

697793

V19

Well Information

Operator: **ConocoPhillips Canada Resources Corp.**
 Well Name: **COPRC Mirror Lake N-20**
 Location: **Unit:N Section:20, Grid: 65-00 126-45**
 UWI: **300N206500126450**
 Pool / Field: **Undefined / Mirror Lake**
 Well License #: **470**
 Province / State: **Northwest Territories**
 Country: **Canada**

Elevations

Reference:	<u>Ground</u>	Ground:	<u>281.3 m</u>
Cut(-) / Fill(+):	<u></u>	Kelly Bushing:	<u>286.5 m</u>
K.B. to Ground:	<u>5.2 m</u>	Casing Flange:	<u>281.63 m</u>

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	2146 m	2146 m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type:
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	Vertical
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62		Easting: 603555.85

Drilling Fluid Summary

Fluid Type	From	To
Gel Chem	0 m	601 m
Invert (Versaclean)	601 m	2146 m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	311 mm	244.5 mm	598 m

Well Summary

Spud Date: Feb 25, 2013 @ 17:00hrs Contractor: Beaver Drilling Ltd.
 TD Date: Mar 20, 2013 @ 01:00hrs Rig Release Date:

Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - 2146 m	Feb 25, 2013 - Mar 20, 2013

Remarks

Legend

Rock Types and Thin Beds

Whole Bed	Stringer	Nodule	Breccia	Clast	Pebble	Grain	Rock Type
							Anhydrite - primary
							Anhydrite - secondary
							Argillite
							Barite
							Bentonite
							Breccia
							Cement
							Conglomerate - mixed
							Conglomerate - dark chert
							Conglomerate - light chert
							Conglomerate - varicolored chert
							Chert - dark
							Chert - fossiliferous
							Chert - light
							Chert - tripolitic
							Chert - varicolored
							Claystone - colored
							Claystone - gray
							Coal
							Dolomite
							Ferruginous
							Feldspar
							Gypsum
							Igneous - acidic
							Igneous - basic
							Igneous - metamorphic
							Muddy IHS burrowed
							Muddy Inclined Heterolithic Strata
							Limestone - grain supported
							Limestone - mud supported
							Marlstone - calcareous
							Marlstone - dolomitic
							Mud breccia
							Mudstone
							Paleosol
							Phosphate
							Quartz
							Salt
							Shale - black
							Shale - dark gray
							Shale - medium gray
							Shale - light gray
							Shale - brown
							Shale - green
							Shale - red
							Siderite
							Sandstone
							Siltstone
							Sandy IHS burrowed
							Sandy Inclined Heterolithic Strata
							Till - glacial
							Volcanic (Tuff)
							Welded Volcanic (Tuff)

Textures

C	Chalky	e	Earthy	mx	Microcrystalline
CX	Cryptocrystalline	L	Lithographic	√	Slickenside
MS	Mudstone	GS	Grainstone	BFS	Bafflestone
WS	Wackestone	FLS	Floatstone	BS	Bindstone
PS	Packstone	RS	Rudstone	FS	Framestone

Accessories

	Anhydritic	G	Gibbsitic
	Argillaceous	I	Illitic
	Baritic	K	Kaolinitic
	Bentonitic	L	Lithic Fragment
	Bituminous	M	Marly - calcareous
	Calcareous	N	Marly - dolomitic
	Carbonaceous	Om	Micromicaceous
	Cherty - dark	ML	Mixed layer clayey
	Cherty - fossiliferous	M	Montmorillonitic
	Cherty - light	PP	Phosphate pellets
	Cherty - tripolitic	P	Pyritic
	Cherty - varicolored	SC	Salt casts
	Chloritic	S	Sandy
	Clayey	S	Sideritic
	Dolomitic	SL	Siliceous
	Ferruginous staining	S	Silty
	Fractures	SL	Styloitic
	Glauconitic	T	Tuffaceous
	Gypsiferous	Z	Zeolitic

Fossils (Rock Builders)

	Aggregate grains	F	Foraminifera
	Algae - laminations	F	Fossil
	Algae - non descript	F	Fragmental
	Algae - ootoid	G	Gastropod
	Algae - skeletal	G	Graptolite
	Amphipora	H	Hydrozoa
	Belemnite	I	Intraclast
	Bioclastic	M	Mollusc
	Brachiopod	O	Oncolite
	Bryozoa	O	Oolite
	Calciaphaera	O	Ostracod
	Cephalopod	P	Pelecypod
	Chaetetes	P	Pellet
	Coated grain	P	Pisolite
	Conodont	P	Plant Remains
	Coral	S	Plant Spores
	Coral - branching	S	Scaphopod
	Coral - head	↑	Spicule
	Coral - colonial	↑	Sponge
	Coral - solitary	T	Stromatoporoid
	Crinoid	T	Stromatoporoid - bulbous
	Diatom	M	Stromatoporoid - massive
	Echnoid	T	Stromatoporoid - tabular
	Echnoid - spine	T	Tentaculites
	Fish Remains	T	Trilobite
	Euryamphipora		

Matrix

	Argillaceous	M	Marl - calcareous
	Bafflestone	M	Marl - dolomitic
	Bentonite	M	Micrite
	Bindstone	M	Mixed Clay
	Bituminous	M	Montmorillonite
	Clay	M	Mudstone
	Chlorite	P	Packstone
	Floatstone	R	Rudstone
	Framestone	S	Sand
	Gibbsite	S	Silt
	Grainstone	S	Sparry Calcite
	Illite	W	Wackestone
	Kaolinite	Z	Zeolite

Miscellaneous Grains

	Biotite		Mineral crystal		Orthoclase
	Glauconite		Mineral - dark		Plagioclase
	Mica flakes		Muscovite		Sand grain

Porosity Type Track

e	Earthy - low permeability - crystals / grains less than 1 / 16 mm		
□	Fenestral - voids from gas bubbles - shrinkage cracks - birdseye texture		
X	Intercrystalline - Interfragmental - Intergranular		
F	Fracture	O	Organic - Bridged - Intrafossil
⊙	Interoolitic - Interpelletoidal	P	Pinpoint - voids less than 1/ 16 mm
~	Moldic	V	Vuggy - voids greater than 1 / 16 mm

Oil Show Track

●	Even staining (75 - 100% of the rock is stained) - fluoresces in solvent
◐	Spotted staining (50 - 75% of the rock is stained) - fluoresces in solvent
◑	Spotted staining (25 - 50% of the rock is stained) - fluoresces in solvent
◒	Spotted staining (1 - 25% of the rock is stained) - fluoresces in solvent
○	Questionable oil staining - No fluorescents in solvent
D	Dead oil staining - asphaltic - bitumen - pyrobitumen etc.
F	Fluoresces - no visible oil staining

Trace Fossil Track

An	Anconichnus	Ar	Arenicolites	At	Arthropycus	As	Asterosoma
Au	Aulichnites	Be	Bergaueria	Cg	Camborygma	Cf	Celliforma
Cb	Chabulolithes	Ch	Chondrites	Cl	Climactichnites	Co	Conichnus
Cp	Cosmoraphe	C	Cruziana	Cy	Cylindrichnus	Da	Dactylodites
Dm	Dimorphichnus	D	Diplocraterion	Ea	Eatonichnus	En	Entobia
Et	Entomichnus	Esc	Escape Traces	Ga	Gastrochaenolites	Gl	Glossifungites
G	Gyrolithes	Gy	Gyrophyllites	H	Helminthopsis	K	Kouphichnium
L	Lockeia	Lo	Lorenzina	Mp	Macanopsis	Ma	Macaronichnus
Mo	Monocraterion	Ne	Neonereites	N	Nereites	O	Ophiomorpha
Pa	Palaeophycus	Pd	Paleodictyon	Pc	Paleohelcura	Pl	Paleoscolytus
Pt	Petalichnus	Py	Phycodes	Ph	Phycosiphon	P	Planolites
Pm	Psamminichnus	Ps	Psalonichnus	Rh	Rhizocorallium	Rg	Rogerella
Ro	Rosselia	Ru	Rusophycus	Sb	Scalarituba	Sc	Schaubcylindrichnus
Sy	Scoyenia	Si	Siphonichnus	S	Skolithos	Sp	Spirophycus
Su	Subphyllochora	Syn	Synaeresis Cracks	Te	Teichichnus	Tr	Terebellina
Td	Tereddites	Th	Thalassinoides	Tc	Trichichnus	Tp	Trichophycus
Ty	Trypanites	Z	Zoophycos				

Sedimentary Structures

	Ball and pillow		Bioturb-churned		Bioturb-slightly		Bioturb-moderate
	Bioturb-mod well		Bioturb-well		Boudinage		Burrows
	Clastic Dike		Clastic sill		Desiccation crack		Dish structure
	Fault-Large scale		Fault-Small scale		Flame structure		Flute mark
	Geopetal		Groove casts		Gutter casts		Load casts
	Inclined heterolithic strata		Mud chips		Mud drapes		Rill marks
	Neptunian dike		Pit marks		Pull-a-part		Slump structure
	Rip up clasts		Roots / root trace		Scour and Fill		Tool marks
	Swash marks		Syneresis crack		Teepee structure		
	Water Escape						

Cement

	Anhydritic		Gypsiferous
	Baritic		Hematitic
	Bituminous		Limonitic
	Calcareous		Pyritic
	Chert - dark		Salt
	Chert - light		Sideritic
	Dolomitic		Siliceous
	Ferruginous		

Sorting Track

vP	Very poorly sorted - > 10 phi size grade classes
P	Poorly sorted - 6-10 phi size grade classes
M	Moderately sorted - 3-6 phi size grade classes
mW	Moderately well sorted - 2-3 phi size grade classes
W	Well sorted - < 2 phi size grade classes

Rounding Track

vA	Very Angular	r	Subrounded
A	Angular	R	Rounded
a	Subangular	wR	Well Rounded

Framework Track

Framework is a ratio between clastic material greater than 1/16 mm and primary void filler less than 1/16 mm.
? indicates questionable interpretation

Core Track

	Indicates Cored Interval
	Indicates Lost Core

Test Track

	Indicates Tested Interval
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Sedimentary Structures Bedding / Cross Bedding

	Centimeter bedding		Inverted graded bedding
	Decimeter bedding		Massive bedding
	Millimeter bedding		Normal graded bedding
	Chevron x-bedding		Herringbone x-bedding
	Sigmoidal x-bedding		Hummocky x-bedding
	Swaley x-bedding		Planar/Tabular x-bedding
	Trough x-bedding		

Sedimentary Structures Laminations / Cross Laminations

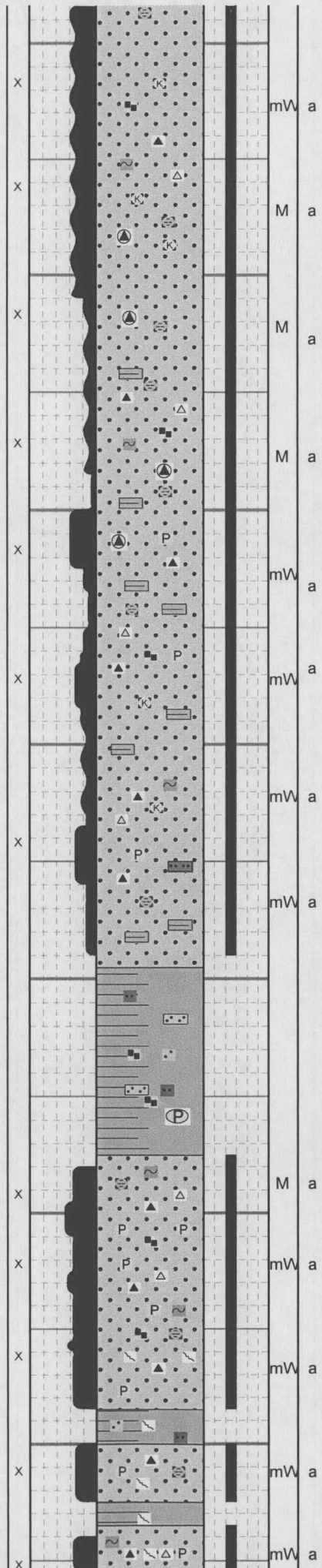
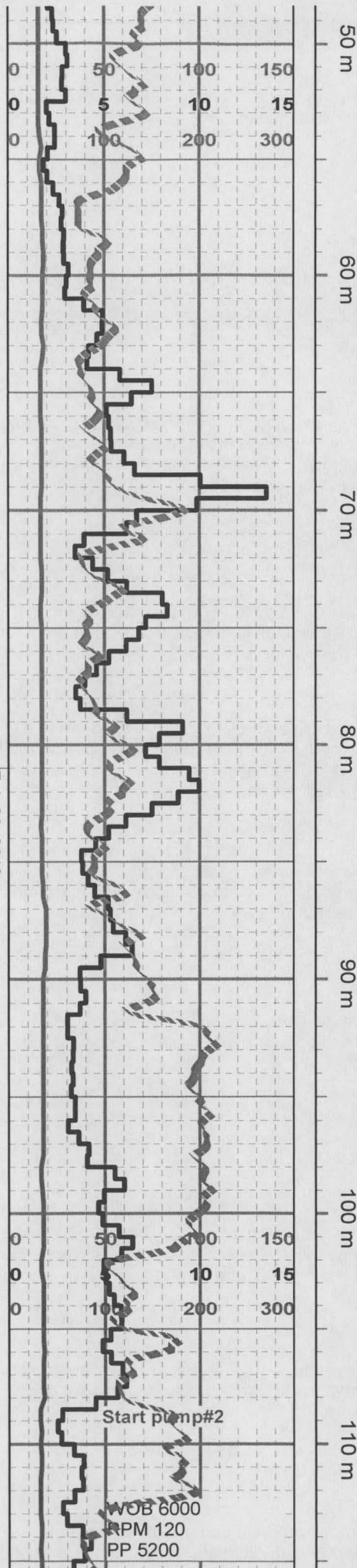
	Climbing ripple xlam		Contorted/Slumped lams
	Current ripple xlam		Flaser laminations
	High angle xlam		High angle parallel lams
	Lenticular lams		Low angle xlam
	Low angle para lam		Parallel laminations
	Trough xlam		Varved laminations
	Wave ripple xlam		Wavy laminations

Sedimentary Bedding Contacts

BIO	Bioturbated	BORED	Bored	CAL	Caliche / calcrete	COR	Corrosional	DC	Desiccation cracks
EX	Exposure	FS	Flooding surface	GLOSS	Glossifungites	GRAD	Gradational	HG	Hardground
INCL	Inclined - sharp	IRR	Irregular - sharp	MFS	Maximum flooding surface			MC	Mud cracks
NOD	Nodular	PB	Parasequence boundary	RS	Ravinement surface	RSE	Regressive surface of erosion		
ROOT	Rooted	SCOUR	Scour	SB	Sequence boundary	SHARP	Sharp	TRUN	Truncation
TSE	Transgressive surface of erosion			UNCON	Unconformity	WAVY	Wavy		

Drilling Progress				Lithology Description			
Date	Total Gas (units)	Drill Rate (min/m)	Slide - Rotate	Depth	Core	Porosity Type	Oil Shows
	0 200 400 600	0 15 30 45				Porosity (%)	
	Gamma Ray (gapi)	Final gamma (gapi)					
	0 50 100 150	0 50 100 150					
Feb 25, 2013	NEB 50 A Varel H204 JMFIS	0 5 10 15	0 100 200 300	0 m			
				10 m			
				17 m			
	Little Bear (SSL: 286.50)			20 m			
				30 m			
				40 m			
	WOB 5000						
	RPM 120						
	PP 1000						
	SPM 140						
	PO 1.8m3						
	MW 1060						
	VIS 55						
	PH 9.5						

Feb 26, 2013



shows.

Ss: s&p, u f gred, sb ang, modly w srt, qtz & gy cht, mnr kao cmt, sly sils, abnt uncon, carb lit grs, p tr glauic, 12% por? no vis shows.

Ss: s&p, u f gred, sb ang, m srtg, qtz & gy cht, mnr kao cmt, sly sils, predly uncon, carb lit grs, p tr glauic, tr occ gy cht pbl frags, 15% intgran por? no vis shows.

Ss: aa / mnr Sh lams, lt gy, blkly, slty, sdy ip, tr pyr.

Ss: lt gy, f gred, sb ang, m srtg, cly cmt, abnt uncon, carb lit grs, tr pyric, tr glauic, occ vcol cht pbls, 10% por? no vis shows / mnr Sh lams aa.

Ss: aa / Ss v lt gy, vit qtzs, mnr lt gy cht, f gred, sb ang, modly w srt, cly cmt, tr mnr dk lit grs, tr pyric, p intgran por 4-7%, no vis shows.

Ss: aa

Ss: v lt gy aa / Ss s&p, u f gred, sb ang, modly w srt, kao cmt, dk lit grs, tr pyric, tr glauic, mnr carb mat, p - fr intgran por 4-9%, no vis shows.

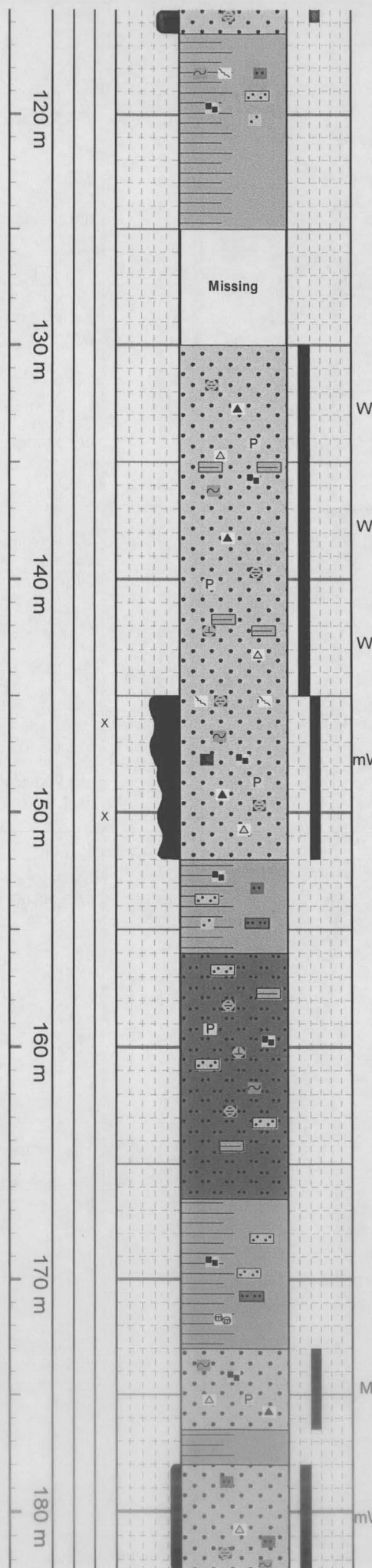
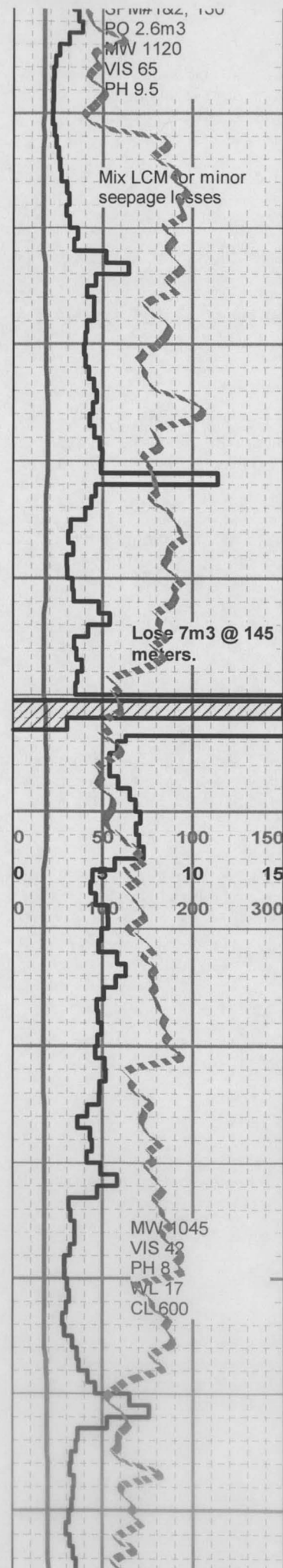
Ss: s&p aa / 10% Sh lams, lt gy, blkly, slty, sdy ip, occly grds to shy vf gred ss ip, carb mat.

Sh: lt - m gy, blkly, occly slty, sly sdy ip, tr carb mat, p tr pyr nuds.

Ss: lt gy, s&p, u f gred, sb ang, m srtg, sly sils, mnr kao cmt, abnt uncon, dk lit grs, pyric, tr glauic, fr intgran por? 14%, no vis shows.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glauic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows / 10% sh lams aa.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glauic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows



Sh: lt - m gy, blk, slty, sdy, grds to shy sltst ip, tr glauic, tr carb specs.

Missing

W a

W a

W a

mW a

Sh: m gy, blk, slly mmca, occly slty, tr sdy, tr carb specs & mat.

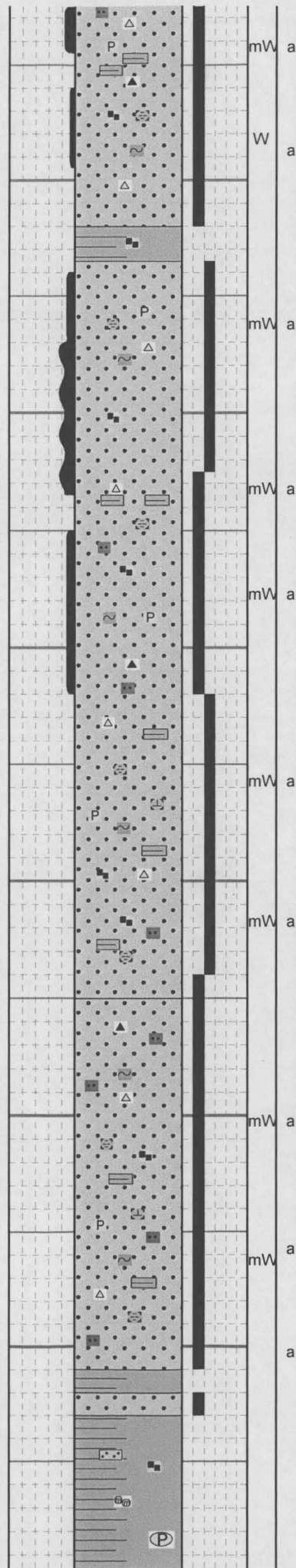
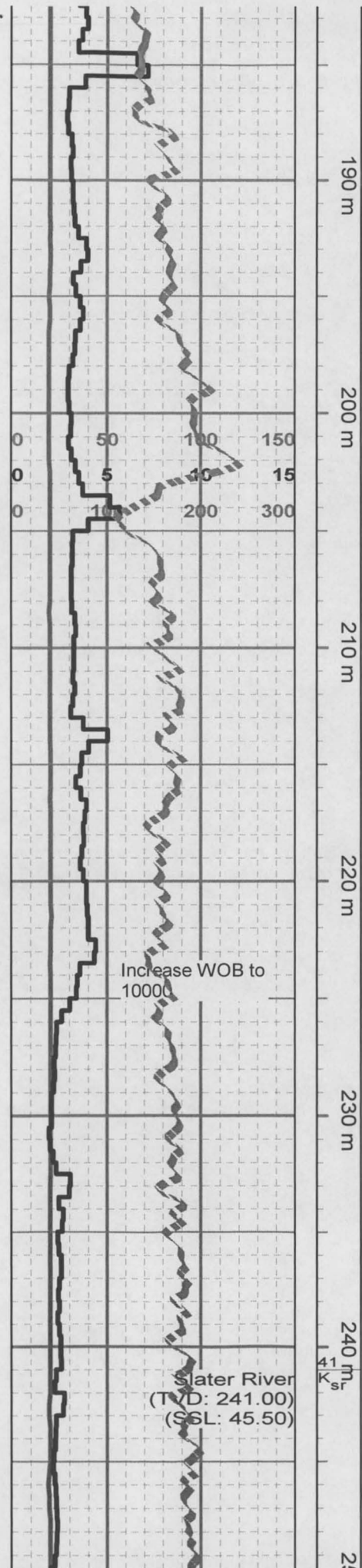
Sltst: lt gy, occly grds to vf gred ss ip, cly cmt, tr calcs, dk lit grs, tr pyric, tr glauic, predly tt, no shows.

Sh: m gy, blk, slty, occly sdy, occly grds to shy sltst, carb specs & mat, tr pyr.

M a

mW a

Ss: lt gy, vf gred, sb ang, modly w srt, abnt uncons, cly cmt, dk lit grs, tr glauic, slty, slly shy



ip, tr pyric, tt - p intgran por, no vis shows.

Ss: lt gy, l vf gred, sb ang, w srt, w cmt / cly cmt, sly calcs, dk lit grs, slty, tr glaucic, shy ip, tt, no shows.

Ss: s&p, f gred, sb ang, modly w srt, cly cmt, occ uncons, dk lit grs, tr glaucic, diss pyr, tr fros calc, p intgran por 7%, no vis shows

Ss: aa / Ss lt gy, vf gred, sb ang, modly w srt, cly cmt, slty, shy ip, tr glaucic, tr pyric, tt, no vis shows

Ss: s&p, lt gy aa.

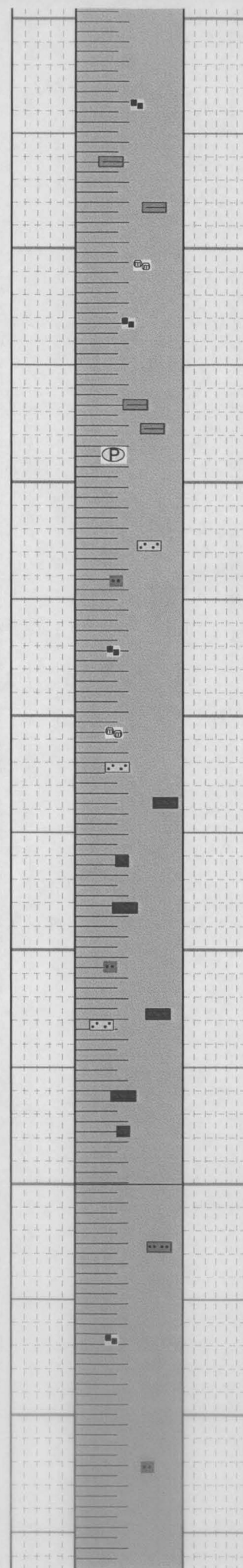
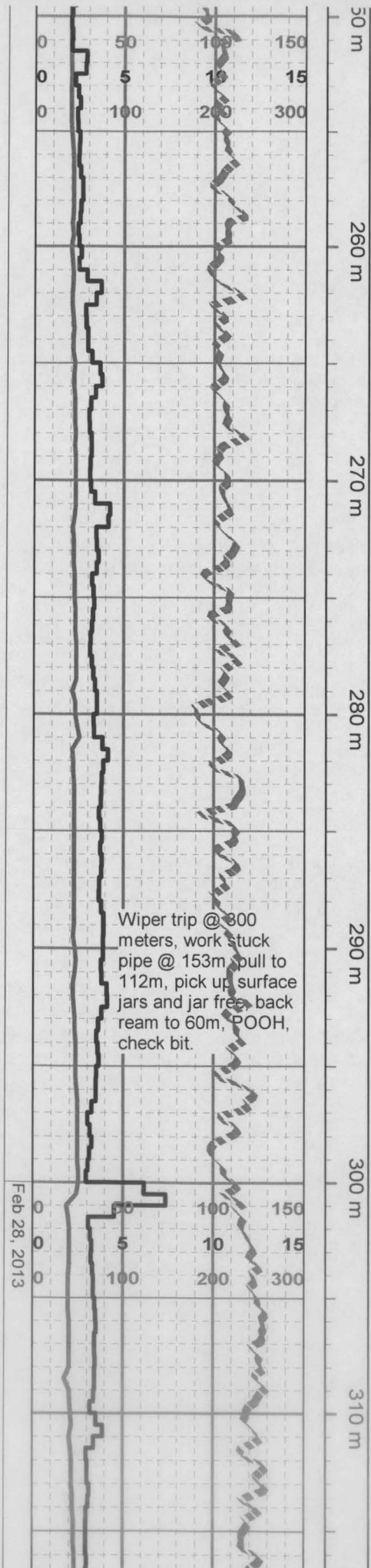
Ss: lt gy, f gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occly shy, tt - p intgran por 4%, no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occly shy, predly tt, no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occly shy, predly tt, no vis shows.

Sh: lt - m gy, blkly, sly mmca, slty ip, tr carb mat, tr pyr nods.

Slater River
(TVD: 241.00)
(SSL: 45.50)



Sh: predly m gy, blk, sly mmca, slty ip, tr carb mat, tr pyr nods / 10% Ss strgs aa.

Sh: aa / mn Sh blue gn, blk, flat wxy tex / 5% Ss strgs aa.

Sh: aa

Sh: predly m gy, blk, sly mmca, tr slty, tr carb mat, tr pyr nods / mn gn sh aa.

Sh: predly m gy, mn dk gy, sbfis ip, sly mmca, slty ip, tr carb mat, tr blue gn sh aa / 10% Ss strgs aa.

Sh: predly m gy, mn dk gy, sbfis ip, sly mmca, slty ip, tr carb mat, bcmg sidic / brn sid frags.

Sh: m gy, gy brn ip, tr dk gy, mn sb fis, occl sidic, sly mmca, tr slty, abnt brn sid frags / tr mn Ss strgs aa.

Sh: m gy, blk, sly mmca, tr slty, mn sdy ip, tr carb specs / mn Slst strgs, lt gy, sdy ip, tr dk lit grs, cly cmt, no vis por, no shows.

Sh: m av. blk. sly mmca. tr slty. mn sdy ip. tr

carb specs / mnr Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

Sh: m gy, blk, sly mmca, tr slty, mn r sdy ip, tr
carb specs / mn r Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

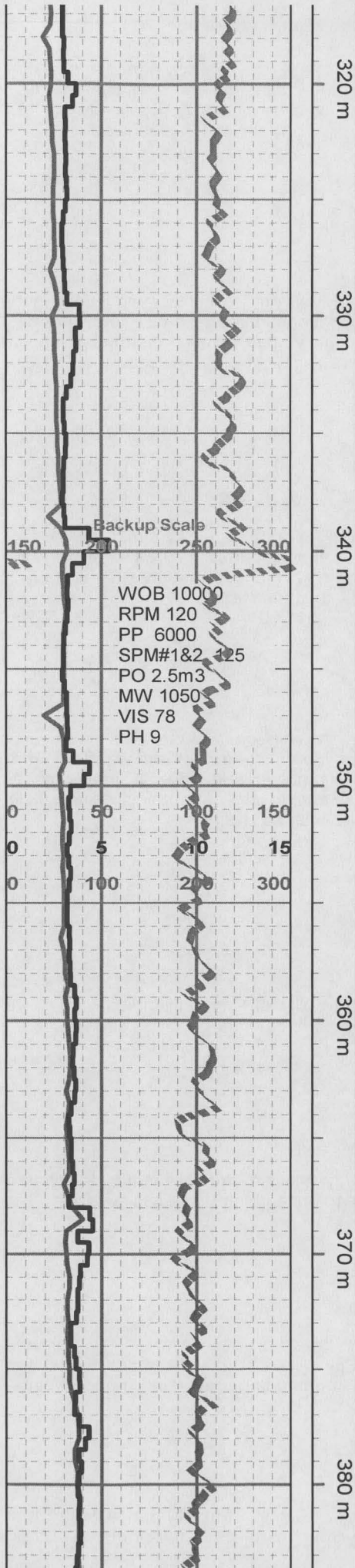
Sh: m gy, blk, sly mmca, tr slty, mn r sdy ip, tr
mn r carb mat / tr Sltst strgs aa.

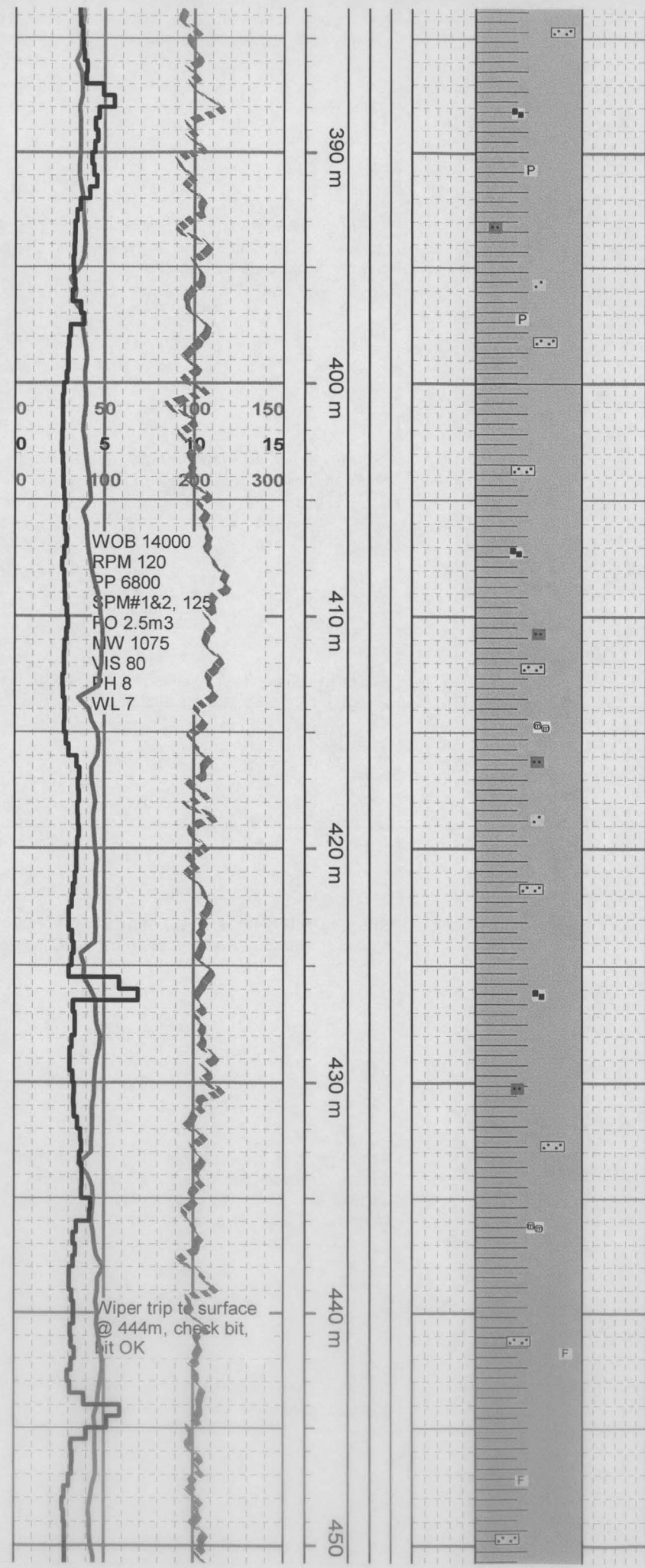
Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat / tr Sltst strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat, g tr dism pyr / tr Sltst
strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat, g tr dism pyr / 5% Ss
strgs, lt gy, l f gred, sb ang, m srtg, cly cmt, sly
calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat, g tr dism pyr / mn r Ss
strgs aa





Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb mat, g tr dis pyr / mn Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, sly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v sly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v sly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v sly calcs, dk lit grs, slty ip, tt, no shows.

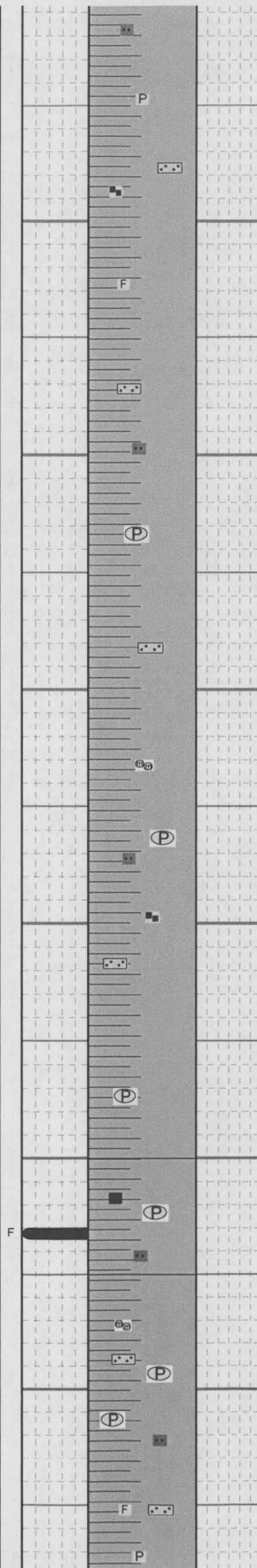
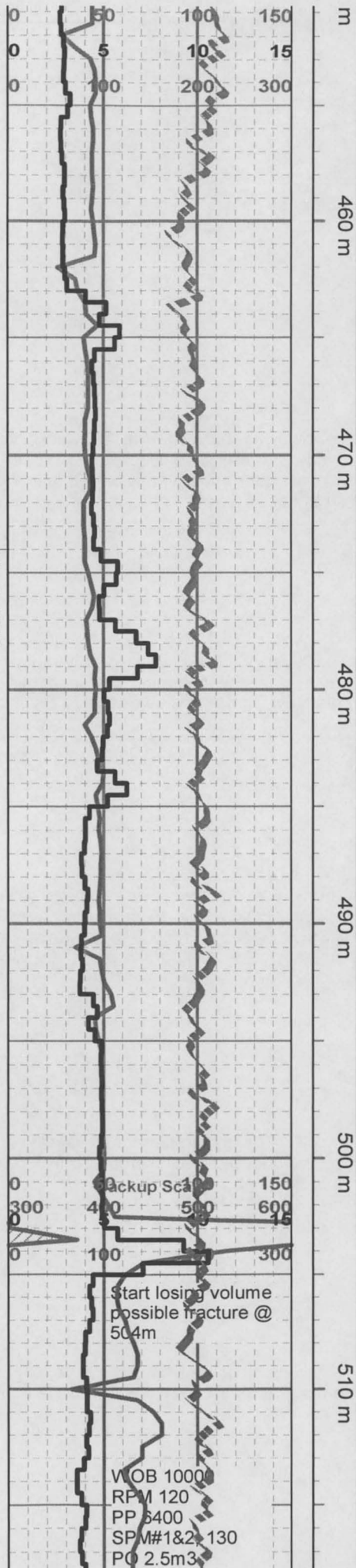
Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb specs, tr inoc / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn sdyp, tr mn carb specs, tr inoc / occ Ss strgs aa.

Mar 1, 2013



Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr inoc, tr dism pyr / occ
Ss strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic, tr inoc / occ Ss
strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs m gy, vf gred, sb ang, w srt,
cly cmt, dk lit grs, tr pyric, tr glauc, slty, shy, no
vis por, no shows.

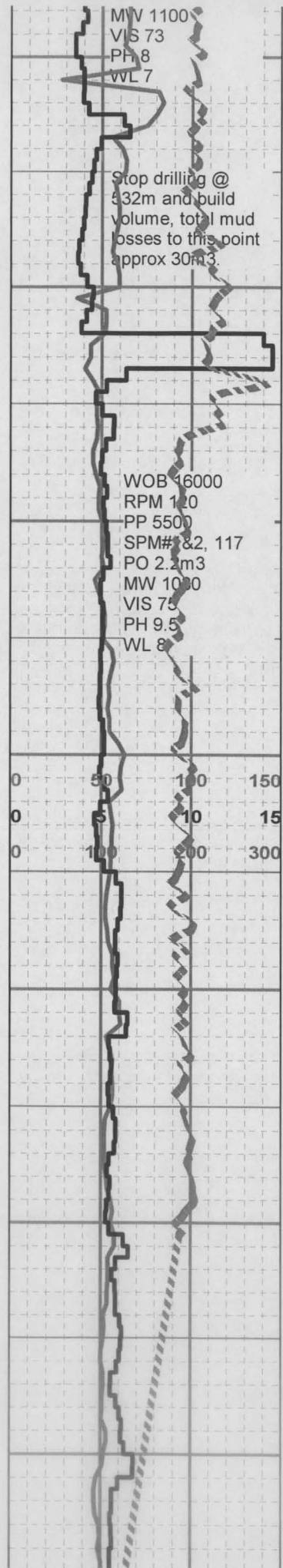
Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs m gy, aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / 5% Ss strgs aa.

Sh: aa, g tr pyr nods

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr



520 m

530 m

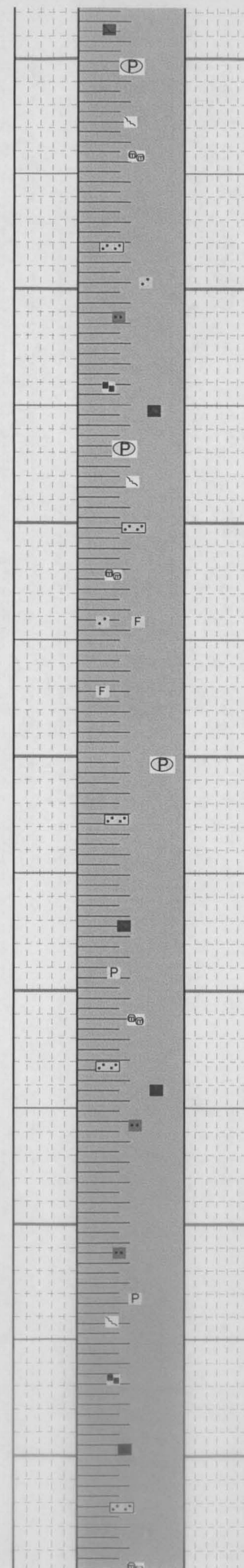
540 m

550 m

560 m

570 m

580 m



nods / mnr Ss strgs aa.

Sh: m - occlly dk gy aa.

Sh: m - occlly dk gy, blkly, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr sidic ip, tr inoc, pyr nods, tr mnr micro fracs infilled /calc / 5% Ss strgs aa.

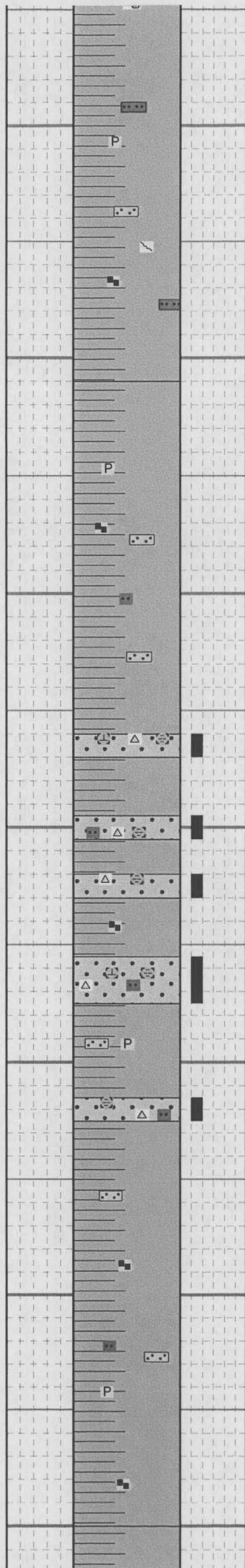
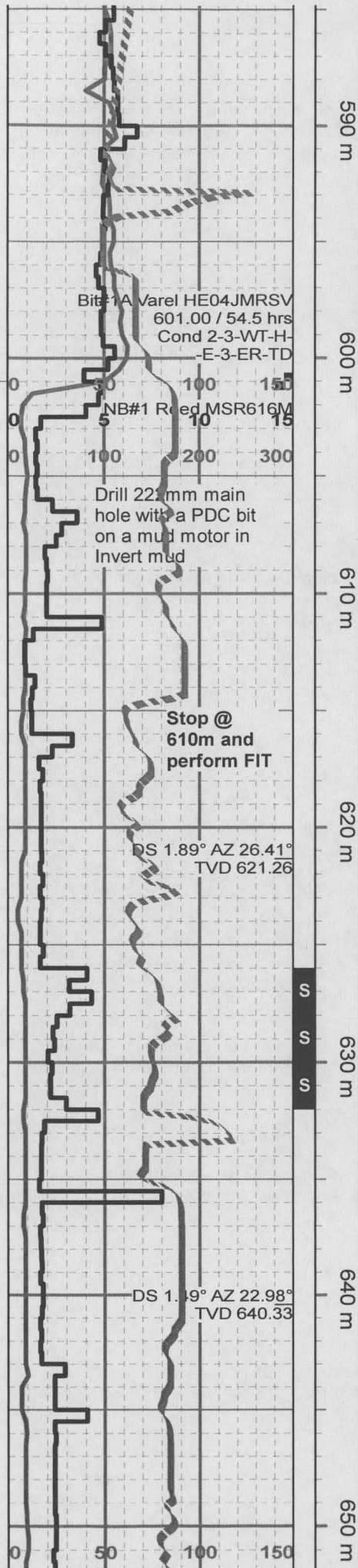
Sh: m - occlly dk gy, blkly, modly frm, slly mmca, tr slty, tr sdy ip, slly carb ip, tr sidic ip, tr inoc, pyr nods & dism pyr, tr mnr fros calc aa / 5% Ss strgs aa.

Sh: m - occlly dk gy, gy brn ip, mnr sb fis, slly mmca, slly carb, occlly sidic, dism pyr, tr fros calc aa, / 3% Ss strgs, m gy, vf gred, sb ang, modly w srt, cly cmt, slly calcs, dk lit grs, tr pyric, slty, shy, no vis por or shows.

Sh: m - occlly dk gy, gy brn ip, mnr sb fis, slly mmca, slly carb, occlly sidic, dism pyr, tr fros calc aa, / occ Ss strgs aa.

Sh: m - occlly dk gy, mnr sb fis, slly mmca, slly carb, tr sidic, pyr, tr clr c xln calc / mnr Ss strgs aa.

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Sh: m - occly dk gy, tr sb fis, slly mmca, slly carb,
p tr sidic, tr dism pyr / mnr Ss strgs aa, occly grds
to sltst ip.

Sh: m - occly dk gy, sb fis ip, slly mmca, slly carb,
p tr sidic, tr dism pyr, tr fros calc / mnr Ss strgs &
lams aa, occly grds to sltst ip.

Surface hole TD @ 601 meters.
244.5mm csg set @ 598 meters.
Drill out Mar 4 @ 14:00 hrs.

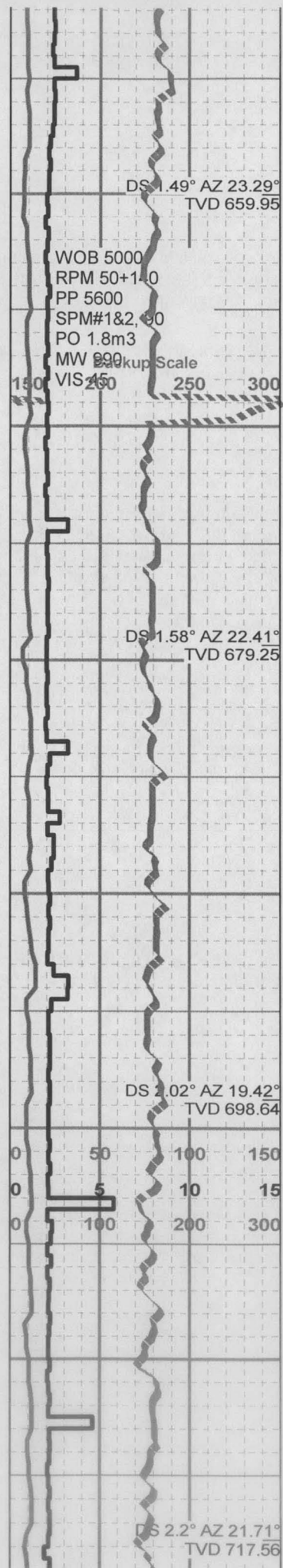
Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr
slty, tr pyr / mnr intbd Ss strgs & lams, lt - m gy, vf
gred, sb ang, modly w srt, cly cmt, slly calcs, tr
glauc, slly slty, shy, no vis por, no shows.

SS: lt - m gy, vf gred, sb ang, modly w srt, cly
cmt, slly calcs, tr glauc, slly slty, shy, no vis por,
no shows

SS: lt - m gy, vf gred, sb ang, modly w srt, cly
cmt, slly calcs, tr glauc, slly slty, shy, no vis por,
no shows

Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr
slty, tr pyr / mnr intbd Ss strgs & lams, lt - m gy, vf
gred, sb ang, modly w srt, cly cmt, slly calcs, tr
glauc, slly slty, shy, no vis por, no shows.

Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr
slty, tr pyr / mnr intbd Ss lams aa.



660 m

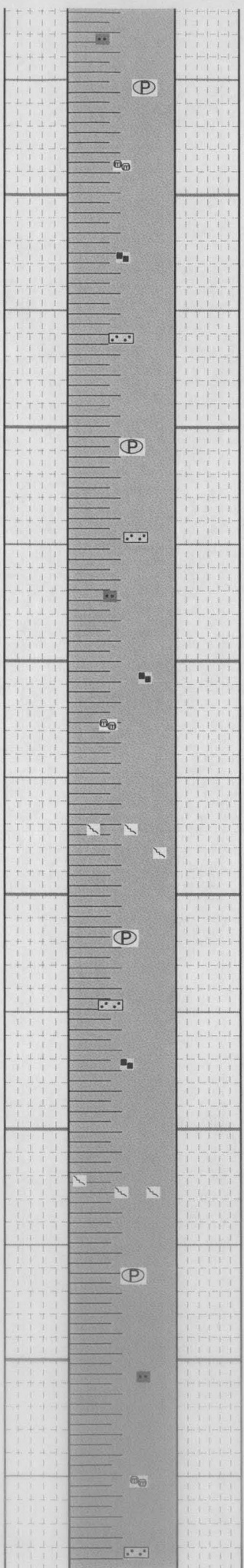
670 m

680 m

690 m

700 m

710 m



Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr slty, tr fros cxln calc / mnr intbd Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, mnr slty / occ Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, mnr slty / occ Ss lams aa.

