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Document Title	**Well Completion Report** **Lamont Pass #3, EP190** Northern Territory, Australia McArthur Basin
Document Number	**EP190-XPN-COM-RPT-002**

Rev	Status	Prepared by	Checked by	Approved By	Date
0	Final	Luke Titus	Josh Bluett	Luke Titus	17/02/2014
					17/02/2014

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1. Well Summary and General Data

Operator:	Armour Energy Pty Ltd
Address:	Level 27, 111 Eagle Street, Brisbane, QLD 4000
Main office number:	+61 7 3303 0620
Permit:	EP 190
Field:	Glyde Sub-basin
Well name:	Lamont Pass #3
Elevation (GL):	89.66 m
Elevation (KB):	90.66 m
Well location:	
• Easting & Northing	631148.1mE, 8146460mN (GDA94 Zone53)
• Latitude & Longitude	-16.4540°; 136.1349° (GDA94 Zone53)
Surveyed path of the well:	N/A
Coordinates bottom hole:	N/A
Coordinated intersection of the reservoir:	N/A
Drilling engineer:	Jonathan Martin
Drilling contractor:	Nitro Drilling Pty Ltd
Drilling rig:	Nitro 7
Spud date:	5th October 2013
TD date:	23rd November 2013
Rig release:	2nd December 2013
True vertical depth:	1275.2 m
State of the well:	Plugged and Abandoned
Depth of any perforation:	N/A
Chief Geologist:	Luke Titus
Mudloggers:	Luke Velterop and Ash Moore
Wellsite Geologist:	Grahame Bailey and Matt Davidson
Drilling fluid(s):	Air-Mist
Bottom-hole diameter:	96 mm
Cuttings sample interval(s):	6 m intervals from 14.7 to 391.7 m
Core intervals:	391.7 m to 1275.2 m
Wireline logging company:	Weatherford Wireline

2. Drilling

2.1. Drilling Summary

Saturday, 05/10/2013:	Started drilling conductor from 3.5 m to 14.7 m.
Sunday, 06/10/2013:	WOC. RIH 8 1/2" BHA, dill out conductor plug. M/up 8 1/2" hammer BHA, RIH. Setup blooie/sample lines. RIH, fracture in conductor cement returning air to surface. Re-cement conductor.
Monday, 07/10/2013:	Drill out csg shoe. WOC. 0800hrs, Drill from 14.7m to 254m. Water @ 124 and 182m.
Tuesday, 08/10/2013:	Drill to 304m. Water at 254 and 290m. POOH, run 7” casing.
Wednesday, 09/10/2013:	Casing run to 300m. Wait on cement contractor.
Thursday, 10/10/2013:	Wait on cement silo to arrive on site. PJSM with Trican. Rig up and pump cement.
Friday, 11/10/2013:	Wait on cement. Nipple up BOP, Koomey, Choke. Begin function testing.
Saturday, 12/10/2013:	Pressure test BOP. RIH 6 1/8" PDC, tag cement @ 219m, drill out cement. POOH, Bit Trip 6 1/4" Hammer.
Sunday, 13/10/2013:	Drill F/304m T/307m. Well making water. Formation Integrity Test. Unload well, drill ahead. Making about 60bbls/hr. water. Drill to 385m.
Monday, 14/10/2013:	Pull back, Attempt to unload well. POOH, change out hammer, RIH. Hammer won't fire, POOH.
Tuesday, 15/10/2013:	Run HWT casing. Rig up to run HQ gear. Set up gas agitator and sample lines. Drill HQ core.
Wednesday, 16/10/2013:	Drill ahead. Poor ground, short runs. Run 13 stuck pipe - 1.4m dropped core.
Thursday, 17/10/2013:	Replace bit, reamer & locking coupling, RIH. Drill ahead. Short runs, slow drilling.
Friday, 18/10/2013:	POOH to change out running gear for 3m Barrel. RIH. Drill on.
Saturday, 19/10/2013:	488.3-493.3m - lost core. POOH, change bit, RIH. Drill ahead.
Sunday, 20/10/2013:	Drill ahead F/511.5m. Good ground.
Monday, 21/10/2013:	POOH Bit Trip. Depth 540.5m. Replace top drive motor and undertake BOP test. Unload well on air.

Tuesday, 22/10/2013:	Drill ahead F/545.2. Rig shutdown for extended maintenance.
Wednesday, 23/10/2013:	Drill ahead F/545.2. Rig shutdown for extended maintenance. RIH, Drill @ 2300 Hrs
Thursday, 24/10/2013:	Drill ahead. Diagnose pump pressure issues. POOH. Drill string parted @ 390m. RIH Fish
Friday, 25/10/2013:	Retrieved fish @ 05:15. POOH to surface. Pump bentonite pill, RIH. Condition mud & circulate. Drill ahead.
Saturday, 26/10/2013:	Drill ahead to 590m. Stuck tube. POOH. M/up new barrel, RIH. Drill 0.1m rubble. Block off. Stuck tube. Unable to retrieve. POOH
Sunday, 27/10/2013:	Diagnose stuck tube problem.
Monday, 28/10/2013:	Drill F/590.35 T/610.65
Tuesday, 29/10/2013:	POOH
Wednesday, 30/10/2013:	Rig Down
Thursday, 31/10/2013:	Rig Down
Friday, 01/11/2013:	Rig Down. Perforate casing and cement.
Saturday, 02/11/2013:	Wait on cement. RIH, dril out cement. @ 287m midnight.
Sunday, 03/11/2013:	Continue to drill out cement to 329m. POOH to check bit, bit face damaged, replace and RIH. Continue to drill out cement. Depth adjusted to 612.3m.
Monday, 04/11/2013:	Drill cement, 6am depth 352m. 1800 hrs 612.3m. Drill on.
Tuesday, 05/11/2013:	627.1m. RIH drill to 642m. Pooh 240m and DAF pipe to reduce torque. RIH, 2 hangups, drill out rubble. Drill on from 642m @ 2140hrs.
Wednesday, 06/110/2013:	Drill on from 647.3m. 2030hrs POOH change bit.
Thursday, 07/11/2013:	RIH. 0300hrs, drill on. Depth @0600hrs 677.8m. Drfill to 694.75m, core barrel not seating - POOH - BOP test.
Friday, 08/11/2013:	Run BOP test. RIH, 0410hrs, drill on.
Saturday, 09/11/2013:	Drill on. Bit change 779.7m @ 2045hrs
Sunday, 10/11/2013:	Bit change. Drill on from 779.7 @ 0345hrs.
Monday, 11/11/2013:	Drill on from 828.85m. POOH to change bit.
Tuesday, 12/11/2013:	POOH, change bit, RIH, drill on from 874.88m.

Wednesday, 13/11/2013:	Drill on from 912.09m.
Thursday, 14/11/2013:	Drill on from 948.15m. POOH @957.25m run 6m core barrel and RIH. Rig maintenance. RIH and re-commence drilling @2025hrs. Drill on.
Friday, 15/11/2013:	Drill on from 965.2m.
Saturday, 16/11/2013:	Drill on from 1015.61m. Down for 2 hrs (0220hrs-0420hrs) due to faulty extension cable. POOH @1043.1m, bit change. RIH.
Sunday, 17/11/2013:	Drill on from 1043.1m.
Monday, 18/11/2013:	Drill on from 1084.75m. 1430 hrs, winch cable damaged, replace cable. Resume drilling 23:00 hrs.
Tuesday, 19/11/2013:	Drill on from 1114.8m.
Wednesday, 20/110/2013:	Drill on from 1161.95m to 1185m. POOH change bit, replace main winch cable, RIH.
Thursday, 21/11/2013:	RIH, ream 18m to bottom, drill on from 1185m.
Friday, 22/11/2013:	Drill on from 1198.52m.
Saturday, 23/11/2013:	Drill to 1275m, TD called, circulate and condition hole; WO loggers
Sunday, 24/11/2013:	Standby; WO orders & weather
Monday, 25/11/2013:	Log well, rig down
Tuesday, 26/11/2013:	rig down, WO weather
Wednesday, 27/110/2013:	rig down, WO weather
Thursday, 28/11/2013:	rig down, WO weather
Friday, 29/11/2013:	rig down, WO weather
Saturday, 30/11/2013:	rig down, WO weather
Sunday, 1/12/2013:	rig down, WO weather
Friday, 2/12/2013:	rig released

2.2. Equipment Installed in and on the Well

Wellhead

- None-plugged with well name on metal plate

Conductor Casing

- Drill 12-1/4" hole to 12.0 m
- Case with 36lb/ft J-55 to 12.0m
- Burst 3520 psi
- Collapse 2020 psi

Surface Casing

- Drill 8-1/2" hole to 304 m
- Case with 23lb/ft API 5CT J55 to 304m
- Burst 4360 psi
- Collapse 3270 psi

Intermediate Casing

- Drill 6-1/4" hole to 391 m
- Case with 11.6 lb/ft. API 5CT J55 to 391m
- Burst 5350 psi
- Collapse 4960 psi

Production Casing

- N/A

2.3. Wellbore Schematic

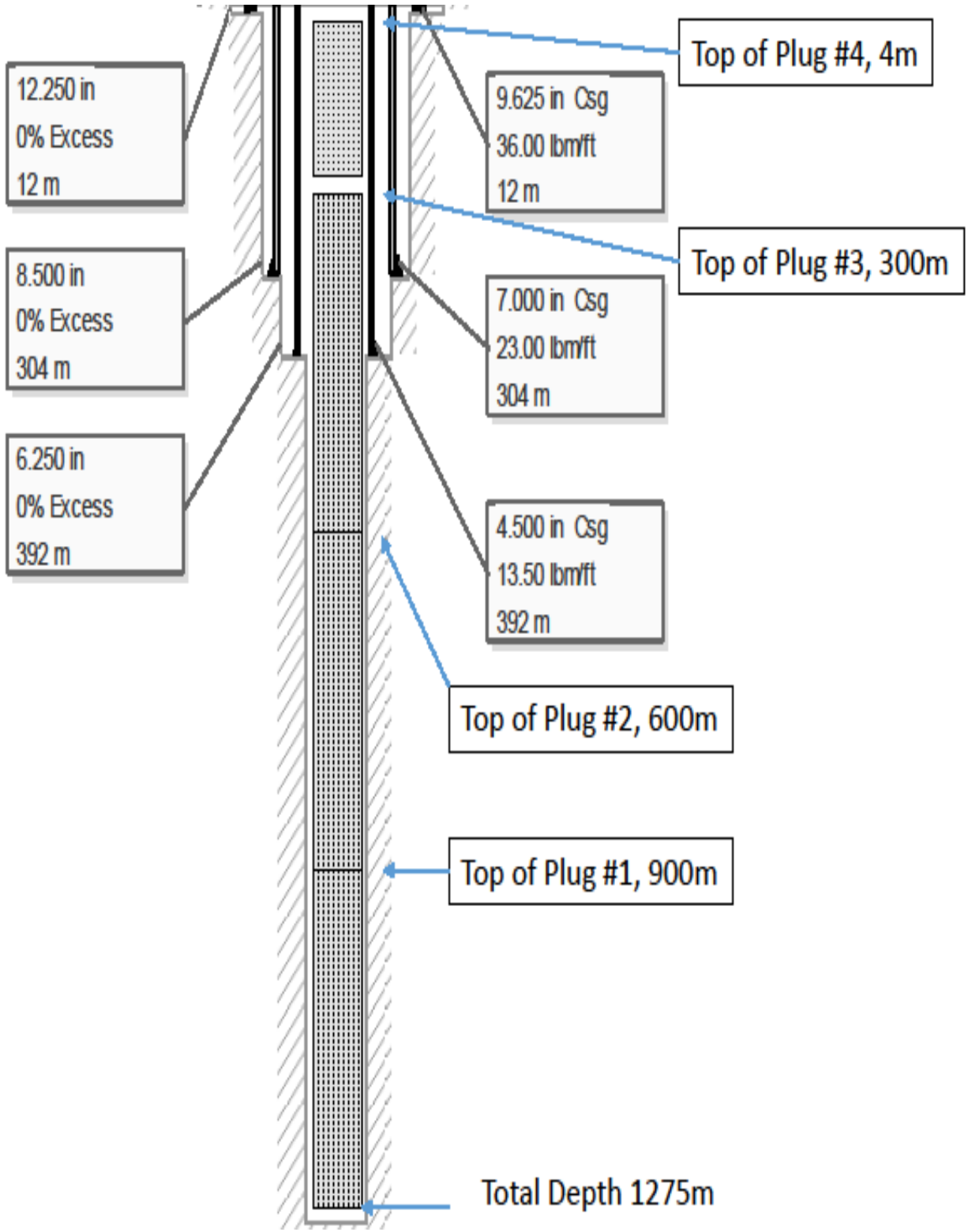

Figure 1: Drill Schematics.

2.4. Casing Runs

- **Conductor Casing 9-5/8” set @** 12.0 m
- **Surface Casing 7” set @** 304.0 m
- **Intermediate Casing 4-1/2” set @** 392.0 m

2.5. Drilling Equipment

Table 1: Drilling Equipment.

Drilling Contractor	
Name	Nitro Drilling
Address	L1, 1 Beach Road, Coolum Beach, QLD
Drilling Rig	
Make	“Xena” - Sandvik
Type	DE880
Capacity	50, 000lb Pullout
Engine	Cummins QSC 8.3 235kW (315HP) @ 1800rpm
Mast	12.3m, 82000 lb., 9m pipe pull capacity
Water Pump	Bean Pump, 140 l/min @ 7000kPa
Air Compressor	
Make	2 x Sullair
Type	DC 1150/350 C21
Max Output	350 psig - 24 bar
Engine	CAT C15 Acert
BOP	
Stack	Double Action Gate w/Blind & Pipe Rams, Rotating Head
Annular Size	11”
Working Pressure	3000psi
Koomey Unit	
Make	R & T Controls - Advanced Pressure Inc.
Working Pressure	3000psi
Volume	69.6 gallons
Choke Manifold	
Make	Sanya
Working Pressure	5000psi
Size	3 1/8”

2.6. Deviation Report

Table 2: Deviation survey

Depth [m]:	Deviation [degree]
588	89

2.7. Cementing Operation

Table 3: Cementing Operation.

	Conductor Casing	Surface Casing	Intermediate Casing	Core Hole
Hole Size (inches)	12-1/4”	8-1/2	6-1/4	3.5”
Casing Size (in)	9-5/8	7	4-1/2”	Nil
Setting depth (m)	12	304	392	1275
Est. BHT ©	26 deg	33 deg	48.6 deg	59 Deg
Tail / Lead	Tail:13.6-14.6 ppg*	Tail:13.6-14.6 ppg	Tail: 13.6-14.6ppg	Tail:13.6-14.6ppg
Cement type	Class A	Class A pozzollanic 25% fly ash	Class A pozzollanic 25% fly ash	Class A pozzollanic 25% fly ash
Yield (cu ft/s)	Tail: 1.25	Tail: 1.25	Tail: 1.25	Tail: 1.25
Mix water type	Fresh water	Fresh water	Fresh water	Fresh water
Excess (%)	10	20	25	25
TOC (m)	Cement to Surface	Cement to Surface	Cement to Surface	Cement to Surface
Displacement fluid	Water	Water	Water	Water
Centralisers	Nil	Shoe Only	Shoe only	

2.8. Bit Record

Table 4: Bit Record for Lamont Pass #3

Bit Record		Size	Make	Depth in [m]	Depth out [m]	Meters drilled	WOB	RPM
1	Conductor	12-1/4"	PDC	0	12	14	5	45
2		8.1/2"	Hammer	12	14	2	2	35
		8.1/2"	PDC	14	14.8	0.8	2	35
3		8.1/2"	Hammer	14.8	304	307.5	2	35
4	intermediate	6-1/8"	PDC	304	307.5	3.5	2	35
5		6-1/4"	Hammer	307.5	391	83.5	2	35
6		6-1/4"	Hammer	391	391	0		
7		HQ	Core	391	438.4	47.4	5 -7	550
8				438.4	458	19.6	2.5	35
9				458	493	35	5- 7	370
10				493	540	47	5 - 8	350
11				540	569.9	29.9		512 - 550
12				569.9	590.45	20.55		512 - 550
13				590.45	590.45	0		512 - 550
14				590.45	612.45	22		
15			Foria Core bit	612.45	627.15	14.7		
16			Foria Core bit	627.15	672.15	45		
17				672.15	672.15	0		
18			Asahi	672.15	694.75	22.6		470
19			Asahi	694.75	779.75	85		470
20			Asahi	779.75	874.81	95.06		500
21			Fordia	874.81	957.15	82.34		500
22			Asahi	957.15	1043	85.85		500
23			Hayden	1043	1185	142	2 -4	500
24			Foria Core bit	1185	1275.2	90	3.5	470

2.9. Drilling Fluids

Air/Mist drilling w/soap: 4.2m – 392m; Native mud 392m – 1275.2m

Hole was drilled on air/mist. During coring & wireline logging operations the hole was loaded with a KCl native mud. Average loaded-hole fluid properties were:

- Density ρ: 1.02 g/c3
- Viscosity: 30 sec/qt

3. Formation Evaluation

3.1. Depth and Types of Cores and Cuttings, Well Evaluation Log and Fluid Samples

3.1.1. Drill Cores

Lithology Description of Cores

From [m]	To [m]	Lithology Description
391.70	392.60	DOLOMITE/SILTSTONE: light to dark grey, hard, microcrystalline, finely laminated, minor sedimentary slumping/faulting, no visible porosity
392.60	396.10	BRECCIATED DOLOMITE: light to medium dark grey, hard, microcrystalline, highly fractured, multiple brecciation events, calcite fracture infill, minor chert clasts, minor siltstone
396.10	397.20	BRECCIATED DOLOMITE: light to medium dark grey, hard, microcrystalline, highly fractured, multiple brecciation events, calcite fracture infill, minor chert clasts
397.20	399.15	DOLOMITE: light grey, hard, calcite fractured infill, no visible porosity
399.15	400.60	BRECCIATED DOLOMITE: light to medium dark grey, hard, microcrystalline, multiple brecciation events, minor chert clasts, common fractures up to 5mm with black & white infill
400.60	401.90	DOLOMITE: light grey, hard, calcite fractured infill, no visible porosity
401.90	408.10	DOLOMITE/SILTSTONE: light to dark grey, hard, microcrystalline, predominantly laminated w/minor bedding, dark fracture infill , minor sedimentary slumping,
408.10	408.40	DOLOMITE: light grey to grey brown, hard, laminated in part, microcrystalline, lightly brecciated, with Calcite infill (<1mm), black fracture infill, bituminous
408.40	411.10	BRECCIATED DOLOMITE: light to medium dark grey, hard, microcrystalline, highly fractured and laminated, multiple brecciation events, calcite fracture infill to 2mm, minor chert clasts, minor siltstone. Black fracture infill, possible bituminous.
411.10	413.40	BRECCIATED DOLOMITE: light to medium dark grey, grey-green in part, hard, microcrystalline, highly fractured and laminated, multiple brecciation events, calcite fracture infill to 2mm, minor chert clasts, minor siltstone. Black fracture infill, possible bituminous.
413.40	413.40	Fault - 20mm black clay infill, nvm

