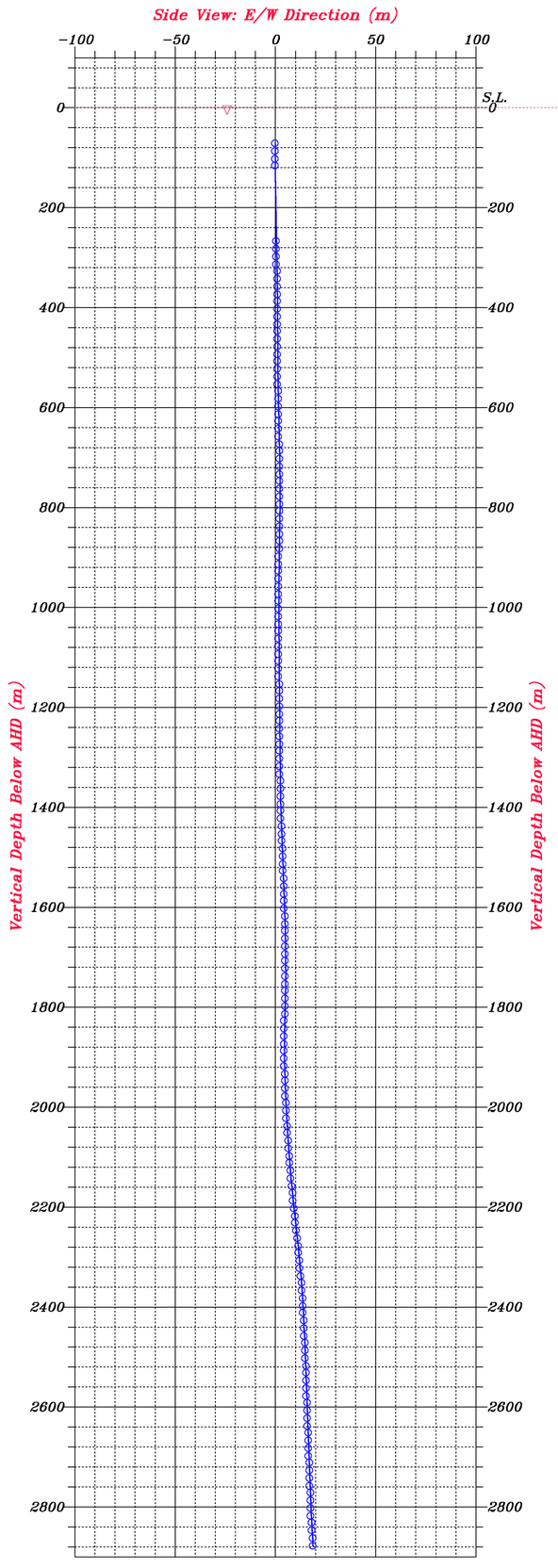
1. CONVERT FROM SEG-Y FORMAT TO SEISLINK-X FORMAT
2. EDIT/SUM/PICK ARRIVALS (BREAK TO BREAK)
3. GEOMETRY SURVEY APPLIED

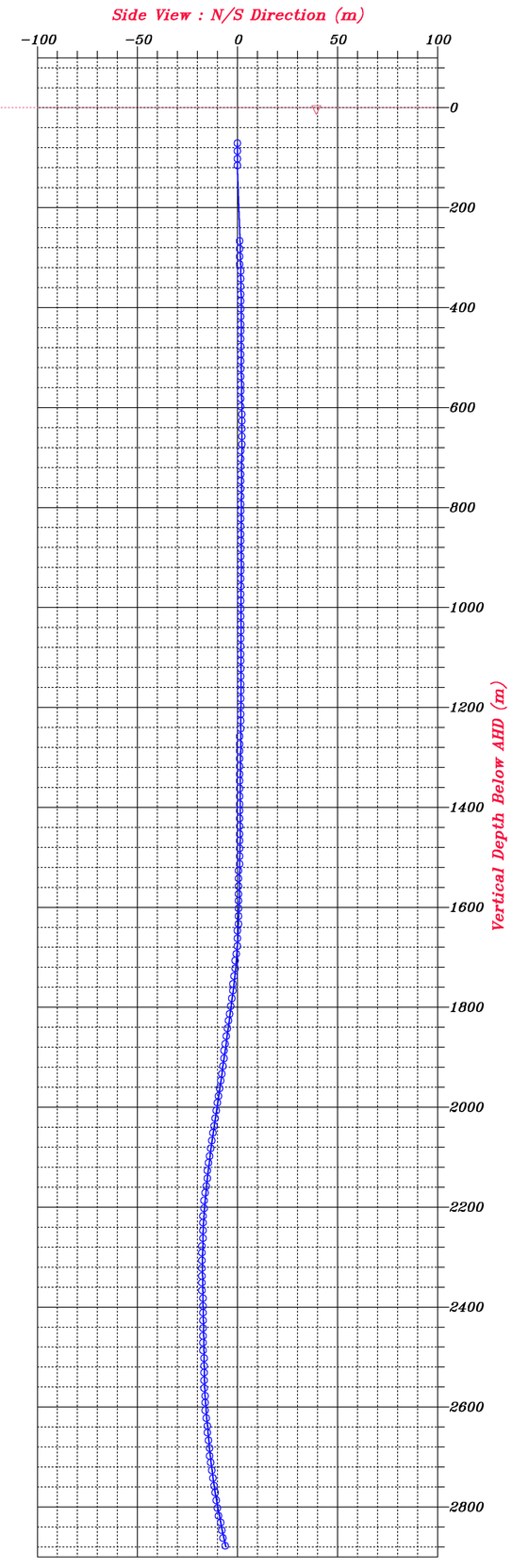
COMMENTS

ZERO POINT MEASUREMENT AT DERRICK FLOOR (DF)
SEISMIC REFERENCE DATUM IS AHD
REPLACEMENT VELOCITY = 1524 M/SEC.
VERTICAL DEPTH SCALE IS 200 M/INCH.

WELLBORE & SOURCE - RECEIVERS FIELD GEOMETRY
WELL : GRAYLING-1







VSfusion
A Baker Hughes - CGG Company

APACHE ENERGY LIMITED

WELL NAME: GRAYLING-1A
ZERO OFFSET VSP SURVEY

ENCLOSURE 2

VELOCITY CHECKSHOT STACKED DATA

SHOT BY BAKER ATLAS — 17 JANUARY, 2005
PROCESSED BY VSFUSION — JANUARY, 2005
PROJECT CODE APACHE005

ACQUISITION INFORMATION

-CABLE-

DERRICK FLOOR (DF) ELEVATION	21.5 M ABOVE AHD
WATER DEPTH	56.8 M BELOW AHD
MINIMUM DEPTH (DF)	94 M
MAXIMUM DEPTH (DF)	2900 M

-SOURCE-

ENERGY SOURCE	SLEEVE GUN
NUMBER OF GUN	4
TOTAL GUN VOLUME	600 CU. INCH
GUN DEPTH	5.0 M BELOW AHD
SOURCE DISTANCE FROM WELLHEAD	46.3 M
SOURCE AZIMUTH FROM WELLHEAD	329 DEG. N

-INSTRUMENTS-

RECORDING SYSTEM	DSS 16CH A/D
SAMPLING INTERVAL	1 MS
RECORD LENGTH	4 SECONDS
DOWNHOLE RECEIVER TYPE	AWS 1300 GM
ELECTRIC LOGGING COMPANY	BAKER ATLAS

PROCESSING SEQUENCE

1. CONVERT FROM SEG-Y FORMAT TO SEISLINK-X FORMAT
2. EDIT/SUM/PICK ARRIVALS (BREAK TO BREAK)
3. GEOMETRY SURVEY APPLIED

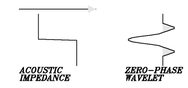
COMMENTS

ZERO POINT MEASUREMENT AT DERRICK FLOOR (DF)
SEISMIC REFERENCE DATUM IS AHD
REPLACEMENT VELOCITY = 1524 M/SEC.
VERTICAL TIME SCALE IS 20 CM/SEC.

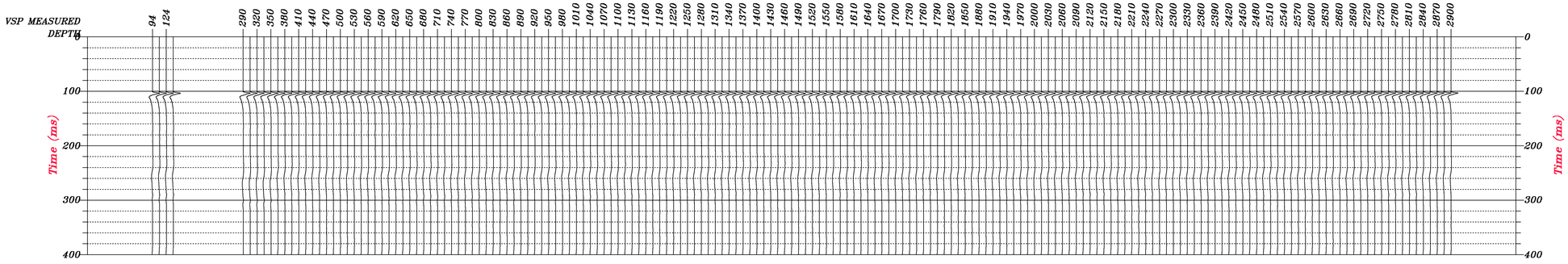
DISPLAY CONVENTION

NORMAL POLARITY

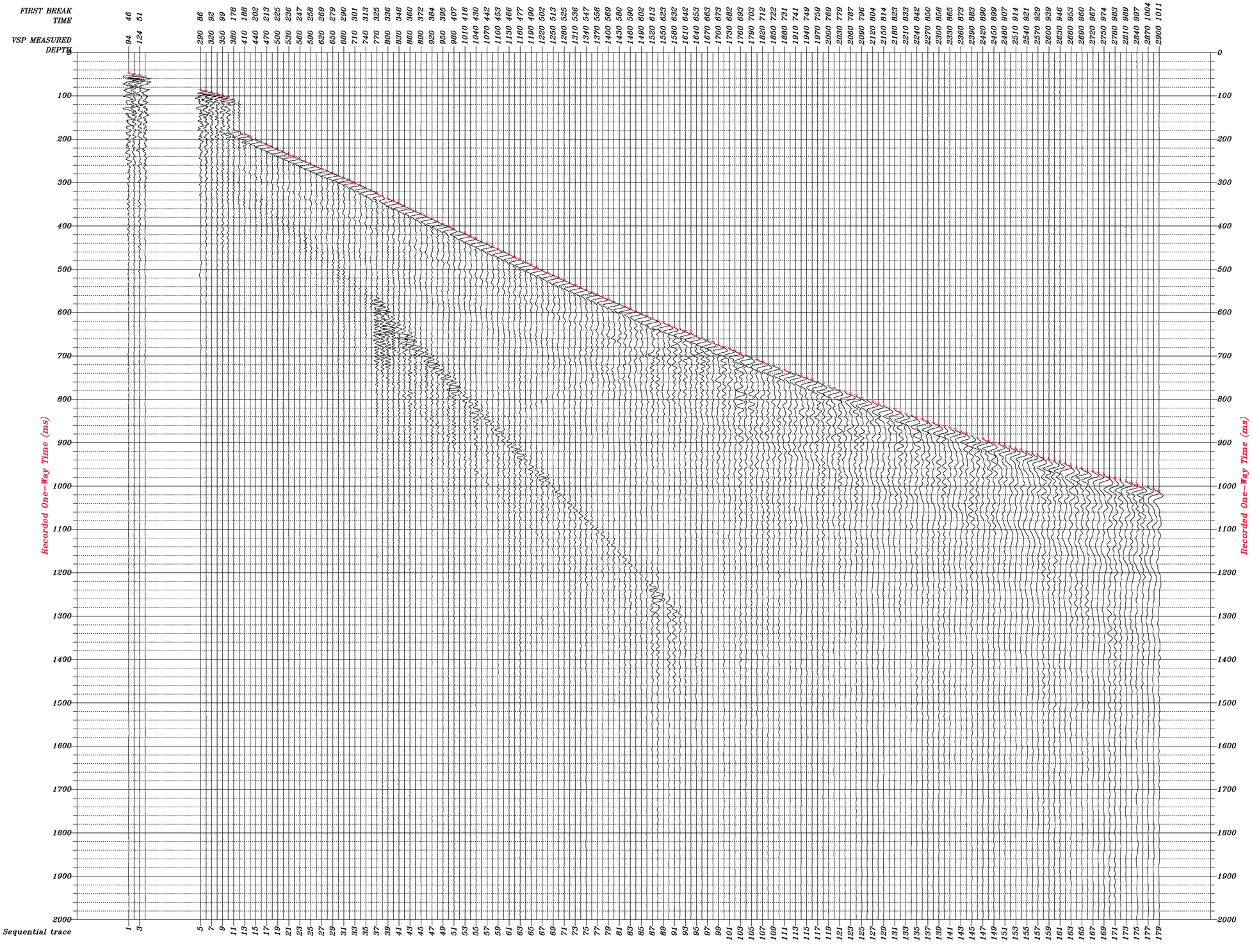
AN INCREASE IN ACOUSTIC IMPEDANCE IS DISPLAYED AS A TROUGH



HYDROPHONE (SIGNATURE) STACKED DATA
ALIGNED AT 100 MSEC



GEOPHONE STACKED DATA
(VERTICAL COMPONENT)



VSfusion
A Baker Hughes - CGG Company

APACHE ENERGY LIMITED

WELL NAME: GRAYLING-1A
ZERO OFFSET VSP SURVEY

ENCLOSURE 3

VELOCITY CURVES & TIME-DEPTH CURVE

SHOT BY BAKER ATLAS	17 JANUARY, 2005
PROCESSED BY VSFUSION	JANUARY, 2005
PROJECT CODE APACHE005	

ACQUISITION INFORMATION

-CABLE-

DERRICK FLOOR (DF) ELEVATION	21.5 M ABOVE AHD
WATER DEPTH	56.8 M BELOW AHD
MINIMUM DEPTH (DF)	94 M
MAXIMUM DEPTH (DF)	2900 M

-SOURCE-

ENERGY SOURCE	SLEEVE GUN
NUMBER OF GUN	4
TOTAL GUN VOLUME	600 CU. INCH
GUN DEPTH	5.0 M BELOW AHD
SOURCE DISTANCE FROM WELLHEAD	46.3 M
SOURCE AZIMUTH FROM WELLHEAD	329 DEG. N

-INSTRUMENTS-

RECORDING SYSTEM	DSS 16CH A/D
SAMPLING INTERVAL	1 MS
RECORD LENGTH	4 SECONDS
DOWNHOLE RECEIVER TYPE	AWS 1300 GM
ELECTRIC LOGGING COMPANY	BAKER ATLAS

PROCESSING SEQUENCE

1. CONVERT FROM SEG-Y FORMAT TO SEISLINK-X FORMAT
2. EDIT/SUM/PICK ARRIVALS (BREAK TO BREAK)
3. GEOMETRY SURVEY APPLIED
4. VELOCITY COMPUTATION

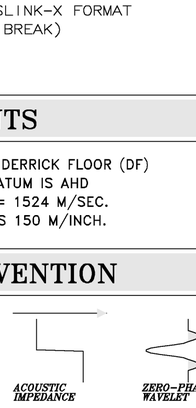
COMMENTS

ZERO POINT MEASUREMENT AT DERRICK FLOOR (DF)
SEISMIC REFERENCE DATUM IS AHD
REPLACEMENT VELOCITY = 1524 M/SEC.
VERTICAL DEPTH SCALE IS 150 M/INCH.

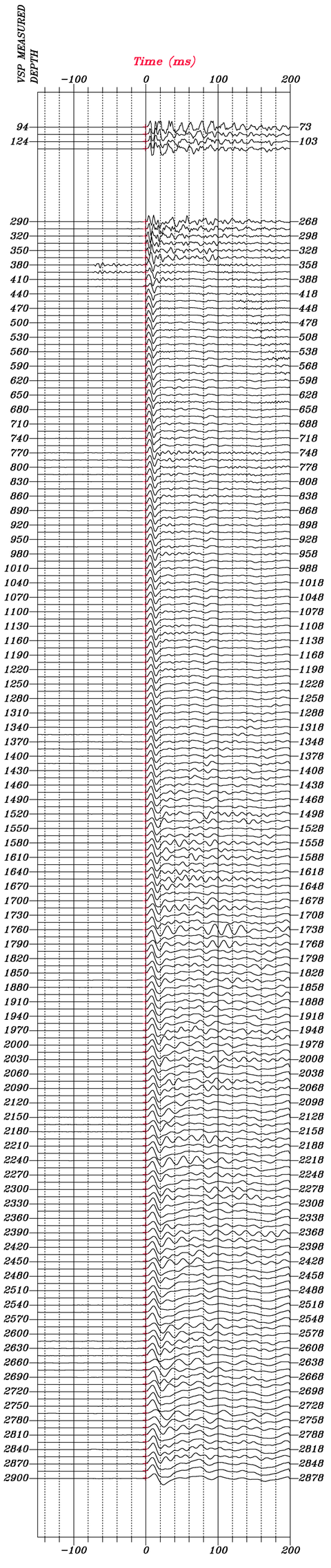
DISPLAY CONVENTION

NORMAL POLARITY

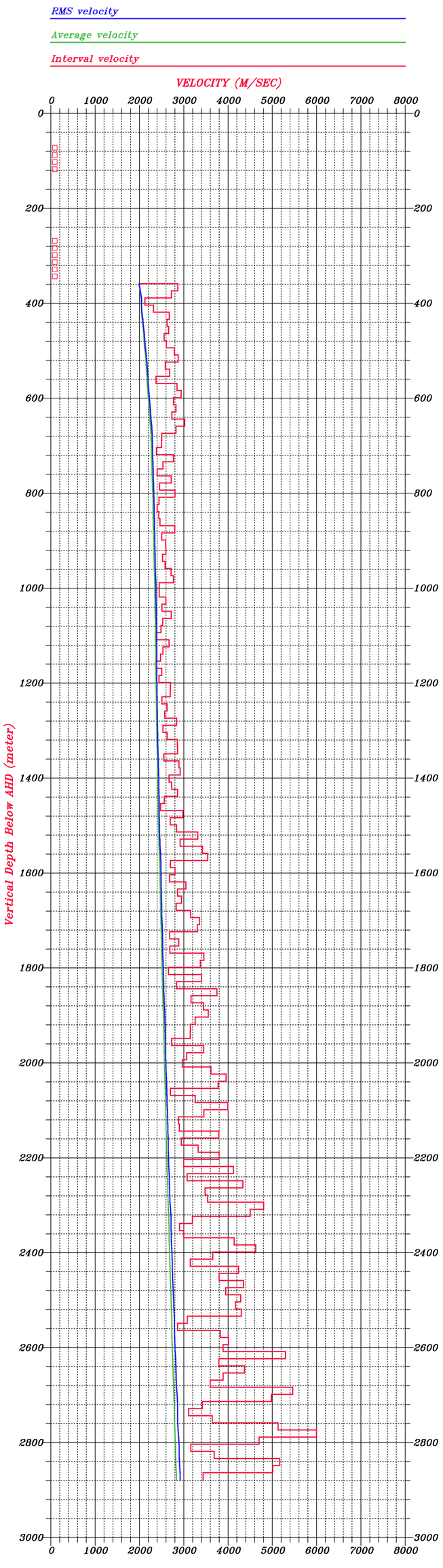
AN INCREASE IN ACOUSTIC IMPEDANCE IS DISPLAYED AS A TROUGH



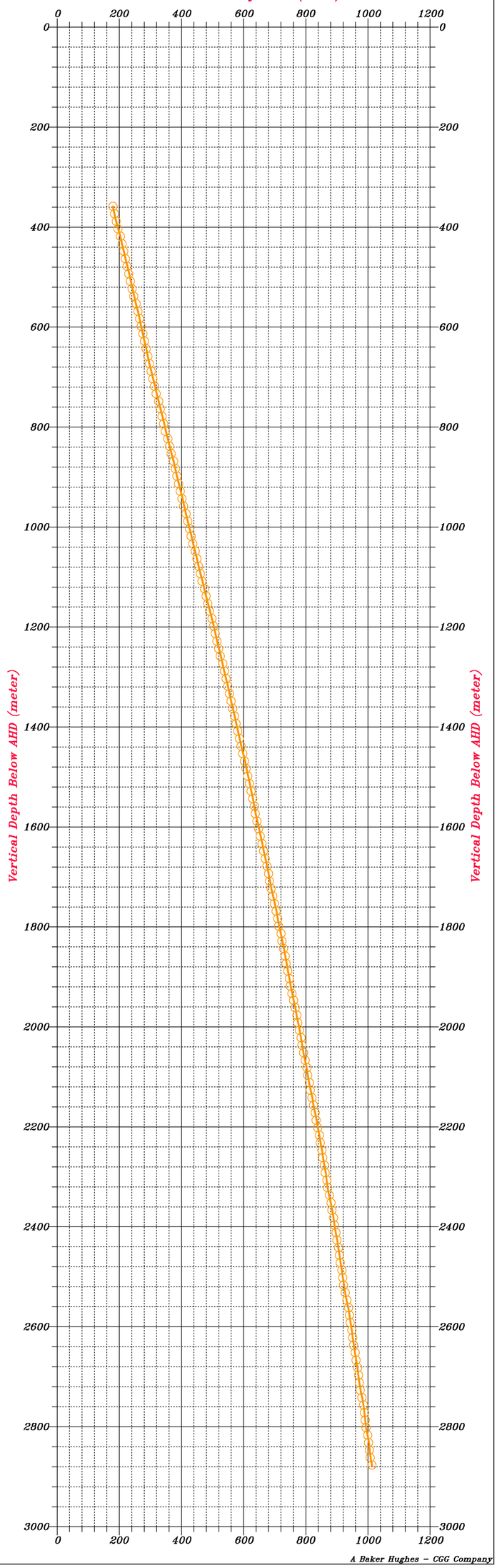
CHECKSHOT DATA ALIGNED
WELL: GRAYLING-1A



VELOCITY CURVES
WELL: GRAYLING-1A



TIME-DEPTH CURVE
WELL: GRAYLING-1A



Grayling-1A
SUITE-2 RUN-1 RCI-GR
PRESSURE POINT and SAMPLING PROGRAMME

13/01/2005

RT-AHD = 21.5

Pressure Point #	Actual Depth **mMDRT**	Actual Depth **mTVDAHD**	Theo Hydrostatic Pressure **RT**	Mobility md/cp may need adju	Time Pad Set	Initial Hydrostatic Pressure psia	Final Hydrostatic Pressure psia	Drawdown Volume cc	Sandface Pressure	Initial Drawdown Pressure psia	Final Buildup Pressure psia	Buildup Time mins	Time Pad Retracted	Temp. deg C	Remarks
Mud Weight (ppg)		**11.0**													
13/01/2005															
1	**2067.1**	2045.6	3879.1	**0.000**	15:35									91.2	**Tight point/ Coal seam/ Point aborted**
2	**2070.5**	2049.0	3885.5	**78.400**	15:45	3957.9	3957.9	10.3		2882.5	2948.60	2			Valid sample
				95.400		3957.9	3957.9	10.0		2882.5	2948.00	4			Valid sample
													16:04	91.2	
3	**2072.1**	2050.6	3888.5	**43.000**	16:12	3971.8	3955.0	9.8		2842.7	2949.10	2			Valid Sample
				60.400		3971.8	3955.0	10.10		2839.0	2947.50	4			Valid Sample
													16:20	91.8	Delays in time when attempting to obtain final hydrostatic
4	**2074.0**	2052.5	3892.1	**295.500**	16:25	3944.1	3948.3	10.3		2929.2	2948.30	2			Good Point?
				290.100		3944.1	3948.3	10.2		2926.7	2948.30	4			Noted drop in hydrostatic. Questioned engineer. Point questionable.
													16:37	92.1	
5	**2077.0**	2055.5	3897.7	**23.000**	16:43	3929.4	3948.2	10.10		2716.2	2949.50	2			Hydrostatic not functioning possibly due to isolation by packer. Good point?
				28.500		3929.5	3948.2	9.9		2718.6	2949.40	4			Hydrostatic not functioning possibly due to isolation by packer. Good point?
													16:55	92.2	
7	**2074.0**	2052.5	3892.1		17:56		Commnece pump at 5000 (Partially open valve)								
					18:33		Pumped 4.5 L, resistivity 0.27 ohms								Resistivity reading incorrect
					18:47		Open chamber and pump for sampling								
					19:04		Pumped total of 4 L.								
					19:37		Stop pumping. Fluctuating increase in back pressure observed indicating chamber full.								
					19:38		Commenced BP, Compressibility								
					19:40		Repeated attempts to conduct bubble point, unsuccessful.								
					20:00		Retract probe and packer								
TOOL FISHED AND LATCHED ONTO PIPE															
14/01/2005															
1	**2074.2**	2052.7	3892.4	**47.600**	20:25	3956.2		10.1		2956.4	3058.50		20:40	94.8	Hydro fluctuating 2psi. Invalid point.
				17.900		3956.2		10.6		2583.4	2908.90				Flush lines 1.5L. Invalid point.
2	**2077.0**	2055.5	3897.7	**32.600**	21:47	3950.9	3950.7	10.5		2913.0	3058.8	2			Flush lines with 1.8L, invalid point
				12.800		3950.9	3950.7	10.4		2542.7	2909.7	1			Cleaning up. Pressures unreliable. Incomplete drawdown
				13.800		3950.9	3950.7	10.4		2487.2	2950.7	2			Good Point? +0.6 psi pressure variance from 2077.0 mMDRT point taken on
				13.000		3950.9	3950.7	10.3		2513.6	**2950.1**	4	22:18	95.0	Repeatable Pressure. Good point? +00.6 psi difference but very stable buildup
3	**2077.8**	2056.3	3899.2	**25.600**	22:19	3955.5	3955.3	10.3		2895.4	3058.20	2			Fluctuating pressure +/- 10psi. Hydrostatic unreliable. Invalid Point.
				13.300			3955.3	9.6		2540.5	2908.90	1			Cleaning up. Pressures unreliable. Incomplete drawdown
				11.200			3955.3	8.6		2496.2	2949.80	2			Good Point?
				12.000			3955.3	10.3		2538.7	**2949.80**	2	22:44	95.3	Repeatable Pressure
															Tool failure. Electrical short. Disconnect at weak link, POOH.
POOH, Change out for backup RCI-GR. RIH on PCL.															
16/01/2005															
1	**2572.2**	2550.7	4826.9	**58.400**	6:48	4870.1		7.6	3782.3	3657.6	3782.40	3			Unstable
	2572.2			**117.500**				10.4	3765.1	3641.1	3765.10	3			Buildup pressure stabilising. Reasonable point? Take another pressure.
	2572.2			**233.000**				10.3	3765.7	3697.8	**3765.70**	3			Repeatable point.
							4870.0						7:05	116.3	Move to next point, no overpull
2	**2574.1**	2552.6	4830.6	**28.500**	7:10	4874.8		7.5	3767.9	3531.7	3767.90	3			Bad point
	2574.1			**34.500**				10.6	3765.5	3429.5	3765.50	3			Buildup pressure stabilising. Reasonable point? Take another pressure.
	2574.1			**33.300**				10.3	3765.9	3427.4	**3765.90**	3			Check correlation. Good correlation
							4877.1						7:20	116.1	No overpull

Pressure Point #	Actual Depth **mMDRT**	Actual Depth **mTVDAHD**	Theo Hydrostatic Pressure **RT**	Mobility md/cp may need adju	Time Pad Set	Initial Hydrostatic Pressure psia	Final Hydrostatic Pressure psia	Drawdown Volume cc	Sandface Pressure	Initial Drawdown Pressure psia	Final Buildup Pressure psia	Buildup Time mins	Time Pad Retracted	Temp. deg C	Remarks
3	**2576.1**	2554.6	4834.3	**70.900**	7:25	4876.1		10	3767.7	3411.3	3767.70	4			Not stabilising
	2576.1			**39.700**				6.7	3767.3	3567.0	3767.30	3			Stabilising
	2576.1			**24.800**				10.809	3767.9	3574.1	**3767.90**	4			Stable. Reasonable correlation
							4827.1						7:43	116.4	Hydrostatic not stabilising ~50 psi diff, monitor, no overpull
4	**2576.9**	2555.4	4835.8	**21.100**	7:47	4882.5		10.1	3808.4	3421.3	3080.40	2			Not stable
	2576.9			**30.000**				10.6	3787.8	3401.2	3787.80	2			Packer broke seal due to pipe movement, draw down again as pressure not
	2576.9			**21.000**				6	3839.9	3476.1	3839.90	3			Packer broke seal due to pipe movement, draw down again as pressure not
	2576.9			**34.100**				10.6	3768.3	3402.1	3768.30	4			Gauge stable, repeat
	2576.9			**94.300**				9	3768.4	3664.0	**3768.20**	4			Good point
							4878.8						8:05	116.7	No overpull
5	**2581.3**	2559.8	4844.1	**20.000**	8:12	4889.2		9.8	3772.8	3356.1	3772.80	1			Not stabilising suspected pipe movement
	2581.3			**16.900**				8.4	3828.5	3321.3	3828.50	2			Not stabilising suspected pipe movement
	2581.3			**18.900**				6.5	3767.1	3326.6	3767.10	4			Very slow buildup
	2581.3			**25.400**				8.4	3766.1	3403.0	**3768.10**	4			Point stable
							4888.9						8:26	116.8	No overpull.
6	**2583.0**	2561.5	4847.3	**24.400**	8:32	4890.1		9.8	3769.9	3445.4	3769.90	2			Stable? Slow buildup
	2583.0			**15.900**				8.7	3767.7	3243.7	**3767.70**	2			Repeat. Gauge stable. Point good
							4891.7						8:40	117.2	No overpull
7	**2585.6**	2564.1	4852.1	**43.900**	8:45	4897.6		10.8	3771	3534.7	3771.00	2			Pipe movement, broke buildup, drawdown again
	2585.6			**51.900**				10.8	3768.5	3478.3	3768.50	3			Stable point?
				12.500				9.8	3768.9	3063.4	**3768.90**	3			Repeat drawdown, stable pressure. Good point.
							4895.0						8:55	117.2	
8	**2591.3**	2569.8	4862.8	**30.900**	9:05	4906.3		9.3	3842.5	3554.1	3842.50	2			Buildup not stabilising
	2591.3			**32.100**				6.6	3770.2	3508.4	3770.20	3			Drawdown again
				44.300				7.2	3770.3	3581.2	**3770.30**	3			Repeat, good point.
							4905.1						9:12	117.3	**Overpull 15000 lb but not seen on tool**
9	**2592.8**	2571.3	4865.6	**22.300**	9:13	4911.9		10.1	3775.0	3366.3	3775.00	2			Pipe movement, broke buildup, drawdown again
	2592.8			**13.900**				8.6	3770.7	3209.3	3770.70	3			Stabilised but difference of 3.5 psi from first point
	2592.8			**15.000**				8.8	3770.7	3207.3	**3770.70**	3			Stabilised but difference of 3.5 psi from first point
							4911.8						9:25	117.4	
10	**2598.0**	2576.5	4875.4	**15.000**	9:32	4920.9		10.2	3780.7	3258.1	3780.70	2			Unstable very slow buildup
	2598.0			**8.500**				9.9	3773.0	2841.2	3773.00	3			draw down, good point?, repeat
	2598.0			**8.600**				10.3	3773.0	2853.2	**3773.00**	3			Good point
							4921.5						9:52	117.6	
															CONDUCT DEPTH CORRELATION PASS
11	**2605.5**	2584.0	4889.5	**37.100**	10:26	4933.1		9.2	3782.1	3527.5	3782.10	3			Very slow buildup
	2605.5			**92.800**				10.5	3775.4	3581.8	3775.40	2			Repeat drawdown
	2605.5			**67.400**				6.5	3775.8	3651.8	**3775.80**	2			Good point
							4935.1						10:38	118.7	
12	**2614.5**	2593.0	4906.4	**37.600**	10:45	4958.7		9.3	3811.6	3588.7	3811.60	2			Unstable, good drawdown, unstable buildup
	2614.5			**146.700**				10.7	3805.6	3681.5	3805.60	3			Good Point?, Repeat
	2614.5			**52.800**				3.8	3806.9	3685.3	**3806.90**	2			Stable point, good point
							4958.9						10:55	118.7	
13	**2626.4**	2604.9	4928.7	**0.000**	11:00	4972.5						3			Insufficient drawdown
	2626.4														Tight, move down to 2626.6 mMDRT and try again
							4973.9						11:18	118.9	
13a	**2626.6**	2605.1	4929.1	**0.000**	11:19	4973.1					3695+				
	2626.6										2977+				Tight extremely slow buildup sample aborted
							4973.1						11:25	118.9	**Pipe stuck, release compensator, 20000lb overpull**
14	**2633.0**	2611.5	4941.1	**16.900**	11:44	4988.9		9.8	3813.9	3320.3	3813.90	2			Unstable buildup
	2633.0			**14.200**				8.0	3812.3	3271.1	3812.30	3			Pipe movement- leak, draw down again
	2633.0			**25.700**				6.1	3802.4	3472.4	3802.70	3			Pipe Movement, bad buildup due to leakage
	2633.0			**21.000**				6.1	3811.1	3466.5	**3811.10**	3			Stable buildup.
							4988.5						11:50	119.0	
15	**2636.3**	2614.8	4947.3	**0.000**	11:57	4993.0				3226.0	3541+	2			Tight, repeat drawdown

Pressure Point #	Actual Depth **mMDRT**	Actual Depth **mTVDAHD**	Theo Hydrostatic Pressure **RT**	Mobility md/cp may need adju	Time Pad Set	Initial Hydrostatic Pressure psia	Final Hydrostatic Pressure psia	Drawdown Volume cc	Sandface Pressure	Initial Drawdown Pressure psia	Final Buildup Pressure psia	Buildup Time mins	Time Pad Retracted	Temp. deg C	Remarks
	2636.3									2516.8	2636+	3			tight, extremely slow draw down
							4993.8						12:07	119.2	
															CONDUCT DEPTH CORRELATION PASS
16	**2646.8**	2625.3	4967.0	**6.300**	12:34	5020.5		9	4976.2	3397.6	3829.70	2			
	2646.8			**7.200**				10.6	3828.4	2879.6	3828.30	3			Repeat first buildup
	2646.8			**10.200**				9.8	3824.0	2899.4	**3827.50**	3			Relatively stable point, repeat point
							5021.1						12:45	119.8	Stable point
17	**2653.0**	2631.5	4978.6	**12.000**	12:48	5027.9		10.1	3831.9	3266.4	3832.00	3			Possible movement of snorkel, repeat pressure point
	2653.0			**11.200**				8.6	3832.6	3042.7	**3832.60**	3			Reasonable point 0.7 psi diference
							5027.0						12:56	119.8	
18	**2659.2**	2637.7	4990.3	**5.300**	13:10	5034.4		10.6	4063.3	3529.3	4063.30	2			First drawdown unstable.
	2659.2			**14.300**				10.7	3846.4	3274.9	3846.40	3			Draw still not stabilising very slow drawdown.
	2659.2			**12.200**				10.2	3841.4	3202.4	3851.40	4			Good point. Repeat drawdown.
	2659.2			**28.200**				5	3841.5	3398.5	**3841.50**	3			Good point.
							5034.7						13:27	120.0	
19	**2672.3**	2650.8	5014.8	**21.800**	13:30	5066.1		10.5	3862.1	3451.9	3862.20	2			First drawdown unstable, repeat drawdown
	2672.3			**21.000**				8.9	3859.5	3424.0	3859.20	3			Relatively stable, minor gauge fluctuation
	2672.3			**15.600**				5.7	3858.8	3347.3	**3859.00**	3			Good point
							5065.7						13:47	120.2	
20	**2683.7**	2662.2	5036.2	**23.500**	14:20	5081.9		10.3	3881.7	3463.4	3881.70	3			First drawdown not stable, repeat.
	2683.7			**22.300**				10.6	3877	3356.8	3876.90	4			Relatively stable. Good point? FRA indicates good test
	2683.7			**24.500**				10.2	3876.9	3449.2	**3876.90**	3			Good point. Repeat confirmed
							5084.5						14:35	121.2	
21	**2633.0**	2611.5	4941.1		15:10		On depth								
					15:11		Open packer								
					15:12		Commence drawdown @ 10cc, gauge fluctuating								
					15:13		Repeat drawdown buildup reliable, 3811 psi								
					15:15		Commence BB pump @ 5000, pump 0.4 L								
					15:16		Increase pump rate to 7000								
					15:17		Change to RV pump @ 7000, resistivity 0.8 ohms (water?), clean up, ring town confirm ok to move								
					15:38		Recharge packer								
					15:41		Pump 12L, open chamber #1 commence pump in								
					15:45		Pump 1L close chamber								
					15:48		Close packer								
					15:49		Move off location							120.9	Total 40 mins on wall, Filtrate sample?,
22	**2571.9**	2550.4	4826.4		16:15		On depth								
					16:16		Open packer								
					16:18		Commence BB pump @ 5000 stepper motor, pump 0.1 L								Res fluctuating between 0.5 and 1.3 ohmms.
					16:22		Stepper motor increased to 7000								
					16:30		Change to RV pump, stepper motor @ 7000								
					17:05		Change step motor to 5000								
					17:15		Pump 27L, open chamber #2 commence pump in								
					17:20		Pump 1.5L close chamber								
					17:21		Close packer								
					17:22		Move off location							118.9	Total 1hr 6 min on wall, 15000 down on pipe to get off wall.
23	**2574.0**	2552.5	4830.4		17:46		Close packer and reopen suspected leak reading 4200+ on drawdown								
					17:50		Settting packer and recharging								
					17:53		Problems with packer seal. Reestablish reliable drawdown.								
					18:03		**Lose comms** again. While pumping sample through BB								
							Restablish communication								
					18:18										
					18:19		Commence BB pump @ 5000 stepper motor, pump 0.4 L								
							Stepper motor increased to 7000								Res=0.701 ohmm
					18:31		Change step motor to 5000 on RV								FRA indicating filtrate, permativity=78, res=0.765
					18:42		Increase rate to 7000 on RV								
					19:00									118.6	Average flowrate 5.6 cc/s
					19:06		Increase rate to 9000 on RV: 20L								Press=3734psi
					19:16		Increase rate to 9500 on RV: 26L: Pressure drop to 3725psi								
					19:19		**Lost comm**								

Pressure Point #	Actual Depth **mMDRT**	Actual Depth **mTVDAHD**	Theo Hydrostatic Pressure **RT**	Mobility md/cp may need adju	Time Pad Set	Initial Hydrostatic Pressure psia	Final Hydrostatic Pressure psia	Drawdown Volume cc	Sandface Pressure	Initial Drawdown Pressure psia	Final Buildup Pressure psia	Buildup Time mins	Time Pad Retracted	Temp. deg C	Remarks
					19:39		Established comms retract packer.								
							Move pipe								
					19:46										Commence pumping
					19:54		**Lost comm**								
					20:05		Established comms retract packer.								
							Move pipe								
					20;18		Set packer								
					20:19		**Lost comm**								Repeat attempts to obtain sample thawarted by losing communications.
					20:32		Set packer.								
					20:33		Small pump at 7000. 3700psi								
					20:35		Change to RV pump at 5000. 3790psi.								
					20:37		RV to 7000. 3702psi.								
					20:39		RV to 8000.								
					20:39		**Lost Comms.**								Establish comms, retract packer, move pipe, move back on depth.
					21:04		Set packer								
					21:05		RV pump at 5000. DD 3620psi back upto 3715psi.								
					21:08		RV at 7000. DD 3665psi.								
					21:10		RV to 8500. 3720psi. Res=0.737ohmms. Pumped 2.0L							118.9	
					21:10		RV at max rate.								
					21:19										Pumped 7.5L. DD=3738psi. Internal tool temp 89C
					21:21		Pumped 8.5L. NIR indicating Gas, Resitivity indicating water.								
					21:26		**Pumped 11L.**								
					21:26		Lost Comms.								Establish comms, retract packer, move pipe, move back on depth.
					21:41		At 2574.0 mMDRT.								
					21:45		**Lost Comms.**								
					22:10		Set packer.								
					22:03		RV pump at 5000. 3681psi.								
					22:05		RV pump at 8000. 3450psi.								
					22:08		Pumped 2.5L. Res=0.767 Ohmms.								
					22:10		Pumped 4.5L, 3512psi.								
					22:15		**Pumped 6.5L. Lost Comms.**								
															Establish comms, retract packer, move pipe, move back on depth.
					22:41		Set packer.								
					22:42		RV at 5000. DD 3310psi.								
					22:45		RV at 7000. 3510psi. Res=0.747Ohmms.								
					22:46		RV at maximum rate. Pumped 2.5L.								
					22:49		Pumped 3.5L.								
					22:56		Pumped 8.0L.								
					22:57		Take sample. Fill chamber 3. Pump 1.5L.								
					23:03		Attempt Bubble point/compressibilty. Unsuccessful.								
					23:06		Retract packer.								
					23:11		**Lost Comms.**								
					23:12		Move pipe. Require 20klbs to move.								Establish comms.
					23:15		Call town. POOH to SES and check wet connection.								
					23:55		At 2515.0 mMDRT. Swabbing hole. Pump at max 100psi..								

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BAKER HUGHES

GAMMA RAY LOG
SEISMIC CORRELATION

FILE NO:		COMPANY	APACHE ENERGY LTD
API NO:		WELL	GRAYLING 1A
		FIELD	EXPLORATION
Ver. 3.87		RIG NAME	OCEAN PATRIOT — COUNTRY AUSTRALIA
FINAL PRINT		LOCATION:	LAT: 38 DEG 09' 40.28" SOUTH
SCALE 1:200			LONG: 148 DEG 17' 34.73" EAST
		OTHER SERVICES	RCI

PERMANENT DATUM	AHD	ELEVATION 0 M	ELEVATIONS:
LOG MEASURED FROM	RT	21.5 M ABOVE P.D.	KB —
DRILL. MEAS. FROM	RT		DF 21.5 M
			GL -58.5 M

DATE	17 JAN 2005	
RUN / TRIP	2 / 1	
SERVICE ORDER	516567	
DEPTH DRILLER	2914 M	
DEPTH LOGGER	NOT LOGGED	
BOTTOM LOGGED INTERVAL	2683.6 M	
TOP LOGGED INTERVAL	2067.1 M	
CASING DRILLER	244 MM @796.2 M	@
CASING LOGGER	NOT LOGGED	
BIT SIZE	216 MM	
TYPE OF FLUID IN HOLE	KCL / IDACAP D	
DENSITY / VISCOSITY	1.32 G/C3 / 44 S	
PH / FLUID LOSS	8.5 / 0 C3	
SOURCE OF SAMPLE	FLOWLINE	
RM AT MEAS. TEMP.	0.078 OHMM @22.5 DEGC	@
RMF AT MEAS. TEMP.	0.067 OHMM @22.0 DEGC	@
RMC AT MEAS. TEMP.	0.181 OHMM @22.7 DEGC	@
SOURCE OF RMF / RMC	MEASURED / MEASURED	
RM AT BHT	0.023 OHMM @128 DEGC	@
TIME SINCE CIRCULATION	108.5	
MAX. RECORDED TEMP.	128 DEGC	
EQUIP. NO. / LOCATION	HSL-8677 / DARWIN	
RECORDED BY	S.MITCHELL/W.NURCAHYA	
WITNESSED BY	J.SONEGO/P.SLIJDERINK	

BOREHOLE RECORD

BIT SIZE	FROM	TO
914 MM	80 M	114 M
406 MM	114 M	810 M
216 MM	810 M	2914 M

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
762 MM	461 KG/M		80 M	112.3 M
340 MM	101 KG/M		80 M	796.2 M

REMARKS

RUN 2 TRIP 1 :
- *. LOG WAS CORRELATED TO LWD LOG DATED 11 JANUARY 2005
- *. TOOL ZEROED ON RT AT 12:15 ON 13 JAN 2005
- *. CIRCULATION STOPPED AT 2:30 ON 13TH JANUARY 2005
- *. TD NOT LOGGED IN THIS RUN
- *. CASING NOT LOGGED IN THIS RUN
- *. ADDITIONAL MUD PROPERTIES:
  PV/YP = 13/15 PA
  CHLORIDES:50000. MG/L ==> 82250 PPM
  KCL: 8 % WT
- *. MAX DEVIATION = 3.28 DEG @ 2914 M (PROVIDED BY CUSTOMER)
- *. GR CORRELATION WAS RUN FOR MLR TOOLS

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
2	1	GR	1309XA	610515	FREE

INSTRUMENT CONFIGURATION

GR CORRELATION SCALE 1:200

eXpress Unknown eXpress 3.1 Jun 29, 2002 Cplot 8.1 Thu Jun 2 10:51:39 2005
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51

PARAMETER AND FILTER SUMMARY REPORT

FILE: /export/thyl1/greyling1a/i114a01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2520.086 m BOTTOM DEPTH: 2569.769 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
GR	FILTER ()	medium (1)			
SPEED	FILTER ()	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''

CURVE DESCRIPTION REPORT

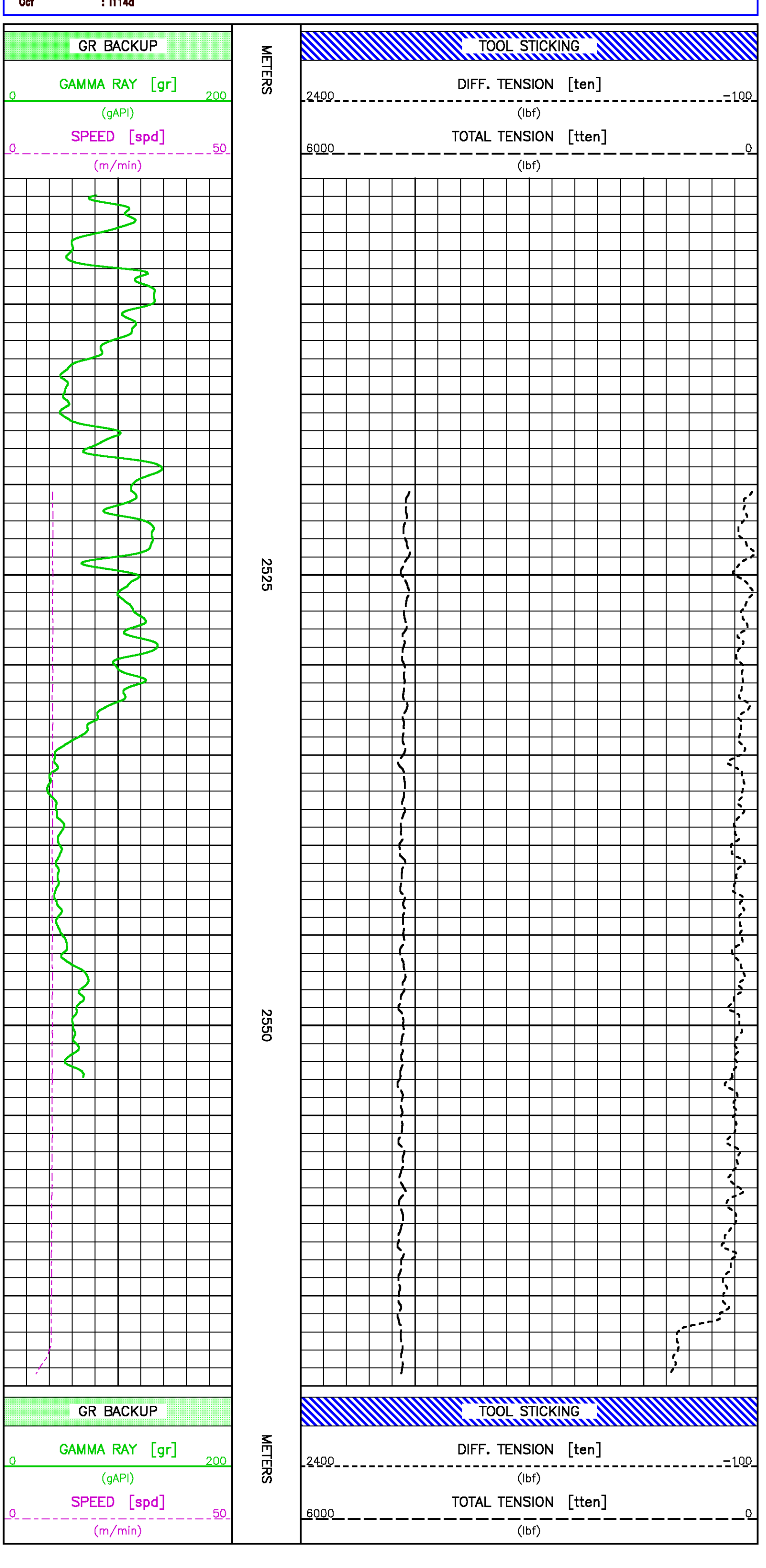
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:GR	GR	Jan 17 16:32:25 2005	GAMMA RAY
F1:SPD	SPD	Jan 17 16:32:25 2005	SPEED
F1:TEN	TEN	Jan 17 16:32:25 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 17 16:32:25 2005	TOTAL TENSION

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
GR	16.46	SPD	0.00	TEN	0.00	TTEN	0.00

Project : /export/thyl1/greyling1a
User : mundscoa
Presentation : thylacine:/export/thyl1/greyling1a/mlrgr.pdf [1:200 Scale]
Plot Interval : 2503.93 - 2569.39 Meters

Data File 1 : F1 : thylacine:/export/thyl1/greyling1a/i114a01.aff
Created On : Jan 17 16:32:25 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 2503.93 - 2569.77 Meters
Oct : i114a



CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/grayling1A/suite1/i114a.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1309XA 610515 DATE/TIME PERFORMED: Sun Jan 9 10:05:39 2005

UNIT #: 3854SA 008677 CALB JIG #: 4702NK wa-761

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	5.69	222.78	217.1 (185.0 – 242.0)	0.691	3.93	153.93	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1309XA 610515 DATE/TIME PERFORMED: Sun Jan 9 10:08:47 2005

UNIT #: 3854SA 008677 VERI JIG #: 4702NK wa-761

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	5.47	221.51	0.691	3.78	153.06	149.28 (140.00 – 160.00)

BAKER HUGHES
Baker Atlas
ECLIPS

COMPANY	APACHE ENERGY LTD	FILE NO:	
WELL	GRAYLING 1A	API NO:	
FIELD	EXPLORATION		
RIG NAME	OCEAN PATRIOT COUNTRY AUSTRALIA		
LOCATION: LAT: 38 DEG 09' 40.28" SOUTH LONG: 148 DEG 17' 34.73" EAST	ELEVATIONS: KB — DF 21.5 M GL -58.5 M	FINAL PRINT SCALE 1:200	
	DATE 17 JAN 2005		

BAKER HUGHES

Baker Atlas

RESERVOIR CHARACTERIZATION INSTRUMENT SM
SampleView SM
GAMMA RAY LOG
TTRM SUB SM

FILE NO:

API NO:

COMPANY APACHE ENERGY LTD
WELL GRAYLING 1A
FIELD EXPLORATION
RIG NAME OCEAN PATRIOT COUNTRY AUSTRALIA

Ver. 3.87
FINAL PRINT
SCALE 1:200

LOCATION:
LAT: 38 DEG 09' 40.28" SOUTH
LONG: 148 DEG 17' 34.73" EAST

OTHER SERVICES
MLR

PERMANENT DATUM AHD ELEVATION 0 M
LOG MEASURED FROM RT 21.5 M ABOVE P.D.
DRILL. MEAS. FROM RT

ELEVATIONS:
KB —
DF 21.5 M
GL -58.5 M

DATE		9 JAN 2005			
RUN	TRIP	1	1		
SERVICE ORDER		516567			
DEPTH DRILLER		2915 M			
DEPTH LOGGER		NOT LOGGED			
BOTTOM LOGGED INTERVAL		2683.6 M			
TOP LOGGED INTERVAL		2067.1 M			
CASING DRILLER		244.5 MM	@796.2 M	@	
CASING LOGGER		NOT LOGGED			
BIT SIZE		216 MM			
TYPE OF FLUID IN HOLE		KCL / IDACAP D			
DENSITY	VISCOSITY	1.32 G/C3	44 S		
PH	FLUID LOSS	8.5	0 C3		
SOURCE OF SAMPLE		FLOWLINE			
RM AT MEAS. TEMP.		0.078 OHMM	@22.5 DEGC	@	
RMF AT MEAS. TEMP.		0.067 OHMM	@22.0 DEGC	@	
RMC AT MEAS. TEMP.		0.181 OHMM	@22.7 DEGC	@	
SOURCE OF RMF	RMC	MEASURED	MEASURED		
RM AT BHT		0.023 OHMM	@125 DEGC	@	
TIME SINCE CIRCULATION		92.25 HOURS			
MAX. RECORDED TEMP.		125 DEGC			
EQUIP. NO.	LOCATION	HSL-8677	DARWIN		
RECORDED BY		S.MITCHELL/W.NURCAHYA			
WITNESSED BY		J.SONEGO/P.SLIJDERINK			

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
762 MM	461 KG/M		80 M	112.3 M
340 MM	101 KG/M		80 M	796.2 M

BOREHOLE RECORD

BIT SIZE	FROM	TO
914 MM	80 M	114 M
406 MM	114 M	810 M
216 MM	810 M	2914 M

REMARKS

RUN 1 TRIP 1 :

*. LOG WAS CORRELATED TO LWD LOG DATED 11 JANUARY 2005
*. TOOL ZERODED ON RT AT 12:15 ON 13 JAN 2005
*. CIRCULATION STOPPED AT 2:30 ON 13TH JANUARY 2005
*. TD NOT LOGGED IN THIS RUN
*. CASING NOT LOGGED IN THIS RUN
*. ADDITIONAL MUD PROPERTIES:
PV/YP = 13/15 PA
CHLORIDES:50000. MG/L ==> 82250 PPM
KCL: 8 % WT
*. MAX DEVIATION = 3.28 DEG @ 2914 M (PROVIDED BY CUSTOMER)
*. MAXIMUM TEMPERATURE RECORDED: 125 DEGC
*. ALL SCALES & PRESENTATIONS SET IN ACCORDANCE TO THE LOGGING PROGRAM, AND CUSTOMER REQUIREMENTS

*. DISTANCE FROM THE PACKER TO THE PRESSURE GAUGE: 72.5" (1.84 MTS)
*. PRESSURE READINGS ARE TEMPERATURE CORRECTED
*. PRESSURE READINGS CORRECTED FOR THE FLUID COLUMN BETWEEN THE PACKER AND THE GAUGE, UTILISING MUD WEIGHT PROVIDED IN MUD REPORT, AND ASSUMING A 0 DEG DEVIATION IN THE LOG INTERVAL. HENCE, CORRECTED PRESSURE CURVE (PLCOR) PRESENTED IN THE PLOTS
*. DRAWDOWN VOLUMES, REPEAT DRAWDOWNS, SET-TIME AND PUMP-OUT TIME SPECIFIED BY CUSTOMER

*. RCI RUN WITH THE FOLLOWING SAMPLE CHAMBER CONFIGURATION:
12 X 840 CC DOT/PVT TANKS (12 FOR TRIP 1 & 2 ONLY 6 FOR TRIP 3)
1 X 10 LTS TANK (FILLED WITH WATER FOR BACKFLUSHING PURPOSES)
1 X 4 LTS TANK

*. PRE-TESTS ATTEMPTED: 32
PRE-TESTS ACHIEVED: 24
REPEAT DRAWDOWNS: 50
TIGHT TESTS: 4

*. SAMPLING SUMMARY:

DEPTH: 2074.0 M

TANK VOL: 840 CC (369037)
PUMP-THRU VOL: 5 LTS
FINAL TANK PRESS: 4631 PSI @ 93.4 DEGC

DEPTH: 2633.0 M

TANK VOL: 840 CC (369040)
PUMP-THRU VOL: 12.5 LTS
FINAL TANK PRESS: 8920 PSI @ 121.0 DEGC

DEPTH: 2572.0 M

TANK VOL: 840 CC (369045)
PUMP-THRU VOL: 28 LTS
FINAL TANK PRESS: 8809 PSI @ 118.9 DEGC

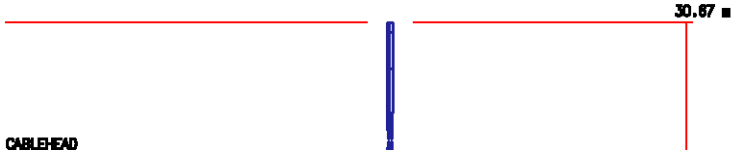
DEPTH 2574.0 M

TANK VOL: 840 CC (369069)
PUMP-THRU VOL: 8.5 LTS
FINAL TANK PRESS: 8816 PSI @ 118.6 DEGC

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	3944XB	151113	FREE
1	1	DHPA	4430XB	190443	FREE
1	1	TTRM	3981XA	10045152	FREE
1	1	WTS	3514XB	150751	DECENTRALIZED
1	1	GR	1329XB	152188	FREE
1	1	RCI	1970CB/1970EB	10055564/154341	FREE
1	1	RCI	1970MB/1970BB	190248/10042042	FREE
1	1	RCI	1970RB/1970IA	172786/10046283	FREE
1	1	RCI	1970OB/1970WA	370798/1006445	FREE
1	1	RCI	1970WA	10043486	FREE
1	1	RCI	1970HA	369660	FREE

INSTRUMENT CONFIGURATION



Series : CABL338
Mnemonic : CBLH
Diameter : 3.38"
Weight : 10.9 kg
Length : 167.6 cm
Measure Point: 83.8 cm: CABLEHEAD TOP
Temp Rating : N/A
Press Rating : N/A

CABLEHEAD TOP — 29.63 m

SWIVEL
Series : 3944XB
Mnemonic : SWVL
Diameter : 3.38"
Weight : 29.5 kg
Length : 101.6 cm
Temp Rating : 204 deg. C
Press Rating : 1405 kg/cm2

DOWNHOLE POWER ADAPTER
Series : 4430XA
Mnemonic : DHPA
Diameter : 3.62"
Weight : 36.4 kg
Length : 160.7 cm
Temp Rating : 149 deg. C
Press Rating : 211 kg/cm2

TTRM SUB
Series : 3981XA
Mnemonic : TTRM
Diameter : 3.63"
Weight : 36.4 kg
Length : 116.8 cm
Measure Point: 42.2 cm: TEMP MP
Measure Point: 34.5 cm: RM MP
Temp Rating : 204 deg. C
Press Rating : 1405 kg/cm2

TEMP MP — 25.62 m
RM MP — 25.54 m

WTS COMMON REMOTE
Series : 35140A
Mnemonic : WTS
Diameter : 3.63"
Weight : 65.5 kg
Length : 169.5 cm
Temp Rating : 204 deg. C
Press Rating : 1406 kg/cm2

DIGITAL SPECTRALOG
Series : 1328XA
Mnemonic : DSL
Diameter : 3.63"
Weight : 84.5 kg
Length : 222.8 cm
Measure Point: 48.8 cm: GR MP
Temp Rating : 204 deg. C
Press Rating : 1405 kg/cm2

GR MP — 21.58 m

RCI HYDRAULIC POWER SECTION
Series : 1970CB
Mnemonic : RCI
Diameter : 4.75"
Weight : 113.6 kg
Length : 330.9 cm
Temp Rating : 177 deg. C
Press Rating : 1405 kg/cm2

RCI ELECTRONICS SECTION

Series	: 1970EB
Mnemonic	: RCI
Diameter	: 4.38"
Weight	: 45.5 kg
Length	: 112.0 cm
Temp Rating	: 177 deg. C
Press Rating	: 1405 kg/cm2

RCI SINGLE PACKER SECTION

Series	: 1970MB
Mnemonic	: RCI
Diameter	: 4.75"
Weight	: 155.5 kg
Length	: 290.7 cm
Measure Point:	38.1 cm: PACKER MP
Temp Rating	: 177 deg. C
Press Rating	: 1124 kg/cm2

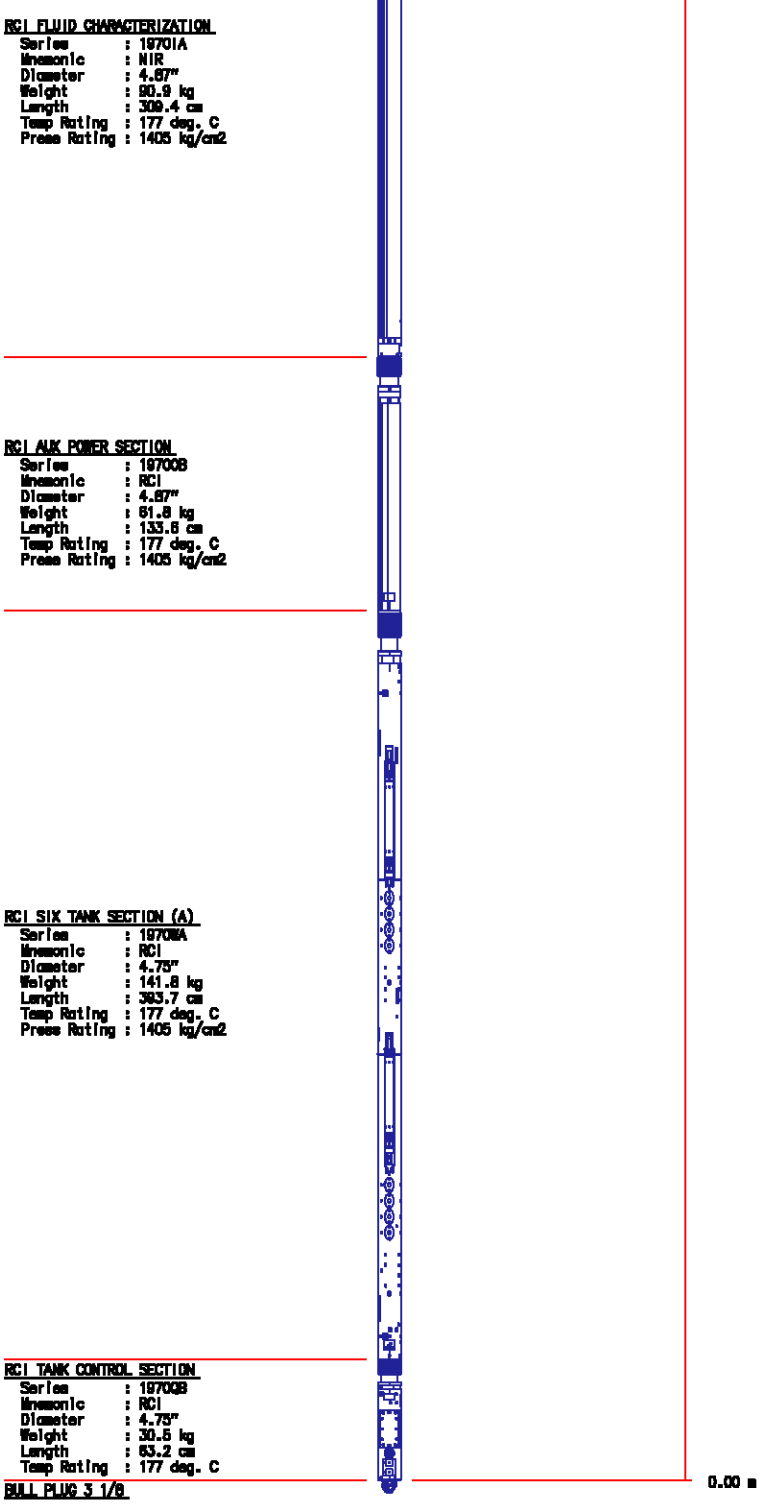
PACKER MP — 14.12 m

RCI DRAW DOWN SECTION

Series	: 1970BB
Mnemonic	: RCI
Diameter	: 4.75"
Weight	: 113.6 kg
Length	: 233.7 cm
Temp Rating	: 177 deg. C
Press Rating	: 1124 kg/cm2

RCI PUMPTHRU SECTION

Series	: 1970RB
Mnemonic	: RCI
Diameter	: 4.75"
Weight	: 113.6 kg
Length	: 240.4 cm
Temp Rating	: 177 deg. C
Press Rating	: 1405 kg/cm2



PRESSURE SUMMARY REPORT – TRIP [01]

Meta File: packer-01.psr.meta

RESERVOIR CHARACTERIZATION INSTRUMENT
PRESSURE TEST SUMMARY REPORT

COMPANY NAME	APACHE ENERGY LTD	RUN	1
WELL NAME	GRAYLING 1A	OPERATION	1
FIELD	EXPLORATION	TRIP	1
REPORT DATE/TIME	Tue Jan 18 04:33:59 2005		

PACKER	5 to 23	(in)	PROBE I.D.	18.288	(mm)
EXTENSION KIT	6.75 to 17	(in)	FILTER SIZE		(mm)
FLOW CONTROL	Pump		RUBBER DUROMETER	080	
GAUGE USED	PACKER		UPPER TANK VOL.	3999.981	(cm3)
SNORKEL FACTOR	0.75		LOWER TANK VOL.	10000.009	(cm3)

TEST NO.	FILE NO.	MEASURED DEPTH (m)	TVD DEPTH (m)	PUMPED VOLUME (cm3)	SANDFACE PRESSURE (psi)	FLOWING PRESSURE (psi)	FINAL BUILDUP PRESSURE (psi)	HYDRO-STATIC BEFORE (psi)	HYDRO-STATIC AFTER (psi)	DRAWDOWN PERMEA-BILITY (mD)	CHAMBER USED	REMARKS
17	30	2572.2	2572.2	10.3	3782.3	3657.6	3782.4	4870.1	4870.0	79.3	D	GOOD, T=116.3C
17	30	2572.2	2572.2	10.4	3765.5	3681.0	3765.2	4870.1	4870.0	194.7	D	REPEAT
17	30	2572.2	2572.2	10.3	3765.5	3697.8	3765.5	4870.1	4870.0	233.6	D	REPEAT 2
18	31	2574.2	2574.2	10.4	3767.9	3531.7	3767.9	4874.8	4877.1	39.9	D	GOOD, T=116.3C
18	31	2574.2	2574.2	10.6	3765.5	3429.5	3765.5	4874.8	4877.1	34.5	D	REPEAT
18	31	2574.2	2574.2	10.3	3765.9	3427.4	3765.9	4874.8	4877.1	33.3	D	REPEAT 2
19	32	2576.1	2576.1	10.3	3772.3	3651.1	3782.1	4879.4	4882.4	33.4	D	GOOD, T=116.4C
19	32	2576.1	2576.1	10.1	3768.1	3447.6	3768.1	4879.4	4882.4	27.0	D	REPEAT 1
19	32	2576.1	2576.1	10.1	3768.1	3572.6	3768.1	4879.4	4882.4	49.8	D	REPEAT 2
19	32	2576.1	2576.1	10.8	3767.7	3576.3	3767.8	4879.4	4882.4	54.2	D	REPEAT 3
20	33	2576.9	2576.9	10.6	3808.5	3514.1	3808.5	4882.5	4882.3	29.0	D	GOOD, T=116.7C
20	33	2576.9	2576.9	10.6	3788.2	3401.2	3788.2	4882.5	4882.3	30.0	D	REPEAT 1
20	33	2576.9	2576.9	10.5	3839.9	3489.5	3839.9	4882.5	4882.3	35.5	D	REPEAT 2
20	33	2576.9	2576.9	10.8	3767.8	3394.9	3767.8	4882.5	4882.3	29.5	D	REPEAT 3
20	33	2576.9	2576.9	10.4	3768.0	3664.0	3768.0	4882.5	4882.3	55.0	D	REPEAT 4
21	34	2581.3	2581.3	10.3	3772.8	3356.1	3772.8	4889.2	4888.9	21.2	D	GOOD, T=116.8C
21	34	2581.3	2581.3	10.8	3832.9	3389.6	3832.6	4889.2	4888.9	34.1	D	REPEAT 1
21	34	2581.3	2581.3	10.6	3766.9	3393.4	3766.9	4889.2	4888.9	54.5	D	REPEAT 2
21	34	2581.3	2581.3	10.7	3767.8	3414.7	3767.8	4889.2	4888.9	42.2	D	REPEAT 3
22	35	2582.9	2582.9	10.4	3767.7	3260.6	3769.9	4890.1	4891.7	24.3	D	GOOD, T=117C
22	35	2582.9	2582.9	10.4	3767.7	3260.6	3767.7	4890.1	4891.7	24.3	D	REPEAT
23	36	2585.6	2585.6	10.8	3771.0	3534.7	3771.0	4897.6	4895.0	43.9	D	GOOD, T=117.2C
23	36	2585.6	2585.6	10.8	3768.9	3479.8	3768.9	4897.6	4895.0	52.1	D	REPEAT 1
23	36	2585.6	2585.6	10.1	3768.8	3063.4	3768.8	4897.6	4895.0	12.2	D	REPEAT 2
24	37	2591.3	2591.3	11.0	3842.5	3571.0	3842.5	4906.3	4905.2	69.3	D	GOOD, T=117.3C
24	37	2591.3	2591.3	10.2	3770.1	3508.4	3770.1	4906.3	4905.2	50.1	D	REPEAT 1
24	37	2591.3	2591.3	11.0	3770.1	3571.0	3770.1	4906.3	4905.2	94.5	D	REPEAT 2
25	38	2592.8	2592.8	10.8	3775.0	3366.3	3775.0	4911.9	4911.8	23.8	D	GOOD, T=117.4C
25	38	2592.8	2592.8	10.8	3770.4	3251.1	3770.4	4911.9	4911.8	24.5	D	REPEAT 1
25	38	2592.8	2592.8	10.5	3770.5	3207.3	3770.5	4911.9	4911.8	22.0	D	REPEAT 2
26	39	2598.0	2598.0	10.2	3780.7	3258.1	3780.7	4920.9	4921.5	15.0	D	GOOD, T=117.6C
26	39	2598.0	2598.0	10.4	3773.0	2900.3	3773.0	4920.9	4921.5	7.3	D	REPEAT 1
26	39	2598.0	2598.0	10.3	3773.0	2853.2	3773.0	4920.9	4921.5	8.6	D	REPEAT 2
27	41	2605.6	2605.6	10.6	3782.1	3527.5	3782.1	4935.4	4935.1	42.4	D	GOOD, T=118.7C
27	41	2605.6	2605.6	10.5	3775.4	3581.8	3775.4	4933.1	4935.1	92.8	D	REPEAT 1
27	41	2605.6	2605.6	11.0	3775.6	3667.4	3775.6	4935.4	4935.1	91.4	D	REPEAT 2

28	42	2614.5	2614.5	10.7	3811.6	3588.7	3811.6	4958.7	4958.9	43.1	D	GOOD, T=118.7C
28	42	2614.5	2614.5	10.7	3807.3	3683.9	3807.3	4958.7	4958.9	55.4	D	REPEAT 1
28	42	2614.5	2614.5	10.7	3806.6	3685.3	3806.6	4958.7	4958.9	52.3	D	REPEAT 2
29	43	2626.4	2626.4	0.0	0.0	0.0	0.0	4972.5	4973.9	0.0	D	TIGHT, T=118.8C
30	44	2626.6	2626.6	0.0	0.0	0.0	0.0	4973.1	4973.1	0.0	D	TIGHT, T=118.9C
31	45	2633.0	2633.0	10.4	3813.9	3320.3	3813.9	4988.9	4988.5	18.0	D	GOOD, T=119.0C
31	45	2633.0	2633.0	10.4	3812.5	3289.9	3812.5	4988.9	4988.5	17.0	D	REPEAT 1
31	45	2633.0	2633.0	10.6	3809.6	3480.8	3809.6	4988.9	4988.5	17.8	D	REPEAT 2
31	45	2633.0	2633.0	10.9	3811.1	3477.2	3811.1	4988.9	4988.5	17.3	D	REPEAT 3
32	46	2636.3	2636.3	0.0	0.0	0.0	0.0	4993.0	4993.8	0.0	D	TIGHT, T=119.1C
33	48	2646.8	2646.8	10.7	4976.2	3397.6	3829.7	5020.5	5021.1	7.4	D	GOOD, T=119.8C
33	48	2646.8	2646.8	10.6	3828.4	2879.6	3828.3	5020.5	5021.1	7.2	D	REPEAT
33	48	2646.8	2646.8	10.4	3832.3	2949.6	3828.6	5020.5	5021.1	6.2	D	REPEAT 2
34	49	2653.0	2653.0	10.1	3831.9	3266.4	3832.0	5027.9	5027.0	12.0	D	GOOD, T=119.8C
34	49	2653.0	2653.0	10.7	3832.6	3030.8	3832.7	5027.9	5027.0	11.3	D	REPEAT
35	50	2659.2	2659.2	10.6	4063.3	3529.3	4063.3	5034.4	5034.7	5.3	D	GOOD, T=120.1C
35	50	2659.2	2659.2	10.7	3846.4	3274.9	3846.4	5034.4	5034.7	14.3	D	REPEAT
35	50	2659.2	2659.2	10.2	3841.4	3202.4	3841.4	5034.4	5034.7	12.2	D	REPEAT 2
35	50	2659.2	2659.2	5.2	4063.3	3529.3	4063.3	5034.4	5034.7	2.6	D	REPEAT 3
36	51	2672.3	2672.3	10.5	3862.1	3451.9	3862.2	5066.1	5065.7	21.8	D	GOOD, T=120.2C
36	51	2672.3	2672.3	10.9	3860.6	3422.0	3860.6	5066.1	5065.7	27.3	D	REPEAT
36	51	2672.3	2672.3	5.7	3865.5	3347.3	3865.4	5066.1	5065.7	14.1	D	REPEAT 2
37	52	2683.6	2683.6	10.3	3881.7	3463.4	3881.7	5081.9	5084.5	23.5	D	GOOD, T=121.2C
37	52	2683.6	2683.6	10.6	3877.0	3356.8	3876.9	5081.9	5084.5	22.3	D	REPEAT
37	52	2683.6	2683.6	10.2	3876.9	3449.2	3876.9	5081.9	5084.5	24.5	D	REPEAT 2
39	55	2632.9	2632.9	10.9	3811.1	3379.9	3811.0	5000.5	4999.6	27.6	D	SAMPLE, T=120.9C
40	57	2571.9	2571.9	0.0	0.0	0.0	0.0	4889.6	4886.5	0.0	D	SAMPLE, T=118.9C
43	60	2574.1	2574.1	0.0	0.0	0.0	0.0	4896.9	0.0	0.0	D	SAMPLE, T=118.6C

Meta File: pump-01.psr.meta

RESERVOIR CHARACTERIZATION INSTRUMENT
PRESSURE TEST SUMMARY REPORT

COMPANY NAME	APACHE ENERGY LTD	RUN	1
WELL NAME	GRAYLING 1A	OPERATION	1
FIELD	EXPLORATION	TRIP	1
REPORT DATE/TIME	Tue Jan 18 04:34:00 2005		

PACKER	5 to 23	(in)	PROBE I.D.	18.288 (mm)
EXTENSION KIT	6.75 to 17	(in)	FILTER SIZE	[] (mm)
FLOW CONTROL	Pump		RUBBER DUROMETER	080
GAUGE USED	PUMP		UPPER TANK VOL.	3999.981 (cm3)
SNORKEL FACTOR	0.75		LOWER TANK VOL.	10000.009 (cm3)

TEST NO.	FILE NO.	MEASURED DEPTH (m)	TVD DEPTH (m)	PUMPED VOLUME (cm3)	SANDFACE PRESSURE (psi)	FLOWING PRESSURE (psi)	FINAL BUILDUP PRESSURE (psi)	HYDRO-STATIC PRESSURE (psi)	HYDRO-STATIC PRESSURE (psi)	DRAWDOWN PERMEA-BILITY (md/cp)	CHAMBER USED	REMARKS
28	42	2614.5	2614.5	10.7	3811.6	3588.7	3811.6	4958.7	4958.9	43.1	D	GOOD, T=118.7C
28	42	2614.5	2614.5	10.7	3807.3	3683.9	3807.3	4958.7	4958.9	55.4	D	REPEAT 1
28	42	2614.5	2614.5	10.7	3806.6	3685.3	3806.6	4958.7	4958.9	52.3	D	REPEAT 2
29	43	2626.4	2626.4	0.0	0.0	0.0	0.0	4972.5	4973.9	0.0	D	TIGHT, T=118.8C
30	44	2626.6	2626.6	0.0	0.0	0.0	0.0	4973.1	4973.1	0.0	D	TIGHT, T=118.9C
31	45	2633.0	2633.0	10.4	3813.9	3320.3	3813.9	4988.9	4988.5	18.0	D	GOOD, T=119.0C
31	45	2633.0	2633.0	10.4	3812.5	3289.9	3812.5	4988.9	4988.5	17.0	D	REPEAT 1
31	45	2633.0	2633.0	10.6	3809.6	3480.8	3809.6	4988.9	4988.5	17.8	D	REPEAT 2
31	45	2633.0	2633.0	10.9	3811.1	3477.2	3811.1	4988.9	4988.5	17.3	D	REPEAT 3
32	46	2636.3	2636.3	0.0	0.0	0.0	0.0	4993.0	4993.8	0.0	D	TIGHT, T=119.1C
33	48	2646.8	2646.8	10.7	4976.2	3397.6	3829.7	5020.5	5021.1	7.4	D	GOOD, T=119.8C
33	48	2646.8	2646.8	10.6	3828.4	2879.6	3828.3	5020.5	5021.1	7.2	D	REPEAT
33	48	2646.8	2646.8	10.4	3832.3	2949.6	3828.6	5020.5	5021.1	6.2	D	REPEAT 2
34	49	2653.0	2653.0	10.1	3831.9	3266.4	3832.0	5027.9	5027.0	12.0	D	GOOD, T=119.8C
34	49	2653.0	2653.0	10.7	3832.6	3030.8	3832.7	5027.9	5027.0	11.3	D	REPEAT
35	50	2659.2	2659.2	10.6	4063.3	3529.3	4063.3	5034.4	5034.7	5.3	D	GOOD, T=120.1C
35	50	2659.2	2659.2	10.7	3846.4	3274.9	3846.4	5034.4	5034.7	14.3	D	REPEAT
35	50	2659.2	2659.2	10.2	3841.4	3202.4	3841.4	5034.4	5034.7	12.2	D	REPEAT 2
35	50	2659.2	2659.2	5.2	4063.3	3529.3	4063.3	5034.4	5034.7	2.6	D	REPEAT 3
36	51	2672.3	2672.3	10.5	3862.1	3451.9	3862.2	5066.1	5065.7	21.8	D	GOOD, T=120.2C
36	51	2672.3	2672.3	10.9	3860.6	3422.0	3860.6	5066.1	5065.7	27.3	D	REPEAT
36	51	2672.3	2672.3	5.7	3865.5	3347.3	3865.4	5066.1	5065.7	14.1	D	REPEAT 2
37	52	2683.6	2683.6	10.3	3881.7	3463.4	3881.7	5081.9	5084.5	23.5	D	GOOD, T=121.2C
37	52	2683.6	2683.6	10.6	3877.0	3356.8	3876.9	5081.9	5084.5	22.3	D	REPEAT
37	52	2683.6	2683.6	10.2	3876.9	3449.2	3876.9	5081.9	5084.5	24.5	D	REPEAT 2
39	55	2632.9	2632.9	10.9	3811.1	3379.9	3811.0	5000.5	4999.6	27.6	D	SAMPLE, T=120.9C
40	57	2571.9	2571.9	0.0	0.0	0.0	0.0	4889.6	4886.5	0.0	D	SAMPLE, T=118.9C
43	60	2574.1	2574.1	0.0	0.0	0.0	0.0	4896.9	0.0	0.0	D	SAMPLE, T=118.6C