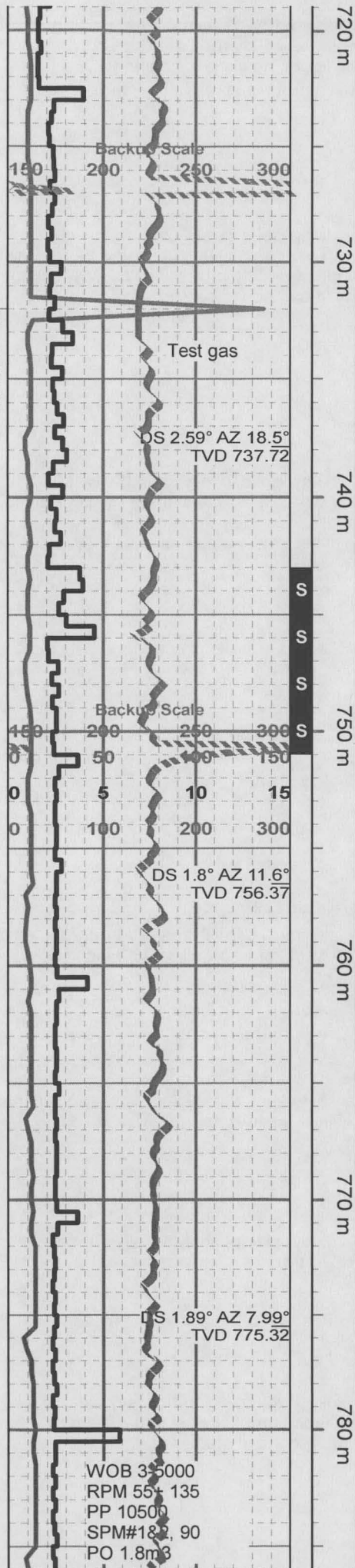
Sh: aa / abnt c xln fros calc (frac?)

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, abnt fros c xln calc, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

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Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly
mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly
mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly
mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m
gy, vf gred, sb ang, modly wsrt, cly mtx, slly
calcs, tr glaucic, tr dk lit grs, slty ip, no vis por, no
shows.

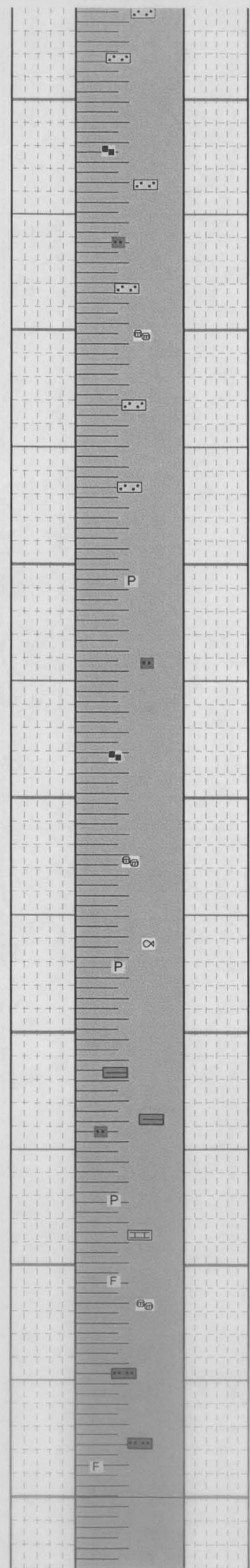
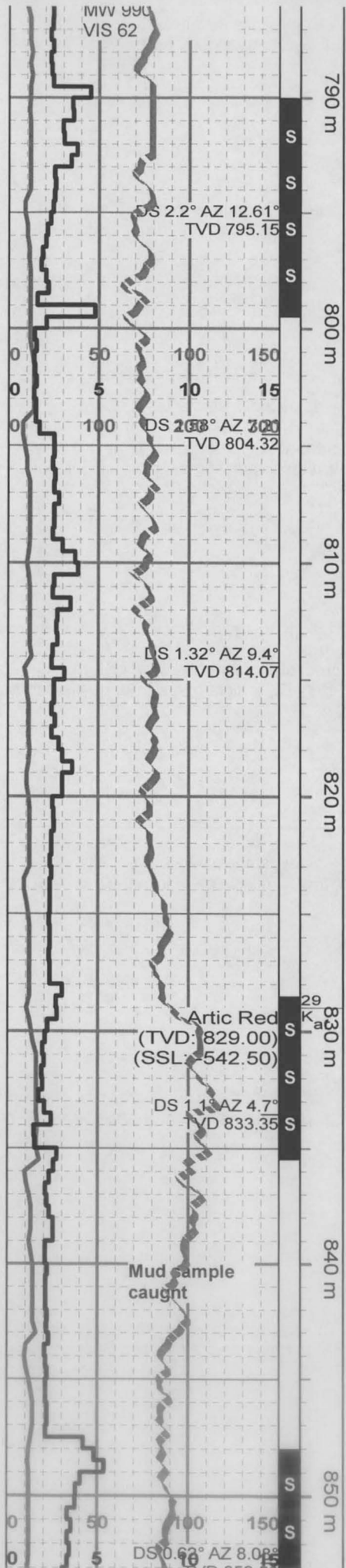
Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly
mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m
gy, vf gred, sb ang, modly wsrt, cly mtx, slly
calcs, tr glaucic, tr dk lit grs, slty ip, no vis por, no
shows.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly
mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m
gy aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly
mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m
gy aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly
mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m
gy aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly



mmca, tr pyr / 10% Ss lams, lt - m gy, vf gred, sb ang, modly w srt, cly mtx, sly calcs, slty, shy ip, tr pyric, dk lit grs, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sly carb, tr slty, sly mmca, tr pyr / 5% Ss lams, lt - m gy, vf gred, sb ang, modly w srt, cly mtx, sly calcs, slty, shy ip, tr pyric, dk lit grs, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sly carb, tr slty, sly mmca, tr pyr / 5% Ss lams, lt - m gy, vf gred, sb ang, modly w srt, cly mtx, sly calcs, slty, shy ip, tr pyric, dk lit grs, no vis por, no shows.

Sh: aa

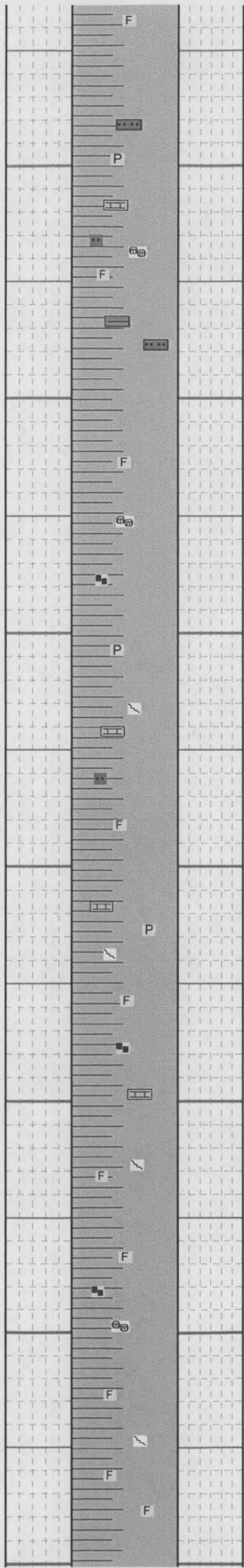
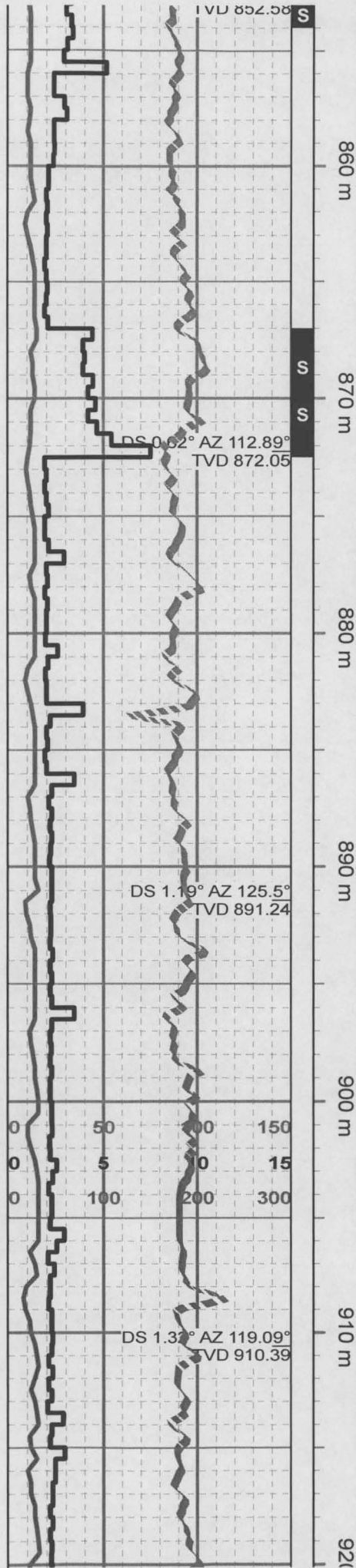
Sh: m - dk gy, sbfis ip, sly carb, tr slty, sly mmca, tr diss pyr, tr fish scales / tr mnr Ss lams aa / tr Ls strgs, bf fragal wkest, tr pyric, dns, no shows.

Artic Red (TVD: 829.00) (SSL: -542.50)

Sh: m - dk gy, plty, fis, sly mmca, tr pyr, tr ls aa / tr lt bue clyst, sft, wxy tex.

Sh: m - dk gy, plty ip, occlly fis, sly mmca, sly carb, tr pyr, tr mnr Ls lams aa.

Sh: m - dk gy, sbfis, sly mmca, sly carb, tr pyr, tr slty ip, tr inoc / mnr 2% Sltst strgs, lt - m gy, cly & calcs cmt, grds to vf gred ss ip, tt, no shows.



Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc / mnr Slst strgs aa.

Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc / mnr Slst strgs aa / tr lt blue clyst aa.

Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc, tr fros calc.

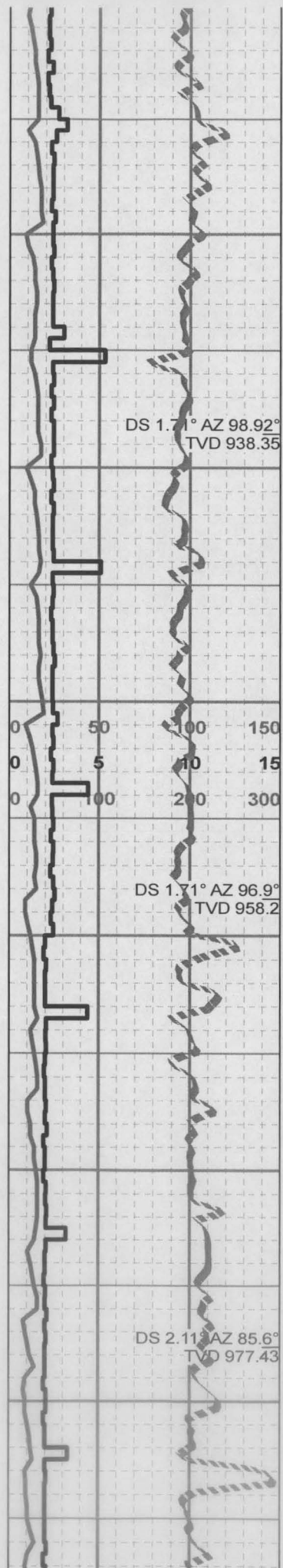
Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc, tr fros calc / tr mnr Ls strgs lt gy - bf brn, mdst - wkest, micr mtx, slly arg, dns, no shows.

Sh: aa / abnt inoc / mnr Ls strgs aa.

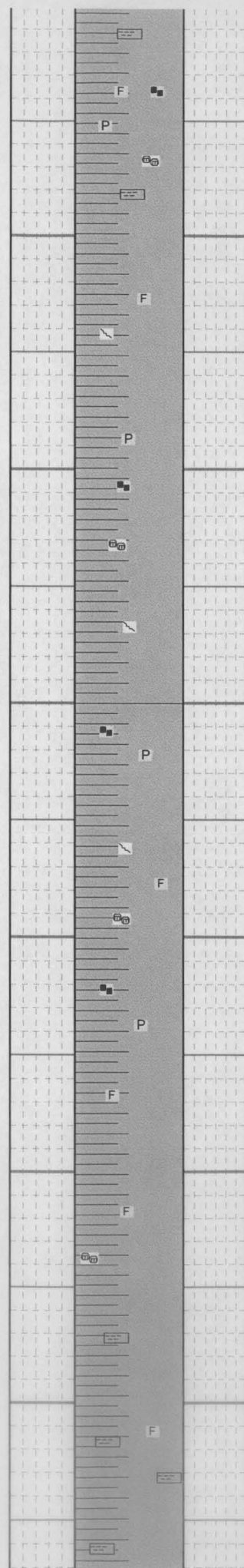
Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, inoc, tr micro fracs infilled / calc & ls aa.

Sh: aa

Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, abnt inoc, tr Ls aa.



930 m
940 m
950 m
960 m
970 m
980 m



Sh: aa / tr mnr Clyst lt gy, wxy, tr mica flks, dism pyr.

Sh: m gy, occlly dk gy, sb fis, sily carb, sily mmca, inoc, tr micro frags infilled / wh calc, tr mnr clyst aa.

Sh: m - dk gy, sb fis, carb, sily mmca, tr pyr, tr inoc, tr micro frags infilled / wh calc.

Sh: m - dk gy, sb fis, carb, sily mmca, tr pyr, tr inoc, p tr sidic ip.

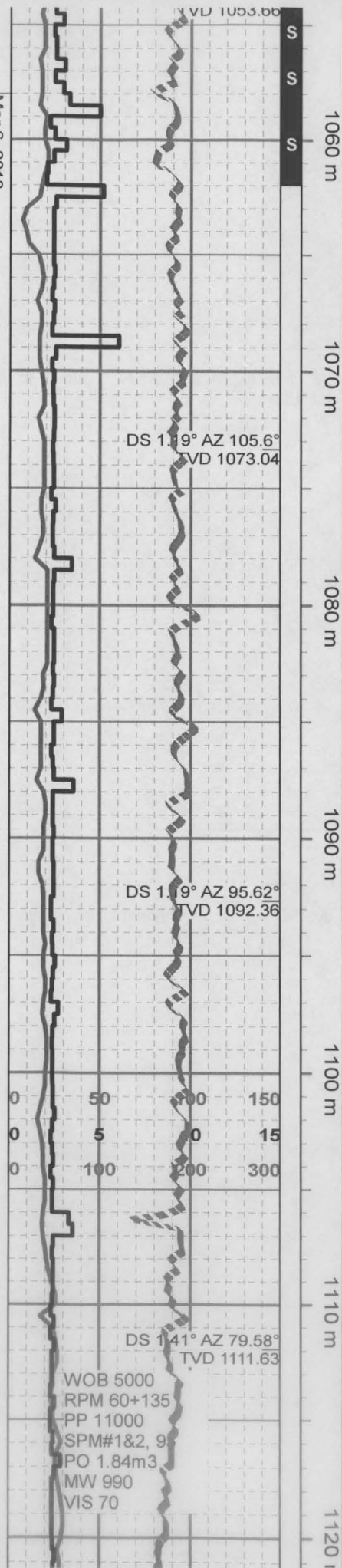
Sh: m - dk gy, sb fis, carb, sily mmca, tr pyr, tr inoc, tr micro frags infilled / wh calc.

Sh: m - dk gy, sb fis, carb, sily mmca, tr pyr, tr inoc, tr micro frags infilled / wh calc.

Sh: m - dk gy, sb fis, carb, sily mmca, tr pyr, tr inoc, tr lt gy clyst, wxy, tr sdy, mica flks.

Sh: m - dk gy, sb fis, carb, sily mmca, tr pyr, tr inoc, incrg lt gy clyst, wxy, tr sdy, mica flks.

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Sh: m gy, dk gy ip, sb fis, p tr slly slty, tr pyric, sidic ip / tr brn sid frags / tr mnr Ls strgs lt brn, mdst, arg, grds to mrlst ip, dns, no show.

Sh: m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa.

Sh: m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa.

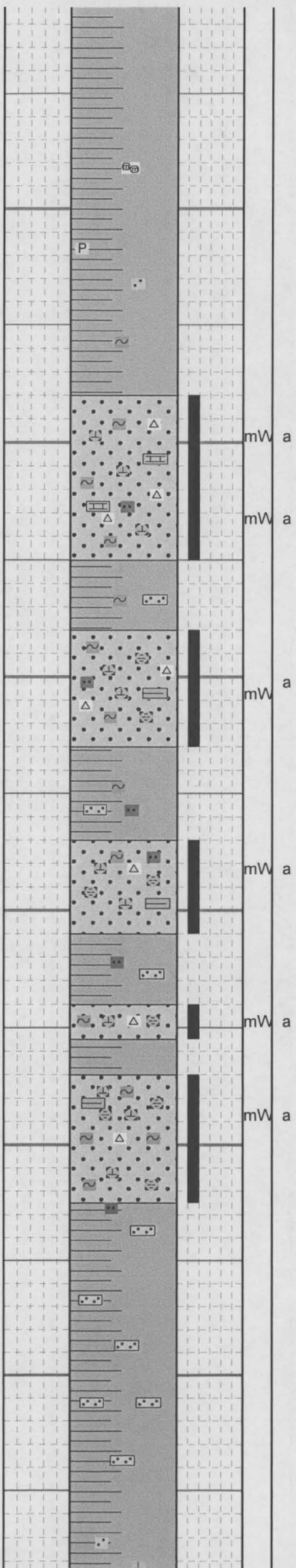
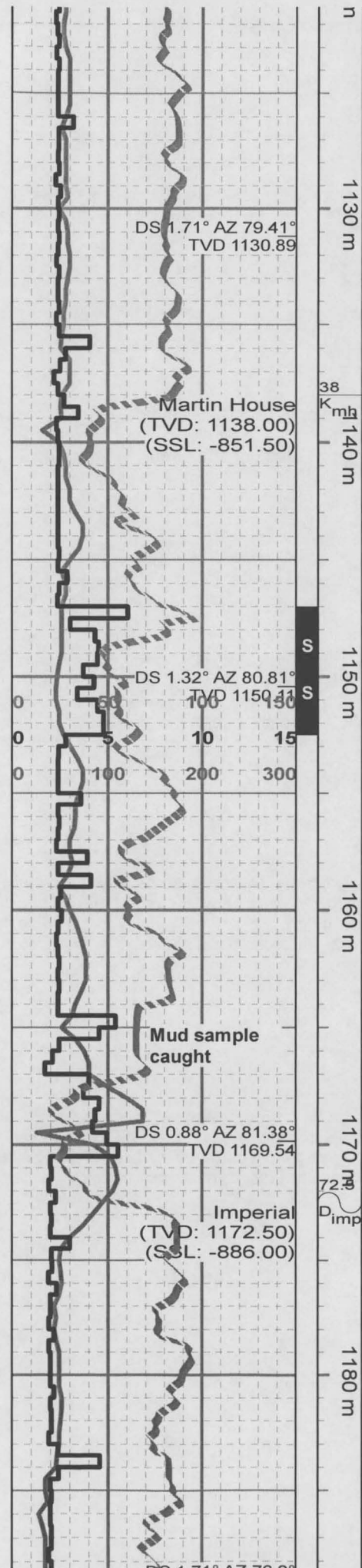
Sh: predly m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa / tr mnr lt brn sid frags.

Sh: predly m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa / tr mnr lt brn sid frags.

Ss: lt gy, vf gred, sb ang, modly w srt, calcs, slty, tr glaucic, tr mnr dk lit grs, tt, no shows.

Sh: m gy, mnr dk gy, sb fsi, slly mmca, tr pyr, p tr ss strgs aa.

Sh: m gy, sb fis, slly mmca, tr pyr, p tr ss strgs aa, tr crins / tr mnr Ls strgs aa.



Sh: m gy, mnr dk gy, sb fis, modly frm, sly mmca, pyr.

Sh: aa, sdy & glauc.

Martin House
(TVD: 1138.00)
(SSL: -851.50)

Ss: lt gy, u vf gred, sb ang, modly w srt, v calcs, grds to sdy ls ip, v glauc, tr mnr dk lit grs, sly slty, no vis por, no shows.

Ss: crm - lt gy, u vf gred, sb ang, modly w srt, calcs & cly cmt, grds to sdy ls ip, v glauc, tr mnr dk lit grs, sly slty, tr sh lams, no vis por, no shows.

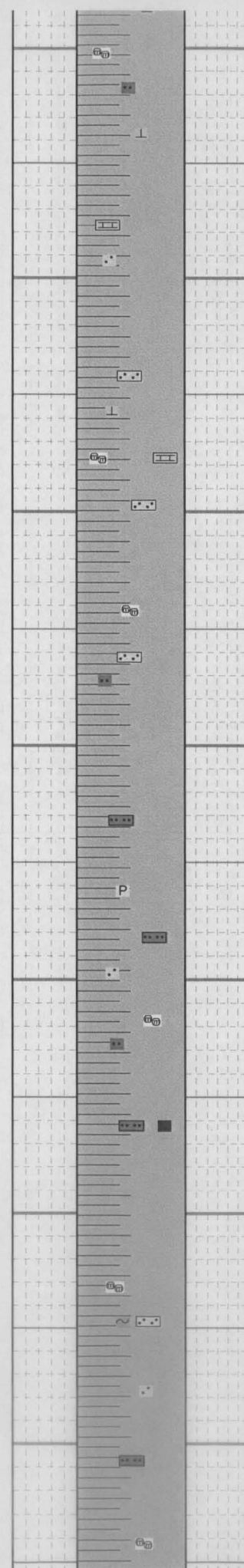
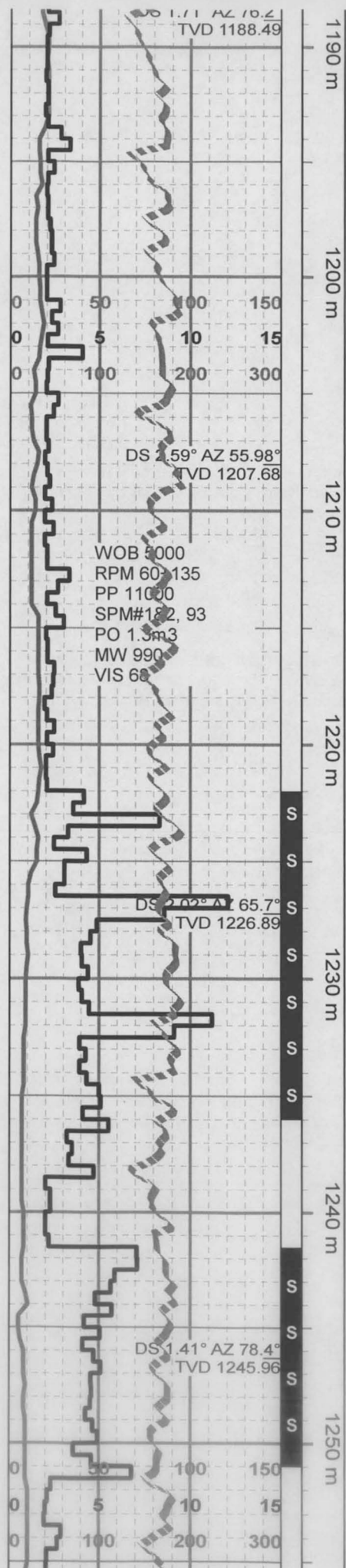
Ss: aa, m gy ip aa, shy.

Ss: crm - lt gy, l vf gred, sb ang, modly w srt, calcs & cly cmt, grds to sdy ls ip, v glauc, tr mnr dk lit grs, sly slty, tr sh lams, no vis por, no shows.

Imperial
(TVD: 1172.50)
(SSL: -886.00)

Sh: predly aa / tr lt gy gn sh lams, sly mmca, tr pyric, sly wxy tex ip.

Sh: lt gy gn, sly mmca, sb fis ip, sly wxy tex, tr slty & mnr sdy ip.



Sh: lt gy gn, slyy mmca, sb fis ip, slyy wxy tex, tr slty & mnr sdy ip / lt gy - bf mrlst, sft, chky, dns.

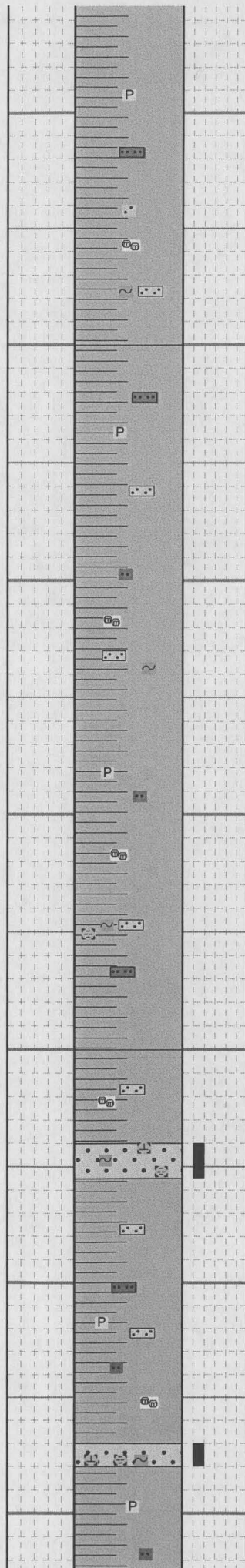
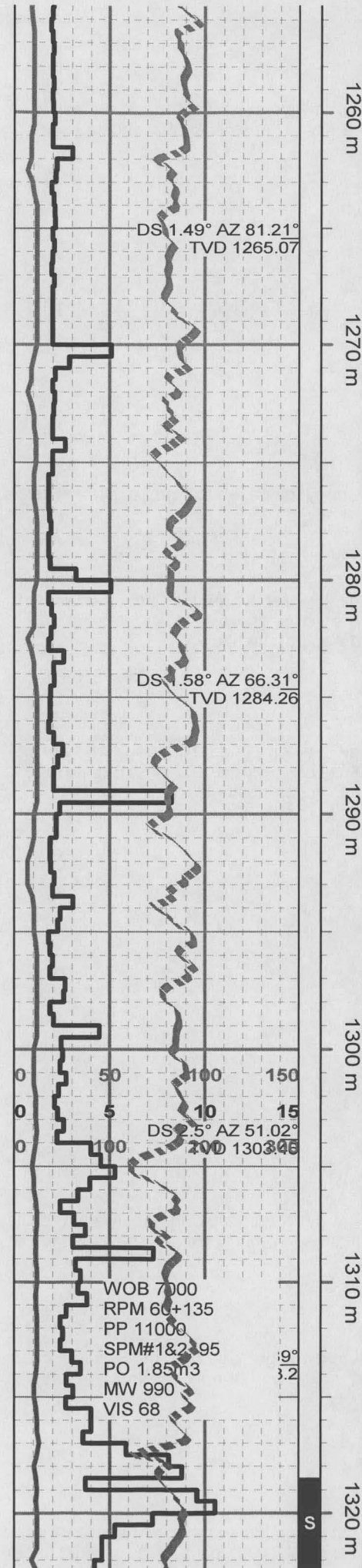
Sh: gy gn, m gy, sb fis, slyy mmca, slyy calcs, slyy wxy tex ip, occlly sdy, tr slty ip / mnr Ss strgs, lt gy, gy gn, vf gred, sb ang, modly w srt, calcs & cly cmt, slty, shy, tr sidic ip, tt, no shows.

Sh: gy gn, m gy, sb fis, slyy mmca, slyy calcs, slyy wxy tex ip, occlly sdy, tr slty ip / mnr Ss strgs, lt gy, gy gn, vf gred, sb ang, modly w srt, calcs & cly cmt, slty, shy, tr sidic ip, tt, no shows.

Sh: gy gn, m gy, gy brn ip, sb fis, slyy mmca, slyy wxy tex ip, pyr, occlly sdy, tr slty ip / mnr Sltst strgs gy, gy gn, cly cmt, sdy, grds to vf gred ss ip, shy, occlly sly sidic, tt, no shows.

Sh: gy gn, m gy, gy brn ip, sb fis, slyy mmca, slyy wxy tex ip, pyr, occlly sdy, tr slty ip / mnr Sltst strgs gy, gy gn, cly cmt, sdy, grds to vf gred ss ip, shy, occlly sly sidic, tt, no shows.

Sh: aa / tr Ls strgs, bf, lt brn, mdst - wkst, mic mtz, arg, sdy, dns, no shows



Sh: predly gy gn, sb fis, sily mmca, sily wxy tex ip, tr pyr, tr sdy, tr slty ip / mnr Sltst strgs gy, gy gn, cly cmt, sdy, grds to vf gred ss ip, shy, occlly sily sidic, tt, no shows.

Sh: predly gy gn, sb fis, sily mmca, sily wxy tex ip, tr pyr, tr sdy, tr slty ip / mnr Sltst strgs aa / Ss strgs, lt gy, vf gred, sb ang, modly w srt, calcs & cly cmt, tr glaucic, shy, slty, tt, no shows.

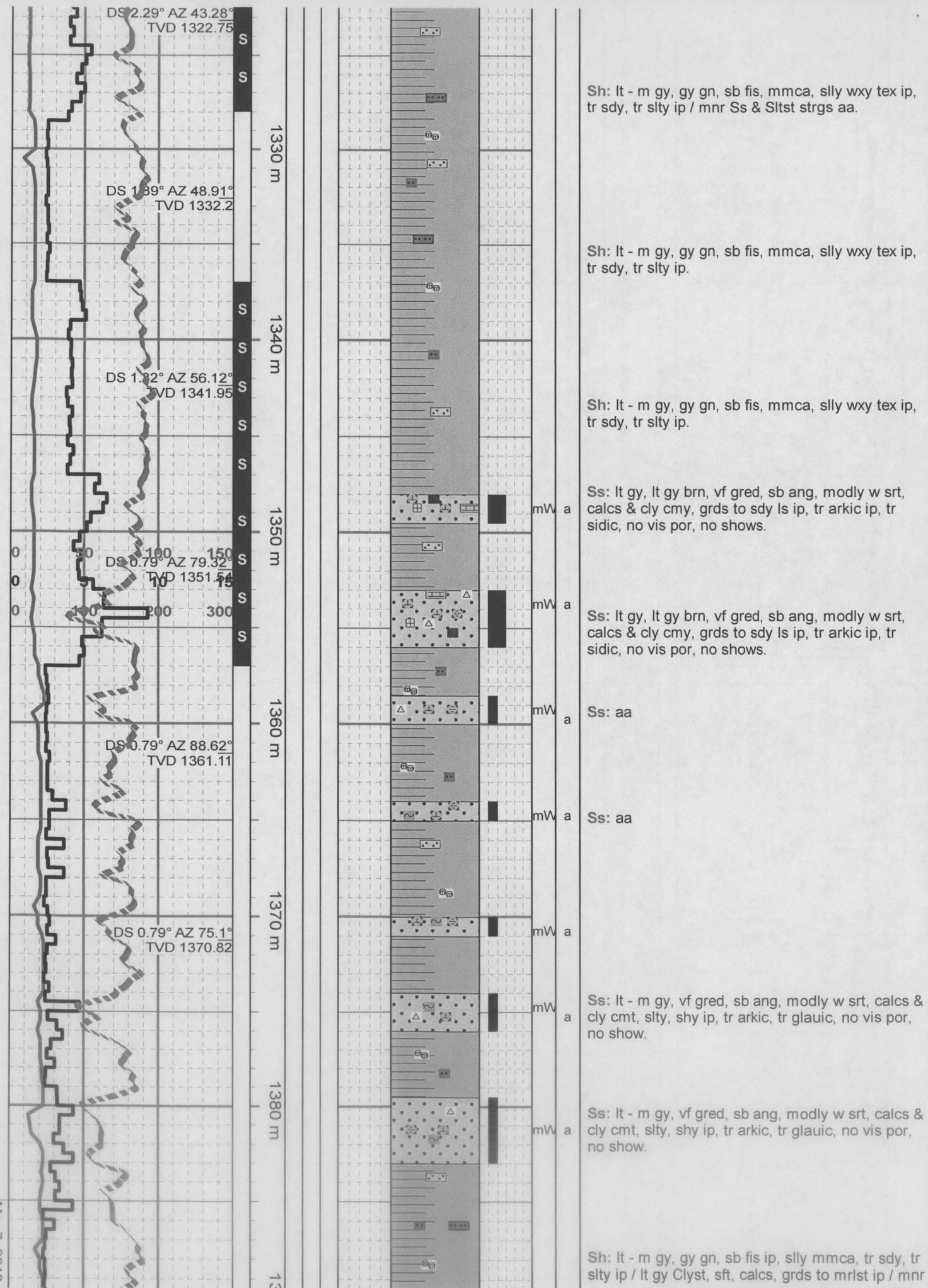
Sh: gy gn, gy, sb fis, sily mmca, sily wxy tex ip, tr pyr, tr sdy, tr slty ip / mnr Sltst strgs aa / Ss strgs, lt gy, vf gred, sb ang, modly w srt, calcs & cly cmt, tr glaucic, shy, slty, tt, no shows.

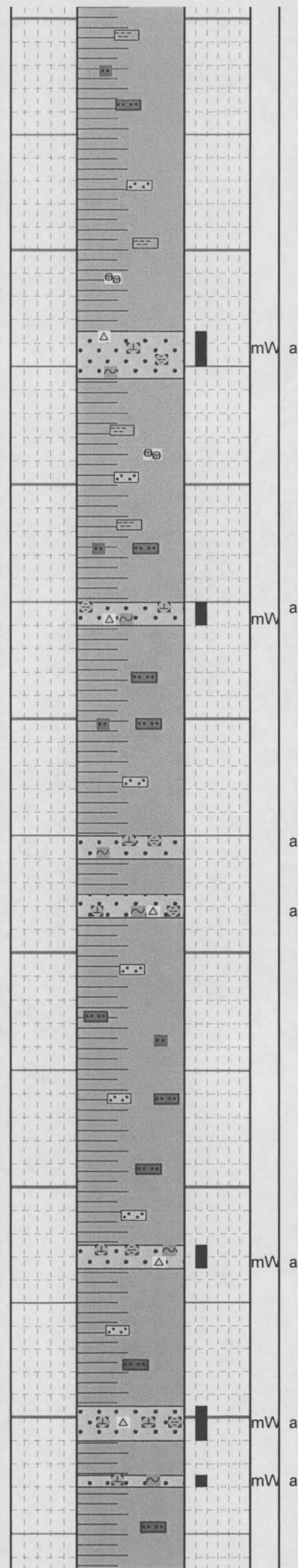
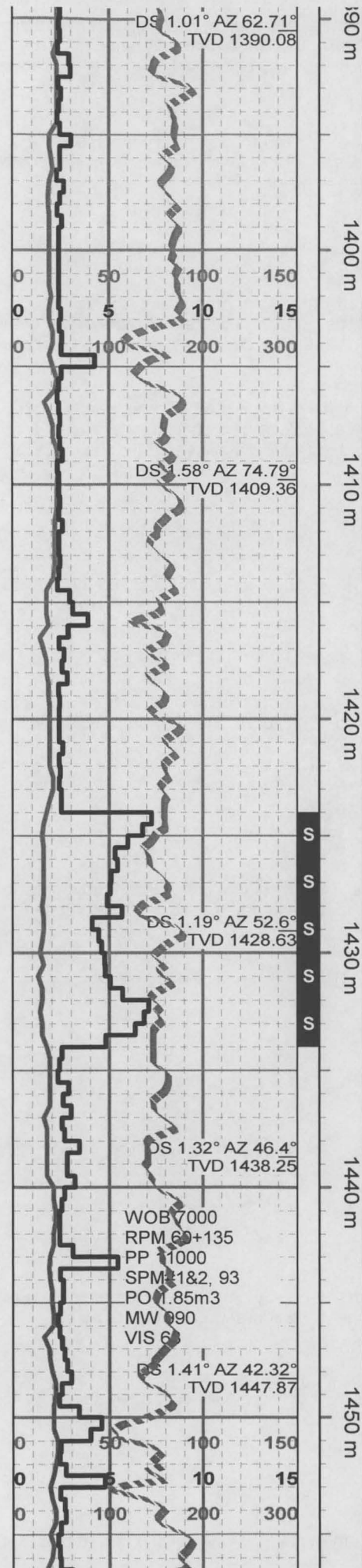
Sh: gy gn, gy, sb fis, mmca, sily wxy tex ip, tr pyr, tr sdy, tr slty ip / mnr Sltst strgs aa / Ss strgs, lt gy, vf gred, sb ang, modly w srt, calcs & cly cmt, tr glaucic, shy, slty, tt, no shows.

Sh: gy gn, gy, sb fis, mmca, sily wxy tex ip, tr pyr, tr sdy, tr slty ip / mnr Sltst strgs aa / Ss strgs, lt gy, vf gred, sb ang, modly w srt, calcs & cly cmt, tr glaucic, shy, slty, tt, no shows.

Sh: gy gn, gy, sb fis, mmca, sily wxy tex ip, tr pyr, tr sdy, tr slty ip / mnr Sltst strgs aa / Ss strgs, lt gy, vf gred, sb ang, modly w srt, calcs & cly cmt, tr glaucic, shy, slty, tt, no shows.

Sh: gy gn, gy, sb fis, mmca, sily wxy tex ip, tr pyr, tr sdy, tr slty ip / mnr Sltst strgs aa / Ss strgs, lt gy, vf gred, sb ang, modly w srt, calcs & cly cmt, tr glaucic, shy, slty, tt, no shows.





Ss strgs aa.

Sh: lt - m gy, gy gn, sb fis ip, slly mmca, tr sdy, tr slty ip / lt gy Clyst, sft, calcs, grds to mrlst ip.

Ss: lt gy, crm, lt rust ip, vf gred, sb ang, modly w srt, calcs & cly cmt, slty, shy ip, tr arkic, te fer ip, tr dk lit grs, no vis por, no shows.

Ss: lt gy, crm, lt rust ip, vf gred, sb ang, modly w srt, calcs & cly cmt, slty, shy ip, tr arkic, te fer ip, tr dk lit grs, no vis por, no shows.

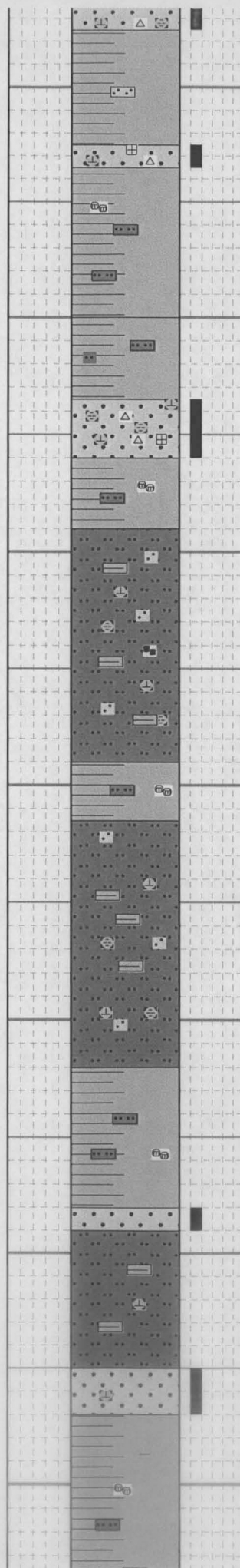
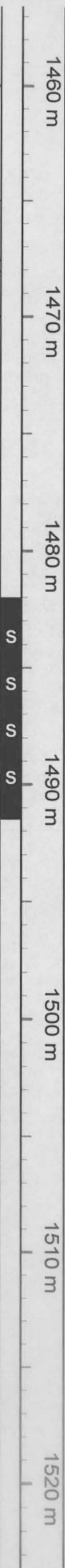
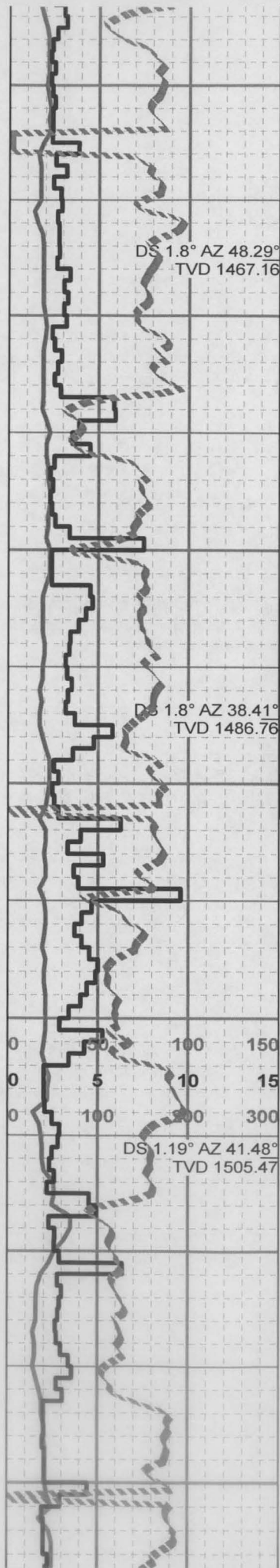
Sh: lt - m gy, gy gn, sb fis ip, slly mmca, tr sdy, tr slty ip / lt gy Clyst, sft, calcs, grds to mrlst ip / 20% Sltst strgs, lt - m gy, cly cmt, sdy, shy, tt, no shows.

Ss: lt gy, crm, lt rust ip, vf gred, sb ang, modly w srt, calcs & cly cmt, slty, shy ip, tr arkic, te fer ip, tr dk lit grs, no vis por, no shows.

Sh: lt - m gy, slly mmca, occlly slty, sft - modly frm, sb fis ip / abnt Sltst strgs & lams, lt - m gy, gy gn ip, cly mtx, slly calcs, shy, sdy ip, tt, no shows.

Ss: lt gy, vf gred, sb ang, modly w srt, sb ang, calcs & cly cmt, tr glaucic, tr arkic, tr dk lit grs, slty, shy, tt, no shows.

Ss: lt gy, vf gred, sb ang, modly w srt, sb ang, calcs & cly cmt, tr glaucic, tr arkic, tr dk lit grs, slty, shy, tt, no shows.



mW a Sh: lt - m gy, sly mmca, occlly slty, sft - modly frm, sb fis ip / abnt Slstst strgs & lams, lt - m gy, gy gn ip, cly mtx, sly calcs, shy, sdy ip, tt, no shows.

mW a Ss: lt gy, vf gred, sb ang, modly w srt, sb ang, calcs & cly cmt, tr glauic, tr arkic, tr dk lit grs, slty, shy, tt, no shows.

Sh: predly m gy, sly mmca, sly slty, sft - modly frm, sb fis ip / abnt Slstst strgs & lams, lt - m gy, gy gn ip, cly mtx, sly calcs, shy, sdy ip, tt, no shows.

mW a Ss: crm, lt - m gy, vf gred, sb ang, modly w srt, qtz / lt cold cht, calcs & cly cmt, slty, shy ip, tr mnr dk lit grs, p tr arkic, v sly sidic? ip, no vis por or show.

Slstst: lt - m gy, cly cmt, sly calcs, tr sdy, grds to slty sh ip, tr dk lit grs, tr carb mat, tt, no shows.

Slstst: lt - m gy, cly cmt, sly calcs, tr sdy, grds to slty sh ip, tr dk lit grs, tr carb mat, tt, no shows.

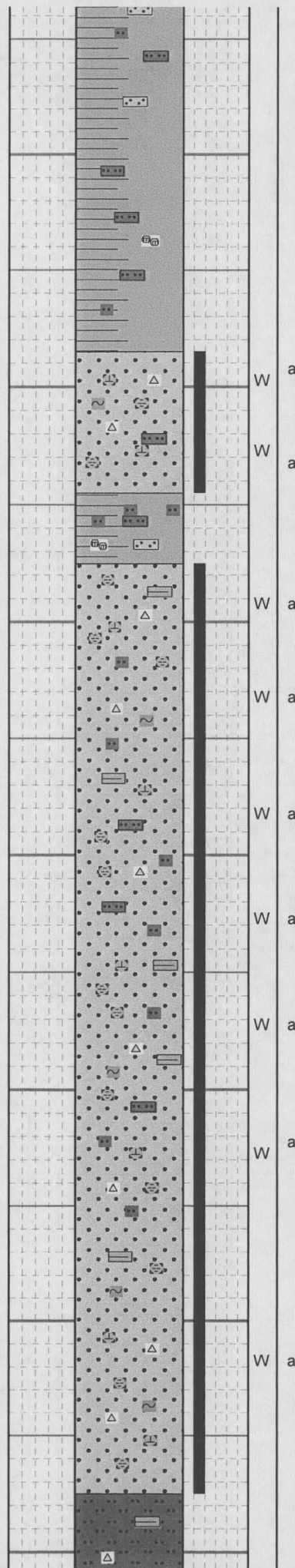
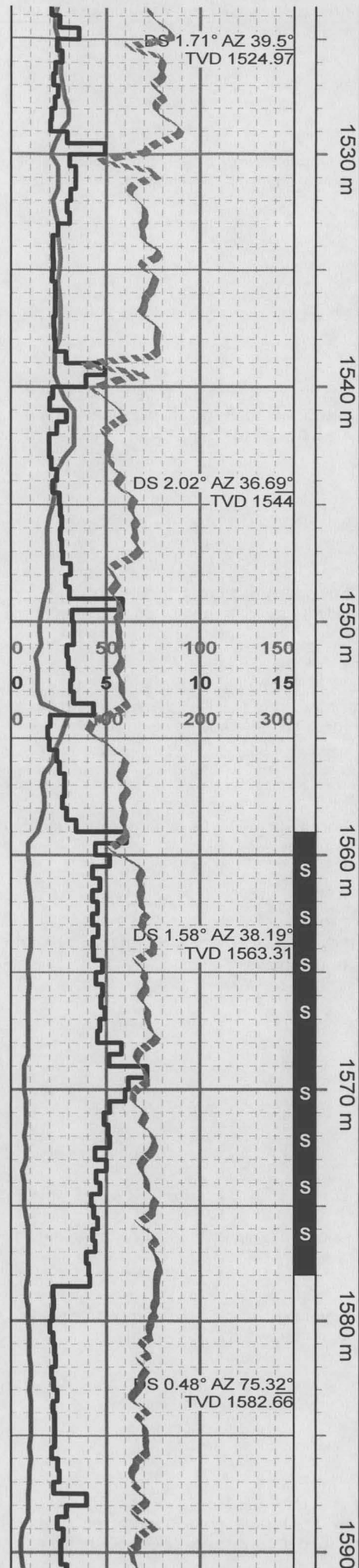
Slstst: lt - m gy, cly cmt, sly calcs, tr sdy, grds to slty sh ip, tr dk lit grs, tr carb mat, tt, no shows.

Sh: lt - m gy, blkly, v slty, sly mmca, grds to shy slstst ip, sbfis ip.

Slstst: lt - m gy, cly cmt, sly calcs, tr sdy, grds to slty sh ip, tr dk lit grs, tr carb mat, tt, no shows.

Ss: crm - lt gy, vf gred, sb ang, w srt, calcs & cly cmt, tr dk lit grs, tr glauic, slty, tt, no shows.

Sh: lt - m gy, blkly, v slty, sbfis ip, sly mmca, tr



Sh: m gy, sly mmca, sbfis ip, occlly slty, tr sly sidic ip / abnt Slst strgs aa / occ Ss strgs aa.

Sh: m gy, sly mmca, sbfis ip, occlly slty, tr sly sidic ip / abnt Slst strgs aa / occ Ss strgs aa.

Ss: lt gy, l vf gred, sb ang, w srt, calcs & cly cmt, tr glauc, slty, grds to sltst ip, occlly shy, tt, no shows.

Sh: aa

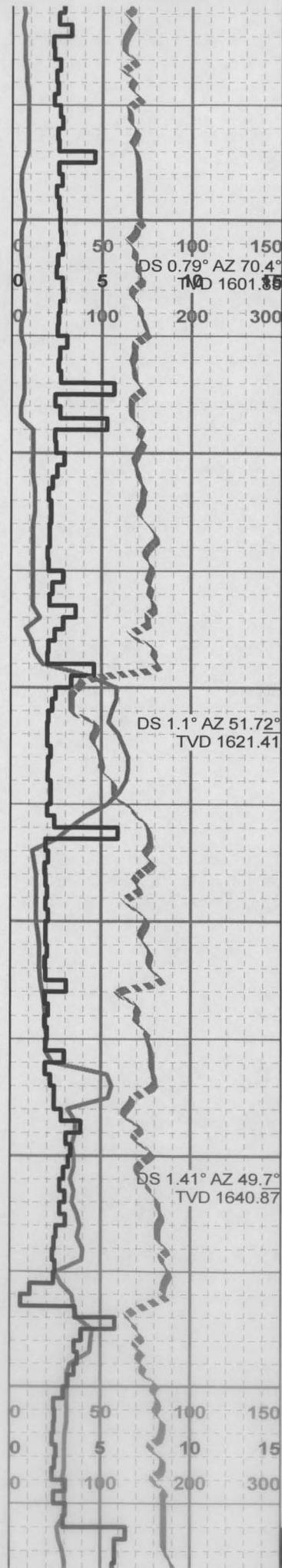
Ss: v lt gy, l vf gred, sb ang, w srt, calcs & cly cmt, tr glauc, slty, tr dk lit grs, grds to sltst ip, tr shy ip, tt, no shows.

Ss: v lt gy, l vf gred, sb ang, w srt, calcs & cly cmt, tr glauc, slty, tr dk lit grs, grds to sltst ip, tr shy ip, tt, no shows / mnr Sh lams aa.