413.40	414.60	BRECCIATD SILTSTONE: dolomitic, grey - dark grey, black very fine laminated <1mm, hard, Calcite infill to 2mm, multiple Bx events.
414.60	414.70	BRECCIATED SILTSTONE: dolomitic, grey - dark grey, black very fine laminated <1mm, hard, Calcite infill to 2mm, multiple Bx events.
414.70	418.10	SANDSTONE: light grey - grey, hard, coarse to very course, quartz, lithic and calcic grails, poorly sorted and bedded, with DOLOMITE: grey - brown, minor bituminous filled fractures, Pyrite blebs to 5mm.
418.10	419.20	DOLOMITE: light grey to grey brown, hard, laminated in part, microcrystalline, lightly brecciated, minor black fracture infill, bituminous with SANDSTONE: dark grey, very fine grained to fine grained, poorly sorted, trace pyrite blebs to 2mm, Bx in part.
419.20	420.80	BRECCIATED DOLOMITE: light grey - medium grey, hard, very fine laminated (stromatolitic) weakly brecciated
420.80	423.16	BRECCIATED DOLOMITE: grey - grey brown, hard, very fine laminated (stromatolitic) and brecciated, trace pyrite blebs to 20mm
423.16	423.90	BRECCIATED DOLOMITE: dark grey - black, organic rich, hard, very fine laminated (stromatolitic)
423.90	425.30	BRECCIATED DOLOMITE: light grey - medium grey, hard, very fine black laminated (stromatolitic) brecciated, trace pyrite
425.30	425.40	Depth adjustment 0.1m
425.40	427.40	BRECCIATED DOLOMITE: light grey - medium grey, hard, very fine black laminated (stromatolitic) brecciated, trace pyrite, minor Bx SILTSTONE bands (426.7-427.0 and 427.6-427.8) dark grey-black, organic, slump Bx, TUFF bands (428.25-428.3), pale green, minor calcite infill to 2mm. Possible stromatolitic in part.
427.40	428.90	BRECCIATED DOLOMITE: light grey - medium grey, hard, very fine black laminated (stromatolitic) brecciated, trace pyrite, minor Bx SILTSTONE bands (426.7-427.0 and 427.6-427.8) dark grey-black, organic, slump Bx, TUFF bands (428.25-428.3), pale green, minor calcite infill to 2mm. Possible stromatolitic in part.
428.90	429.60	BRECCIATED DOLOMITE: medium to light grey, hard, microcrystalline, SILTSTONE beds, brecciated, slumping, fractures 1-2mm
429.60	431.20	SILTSTONE: dark grey to greyish black, hard, minor dolomite, laminated, slumping, trace pyrite
431.20	432.00	DOLOMITE: light to medium grey, hard, microcrystalline, dark grey to black fracture infill, slumping structures, minor laminations, minor multiple phase breccia clasts, stromatolites?
432.00	433.20	SILTSTONE: medium dark grey to greyish black, hard, laminated, slumping structures, calcite filled micro fractures, trace pyrite veins, trace convoluted bedding

433.20	433.90	SILTSTONE: A/A
433.90	434.10	SILTSTONE: dark grey to black, hard, slumping structures, highly fractured section with black, soft to firm, slightly oily silt. Infill is organic rich with bituminous flecks, weak fluorescence, fast milky white cut.
434.10	434.80	DOLOMITE: light grey, hard, microcrystalline, common micro fractures with dark infill, trace multiple phase brecciated clasts. Interbedded with SANDSTONE: light grey to black, coarse to very coarse, poorly sorted, angular grains, trace disseminated pyrite, no visible porosity
434.80	435.50	DOLOMITE: light grey, hard, microcrystalline, common micro fractures with dark infill, trace multiple phase brecciated clasts. Interbedded with SANDSTONE: light grey to black, coarse to very coarse, poorly sorted, angular grains, trace disseminated pyrite, no visible porosity
435.50	436.70	SILTSTONE: light grey-dark grey, minor light green (tuffaceous), hard, finely laminated, light-dark bedding, BX/slumped, bituminous fracture fill <<1mm
436.70	438.20	Core loss
438.20	438.30	SILTSTONE: light grey-dark grey, minor light green (tuffaceous), hard, finely laminated, light-dark bedding, BX/slumped, bituminous fracture fill <<1mm
438.30	439.20	DOLOMITE: light grey-grey brown, hard, microcrystalline, moderate micro fractures, dark bituminous infill, trace multiphase Bx(interbedded with siltstone a/a), NVP, stromatolitic in part, calcite infill to 3mm in part.
439.20	439.45	SILTSTONE: light grey-dark grey, minor light green (tuffaceous), hard, finely laminated, light-dark bedding, BX/slumped, bituminous fracture fill <<1mm
439.45	440.10	DOLOMITE: light grey-grey brown, hard, microcrystalline, moderate micro fractures, dark bituminous infill, trace multiphase Bx(interbedded with siltstone a/a), NVP, stromatolitic in part, calcite infill to 3mm in part.
440.10	441.40	SILTSTONE: light grey-dark grey, minor light green (tuffaceous), hard, finely laminated, light-dark bedding, BX/slumped, bituminous fracture fill <<1mm
441.40	442.10	DOLOMITE: light grey-grey brown-dark grey brown, increasing organic content, minor silty bands, hard, microcrystalline, moderate micro fractures, dark bituminous infill, trace multiphase Bx(interbedded with siltstone a/a), NVP, stromatolitic in part, calcite infill to 3mm in part.
442.10	442.50	SILTSTONE: light grey-dark grey, minor light green (tuffaceous), hard, finely laminated, light-dark bedding, BX/slumped, bituminous fracture fill <<1mm
442.50	442.55	DOLOMITE: light grey-grey brown-dark grey brown, increasing organic content, minor silty bands, hard, microcrystalline, moderate micro fractures, dark bituminous infill, trace multiphase Bx(interbedded with siltstone a/a), NVP, stromatolitic in part, calcite infill to 3mm in part.
442.55	444.30	DOLOMITE: light grey-grey brown-dark grey brown, increasing organic content, minor silty bands, hard, microcrystalline, moderate micro fractures,

		dark bituminous infill, trace multiphase Bx(interbedded with siltstone a/a), NVP, stromatolitic in part, calcite infill to 3mm in part.
444.30	445.35	SILTSTONE: light grey-dark grey, minor light green (tuffaceous), hard, finely laminated, light-dark bedding, BX/slumped, bituminous fracture fill <<1mm
445.35	445.50	Core loss
445.50	446.30	DOLOMITE: light grey-grey brown-dark grey brown, increasing organic content, minor silty bands, hard, microcrystalline, moderate micro fractures, dark bituminous infill, trace multiphase Bx(interbedded with siltstone a/a), NVP, stromatolitic in part, calcite infill to 3mm in part. Increase if fractures @446.3 10mmPyrite filled Fracture zone, increase in organics content.
446.30	446.80	SILTSTONE: grey-dark grey, minor light green (tuffaceous), hard, finely laminated, light-dark bedding, BX/slumped, bituminous fracture fill <<1mm
446.80	447.05	DOLOMITE: light grey-grey brown-dark grey brown, increasing organic content, minor silty bands, hard, microcrystalline, moderate micro fractures, dark bituminous infill, slump/ Bx(interbedded with siltstone a/a), NVP, calcite infill to 3mm in part.
447.05	447.20	Core loss
447.20	448.60	DOLOMITE: light grey-grey brown-dark grey brown, increasing organic content, minor silty bands, hard, microcrystalline, moderate micro fractures, dark bituminous infill, slump/ Bx, NVP, calcite infill to 3mm in part. Bx with Pyrite infill 447.2-448.6.
448.60	450.20	DOLOMITE: light grey-grey, hard, microcrystalline, fine laminations (stromatolitic?), slump brecciated/disrupted bedding, light grey-grey black, in part, light green tuffaceous siltstone in part, micro fractures, black bituminous fill in part.
450.20	451.80	DOLOMITE: light grey-grey, hard, microcrystalline, fine laminations (stromatolitic?), slump brecciated/disrupted bedding, light grey-grey black, in part, light green tuffaceous siltstone in part, micro fractures, black bituminous fill in part.
451.80	452.90	SILTSTONE: dark grey-black, grey-grey brown in part, hard, very fine laminated, carbonaceous, fractured Bx/slumped bedding disrupted.
452.90	454.40	SILTSTONE: dark grey to black, minor grey brown, hard, fractured section with black, soft to firm, organic rich infill, minor calcite filled micro fractures, trace coarse grained SANDSTONE (454.2)
454.40	455.80	DOLOMITE: light to medium grey, hard, microcrystalline, common micro fractures with dark infill 1-2mm, minor brecciated sections, increasingly laminated. Interbedded with SANDSTONE: light grey to black, medium to coarse, poorly sorted, angular, elongate grains, minor brecciated dolomite clasts in beds, trace convoluted bedding, trace pyrite

455.80	456.30	BRECCIATED DOLOMITE/SILTSTONE: light grey to black, hard, highly brecciated, clasts ranging from 2-50mm, petromictic (predominantly dolomite clasts in siltstone), minor interbedded DOLOMITE/SANDSTONE section (456.0 - 456.1) pyrite in/p, micro fractures with calcite infill in/p
456.30	456.80	PYRITIC DOLOMITE: light grey to medium dark grey, hard, microcrystalline, common pyrite filled fractures & veins, micro fractures with dark infill <1mm, minor micro fractures with calcite infill 2-3mm, minor brecciated siltstone clasts. Interbedded with SANDSTONE: light grey to black, coarse, poorly sorted, angular grains. [LP3-P-006 456.4 - 456.6]
456.80	457.80	BRECCIATED DOLOMITE/SILTSTONE/SANDSTONE: A/A, chert clasts up to 50mm, minor black bituminous clasts
457.80	458.50	BRECCIATED SILTSTONE/DOLOMITE: light grey to black, hard, highly brecciated, clasts ranging from 2-60mm, petromictic (predominantly dolomite clasts in siltstone), common bituminous clasts, multiple brecciation events, minor SANDSTONE beds, micro fractures with calcite infill in/p, trace pyrite [LP3-P-007 457.9 - 458.1]
458.50	458.70	BRECCIATED SILTSTONE/DOLOMITE: light grey to black, hard, highly brecciated, clasts ranging from 2-60mm, petromictic (predominantly dolomite clasts in siltstone), common bituminous clasts, multiple brecciation events, minor SANDSTONE beds, micro fractures with calcite infill in/p, trace pyrite
458.70	461.00	DOLOMITE: light grey-grey brown, hard, microcrystalline, fine Bx, no infill clasts, trace Pyrite blebs to 3mm, minor coarse SS band @460.3m, NVP
461.00	462.55	DOLOMITE: light grey-grey brown, hard, microcrystalline, fine laminated buff-brown-dark grey, few Bx clasts with silty bands, disrupted bedding/slumped
462.55	462.70	DOLOMITE: light grey-grey brown, hard, microcrystalline, fine laminated buff-brown-dark grey, few Bx clasts with silty bands, disrupted bedding/slumped, tuffaceous in part
462.70	463.30	SILICIFIED BX DOLOMITE: grey-grey brown, very hard, silicified Bx infill, minor calcite fracture infill in part
463.30	463.75	SILICIFIED BX DOLOMITE: grey-grey brown, very hard, silicified Bx infill, minor calcite fracture infill in part
463.75	464.20	DOLOMITE: grey-grey brown, very hard, microcrystalline, Bx matrix supported, calcite infill to 5mm
464.20	464.75	SILICIFIED BX DOLOMITE: grey-grey brown, very hard, silicified Bx infill, minor calcite fracture infill in part
464.75	468.85	SILICIFIED BX DOLOMITE: grey-grey brown, very hard, silicified Bx infill, minor calcite fracture infill in part, trace Pyrite blebs to 10mm
468.85	469.10	SILICIFIED BX DOLOMITE: grey-grey brown, very hard, silicified Bx infill, minor calcite fracture infill in part, trace Pyrite blebs to 10mm

469.10	470.20	SILICIFIED DOLOMITE: medium to medium dark grey, minor brown grey, hard, microcrystalline, highly fractured with dark grey, firm, silty infill, micro fractures with silica and calcite 1-2mm, laminated in/p, brecciated in/p, trace pyrite.
470.20	471.88	SILICIFIED DOLOMITE: medium to medium dark grey, minor brown grey, hard, microcrystalline, highly fractured with dark grey, firm, silty infill, micro fractures with silica and calcite 1-2mm, laminated in/p, brecciated in/p, trace pyrite.
471.88	474.20	SILICIFIED DOLOMITE: medium to medium dark grey, minor brown grey, hard, microcrystalline, highly fractured with dark grey, firm, silty infill, micro fractures with silica and calcite 1-2mm, laminated in/p, brecciated in/p, multiple brecciation events, trace pyrite. [LP3-P-008 472.1 - 472.4]
474.20	476.20	SILICIFIED DOLOMITE: medium to medium dark grey, minor brown grey, hard, microcrystalline, highly fractured with dark grey, firm, silty infill, micro fractures with silica and calcite, laminated in/p, brecciated in/p, trace vuggy porosity.
476.20	479.30	SILICIFIED DOLOMITE: medium to medium dark grey, hard, microcrystalline, highly fractured with dark grey, firm, silty, slightly infill, micro fractures with silica and calcite 1-2mm, laminated in/p, brecciated in/p, trace vuggy porosity. [LP3-P-009 476.5 - 478.5]
479.30	481.20	DOLOMITE: medium dark grey, hard, microcrystalline, increasingly fractured with dark grey firm, silty infill, micro fractures with silica and calcite 1mm, laminated in/p, brecciated in/p, slump structures in/p
481.20	482.80	DOLOMITIC SILTSTONE: dark grey, hard, highly fractured with black, organic rich infill (20% of run), medium crystalline calcite micro fractures 3mm, slump structures, minor breccia with dolomite clasts. Black organic rich infill is significantly darker than previous run with an oily feel, black flecks, weak fluorescence and fast, streaming bright white cut. [LP3-P-010 481.6 - 481.9] & [LP3-P-011 482.7 - 482.8]
482.80	485.30	DOLOMITIC SILTSTONE: dark grey, hard, highly fractured with FAULT @ 484.1, - black, organic rich infill gouge - 25degTCA - (> 40%), medium crystalline calcite micro fractures 5mm, slump structures, minor breccia with dolomite clasts. Abundant calcite infill to 5mm.
485.30	485.70	DOLOMITIC SILSTONE: black, hard, highly fractured with black, organic rich infill (2.4m LOSS - infill to soft to recover), common bituminous flecks, dolomitic clasts in/p, bright yellow fluorescence, fast streaming white cut, bright residual ring.
485.70	488.30	Core loss
488.30	491.40	Core loss
491.40	493.50	Core loss

493.50	493.60	Core loss
493.60	494.00	DOLOMITE: light to medium grey, hard, microcrystalline, slumping structures, laminated, calcite filled fractures 3-4mm, convoluted bedding in/p. *No core from previous runs was recovered. Core depths for run 40 were determined by working backwards from the drillers depth.*
494.00	495.10	DOLOMITIC SILTSTONE: dark grey, hard, very finely laminated, calcite filled fractures 1-8mm
495.10	497.40	DOLOMITIC SILTSTONE: dark grey, hard, very finely laminated, calcite filled fractures 1-8mm, minor brecciated section w/dolomite clasts, trace pyrite
497.40	498.00	BRECCIATED DOLOMITE: light to medium grey, hard, microcrystalline, multiple brecciation events, brecciated clasts within calcite fractures in/part, chert infill (fenestrae?), common bituminous flecks, calcite filled fractures >5mm, minor SANDSTONE beds, light grey to black, coarse to very coarse, poorly sorted, trace pyrite
498.00	499.20	DOLOMITE: medium to medium dark grey, hard, microcrystalline, calcite fractures 2-10mm, minor dark microfracture infill, convoluted bedding in/p, trace pyrite in fractures
499.20	502.20	DOLOMITE: medium to medium dark grey, hard, microcrystalline, very fine interbeds of SILTSTONE, calcite fractures 2-10mm, calcite filled burrow shaped fractures?, trace bituminous flecks
502.20	505.30	DOLOMITE: medium to medium dark grey, hard, microcrystalline, very fine interbeds of SILTSTONE, calcite fractures 2-10mm, calcite filled burrow shaped cavities?, trace bituminous flecks
505.30	507.90	DOLOMITE: medium to medium dark grey, hard, microcrystalline, very fine interbeds of SILTSTONE, calcite fractures 2-10mm, trace bituminous flecks, Increasing SILTSTONE F/507.9m
507.90	508.40	DOLOMITIC SILTSTONE: dark grey-black, hard, laminated, <1mm-10mm bedded, common slumping, minor calcite veining to 3mm. Trace Pyrite on fracture surfaces,
508.40	511.50	DOLOMITIC SILTSTONE: grey-dark grey-black, hard, laminated, <1mm-10mm bedded, common slumping, minor calcite veining to 3mm. Trace Pyrite on fracture surfaces, black Chert spheroids @ 508.97, 509.18, 509.66, 509.9 to 10mm
511.50	512.80	DOLOMITIC SILTSTONE: dark grey-black, hard, laminated, <1mm-10mm bedded, common slumping, minor calcite veining to 3mm. Trace Pyrite on fracture surfaces, few black Chert spheroids to 10mm. Small Bx vein 512.1-512.6m.
512.80	515.90	DOLOMITIC SILTSTONE: dark grey-black, hard, laminated, <1mm-10mm bedded, common slumping, minor calcite veining to 3mm. Trace Pyrite on fracture surfaces.

515.90	518.90	DOLOMITIC SILTSTONE: grey-dark grey-black, grey-grey brown from 517.8m, less carbonaceous, hard, laminated, <1mm-10mm bedded, common slumping, minor Bx veins 516.3-516.4 and 517.4-517.5mminor calcite veining to 3mm. Trace Pyrite on fracture surfaces.
518.90	519.30	DOLOMITIC SILTSTONE: grey-dark grey-black, grey-grey brown from 517.8m, less carbonaceous, hard, laminated, <1mm-10mm bedded, common slumping, minor calcite veining to 3mm. Trace Pyrite on fracture surfaces.
519.30	519.65	DOLOMITE: light grey-dark grey, brown grey in part, hard, microcrystalline, 5mm Calcite infill, laminated in part <1mm, Bx in part.
519.65	519.80	DOLOMITE: light grey-dark grey, brown grey in part, hard, microcrystalline, 5mm Calcite infill, laminated in part <1mm, Bx in part.
519.80	522.20	DOLOMITIC SILTSTONE: grey-dark grey-black, hard, very fine laminated<<1mm, disrupted/slumped in part, trace pyrite infill and blebs to 5mm, calcite infill to 5mm, minor bioturbation (?) at 520.10m
522.20	525.20	DOLOMITIC SILTSTONE: dark grey to greyish black, hard, very finely laminated, slump structures, calcite filled fracture 1-3mm, minor dolomite beds
525.20	528.20	DOLOMITIC SILTSTONE: dark grey to greyish black, hard, very finely laminated, slump structures, calcite filled fracture 1-3mm, minor dolomite beds, minor elongate bituminous flecks
528.20	531.20	DOLOMITIC SILTSTONE: dark grey to greyish black, hard, very finely laminated, slump structures, calcite filled fracture 1-8mm, minor dolomite beds, trace pyrite
531.20	531.60	DOLOMITIC SILTSTONE: dark grey to greyish black, hard, very finely laminated, slump structures, calcite filled fracture 1-8mm, minor dolomite beds, trace pyrite
531.60	534.20	BRECCIATED SILTSTONE/DOLOMITE: medium grey to greyish black, hard, brecciated, very finely laminated with common interbeds of dolomite & siltstone, calcite filled fracture 2-4mm, bituminous flecks, trace pyrite
534.20	537.20	BRECCIATED SILTSTONE/DOLOMITE: medium grey to greyish black, hard, brecciated, very finely laminated with common interbeds of dolomite & siltstone, calcite filled fracture 2-4mm, bituminous flecks, trace pyrite [LP3-P-016 534.95 - 535.1] Small cavity <5mm within calcite fracture containing possibly live, mobile oil, bright fluorescence.
537.20	540.00	BRECCIATED SILTSTONE: medium grey to greyish black, hard, less brecciated than previous run, very finely laminated with minor interbeds of dolomite & siltstone, calcite filled fracture 2-4mm, fractured zone 539.9 - 540.0 with soft, black infill, mineral fluorescence only
540.00	540.40	SILTSTONE: medium grey to greyish black, hard, very finely laminated, calcite filled fracture 2-4mm, bituminous flecks in/p