		(m)	(m)	(cm3)	(psi)	(psi)	PRESSURE (psi)	BEFORE (psi)	AFTER (psi)	BILITY (mD)		REMARKS
3	07	2067.1	2067.1	0.0	0.0	0.0	0.0	4818.8	4849.7	0.0	D	TIGHT, T=91.0C
4	08	2070.6	2070.6	10.3	2948.6	2882.5	2948.6	3957.9	3957.9	78.4	D	GOOD, T=91.2C
4	08	2070.6	2070.6	10.0	2950.2	2882.5	2948.0	3957.9	3957.9	95.4	D	REPEAT
5	09	2072.1	2072.1	9.8	2949.1	2842.7	2949.1	3971.8	3955.0	43.0	D	GOOD, T=91.8C
5	09	2072.1	2072.1	10.1	2947.6	2839.0	2947.5	3971.8	3955.0	60.4	D	REPEAT
6	10	2074.0	2074.0	10.3	2948.3	2929.2	2948.3	3944.1	3948.3	295.5	D	GOOD, T=92.1C
6	10	2074.0	2074.0	10.2	2948.3	2926.7	2948.3	3944.1	3948.3	290.1	D	REPEAT
7	11	2077.0	2077.0	10.1	2949.5	2716.2	2949.5	3929.4	3948.2	23.0	D	GOOD, T=92.2C
7	11	2077.0	2077.0	9.9	2949.4	2718.6	2949.4	3929.5	3948.2	28.5	D	REPEAT
10	15	2074.0	2074.0	0.0	3131.9	2903.7	2948.6	3511.6	2952.4	0.0	D	SAMPLE, T=93.4C
14	22	2074.2	2074.2	10.1	3058.0	2956.4	3058.5	3956.2	0.0	47.6	D	CURTAILED
14	22	2074.2	2074.2	10.6	2908.9	2583.9	2908.9	3956.2	0.0	17.9	D	REPEAT
15	23	2076.9	2076.9	10.5	3058.8	2913.0	3058.8	3950.9	3950.7	32.6	D	GOOD, T=96.1C
15	23	2076.9	2076.9	10.4	2909.7	2542.7	2909.7	3950.9	3950.7	12.8	D	REPEAT 1
15	23	2076.9	2076.9	10.4	2950.7	2487.2	2950.7	3950.9	3950.7	13.8	D	REPEAT 2
15	23	2076.9	2076.9	10.3	2950.1	2513.6	2950.1	3950.9	3950.7	13.0	D	REPEAT 3
16	24	2078.0	2078.0	10.3	3058.2	2895.4	3058.8	3959.0	3955.3	25.6	D	GOOD T=96.5C
16	24	2078.0	2078.0	9.6	2908.9	2540.5	2908.9	3959.0	3955.3	13.3	D	REPEAT 1
16	24	2078.0	2078.0	8.6	2949.8	2496.2	2949.8	3959.0	3955.3	11.2	D	REPEAT 2
16	24	2078.0	2078.0	10.3	2949.8	2538.7	2949.8	3959.0	3955.3	12.0	D	REPEAT 3

PRESSURE GRADIENT ANALYSIS – TRIP [01]

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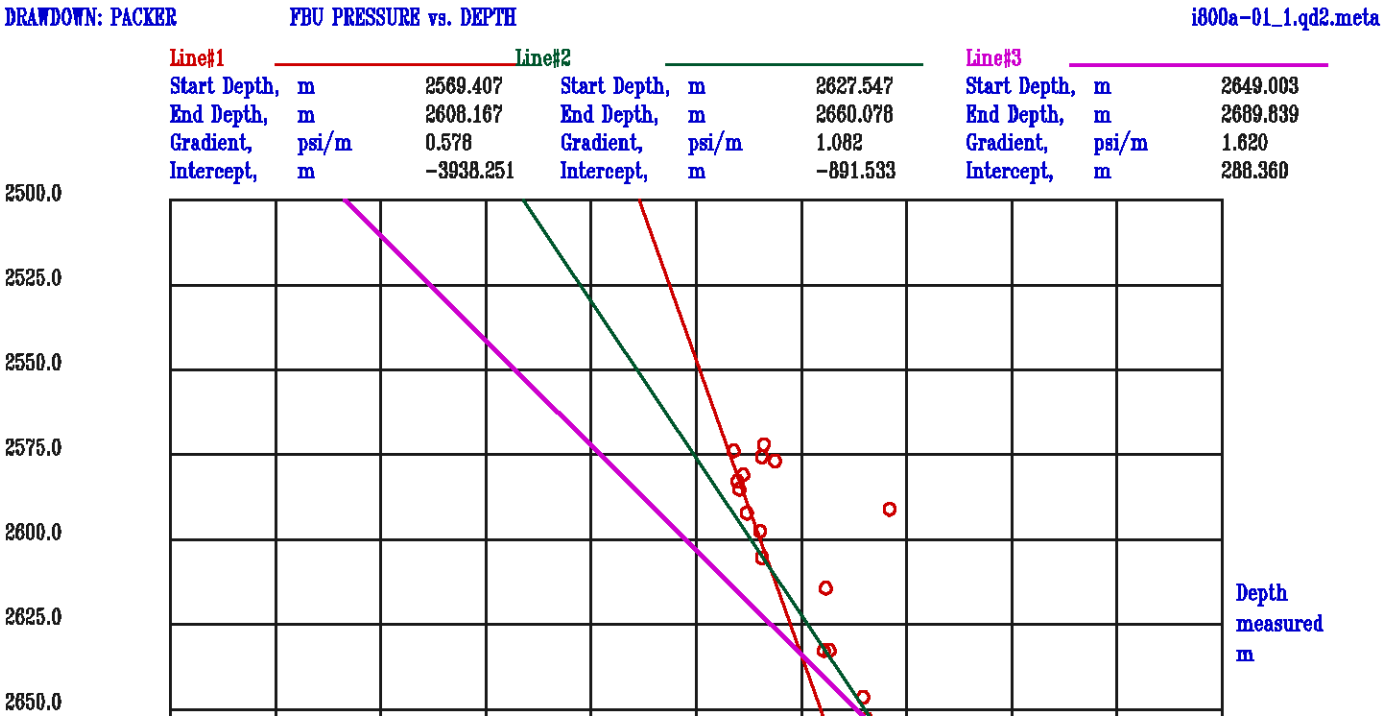

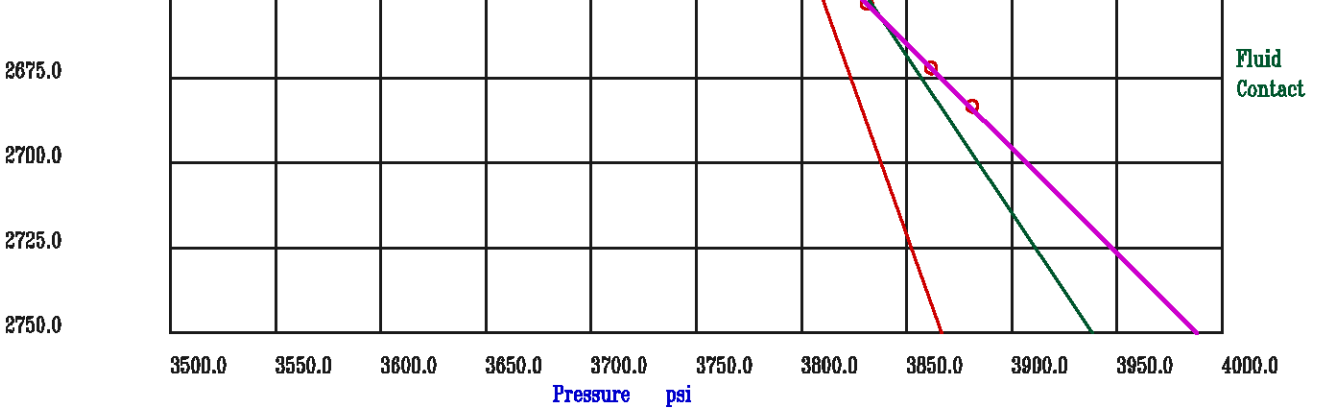

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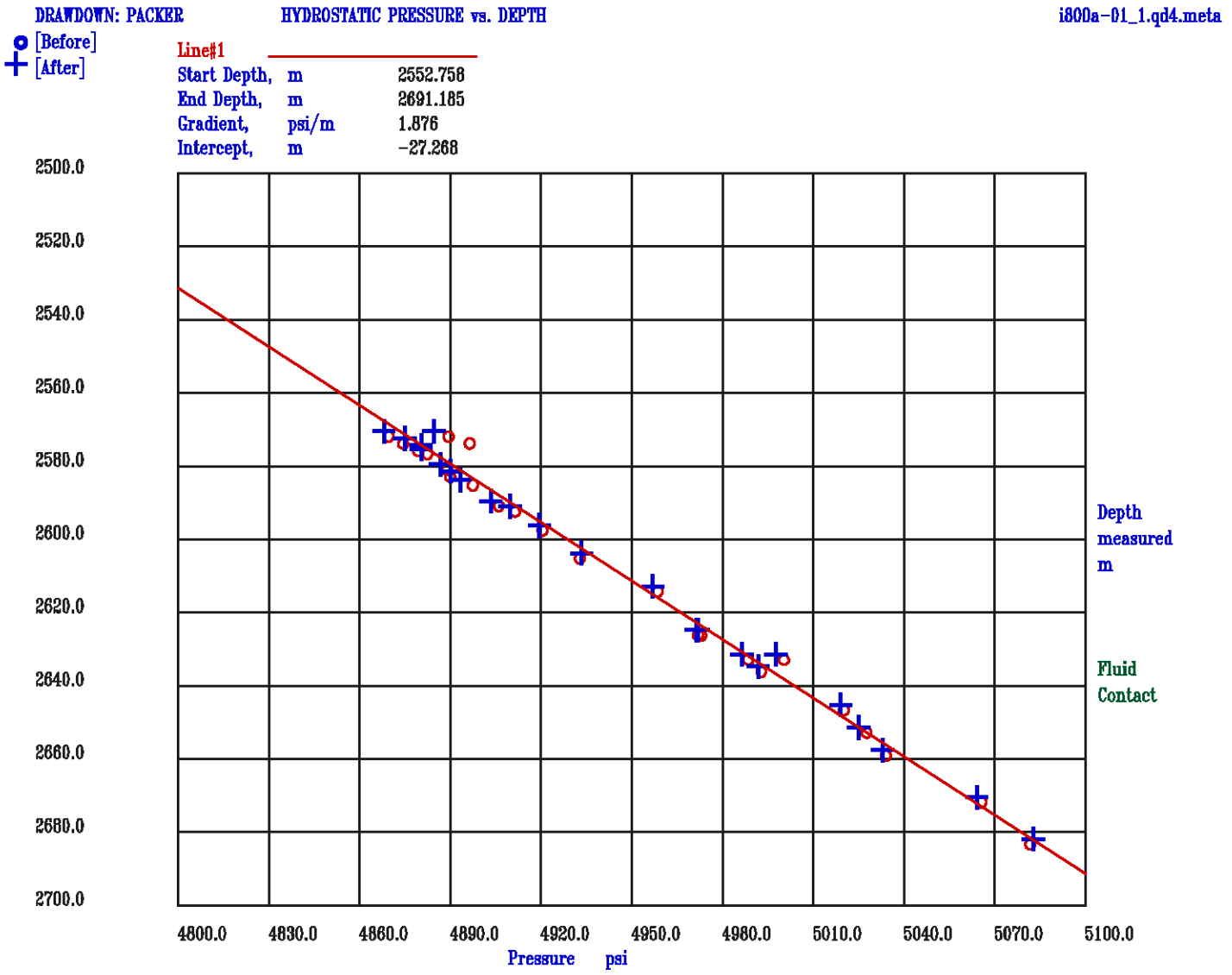


PRESSURE TEST – TVD Depth 2067.1 m

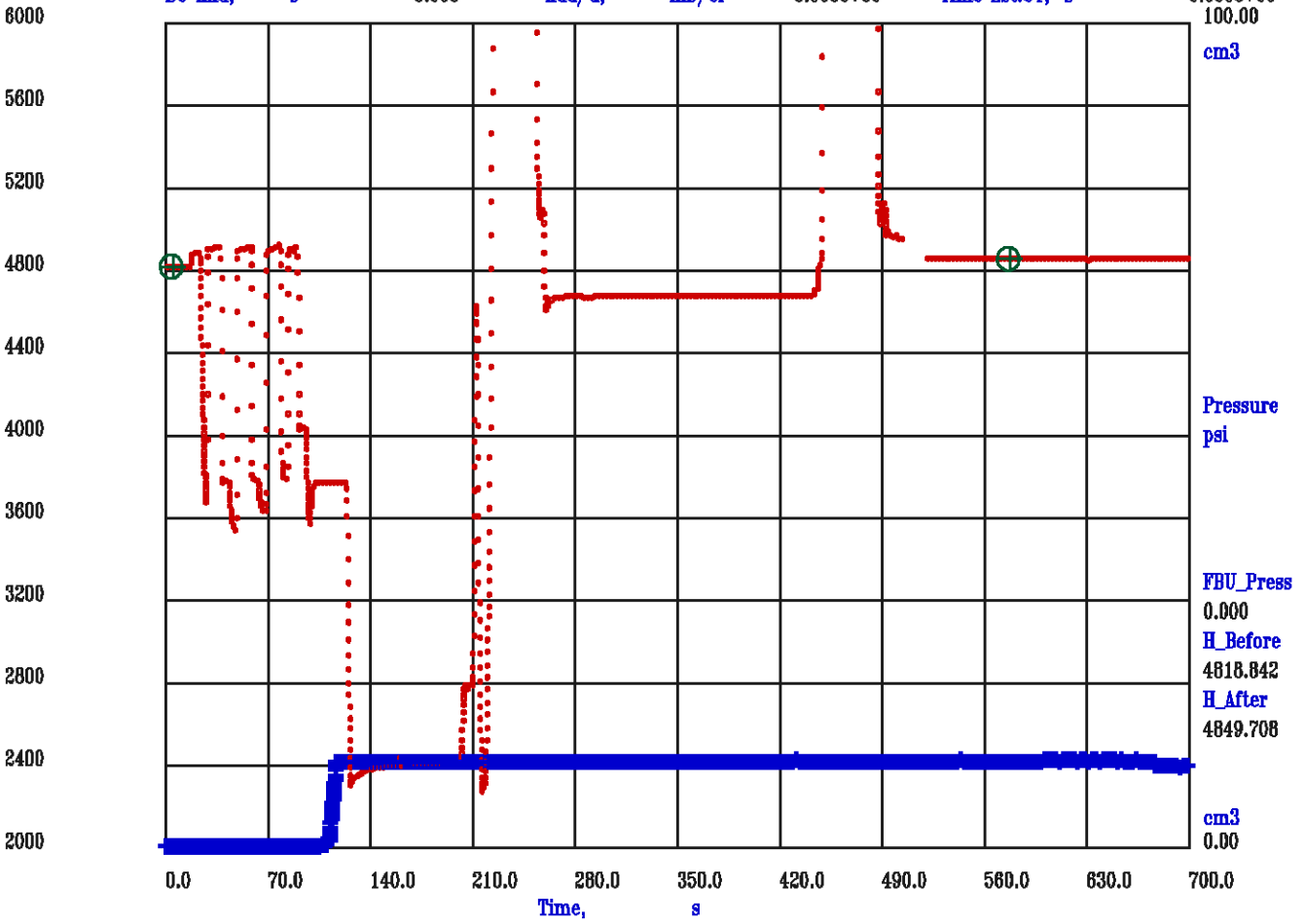
Measured Depth 2067.1 m

Meta File: i800a07_0.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2067.1 | TVD Depth, m 2067.1 | i800a07_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	0.000	SF Press,	psi	0.000	Flow Rate,	cm3/s	0.000e+00
DD End,	s	0.000	FF Press,	psi	0.000	DD Volum,	cm3	0.000e+00
BU Start,	s	0.000	Kdd Perm,	mD	0.000e+00	Fill Rate,	min/L	0.000e+00
BU End,	s	0.000	kdd/u,	mD/cP	0.000e+00	Time Est.UT,	s	0.000e+00



PRESSURE TEST – TVD Depth 2070.6 m

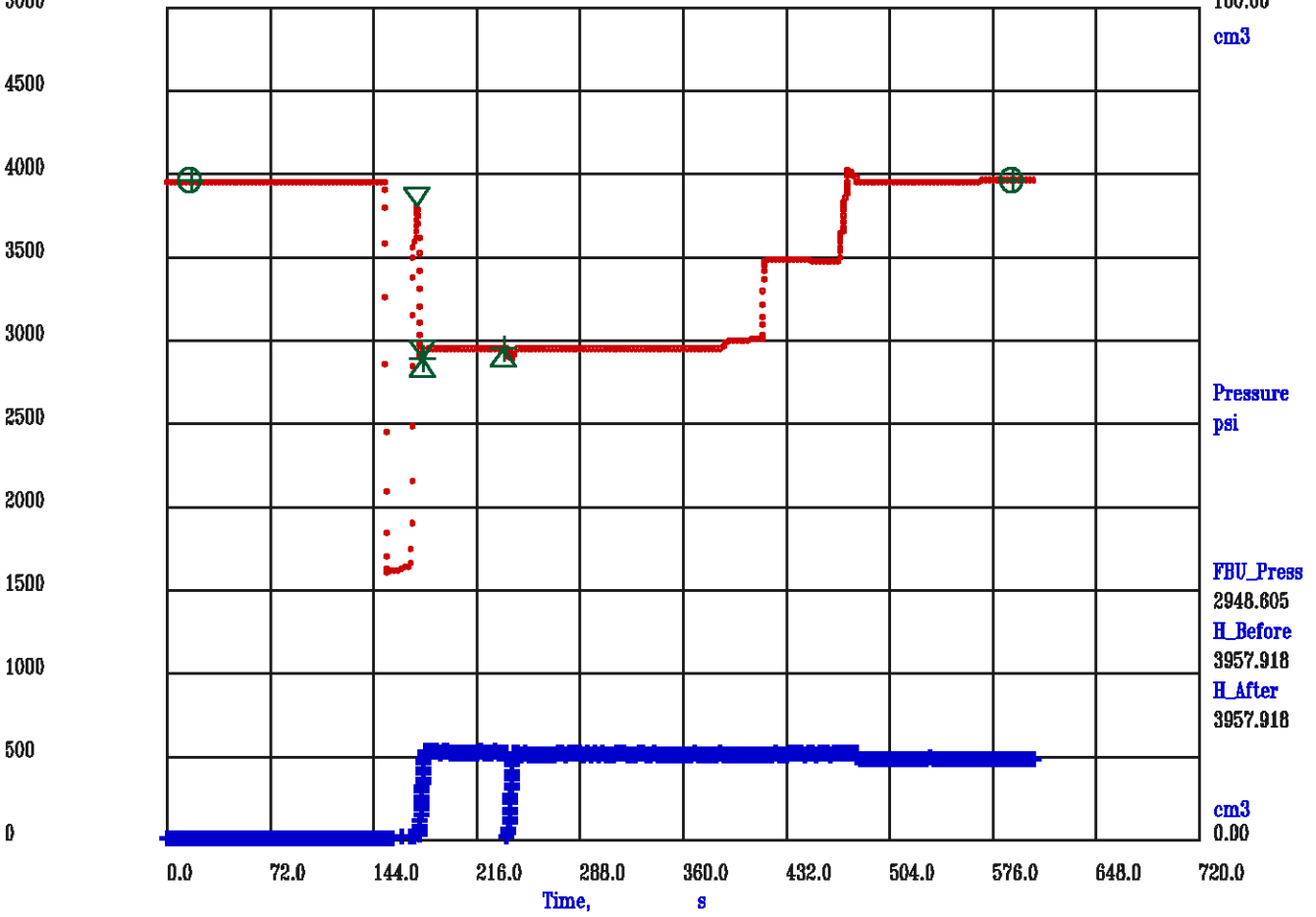
Measured Depth 2070.6 m

Meta File: i800a08_0.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2070.6 | TVD Depth, m 2070.6 | i800a08_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	175.563	SF Press,	psi	2948.605	Flow Rate,	cm3/s	2.718
DD End,	s	179.374	FF Press,	psi	2882.541	DD Volum,	cm3	10.291
BU Start,	s	179.374	Kdd Perm,	mD	78.431	Fill Rate,	min/L	0.138
BU End,	s	236.137	kdd/u,	mD/cP	78.431	Time Est.UT,	s	0.550



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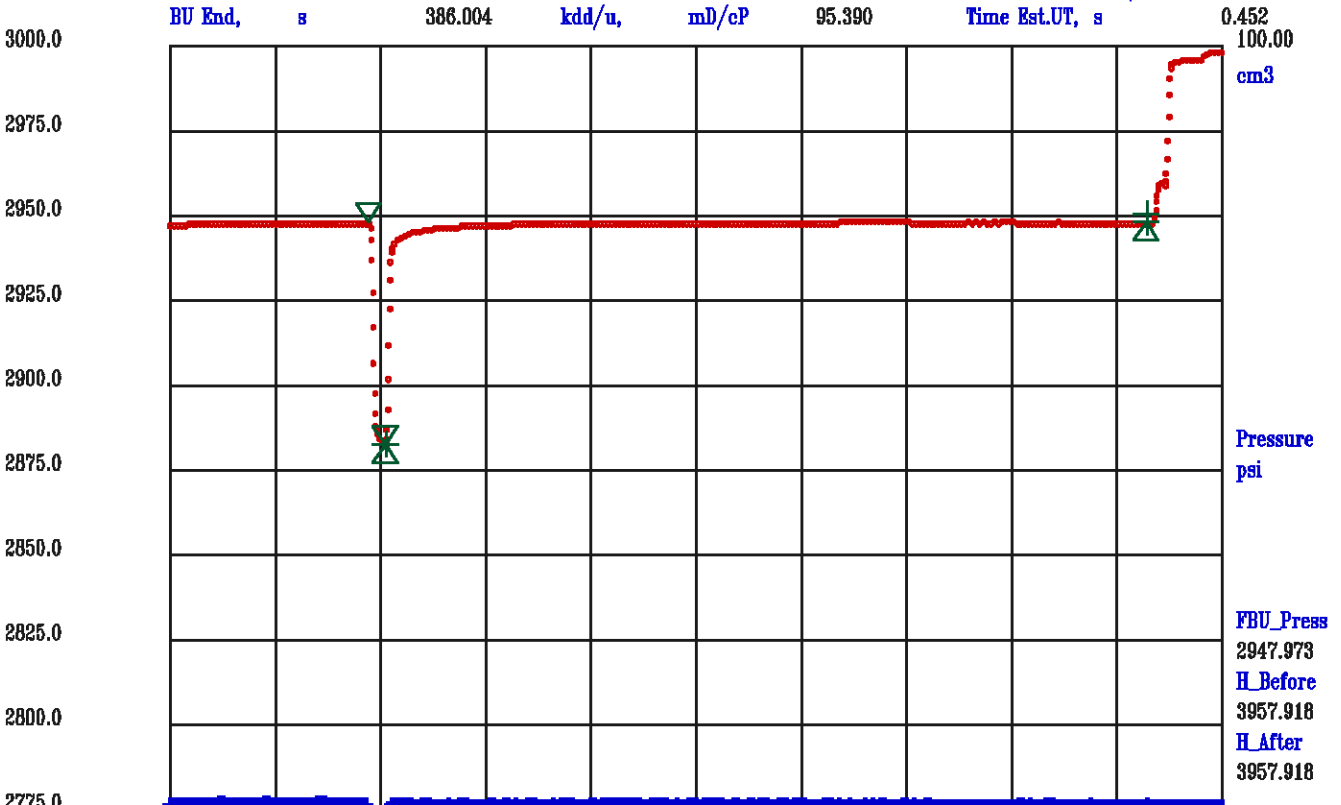
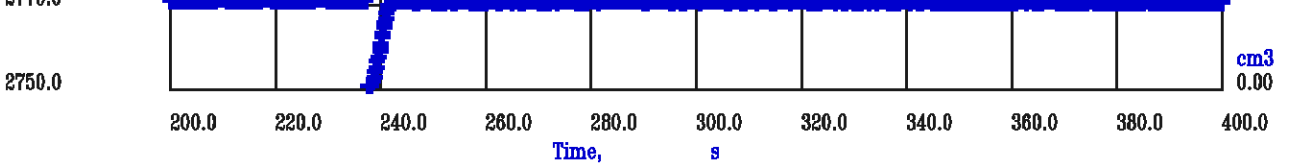
DRAWDOWN: PUMP | Measured Depth, m 2070.6 | TVD Depth, m 2070.6 | i800a08_1.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	238.142	SF Press,	psi	2950.188	Flow Rate,	cm3/s	3.388
DD End,	s	241.114	FF Press,	psi	2882.481	DD Volum,	cm3	10.002
BU Start,	s	241.114	Kdd Perm,	mD	95.390	Fill Rate,	min/L	0.114
BU End,	s	386.004	kdd/u,	mD/cP	95.390	Time Est.UT,	s	0.452





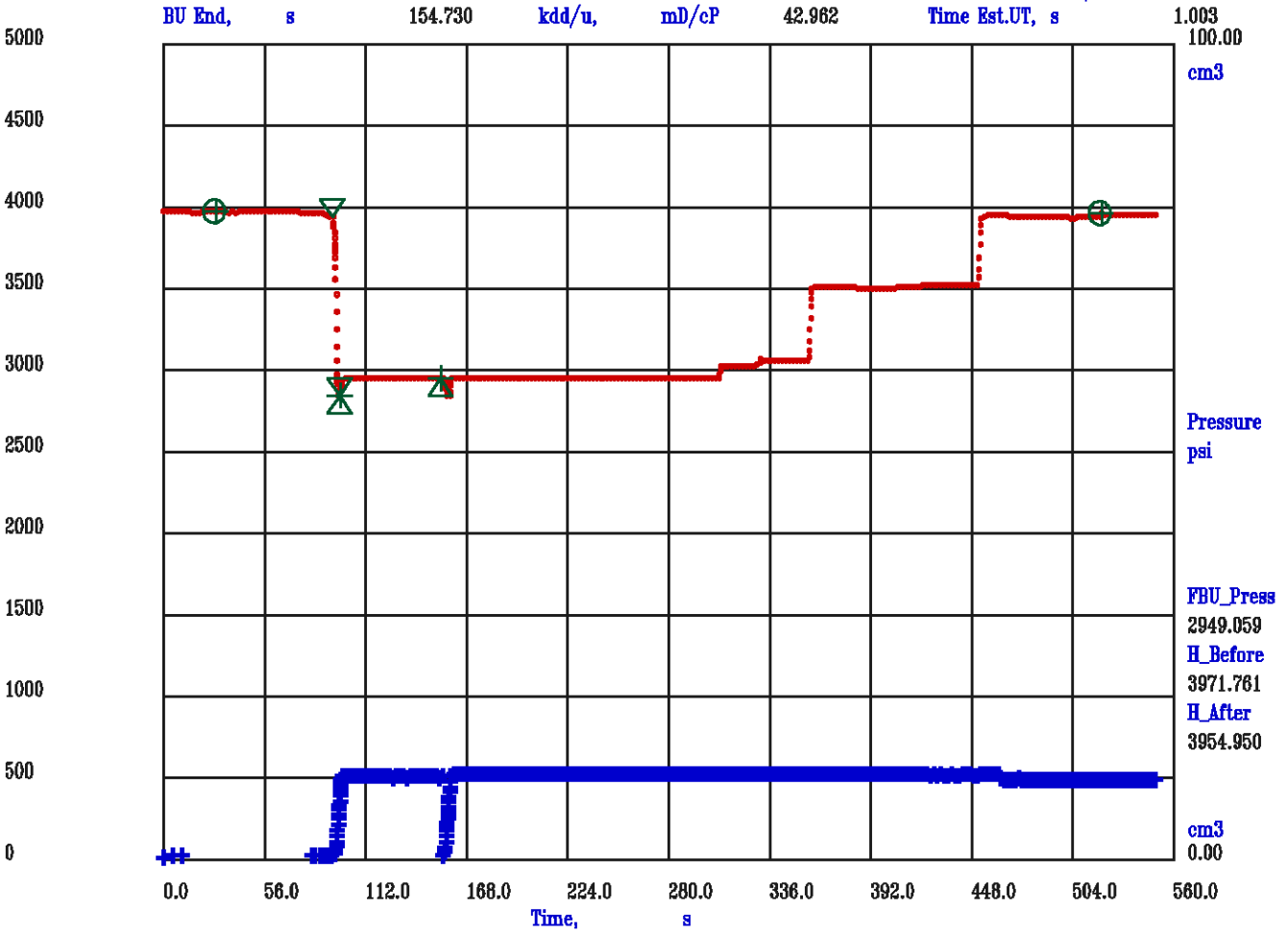
PRESSURE TEST – TVD Depth 2072.1 m
Measured Depth 2072.1 m

Meta File: i800a09_0.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2072.1 | TVD Depth, m 2072.1 | i800a09_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	94.247	SF Press,	psi	2949.059	Flow Rate,	cm3/s	2.396
DD End,	s	98.376	FF Press,	psi	2842.744	DD Volum,	cm3	9.829
BU Start,	s	98.376	Kdd Perm,	mD	42.962	Fill Rate,	min/L	0.252
BU End,	s	154.730	kdd/u,	mD/cP	42.962	Time Est.UT,	s	1.003

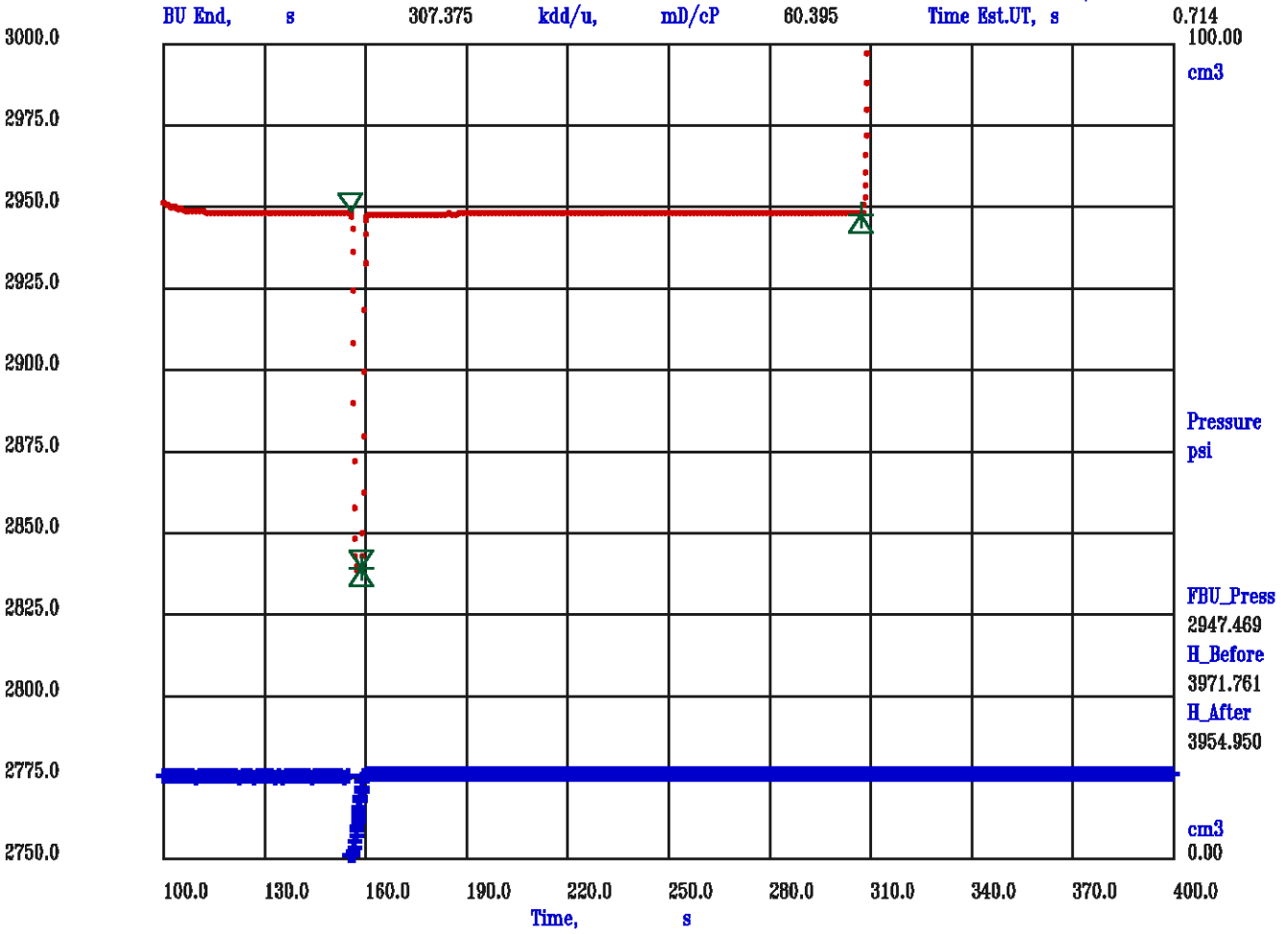


Meta File: i800a09_1.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2072.1 | TVD Depth, m 2072.1 | i800a09_1.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	156.041	SF Press,	psi	2947.579	Flow Rate,	cm3/s	3.439
DD End,	s	159.000	FF Press,	psi	2839.034	DD Volum,	cm3	10.108
BU Start,	s	159.000	Kdd Perm,	mD	60.395	Fill Rate,	min/L	0.180
BU End,	s	307.375	kdd/u,	mD/cP	60.395	Time Est.UT,	s	0.714



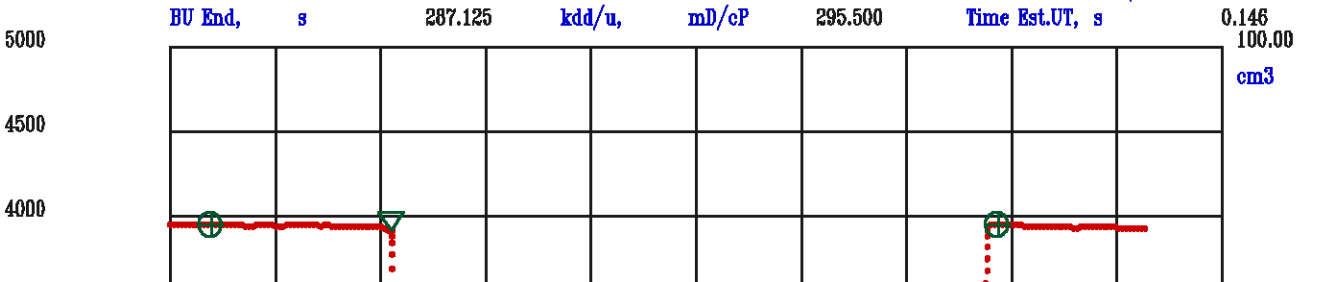
PRESSURE TEST – TVD Depth 2074.0 m
Measured Depth 2074.0 m

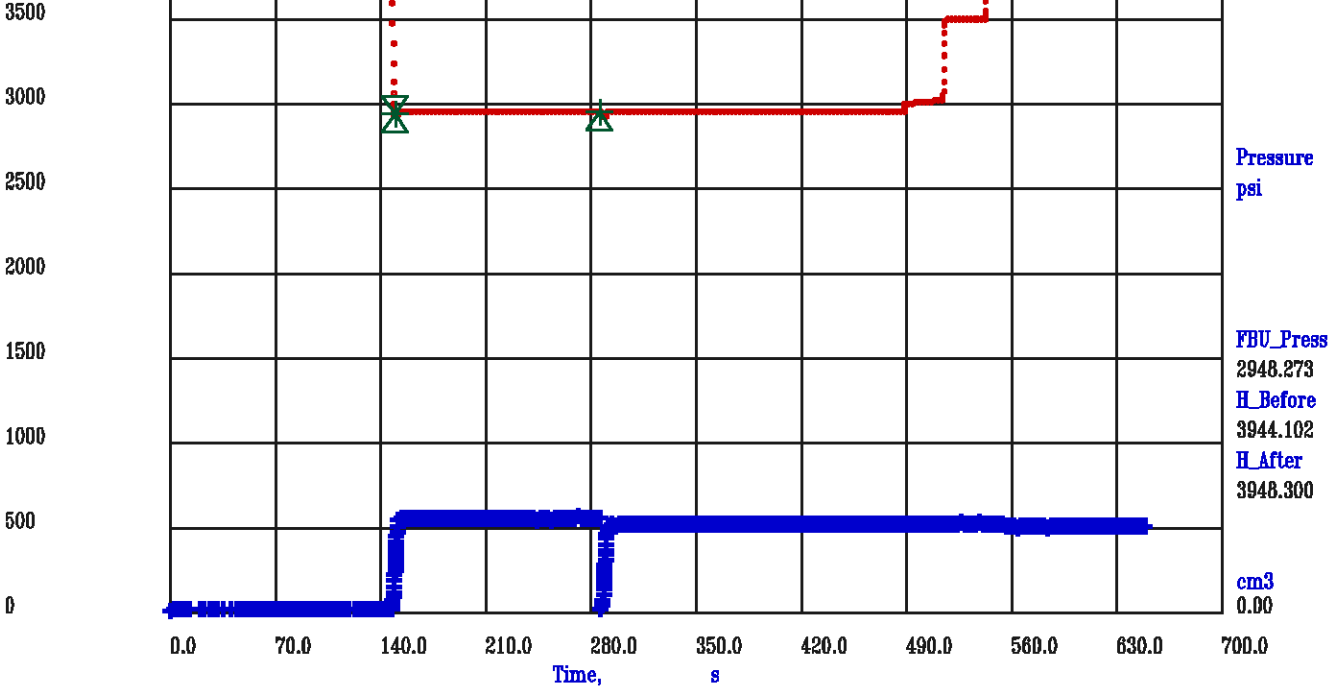
Meta File: i800a10_0.sd1.meta

DRAWDOWN: PUMP Measured Depth, m 2074.0 TVD Depth, m 2074.0 i800a10_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	147.625	SF Press,	psi	2948.276	Flow Rate,	cm3/s	2.956
DD End,	s	151.125	FF Press,	psi	2929.204	DD Volum,	cm3	10.280
BU Start,	s	151.125	Kdd Perm,	mD	295.500	Fill Rate,	min/L	0.037
BU End,	s	287.125	kdd/u,	mD/cP	295.500	Time Est.UT,	s	0.146



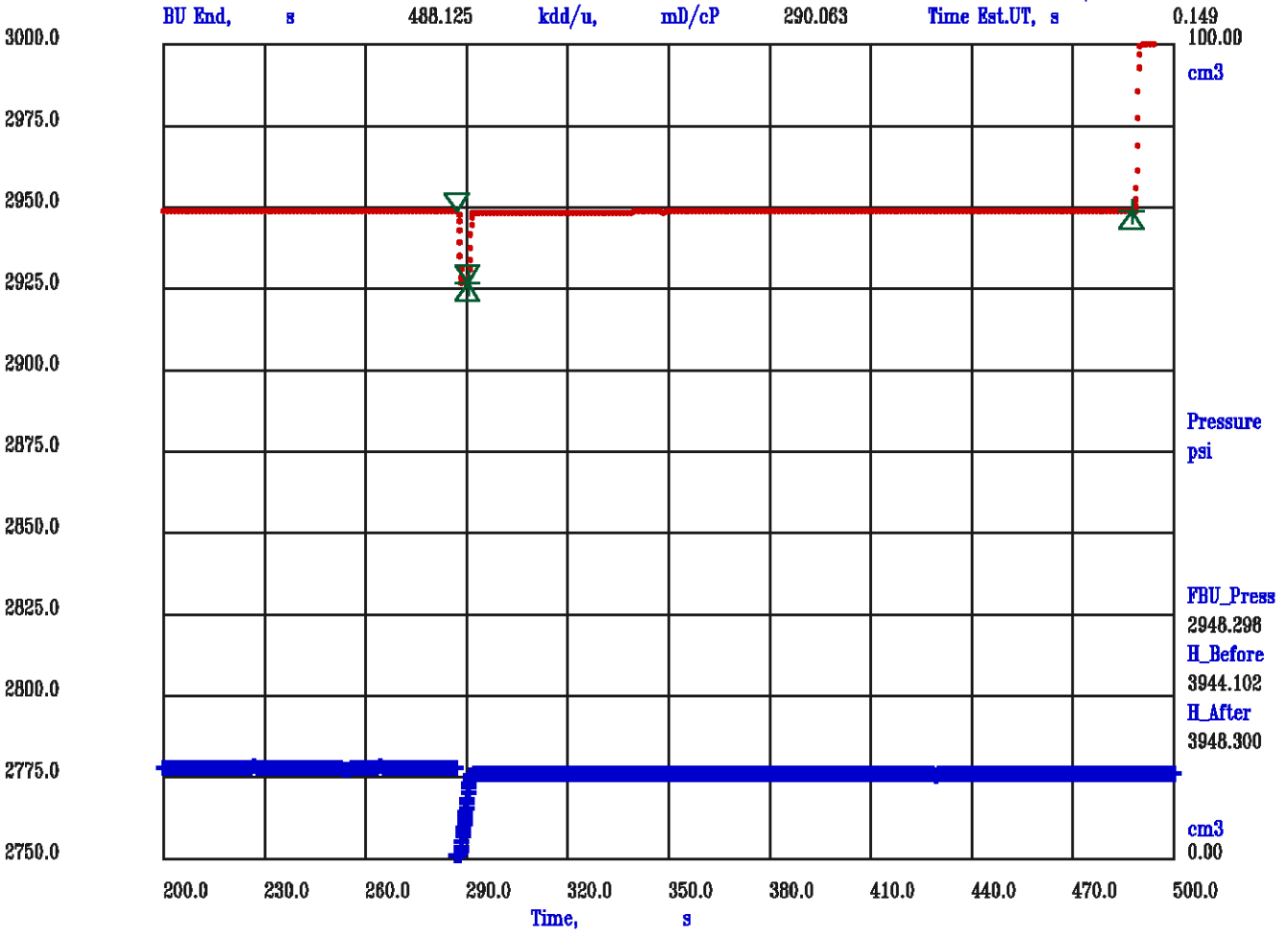


Meta File: i800a10_1.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2074.0 | TVD Depth, m 2074.0 | i800a10_1.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	287.625	SF Press,	psi	2948.298	Flow Rate,	cm3/s	3.279
DD End,	s	290.750	FF Press,	psi	2926.749	DD Volum,	cm3	10.180
BU Start,	s	290.750	Kdd Perm,	mD	290.063	Fill Rate,	min/L	0.037
BU End,	s	488.125	kdd/u,	mD/cP	290.063	Time Est.UT,	s	0.149



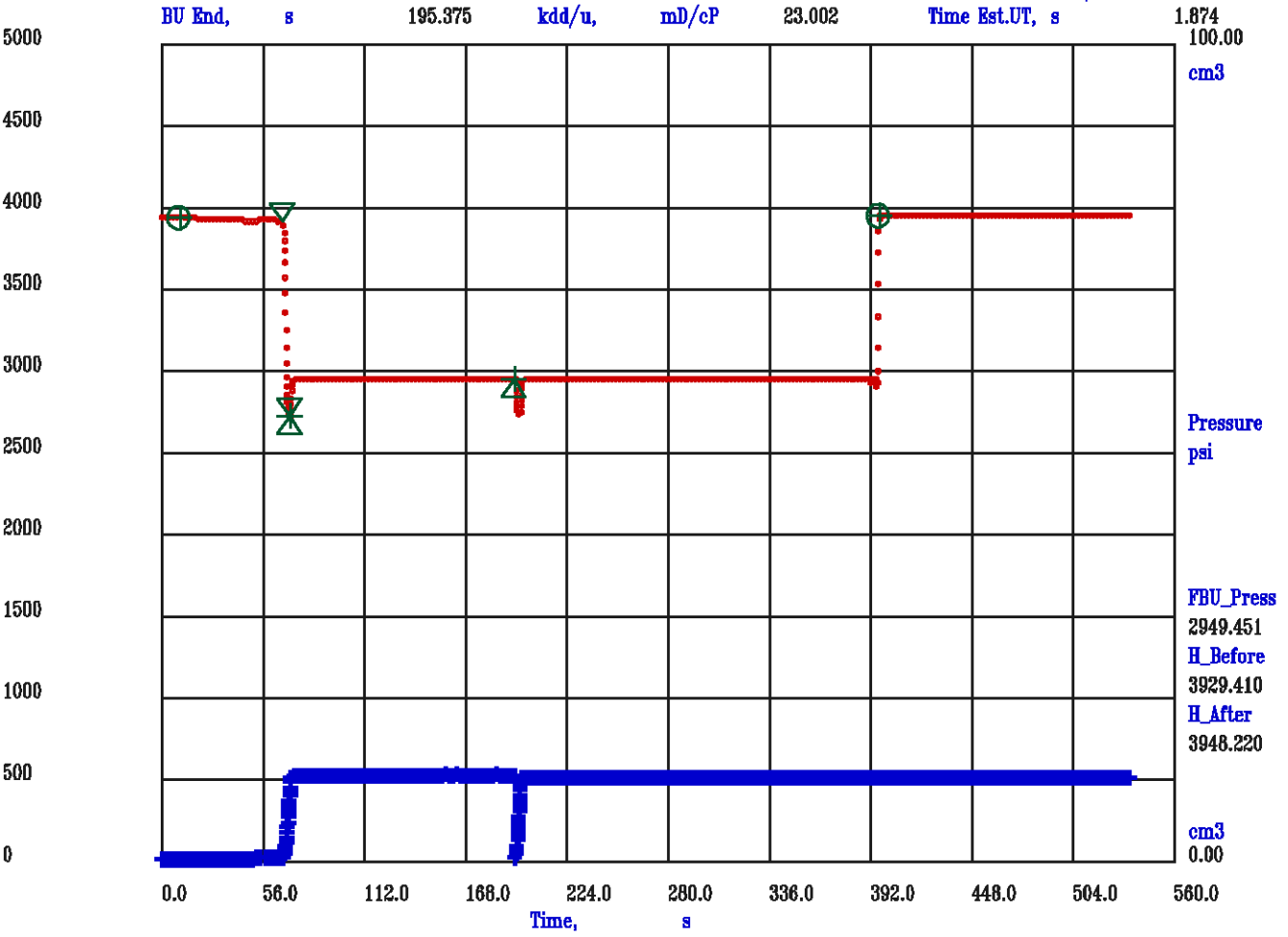
PRESSURE TEST – TVD Depth 2077.0 m
Measured Depth 2077.0 m

Meta File: i800a11_0.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2077.0 | TVD Depth, m 2077.0 | i800a11_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	67.625	SF Press,	psi	2949.451	Flow Rate,	cm3/s	2.814
DD End,	s	71.250	FF Press,	psi	2716.204	DD Volum,	cm3	10.136
BU Start,	s	71.250	Kdd Perm,	mD	23.002	Fill Rate,	min/L	0.471
BU End,	s	195.375	kdd/u,	mD/cP	23.002	Time Est.UT,	s	1.874

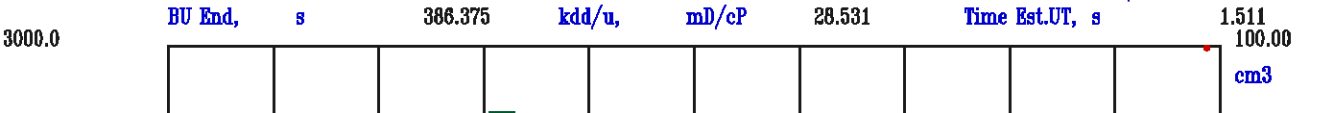


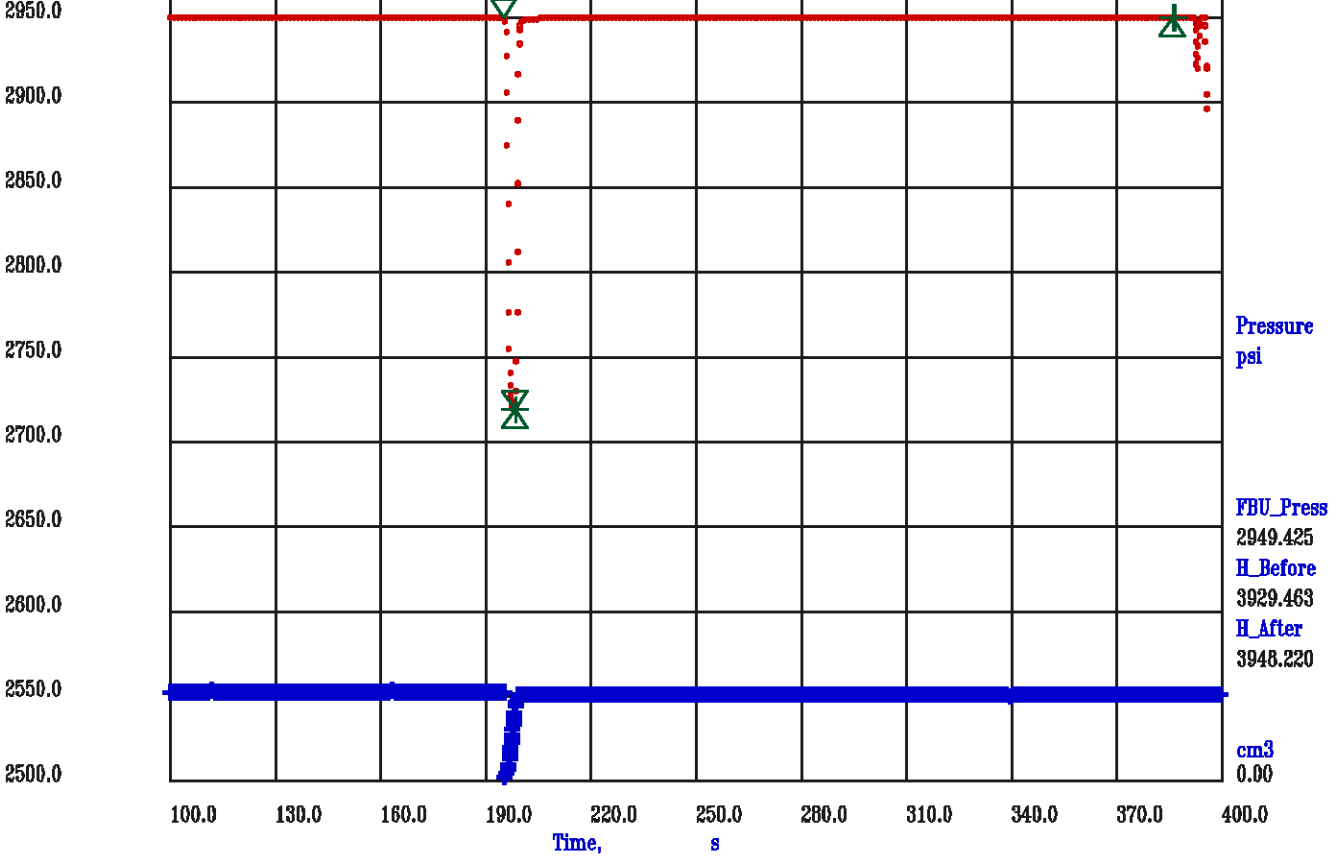
Meta File: i800a11_1.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2077.0 | TVD Depth, m 2077.0 | i800a11_1.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	195.750	SF Press,	psi	2949.425	Flow Rate,	cm3/s	3.455
DD End,	s	198.625	FF Press,	psi	2718.550	DD Volum,	cm3	9.870
BU Start,	s	198.625	Kdd Perm,	mD	28.531	Fill Rate,	min/L	0.380
BU End,	s	386.375	kdd/u,	mD/cP	28.531	Time Est.UT,	s	1.511





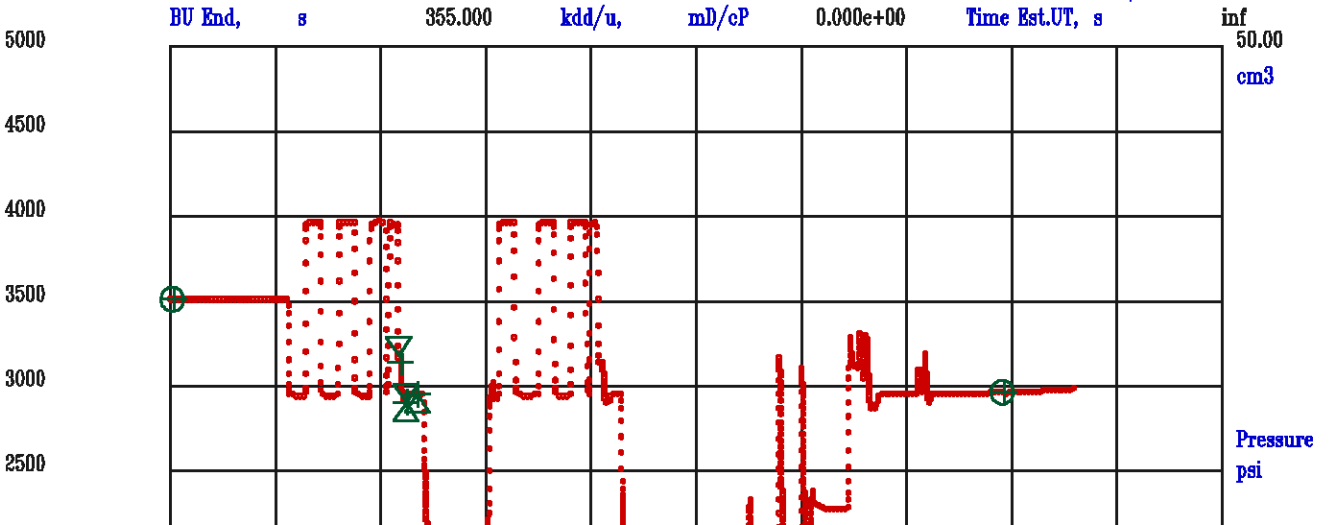
PRESSURE TEST – TVD Depth 2074.0 m
Measured Depth 2074.0 m

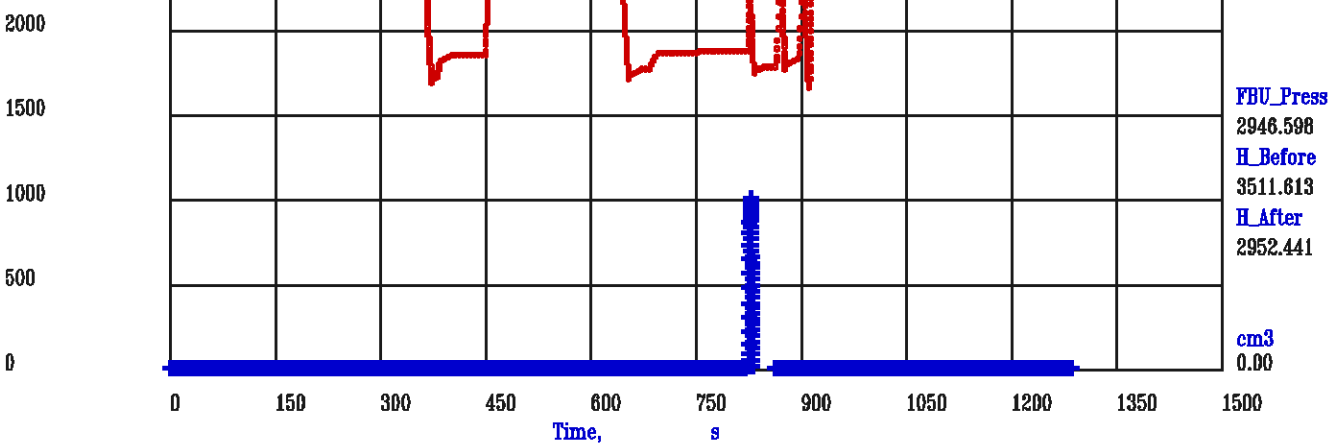
Meta File: i800a15_0.sd1.meta

DRAWDOWN: PUMP
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2074.0 TVD Depth, m 2074.0 i800a15_0.sd1.meta

DD Start,	s	328.625	SF Press,	psi	3131.938	Flow Rate,	cm3/s	0.000e+00
DD End,	s	337.500	FF Press,	psi	2903.661	DD Volum,	cm3	0.000e+00
BU Start,	s	337.500	Kdd Perm,	mD	0.000e+00	Fill Rate,	min/L	inf
BU End,	s	355.000	kdd/u,	mD/cP	0.000e+00	Time Est.UT,	s	inf





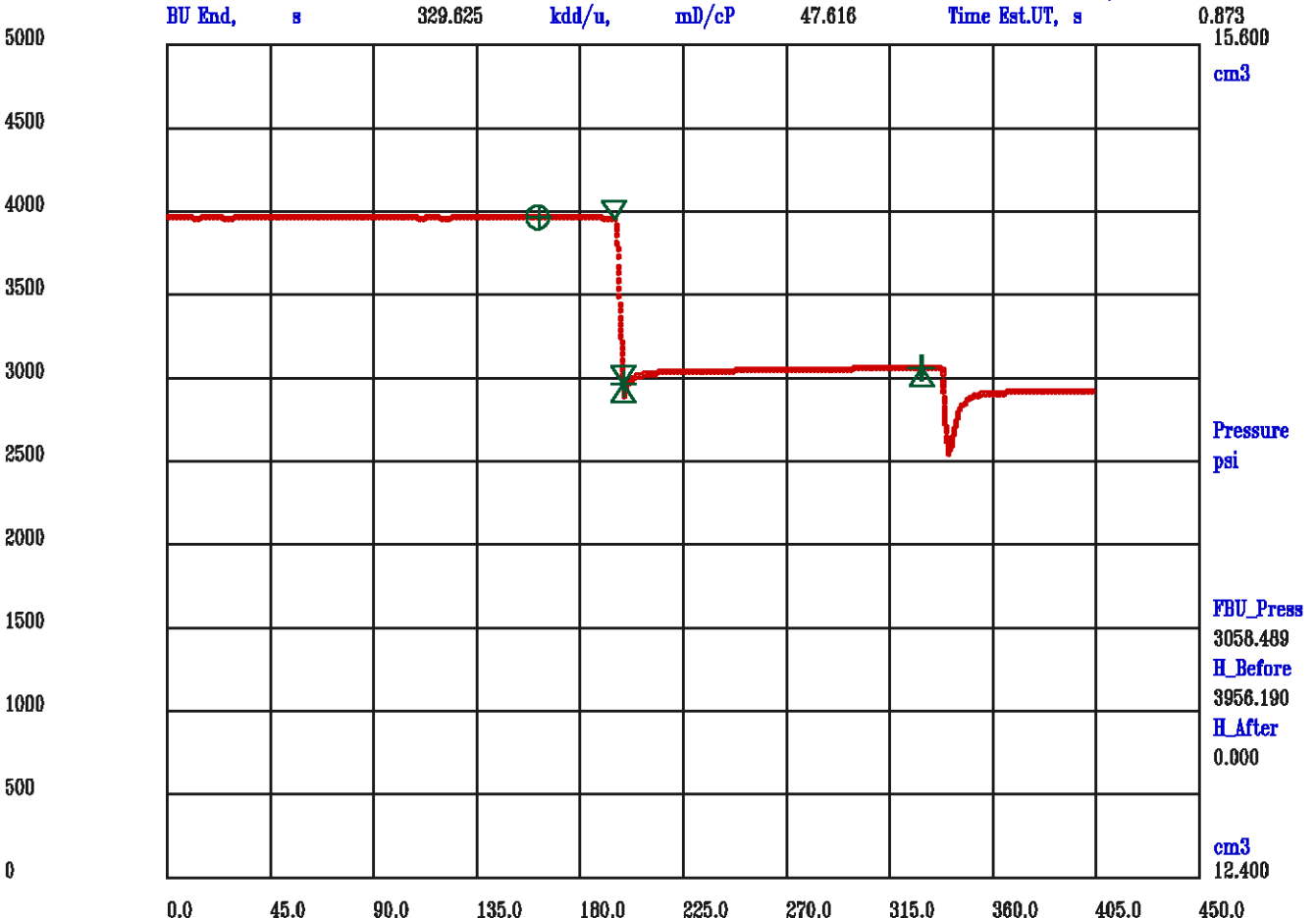
PRESSURE TEST – TVD Depth 2074.2 m
Measured Depth 2074.2 m

Meta File: i800a22_0.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2074.2 | TVD Depth, m 2074.2 | i800a22_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	195.500	SF Press,	psi	3058.048	Flow Rate,	cm3/s	2.538
DD End,	s	199.500	FF Press,	psi	2956.417	DD Volum,	cm3	10.089
BU Start,	s	199.500	Kdd Perm,	mD	47.616	Fill Rate,	min/L	0.220
BU End,	s	329.625	kdd/u,	mD/cP	47.616	Time Est.UT,	s	0.873



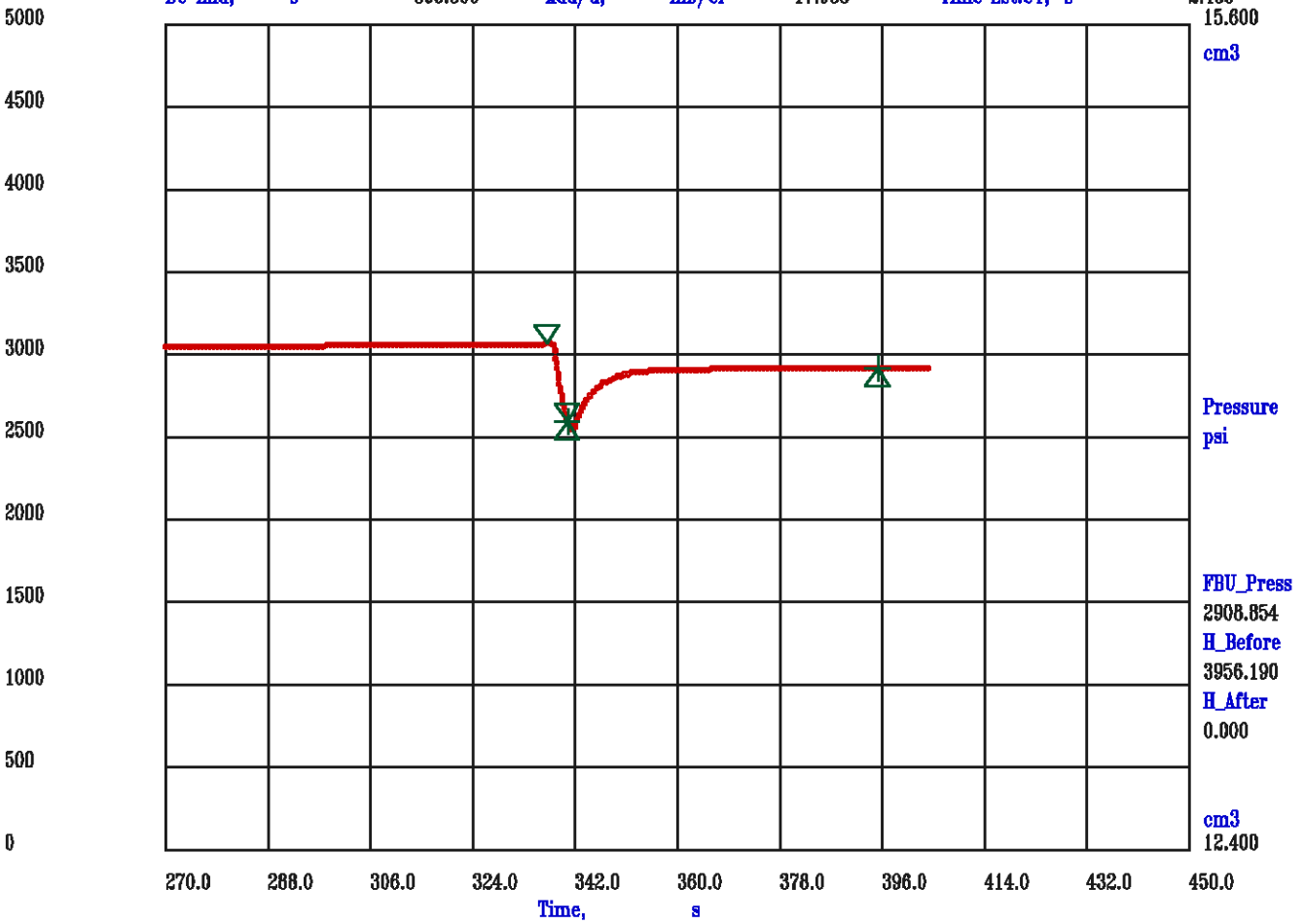
Time, s

Meta File: i800a22_1.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2074.2 | TVD Depth, m 2074.2 | i800a22_1.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	337.375	SF Press,	psi	2908.854	Flow Rate,	cm3/s	3.057
DD End,	s	340.875	FF Press,	psi	2583.938	DD Volum,	cm3	10.632
BU Start,	s	340.875	Kdd Perm,	mD	17.938	Fill Rate,	min/L	0.613
BU End,	s	395.500	kdd/u,	mD/cP	17.938	Time Est.UT,	s	2.436



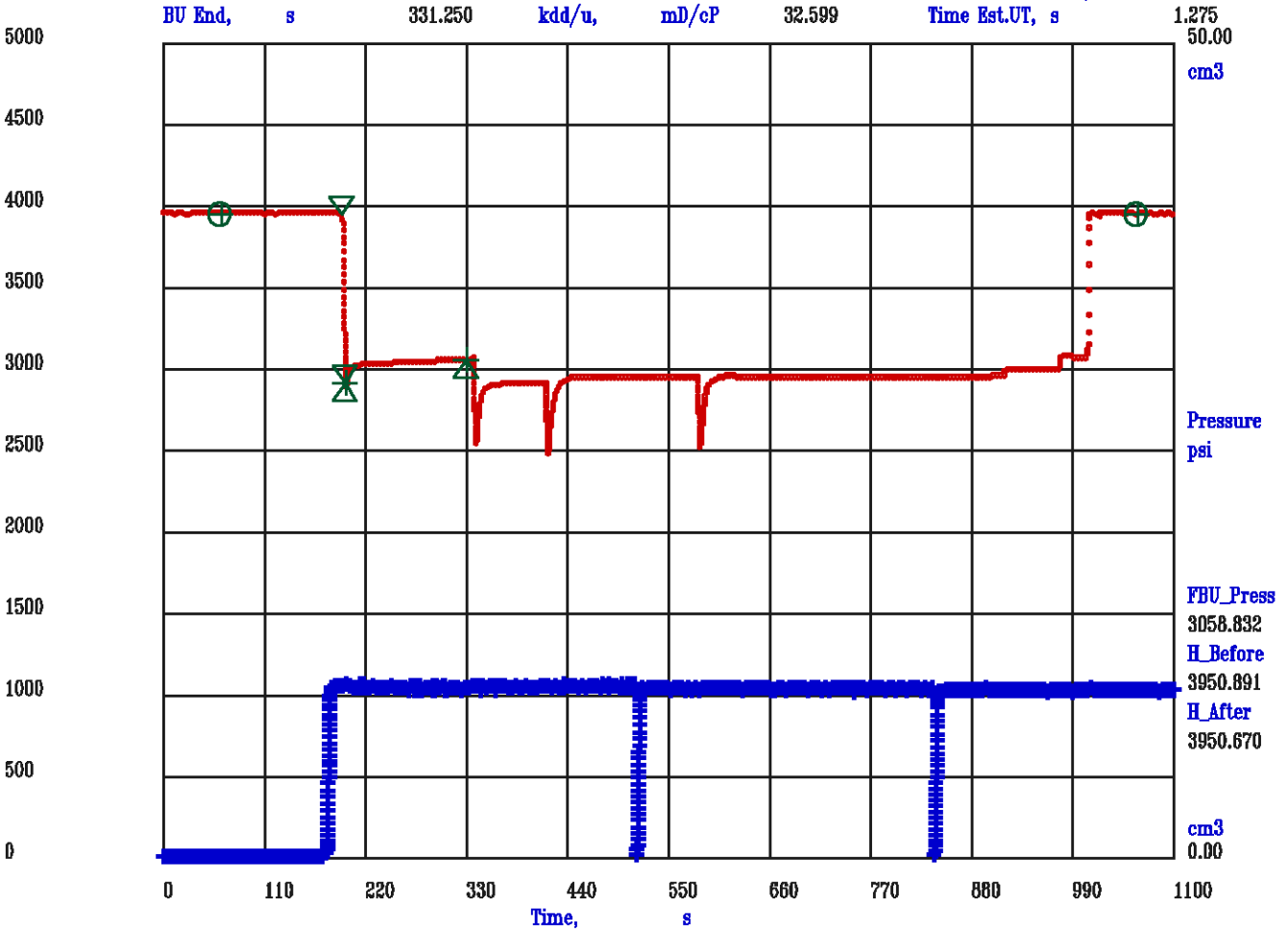
PRESSURE TEST – TVD Depth 2076.9 m
Measured Depth 2076.9 m

Meta File: i800a23_0.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2076.9 | TVD Depth, m 2076.9 | i800a23_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	195.500	SF Press,	psi	3058.753	Flow Rate,	cm3/s	2.491
DD End,	s	199.750	FF Press,	psi	2913.044	DD Volum,	cm3	10.521
BU Start,	s	199.750	Kdd Perm,	mD	32.599	Fill Rate,	min/L	0.321

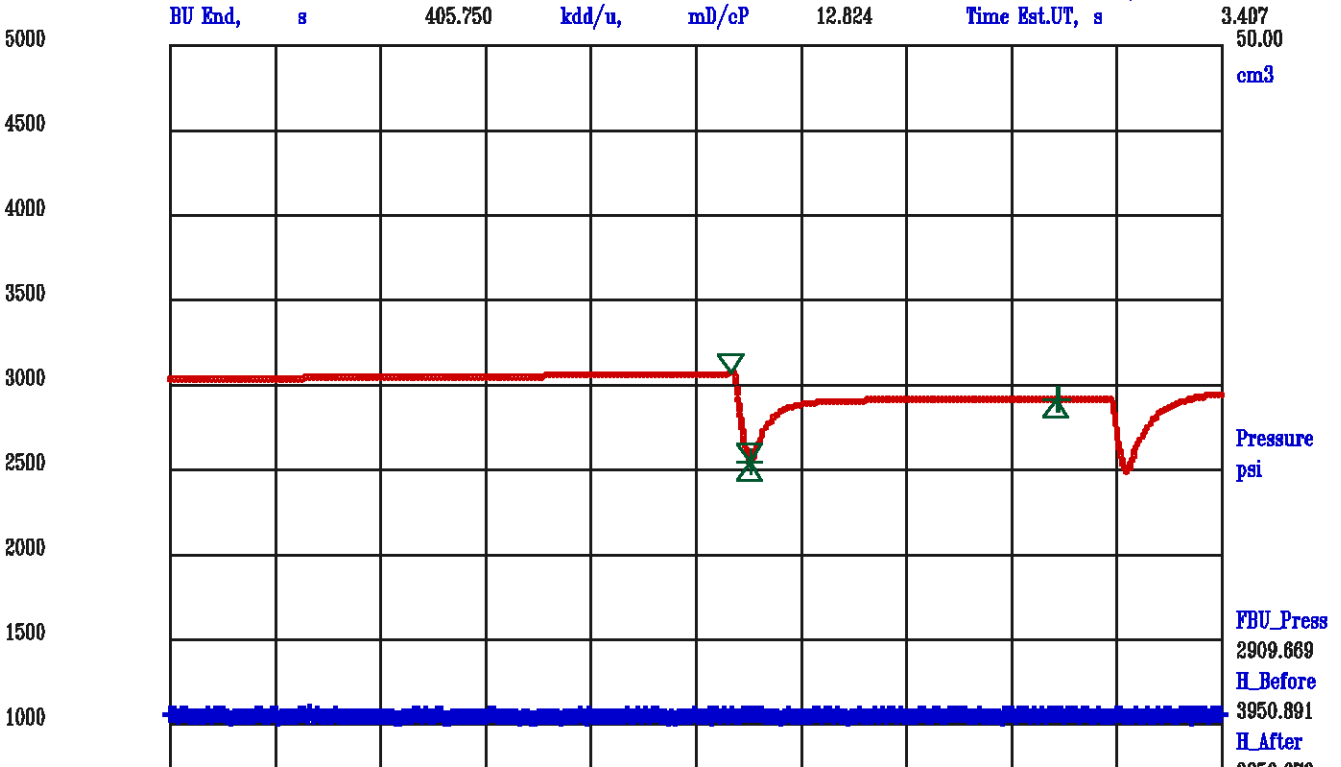


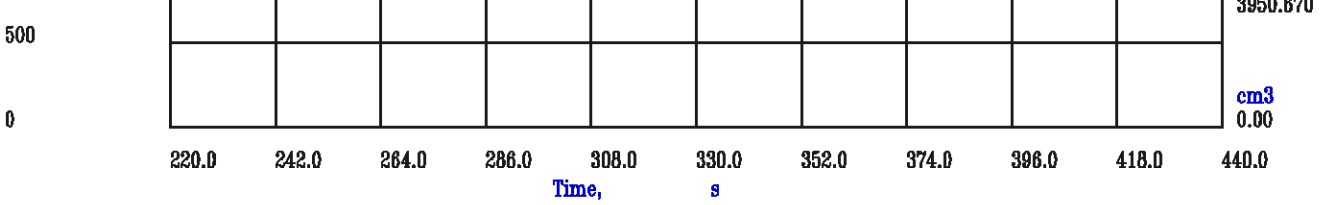
Meta File: i800a23_1.sd1.meta

DRAWDOWN: PUMP Measured Depth, m 2076.9 TVD Depth, m 2076.9 i800a23_1.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	337.500	SF Press,	psi	2909.667	Flow Rate,	cm3/s	2.469
DD End,	s	341.750	FF Press,	psi	2542.671	DD Volum,	cm3	10.425
BU Start,	s	341.750	Kdd Perm,	mD	12.824	Fill Rate,	min/L	0.857
BU End,	s	405.750	kdd/u,	mD/cP	12.824	Time Est.UT,	s	3.407



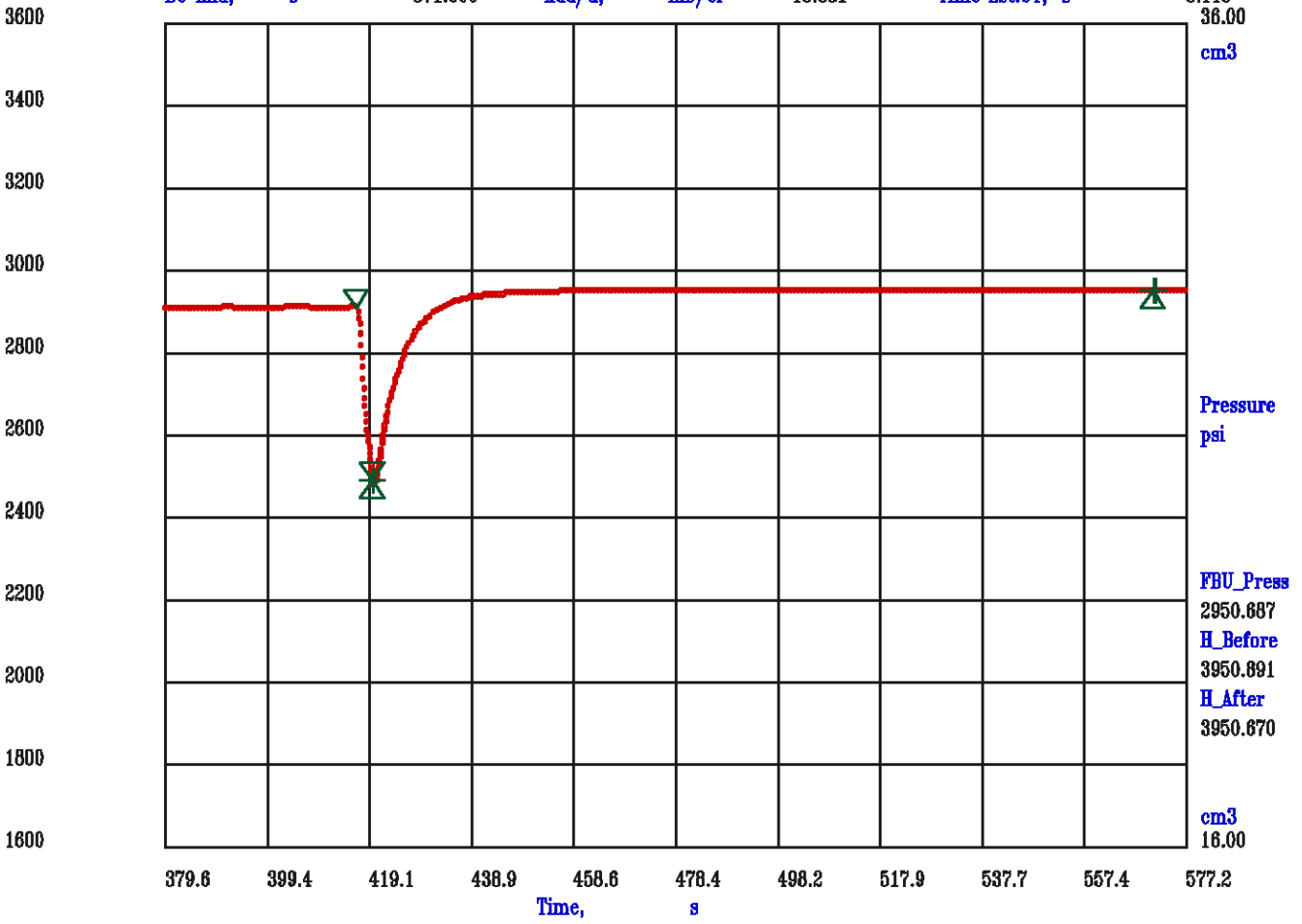


Meta File: i800a23_2.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2076.9 | TVD Depth, m 2076.9 | i800a23_2.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	416.875	SF Press,	psi	2950.676	Flow Rate,	cm3/s	3.362
DD End,	s	420.000	FF Press,	psi	2487.249	DD Volum,	cm3	10.439
BU Start,	s	420.000	Kdd Perm,	mD	13.831	Fill Rate,	min/L	0.784
BU End,	s	571.000	kdd/u,	mD/cP	13.831	Time Est.UT,	s	3.115