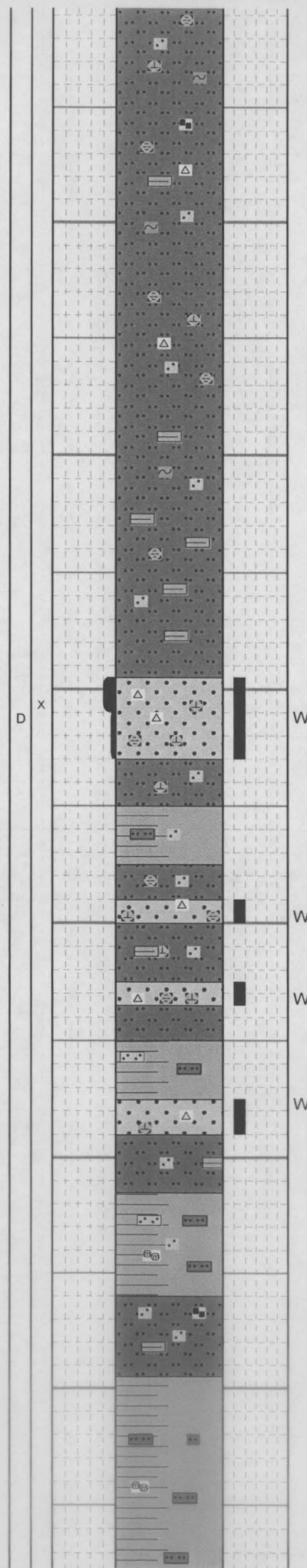
Ss: v lt gy, l vf gred, sb ang, w srt, calcs & cly cmt, tr glauc, slty, tr dk lit grs, grds to sltst ip, tr shy ip, tt, no shows / mnr Sh lams aa.

Ss: v lt gy, l vf gred, sb ang, w srt, calcs & cly cmt, tr glauc, slty, tr dk lit grs, grds to sltst ip, tr shy ip, tt, no shows / mnr Sh lams aa.

Ss: v lt gy, l vf gred, sb ang, w srt, calcs & cly cmt, tr glauc, slty, tr dk lit grs, grds to sltst ip, tr shy ip, tt, no shows / mnr Sh lams aa.



m
1600 m
1610 m
1620 m
1630 m
1640 m
1650 m



Siltst: lt gy, calcs & cly cmt, sdy, sily sh, tr carb specs, tt, no show.

Siltst: lt gy, calcs & cly mtx, tr carb specs, tr glauic, sdy & shy ip, tt, no shows.

Siltst: lt gy, calcs & cly mtx, tr carb specs, tr glauic, sdy & shy ip, tt, no shows / mnr Sh aa.

Siltst: lt gy, calcs & cly mtx, tr carb specs, tr glauic, sdy & shy ip, tt, no shows / 10% sh lams.

Ss: crm - lt gy, spy lt tan, vf gred, sb ang, w srt, qtzs, mntr lt cold cht, calcs, cly cmt ip, tr dk lit grs, tt - p intgran por 3%, spy lt brn dd o stn, no vis flor.

Sh: m - occlly dk gy, sb fis ip, sily mmca, slty ip, tr sdy ip.

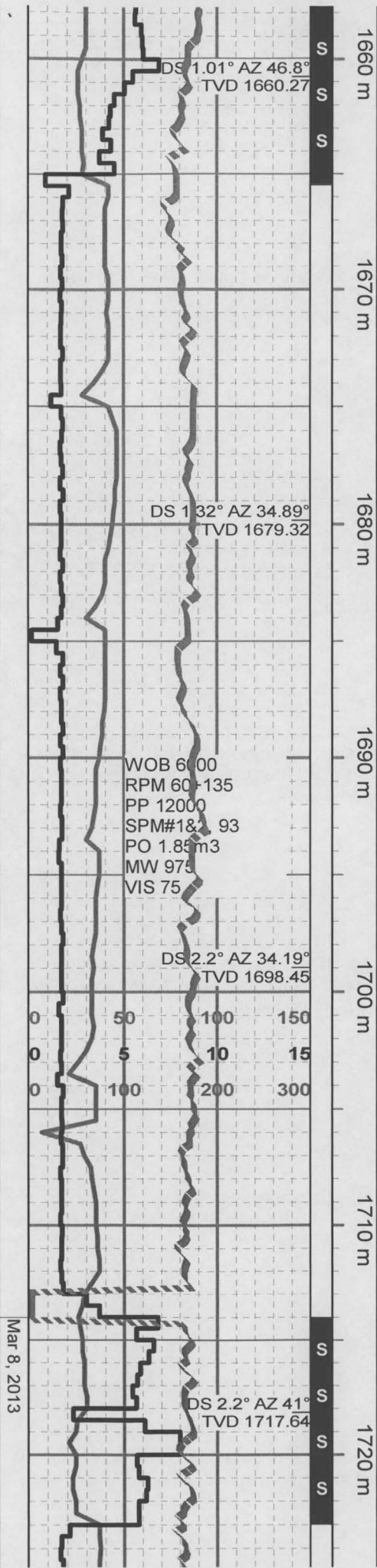
Siltst: lt gy, m gy ip, calcs & cly mtx, occlly sdy, shy ip, tt, no shows.

Ss: lt gy, l vf gred, sb ang, w srt, aa.

Sh: m - occlly dk gy, sb fis ip, sily mmca, slty ip, tr sdy ip.

Siltst: lt gy, m gy ip, calcs & cly mtx, occlly sdy, shy ip, tt, no shows.

Sh: m gy, sily mmca, sbfis ip, occlly slty, grds to shy siltst ip, p tr carb specs / 10% Siltst strgs aa.



Sh: m gy, sly mmca, sbfis ip, occly slty, grds to shy sltst ip, p tr carb specs / mnr Sltst strgs aa.

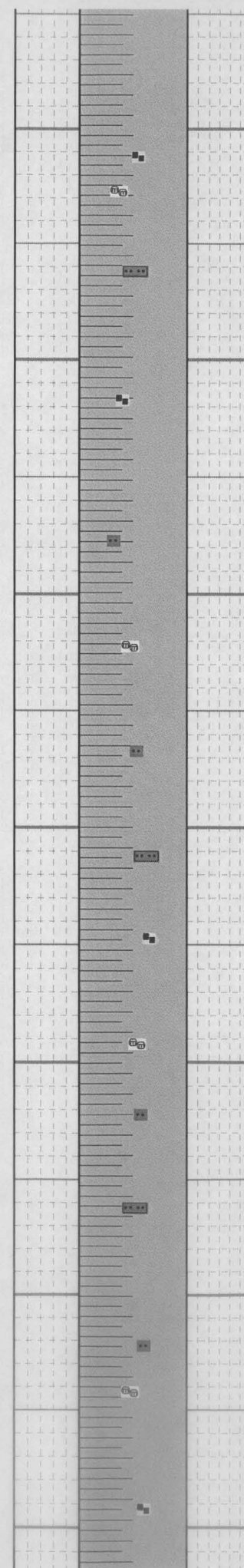
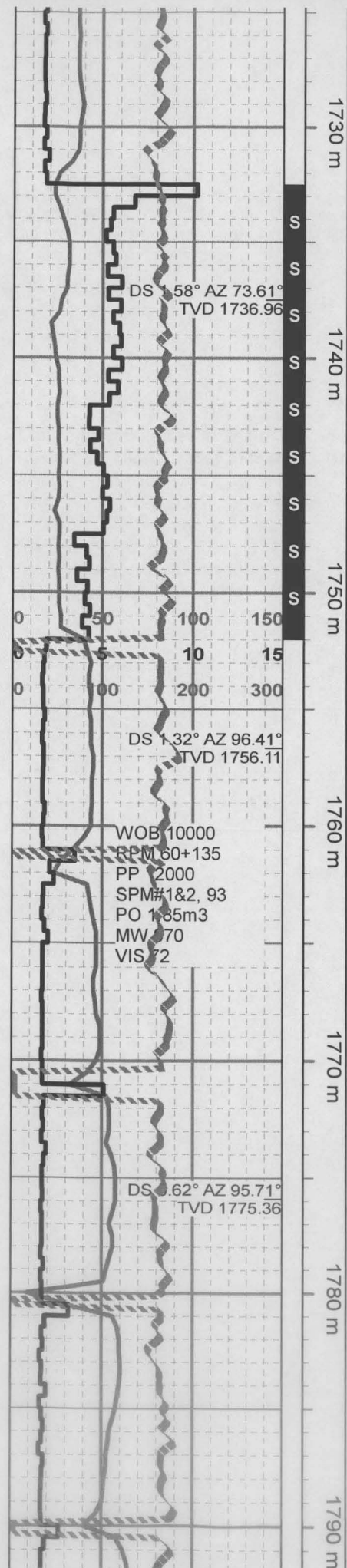
Sh: m gy, sly mmca, sbfis ip, occly slty, grds to shy sltst ip, p tr carb specs / tr Sltst strgs aa.

Sh: m gy, sly mmca, sbfis ip, tr slty, grds to shy sltst ip, p tr carb specs.

Sh: m gy, sly mmca, sbfis ip, tr slty, grds to shy sltst ip, p tr carb specs.

Sh: m - occly dk gy, sly mmca, sbfis ip, tr slty, p tr carb specs.

Sh: m - occly dk gy, sly mmca, sbfis, tr slty, p tr carb specs.



Sh: m - occly dk gy, slly mmca, sbfis, tr slty, p tr carb specs.

Sh: predly m gy, slly mmca, sbfis, tr slty, p tr carb specs.

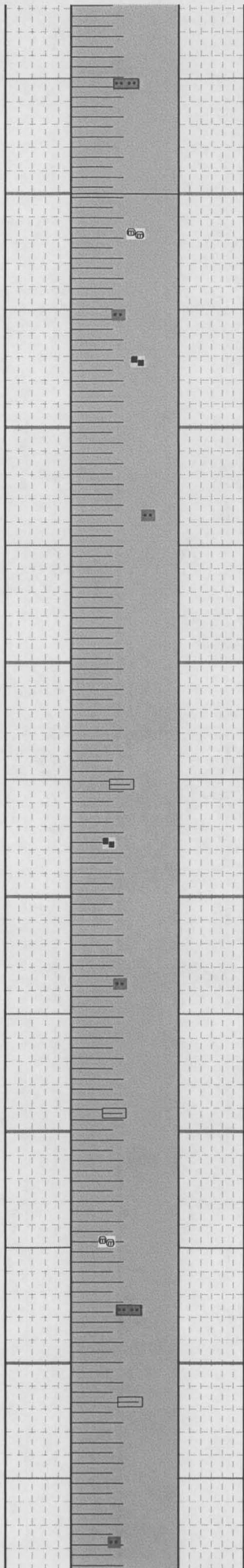
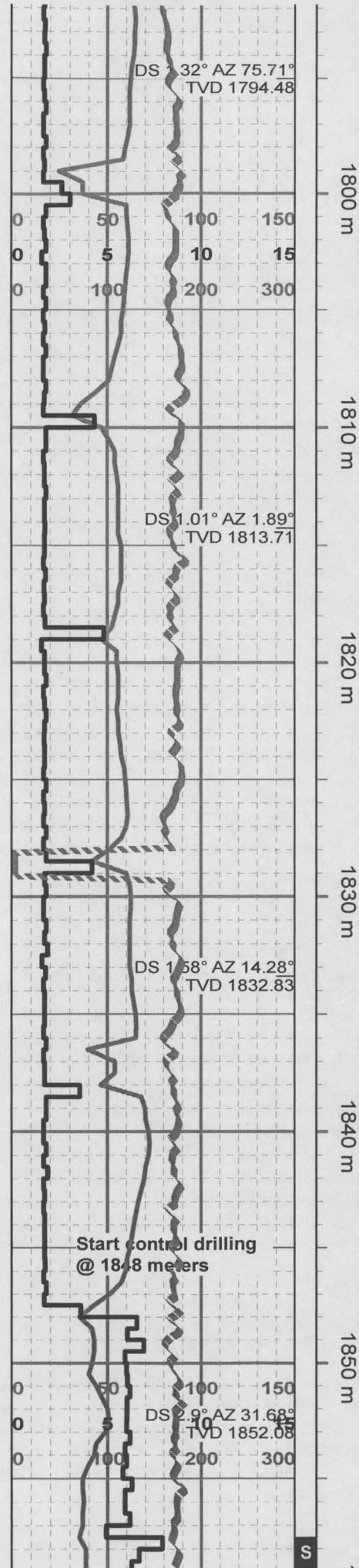
Sh: predly m gy, slly mmca, sbfis, tr slty, p tr carb specs.

Sh: predly m gy, slly mmca, sbfis, tr slty, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, slly calcs, shy, tt, no shows.

Sh: predly m gy, slly mmca, sbfis ip, tr slty, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, slly calcs, shy, tt, no shows.

Sh: predly m gy, slly mmca, sbfis ip, tr slty, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, slly calcs, shy, tt, no shows.

Sh: predly m gy, slly mmca, sbfis ip, slty ip, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, slly calcs, shy, tt, no shows.



Sh: predly m gy, sly mmca, sbfis ip, slty ip, p tr carb specs / tr mnr Slst strgs, m gy, cly cmt, sly calcs, shy, tt, no shows.

Sh: predly m gy, mnr dk gy, sly mmca, sbfis ip, slty ip, p tr carb specs.

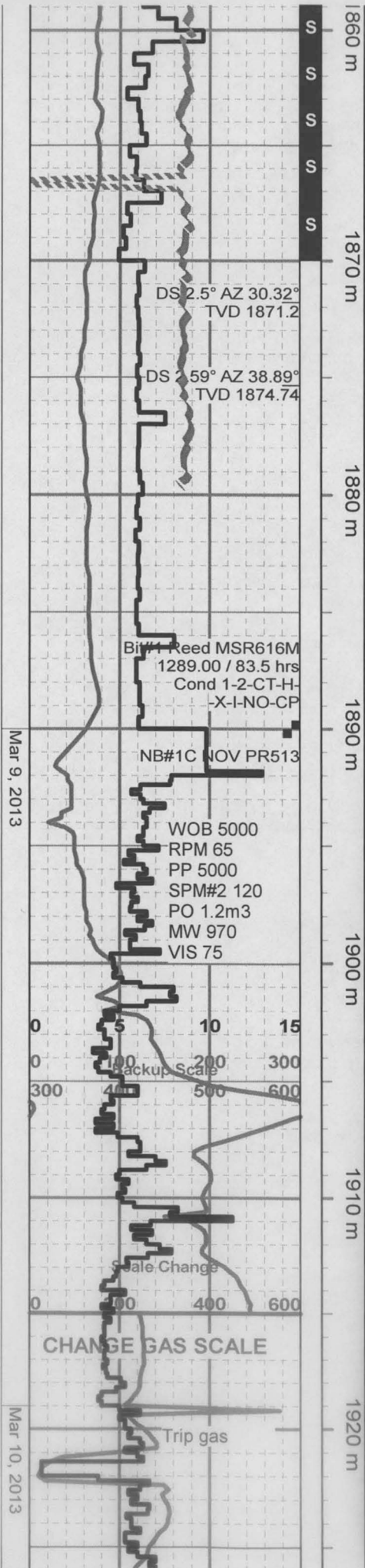
Sh: predly m gy, tr dk gy, sly mmca, sbfis ip, p tr slty ip, p tr carb specs.

Sh: predly m gy, tr dk gy, sly mmca, incrg sbfis, p tr slty ip, p tr carb specs.

Sh: predly m gy, incrg dk gy, sly mmca, sbfis, p tr slty ip, p tr carb specs.

Sh: predly m gy, mnr dkr gy, sbfis, sly mmca, tr slty ip / tr mnr Slst lams, m gy, cly mtv, sly calcs, shy, tt, no shows.

Sh: predly m gy, mnr dkr gy, sbfis, modly frm, sly mmca, tr slty ip.



Sh: predly m gy, mnr dkr gy, sbfis, modly frm, slly mmca, tr slty ip.

Sh: predly m gy, mnr dkr gy, sbfis, modly frm, slly mmca, tr slty ip.

Sh: predly m gy, mnr dkr gy, sbfis, modly frm, slly mmca, tr slty ip.

Make 1.5 meter depth correction

Sh: m gy, frm, sbfis, slly mmca, slly slty, tr unident fos casts (bracs?) tr dk carb mat, no dry
Sh: aa, slly dkr, tr dk carb mat (pl rmns?), flor aa.

Sh: m gy, frm, sbfis, slly mmca, slly slty, tr unident fos casts (bracs?) tr dk carb mat, flor aa.

Sh: aa, grdg to dk gy.
Corepoint marker 1900m

Sh: dk gy, bcmg carb, aa / abnt fos casts aa & ooc carb mat aa, flor aa

Sh: m - dk gy, slly mmca, sb fis, incrg slty? tr dk carb mat aa, show aa.

Sh: dk gy, decrg fos casts, p tr carb mat, show aa.

Sh: dk gy, modly frm, sbfis, slly mmca, slly slty, p tr dk carb mat, sl hvdic odor, show aa

Sh: dk gy aa, abnt fos casts (bracs?) aa / carb mat aa, no dry flor, v faint pale wh cut.

Sh: dk gy, modly frm, sbfis, slly mmca, slly slty, tr fos casts, tr dk carb mat, show aa.

Sh: dk gy, slly mmca, slly slty, tr fos & carb mat aa, flor aa.

Sh: dk gy, slly mmca, slly slty, sbfis, modly frm, no dry flor, v faint lt wh cut.

Sh: dk gy, incrg mmca, incrg slty, sbfis, modly frm, no dry flor, v faint lt wh yel cut.

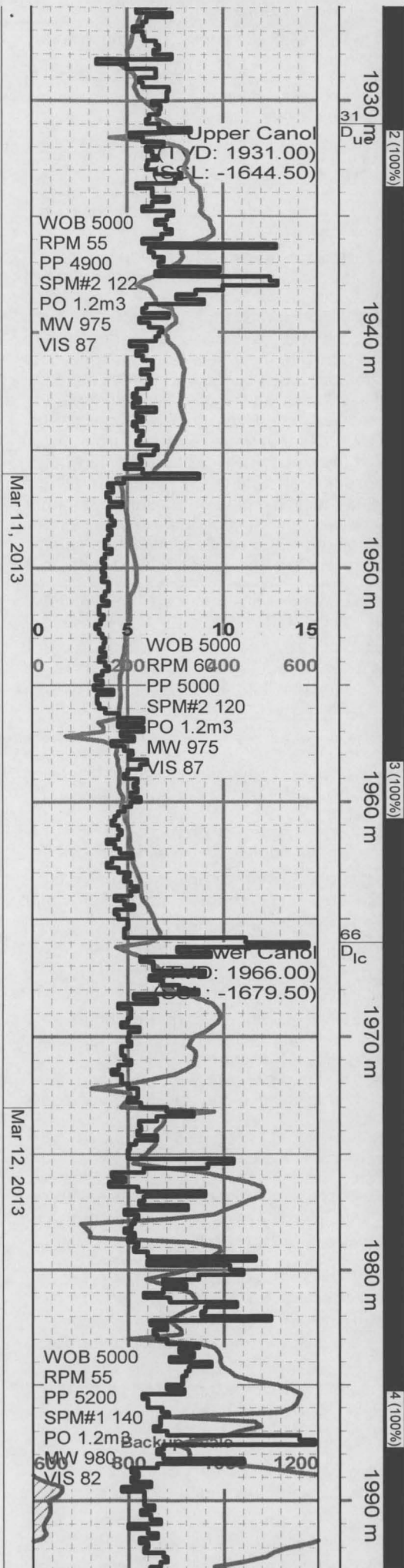
Sh: dk gy, incrg mmca, slty, sbfis, modly frm, no dry flor, v faint lt wh cut.

Sh: dk gy, sb fis, slly mmca, slty, tr diss pyr, tr v pale wh slow cloudy flor.

Sh: dk gy, sb fis, slly mmca, slty, tr dk carb specs (mat) show aa

Sh: dk gy, sb fis, slly mmca, bcmg frm (slly sils?), show aa

Sh: dk gy, sb fis, modly frm, slly mmca, tr slty,



Sh: dk gy, sb fis, modly frm, sly mmca, tr slty, mnr dk carb mat tr nvr show aa

Sh: dk gy, sb fis, modly frm, sly mmca, tr slty, incrn dk carb mat abnt snons spics tr nl rms?

Sh: dkr gy, sb fis, modly frm, sly mmca, sly slty, tr dk carb mat tr snics slow pale flr cut aa

Sh: sly dkr gy, sb fis, sly mmca, sl Upper Canol spics, tr blk carb mat, no dry flr (TVD: 1931.00)

Sh: v dk gy, sb fis, sly mmca, s (SSL: -1644.50) frm tr blk carb mat show aa

Sh: v dk gy - blk, sb fis, sly mmca, sly slty, sft - modly frm tr blk carb mat show aa

Sh: dk gy, sb fis, sly mmca, sly slty, sft - modly frm tr blk carb mat occ spics show aa

Sh: dk gy - dk gy brn, sb fis, sly slty, sly mmca, v abnt snics tr dk carb mat (nl rms) show aa

Sh: dk gy - dk gy brn, sb fis, pyric, sly slty, sly mmca, v abnt spics, tr dk carb mat (pl rms), fos

Sh: dk gy - dk gy brn, sb fis, sly slty, sly mmca, tr pyric, p tr spics, show aa.

Sh: dk gy, sb fis, sly slty, sly mmca, tr pyric, tr dk carb mat (pl rms), tr spics aa, show aa.

Sh: aa / abnt fos casts (pels or ools) infilled / pyr, no dry flr, pale wh stmg cut.

Sh: dk gy, sb fis, sly mmca, sly slty, tr mnrcarb mat (pl rms?), no dry flr, v pale lt wh cut flr.

Sh: dk gy, sb fis, sly mmca, sly slty, tr mnrcarb mat (nl rms?) no dry flr v faint to no show

Sh: aa / fos casts (pels?) infilled / pyr.

Sh: dk gy, sb fis, sly mmca, sly slty, tr mnrcarb mat (pl rms?), no dry flr, predly no show.

Sh: dk gy, sb fis, sly mmca, sly slty, tr mnrcarb mat (pl rms?), faint to no show.

Sh: dk gy, sb fis, sly mmca, sly slty, modly frm, tr mnrcarb mat (pl rms?), no dry flr, faint to no

Sh: dk gy, sb fis, sly mmca, sly slty, tr mnrcarb mat (nl rms?) show aa

Sh: dk gy, sb fis, sly mmca, sly slty, tr mnrcarb mat (pl rms?), show aa.

Sh: dk gy, sb fis, sly mmca, sly slty, tr mnrcarb mat (pl rms?), show aa.

Sh: dk gy, sb fis, sly mmca, sly slty, abnt dismpyr, tr mnrcarb mat (pl rms?), show aa.

Sh: dk gy, sb fis, sly mmca, modly frm, bcmg sils, sly slty, tr mnrcarb mat (pl rms?), show

Sh: dk gy, sb fis, sly mmca, modly frm, sly sils, carb, sly slty, no dry flr, faint pale wh cloudy cut.

Sh: aa, dismpyr.

Sh: dk gy - blk, sly mmca, frm - hd, sils? carb, tr slty tr dismpyr show aa

Sh: aa, abnt carb mat.

Sh: dk gy - blk, sly mmca, frm - hd (sils), carb / abnt carb mat.

Sh: aa / abnt pyr, tr unident fos casts (pl rms)

Sh: dk gy - blk, fis, splty, sly mmca, frm - hd (sils), tr pyric, no dry flr, faint pale slow wh

Sh: dk gy - blk, fis, splty, sly mmca, frm - hd (sils) tr nvr no dry flr faint pale slow wh

Sh: aa, occ carb mat, tr micro frags infilled / carb mat & calc & tr pyr, shows aa.

Sh: dk gy, splty, sly mmca, frm - hd (sils), tr pyric, no dry flr, faint pale slow wh cloudy cut.

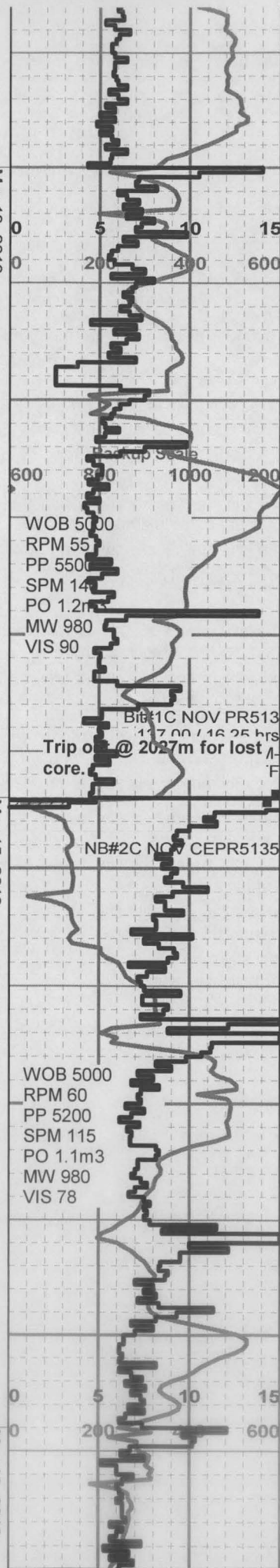
Sh: dk gy, frm - hd, sils, sly mmca, occ carb mat, show aa.

Sh: dk gy, hd, sils? sly mmca, occ carb mat (fos

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casts & pl rmns?) show aa.

Sh: dk gy, hd, sils? sly mmca, tr pyr, occ carb mat, show aa.

Sh: dk gy, hd, sils? sly mmca, tr pyr, occ carb mat, v thin pyric lam, show aa.

Sh: dk gy, hd, sils? sly mmca, tr pyr, occ carb mat, show aa.

Sh: dk gy, hd, sils? sly mmca, tr pyr, occ carb mat, show aa.

Core# 5: No recovery at surface. Upper shoe backed off from bottom of inner tubes and core emptied out of tubes. Schlumberger wireline lost 200 lbs @ 1500m, then they lost 1200 lbs of weight @ 110 meters. Started recovering core from drill pipe after 3 stands. Core was mixed up in the first four tubes due to unorthodox lay down procedures (tubes & core possibly reversed). Tubes 5-10 were relatively in order, tubes 11-13 are mixed up as they were recovered from mouse hole after the core fell out of the drill pipe while in the mouse hole. The core was jammed in the pipe and we had to hit the pipe with a sledge hammer to free the core and the thread protector we had screwed on the bottom of the drill pipe to catch the core failed. We then pulled the mouse hole out and laved it down on the nine racks and had

Sh: dk gy, hd, sils? sly mmca, pyric / thin lamd pyr and occ pyr nuds, no dry flor, v pale slow cloudy wh cut flor.

Core# 1: The tubes as seen in core. Tubes 1-10 were recovered from the outer core barrels at surface on the drill floor after the bit was removed and are relatively in order. Estimate almost full recovery.

Sh: dk gy, hd, sils? sly mmca, bcmg v sly calcs, dism pyr, occ carb mat, no dry flor, v pale wh slow cloudy cut.

Sh: dk gy, frm, sly sils, sly mmca, dism pyr, occ carb mat, no dry flor, v pale wh slow cloudy cut.

Sh: dk gy - blk, sly mmca, frm bcmg brit, sils? v sly calcs, carb mat (pl rmns?), no dry flor, v faint

Sh: dk gy - blk, sly mmca, frm bcmg brit, sils? v sly calcs, carb mat (pl rmns?), no dry flor, v faint

Sh: dk gy - blk, sly mmca, carb, frm, brit, sils? v sly calcs, carb mat (pl rmns?), no dry flor, v faint

Sh: dk gy - blk, sly mmca, carb, frm, brit, sils? v sly calcs, carb mat (pl rmns?), no dry flor, v faint

Sh: dk gy - blk, sly mmca, carb, frm, brit, sils? v sly calcs, carb mat (pl rmns?), no dry flor, v faint

Sh: blk, frm, brit, splty, sly sils, sly mmca, carb, tr pyric, mud invasion along sh lams, hydc odor? shows aa.

Sh: blk, frm, brit, splty, sly sils, sly mmca, carb, tr pyric, mud invasion along sh lams, hydc odor? shows aa.

Sh: dk gy - blk, frm, brit, splty, sly sils?, sly mmca, carb, incrg calcs, tr pyric, shows aa.

Sh: dk gy - blk, frm, brit, splty, sly sils?, sly mmca, carb, calcs, tr pyric, shows aa

Sh: dk gy - blk, frm, brit, splty, sly sils?, sly mmca, carb, calcs, tr pyric, dk carb mat (pl

Sh: dk gy - blk, frm, brit, splty, sly sils?, sly mmca, carb, calcs, bcmg sly, dk carb mat (pl

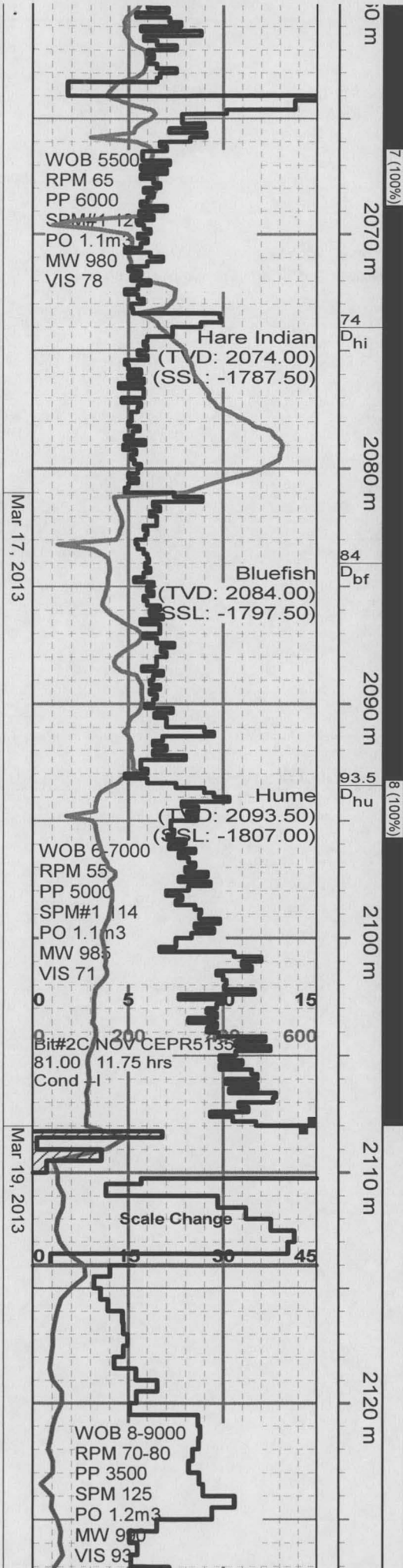
Sh: dk gy - blk, frm, brit, splty, sly sils?, sly mmca, carb, v sly calcs, tr pyric, dk carb mat (pl

Sh: v dk gy, frm, brit, sly sils?, sly mmca, carb, tr pyric, tr dk carb mat (pl rmns?), shows aa.

Sh: v dk gy - blk, frm, brit, sly sils?, sly mmca, carb, tr dk carb mat (pl rmns?), shows aa

Sh: v dk gy - blk, frm, brit, sils?, sly mmca, carb, tr dism pyr, tr dk carb mat (pl rmns?), shows aa

Sh: v dk av - blk, frm, brit, sils?, sly mmca, carb, tr dk carb mat (pl rmns?), shows aa



pyr, carb, tr dk carb mat (pl rmns?), shows aa

Sh: v dk gy - blk, frm, brit, sily sils?, sily mmca, carb, tr dk carb mat (pl rmns?), shows aa

Sh: v dk gy - blk, frm, brit, sily sils?, sily mmca, dism pyr, carb, tr dk carb mat (pl rmns?), no dry flor, faint slow pale wh cloudy cut.

Sh: v dk gy - blk, frm, brit, sily sils?, sily mmca, dism pyr, carb, tr dk carb mat (pl rmns?), show

Sh: v dk gy, frm, splty, brit, sils? v sily mmca, carb, show aa.

Sh: v dk gy, frm, splty, brit, sils? v sily mmca, carb, sily slty, show aa.

Sh: v dk gy, frm, splty, brit, sils? v sily mmca, dk carb mat (pl rmns?), sily slty, show aa.

Sh: v dk gy, frm, splty, brit, sils? v sily mmca, v abnt spotted (pels?) dk carb mat (grds to bit?), show aa but silv brighter.

Sh: aa

Sh: v dk gy, bcmg less brit, sily mmca, carb, sily slty dk carb mat tr unident fos casts, shows aa

Sh: v dk gy, modly brit, plty, frm, sily sils, Bluefish mmca abnt rdd carb spots, show (TVD: 2084.00)

Sh: aa / dism pyr. (SSL: -1797.50)

Sh: v dk gy, plty, sb fis, sily mmca, carb, v sily calcs, show aa

Sh: dk gy, plty, fis, sils, incrg calcs, carb, abnt fos casts infilled / pyr, carb mat aa, show aa.

Sh: aa, incrg calcs.

Sh: v dk gy, modly brit, plty, frm, calcs, sily sils, sily mmca, abnt fos casts occlly infilled / pyr, carb

Sh: aa, v calcs.

Ls: lt brn, fragal wkest, rexld ip f m n, Hume unident fos casts (cor) infilled w (TVD: 2093.50)

Ls: lt brn, flst, micr mtx, rexld ip (SSL: -1807.00)

amph, unident fos casts (cor) infilled with cxln fros

Ls: aa

Ls: lt brn, mdst - wkest, sily arg, unident fos shad, dns, no shows

Ls: brn, flst? aa, shy, (mud contaminated)

Ls: lt brn, wkest? unident fos shad, sily arg, dns, no shows

Ls: brn, wkest, occ unident fos frags, gasts? unident cor casts infilled / calc, sily arg, dns, no vis shows.

Ls: brn, mdst - wkest, occlly rexld f xln, mnr unident fos shad, dns, no shows.

Ls: gy brn, mdst - wkest, unident fos shad & debris, sily arg, no vis por or shows.

Ls: gy brn, mdst - wkest, unident fos shad & debris, sily arg, no vis por or shows.

Ls: gy brn, mdst - wkest, unident fos shad & debris, sily arg, no vis por or shows.

Ls: gy brn, mdst - wkest, unident fos shad & debris, sily arg, no vis por or shows.

Ls: gy brn, mdst - wkest, sft, chky, unident fos
shad & debris, sly arg, no vis por or shows.

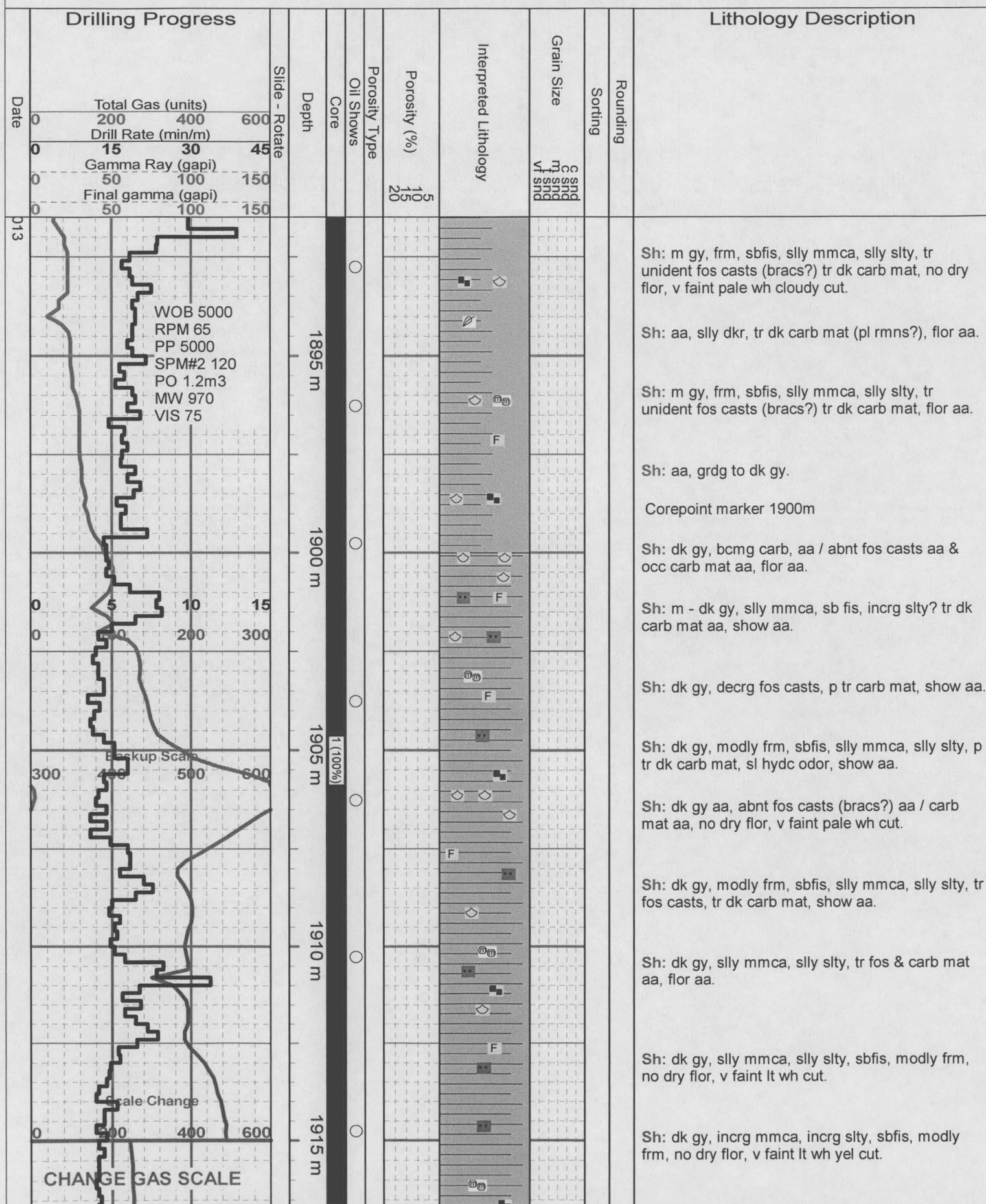
Ls: gy brn, mdst - wkest, sft, chky, unident fos
shad & debris, sly arg, no vis por or shows.

**TD: 2146 Meters on Mar 20, 2013
@ 01:00 hrs.**

Lithology Description

Rounding	
Sorting	
Grain Size	
Interpreted Lithology	
Porosity (%)	
Porosity Type	
Oil Shows	
Core	
Depth	
Slide - Rotate	
Drilling Progress	
Final gamma (gapi)	0 50 100 150
Gamma Ray (gapi)	0 50 100 150
Drill Rate (min/m)	0 15 30 45
Total Gas (units)	0 200 400 600
Date	Mar 20, 2013

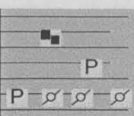
Core #1 Interval: 1891.50m to 1919.00m Cut: 27.5m Recovered: 27.5m (100%)



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Date	Mar 10, 2013
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Drilling Progress						Lithology Description									
Date	Total Gas (units)			Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Porosity (%)	Interpreted Lithology	Grain Size	Rounding	Sorting		
	200	400	600												
	Drill Rate (min/m)														
	5	10	15												
	Gamma Ray (gapi)														
	50	100	150												
	Final gamma (gapi)														
	50	100	150												
Mar 10, 2013	Trip gas				1920 m					P				Sh: dk gy, sb fis, sly mmca, slty, tr dism pyr, tr v pale wh slow cloudy flor.	
														Sh: dk gy, sb fis, sly mmca, slty, tr dk carb specs (mat), show aa.	
										F				Sh: dk gy, sb fis, sly mmca, bcmg frm (sly sils?), show aa.	
														Sh: dk gy, sb fis, modly frm, sly mmca, tr slty, mnv dk carb mat, tr unident fos casts, tr v pale wh slow cloudy flor.	
					1925 m					P				Sh: dk gy, sb fis, modly frm, sly mmca, tr slty, mnv dk carb mat, tr pyr, show aa.	
	0	5	10	15										Sh: dk gy, sb fis, modly frm, sly mmca, tr slty, incrg dk carb mat, abnt spong spics, tr pl rmns? incrg pale wh cloudy flor.	
	0	200	400	600										Sh: dkr gy, sb fis, modly frm, sly mmca, sly slty, tr dk carb mat, tr spics, slow pale flor cut aa.	
														Sh: sly dkr gy, sb fis, sly mmca, sly slty, n tr spics, tr blk carb mat, no dry flor cloudy cut.	
					1930 m									Upper Canol (TVD: 1931.00) (SSL: -1644.50)	
														Sh: v dk gy, sb fis, sly mmca, sly slty, sft - modly frm, tr blk carb mat, show aa.	
														Sh: v dk gy - blk, sb fis, sly mmca, sly slty, sft - modly frm, tr blk carb mat, show aa.	
					1935 m									Sh: dk gy, sb fis, sly mmca, sly slty, sft - modly frm, tr blk carb mat, occ spics, show aa.	
														Sh: dk gy - dk gy brn, sb fis, sly slty, sly mmca, v abnt spics, tr dk carb mat (pl rmns), show aa.	
														Sh: dk gy - dk gy brn, sb fis, pyric, sly slty, sly mmca, v abnt spics, tr dk carb mat (pl rmns), fos occlly infilled / pyr, show aa.	
					1940 m									Sh: dk gy - dk gy brn, sb fis, sly slty, sly mmca, tr pyric, p tr spics, show aa.	
														Sh: dk gy, sb fis, sly slty, sly mmca, tr pyric, tr dk carb mat (pl rmns), tr spics aa, show aa.	

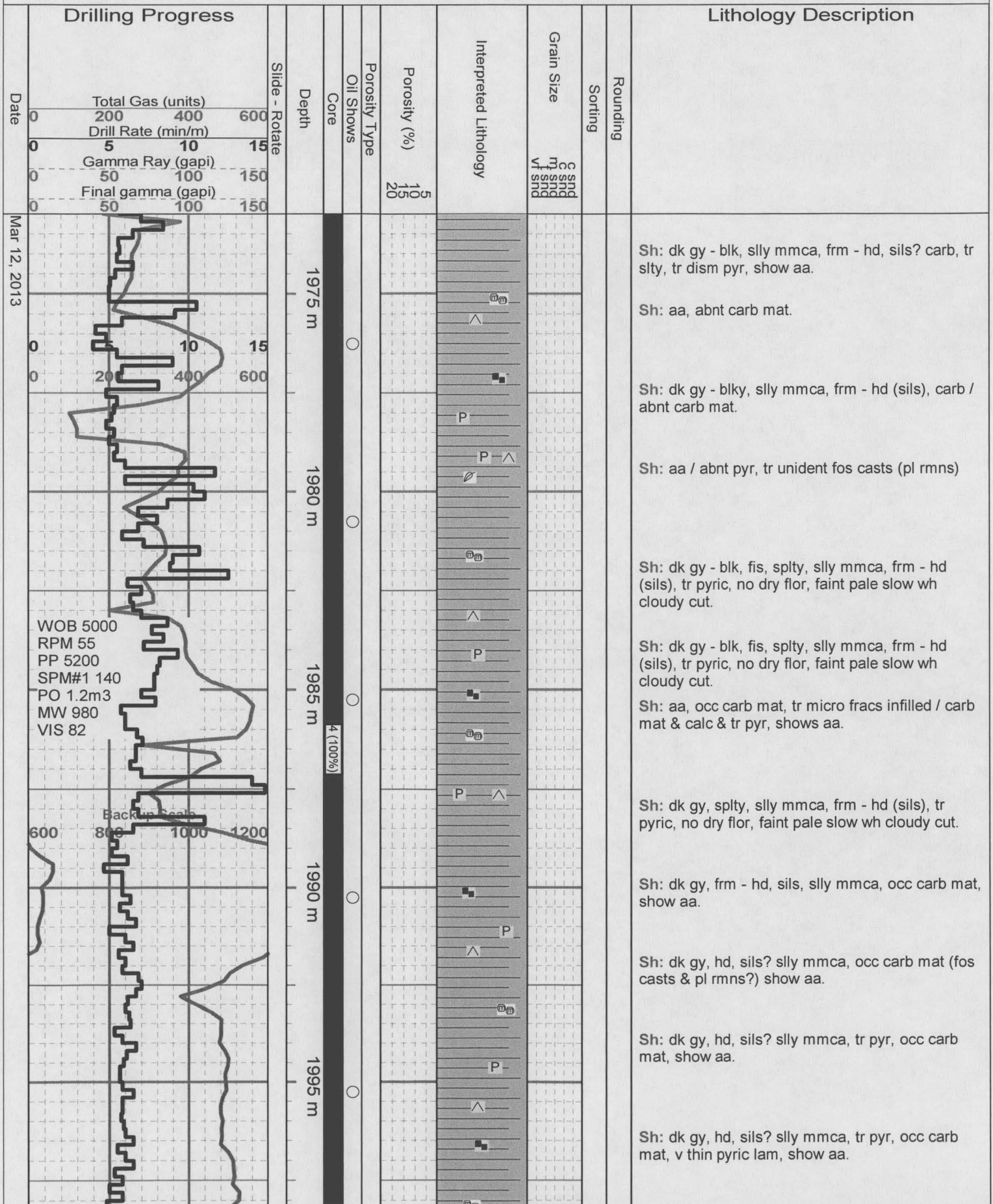
		1945 m						Sh: aa / abnt fos casts (pels or ools) infilled / pyr, no dry flor, pale wh stmg cut.	
Final gamma (gapi)		50 100 150		Slide - Rotate		Porosity (%)		Rounding	
Gamma Ray (gapi)		50 100 150		Depth		Oil Shows		Sorting	
Drill Rate (min/m)		5 10 15		Core		Porosity Type		Grain Size	
Total Gas (units)		200 400 600				Interpreted Lithology			
Date		Drilling Progress						Lithology Description	

Core #3 Interval: 1946.00m to 1973.00m Cut: 27m Recovered: 27m (100%)

[illegible]

Sh: aa, dism pyr.	
Lithology Description	
Rounding	
Sorting	
Grain Size	
Interpreted Lithology	
Porosity (%)	
Porosity Type	
Oil Shows	
Core	
Depth	
Slide - Rotate	
Drilling Progress	
Date	

Expanded Core Log (1:120) Mar 12, 2013
Core #4 Interval: 1973.00m to 2000.00m Cut: 27m Recovered: 27m (100%)

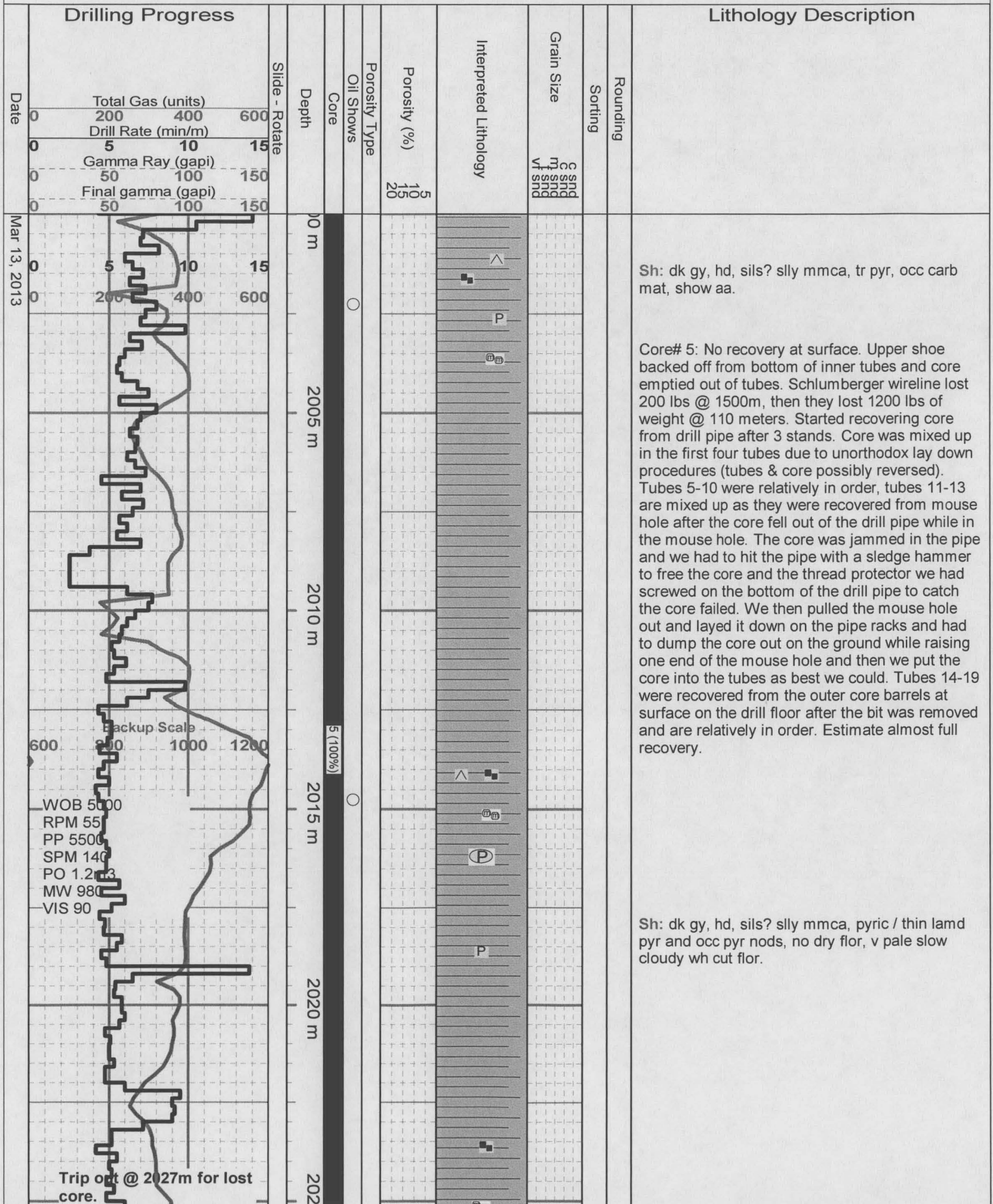


WOB 5000
RPM 55
PP 5200
SPM#1 140
PO 1.2m3
MW 980
VIS 82

Backup Seal

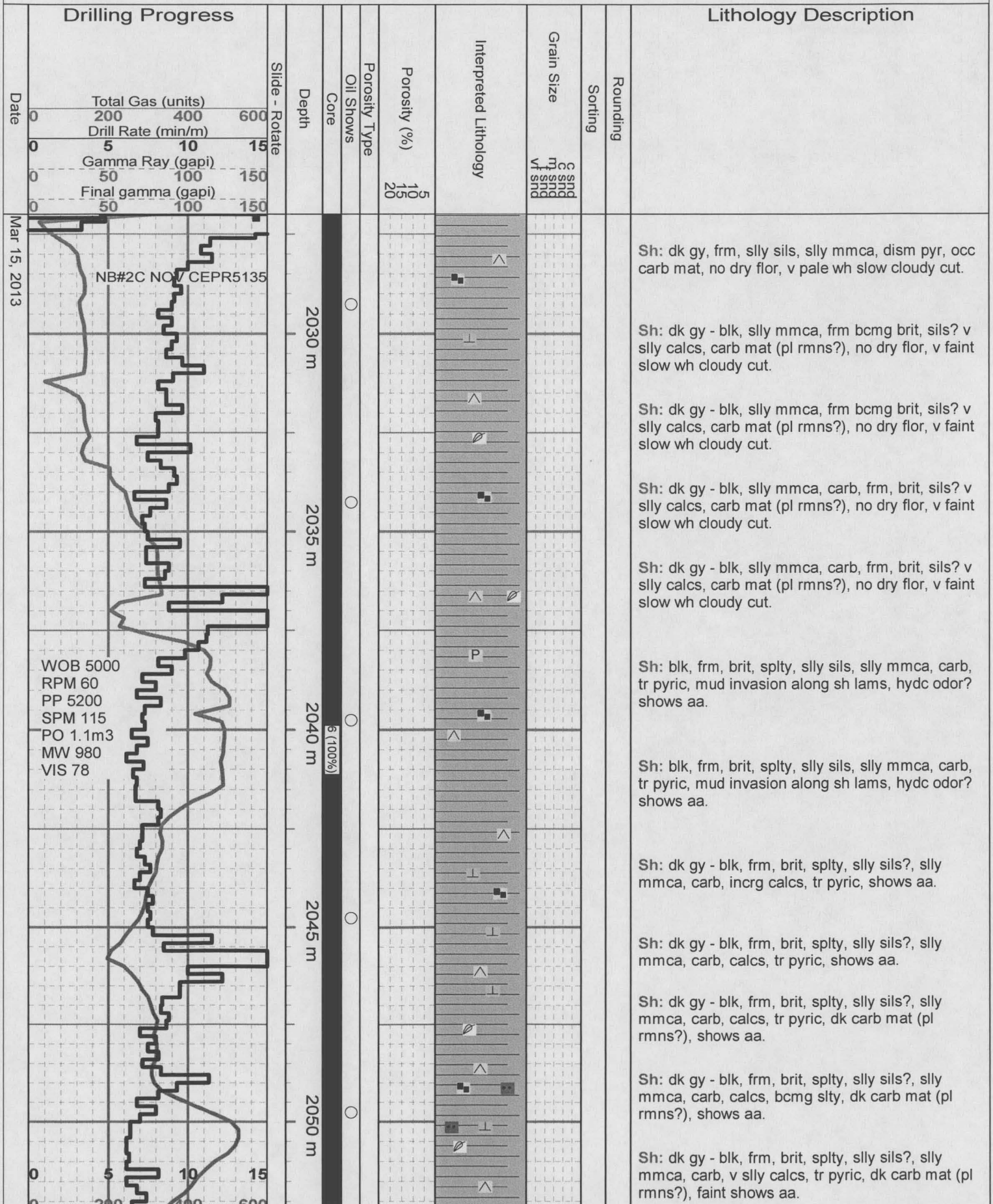
Sh: dk gy, hd, sils? slly mmca, tr pyr, occ carb mat, show aa.	
Rounding	
Sorting	
Grain Size	
Interpreted Lithology	
Porosity (%)	
Porosity Type	
Oil Shows	
Core	
Depth	
Slide - Rotate	
Drilling Progress	
Date	