540.40	541.50	SILTSTONE: medium grey to greyish black, hard, very finely laminated, calcite filled fracture 2-4mm, bituminous flecks in part, fractured section with minor soft infill.
541.50	544.50	DOLOMITE: medium grey-medium dark grey, hard, microcrystalline, very fine laminations, highly fractured in part @542.1 and 543.6, firm, medium grey infill, calcite in filled fractures 1-8mm, minor dark infill, no fluorescence
544.50	545.25	DOLOMITE: medium grey-medium dark grey, hard, microcrystalline, very fine laminations, highly fractured in part, firm, medium grey infill, calcite in filled fractures 1-8mm, minor dark infill, no fluorescence, minor fault @545.0, 5mmblack clay infill, Bx with black bituminous infill in part.
545.25	546.35	DOLOMITE: medium grey-medium dark grey, hard, microcrystalline, very fine laminations, highly fractured in part, firm, medium grey infill, calcite in filled fractures to 1mm, minor dark bituminous infill, no fluorescence, Bx with black bituminous infill in part.
546.35	547.70	DOLOMITE: medium grey-medium dark grey, hard, microcrystalline, very fine laminations, highly fractured in part, firm, medium grey infill, calcite in filled fractures to 1mm, minor dark bituminous infill, no fluorescence, Bx with black bituminous infill in part.
547.70	549.20	DOLOMITE: medium grey-medium dark grey, hard, microcrystalline, very fine laminations, highly fractured in part, firm, medium grey infill, calcite in filled fractures to 1mm, minor dark bituminous infill, no fluorescence, Bx with black bituminous infill in part. Trace Py @548.68 and bitumen flecks @ 548.4 and 549.2
549.20	549.50	DOLOMITE: medium grey-medium dark grey, hard, microcrystalline, very fine laminations, highly fractured in part, firm, medium grey infill, calcite in filled fractures to 1mm, minor dark bituminous infill, no fluorescence, Bx with black bituminous infill in part.
549.50	550.20	DOLOMITIC SILTSTONE: dark grey-black, carbonaceous, hard, fractured, faulted, hydrocarbon odour, fault gouge 10mm+
550.20	550.50	DOLOMITIC SILTSTONE: dark grey-black, carbonaceous, hard, fractured, faulted, hydrocarbon odour, fault gouge 550.4-550.5m.
550.50	551.10	DOLOMITIC SILTSTONE: dark grey-black, carbonaceous, hard, fractured, faulted, slight hydrocarbon odour, soft, sticky, medium grey clay infill [LP3-P-024 550.5 - 551.0]
551.10	552.20	DOLOMITE: medium grey, hard, microcrystalline, laminated, calcite filled fractures 1-4mm, minor breccia
552.20	554.40	DOLOMITE: medium grey to medium dark grey, hard, microcrystalline, highly fractured with dark grey, firm, clay to silt infill, weak fluorescence, milky white cut, calcite filled fractures 1-20mm, slump structures, interbedded with SILTSTONE in/p, trace pyrite

554.40	556.40	DOLOMITC SILTSTONE: dark grey, hard, calcite filled fractures 1-4mm, very finely laminated with 70 degree bedding, irregular shaped dolomitic clasts, minor DOLOMITE interbeds, trace pyrite
556.40	558.40	DOLOMITC SILTSTONE: dark grey, hard, calcite filled fractures 1-4mm, very finely laminated with 70 degree bedding, irregular shaped dolomitic inclusions, minor DOLOMITE interbeds, trace pyrite
558.40	559.60	DOLOMITIC SILTSTONE: dark grey, moderately hard, common calcite fracture fill veining, in parts crackle brecciated with siltstone and microcrystalline dolomitic clasts, very fine laminations in parts, irregular dolomite clasts, highly fractured, strong dull milky white cut, fault gouge hosting clay component, petroliferous odour and bituminous material.
559.60	561.20	DOLOMITIC SILTSTONE: dark grey, strongly foliated, hard, wide (up to 25cm) dolomite interbeds, moderately fractured, strong calcite veining, slightly silicified, in parts crackle brecciated.
549.50	563.80	DOLOMITIC SILTSTONE: dark grey, strongly foliated, slightly fractured, irregular dolomite clasts, common calcite veining, slightly silicified, minor fracture fill and disseminated pyrite @ 562.5m, very fine laminations in parts, commonly interbedded with dolomite in parts.
563.80	564.48	DOLOMITIC SILTSTONE: dark grey to medium dark grey, strongly foliated, moderately fractured, fine interbeds of dolomite, common calcite fracture fill veining, dull milky white cut, irregular dolomite inclusions, patchy fracture fill pyrite.
564.48	567.20	DOLOMITIC SILTSTONE: dark grey to light grey, interbedded siltstone and dolomite, finely laminated, common gneissic texture, 1-6mm calcite fracture fill + stringer veining, slightly fractured, rare 1-2mm pyrite stringers.
567.20	569.90	DOLOMITIC SILTSTONE: dark grey to medium grey, finely laminated, calcite filled fractures 1-4mm, interbeds of dolomite, chert filled elongate fenestrae in/p, trace pyrite
569.90	572.90	INTERBEDDED DOLOMITE/DOLOMITIC SILTSTONE: medium grey to dark grey, hard, very finely laminated, calcite filled fractures, fractures contain inclusions in/p
572.90	574.50	INTERBEDDED DOLOMITE/DOLOMITIC SILTSTONE: medium grey to dark grey, hard, very finely laminated, calcite filled fractures
574.50	577.60	DOLOMITIC SILTSTONE: dark grey, hard, laminated, minor light grey dolomite beds, minor dolomite inclusions, bituminous inclusions in/p
577.60	580.70	INTERBEDDED DOLOMITE/DOLOMITIC SILTSTONE: medium grey to dark grey, hard, very finely laminated, calcite filled fractures, wavy/convoluted bedding
580.70	583.80	INTERBEDDED DOLOMITE/DOLOMITIC SILTSTONE: medium grey to dark grey, hard, very finely laminated, calcite filled fractures, wavy/convoluted bedding, spherical to elongate bituminous flecks

583.80	584.60	INTERBEDDED DOLOMITE/DOLOMITIC SILTSTONE: medium grey to dark grey, hard, very finely laminated, calcite filled fractures 4-6mm
584.60	586.40	INTERBEDDED DOLOMITE/DOLOMITIC SILTSTONE: medium dark grey, micro-faulted beds displaying normal/thrust faulting, sporadic bituminous flecks throughout, common thin (1-3mm) cross-cutting fracture fill calcite veining, hard, moderately fractured, dull milky white-green cut.
586.40	587.30	DOLOMITIC SILTSTONE: medium dark grey, highly fractured, very common faulting hosting clay and silt rich fault gouge, common thin (1-2mm) cross-cutting calcite veining.
587.30	588.20	DOLOMITIC SILTSTONE: dark grey, minor interbeds of dolomite, fracture fill calcite veining (1-2mm), highly fractured, very common faulting, minor fault gouge hosting clays, dull milky white cut, noticeably less dolomite.
588.20	590.30	DOLOMITIC SILTSTONE: dark grey, minor interbeds of dolomite, fracture fill calcite veining (1-2mm), highly fractured, very common faulting, minor fault gouge hosting clays
590.30	591.00	DOLOMITIC SILTSTONE: dark grey, hard, very finely laminated, fracture fill calcite 1-5mm, with clasts in/p, minor interbeds of dolomite
591.00	592.20	DOLOMITIC SILTSTONE: dark grey, hard, very finely laminated, fracture fill calcite 1mm, common, finely laminated, angular, dolomite clasts >20mm
592.20	593.30	DOLOMITIC SILTSTONE: dark grey, moderately hard, phyllitic sheen, common dolomitic bands and clasts, common calcite fracture fill veining, trace pyrite on fracture surface, moderately fractured
593.30	594.70	DOLOMITIC SILTSTONE: medium dark grey, moderately hard, phyllitic, weakly foliated, moderately fractured, carbonaceous, oily sheen on several fracture surfaces, minor pyrite as stringer veins and occasionally disseminated, dolomitic bands and clasts, common thin laminations, no petroliferous odour, dull blooming milky white cut.
594.70	595.82	DOLOMITIC SILTSTONE: medium dark grey, moderately hard, phyllitic, weakly foliated, carbonaceous, moderately fractured, minor pyrite on fracture surface and as small stringer veins, fracture fill calcite veining, dolomitic bands and clasts.
595.82	597.15	SILTSTONE: medium dark grey, moderately hard, sheeny, carbonaceous, weakly foliated, highly fractured, common cross-cutting and concurrent calcite veining (3-7mm), occasional dolomite/calcareous bands, graphite on fracture surface, HYC Fm??, less calcareous now, clay bearing fault gouge @ 596.5m
597.15	598.35	SILTSTONE: medium dark grey, moderately hard, sheeny, carbonaceous, weakly foliated, slightly fractured, common cross-cutting calcite veins, common dolomitic interbeds and clasts, very fine thin wavy laminations throughout, minor pyrite on fracture surfaces, dull milky white cut.

598.35	599.80	SILTSTONE: medium dark grey, moderately hard, sheeny, carbonaceous, weakly foliated, slightly fractured, common cross-cutting calcite veins, common dolomitic interbeds and clasts, very fine thin wavy laminations throughout, minor to common pyrite on fracture surfaces, dull milky white cut, occasional micro-faulting cross-cutting bedding.
599.80	601.61	SILTSTONE: medium dark grey, phyllitic, moderately foliated, slightly fractured, carbonaceous, common pyrite on fracture surface, thin (1-3mm) cross-cutting calcite veining, common calcareous banding.
601.61	602.70	SILTSTONE: medium dark grey, phyllitic, moderately foliated, slightly fractured, carbonaceous, common pyrite on fracture surface, thin to thick (1-8mm) cross-cutting calcite veining hosting rare pyrite blebs, common calcareous banding,
602.70	604.30	SILTSTONE: dark grey, phyllitic, foliated, slightly fractured, carbonaceous, cross-cutting calcite veining, common calcareous beds/bands, minor pyrite on fracture surface.
604.30	606.10	SILTSTONE: dark grey, hard, phyllitic, very finely laminated, weakly foliated, calcite filled fractures, common sheeny fracture surfaces w/graphite, minor medium grey calcareous beds
606.10	607.90	SILTSTONE: dark grey, hard, phyllitic, very finely laminated, weakly foliated, moderately fractures, calcite filled fractures 4-6mm with siltstone clasts in parts, common interbeds of medium grey dolomite, minor micro faulting, trace pyrite
607.90	610.60	INTEREBEDDED SILTSTONE/DOLOMITE: dark grey, hard, phyllitic, very finely laminated, weakly foliated, increasingly common interbeds of dolomite, trace pyrite on fracture surfaces
610.60	612.30	DOLOMITE: light grey, microcrystalline, hard, moderately fractured, cross-cutting calcite veining (1-4mm), matrix supported vein breccia with dolomitic clasts and predominantly calcite matrix, sub-horizontal SILTSTONE interbeds, fine laminations, micro-faulting.
612.30	613.45	DOLOMITE: light grey, microcrystalline, hard, moderately fractured, cross-cutting calcite veining (1-4mm), matrix supported vein breccia with dolomitic clasts and predominantly calcite matrix, sub-horizontal SILTSTONE interbeds, fine laminations, micro-faulting.
613.45	614.50	DOLOMITE: light grey, microcrystalline, hard, moderately fractured, cross-cutting calcite veining (1-4mm), matrix supported vein breccia with dolomitic clasts and predominantly calcite matrix, sub-horizontal SILTSTONE interbeds, fine laminations, micro-faulting. Fr zone 614.2-614.4m, Ca infill to 10mm with clasts of Dolomite.
614.50	615.60	DOLOMITE: light grey, microcrystalline, hard, moderately fractured, cross-cutting calcite veining (1-4mm), matrix supported vein breccia with dolomitic clasts and predominantly calcite matrix, sub-horizontal SILTSTONE interbeds, fine laminations, micro-faulting.

615.60	615.80	BRECCIA, Siltstone and dolomitic clasts, clast supported, calcite infill, minor min flor, NVM
615.80	616.10	BRECCIA, Siltstone and dolomitic clasts, clast supported, calcite infill, minor min flor, NVM
616.10	618.15	DOLOMITIC SILTSTONE: grey-dark grey, hard, very fine laminated <<1mm, minor Ca vein infill to 5mm
618.15	619.90	DOLOMITIC SILTSTONE: grey-dark grey, hard, very fine laminated <<1mm, minor Ca vein infill to 5mm. Minor bituminous coating on Fr fill to <1mm, no flor, weak milky cut
619.90	621.15	SILTSTONE: Bx/slumped, grey-grey black, hard, very fine laminated, slumped in part, Ca fill to 5mm, trace Py to 3mm.
621.15	621.90	SILTSTONE: Bx/slumped, grey-grey black, hard, very fine laminated, slumped in part, Ca fill to 5mm, trace Py to 3mm. Dark grey-black carbonaceous and 621.55-621.75m (LP3-P-038)
621.90	623.75	DOLOMITE: light grey-dark grey, hard, microcrystalline, Siltstone in part, fine laminated <<1mm, Ca vein infill to 2mm.
623.75	624.47	DOLOMITE: light grey-dark grey, hard, microcrystalline, Siltstone in part, fine laminated <<1mm, Ca vein infill to 2mm.
624.47	625.50	SILTSTONE: dark grey-black, hard, very fine laminated, minor sedimentary slumping, carb/graphitic Fr surfaces, trace Pyrite on Fr surfaces
625.50	625.70	SILTSTONE: dark grey-black, hard, very fine laminated, minor sedimentary slumping, carb/graphitic Fr surfaces, trace Pyrite on Fr surfaces
625.70	626.80	BRECCIATED DOLOMITE: light grey-grey, hard, brecciated with mostly dolomitic clasts with Ca infill, bituminous Fr fill, slumped contact with unit above, no Ca vein
626.80	627.15	DOLOMITIC SILTSTONE: light grey-grey, hard, microcrystalline, with part laminated silty bands<1mm, Ca vein to 3mm
627.15	630.15	DOLOMITIC SILTSTONE: light grey to dark grey, very hard, microcrystalline, dolomitic bands, common cross-cutting calcite veins (1-10mm) sometimes brecciating the host rock, common micro-folded laminated SILTSTONE bands hosting trace pyrite on fracture surfaces, pyrite also present as rare blebs and stringers in calcite veins.
630.15	633.15	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, dolomitic bands, slightly silicified, common cross-cutting calcite veins (1-10mm) sometimes brecciating the host rock, common micro-folded laminated SILTSTONE bands hosting common pyrite on fracture surfaces, pyrite also present as rare blebs and stringers in calcite veins, mystery round 10mm wide spheroids.
633.15	636.15	DOLOMITIC SILTSONE: light grey to dark grey, hard, microcrystalline, convoluted SILTSTONE laminations, slightly fractured, cross-cutting fracture

		fill calcite veining (1-10cm), slightly silicified, common graphite coating fracture surfaces.
636.15	639.15	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, common finely laminated bands of SILTSTONE and dolomite, pervasive cross-cutting calcite veining, sporadic thin (1-3mm) matrix supported breccia veins with dolomite/SILTSTONE clasts and carbonaceous matrix, slightly silicified, common faulting.
639.15	642.15	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, common finely laminated bands of SILTSTONE and dolomite, pervasive cross-cutting calcite veining, sporadic thin (1-3mm) matrix supported breccia veins with dolomite/SILTSTONE clasts and carbonaceous matrix, slightly silicified, common faulting. Incr carb with depth. Py VF disseminated. LP3-P-045 assay sample.
642.15	644.45	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, common finely laminated bands of SILTSTONE and dolomite, pervasive cross-cutting calcite veining, sporadic thin (1-3mm) matrix supported breccia veins with dolomite/SILTSTONE clasts and carbonaceous matrix, slightly silicified, common faulting.
644.45	647.55	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, common finely laminated bands of SILTSTONE and dolomite, pervasive cross-cutting calcite veining, sporadic thin (1-3mm) matrix supported breccia veins with dolomite/SILTSTONE clasts and carbonaceous matrix, slightly silicified, common faulting. Trace sandy bands 647.37 and 647.30 <2mm.
647.55	650.50	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, common finely laminated bands of SILTSTONE and dolomite, pervasive cross-cutting calcite veining, sporadic thin (1-3mm) matrix supported breccia veins with dolomite/SILTSTONE clasts and carbonaceous matrix, slightly silicified, common faulting. Trace sandy band @ 648.92m.
650.50	653.60	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, common finely laminated bands of SILTSTONE and dolomite, pervasive cross-cutting calcite veining, sporadic thin (1-3mm) matrix supported breccia veins with dolomite/SILTSTONE clasts and carbonaceous matrix, slightly silicified. Increased organic/carb content. Abundant UV flor, possible hydrocarbons, section core with outside 0.5mm "peeled" off 650.4-651.7m (possible oil cooked and fracture surface).
653.60	653.85	DOLOMITIC SILTSONE: light grey to dark grey, very hard, microcrystalline, common finely laminated bands of SILTSTONE and dolomite, pervasive cross-cutting calcite veining, sporadic thin (1-3mm) matrix supported breccia veins with dolomite/SILTSTONE clasts and carbonaceous matrix, slightly silicified. Decrease on carbon content, still hydrocarbon odour.
653.85	656.60	SILTSTONE: light grey-grey, hard, weakly silicified, dolomitic, trace Py, minor Ca veining, hydrocarbon odour, weak flor on Fr surfaces. No visible bedding.
656.60	657.15	VERY FINE SANDY SILTSTONE: very fine, medium grey, hard, dolomitic in parts, common cross-cutting calcite-silica veining, faint petroliferous odour,

		trace pyrite on fracture surfaces, very finely arenaceous throughout most of run, medium-fast streaming milky white cut, no fluorescence.
657.15	660.10	VERY FINE SANDY SILTSTONE: very fine, medium grey, moderately hard, dolomitic, common cross-cutting silica-calcite veins, very finely sandy in parts, faint-medium petroliferous odour on fresh fracture surface, minor pyrite on fracture surfaces, rare very small vughs, medium-fast streaming milky white cut, no fluorescence.
660.10	661.80	VERY FINE SANDY SILTSTONE: very fine, medium grey, moderately hard, dolomitic, common cross-cutting silica-calcite veins, very fine arenaceous banding @ 661.7m, faint-medium petroliferous odour on fresh fracture surface, minor pyrite on fracture surfaces, rare very small vughs, medium-fast streaming milky white cut, no fluorescence.
661.80	663.20	BRECCIA: Dolomite and SILTSTONE (often carbonaceous) clasts. Very fine sandy siltstone and SILTSTONE matrix, hard, common silica-calcite cross-cutting veining, petroliferous odour on fracture surfaces becoming rare, weak milky white cut, moderately silicified
663.20	666.15	BRECCIA: majority matrix supported, chaotic, SILTSTONE-dolomite clasts, calcite-silica-siltstone matrix with common carbonaceous and bituminous infill/veinlets, sandy siltstone bands with faint to moderate petroliferous odour on fresh fracture surfaces, very hard, minor pyrite on fracture surfaces, cross-cutting breccia veins @ 655.5m, common micro-folding and micro-faulting, weak milky white cut, moderately silicified, bituminous blebs present in calcite-silica vein @ 665.5m.
666.15	669.15	BRECCIA: majority clast supported, chaotic, SILTSTONE-dolomite clasts, calcite-silica-siltstone matrix with common carbonaceous and bituminous infill/veinlets, sandy siltstone bands with faint to moderate petroliferous odour on fresh fracture surfaces, very hard, minor pyrite on fracture surfaces, cross-cutting breccia veins @ 655.5m, common micro-folding and micro-faulting, weak milky white cut, moderately silicified.
669.15	671.85	BRECCIA: majority clast supported, chaotic, SILTSTONE-dolomite clasts, calcite-silica-siltstone matrix with common carbonaceous and bituminous infill/veinlets, sandy siltstone bands with faint to moderate petroliferous odour on fresh fracture surfaces, very hard, minor pyrite on fracture surfaces, cross-cutting breccia veins @ 655.5m, common micro-folding and micro-faulting, weak milky white cut, moderately silicified.
671.85	672.15	SILTSTONE: grey-dark grey, hard, very fine laminated bedding (70deg dip), calcareous, bitumen infill to 1mm, vughy, dolomitic, high organic content, no flor, weak milky cut, NVP
672.15	672.40	SILTSTONE: grey-dark grey, hard, very fine laminated bedding (70deg dip), calcareous, bitumen infill to 1mm, vughy, dolomitic, high organic content, no flor, weak milky cut, NVP