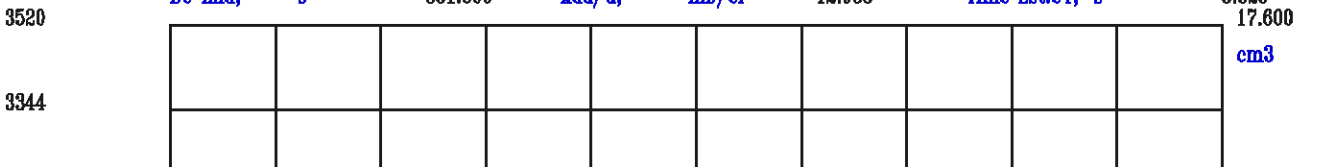


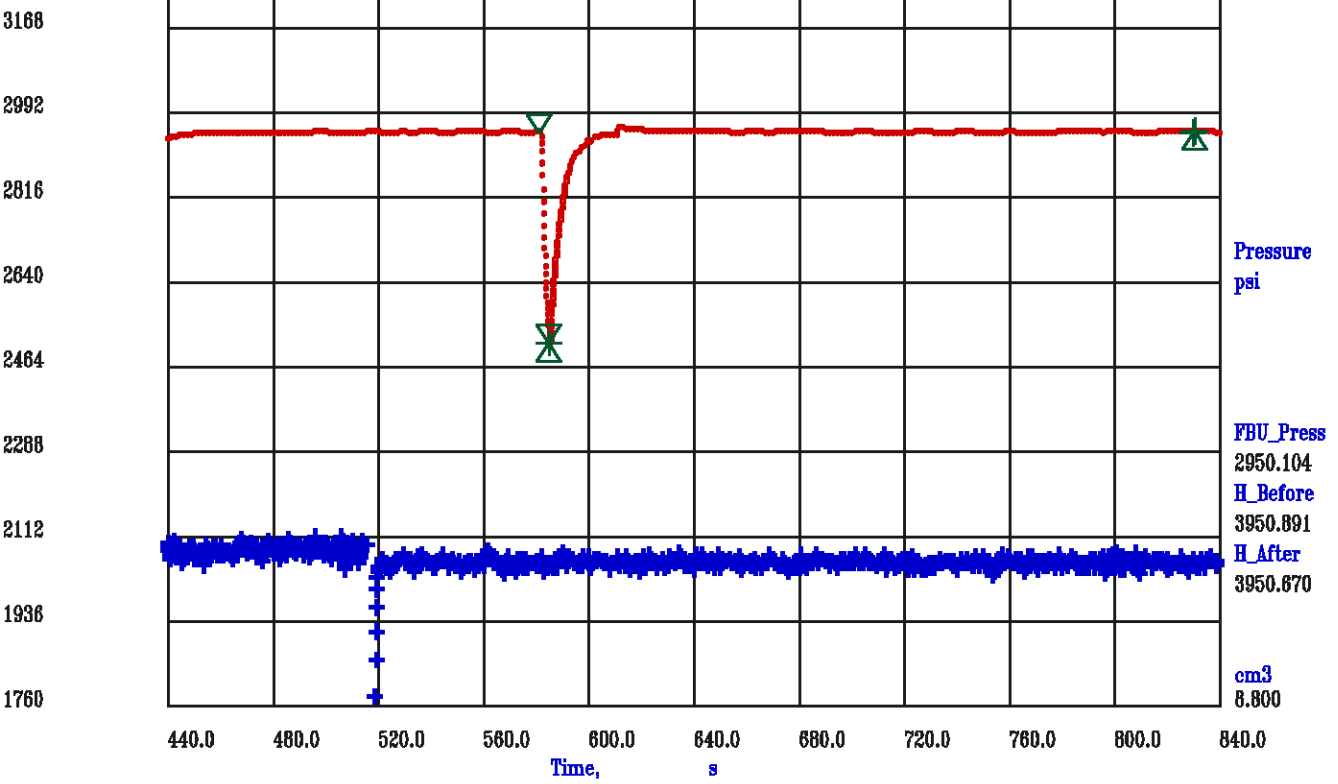
Meta File: i800a23_3.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2076.9 | TVD Depth, m 2076.9 | i800a23_3.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	582.000	SF Press,	psi	2950.075	Flow Rate,	cm3/s	2.966
DD End,	s	585.500	FF Press,	psi	2513.626	DD Volum,	cm3	10.316
BU Start,	s	585.500	Kdd Perm,	mD	12.958	Fill Rate,	min/L	0.837
BU End,	s	831.000	kdd/u,	mD/cP	12.958	Time Est.UT,	s	3.325





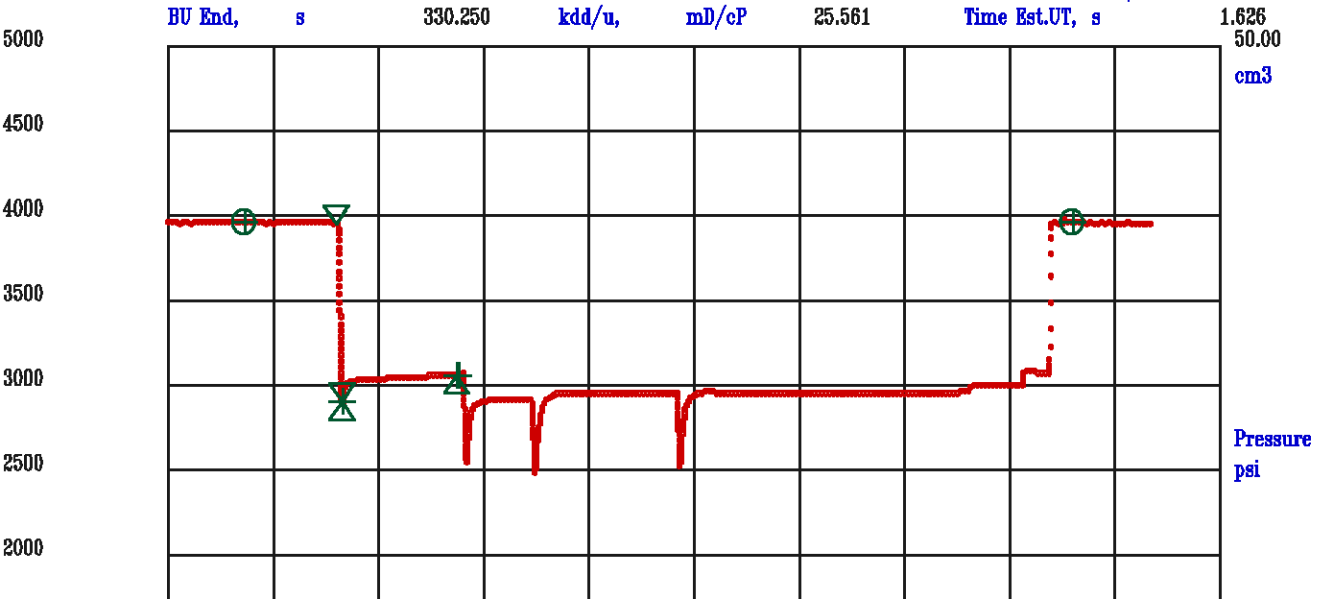
PRESSURE TEST – TVD Depth 2078.0 m
Measured Depth 2078.0 m

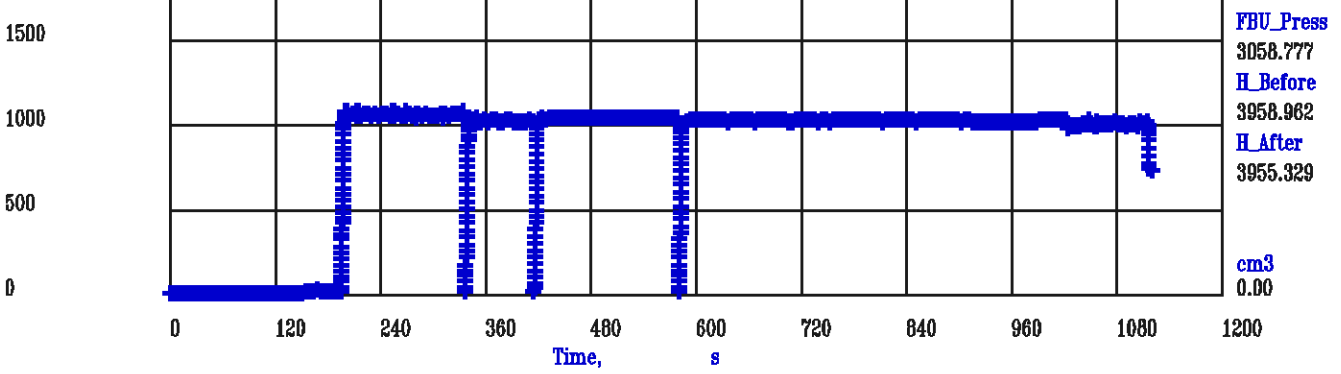
Meta File: i800a24_0.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2078.0 | TVD Depth, m 2078.0 | i800a24_0.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	194.875	SF Press,	psi	3058.186	Flow Rate,	cm3/s	2.182
DD End,	s	199.625	FF Press,	psi	2895.414	DD Volum,	cm3	10.300
BU Start,	s	199.625	Kdd Perm,	mD	25.561	Fill Rate,	min/L	0.409
BU End,	s	330.250	kdd/u,	mD/cP	25.561	Time Est.UT,	s	1.626



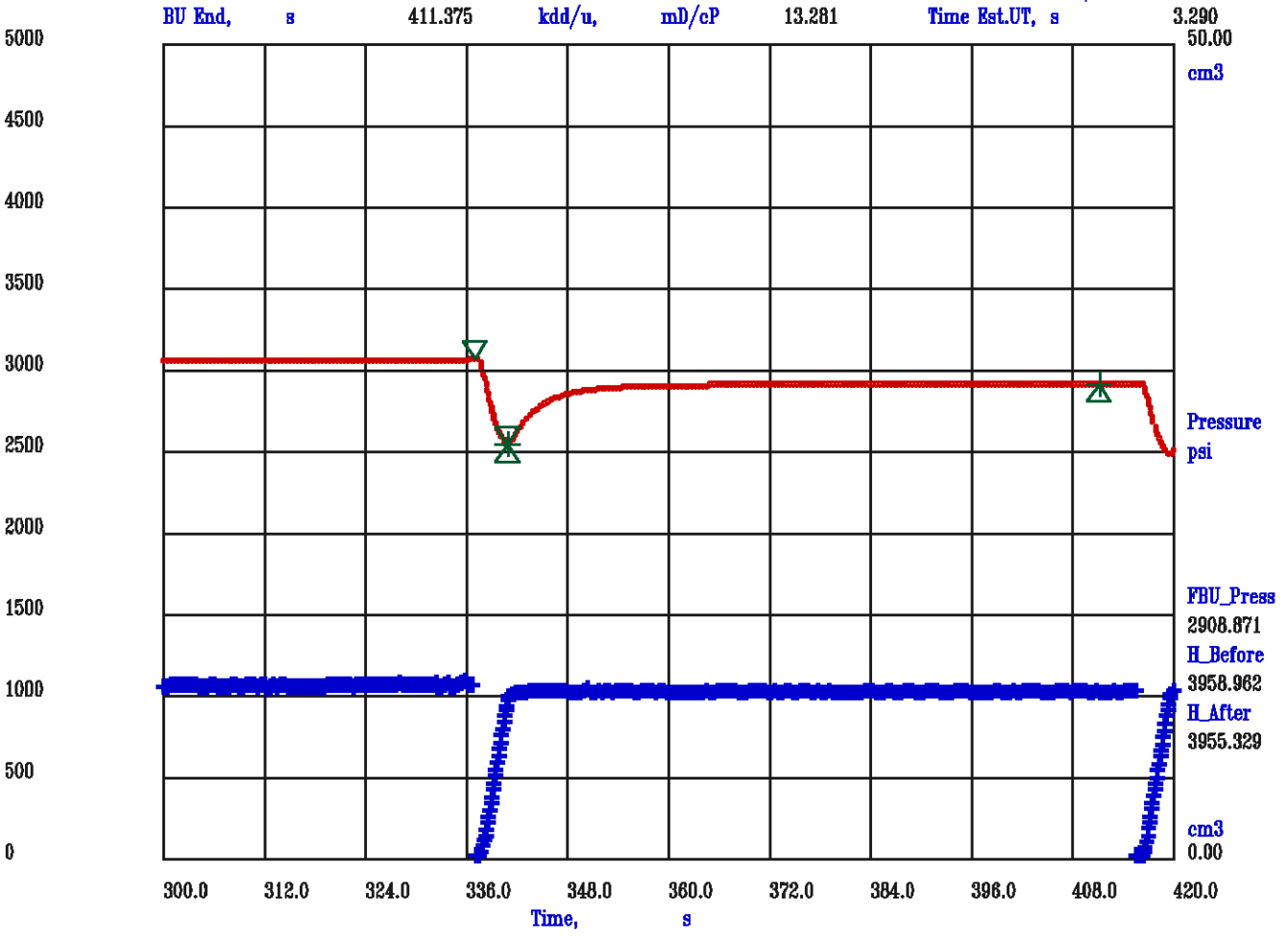


Meta File: i800a24_1.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2078.0 | TVD Depth, m 2078.0 | i800a24_1.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	337.250	SF Press,	psi	2908.871	Flow Rate,	cm3/s	2.566
DD End,	s	341.000	FF Press,	psi	2540.515	DD Volum,	cm3	9.561
BU Start,	s	341.000	Kdd Perm,	mD	13.281	Fill Rate,	min/L	0.828
BU End,	s	411.375	kdd/u,	mD/cP	13.281	Time Est.UT,	s	3.290

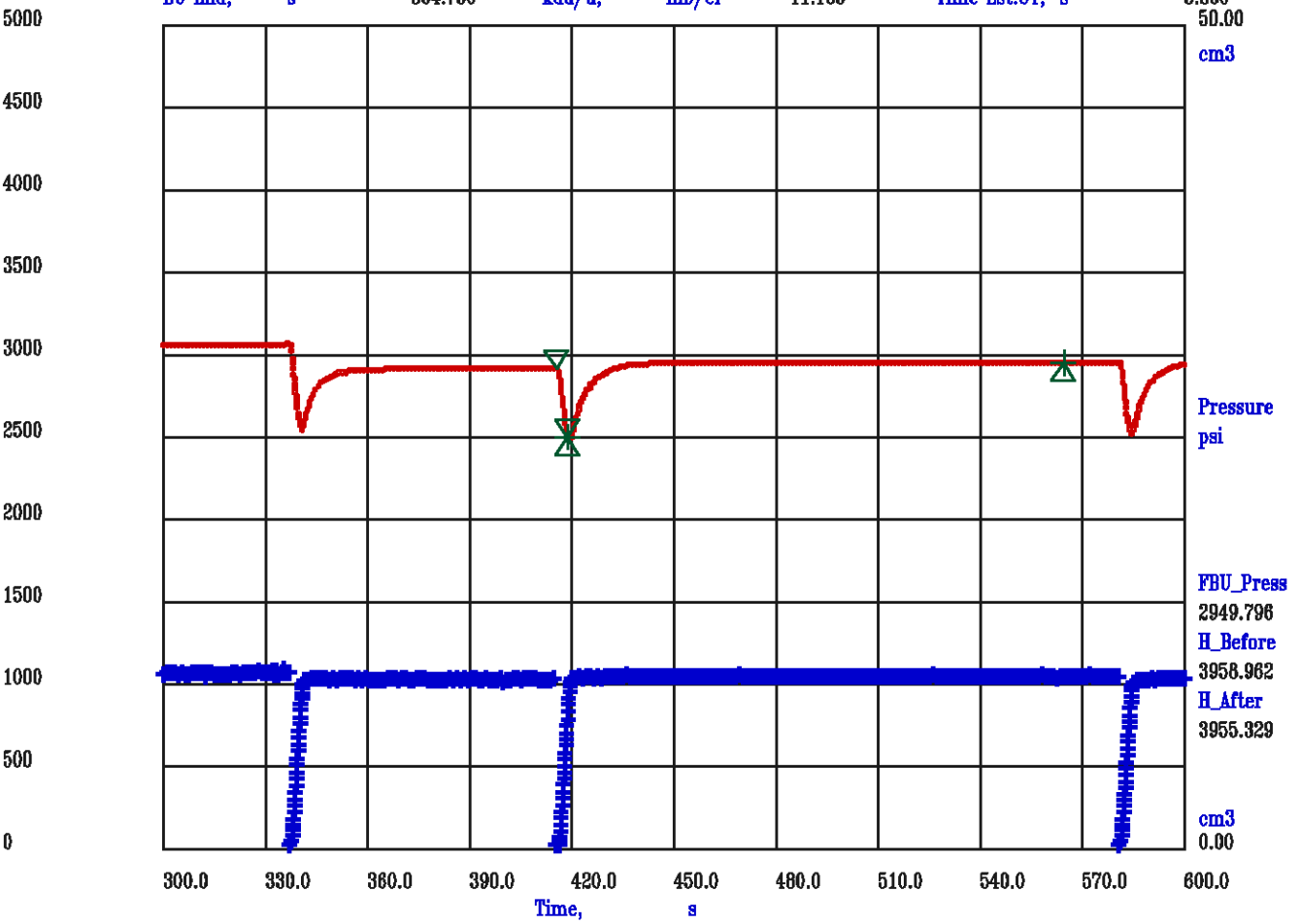


Meta File: i800a24_2.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2078.0 | TVD Depth, m 2078.0 | i800a24_2.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	416.000	SF Press,	psi	2949.796	Flow Rate,	cm3/s	2.656
DD End,	s	419.250	FF Press,	psi	2496.216	DD Volum,	cm3	8.578
BU Start,	s	419.250	Kdd Perm,	mD	11.165	Fill Rate,	min/L	0.971
BU End,	s	564.250	kdd/u,	mD/cP	11.165	Time Est.UT,	s	3.860

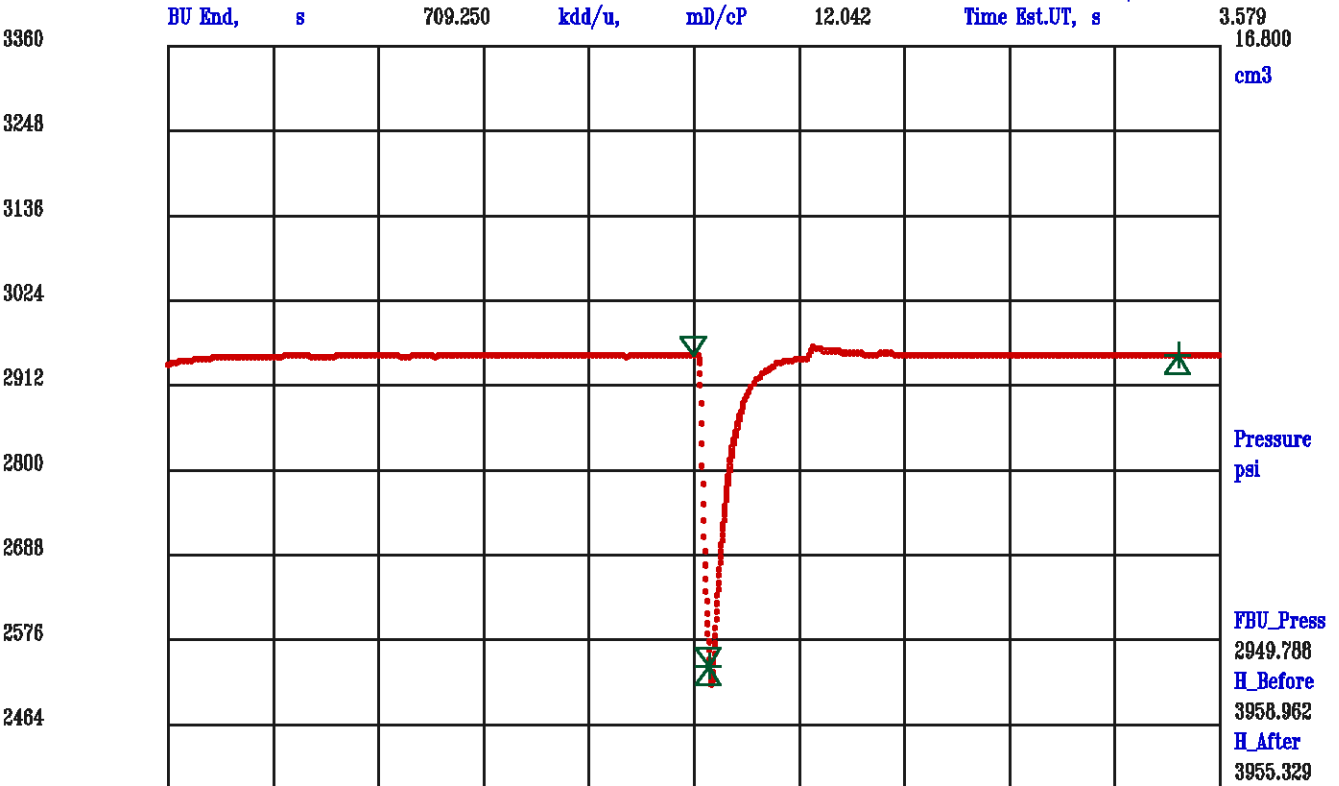


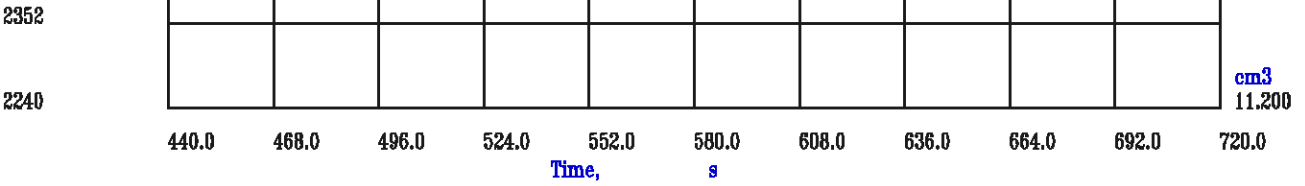
Meta File: i800a24_3.sd1.meta

DRAWDOWN: PUMP | Measured Depth, m 2078.0 | TVD Depth, m 2078.0 | i800a24_3.sd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	580.375	SF Press,	psi	2949.788	Flow Rate,	cm3/s	2.596
DD End,	s	584.375	FF Press,	psi	2538.745	DD Volum,	cm3	10.319
BU Start,	s	584.375	Kdd Perm,	mD	12.042	Fill Rate,	min/L	0.900
BU End,	s	709.250	kdd/u,	mD/cP	12.042	Time Est.UT,	s	3.579





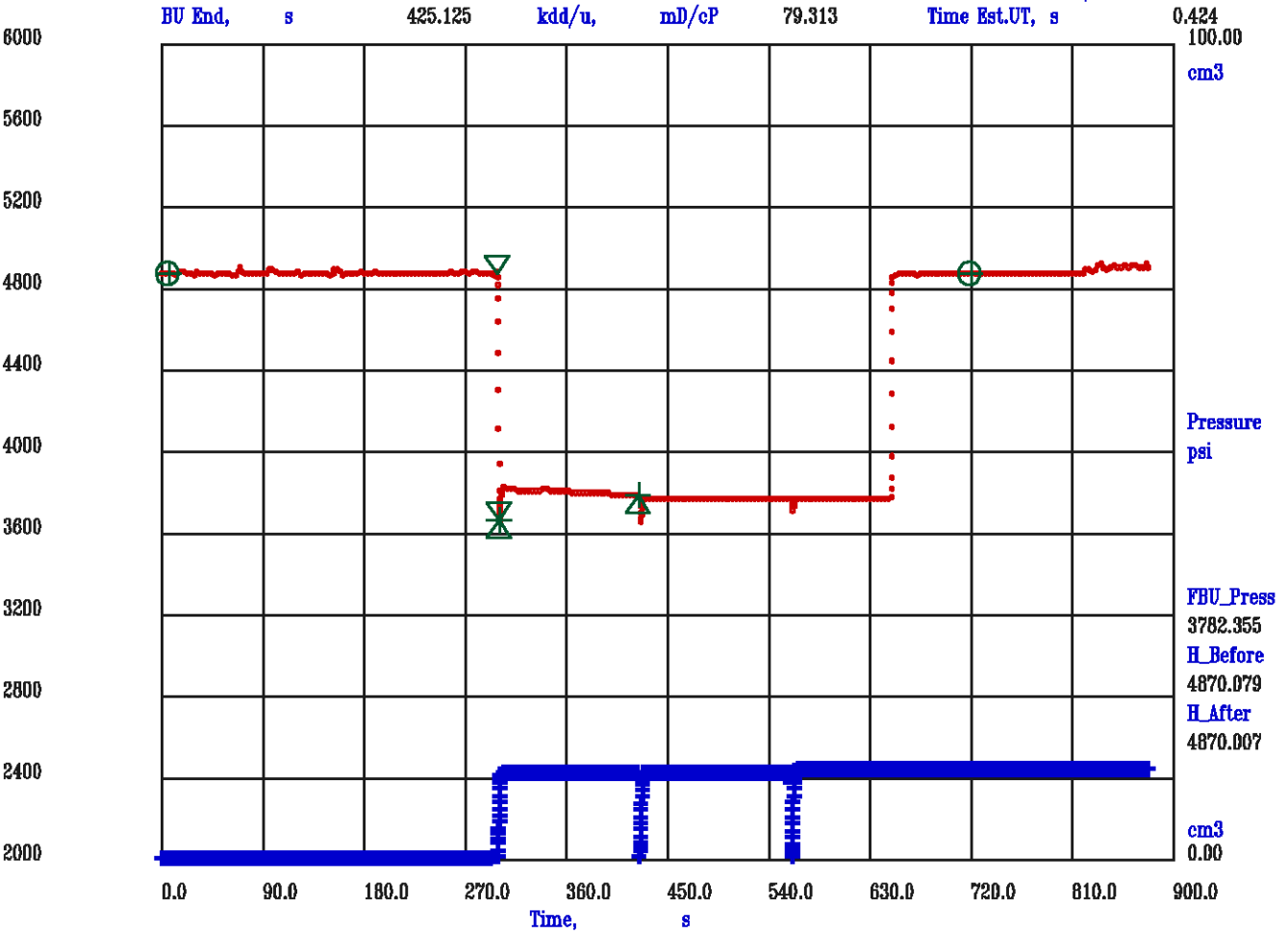
PRESSURE TEST – TVD Depth 2572.2 m
Measured Depth 2572.2 m

Meta File: i800a30_0.qd1.meta

DRAWDOWN: PACKER
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2572.2 TVD Depth, m 2572.2 i800a30_0.qd1.meta

DD Start,	s	299.875	SF Press,	psi	3782.331	Flow Rate,	cm3/s	5.188
DD End,	s	301.875	FF Press,	psi	3657.621	DD Volum,	cm3	10.310
BU Start,	s	301.875	Kdd Perm,	mD	79.313	Fill Rate,	min/L	0.107
BU End,	s	425.125	kdd/u,	mD/cP	79.313	Time Est.UT,	s	0.424

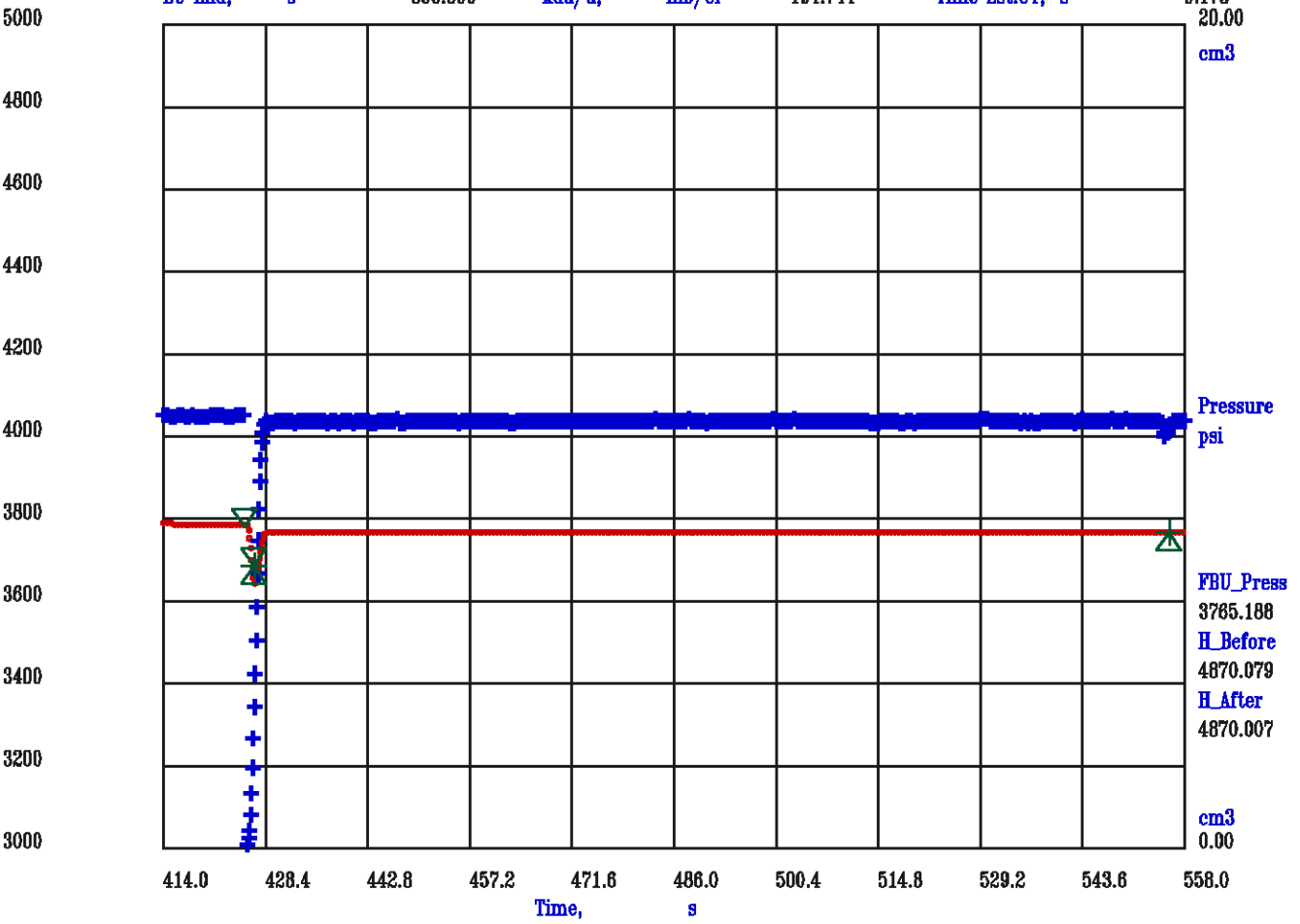


Meta File: i800a30_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2572.2 | TVD Depth, m 2572.2 | i800a30_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	425.732	SF Press,	psi	3765.526	Flow Rate,	cm3/s	8.633
DD End,	s	426.950	FF Press,	psi	3681.010	DD Volum,	cm3	10.446
BU Start,	s	426.950	Kdd Perm,	mD	194.744	Fill Rate,	min/L	0.044
BU End,	s	556.000	kdd/u,	mD/cP	194.744	Time Est.UT,	s	0.173

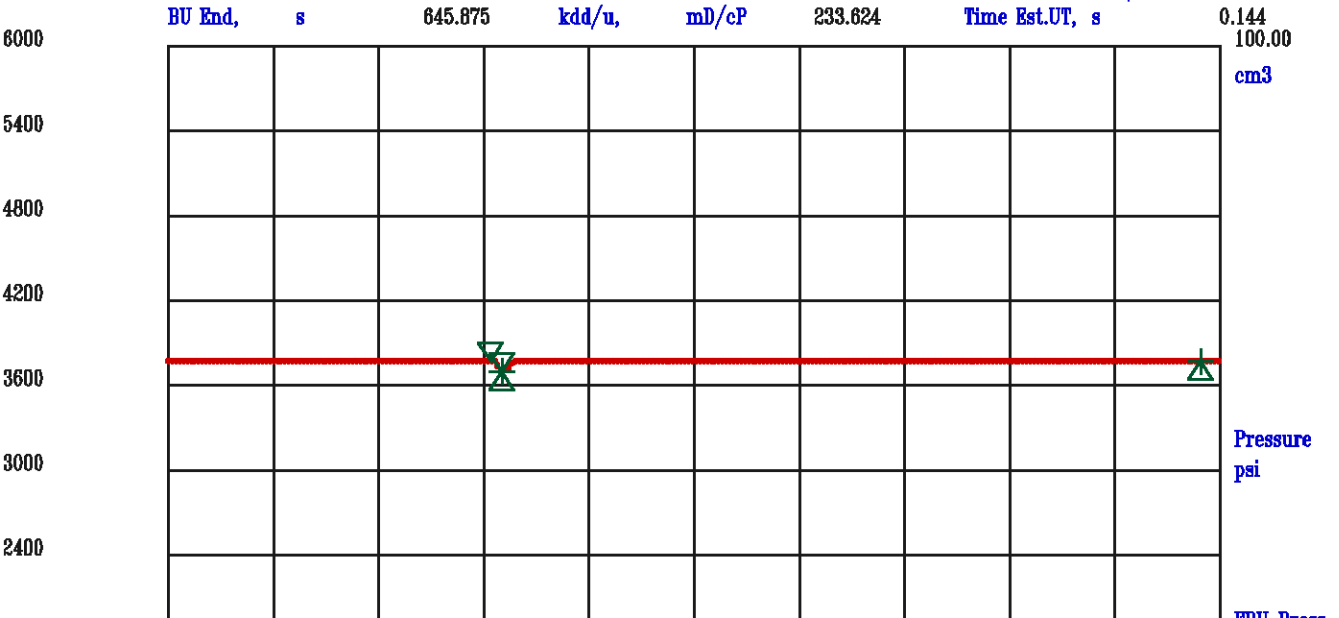


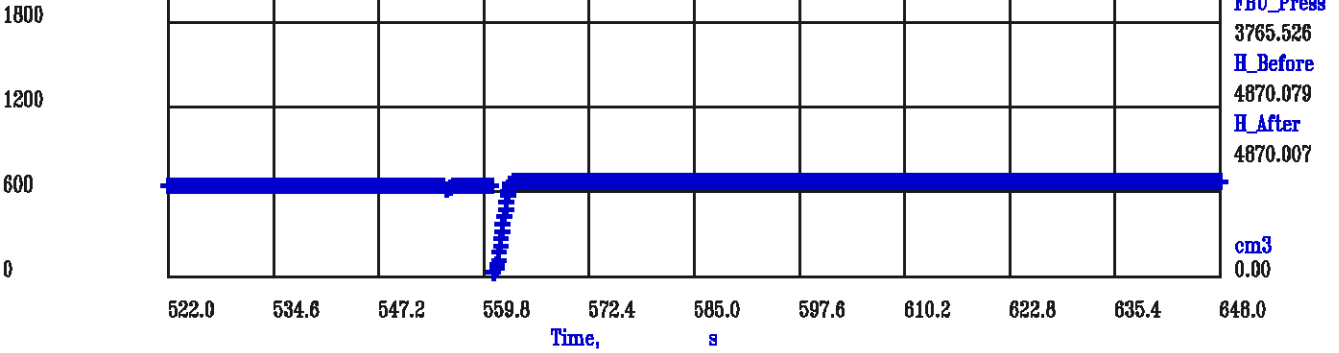
Meta File: i800a30_2.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2572.2 | TVD Depth, m 2572.2 | i800a30_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	560.875	SF Press,	psi	3765.526	Flow Rate,	cm3/s	8.295
DD End,	s	562.125	FF Press,	psi	3697.831	DD Volum,	cm3	10.303
BU Start,	s	562.125	Kdd Perm,	mD	233.624	Fill Rate,	min/L	0.036
BU End,	s	645.875	kdd/u,	mD/cP	233.624	Time Est.UT,	s	0.144



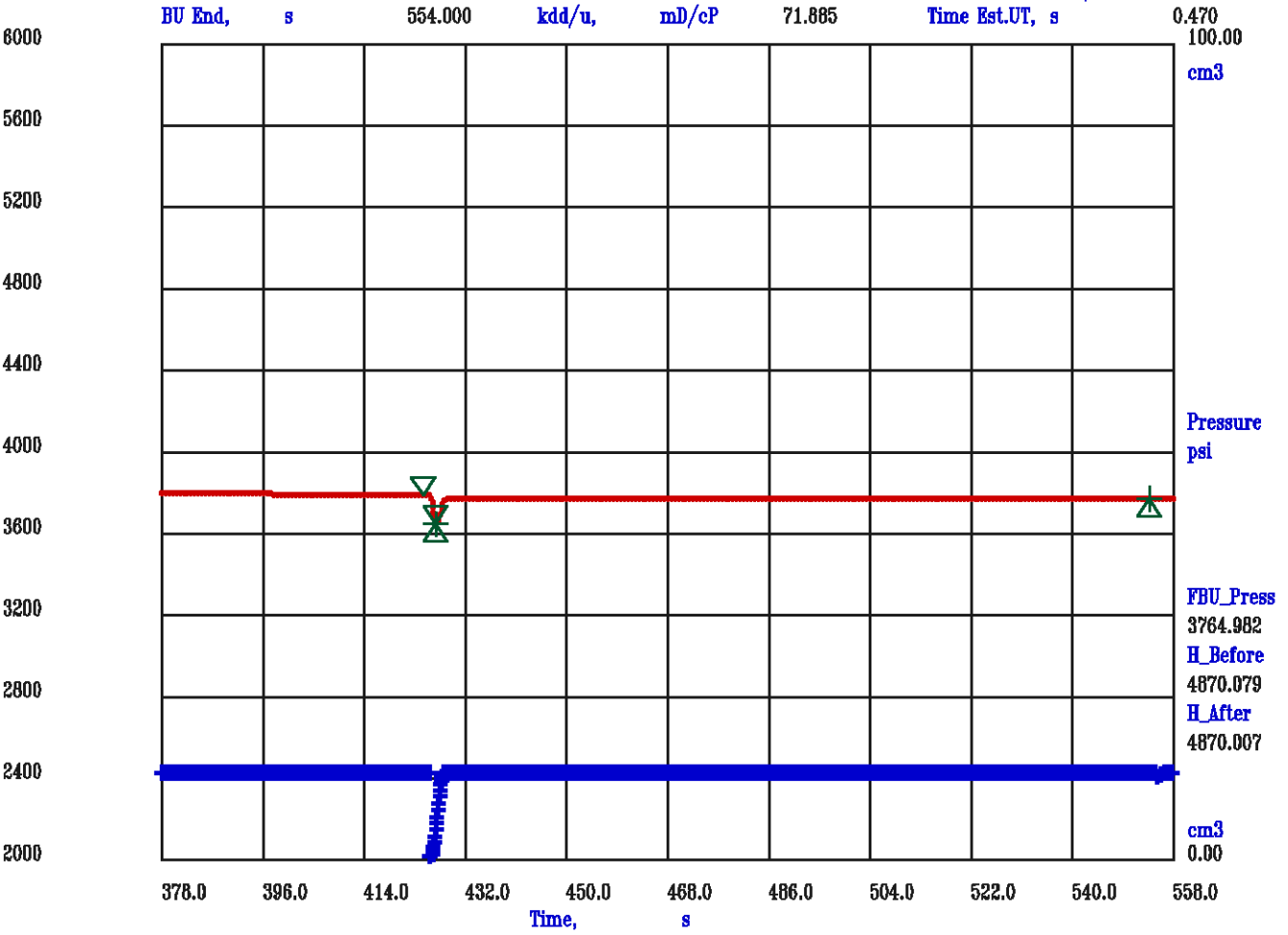


Meta File: i800a30_3.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2572.2 | TVD Depth, m 2572.2 | i800a30_3.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	424.750	SF Press,	psi	3764.982	Flow Rate,	cm3/s	4.673
DD End,	s	427.000	FF Press,	psi	3641.058	DD Volum,	cm3	10.446
BU Start,	s	427.000	Kdd Perm,	mD	71.885	Fill Rate,	min/L	0.118
BU End,	s	554.000	kdd/u,	mD/cP	71.885	Time Est.UT,	s	0.470



PRESSURE TEST – TVD Depth 2574.2 m

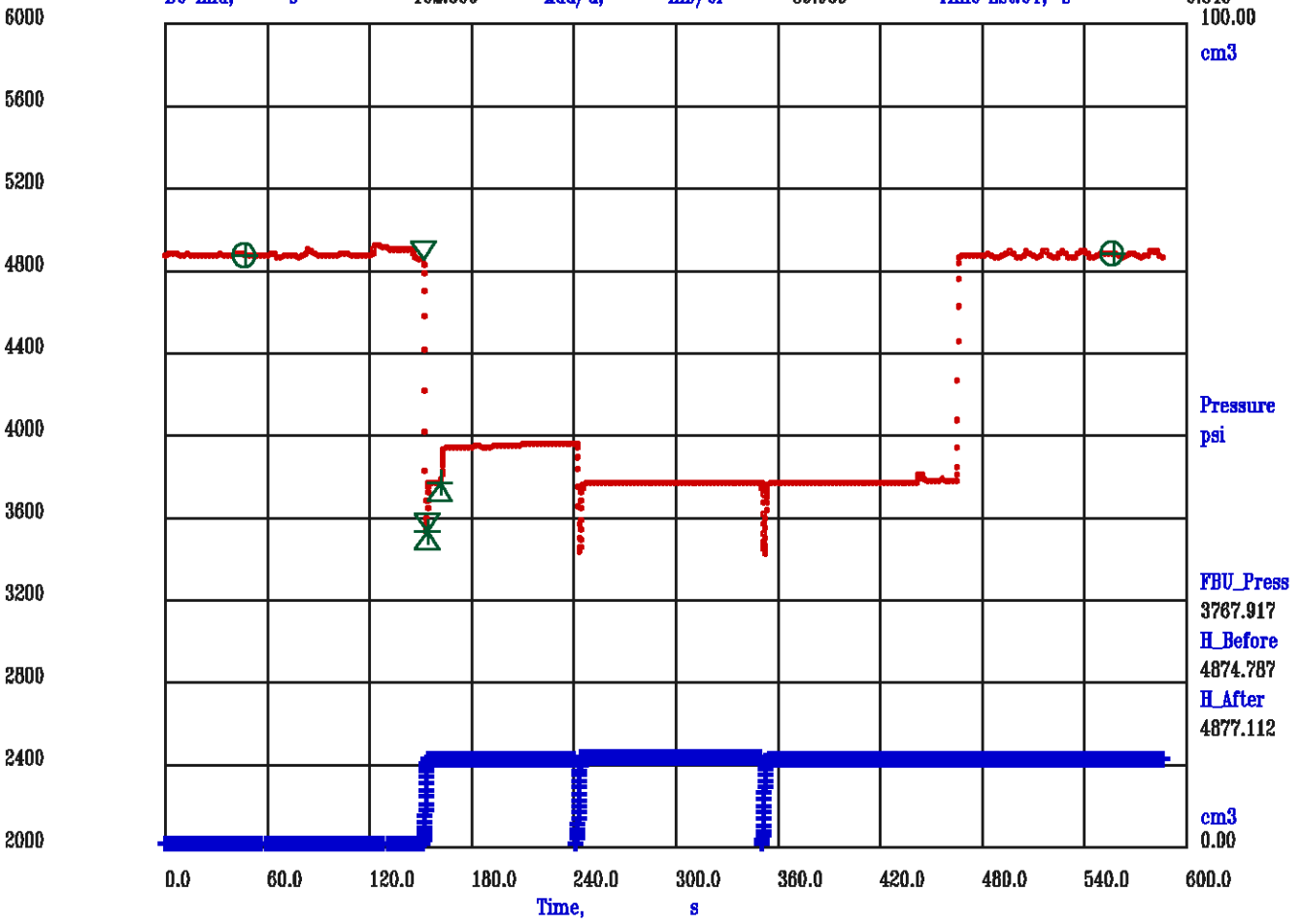
Measured Depth 2574.2 m

Meta File: i800a31_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2574.2 | TVD Depth, m 2574.2 | i800a31_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	152.375	SF Press,	psi	3767.917	Flow Rate,	cm3/s	4.944
DD End,	s	154.500	FF Press,	psi	3531.733	DD Volum,	cm3	10.439
BU Start,	s	154.500	Kdd Perm,	mD	39.909	Fill Rate,	min/L	0.213
BU End,	s	162.000	kdd/u,	mD/cP	39.909	Time Est.UT,	s	0.845

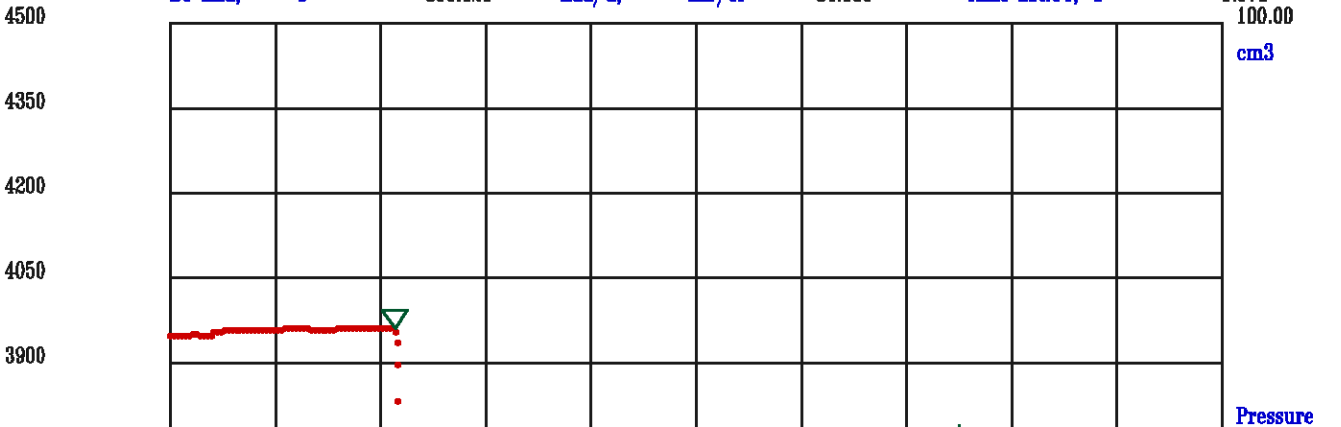


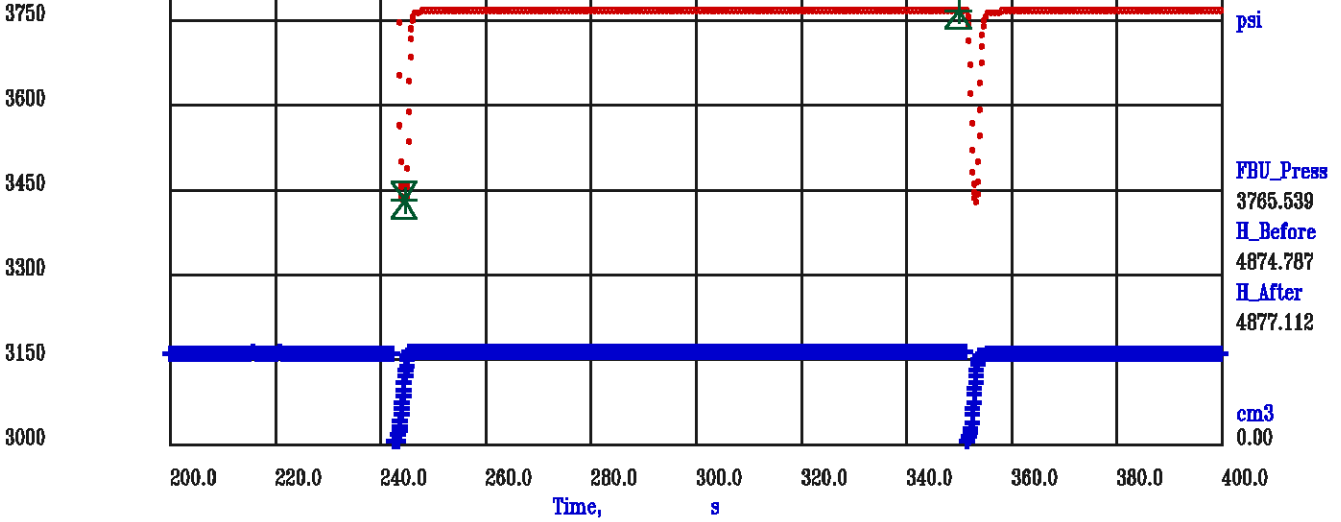
Meta File: i800a31_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2574.2 | TVD Depth, m 2574.2 | i800a31_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	243.000	SF Press,	psi	3765.539	Flow Rate,	cm3/s	6.083
DD End,	s	244.750	FF Press,	psi	3429.452	DD Volum,	cm3	10.577
BU Start,	s	244.750	Kdd Perm,	mD	34.506	Fill Rate,	min/L	0.246
BU End,	s	350.125	kdd/u,	mD/cP	34.506	Time Est.UT,	s	0.978



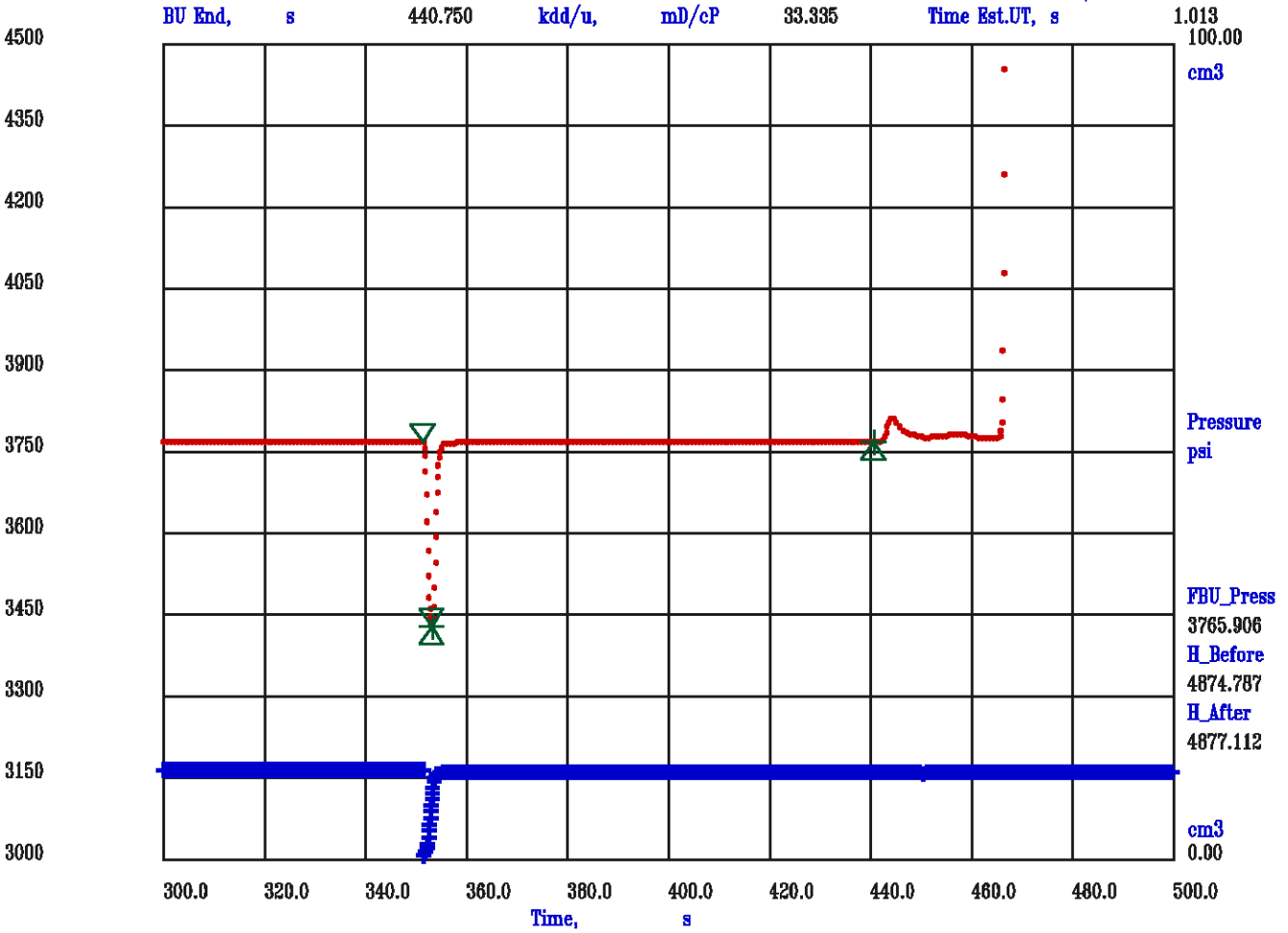


Meta File: i800a31_2.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2574.2 | TVD Depth, m 2574.2 | i800a31_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	351.625	SF Press,	psi	3765.906	Flow Rate,	cm3/s	5.918
DD End,	s	353.375	FF Press,	psi	3427.418	DD Volum,	cm3	10.291
BU Start,	s	353.375	Kdd Perm,	mD	33.335	Fill Rate,	min/L	0.255
BU End,	s	440.750	kdd/u,	mD/cP	33.335	Time Est.UT,	s	1.013



PRESSURE TEST – TVD Depth 2576.1 m

Measured Depth 2576.1 m

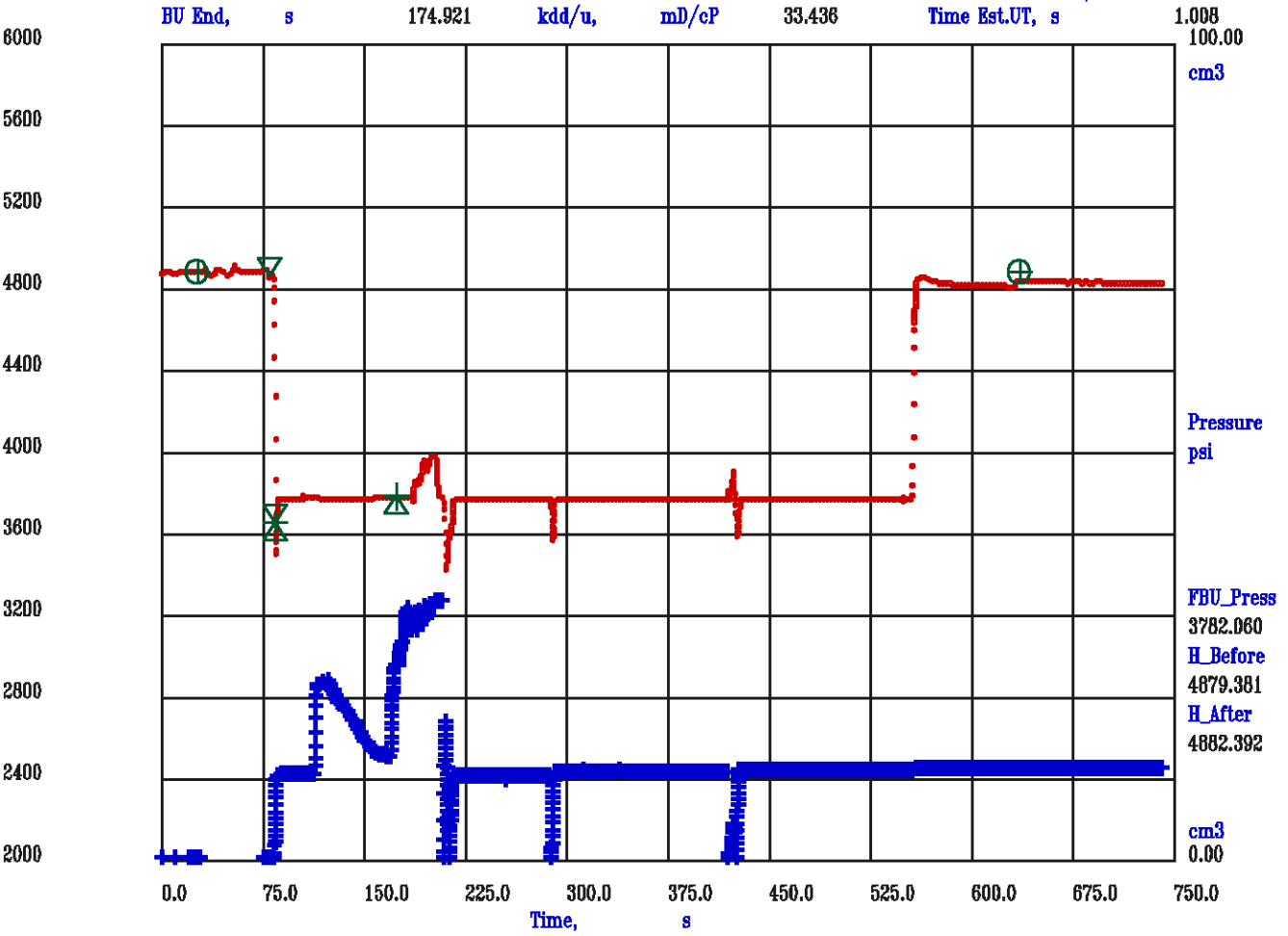
Measured Depth 2576.1 m

Meta File: i800a32_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2576.1 | TVD Depth, m 2576.1 | i800a32_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	80.750	SF Press,	psi	3772.258	Flow Rate,	cm3/s	2.124
DD End,	s	85.625	FF Press,	psi	3651.143	DD Volum,	cm3	10.289
BU Start,	s	85.625	Kdd Perm,	mD	33.436	Fill Rate,	min/L	0.254
BU End,	s	174.921	kdd/u,	mD/cP	33.436	Time Est.UT,	s	1.008

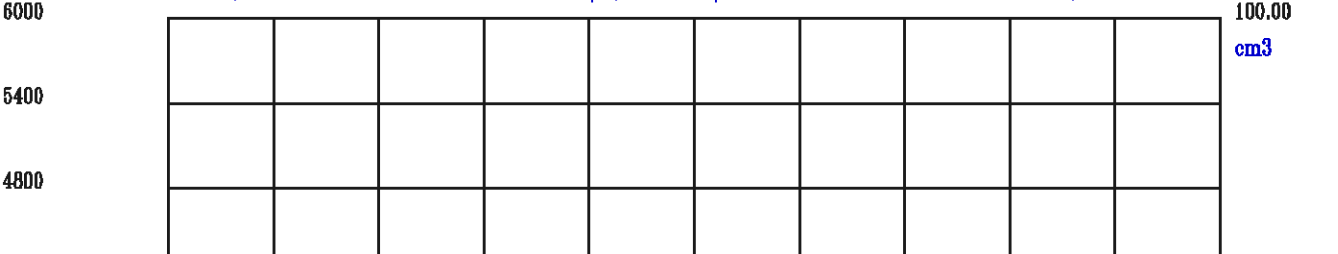


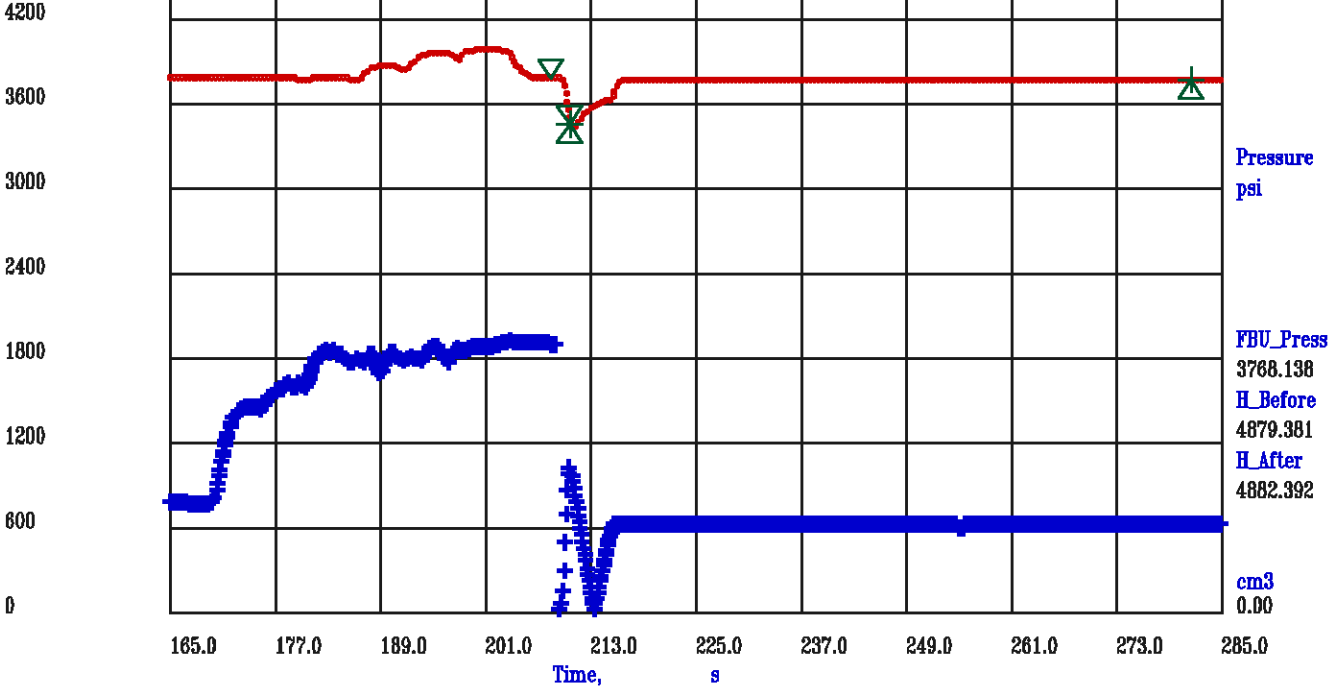
Meta File: i800a32_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2576.1 | TVD Depth, m 2576.1 | i800a32_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	208.500	SF Press,	psi	3768.138	Flow Rate,	cm3/s	4.537
DD End,	s	210.750	FF Press,	psi	3447.583	DD Volum,	cm3	10.144
BU Start,	s	210.750	Kdd Perm,	mD	26.986	Fill Rate,	min/L	0.315
BU End,	s	281.625	kdd/u,	mD/cP	26.986	Time Est.UT,	s	1.250



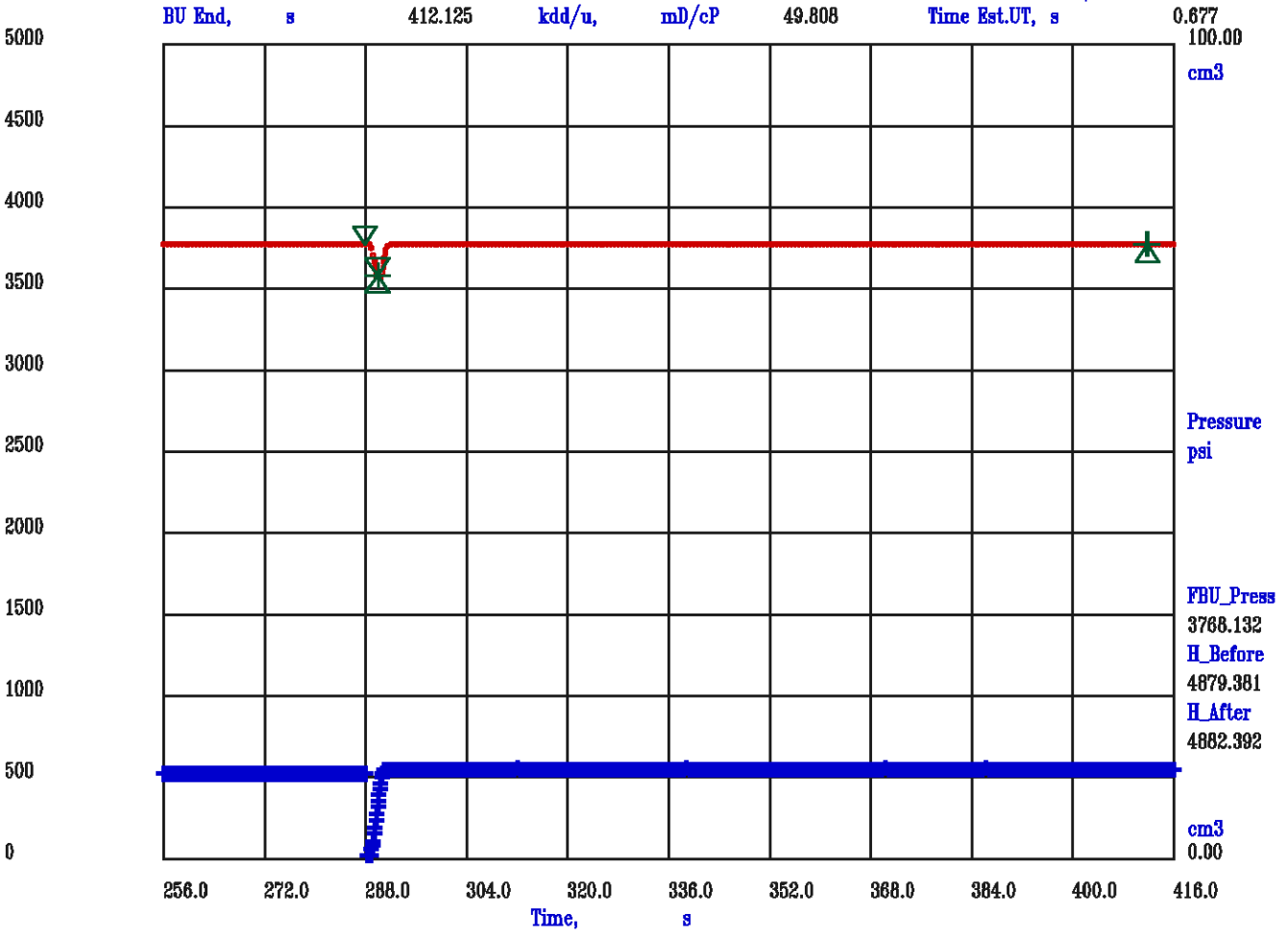


Meta File: i800a32_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2576.1 TVD Depth, m 2576.1 i800a32_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	288.000	SF Press,	psi	3768.092	Flow Rate,	cm3/s	5.106
DD End,	s	290.000	FF Press,	psi	3572.645	DD Volum,	cm3	10.147
BU Start,	s	290.000	Kdd Perm,	mD	49.808	Fill Rate,	min/L	0.170
BU End,	s	412.125	kdd/u,	mD/cP	49.808	Time Est.UT,	s	0.677

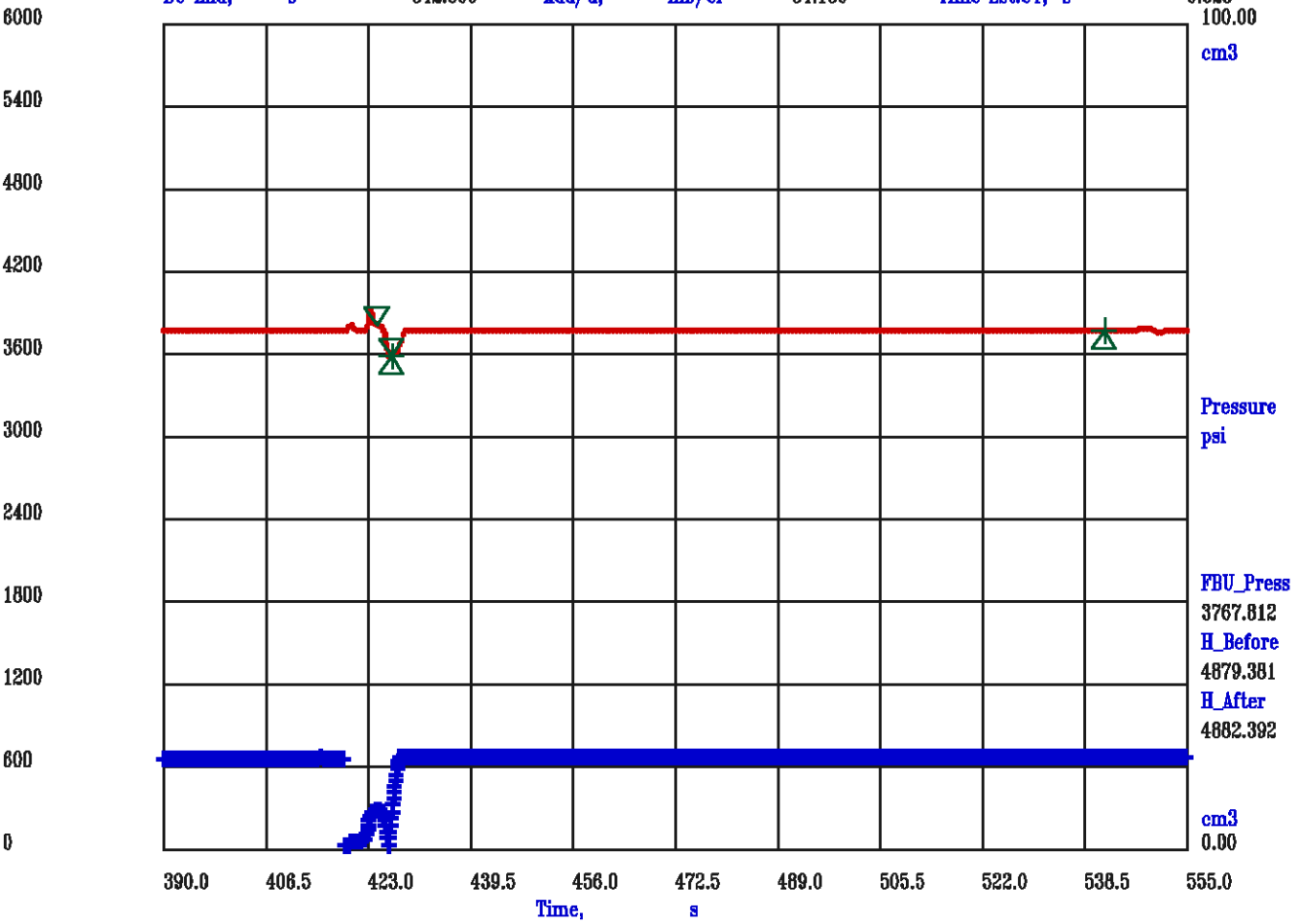


Meta File: i800a32_3.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2576.1 | TVD Depth, m 2576.1 | i800a32_3.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	425.000	SF Press,	psi	3767.724	Flow Rate,	cm3/s	5.439
DD End,	s	427.000	FF Press,	psi	3576.326	DD Volum,	cm3	10.809
BU Start,	s	427.000	Kdd Perm,	mD	54.160	Fill Rate,	min/L	0.157
BU End,	s	542.000	kdd/u,	mD/cP	54.160	Time Est.UT,	s	0.623



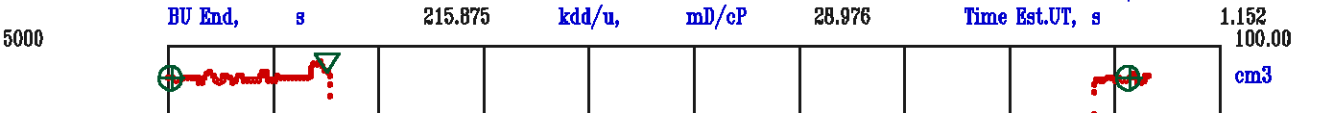
PRESSURE TEST – TVD Depth 2576.9 m
Measured Depth 2576.9 m

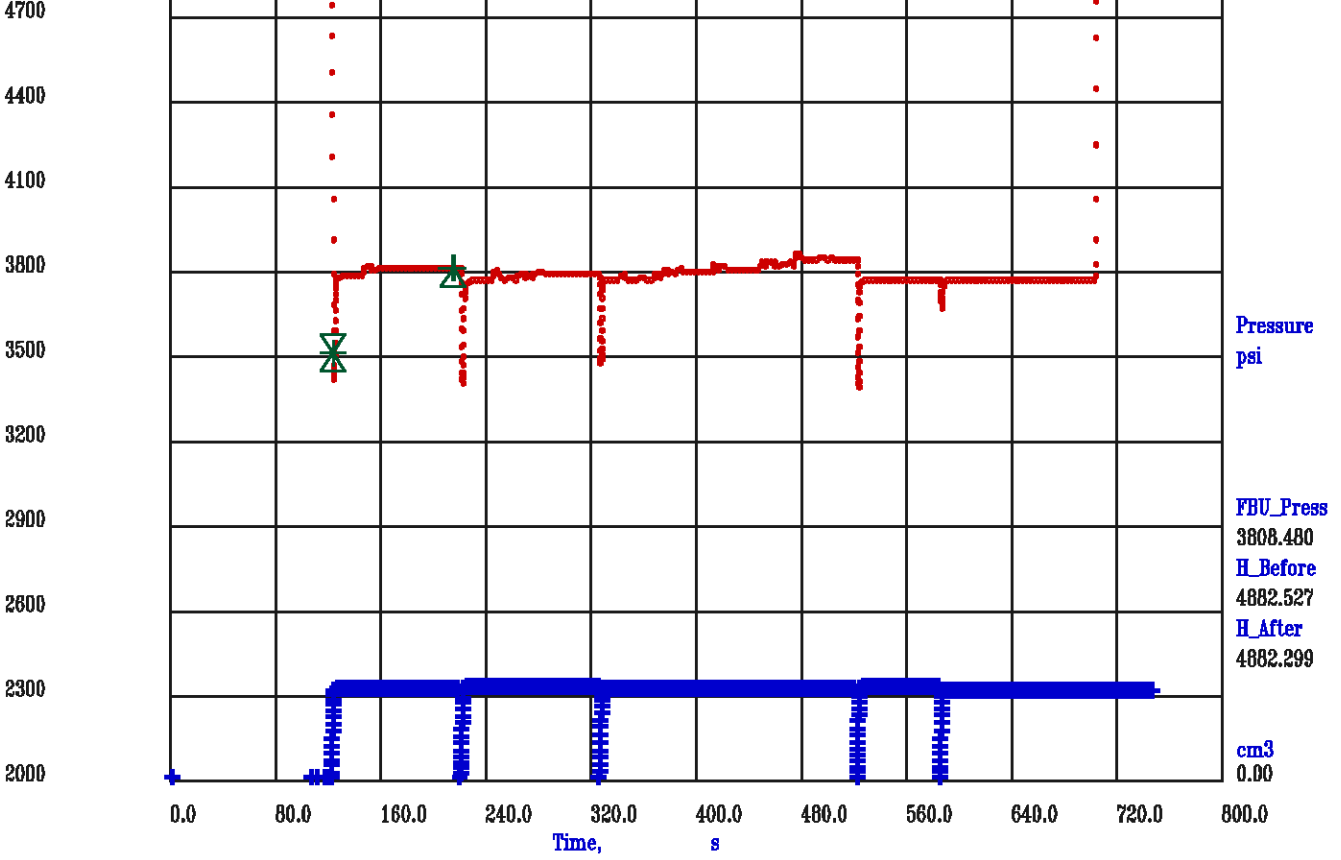
Meta File: i800a33_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2576.9 | TVD Depth, m 2576.9 | i800a33_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	122.625	SF Press,	psi	3808.491	Flow Rate,	cm3/s	4.474
DD End,	s	125.000	FF Press,	psi	3514.120	DD Volum,	cm3	10.558
BU Start,	s	125.000	Kdd Perm,	mD	28.976	Fill Rate,	min/L	0.290
BU End,	s	215.875	kdd/u,	mD/cP	28.976	Time Est.UT,	s	1.152

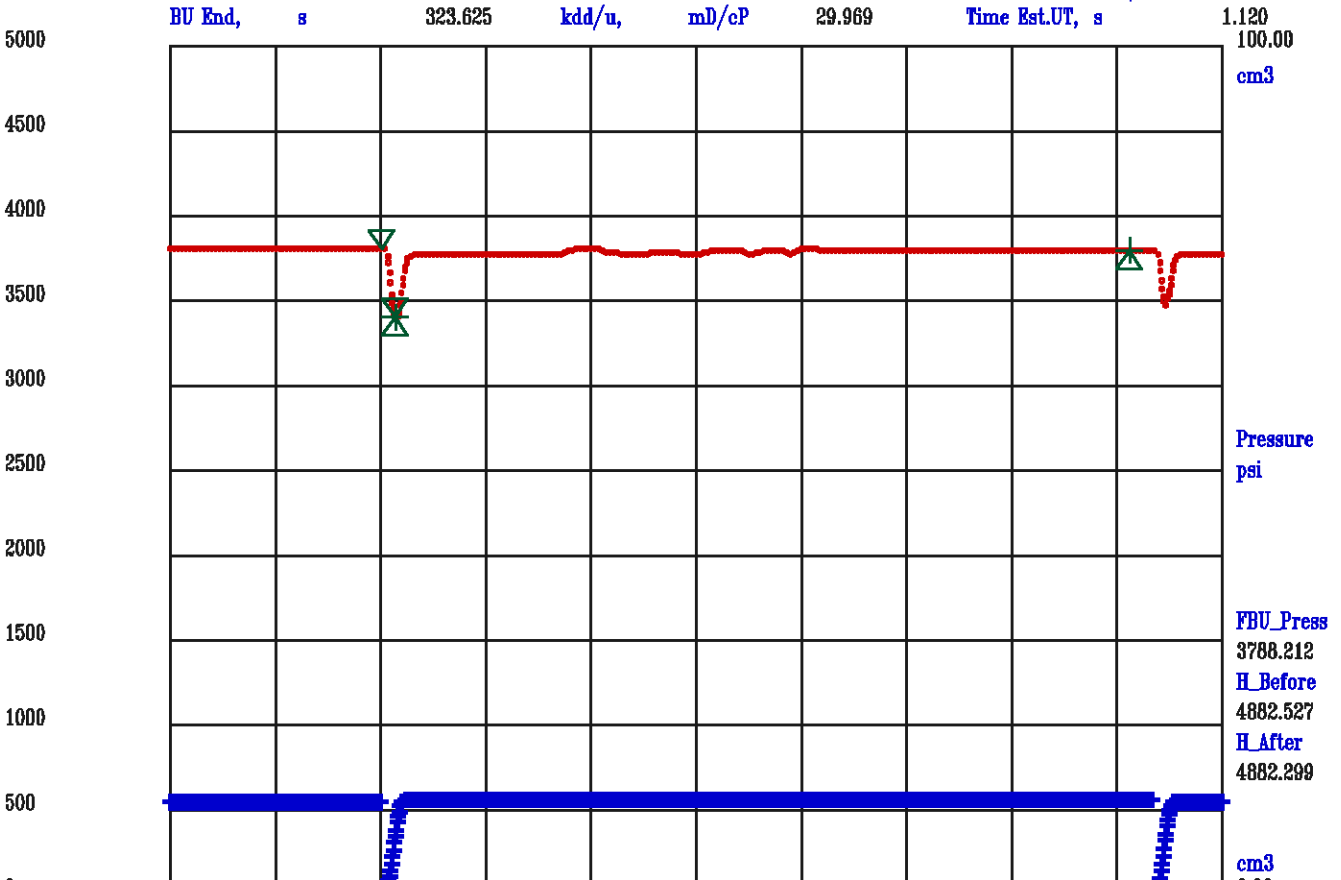


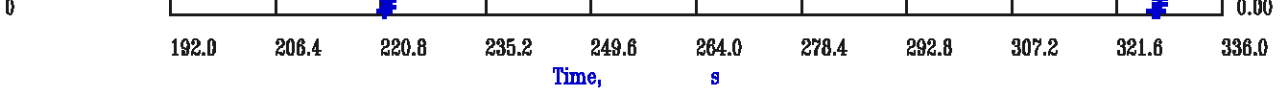


Meta File: i800a33_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2576.9 TVD Depth, m 2576.9 i800a33_1.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	221.250	SF Press,	psi	3788.212	Flow Rate,	cm3/s	6.083
DD End,	s	223.000	FF Press,	psi	3401.234	DD Volum,	cm3	10.577
BU Start,	s	223.000	Kdd Perm,	mD	29.969	Fill Rate,	min/L	0.282
BU End,	s	323.625	kdd/u,	mD/cP	29.969	Time Est.UT,	s	1.120