Expanded Core Log (1:120) Mar 13, 2013
Core #5 Interval: 2000.00m to 2027.00m Cut: 27m Recovered: 27m (100%)



0		Bit#10 NOV PR513 137.00 / 16.25 hrs Cond 1-1-BT-M- 101-NO-D15		5 m		O		P		Sh: dk gy, hd, sils? slly mmca, bcmg v slly calcs, 'dism pyr, occ carb mat, no dry flor, v pale wh slow cloudy cut.	
0		Final gamma (gapi)		Slide - Rotate		Porosity Type		Interpreted Lithology		Rounding	
0		Gamma Ray (gapi)		Depth		Oil Shows		Grain Size		Sorting	
0		Drill Rate (min/m)		Core		Porosity (%)		c snd p snd fs snd v snd			
0		Total Gas (units)									
Date		200 400 600								Lithology Description	
		Drilling Progress									

Expanded Core Log (1:120) Mar 15, 2013
Core #6 Interval: 2027.00m to 2054.00m Cut: 27m Recovered: 27m (100%)



		Sh: v dk gy, frm, brit, slly sils?, slly mmca, carb, tr pyric, tr dk carb mat (pl rmns?), shows aa.	
		Lithology Description	
Rounding			
Sorting			
Grain Size			
C snd f snd v snd			
Interpreted Lithology			
Porosity (%)			
5 10 15 20			
Porosity Type			
Oil Shows			
Core			
Depth			
Slide - Rotate			
Drilling Progress			
Date			
Final gamma (gapi)		0 50 100 150	
Gamma Ray (gapi)		0 50 100 150	
Drill Rate (min/m)		0 5 10 15	
Total Gas (units)		0 200 400 600	

Core #7 Interval: 2054.00m to 2081.00m Cut: 27m Recovered: 27m (100%)

Drilling Progress										Lithology Description																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Date	Total Gas (units)				Drill Rate (min/m)				Gamma Ray (gapi)				Final gamma (gapi)				Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Porosity (%)	Interpreted Lithology	Grain Size	Rounding	Sorting																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	0	200	400	600	0	5	10	15	0	50	100	150	0	50	100	150																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Mar 16, 2013																	2055 m																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

Final gamma (gapi) 50100150 Gamma Ray (gapi) 50100150 Drill Rate (min/m) 51015 Total Gas (units) 200400600 Drilling Progress		Slide - Rotate 2080 m Core Oil Shows Porosity Type Porosity (%) 5101520 Interpreted Lithology c sand f sand vf sand Grain Size Sorting Rounding		abnt spotted (pels?) dk carb mat (grds to bit?), show aa but slly brighter. Lithology Description
Date				

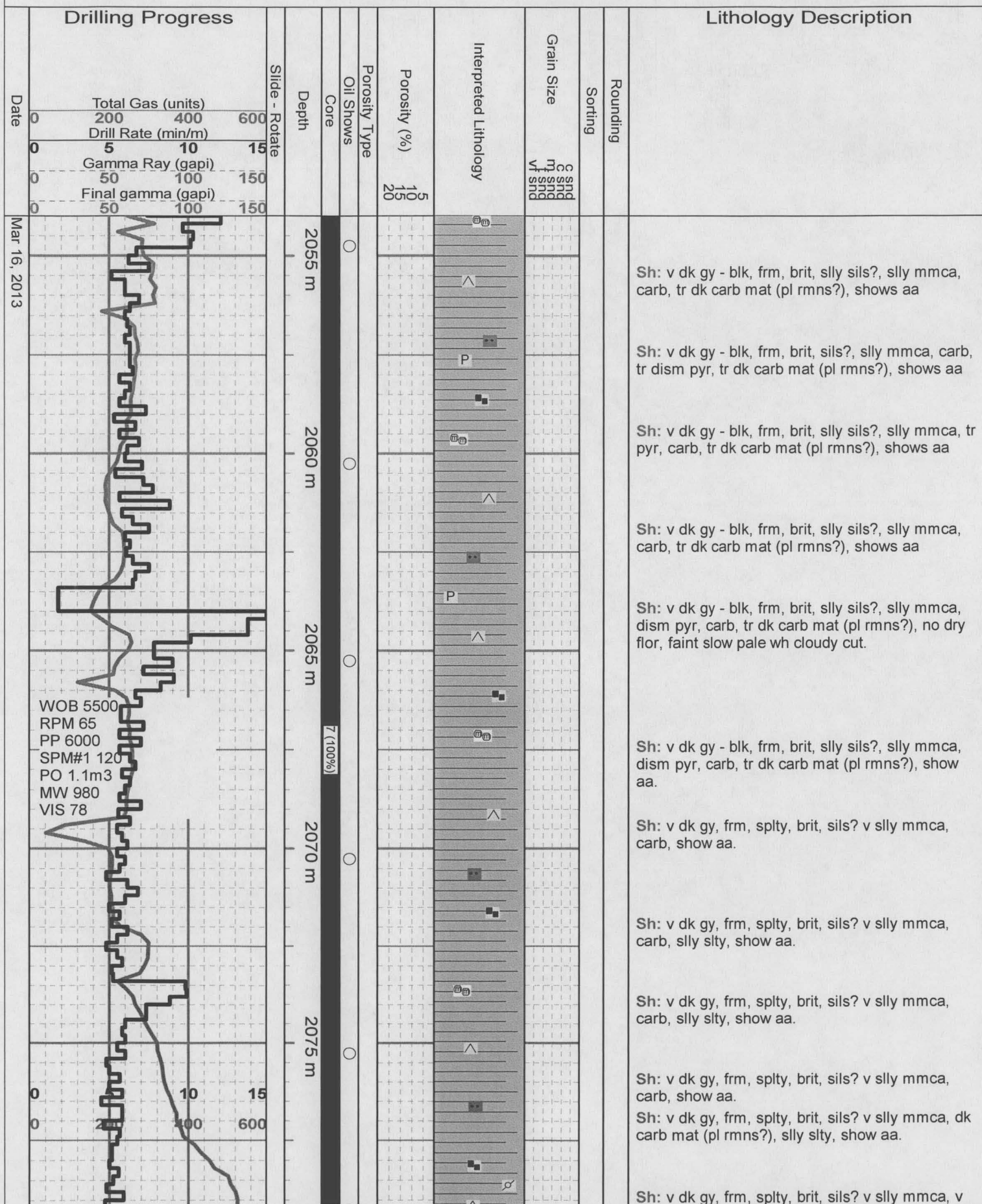
Expanded Core Log (1:120) Mar 17, 2013
Core #8 Interval: 2081.00m to 2108.00m Cut: 27m Recovered: 27m (100%)

Drilling Progress				Lithology Description									
Date	Total Gas (units)	Drill Rate (min/m)	Gamma Ray (gapi)	Final gamma (gapi)	Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Porosity (%)	Interpreted Lithology	Grain Size	Rounding
	0 200 400 600	0 5 10 15	0 50 100 150	0 50 100 150						0 20 40 60 80 100 120 140 160 180 200			
Mar 17, 2013													
						2084.00	Bluefish				F		Sh: aa
						2085 m							Sh: v dk gy, bcmg less brit, sly mmca, carb, sly sly, dk carb mat, tr unident fos casts, shows aa.
						2090 m					P		Sh: v dk gy, modly brit, plty, frm, sly sils, mmca, abnt rdd carb spots, shows aa
						2093.50	Hume						Bluefish (TVD: 2084.00) (SSL: -1797.50)
						2095 m							Sh: aa / dism pyr.
						2100 m							Sh: v dk gy, plty, sb fis, sly mmca, carb, v sly calcs, show aa.
						2105 m							Sh: dk gy, plty, fis, sils, incrg calcs, carb, abnt fos casts infilled / pyr, carb mat aa, show aa.
													Sh: aa, incrg calcs.
													Sh: v dk gy, modly brit, plty, frm, calcs, sly sils, sly mmca, abnt fos casts occly infilled / pyr, carb mat (pl & fos rmn), no dry flor, v pale faint wh cloudy cut.
													Sh: aa, v calcs.
													Ls: lt brn, fragal wkest, rexld ip f unident fos casts (cor) infilled w dns, no shows.
													Ls: lt brn, fltst, micr mtz, rexld ip f - m xln, sly arg, amph, unident fos casts (cor) infilled with cxln fros calc, sly shy ip, dns, no shows.
													Ls: aa
													Ls: lt brn, mdst - wkest, sly arg, unident fos shad, dns, no shows.
													Ls: brn, fltst? aa, shy, (mud contaminated)
													Ls: lt brn, wkest? unident fos shad, sly arg, dns, no shows.
													Ls: brn, wkest, occ unident fos frags, gasts? unident cor casts infilled / calc, sly arg, dns, no vis shows.
													Ls: brn, mdst - wkest, occly rexld f xln, mnr

WOB 6-7000
RPM 55
PP 5000
SPM#1 14
PO 1.1m3
MW 985
VIS 71

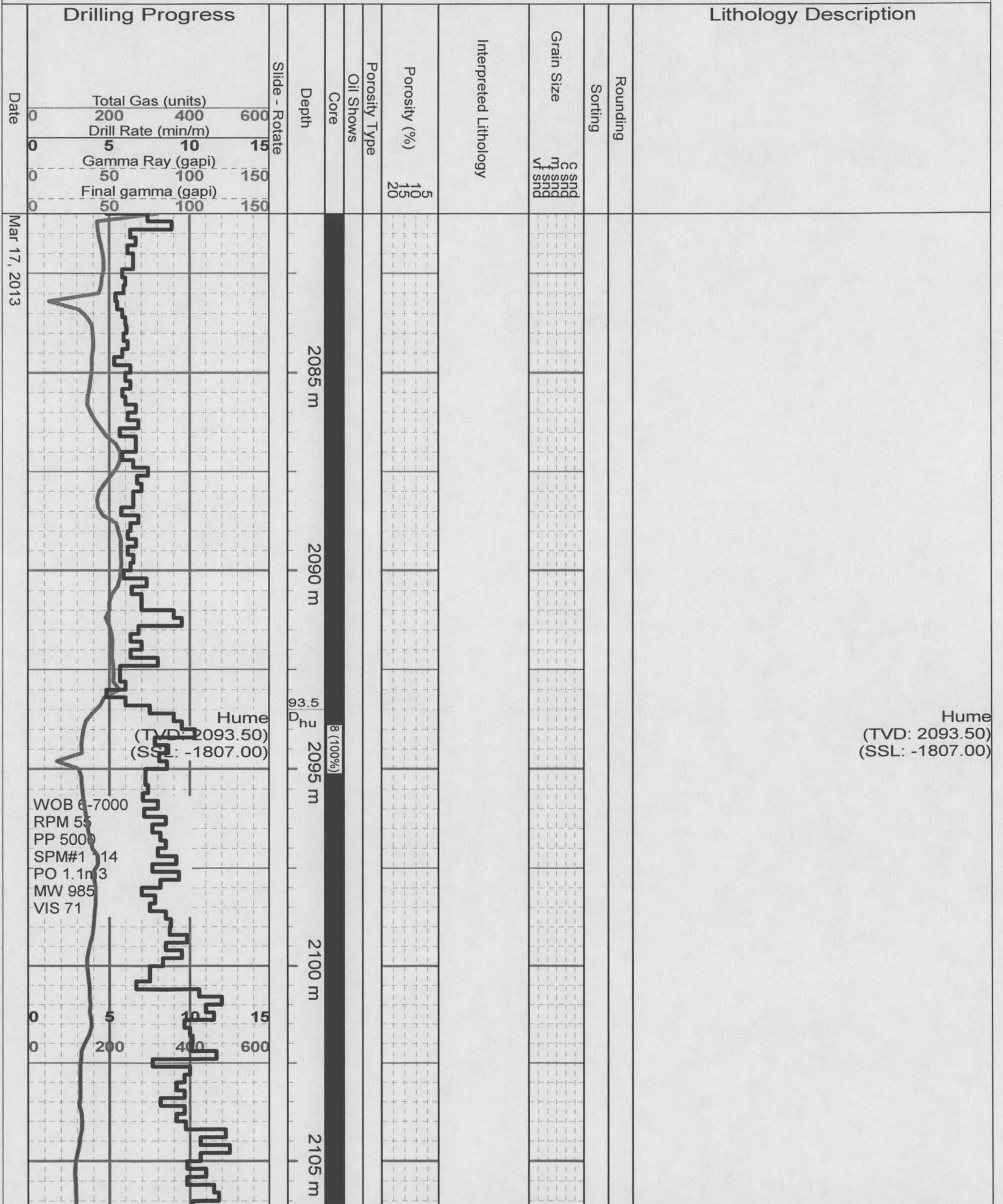
697793
V18

Expanded Core Log (1:120) Mar 16, 2013
Core #7 Interval: 2054.00m to 2081.00m Cut: 27m Recovered: 27m (100%)



Date					2080 m							abnt spotted (pels?) dk carb mat (grds to bit?), show aa but slly brighter.
	Drilling Progress											

Expanded Core Log (1:120) Mar 17, 2013
Core #8 Interval: 2081.00m to 2108.00m Cut: 27m Recovered: 27m (100%)



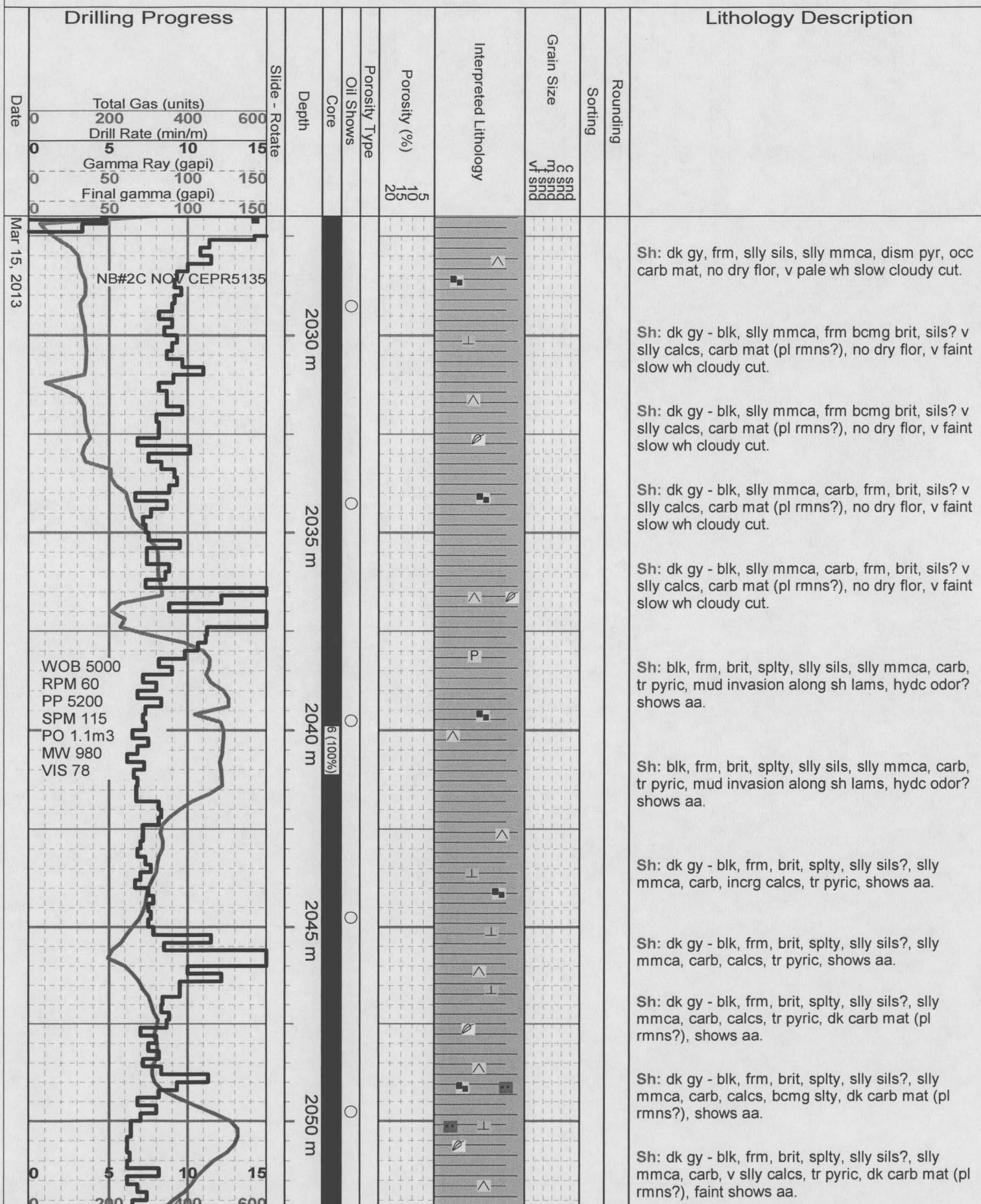
Hume
(TVD: 2093.50)
(SSL: -1807.00)

		Lithology Description	
		Rounding	
		Sorting	
		Grain Size	
		c snd f snd v snd	
Interpreted Lithology			
Porosity (%)		5 10 15 20	
Porosity Type			
Oil Shows			
Core			
Depth			
Slide - Rotate			
Drilling Progress			
Date			
Final gamma (gapi)		0 50 100 150	
Gamma Ray (gapi)		0 50 100 150	
Drill Rate (min/m)		0 5 10 15	
Total Gas (units)		0 200 400 600	

697793

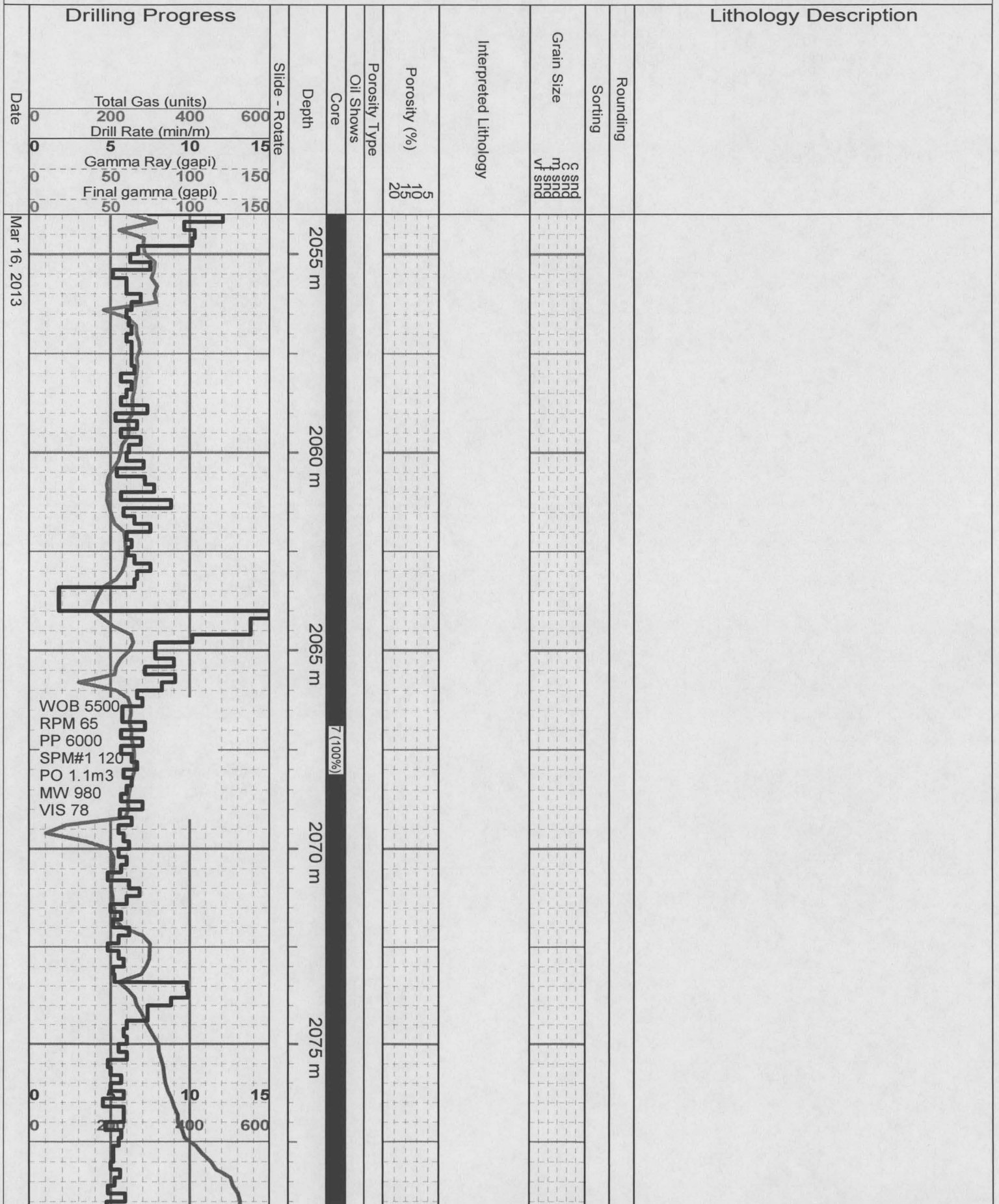
V17

Expanded Core Log (1:120) Mar 15, 2013
Core #6 Interval: 2027.00m to 2054.00m Cut: 27m Recovered: 27m (100%)



								Sh: v dk gy, frm, brit, slly sils?, slly mmca, carb, tr pyric, tr dk carb mat (pl rmns?), shows aa.			
Drilling Progress Final gamma (gapi) 50 100 150 Gamma Ray (gapi) 50 100 150 Drill Rate (min/m) 5 10 15 Total Gas (units) 200 400 600 Date				Slide - Rotate				Lithology Description			
				Depth							
				Core							
				Oil Shows							
				Porosity Type							
Porosity (%) 5 10 15 20				Interpreted Lithology				Grain Size c snd f snd vf snd			
								Sorting			
								Rounding			

Expanded Core Log (1:120) Mar 16, 2013
Core #7 Interval: 2054.00m to 2081.00m Cut: 27m Recovered: 27m (100%)

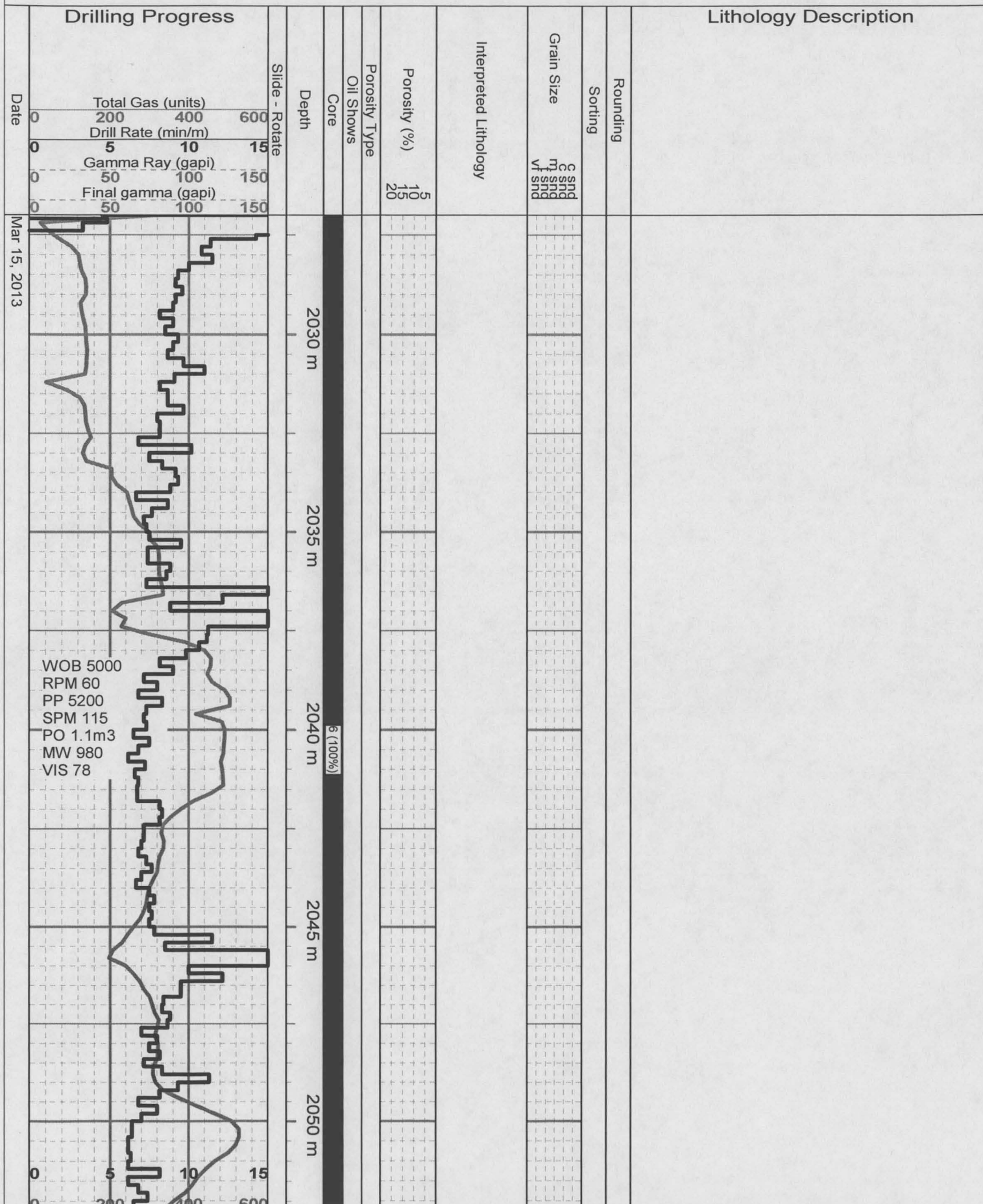


		Lithology Description	
		Rounding	
		Sorting	
		Grain Size	
		C sand F sand V sand	
Interpreted Lithology			
Porosity (%)			
Oil Shows			
Core			
Depth			
Slide - Rotate			
2080 m			
Drilling Progress			
Date			
Final gamma (gapi)			
Gamma Ray (gapi)			
Drill Rate (min/m)			
Total Gas (units)			

697793

v16

Expanded Core Log (1:120) Mar 15, 2013
Core #6 Interval: 2027.00m to 2054.00m Cut: 27m Recovered: 27m (100%)



	Lithology Description					
	Rounding					
	Sorting					
	Grain Size C sand F sand M sand V sand					
	Interpreted Lithology					
	Porosity (%) 5 10 15 20					
	Porosity Type Oil Shows Core					
Depth						
Slide - Rotate						
Drilling Progress						
Date	Total Gas (units) 0 200 400 600					
	Drill Rate (min/m) 0 5 10 15					
	Gamma Ray (gapi) 0 50 100 150					
	Final gamma (gapi) 0 50 100 150					

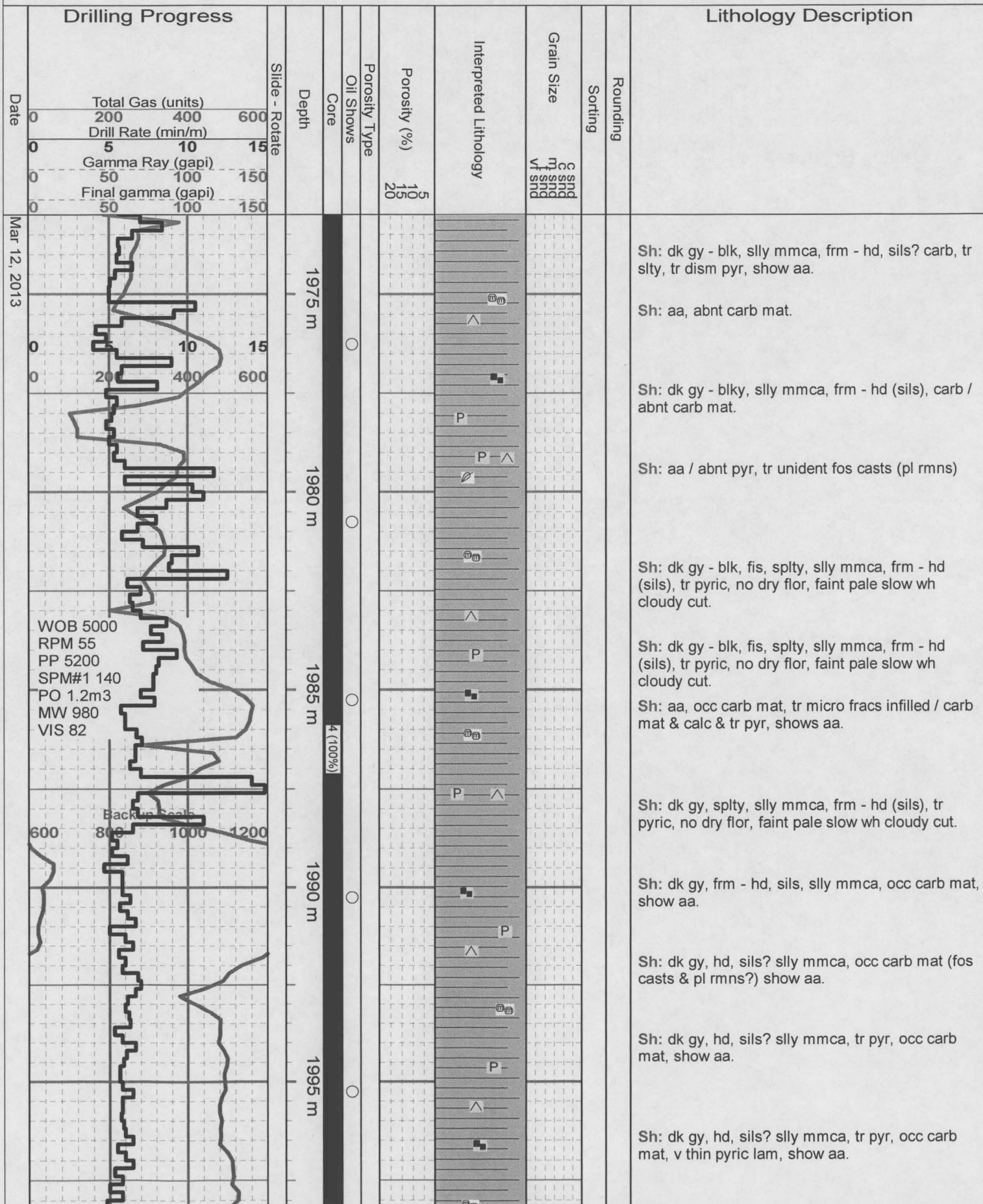
697793
VIS

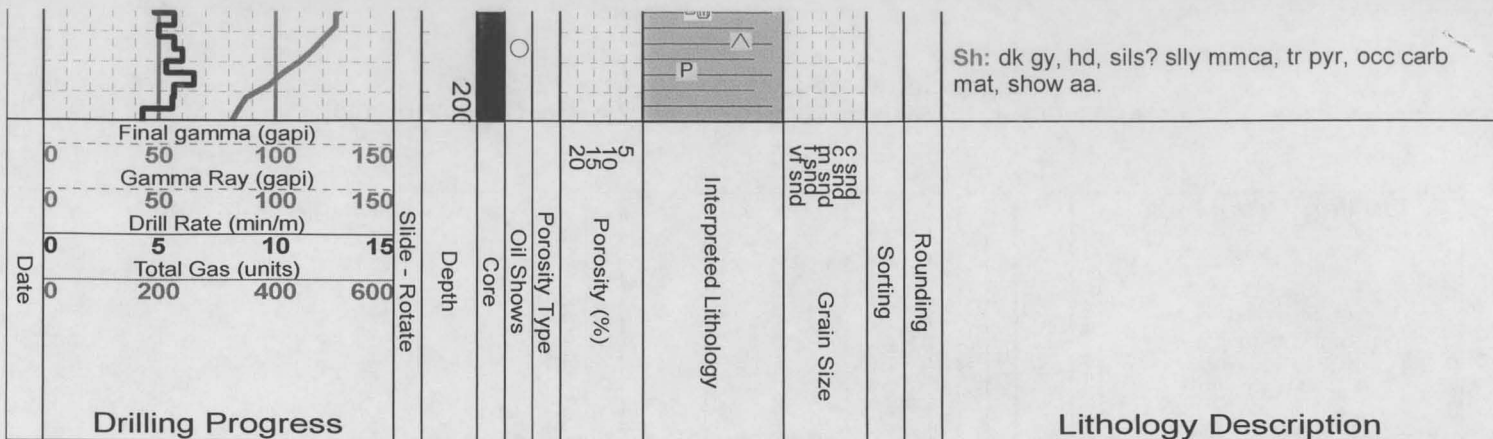
[illegible]

[illegible]

697793
V14

Expanded Core Log (1:120) Mar 12, 2013
Core #4 Interval: 1973.00m to 2000.00m Cut: 27m Recovered: 27m (100%)





Core #5 Interval: 2000.00m to 2027.00m Cut: 27m Recovered: 27m (100%)

				Lithology Description			
				Rounding			
				Sorting			
				Grain Size			
				C sand F sand V sand			
				Interpreted Lithology			
				Porosity (%)			
				Porosity Type			
				Oil Shows			
				Core			
				Depth			
				Slide - Rotate			
				5 m			
				15			
				10			
				0			
				Final gamma (gapi)			
				50 100 150			
				Gamma Ray (gapi)			
				50 100 150			
				Drill Rate (min/m)			
				5 10 15			
				Total Gas (units)			
				200 400 600			
Drilling Progress							
Date							

697793
V13

Expanded Core Log (1:120) Mar 11, 2013
Core #3 Interval: 1946.00m to 1973.00m Cut: 27m Recovered: 27m (100%)

Drilling Progress				Lithology Description			
Date	Total Gas (units)	Drill Rate (min/m)	Gamma Ray (gapi)	Final gamma (gapi)	Slide - Rotate	Depth	Core
0	200	5	0	0			
0	400	10	50	50			
0	600	15	100	100			
Mar 11, 2013							
						1950 m	
						1955 m	
						1960 m	
						1965 m	
						1970 m	

Interpreted Lithology	Grain Size	Rounding	Sorting	Lithology Description
	Coarse sand, medium sand, fine sand, silt, clay			Sh: dk gy, sb fis, sily mmca, sily slty, tr mnrcarb mat (pl rms?), no dry flor, v pale lt wh cut flor.
				Sh: dk gy, sb fis, sily mmca, sily slty, tr mnrcarb mat (pl rms?), no dry flor, v faint to no show.
				Sh: aa / fos casts (pels?) infilled / pyr.
				Sh: dk gy, sb fis, sily mmca, sily slty, tr mnrcarb mat (pl rms?), no dry flor, predly no show.
				Sh: dk gy, sb fis, sily mmca, sily slty, tr mnrcarb mat (pl rms?), faint to no show.
				Sh: dk gy, sb fis, sily mmca, sily slty, modly frm, tr mnrcarb mat (pl rms?), no dry flor, faint to no show.
				Sh: dk gy, sb fis, sily mmca, sily slty, tr mnrcarb mat (pl rms?), show aa.
				Sh: dk gy, sb fis, sily mmca, sily slty, tr mnrcarb mat (pl rms?), show aa.
				Sh: dk gy, sb fis, sily mmca, sily slty, tr mnrcarb mat (pl rms?), show aa.
				Sh: dk gy, sb fis, sily mmca, sily slty, abnt dism pyr, tr mnrcarb mat (pl rms?), show aa.
				Sh: dk gy, sb fis, sily mmca, modly frm, sily slty, tr mnrcarb mat (pl rms?), show aa. Core broken to rubble ip
				Sh: dk gy, sb fis, sily mmca, modly frm, carb, sily slty, no dry flor, faint pale wh cloudy cut.

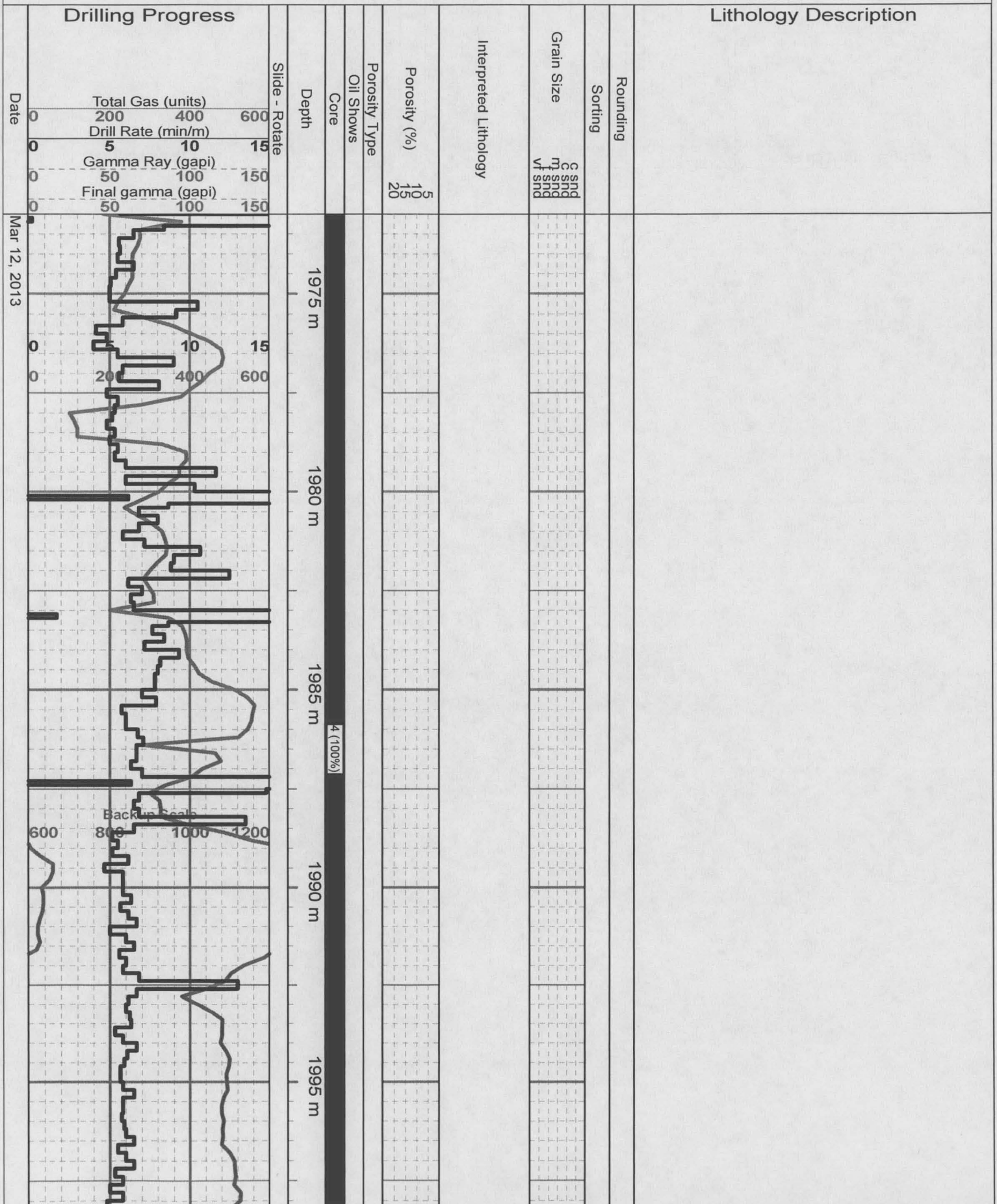
WOB 5000
RPM 60
PP 5000
SPM#2 120
PO 1.2m3
MW 975
VIS 87

Lower Canol
(TVD: 1967.00)
(SSL: -1680.50)

Lower Canol
(TVD: 1967.00)
(SSL: -1680.50)

		Sh: aa, dism pyr.	
Final gamma (gapi)		50 100 150	
Gamma Ray (gapi)		50 100 150	
Drill Rate (min/m)		5 10 15	
Total Gas (units)		200 400 600	
Date		Slide - Rotate	
Depth		Core	
Oil Shows		Porosity Type	
Porosity (%)		5 10 15 20	
Interpreted Lithology		P P	
Grain Size		c sand f sand v sand	
Sorting		Rounding	
Lithology Description			

Expanded Core Log (1:120) Mar 12, 2013
Core #4 Interval: 1973.00m to 2000.00m Cut: 27m Recovered: 27m (100%)

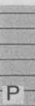
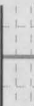


		Lithology Description	
		Rounding	
		Sorting	
		Grain Size	
		C snd fn snd ps snd vl snd	
Interpreted Lithology			
Porosity (%)		5 10 15 20	
Porosity Type			
Oil Shows			
Core			
Depth		200	
Slide - Rotate			
Drilling Progress			
Date			
Final gamma (gapi)		50 100 150	
Gamma Ray (gapi)		50 100 150	
Drill Rate (min/m)		5 10 15	
Total Gas (units)		200 400 600	

V12

Core #2 Interval: 1919.00m to 1946.00m Cut: 27m Recovered: 27m (100%)

Drilling Progress				Lithology Description			
Date	Total Gas (units)	Drill Rate (min/m)	Slide - Rotate	Depth	Core	Porosity Type	Porosity (%)
	0 200 400 600	0 5 10 15					
	Gamma Ray (gapi)	Final gamma (gapi)					
	0 50 100 150	0 50 100 150					
Mar 10, 2013				1920 m			
				1925 m			
	0 5 10 15	0 200 400 600		1930 m			
				1931 m			
				1935 m			
				1940 m			

		1945 m								Sh: aa / abnt fos casts (pels or ools) infilled / pyr, no dry flor, pale wh stmg cut.	
Date		Slide - Rotate		Depth		Porosity (%)		Interpreted Lithology		Lithology Description	
0		0		0		0		0		0	
50		50		5		5		c sand		Rounding	
100		100		10		10		p sand		Sorting	
150		150		15		15		f sand		Grain Size	
0		0		0		0		v sand			
5		5									
10		10									
15		15									
200		200									
400		400									
600		600									

Expanded Core Log (1:120) Mar 11, 2013
Core #3 Interval: 1946.00m to 1973.00m Cut: 27m Recovered: 27m (100%)

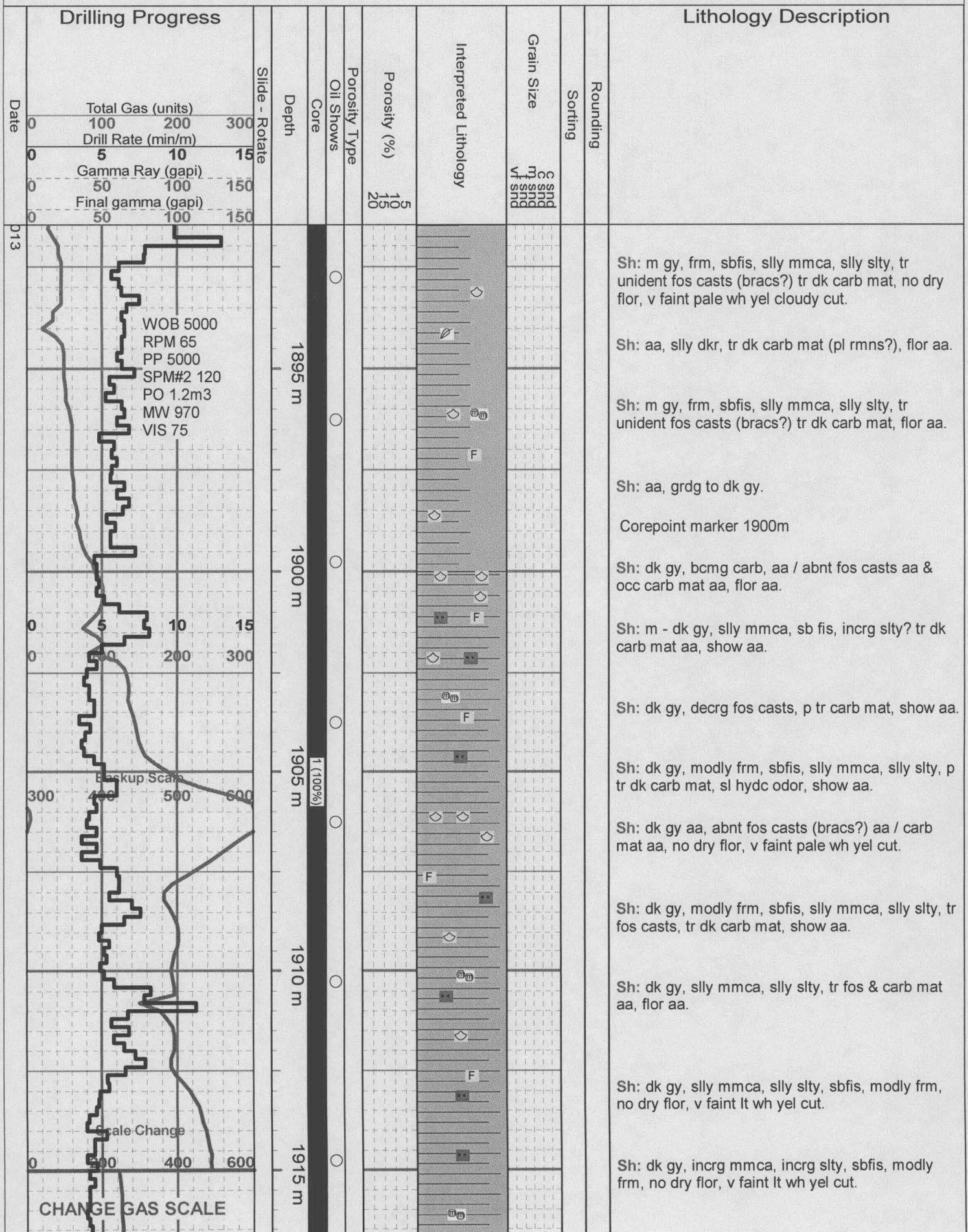
Drilling Progress				Lithology Description									
Date	Total Gas (units)	Drill Rate (min/m)	Gamma Ray (gapi)	Final gamma (gapi)	Slide - Rotate	Depth	Core	Oil Shows	Porosity Type	Porosity (%)	Interpreted Lithology	Grain Size	Rounding
	0 200 400 600	0 5 10 15	0 50 100 150	0 50 100 150						10 15 20		C sand M sand F sand V sand	
Mar 11, 2013													
						1950 m							
						1955 m							
						1960 m	3 (100%)						
						1965 m							
						1970 m							

WOB 5000
RPM 60
PP 5000
SPM#2 120
PO 1.2m3
MW 975
VIS 87

		Lithology Description	
		Rounding	
		Sorting	
		Grain Size	
		Interpreted Lithology	
		Porosity (%)	
		Porosity Type	
		Oil Shows	
		Core	
		Depth	
		Slide - Rotate	
		Drilling Progress	
		Date	

697793
V11

Expanded Core Log (1:120) Mar 9, 2013
Core #1 Interval: 1891.50m to 1919.00m Cut: 27.5m Recovered: 27.5m (100%)



Sh: m gy, frm, sbfis, sily mmca, sily slty, tr unident fos casts (bracs?) tr dk carb mat, no dry flor, v faint pale wh yel cloudy cut.