672.40	675.15	BRECCIA: majority clast supported, chaotic, SILTSTONE-dolomite clasts, calcite-silica-siltstone matrix with common carbonaceous and bituminous infill/veinlets, sandy siltstone bands with faint to moderate petroliferous odour on fresh fracture surfaces, very hard, minor pyrite on fracture surfaces, cross-cutting breccia veins @ 655.5m, common micro-folding and micro-faulting, weak milky white cut, moderately silicified, no fluorescence, pyrite band (2mm) @ 674.8m
675.15	677.98	DOLOMITIC SILTSTONE: Medium grey, hard, slightly silicified, common clast supported fault breccias (1-25cm wide) with dolomitic SILTSTONE clasts and calcite-silica-carbonaceous matrix infill, trace pyrite on fracture surfaces, occasional small vughy cavities, weak milky cut.
677.98	681.08	DOLOMITIC SILTSTONE: hard, medium grey, slightly silicified, common breccia bands with carbonaceous infill, sporadic calcite-silica veining, 5mm wide milky quartz vein @ 679,7m, highly fractured, vughy cavities @679.95m, trace pyrite on facture surfaces and as veinlet stringers, minor graphite on fracture surfaces, medium heft, weak milky cut
681.08	684.08	DOLOMITIC SILTSTONE: Hard, medium dark grey, slightly silicified, moderately fractured, minor to common breccia banding with carbonaceous infill, sporadic cross-cutting calcite-silica veining, graphite on fracture surfaces, medium heft, weak milky cut, no fluorescence.
684.08	687.18	DOLOMITIC SILTSTONE: Hard, medium dark grey, slightly silicified, moderately fractured, minor to common breccia banding with carbonaceous infill, sporadic cross-cutting calcite-silica veining, graphite on fracture surfaces, medium heft, weak milky cut, no fluorescence. Grading to Dolomitic SILTSTONE fracturing on foliation
687.18	690.20	DOLOMITIC SILTSTONE: Hard, medium dark grey, slightly silicified, moderately fractured, minor to common breccia banding with carbonaceous infill, sporadic cross-cutting calcite-silica veining, graphite on fracture surfaces, medium heft, weak milky cut, no fluorescence. Grading to Dolomitic SILTSTONE fracturing on foliation. Fault @ 689.55m. trace pyrite veinlets.
690.20	693.20	DOLOMITIC SILTSTONE: Hard, medium dark grey, slightly silicified, moderately fractured, sporadic cross-cutting calcite-silica veining, graphite on fracture surfaces, medium heft, weak milky cut, no fluorescence. Grading to Dolomitic SILTSTONE fracturing on foliation, very faint petroliferous odour on fresh fracture surfaces.
693.20	694.75	DOLOMITIC SILTSTONE: Hard, medium dark grey, slightly silicified, moderately fractured, sporadic cross-cutting calcite-silica veining, graphite on fracture surfaces, medium heft, weak milky cut, no fluorescence. Grading to Dolomitic SILTSTONE fracturing on foliation, very faint petroliferous odour on fresh fracture surfaces.
694.75	695.75	DOLOMITIC SILTSTONE: Hard, medium dark grey, slightly silicified, moderately fractured, sporadic cross-cutting calcite-silica veining, graphite on fracture surfaces, medium heft, weak milky cut, no fluorescence. Grading to Dolomitic SILTSTONE fracturing on foliation, very faint petroliferous odour on fresh fracture surfaces. Pinpoint flor on Fr frags, strong pale green cut.

695.75	696.40	DOLOMITIC SILTSTONE: Hard, medium dark grey, slightly silicified, moderately fractured, sporadic cross-cutting calcite-silica veining, graphite on fracture surfaces, medium heft, weak milky cut, no fluorescence. Grading to Dolomitic SILTSTONE fracturing on foliation, very faint petroliferous odour on fresh fracture surfaces. Pinpoint flor on Fr frags, strong pale green cut. SILTSTONE: dark grey-black, very fine laminated, high organic content.
696.40	699.15	DOLOMITIC SILTSTONE: Dark to medium grey, hard, slightly foliated, slightly silicified, slightly foliated, slightly fractured, dolomitic, graphite on fracture surfaces, trace pyrite blebs on fracture surfaces, minor calcite-silica cross-cutting veining, common dolomite banding, moderate milky cut.
699.15	702.20	DOLOMITIC SILTSTONE: Light to medium grey, hard, slightly foliated, slightly silicified, convoluted banding throughout with dolomite, SILTSTONE (often carbonaceous), minor calcite-silica cross-cutting veining, occasional micro-faulting across banding, moderate milky cut.
702.20	705.15	DOLOMITIC SILTSTONE: Light to medium grey, hard, slightly foliated, slightly silicified, convoluted banding throughout with dolomite, SILTSTONE (often carbonaceous), minor calcite-silica cross-cutting veining, occasional micro-faulting across banding, moderate milky cut, occasional coarse texture on fracture surfaces.
705.15	708.15	DOLOMITIC SILTSTONE: Light to medium grey, hard, slightly foliated, slightly silicified, convoluted banding throughout with dolomite, SILTSTONE (often carbonaceous), minor calcite-silica cross-cutting veining, occasional micro-faulting across banding, moderate milky cut, thin (1mm) minor pyrite veinlets.
708.15	711.15	CARBONACEOUS DOLOMITC SILTSTONE: Dark grey to black, moderately hard, slightly foliated, banded throughout, common calcite-silica veining hosting trace chalcopyrite blebs, slightly fractured, highly carbonaceous, phyllitic, moderate milky cut
711.15	712.20	CARBONACEOUS DOLOMITC SILTSTONE: Dark grey to black, moderately hard, slightly foliated, banded throughout, common calcite-silica veining hosting trace chalcopyrite (<0.5%) blebs and stringer veinlets, slightly fractured, highly carbonaceous, phyllitic, moderate milky cut
712.20	714.15	DOLOMITIC SILTSTONE: Light grey to medium grey, hard, slightly foliated, slightly silicified, banded throughout, common cross-cutting calcite-silica veining - occasionally brecciating host rock (@ 713.45m), occasional indistinct brown bands.
714.15	717.15	DOLOMITIC SILTSTONE: Light grey to dark grey, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, chalcopyrite stringer vein @ 714.6m, common cross-cutting calcite-silica veining (1-20mm wide) commonly brecciating host rock to form matrix-supported breccia, bituminous glassy substance on fracture surfaces.
717.15	720.15	DOLOMITIC SILTSTONE: Light grey to dark grey, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, common cross-cutting calcite-silica veining (1-20mm wide) commonly

		brecciating host rock to form matrix-supported breccia - also hosting trace chalcopyrite blebs bituminous glassy substance on fracture surfaces.
720.15	723.15	DOLOMITIC SILTSTONE: Grey to grey-black, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, common cross-cutting calcite-silica veining (1-5mm wide) commonly bituminous glassy substance on fracture surfaces and desiccated material in Fr voids (<1mm). NVM. LP3-P_092 - single drop oil on Fr surface, bright flor.
723.15	726.15	DOLOMITIC SILTSTONE: Light grey to dark grey, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, common cross-cutting calcite-silica veining (1-5mm wide) commonly bituminous glassy substance on fracture surfaces. NVM. 724.65m trace oil FLOR spots (3x1mm) on Fr void space, bright flor.
726.15	729.15	DOLOMITIC SILTSTONE: Light grey to dark grey, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, common cross-cutting calcite-silica veining (1-5mm wide) commonly bituminous glassy substance on fracture surfaces.
729.15	732.15	DOLOMITIC SILTSTONE: Light grey to dark grey, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, common cross-cutting calcite-silica veining (1-5mm wide) commonly bituminous glassy substance on fracture surfaces.
732.15	735.15	DOLOMITIC SILTSTONE: Light grey to dark grey, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, common cross-cutting calcite-silica veining (1-5mm wide) commonly bituminous glassy substance on fracture surfaces. Decrease in foliation and micas. Decrease in organic content. Dolomite bands increase to 30%.
735.15	736.55	DOLOMITIC SILTSTONE: Light grey to dark grey, moderately hard, slightly foliated, dolomitic, common SILTSTONE-dolomite-carbonaceous bands, common cross-cutting calcite-silica veining (1-5mm wide) commonly bituminous glassy substance on fracture surfaces. Decrease in foliation and micas. Decrease in organic content. Dolomite bands increase to 50%.
736.55	738.15	DOLOMITE: light grey-grey, minor grey-brown, very hard, cryptocrystalline, with banded very fine SILTSTONE: grey-dark grey, carbonaceous Fr surface coatings, very fine laminated,, minor Ca vein to 1mm. Trace e Pyrite, possible Galena.
738.15	741.15	DOLOMITE: light grey-grey, minor grey-brown, very hard, cryptocrystalline, with banded very fine SILTSTONE: grey-dark grey, carbonaceous Fr surface coatings, very fine laminated,, minor Ca vein to 1mm. Incr in SILTSTONE/organic bands, very fine laminated, slumped, microfaulted, calcareous, bedding plane fractures with carb/graphitic coatings, weak hydrocarbon odour.
741.15	744.15	DOLOMITE: light grey-grey, minor grey-brown, very hard, cryptocrystalline, with banded very fine SILTSTONE: grey-dark grey, carbonaceous Fr surface coatings, very fine laminated,, minor Ca vein to 1mm. Incr in SILTSTONE/organic bands, very fine laminated, slumped, microfaulted,

		calcareous, bedding plane fractures with carb/graphitic coatings, weak hydrocarbon odour.
744.15	747.15	INTERBEDDED DOLOMITE/SILTSTONE: Hard, light grey to medium grey, finely interbedded/laminated, commonly fault brecciated with carbonaceous-calcareous infill, rare calcite-silica cross-cutting veining hosting trace pyrite, common carbonaceous bands, very faint petroliferous odour on fresh fracture surfaces, very weak residual cut.
747.15	750.15	INTERBEDDED DOLOMITE/SILTSTONE: Hard, light grey to medium grey, finely interbedded/laminated, commonly fault brecciated with carbonaceous-calcareous infill, rare calcite-silica cross-cutting veining hosting trace pyrite, common carbonaceous bands, micro-faulting, very faint petroliferous odour on fresh fracture surfaces, very weak residual cut.
750.15	753.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to medium to dark grey, hard, finely laminated in part, carbonaceous SILTSTONE bands with carbonaceous material commonly brecciating dolomite, trace chalcopyrite blebs and stringer veins, slightly silicified, minor calcite-silica veining. 5-10cm wide carbonaceous SILTSTONE bands toward end of run, very weak residual cut, minor folded bands.
753.15	756.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to medium to dark grey, hard, finely laminated in part, carbonaceous SILTSTONE bands with carbonaceous material commonly brecciating dolomite, trace chalcopyrite blebs and stringer veins, slightly silicified, minor calcite-silica veining. 5-10cm wide carbonaceous SILTSTONE bands toward end of run, very weak residual cut, minor folded bands, occasional very small vughy cavities in calcite-silica veining - occasionally hosting dull bituminous infill.
756.15	759.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to medium to dark grey, hard, finely laminated in part, carbonaceous SILTSTONE bands with carbonaceous material commonly brecciating dolomite, trace chalcopyrite blebs and stringer veins, slightly silicified, minor calcite-silica veining. 5-10cm wide carbonaceous SILTSTONE bands toward end of run, very weak residual cut, minor folded bands, baked glassy bituminous substance coating some fracture surfaces.
759.15	762.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to medium to dark grey, hard, finely laminated in part, carbonaceous SILTSTONE bands with carbonaceous material commonly brecciating dolomite, trace chalcopyrite blebs and stringer veins, slightly silicified, minor calcite-silica veining. 5-10cm wide carbonaceous SILTSTONE bands toward end of run, very weak residual cut, minor folded bands, pyrite blebs in calcite-silica veins.
762.15	765.15	INTERBEDDED DOLOMITE/SILTSTONE: Hard, light to dark grey, banded throughout with carbonaceous SILTSTONE and dolomite, occasional cross-cutting stockwork calcite-silica veining - hosting pyrite and chalcopyrite @ 764.55m. Veins brecciating host rock, micro-faulting and micro-folding across banding, very faint residual cut.

765.15	768.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to dark grey, hard, commonly banded with carbonaceous SILTSTONE and dolomite, breccia vein @ 768.1m hosting minor blebby pyrite, common calcite-silica veining, faint petroliferous odour on fresh fracture surfaces, very faint residual cut.
768.15	771.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to dark grey, hard, commonly banded with carbonaceous SILTSTONE and dolomite, breccia vein @ 770m hosting minor blebby pyrite, common calcite-silica veining.
771.15	774.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to dark grey, hard, commonly banded with carbonaceous SILTSTONE and dolomite, common calcite-silica veining. Increasing dark grey-black organic rich bands - 771.15-771.39 & 773.26-773.32, faint odour, minor oil fluorescence and strong milky green cut with strong residual ring.
774.15	777.15	INTERBEDDED DOLOMITE/SILTSTONE: Light to dark grey, increasing to CARBONACEOUS SILTSTONE: dark grey-black, hard, commonly banded with carbonaceous SILTSTONE and dolomite, common calcite-silica veining.
777.15	779.75	INTERBEDDED DOLOMITE/SILTSTONE: Light to dark grey, increasing to CARBONACEOUS SILTSTONE: dark grey-black, hard, commonly banded with carbonaceous SILTSTONE and dolomite, common calcite-silica veining. Minor very fine sand/silt band @ 779.12-779.23m.
779.75	780.00	INTERBEDDED DOLOMITE/SILTSTONE: Light to dark grey, increasing to CARBONACEOUS SILTSTONE: dark grey-black, hard, commonly banded with carbonaceous SILTSTONE and dolomite, common calcite-silica veining.
780.00	782.50	BRECCIATED DOLOMITIC SILTSTONE: light grey-grey, hard, chaotic breccia clast supported (dolomite, siltstone, minor carbonaceous siltstone,) minor Py, micofaults and sedimentary slumping, trace Ca veining with Py (<2mm) @781.85m, minor bit/carbon on Fr surfaces, no flor, weak milky cut
782.50	783.90	BRECCIATED DOLOMITIC SILTSTONE: light grey-grey, hard, chaotic breccia clast supported (dolomite, siltstone, minor carbonaceous siltstone,) minor Py, micofaults and sedimentary slumping, trace Ca veining with Py (<2mm) @781.85m, minor bit/carbon on Fr surfaces, no flor, weak milky cut
783.90	785.20	BRECCIATED DOLOMITIC SILTSTONE: Light to medium grey, hard, moderately fractured, chaotic, large dolomitic clasts (up to 10cm) in siltstone matrix, predominantly matrix supported, convoluted laminations, irregular micro-faulting, low carbonaceous content
785.20	788.30	INTERBEDDED SILTSTONE/DOLOMITE: Light to dark grey, hard, slightly fractured, slightly silicified, tightly folded, banded interbeds, common cross-cutting calcite-silica veining, micro-faulted, minor blebby pyrite, common carbonaceous bands and breccia infill, no cut.
788.30	791.35	INTERBEDDED SILTSTONE/DOLOMITE: Light to dark grey, hard, slightly fractured, slightly silicified, tightly folded, banded interbeds, common cross-cutting calcite-silica veining, micro-faulted, minor blebby pyrite, common carbonaceous bands and breccia infill, no cut, occasional honeycomb banding hosting blebby pyrite

791.35	794.45	SILTSTONE: Hard, medium to dark grey, slightly silicified, moderately carbonaceous, dolomitic, common dolomite interbeds, convoluted banding, common cross-cutting calcite-silica veining, micro-faulted and folded banding, minor sporadic pyrite blebs, weak milky cut, faint petroliferous odour.
794.45	797.55	SILTSTONE: Hard, medium to dark grey, slightly silicified, moderately carbonaceous, dolomitic, common dolomite interbeds, convoluted banding, common cross-cutting calcite-silica veining, micro-faulted and folded banding, minor sporadic pyrite blebs, weak milky cut, faint petroliferous odour, occasional breccia bands.
797.55	800.65	CARBONACEOUS SILTSTONE: Dark grey to black, hard, slightly silicified, slightly fractured, highly carbonaceous, dolomitic, light coloured banding, occasional micro-faulted honeycomb veining, calcite-silica veining, occasional breccia veins - matrix supported, host rock clasts, sporadic pyrite blebs, weak milky cut.
800.65	803.75	CARBONACEOUS SILTSTONE: Dark grey to black, hard, slightly silicified, slightly foliated, dolomitic, occasional light coloured banding, minor pyrite as blebs and thin banding (parallel with foliation). Occasional cross-cutting calcite-silica, faint petroliferous odour on fresh fracture surfaces, weak milky cut.
803.75	806.85	DOLOMITIC SILTSTONE: Medium grey, hard, slightly silicified, moderately carbonaceous, dolomitic, common dolomite bands, common cross-cutting calcite-silica veining, micro-faulting, occasional fault breccia, no odour, weak milky cut.
806.85	809.95	DOLOMITIC SILTSTONE: Light to medium grey, slightly silicified, moderately carbonaceous, common calcite-silica micro-faulted veining, minor (2cm wide) pyrite blebs, occasional breccia zones, no petroliferous odour.
809.95	813.05	DOLOMITIC SILTSTONE: Light to dark grey-grey black, slightly silicified, moderately carbonaceous, rare calcite-silica micro-faulted veining, minor (2cm wide) pyrite blebs, common breccia/sedimentary slumped zones, no petroliferous odour.
813.05	816.15	DOLOMITIC SILTSTONE: Light to dark grey-grey black, slightly silicified, moderately carbonaceous, rare calcite-silica micro-faulted veining, minor (2cm wide) pyrite blebs, common breccia/sedimentary slumped zones, no petroliferous odour.
816.15	818.10	DOLOMITIC SILTSTONE: Light to dark grey-grey black, slightly silicified, moderately carbonaceous, rare calcite-silica micro-faulted veining, minor (2cm wide) pyrite blebs, common breccia/sedimentary slumped zones, no petroliferous odour.
818.10	819.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to sucrosic texture, with SILTSTONE Bx clasts, matrix supported, abundant Py as blebs and as Ca-Py vein infill, minor carbonaceous Fr surfaces.
819.15	822.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to sucrosic texture, with SILTSTONE Bx clasts, matrix supported, abundant Py as blebs

		and as Ca-Py vein infill, minor carbonaceous Fr surfaces. Decrease in siltstone clasts.
822.15	825.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to microcrystalline texture, with minor SILTSTONE Bx clasts, matrix supported, abundant Py as Ca-Py vein infill, minor carbonaceous Fr surfaces. Decrease in siltstone clasts. Increase in Ca-Py infill.
825.15	828.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to microcrystalline texture, with minor SILTSTONE Bx clasts, matrix supported, abundant Py as Ca-Py vein infill, minor carbonaceous Fr surfaces. Decrease in siltstone clasts. Increase in Ca-Py infill.
828.15	831.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to microcrystalline texture, with minor SILTSTONE Bx clasts, matrix supported, abundant Py as Ca-Py vein infill, minor carbonaceous Fr surfaces. Decrease in siltstone clasts. Increase in Ca-Py infill.
831.15	834.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to microcrystalline texture, with minor SILTSTONE Bx clasts, matrix supported, abundant Py as Ca-Py vein infill, minor carbonaceous Fr surfaces. Decrease in siltstone clasts. Increase in Ca-Py infill.
834.15	837.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to microcrystalline textures, matrix supported, abundant Py as Ca-Py vein infill, minor carbonaceous Fr surfaces. Rare in siltstone clasts. Increase in Ca-Py infill.
837.15	840.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to microcrystalline textures, matrix supported, abundant Py as Ca-Py vein infill, minor carbonaceous Fr surfaces. Increase in Ca-Py infill.
840.15	843.15	BRECCIATED DOLOMITE: light grey-grey, hard, crystalline to microcrystalline textures, matrix supported, abundant Py as Ca-Py vein infill, minor carbonaceous Fr surfaces. Increase in Ca-Py infill.
843.15	846.15	BRECCIA: Light to medium grey, hard, microcrystalline, clast supported, commonly matrix supported, dolomite-siltstone breccia, clasts up to 20cm wide, common carbonaceous-dolomitic matrix, extensive massive pyrite-calcite stockwork veining cross-cutting the matrix and occasionally forming bands, pyrite up to 30% of core in some zones, no cut or fluorescence.
846.15	849.25	BRECCIA: Light to medium grey, hard, microcrystalline, clast supported, commonly matrix supported, dolomite-siltstone breccia, clasts up to 20cm wide, common carbonaceous-dolomitic matrix, extensive massive pyrite-calcite stockwork veining cross-cutting the matrix and occasionally forming bands, pyrite up to 30% of core in some zones, no cut or fluorescence.
849.25	852.15	BRECCIA: Light to medium grey, hard, microcrystalline, clast supported, commonly matrix supported, dolomite-siltstone breccia, clasts up to 20cm wide, common carbonaceous-dolomitic matrix, extensive massive pyrite-calcite stockwork veining cross-cutting the matrix and occasionally forming bands, pyrite up to 30% of core in some zones, no cut or fluorescence.