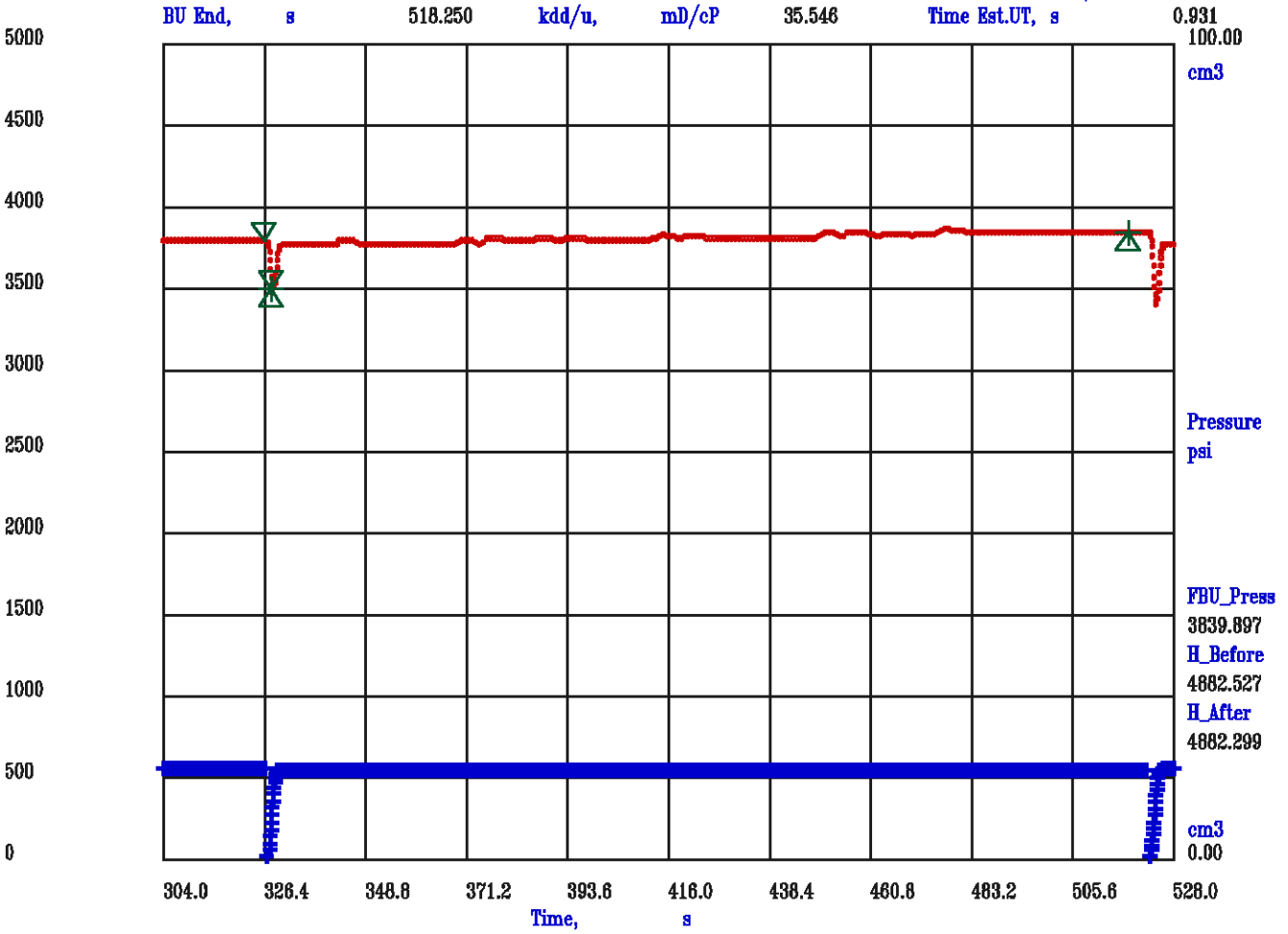


Meta File: i800a33_2.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2576.9 | TVD Depth, m 2576.9 | i800a33_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	326.625	SF Press,	psi	3839.897	Flow Rate,	cm3/s	6.532
DD End,	s	328.250	FF Press,	psi	3489.548	DD Volum,	cm3	10.547
BU Start,	s	328.250	Kdd Perm,	mD	35.546	Fill Rate,	min/L	0.234
BU End,	s	518.250	kdd/u,	mD/cP	35.546	Time Est.UT,	s	0.931

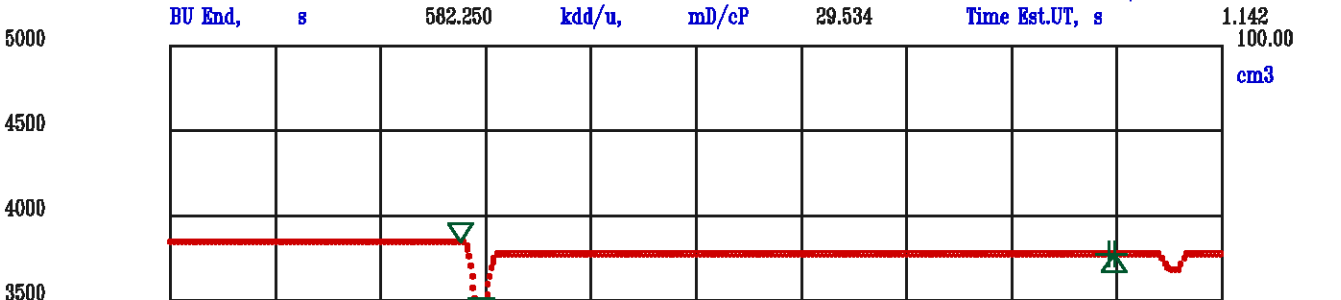


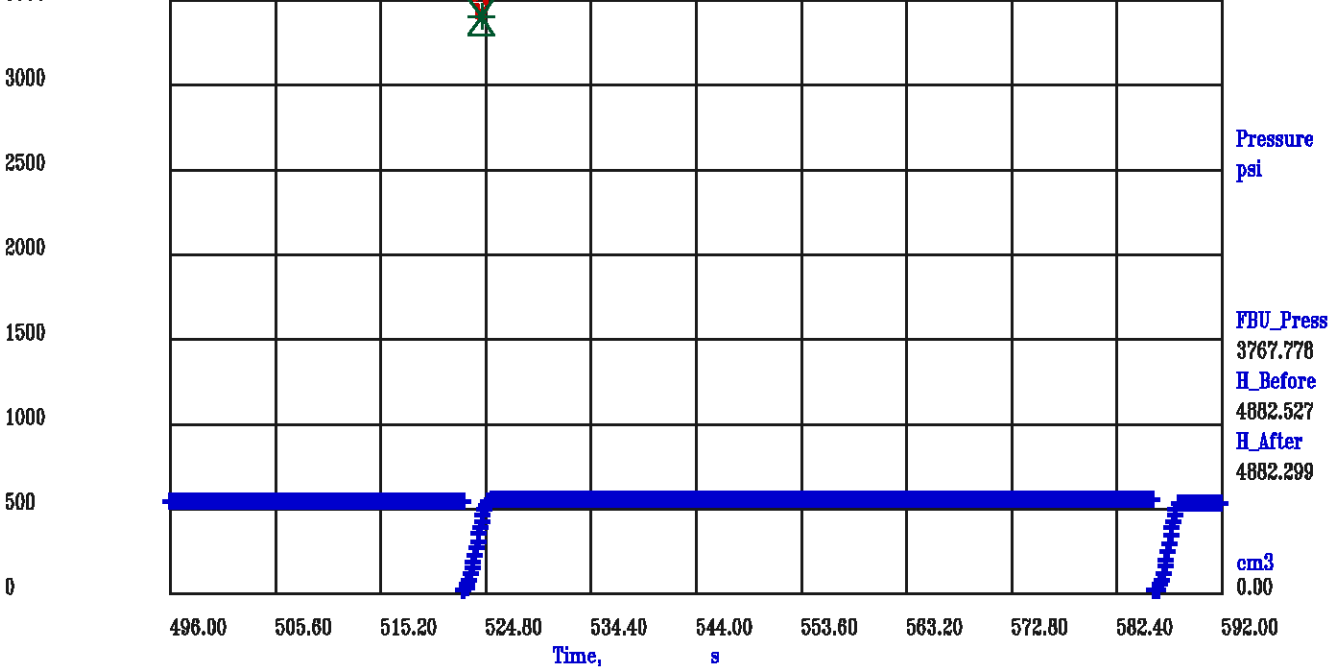
Meta File: i800a33_3.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2576.9 | TVD Depth, m 2576.9 | i800a33_3.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	522.625	SF Press,	psi	3767.760	Flow Rate,	cm3/s	5.777
DD End,	s	524.500	FF Press,	psi	3394.865	DD Volum,	cm3	10.762
BU Start,	s	524.500	Kdd Perm,	mD	29.534	Fill Rate,	min/L	0.287
BU End,	s	582.250	kdd/u,	mD/cP	29.534	Time Est.UT,	s	1.142



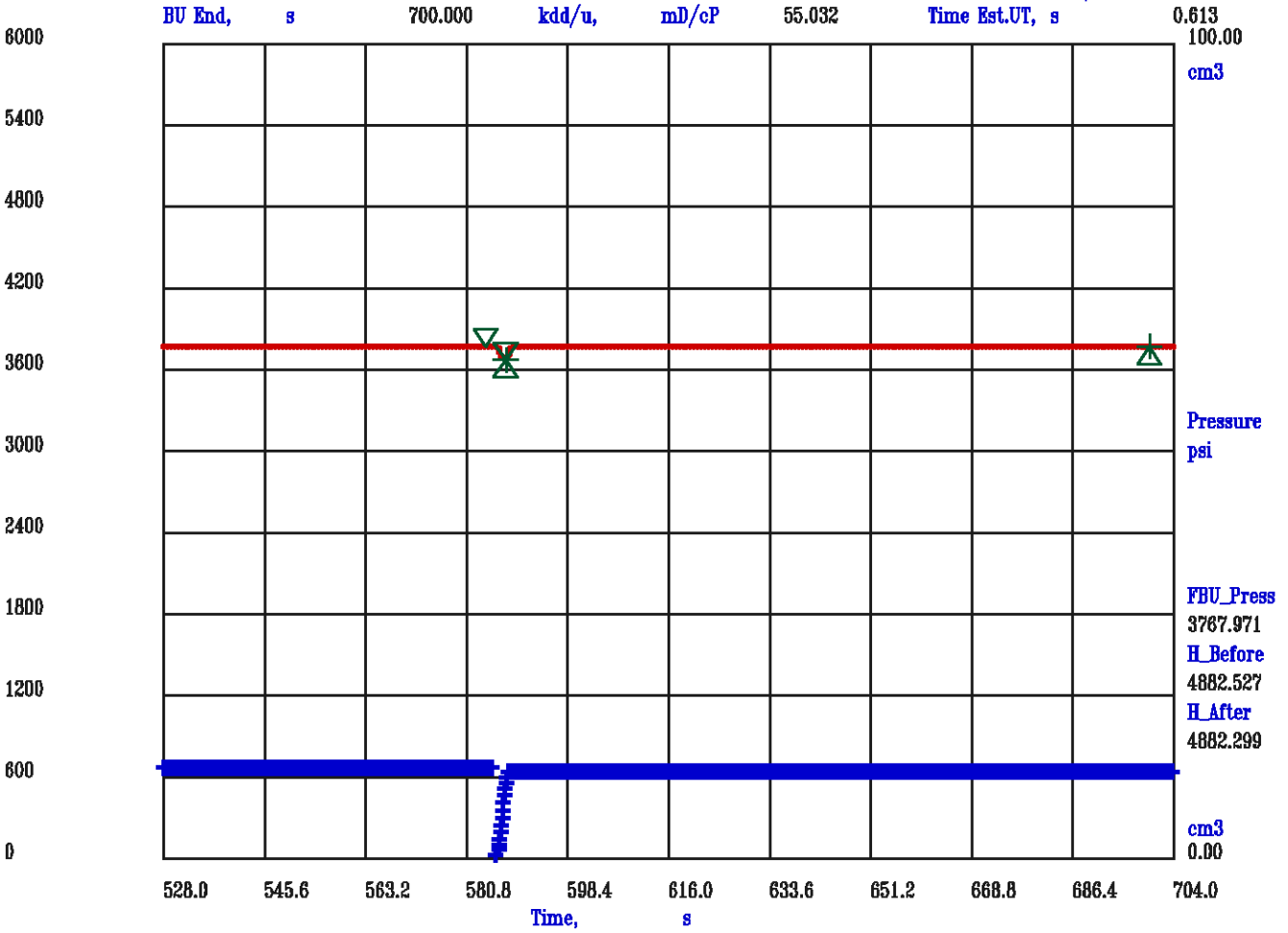


Meta File: i800a33_4.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2576.9 TVD Depth, m 2576.9 i800a33_4.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	584.375	SF Press,	psi	3767.971	Flow Rate,	cm3/s	3.001
DD End,	s	587.875	FF Press,	psi	3664.010	DD Volum,	cm3	10.436
BU Start,	s	587.875	Kdd Perm,	mD	55.032	Fill Rate,	min/L	0.154
BU End,	s	700.000	kdd/u,	mD/cP	55.032	Time Est.UT,	s	0.613

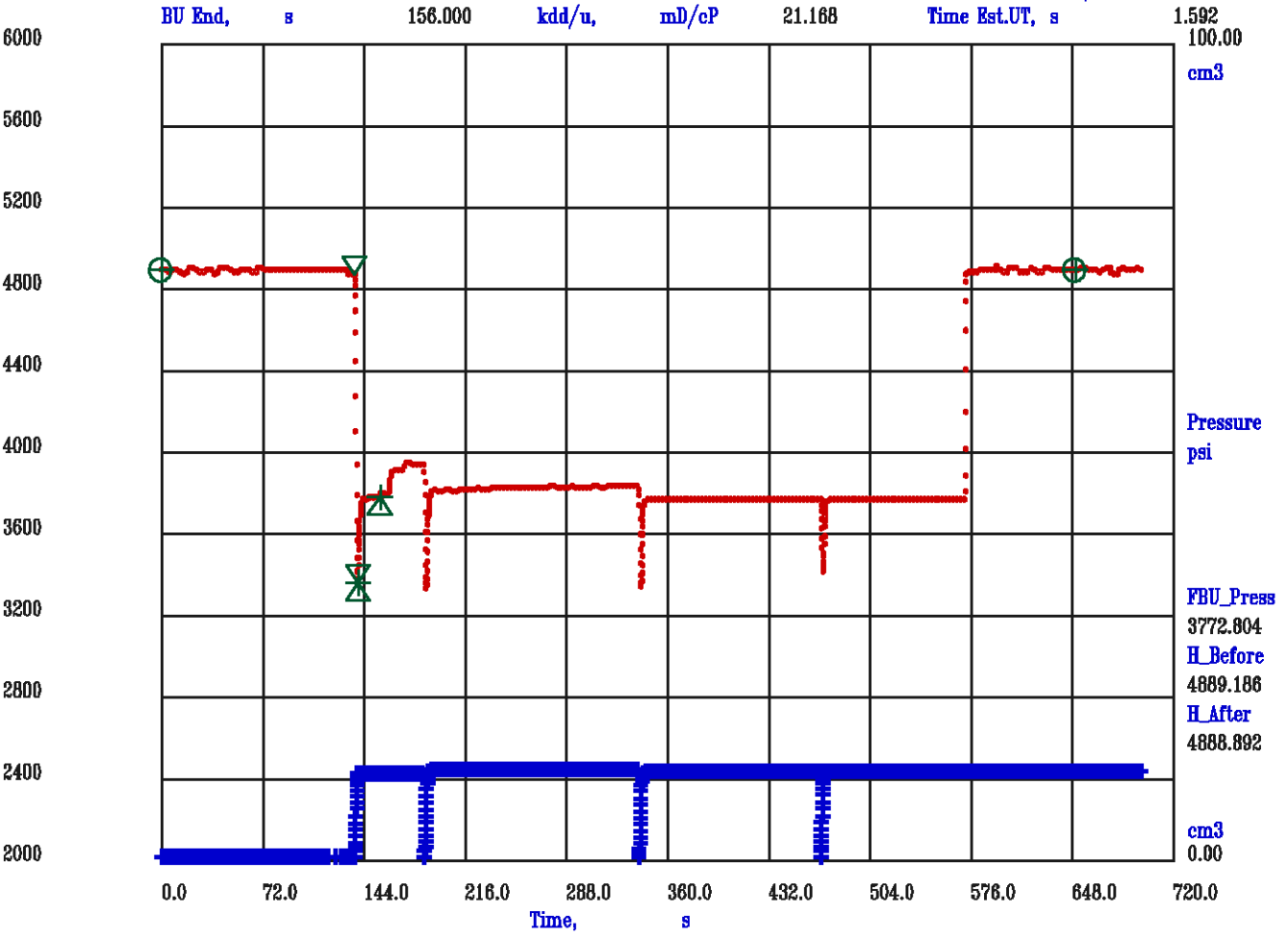


PRESSURE TEST – TVD Depth 2581.3 m
Measured Depth 2581.3 m

Meta File: i800a34_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2581.3 | TVD Depth, m 2581.3 | i800a34_0.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

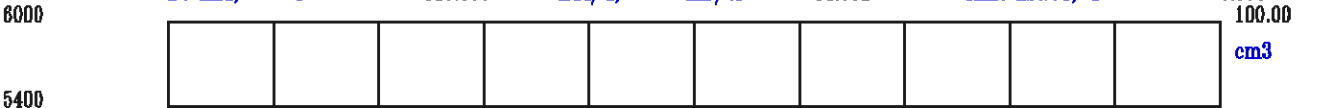
DD Start,	s	138.125	SF Press,	psi	3772.804	Flow Rate,	cm3/s	4.627
DD End,	s	140.375	FF Press,	psi	3356.091	DD Volum,	cm3	10.344
BU Start,	s	140.375	Kdd Perm,	mD	21.168	Fill Rate,	min/L	0.400
BU End,	s	156.000	kdd/u,	mD/cP	21.168	Time Est.UT,	s	1.592

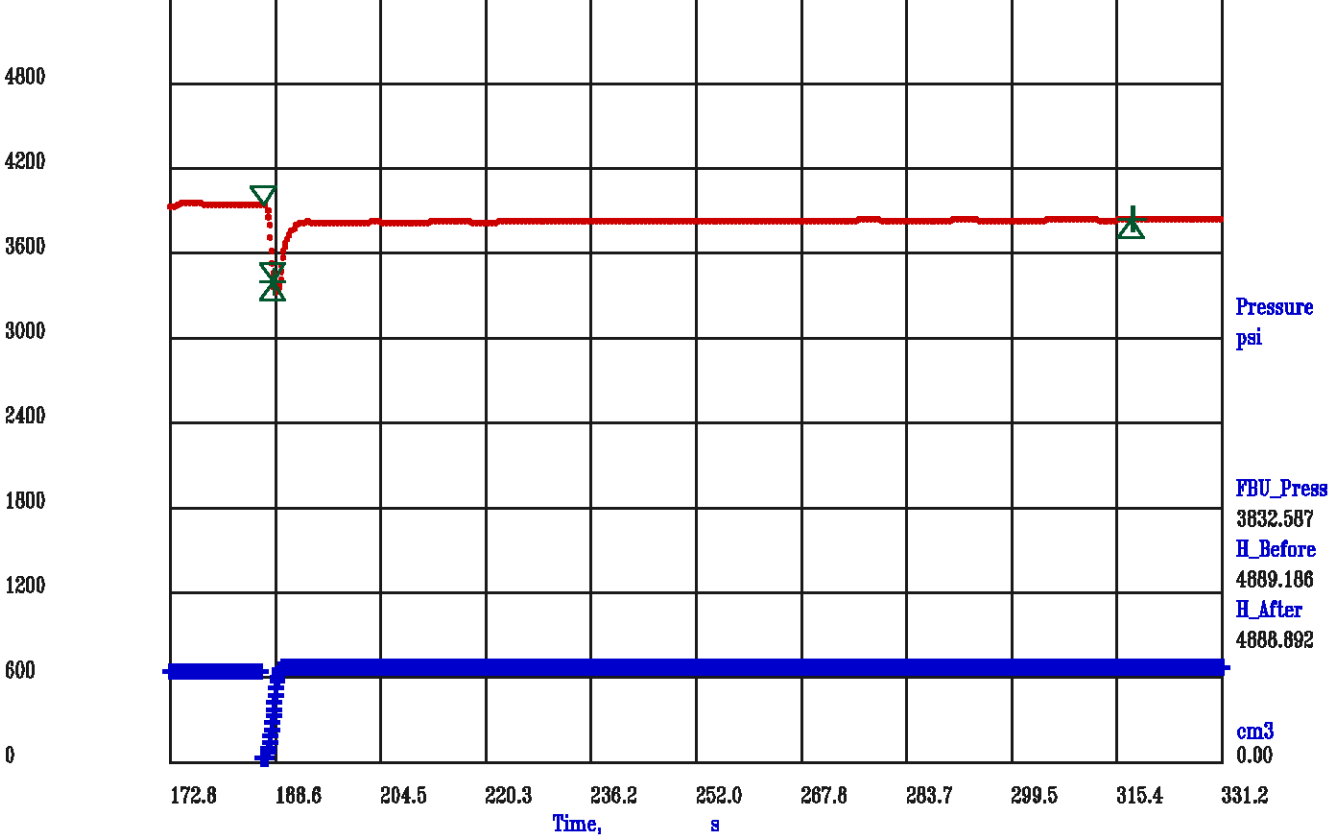


Meta File: i800a34_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2581.3 | TVD Depth, m 2581.3 | i800a34_1.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	187.125	SF Press,	psi	3832.937	Flow Rate,	cm3/s	7.925
DD End,	s	188.500	FF Press,	psi	3389.616	DD Volum,	cm3	10.827
BU Start,	s	188.500	Kdd Perm,	mD	34.081	Fill Rate,	min/L	0.245
BU End,	s	317.875	kdd/u,	mD/cP	34.081	Time Est.UT,	s	0.973

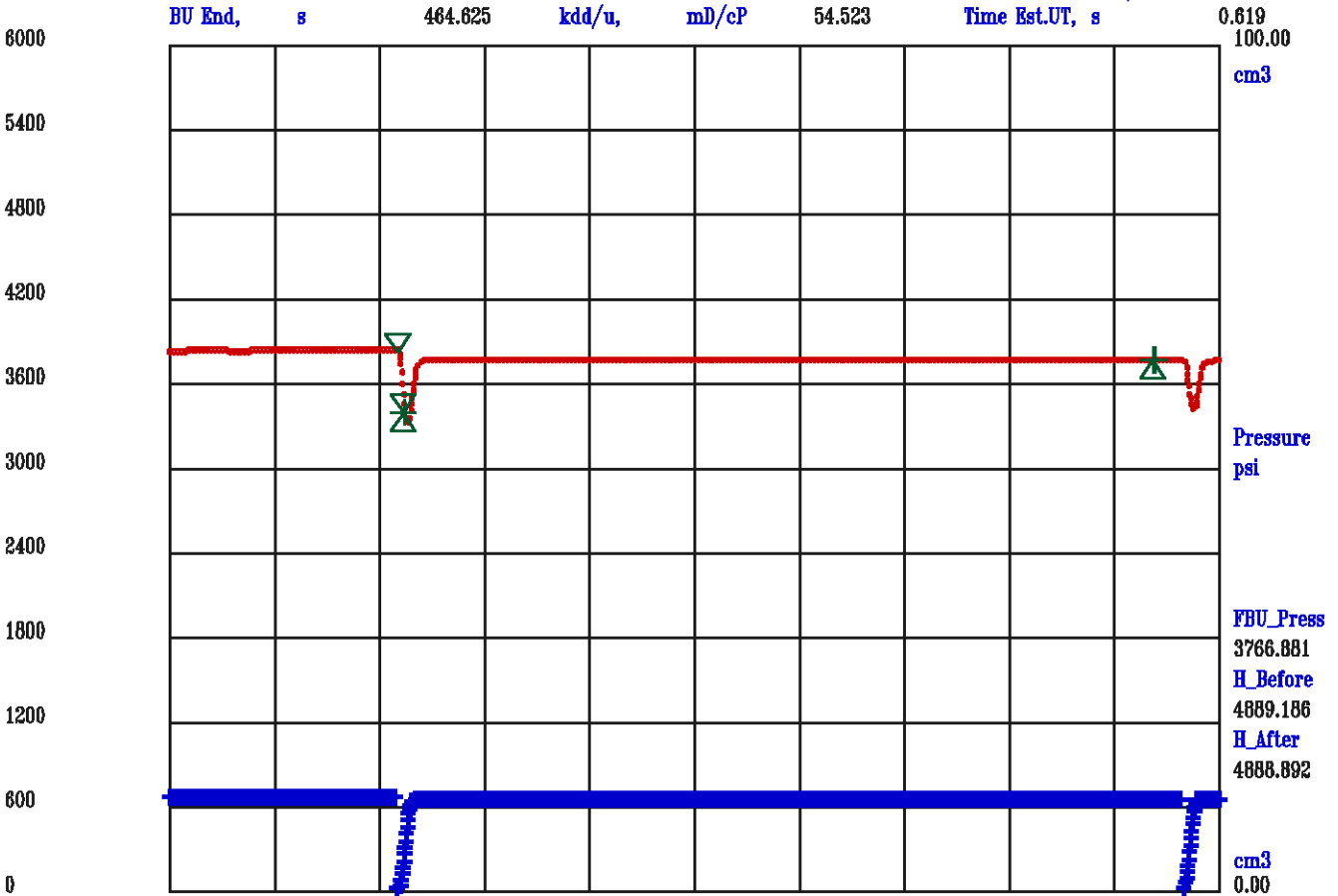




Meta File: i800a34_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2581.3 TVD Depth, m 2581.3 i800a34_2.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	340.250	SF Press,	psi	3766.895	Flow Rate,	cm3/s	10.680
DD End,	s	341.250	FF Press,	psi	3393.442	DD Volum,	cm3	10.612
BU Start,	s	341.250	Kdd Perm,	mD	54.523	Fill Rate,	min/L	0.156
BU End,	s	464.625	kdd/u,	mD/cP	54.523	Time Est.UT,	s	0.619



302.4 319.7 337.0 354.2 371.5 388.8 406.1 423.4 440.6 457.9 475.2

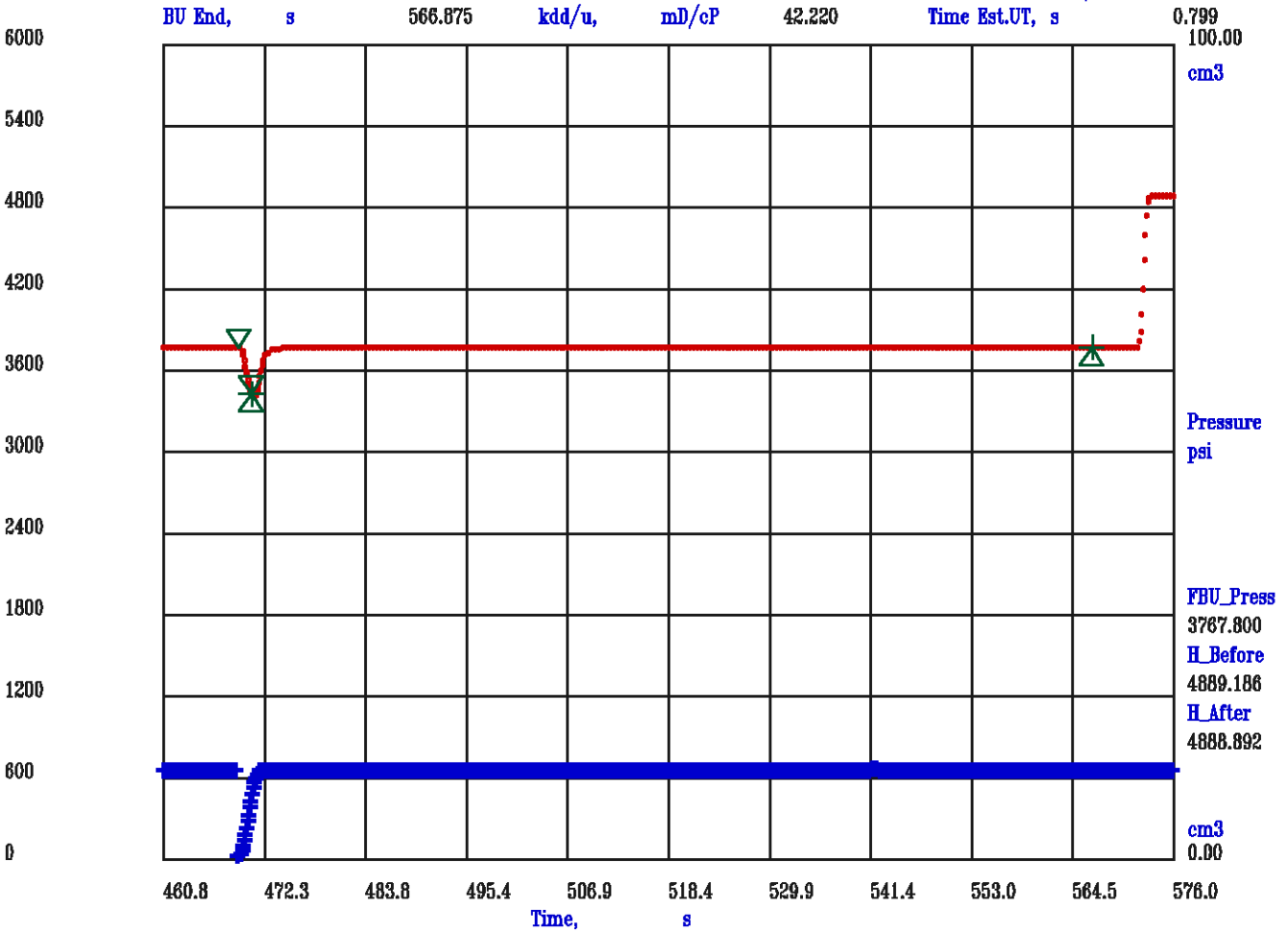
Time, s

Meta File: i800a34_3.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2581.3 TVD Depth, m 2581.3 i800a34_3.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	469.625	SF Press,	psi	3767.800	Flow Rate,	cm3/s	7.819
DD End,	s	471.000	FF Press,	psi	3414.707	DD Volum,	cm3	10.683
BU Start,	s	471.000	Kdd Perm,	mD	42.220	Fill Rate,	min/L	0.201
BU End,	s	566.875	kdd/u,	mD/cP	42.220	Time Est.UT,	s	0.799



PRESSURE TEST – TVD Depth 2582.9 m

Measured Depth 2582.9 m

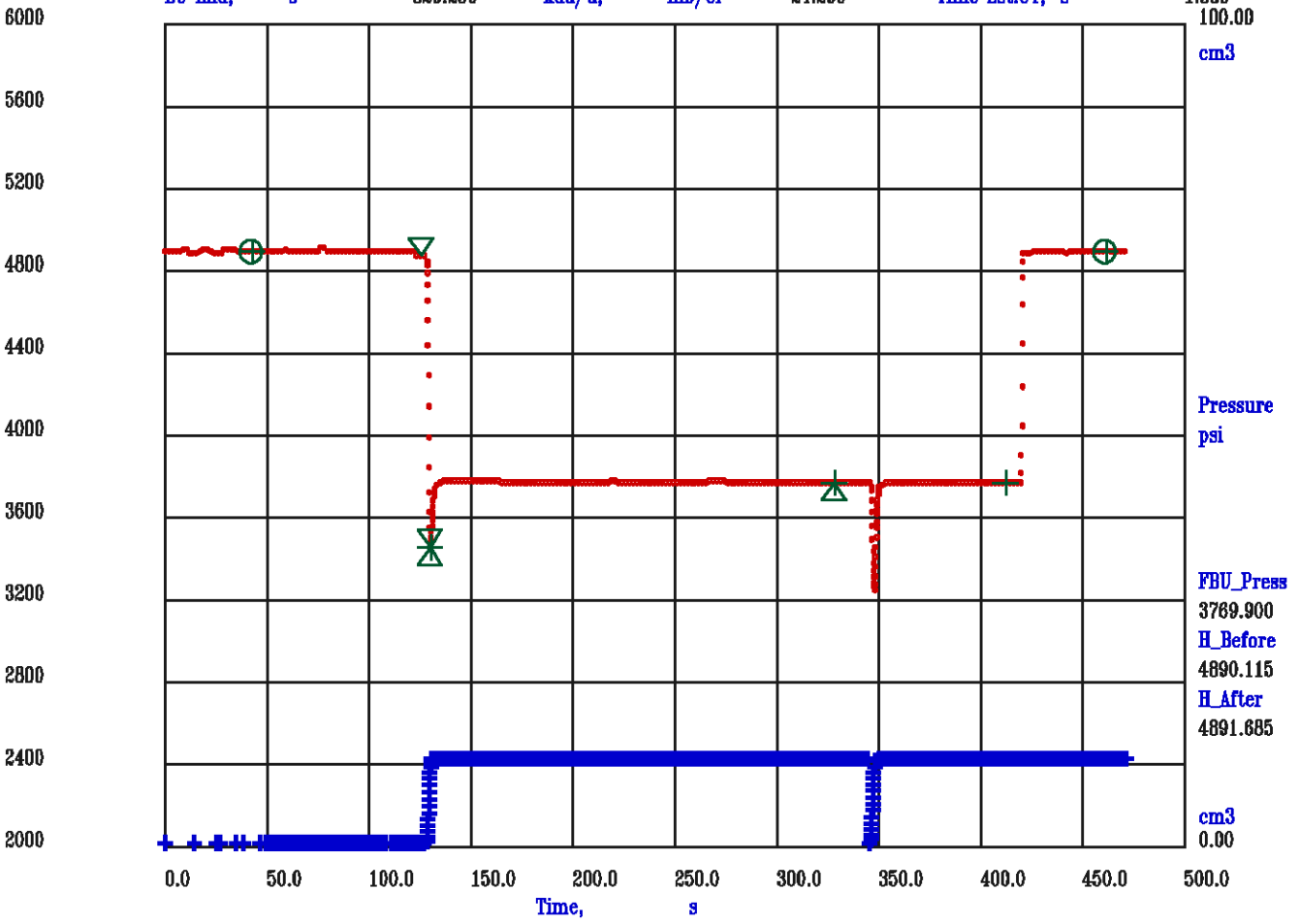
Meta File: i800a35_0.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2582.9 TVD Depth, m 2582.9 i800a35_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	346.375	SF Press,	psi	3767.708	Flow Rate,	cm3/s	6.462
DD End,	s	348.000	FF Press,	psi	3260.554	DD Volum,	cm3	10.433

BU Start,	s	348.000	Kdd Perm,	mD	24.290	Fill Rate,	min/L	0.349
BU End,	s	329.250	kdd/u,	mD/cP	24.290	Time Est.UT,	s	1.389

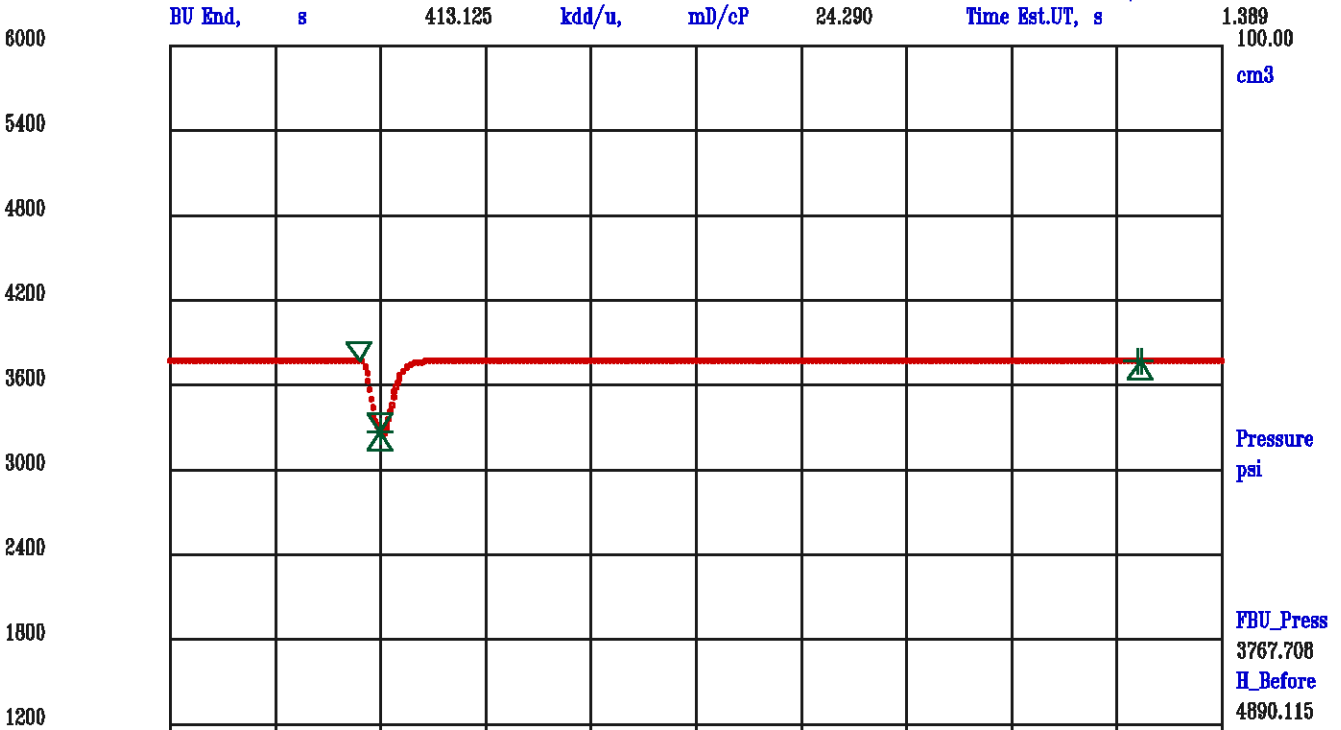


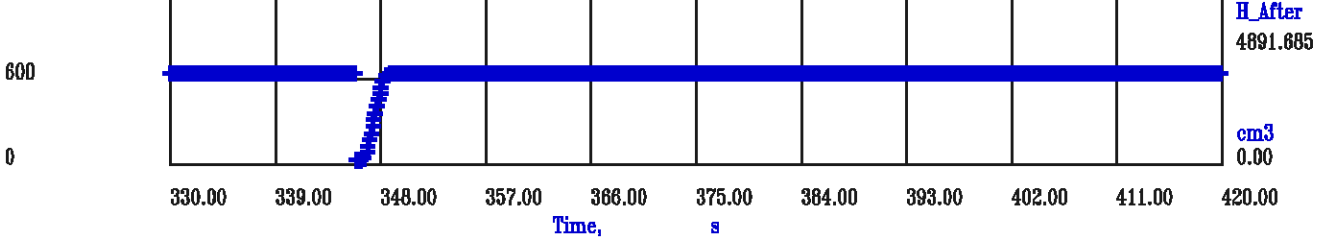
Meta File: i800a35_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2582.9 TVD Depth, m 2582.9 i800a35_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	346.375	SF Press,	psi	3767.708	Flow Rate,	cm3/s	6.462
DD End,	s	348.000	FF Press,	psi	3260.554	DD Volum,	cm3	10.433
BU Start,	s	348.000	Kdd Perm,	mD	24.290	Fill Rate,	min/L	0.349
BU End,	s	413.125	kdd/u,	mD/cP	24.290	Time Est.UT,	s	1.389





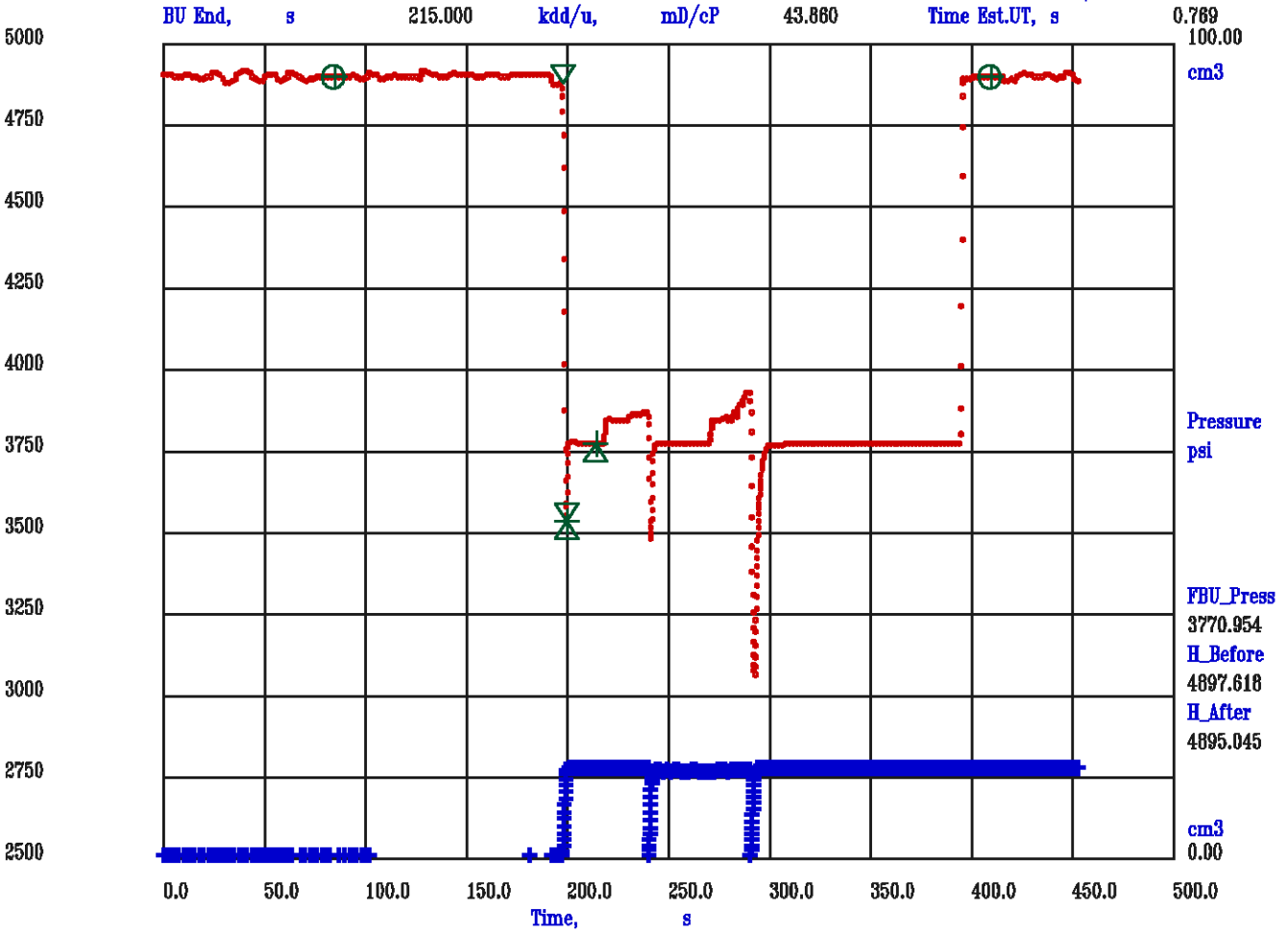
PRESSURE TEST – TVD Depth 2585.6 m
Measured Depth 2585.6 m

Meta File: i800a36_0.qd1.meta

DRAWDOWN: PACKER
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2585.6 TVD Depth, m 2585.6 i800a36_0.qd1.meta

DD Start,	s	198.250	SF Press,	psi	3770.954	Flow Rate,	cm3/s	5.434
DD End,	s	200.250	FF Press,	psi	3534.744	DD Volum,	cm3	10.799
BU Start,	s	200.250	Kdd Perm,	mD	43.860	Fill Rate,	min/L	0.193
BU End,	s	215.000	kdd/u,	mD/cP	43.860	Time Est.UT,	s	0.769

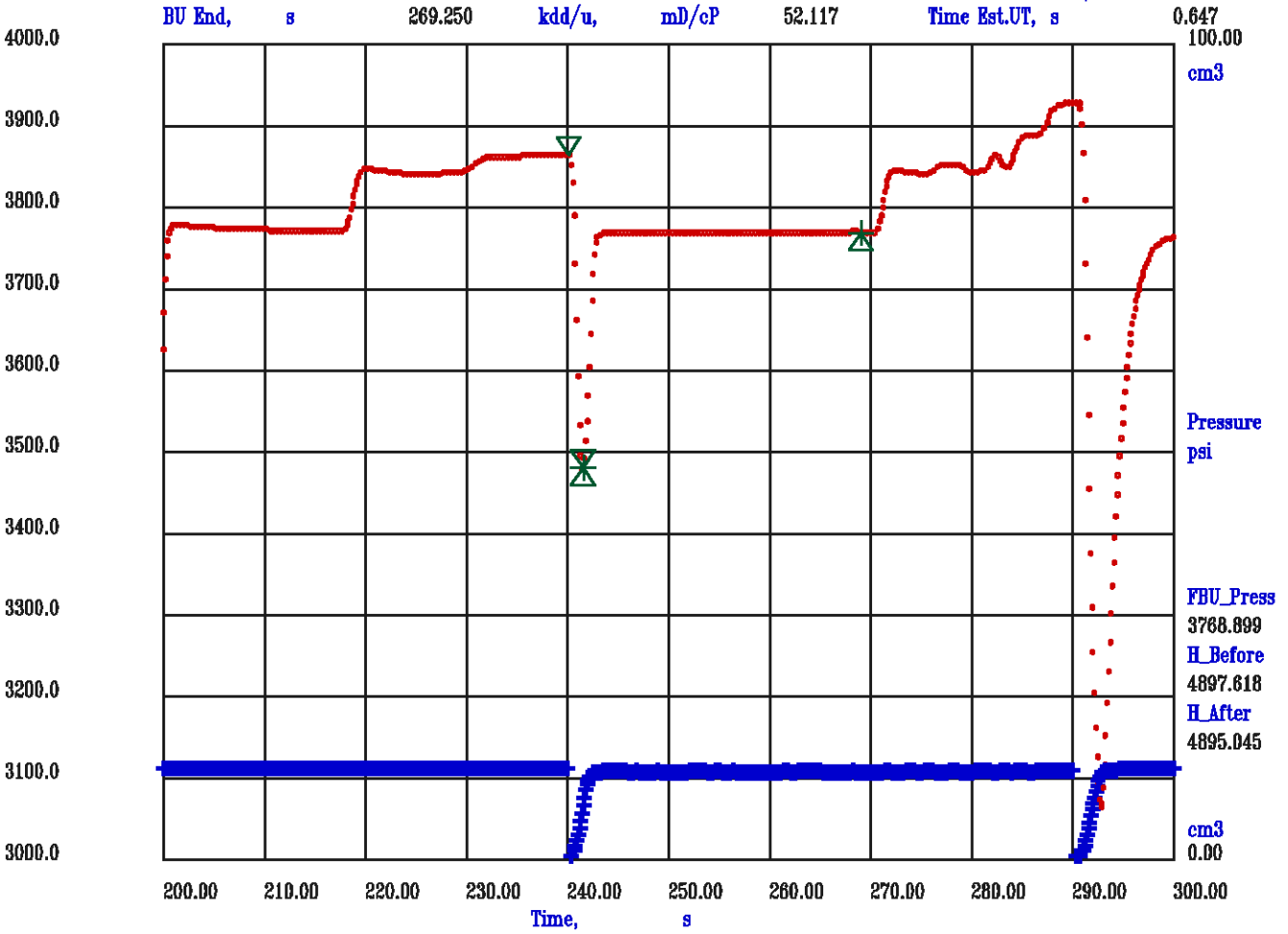


Meta File: i800a36_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2585.6 TVD Depth, m 2585.6 i800a36_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	240.250	SF Press,	psi	3768.899	Flow Rate,	cm3/s	7.902
DD End,	s	241.625	FF Press,	psi	3479.827	DD Volum,	cm3	10.796
BU Start,	s	241.625	Kdd Perm,	mD	52.117	Fill Rate,	min/L	0.163
BU End,	s	269.250	kdd/u,	mD/cP	52.117	Time Est.UT,	s	0.647

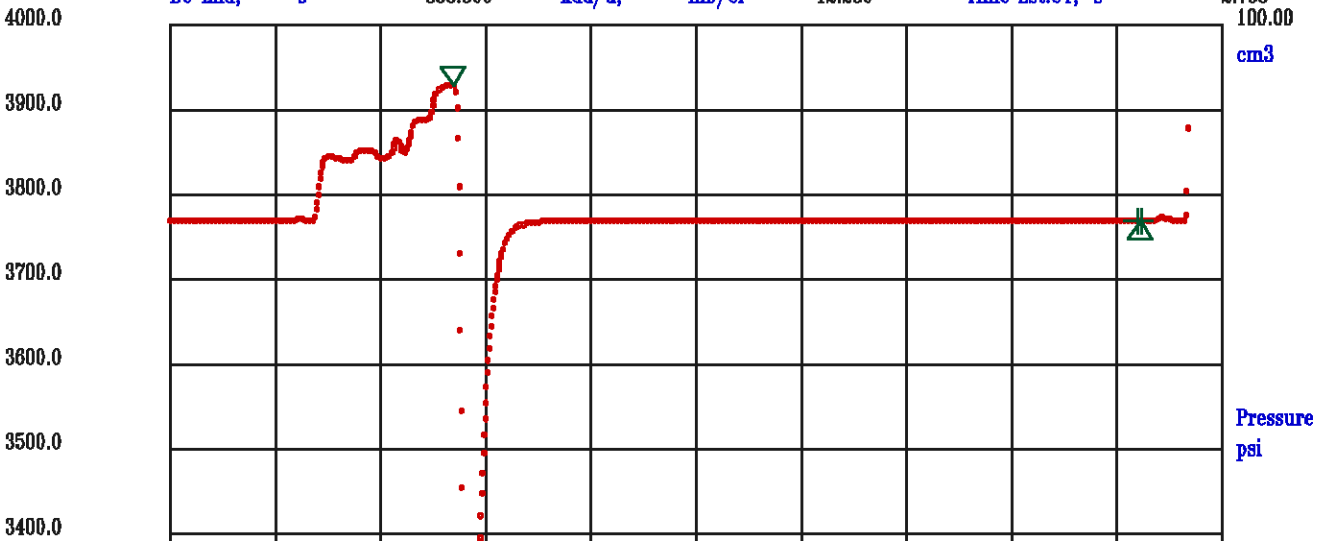


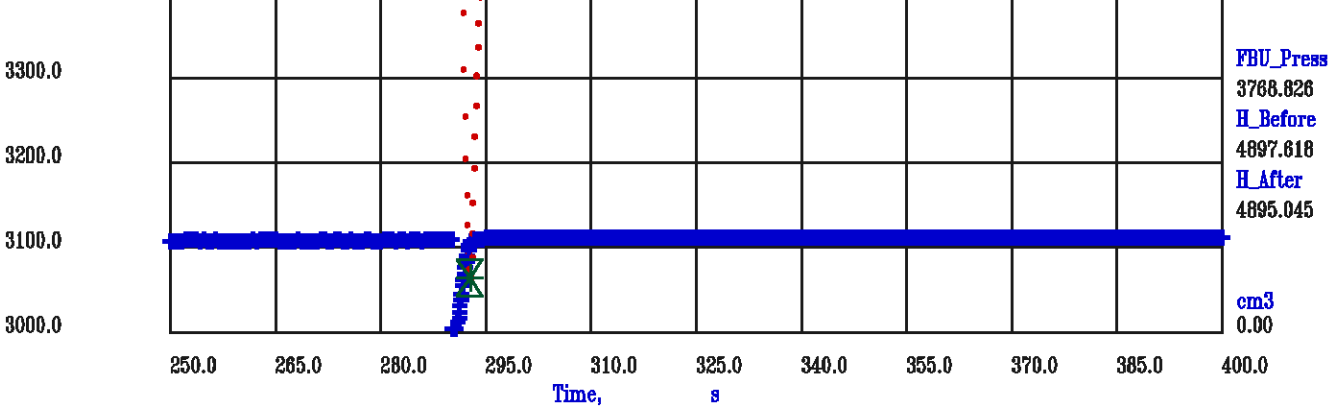
Meta File: i800a36_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2585.6 TVD Depth, m 2585.6 i800a36_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	290.625	SF Press,	psi	3768.800	Flow Rate,	cm3/s	4.525
DD End,	s	292.875	FF Press,	psi	3063.446	DD Volum,	cm3	10.116
BU Start,	s	292.875	Kdd Perm,	mD	12.230	Fill Rate,	min/L	0.694
BU End,	s	388.500	kdd/u,	mD/cP	12.230	Time Est.UT,	s	2.758





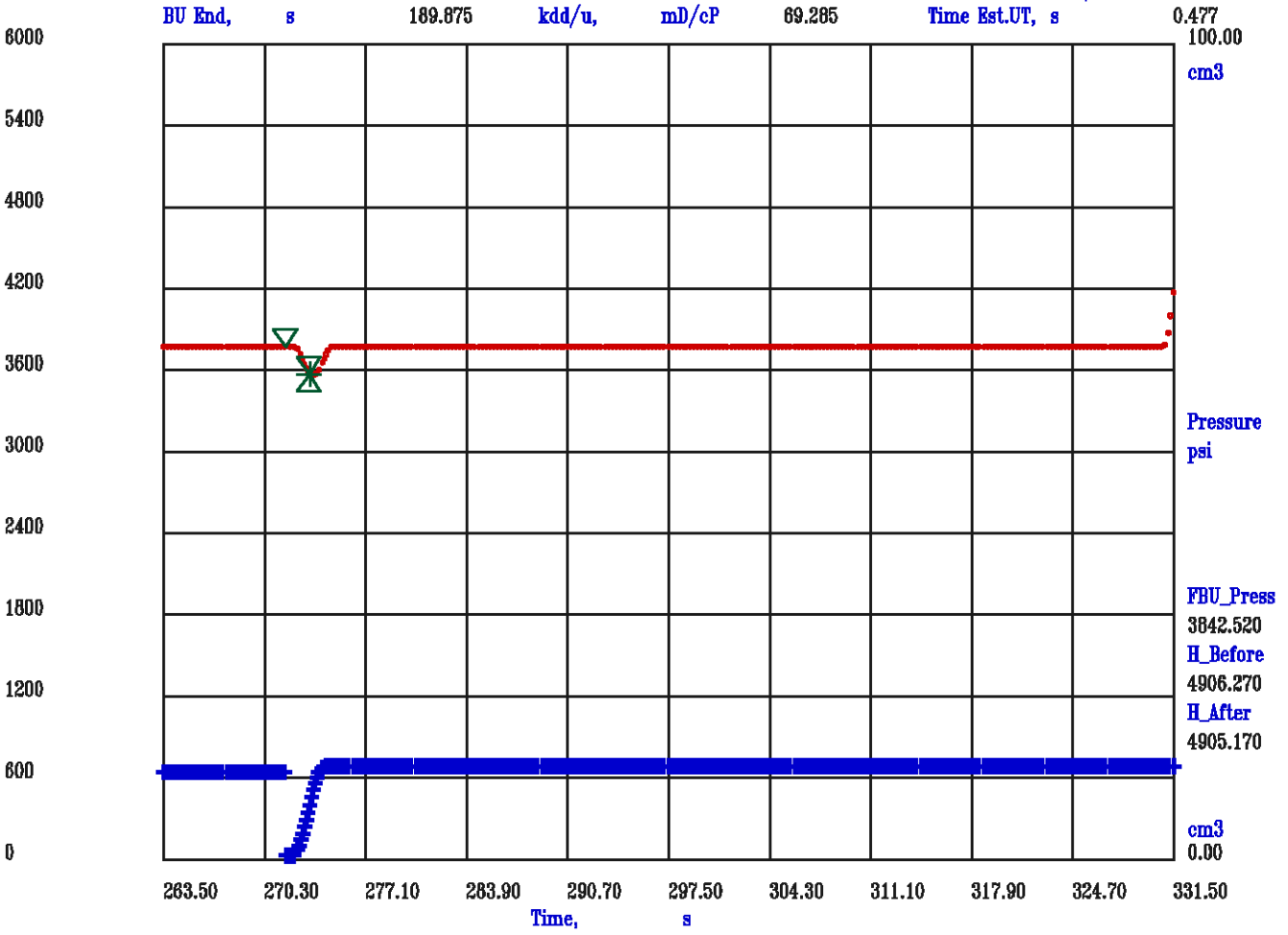
PRESSURE TEST – TVD Depth 2591.3 m
Measured Depth 2591.3 m

Meta File: i800a37_0.qd1.meta

DRAWDOWN: PACKER
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2591.3 TVD Depth, m 2591.3 i800a37_0.qd1.meta

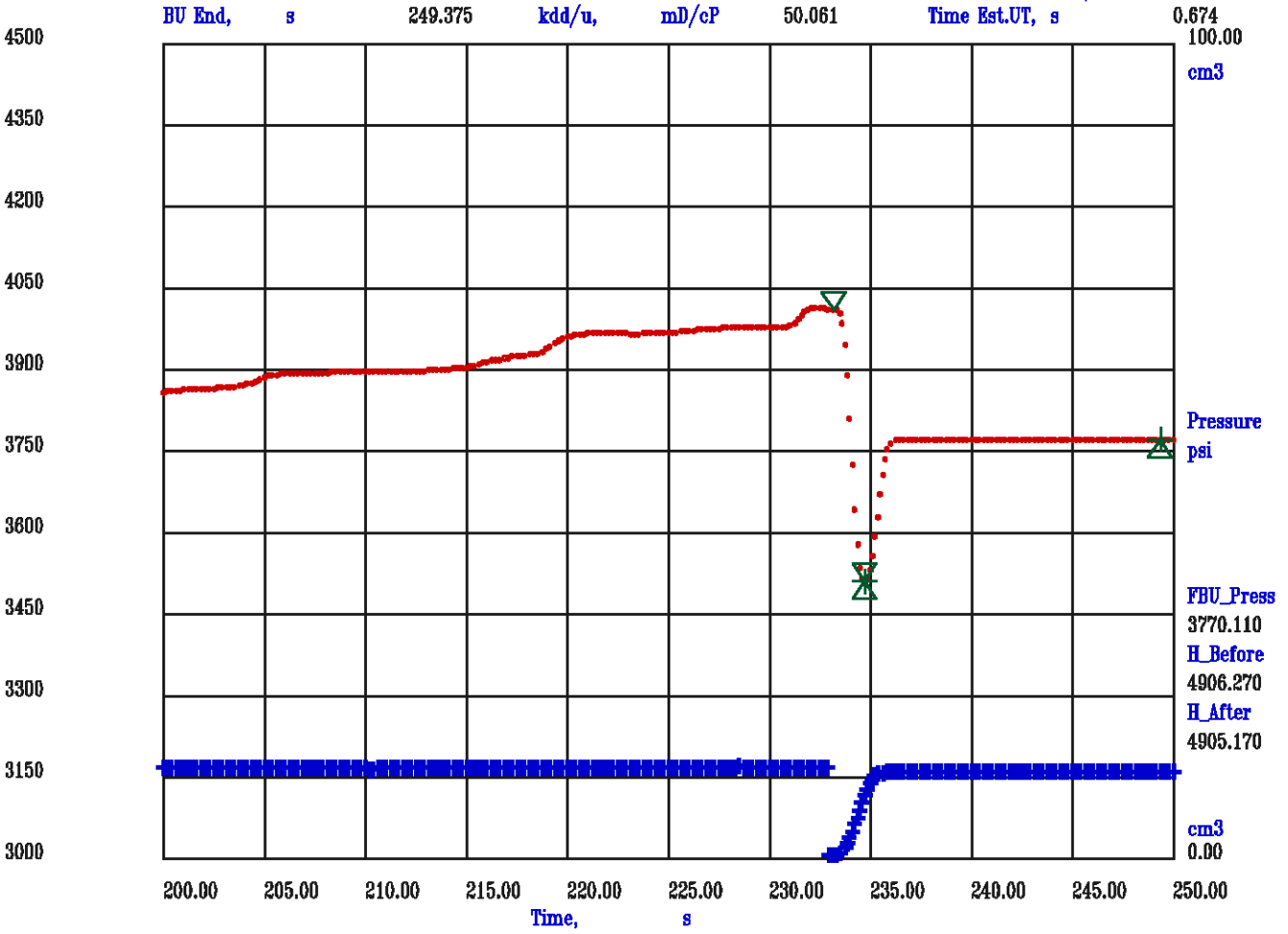
DD Start,	s	272.250	SF Press,	psi	3842.520	Flow Rate,	cm3/s	9.867
DD End,	s	273.375	FF Press,	psi	3570.999	DD Volum,	cm3	11.030
BU Start,	s	273.375	Kdd Perm,	mD	69.285	Fill Rate,	min/L	0.120
BU End,	s	189.875	kdd/u,	mD/cP	69.285	Time Est.UT,	s	0.477



Meta File: i800a37_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2591.3 TVD Depth, m 2591.3 i800a37_1.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

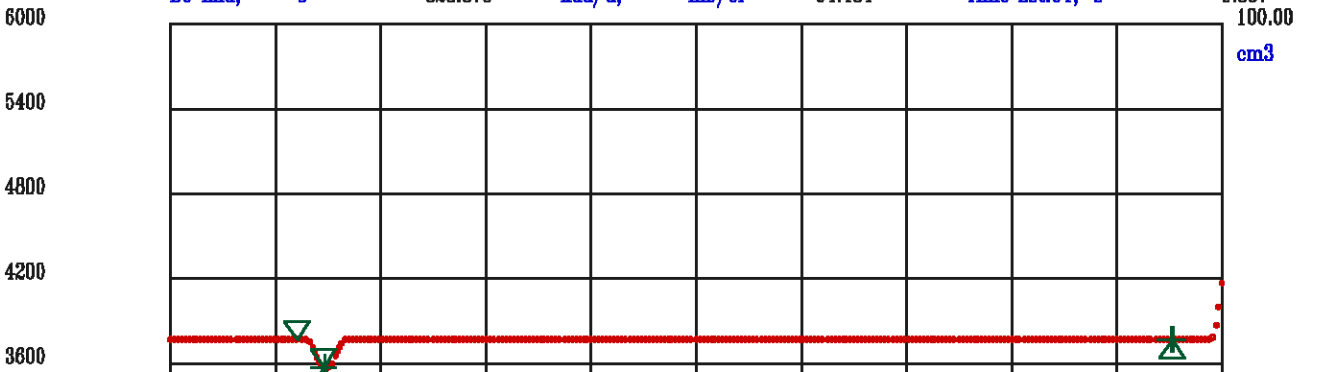
DD Start,	s	233.250	SF Press,	psi	3770.110	Flow Rate,	cm3/s	6.873
DD End,	s	234.750	FF Press,	psi	3508.355	DD Volum,	cm3	10.244
BU Start,	s	234.750	Kdd Perm,	mD	50.061	Fill Rate,	min/L	0.169
BU End,	s	249.375	kdd/u,	mD/cP	50.061	Time Est.UT,	s	0.674

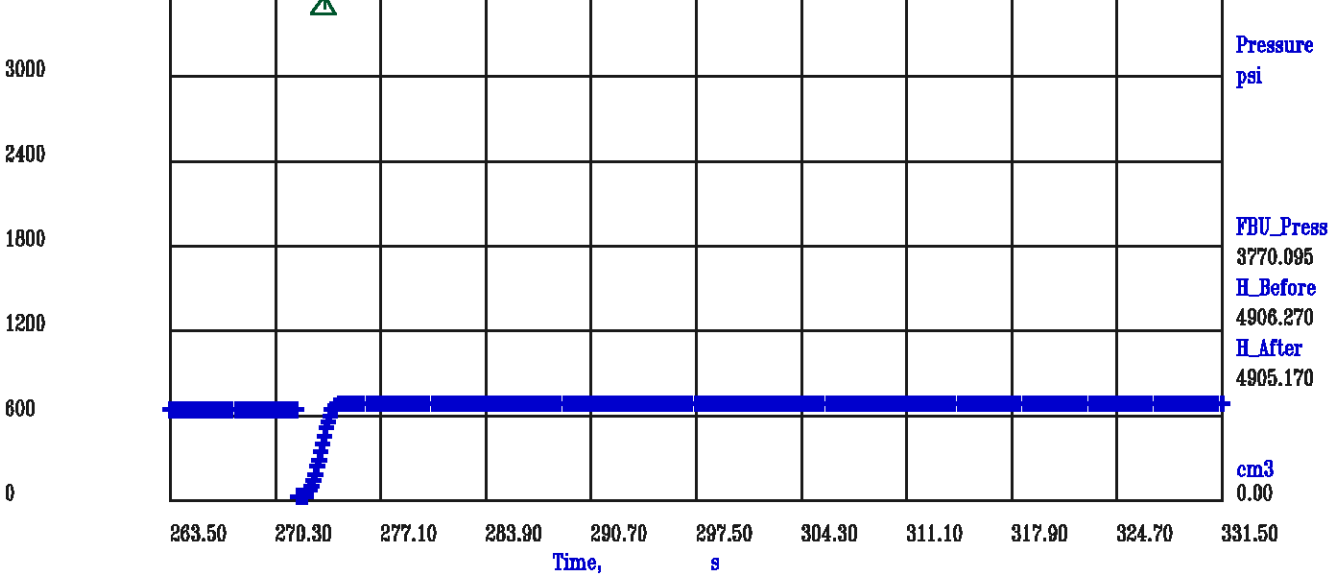


Meta File: i800a37_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2591.3 TVD Depth, m 2591.3 i800a37_2.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	272.250	SF Press,	psi	3770.104	Flow Rate,	cm3/s	9.867
DD End,	s	273.375	FF Press,	psi	3570.999	DD Volum,	cm3	11.030
BU Start,	s	273.375	Kdd Perm,	mD	94.484	Fill Rate,	min/L	0.090
BU End,	s	328.375	kdd/u,	mD/cP	94.484	Time Est.UT,	s	0.357





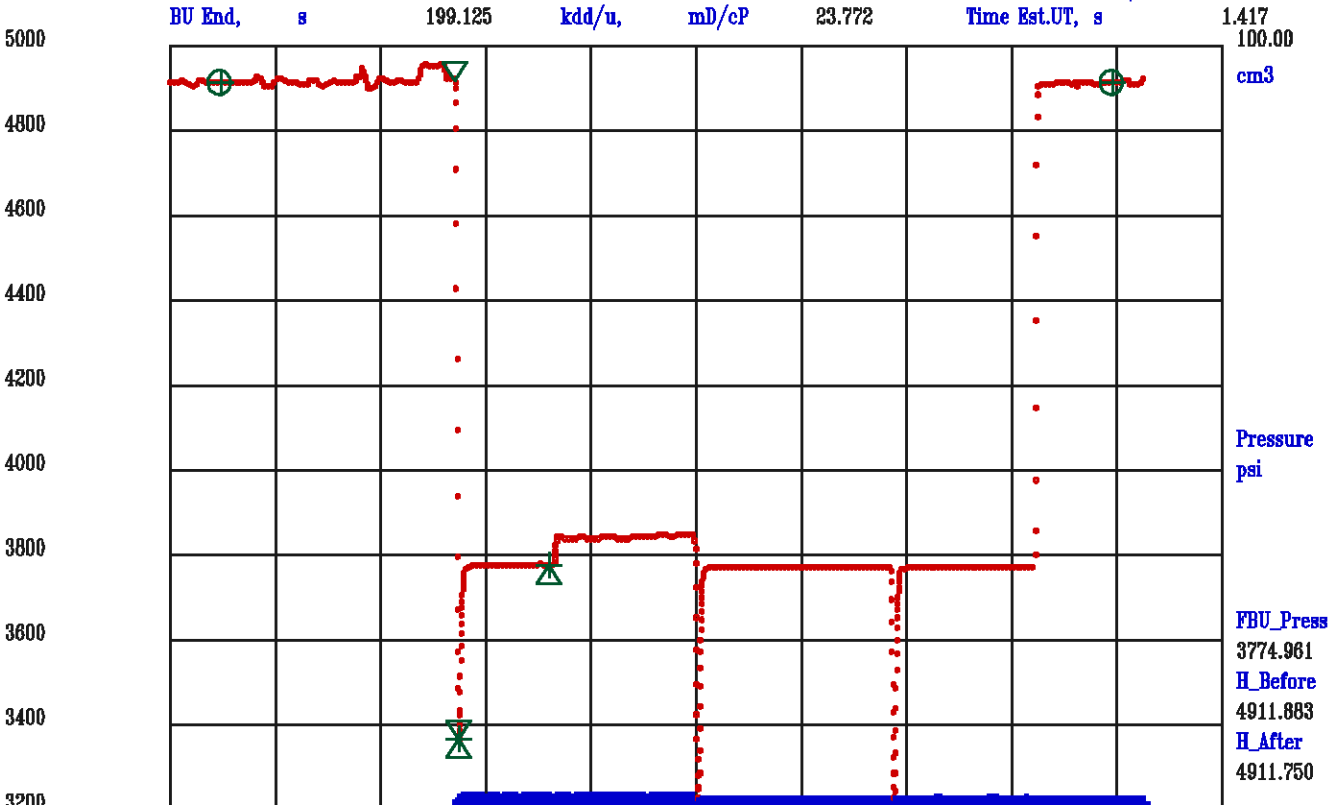
PRESSURE TEST – TVD Depth 2592.8 m
Measured Depth 2592.8 m

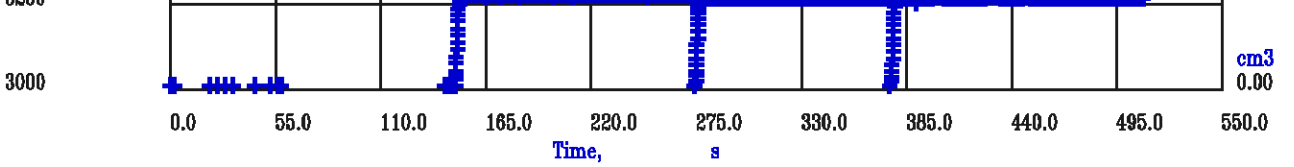
Meta File: i800a38_0.qd1.meta

DRAWDOWN: PACKER
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2592.8 TVD Depth, m 2592.8 i800a38_0.qd1.meta

DD Start,	s	150.000	SF Press,	psi	3774.967	Flow Rate,	cm3/s	5.096
DD End,	s	152.125	FF Press,	psi	3366.295	DD Volum,	cm3	10.759
BU Start,	s	152.125	Kdd Perm,	mD	23.772	Fill Rate,	min/L	0.356
BU End,	s	199.125	kdd/u,	mD/cP	23.772	Time Est.UT,	s	1.417

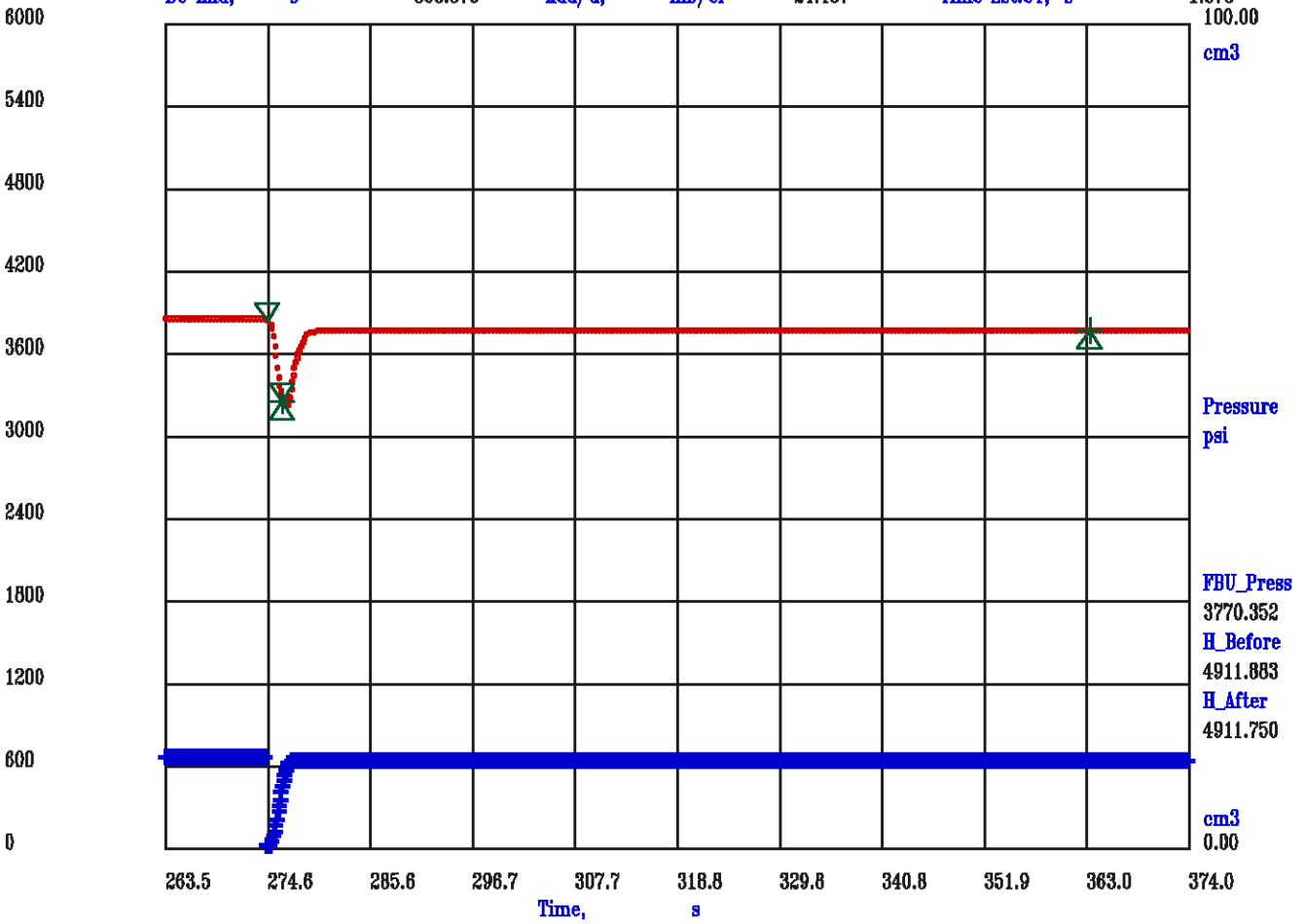




Meta File: i800a38_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2592.8 TVD Depth, m 2592.8 i800a38_1.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

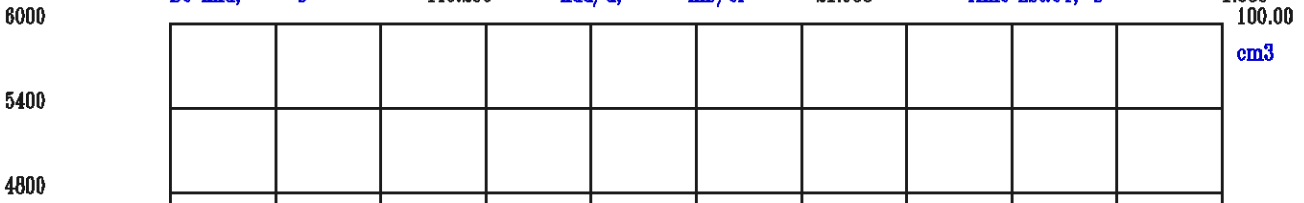
DD Start,	s	274.625	SF Press,	psi	3770.352	Flow Rate,	cm3/s	6.663
DD End,	s	276.250	FF Press,	psi	3251.129	DD Volum,	cm3	10.759
BU Start,	s	276.250	Kdd Perm,	mD	24.467	Fill Rate,	min/L	0.347
BU End,	s	363.375	kdd/u,	mD/cP	24.467	Time Est.UT,	s	1.378