Sh: aa, sily dkr, tr dk carb mat (pl rmns?), flor aa.

Sh: m gy, frm, sbfis, sily mmca, sily slty, tr unident fos casts (bracs?) tr dk carb mat, flor aa.

Sh: aa, grdg to dk gy.

Corepoint marker 1900m

Sh: dk gy, bcmg carb, aa / abnt fos casts aa & occ carb mat aa, flor aa.

Sh: m - dk gy, sily mmca, sb fis, incrg slty? tr dk carb mat aa, show aa.

Sh: dk gy, decrg fos casts, p tr carb mat, show aa.

Sh: dk gy, modly frm, sbfis, sily mmca, sily slty, p tr dk carb mat, sl hydc odor, show aa.

Sh: dk gy aa, abnt fos casts (bracs?) aa / carb mat aa, no dry flor, v faint pale wh yel cut.

Sh: dk gy, modly frm, sbfis, sily mmca, sily slty, tr fos casts, tr dk carb mat, show aa.

Sh: dk gy, sily mmca, sily slty, tr fos & carb mat aa, flor aa.

Sh: dk gy, sily mmca, sily slty, sbfis, modly frm, no dry flor, v faint lt wh yel cut.

Sh: dk gy, incrg mmca, incrg slty, sbfis, modly frm, no dry flor, v faint lt wh yel cut.

		Sh: dk gy, incrg mmca, slty, sbfis, modly frm, no dry flor, v faint lt wh yel cut.	
Date		Lithology Description	
Slide - Rotate		Rounding	
Depth		Sorting	
Core		Grain Size	
Oil Shows		Interpreted Lithology	
Porosity Type		C snd m snd fsnd vf snd	
Porosity (%)		5 10 15 20	

Expanded Core Log (1:120) Mar 10, 2013
Core #2 Interval: 1919.00m to 1946.00m Cut: 27m Recovered: 27m (100%)

Drilling Progress				Lithology Description									
Date	Total Gas (units)	Drill Rate (min/m)	Gamma Ray (gapi)	Final gamma (gapi)	Slide - Rotate	Depth	Core	Oil Shows	Porosity Type	Porosity (%)	Interpreted Lithology	Grain Size	Rounding
Mar 10, 2013	0 200 400 600	0 5 10 15	0 50 100 150	0 50 100 150									
						1920 m							
						1925 m							
						1930 m							
						1935 m							
						1940 m							

Trip gas

WOB 5000
RPM 55
PP 4900
SPM#2 122
PO 1.2m3
MW 975
VIS 89

		Lithology Description	
		Rounding	
		Sorting	
		Grain Size	
		C sand F sand V sand	
Interpreted Lithology			
Porosity (%)		5 10 15 20	
Porosity Type			
Oil Shows			
Core			
Depth		1945 m	
Slide - Rotate			
Drilling Progress			
Date			
0		Final gamma (gapi)	
0		Gamma Ray (gapi)	
0		Drill Rate (min/m)	
0		Total Gas (units)	
		50 100 150	
		50 100 150	
		5 10 15	
		200 400 600	

Well Information

Operator: **ConocoPhillips Canada Resources Corp.**

Well Name: **COPRC Mirror Lake N-20**

Location: **Unit:N Section:20, Grid: 65-00 126-45**

UWI: **300N206500126450**

Pool / Field: **Undefined / Mirror Lake**

Well License #: **470**

Province / State: **Northwest Territories**

Country: **Canada**

Elevations

Reference: Ground Ground: 281.3 m

Cut(-) / Fill(+): Kelly Bushing: 286.5 m

K.B. to Ground: 5.2 m Casing Flange: m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type: Vertical
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	NS: EW:
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62		Easting: 603555.85

Drilling Fluid Summary

Fluid Type	From	To
Gel Chem	0 m	601 m
Invert (Versaclean)	601 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	311 mm	244.5 mm	598 m

Well Summary

Spud Date: Feb 25, 2013 @ 17:00hrs Contractor: Beaver Drilling Ltd.

TD Date: Rig Release Date:

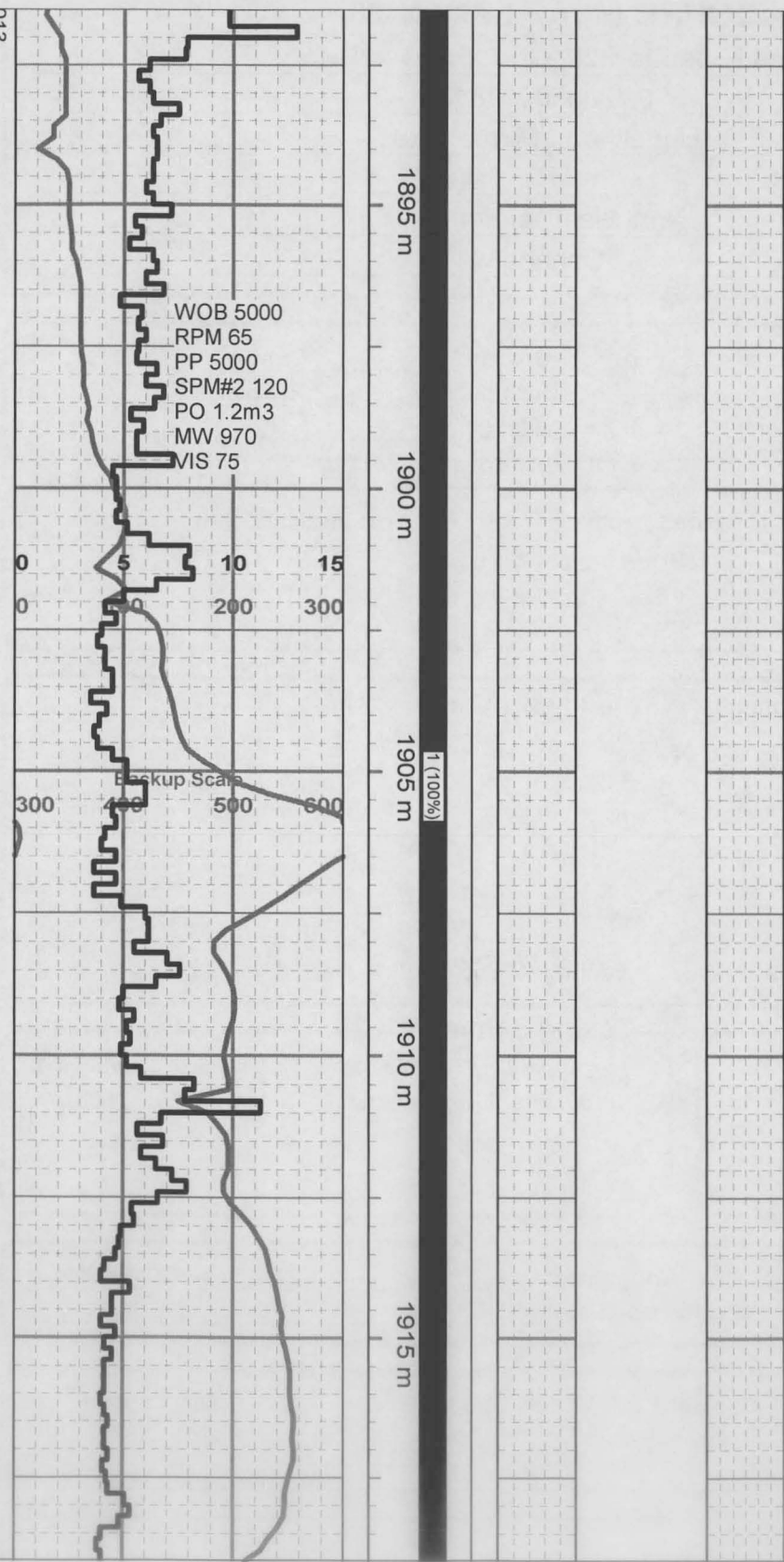
Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks

Expanded Core Log (1:120) Mar 9, 2013
Core #1 Interval: 1891.50m to 1919.00m Cut: 27.5m Recovered: 27.5m (100%)

013



Make 1.5 meter depth correction

697793

V9

Well Information

Operator: **ConocoPhillips Canada Resources Corp.**

Well Name: **COPRC Mirror Lake N-20**

Location: **Unit:N Section:20, Grid: 65-00 126-45**

UWI: **300N206500126450**

Pool / Field: **Undefined / Mirror Lake**

Well License #: **470**

Province / State: **Northwest Territories**

Country: **Canada**

Elevations

Reference: _____ Ground: _____ Ground: _____ 281.3 m

Cut(-) / Fill(+): _____ Kelly Bushing: _____ 286.5 m

K.B. to Ground: _____ 5.2 m Casing Flange: _____ m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type: Vertical
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	NS: EW:
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62		Easting: 603555.85

Drilling Fluid Summary

Fluid Type	From	To
Gel Chem	0 m	601 m
Invert (Versaclean)	601 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	311 mm	244.5 mm	598 m

Well Summary

Spud Date: **Feb 25, 2013 @ 17:00hrs** Contractor: **Beaver Drilling Ltd.**

TD Date: _____ Rig Release Date: _____

Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

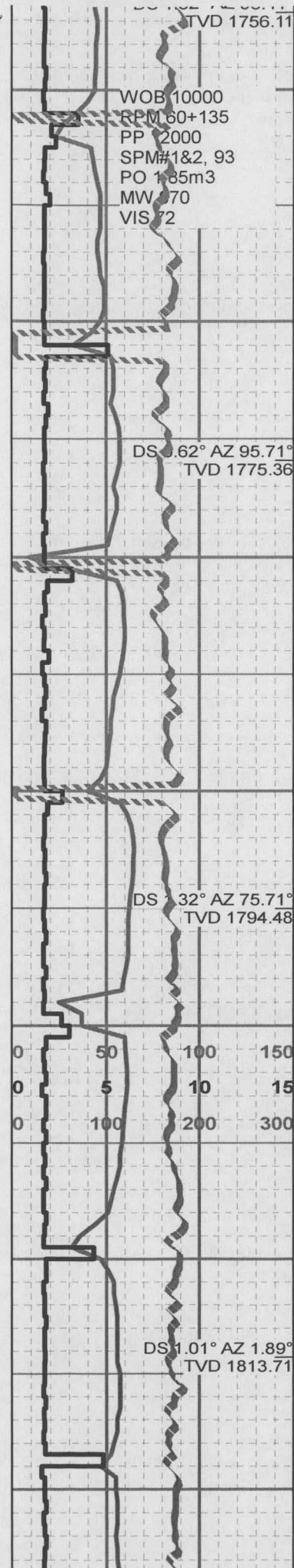
Remarks

Drilling Progress					Lithology Description							
Date	Total Gas (units)			Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Interpreted Lithology	Grain Size	Sorting	Rounding
	0	100	200									
	Drill Rate (min/m)											
	0	5	10	15								
	Gamma Ray (gapi)											
	0	50	100	150								
	Final gamma (gapi)											
	0	50	100	150								
	0	50	100	150	0 m							
	0	5	10	15								
	0	100	200	300								
					1710 m							
						S						
						S						
					1720 m	S						
						S						
						S						
					1730 m							
						S						
						S						
					1740 m	S						
						S						
						S						
					1750 m	S						
	0	50	100	150								
	0	5	10	15								
	0	100	200	300								

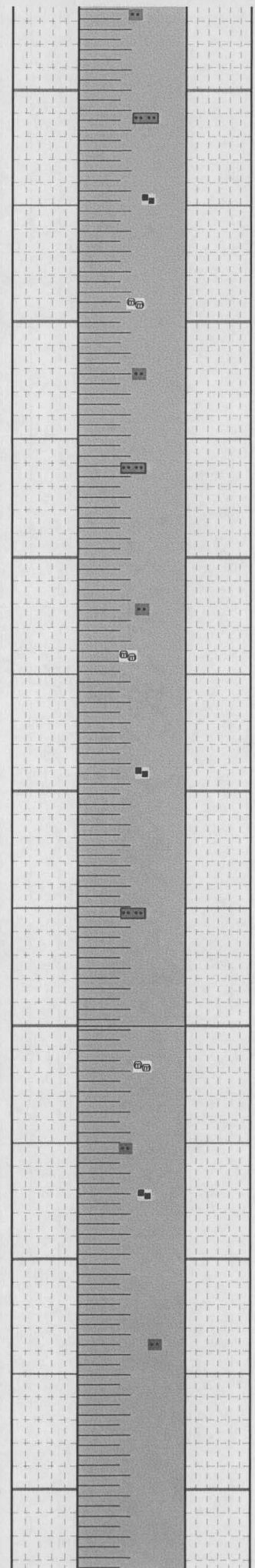
DS 2.2° AZ 41°
TVD 1717.64

DS 58° AZ 73.61°
TVD 1736.96

DS 32° AZ 96.41°



1760 m
1770 m
1780 m
1790 m
1800 m
1810 m
1820 m



Sh: predly m gy, sly mmca, sbfis, tr slty, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, sly calcs, shy, tt, no shows.

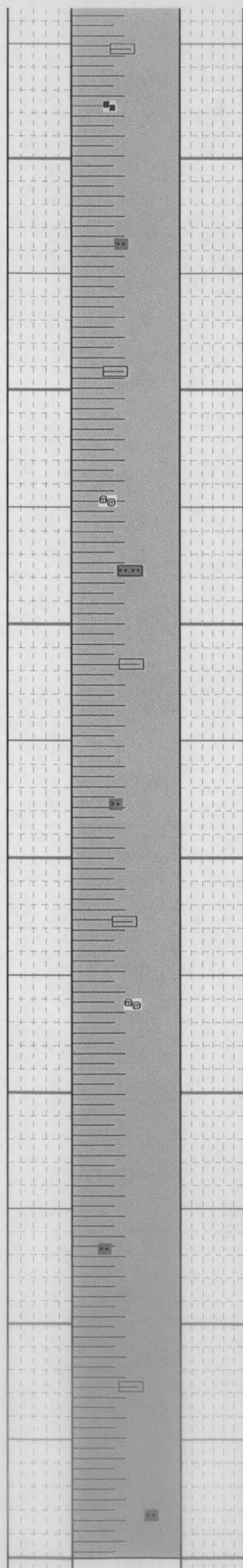
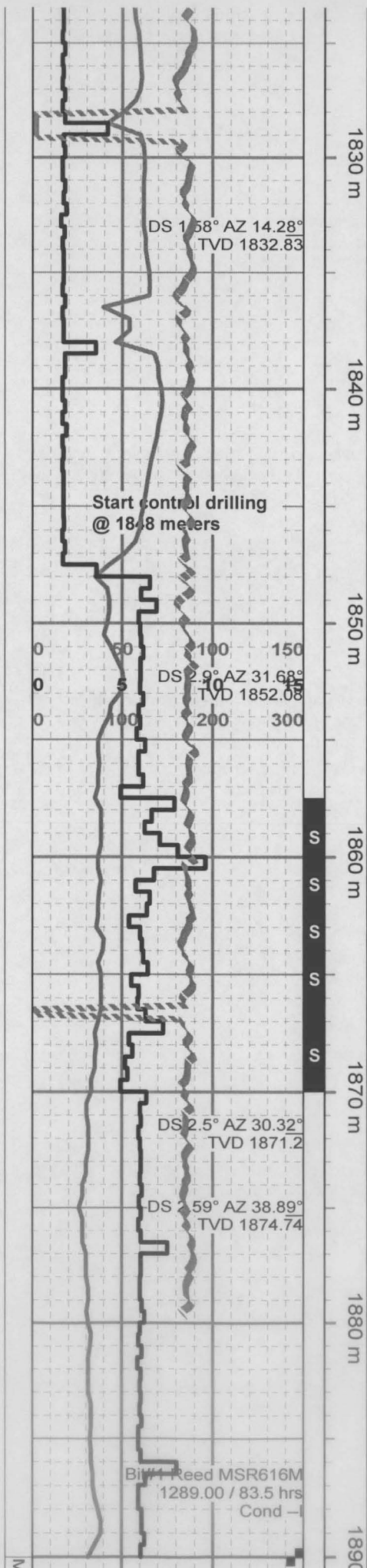
Sh: predly m gy, sly mmca, sbfis ip, tr slty, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, sly calcs, shy, tt, no shows.

Sh: predly m gy, sly mmca, sbfis ip, slty ip, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, sly calcs, shy, tt, no shows.

Sh: predly m gy, sly mmca, sbfis ip, slty ip, p tr carb specs / tr mntr Sltst strgs, m gy, cly cmt, sly calcs, shy, tt, no shows.

Sh: predly m gy, mntr dk gy, sly mmca, sbfis ip, slty ip, p tr carb specs.

Sh: predly m gy, tr dk gy, sly mmca, sbfis ip, p tr slty ip, p tr carb specs.



Sh: predly m gy, tr dk gy, sly mmca, incrg sbfis, p tr slty ip, p tr carb specs.

Sh: predly m gy, incrg dk gy, sly mmca, sbfis, p tr slty ip, p tr carb specs.

Sh: predly m gy, mnr dkr gy, sbfis, sly mmca, tr slty ip / tr mnr Sltst lams, m gy, cly mtx, sly calcs, shy, tt, no shows.

Sh: predly m gy, mnr dkr gy, sbfis, modly frm, sly mmca, tr slty ip.

Sh: predly m gy, mnr dkr gy, sbfis, modly frm, sly mmca, tr slty ip.

Sh: predly m gy, mnr dkr gy, sbfis, modly frm, sly mmca, tr slty ip.

Sh: predly m gy, mnr dkr gy, sbfis, modly frm, sly mmca, tr slty ip.

		Lithology Description	
		Rounding	
		Sorting	
		Grain Size	
		Interpreted Lithology	
		Porosity (%)	
		Porosity Type	
		Oil Shows	
		Core	
Depth		Slide - Rotate	
Drilling Progress		Date	

Mar 9, 2013

697793
V8**Well Information**

Operator: **ConocoPhillips Canada Resources Corp.**
Well Name: **COPRC Mirror Lake N-20**
Location: **Unit:N Section:20, Grid: 65-00 126-45**
UWI: **300N206500126450**
Pool / Field: **Undefined / Mirror Lake**
Well License #: **470**
Province / State: **Northwest Territories**
Country: **Canada**

Elevations

Reference: Ground Ground: 281.3 m
Cut(-) / Fill(+): Kelly Bushing: 286.5 m
K.B. to Ground: 5.2 m Casing Flange: m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
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Well Co - Ordinates

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Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
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Drilling Fluid Summary

Fluid Type	From	To
Gel Chem	0 m	601 m
Invert (Versaclean)	601 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	311 mm	244.5 mm	598 m

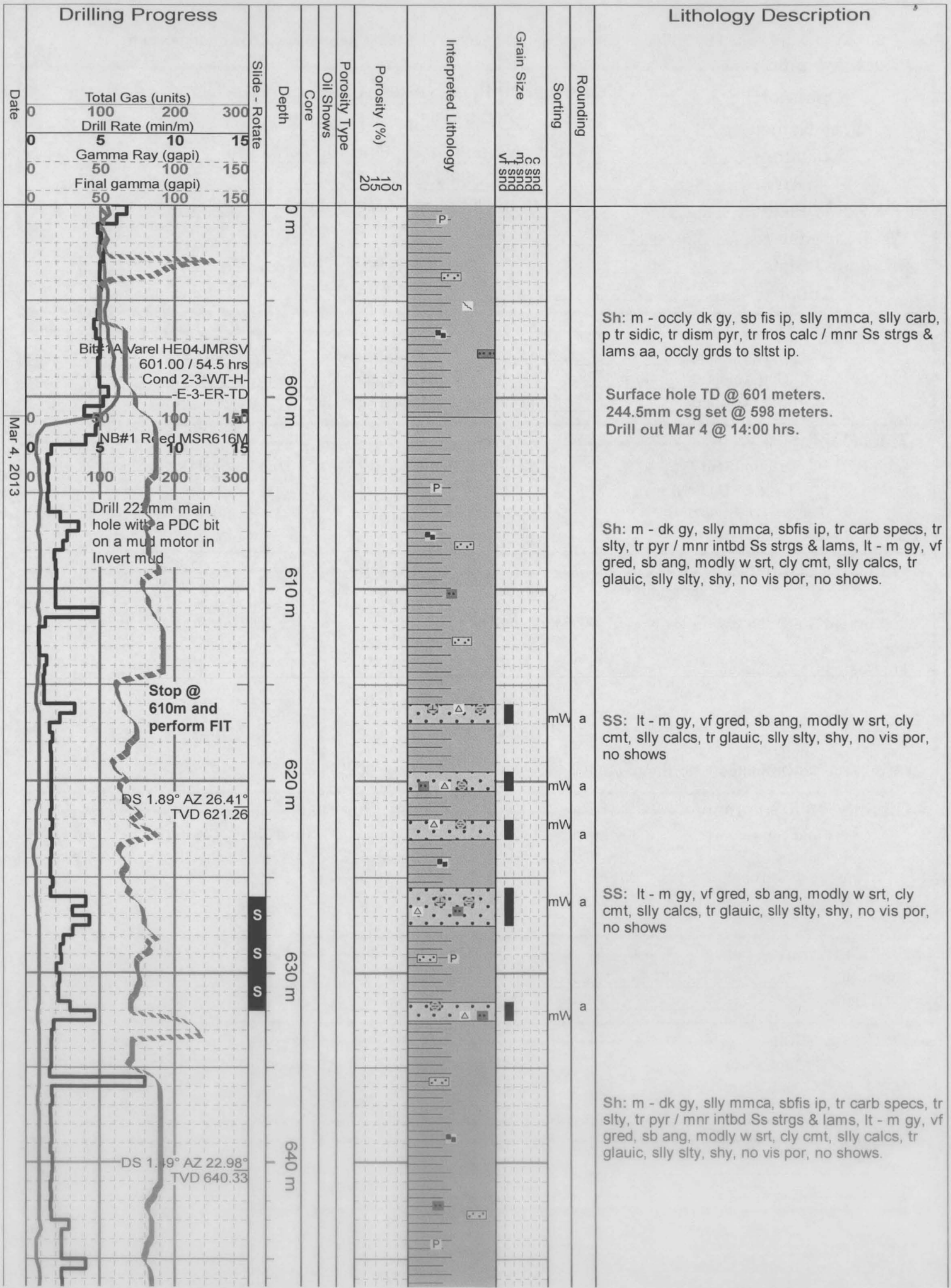
Well Summary

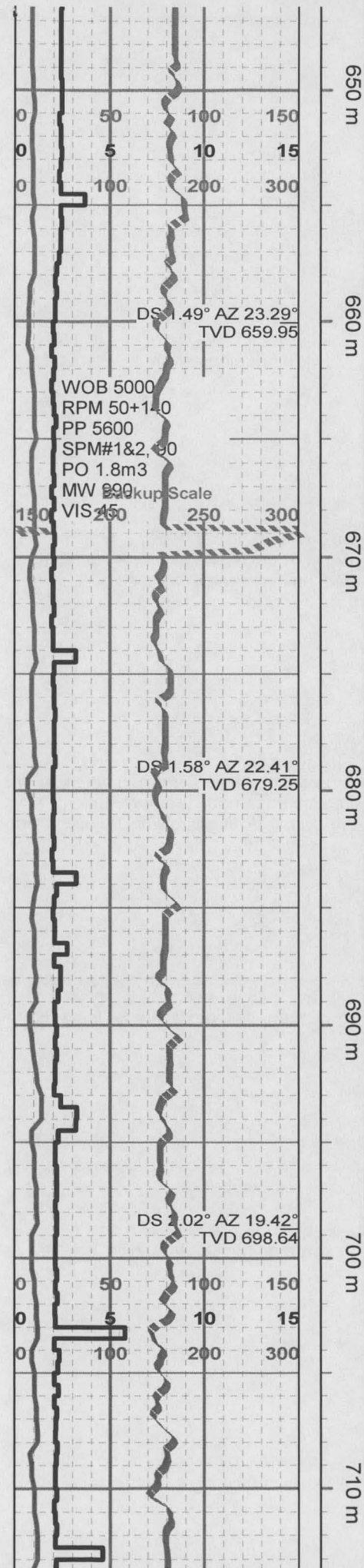
Spud Date: Feb 25, 2013 @ 17:00hrs Contractor: Beaver Drilling Ltd.
TD Date: Rig Release Date:

Work Schedule

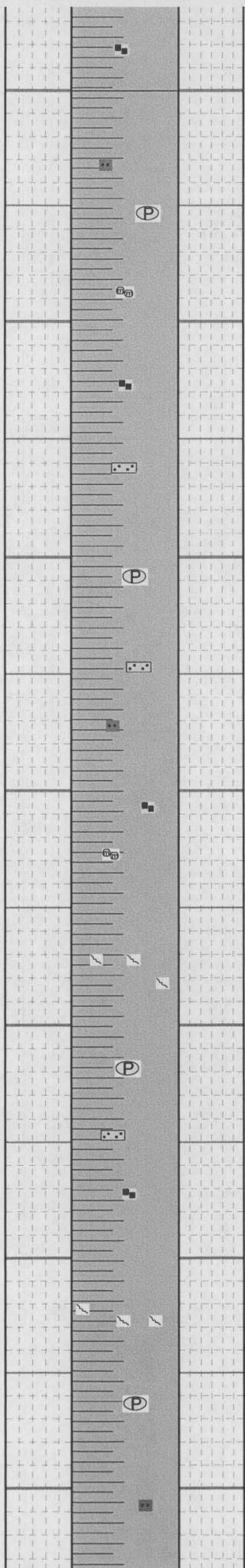
Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks





650 m
660 m
670 m
680 m
690 m
700 m
710 m



Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr slty, tr pyr / mnr intbd Ss lams aa.

Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr slty, tr fros cxln calc / mnr intbd Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, mnr slty / occ Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, mnr slty / occ Ss lams aa.

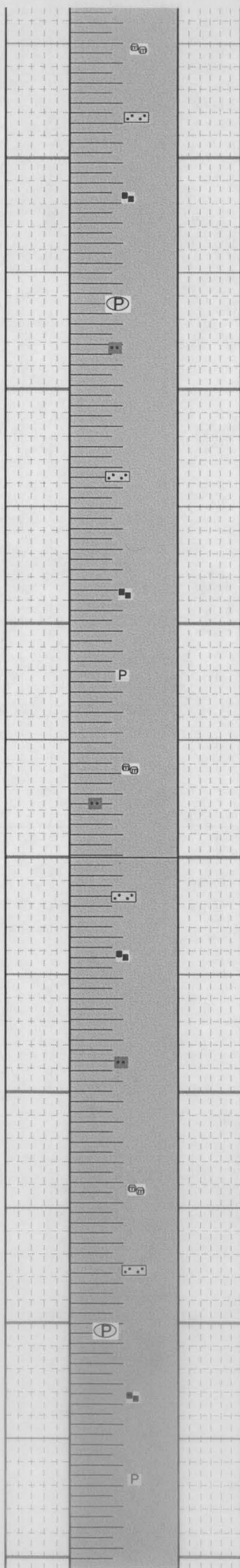
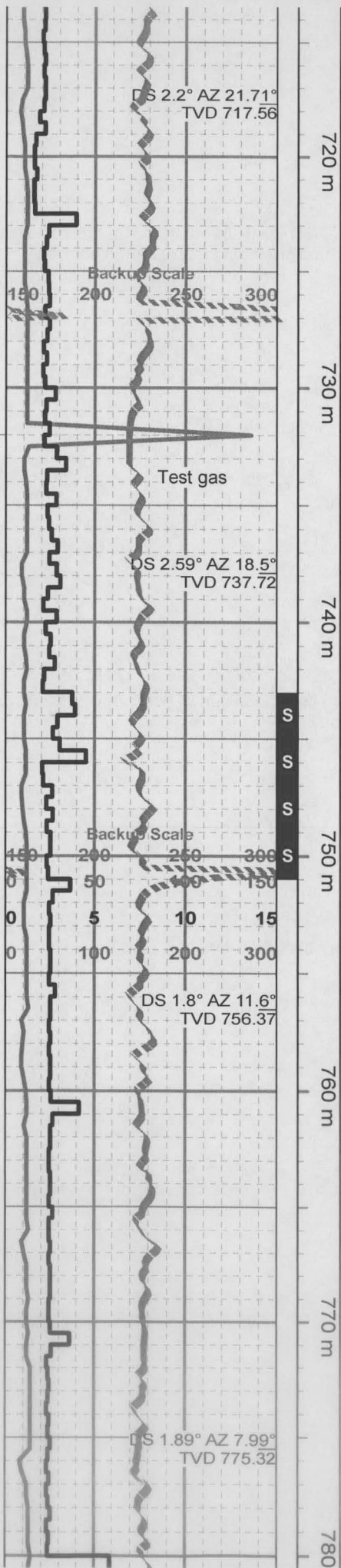
Sh: aa / abnt c xln fros calc (frac?)

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, abnt fros c xln calc, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Mar 5, 2013



Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

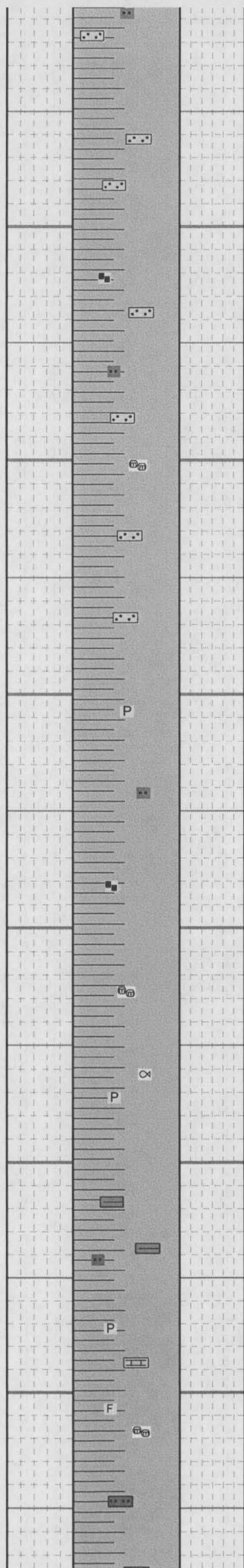
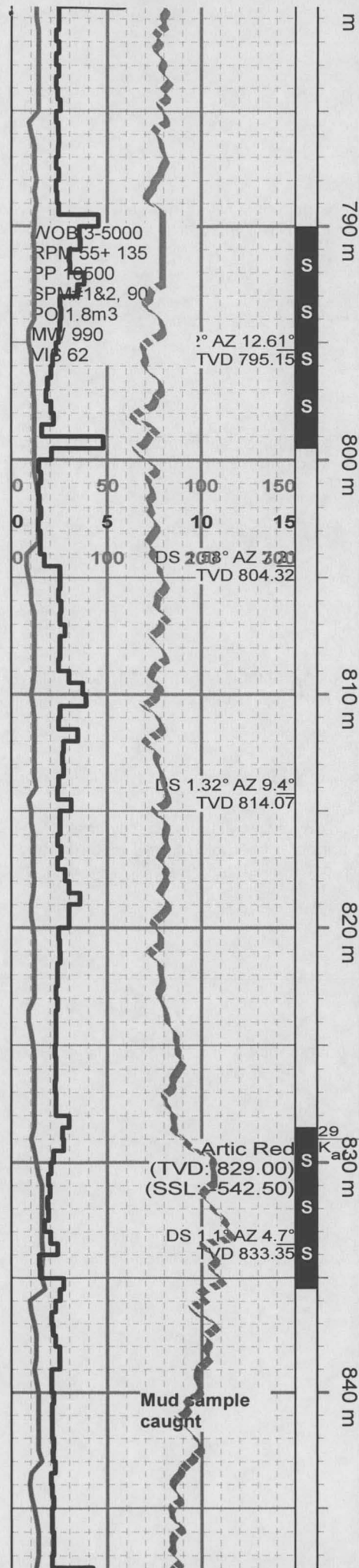
Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy, vf gred, sb ang, modly wsrt, cly mtx, sily calcs, tr glauic, tr dk lit grs, slty ip, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy, vf gred, sb ang, modly wsrt, cly mtx, sily calcs, tr glauic, tr dk lit grs, slty ip, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy aa.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy aa.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy aa.



Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr / 10% Ss lams, lt - m gy, vf gred, sb ang, modly w srt, cly mtx, sily calcs, slty, shy ip, tr pyric, dk lit grs, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr / 5% Ss lams, lt - m gy, vf gred, sb ang, modly w srt, cly mtx, sily calcs, slty, shy ip, tr pyric, dk lit grs, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr / 5% Ss lams, lt - m gy, vf gred, sb ang, modly w srt, cly mtx, sily calcs, slty, shy ip, tr pyric, dk lit grs, no vis por, no shows.

Sh: aa

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr diss pyr, tr fish scales / tr mnr Ss lams aa / tr Ls strgs, bf fragal wkest, tr pyric, dns, no shows.

Artic Red
(TVD: 829.00)
(SSL: -542.50)

Sh: m - dk gy, plty, fis, sily mmca, tr pyr, tr ls aa / tr lt bue clyst, sft, wxy tex.

Sh: m - dk gy, plty ip, occlly fis, sily mmca, sily carb, tr pyr, tr mnr Ls lams aa.

Sh: m - dk gy, sbfis, sily mmca, sily carb, tr pyr, tr slty ip, tr inoc / mnr 2% Slst strgs, lt - m gy, cly &

calcs cmt, grs to v. gred ss ip, tl, no shows.

Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc / mnr Sltst strgs aa.

Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc / mnr Sltst strgs aa / tr lt blue clyst aa.

Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc, tr fros calc.

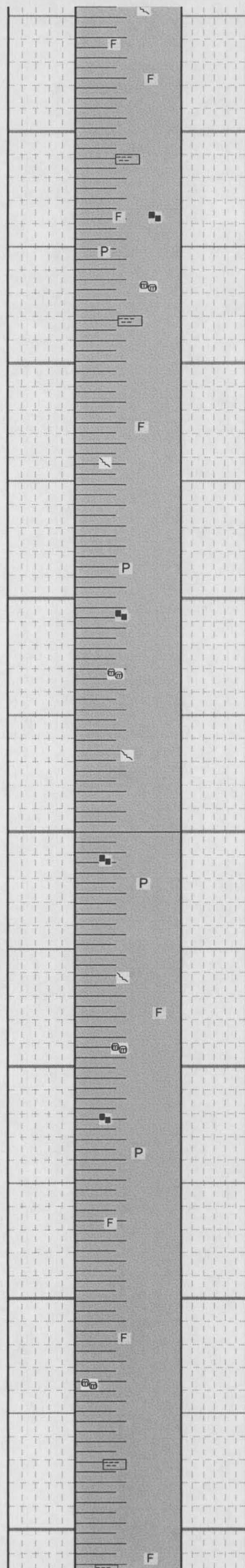
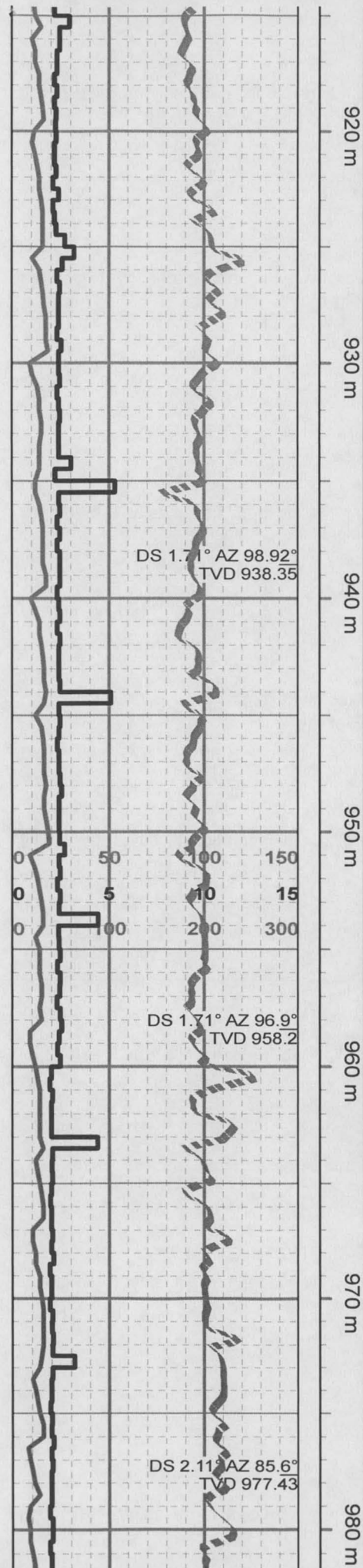
Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, tr inoc, tr fros calc / tr mnr Ls strgs lt gy - bf brn, mdst - wkest, micr mtz, slly arg, dns, no shows.

Sh: aa / abnt inoc / mnr Ls strgs aa.

Sh: m - dk gy, sbfis, slly mmca, slly carb, tr pyr, tr slty ip, inoc, tr micro fracs infilled / calc & ls aa.

Sh: aa

Sh: m - dk av. sbfis. slly mmca. slly carb. tr pyr. tr



slty ip, abnt inoc, tr Ls aa.

Sh: aa / tr mnr Clyst lt gy, wxy, tr mica flks, dism pyr.

Sh: m gy, occly dk gy, sb fis, slly carb, slly mmca, inoc, tr micro fracs infilled / wh calc, tr mnr clyst aa.

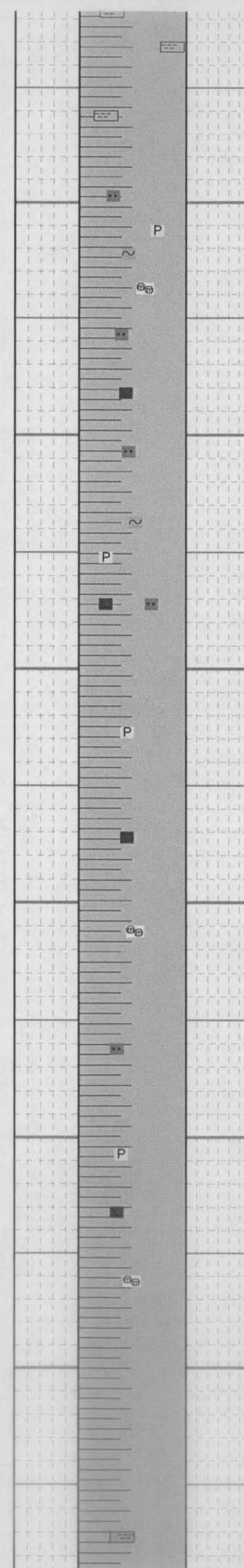
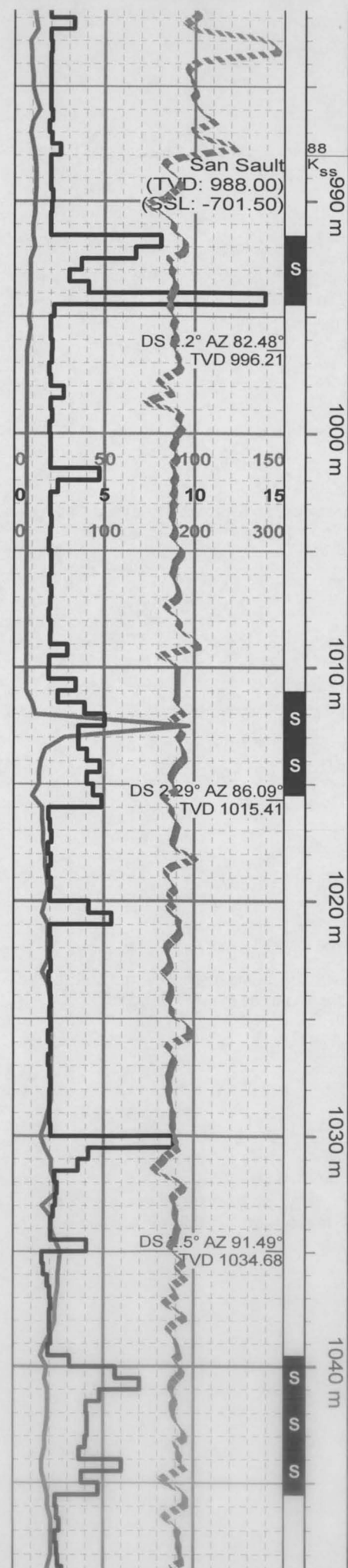
Sh: m - dk gy, sb fis, carb, slly mmca, tr pyr, tr inoc, tr micro fracs infilled / wh calc.

Sh: m - dk gy, sb fis, carb, slly mmca, tr pyr, tr inoc, p tr sidic ip.

Sh: m - dk gy, sb fis, carb, slly mmca, tr pyr, tr inoc, tr micro fracs infilled / wh calc.

Sh: m - dk gy, sb fis, carb, slly mmca, tr pyr, tr inoc, tr micro fracs infilled / wh calc.

Sh: m - dk gy, sb fis, carb, slly mmca, tr pyr, tr inoc, tr lt gy clyst, wxy, tr sdy, mica flks.



Sh: m - dk gy, sb fis, carb, sily mmca, tr pyr, tr inoc, incrg lt gy clyst, wxy, tr sdy, mica flks.

San Sault
(TVD: 988.00)
(SSL: -701.50)

Sh: m gy, dk gy ip, sb fis, incrg slty, tr glauic, tr pyric, sily mmca,

Sh: m gy, dk gy ip, sb fis, sily slty, tr glauic, tr pyric, sily sidic.

Sh: m gy, dk gy ip, sb fis, sily slty, tr glauic, tr pyric, sily sidic.

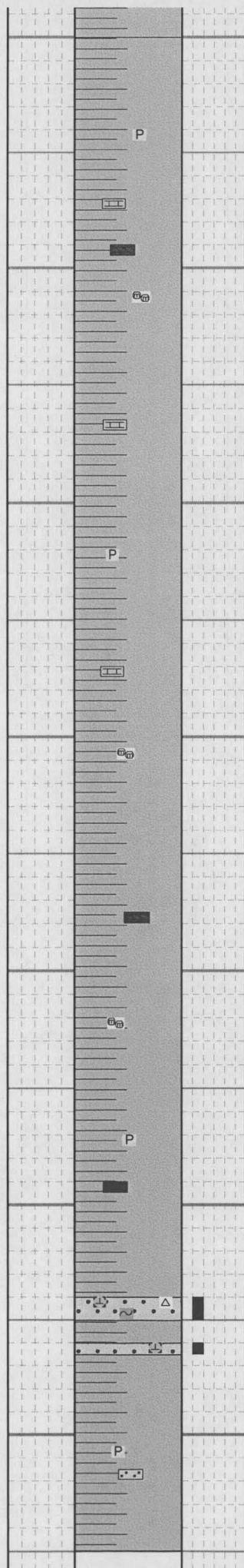
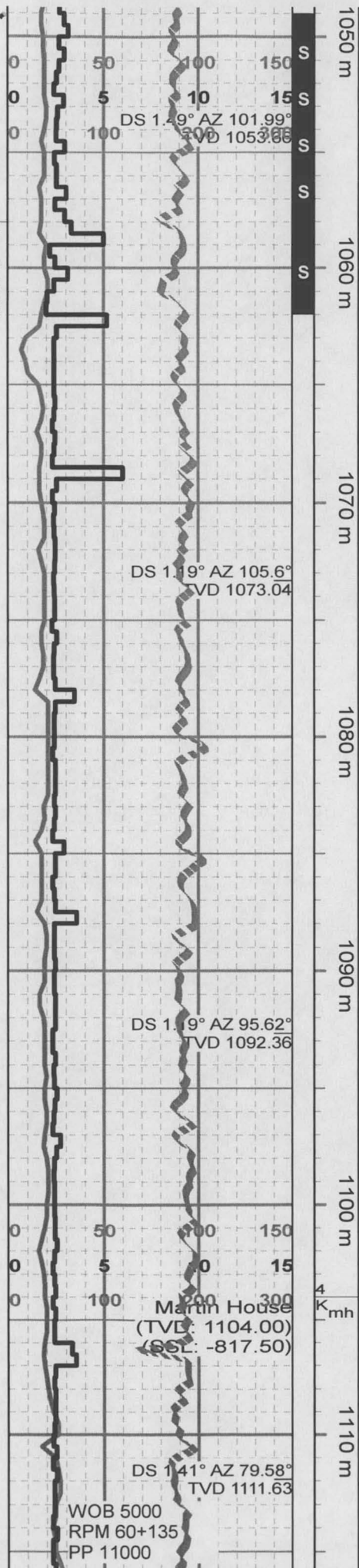
Sh: m gy, dk gy ip, sb fis, sily slty, tr pyric, sily sidic.

Sh: m gy, dk gy ip, sb fis, sily slty, tr pyric, sily sidic.

Sh: m gy, dk gy ip, sb fis, sily slty, tr pyric, sily sidic.

Sh: aa / mnr lt gn clyst lams, sft, wxy tex. c xln calc (mud add?)

Mar 6, 2013



Sh: m gy, dk gy ip, sb fis, p tr slly slty, tr pyric, sidic ip / tr brn sid frags / tr mnr Ls strgs lt brn, mdst, arg, grds to mrlst ip, dns, no show.

Sh: m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa.

Sh: m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa.

Sh: predly m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa / tr mnr lt bnr sid frags.

Sh: predly m gy, sb fis, slly mmca, tr pyr, tr mnr Ls strgs aa / tr mnr lt bnr sid frags.

Ss: lt gy, vf gred, sb ang, modly Martin House
w srt, calcs, slty, tr glauc, tr mnr (TVD: 1104.00)
dk lit grs, tt, no shows. (SSL: -817.50)

Sh: m gy, mnr dk gy, sb fsi, slly mmca, tr pyr, p tr ss strgs aa.