852.15	855.15	BRECCIA: Light to medium grey, hard, microcrystalline, clast supported, commonly matrix supported, dolomite-siltstone breccia, clasts up to 20cm wide, common carbonaceous-dolomitic matrix, extensive massive pyrite-calcite stockwork veining cross-cutting the matrix and occasionally forming bands, pyrite up to 30% of core in some zones, no cut or fluorescence.
855.15	858.15	BRECCIA: Light to medium grey, hard, microcrystalline, clast supported, commonly matrix supported, dolomite-siltstone breccia, clasts up to 20cm wide, common carbonaceous-dolomitic matrix, extensive massive pyrite-calcite stockwork veining cross-cutting the matrix and occasionally forming bands, pyrite up to 30% of core in some zones, no cut or fluorescence.
858.15	859.25	BRECCIA: Light to medium grey, hard, microcrystalline, clast supported, commonly matrix supported, dolomite-siltstone breccia, clasts up to 20cm wide, common carbonaceous-dolomitic matrix, extensive massive pyrite-calcite stockwork veining cross-cutting the matrix and occasionally forming bands, pyrite up to 30% of core in some zones, no cut or fluorescence.
859.25	861.15	BRECCIATED DOLOMITE: Light grey to pink, hard, microcrystalline, predominantly brecciated, stockwork white-pink calcite-silica veining (up to 20mm wide), dolomitic clasts, calcareous infill, common pyrite in veins and disseminated in host rock, no cut or fluorescence.
861.15	864.15	BRECCIATED DOLOMITE: Light grey to pink, hard, microcrystalline, predominantly brecciated, stockwork white-pink calcite-silica veining (up to 20mm wide), dolomitic clasts, calcareous infill, common pyrite in veins and disseminated in host rock, no cut or fluorescence, stockwork carbonaceous-pyrite groundmass infilling fractures.
864.15	867.15	BRECCIATED DOLOMITE: Light grey to pink, hard, microcrystalline, predominantly brecciated, stockwork white-pink calcite-silica veining (up to 20mm wide), dolomitic clasts, calcareous infill, common pyrite in veins and disseminated in host rock, no cut or fluorescence, minor fracture fill pyrite, brown acicular translucent mineral coating fracture surface @ 865.5m
867.15	870.15	BRECCIATED DOLOMITE: Light to medium grey, hard, microcrystalline, slightly fractured, multi-phase breccia, irregular siltstone and dolomite clasts, pyritic stockwork veining, white-pink calcite-silica veining, occasional small vughy fractures. Brown micaceous mineral coating fracture surfaces.
870.15	870.80	BRECCIATED DOLOMITE: Light to medium grey, hard, microcrystalline, slightly fractured, multi-phase breccia, irregular siltstone and dolomite clasts, pyritic stockwork veining, white-pink calcite-silica veining, occasional small vughy fractures. Siderite fracture surfaces.
870.80	873.15	BRECCIATED DOLOMITE/SILTSTONE: Light grey to dark grey, interbedded, slightly fractured, cross-cutting calcite-silica veining, slightly silicified, banded then brecciated, sporadic pyrite present as veins and blebs, Siderite coating some fracture surfaces, occasional carbonaceous banding.
873.15	874.55	BRECCIATED DOLOMITE/SILTSTONE: Light grey to dark grey, interbedded, slightly fractured, cross-cutting calcite-silica veining, slightly silicified, banded

		then brecciated, sporadic pyrite present as veins and blebs, Siderite coating some fracture surfaces, occasional carbonaceous banding.
874.55	874.88	BRECCIATED DOLOMITE/SILTSTONE: Light grey to dark grey, interbedded, slightly fractured, cross-cutting calcite-silica veining, slightly silicified, banded then brecciated, sporadic pyrite present as veins and blebs, Siderite coating some fracture surfaces, occasional carbonaceous banding.
874.88	876.15	BRECCIATED DOLOMITE/SILTSTONE: Light grey to dark grey, interbedded, slightly fractured, cross-cutting calcite-silica veining, slightly silicified, banded then brecciated, sporadic pyrite present as veins and blebs, Siderite coating some fracture surfaces, occasional carbonaceous banding.
876.15	879.15	BRECCIATED DOLOMITE/SILTSTONE: Light grey to dark grey, interbedded, slightly fractured, cross-cutting calcite-silica veining, slightly silicified, banded then brecciated, sporadic pyrite present in veins and blebs ,Siderite coating some fracture surfaces, occasional carbonaceous banding.
879.15	882.25	BRECCIATED DOLOMITE/SILTSTONE: Predominantly dolomitic, multi-phase breccia, light grey to dark grey to pink, hard, microcrystalline, trace pyrite in veins and on fracture surfaces, slightly fractured, fault @ 879.8m, slightly foliated, brecciated bands of interbedded dolomite and SILTSTONE, minor cross-cutting quartz veining (up to 10mm wide), no cut, carbonaceous banding and fracture infill, minor kaolin in quartz cavity.
882.25	885.15	BRECCIATED DOLOMITE/SILTSTONE: Predominantly dolomitic, multi-phase breccia, light grey to dark grey to pink, hard, microcrystalline, trace pyrite in veins and on fracture surfaces, slightly fractured, slightly foliated, brecciated bands of interbedded dolomite and SILTSTONE, minor cross-cutting quartz veining (up to 10mm wide), no cut, carbonaceous banding and fracture infill, sporadic siderite on fracture surfaces.
885.15	888.15	BRECCIATED DOLOMITE/SILTSTONE: Predominantly dolomitic, multi-phase breccia, light grey to dark grey to pink, hard, microcrystalline, trace pyrite in veins and on fracture surfaces, slightly fractured, slightly foliated, brecciated bands of interbedded dolomite and SILTSTONE, minor cross-cutting quartz veining (up to 10mm wide), no cut, carbonaceous banding from 885.85 to 886.3, sporadic siderite on fracture surfaces.
888.15	891.15	BRECCIATED DOLOMITE/SILTSTONE: Light grey to light brown, predominantly matrix supported, dolomitic/silica-calcite clasts, carbonaceous-SILTSTONE-dolomitic matrix, brown to grey brecciated convoluted banded beds - sideritic and dolomitic, hard, carbonaceous band @ 890.3m, slightly fractured, sporadic calcite-silica cross-cutting veining (up to 5mm wide)
891.15	894.30	BRECCIATED DOLOMITE/SILTSTONE: Light grey to light brown, predominantly matrix supported, dolomitic/silica-calcite clasts, carbonaceous-SILTSTONE-dolomitic matrix, brown to grey brecciated convoluted banded beds - sideritic and dolomitic, hard, occasional carbonaceous bands, slightly fractured, sporadic calcite-silica cross-cutting veining (up to 5mm wide)

894.30	897.15	BRECCIATED DOLOMITE/SILTSTONE: Light grey to light brown, predominantly matrix supported, dolomitic/silica-calcite clasts, carbonaceous-SILTSTONE-dolomitic matrix, brown to grey brecciated convoluted banded beds - sideritic and dolomitic, hard, thin carbonaceous bands within brown banding, slightly fractured, sporadic calcite-silica cross-cutting veining (up to 5mm wide)
897.15	900.15	BRECCIATED DOLOMITE/SILTSTONE: Light grey to light brown, predominantly matrix supported, dolomitic/silica-calcite clasts, carbonaceous-SILTSTONE-dolomitic matrix, brown to grey brecciated convoluted banded beds - sideritic and dolomitic, hard, thin carbonaceous bands within brown banding, slightly fractured, sporadic calcite-silica cross-cutting veining (up to 5mm wide)
900.15	903.15	BRECCIATED DOLOMITE/SILTSTONE: Light grey to light brown, predominantly matrix supported, dolomitic/silica-calcite clasts, carbonaceous-SILTSTONE-dolomitic matrix, brown to grey brecciated convoluted banded beds - sideritic and dolomitic, hard, thin carbonaceous bands within brown banding, slightly fractured, sporadic calcite-silica cross-cutting veining (up to 5mm wide). Bx decreasing.
903.15	904.09	BRECCIATED DOLOMITE/SILTSTONE: Light grey to light brown, predominantly matrix supported, dolomitic/silica-calcite clasts, carbonaceous-SILTSTONE-dolomitic matrix, brown to grey brecciated convoluted banded beds - sideritic and dolomitic, hard, thin carbonaceous bands within brown banding, slightly fractured, sporadic calcite-silica cross-cutting veining (up to 5mm wide). Bx decreasing.
904.09	906.15	DOLOMITIC SILTSTONE: light grey-brown, in part dark grey to black, hard, strongly DOLOMITISED, slightly silicified, slightly fractured, varying carbonaceous bands, dolomitic banding, occasional micro-faulted minor Ca veining, calcite-silica veining, occasional breccia bands, matrix supported, trace pyrite disseminated, minor bituminous/graphitic Fr fill, no flor, weak milky cut.
906.15	909.15	DOLOMITIC SILTSTONE: light grey-brown, in part dark grey to black, hard, strongly DOLOMITISED, slightly silicified, slightly fractured, varying carbonaceous bands, dolomitic banding, occasional micro-faulted minor Ca veining, calcite-silica veining, occasional breccia bands, matrix supported, trace pyrite disseminated, minor bituminous/graphitic Fr fill, no flor, weak milky cut. Bx band 908.25-908.95m.
909.15	912.15	DOLOMITIC SILTSTONE: light grey-brown, in part dark grey to black, hard, strongly DOLOMITISED, slightly silicified, slightly fractured, varying carbonaceous bands, dolomitic banding, occasional micro-faulted minor Ca veining, calcite-silica veining, occasional breccia bands, matrix supported, trace pyrite disseminated, minor bituminous/graphitic Fr fill, no flor, weak milky cut. Silicified 911-912.15m, hard, decrease in carbon content.
912.15	915.15	DOLOMITIC SILTSTONE: light grey-brown, in part dark grey to black, hard, strongly DOLOMITISED, slightly silicified, slightly fractured, varying carbonaceous bands, dolomitic banding, occasional micro-faulted minor Ca veining, calcite-silica veining, occasional breccia bands, matrix supported,

		trace pyrite disseminated, minor bituminous/graphitic Fr fill, no flor, weak milky cut.
915.15	917.50	DOLOMITIC SILTSTONE: light grey-brown, in part dark grey to black, hard, strongly DOLOMITISED, slightly silicified, slightly fractured, varying carbonaceous bands, dolomitic banding, occasional micro-faulted minor Ca veining, calcite-silica veining, occasional breccia bands, matrix supported, trace pyrite disseminated, minor bituminous/graphitic Fr fill, no flor, weak milky cut. Bx band 915.35-916.45m.
917.50	920.75	DOLOMITIC SILTSTONE: light grey-brown, in part dark grey to black, hard, strongly DOLOMITISED, slightly silicified, slightly fractured, varying carbonaceous bands, dolomitic banding, occasional micro-faulted minor Ca veining, calcite-silica veining, occasional breccia bands, matrix supported, trace pyrite disseminated, minor bituminous/graphitic Fr fill, no flor, weak milky cut.
920.75	923.80	BRECCIATED DOLOMITE/SILTSTONE: Light to medium grey, hard, microcrystalline, banded in part, predominantly brecciated, slightly fractured, common carbonaceous bands and infill, rare pyrite coating fracture surfaces, dolomite and SILTSTONE clasts, occasional calcite-silica cross-cutting veins, moderately silicified, no cut, no fluorescence.
923.80	926.90	INTERBEDDED DOLOMITE/SILTSTONE: Light grey to brown to dark grey, hard, microcrystalline, banded, fault brecciated in parts, slightly fractured, slightly silicified, common carbonaceous banding, common micro-faulting, dolomitic clasts, common calcite-silica cross-cutting veining, carbonaceous-siltstone-dolomitic matrix, no cut, no fluorescence.
926.90	930.00	INTERBEDDED DOLOMITE/SILTSTONE: Light grey to brown to dark grey, hard, microcrystalline, banded, fault brecciated in parts, slightly fractured, slightly silicified, common carbonaceous banding, common micro-faulting, dolomitic clasts, common calcite-silica cross-cutting veining, carbonaceous-siltstone-dolomitic matrix, no cut, no fluorescence, occasional pyrite blebs.
930.00	933.10	INTERBEDDED DOLOMITE/SILTSTONE: Light grey to brown to dark grey to black, banded/interbedded, micro-faulted bands, common carbonaceous banding and infill, brecciated in part, hard, slightly fractured, no cut, no fluorescence, banding often boudinaged, calcite-silica cross-cutting veining.
933.10	936.05	BRECCIATED DOLOMITE/SILTSTONE: Hard, dolomitic, banded, brecciated, dolomitic clasts, carbonaceous SILTSTONE infill/matrix, trace pyrite on fracture surfaces, common carbonaceous banding, micro-faulted and convoluted banding, light grey to light brown, no cut, no fluorescence.
936.05	939.05	BRECCIATED DOLOMITE/SILTSTONE: Hard, dolomitic, banded, brecciated, dolomitic clasts, carbonaceous SILTSTONE infill/matrix, trace pyrite on fracture surfaces, common carbonaceous banding, micro-faulted and convoluted banding, light grey to light brown, no cut, no fluorescence.

939.05	942.15	BRECCIATED DOLOMITE/SILTSTONE: Hard, dolomitic, banded, brecciated, dolomitic clasts, carbonaceous SILTSTONE infill/matrix, trace pyrite on fracture surfaces, common carbonaceous banding, micro-faulted and convoluted banding, light grey to light brown, no cut, no fluorescence. Increase in carbon content.
942.15	943.05	BRECCIATED DOLOMITE/SILTSTONE: Hard, dolomitic, banded, brecciated, dolomitic clasts, carbonaceous SILTSTONE infill/matrix, trace pyrite on fracture surfaces, common carbonaceous banding, micro-faulted and convoluted banding, light grey to light brown, no cut, no fluorescence. Increase in carbon content.
943.05	945.15	DOLOMITIC SILTSTONE: grey-dark grey-brown-black, hard, dolomitised, disrupted slumped bedding, micro-faulting extensive, varying carbon content to carbonaceous siltstone band s to 20mm. Fine laminated. Carb/bituminous Fr surface coatings and filled Fr voids(<1mm), no flor, milky cut.
945.15	948.25	DOLOMITIC SILTSTONE: grey-dark grey-brown-black, hard, dolomitised, disrupted slumped bedding, micro-faulting extensive, varying carbon content to carbonaceous siltstone band s to 20mm. Fine laminated. Carb/bituminous Fr surface coatings and filled Fr voids(<1mm), no flor, milky cut. Minor Py Fr fill and blebs to 2mm.
948.25	951.25	DOLOMITIC SILTSTONE: grey-dark grey-brown-black, hard, dolomitised, disrupted slumped bedding, micro-faulting extensive, varying carbon content to carbonaceous siltstone band s to 20mm. Fine laminated. Carb/bituminous Fr surface coatings and filled Fr voids(<1mm), no flor, milky cut. Minor Py Fr fill and blebs to 2mm. Minor Bx band 948.6-949.4m.
951.25	954.25	DOLOMITIC SILTSTONE: grey-dark grey-brown-black, hard, dolomitised, disrupted slumped bedding, micro-faulting extensive, varying carbon content to carbonaceous siltstone band s to 20mm. Fine laminated. Carb/bituminous Fr surface coatings and filled Fr voids(<1mm), no flor, milky cut. Minor Py Fr fill and blebs to 2mm.
954.25	955.00	DOLOMITIC SILTSTONE: grey-dark grey-brown-black, hard, dolomitised, disrupted slumped bedding, micro-faulting extensive, varying carbon content to carbonaceous siltstone band s to 20mm. Fine laminated. Carb/bituminous Fr surface coatings and filled Fr voids(<1mm), no flor, milky cut. Minor Py Fr fill and blebs to 2mm.
955.00	957.25	BRECCIA: Predominantly light grey to medium grey dolomitic clasts in a fine earthy light to medium brown siltstone matrix, hard, slightly silicified, sub-angular to sub-rounded clasts, predominantly matrix supported, occasional secondary carbonaceous infill, rare pyrite coatings on fracture surfaces, no cut, no fluorescence.
957.25	963.15	BRECCIA: Light grey to grey, grey-black, brown dolomitic clasts in a fine earthy light to medium brown siltstone matrix, hard, slightly silicified, sub-angular to sub-rounded clasts, predominantly matrix supported, occasional secondary carbonaceous infill, minor Ca veining, pyrite coatings on fracture surfaces, Py infill veins to 10mm, disseminated Py to 1%, no cut, no fluorescence. Ferromangan alteration halo?

963.15	968.15	BRECCIA: Light grey to grey, grey-black, brown dolomitic clasts in a fine earthy light to medium brown siltstone matrix, hard, slightly silicified, sub-angular to sub-rounded clasts, predominantly matrix supported, occasional secondary carbonaceous infill, minor Ca veining, pyrite coatings on fracture surfaces, Py infill veins to 10mm, disseminated Py to 1%, no cut, no fluorescence. Ferromangan alteration halo?
968.15	969.15	BRECCIATED DOLOMITIC SILTSTONE: light grey-dark grey, hard, clast supported sedimentary slumped Bx, trace Bituminous Fr fill with Py on surface, carbonaceous, Dolomite microcrystalline, siltstone very fine laminated, no flor.
969.15	970.30	BRECCIATED DOLOMITIC SILTSTONE: light grey-dark grey, hard, clast supported sedimentary slumped Bx, trace Bituminous Fr fill with Py on surface, carbonaceous, Dolomite microcrystalline, siltstone very fine laminated, no flor. Tuffaceous, dark green-dark grey towards base.
970.30	971.10	Altered BRECCIATED DOLOMITIC SILTSTONE: light brown-brown, hard, Bx in part, as above
971.10	975.15	TTFFACEOUS DOLOMITIC SILTSTONE: light green-dark green, light grey-grey, light pink-orange(possible FeMn altered in part), hard, very fine laminated and bedded, dolomite cryptocrystalline, disrupted slumped bedding, microfaulted, BX in part with Ca infill (matrix supported), 973.5-973.95 & 974.65-974.9m. Micro bedding features, graded very fine sand to silts, to 5mm beds, cross bedding, scour/fill etc.
975.15	981.15	ALTERED TUFFACEOUS SILTSTONE: Interbedded, earthy dark red k-feldspar altered bands, pale green to dark bottle green glauconitic tuffaceous bands, slumping fault structures, occasional flame structures, slatey to phyllitic, commonly finely laminated, occasional calcite-silica cross-cutting veining, moderately hard, tuffaceous infill in part hosting sporadic vitric fragments, dolomitic in part, no cut, no fluorescence.
981.15	987.15	ALTERED TUFFACEOUS SILTSTONE: Laminated, earthy medium to dark red, occasional pale green to dark bottle green glauconitic vitric tuffaceous bands, common dolomitic banding/interbeds, occasional slumping fault structures, phyllitic, no mineralisation, no cut, no fluorescence
987.15	993.15	ALTERED TUFFACEOUS SILTSTONE: Laminated, earthy medium to dark red, occasional pale green to dark bottle green glauconitic vitric tuffaceous bands, common dolomitic banding/interbeds, occasional slumping fault structures, phyllitic, no mineralisation, no cut, no fluorescence, thin (1mm wide) cross-cutting calcite veins, trace pyrite blebs.
993.15	999.15	ALTERED TUFFACEOUS SILTSTONE: Laminated, earthy medium to dark red, occasional pale green to dark bottle green glauconitic vitric tuffaceous bands, common dolomitic banding/interbeds, occasional slumping fault structures, phyllitic, no mineralisation, no cut, no fluorescence, thin (1mm wide) cross-cutting calcite veins, trace pyrite blebs. In part fine laminated coarser graded beds to 5mm, cross bedding, mud cracks etc.