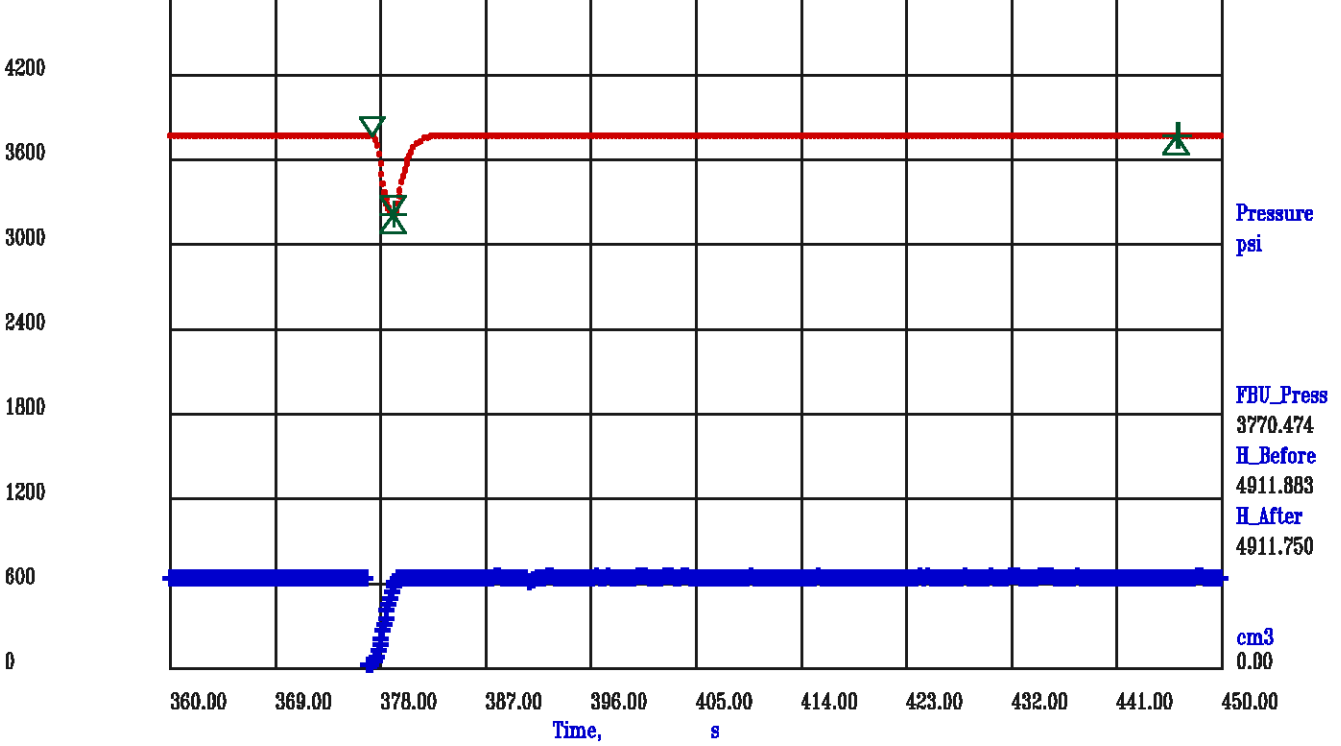


Meta File: i800a38_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2592.8 TVD Depth, m 2592.8 i800a38_2.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	377.500	SF Press,	psi	3770.474	Flow Rate,	cm3/s	6.486
DD End,	s	379.125	FF Press,	psi	3207.306	DD Volum,	cm3	10.473
BU Start,	s	379.125	Kdd Perm,	mD	21.958	Fill Rate,	min/L	0.386
BU End,	s	446.250	kdd/u,	mD/cP	21.958	Time Est.UT,	s	1.535





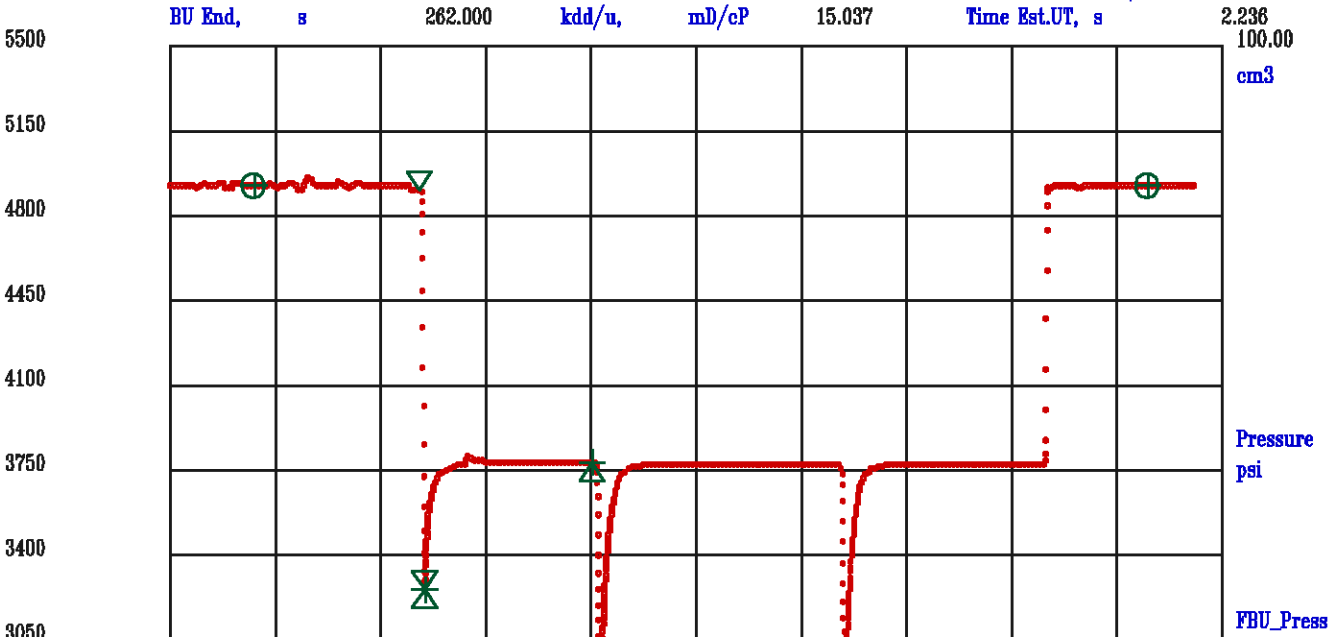
PRESSURE TEST – TVD Depth 2598.0 m
Measured Depth 2598.0 m

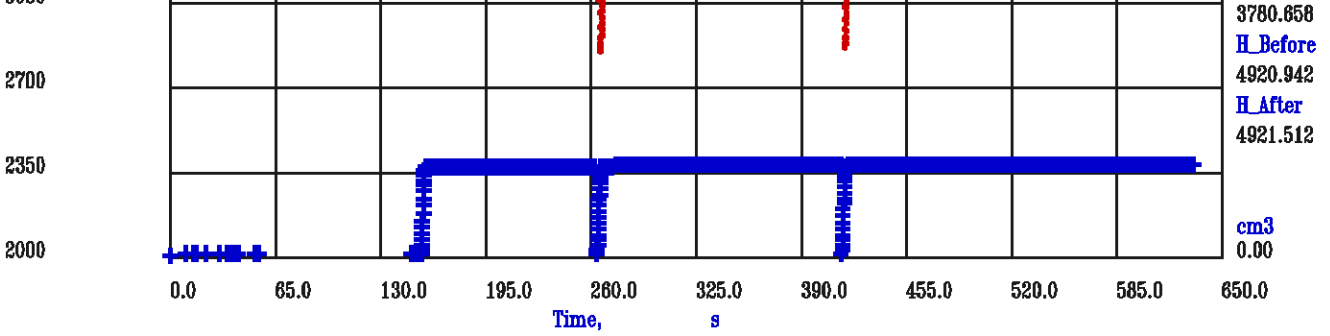
Meta File: i800a39_0.qd1.meta

DRAWDOWN: PACKER
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2598.0 TVD Depth, m 2598.0 i800a39_0.qd1.meta

DD Start,	s	155.375	SF Press,	psi	3780.658	Flow Rate,	cm3/s	4.122
DD End,	s	157.875	FF Press,	psi	3258.075	DD Volum,	cm3	10.239
BU Start,	s	157.875	Kdd Perm,	mD	15.037	Fill Rate,	min/L	0.563
BU End,	s	262.000	kdd/u,	mD/cP	15.037	Time Est.UT,	s	2.236



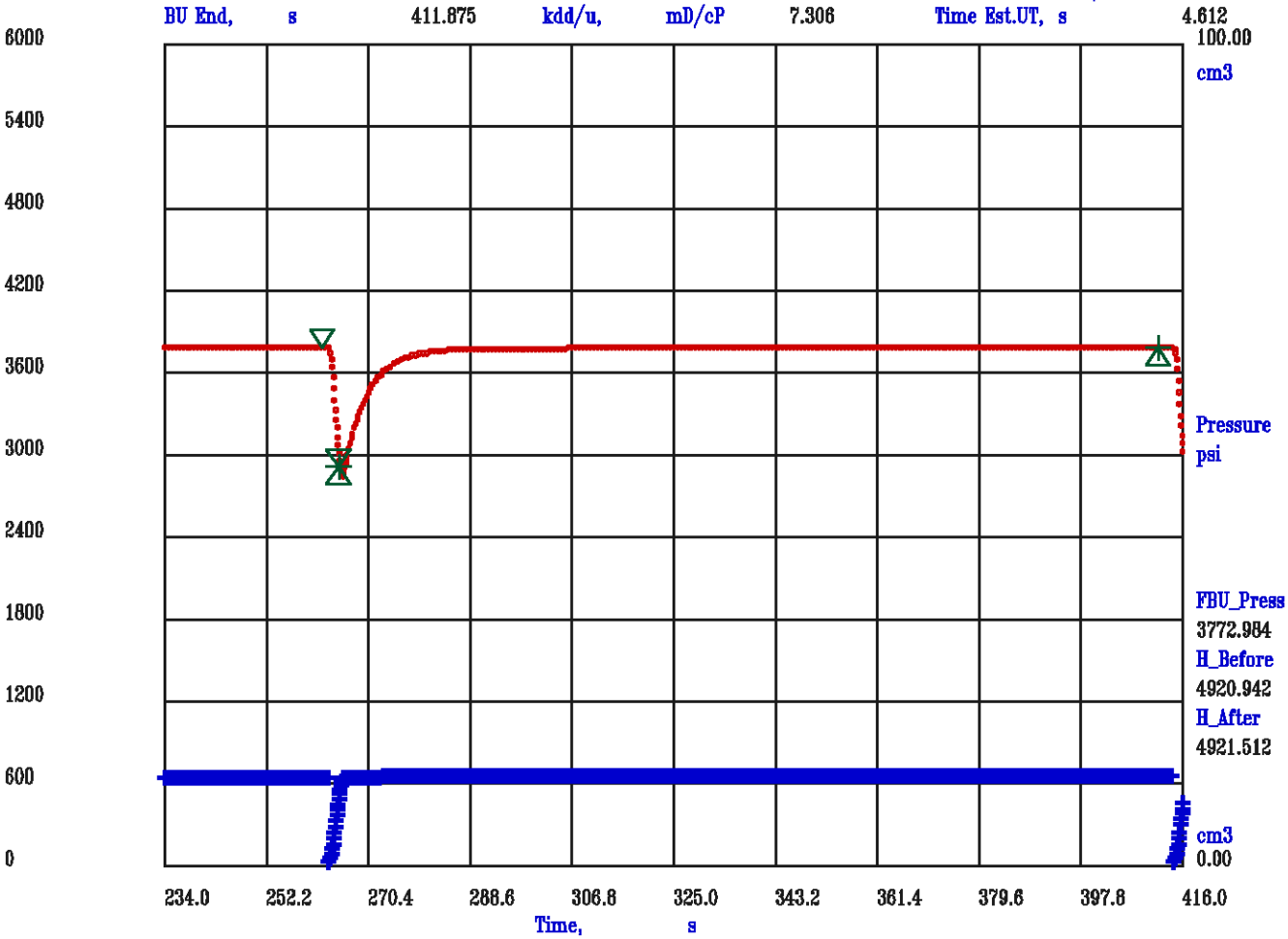


Meta File: i800a39_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2598.0 TVD Depth, m 2598.0 i800a39_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	262.375	SF Press,	psi	3772.984	Flow Rate,	cm3/s	3.344
DD End,	s	265.500	FF Press,	psi	2900.310	DD Volum,	cm3	10.384
BU Start,	s	265.500	Kdd Perm,	mD	7.306	Fill Rate,	min/L	1.160
BU End,	s	411.875	kdd/u,	mD/cP	7.306	Time Est.UT,	s	4.612

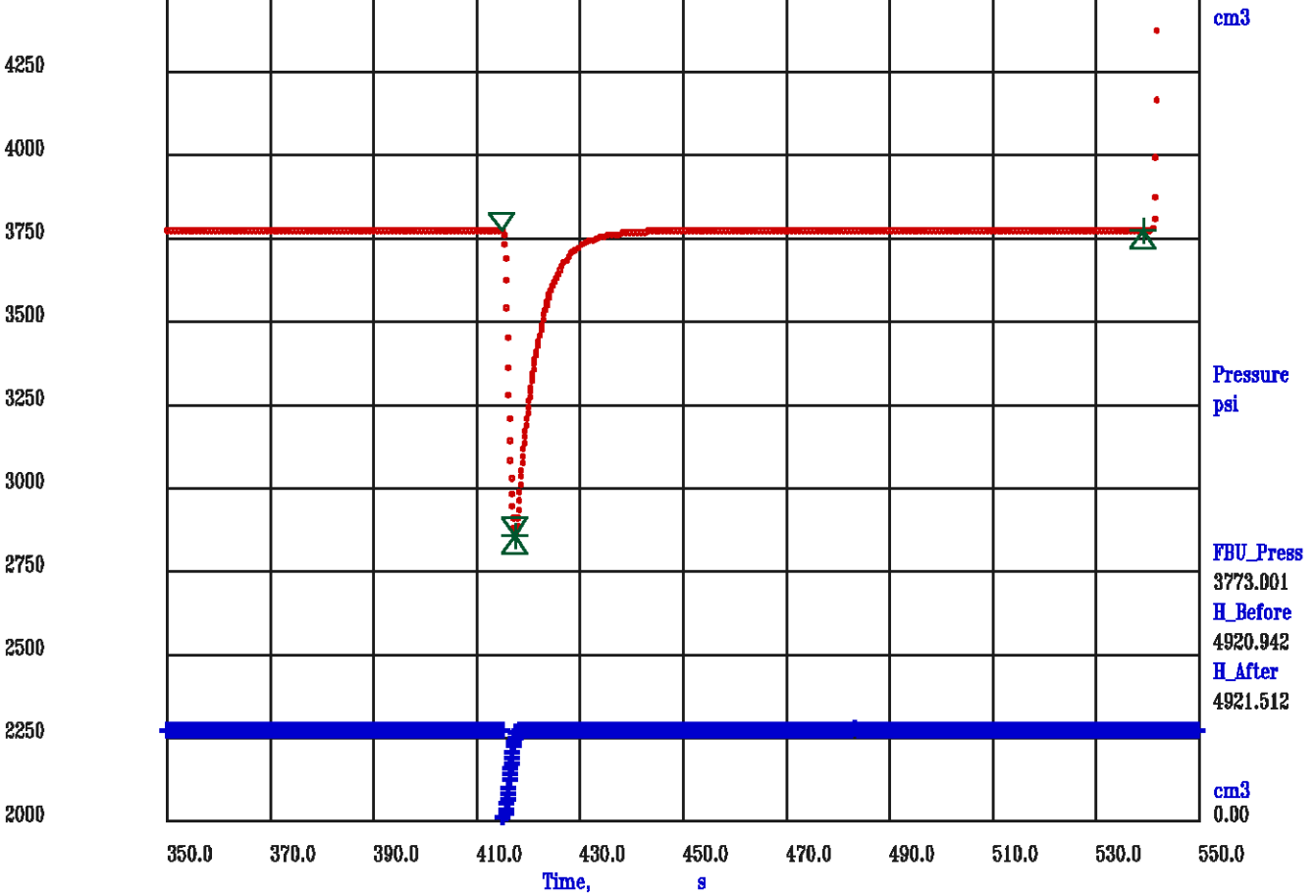


Meta File: i800a39_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2598.0 TVD Depth, m 2598.0 i800a39_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	415.250	SF Press,	psi	3773.001	Flow Rate,	cm3/s	4.132
DD End,	s	417.750	FF Press,	psi	2853.182	DD Volum,	cm3	10.265
BU Start,	s	417.750	Kdd Perm,	mD	8.565	Fill Rate,	min/L	0.990
BU End,	s	539.375	kdd/u,	mD/cP	8.565	Time Est.UT,	s	3.934



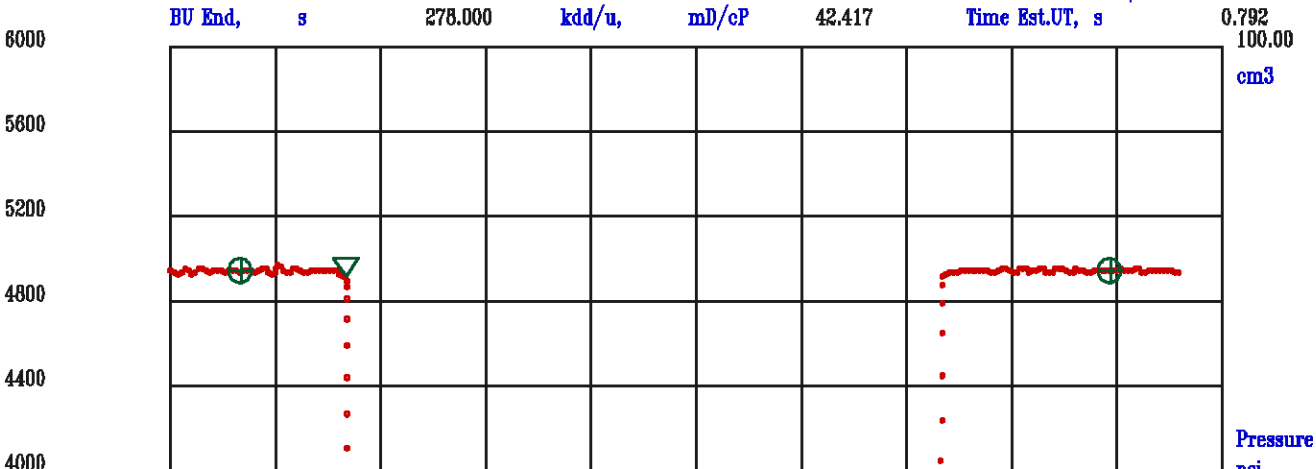
PRESSURE TEST – TVD Depth 2605.6 m
Measured Depth 2605.6 m

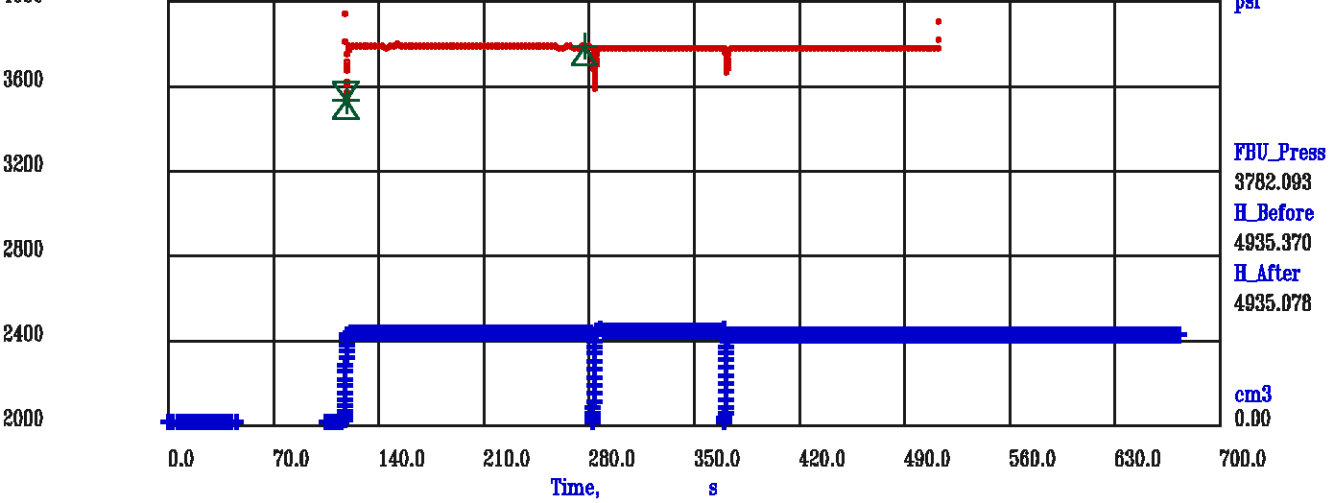
Meta File: i800a41_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2605.6 | TVD Depth, m 2605.6 | i800a41_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	117.875	SF Press,	psi	3782.081	Flow Rate,	cm3/s	5.665
DD End,	s	119.750	FF Press,	psi	3527.461	DD Volum,	cm3	10.554
BU Start,	s	119.750	Kdd Perm,	mD	42.417	Fill Rate,	min/L	0.199
BU End,	s	278.000	kdd/u,	mD/cP	42.417	Time Est.UT,	s	0.792



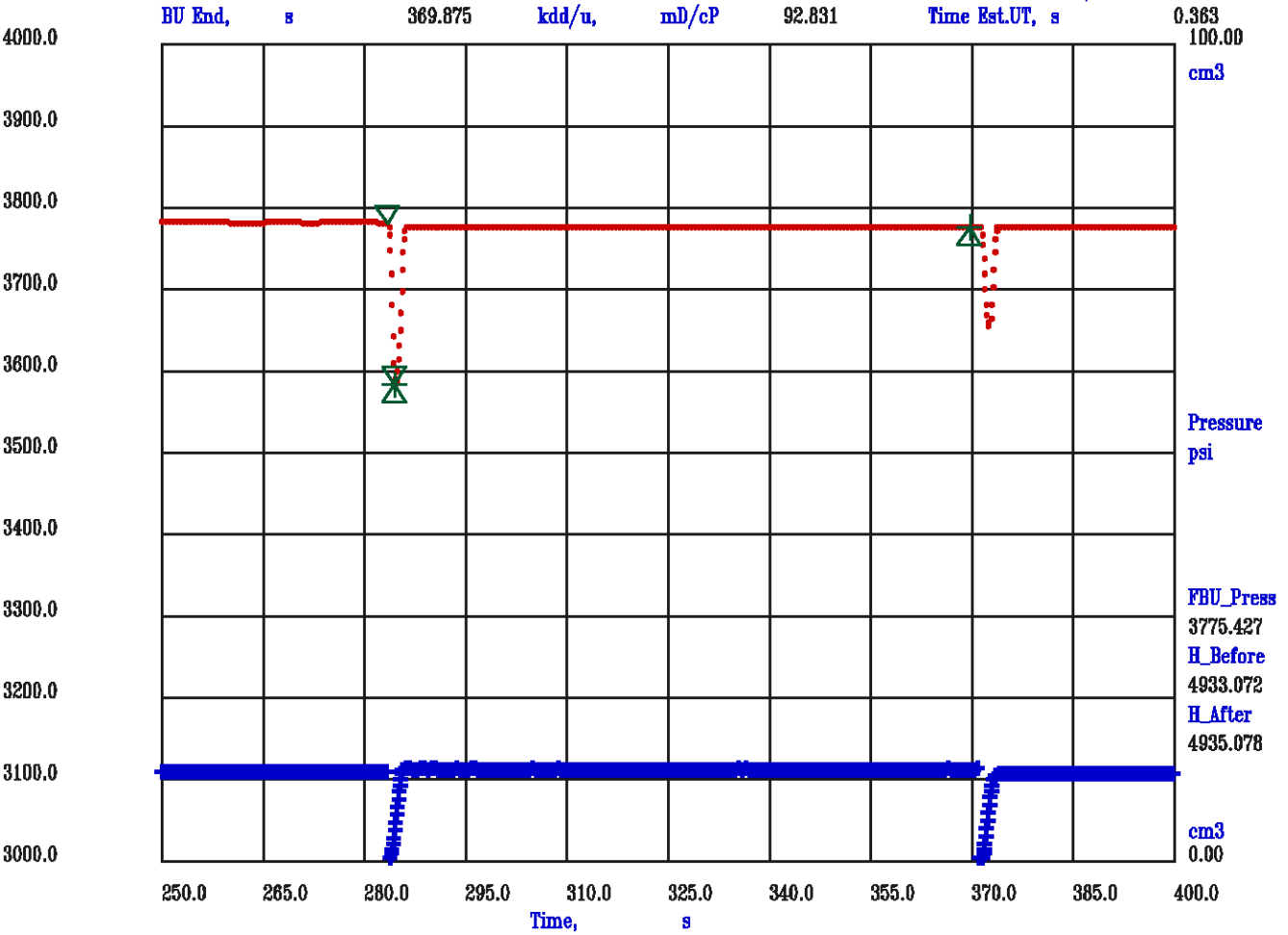


Meta File: i800a41_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2605.6 TVD Depth, m 2605.6 i800a41_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	283.625	SF Press,	psi	3775.427	Flow Rate,	cm3/s	9.427
DD End,	s	284.750	FF Press,	psi	3581.812	DD Volum,	cm3	10.538
BU Start,	s	284.750	Kdd Perm,	mD	92.831	Fill Rate,	min/L	0.091
BU End,	s	369.875	kdd/u,	mD/cP	92.831	Time Est.UT,	s	0.363

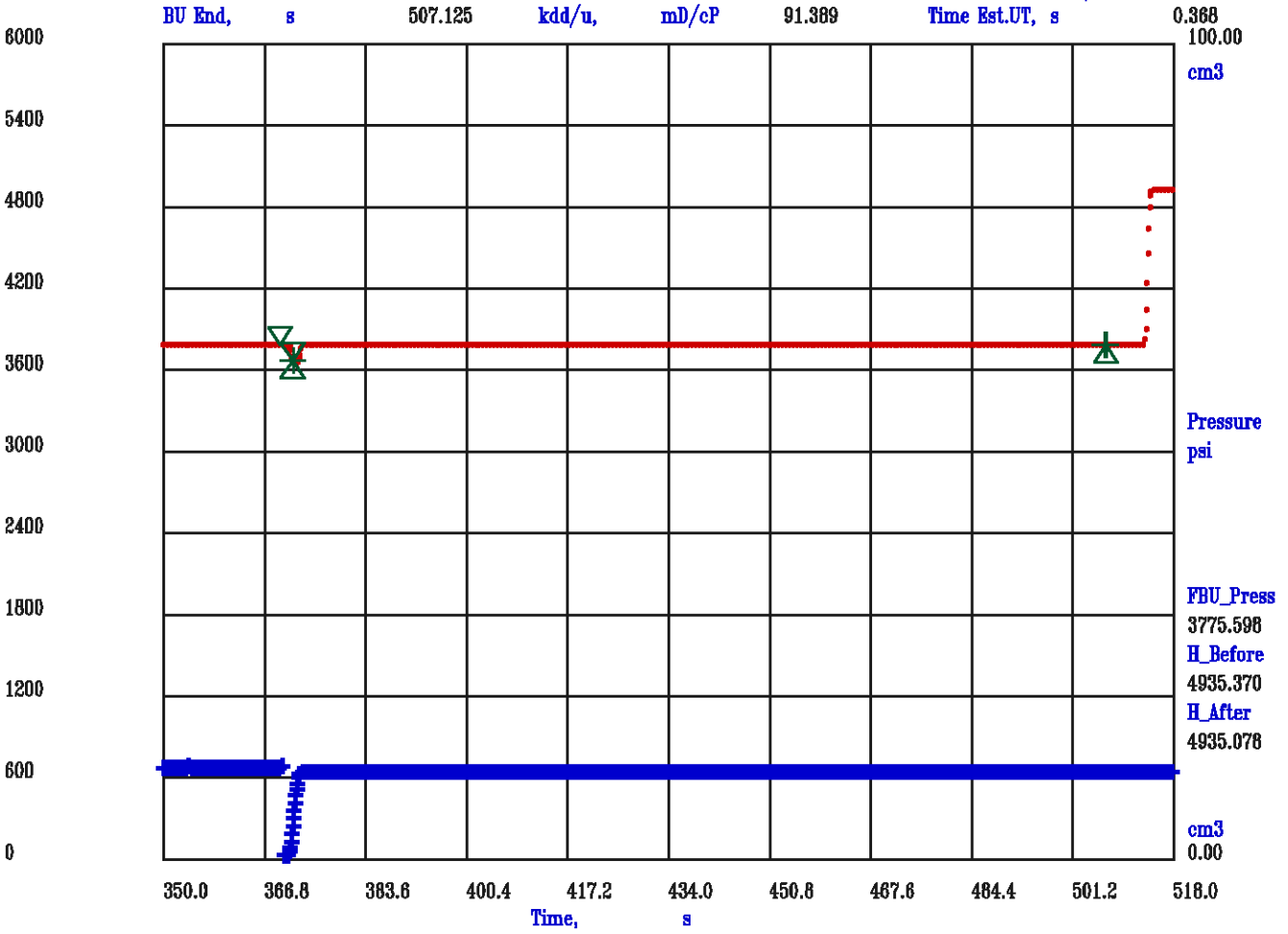


Meta File: i800a41_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2605.6 TVD Depth, m 2605.6 i800a41_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	369.625	SF Press,	psi	3775.583	Flow Rate,	cm3/s	5.187
DD End,	s	371.750	FF Press,	psi	3667.365	DD Volum,	cm3	10.953
BU Start,	s	371.750	Kdd Perm,	mD	91.389	Fill Rate,	min/L	0.093
BU End,	s	507.125	kdd/u,	mD/cP	91.389	Time Est.UT,	s	0.368



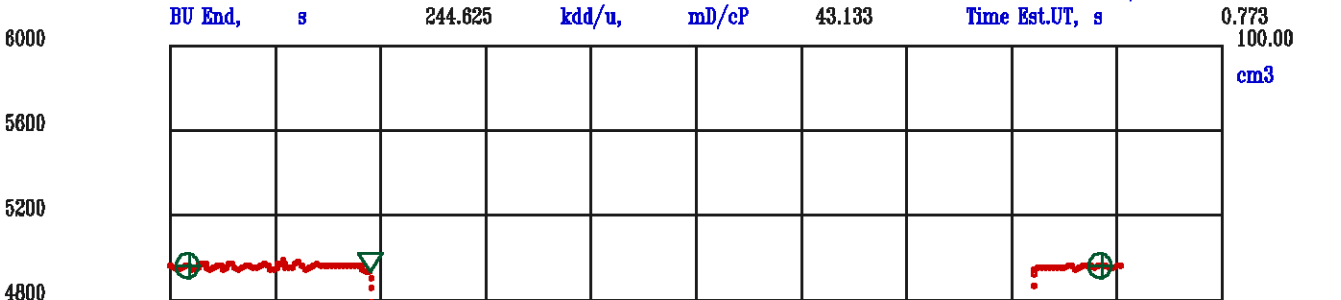
PRESSURE TEST – TVD Depth 2614.5 m
Measured Depth 2614.5 m

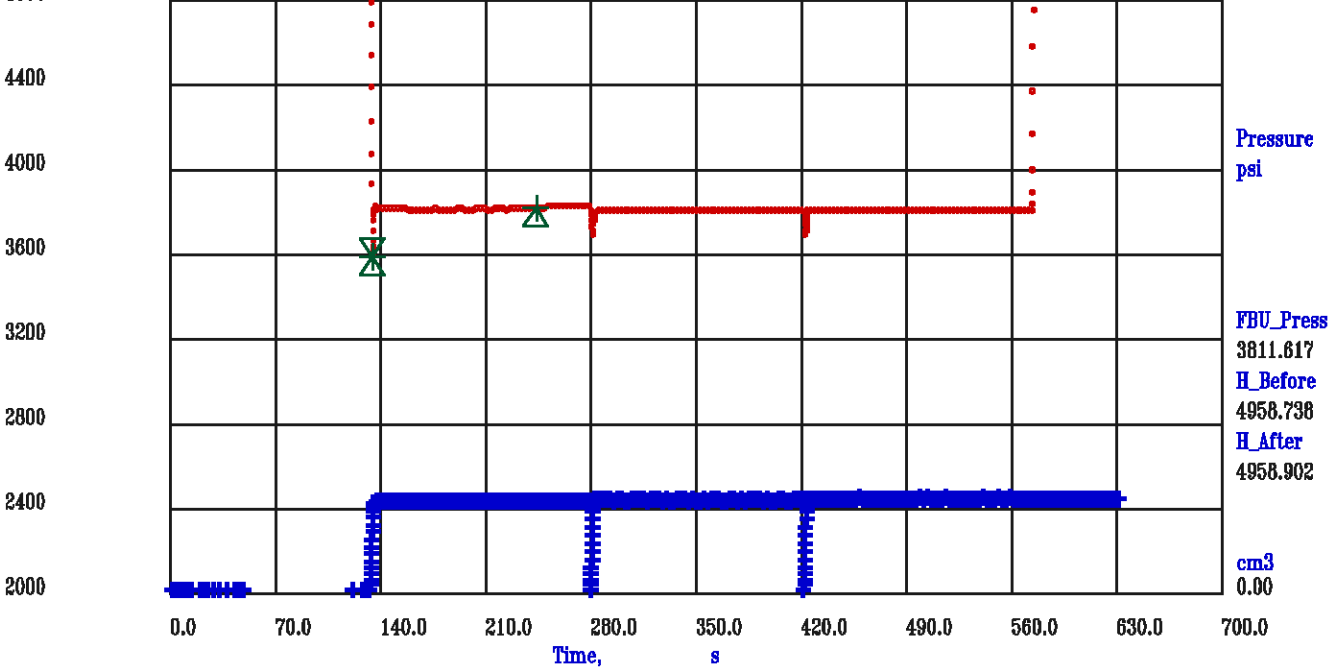
Meta File: i800a42_0.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2614.5 TVD Depth, m 2614.5 i800a42_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	134.000	SF Press,	psi	3811.626	Flow Rate,	cm3/s	5.044
DD End,	s	136.125	FF Press,	psi	3586.657	DD Volum,	cm3	10.651
BU Start,	s	136.125	Kdd Perm,	mD	43.133	Fill Rate,	min/L	0.195
BU End,	s	244.625	kdd/u,	mD/cP	43.133	Time Est.UT,	s	0.773



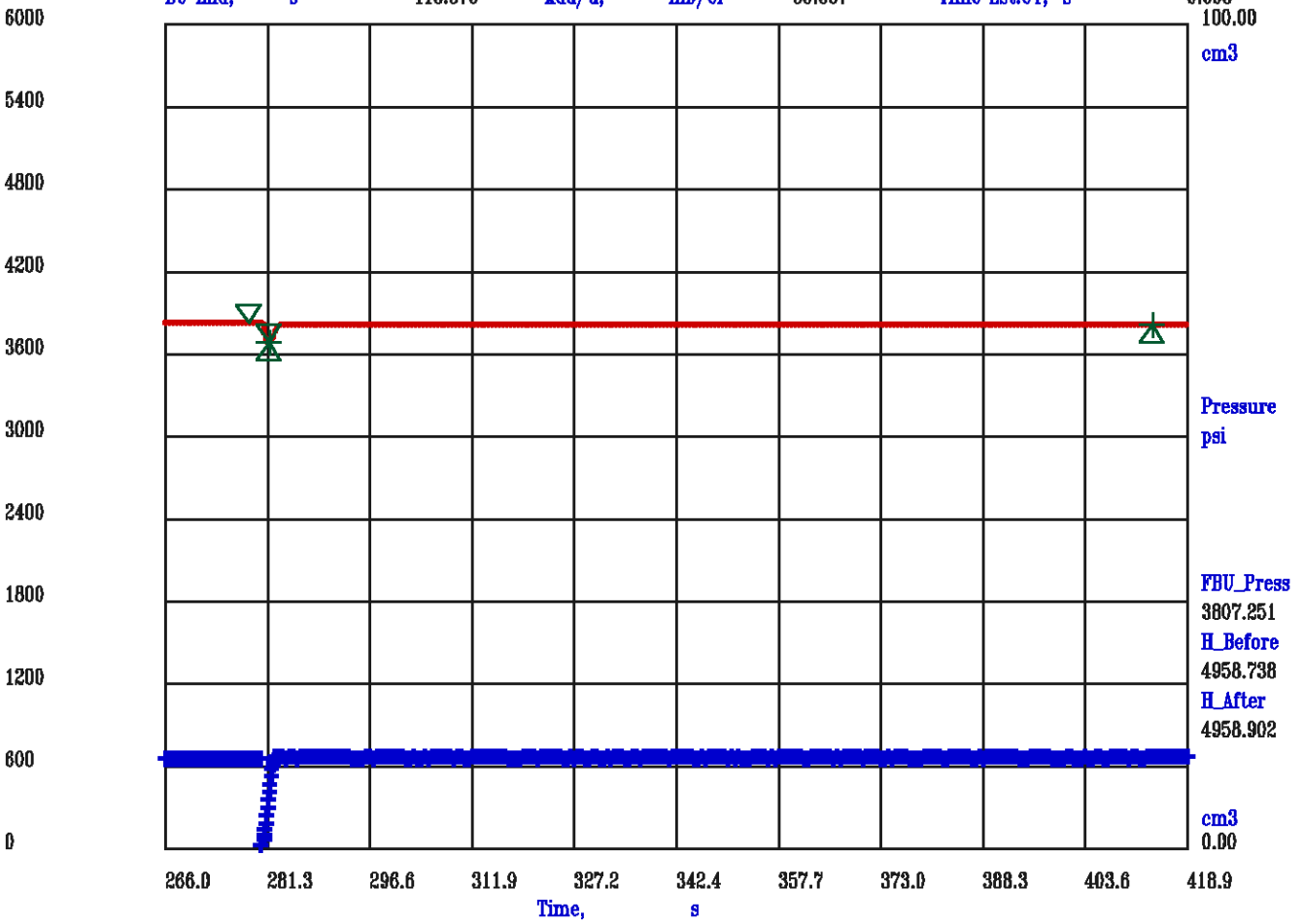


Meta File: i800a42_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2614.5 TVD Depth, m 2614.5 i800a42_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	278.750	SF Press,	psi	3807.251	Flow Rate,	cm3/s	3.582
DD End,	s	281.750	FF Press,	psi	3683.924	DD Volum,	cm3	10.676
BU Start,	s	281.750	Kdd Perm,	mD	55.367	Fill Rate,	min/L	0.152
BU End,	s	413.875	kdd/u,	mD/cP	55.367	Time Est.UT,	s	0.603

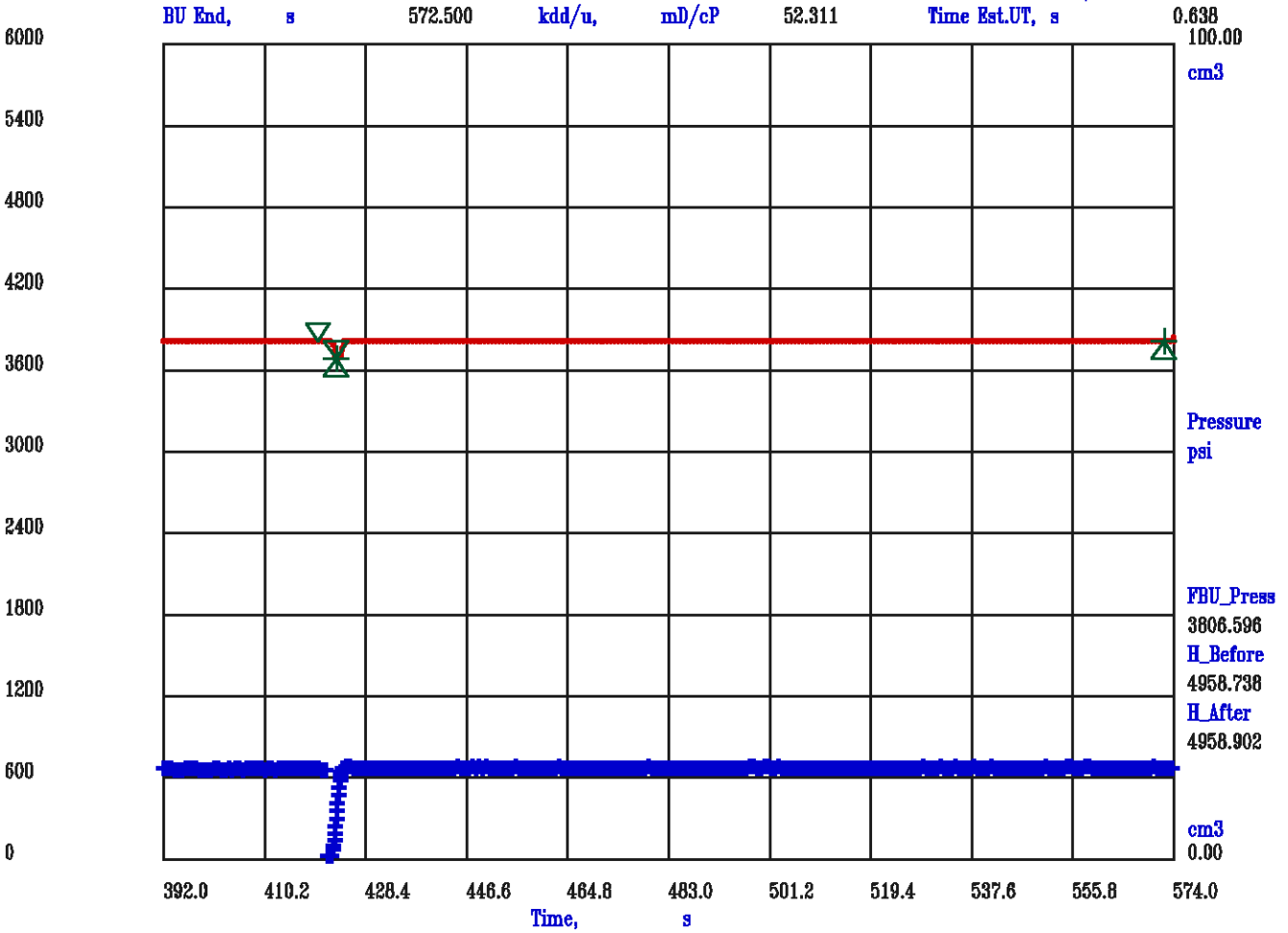


Meta File: i800a42_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2614.5 TVD Depth, m 2614.5 i800a42_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	420.000	SF Press,	psi	3806.596	Flow Rate,	cm3/s	3.327
DD End,	s	423.250	FF Press,	psi	3685.348	DD Volum,	cm3	10.743
BU Start,	s	423.250	Kdd Perm,	mD	52.311	Fill Rate,	min/L	0.161
BU End,	s	572.500	kdd/u,	mD/cP	52.311	Time Est.UT,	s	0.638



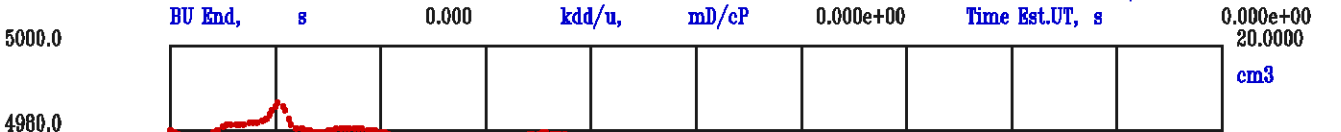
PRESSURE TEST – TVD Depth 2626.4 m
Measured Depth 2626.4 m

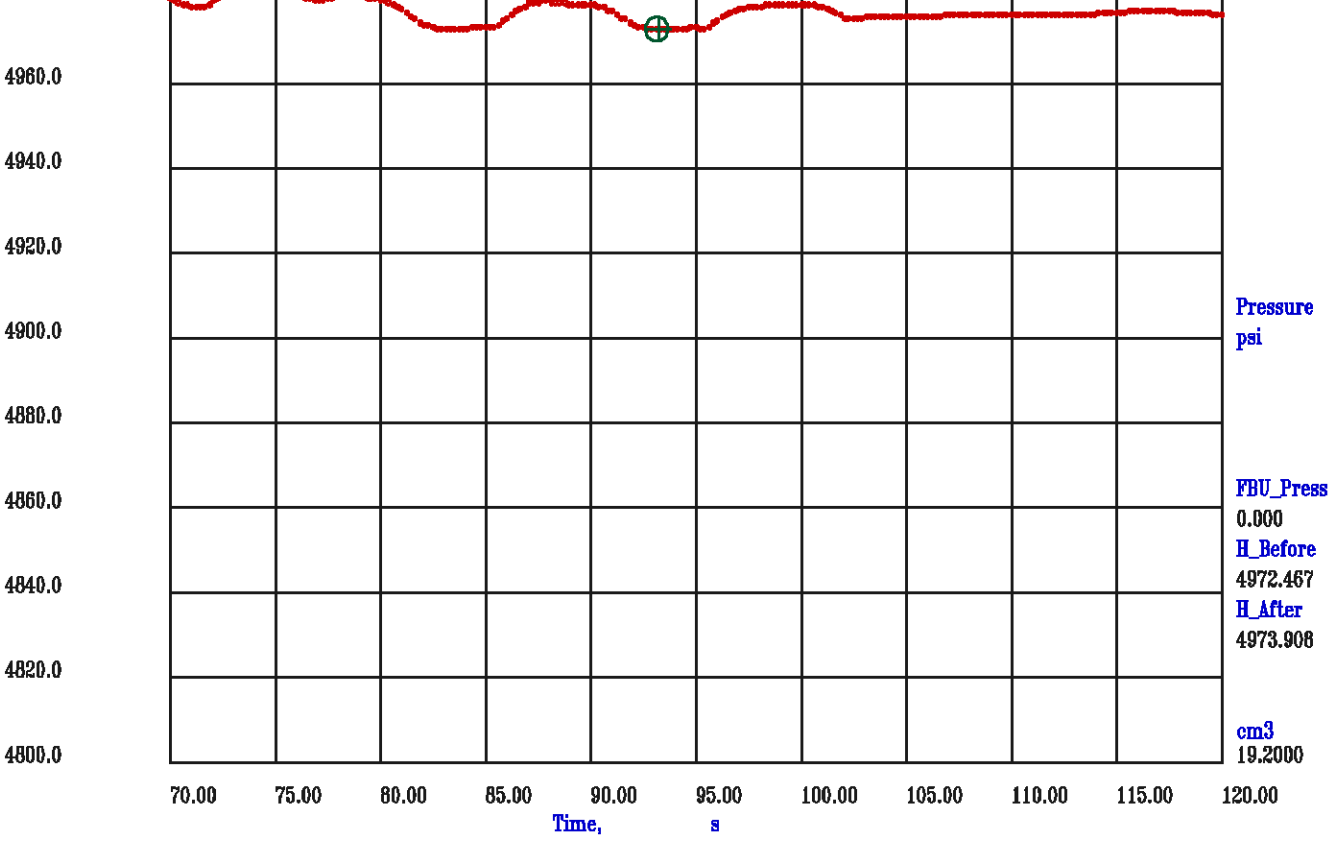
Meta File: i800a43_0.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2626.4 TVD Depth, m 2626.4 i800a43_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	0.000	SF Press,	psi	0.000	Flow Rate,	cm3/s	0.000e+00
DD End,	s	0.000	FF Press,	psi	0.000	DD Volum,	cm3	0.000e+00
BU Start,	s	0.000	Kdd Perm,	mD	0.000e+00	Fill Rate,	min/L	0.000e+00
BU End,	s	0.000	kdd/u,	mD/cP	0.000e+00	Time Est.UT,	s	0.000e+00





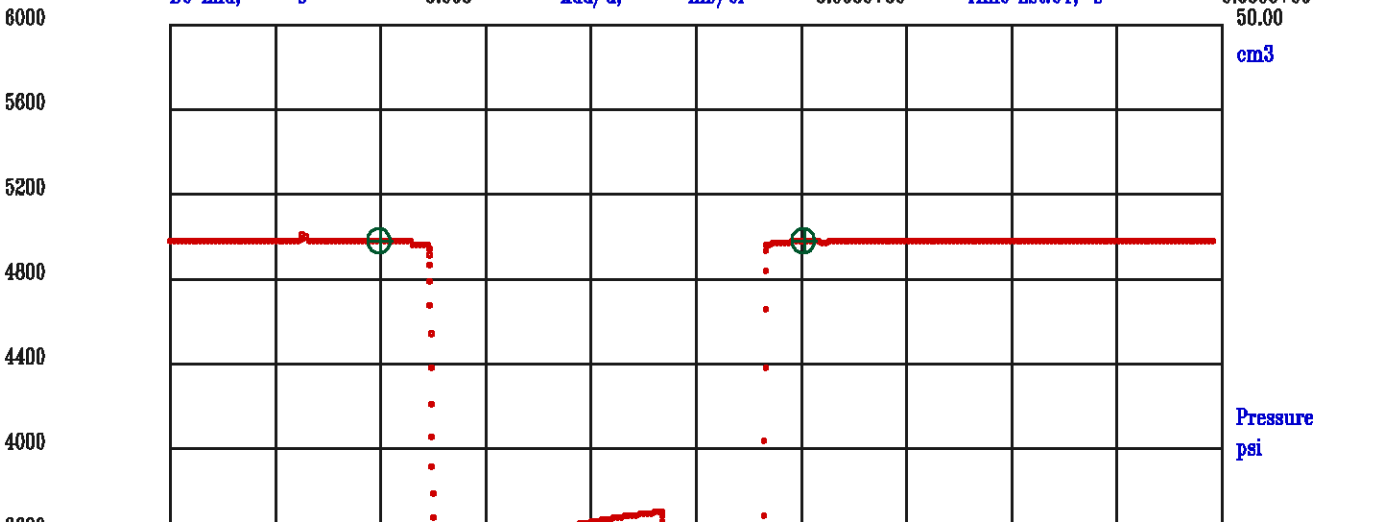
PRESSURE TEST – TVD Depth 2626.6 m
Measured Depth 2626.6 m

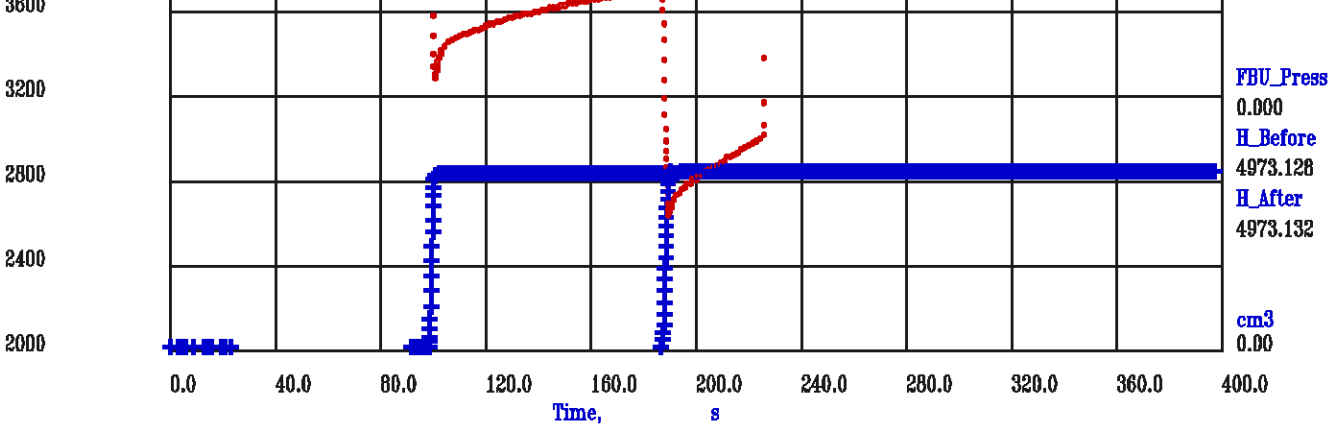
Meta File: i800a44_0.qd1.meta

DRAWDOWN: PACKER
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2626.6 TVD Depth, m 2626.6 i800a44_0.qd1.meta

DD Start,	s	0.000	SF Press,	psi	0.000	Flow Rate,	cm3/s	0.000e+00
DD End,	s	0.000	FF Press,	psi	0.000	DD Volum,	cm3	0.000e+00
BU Start,	s	0.000	Kdd Perm,	mD	0.000e+00	Fill Rate,	min/L	0.000e+00
BU End,	s	0.000	kdd/u,	mD/cP	0.000e+00	Time Est.UT,	s	0.000e+00





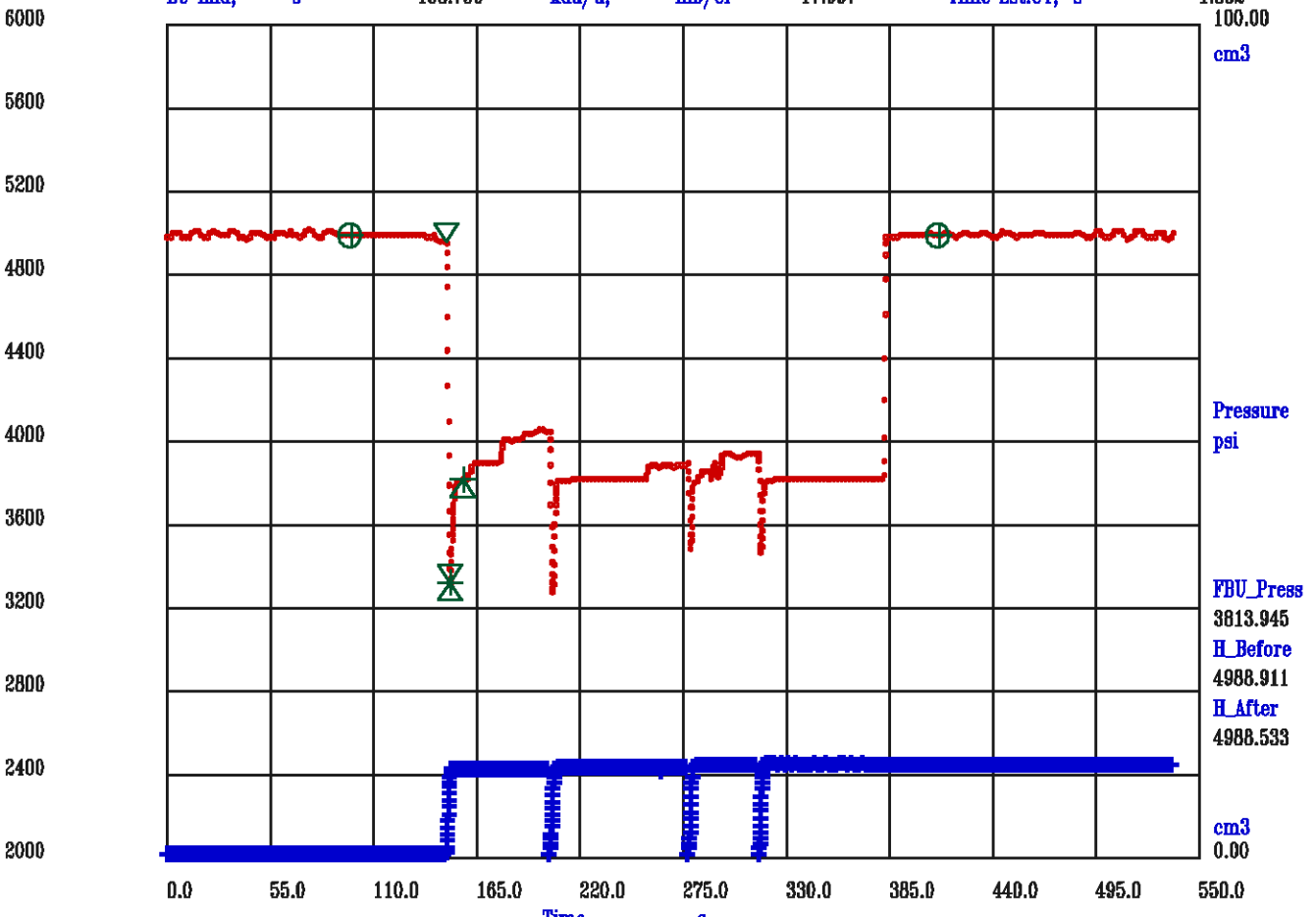
PRESSURE TEST – TVD Depth 2633.0 m
Measured Depth 2633.0 m

Meta File: i800a45_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2633.0 | TVD Depth, m 2633.0 | i800a45_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	149.750	SF Press,	psi	3813.945	Flow Rate,	cm3/s	4.660
DD End,	s	152.000	FF Press,	psi	3320.284	DD Volum,	cm3	10.418
BU Start,	s	152.000	Kdd Perm,	mD	17.997	Fill Rate,	min/L	0.466
BU End,	s	158.750	kdd/u,	mD/cP	17.997	Time Est.UT,	s	1.852



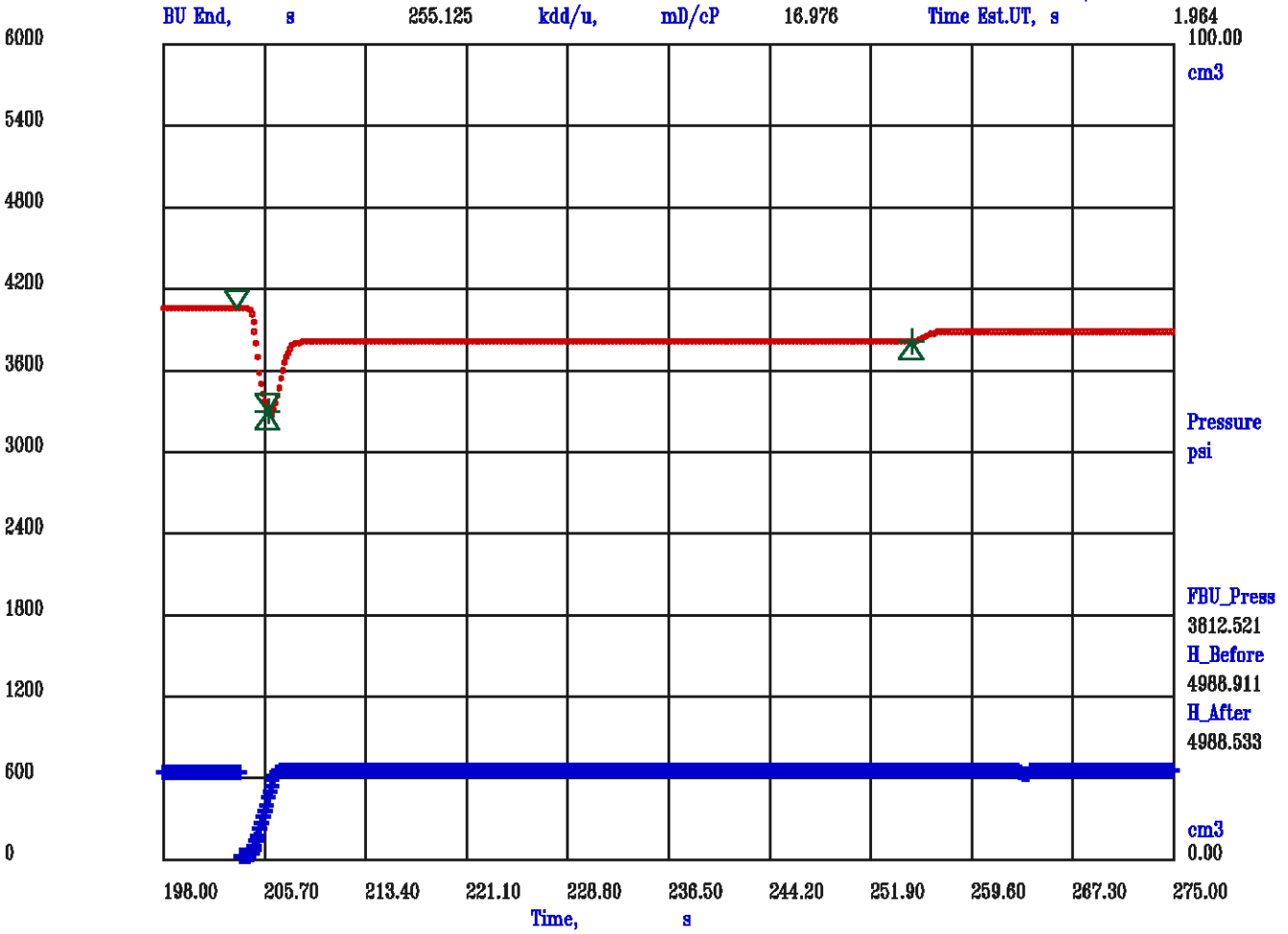
Time, s

Meta File: i800a45_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2633.0 | TVD Depth, m 2633.0 | i800a45_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	203.750	SF Press,	psi	3812.521	Flow Rate,	cm3/s	4.654
DD End,	s	206.000	FF Press,	psi	3289.879	DD Volum,	cm3	10.404
BU Start,	s	206.000	Kdd Perm,	mD	16.976	Fill Rate,	min/L	0.494
BU End,	s	255.125	kdd/u,	mD/cP	16.976	Time Est.UT,	s	1.964

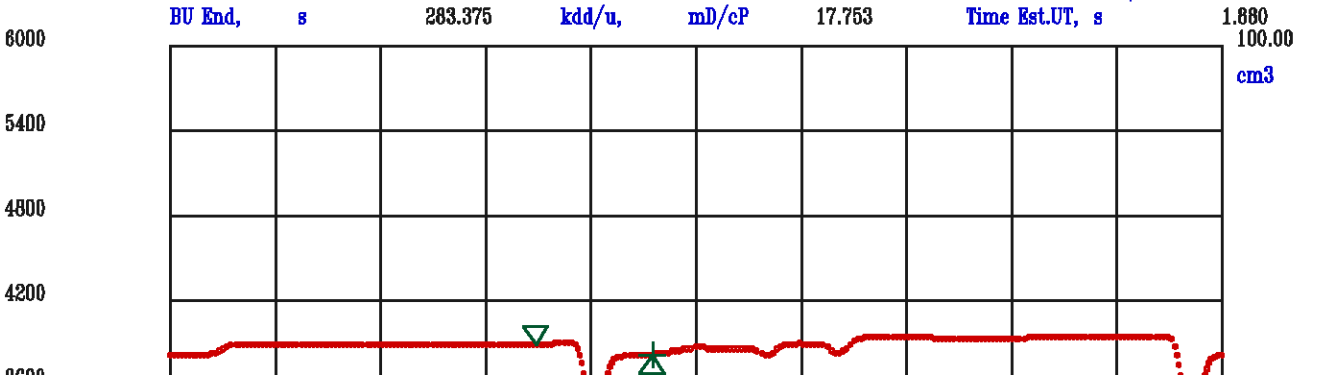


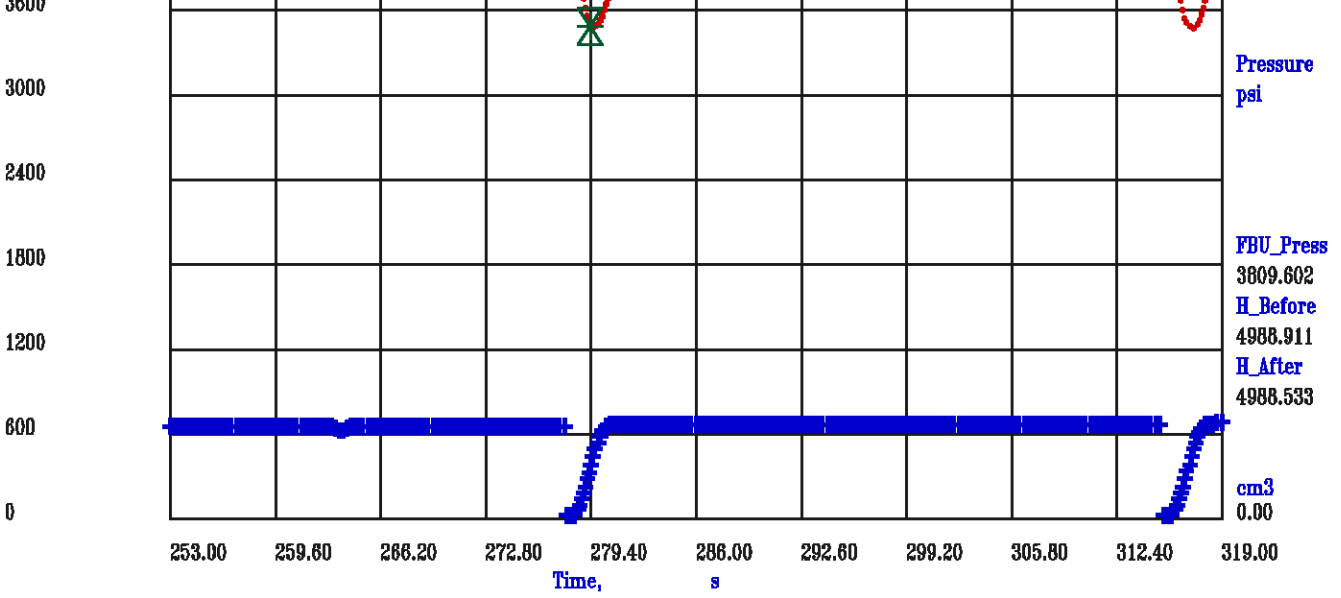
Meta File: i800a45_2.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2633.0 | TVD Depth, m 2633.0 | i800a45_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	276.000	SF Press,	psi	3809.602	Flow Rate,	cm3/s	3.062
DD End,	s	279.500	FF Press,	psi	3480.815	DD Volum,	cm3	10.647
BU Start,	s	279.500	Kdd Perm,	mD	17.753	Fill Rate,	min/L	0.473
BU End,	s	283.375	kdd/u,	mD/cP	17.753	Time Est.UT,	s	1.880



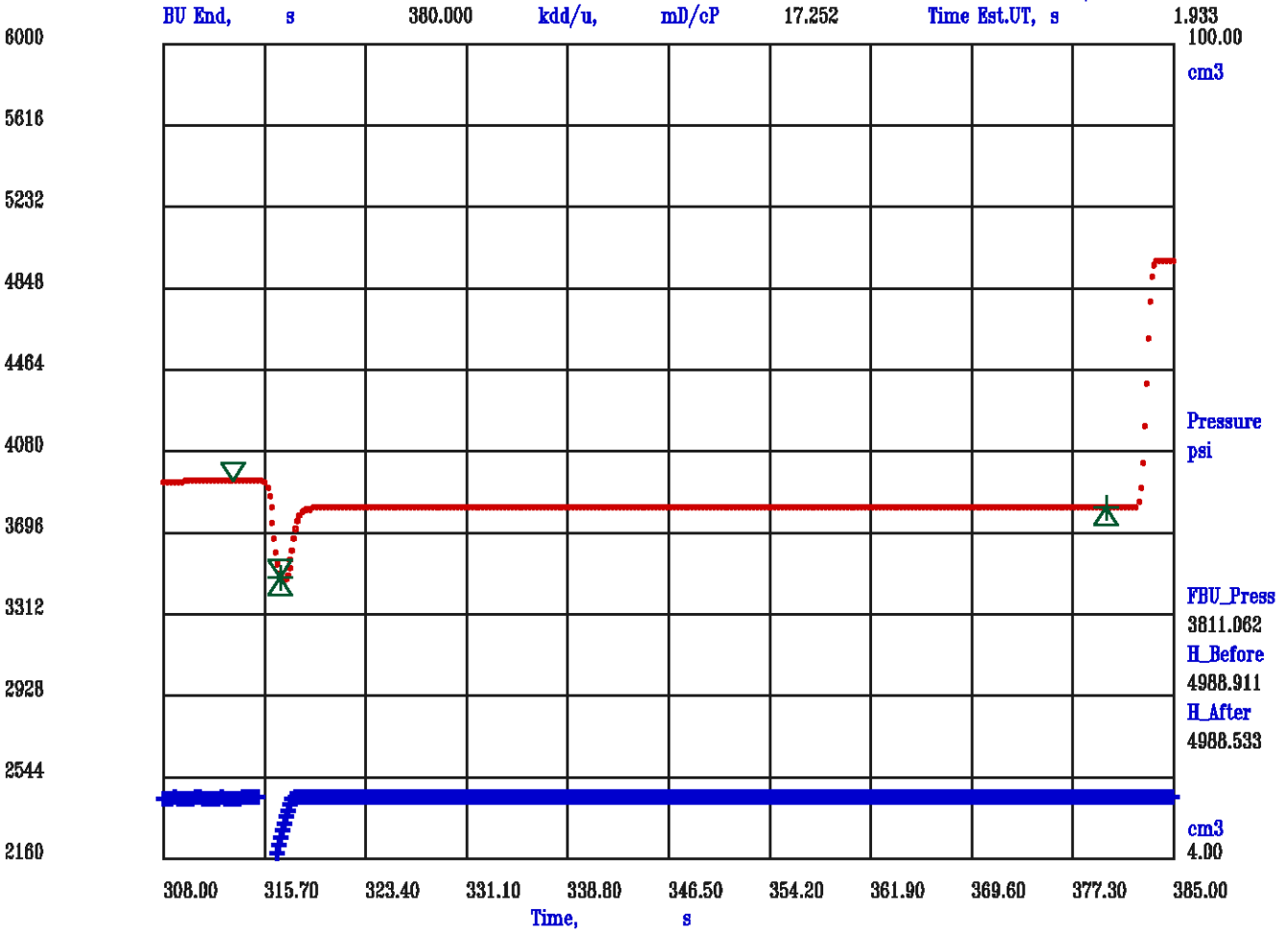


Meta File: i800a45_3.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2633.0 TVD Depth, m 2633.0 i800a45_3.qd1.meta

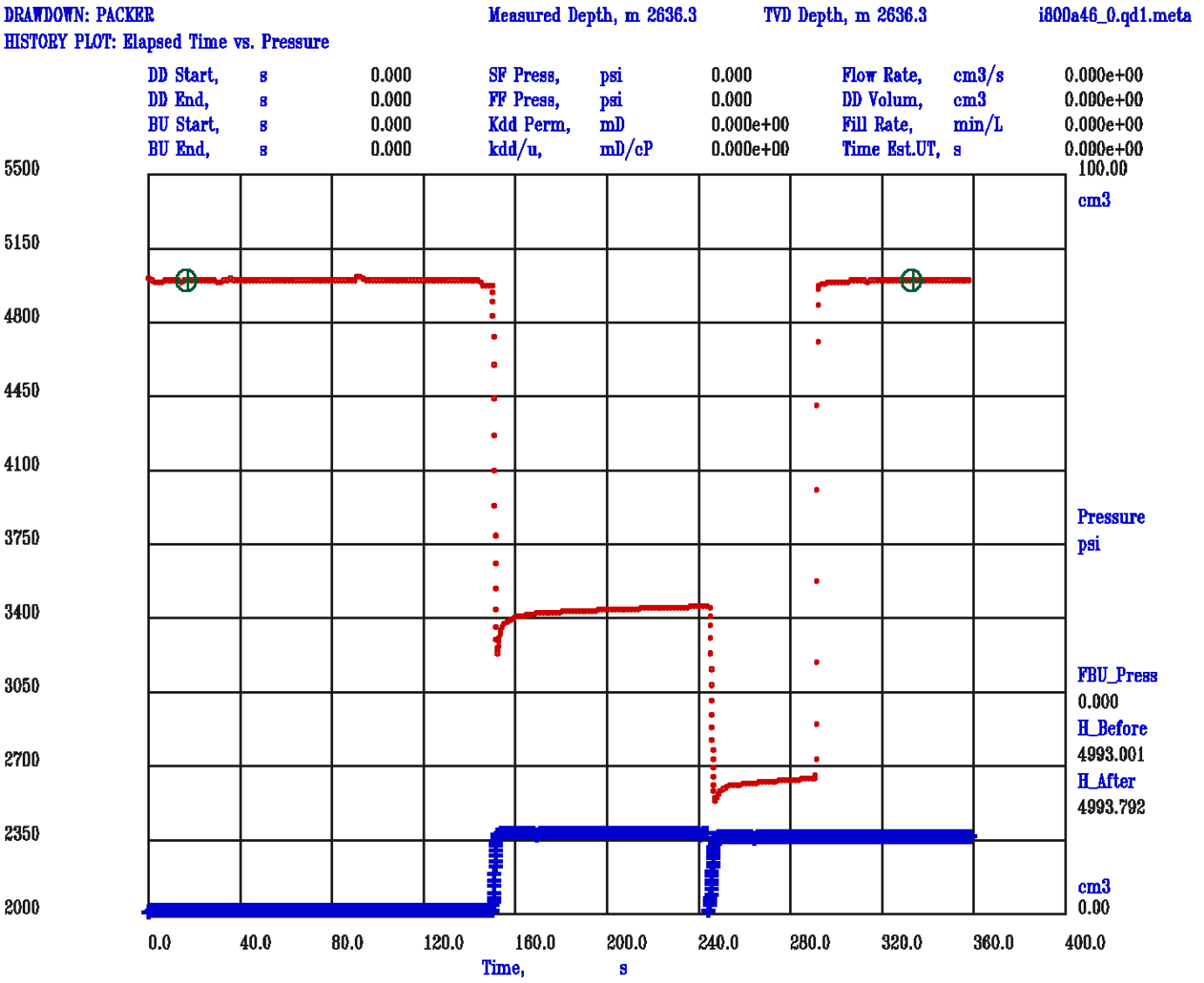
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	313.375	SF Press,	psi	3811.062	Flow Rate,	cm3/s	3.021
DD End,	s	317.000	FF Press,	psi	3477.245	DD Volum,	cm3	10.881
BU Start,	s	317.000	Kdd Perm,	mD	17.252	Fill Rate,	min/L	0.486
BU End,	s	380.000	kdd/u,	mD/cP	17.252	Time Est.UT,	s	1.933



PRESSURE TEST – TVD Depth 2636.3 m
Measured Depth 2636.3 m

Meta File: i800a46_0.qd1.meta



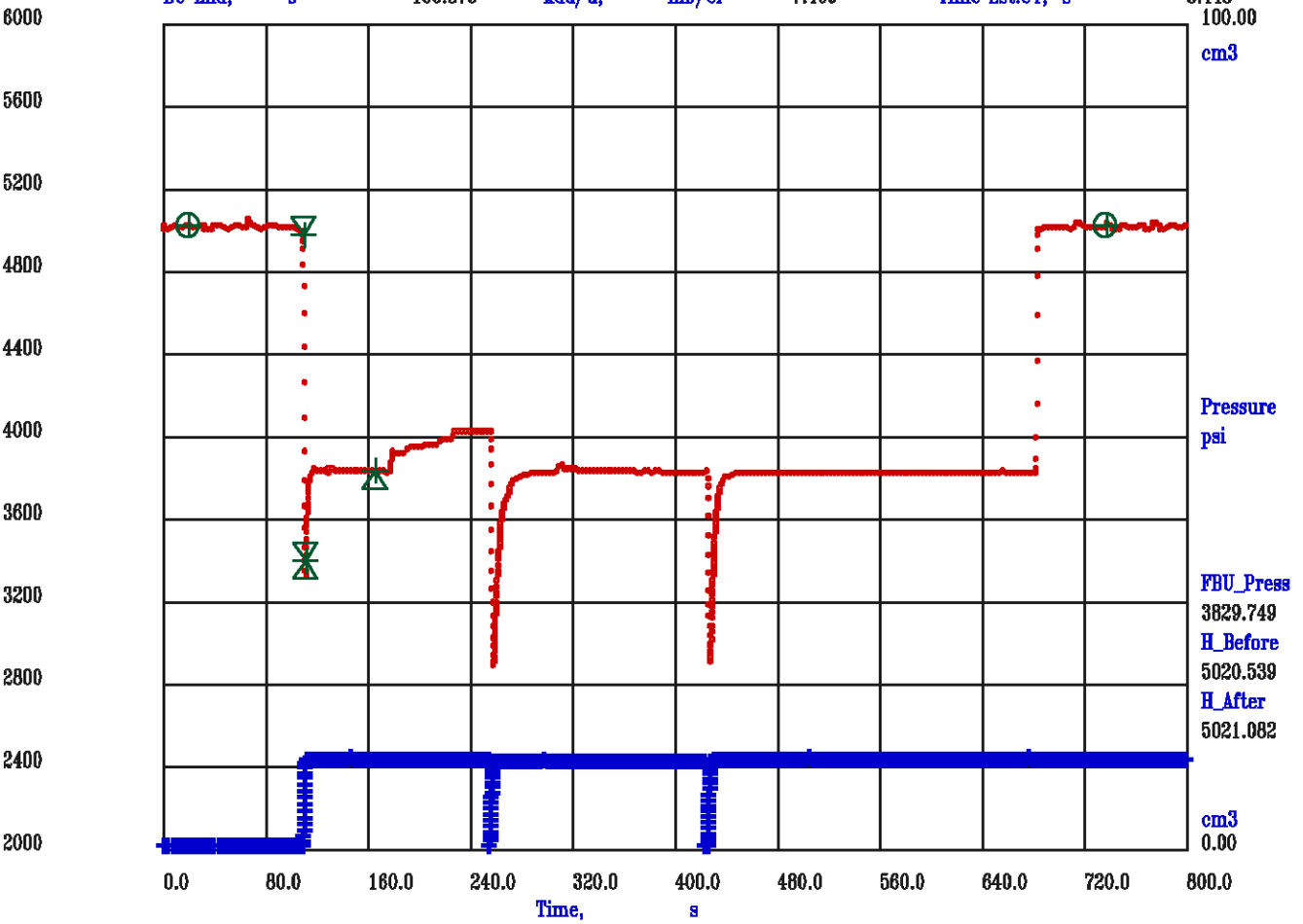
PRESSURE TEST – TVD Depth 2646.8 m
Measured Depth 2646.8 m

Meta File: i800a48_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2646.8 | TVD Depth, m 2646.8 | i800a48_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	110.125	SF Press,	psi	4976.225	Flow Rate,	cm3/s	6.135
DD End,	s	111.875	FF Press,	psi	3397.631	DD Volum,	cm3	10.667
BU Start,	s	111.875	Kdd Perm,	mD	7.409	Fill Rate,	min/L	0.868
BU End,	s	166.875	kdd/u,	mD/cP	7.409	Time Est.UT,	s	3.448