Lithology Description										Interpreted Lithology										Drilling Progress									
										Rounding										Slide - Rotate									
										Sorting										Depth									
										Grain Size										Porosity (%)									
										Core										Oil Shows									
										Porosity Type										Date									
										Core										Date									
										Oil Shows										Date									
										Porosity Type										Date									
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										Sorting										Depth									
										Grain Size										Porosity (%)									
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										Oil Shows										Date									
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										Grain Size										Date									
										Sorting										Date									
										Rounding										Date									

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										Sorting										Depth									
										Grain Size										Porosity (%)									
										Core										Oil Shows									
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										Oil Shows										Date									
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										Grain Size										Date									
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										Rounding										Slide - Rotate									
										Sorting										Depth									
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										Core										Oil Shows									
										Porosity Type										Date									
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										Porosity (%)										Date									
										Grain Size										Date									
										Sorting										Date									
										Rounding										Date									

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Well Information

Operator: **ConocoPhillips Canada Resources Corp.**
Well Name: **COPRC Mirror Lake N-20**
Location: **Unit:N Section:20, Grid: 65-00 126-45**
UWI: **300N206500126450**
Pool / Field: **Undefined / Mirror Lake**
Well License #: **470**
Province / State: **Northwest Territories**
Country: **Canada**

Elevations

Reference: Ground Ground: 281.3 m
Cut(-) / Fill(+): Kelly Bushing: 286.5 m
K.B. to Ground: 5.2 m Casing Flange: m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type: Vertical
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	NS: EW:
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62	Easting: 603555.85	

Drilling Fluid Summary

Fluid Type	From	To
Gel Chem	0 m	601 m
Invert (Versaclean)	601 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	311 mm	244.5 mm	598 m

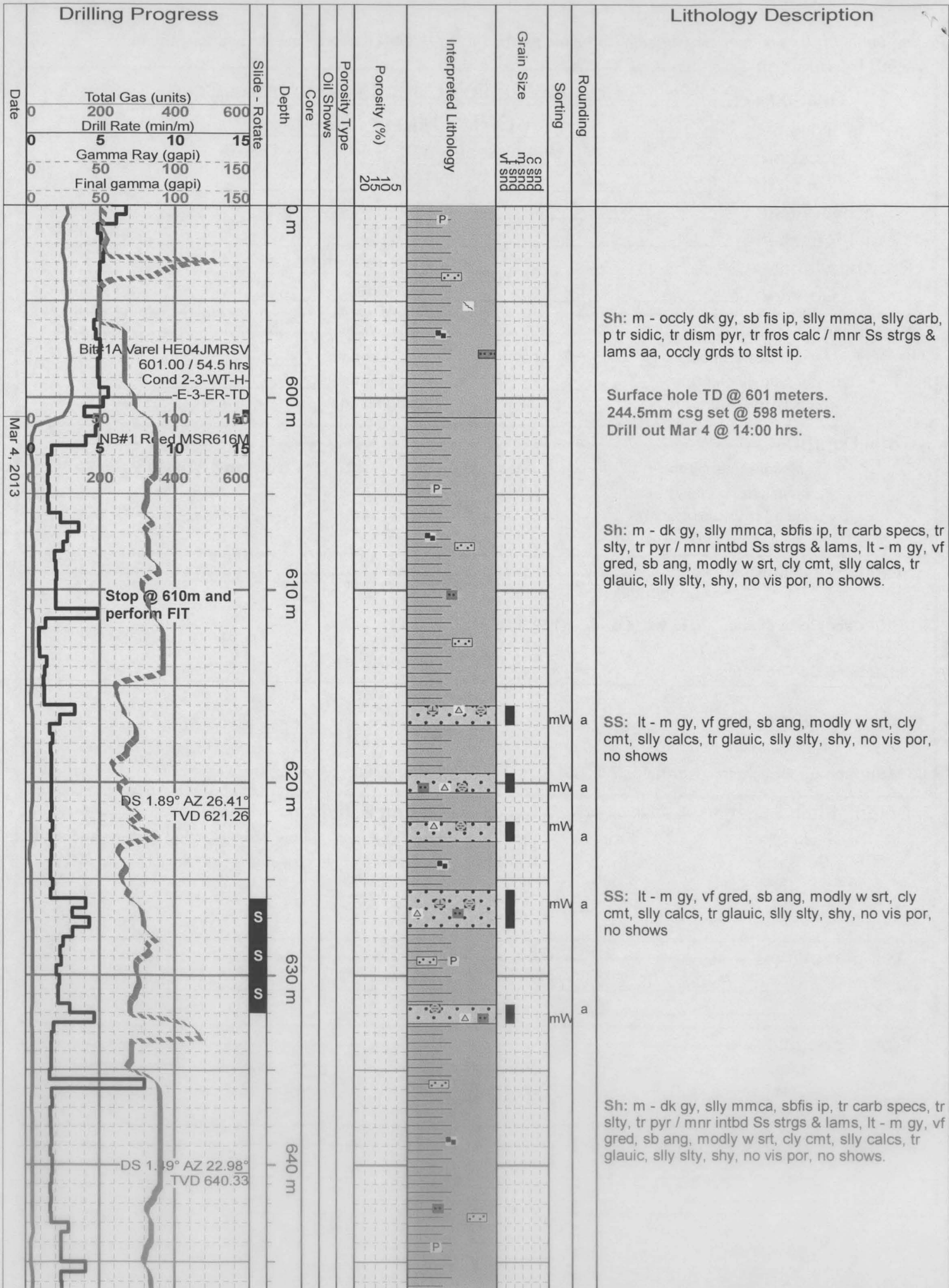
Well Summary

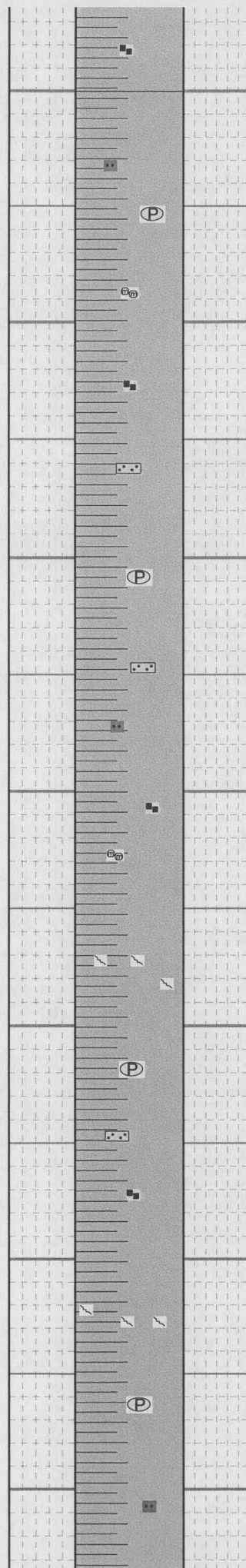
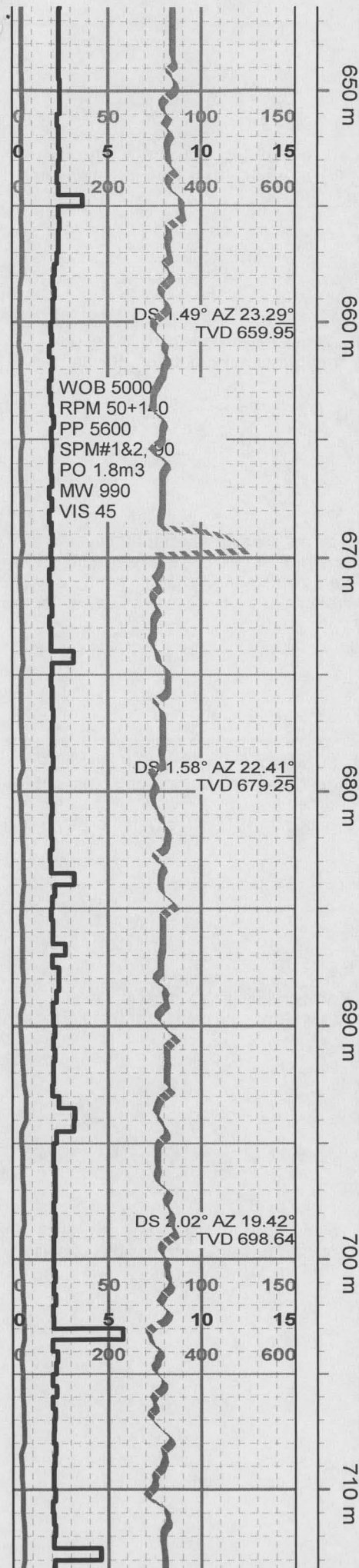
Spud Date: Feb 25, 2013 @ 17:00hrs Contractor: Beaver Drilling Ltd.
TD Date: Rig Release Date:

Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks





Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr slty, tr pyr / mnr intbd Ss lams aa.

Sh: m - dk gy, slly mmca, sbfis ip, tr carb specs, tr slty, tr fros cxln calc / mnr intbd Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, mnr slty / occ Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, mnr slty / occ Ss lams aa.

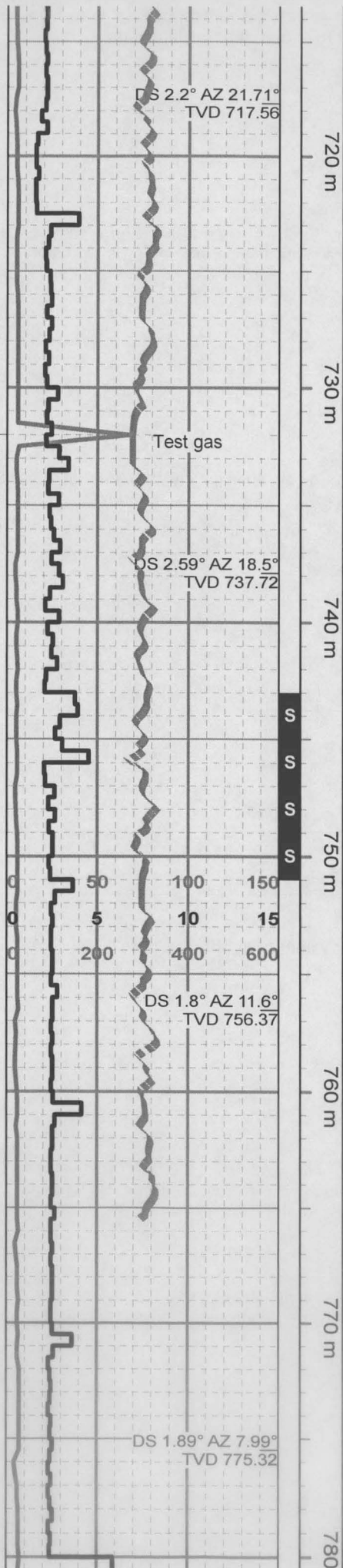
Sh: aa / abnt c xln fros calc (frac?)

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, abnt fros c xln calc, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, slly carb, tr slty, slly mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Mar 5, 2013



Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams aa.

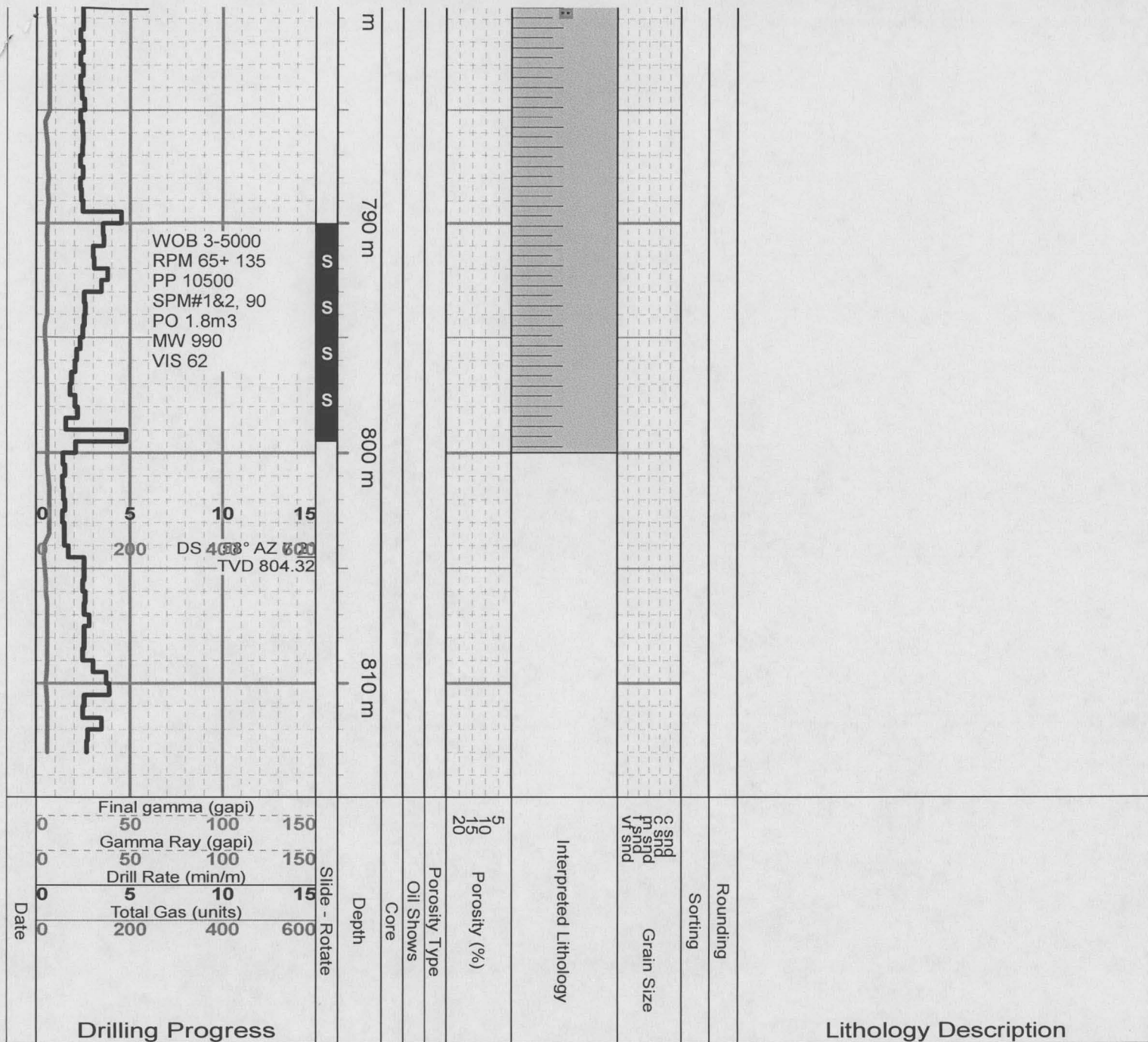
Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy, vf gred, sb ang, modly wsrt, cly mtx, sily calcs, tr glaucic, tr dk lit grs, slty ip, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy, vf gred, sb ang, modly wsrt, cly mtx, sily calcs, tr glaucic, tr dk lit grs, slty ip, no vis por, no shows.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy aa.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy aa.

Sh: m - dk gy, sbfis ip, sily carb, tr slty, sily mmca, tr pyr, mnr calc aa, tr mnr Ss lams, lt - m gy aa.



Well Information

Operator: ConocoPhillips Canada Resources Corp.
Well Name: COPRC Mirror Lake N-20
Location: Unit:N Section:20, Grid: 65-00 126-45
UWI: 300N206500126450
Pool / Field: Undefined / Mirror Lake
Well License #: 470
Province / State: Northwest Territories
Country: Canada

Elevations

Reference: Ground **Ground:** 281.3 m
Cut(-) / Fill(+): **Kelly Bushing:** 286.5 m
K.B. to Ground: 5.2 m **Casing Flange:** m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
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Well Co - Ordinates

Longitude **Latitude** **Well Type:** Vertical
Surface Co-Ordinates: 126 48' 14.6" W 64 59' 46.8" N NS:
EW:
Int. Casing Co-Ordinates: NS:
EW:
Bottom Hole Co-Ordinates: NS:
EW:
UTM Surface Co-Ordinates: Northing: 7209651.62 Easting: 603555.85

Drilling Fluid Summary

Fluid Type	From	To
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Invert (Versaclean)	601 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	311 mm	244.5 mm	598 m

Well Summary

Spud Date: Feb 25, 2013 @ 17:00hrs **Contractor:** Beaver Drilling Ltd.
TD Date: **Rig Release Date:**

Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks

Drilling Progress				Lithology Description			
Date	Total Gas (units)	Drill Rate (min/m)	Slide - Rotate	Core	Porosity Type	Porosity (%)	Interpreted Lithology
	0 200 400 600	0 5 10 15				0 10 20	
	Gamma Ray (gapi)	Final gamma (gapi)					
	0 50 100 150	0 50 100 150					
0	200	5	0 m				
0	400	10	0 m				
0	600	15	0 m				
0	200	5	10 m				
0	400	10	10 m				
0	600	15	10 m				
0	200	5	20 m				
0	400	10	20 m				
0	600	15	20 m				
0	200	5	30 m				
0	400	10	30 m				
0	600	15	30 m				
0	200	5	40 m				
0	400	10	40 m				
0	600	15	40 m				

SPUD DATE: FEB 25, 2013 @ 17:00 hrs.

Samples from 0-20 meters caught prior to spud when the conductor hole was drilled.

Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glauc, mnr dk (carb?) lit grs, slty, tr fer, tr pyr nods, no vis por, no shows / Ss (cht cgl) occ vcol cht pbls & qtz pbls / Ss mtx, lt gy, m gred, qtz & cht, sb rdd, m srtg, uncons, por? no vis shows.

Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glauc, mnr dk (carb?) lit grs, slty slty, no vis por, no shows

Ss: lt gy aa incrg shy, no vis por, no shows

Ss: aa / Ss s&p, f gred, sb ang - modly w srt, clr & vit qtz & lt cold cht, mnr kao cmt, tr sils, dk (carb?) lit grs, v pyric, abnt uncons, fr-g intgran por? 15%, tr spy dd lt brn o stn, no vis flor.

Cement: 100% cement

Ss: lt gy, u f gred, sb ang, modly w srt, qtz & cht, cly cmt, abnt uncons, tr glauc, dk cold lit grs, tr pyric, p - fr intgran por 10-14%, no vis shows.

Ss: lt gy, u f gred, sb ang, m srt, qtz & gy cht, cly cmt, abnt uncons, tr glauc, dk cold lit grs, mnr gy cht pbls, p - fr intgran por 8-10%, no vis shows.

Ss: aa, grdg down to vf gred ss, bcmg shy / 5% intbd Sh lams, lt gy, sft, slty, occlly sdy, tr carb specs, occlly grds to shy sltst & ss ip.

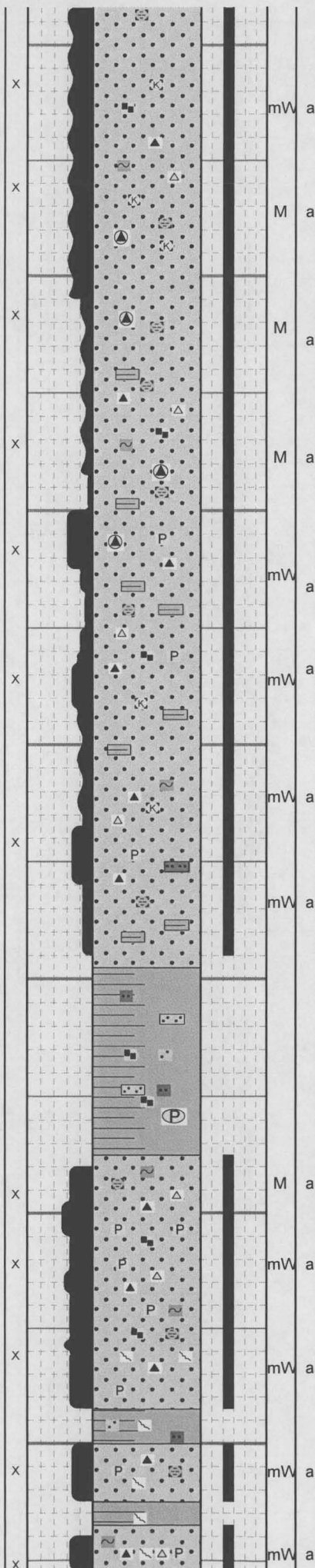
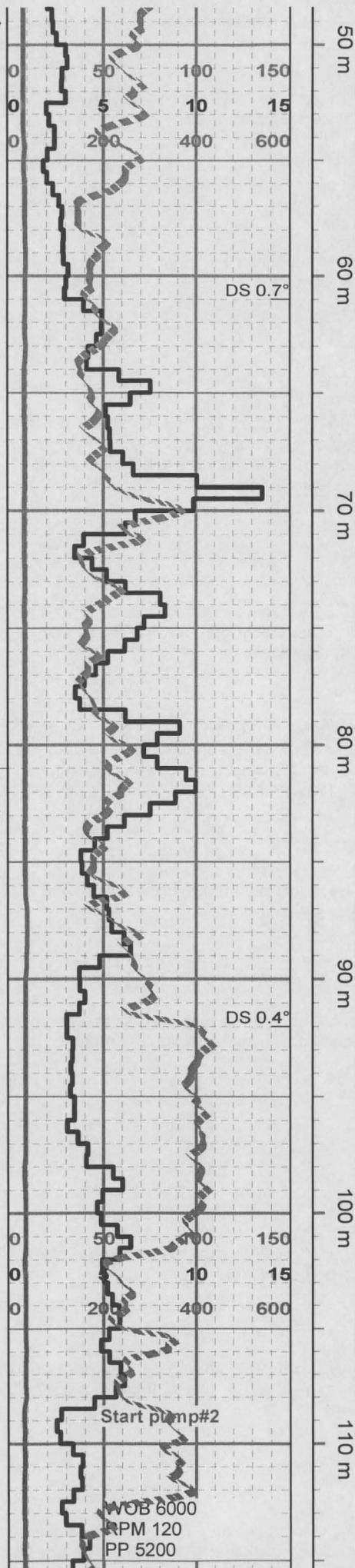
Ss: lt gy, l f gred, sb ang, modly w srt, qtz & gy cht, cly cmt, uncons ip, tr glauc, dk cold lit grs, occlly shy & slty, p intgran por 4-7%, no vis shows.

Ss: aa / Ss lt gy, c gred, sb rdd, m srtg, qtz & vcol cht, uncons / occ cly cmt, tr pyric, p por? no vis

WOB 5000
RPM 120
PP 1000
SPM 140
PO 1.8m3
MW 1060
VIS 55
PH 9.5

Feb 25, 2013

Feb 26, 2013



shows.

Ss: s&p, u f gred, sb ang, modly w srt, qtz & gy cht, mnr kao cmt, slly sils, abnt uncon, carb lit grs, p tr glaucic, 12% por? no vis shows.

Ss: s&p, u f gred, sb ang, m srtg, qtz & gy cht, mnr kao cmt, slly sils, predly uncon, carb lit grs, p tr glaucic, tr occ gy cht pbl frags, 15% intgran por? no vis shows.

Ss: aa / mnr Sh lams, lt gy, blkly, slty, sdy ip, tr pyr.

Ss: lt gy, f gred, sb ang, m srtg, cly cmt, abnt uncon, carb lit grs, tr pyric, tr glaucic, occ vcol cht pbls, 10% por? no vis shows / mnr Sh lams aa.

Ss: aa / Ss v lt gy, vit qtzs, mnr lt gy cht, f gred, sb ang, modly w srt, cly cmt, tr mnr dk lit grs, tr pyric, p intgran por 4-7%, no vis shows.

Ss: aa

Ss: v lt gy aa / Ss s&p, u f gred, sb ang, modly w srt, kao cmt, dk lit grs, tr pyric, tr glaucic, mnr carb mat, p - fr intgran por 4-9%, no vis shows.

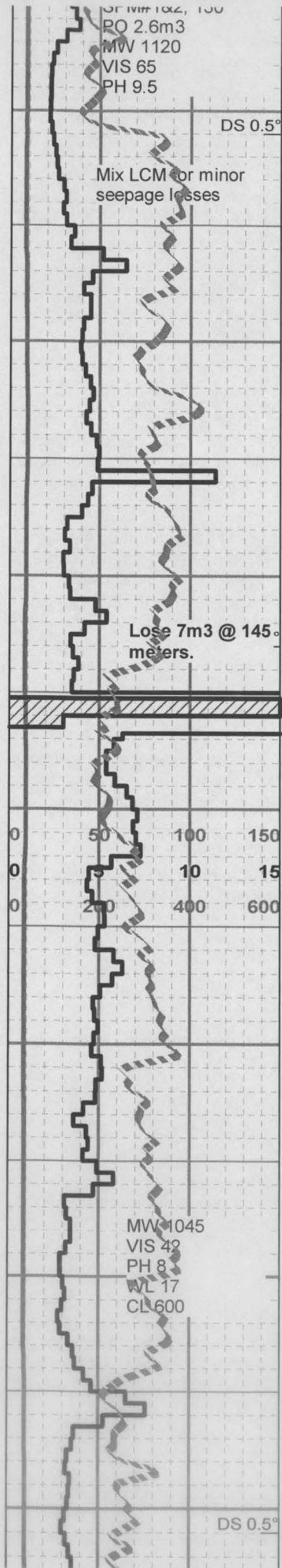
Ss: s&p aa / 10% Sh lams, lt gy, blkly, slty, sdy ip, occly grds to shy vf gred ss ip, carb mat.

Sh: lt - m gy, blkly, occly slty, slly sdy ip, tr carb mat, p tr pyr nuds.

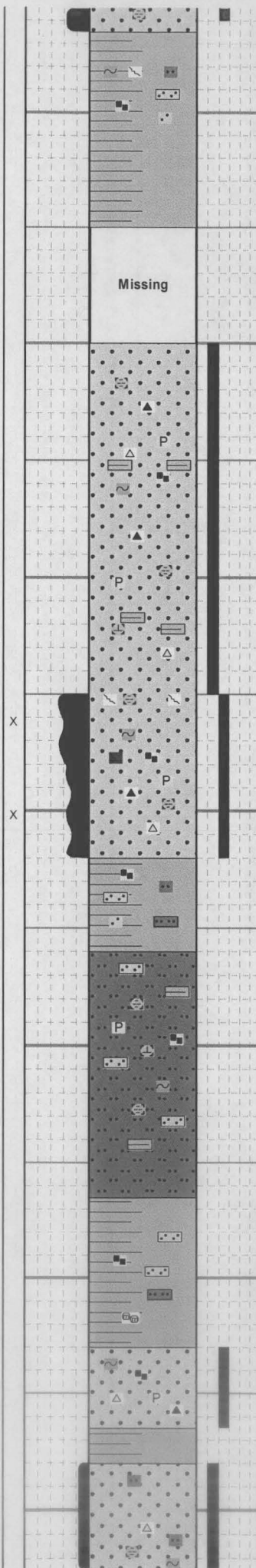
Ss: lt gy, s&p, u f gred, sb ang, m srtg, slly sils, mnr kao cmt, abnt uncon, dk lit grs, pyric, tr glaucic, fr intgran por? 14%, no vis shows.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows / 10% sh lams aa.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows

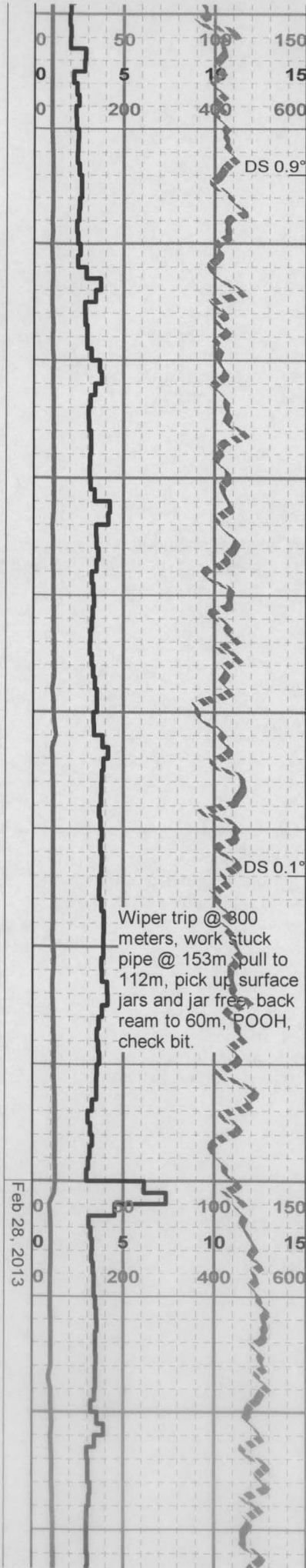


120 m
130 m
140 m
150 m
160 m
170 m
180 m

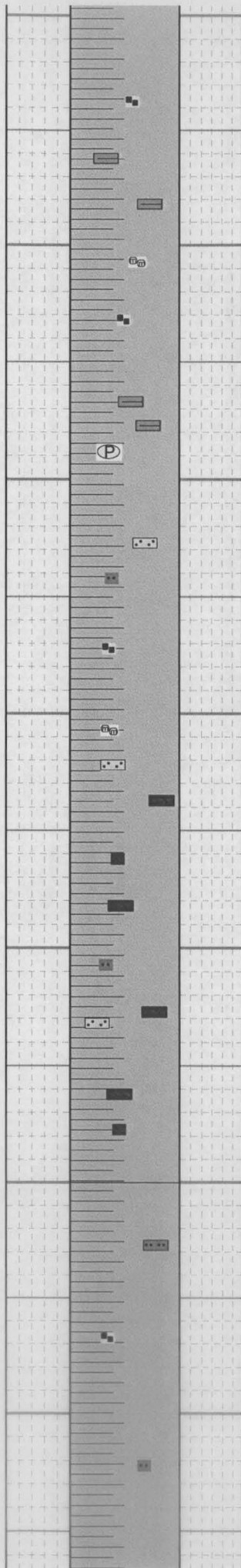


W a
W a
W a
mW a
M a
mW a

Sh: lt - m gy, blk, slty, sdy, grds to shy sltst ip, tr glauc, tr carb specs.
 Missed Sample
 Ss: lt - m gy, vf gred, grds to sdy sltst ip, sb ang, w srt, cly cmt, slty, shy, carb specs & mat, tr glauc, tr pyric, tr fros calc aa, no vis por, no shows / 20% Sh lams aa.
 Ss: aa / Ss v lt gy, u vf gred, sb ang, w srt, cly cmt, slly calcs, dk lit grs, slty, tr pyric, tr shy, predly tt, no shows.
 Ss: p sample abnt LCM, lt gy, l f gred, sb ang, modly w srt, cly cmt, abnt uncon, tr glauc, dk lit grs, mnr fer, tr fros calc, fr intgran por? no vis shows / 10% Sh aa.
 Sh: m gy, blk, slly mmca, occly slty, tr sdy, tr carb specs & mat.
 Sltst: lt gy, occly grds to vf gred ss ip, cly cmt, tr calcs, dk lit grs, tr pyric, tr glauc, predly tt, no shows.
 Sh: m gy, blk, slty, occly sdy, occly grds to shy sltst, carb specs & mat, tr pyr.
 Ss: lt gy, s&p, f gred, sb ang, m srtg, abnt uncon, cly cmt ip, dk lit grs, tr glauc, tr pyric, p por? no vis shows.
 Ss: lt gy, vf gred, sb ang, modly w srt, abnt uncon, cly cmt, dk lit grs, tr glauc, slty, slly shy



Feb 28, 2013



Sh: predly m gy, blk, sly mmca, slty ip, tr carb mat, tr pyr nods / 10% Ss strgs aa.

Sh: aa / mn Sh blue gn, blk, flat wxy tex / 5% Ss strgs aa.

Sh: aa

Sh: predly m gy, blk, sly mmca, tr slty, tr carb mat, tr pyr nods / mn gn sh aa.

Sh: predly m gy, mn dk gy, sbfis ip, sly mmca, slty ip, tr carb mat, tr blue gn sh aa / 10% Ss strgs aa.

Sh: predly m gy, mn dk gy, sbfis ip, sly mmca, slty ip, tr carb mat, bcmg sidic / brn sid frags.

Sh: m gy, gy brn ip, tr dk gy, mn sb fis, occl sidic, sly mmca, tr slty, abnt brn sid frags / tr mn Ss strgs aa.

Sh: m gy, blk, sly mmca, tr slty, mn sdy ip, tr carb specs / mn Slst strgs, lt gy, sdy ip, tr dk lit grs, cly cmt, no vis por, no shows.

Sh: m av. blk. sly mmca. tr slty. mn sdy ip. tr

carb specs / mnr Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

Sh: m gy, blk, sly mmca, tr slty, mn r sdy ip, tr
carb specs / mn r Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

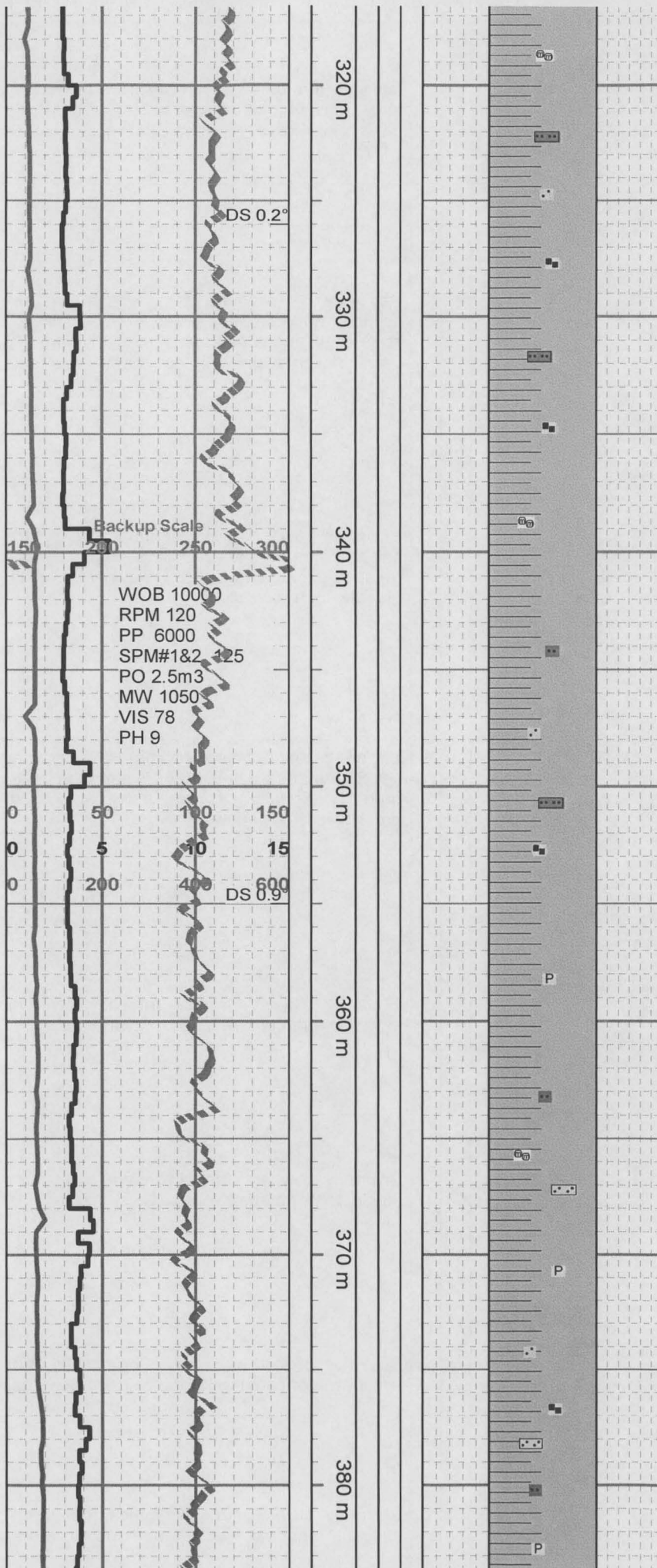
Sh: m gy, blk, sly mmca, tr slty, mn r sdy ip, tr
mn r carb mat / tr Sltst strgs aa.

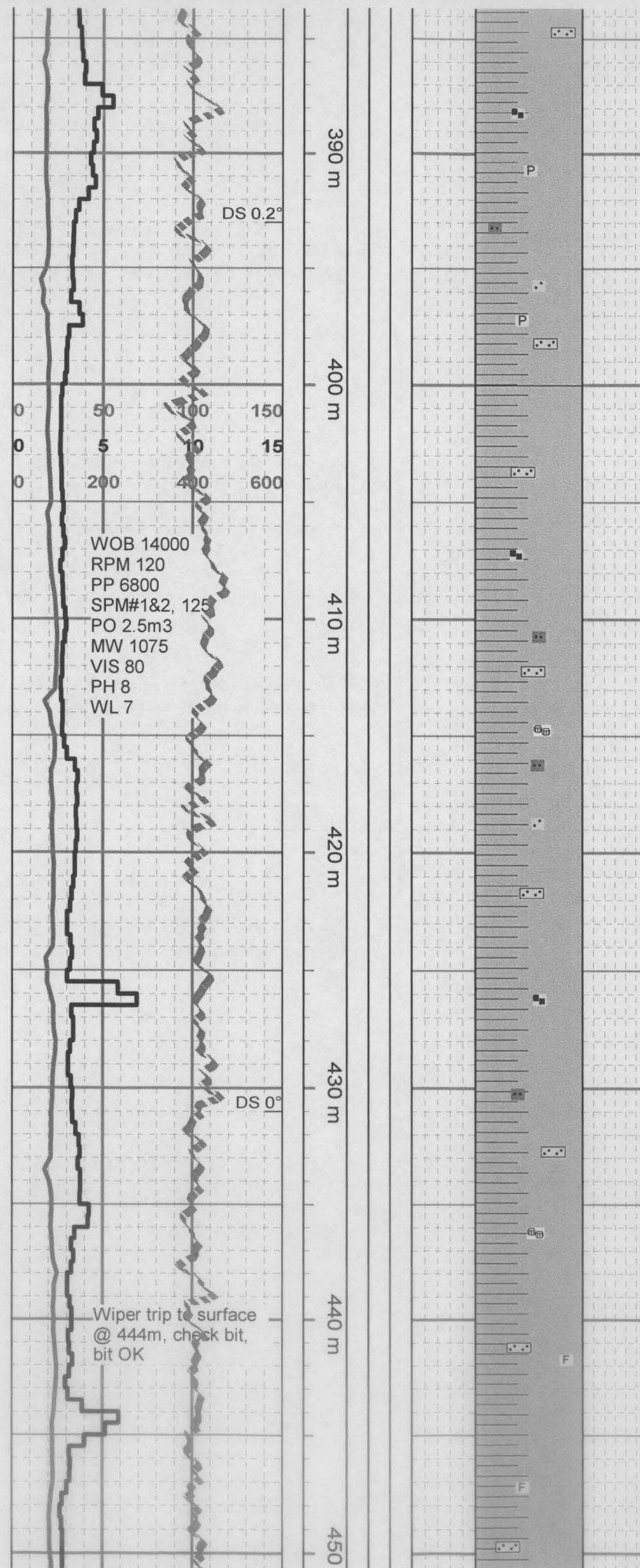
Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat / tr Sltst strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat, g tr dism pyr / tr Sltst
strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat, g tr dism pyr / 5% Ss
strgs, lt gy, l f gred, sb ang, m srtg, cly cmt, sly
calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mn r
sd y ip, tr mn r carb mat, g tr dism pyr / mn r Ss
strgs aa





Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb mat, g tr dism pyr / mnr Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, slly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb mat, g tr dism pyr / mnr Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, slly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v slly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v slly calcs, dk lit grs, slty ip, tt, no shows.

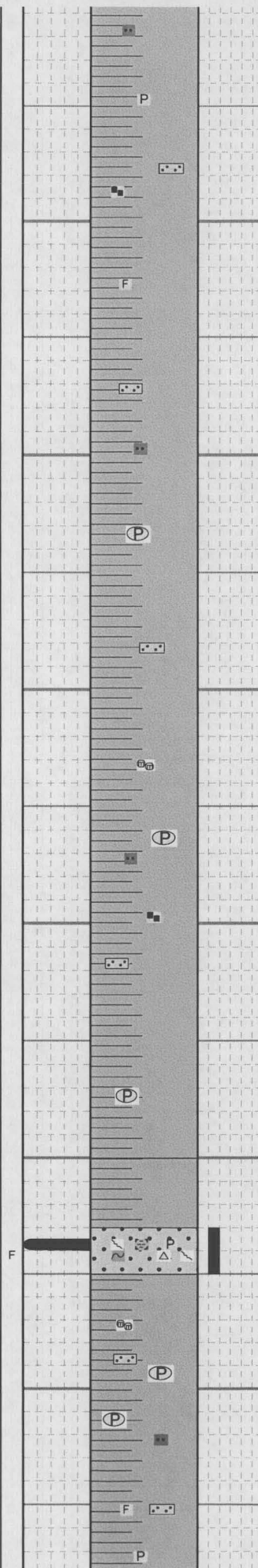
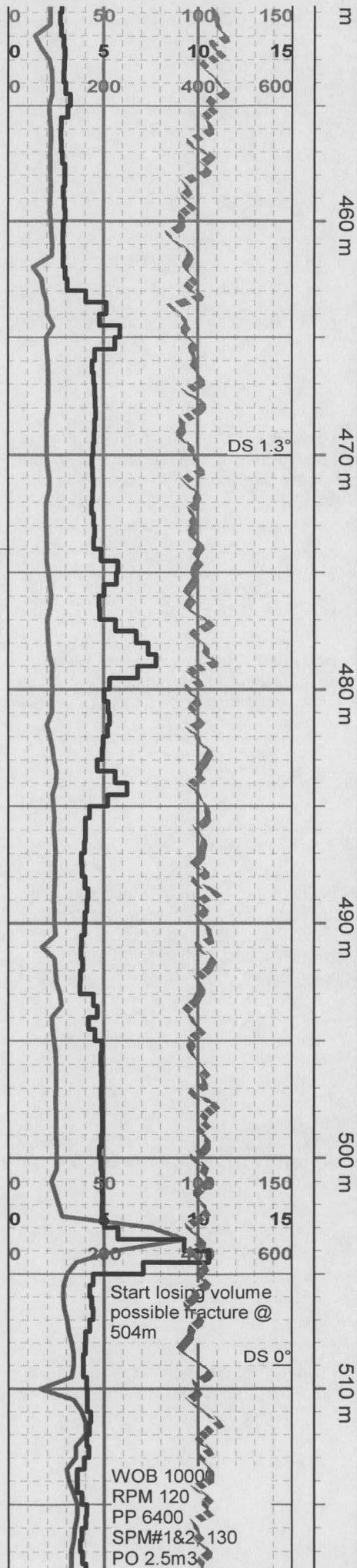
Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr inoc / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr inoc / occ Ss strgs aa.

Mar 1, 2013



Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr inoc, tr dis pyr / occ
Ss strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic, tr inoc / occ Ss
strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs m gy, vf gred, sb ang, w srt,
cly cmt, dk lit grs, tr pyric, tr glauc, slty, shy, no
vis por, no shows.

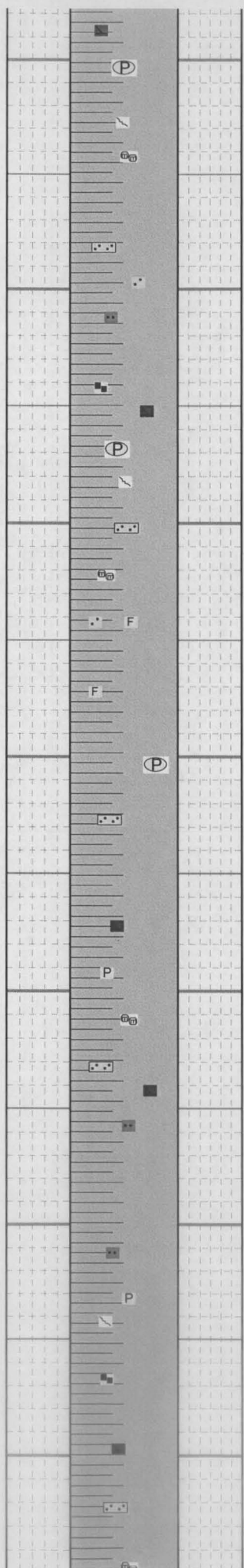
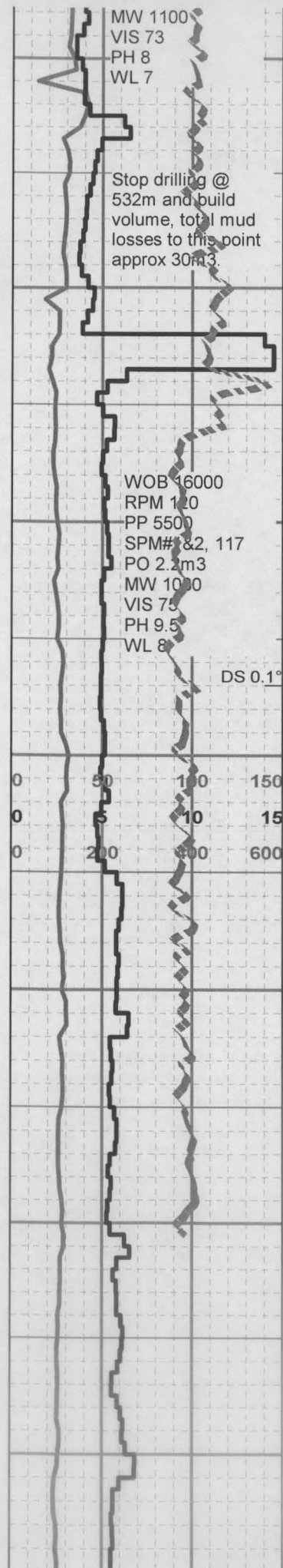
Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs m gy, aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs aa.

Ss: lt - m gy, vf gred, sb ang, modly w srt, cly cmt,
slty, shy, dk lit grs, tr glauc, tr pyr, no vis por or
shows.

Sh: aa, g tr pyr nods

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr



nods / mnr Ss strgs aa.

Sh: m - occlly dk gy aa.

Sh: m - occlly dk gy, blkly, sft - frm, slly mmca, tr
sly, mnr sdy ip, tr mnr carb specs, tr sidic ip, tr
inoc, pyr nods, tr mnr micro frags infilled /calc /
5% Ss strgs aa.

Sh: m - occlly dk gy, blkly, modly frm, slly mmca, tr
sly, tr sdy ip, slly carb ip, tr sidic ip, tr inoc, pyr
nods & dism pyr, tr mnr fros calc aa / 5% Ss strgs
aa.

Sh: m - occlly dk gy, gy brn ip, mnr sb fis, slly
mmca, slly carb, occlly sidic, dism pyr, tr fros calc
aa, / 3% Ss strgs, m gy, vf gred, sb ang, modly w
srt, cly cmt, slly calcs, dk lit grs, tr pyric, sly, shy,
no vis por or shows.

Sh: m - occlly dk gy, gy brn ip, mnr sb fis, slly
mmca, slly carb, occlly sidic, dism pyr, tr fros calc
aa, / occ Ss strgs aa.

Sh: m - occlly dk gy, mnr sb fis, slly mmca, slly
carb, tr sidic, pyr, tr clr c xln calc / mnr Ss strgs
aa.

[illegible]

697793

VS

Well Information

Operator: ConocoPhillips Canada Resources Corp.
Well Name: COPRC Mirror Lake N-20
Location: Unit:N Section:20, Grid: 65-00 126-45
UWI: 300N206500126450
Pool / Field: Undefined / Mirror Lake
Well License #: 470
Province / State: Northwest Territories
Country: Canada

Elevations

Reference: Ground **Ground:** 281.3 m
Cut(-) / Fill(+): **Kelly Bushing:** 286.5 m
K.B. to Ground: 5.2 m **Casing Flange:** m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type: Vertical
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	NS: EW:
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62	Easting: 603555.85	

Drilling Fluid Summary

Fluid Type	From	To
Gel Chem	0 m	601 m
Invert (Versaclean)	601 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
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Well Summary

Spud Date: Feb 25, 2013 @ 17:00hrs **Contractor:** Beaver Drilling Ltd.
TD Date: **Rig Release Date:**

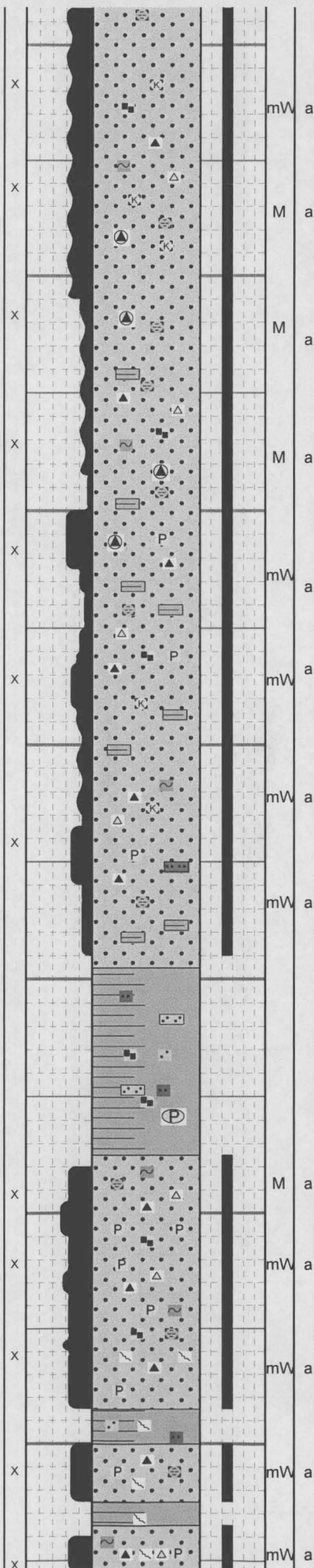
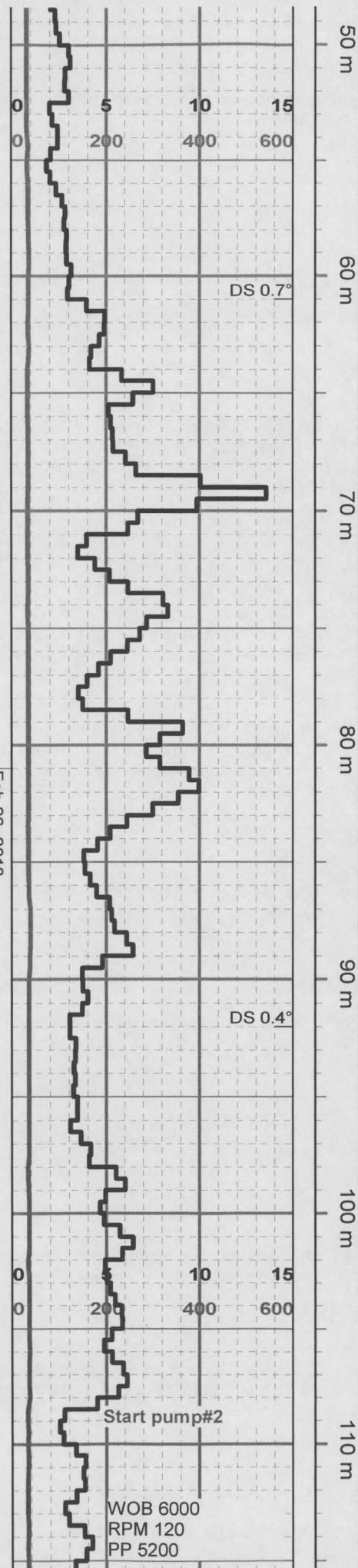
Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks

Drilling Progress					Lithology Description									
Date	Total Gas (units)			Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Porosity (%)	Interpreted Lithology	Grain Size	Sorting	Rounding	
	0	200	400											
	0	5	10	15										
	0	50	100	150										
	0	50	100	150										
	NB#1A Varel HE04JMRSV													
	0	5	10	15										
	0	200	400	600										
	</													

Feb 26, 2013



shows.

Ss: s&p, u f gred, sb ang, modly w srt, qtz & gy cht, mnr kao cmt, slly sils, abnt uncons, carb lit grs, p tr glaucic, 12% por? no vis shows.

Ss: s&p, u f gred, sb ang, m srtg, qtz & gy cht, mnr kao cmt, slly sils, predly uncons, carb lit grs, p tr glaucic, tr occ gy cht pbl frags, 15% intgran por? no vis shows.

Ss: aa / mnr Sh lams, lt gy, blkly, slty, sdy ip, tr pyr.

Ss: lt gy, f gred, sb ang, m srtg, cly cmt, abnt uncons, carb lit grs, tr pyric, tr glaucic, occ vcol cht pbls, 10% por? no vis shows / mnr Sh lams aa.

Ss: aa / Ss v lt gy, vit qtzs, mnr lt gy cht, f gred, sb ang, modly w srt, cly cmt, tr mnr dk lit grs, tr pyric, p intgran por 4-7%, no vis shows.

Ss: aa

Ss: v lt gy aa / Ss s&p, u f gred, sb ang, modly w srt, kao cmt, dk lit grs, tr pyric, tr glaucic, mnr carb mat, p - fr intgran por 4-9%, no vis shows.