999.15	1005.15	ALTERED TUFFACEOUS SILTSTONE: Laminated, earthy medium to dark red, occasional pale green to dark bottle green glauconitic vitric tuffaceous bands, common dolomitic banding/interbeds, occasional slumping fault structures, phyllitic, no mineralisation, no cut, no fluorescence, thin (1mm wide) cross-cutting calcite veins, trace pyrite blebs. In part fine laminated coarser graded beds to 5mm, cross bedding, mud cracks etc.
1005.15	1011.15	ALTERED TUFFACEOUS SILTSTONE: Laminated, earthy medium to dark red, occasional pale green to dark bottle green glauconitic vitric tuffaceous bands, common dolomitic banding/interbeds, occasional slumping fault structures, phyllitic, no mineralisation, no cut, no fluorescence, thin (1mm wide) cross-cutting calcite veins, trace pyrite blebs. In part fine laminated coarser graded beds to 5mm, cross bedding, mud cracks etc. Unaltered band grey green-green-grey 1010.4 to 1011.0m.
1011.15	1017.15	ALTERED TUFFACEOUS SILTSTONE: Laminated, earthy medium to dark red, occasional pale green to dark bottle green glauconitic vitric tuffaceous bands, common dolomitic banding/interbeds, occasional slumping fault structures, phyllitic, no mineralisation, no cut, no fluorescence, thin (1mm wide) cross-cutting calcite veins, trace pyrite blebs. In part fine laminated coarser graded beds to 5mm, cross bedding, mud cracks etc. Coarse sandy bands 1012.4-1012.43, 1016.2-1016.44m Carb siltstone bands 1014.19-1015.05m.
1017.15	1020.03	ALTERED TUFFACEOUS SILTSTONE: Laminated, earthy medium to dark red, occasional pale green to dark bottle green glauconitic vitric tuffaceous bands, common dolomitic banding/interbeds, occasional slumping fault structures, phyllitic, no mineralisation, no cut, no fluorescence, thin (1mm wide) cross-cutting calcite veins, trace pyrite blebs. In part fine laminated coarser graded beds to 5mm, cross bedding, mud cracks etc.
1020.03	1023.15	TUFFACEOUS SILTSTONE: light green-dark green, light grey-grey, hard, very fine laminated and bedded, glauconitic vitric tuff, minor coarser very fine sandy graded beds (to 5mm), minor potassic altered red-brown bands in part.
1023.15	1027.50	ALTERED TUFFACEOUS SILTSTONE: Pale to dark green, earthy red to dark brown, k-feldspar altered siltstone, vitric tuffaceous banding and infill, occasional boudinaged feldspar-calcite veins/bands hosting sub-angular vitric tuff clasts, small (1-3mm) feldspar clasts in gritty (very fine sand?) bands, phyllitic, no cut, no fluorescence.
1027.50	1029.15	ALTERED TUFFACEOUS SILTSTONE: Predominantly potassium-altered, earthy red to dark brown, banded, interbeds of vitric tuff, occasional grittier (very fine sand?) bands hosting sub-angular to sub-rounded feldspar clasts, common slump faulting structures and ductily deformed boudinaged bands, sporadic white feldspar clasts throughout host rock, phyllitic, no cut , no fluorescence.
1029.15	1033.50	ALTERED TUFFACEOUS SILTSTONE: Predominantly potassium-altered, earthy red to dark brown, banded, interbeds of vitric tuff, occasional grittier (very fine sand?) bands hosting sub-angular to sub-rounded feldspar clasts, common slump faulting structures and ductily deformed boudinaged bands, sporadic white feldspar clasts throughout host rock, phyllitic, no cut , no fluorescence.

1033.50	1035.15	ALTERED TUFFACEOUS SILTSTONE: Red-brown to green, moderately hard, banded, finely laminated in part, very fine sandy beds hosting vitric glauconitic tuff and feldspar blebs, vitric chloritic tuff banding, common potassium altered siltstone bands, common fault and slump structures.
1035.15	1041.15	ALTERED TUFFACEOUS SILTSTONE: Earthy red-brown, potassium feldspar altered phyllitic siltstone, pale to dark green vitric glauconitic tuffaceous bands, predominantly fine sandy bands, hosting tuff siltstone and feldspar clasts, micro-faulting and brecciation common with sandy felspathic unit infilling voids, common dolomitic/calcareous material in sandy-quartz unit.
1041.15	1043.10	SILTSTONE: Light red to pale and dark green, hard, banded, common fluorescing elongate scapolite, glauconitic tuff bands clasts and infill, occasional brecciated clasts and bands. No cut.
1043.10	1044.90	SILTSTONE: altered tuffaceous, light red to pale and dark green, hard, banded, common fluorescing elongate scapolite, predominantly quartz-k feldspar-mica-calcite, common vitric chloritic tuff bands clasts and infill, occasional brecciated clasts and bands. No cut.
1044.90	1047.20	ALTERED TUFFACEOUS SILISTONE: light green-grey to dark green, light-dark brown, hard, very fine laminated, minor very fine grained sand bands to 25mm, chloritic in part (?)
1047.20	1053.19	ALTERED TUFFACEOUS SILTSTONE: Light to dark bottle green, light red to dark earthy red-brown, phyllitic in parts, glauconitic, banded, commonly potassium altered (red zones). Occasional brecciation with tuffaceous infill, no cut, no fluorescence, rare gritty crystallised calc-silicate bands, rare pyrite on fracture surfaces.
1053.19	1059.20	ALTERED TUFFACEOUS SILTSTONE: Light to dark bottle green, light red to dark earthy red-brown, phyllitic in parts, glauconitic, banded, commonly potassium altered (red zones). Occasional brecciation with tuffaceous infill, no cut, no fluorescence, rare gritty crystallised calc-silicate bands, rare pyrite on fracture surfaces, interbedded and folded tuff and potassium altered siltstone @ 1056.5m, micaceous calc-silicate banding blebs concentrated @ 1057.5m and scattered throughout.
1059.20	1063.00	ALTERED TUFFACEOUS SILTSTONE: Light to dark bottle green, light red to dark earthy red-brown, phyllitic in parts, glauconitic, banded, commonly potassium altered (red zones). Occasional brecciation with tuffaceous infill, no cut, no fluorescence, rare gritty crystallised calc-silicate bands, rare pyrite on fracture surfaces, micaceous calc-silicate banding blebs scattered throughout.
1063.00	1063.80	DOLOMITE: Hard, light to medium grey, microcrystalline, banded, common breccia veins with quartz clasts and dark brown to black (possibly) organic infill. Possible cast structures, micro-faulted and folded bands.
1063.80	1065.20	ALTERED TUFFACEOUS SILTSTONE: Light to dark bottle green, light red to dark earthy red-brown, phyllitic to schistose in parts, glauconitic, banded, commonly potassium altered (red zones), no cut, no fluorescence.

1065.20	1071.20	SILTSTONE, tuffaceous, light brown-chocolate brown, light grey-grey green, light green-dark green, hard, very fine laminated to coarse bedded fine grained sands, tuffaceous, graded bedding in coarser bands,(to25mm), small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1071.20	1076.03	SILTSTONE, tuffaceous, light brown-chocolate brown, light grey-grey green, light green-dark green, hard, very fine laminated to coarse bedded fine grained sands, tuffaceous, graded bedding in coarser bands,(to25mm), small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1076.03	1076.90	DOLOMITE: dolarenite - light grey-grey, hard, cryptocrystalline, coarse FR porosity 1076.55-1077.15, minor carbonaceous bands to 5mm 1076.1-1076.2m, possible trace diss Py
1076.90	1077.20	SILTSTONE, tuffaceous, light brown-chocolate brown, light grey-grey green, light green-dark green, hard, very fine laminated to coarse bedded fine grained sands, tuffaceous, graded bedding in coarser bands,(to25mm), small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1077.20	1078.33	SILTSTONE, tuffaceous, light brown-chocolate brown, light grey-grey green, light green-dark green, hard, very fine laminated to coarse bedded fine grained sands, tuffaceous, graded bedding in coarser bands,(to25mm), small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1078.33	1080.14	DOLOMITE: dolarenite - light grey-grey, hard, cryptocrystalline, , minor carbonaceous bands to 5mm, possible trace diss Py, Open space vadose filling (chert) in bands and blebs to 20mm.
1080.14	1082.35	SILTSTONE, tuffaceous, light brown-chocolate brown, light grey-grey green, light green-dark green, hard, very fine laminated to coarse bedded fine grained sands, tuffaceous, graded bedding in coarser bands,(to25mm), small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1082.35	1082.89	DOLOMITE: dolarenite - light grey-grey, hard, cryptocrystalline, minor carbonaceous bands to 5mm with carbon/bitumen on some Fr surfaces, possible trace diss Py
1082.89	1083.20	SILTSTONE, tuffaceous, light brown-chocolate brown, light grey-grey green, light green-dark green, hard, very fine laminated to coarse bedded fine grained sands, tuffaceous, graded bedding in coarser bands,(to25mm), small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1083.20	1085.12	SILTSTONE, tuffaceous, light green-dark green, light brown-chocolate brown, light grey-grey green, fine pink-bull laminations to 3mm (K feldspar tuffs?), dolomitic, hard, very fine laminated, tuffaceous, graded bedding in coarser bands, small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1085.12	1086.87	DOLOMITE: light grey-grey, hard, cryptocrystalline, minor carbonaceous/bituminous bands to 5mm with carbon/bitumen on some Fr surfaces, possible stromatolite (?), bituminous bleb 10x5mm, no flor, strong green milky cut and residual ring. Open space vadose filling (chert) in bands and blebs to 50mm.

1086.87	1089.08	SILTSTONE, tuffaceous, light green-dark green, light brown-chocolate brown (1087.63-1088.77m), light grey-grey green(1088.77-1089.2m), fine pink-buff laminations to 3mm (K feldspar tuffs?), dolomitic, hard, very fine laminated, tuffaceous, graded bedding in coarser bands, small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1089.08	1089.20	DOLOMITE: light grey-grey, hard, cryptocrystalline, minor carbonaceous/bituminous bands to 5mm with carbon/bitumen on some Fr surfaces, possible stromatolite (?), bituminous bleb 10x5mm, no flor, strong green milky cut and residual ring. Open space vadose filling (chert) in bands and blebs to 50mm.
1089.20	1090.15	DOLOMITE: light grey-grey, hard, cryptocrystalline, minor carbonaceous/bituminous bands to 5mm with carbon/bitumen on some Fr surfaces, possible stromatolite (?),. Open space vadose filling (chert) in bands and blebs to 50mm.
1090.15	1091.33	SILTSTONE, tuffaceous, light green-dark green, light brown-chocolate brown, light grey-grey green, fine pink-buff laminations to 3mm (K feldspar tuffs?), dolomitic, hard, very fine laminated, tuffaceous, graded bedding in coarser bands, small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1091.33	1092.93	DOLOMITE: light grey-grey, hard, cryptocrystalline, minor carbonaceous/bituminous bands to 5mm with carbon/bitumen on some Fr surfaces, possible stromatolite (?),. Open space vadose filling (chert) in bands and blebs to 50mm.
1092.93	1093.35	SILTSTONE, tuffaceous, light green-dark green, light brown-chocolate brown, light grey-grey green, fine pink-buff laminations to 3mm (K feldspar tuffs?), dolomitic, hard, very fine laminated, tuffaceous, graded bedding in coarser bands, small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1093.35	1094.42	DOLOMITE: light grey-grey, hard, cryptocrystalline, minor carbonaceous/bituminous bands to 5mm with carbon/bitumen on some Fr surfaces, possible stromatolite (?),. Open space vadose filling (chert) in bands and blebs to 50mm.
1094.42	1095.20	SILTSTONE, tuffaceous, light green-dark green, light brown-chocolate brown, light grey-grey green, fine pink-buff laminations to 3mm (K feldspar tuffs?), dolomitic, hard, very fine laminated, tuffaceous, graded bedding in coarser bands, small cross-bedding, mud cracks and dewatering structures in finer silts. NVM. No flor.
1095.20	1096.45	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1096.45	1098.95	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill, common gritty quartz-feldspar-mica bands (up to 4cm wide), occasional chert infill.

1098.95	1099.50	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1099.50	1100.80	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill, common gritty quartz-feldspar-mica bands (up to 4cm wide), occasional chert infill, banded with common SILTSTONE infill and banding often hosting dolomitic clasts.
1100.80	1101.25	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1101.25	1102.25	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1102.25	1103.80	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill, common gritty quartz-feldspar-mica bands (up to 4cm wide), occasional chert infill, banded with common SILTSTONE infill and banding.
1103.80	1105.50	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1105.50	1105.80	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill, common gritty quartz-feldspar-mica bands (up to 4cm wide), occasional chert infill, banded with common SILTSTONE infill and banding.
1105.80	1106.80	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1106.80	1107.20	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill, common gritty quartz-feldspar-mica bands (up to 4cm wide), occasional chert infill, banded with common SILTSTONE infill and banding.
1107.20	1108.50	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill and bands, banded, occasional thin SILTSTONE bands, common folding.
1108.50	1109.80	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1109.80	1110.70	QUARTZ-FELDSPAR SILTSTONE: Banded, gritty, crystallised, red-pink to green, banded chloritic tuff and k-altered siltstone bands.

1110.70	1111.15	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1111.15	1111.75	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill and bands, banded, occasional thin SILTSTONE bands, common folding, moderately fractured. Gas peak of 3500ppm.
1111.75	1112.20	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1112.20	1113.20	DOLOMITE: Light to medium grey, hard, dark grey to black carbonaceous fracture infill and bands, banded.
1113.20	1114.90	DOLOMITE: light grey-dark grey, dark grey black in part, hard, cryptocrystalline, laminated with black organic bands to 1mm, minor Calcite as blebby masses with minor chert infill, trace Calcite veins to 2mm in part. Diagenetic de-watering structures.
1114.90	1119.20	DOLOMITE: light grey-dark grey, dark grey black in part, hard, cryptocrystalline, laminated with black organic bands to 1mm, minor Calcite as blebby masses with minor chert infill, trace Calcite veins to 2mm in part. Diagenetic de-watering structures.
1119.20	1122.95	TUFFACEOUS SILTSTONE: Dark green to black to red, banded, laminated, glauconitic tuff bands, k-feldspar altered SILTSTONE bands, occasional dolomitic clasts, phyllitic to schistose, common dolomitic bands, occasional pyrite on fracture surfaces.
1122.95	1125.20	DOLOMITE: light grey-dark grey, dark grey black in part, hard, cryptocrystalline, laminated with black organic bands to 1mm, minor Calcite as blebby masses with minor chert infill, trace Calcite veins to 2mm in part. Diagenetic de-watering structures.
1125.20	1126.50	TUFFACEOUS SILTSTONE: Dark green banded tuffaceous beds, light red potassium-altered siltstone bands, occasional grittier 'sandy' bands, hard, phyllitic in part, carbonaceous infill and banding
1126.50	1127.35	DOLOMITE: Hard, light to medium grey, slightly fractured, carbonaceous breccia and fracture infill, fault brecciated in part, occasional silica veining and blebs.
1127.35	1128.38	TUFFACEOUS SILTSTONE: Dark green banded tuffaceous beds, light red potassium-altered siltstone bands, occasional grittier 'sandy' bands, hard, phyllitic in part, carbonaceous infill and banding.
1128.38	1130.40	DOLOMITE: Hard, light to medium grey, slightly fractured, carbonaceous breccia and fracture infill, fault brecciated in part, occasional silica veining and blebs, brecciation increasing down hole.

1130.40	1131.05	TUFFACEOUS SILTSTONE: Dark green banded tuffaceous beds, light red potassium-altered siltstone bands, occasional grittier 'sandy' bands, hard, phyllitic in part, carbonaceous infill and banding.
1131.05	1131.20	BRECCIA: Hard, calcareous, dolomitic, dolomite clasts in coarse dolomitic carbonaceous matrix, occasional coherent dolomitic bands.
1131.20	1131.95	DOLOMITE: Hard, light to medium grey, slightly fractured, carbonaceous breccia and fracture infill, fault brecciated in part, occasional silica veining and blebs.
1131.95	1132.55	TUFFACEOUS SILTSTONE: Dark green banded tuffaceous beds, light red potassium-altered siltstone bands, occasional grittier 'sandy' bands, hard, phyllitic in part, carbonaceous infill and banding.
1132.55	1133.70	DOLOMITIC SILTSTONE: Hard, banded, predominantly dolomitic, thin bands of siltstone (often carbonaceous), medium to dark grey.
1133.70	1134.20	DOLOMITE: Hard, light to medium grey, moderately fractured, carbonaceous breccia and fracture infill, fault brecciated in part, occasional silica veining and blebs.
1134.20	1135.95	DOLOMITIC SILTSTONE: Hard, light brown to medium grey, slightly fractured, common carbonaceous banding and fracture filling, predominantly dolomitic, common brecciation.
1135.95	1137.20	DOLOMITE: Hard, light to medium grey, moderately fractured, carbonaceous breccia and fracture infill, fault brecciated in part, occasional silica veining and blebs, minor pyrite as blebs, occasional folded bands.
1137.20	1143.20	DOLOMITE: Hard, banded, occasionally brecciated, common carbonaceous banding and infill, common SILTSTONE bands, thin green tuffaceous band @ 1139.2m, occasional 2-phase breccia veins, occasional tightly folded silica veining, light to medium grey to black.
1143.20	1149.20	DOLOMITE: light grey-dark grey, hard, cryptocrystalline, common carbonaceous silty banding and infill, minor sandy band 1144.55-1144.6m, minor sedimentary slump, Bx and dewatering features.
1149.20	1155.20	DOLOMITE: light grey-dark grey, hard, cryptocrystalline, common carbonaceous silty banding and infill, minor sedimentary slump, Bx and dewatering features. Ca Bx vein 1153.96-1154.4m, grey-green tuffaceous siltstone band 1153.55-1153.85m. No flor, bituminous cut strong milky with residual rim.
1155.20	1161.20	DOLOMITE: light grey-dark grey, hard, cryptocrystalline, common carbonaceous silty banding and infill, minor sedimentary slump, Bx and dewatering features. Silica/Ca Bx vein 1160.7-1161.2m. Grey-green tuffaceous siltstone bands 1159.35-1159.75m and 1160.10-1160.46m. Trace Py on carbonaceous Fr surfaces.