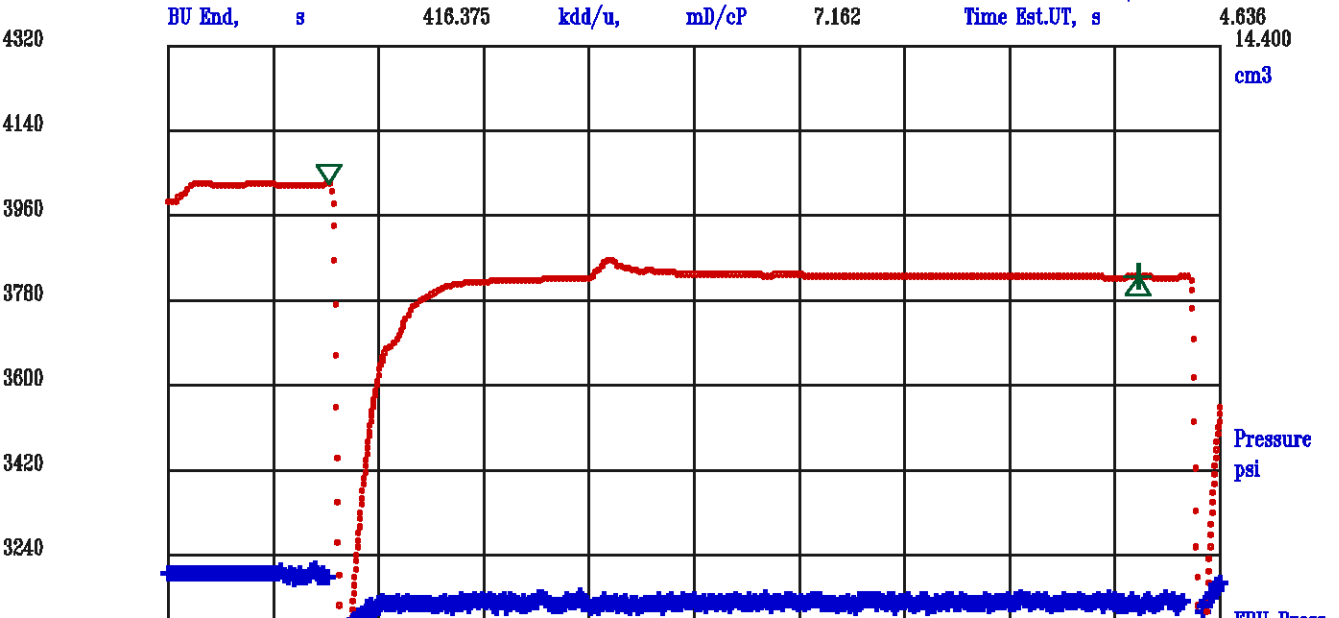


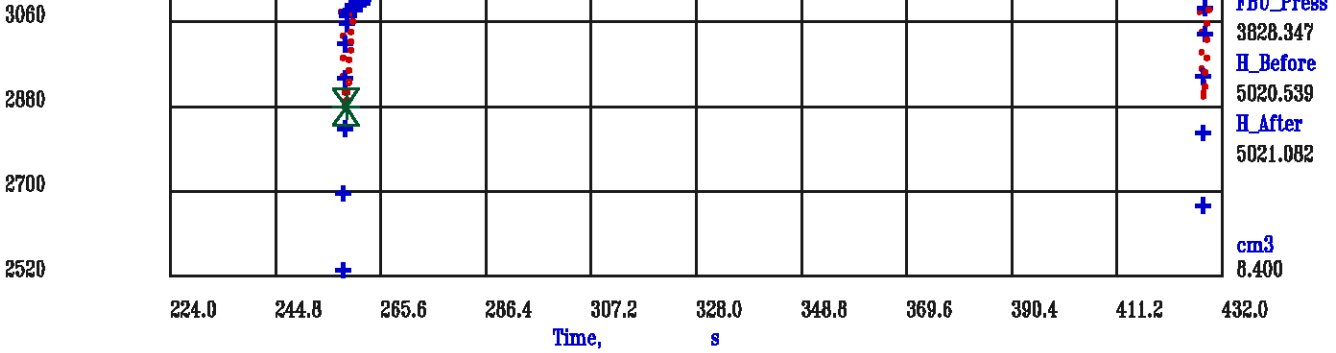
Meta File: i800a48_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2646.8 | TVD Depth, m 2646.8 | i800a48_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	256.000	SF Press,	psi	3828.389	Flow Rate,	cm3/s	3.564
DD End,	s	259.000	FF Press,	psi	2879.566	DD Volum,	cm3	10.625
BU Start,	s	259.000	Kdd Perm,	mD	7.162	Fill Rate,	min/L	1.166
BU End,	s	416.375	kdd/u,	mD/cP	7.162	Time Est.UT,	s	4.636



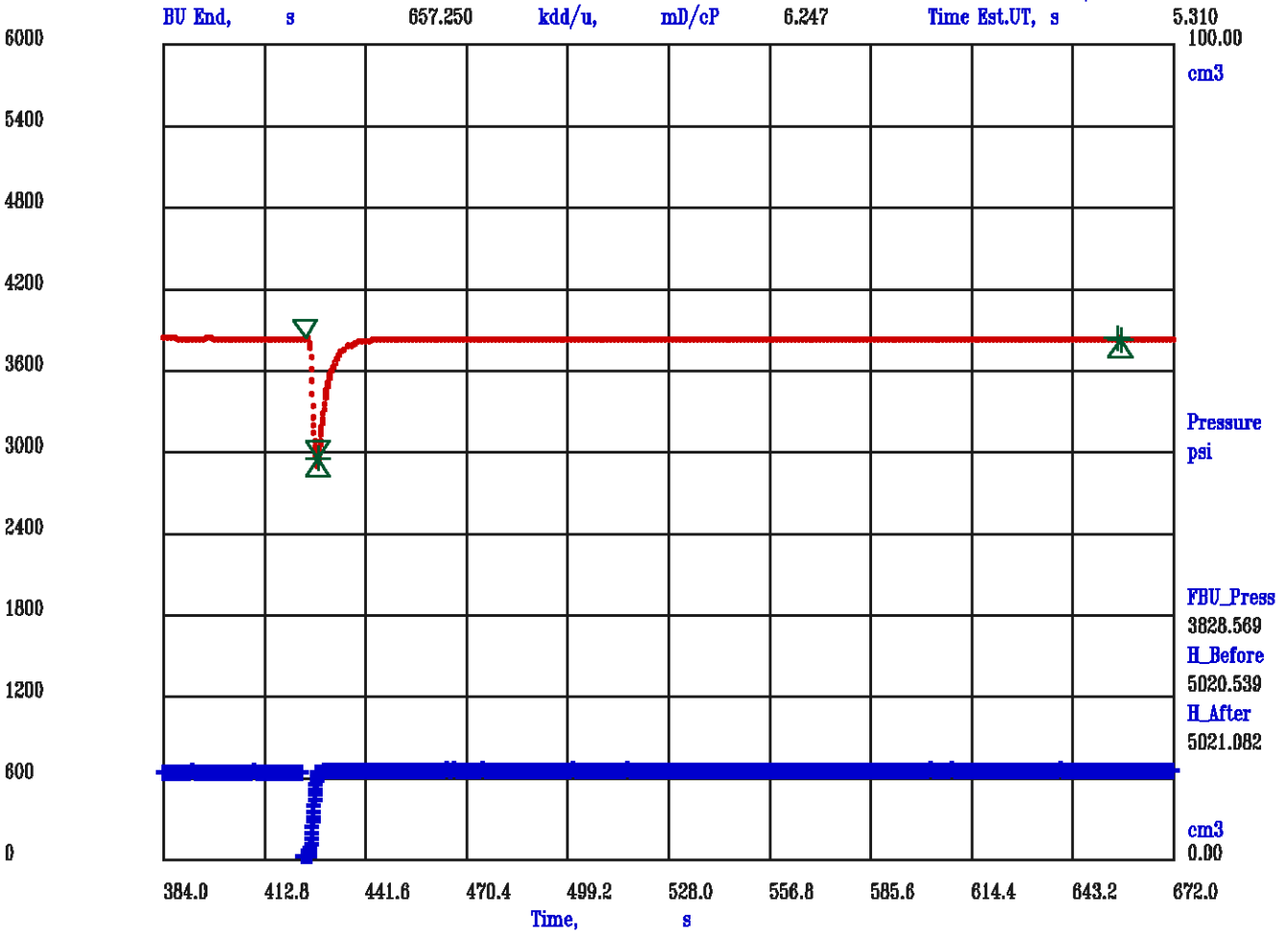


Meta File: i800a48_2.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2646.8 | TVD Depth, m 2646.8 | i800a48_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	424.750	SF Press,	psi	3832.302	Flow Rate,	cm3/s	2.892
DD End,	s	428.375	FF Press,	psi	2949.646	DD Volum,	cm3	10.417
BU Start,	s	428.375	Kdd Perm,	mD	6.247	Fill Rate,	min/L	1.336
BU End,	s	657.250	kdd/u,	mD/cP	6.247	Time Est.UT,	s	5.310



PRESSURE TEST – TVD Depth 2653.0 m

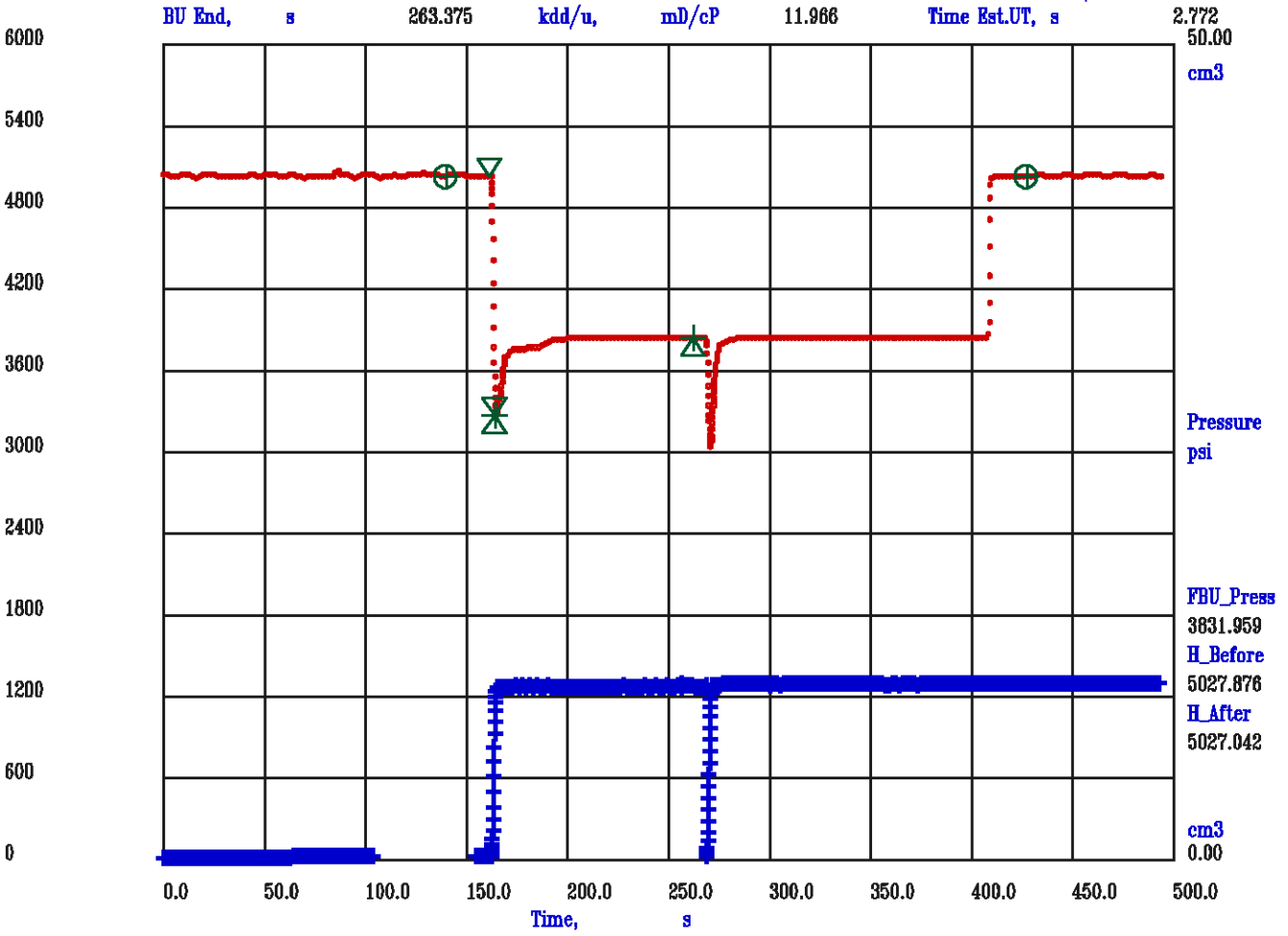
Measured Depth 2653.0 m

Meta File: i800a49_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2653.0 | TVD Depth, m 2653.0 | i800a49_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	162.125	SF Press,	psi	3831.935	Flow Rate,	cm3/s	3.550
DD End,	s	165.000	FF Press,	psi	3266.393	DD Volum,	cm3	10.140
BU Start,	s	165.000	Kdd Perm,	mD	11.966	Fill Rate,	min/L	0.698
BU End,	s	263.375	kdd/u,	mD/cP	11.966	Time Est.UT,	s	2.772

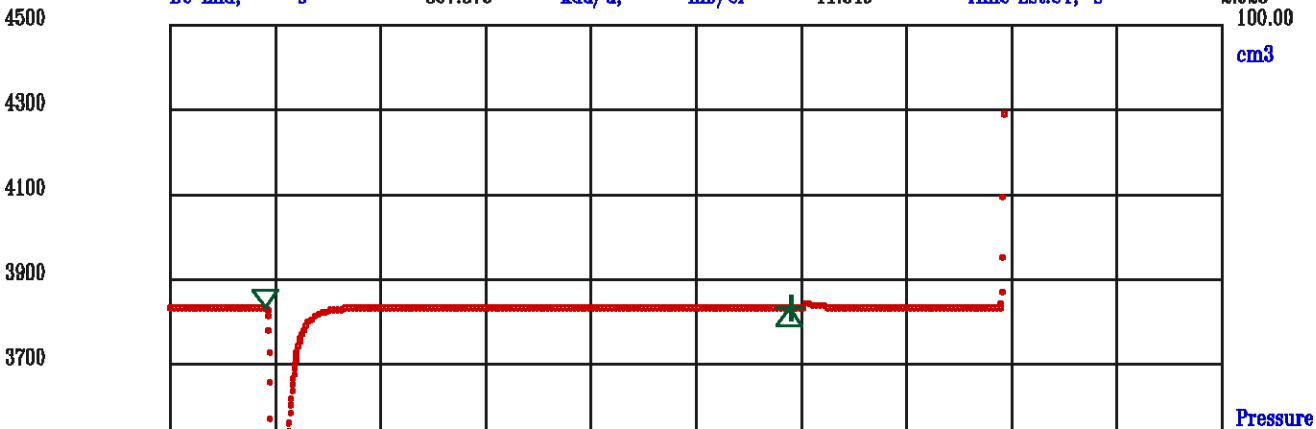


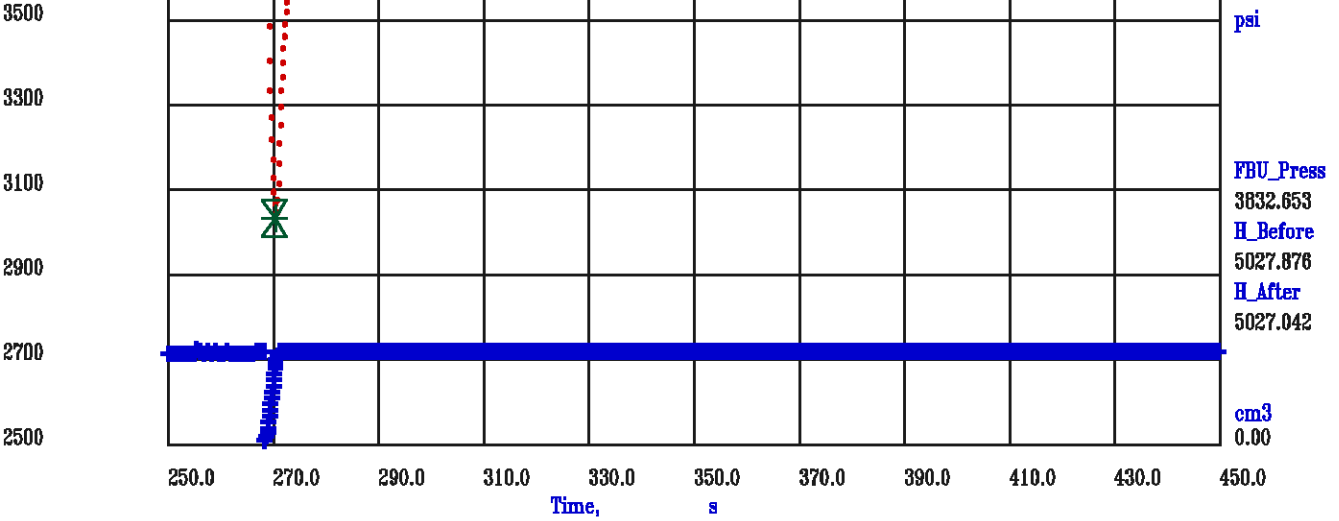
Meta File: i800a49_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2653.0 | TVD Depth, m 2653.0 | i800a49_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	268.375	SF Press,	psi	3832.643	Flow Rate,	cm3/s	4.773
DD End,	s	270.625	FF Press,	psi	3030.777	DD Volum,	cm3	10.671
BU Start,	s	270.625	Kdd Perm,	mD	11.349	Fill Rate,	min/L	0.735
BU End,	s	367.875	kdd/u,	mD/cP	11.349	Time Est.UT,	s	2.923





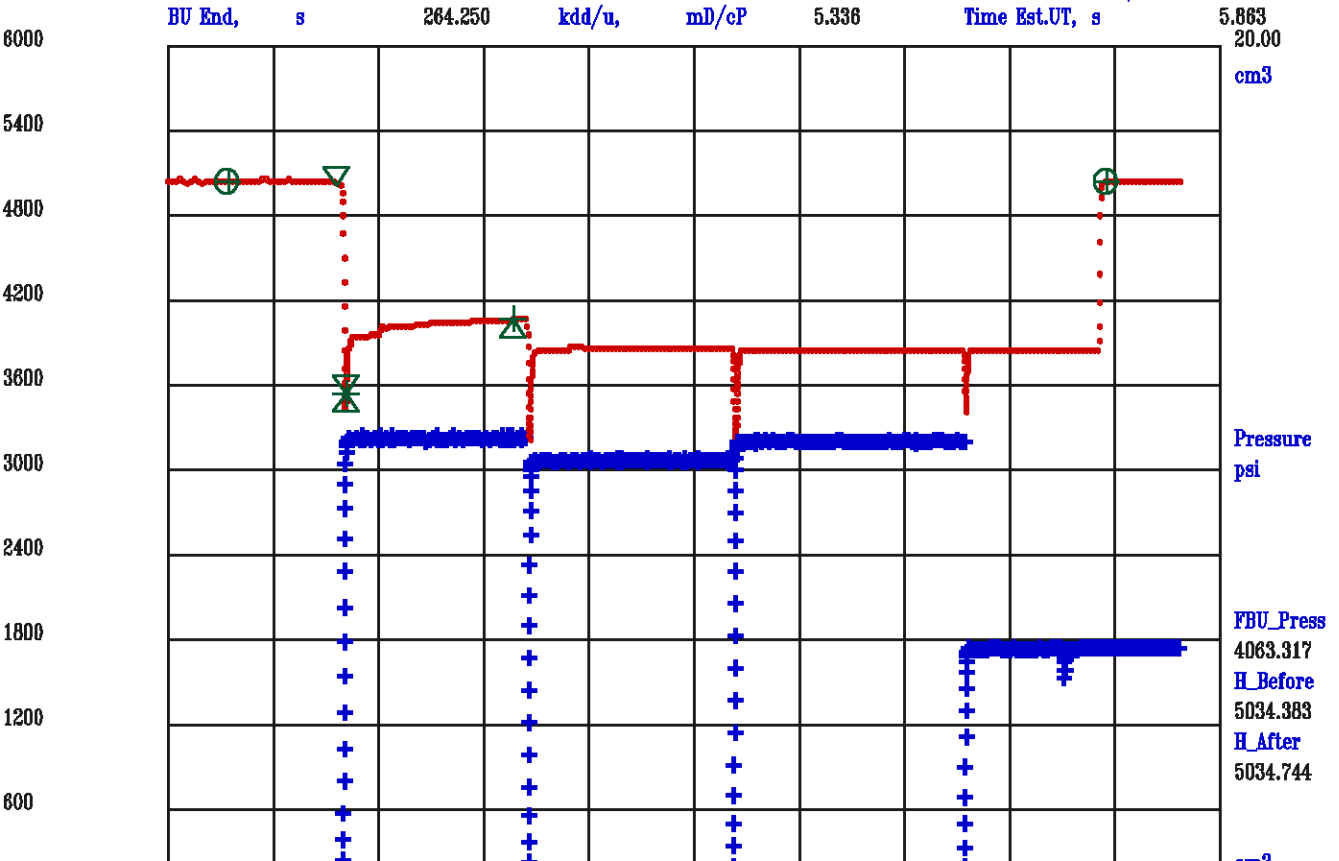
PRESSURE TEST – TVD Depth 2659.2 m
Measured Depth 2659.2 m

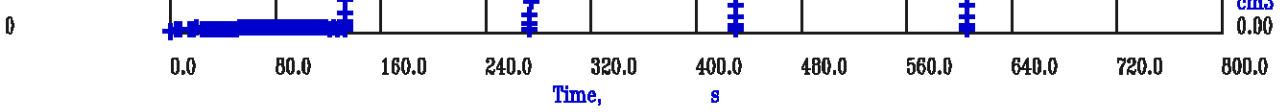
Meta File: i800a50_0.qd1.meta

DRAWDOWN: PACKER
HISTORY PLOT: Elapsed Time vs. Pressure

Measured Depth, m 2659.2 TVD Depth, m 2659.2 i800a50_0.qd1.meta

DD Start,	s	128.875	SF Press,	psi	4063.317	Flow Rate,	cm3/s	1.495
DD End,	s	136.000	FF Press,	psi	3529.337	DD Volum,	cm3	10.581
BU Start,	s	136.000	Kdd Perm,	mD	5.336	Fill Rate,	min/L	1.475
BU End,	s	264.250	kdd/u,	mD/cP	5.336	Time Est.UT,	s	5.863

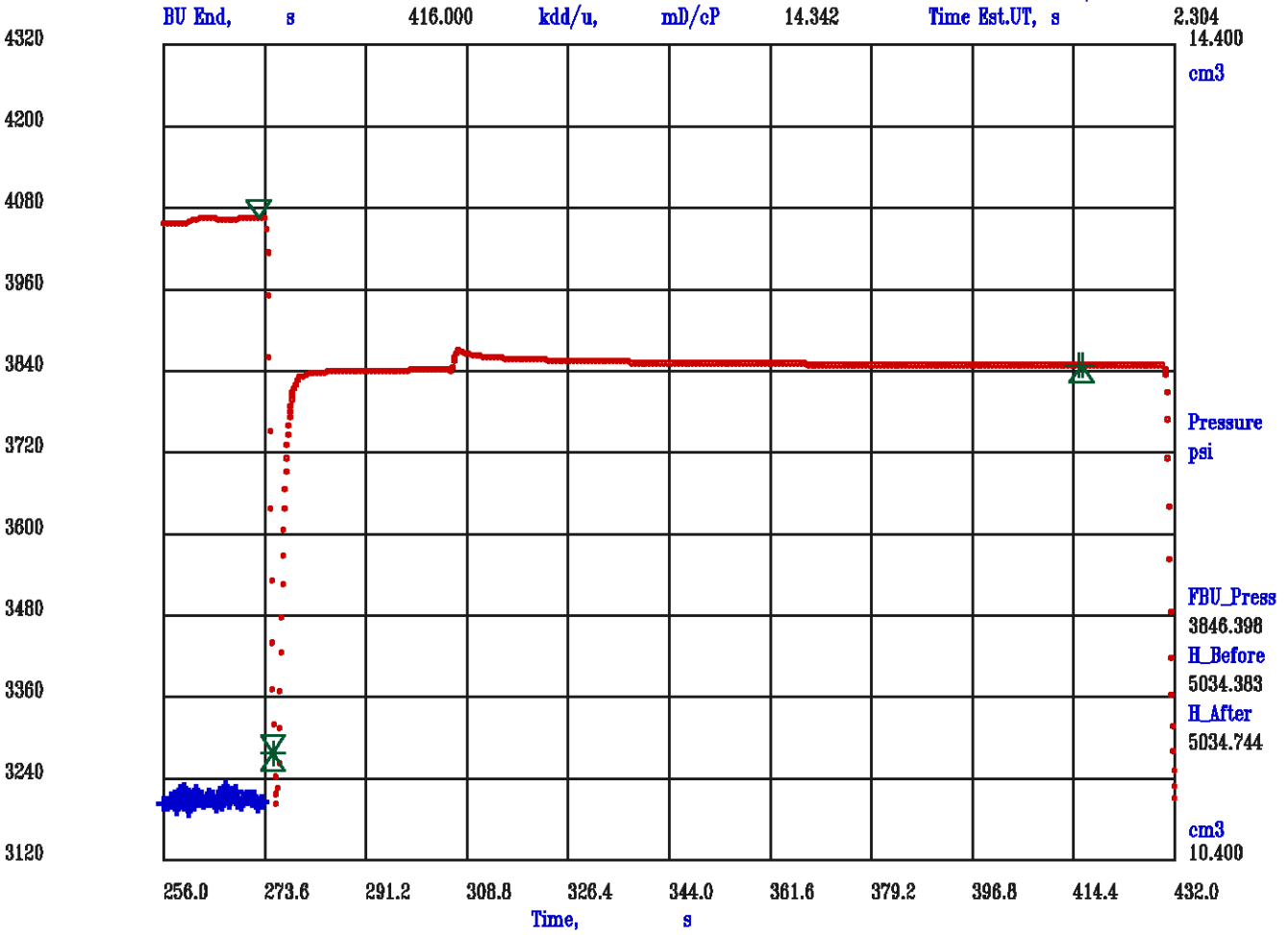




Meta File: i800a50_1.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2659.2 TVD Depth, m 2659.2 i800a50_1.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

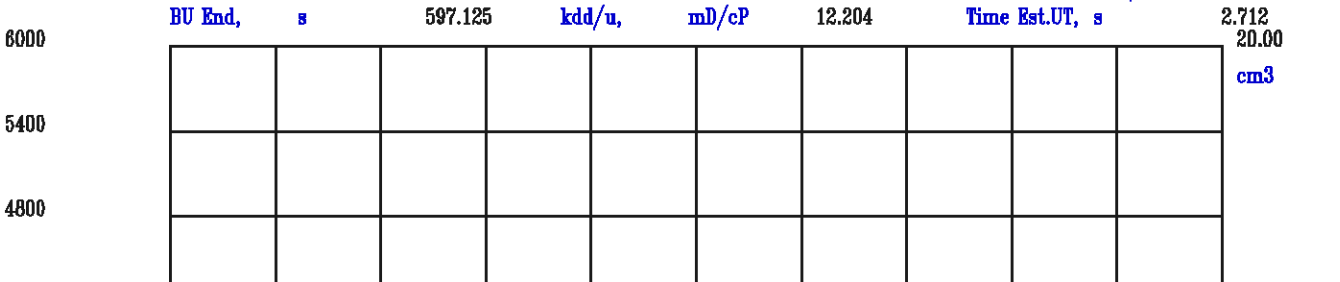
DD Start,	s	272.875	SF Press,	psi	3846.401	Flow Rate,	cm3/s	4.299
DD End,	s	275.375	FF Press,	psi	3274.948	DD Volum,	cm3	10.679
BU Start,	s	275.375	Kdd Perm,	mD	14.342	Fill Rate,	min/L	0.580
BU End,	s	416.000	kdd/u,	mD/cP	14.342	Time Est.UT,	s	2.304

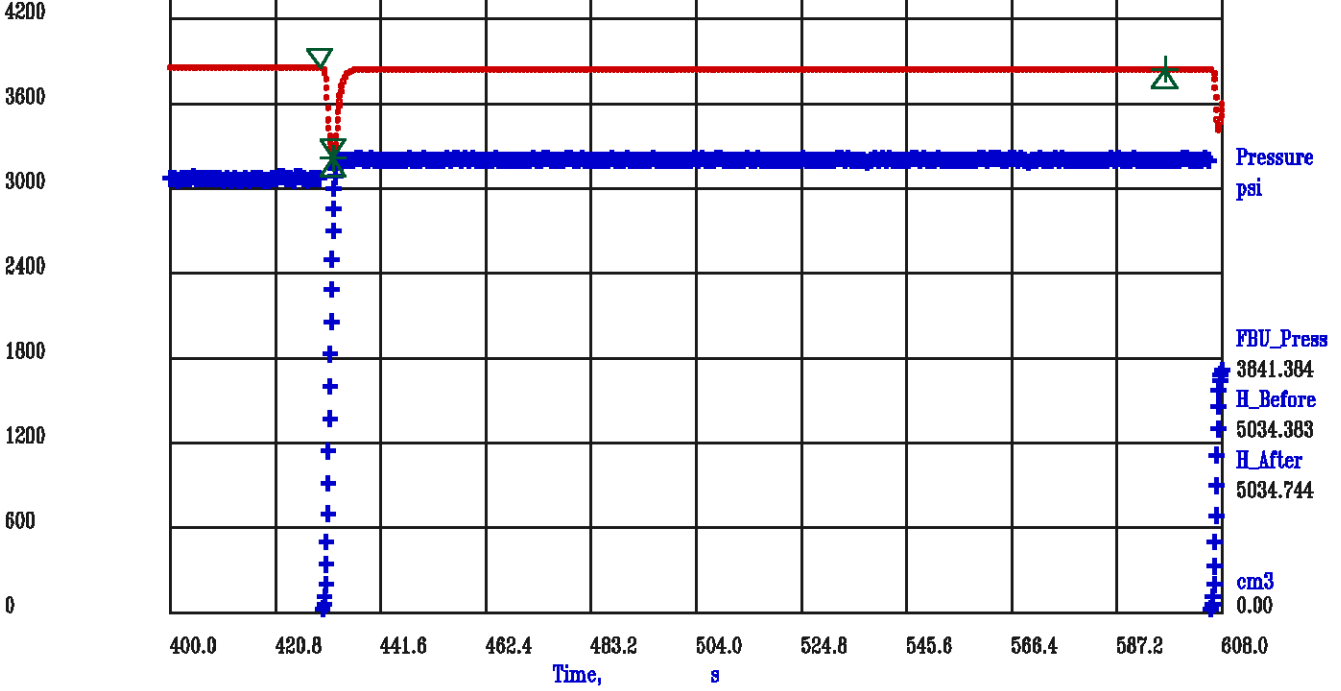


Meta File: i800a50_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2659.2 TVD Depth, m 2659.2 i800a50_2.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	429.875	SF Press,	psi	3841.384	Flow Rate,	cm3/s	4.090
DD End,	s	432.375	FF Press,	psi	3202.409	DD Volum,	cm3	10.160
BU Start,	s	432.375	Kdd Perm,	mD	12.204	Fill Rate,	min/L	0.682
BU End,	s	597.125	kdd/u,	mD/cP	12.204	Time Est.UT,	s	2.712



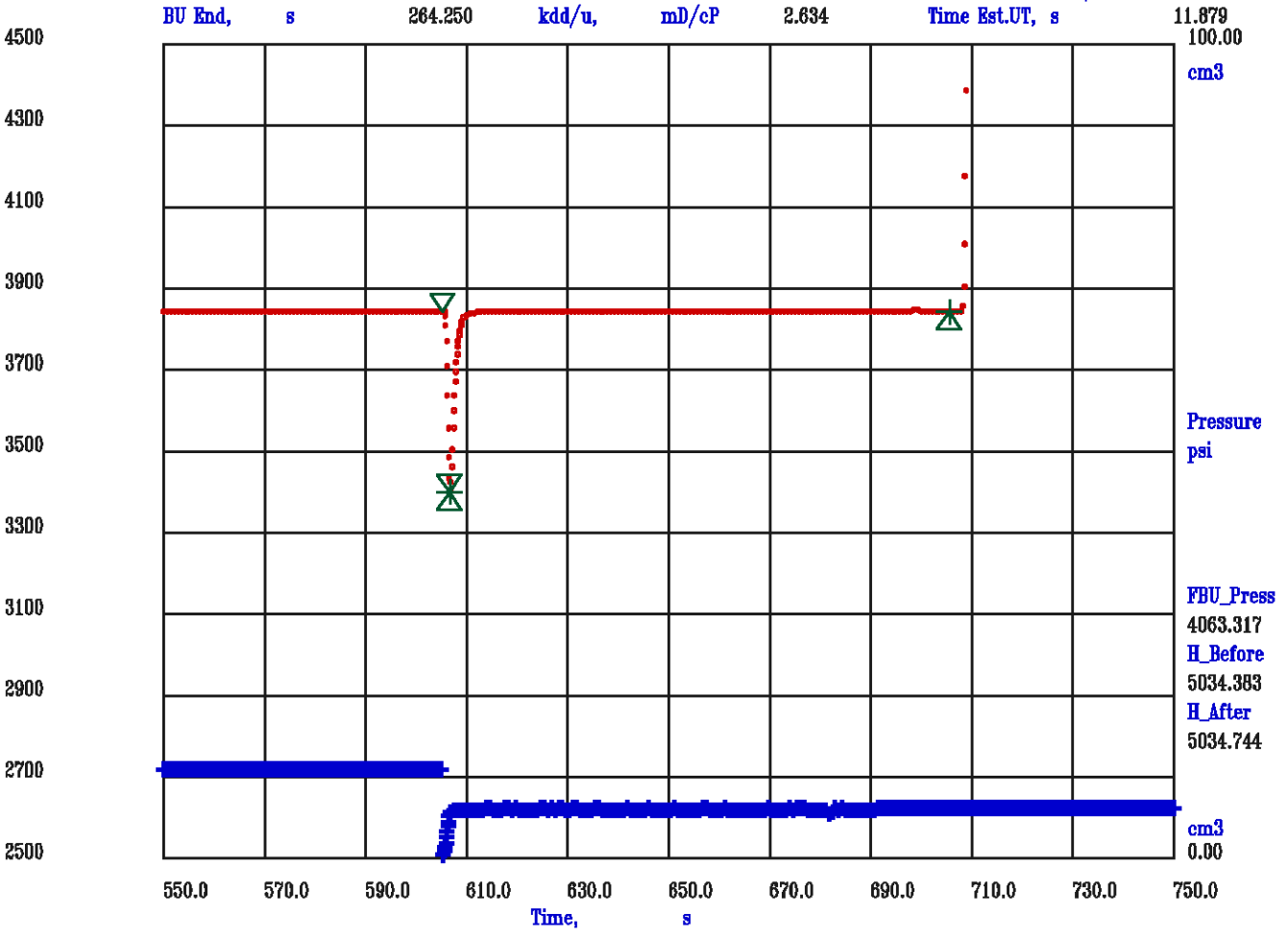


Meta File: i800a50_3.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2659.2 TVD Depth, m 2659.2 i800a50_3.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	128.875	SF Press,	psi	4063.317	Flow Rate,	cm3/s	0.738
DD End,	s	136.000	FF Press,	psi	3529.337	DD Volum,	cm3	5.222
BU Start,	s	136.000	Kdd Perm,	mD	2.634	Fill Rate,	min/L	2.989
BU End,	s	264.250	kdd/u,	mD/cP	2.634	Time Est.UT,	s	11.879



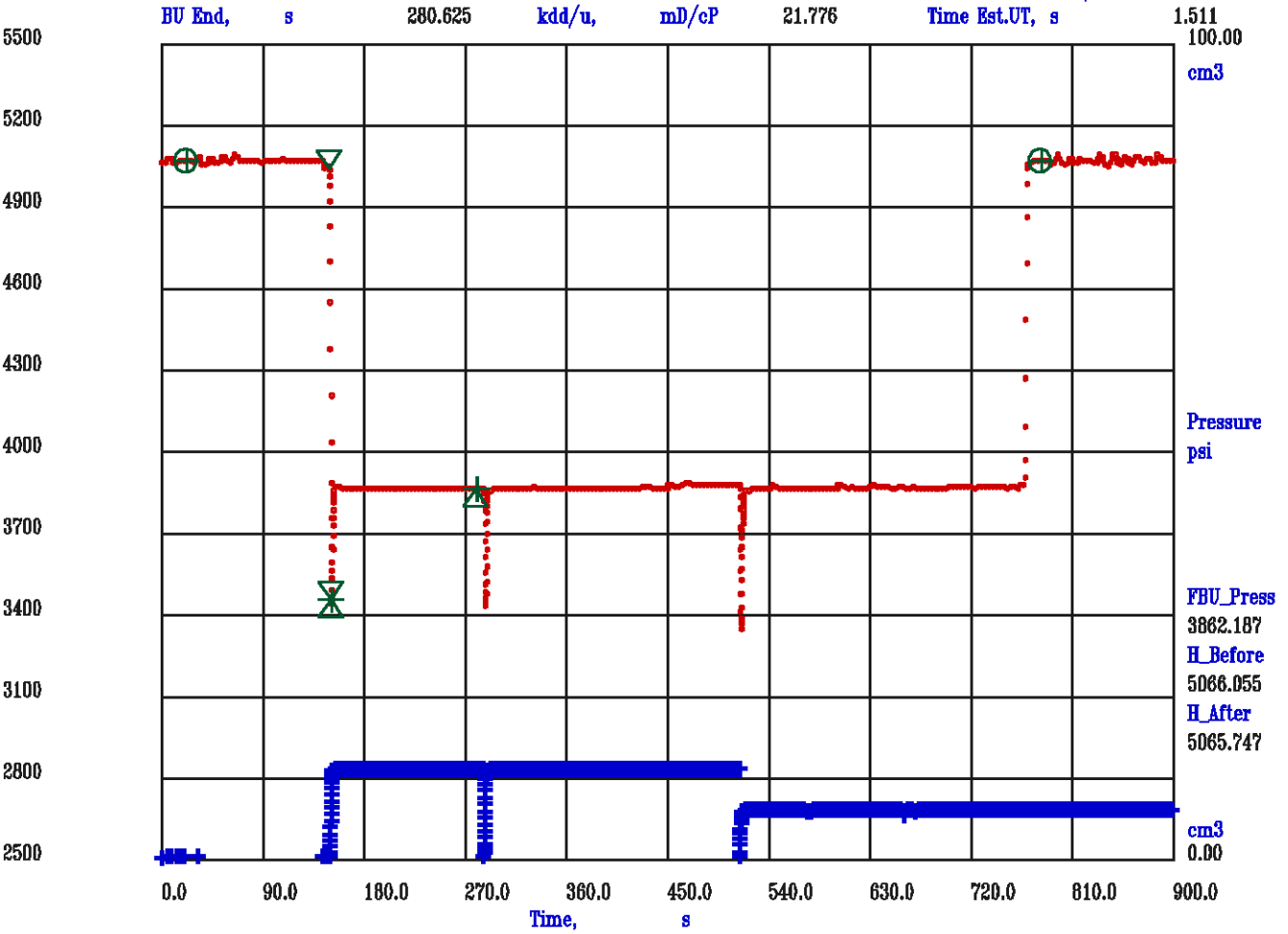
PRESSURE TEST – TVD Depth 2672.3 m
Measured Depth 2672.3 m

Meta File: i800a51_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2672.3 | TVD Depth, m 2672.3 | i800a51_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	150.000	SF Press,	psi	3862.135	Flow Rate,	cm3/s	4.686
DD End,	s	152.250	FF Press,	psi	3451.897	DD Volum,	cm3	10.476
BU Start,	s	152.250	Kdd Perm,	mD	21.776	Fill Rate,	min/L	0.380
BU End,	s	280.625	kdd/u,	mD/cP	21.776	Time Est.UT,	s	1.511

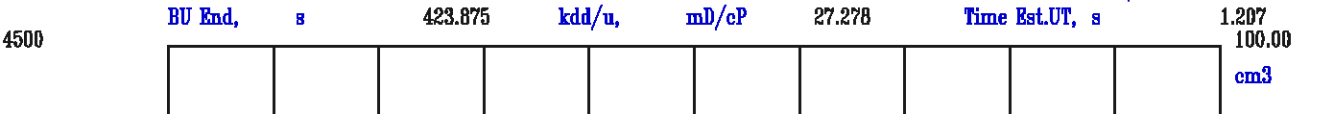


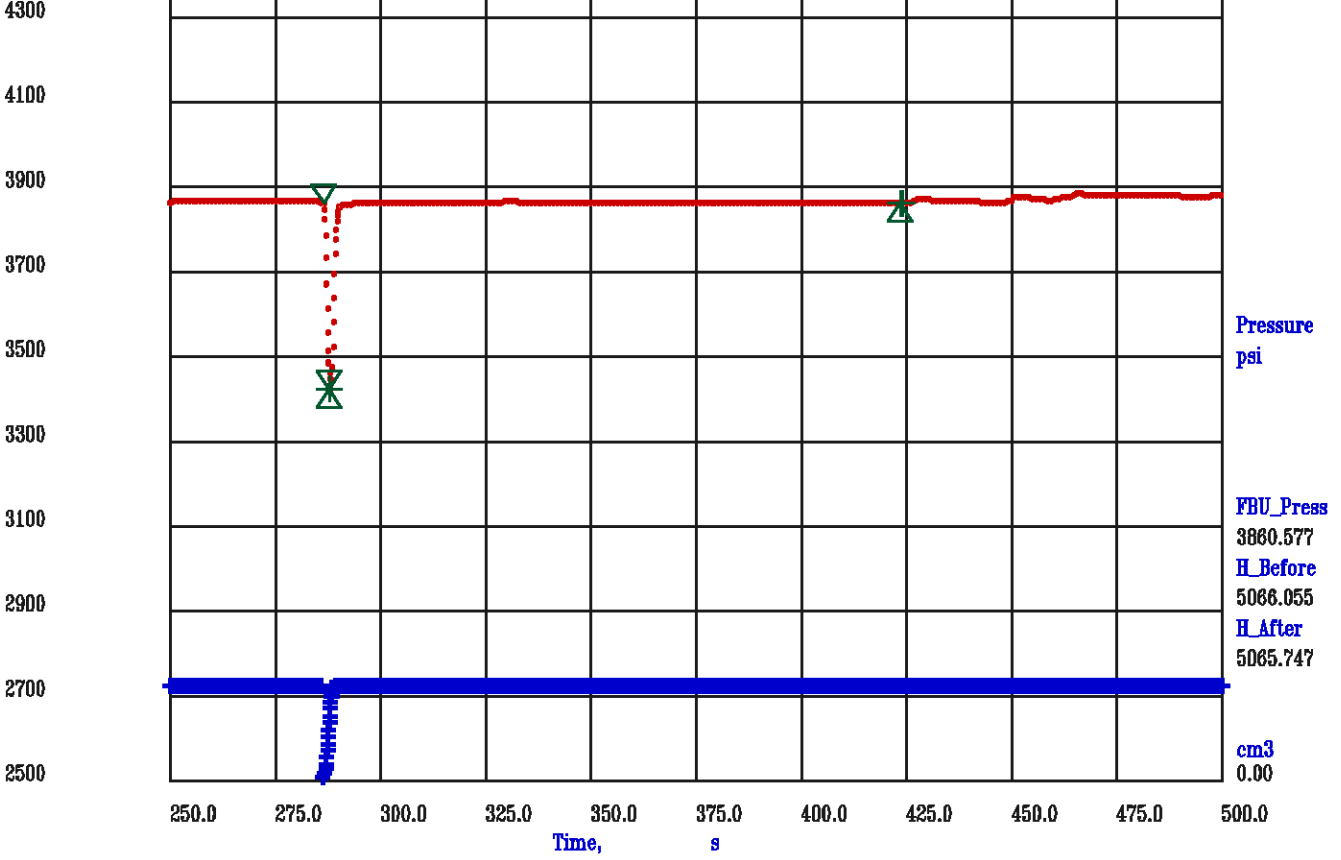
Meta File: i800a51_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2672.3 | TVD Depth, m 2672.3 | i800a51_1.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	286.625	SF Press,	psi	3860.571	Flow Rate,	cm3/s	6.274
DD End,	s	288.375	FF Press,	psi	3422.045	DD Volum,	cm3	10.910
BU Start,	s	288.375	Kdd Perm,	mD	27.278	Fill Rate,	min/L	0.304
BU End,	s	423.875	kdd/u,	mD/cP	27.278	Time Est.UT,	s	1.207



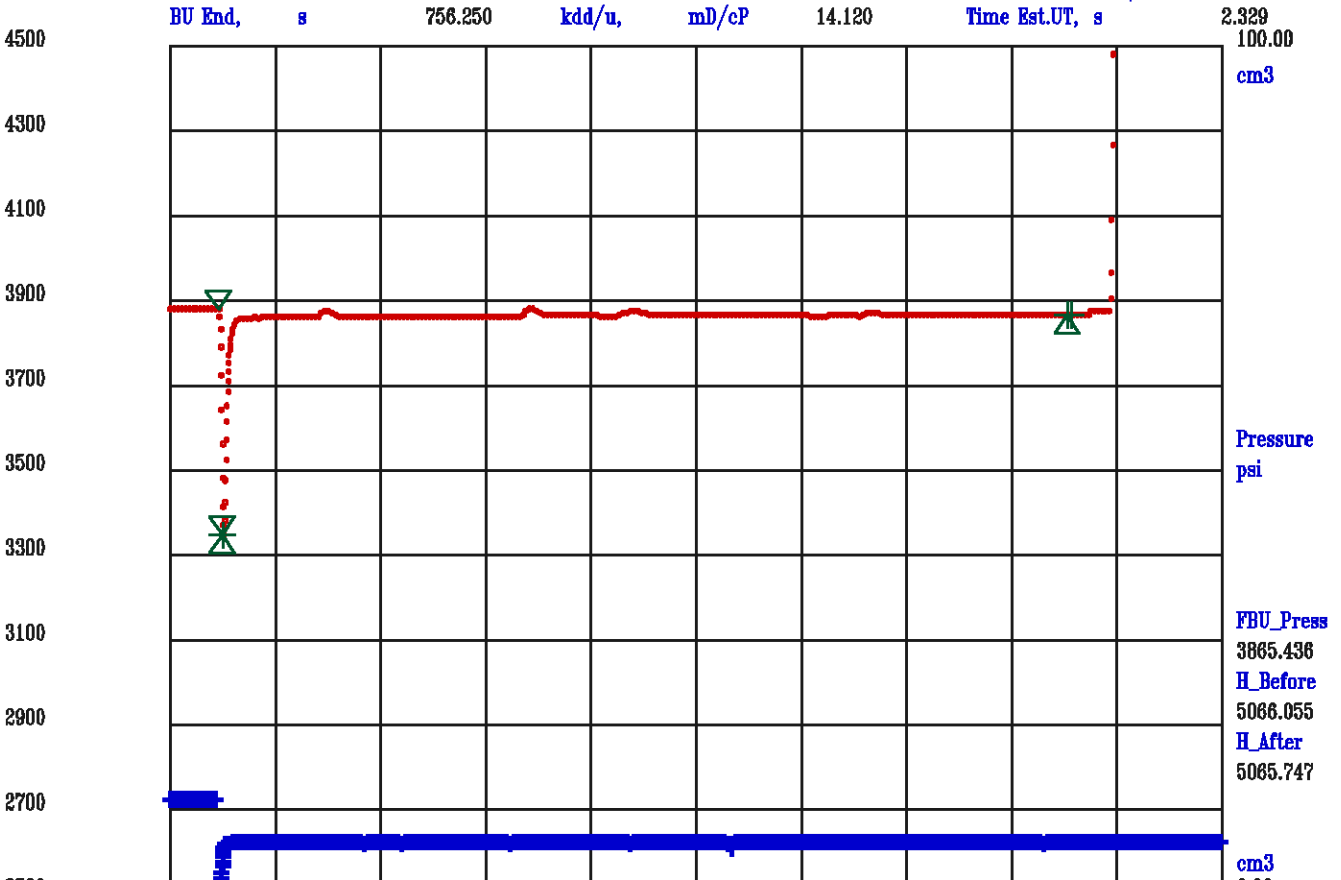


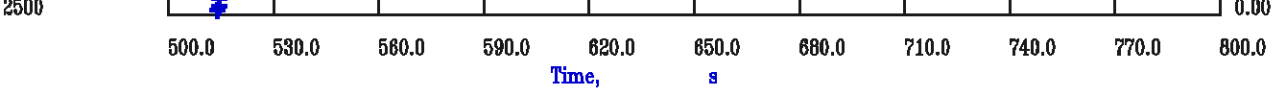
Meta File: i800a51_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2672.3 TVD Depth, m 2672.3 i800a51_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	514.000	SF Press,	psi	3865.484	Flow Rate,	cm3/s	3.838
DD End,	s	515.500	FF Press,	psi	3347.279	DD Volum,	cm3	5.720
BU Start,	s	515.500	Kdd Perm,	mD	14.120	Fill Rate,	min/L	0.586
BU End,	s	756.250	kdd/u,	mD/cP	14.120	Time Est.UT,	s	2.329



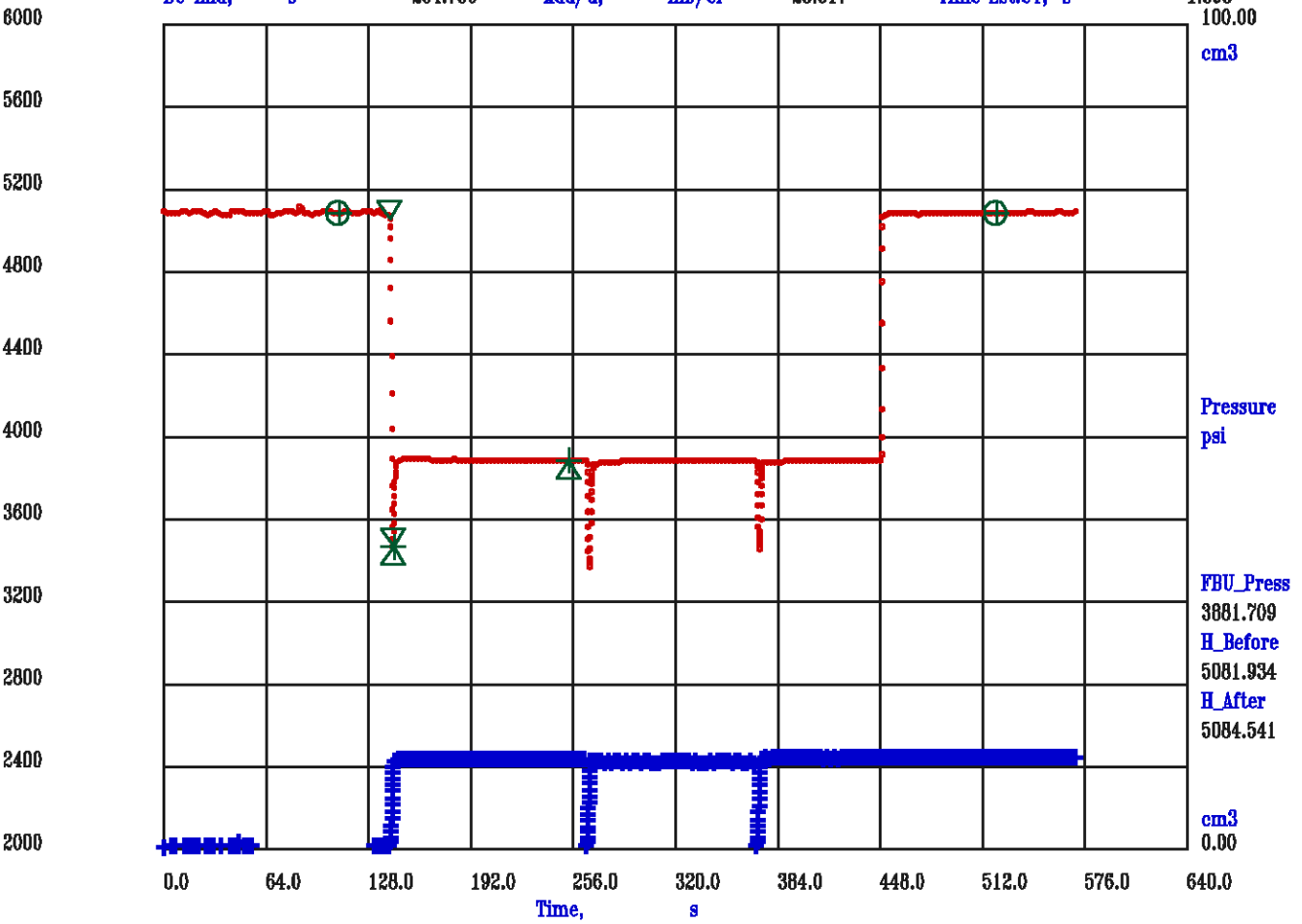


PRESSURE TEST – TVD Depth 2683.6 m
Measured Depth 2683.6 m

Meta File: i800a52_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2683.6 | TVD Depth, m 2683.6 | i800a52_0.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

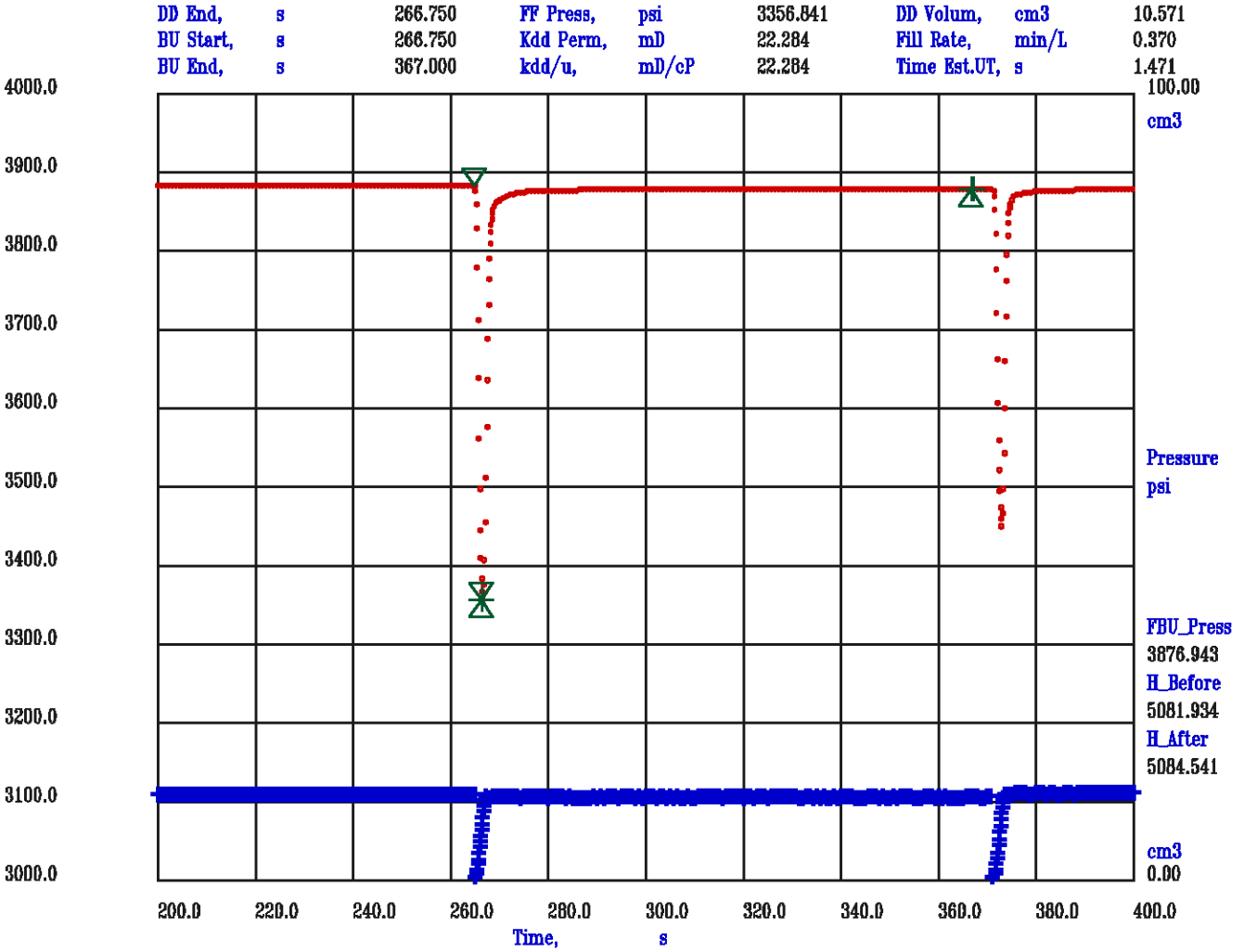
DD Start,	s	142.125	SF Press,	psi	3881.709	Flow Rate,	cm3/s	5.159
DD End,	s	144.125	FF Press,	psi	3463.444	DD Volum,	cm3	10.253
BU Start,	s	144.125	Kdd Perm,	mD	23.517	Fill Rate,	min/L	0.350
BU End,	s	254.750	kdd/u,	mD/cP	23.517	Time Est.UT,	s	1.393



Meta File: i800a52_1.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2683.6 | TVD Depth, m 2683.6 | i800a52_1.qd1.meta
HISTORY PLOT: Elapsed Time vs. Pressure

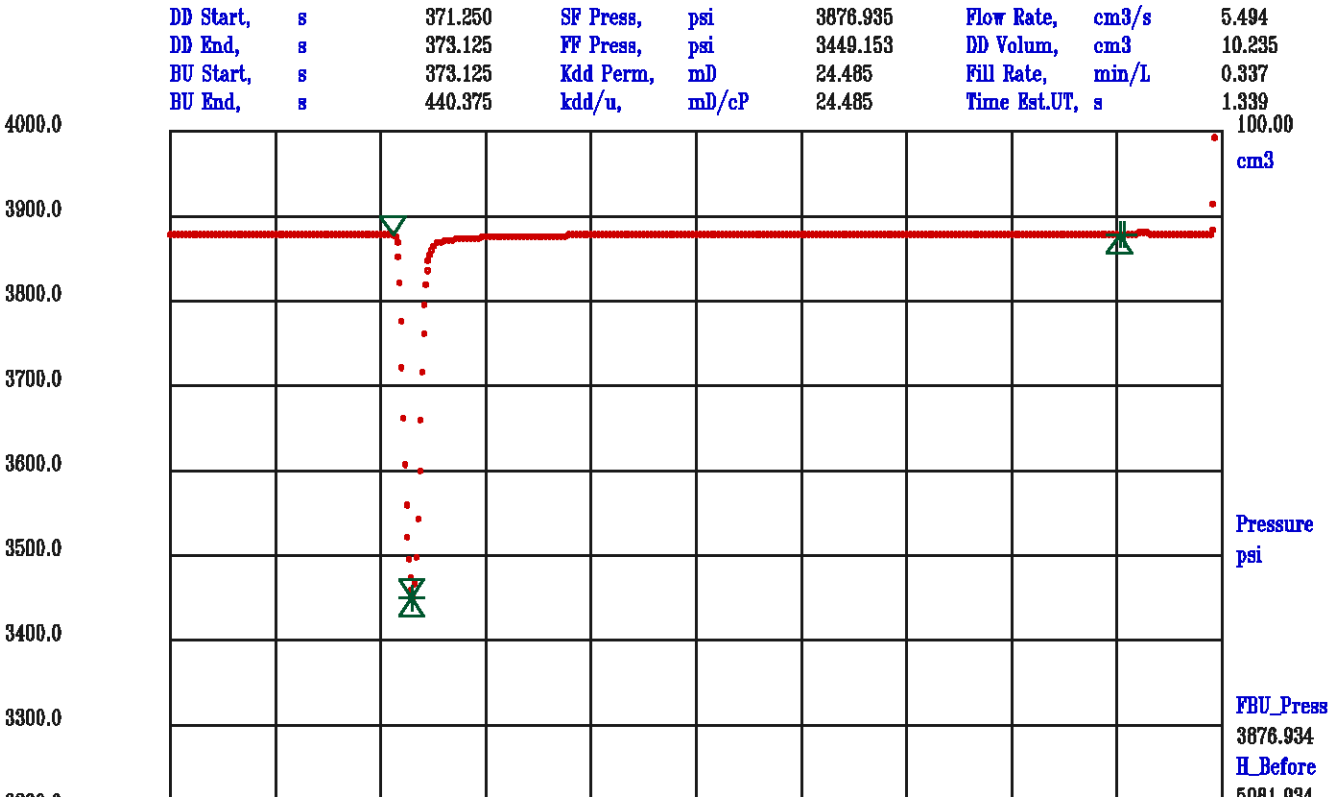
DD Start,	s	265.000	SF Press,	psi	3876.951	Flow Rate,	cm3/s	6.079

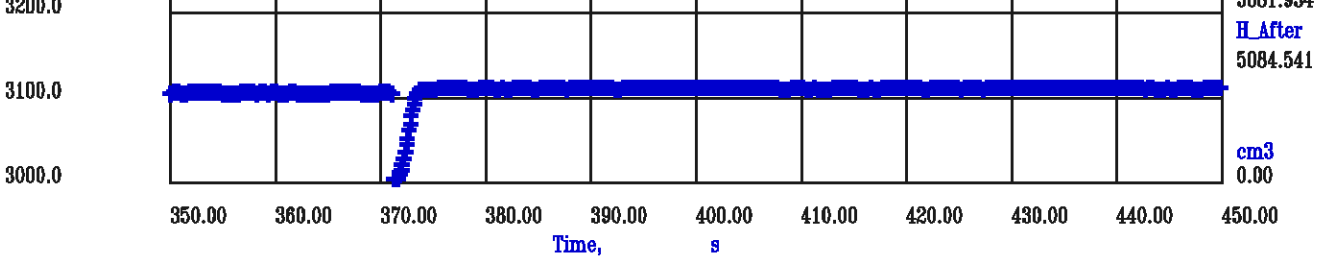


Meta File: i800a52_2.qd1.meta

DRAWDOWN: PACKER Measured Depth, m 2683.6 TVD Depth, m 2683.6 i800a52_2.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure





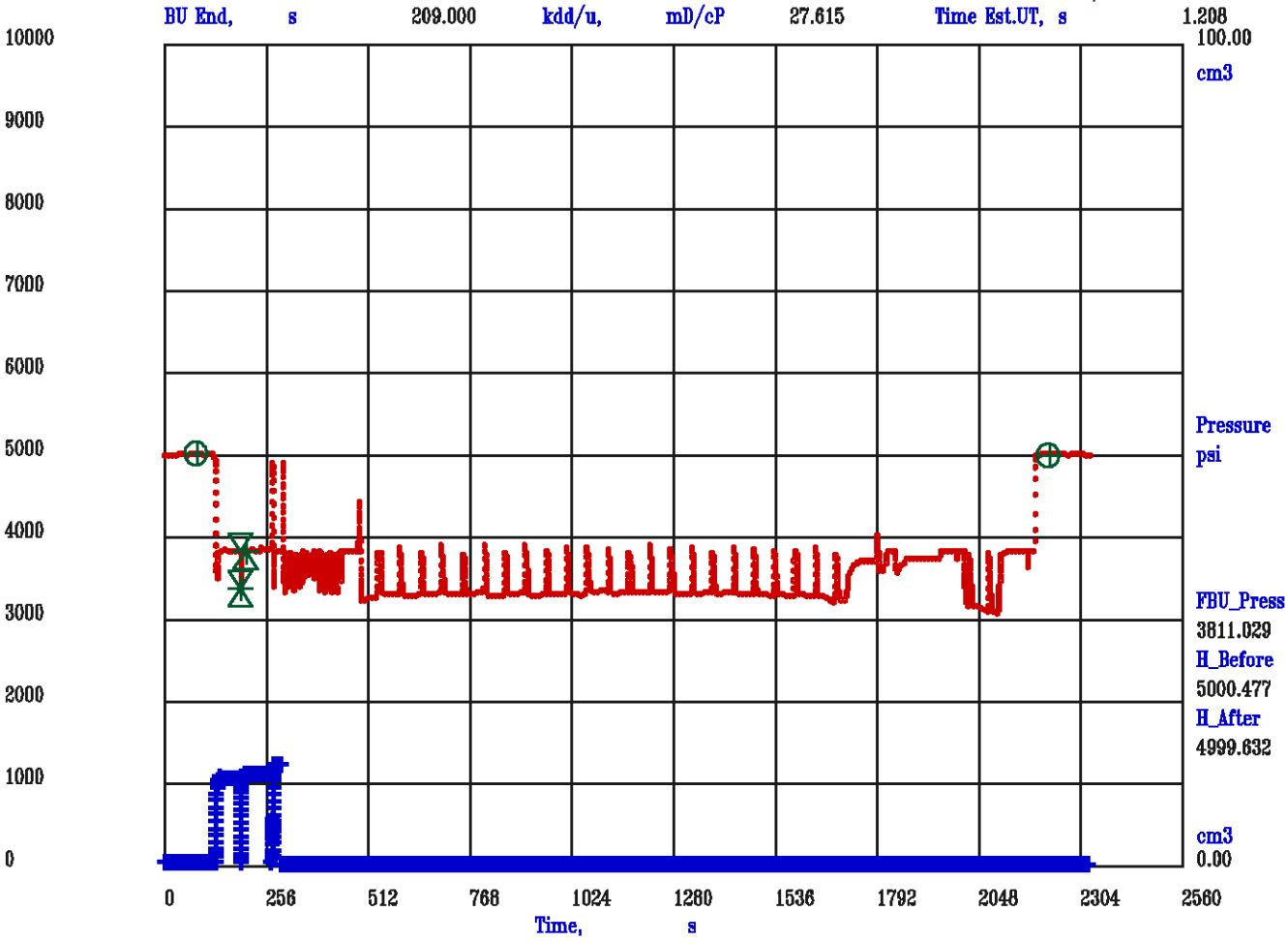
PRESSURE TEST – TVD Depth 2632.9 m
Measured Depth 2632.9 m

Meta File: i800a55_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2632.9 | TVD Depth, m 2632.9 | i800a55_0.qd1.meta

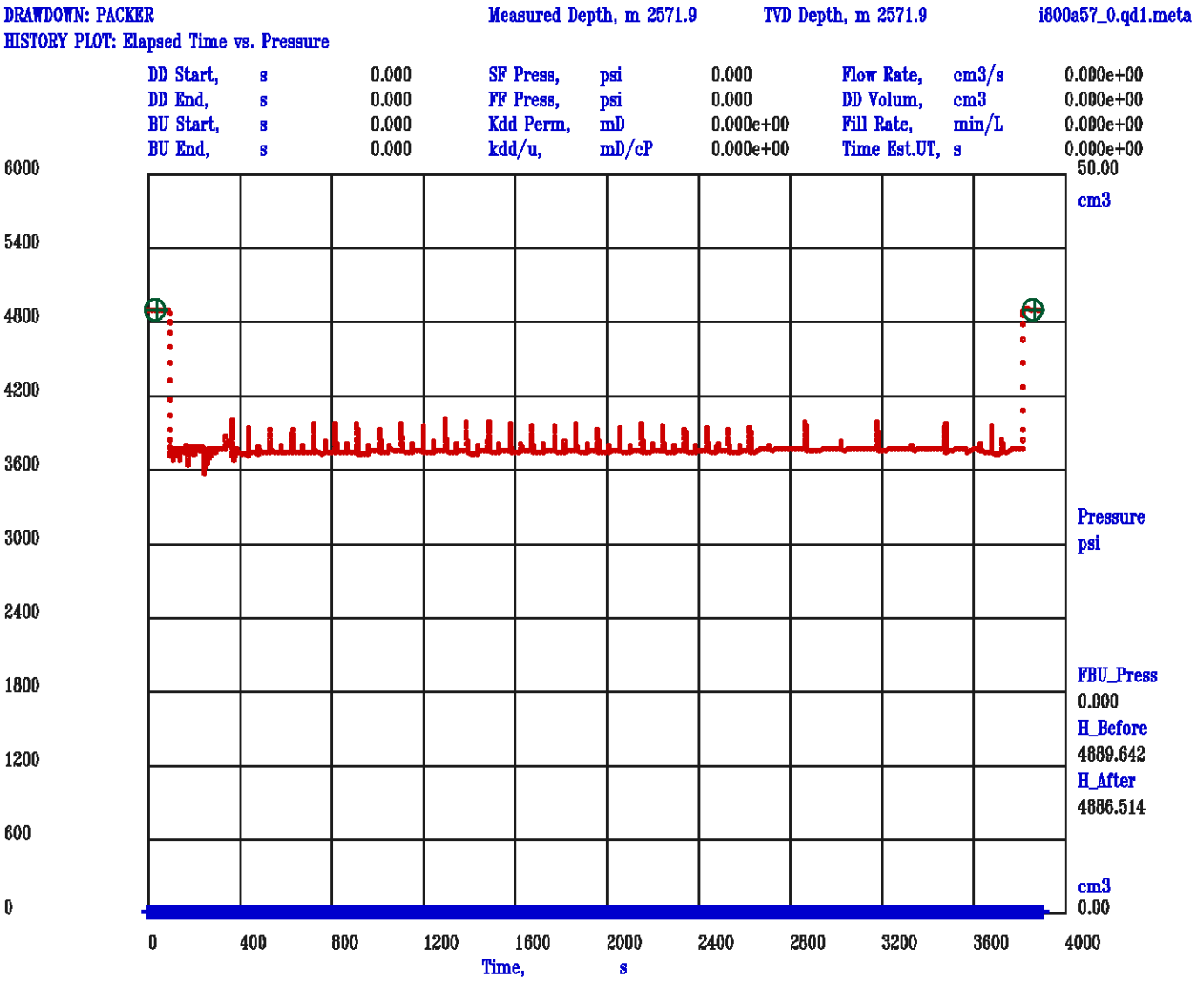
HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	193.375	SF Press,	psi	3811.118	Flow Rate,	cm3/s	6.246
DD End,	s	195.125	FF Press,	psi	3379.896	DD Volum,	cm3	10.861
BU Start,	s	195.125	Kdd Perm,	mD	27.615	Fill Rate,	min/L	0.304
BU End,	s	209.000	kdd/u,	mD/cP	27.615	Time Est.UT,	s	1.208



PRESSURE TEST – TVD Depth 2571.9 m
Measured Depth 2571.9 m

Meta File: i800a57_0.qd1.meta



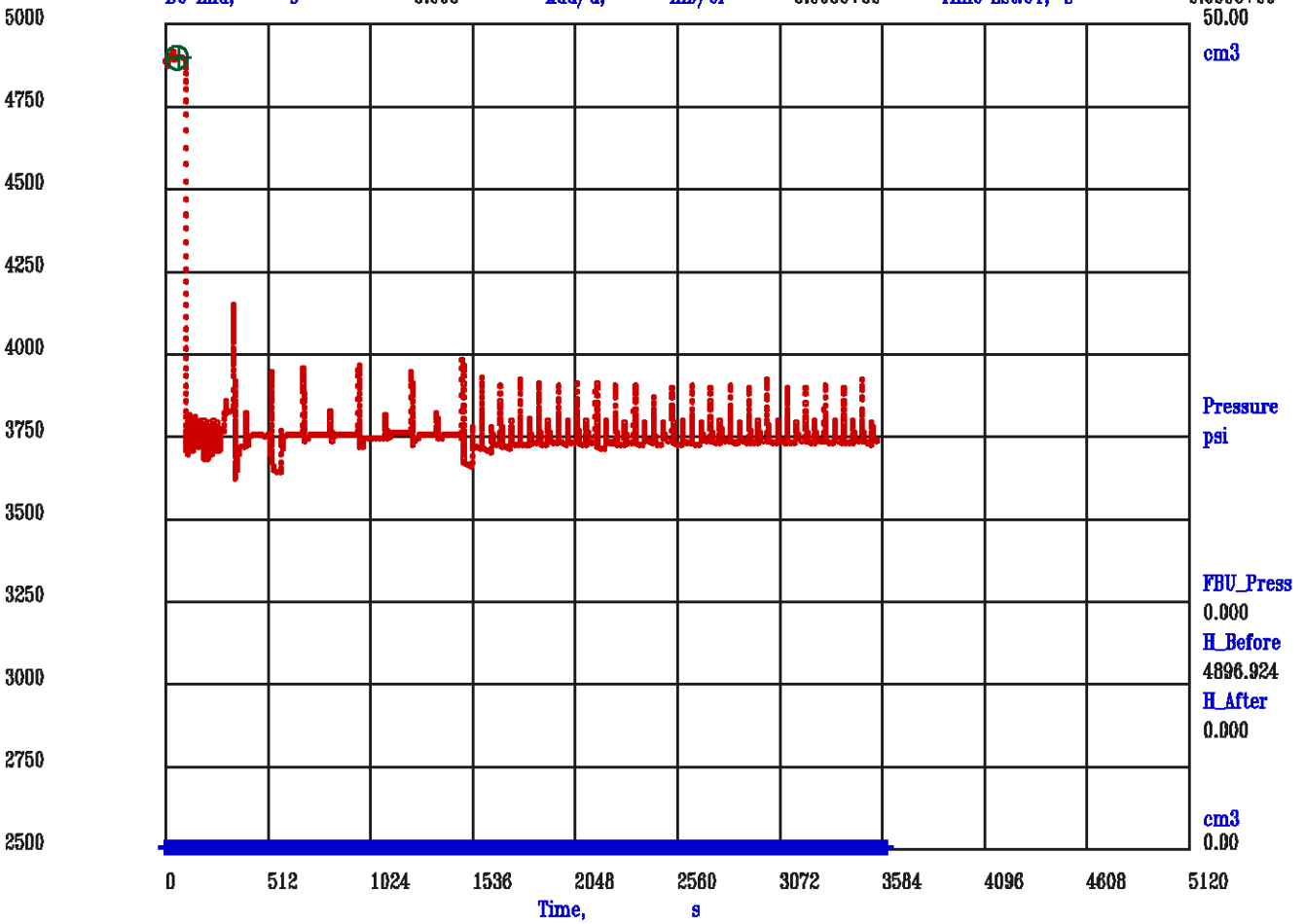
PRESSURE TEST – TVD Depth 2574.1 m
Measured Depth 2574.1 m

Meta File: i800a60_0.qd1.meta

DRAWDOWN: PACKER | Measured Depth, m 2574.1 | TVD Depth, m 2574.1 | i800a60_0.qd1.meta

HISTORY PLOT: Elapsed Time vs. Pressure

DD Start,	s	0.000	SF Press,	psi	0.000	Flow Rate,	cm3/s	0.000e+00
DD End,	s	0.000	FF Press,	psi	0.000	DD Volum,	cm3	0.000e+00
BU Start,	s	0.000	Kdd Perm,	mD	0.000e+00	Fill Rate,	min/L	0.000e+00
BU End,	s	0.000	kdd/u,	mD/cP	0.000e+00	Time Est.UT,	s	0.000e+00



SAMPLE DEPTH: 2074.0 M

eXpress Unknown eXpress 3.1 Jun 29, 2002 | Cplot 8.1 | Tue May 3 09:57:00 2005
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61 | Pdf_Cpp /main/16 | Fileview 4.34

PARAMETER AND FILTER SUMMARY REPORT

FILE: /export/thyl2/greyling1/i800a15.prm
LOGGING MODE: TIME
START TIME: 0.125 s END TIME: 1289.875 s

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END
LMP	FILTER ()	medium (1)		START	END
QD PRES	FILTER ()	medium (1)		''	''
RTD	FILTER ()	medium (1)		''	''

RCI PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END
RCI VOLUME	Isolated VOL	51.0 (56cc pump)		START	END
	Piston Area	445.8 (56cc pump)		''	''
RCI PB PUMP THROUGH	Volume per Stroke	Medium (500 cc)		''	''

ROT RB PUMP THROUGH	Volume per Strokes	Medium (300 cc)

SAMPLEVIEW

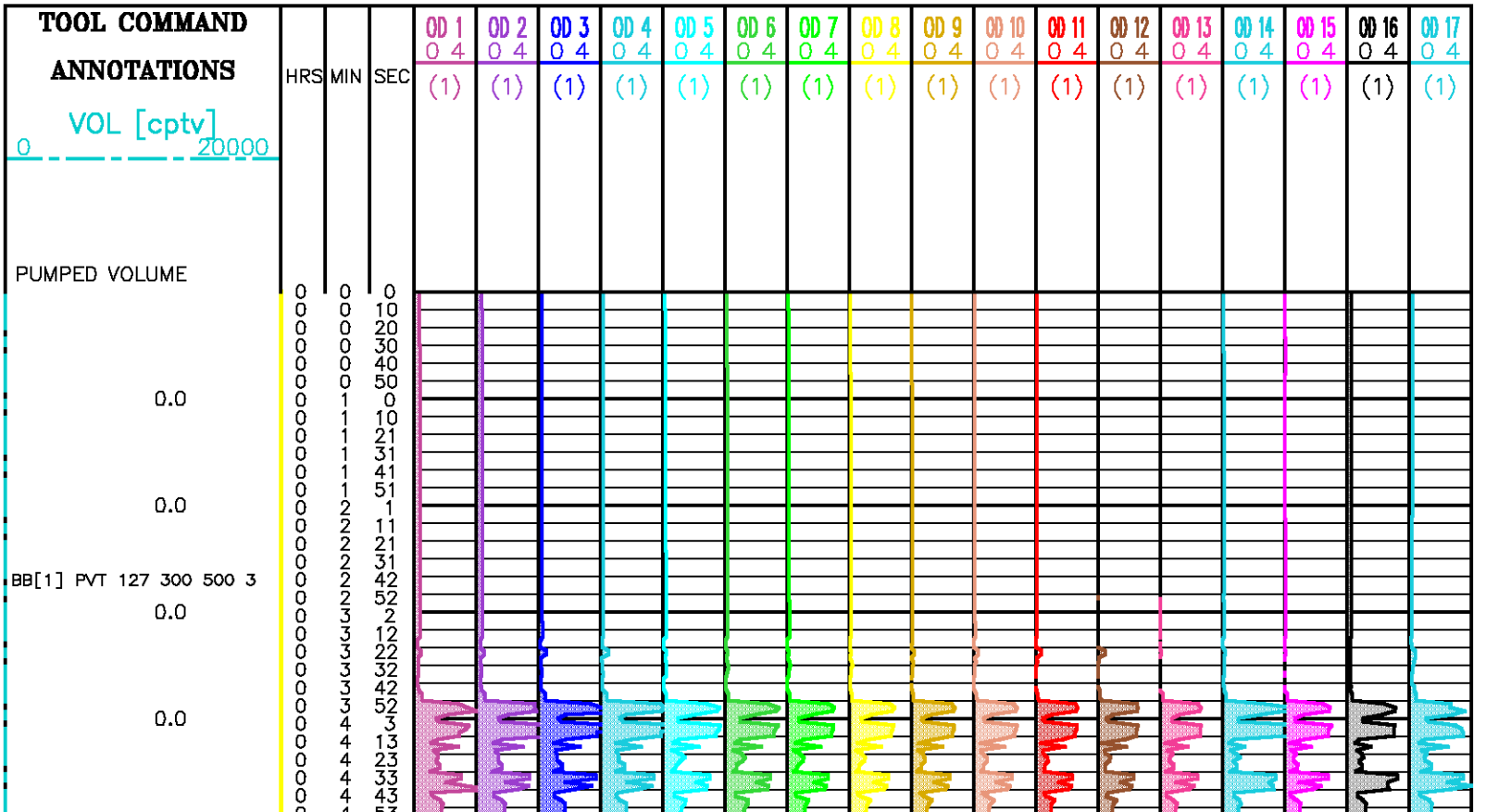
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s)
SAMPLEVIEW REFERENCE CONTROL	Reference Select	Reference-A12	START	END