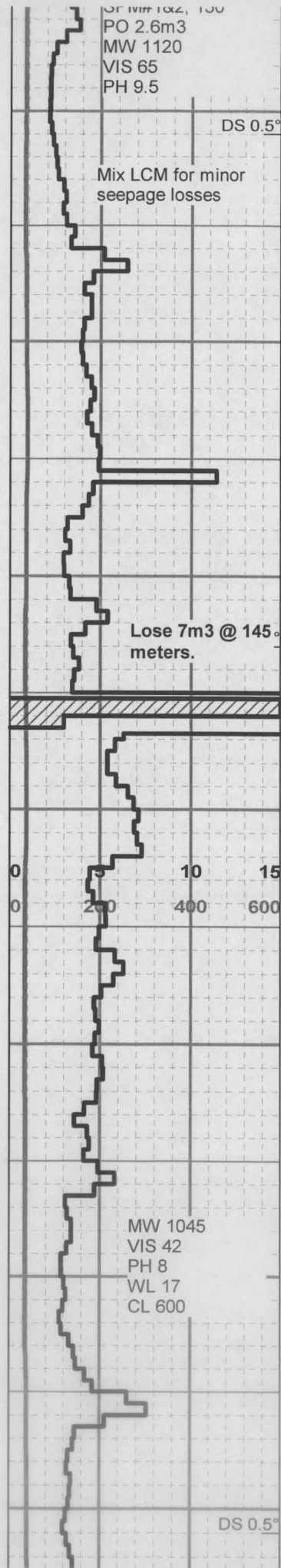
Ss: s&p aa / 10% Sh lams, lt gy, blkly, slty, sdy ip, occly grds to shy vf gred ss ip, carb mat.

Sh: lt - m gy, blkly, occly slty, slly sdy ip, tr carb mat, p tr pyr nods.

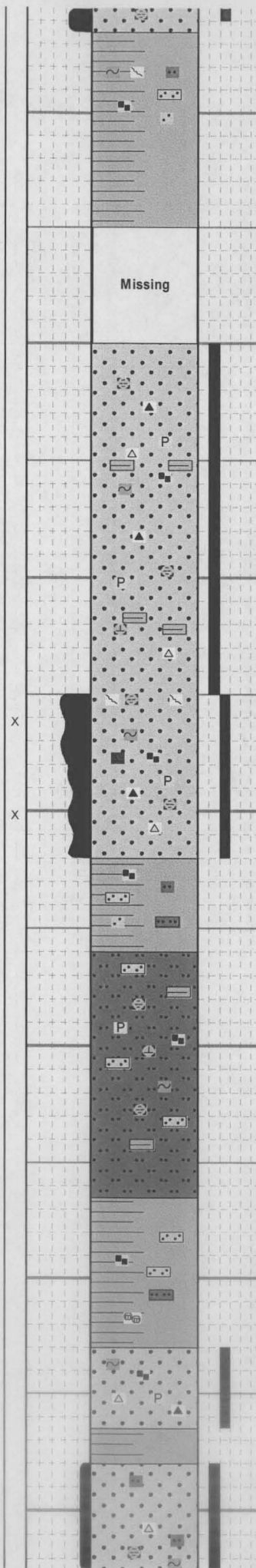
Ss: lt gy, s&p, u f gred, sb ang, m srtg, slly sils, mnr kao cmt, abnt uncons, dk lit grs, pyric, tr glaucic, fr intgran por? 14%, no vis shows.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows / 10% sh lams aa.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows



120 m
130 m
140 m
150 m
160 m
170 m
180 m



W a
W a
W a
mW a
M a
mW a

Sh: lt - m gy, blk, slty, sdy, grds to shy sltst ip, tr glaucic, tr carb specs.

Missed Sample

Ss: lt - m gy, vf gred, grds to sdy sltst ip, sb ang, w srt, cly cmt, slty, shy, carb specs & mat, tr glaucic, tr pyric, tr fros calc aa, no vis por, no shows / 20% Sh lams aa.

Ss: aa / Ss v lt gy, u vf gred, sb ang, w srt, cly cmt, slly calcs, dk lit grs, slty, tr pyric, tr shy, predly tt, no shows.

Ss: p sample abnt LCM, lt gy, l f gred, sb ang, modly w srt, cly cmt, abnt unconcs, tr glaucic, dk lit grs, mnr fer, tr fros calc, fr intgran por? no vis shows / 10% Sh aa.

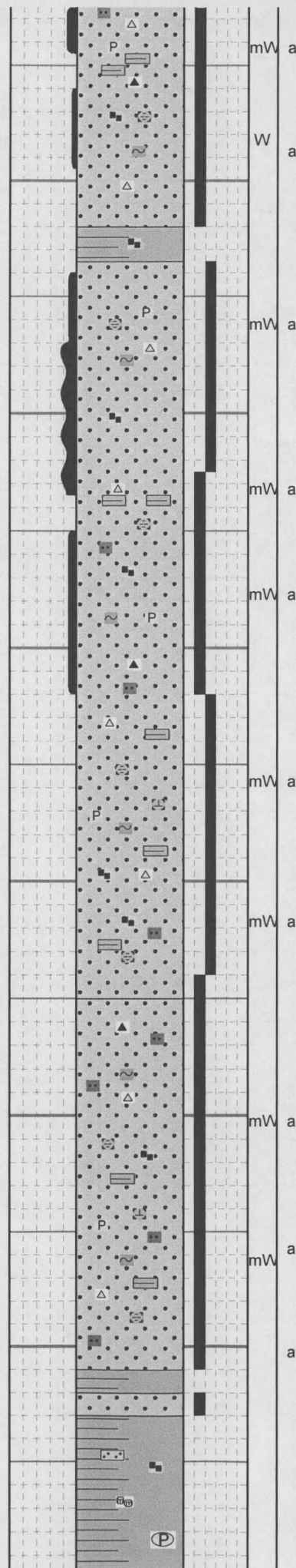
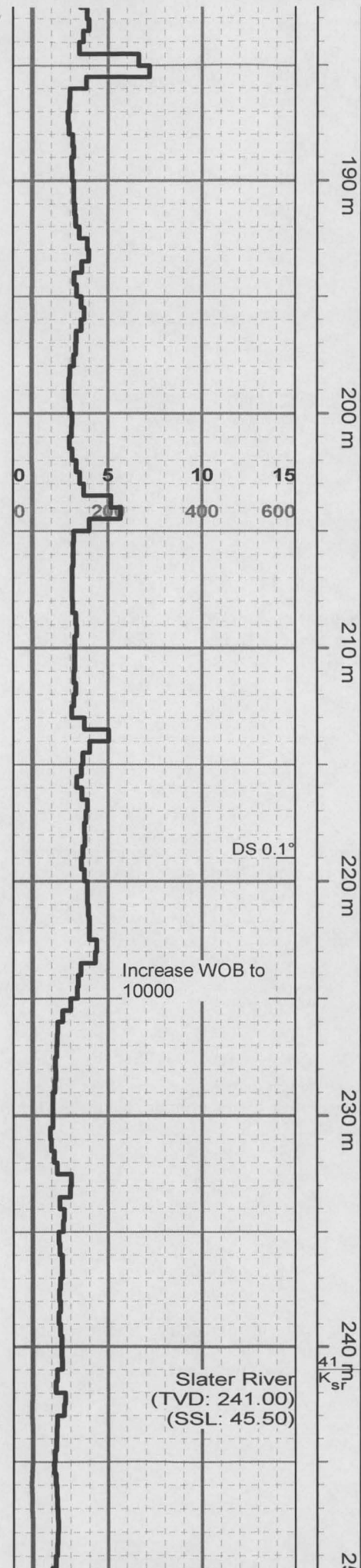
Sh: m gy, blk, slly mmca, occly slty, tr sdy, tr carb specs & mat.

Sltst: lt gy, occly grds to vf gred ss ip, cly cmt, tr calcs, dk lit grs, tr pyric, tr glaucic, predly tt, no shows.

Sh: m gy, blk, slty, occly sdy, occly grds to shy sltst, carb specs & mat, tr pyr.

Ss: lt gy, s&p, f gred, sb ang, m srtg, abnt unconcs, cly cmt ip, dk lit grs, tr glaucic, tr pyric, p por? no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, abnt unconcs, cly cmt, dk lit grs, tr glaucic, slty, slly shy



ip, tr pyric, tt - p intgran por, no vis shows.

Ss: lt gy, l vf gred, sb ang, w srt, w cmt / cly cmt, sly calcs, dk lit grs, slty, tr glaucic, shy ip, tt, no shows.

Ss: s&p, f gred, sb ang, modly w srt, cly cmt, occ uncons, dk lit grs, tr glaucic, diss pyr, tr fros calc, p intgran por 7%, no vis shows

Ss: aa / Ss lt gy, vf gred, sb ang, modly w srt, cly cmt, slty, shy ip, tr glaucic, tr pyric, tt, no vis shows

Ss: s&p, lt gy aa.

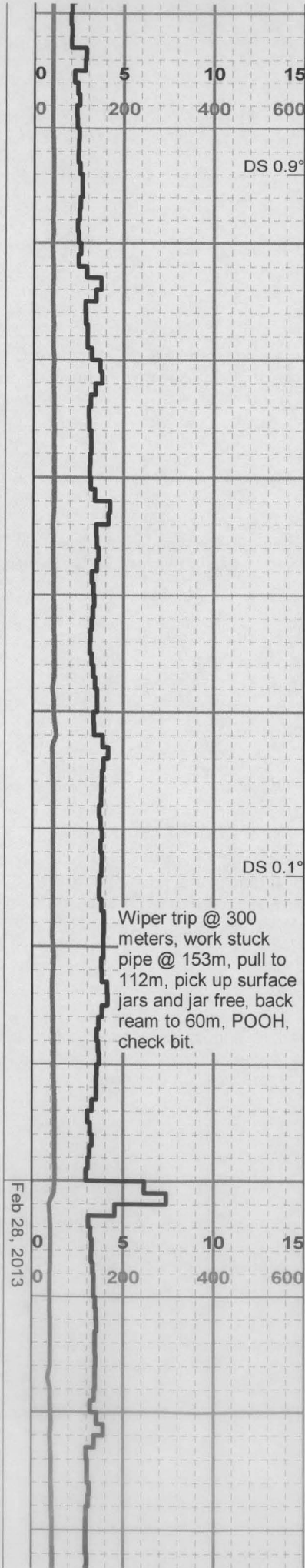
Ss: lt gy, f gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occlly shy, tt - p intgran por 4%, no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occlly shy, predly tt, no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occlly shy, predly tt, no vis shows.

Slater River
(TVD: 241.00)
(SSL: 45.50)

Sh: lt - m gy, blkly, sly mmca, slty ip, tr carb mat, tr pyr nuds.



50 m

260 m

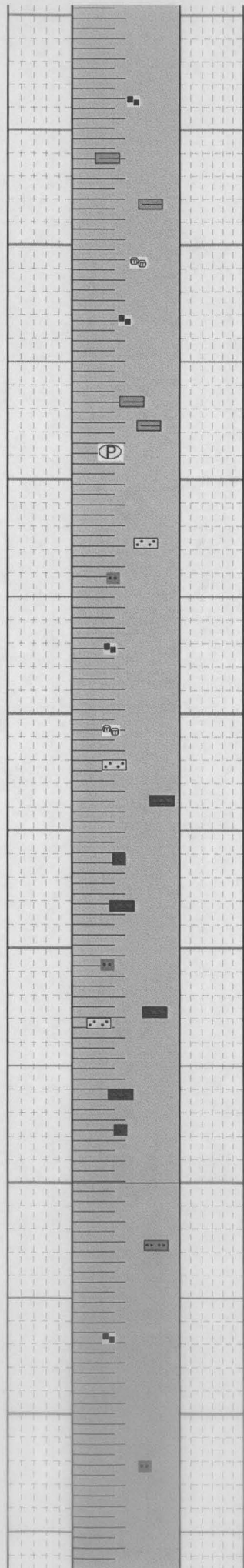
270 m

280 m

290 m

300 m

310 m



Sh: predly m gy, blk, sly mmca, slty ip, tr carb mat, tr pyr nods / 10% Ss strgs aa.

Sh: aa / mnr Sh blue gn, blk, flat wxy tex / 5% Ss strgs aa.

Sh: aa

Sh: predly m gy, blk, sly mmca, tr slty, tr carb mat, tr pyr nods / mnr gn sh aa.

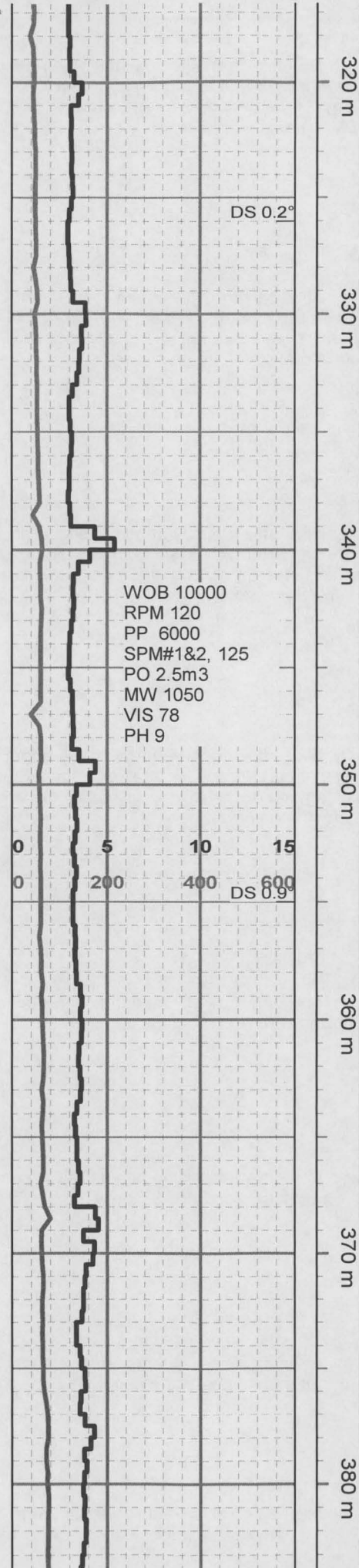
Sh: predly m gy, mnr dk gy, sbfis ip, sly mmca, slty ip, tr carb mat, tr blue gn sh aa / 10% Ss strgs aa.

Sh: predly m gy, mnr dk gy, sbfis ip, sly mmca, slty ip, tr carb mat, bcmg sidic / brn sid frags.

Sh: m gy, gy brn ip, tr dk gy, mnr sb fis, occl sidic, sly mmca, tr slty, abnt brn sid frags / tr mnr Ss strgs aa.

Sh: m gy, blk, sly mmca, tr slty, mnr sdv ip, tr carb specs / mnr Slst strgs, lt gy, sdv ip, tr dk lit grs, cly cmt, no vis por, no shows.

Sh: m av. blk, sly mmca, tr slty, mnr sdv ip, tr



carb specs / mntr Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

Sh: m gy, blk, sly mmca, tr slty, mntr sdy ip, tr
carb specs / mntr Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

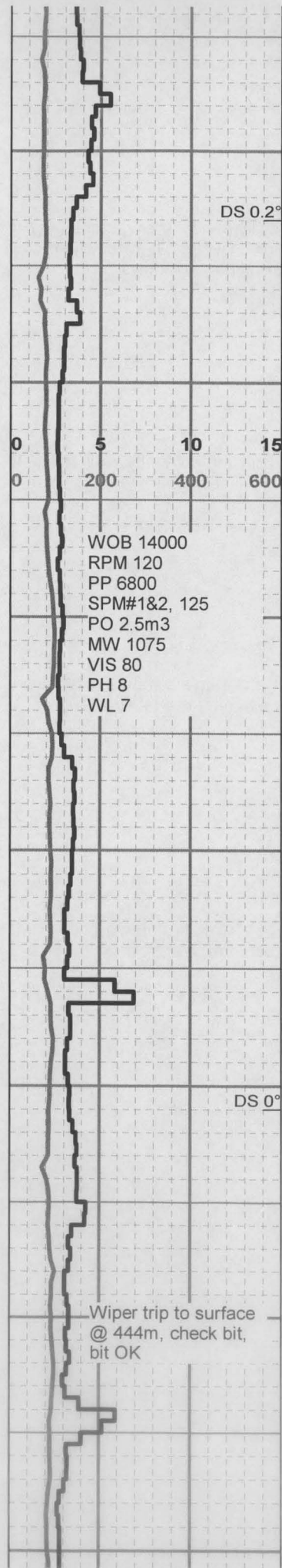
Sh: m gy, blk, sly mmca, tr slty, mntr sdy ip, tr
mntr carb mat / tr Sltst strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mntr
sdv ip, tr mntr carb mat / tr Sltst strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mntr
sdv ip, tr mntr carb mat, g tr dism pyr / tr Sltst
strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mntr
sdv ip, tr mntr carb mat, g tr dism pyr / 5% Ss
strgs, lt gy, l f gred, sb ang, m srtg, cly cmt, sly
calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mntr
sdv ip, tr mntr carb mat, g tr dism pyr / mntr Ss
strgs aa



390 m

400 m

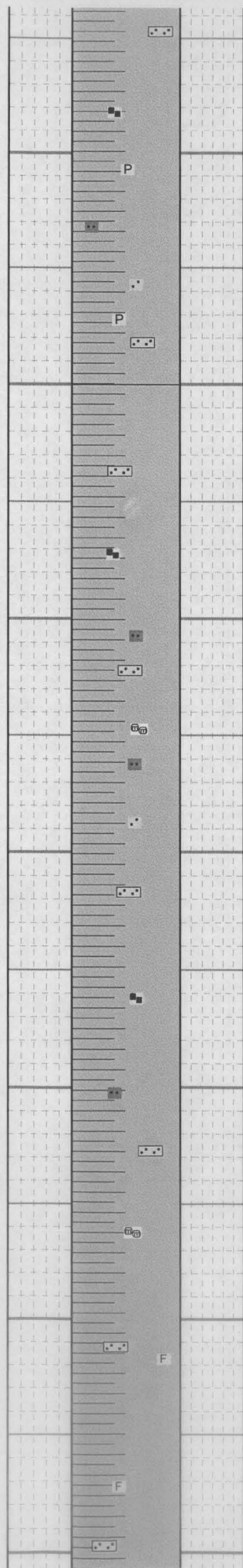
410 m

420 m

430 m

440 m

450 m



Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb mat, g tr dism pyr / mnr Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, sily calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb mat, g tr dism pyr / mnr Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, sily calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v sily calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v sily calcs, dk lit grs, slty ip, tt, no shows.

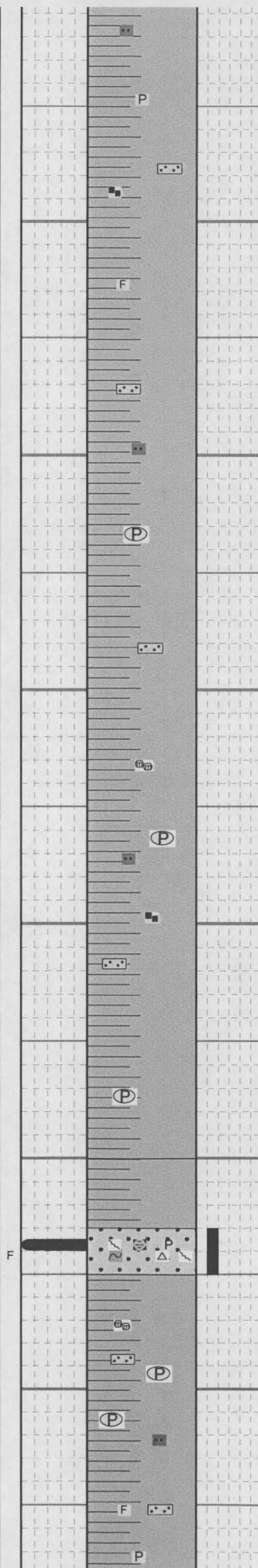
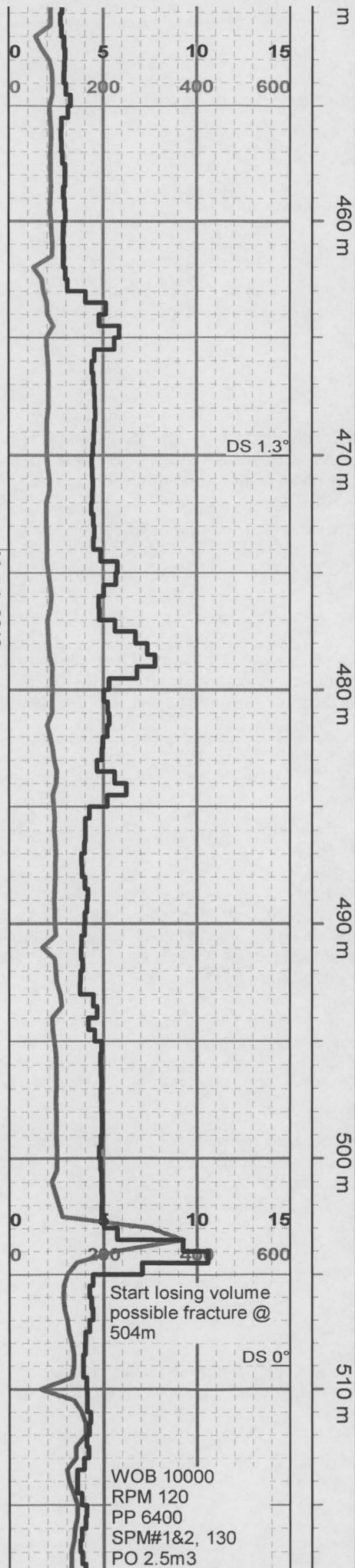
Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr inoc / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sily mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr inoc / occ Ss strgs aa.

Mar 1, 2013



Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr inoc, tr dism pyr / occ
Ss strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic, tr inoc / occ Ss
strgs aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs m gy, vf gred, sb ang, w srt,
cly cmt, dk lit grs, tr pyric, tr glauc, slty, shy, no
vis por, no shows.

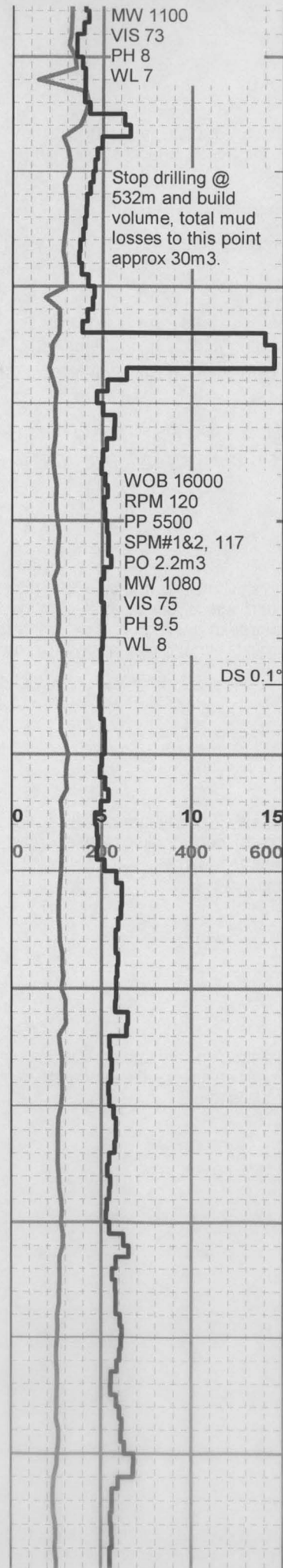
Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs m gy, aa.

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr
nods / mn Ss strgs aa.

Ss: lt - m gy, vf gred, sb ang, modly w srt, cly cmt,
slty, shy, dk lit grs, tr glauc, tr pyr, no vis por or
shows.

Sh: aa, g tr pyr nods

Sh: m gy, blk, sft - frm, slly mmca, tr slty, mn
sdy ip, tr mn carb specs, tr sidic ip, tr inoc, pyr



520 m

530 m

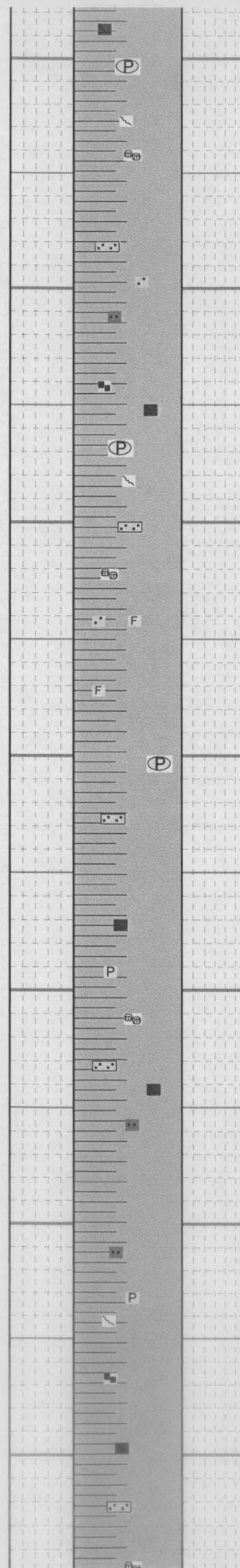
540 m

550 m

560 m

570 m

580 m



nods / mnr Ss strgs aa.

Sh: m - occlly dk gy aa.

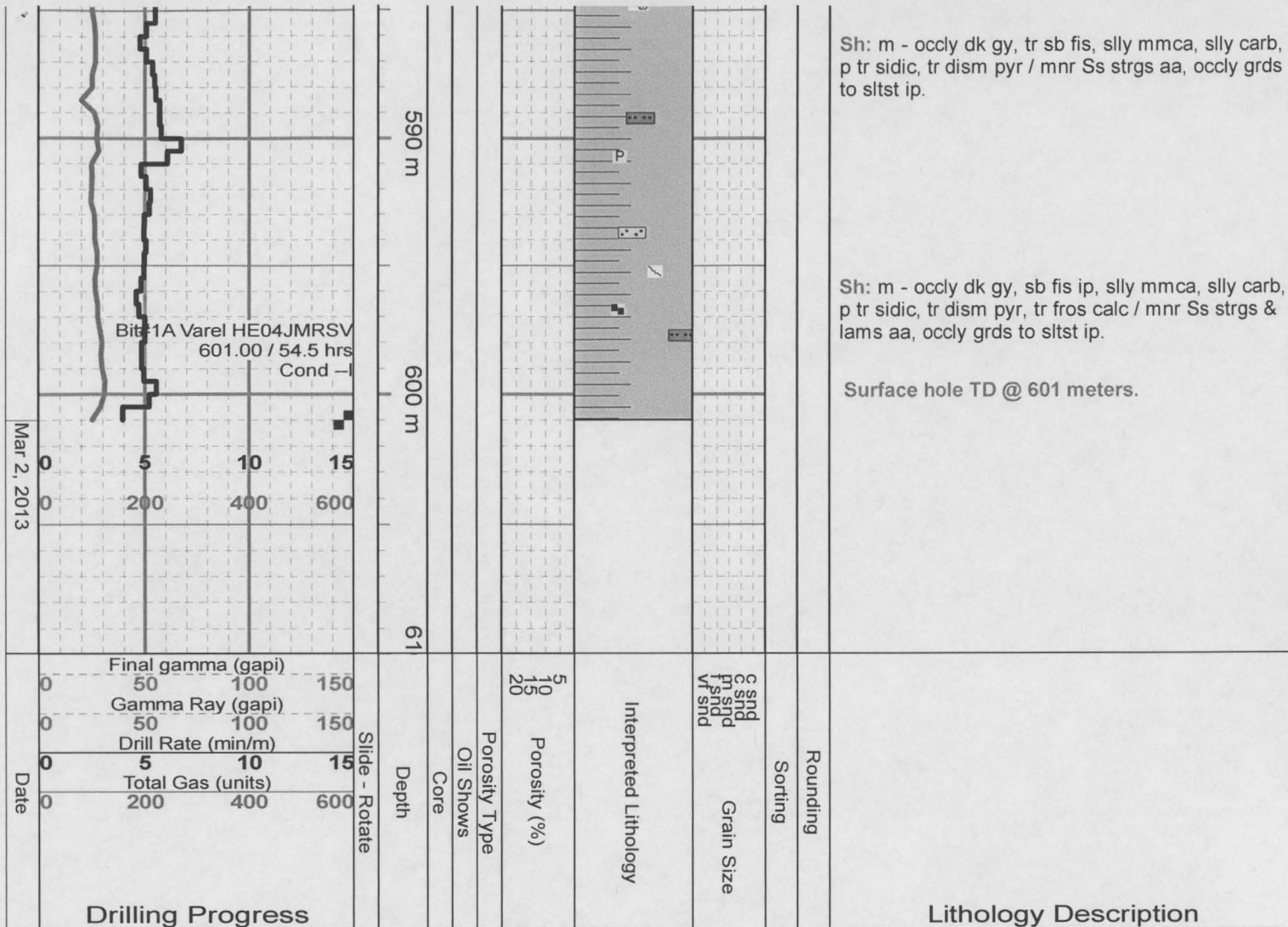
Sh: m - occlly dk gy, blkly, sft - frm, slly mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr sidic ip, tr inoc, pyr nods, tr mnr micro fracs infilled /calc / 5% Ss strgs aa.

Sh: m - occlly dk gy, blkly, modly frm, slly mmca, tr slty, tr sdy ip, slly carb ip, tr sidic ip, tr inoc, pyr nods & dism pyr, tr mnr fros calc aa / 5% Ss strgs aa.

Sh: m - occlly dk gy, gy brn ip, mnr sb fis, slly mmca, slly carb, occlly sidic, dism pyr, tr fros calc aa, / 3% Ss strgs, m gy, vf gred, sb ang, modly w srt, cly cmt, slly calcs, dk lit grs, tr pyric, slty, shy, no vis por or shows.

Sh: m - occlly dk gy, gy brn ip, mnr sb fis, slly mmca, slly carb, occlly sidic, dism pyr, tr fros calc aa, / occ Ss strgs aa.

Sh: m - occlly dk gy, mnr sb fis, slly mmca, slly carb, tr sidic, pyr, tr clr c xln calc / mnr Ss strgs aa.



697793

V4

Well Information

Operator: ConocoPhillips Canada Resources Corp.
Well Name: COPRC Mirror Lake N-20
Location: Unit:N Section:20, Grid: 65-00 126-45
UWI: 300N206500126450
Pool / Field: Undefined / Mirror Lake
Well License #: 470
Province / State: Northwest Territories
Country: Canada

Elevations

Reference: Ground **Ground:** 281.3 m
Cut(-) / Fill(+): **Kelly Bushing:** 286.5 m
K.B. to Ground: 5.2 m **Casing Flange:** m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type: Vertical
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	NS: EW:
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62		Easting: 603555.85

Drilling Fluid Summary

Fluid Type	From	To
Spud Mud	0 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
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Well Summary

Spud Date: Feb 25, 2013 @ 17:00hrs **Contractor:** Beaver Drilling Ltd.
TD Date: **Rig Release Date:**

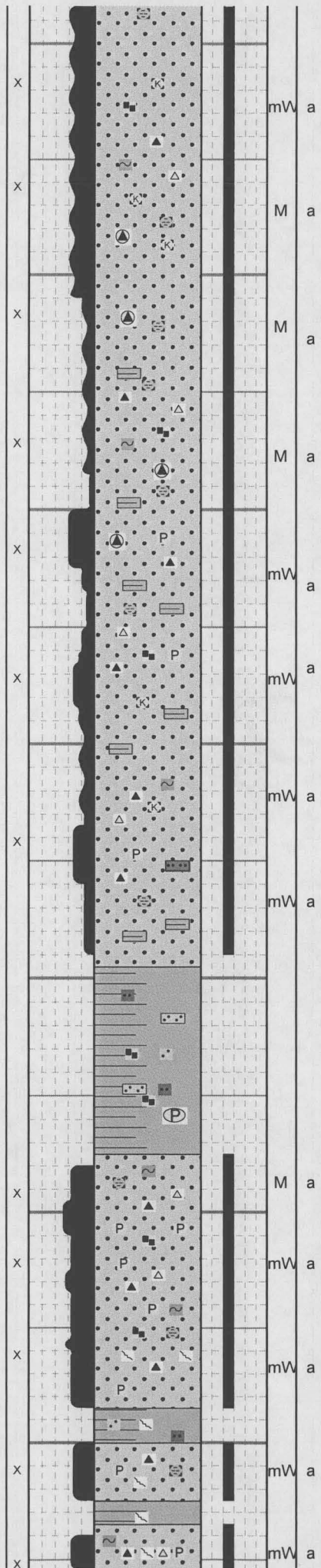
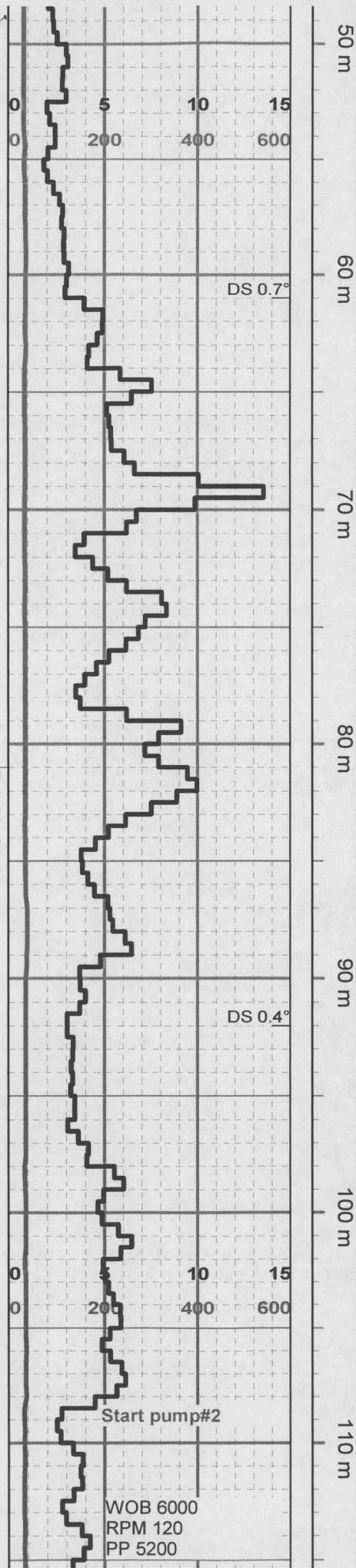
Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks

Drilling Progress				Lithology Description										
Date	Total Gas (units)			Slide - Rotate	Depth	Core	Oil Shows	Porosity Type	Porosity (%)	Interpreted Lithology	Grain Size	Sorting	Rounding	
	0	200	400											
	0	5	10	15										
	0	50	100	150										
	0	50	100	150										
NB#1A Varel HE04JMRSV														
DS 0.5°														
WOB 5000														
RPM 120														
PP 1000														
SPM 140														
PO 1.8m3														
MW 1060														
VIS 55														
PH 9.5														
Feb 25, 2013														
SPUD DATE: FEB 25, 2013 @ 17:00 hrs.														
Samples from 0-20 meters caught prior to spud when the conductor hole was drilled.														
Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glaucic, mnr dk (carb?) lit grs, slty, tr fer, tr pyr nodes, no vis por, no shows / Ss (cht cgl) occ vcol cht pbls & qtz pbls / Ss mtx, lt gy, m gred, qtz & cht, sb rdd, m srtg, uncon, por? no vis shows.														
Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glaucic, mnr dk (carb?) lit grs, slly slty, no vis por, no shows														
Ss: lt gy aa incrg shy, no vis por, no shows														
Ss: aa / Ss s&p, f gred, sb ang - modly w srt, clr & vit qtz & lt cold cht, mnr kao cmt, tr sils, dk (carb?) lit grs, v pyric, abnt uncon, fr-g intgran por? 15%, tr spy dd lt brn o stn, no vis flor.														
Cement: 100% cement														
Ss: lt gy, u f gred, sb ang, modly w srt, qtz & cht, cly cmt, abnt uncon, tr glaucic, dk cold lit grs, tr pyric, p - fr intgran por 10-14%, no vis shows.														
Ss: lt gy, u f gred, sb ang, m srt, qtz & gy cht, cly cmt, abnt uncon, tr glaucic, dk cold lit grs, mnr gy cht pbls, p - fr intgran por 8-10%, no vis shows.														
Ss: aa, grdg down to vf gred ss, bcmg shy / 5% intbd Sh lams, lt gy, sft, slty, occly sdy, tr carb specs, occly grds to shy sltst & ss ip.														
Ss: lt gy, l f gred, sb ang, modly w srt, qtz & gy cht, cly cmt, uncon ip, tr glaucic, dk cold lit grs, occly shy & slty, p intgran por 4-7%, no vis shows.														
Ss: aa / Ss lt gy, c gred, sb rdd, m srtg, qtz & vcol cht, uncon / occ cly cmt, tr pyric, p por? no vis														

Feb 26, 2013



shows.

Ss: s&p, u f gred, sb ang, modly w srt, qtz & gy cht, mnr kao cmt, sly sils, abnt uncons, carb lit grs, p tr glaucic, 12% por? no vis shows.

Ss: s&p, u f gred, sb ang, m srtg, qtz & gy cht, mnr kao cmt, sly sils, predly uncons, carb lit grs, p tr glaucic, tr occ gy cht pbl frags, 15% intgran por? no vis shows.

Ss: aa / mnr Sh lams, lt gy, blkly, slty, sdy ip, tr pyr.

Ss: lt gy, f gred, sb ang, m srtg, cly cmt, abnt uncons, carb lit grs, tr pyric, tr glaucic, occ vcol cht pbls, 10% por? no vis shows / mnr Sh lams aa.

Ss: aa / Ss v lt gy, vit qtzs, mnr lt gy cht, f gred, sb ang, modly w srt, cly cmt, tr mnr dk lit grs, tr pyric, p intgran por 4-7%, no vis shows.

Ss: aa

Ss: v lt gy aa / Ss s&p, u f gred, sb ang, modly w srt, kao cmt, dk lit grs, tr pyric, tr glaucic, mnr carb mat, p - fr intgran por 4-9%, no vis shows.

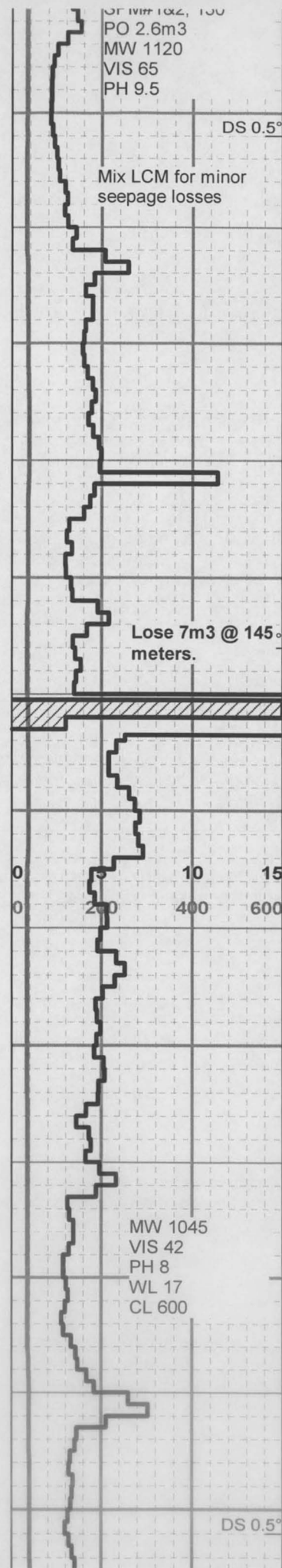
Ss: s&p aa / 10% Sh lams, lt gy, blkly, slty, sdy ip, occly grds to shy vf gred ss ip, carb mat.

Sh: lt - m gy, blkly, occly slty, sly sdy ip, tr carb mat, p tr pyr nods.

Ss: lt gy, s&p, u f gred, sb ang, m srtg, sly sils, mnr kao cmt, abnt uncons, dk lit grs, pyric, tr glaucic, fr intgran por? 14%, no vis shows.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows / 10% sh lams aa.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows



120 m

130 m

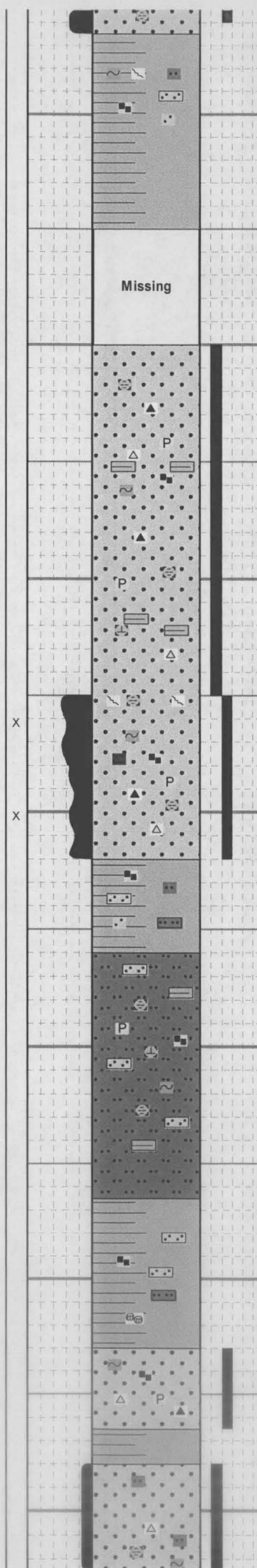
140 m

150 m

160 m

170 m

180 m



Sh: lt - m gy, blk, slty, sdy, grds to shy sltst ip, tr glaucic, tr carb specs.

Missed Sample

Ss: lt - m gy, vf gred, grds to sdy sltst ip, sb ang, w srt, cly cmt, slty, shy, carb specs & mat, tr glaucic, tr pyric, tr fros calc aa, no vis por, no shows / 20% Sh lams aa.

Ss: aa / Ss v lt gy, u vf gred, sb ang, w srt, cly cmt, slly calcs, dk lit grs, slty, tr pyric, tr shy, predly tt, no shows.

Ss: p sample abnt LCM, lt gy, l f gred, sb ang, modly w srt, cly cmt, abnt uncons, tr glaucic, dk lit grs, mnr fer, tr fros calc, fr intgran por? no vis shows / 10% Sh aa.

Sh: m gy, blk, slly mmca, occly slty, tr sdy, tr carb specs & mat.

Sltst: lt gy, occly grds to vf gred ss ip, cly cmt, tr calcs, dk lit grs, tr pyric, tr glaucic, predly tt, no shows.

Sh: m gy, blk, slty, occly sdy, occly grds to shy sltst, carb specs & mat, tr pyr.

Ss: lt gy, s&p, f gred, sb ang, m srtg, abnt uncons, cly cmt ip, dk lit grs, tr glaucic, tr pyric, p por? no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, abnt uncons, cly cmt, dk lit grs, tr glaucic, slty, slly shy

ip, tr pyric, tt - p intgran por, no vis shows.

Ss: lt gy, l vf gred, sb ang, w srt, w cmt / cly cmt, sly calcs, dk lit grs, slty, tr glaucic, shy ip, tt, no shows.

Ss: s&p, f gred, sb ang, modly w srt, cly cmt, occ uncons, dk lit grs, tr glaucic, dism pyr, tr fros calc, p intgran por 7%, no vis shows

Ss: aa / Ss lt gy, vf gred, sb ang, modly w srt, cly cmt, slty, shy ip, tr glaucic, tr pyric, tt, no vis shows

Ss: s&p, lt gy aa.

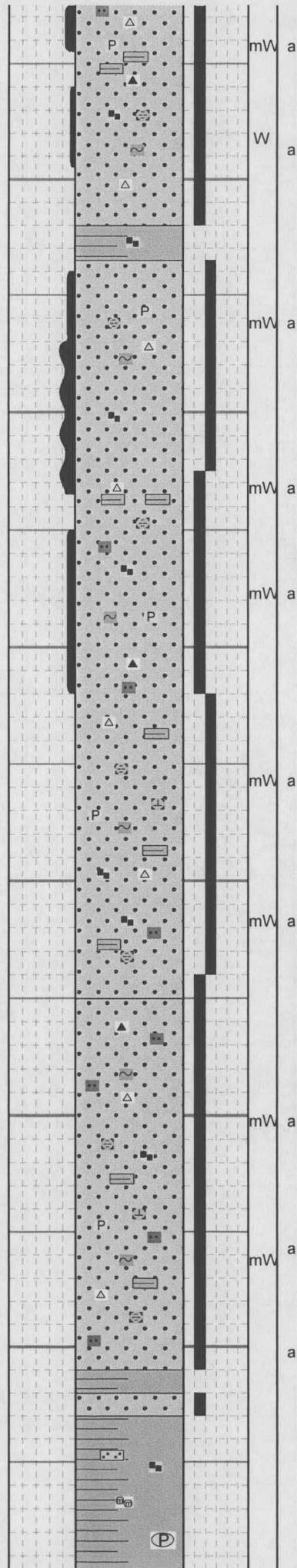
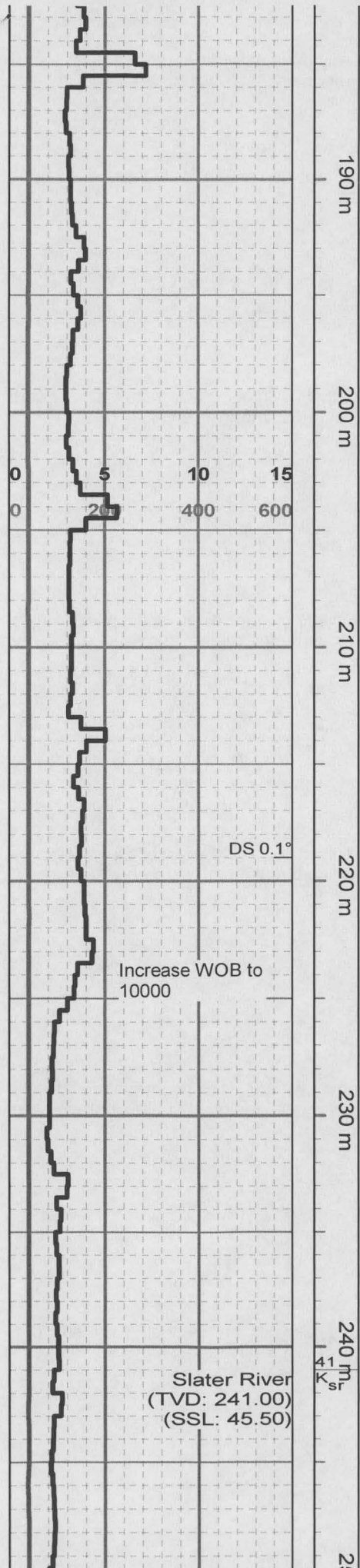
Ss: lt gy, f gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnrcarb mat, slty ip, occl shy, tt - p intgran por 4%, no vis shows.

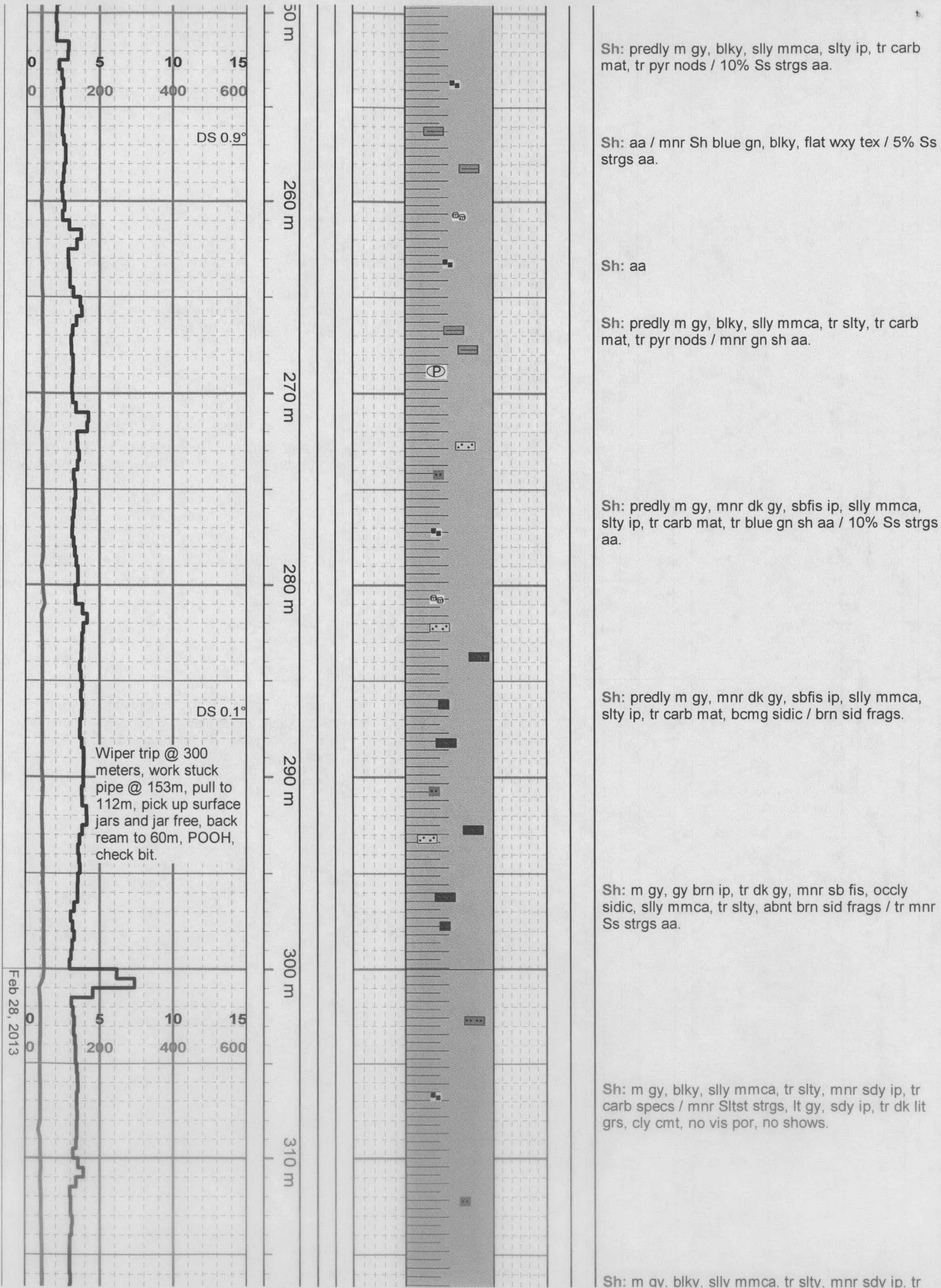
Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnrcarb mat, slty ip, occl shy, predly tt, no vis shows.