1161.20	1164.05	DOLOMITE: light grey-dark grey, hard, cryptocrystalline, common carbonaceous silty banding and infill, minor sedimentary slump, Bx and dewatering features. Grey-green tuffaceous siltstone band 1162.60-1163.15m. Trace diss Py on carbonaceous.
1164.05	1164.60	DOLOMITE: light grey-dark grey, hard, cryptocrystalline, common carbonaceous silty banding and infill, minor sedimentary slump, Bx and dewatering features.
1164.60	1166.54	SILTSTONE: green-dark green, light grey-grey, light red-brown, hard, tuffaceous, very fine laminated, with grey dolomitic bands, mud cracks.
1166.54	1167.70	Bx DOLOMITE: Silicified, very hard, light grey to grey to black, black chert blebs to 50mm, quartz filled voids, calcitic, organic.
1167.70	1168.30	Bx DOLOMITE: Silicified, very hard, light grey to grey to black, black chert blebs to 50mm, quartz filled voids, calcitic, organic.
1168.30	1169.40	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1169.40	1173.35	DOLOMITE: Light to dark grey, brown, occasional stromatolites, common chert infill, occasional brecciation, predominantly moderately silicified, commonly carbonaceous infilling material, green (glauconitic) material @ 1170.25m
1173.35	1179.19	DOLOMITE: Hard, light to medium grey, brown to black, common banded siltstone, common fracturing, common stromatolites (up to 15cm wide) - often donkey dicks, occasional black chert fracture infill, common bituminous material in silica clasts, common carbonaceous banding, euhedral pyrite hosted in calcite vein @ 1178.9m, common calcitic veining.
1179.19	1184.53	INTERBEDDED DOLOMITIC SILTSTONE: Hard, slightly fractured, light to medium grey, brecciated in part, bituminous fracture infill in part, bands of green siltstone, k-altered siltstone, occasional carbonaceous banding, predominantly dolomitic, occasional stromatolites.
1184.53	1185.50	DOLOMITE: Light to dark grey, brown, occasional stromatolites, common chert infill, occasional brecciation, predominantly moderately silicified, commonly carbonaceous infilling material
1185.50	1185.80	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1185.80	1195.94	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1195.94	1187.17	DOLOMITE: Light to dark grey, brown, predominantly moderately silicified, commonly carbonaceous infilling material

1187.17	1189.70	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1189.70	1191.20	DOLOMITE: Light to dark grey, brown, predominantly moderately silicified, commonly carbonaceous infilling material
1191.20	1191.80	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1191.80	1191.85	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1191.85	1192.68	DOLOMITE: Light to dark grey, brown, predominantly moderately silicified, commonly carbonaceous infilling material
1192.68	1193.44	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1193.44	1194.65	TUFFACEOUS SILTSTONE: Dark green- black green, very fine laminations (tuffaceous). High organic content.
1194.65	1195.44	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1195.44	1196.40	DOLOMITE: Light to dark grey, brown, predominantly moderately silicified, commonly carbonaceous infilling material. Stromatolitic in part, carbonaceous bituminous band (10mm) at base, with Ca infill.
1196.40	1197.80	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1197.80	1201.54	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks. Stringers of grey-dark grey DOLOMITE to 20mm, hard, organic. Dolomite band 1198.0-1198.36m.
1201.54	1202.76	DOLOMITE: Light to dark grey, brown-green, predominantly moderately silicified, commonly carbonaceous laminations to 3mm and infilling material.
1202.76	1203.80	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks. Stringers of grey-dark grey DOLOMITE to 20mm, hard, organic. Dolomite band 1198.0-1198.36m.
1203.80	1204.50	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous

		material, minor cracks. Stringers of grey-dark grey DOLOMITE to 20mm, hard, organic.
1204.50	1206.95	DOLOMITE: Light to dark grey, brown, predominantly moderately silicified, commonly carbonaceous infilling material. Stromatolitic in part, occasional calcite infill.
1206.95	1208.85	TUFFACEOUS SILTSTONE: Green, very fine laminations (possibly tuffaceous), commonly silicified, dolomitic bands, common bituminous material, minor cracks.
1208.85	1209.20	DOLOMITE: Light to dark grey, brown, predominantly moderately silicified, commonly carbonaceous infilling material. Stromatolitic in part, occasional calcite infill.
1209.20	1210.30	DOLOMITE: Light to dark grey, brown, predominantly moderately silicified, commonly carbonaceous infilling material. Stromatolitic in part, occasional calcite infill.
1210.30	1211.40	TUFFACEOUS SILTSTONE: Red-green, brecciated in part, laminated, common boudinaged band, occasional carbonaceous banding.
1211.40	1212.90	DOLOMITE: Hard, medium to light grey, common dark carbonaceous bands, occasional brecciation, common haematitic/k-altered siltstone.
1212.90	1214.15	TUFFACEOUS SILTSTONE: Red-green, brecciated in part, laminated, common boudinaged beds, occasional carbonaceous banding, common crackle breccias with carbonaceous infill, dolomitic.
1214.15	1215.20	DOLOMITE: Hard, medium to light grey, common dark carbonaceous bands, occasional brecciation, common haematitic/k-altered siltstone.
1215.20	1221.20	INTERBEDDED DOLOMITE Hard, medium to light grey, common dark carbonaceous bands, occasional brecciation, common haematitic/k-altered SILTSTONE: Red-green, brecciated in part, laminated, common boudinaged beds, occasional carbonaceous banding, common crackle breccias with carbonaceous infill.
1221.20	1226.70	INTERBEDDED DOLOMITE AND SILTSTONE: Light to dark grey, green to light red, banded, brecciated, occasional carbonaceous bands and breccia infill, predominantly dolomitic clasts, breccia beds increasing down hole with red-green siltstone matrix.
1226.70	1232.90	INTERBEDDED DOLOMITE AND SILTSTONE: Light to dark grey, green to light red, banded, brecciated, occasional carbonaceous bands and breccia infill, predominantly dolomitic clasts, breccia beds increasing down hole with red-green siltstone matrix.
1232.90	1239.10	INTERBEDDED DOLOMITE AND SILTSTONE: Light to dark grey, green to light red, banded, brecciated, occasional carbonaceous bands and breccia infill, predominantly dolomitic clasts, breccia beds increasing down hole with

		red-green siltstone matrix. Stromatoloitic DOLOMITE band 1236.65-1237.1m. Pink tuffaceous sand bands 1238.6-1239.0m.
1239.10	1245.20	SILTSTONE: dark green-green black, pale green, red-brown, grey, hard, tuffaceous, dolomitic, fine laminated bedding to 10mm. Minor dolomite bands to 15mm 1239.5-1242.65m. Dark grren black organic rich in part. Minor Ca filled fractures to 3mm. Minor sedimentary disrupted micro fractured in part. Minor sed Bx in part. NFNC.
1245.20	1245.55	SILTSTONE: dark green-green black, pale green, red-brown, grey, hard, tuffaceous, dolomitic, fine laminated bedding to 10mm. Dark green black organic rich in part. Minor Ca filled fractures to 3mm. Minor sedimentary disrupted micro fractured in part. Minor sed Bx in part. NFNC.
1245.55	1245.73	DOLOMITE: light grey-grey, very hard, cryptocrystalline,, trace strom frags @ 1245.55m.
1245.73	1246.15	SANDSTONE: light grey - grey, very hard, coarse quartz, lithic grains possibly oolitic black chert ?, well sorted and massive.
1246.15	1246.68	SANDSTONE: light brown-cream, very hard, qtz cementd fine grained qy=tz sand, minor DOLOMITE/organic band @ 1246-27-1246.29m.
1246.68	1246.95	SILTSTONE: dark green-green black, pale green, red-brown, grey, hard, tuffaceous, dolomitic, fine laminated bedding to 10mm. Dark grren black organic rich in part.
1246.95	1251.08	DOLOMITE: stromatolitic at base, light grey-grey, tuffaceous siltstone bands in part, very fine laminated, org rich in part, dark grey-black to 20mm.
1251.08	1251.20	SILTSTONE: dark green-green black, pale green, red-brown, grey, hard, tuffaceous, dolomitic, fine laminated bedding to 10mm. Dark grren black organic rich in part.
1251.20	1253.15	SILTSTONE: Medium to dark grey, green glauconitic tuffaceous bands, carbonaceous banding, moderately dolomitic, occasional boudinaged beds, occasional micro-faulting, banded.
1253.15	1257.20	SILTSTONE: Medium to dark grey, green glauconitic tuffaceous bands, carbonaceous banding, moderately dolomitic, occasional boudinaged beds, occasional micro-faulting, banded, common red k-feldspar sandy bands.
1257.20	1259.90	SILTSTONE: Medium to dark grey, green glauconitic tuffaceous bands, carbonaceous banding, moderately dolomitic, occasional boudinaged beds, occasional micro-faulting, banded, common red k-feldspar sandy bands.
1259.90	1261.20	DOLOMITE: Hard, light to medium grey, banded, common carbonaceous bands, convuluted banding, common cross-cutting veining, common micro-faulting.

1261.20	1263.20	SILTSTONE: Medium to dark grey, green chloritic tuffaceous bands, carbonaceous banding, moderately dolomitic, occasional boudinaged beds, occasional micro-faulting, banded, common red k-feldspar sandy bands.
1263.20	1269.20	SILTSTONE: Medium to dark grey, green glauconitic tuffaceous bands, carbonaceous banding, moderately dolomitic, occasional boudinaged beds, occasional micro-faulting, banded, common red k-feldspar sandy bands.
1269.20	1275.19	SILTSTONE: Medium to dark grey, green glauconitic tuffaceous bands, carbonaceous banding, moderately dolomitic, occasional boudinaged beds, occasional micro-faulting, banded, common red k-feldspar sandy bands.

3.1.2. Cuttings Description

Interval	Cuttings Description
0 - 4.5m	Void
4.5m - 14.7m	no sample
14.7m - 22m	SANDSTONE: cream-brown, fine to coarse grained, sub-rounded, coarsely bedded, dolomitic cement with DOLOMITE: blue-grey, hard, blocky, minor silt and crystalline to sucrosic, trace Pyrite, NF
22m - 28m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, minor Pyrite, minor Calcite fluorescence, trace Sandstone fragments
28m - 34m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, minor Pyrite, minor Calcite fluorescence, tr Sandstone in part
34m - 40m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, trace Sandstone fragments, DOLOMITE: cream-light brown, calcitic, microcrystalline, trace Chert fragments, NF
40m - 46m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, trace Sandstone fragments, DOLOMITE: cream-light brown, calcitic, microcrystalline, trace Chert fragments, common mineral florescence, NOC
46m - 56m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, trace Sandstone fragments, DOLOMITE: cream-light brown, calcitic, microcrystalline, trace Chert fragments, common mineral florescence, NOC
56m - 62m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, with DOLOMITE: cream-light brown, calcitic, microcrystalline, minor Chert fragments, minor mineral florescence, NOC
62m - 68m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, with DOLOMITE: medium-light brown, calcitic, microcrystalline, minor Chert fragments, minor mineral florescence, NOC, trace Calcite-Pyrite veins, possible Stromatolite structures
68m - 74m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, with DOLOMITE: medium-light brown, calcitic, microcrystalline, minor Chert fragments, minor mineral florescence, NOC, trace Calcite-Pyrite veins, possible Stromatolite structures

74m - 80m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, with DOLOMITE: medium-light brown, calcitic, microcrystalline, minor Chert fragments, minor mineral florescence, NOC, trace Calcite-Pyrite veins, possible Stromatolite structures
80m - 86m	DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, with DOLOMITE: medium-light brown, calcitic, microcrystalline, minor Chert fragments, minor mineral florescence, NOC, trace Calcite-Pyrite veins, possible Stromatolite structures
86m - 92m	DOLOMITE: medium-light brown, calcitic, microcrystalline, with DOLOMITE: light-grey, hard, blocky, sucrosic, minor VFG silt in part, minor mineral florescence, weak residual cut from minor bituminous blebs, trace Calcite-Pyrite veins
92m - 98m	DOLOMITE: medium-light grey, calcitic, microcrystalline, with PYRITIC SILTSTONE: medium-dark grey, laminated, minor oil blebs, minor mineral florescence, weak residual cut from minor bituminous blebs
98m - 104m	DOLOMITE: medium-light grey to grey-blue, calcitic, microcrystalline, with PYRITIC SILTSTONE: medium-dark brown, laminated, minor oil blebs, minor mineral florescence, weak residual cut from minor bituminous blebs
104m - 110m	DOLOMITE: medium-light grey to grey-blue, calcitic, microcrystalline, mnr oil blebs with PYRITIC SILTSTONE: medium-dark brown, laminated, minor oil blebs, minor mineral florescence, weak residual cut from minor bituminous blebs with SANDSTONE: minor, light grey, fine grained, rounded
110m - 116m	DOLOMITE: medium-light grey to grey-blue, calcitic, microcrystalline, with PYRITIC SILTSTONE: medium-dark brown, laminated, minor mineral florescence, with SANDSTONE: minor, light grey- light brown, fine grained, rounded, No cut
116m - 122m	DOLOMITE: medium-light grey to grey-blue, calcitic, microcrystalline, with PYRITIC SILTSTONE: medium-dark brown, laminated, minor mineral florescence, with SANDSTONE: minor, light grey- light brown, fine grained, rounded, No cut
122m - 128m	DOLOMITE: medium-light grey to grey-blue, calcitic, microcrystalline, with minor PYRITIC SILTSTONE: medium-dark brown, laminated, minor mineral florescence, No cut
128m - 134m	DOLOMITE: medium-light grey to light brown, very calcitic, microcrystalline, with minor PYRITIC SILTSTONE: medium-dark brown, laminated, mineral florescence, No cut

134m - 140m	DOLOMITE: medium-light grey to light brown, very calcitic, microcrystalline, with minor PYRITIC SILTSTONE: medium-dark brown, laminated, strong mineral florescence, No cut
140m - 146m	DOLOMITE: medium-light grey to light brown, very calcitic, microcrystalline, with minor PYRITIC SILTSTONE: medium-dark brown, laminated, strong mineral florescence, No cut
146m - 152m	PYRITIC SILTSTONE: medium-dark brown to mediun grey, pyritic, laminated, with DOLOMITE: medium-light grey , green-grey in part, very calcitic, microcrystalline, with minor CHERT: brown with calcite veining, poss Bx, strong mineral florescence, No cut
152m - 158m	DOLOMITE: medium-light grey to light brown, green, very calcitic, microcrystalline, with minor PYRITIC SILTSTONE: medium-dark brown, laminated, with minor CHERT: brown, disseminated Pyrite in part, strong mineral florescence, No cut
158m - 164m	DOLOMITE: very light grey to medium grey, light brownish grey to medium brown, hard, blocky, microcrystalline, calcareous, common micro to finely crystalline calcite w/minor dark grey flecks, laminated in/p, strong green mineral fluorescence, no cut, no visible porosity. PYRITIC SILTSTONE: medium dark grey to medium brown, minor dark green grey, hard, blocky, common pyrite veins, minor disseminated pyrite, laminated in/p, dolomitised, calcareous.
164m - 170m	DOLOMITE: very light grey to medium grey, light brownish grey to medium brown, hard, blocky, microcrystalline, calcareous, common micro to finely crystalline calcite w/minor dark grey flecks, laminated in/p, strong green mineral fluorescence, no cut, no visible porosity. PYRITIC SILTSTONE: medium dark grey to medium brown, minor dark green grey, hard, blocky, common pyrite veins, minor disseminated pyrite, laminated in/p, dolomitised, calcareous. Minor medium brown dolomitised chert, poorly calcareous.
170m - 176m	DOLOMITE: very light grey to medium grey, light brownish grey to medium brown, minor dark grey to black in part, hard, blocky, microcrystalline, calcareous, common micro to finely crystalline calcite w/minor dark grey flecks, laminated in/p, strong green mineral fluorescence, no cut, no visible porosity. PYRITIC SILTSTONE: medium dark grey to medium brown, minor dark green grey, hard, blocky, common pyrite veins, minor disseminated pyrite, laminated in/p, dolomitised, calcareous. Minor medium brown dolomitised chert, poorly calcareous.
176m - 182m	DOLOMITE: very light grey to medium grey, light brownish grey to medium brown, hard, blocky, microcrystalline, calcareous, common finely crystalline calcite w/minor dark grey flecks, trace mineral fluorescence, no cut, no visible porosity. PYRITIC SILTSTONE: greyish black to medium grey, very hard, blocky, common pyrite veins, common black flecks, laminated in/p, slightly dolomitised, poorly calcareous, trace mineral fluorescence, no cut.

182m - 188m	DOLOMITE: very light grey to medium grey, medium brownish grey, hard, blocky, microcrystalline, calcareous, BRECCIATED DOLOMITE: off white to light grey cement w/light grey to green angular clasts, petromictic, cement supported, microcrystalline, calcareous, clast mineral fluorescence, no cut. Minor SANDSTONE: buff to light brown, sub-rounded, fine grained, bedded, dolomitic cement
188m - 194m	DOLOMITE: very light grey to medium grey, medium brownish grey, hard, blocky, microcrystalline, calcareous, BRECCIATED DOLOMITE: off white to light grey cement w/light grey to green angular clasts, petromictic, cement supported, microcrystalline, calcareous, clast mineral fluorescence, no cut.
194m - 200m	DOLOMITE: very light grey to medium grey, light brownish grey, hard, blocky, microcrystalline, calcareous, common finely crystalline calcite, trace mineral fluorescence, no cut, no visible porosity. BRECCIATED DOLOMITE: off white to light grey cement w/light grey to green angular clasts, petromictic, cement supported, microcrystalline, calcareous, mineral fluorescence, no cut. PYRITIC SILTSTONE: medium dark grey, very hard, blocky, common pyrite veins, common black flecks, slightly dolomitised, poorly calcareous.
200m - 206m	DOLOMITE: light grey to light brownish grey, moderate greenish blue, hard, blocky, microcrystalline, calcareous, finely crystalline calcite, strong mineral fluorescence, no cut, no visible porosity. BRECCIATED DOLOMITE: off white to light grey cement w/light grey to green angular clasts, petromictic, cement supported, microcrystalline, calcareous, mineral fluorescence, no cut.
206m - 212m	DOLOMITE: light olive grey to light grey, minor medium dark brown grey, hard, blocky, microcrystalline, calcareous, common calcite. strong mineral fluorescence no cut, no visible porosity, rare PYRITIC SILTSTONE.
212m - 218m	DOLOMITE: light olive grey to light grey, minor medium dark brown grey, hard, blocky, microcrystalline to cryptocrystalline, calcareous, common calcite. strong mineral fluorescence no cut, no visible porosity, rare PYRITIC SILTSTONE.
218m - 224m	DOLOMITE: light olive grey to light grey, minor medium dark brown grey, hard, blocky, microcrystalline to cryptocrystalline, calcareous, common calcite. strong mineral fluorescence no cut, no visible porosity, rare PYRITIC SILTSTONE.
224m - 230m	DOLOMITE: light olive grey to light grey, minor medium dark brown grey, hard, blocky, microcrystalline, calcareous, common calcite, trace BRECCIATED DOLOMITE, strong mineral fluorescence, no cut, no visible porosity PYRITIC SILTSTONE: greyish black, dark brownish grey, hard, blocky, dolomitised, calcareous, disseminated pyrite w/minor pyrite veins.
230m - 236m	DOLOMITE: light olive grey to light grey, minor medium dark brown grey, hard, blocky, microcrystalline, calcareous, common calcite, trace BRECCIATED DOLOMITE, strong mineral fluorescence, no cut, no visible porosity PYRITIC SILTSTONE: greyish black, dark brownish grey, hard, blocky, laminated in part, minor calcite veins, weakly Pyritic, dolomitised, calcareous, disseminated pyrite w/minor pyrite veins.