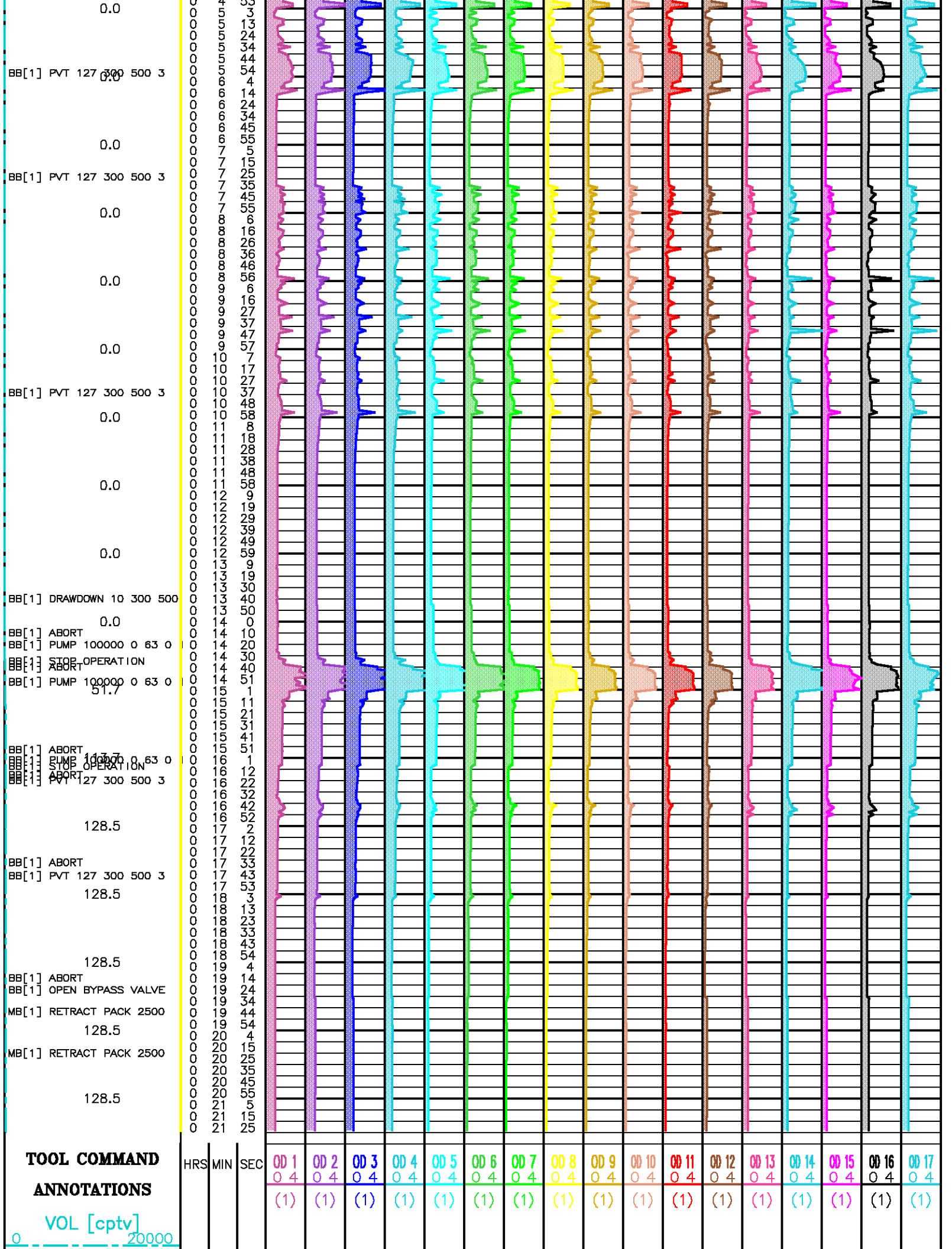
CURVE DESCRIPTION REPORT

CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CPTV		Jan 13 19:40:16 2005	CUMULATIVE PUMP-THROUGH VOLUME
F1:DEPTH	ANOT_TITLE	Jan 13 19:40:16 2005	SYSTEM DEPTH
F1:OD1	OD1	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 1
F1:OD10	OD10	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 10
F1:OD11	OD11	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 11
F1:OD12	OD12	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 12
F1:OD13	OD13	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 13
F1:OD14	OD14	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 14
F1:OD15	OD15	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 15
F1:OD16	OD16	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 16
F1:OD17	OD17	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 17
F1:OD2	OD2	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 2
F1:OD3	OD3	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 3
F1:OD4	OD4	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 4
F1:OD5	OD5	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 5
F1:OD6	OD6	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 6
F1:OD7	OD7	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 7
F1:OD8	OD8	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 8
F1:OD9	OD9	Jan 13 19:40:16 2005	OPTICAL DENSITY, CHANNEL 9
F1:SEC	SEC	Jan 13 19:40:16 2005	TIME IN SECONDS

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIsample1-.pdf [1:1200 Scale]
Plot Interval : 0 - 1290.38 Seconds

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a15.aff
Created On : Jan 13 19:40:16 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 0 - 1290.38 Seconds @ 2074.05 Meters
Oct : 1800a




TOOL COMMAND ANNOTATIONS
VOL [cptv]
0
20000
HRS
MIN
SEC
OD 1 0 4 (1)
OD 2 0 4 (1)
OD 3 0 4 (1)
OD 4 0 4 (1)
OD 5 0 4 (1)
OD 6 0 4 (1)
OD 7 0 4 (1)
OD 8 0 4 (1)
OD 9 0 4 (1)
OD 10 0 4 (1)
OD 11 0 4 (1)
OD 12 0 4 (1)
OD 13 0 4 (1)
OD 14 0 4 (1)
OD 15 0 4 (1)
OD 16 0 4 (1)
OD 17 0 4 (1)
BB[1] PVT 127 300 500 3
BB[1] DRAWDOWN 10 300 500
BB[1] ABORT
BB[1] PUMP 100000 0 63 0
BB[1] STOP OPERATION
MB[1] RETRACT PACK 2500
BB[1] OPEN BYPASS VALVE
0.0
51.7
128.5

PUMPED VOLUME																			

SAMPLE DEPTH: 2633.0 M

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:00:55 2005
Fileview 4.34

PARAMETER AND FILTER SUMMARY REPORT

FILE: /export/thyl2/greyling1/1800a55.prm
LOGGING MODE: TIME
START TIME: 0.125 s END TIME: 2329.500 s

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s)	
				START	END
LMP	FILTER ()	medium (1)		''	''
QD PRES	FILTER ()	medium (1)		''	''
RTD	FILTER ()	medium (1)		''	''

RCI PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s)	
				START	END
RCI VOLUME	Isolated VOL	51.0 (56cc pump)		''	''
	Piston Area	445.8 (56cc pump)		''	''
RCI RB PUMP THROUGH	Volume per Stroke	Medium (500 cc)		''	''

SAMPLEVIEW

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s)	
				START	END
SAMPLEVIEW REFERENCE CONTROL	Reference Select	Reference-A12			

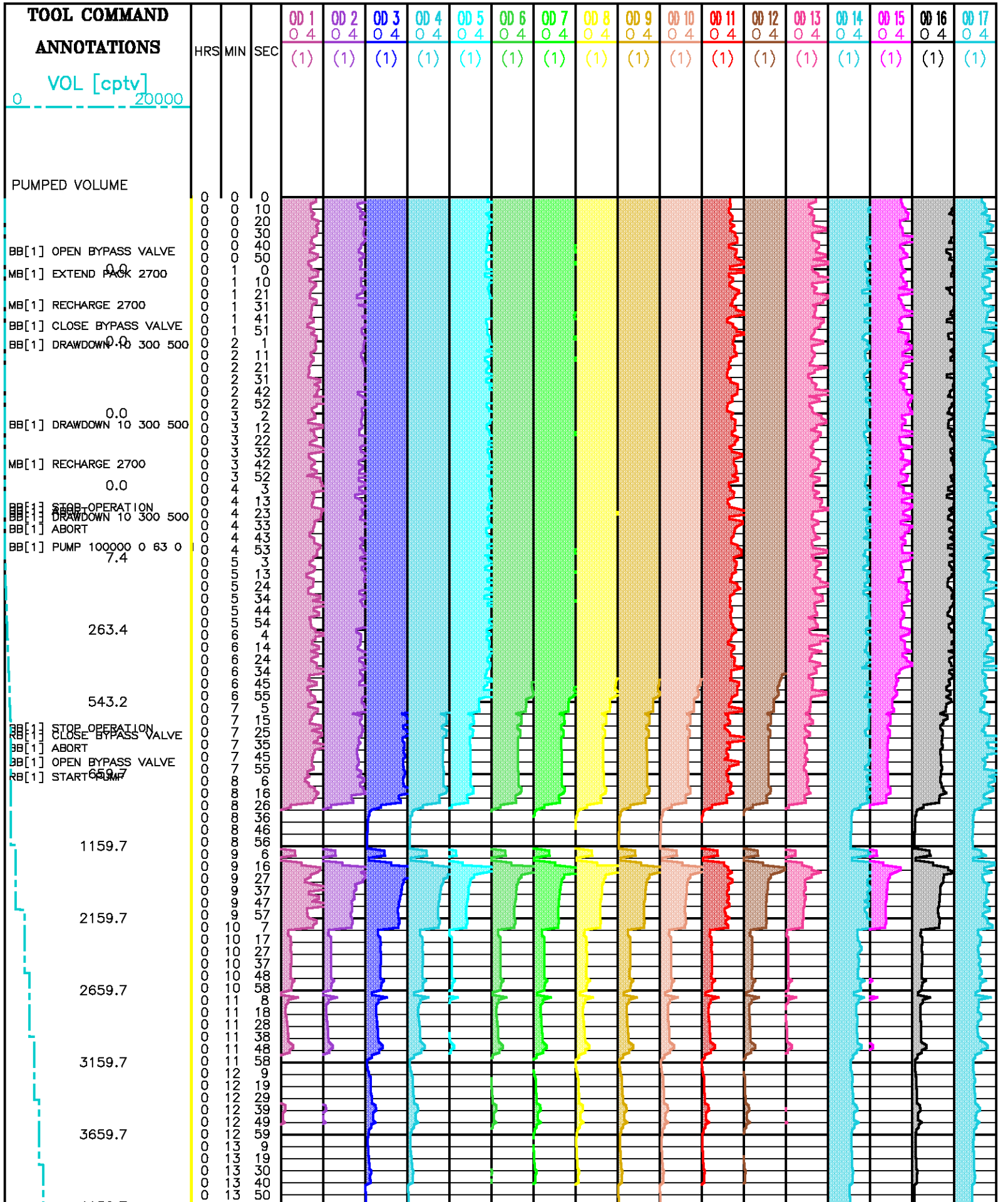
CURVE DESCRIPTION REPORT

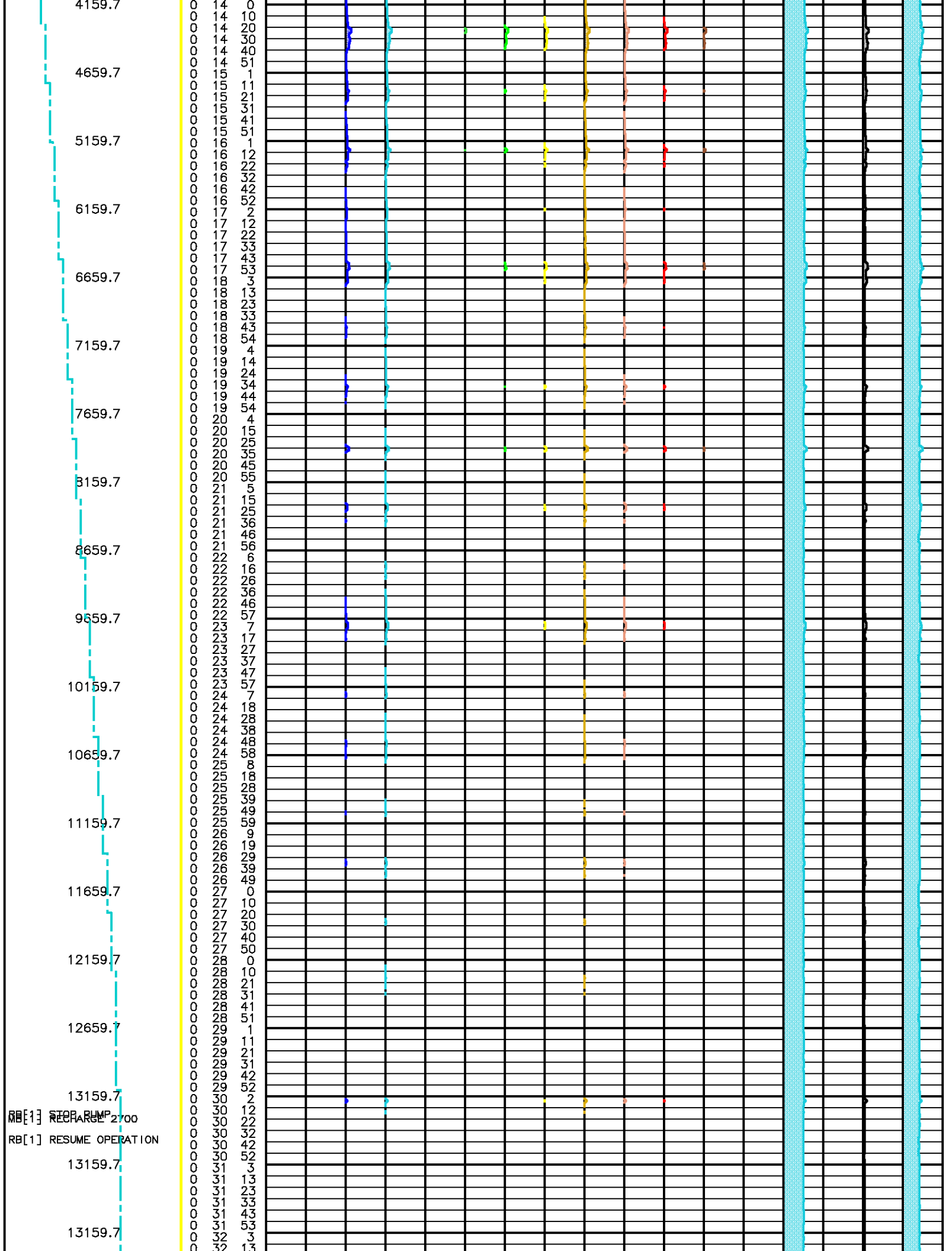
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CPTV		Jan 16 15:08:26 2005	CUMULATIVE PUMP-THROUGH VOLUME
F1:DEPTH	ANOT_TITLE	Jan 16 15:08:26 2005	SYSTEM DEPTH
F1:OD1	OD1	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 1
F1:OD10	OD10	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 10
F1:OD11	OD11	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 11
F1:OD12	OD12	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 12
F1:OD13	OD13	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 13
F1:OD14	OD14	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 14
F1:OD15	OD15	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 15
F1:OD16	OD16	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 16
F1:OD17	OD17	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 17
F1:OD2	OD2	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 2
F1:OD3	OD3	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 3
F1:OD4	OD4	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 4
F1:OD5	OD5	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 5
F1:OD6	OD6	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 6
F1:OD7	OD7	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 7
F1:OD8	OD8	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 8
F1:OD9	OD9	Jan 16 15:08:26 2005	OPTICAL DENSITY, CHANNEL 9
F1:SEC	SEC	Jan 16 15:08:26 2005	TIME IN SECONDS

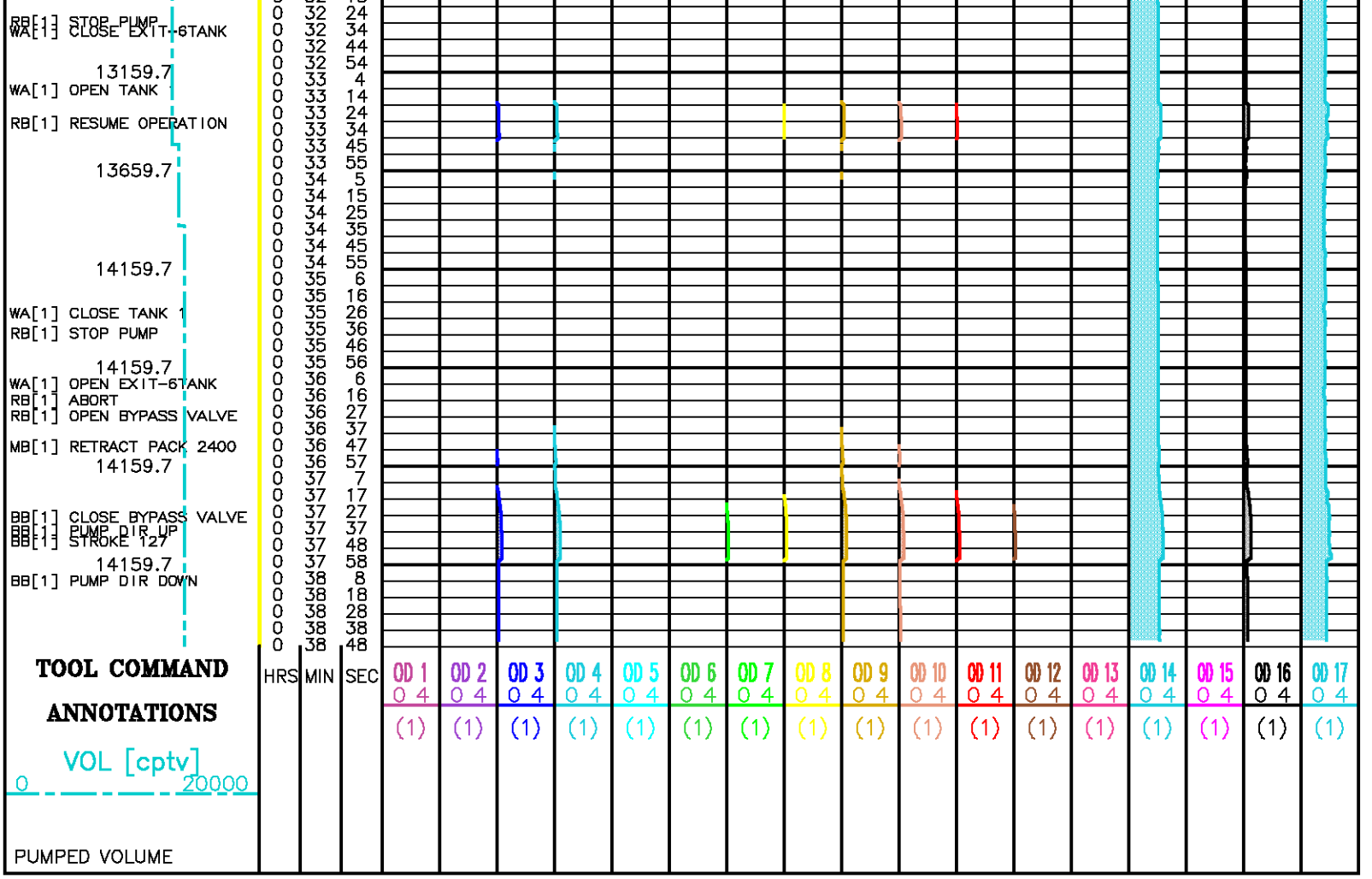
Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIsample2-.pdf [1:1200 Scale]
Plot Interval : 0 - 2329.75 Seconds

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a55.aff

Created On : Jan 16 15:08:26 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 0 – 2329.75 Seconds @ 2632.88 Meters
Oct : 1800a




4159.7
4659.7
5159.7
6159.7
6659.7
7159.7
7659.7
8159.7
8659.7
9659.7
10159.7
10659.7
11159.7
11659.7
12159.7
12659.7
13159.7
RB[1] STOP PUMP
MB[1] RECHARGE 2700
RB[1] RESUME OPERATION
13159.7
13159.7



SAMPLE DEPTH: 2572.0 M

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1FNCPcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:08:58 2005
Fileview 4.34

PARAMETER AND FILTER SUMMARY REPORT

FILE: /export/thyl2/greyling1/1800a57.prm
LOGGING MODE: TIME
START TIME: 0.125 s END TIME: 3907.125 s

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END
LMP	FILTER ()	medium (1)		START	END
QD PRES	FILTER ()	medium (1)		"	"
RTD	FILTER ()	medium (1)		"	"

RCI PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END
RCI VOLUME	Isolated VOL	51.0 (56cc pump)		START	END
	Piston Area	445.8 (56cc pump)		"	"
RCI RB PUMP THROUGH	Volume per Stroke	Medium (500 cc)		"	"

SAMPLEVIEW

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END

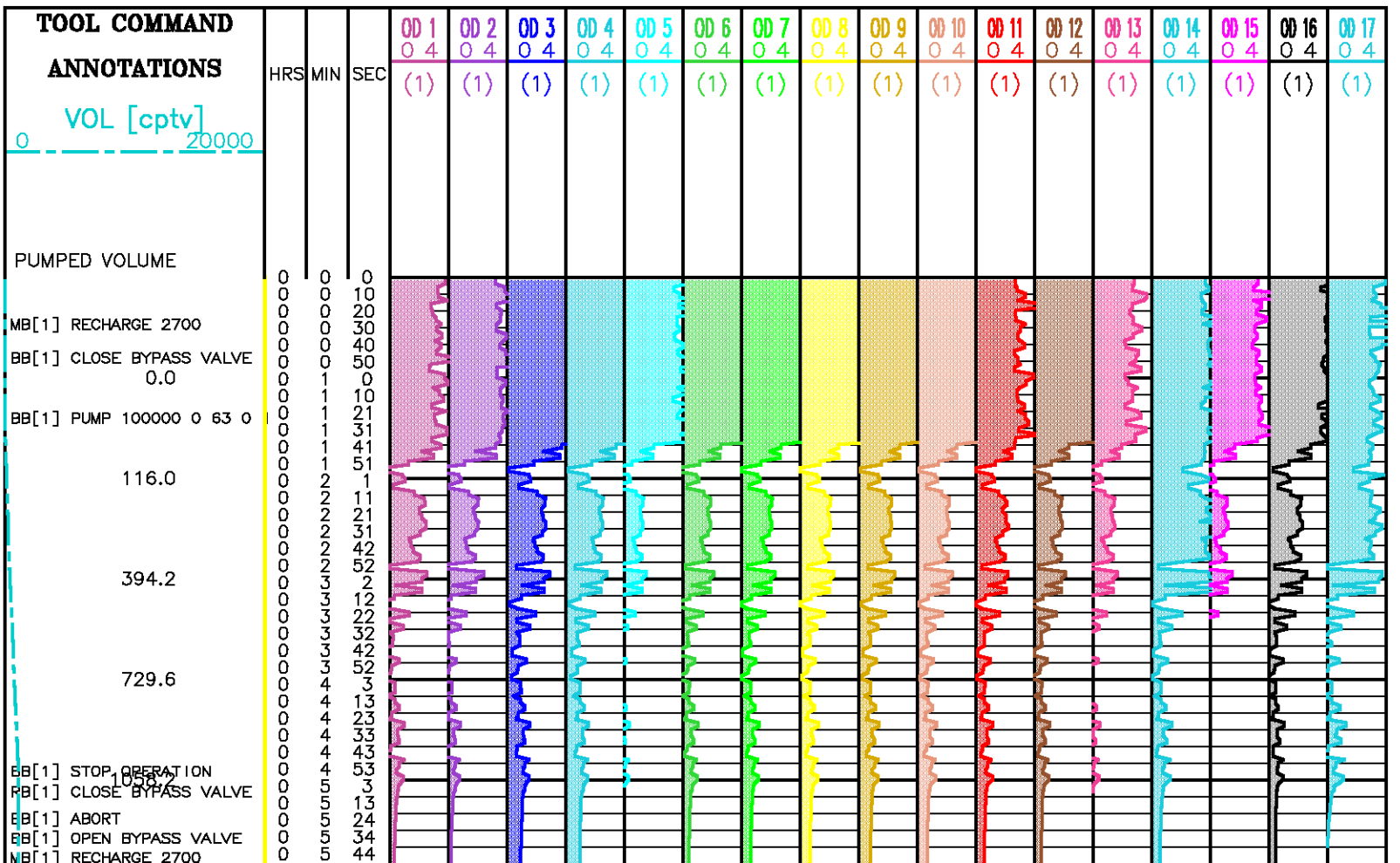
SAMPLEVIEW REFERENCE CONTROL	Reference Select	Reference-A12	START	END

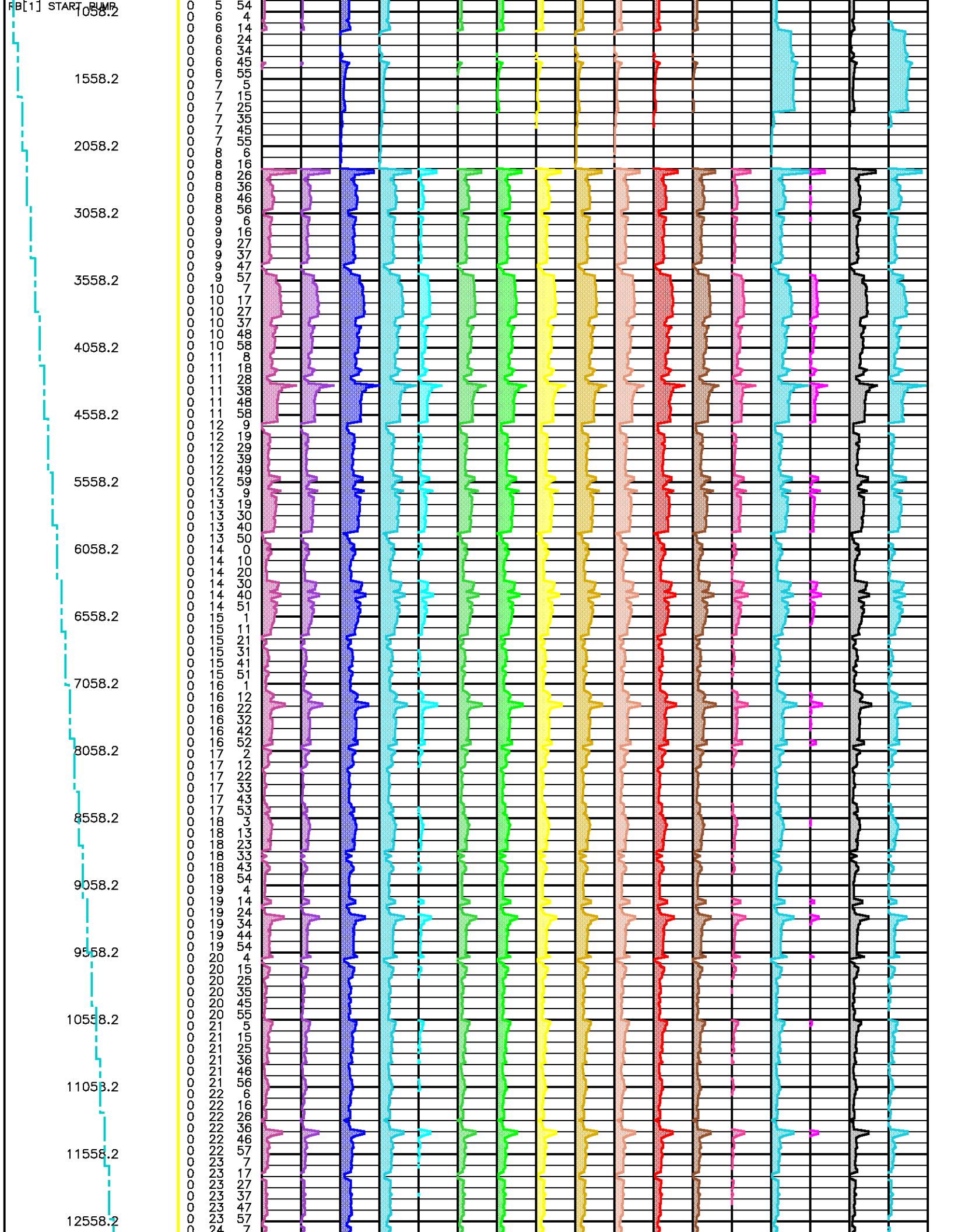
CURVE DESCRIPTION REPORT

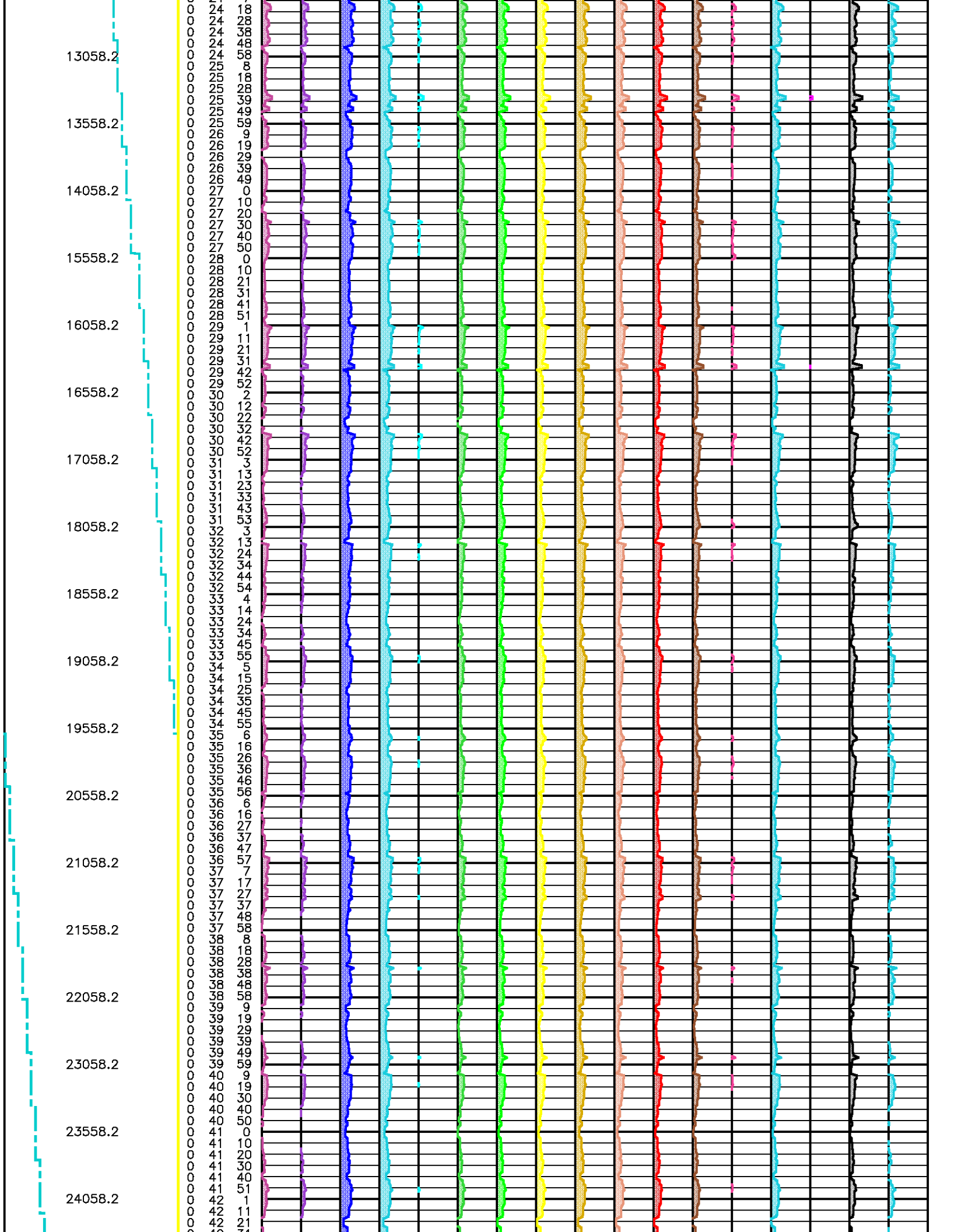
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CPTV		Jan 16 16:15:52 2005	CUMULATIVE PUMP-THROUGH VOLUME
F1:DEPTH	ANOT_TITLE	Jan 16 16:15:52 2005	SYSTEM DEPTH
F1:OD1	OD1	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 1
F1:OD10	OD10	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 10
F1:OD11	OD11	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 11
F1:OD12	OD12	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 12
F1:OD13	OD13	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 13
F1:OD14	OD14	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 14
F1:OD15	OD15	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 15
F1:OD16	OD16	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 16
F1:OD17	OD17	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 17
F1:OD2	OD2	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 2
F1:OD3	OD3	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 3
F1:OD4	OD4	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 4
F1:OD5	OD5	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 5
F1:OD6	OD6	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 6
F1:OD7	OD7	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 7
F1:OD8	OD8	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 8
F1:OD9	OD9	Jan 16 16:15:52 2005	OPTICAL DENSITY, CHANNEL 9
F1:SEC	SEC	Jan 16 16:15:52 2005	TIME IN SECONDS

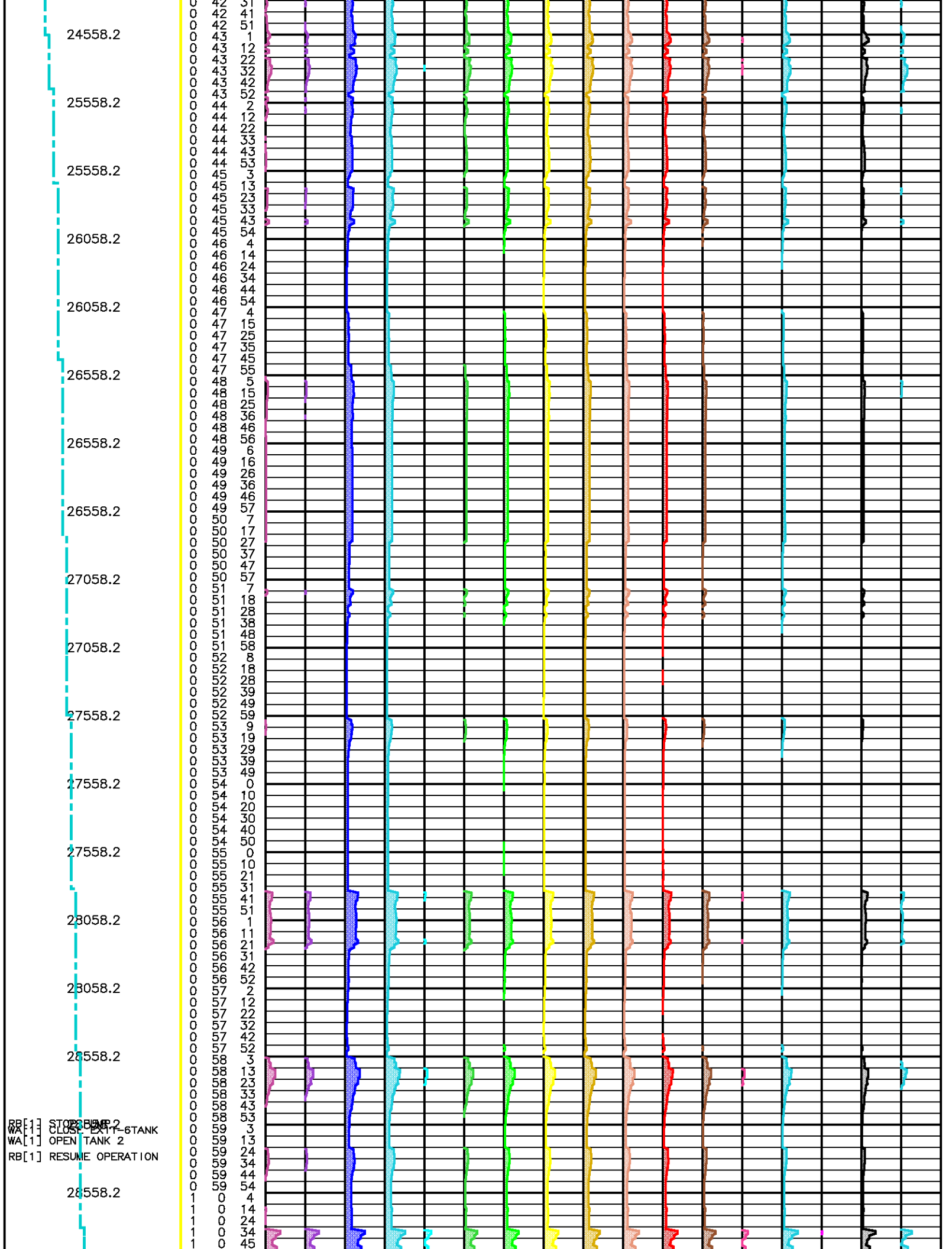
Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIsample3.pdf [1:1200 Scale]
Plot Interval : 0 – 3907.75 Seconds

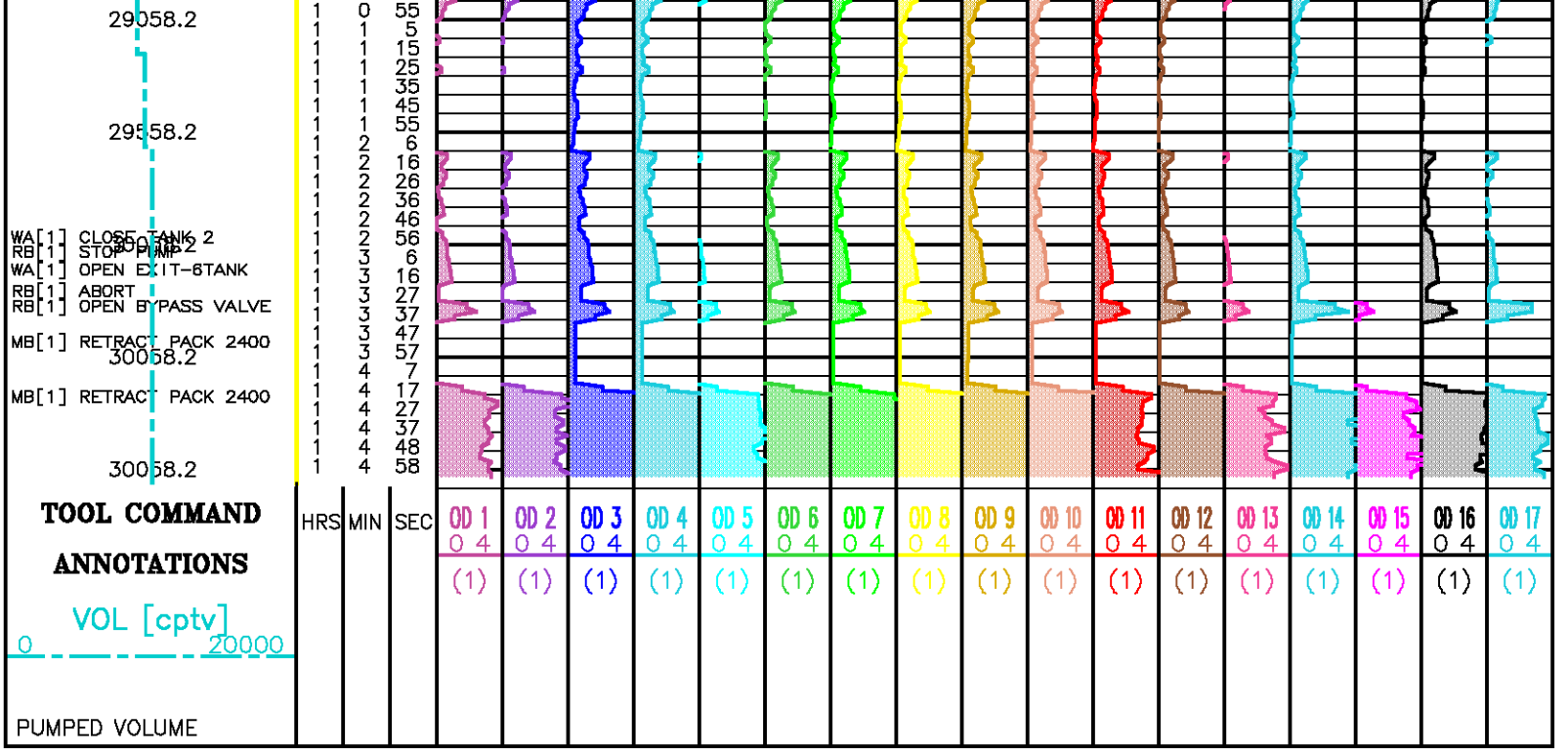
Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a57.aff
Created On : Jan 16 16:15:52 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 0 – 3907.75 Seconds @ 2571.94 Meters
Oct : 1800a




RB[1] START_PUMP
1058.2
1558.2
2058.2
3058.2
3558.2
4058.2
4558.2
5558.2
6058.2
6558.2
7058.2
8058.2
8558.2
9058.2
9558.2
10558.2
11058.2
11558.2
12558.2


13058.2
13558.2
14058.2
15558.2
16058.2
16558.2
17058.2
18058.2
18558.2
19058.2
19558.2
20558.2
21058.2
21558.2
22058.2
23058.2
23558.2
24058.2


24558.2
25558.2
25558.2
26058.2
26058.2
26558.2
26558.2
26558.2
27058.2
27058.2
27558.2
27558.2
27558.2
28058.2
28058.2
28558.2
28558.2
RB[1] STOP PUMP 2
WA[1] CLOSE EXIT-6TANK
WA[1] OPEN TANK 2
RB[1] RESUME OPERATION



PRESAMPLE CLEANUP: 2574.0 M

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:12:19 2005
Fileview 4.34

PARAMETER AND FILTER SUMMARY REPORT

FILE: /export/thyl2/greyling1/1800a60.prm
LOGGING MODE: TIME
START TIME: 0.000 s END TIME: 3616.000 s

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END
LMP	FILTER ()	medium (1)		START	END
QD PRES	FILTER ()	medium (1)		"	"
RTD	FILTER ()	medium (1)		"	"

RCI PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END
RCI VOLUME	Isolated VOL	51.0 (56cc pump)		START	END
	Piston Area	445.8 (56cc pump)		"	"
RCI RB PUMP THROUGH	Volume per Stroke	Medium (500 cc)		"	"

SAMPLEVIEW

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s) START	INTERVAL (s) END
SAMPLEVIEW REFERENCE CONTROL	Reference Select	Reference-A12		START	END

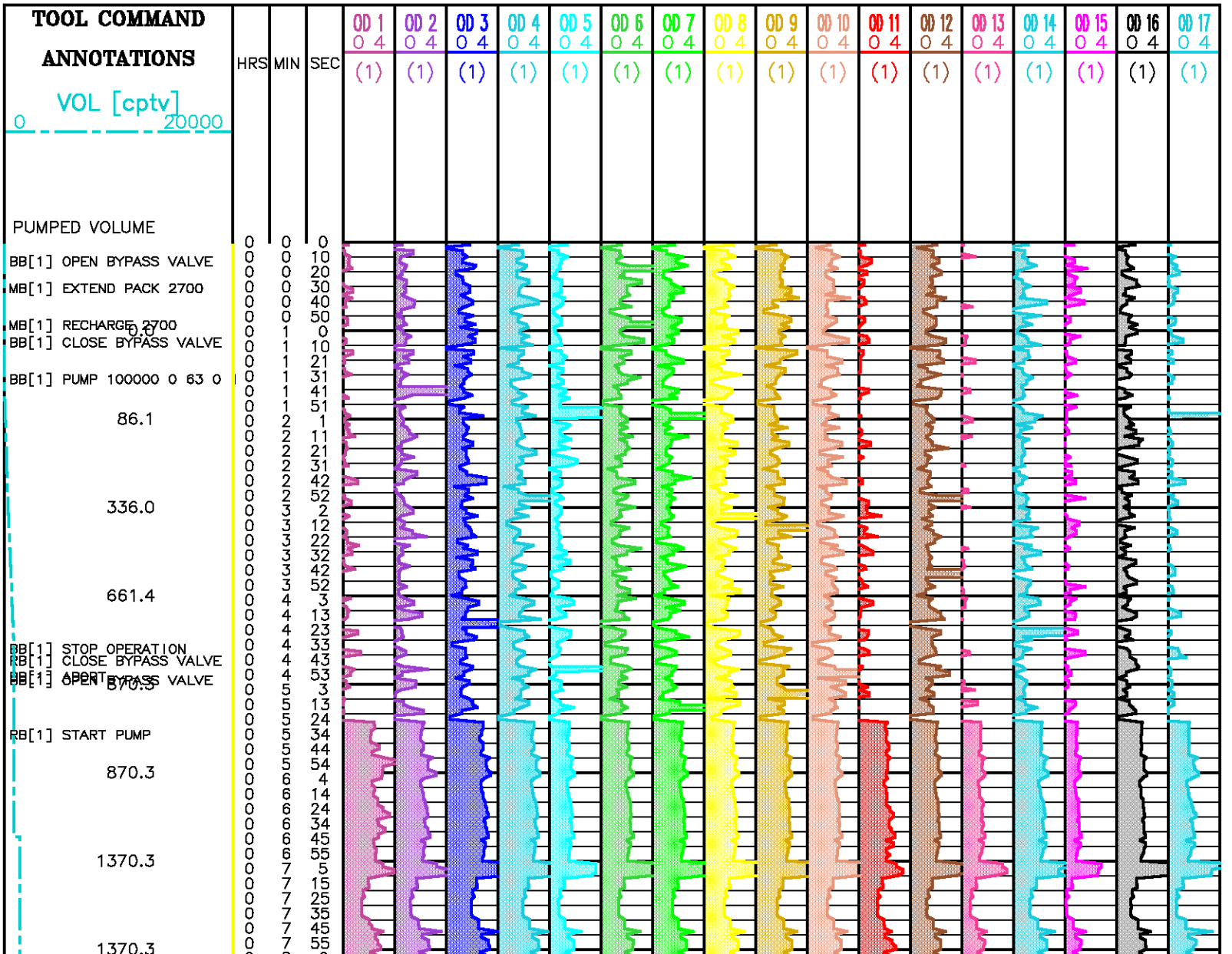
CURVE DESCRIPTION REPORT

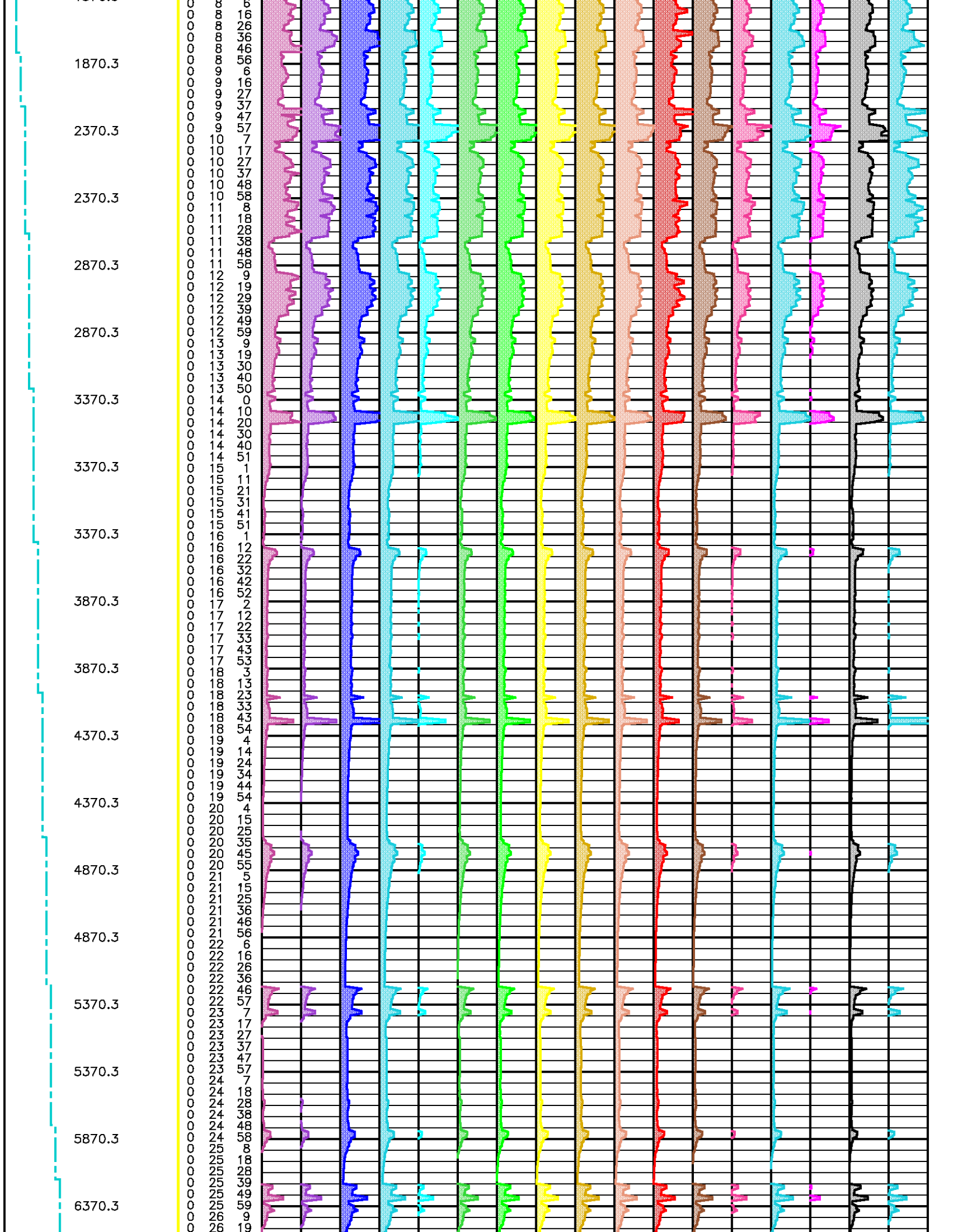
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CPTV		Jan 16 18:17:53 2005	CUMULATIVE PUMP-THROUGH VOLUME
F1:DEPTH	ANOT_TITLE	Jan 16 18:17:53 2005	SYSTEM DEPTH

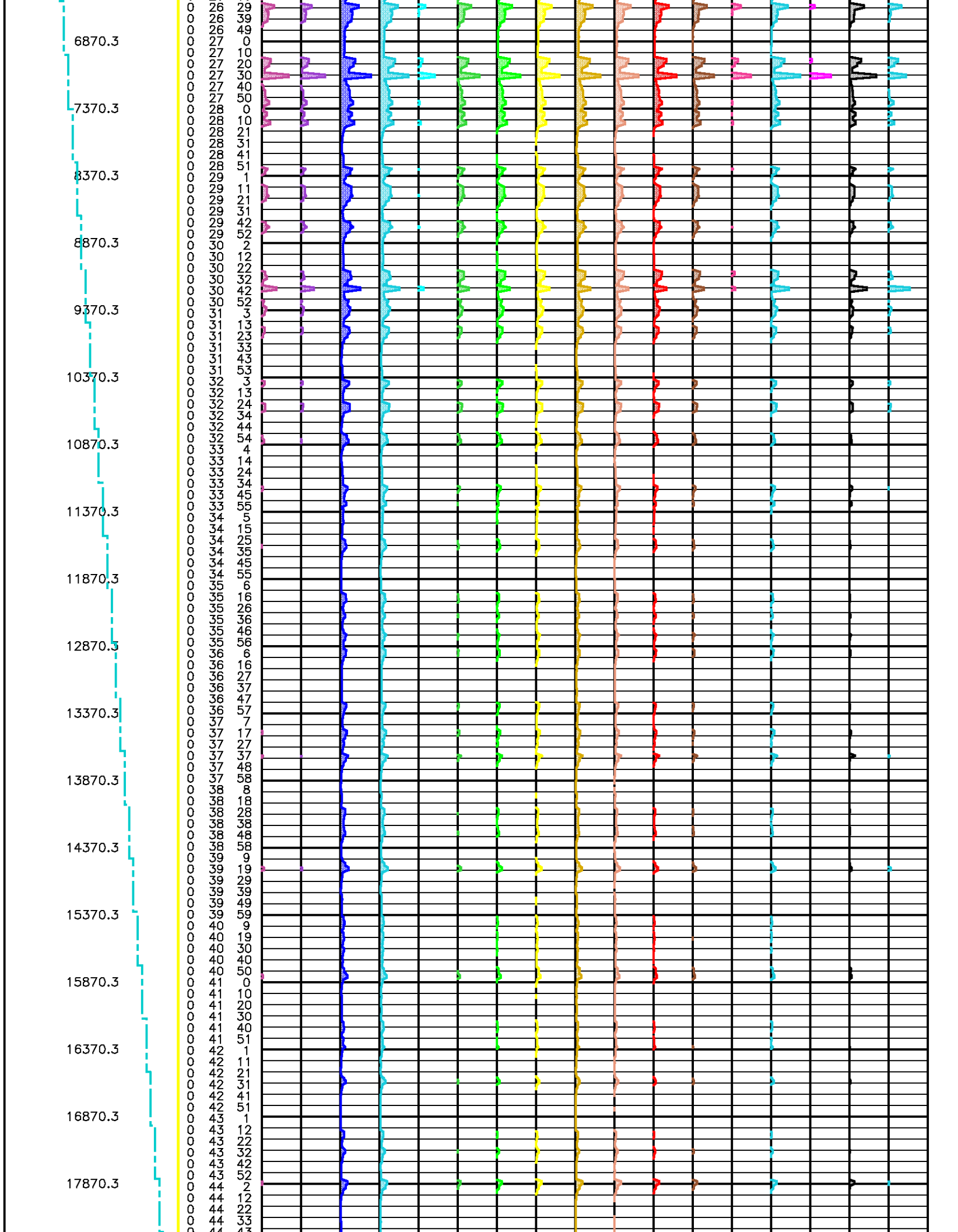
F1:OD1	OD1	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 1
F1:OD10	OD10	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 10
F1:OD11	OD11	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 11
F1:OD12	OD12	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 12
F1:OD13	OD13	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 13
F1:OD14	OD14	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 14
F1:OD15	OD15	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 15
F1:OD16	OD16	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 16
F1:OD17	OD17	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 17
F1:OD2	OD2	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 2
F1:OD3	OD3	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 3
F1:OD4	OD4	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 4
F1:OD5	OD5	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 5
F1:OD6	OD6	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 6
F1:OD7	OD7	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 7
F1:OD8	OD8	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 8
F1:OD9	OD9	Jan 16 18:17:53 2005	OPTICAL DENSITY, CHANNEL 9
F1:SEC	SEC	Jan 16 18:17:53 2005	TIME IN SECONDS

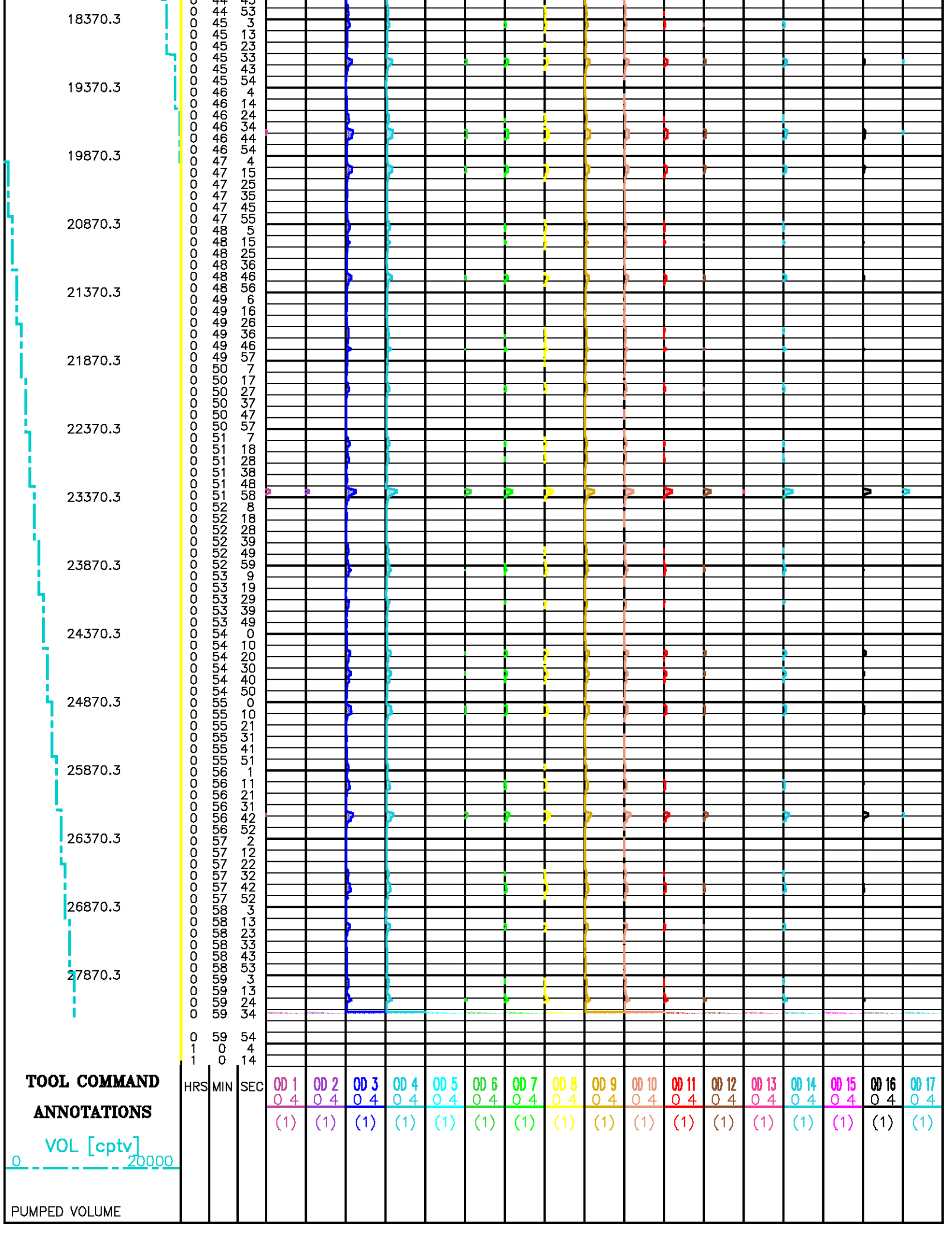
Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIsample4A.pdf [1:1200 Scale]
Plot Interval : 0 – 3616 Seconds

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a60.aff
Created On : Jan 16 18:17:53 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 0 – 3616 Seconds @ 2574.05 Meters
Oct : 1800a




1870.3
2370.3
2370.3
2870.3
2870.3
3370.3
3370.3
3370.3
3870.3
3870.3
4370.3
4370.3
4870.3
4870.3
5370.3
5370.3
5870.3
6370.3


6870.3
7370.3
8370.3
8870.3
9370.3
10370.3
10870.3
11370.3
11870.3
12870.3
13370.3
13870.3
14370.3
15370.3
15870.3
16370.3
16870.3
17870.3


18370.3
19370.3
19870.3
20870.3
21370.3
21870.3
22370.3
23370.3
23870.3
24370.3
24870.3
25870.3
26370.3
26870.3
27870.3
HRS MIN SEC
OD 1 OD 2 OD 3 OD 4 OD 5 OD 6 OD 7 OD 8 OD 9 OD 10 OD 11 OD 12 OD 13 OD 14 OD 15 OD 16 OD 17
TOOL COMMAND
ANNOTATIONS
VOL [cptv]
0
20000
PUMPED VOLUME

SAMPLE DEPTH: 2574.0 M

eXpress Unknown eXpress 3.1 Jun 29, 2002 Cplot 8.1 Tue May 3 10:14:56 2005
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61 Pdf_Cpp /main/16 Fileview 4.34

PARAMETER AND FILTER SUMMARY REPORT

FILE: /export/thyl2/greyling1/1800a66.prm
LOGGING MODE: TIME
START TIME: 0.125 s END TIME: 1109.875 s

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s)	
LMP	FILTER ()	medium (1)		START	END
QD PRES	FILTER ()	medium (1)		''	''
RTD	FILTER ()	medium (1)		''	''

RCI PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s)	
RCI VOLUME	Isolated VOL	51.0 (56cc pump)		START	END
	Piston Area	445.8 (56cc pump)		''	''
RCI RB PUMP THROUGH	Volume per Stroke	Medium (500 cc)		''	''

SAMPLEVIEW

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (s)	
SAMPLEVIEW REFERENCE CONTROL	Reference Select	Reference-A12		START	END

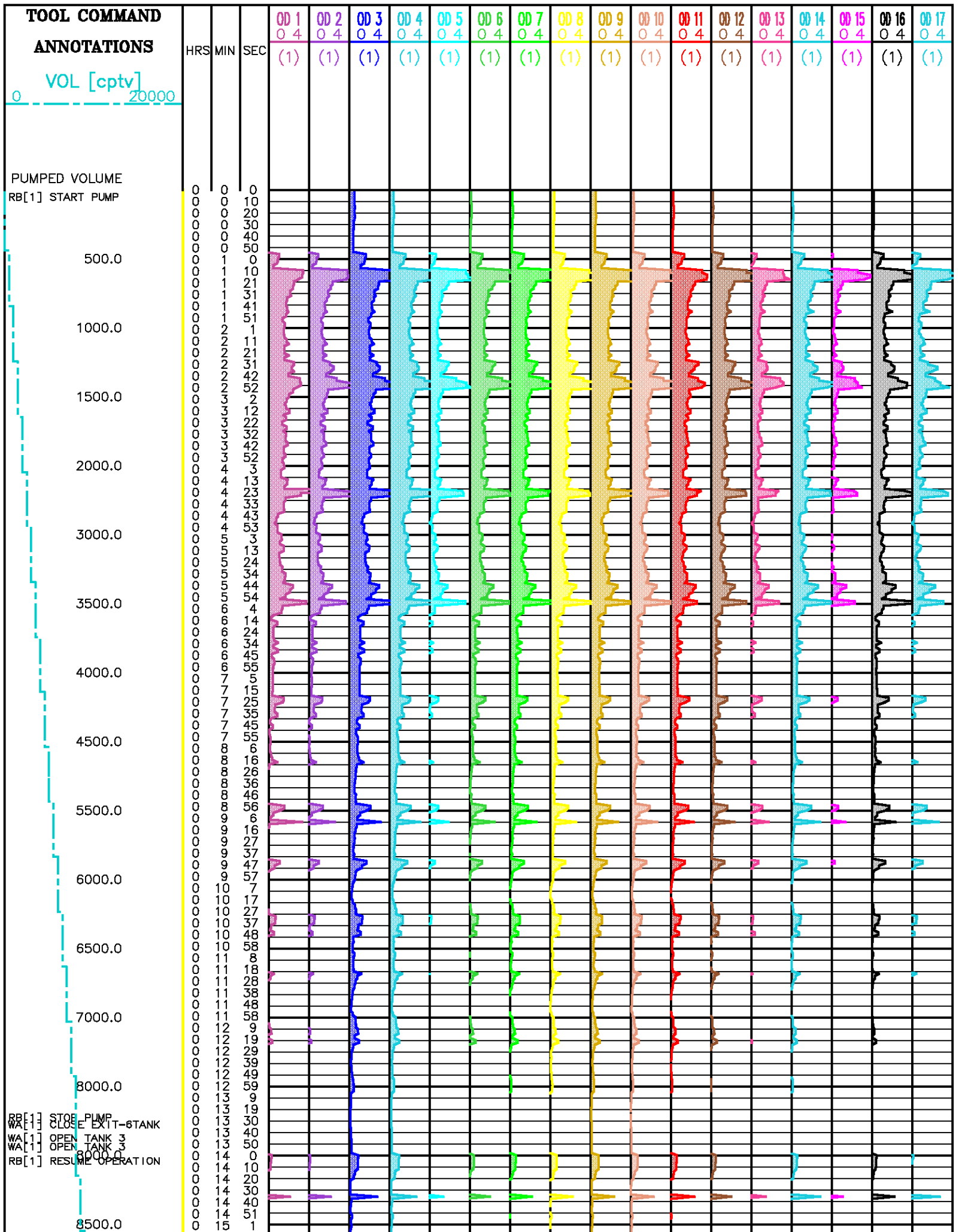
CURVE DESCRIPTION REPORT

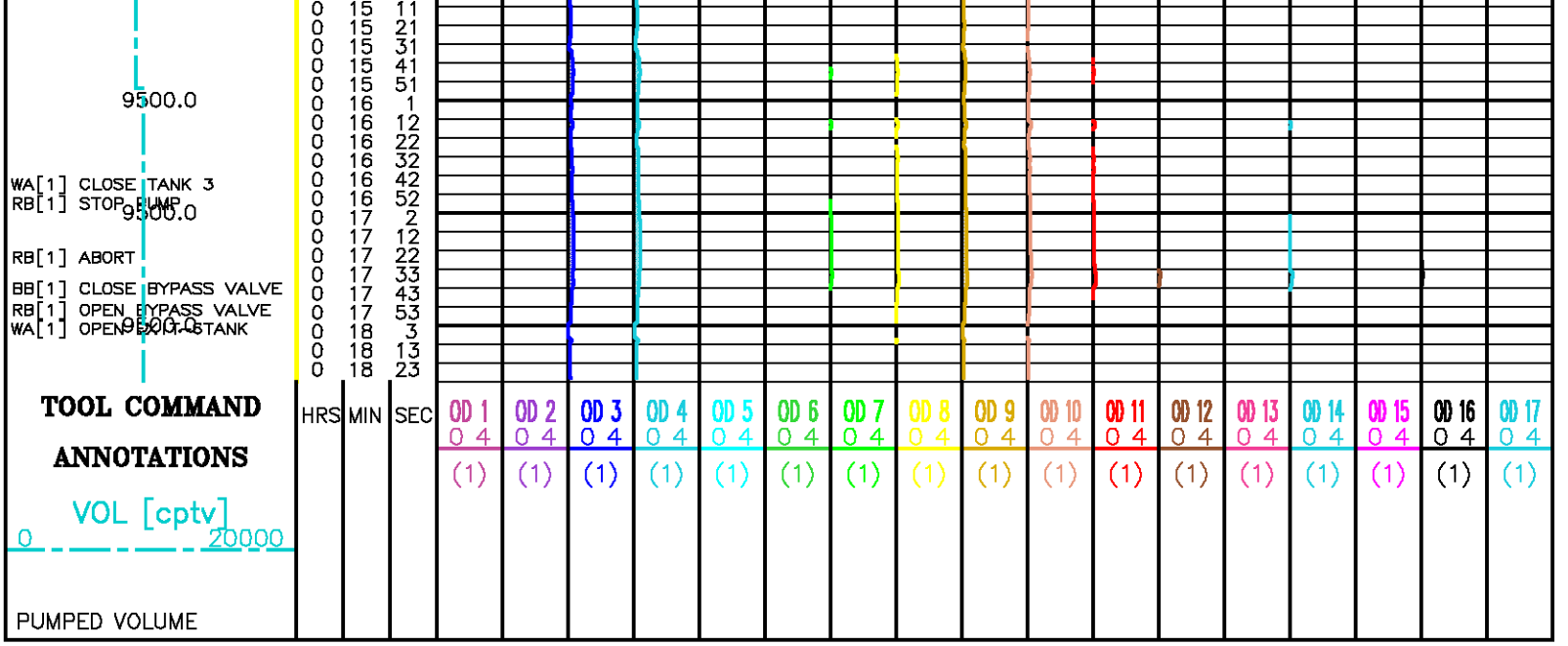
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CPTV		Jan 16 22:43:33 2005	CUMULATIVE PUMP-THROUGH VOLUME
F1:DEPTH	ANOT_TITLE	Jan 16 22:43:33 2005	SYSTEM DEPTH
F1:OD1	OD1	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 1
F1:OD10	OD10	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 10
F1:OD11	OD11	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 11
F1:OD12	OD12	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 12
F1:OD13	OD13	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 13
F1:OD14	OD14	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 14
F1:OD15	OD15	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 15
F1:OD16	OD16	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 16
F1:OD17	OD17	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 17
F1:OD2	OD2	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 2
F1:OD3	OD3	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 3
F1:OD4	OD4	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 4
F1:OD5	OD5	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 5
F1:OD6	OD6	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 6
F1:OD7	OD7	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 7
F1:OD8	OD8	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 8
F1:OD9	OD9	Jan 16 22:43:33 2005	OPTICAL DENSITY, CHANNEL 9
F1:SEC	SEC	Jan 16 22:43:33 2005	TIME IN SECONDS

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIsample4.pdf [1:1200 Scale]
Plot Interval : 0 – 1110 Seconds

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a66.aff
Created On : Jan 16 22:43:33 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 0 – 1110 Seconds @ 2574.32 Meters

Oct : 1800a


TOOL COMMAND ANNOTATIONS
VOL [cptv]
0
20000
HRS
MIN
SEC
OD 1 0 4 (1)
OD 2 0 4 (1)
OD 3 0 4 (1)
OD 4 0 4 (1)
OD 5 0 4 (1)
OD 6 0 4 (1)
OD 7 0 4 (1)
OD 8 0 4 (1)
OD 9 0 4 (1)
OD 10 0 4 (1)
OD 11 0 4 (1)
OD 12 0 4 (1)
OD 13 0 4 (1)
OD 14 0 4 (1)
OD 15 0 4 (1)
OD 16 0 4 (1)
OD 17 0 4 (1)
PUMPED VOLUME
RB[1] START PUMP
500.0
1000.0
1500.0
2000.0
3000.0
3500.0
4000.0
4500.0
5500.0
6000.0
6500.0
7000.0
8000.0
RB[1] STOP PUMP
WA[1] CLOSE EXIT-6TANK
WA[1] OPEN TANK 3
WA[1] OPEN TANK 3
8000.0
RB[1] RESUME OPERATION
8500.0



RCI RUN 1 TRIP 2
CORRELATION LOG
1:200 SCALE

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:15:43 2005
Fileview 4.34

CURVE DESCRIPTION REPORT

CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CHT	CHT	Jan 13 14:36:53 2005	CABLE HEAD TENSION
F1:GR	GR	Jan 13 14:36:53 2005	GAMMA RAY
F1:SPD	SPD	Jan 13 14:36:53 2005	SPEED
F1:TEN	TEN	Jan 13 14:36:53 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 13 14:36:53 2005	TOTAL TENSION

CURVE MEASURE POINT OFFSET

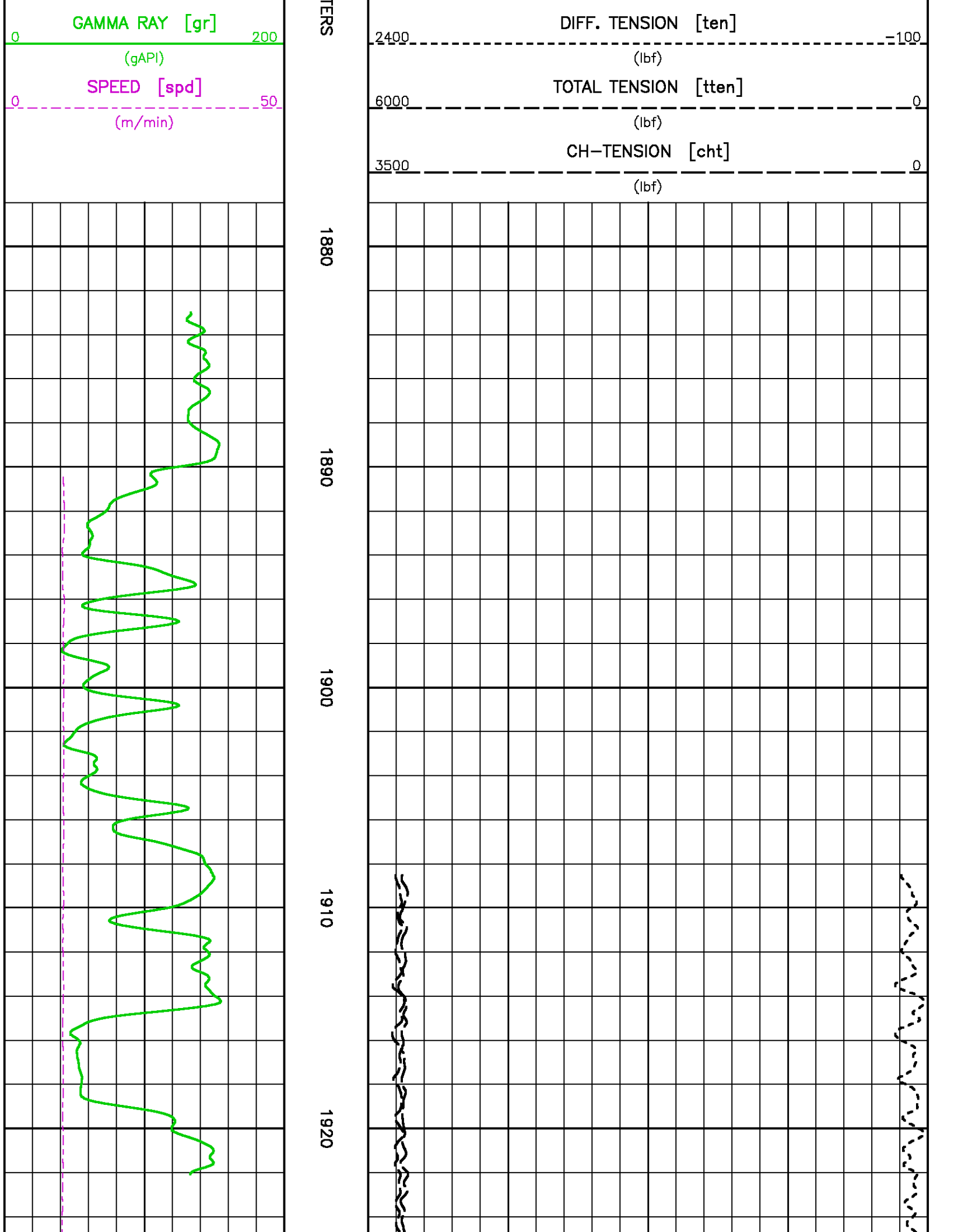
CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
CHT	-18.06	SPD	0.00	TTEN	-18.06		
GR	7.47	TEN	-18.06				

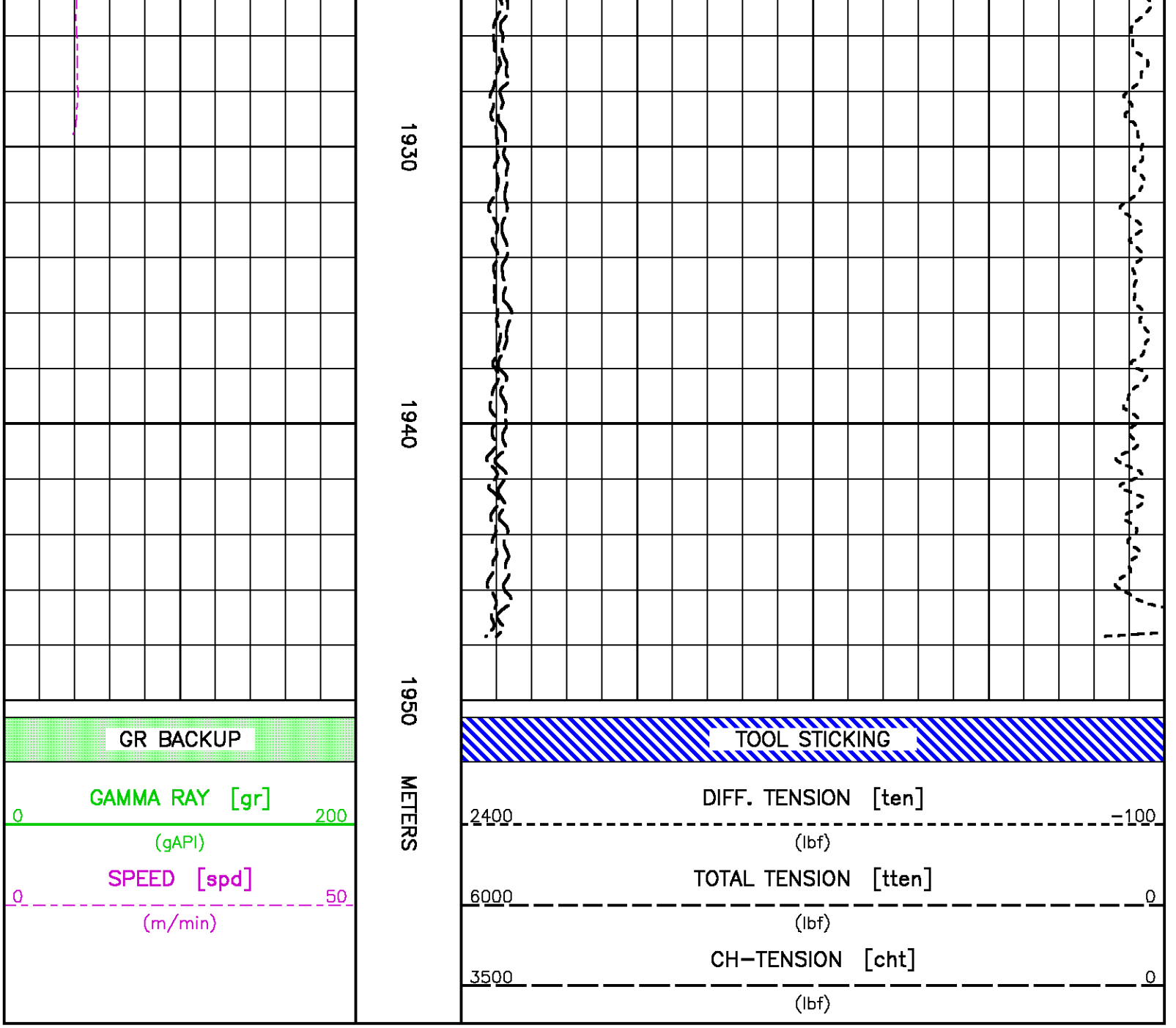
Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIcorrelation1.pdf [1:200 Scale]
Plot Interval : 1878.79 - 1948.05 Meters

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a05.xtf
Created On : Jan 13 14:36:53 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 1878.79 - 1948.13 Meters
Oct : 1800a

GR BACKUP

TOOL STICKING


GAMMA RAY [gr]
0
200
(gAPI)
SPEED [spd]
0
50
(m/min)
TERS
1880
1890
1900
1910
1920
DIFF. TENSION [ten]
2400
-100
(lbf)
TOTAL TENSION [tten]
6000
0
(lbf)
CH-TENSION [cht]
3500
0
(lbf)



RCI RUN 1 TRIP 2
CORRELATION LOG 2
1:200 SCALE

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:16:24 2005
Fileview 4.34

CURVE DESCRIPTION REPORT

CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CHT	CHT	Jan 14 19:39:04 2005	CABLE HEAD TENSION
F1:GR	GR	Jan 14 19:39:04 2005	GAMMA RAY
F1:SPD	SPD	Jan 14 19:39:04 2005	SPEED