236m - 242m	SILTSTONE: dark grey to greyish black, hard, blocky, laminated in/p, black flecks, minor massive pyrite frags w/trace disseminated pyrite, poorly calcareous. DOLOMITE: light olive grey to medium dark brown grey, hard, blocky, microcrystalline, calcareous, minor calcite, strong mineral fluorescence
242m - 248m	DOLOMITE: medium grey, hard, blocky, microcrystalline, calcareous, trace pyrite.
248m - 254m	DOLOMITE: medium grey, hard, blocky, microcrystalline, calcareous, trace mineral fluorescence, no cut, no visible porosity. SILTSTONE: dark brown grey to greyish black, hard, blocky, minor laminations, poorly calcareous, rare disseminated pyrite, rare massive pyrite frags.
254m - 260m	DOLOMITE: light grey, greyish black, medium brown, olive grey, mottled texture, hard, blocky, microcrystalline, calcareous, bituminous flecks, common fractures, minor brecciated cuttings, laminated in/p, trace oil fluorescence (3%), bright spotted pinpoint yellow, moderately bright slow milky white cut, moderately bright residual ring, nil in normal light
260m - 266m	DOLOMITE: medium grey, hard, blocky, microcrystalline, calcareous, trace mineral fluorescence, no cut, no visible porosity, trace SILTSTONE.
266m - 272m	DOLOMITE: medium grey, hard, blocky, microcrystalline, calcareous, trace mineral fluorescence, no cut, no visible porosity, trace SILTSTONE. Common micro fractures, rare disseminated pyrite.
272m - 278m	DOLOMITE: medium grey, minor brown grey, hard, blocky, microcrystalline, calcareous, trace mineral fluorescence, no cut
278m - 284m	DOLOMITE: greyish black, light grey, medium brown, olive grey, mottled crystalline texture, hard, blocky, micro to finely crystalline, moderately calcareous, bituminous flecks, common micro fractures, laminated in/p, trace oil fluorescence (2%), bright spotted pinpoint yellow, moderately bright slow milky white cut, moderately bright residual ring
284m - 290m	DOLOMITE: medium grey to light brown grey, minor dark grey, hard, blocky, microcrystalline, calcareous, micro fractures in/p, no fluorescence,
290m - 296m	DOLOMITE: light brown to medium grey, minor dark brown grey, hard, blocky, microcrystalline, calcareous, common very finely crystalline calcite frags, micro fractures in part, no fluorescence
296m - 302m	DOLOMITE: light brown to medium grey, minor dark brown grey, hard, blocky, microcrystalline, calcareous, common very finely crystalline calcite frags, micro fractures in part, no fluorescence
302m - 308m	DOLOMITE: light brown to medium grey, minor dark brown grey, hard, blocky, microcrystalline, calcareous, common very finely crystalline calcite frags, micro fractures in part, weak light brown fluorescence, 2 pinpoint bright yellow fragments, weak milky cut and residual ring

308m - 314m	DOLOMITE: brown to medium grey, minor dark brown grey, hard, blocky, microcrystalline, calcareous, rare very finely crystalline calcite frags, micro fractures in part, weak light brown fluorescence, couple of pinpoint bright yellow fragments, moderate milky green cut and moderate residual ring, minor SILTSTONE: brown, hard, laminated in part.
314m - 320m	DOLOMITE: light grey – grey, grey-green in part, trace brown silty dolomite, hard, blocky, microcrystalline, calcareous, no florescence
320m - 326m	DOLOMITE: light grey – grey, grey-green in part, hard, blocky, microcrystalline, calcareous, no florescence with SILTSTONE: brown-grey, hard, laminated, weak florescence in part, weak residual ring, weak cut
326m - 332m	DOLOMITE: light grey – grey, grey-green in part, hard, blocky, microcrystalline, calcareous, no florescence with SILTSTONE: brown-grey, hard, laminated, weak florescence in part, weak residual ring, weak cut
332m - 338m	DOLOMITE: light grey – grey, grey-green in part, hard, blocky, microcrystalline, calcareous, weak florescence with 30% SILTSTONE: brown-grey, hard, laminated, weak florescence in part, few pinpoint florescent pieces, moderate residual ring, weak cut
338m - 344m	DOLOMITE: light grey – grey, brown in part, hard, blocky, microcrystalline, calcareous, with 15% DOLOMITE: pale green, tuffaceous, microfractures with black infill, microcrystalline, hard, blocky with 10% SILTSTONE: brown-grey, hard, laminated, minor calcite in fractures, no florescence no cut
344m - 350m	DOLOMITE: light brown – brown microfractures with black infill, light grey – grey, hard, blocky, microcrystalline, calcareous, weak florescence with 5% DOLOMITE: pale green, tuffaceous, microfractures with black infill, microcrystalline, hard, blocky with 10% SILTSTONE: brown-grey, hard, laminated, weak florescence in part, few pinpoint florescent pieces, moderate residual ring, weak milky cut
350m - 356m	DOLOMITE: light brown – brown microfractures with black infill, minor light grey – grey, hard, blocky, microcrystalline, calcareous, weak florescence with 5% DOLOMITE: pale green, tuffaceous, microfractures with black infill, microcrystalline, hard, blocky with 10% SILTSTONE: brown-grey, hard, laminated, weak florescence in part, weak residual ring, weak milky cut
356m - 362m	DOLOMITE: light brown to medium brown, light grey, w/minor light green (more calcitic), hard, blocky, micro to cryptocrystalline, calcareous, microfractures with predominantly dark infill, rare pyrite veins, weak to trace mod bright yellow fluorescence, slow weak milky white cut, weak residual ring. SILTSTONE: medium dark grey to greyish black, hard, blocky, non-calcareous, rare disseminated pyrite, no fluorescence.
362m - 368m	DOLOMITE: light grey to light brown, light green, hard, blocky, micro to cryptocrystalline, calcareous, microfractures with dark infill, rare disseminated pyrite, rare bright yellow fluorescence, moderately bright slow milky white cut, moderately bright residual ring. SILTSTONE: medium dark brown to dark grey, hard, blocky, non-calcareous to poorly calcareous (slightly dolomitised), rare disseminated pyrite, no fluorescence.

368m - 374m	DOLOMITE: medium grey to light brown, light green, hard, blocky, micro to cryptocrystalline, calcareous, microfractures with dark infill, rare disseminated pyrite, weak orange fluorescence (40%), moderately bright milky white cut, moderately bright thick yellow residual ring. SILTSTONE: greyish black, very hard, blocky, non-calcareous to poorly calcareous, rare disseminated pyrite, no fluorescence.
374m - 380m	DOLOMITE: light grey w/minor medium brown, hard, blocky, microcrystalline, calcareous, common fractures, calcareous and non-calcareous fine grained clasts i/p fenestrae?, rare disseminated pyrite, rare pyrite veins, bright yellow fluorescence i/p with common weak orange fluorescence. Bright yellow has slow cut and weak residual ring. Orange fluorescence has moderately bright cut, moderately bright thick yellow residual ring. SILTSTONE: greyish black to medium brown, very hard, blocky, poorly calcareous, trace pyrite, no fluorescence.
380m - 386m	DOLOMITE: light grey to olive grey, brown to black, mottled texture, hard, blocky, predominantly microcrystalline, common finely crystalline calcite frags, highly fractured i/p with black infill, bituminous flecks, calcareous, weak orange fluorescence with trace (1-2%) bright yellow pinpoint fluorescence, moderately bright streaming white cut with bright residual ring. SILTSTONE: greyish black to medium brown, very hard, blocky, non calcareous, trace pyrite, no fluorescence.
386m - 391.7m	DOLOMITE: light grey to olive grey, brown to black, mottled texture, hard, blocky, predominantly microcrystalline, common finely crystalline calcite frags, highly fractured i/p with black infill, bituminous flecks, calcareous, weak orange fluorescence . 20% SILTSTONE : medium grey to greyish black, very hard, blocky, non calcareous, trace pyrite, no fluorescence.

3.1.3. Well Evaluation Logs

Triple-combo (GR-SP-RT-SONIC-NEU-IP); upon receipt of the wireline data it was determined that the density tool had failed.

3.1.4. Fluid Samples

None taken

3.2. Hydrocarbon Indications

Gas shows and connection gases were recorded in the Lynott, Reward, Barney Creek and the Myrtle Shale using a Varian chromatograph and M-Logger system. Live-oil, bitumen and hydrocarbon cut were also reported.

3.3. Operation and Results including full raw pressure-time listings for all formation fluid sample tests and production tests carried out

No testing was carried out on the wellbore.

4. Geology

4.1 Pre-Spud Geological Well Prognosis

Well Name: Lamont Pass #3

Target Formation(s): Lynott, Reward, Barney Creek and Coxco Dolomite

Table 5: Geologic description of the prognosed formations.

Formation	Top [m]	Probable Content
Lynott Formation Undifferentiated	Surface	Thin bedded dolomitic siltstone and shale, in part carbonaceous and pyritic; silty dololutite, dololutite; minor fine grained dolarenite and lenses of slump breccia; uncommon ripples and evaporate mineral casts.
Reward Dolomite	620	Dololutite, stromatolitic dololutite, silty dololutite and dolarenite with lesser sandy dolarenite, dolorudite and sandstone; laminated, thin to massive bedded, cross-bedded, brecciated and slumped; pseudomorphs softer sulphate evaporates; onkoids, ooids, small silica spheroids; pseudomorphs after pyrite (pyritohedron).
Barney Creek Formation	790	Thin bedded to laminated, dolomitic, carbonaceous and pyritic shale and siltstone, doloutite, rare breccia and sandstone; occasional gypsum casts; talus slope breccia adjacent to Emu Fault.
Coxco Dolomite	1290	Grey crystalline dololutite with radiating, needle-like gypsum crystal pseudomorphs normal to bedding; rare conical stromatolites; thin intervals of dolomitic shale and siltstone.

4.2 Along Hole and True Vertical Depth of Seismic Marker and Reservoir Horizons

Table 6: Well log formation tops for Lamont Pass #3, TD = 1275.2 m.

Geologic Tops	Drilling Depth [m]	Structural Tops (KB:90.6) [m]
Lynott Formation - Undifferentiated	Surface	90.6
Reward Dolomite	612	-521.4
Barney Creek Formation	649	-558.4
Coxco Dolomite (equivalent)	867	-776.4
Myrtle Shale	972	-881.4

4.3 Geological Interpretation of the Well Data

4.3.1 Log Adjusted Lithology Description

Lynott Formation: The Lynott Formation, a unit of dololutite, dolarenite and dolomitic siltstone and sandstone, is generally the thickest and most widespread of the formations which make up the Batten Subgroup. This formation is comprised of the Donnegan, Hot Spring and Caranbirini Members as you progress down stratigraphy, respectively. The Lynott Formation is seen as a regressive sequence.

Donnegan Member: Typically comprises buff to red-brown, thin bedded, often ferruginous, fine-grained dolomitic sandstone with interbeds of dolomitic siltstone and dololutite. A characteristic feature of the Donnegan Member is the presence of botryoidal quartz nodules (cauliflower cherts) which have probably formed by replacement of anhydrite nodules. The quartz nodules range from a few millimetres up to 10 cm in diameter, often have an enterolithic structure, and exhibit displacive growth along fractures and bedding planes. Pseudomorphs after gypsum and mud cracks are common at various levels.

Hot Spring Member: The base of the member is taken to be either the first coarse sandstone bed or prominent stromatolitic dolostone bed in the conformable succession with the Caranbirini Member. It ranges up to about 350 m in thickness, although exposures in the southeast are poor and shallow-dipping, making it difficult to estimate true thickness. The Hot Spring Member is a variable unit including dolomitic siltstone, silty dololutite, stromatolitic dolostone, dolarenite, sandy dolarenite and dolomitic quartz sandstone and thin beds of intra-clast breccia. The most common rock type is thin-bedded dolomitic siltstone which is often deeply weathered and silicified. Sedimentary structures include cross-bedding, ripple marks and rare mud cracks. Stromatolitic horizons are silicified and form prominent beds of blue-grey, often banded, chert.

Caranbirini Member: The Caranbirini Member is typically a poorly exposed unit of very thin-bedded to laminated, buff to yellow and grey, dolomitic siltstone and shale with interbeds of massive and laminated dololutite, similar in appearance to the Barney Creek Formation. It is usually deeply weathered and leached and occurs in low, rubbly, often flaggy outcrops. Pink to dark red and purple weathered pyritic shales, sometimes with small nodules of iron oxides after pyrite, form in the upper parts of the unit, whereas white, weathered, bituminous shales are common lower in the unit. There are rare, thin inter-beds of fine-grained, cross-bedded sandstone and dolarenite, but coarse sandstone and stromatolitic dolostone are absent. The upper part of the unit is more dolomitic and is characterised by small, vertical to inclined, chert and calcite-filled irregular fenestrae which may represent evaporate casts. Emergent, evaporitic conditions at this level are indicated by the presence of ripple marks, mud cracks, hopper halite casts, small chert spheroids and tepee structures.

In Lamont Pass #3 well the Lynott Formation appears to be represented by the Caranbirini Member which was predominately a DOLOMITE, medium grey-medium dark grey, hard, microcrystalline, very fine laminations, highly fractured in part, firm, medium grey infill, calcite infilled fractures to 1mm, minor dark bituminous infill, common even yellow fluorescence with BRECCIATED DOLOMITE that was light to medium grey, hard, microcrystalline containing multiple brecciation events, brecciated clasts within calcite fractures that were infilled with some chert (fenestrae?), common bituminous flecks, calcite filled fractures >5mm, minor

SANDSTONE beds and trace pyrite. A consistent streaming blooming cut was observed with an even yellow fluorescence and occasionally live dark brown to black oil.

Umbolooga Subgroup

The top of the Umbolooga Subgroup consists of the Reward Dolomite, Barney Creek Formation (HYC Pyritic Shale Member, W-Fold Shale Member), Coxco Dolomite and Teena Dolomite progressing down stratigraphy, respectively.

The **Reward Dolomite** is a widespread, highly variable dolostone unit which marks the top of the Umbolooga Subgroup. The thickness ranges from a few tens of metres in the west to several hundred metres in the vicinity of the McArthur River mine. The contact with the Barney Creek Formation is generally conformable and often gradational. The lower part of the formation consists of pink, buff and grey, laminated and thin bedded dololutite with interbeds of dolomitic siltstone and sandstone, sandy dolarenite and sandy intraclast breccia. Dolomitic beds often contain small chert spheroids. Thin beds of potassium-rich, pink, siliceous, possibly tuffaceous material occur at some levels. The upper part of the formation is marked by a zone of intense silicification. In the west it is deeply weathered, silicified, chaotic breccia containing large, unsorted, angular dolostone clasts in a coarse, poorly sorted sandstone matrix with thin interbeds of dololutite and dolomitic sandstone. The Reward Dolomite often contains minor base metal mineralisation along the disconformity where the dololutite is black and has a bitumous odour when broken. The Reward Dolomite was deposited in an environment similar to the Barney Creek Formation, very shallow water to emergent conditions under which sediments accumulated in small bodies of standing water.

In the Lamont Pass #3 well the Reward Dolomite was penetrated at 612 meters and consisted of DOLOMITIC META-SILTSTONE, medium dark grey, moderately hard, phyllitic, weakly foliated, moderately fractured, carbonaceous, minor pyrite as stringer veins and occasionally disseminated, dolomitic bands and clasts, with a petroliferous odour and streaming and blooming milky white cut. Common interbedded dark gray to black carbonaceous hard SILTSTONE with DOLOMITE that was light gray to gray, hard microcrystalline, minor very fine grained sand/silt bands, minor calcite vein, trace pyrite and fractured common surfaces with carbonaceous coating, minor oil fluorescence with milky grain cut in fractures.

The **Barney Creek Formation** is a unit of dolomitic shale, siltstone and dololutite which is usually only poorly exposed in low, discontinuous rubbly ridges in the west, northeast and southeast of the McArthur River Region. The formation is usually less than 150 m thick but thickens to about 700m near the Emu Fault Zone near the McArthur River deposits. The formation is divided into three members: the HYC Pyritic Shale Member, W-Fold Shale Member and the Cooley Dolomite Member. The Cooley Dolomite is restricted to the HYC Sub-basin to the west of the Western Fault, and 20 km north.

In the Lamont Pass #3 the Barney Creek Shale was penetrated at 649 meters and a DOLOMITIC SILTSTONE that was light grey to medium dark grey, hard blocky, laminated in part, cryptocrystalline dolomitized, minor calcite veining, very weak fluorescence no cut with DOLOMITE that was grey to brown, hard, blocky, cryptocrystalline, trace very fine grained disseminated pyrite, with PYRITIC SILTSTONE, black, very fine grained laminated, very fine grained pyrite in part with clastic wedges of BRECCIATED DOLOMITE: light gray - pink - brown, hard, microcrystalline, predominantly brecciated, white-pink calcite-silica parallel

veining (to 20mm), dolomite clasts, calcareous infill, common pyrite in veins, no cut or fluorescence, siderite coating fracture surface

The **Coxco Dolomite Member** is almost certainly evaporitic and is a massive, dark grey, sometimes vaguely bedded dololutite unit. It contains numerous interbeds of pink, buff or orange-weathering, potassium rich, possibly tuffaceous, and mudstones in the area adjacent to the McArthur River deposits. The Coxco Dolomite Member is characterised by the presence of acicular crystal casts which typically take the form of radiating aggregates of needles, rarely more than 2 mm in diameter and up to 6cm long. Minor disseminated sphalerite, galena and chalcopyrite have been noted at several localities in the Coxco Dolomite Member.

In the Lamont Pass #3 the Coxco Dolomite Member 'equivalent' was penetrated at 867 meters. The reservoir was described as light to medium gray, hard, microcrystalline, clast supported dolomite-siltstone breccia with common stock-work veining cross-cutting the dolomitic matrix, extensive pyrite-calcite & carbonaceous, occasionally pyritic and no cut or fluorescence.

4.3.2 Reservoir Quality

At the Lamont Pass #3 the reservoir quality was very tight and where developed was predominately fractured and vuggy.

4.3.3 Source Rock Quality

The Barney Creek Shale is likely the source rock for hydrocarbons in the Lamont Pass area. The quality of its overall potential will require further laboratory analysis.

4.3.4 Hydrocarbon Indications

The chromatograph recorded gas while drilling. A top seal was penetrated at 260 meters in the Lynott Formation, which appeared to have had the highest concentration of free gas and where the first indications of liquid hydrocarbons occurred.

4.3.5 Trap integrity

The trap integrity is controlled by compartmentalization by faulting and the seal is tight rocks in the Lynott Formation. Some surface water was penetrated above 210 meters before penetrating the trap at 260 meters.

4.4 Discussion of the relevance of the Well Data to the Evaluation of the Hydrocarbon Potential of the Area

The Lamont Pass #3 was designed to test for hydrocarbons along the trend of the regional Emu Fault and was located 25 km north of the 2012 gas discovery at the Glyde #1 ST1 well. The closest offset to the Lamont Pass #3 well is the Amoco mineral core-hole 82-6 that reached a total depth of 300 m into the Lynott Formation. Lamont Pass #3 was designed to test a gravity anomaly that was imaged from a detailed airborne gravity survey flown in January 2013 over the Glyde Sub-basin. Subsequent models and structure maps were

compiled from the survey and a positive flower model was generated for the Lamont Pass area. The positive flower structure is a result of right-lateral movement of the present day Emu Fault and a northwest trending lineament (Calvert sets). In addition, a well-developed mapped shear zone and dilatational jog associated with the local faulting was targeted as these structural weaknesses allow for focused flow of circulating hydrothermal fluids. The hydrothermal fluids are responsible for enhancing reservoir quality and the development of hydrothermal dolomites (HTD). The Emu and Calvert paleo-fault sets were growth structures and have caused considerable erosional, thickness and facies variation to the local stratigraphy. These variations allow for unconformity horizons and interbedded syn-depositional breccia's (Cooley) to develop and become charged from the surrounding Barney Creek or Lynott source rocks.

Hydrocarbons were first encountered at 260 meters at Lamont Pass #3 in the Lynott Formation. Numerous connection gases and minor shows of up to 100 units were recorded in addition to weak to fair milky blooming and residual ring cuts to 391 meters. Due to shallow water influx above the top seal the well was subsequently cased at 304 meters to isolate the water zones that were approximately located at 204 meters & 254 meters.

HQ coring commenced at 391 meters in the Caranbirini Member Lower Lynott Formation on fluid and background gas decreased to 2-5 units. The well continued to encounter bitumen, blooming, milky streaming hydrocarbon cuts and some live oil to 780 meters. At a depth of 535 meters the well penetrated live oil in fractures and in a hydrothermally altered dolomitic reservoir in the Caranbirini Member.

The Barney Creek Shale source rock was penetrated at 649 meters and was interbedded with Cooley Dolomite Members. The Cooley's are angular clastic wedges of Batten Subgroup and Umboolooga Subgroup rocks that were formed during periods of low stand deposition along growth faults These wedges are sealed within the Barney Creek source rock are can have the potential for hydrocarbon storability where reservoir enhancement has occurred. The clastic wedges penetrated in the Lamont Pass #3 had hydrocarbon cut, but were predominately tight. The Barney Creek shale has been described as oil bearing shale and had a consistent cut with minor connection gases. At 816 meters a 75 meter section of brecciated rock was penetrated that hosted a massive sulphide stock-work before penetrating the targeted Coxco Dolomite 'equivalent' at 867 meters. The last occurrence of hydrocarbon cut occurred at the top of the massive 816 meter Cooley breccia wedge.

The Coxco is a widespread reservoir that is associated with a significant unconformity at the base of Barney Creek and has been described as a karsted or brecciated paleo surface with hydrothermal overprinting and considered a member of the Teena Dolomite. In the Lamont Pass #3 well the reservoir is likely a Cooley Dolomite or Coxco 'equivalent' and was charged with minor amounts of gas and some hydrothermal alteration was present. The base of this breccia unconformably overlaid the Myrtle Shale of the Tooganinie Formation and the Teena Dolomite, Mitchell Yard and Mara Dolomite Members of the Emmerugga Dolomite were eroded off. This may explain the why there was a significant amount of clastic wedge material derived from these formations interbedded with the Barney Creek at this location. The well remained in the Myrtle Shale to the total depth of 1275.2 measured depth with no significant hydrocarbon shows penetrated.

Appendices

I. Copy of the well completion data includes -
    a. Logs
    b. Mudlog Data
    c. Daily Drilling Reports
    d. Daily Geology Reports
    e. Daily mudlogging Reports