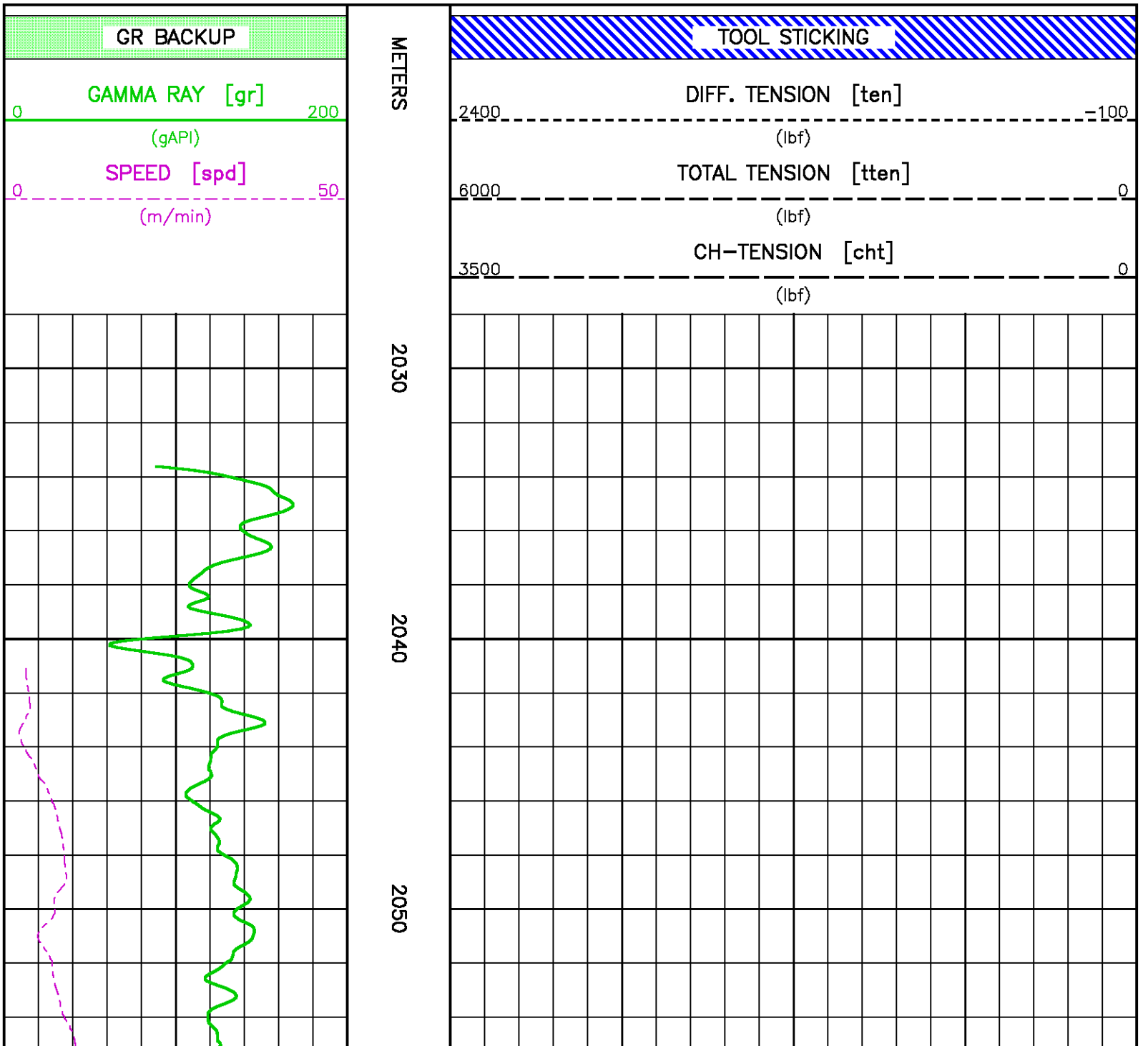
F1:TEN	TEN	Jan 14 19:39:04 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 14 19:39:04 2005	TOTAL TENSION

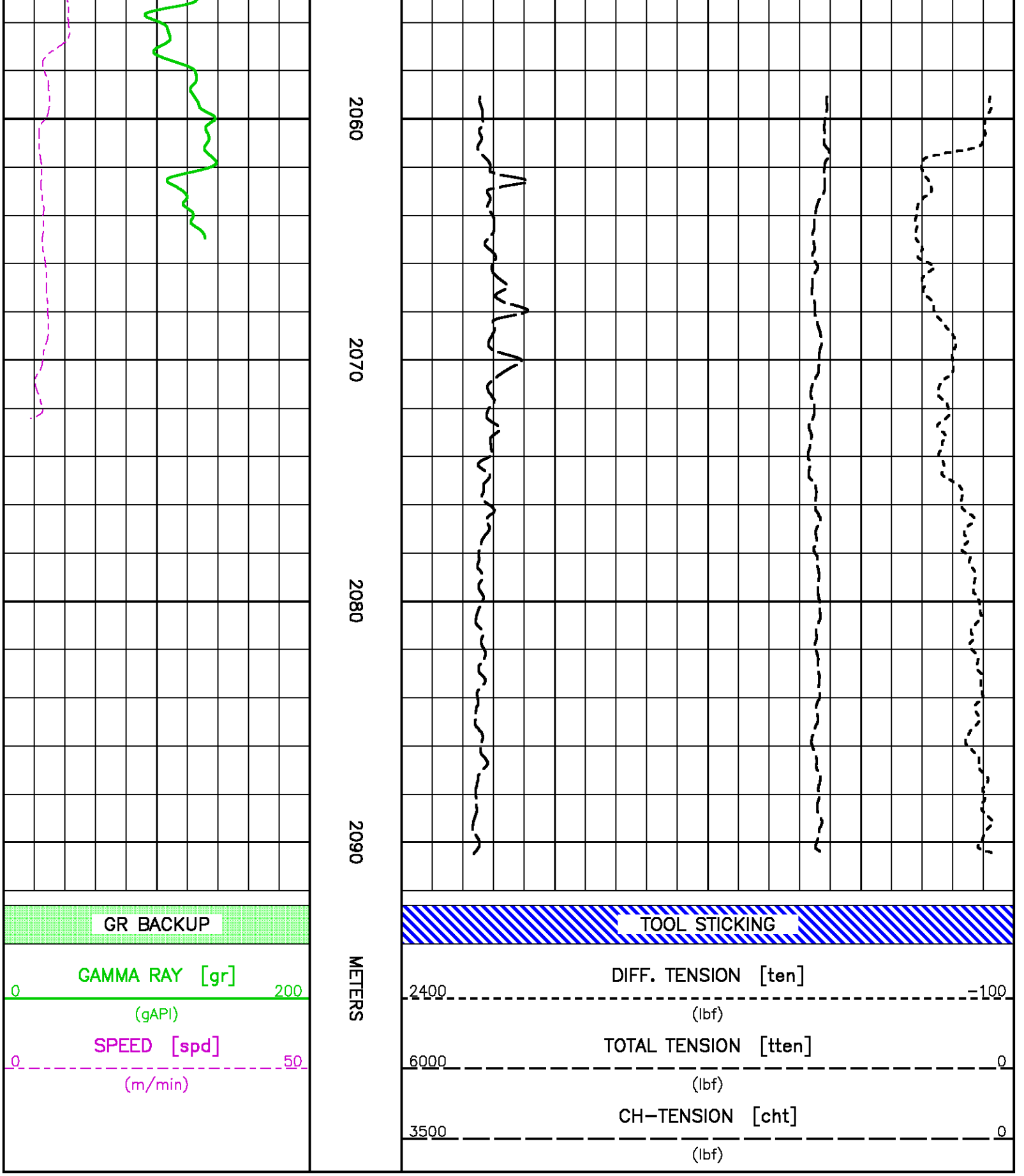
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
CHT	-18.06	SPD	0.00	TTEN	-18.06		
GR	7.47	TEN	-18.06				

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIcorrelation1A.pdf [1:200 Scale]
Plot Interval : 2029.36 – 2090.85 Meters

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a19.xtf
Created On : Jan 14 19:39:04 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 2029.36 – 2090.85 Meters
Oct : 1800a





RCI RUN 1 TRIP 3
CORRELATION LOG

1:200 SCALE

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:17:08 2005
Fileview 4.34

CURVE DESCRIPTION REPORT

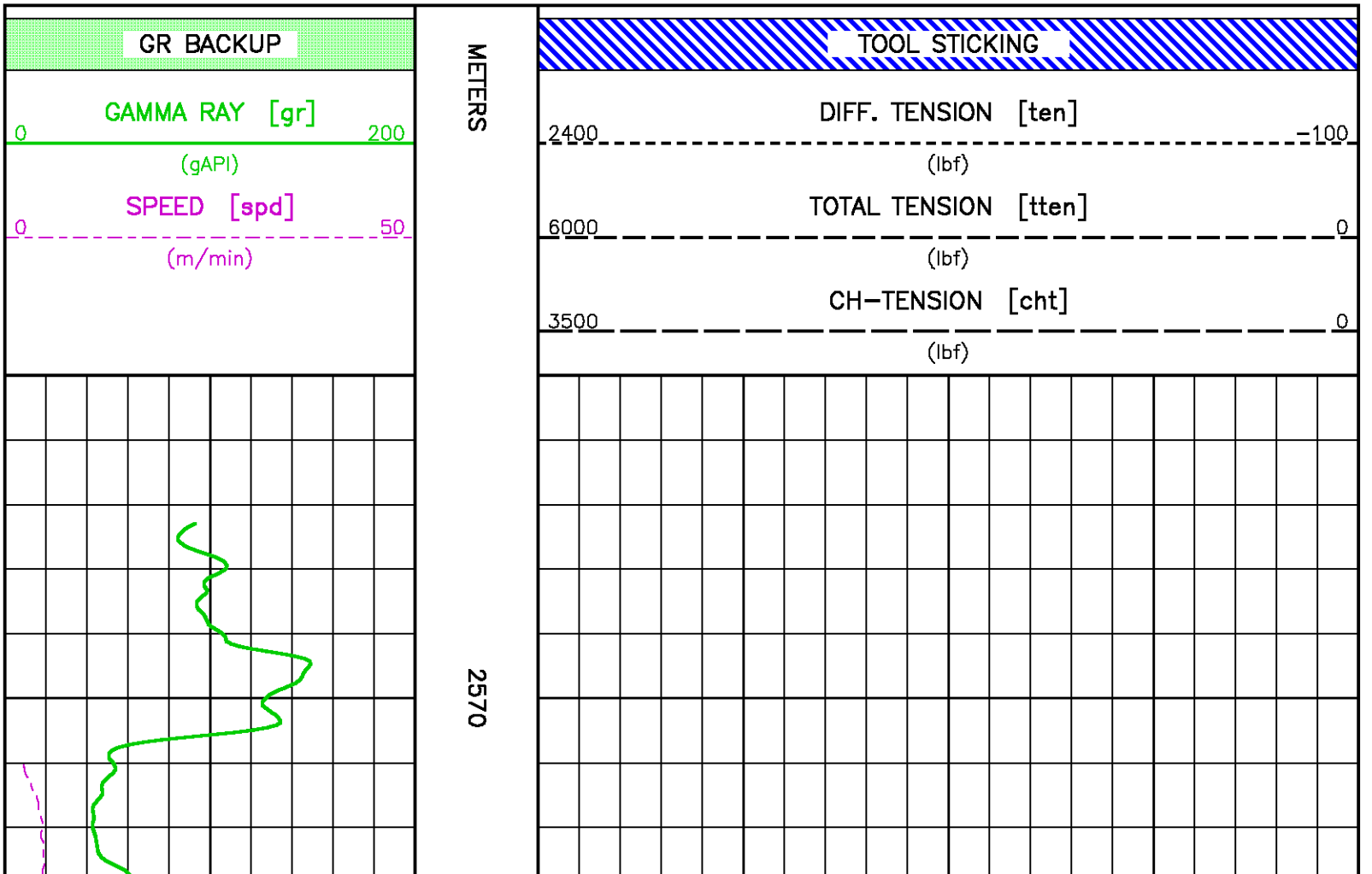
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CHT	CHT	Jan 16 06:10:59 2005	CABLE HEAD TENSION
F1:GR	GR	Jan 16 06:10:59 2005	GAMMA RAY
F1:SPD	SPD	Jan 16 06:10:59 2005	SPEED
F1:TEN	TEN	Jan 16 06:10:59 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 16 06:10:59 2005	TOTAL TENSION

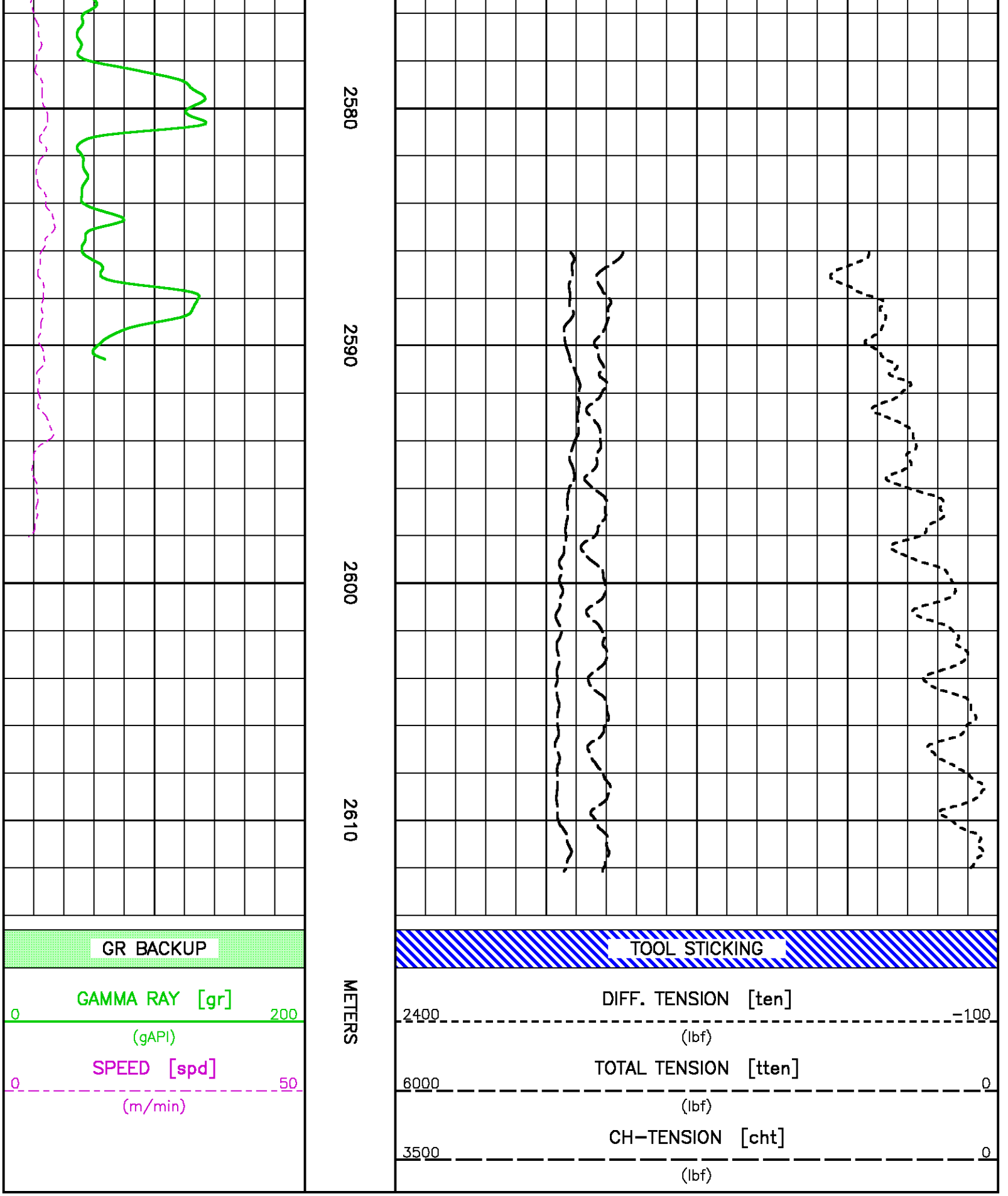
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
CHT	-14.10	SPD	0.00	TTEN	-14.10		
GR	7.47	TEN	-14.10				

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIcorrelation2.pdf [1:200 Scale]
Plot Interval : 2560.33 – 2612.59 Meters

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a29.xtf
Created On : Jan 16 06:10:59 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 2560.32 – 2612.6 Meters
Oct : 1800a





PGL RUN 1 TRIP 2

RCI RUN 1 TRIP 3
CORRELATION LOG 2
1:200 SCALE

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:17:30 2005
Fileview 4.34

CURVE DESCRIPTION REPORT

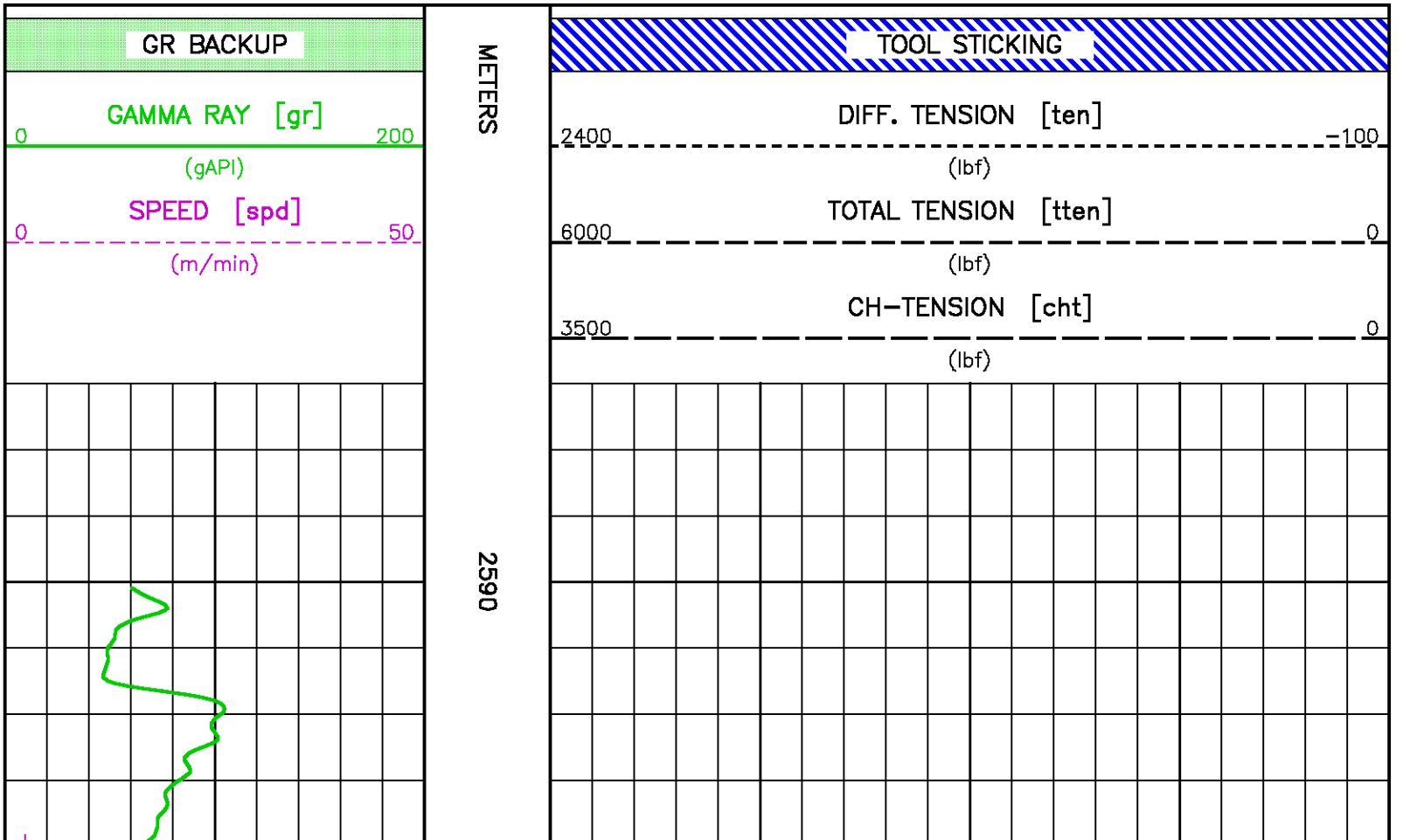
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CHT	CHT	Jan 16 10:06:08 2005	CABLE HEAD TENSION
F1:GR	GR	Jan 16 10:06:08 2005	GAMMA RAY
F1:SPD	SPD	Jan 16 10:06:08 2005	SPEED
F1:TEN	TEN	Jan 16 10:06:08 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 16 10:06:08 2005	TOTAL TENSION

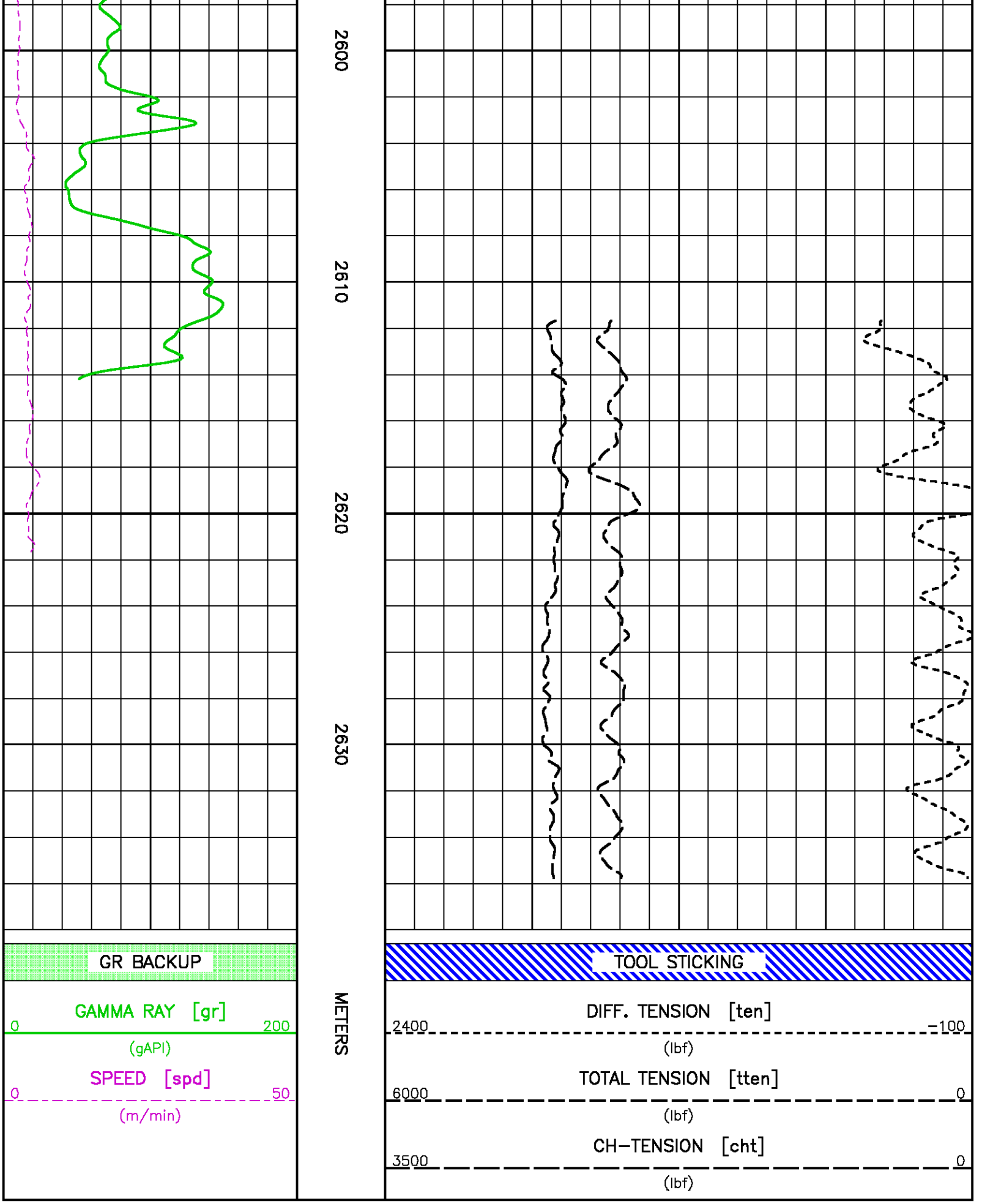
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
CHT	-14.10	SPD	0.00	TTEN	-14.10		
GR	7.47	TEN	-14.10				

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIcorrelation3.pdf [1:200 Scale]
Plot Interval : 2585.92 - 2636.14 Meters

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a40.xtf
Created On : Jan 16 10:06:08 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 2585.92 - 2636.14 Meters
Oct : 1800a




2600
2610
2620
2630
METERS
GR BACKUP
GAMMA RAY [gr]
0
200
(gAPI)
SPEED [spd]
0
50
(m/min)
TOOL STICKING
DIFF. TENSION [ten]
2400
-100
(lbf)
TOTAL TENSION [tten]
6000
0
(lbf)
CH-TENSION [cht]
3500
0
(lbf)

RCI RUN 1 TRIP 3
CORRELATION LOG 3
1:200 SCALE

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:18:15 2005
Fileview 4.34

CURVE DESCRIPTION REPORT

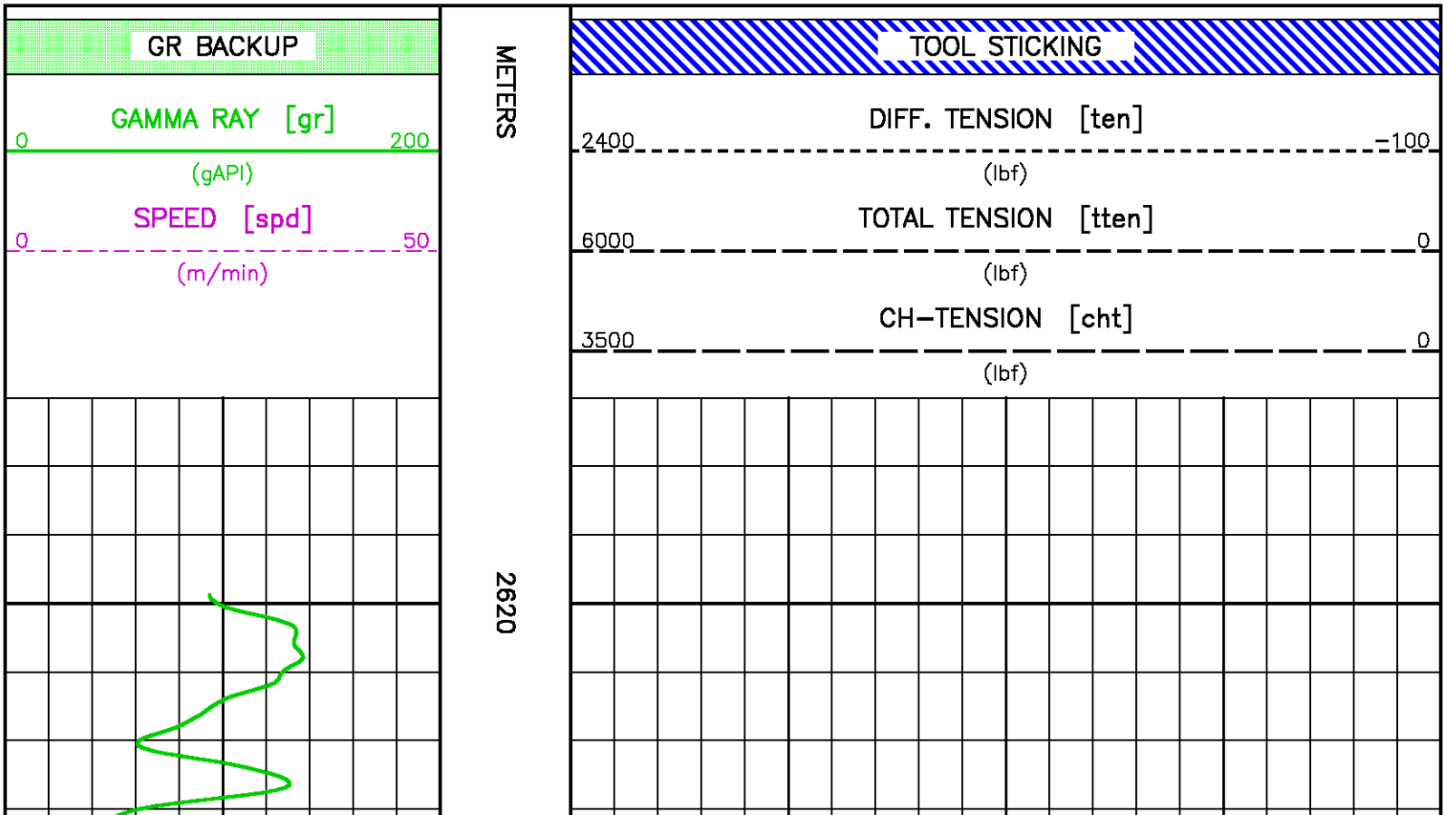
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CHT	CHT	Jan 16 12:21:22 2005	CABLE HEAD TENSION
F1:GR	GR	Jan 16 12:21:22 2005	GAMMA RAY
F1:SPD	SPD	Jan 16 12:21:22 2005	SPEED
F1:TEN	TEN	Jan 16 12:21:22 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 16 12:21:22 2005	TOTAL TENSION

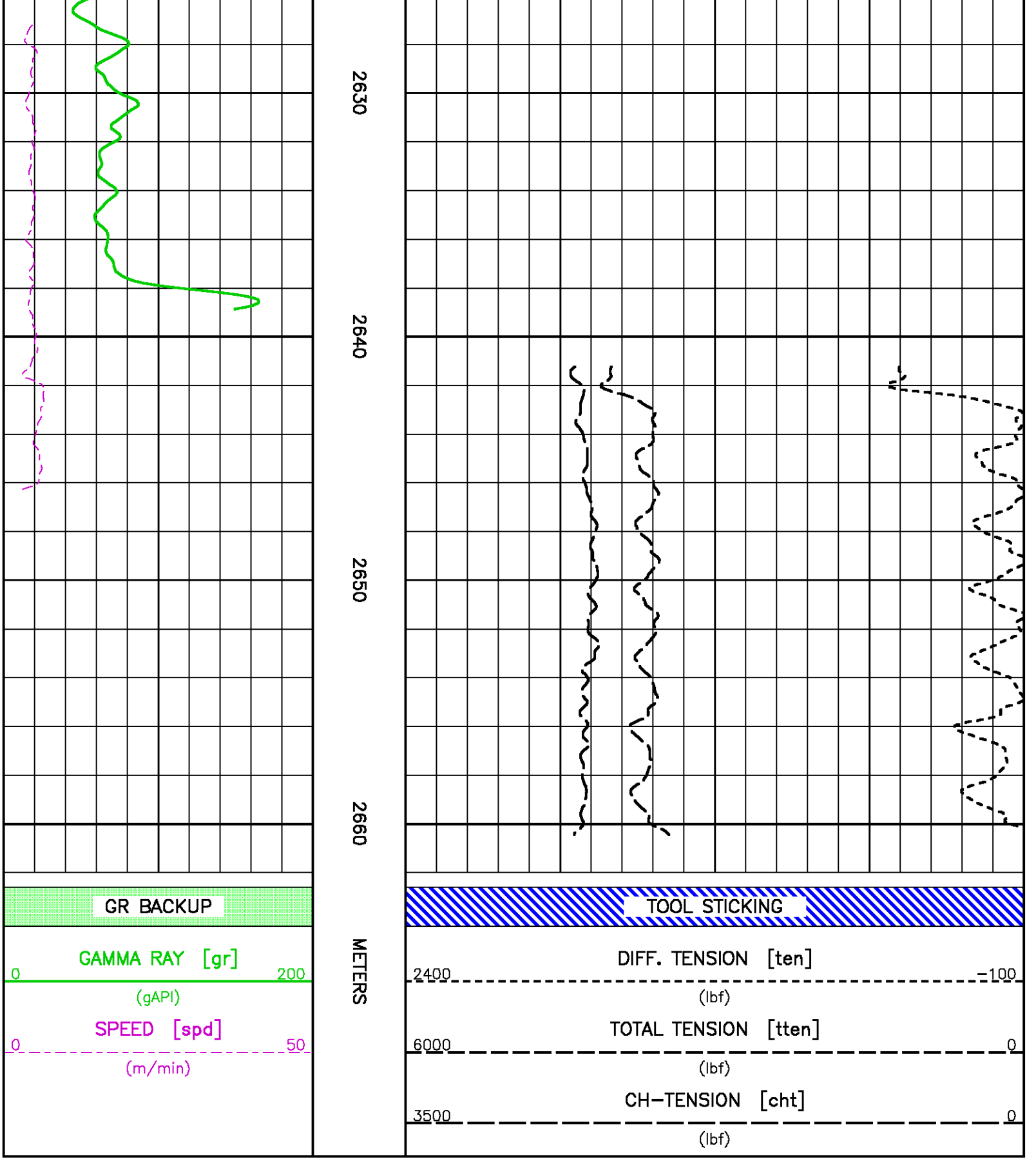
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
CHT	-14.10	SPD	0.00	TTEN	-14.10		
GR	7.47	TEN	-14.10				

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIcorrelation4.pdf [1:200 Scale]
Plot Interval : 2615.49 - 2660.83 Meters

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a47.xtf
Created On : Jan 16 12:21:22 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 2615.49 - 2660.83 Meters
Oct : 1800a





RCI RUN 1 TRIP 3
CORRELATION LOG 4
1:200 SCALE

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:18:36 2005
Fileview 4.34

CURVE DESCRIPTION REPORT

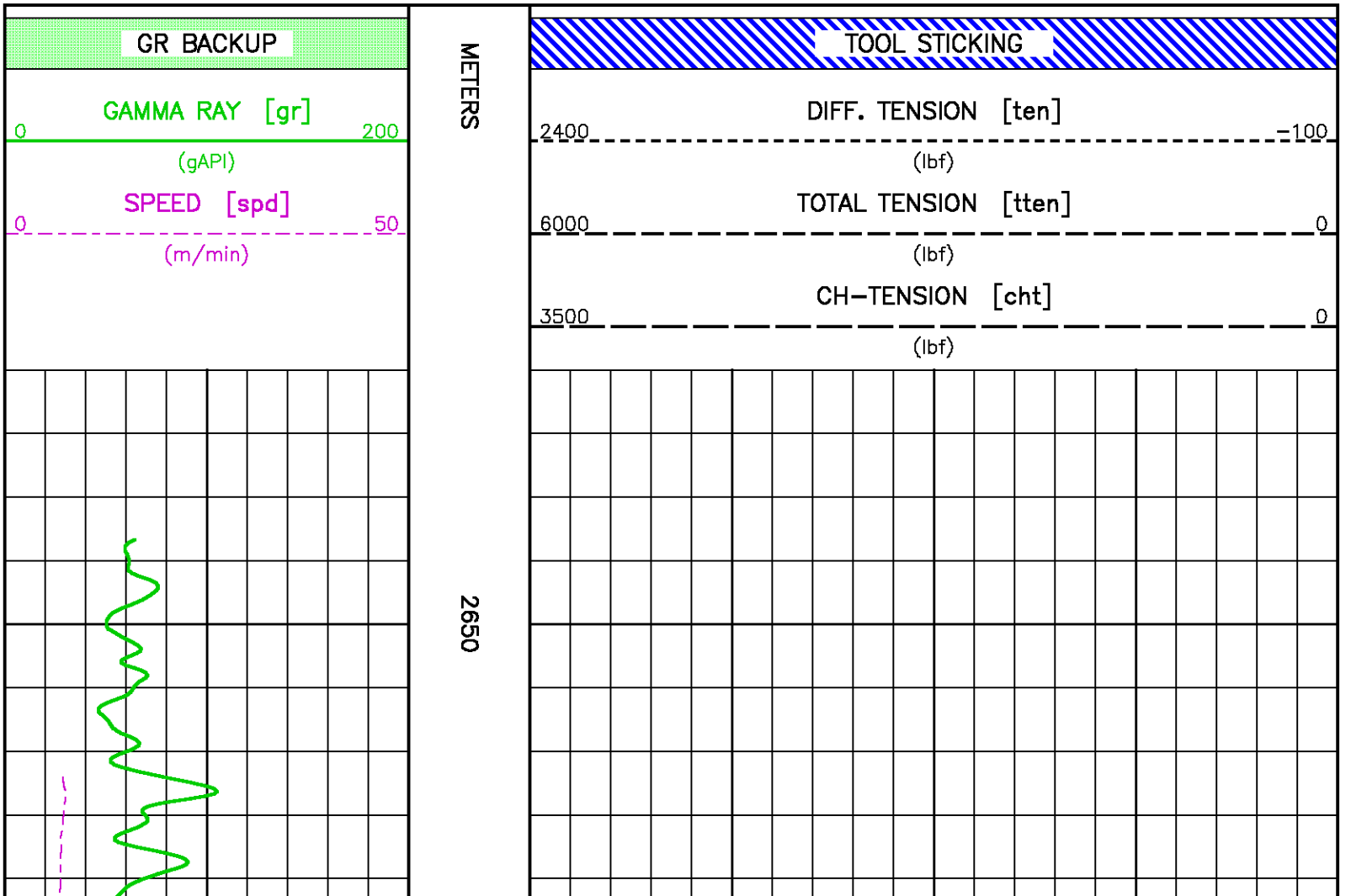
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CHT	CHT	Jan 16 14:43:58 2005	CABLE HEAD TENSION
F1:GR	GR	Jan 16 14:43:58 2005	GAMMA RAY
F1:SPD	SPD	Jan 16 14:43:58 2005	SPEED
F1:TEN	TEN	Jan 16 14:43:58 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 16 14:43:58 2005	TOTAL TENSION

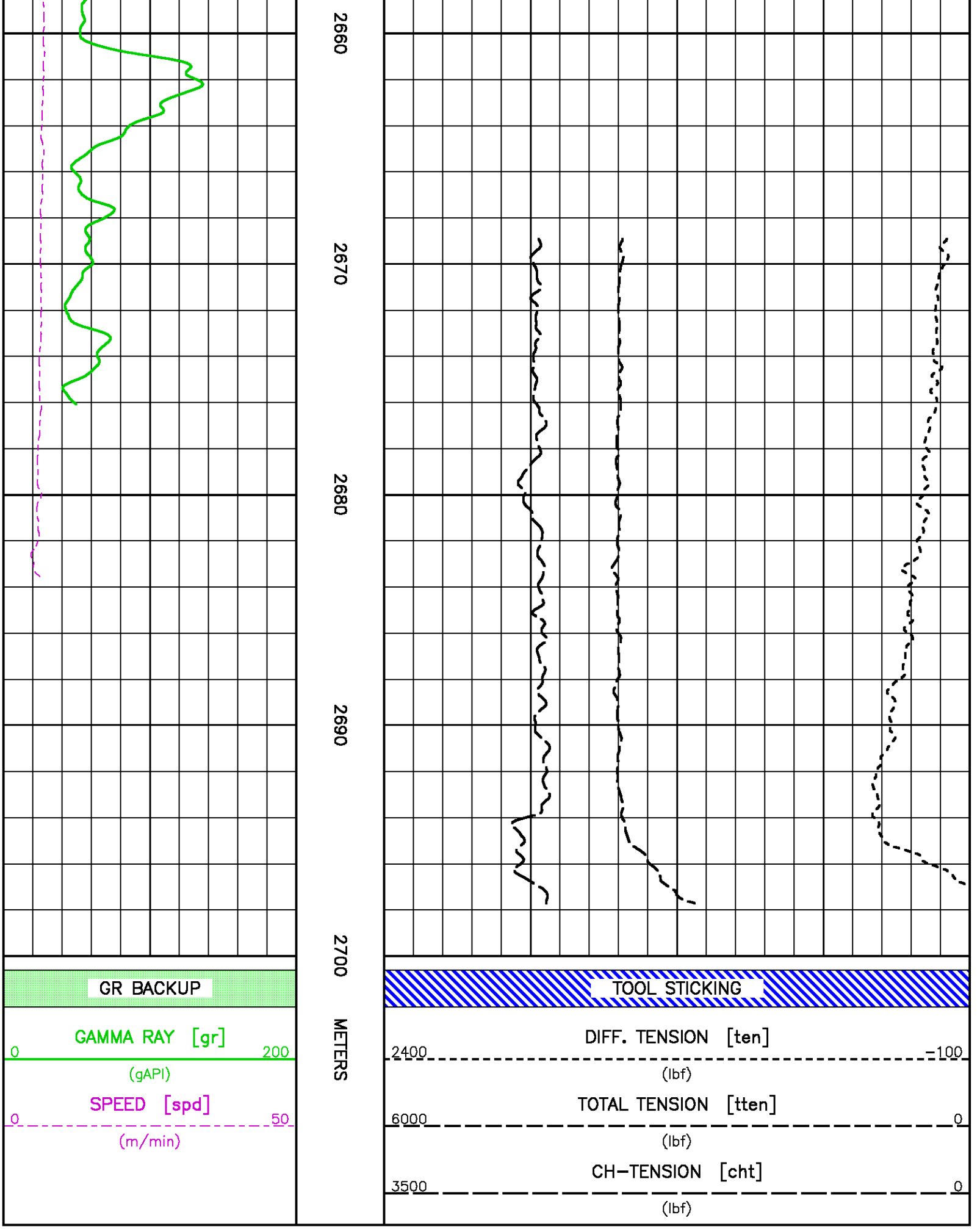
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
CHT	-14.10	SPD	0.00	TTEN	-14.10		
GR	7.47	TEN	-14.10				

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIcorrelation5.pdf [1:200 Scale]
Plot Interval : 2643.15 - 2698.17 Meters

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a53.xtf
Created On : Jan 16 14:43:58 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 2643.53 - 2698.55 Meters
Oct : 1800a




2660
2670
2680
2690
2700
METERS
GR BACKUP
GAMMA RAY [gr]
0
200
(gAPI)
SPEED [spd]
0
50
(m/min)
TOOL STICKING
DIFF. TENSION [ten]
2400
-100
(lbf)
TOTAL TENSION [tten]
6000
0
(lbf)
CH-TENSION [cht]
3500
0
(lbf)

RCI RUN 1 TRIP 3
CORRELATION LOG 5
1:200 SCALE

eXpress Unknown eXpress 3.1 Jun 29, 2002
Updates: 1,2,3,4,5,6,7,8,9,10,11,12,13,1F1 Pcrplt /main/61

Cplot 8.1
Pdf_Cpp /main/16

Tue May 3 10:19:11 2005
Fileview 4.34

CURVE DESCRIPTION REPORT

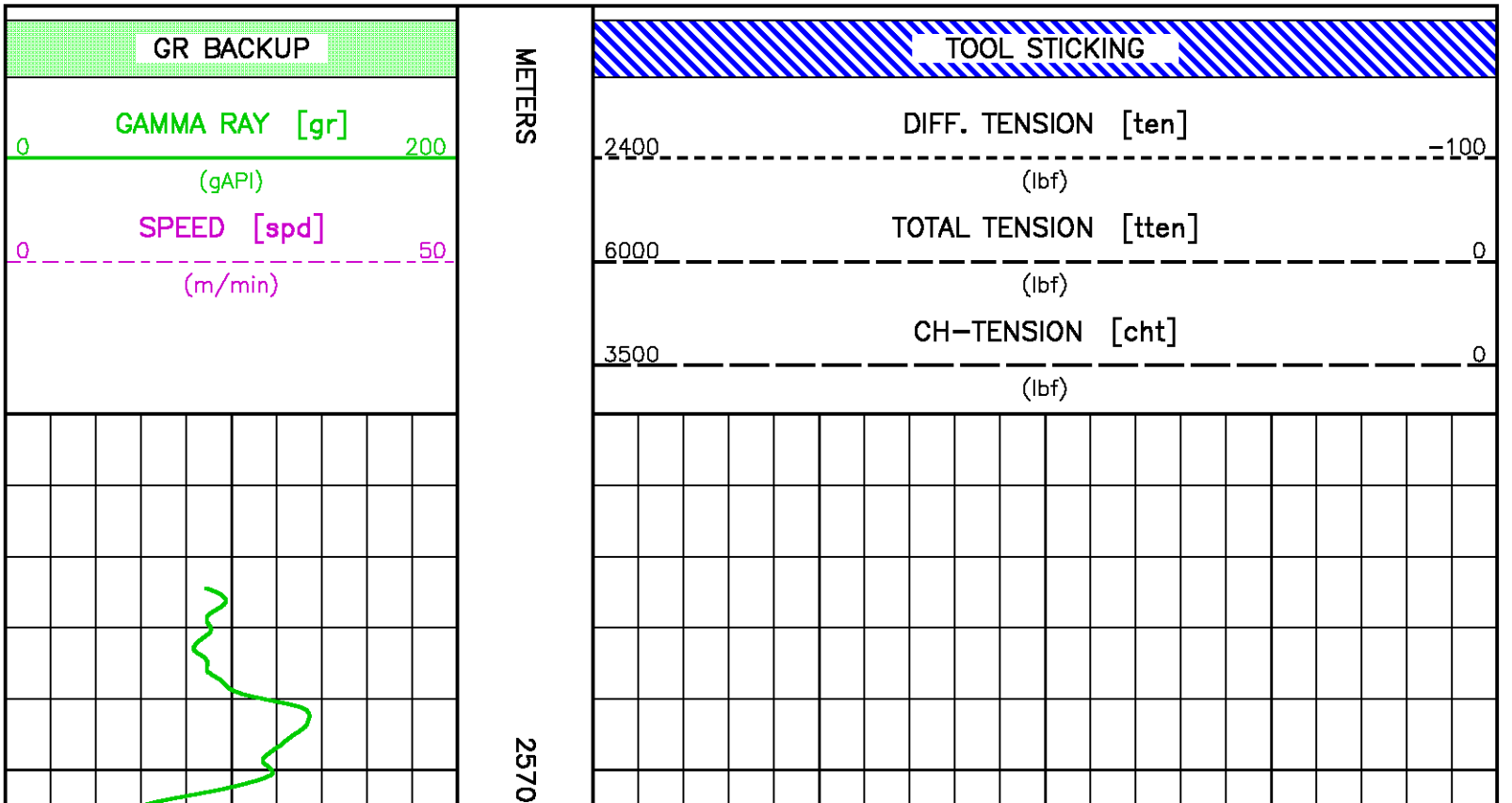
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:CHT	CHT	Jan 16 16:05:51 2005	CABLE HEAD TENSION
F1:GR	GR	Jan 16 16:05:51 2005	GAMMA RAY
F1:SPD	SPD	Jan 16 16:05:51 2005	SPEED
F1:TEN	TEN	Jan 16 16:05:51 2005	DIFFERENTIAL TENSION
F1:TTEN	TTEN	Jan 16 16:05:51 2005	TOTAL TENSION

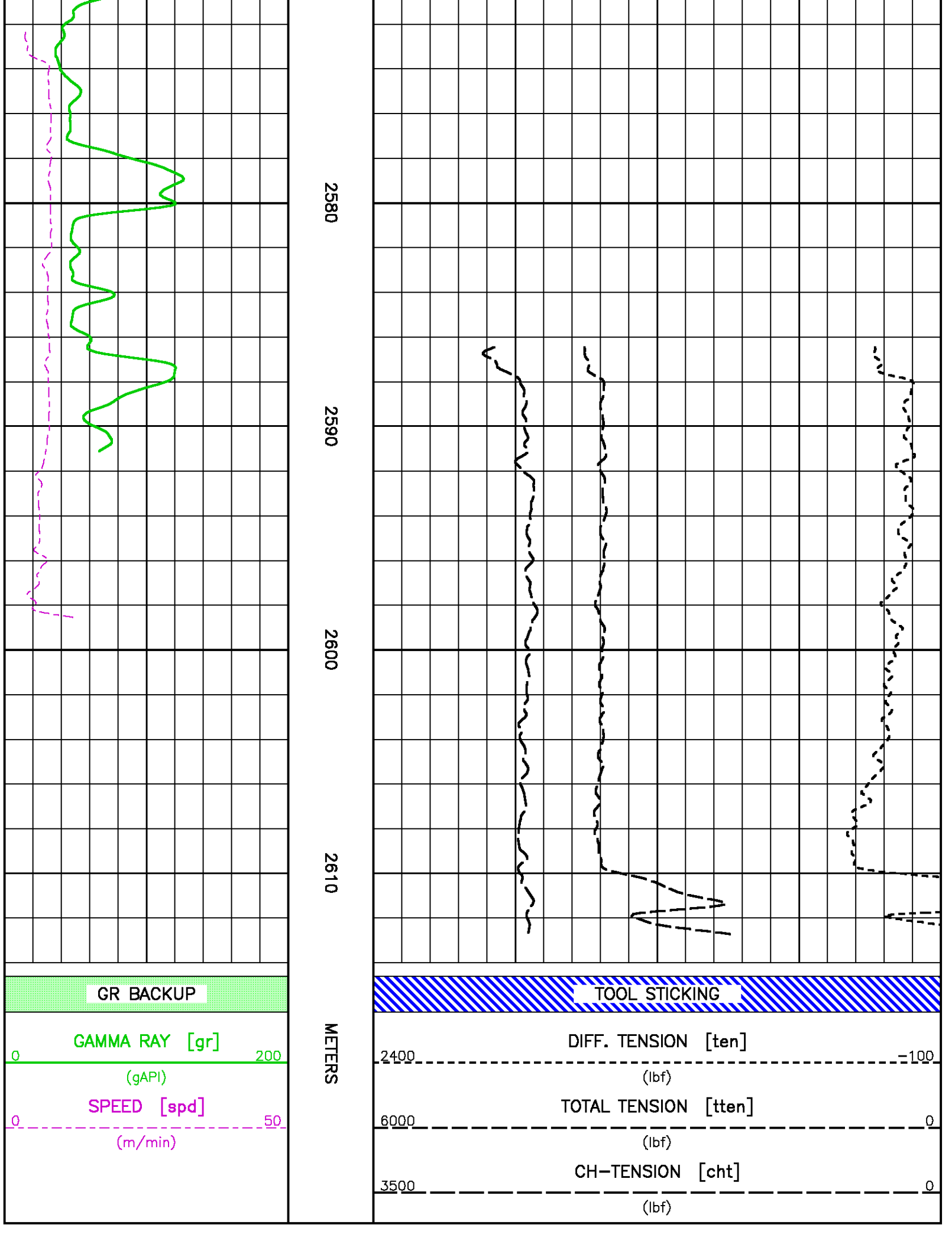
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
CHT	-14.10	SPD	0.00	TTEN	-14.10		
GR	7.47	TEN	-14.10				

Project : /export/thyl2/greyling1
User : mundscoa
Presentation : thylacine:/export/thyl2/greyling1/RCIcorrelation6.pdf [1:200 Scale]
Plot Interval : 2560.7 - 2613.2 Meters

Data File 1 : F1 : thylacine:/export/thyl2/greyling1/1800a56.xtf
Created On : Jan 16 16:05:51 2005
Company : APACHE ENERGY LTD
Well : GRAYLING 1A
Field : EXPLORATION
File Interval : 2560.7 - 2613.2 Meters
Oct : 1800a




2580
2590
2600
2610
METERS
GR BACKUP
GAMMA RAY [gr]
0
200
(gAPI)
SPEED [spd]
0
50
(m/min)
TOOL STICKING
DIFF. TENSION [ten]
2400
-100
(lbf)
TOTAL TENSION [tten]
6000
0
(lbf)
CH-TENSION [cht]
3500
0
(lbf)

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/grayling1A/suite1/1800a.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 176992 DATE/TIME PERFORMED: Sun Jan 9 04:56:11 2005

UNIT #: 3854SA 008677 CALB JIG #: 4702NK wa-761

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	22.80	935.00	912.2 (870.0 960.0)	0.164	3.75	153.75	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 176992 DATE/TIME PERFORMED: Sun Jan 9 05:14:34 2005

UNIT #: 3854SA 008677 VERI JIG #: 4702NK wa-761

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	23.42	924.00	0.164	3.85	151.94	148.09 (140.00 160.00)

GR BEFORE LOG VERIFICATION SUMMARY

NOT DONE

GR AFTER LOG VERIFICATION SUMMARY

NOT DONE

R/C_CAL PRIMARY CALIBRATION SUMMARY

SENSOR #: 1970MB 154356 DATE/TIME PERFORMED: Mon Dec 9 20:37:52 2002

UNIT #: 3860TA HL8731

	V1 (mV)	V2 (mV)	V1P (mV)	V2P (mV)	V1C (mV)	V2C (mV)	V1PC (mV)	V2PC (mV)
LOAD	-106.4	-239.4	-96.2	-288.0	-2153.9	1102.8	-2163.2	1026.0

OPEN	-102.0	-248.4	-96.1	-299.3	-2097.9	1126.0	-2114.3	1044.8
SHORT	-118.1	-236.9	-104.5	-284.6	-2224.8	1090.3	-2229.2	1016.5
THRU	-1537.8	-1854.0	-1505.4	-1911.0	-2153.6	1119.3	-2162.2	1042.8
90 deg.	1500.9	-1445.6	1525.6	-1473.6	-2160.3	1098.3	-2169.3	1021.5

	A	C	delta	Delta	epsilon	phi	gamma	tau	r
Elect. Coeff	0.0047	2573.3	0.0651	3.5151	0.0122	2.4878	0.9323	12.1888	5.9922

	R	rho	thetabx	V	O1	O2	O3	O4
Elect. Coeff	71.4796	0.1234	3.9958	2179.5	-111.34	-229.41	-101.29	-278.10

	V1 (mV)	V2 (mV)	V1C (mV)	V2C (mV)	ATTEN (dB)	ERROR (%)	PHASE (deg)	ERROR (%)
Low Test	-1318.2	-1726.6	-2151.0	1116.8	1.0023	0.17	2.4447	3.18
High Test	-126.7	-241.5	-2142.4	1100.4	40.5541	7.11	316.97	0.78

	V1 (mV)	V2 (mV)	V1P (mV)	V2P (mV)	V1C (mV)	V2C (mV)	V1PC (mV)	V2PC (mV)	alpha	theta
Sensor	-2473.3	-927.4	-2451.1	-994.8	-2144.8	1125.7	-2153.2	1051.4	1.1154	3.3831

R/C_CAL PRIMARY VERIFICATION SUMMARY

NOT DONE

RCICAL-L PRIMARY CALIBRATION SUMMARY

GAUGE #: 1970LB 151722

DATE/TIME PERFORMED: Thu Nov 18 05:59:37 2004

UNIT #: 3854SA 008677

Pres	Coeff	A0	A1	A2	A3
A	5.580911E+09	1.229876E+01	-6.643981E-02	-1.996382E-02	1.559960E-05
B	-1.975390E+07	4.578445E+01	-3.689810E-02	4.235927E-05	-5.481206E-08
C	2.258783E+04	-1.224878E-02	3.693339E-05	-7.547820E-08	6.305505E-11
D	5.286786E+00	6.253724E-06	-4.106418E-08	1.052654E-10	1.304678E-14
E	-2.141990E-02	-4.300430E-10	3.925917E-11	-5.071055E-14	-5.809702E-17

	FPO	FTO	MP	MT
Prescale A&M	18551.0	58081.0	0.01	0.01

	F(pres) (Hz)	F(temp) (Hz)	F(ref) (Hz)	DIFF(pres) (psi)	Pressure (psi)	Temp (degC)
Coeff Test	1.0	1.0	1.0	1.00000	-5676523928546+82520	9985742848.00

Temp	Coeff	A0	A1	A2	A3
G	-1.856564E+08	2.478181E+01	-7.081749E-01	-7.237637E-04	-4.993690E-07
H	-3.141858E+04	-2.567794E-01	-6.051678E-04	-6.265167E-07	-7.735482E-11
I	2.951675E+02	-1.060471E-04	-8.174664E-08	6.397269E-10	8.013177E-13
J	-8.835205E-01	-5.080148E-08	-3.462257E-10	-1.758809E-12	-2.400641E-15

RCICAL-K PRIMARY CALIBRATION SUMMARY

GAUGE #: 1970KB 031925 DATE/TIME PERFORMED: Thu Nov 18 06:00:06 2004

UNIT #: 3854SA 008677

Pres	Coeff	A0	A1	A2	A3
A	4.420422E+09	1.262835E+01	-9.627081E-01	-1.732046E-02	1.232615E-05
B	-1.810954E+07	4.021728E+01	-3.152937E-02	3.174752E-05	-4.994256E-08
C	1.941274E+04	-1.005173E-02	2.743480E-05	-6.388903E-08	5.395515E-11
D	-1.546609E+01	3.390516E-06	-4.313803E-08	4.192698E-11	-4.285634E-14
E	1.486028E-02	9.983152E-10	4.556707E-11	2.727151E-14	4.023222E-17

	FPO	FTO	MP	MT
Prescale A&M	19624.0	48119.0	0.01	0.01

	F(pres) (Hz)	F(temp) (Hz)	F(ref) (Hz)	DIFF(pres) (psi)	Pressure (psi)	Temp (degC)
Coeff Test	1.0	1.0	1.0	1.00000	3893901188315+2086	913255936.00

	Coeff	A0	A1	A2	A3

Temp					
G	-1.787030E+08	2.506167E+01	-6.994116E-01	-7.071753E-04	-4.784827E-07
H	-2.263647E+04	-2.401944E-01	-5.674617E-04	-5.604047E-07	-5.393230E-11
I	-5.414705E+01	-9.917298E-05	-1.559685E-07	3.793295E-12	-1.480401E-13
J	-5.505321E-02	-4.759333E-08	-1.940450E-10	-4.282889E-13	-1.444684E-16

NIR_OPT_DEN PRIMARY CALIBRATION SUMMARY

TOOL #: 1970IA 10057262 DATE/TIME PERFORMED: Tue Sep 3 14:01:39 2002

UNIT #: Darwin Lab

	Temperature degC	Bulb Selected
Current	169.0	2

Bulb 1 nm-chan	Dark uV	Light uV	Diff@25C uV	Diff@50C uV	Diff@75C uV	Diff@100C uV	Diff@125C uV	Diff@150C uV	Diff@175C uV
400-A5	-96587	-122592	-32567	-30015	-28859	-28329	-27768	-26842	-26005
462-A6	-19052	-159882	-161734	-148449	-143814	-142145	-141635	-140915	-140830
525-A7	12731	-478508	-599843	-561311	-542683	-533757	-528045	-509751	-491239
587-A8	-146626	-1089765	-1155675	-1082786	-1048645	-1029853	-1010526	-972635	-943139
600-B1	38235	-14929	-168613	-141984	-120386	-101170	-83467	-66616	-53164
671-B2	-18366	-593133	-628915	-595303	-578656	-564592	-561417	-564415	-574767
744-B3	59785	-326636	-406276	-389599	-379923	-373857	-371205	-375873	-386421
814-B4	10188	-543755	-583533	-564047	-544692	-534827	-532746	-540970	-553943
885-B5	42319	-818466	-864274	-837390	-822067	-815084	-818651	-834453	-860785
957-B6	-36281	-975663	-914110	-897634	-887720	-886040	-895098	-914541	-939382
1028-B7	-22407	-1199685	-1004950	-1022435	-1040406	-1066840	-1093355	-1138491	-1177278
1100-B8	-14260	-823842	-368103	-444049	-518905	-593633	-669221	-748718	-809582
1300-A9	-4454	43628	59478	56848	55551	53648	51676	49959	48082
1420-A1	-3518	238684	330820	310997	295032	281324	269437	256901	242202
1600-A10	177	40331	49955	48193	46665	45045	43587	42123	40154

1740-A2	-52126	-286982	-290998	-287445	-276715	-264594	-255866	-245439	-234856
1935-A3	2982	29608	6245	12079	20799	26385	27945	27759	26626
Ref-A12	-3302	-856987	-1061477	-999969	-956891	-924726	-886504	-848579	-853685

Bulb 2 nm-chan	Dark uV	Light uV	Diff@25C uV	Diff@50C uV	Diff@75C uV	Diff@100C uV	Diff@125C uV	Diff@150C uV	Diff@175C uV
400-A5	-96587	-122592	-21341	-19425	-19221	-18987	-18665	-18195	-17496
462-A6	-19052	-159882	-127171	-115516	-114013	-112872	-111995	-110971	-111781
525-A7	12731	-478508	-482245	-443736	-433403	-426805	-418978	-402640	-391372
587-A8	-146626	-1089765	-766561	-704799	-686887	-673825	-655719	-626775	-613282
600-B1	38235	-14929	-217144	-178703	-149788	-124467	-101353	-80100	-63699
671-B2	-18366	-593133	-691625	-645026	-630459	-616550	-612282	-616309	-632628
744-B3	59785	-326636	-424656	-401370	-393975	-388422	-385409	-389748	-403501
814-B4	10188	-543755	-597872	-568494	-549855	-540431	-537733	-545430	-562783
885-B5	42319	-818466	-796646	-764069	-753298	-747575	-747721	-761293	-789605
957-B6	-36281	-975663	-813513	-787350	-782536	-782358	-787782	-804117	-830650
1028-B7	-22407	-1199685	-933343	-936660	-957560	-980217	-1004674	-1039010	-1078574
1100-B8	-14260	-823842	-359909	-429367	-505527	-581591	-656353	-736030	-804688
1300-A9	-4454	43628	48215	45803	45119	43239	41711	40195	38730
1420-A1	-3518	238684	271126	253048	242033	231938	222465	212487	201847
1600-A10	177	40331	47211	45331	43941	42193	40632	39116	37451
1740-A2	-52126	-286982	-267470	-261884	-251214	-239215	-230363	-220213	-211029
1935-A3	2982	29608	5669	10976	19014	24149	25532	25319	24342
Ref-A12	-3302	-856987	-850403	-794028	-763451	-739163	-720985	-714803	-722573

BAKER HUGHES

Baker Atlas

COMPANY APACHE ENERGY LTD

WELL GRAYLING 1A

FIELD EXPLORATION

RIG NAME OCEAN PATRIOT COUNTRY AUSTRALIA

FILE NO:

API NO:

LOCATION:

ELEVATIONS:

KB —

FINAL PRINT
SCALE 1:200

EOLIPS	LAT: 38 DEG 09' 40.28" SOUTH LONG: 148 DEG 17' 34.73" EAST	DF 21.5 M GL -58.5 M
		DATE 9 JAN 2005

Well Name : GRAYLING-1A

Operator : APACHE ENERGY

Interval : 1460m - 2934m — **Palynological Data Chart : BASIC DATA**

Scale : 1:5000 — **% Abundance histogram : Highest occurrence**

Chart date: 20 June 2005 — **Roger Morgan**

GRAYLING-1A

Morgan Palaeo Associates
Maitland, South Australia

Enclosure 1

Sampling
Cutting
Core
Sidewall core

Text Keys
*1 % within discipline (40mm=100%)
*2 In-Situ occurrences

Depth

Samples (Samples in Discipline(s) : Paly)

Dinoflagellate Cysts — % within discipline (40mm=100%); In-Situ occurrences
*Cerebrocysta sp.
*Cordosphaeridium multispinosum
*Eisenackia ornata
*Fromea amphora
*Impagidinium victorianum
*Impletosphaeridium sp. A
*Lingulodinium machaerophorum
*Operculodinium centrocarpum
*Spiniferites ramosus
*Systematophora placacantha
*Cyclopsiella vieta
*Hystrichokolpoma eisenackii
*Impagidinium sp.
*Senegalinium dilwynensis
*Apectodinium homomorphum (short spines)
*Apectodinium homomorphum (long spines)
*Amphosphaeridium sp.
*Ceratiopsis speciosa
*Palaeocystodinium australinum
*Spiniferites sp.
*Cordosphaeridium inodes
*Operculodinium spp.
*Exochosphaeridium phragmites
*Leiuetia sp.
*Diexisphaeridium spp.

AC — *1 *2
*Microforams.

FT — *1 *2
*Microforams.

Algae — *1 *2
*Schizosporis psilatus
*Circulisporites parvus

ALBO — *1 *2
*Botryococcus spp.

SP — *1 *2 — % within discipline (40mm=100%); In-Situ occurrences
*Quadraplanus brossus
*Cyatheacidites annulatus
*Cyathidites australis
*Foveotriletes lacunosus
*Haloragacidites harrisii
*Lygistepollenites florinii
*Nothofagidites deminutus
*Nothofagidites emarcidus
*Stereisporites antiquasporites
*Vitreisporites pallidus
*Falcisporites similis
*Laevigatosporites ovatus
*Cyathidites minor
*Cyathidites splendens
*Dilwynites granulatus
*Gleicheniidites spp.
*Phyllocladidites mawsonii
*Proteacidites crassus
*Proteacidites pachypolus
*Proteacidites spp.
*Araucariacites australis
*Clavifera triplex
*Dictyophyllidites spp.
*Ericipites scabratus
*Malvacipollis diversus
*Malvacipollis subtilis
*Microcachryidites antarcticus
*Podosporites microsaccatus
*Proteacidites grandis
*Proteacidites ornatus
*Stereisporites regium
*Ceratosporites equalis
*Osmundacidites wellmanii
*Proteacidites annularis
*Retitriletes austroclavatidites
*Tricolpites sp.
*Australopollis obscuris
*Lygistepollenites balmei
*Periporopollenites polyoratus
*Polycolpites esobalteus
*Proteacidites tenuiexinus
*Verrucosisporites kopukuensis
*Camerozonosporites ohaiensis
*Gambierina rudata
*Nothofagidites flemingii
*Proteacidites reticuloconcavus ms
*Nothofagidites brachyspinulosus
*Nothofagidites endurus
*Stereisporites punctatus
*Falcisporites grandis
*Tricolpites confessus
*Tricolporites sp.
*Cycadopites follicularis
*Tetracolporites verrucosus
*Peninsulapollis gillii
*Proteacidites leightonii
*Concavissimisporites penolaensis
*Cicatricosisporites australiensis
*Proteacidites otwayensis ms
*Aequitriradites verrucosus
*Nothofagidites senectus
*Batten ipollis sectilis
*Forcipites longus
*Gambierina edwardsii
*Tricolpites waiparaensis
*Tubulifloridites lilliei
*Camerozonosporites "fine"
*Grapnelispora evansii
*Triporoletes reticulatus
*Phyllocladidites verrucatus
*Triporopollenites "megaseptilis"
*Schizosporis parvus
*Forcipites cf. sabulosus
*Foveotriletes parviretus
*Forcipites sabulosus
*Forcipites stipulatus
*Klukisporites scaberis
*Leptolepidites verrucatus
*Aequitriradites spinulosus
*Cyathidites giganti s
*Fungae .

FU — *1 *2

Samples (Samples in Discipline(s) : Paly)

Total Count — In-Situ occurrences — Total count: Total Count

% Category — In-Situ occurrences — Category %: % Category

MP
AC
ALBO
AL
FT
FU
SP
DC

1500m
1480.00m CU — 15 — 43
1510.00m CU — 15 — 38
1550m
1600m
1600.00m CU — 43
1650m
1660.00m CU — 11 — 7 — 12
1700m
1720.00m CU — 10 — 41
1750m
1800m
1820.00m CU
1840.00m CU
1850m
1870.00m CU — 93
1900m
1920.00m CU
1950m
2000m
2040.00m CU
2050m
2060.00m CU — 21
2080.00m CU
2100m
2110.00m CU
2130.00m CU
2140.00m CU
2150m
2150.00m CU
2200m
2220.00m CU
2250m
2260.00m CU
2280.00m CU
2300m
2350m
2380.00m CU — 10 — 10 — 50
2400m
2450m
2460.00m CU
2500m
2500.00m CU
2520.00m CU
2530.00m CU
2550m
2570.00m CU
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2710.00m CU
2740.00m CU
2750m
2800m
2800.00m CU
2805.00m CU
2830.00m CU
2850m
2860.00m CU
2885.00m CU
2890.00m CU
2900m
2900.00m CU
2914.00m CU

Reservoir Fluid Analysis of Sub-surface Samples from Grayling-1A Well Victoria

Prepared for
Apache Energy Limited

April 2005

File: AFL 2005-010

Reservoir Fluid Laboratory
Core Laboratories Australia Pty Ltd
Perth
Western Australia

15 April, 2005

Apache Energy Limited,
Level 3, 256 St Georges Terrace,
Perth,
Western Australia, 6000

Attention: Mr Robert Benkovic

Subject:	**Reservoir Fluid Analysis**
Well:	**Grayling-1A**
Location:	**Western Australia**
File:	**AFL 2005-010**

Dear Rob,

Two sub-surface samples, transferred from RCI chambers, were received in our laboratory for use in a compositional analysis study. Presented in the following report are the results of the requested analyses.

Core Laboratories Australia Pty Ltd is pleased for this opportunity to be of service to Apache Energy Limited. Should you have any questions regarding this report, or if we may be of any further assistance, please feel free to contact me at your convenience.

Yours Faithfully,
For **CORE LABORATORIES AUSTRALIA PTY LTD**

John R. Thompson
Project Coordinator

Kevin R. Daken
Laboratory Supervisor

Apache Energy Limited
Grayling-1A
AFL 2005-010

TABLE OF CONTENTS

Apache Energy Limited

Grayling-1A

AFL 2005-010

LABORATORY PROCEDURES

Sample Selection and Validation

Two sub-surface samples were transferred in the field and forwarded to our Perth laboratory. Initially, the opening pressure was measured for both samples and compared to shipping conditions. In addition, the volume of each sample was determined. The summary of validity checks, shown on page 3, indicated the sample TS-5601 was likely to be all or mostly water.

Compositional Analysis

The composition of the gas sample in PT-1090 was determined by flash/separation techniques whereby a fluid sub-sample was isothermally flashed and separated into liquid and gas phases. The flashed gas was analysed according to the GPA 2286 method and the flashed liquid using temperature programmed capillary chromatography. These compositions were mathematically recombined at the measured flash gas-oil ratio and the resultant reservoir gas composition calculated. The measured composition for the reservoir gas sample is presented on page 4.

Initially, we were advised that the cylinder TS-5601 may contain a significant volume of reservoir gas with water. Therefore, the cylinder was equilibrated at the reported reservoir conditions and a compositional analysis using flash/separation techniques attempted. During the analysis, only a small volume of “free” gas was recovered before water was produced. The remaining sample was then subjected to an atmospheric flash to determine the solution gas-water ratio (9.4 scf/bbl). The compositions of the “free” gas and the flashed gas were analysed according to the GPA 2286 method. The compositions of the “free” gas and flashed gas, including the measured gas-water ratio, are reported on pages 5 and 6 respectively.

Due to the small volume of gas recovered, and the presence of water, it is not possible to conclude how representative this composition is of the reservoir gas.

Water Sample Analysis

An atmospheric water sample (A.01b) was subjected to a series of routine 12-ion water analysis tests with the analysis results summarised on page 7.

Apache Energy Limited

Grayling-1A

AFL 2005-010

General Well Information

Company	**Apache Energy Limited**
Well Name	**Grayling-1A**
API Well Number	**-**
File Number	**AFL 2005-010**
Date Sample Collected	**16-Jan-05**
Sample Type	**Bottom-Hole**
Geographical Location	**Victoria**
Field	**Grayling**

Well Description

Formation	**Golden Beach**	
Pool (or Zone)	*	
Date Completed	*	
Elevation	*	m
Producing Interval	*	m
Total Depth	*	m
Tubing Size	*	in
Tubing Depth	*	m
Casing Size	*	in
Casing Depth	*	m

Pressure Survey Data

Data from Original Discovery Well (Grayling-1A)

Date	**16-Jan-05**	
Reservoir Pressure	**3811.1**	psia (at 2611.5 m TVD SS)
Gas / Oil Contact	*	m
Oil / Water Contact	*	m

Data at Sample Collection

Date	**16-Jan-05**	
Reservoir Pressure	**3811.1**	psia (at 2611.5 m TVD SS)
Reservoir Temperature	**119**	°C (at 2611.5 m TVD SS)
Pressure Tool	**RCI**	
Flowing Bottom-Hole Pressure	*	psig
Gas / Oil Contact	*	m
Oil / Water Contact	*	m

* Data not forwarded to Core Laboratories.

Apache Energy Limited

Grayling-1A

AFL 2005-010

Production Data

Data from Original Discovery Well

Location			
Date	**16-Jan-05**		
Oil Gravity @ STP	**-**	°API	
Separator Pressure	**-**	psig	
Separator Temperature	**-**	°F	
Production Rates			
Gas	**-**	Mscf/D	
Liquid	**-**	STbbl/D	
Gas/Liquid Ratio	**-**	scf/bbl	

Data at Sample Collection

Sampling Date	**16-Jan-05**		
Production Rate	**-**	bbl/D	
Produced G.O.R.	**-**	scf/bbl	
Liquid Gravity at 60.0 °F	**-**	°API	
Productivity Index	**-**	bbl/D/psi at	°F
		and	bbl/D

Sampling Information

Sample Collected at	**see below**	m
Status of Well	*	
Sampled By	**Baker Atlas**	
Type Sampler	**RCI**	
Cylinder Names/Numbers	**TS-5601 (T.01)**	2633.0 m MDRT
	PT-1090 (T.02)	2571.9 m MDRT

* Data not forwarded to Core Laboratories.

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PRELIMINARY QUALITY CHECKS
of Samples Received in Laboratory

	Cylinder Number	Depth (m) MDRT	Sampling Conditions		Shipping Conditions		Lab Opening Conditions		Saturation Conditions		Approximate Sample Volume (cc)	Water/ Filtrate Recovered (cc)
			psig	°C	psig	°C	psig	°C	psig	°C		
	TS-5601 (T.01)	2633.0	3811.1	119.0	600	23.5	615	17.2	-	-	570	#
*	PT-1090 (T.02)	2571.9	3756.7	116.3	3400	20.5	3590	17.2	-	-	680	0

* Sample selected for compositional analysis.

Notes:

\# Sample was water with dissolved gas.

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COMPOSITION OF RESERVOIR FLUID SAMPLE - PT-1090

(by Flash/Extended Chromatography)

Component Name	Mol %	Wt %	Liquid Density (gm/cc)	MW
Hydrogen Sulfide	0.00	0.00	0.8006	34.08
Carbon Dioxide	20.61	36.31	0.8172	44.01
Nitrogen	0.07	0.08	0.8086	28.013
Methane	70.65	45.40	0.2997	16.043
Ethane	4.50	5.41	0.3562	30.07
Propane	1.68	2.97	0.5070	44.097
iso-Butane	0.28	0.65	0.5629	58.123
n-Butane	0.48	1.11	0.5840	58.123
iso-Pentane	0.15	0.43	0.6244	72.15
n-Pentane	0.17	0.49	0.6311	72.15
Hexanes	0.18	0.62	0.6850	84
Heptanes	0.28	1.06	0.7220	96
Octanes	0.34	1.45	0.7450	107
Nonanes	0.19	0.94	0.7640	121
Decanes	0.10	0.53	0.7780	134
Undecanes	0.06	0.35	0.7890	147
Dodecanes plus	0.26	2.20	0.8339	210
Totals	100.00	100.00		

Total Sample Properties

Molecular Weight	24.97
Equivalent Liquid Density, gm/scc	0.4331

Plus Fractions	Mol %	Wt %	Density	MW
Heptanes plus	1.23	6.53	0.7764	133
Dodecanes plus	0.26	2.20	0.8339	210

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COMPOSITION OF "FREE" GAS RECOVERED FROM CYLINDER - TS-5601

(by Programmed-Temperature, Capillary Chromatography)

Component	Mol %	Plant Products (GPM)	Liquid Density (gm/cc)	MW
Hydrogen Sulfide	0.00			
Carbon Dioxide	3.84		0.8172	44.010
Nitrogen	2.31		0.8086	28.013
Methane	89.44		0.2997	16.043
Ethane	3.39	0.904	0.3562	30.070
Propane	0.68	0.187	0.5070	44.097
iso-Butane	0.07	0.023	0.5629	58.123
n-Butane	0.11	0.035	0.5840	58.123
iso-Pentane	0.02	0.007	0.6244	72.150
n-Pentane	0.02	0.007	0.6311	72.150
Hexanes	0.07	0.027	0.6850	84.0
Heptanes	0.03	0.013	0.7220	96.0
Octanes	0.02	0.009	0.7450	107
Nonanes	Trace		0.7640	121
Decanes	0.00		0.7780	134
Undecanes	0.00			
Dodecanes plus	0.00			
Totals	100.00	1.212		

Average Sample Properties

Critical Pressure, psia	678.5
Critical Temperature, °R	359.1
Average Molecular Weight	18.25
Calculated Gas Gravity (air = 1.000)	0.630

at 14.696 psia and 60 °F

Heating Value, Btu/scf dry gas*

Gross	994

Properties of Plus Fractions

Component	Mol %	Liquid Density (gm/cc)	Liquid API Gravity	MW
Heptanes plus	0.05	0.7310	61.9	100.4

Note: Component properties assigned from literature.

* ref: Gas Producers & Suppliers Association (GPSA) Engineering Data Book

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COMPOSITION OF GAS FROM WATER FLASH - CYLINDER TS-5601

(by Programmed-Temperature, Capillary Chromatography)

Component	Mol %	Plant Products (GPM)	Liquid Density (gm/cc)	MW
Hydrogen Sulfide	0.00			
Carbon Dioxide	38.80		0.8172	44.010
Nitrogen	0.90		0.8086	28.013
Methane	58.24		0.2997	16.043
Ethane	1.73	0.461	0.3562	30.070
Propane	0.14	0.038	0.5070	44.097
iso-Butane	0.01	0.003	0.5629	58.123
n-Butane	0.02	0.006	0.5840	58.123
iso-Pentane	Trace		0.6244	72.150
n-Pentane	Trace		0.6311	72.150
Hexanes	0.04	0.015	0.6850	84.0
Heptanes	0.06	0.025	0.7220	96.0
Octanes	0.05	0.023	0.7450	107
Nonanes	0.01	0.005	0.7640	121
Decanes	Trace		0.7780	134
Undecanes	0.00			
Dodecanes plus	0.00			
Totals	100.00	0.576		

Average Sample Properties

Critical Pressure, psia	822.0
Critical Temperature, °R	426.6
Average Molecular Weight	27.43
Calculated Gas Gravity (air = 1.000)	0.947

at 14.696 psia and 60 °F

Heating Value, Btu/scf dry gas*

Gross	632

Properties of Plus Fractions

Component	Mol %	Liquid Density (gm/cc)	Liquid API Gravity	MW
Heptanes plus	0.12	0.7370	60.3	102.7

Atmospheric Flash Analysis

Gas Water Ratio, scf/bbl	9.4

Note: Component properties assigned from literature.

* ref: Gas Producers & Suppliers Association (GPSA) Engineering Data Book

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ROUTINE WATER ANALYSIS

Sample	Units	A.01b
Dissolved Constituent		**2633.0 m MDRT**
Ions		
Calcium, Ca	mg/L	294
Magnesium, Mg	mg/L	73
Iron, Fe (soluble)	mg/L	32
Sodium, Na	mg/L	4530
Potassium, K	mg/L	41040
Strontium, Sr	mg/L	9.3
Barium, Ba	mg/L	61
Chloride, Cl	mg/L	47309
Sulphate, SO4	mg/L	1600
Bicarbonate, HCO3	mg/L	1076
Carbonate, CO3	mg/L	<1
Hydroxide, OH	mg/L	<1
Other Properties		
pH	pH units	7.7
Resistivity, @ 25 °C	ohm-m	0.073
Total Dissolved Solids (grav)	mg/L	106483
Density, @ 20 °C	gm/cc	1.0654