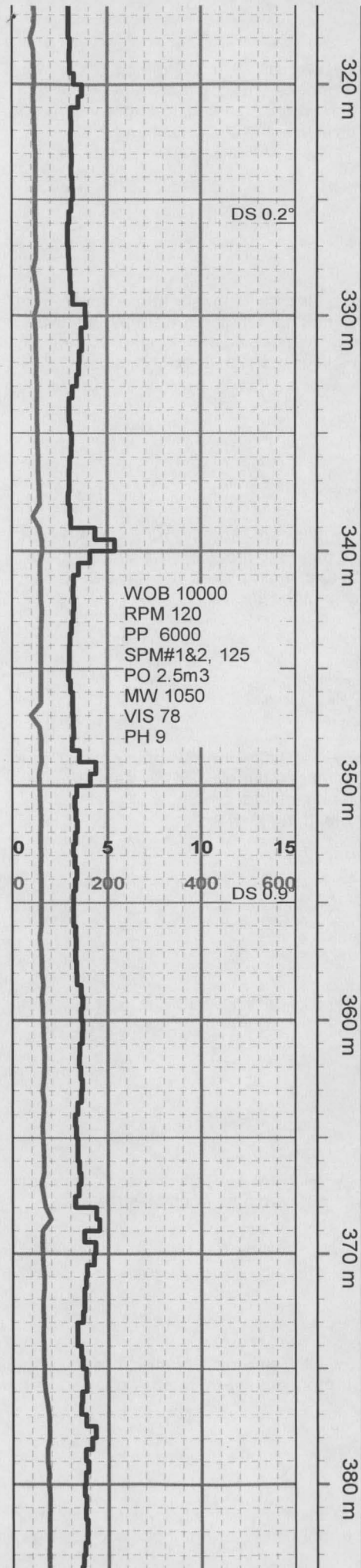
Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnrcarb mat, slty ip, occl shy, predly tt, no vis shows.

Slater River
(TVD: 241.00)
(SSL: 45.50)

Sh: lt - m gy, blk, sly mmca, slty ip, tr carb mat, tr pyr nuds.







carb specs / mnr Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

Sh: m gy, blk, sly mmca, tr slty, mnr sdy ip, tr
carb specs / mnr Sltst strgs, lt gy, sdy ip, tr dk lit
grs, cly cmt, no vis por, no shows.

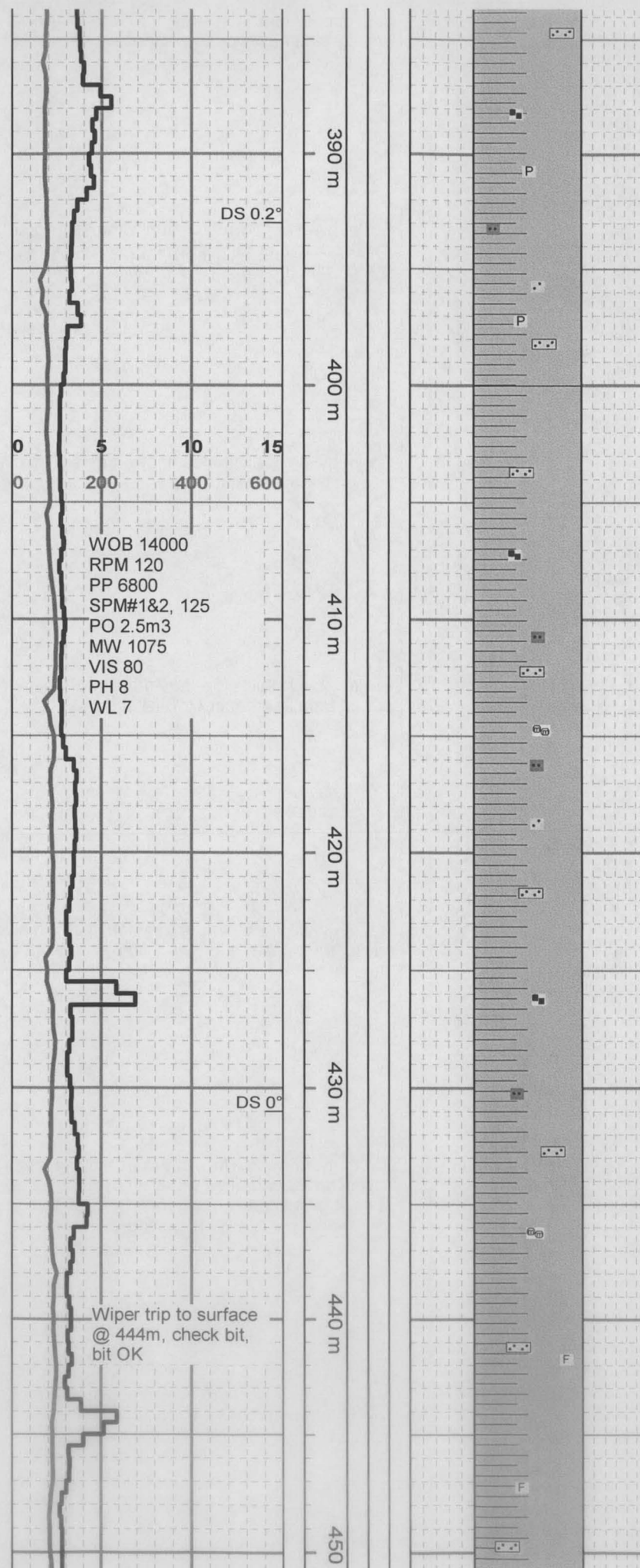
Sh: m gy, blk, sly mmca, tr slty, mnr sdy ip, tr
mnr carb mat / tr Sltst strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr
sdyp, tr mnr carb mat / tr Sltst strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr
sdyp, tr mnr carb mat, g tr dism pyr / tr Sltst
strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr
sdyp, tr mnr carb mat, g tr dism pyr / 5% Ss
strgs, lt gy, l f gred, sb ang, m srtg, cly cmt, sly
calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr
sdyp, tr mnr carb mat, g tr dism pyr / mnr Ss
strgs aa



Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb mat, g tr dism pyr / mnr Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, sly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb mat, g tr dism pyr / mnr Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, sly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v sly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / 3% Ss strgs, lt gy, vf gred, sb ang, m srtg, cly cmt, v sly calcs, dk lit grs, slty ip, tt, no shows.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb mat, / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr inoc / occ Ss strgs aa.

Sh: m gy, blk, sft - frm, sly mmca, tr slty, mnr sdy ip, tr mnr carb specs, tr inoc / occ Ss strgs aa.

	nods / mnr Ss strgs aa.	
	Rounding	
	Sorting	
	Grain Size	c sand fs sand ls sand vl sand
	Interpreted Lithology	
	Porosity (%)	5 10 15 20
	Porosity Type	
	Oil Shows	
	Core	
	Depth	53
	Slide - Rotate	520 m
	Drilling Progress	MW 1100 VIS 73 PH 8 WL 7
Date		

Well Information

Operator: ConocoPhillips Canada Resources Corp.
Well Name: COPRC Mirror Lake N-20
Location: Unit:N Section:20, Grid: 65-00 126-45
UWI: 300N206500126450
Pool / Field: Undefined / Mirror Lake
Well License #: 470
Province / State: Northwest Territories
Country: Canada

Elevations

Reference: Ground **Ground:** 281.3 m
Cut(-) / Fill(+): **Kelly Bushing:** 286.5 m
K.B. to Ground: 5.2 m **Casing Flange:** m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

Longitude **Latitude** **Well Type:** Vertical

Surface Co-Ordinates: 126 48' 14.6" W 64 59' 46.8" N **NS:**
EW:

Int. Casing Co-Ordinates: **NS:**
EW:

Bottom Hole Co-Ordinates: **NS:**
EW:

UTM Surface Co-Ordinates: **Northing:** 7209651.62 **Easting:** 603555.85

Drilling Fluid Summary

Fluid Type	From	To
Spud Mud	0 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
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Well Summary

Spud Date: Feb 25, 2013 @ 17:00hrs **Contractor:** Beaver Drilling Ltd.
TD Date: **Rig Release Date:**

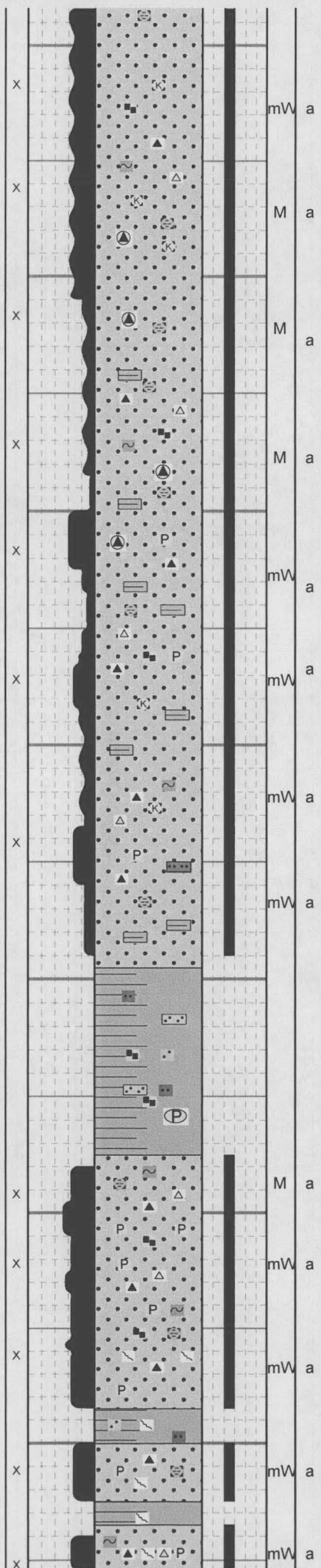
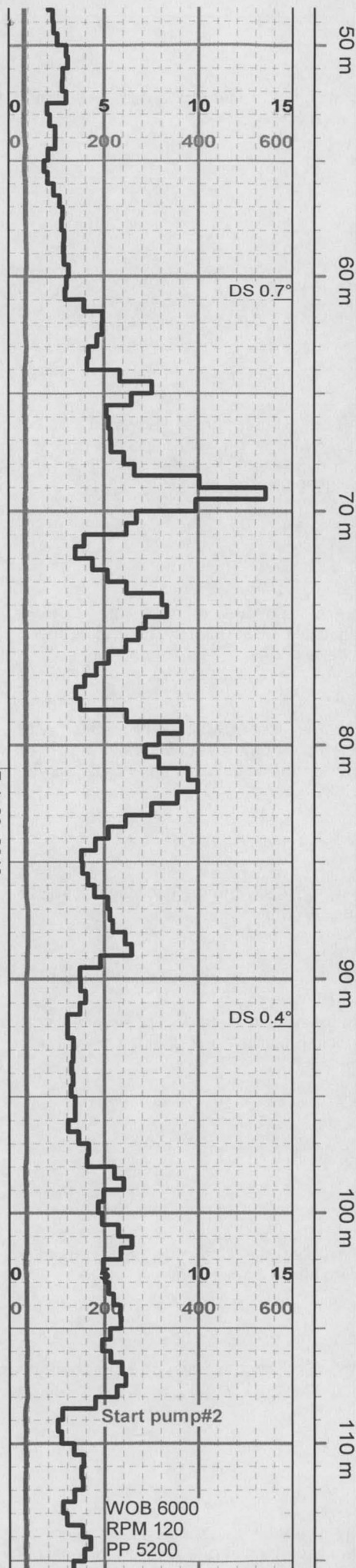
Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks

Drilling Progress				Lithology Description			
Date	Total Gas (units)	Drill Rate (min/m)	Slide - Rotate	Depth	Core	Porosity Type	Oil Shows
	0	200	400	600			
	0	5	10	15			
	0	50	100	150			
	0	50	100	150			
NB#1A Varel HE04JMRSV WOB 5000 RPM 120 PP 1000 SPM 140 PO 1.8m3 MW 1060 VIS 55 PH 9.5 DS 0.5°				SPUD DATE: FEB 25, 2013 @ 17:00 hrs. Samples from 0-20 meters caught prior to spud when the conductor hole was drilled. Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glauic, mnr dk (carb?) lit grs, slty, tr fer, tr pyr nods, no vis por, no shows / Ss (cht cgl) occ vcol cht pbls & qtz pbls / Ss mtz, lt gy, m gred, qtz & cht, sb rdd, m srtg, uncon, por? no vis shows. Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glauic, mnr dk (carb?) lit grs, slty, no vis por, no shows Ss: lt gy aa incrg shy, no vis por, no shows Ss: aa / Ss s&p, f gred, sb ang - modly w srt, clr & vit qtz & lt cold cht, mnr kao cmt, tr sils, dk (carb?) lit grs, v pyric, abnt uncon, fr-g intgran por? 15%, tr spy dd lt brn o stn, no vis flor. Cement: 100% cement Ss: lt gy, u f gred, sb ang, modly w srt, qtz & cht, cly cmt, abnt uncon, tr glauic, dk cold lit grs, tr pyric, p - fr intgran por 10-14%, no vis shows. Ss: lt gy, u f gred, sb ang, m srt, qtz & gy cht, cly cmt, abnt uncon, tr glauic, dk cold lit grs, mnr gy cht pbls, p - fr intgran por 8-10%, no vis shows. Ss: aa, grdg down to vf gred ss, bcmg shy / 5% intbd Sh lams, lt gy, sft, slty, occlly sdy, tr carb specs, occlly grds to shy slst & ss ip. Ss: lt gy, l f gred, sb ang, modly w srt, qtz & gy cht, cly cmt, uncon ip, tr glauic, dk cold lit grs, occlly shy & slty, p intgran por 4-7%, no vis shows. Ss: aa / Ss lt gy, c gred, sb rdd, m srtg, qtz & vcol cht, uncon / occ cly cmt, tr pyric, p por? no vis			

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shows.

Ss: s&p, u f gred, sb ang, modly w srt, qtz & gy cht, mnr kao cmt, sly sils, abnt uncon, carb lit grs, p tr glaucic, 12% por? no vis shows.

Ss: s&p, u f gred, sb ang, m srtg, qtz & gy cht, mnr kao cmt, sly sils, predly uncon, carb lit grs, p tr glaucic, tr occ gy cht pbl frags, 15% intgran por? no vis shows.

Ss: aa / mnr Sh lams, lt gy, blk, slty, sdy ip, tr pyr.

Ss: lt gy, f gred, sb ang, m srtg, cly cmt, abnt uncon, carb lit grs, tr pyric, tr glaucic, occ vcol cht pbls, 10% por? no vis shows / mnr Sh lams aa.

Ss: aa / Ss v lt gy, vit qtzs, mnr lt gy cht, f gred, sb ang, modly w srt, cly cmt, tr mnr dk lit grs, tr pyric, p intgran por 4-7%, no vis shows.

Ss: aa

Ss: v lt gy aa / Ss s&p, u f gred, sb ang, modly w srt, kao cmt, dk lit grs, tr pyric, tr glaucic, mnr carb mat, p - fr intgran por 4-9%, no vis shows.

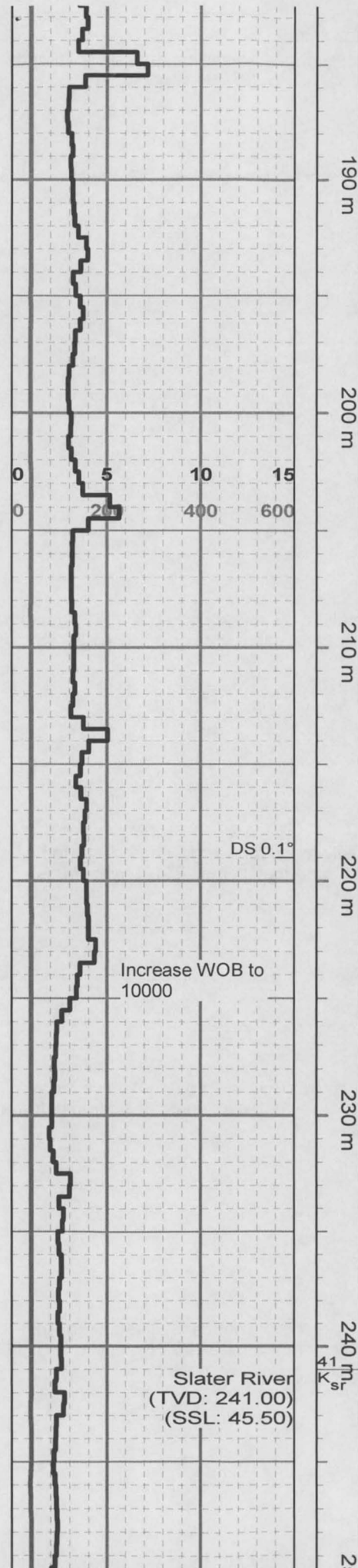
Ss: s&p aa / 10% Sh lams, lt gy, blk, slty, sdy ip, occly grds to shy vf gred ss ip, carb mat.

Sh: lt - m gy, blk, occly slty, sly sdy ip, tr carb mat, p tr pyr nods.

Ss: lt gy, s&p, u f gred, sb ang, m srtg, sly sils, mnr kao cmt, abnt uncon, dk lit grs, pyric, tr glaucic, fr intgran por? 14%, no vis shows.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows / 10% sh lams aa.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows



190 m

200 m

210 m

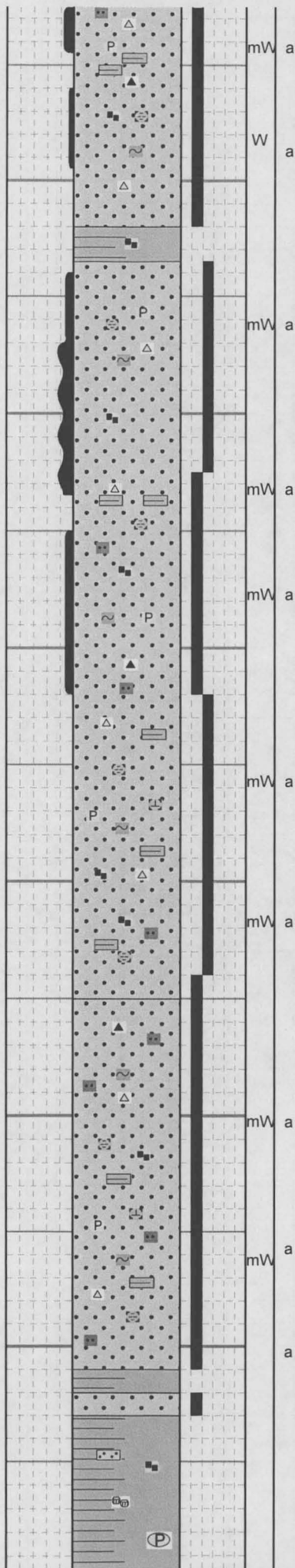
220 m

230 m

240 m

41
K_{ss}

2:



mW a

W a

mW a

mW a

mW a

mW a

mW a

mW a

mW a

a

ip, tr pyric, tt - p intgran por, no vis shows.

Ss: lt gy, l vf gred, sb ang, w srt, w cmt / cly cmt, sly calcs, dk lit grs, slty, tr glaucic, shy ip, tt, no shows.

Ss: s&p, f gred, sb ang, modly w srt, cly cmt, occ uncons, dk lit grs, tr glaucic, diss pyr, tr fros calc, p intgran por 7%, no vis shows

Ss: aa / Ss lt gy, vf gred, sb ang, modly w srt, cly cmt, slty, shy ip, tr glaucic, tr pyric, tt, no vis shows

Ss: s&p, lt gy aa.

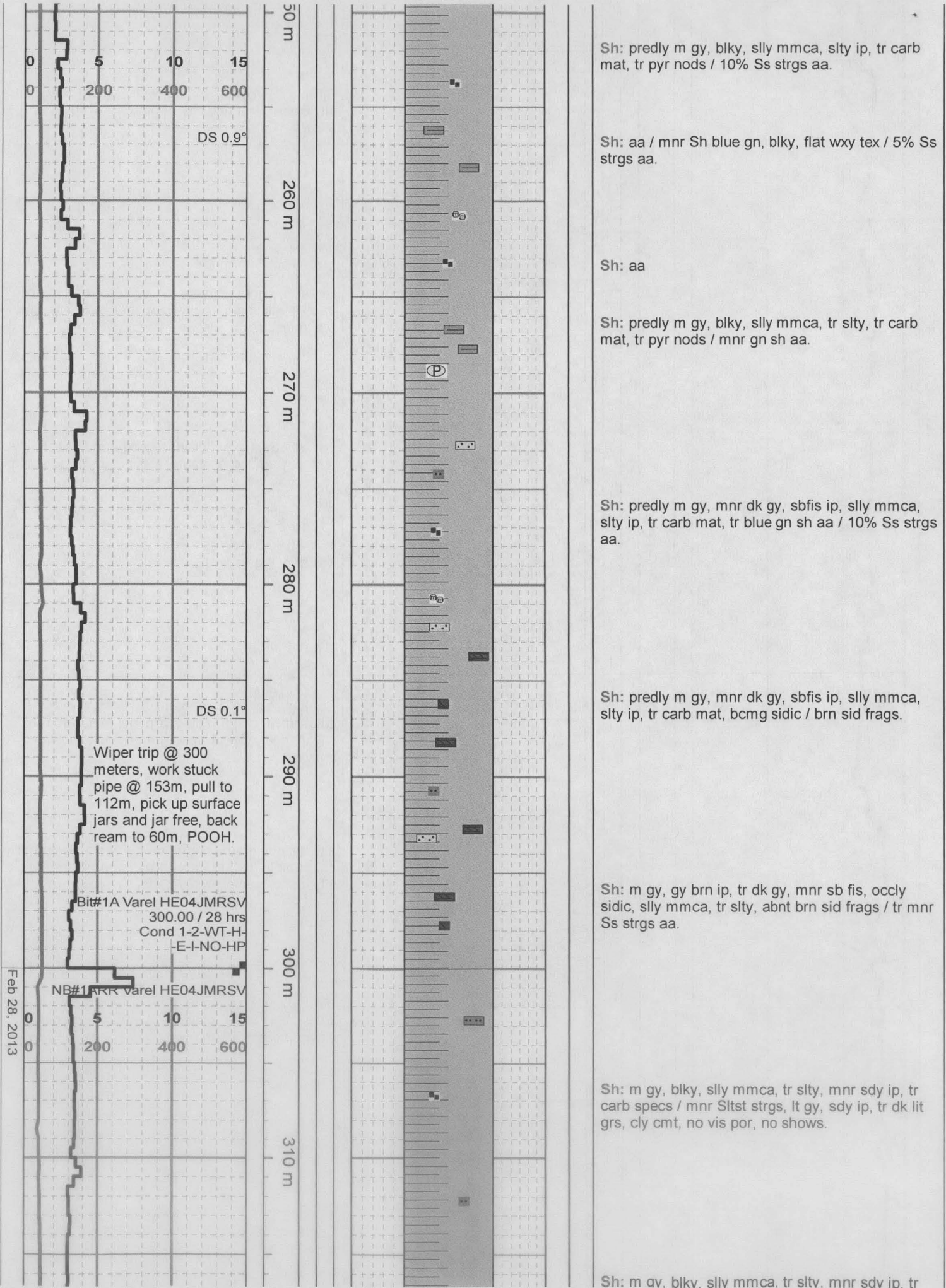
Ss: lt gy, f gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occl shy, tt - p intgran por 4%, no vis shows.

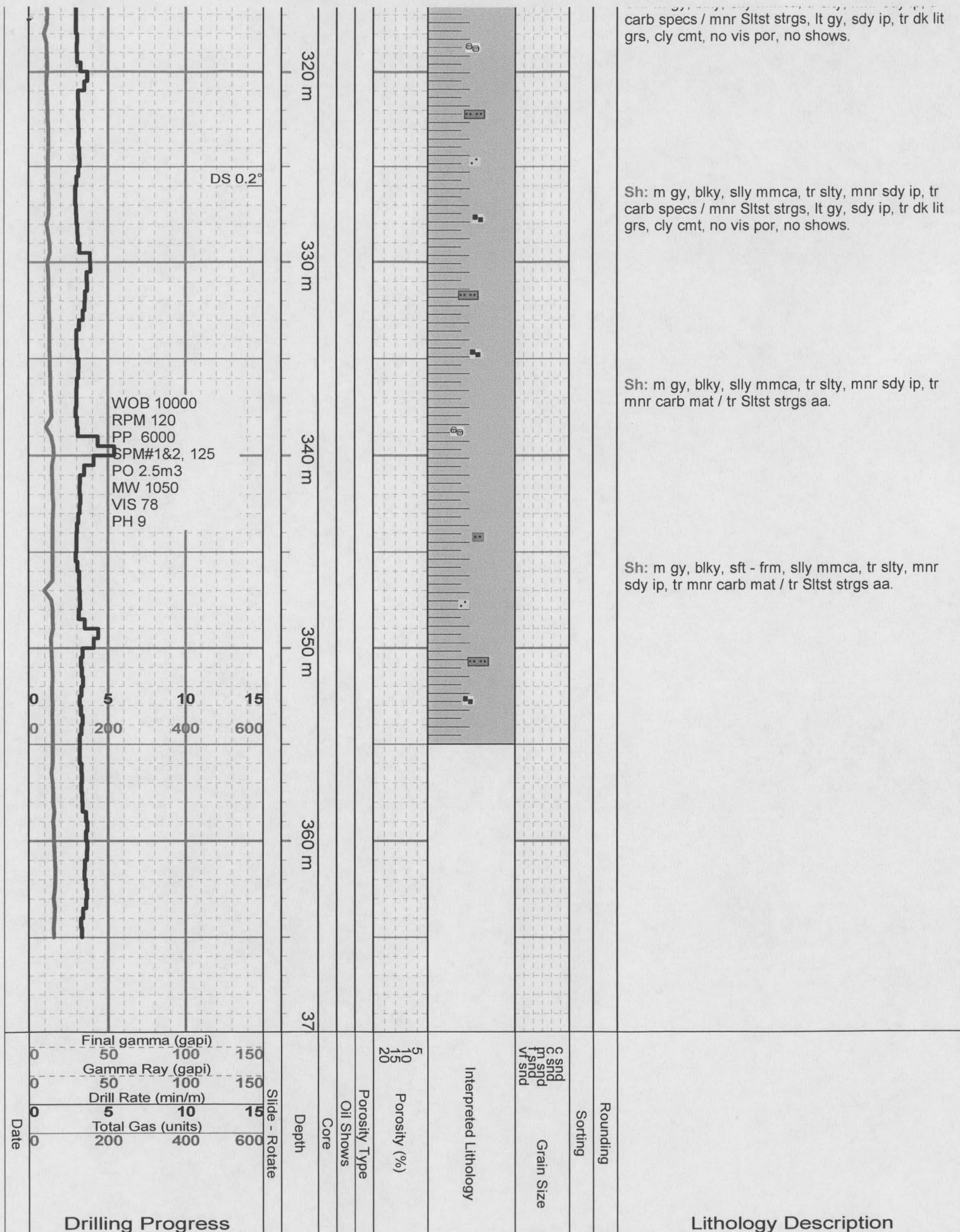
Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occl shy, predly tt, no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnr carb mat, slty ip, occl shy, predly tt, no vis shows.

Slater River
(TVD: 241.00)
(SSL: 45.50)

Sh: lt - m gy, blk, sly mmca, slty ip, tr carb mat, tr pyr nods.





Well Information

Operator: ConocoPhillips Canada Resources Corp.
Well Name: COPRC Mirror Lake N-20
Location: Unit:N Section:20, Grid: 65-00 126-45
UWI: 300N206500126450
Pool / Field: Undefined / Mirror Lake
Well License #: 470
Province / State: Northwest Territories
Country: Canada

Elevations

Reference:	<u>Ground</u>	Ground:	<u>281.3 m</u>
Cut(-) / Fill(+):	<u></u>	Kelly Bushing:	<u>286.5 m</u>
K.B. to Ground:	<u>5.2 m</u>	Casing Flange:	<u>m</u>

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type: Vertical
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	NS: EW:
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62	Easting: 603555.85	

Drilling Fluid Summary

Fluid Type	From	To
Spud Mud	0 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
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Well Summary

Spud Date: Feb 25, 2013 @ 17:00hrs **Contractor:** Beaver Drilling Ltd.
TD Date: **Rig Release Date:**

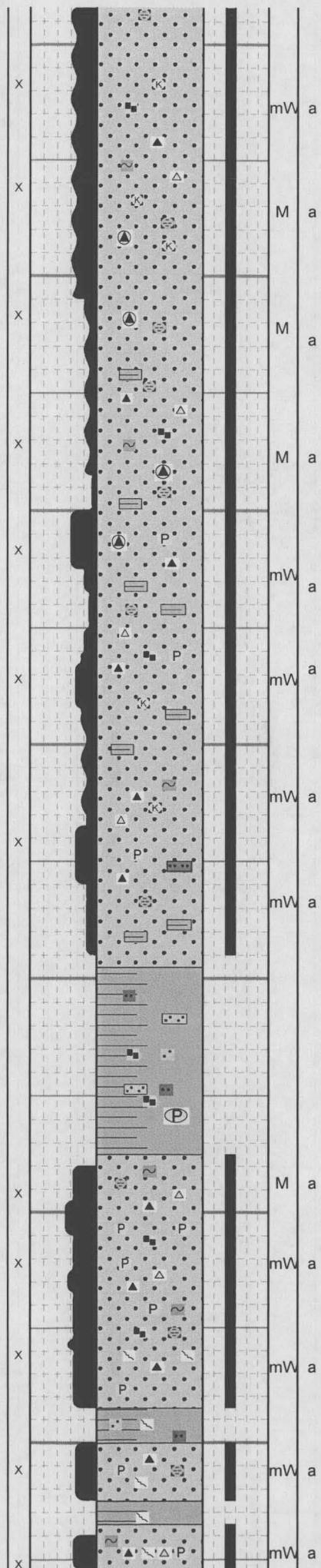
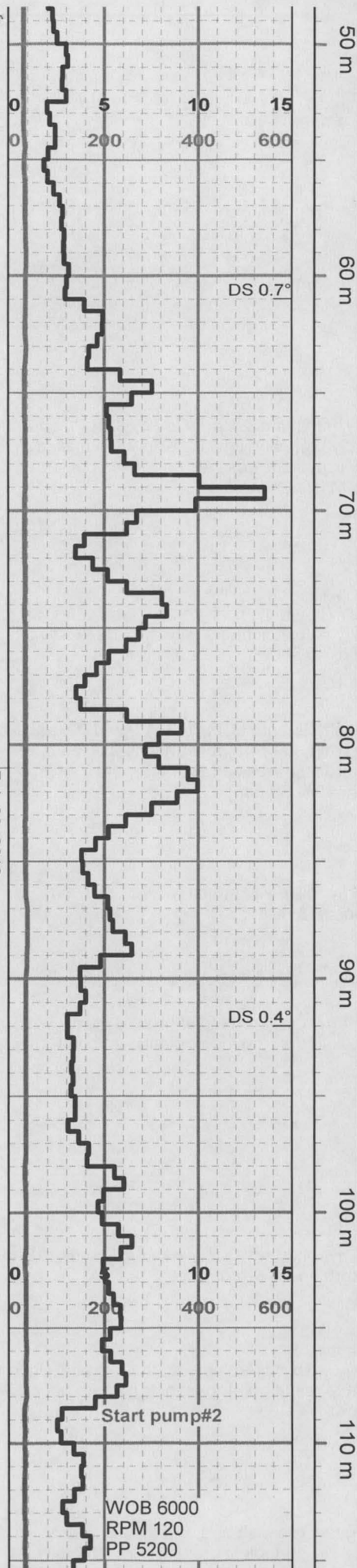
Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks

Drilling Progress				Lithology Description									
Date	Total Gas (units)			Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Porosity (%)	Interpreted Lithology	Grain Size	Rounding	Sorting
	0	200	400										
	0	5	10										
	0	50	100										
	0	50	100										
NB#1A Varel HE04JMRSV													
Feb 25, 2013	Total Gas (units)			Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Porosity (%)	Interpreted Lithology	Grain Size	Rounding	Sorting
	0	200	400										
	0	5	10										
	0	50	100										
	0	50	100										
DS 0.5°													
WOB 5000 RPM 120 PP 1000 SPM 140 PO 1.8m3 MW 1060 VIS 55 PH 9.5													
SPUD DATE: FEB 25, 2013 @ 17:00 hrs. Samples from 0-20 meters caught prior to spud when the conductor hole was drilled.													
Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glauic, mnr dk (carb?) lit grs, slty, tr fer, tr pyr nodes, no vis por, no shows / Ss (cht cgl) occ vcol cht pbls & qtz pbls / Ss mtz, lt gy, m gred, qtz & cht, sb rdd, m srtg, uncon, por? no vis shows.													
Ss: lt gy, u vf gred, sb ang, w srt, cly cmt, tr glauic, mnr dk (carb?) lit grs, slly slty, no vis por, no shows													
Ss: lt gy aa incrg shy, no vis por, no shows													
Ss: aa / Ss s&p, f gred, sb ang - modly w srt, clr & vit qtz & lt cold cht, mnr kao cmt, tr sils, dk (carb?) lit grs, v pyric, abnt uncon, fr-g intgran por? 15%, tr spy dd lt brn o stn, no vis flor.													
Cement: 100% cement													
Ss: lt gy, u f gred, sb ang, modly w srt, qtz & cht, cly cmt, abnt uncon, tr glauic, dk cold lit grs, tr pyric, p - fr intgran por 10-14%, no vis shows.													
Ss: lt gy, u f gred, sb ang, m srt, qtz & gy cht, cly cmt, abnt uncon, tr glauic, dk cold lit grs, mnr gy cht pbls, p - fr intgran por 8-10%, no vis shows.													
Ss: aa, grdg down to vf gred ss, bcmg shy / 5% intbd Sh lams, lt gy, sft, slty, occly sdy, tr carb specs, occly grds to shy sltst & ss ip.													
Ss: lt gy, l f gred, sb ang, modly w srt, qtz & gy cht, cly cmt, uncon ip, tr glauic, dk cold lit grs, occly shy & slty, p intgran por 4-7%, no vis shows.													
Ss: aa / Ss lt gy, c gred, sb rdd, m srtg, qtz & vcol cht, uncon / occ cly cmt, tr pyric, p por? no vis													

Feb 26, 2013



shows.

Ss: s&p, u f gred, sb ang, modly w srt, qtz & gy cht, mnr kao cmt, slly sils, abnt uncons, carb lit grs, p tr glaucic, 12% por? no vis shows.

Ss: s&p, u f gred, sb ang, m srtg, qtz & gy cht, mnr kao cmt, slly sils, predly uncons, carb lit grs, p tr glaucic, tr occ gy cht pbl frags, 15% intgran por? no vis shows.

Ss: aa / mnr Sh lams, lt gy, blkly, slty, sdy ip, tr pyr.

Ss: lt gy, f gred, sb ang, m srtg, cly cmt, abnt uncons, carb lit grs, tr pyric, tr glaucic, occ vcol cht pbls, 10% por? no vis shows / mnr Sh lams aa.

Ss: aa / Ss v lt gy, vit qtzs, mnr lt gy cht, f gred, sb ang, modly w srt, cly cmt, tr mnr dk lit grs, tr pyric, p intgran por 4-7%, no vis shows.

Ss: aa

Ss: v lt gy aa / Ss s&p, u f gred, sb ang, modly w srt, kao cmt, dk lit grs, tr pyric, tr glaucic, mnr carb mat, p - fr intgran por 4-9%, no vis shows.

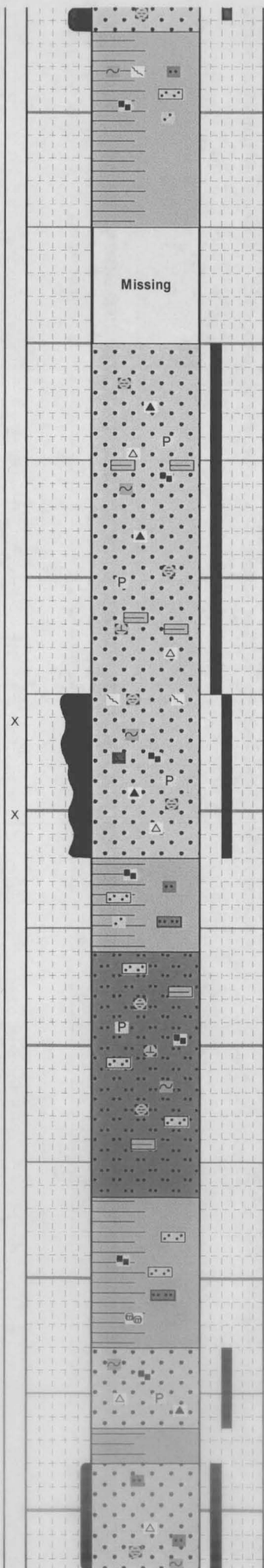
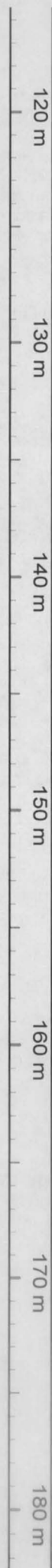
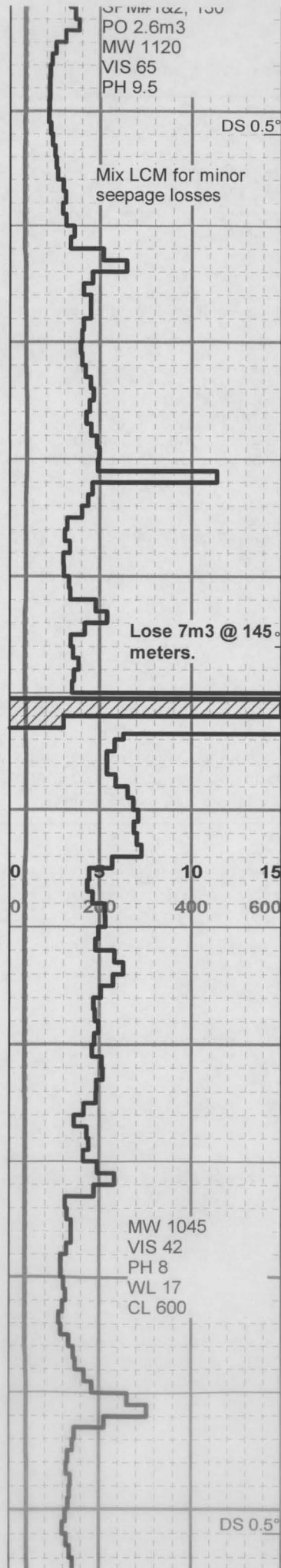
Ss: s&p aa / 10% Sh lams, lt gy, blkly, slty, sdy ip, occly grds to shy vf gred ss ip, carb mat.

Sh: lt - m gy, blkly, occly slty, slly sdy ip, tr carb mat, p tr pyr nods.

Ss: lt gy, s&p, u f gred, sb ang, m srtg, slly sils, mnr kao cmt, abnt uncons, dk lit grs, pyric, tr glaucic, fr intgran por? 14%, no vis shows.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows / 10% sh lams aa.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows



Sh: lt - m gy, blk, slty, sdy, grds to shy sltst ip, tr glaucic, tr carb specs.

Missed Sample

Ss: lt - m gy, vf gred, grds to sdy sltst ip, sb ang, w srt, cly cmt, slty, shy, carb specs & mat, tr glaucic, tr pyric, tr fros calc aa, no vis por, no shows / 20% Sh lams aa.

Ss: aa / Ss v lt gy, u vf gred, sb ang, w srt, cly cmt, slly calcs, dk lit grs, slty, tr pyric, tr shy, predly tt, no shows.

Ss: p sample abnt LCM, lt gy, l f gred, sb ang, modly w srt, cly cmt, abnt uncons, tr glaucic, dk lit grs, mnr fer, tr fros calc, fr intgran por? no vis shows / 10% Sh aa.

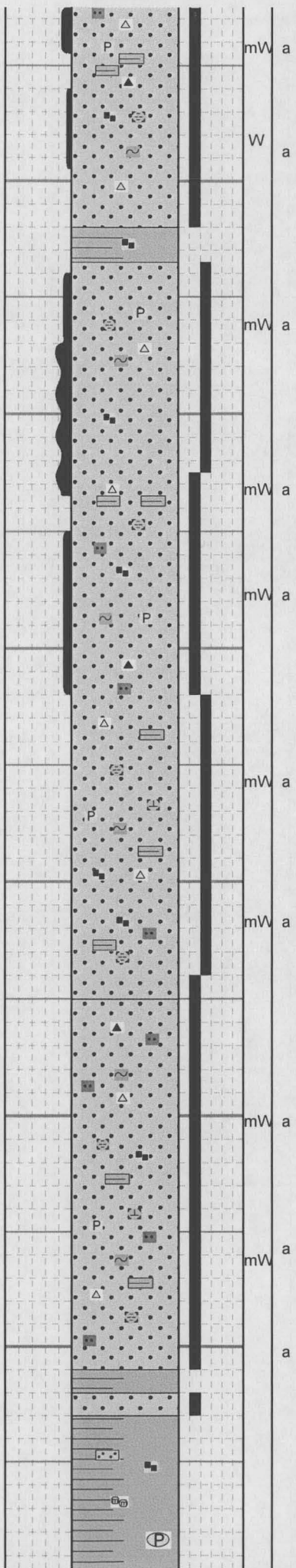
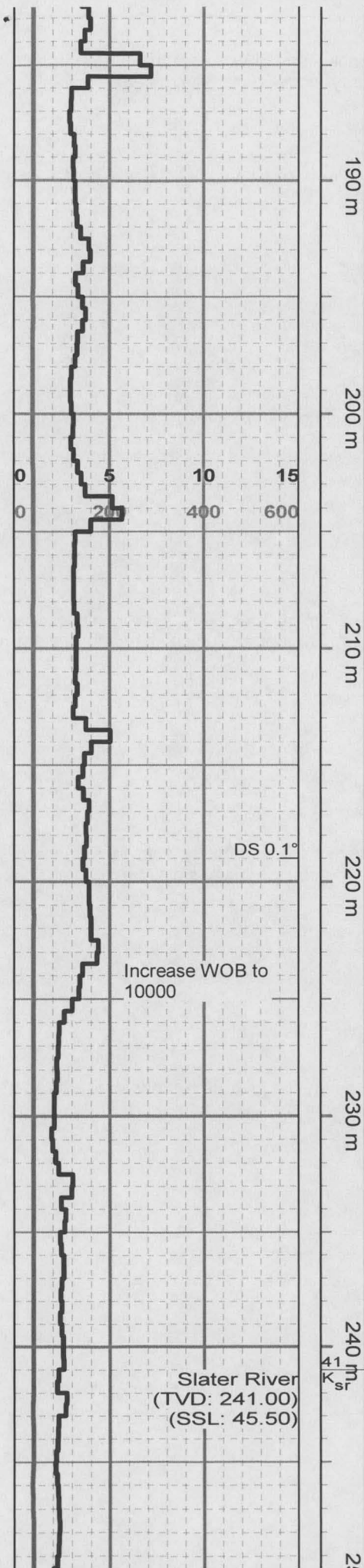
Sh: m gy, blk, slly mmca, occly slty, tr sdy, tr carb specs & mat.

Sltst: lt gy, occly grds to vf gred ss ip, cly cmt, tr calcs, dk lit grs, tr pyric, tr glaucic, predly tt, no shows.

Sh: m gy, blk, slty, occly sdy, occly grds to shy sltst, carb specs & mat, tr pyr.

Ss: lt gy, s&p, f gred, sb ang, m srtg, abnt uncons, cly cmt ip, dk lit grs, tr glaucic, tr pyric, p por? no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, abnt uncons, cly cmt, dk lit grs, tr glaucic, slty, slly shy



ip, tr pyric, tt - p intgran por, no vis shows.

Ss: lt gy, l vf gred, sb ang, w srt, w cmt / cly cmt, sly calcs, dk lit grs, slty, tr glaucic, shy ip, tt, no shows.

Ss: s&p, f gred, sb ang, modly w srt, cly cmt, occ uncons, dk lit grs, tr glaucic, diss pyr, tr fros calc, p intgran por 7%, no vis shows

Ss: aa / Ss lt gy, vf gred, sb ang, modly w srt, cly cmt, slty, shy ip, tr glaucic, tr pyric, tt, no vis shows

Ss: s&p, lt gy aa.

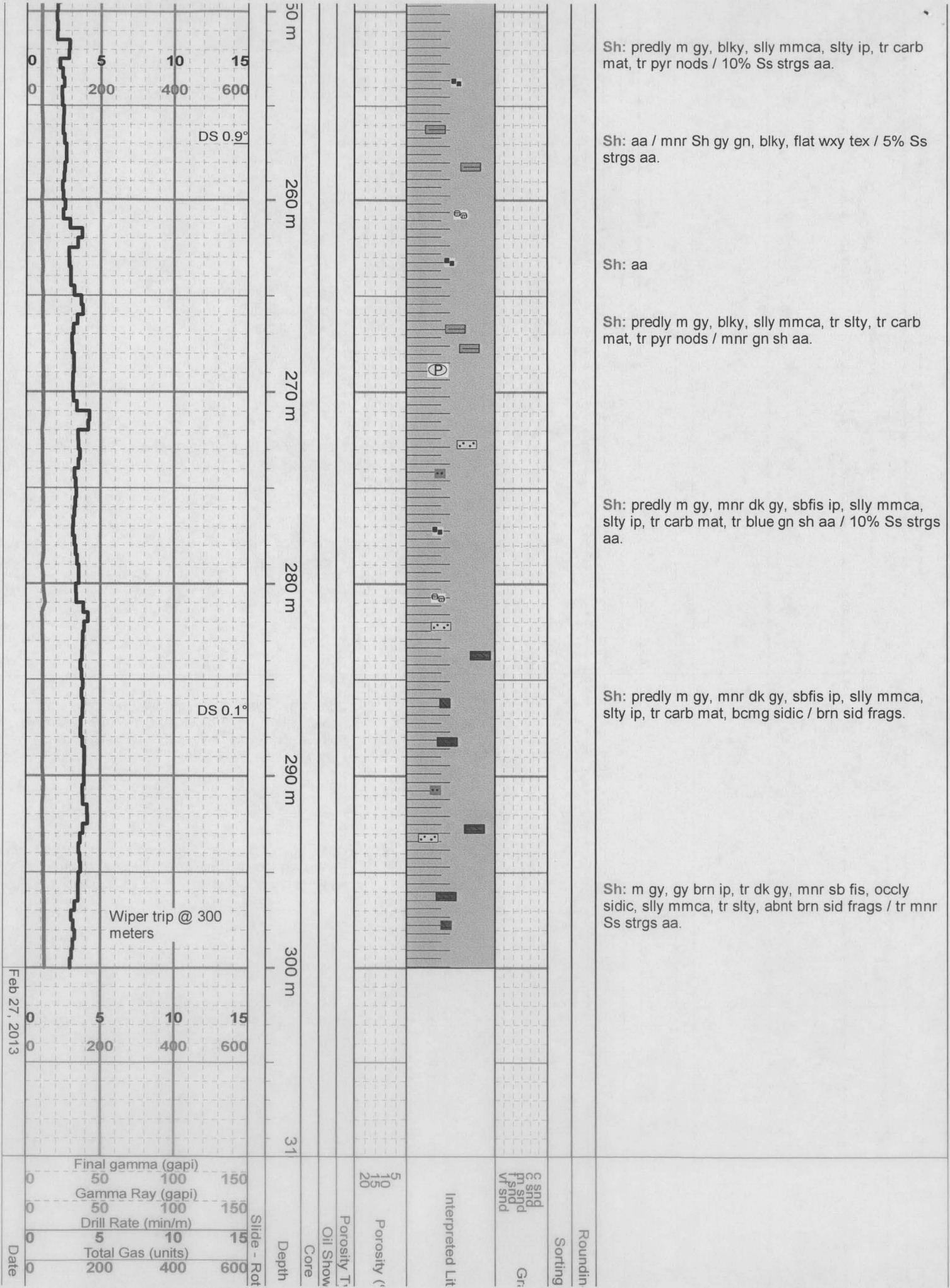
Ss: lt gy, f gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnrcarb mat, slty ip, occl shy, tt - p intgran por 4%, no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnrcarb mat, slty ip, occl shy, predly tt, no vis shows.

Ss: lt gy, vf gred, sb ang, modly w srt, cly cmt, sly calcs, dk lit grs, tr glaucic, tr pyric, mnrcarb mat, slty ip, occl shy, predly tt, no vis shows.

Slater River (TVD: 241.00) (SSL: 45.50)

Sh: lt - m gy, blk, sly mmca, slty ip, tr carb mat, tr pyr nods.



DM 697793

W10 2079

Well Information

Operator: **ConocoPhillips Canada Resources Corp.**
Well Name: **COPRC Mirror Lake N-20**
Location: **Unit:N Section:20, Grid: 65-00 126-45**
UWI: **300N206500126450**
Pool / Field: **Undefined / Mirror Lake**
Well License #: **470**
Province / State: **Northwest Territories**
Country: **Canada**

Elevations

Reference:	Ground	Ground:	281.3 m
Cut(-) / Fill(+):		Kelly Bushing:	286.5 m
K.B. to Ground:	5.2 m	Casing Flange:	m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	m	m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Co - Ordinates

	Longitude	Latitude	Well Type: Vertical
Surface Co-Ordinates:	126 48' 14.6" W	64 59' 46.8" N	NS: EW:
Int. Casing Co-Ordinates:			NS: EW:
Bottom Hole Co-Ordinates:			NS: EW:
UTM Surface Co-Ordinates:	Northing: 7209651.62	Easting: 603555.85	

Drilling Fluid Summary

Fluid Type	From	To
Spud Mud	0 m	m

Casing Summary

Type	Hole Size	Casing Size	Landed At
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Well Summary

Spud Date: **Feb 25, 2013 @ 17:00hrs** Contractor: **Beaver Drilling Ltd.**
TD Date: _____ Rig Release Date: _____

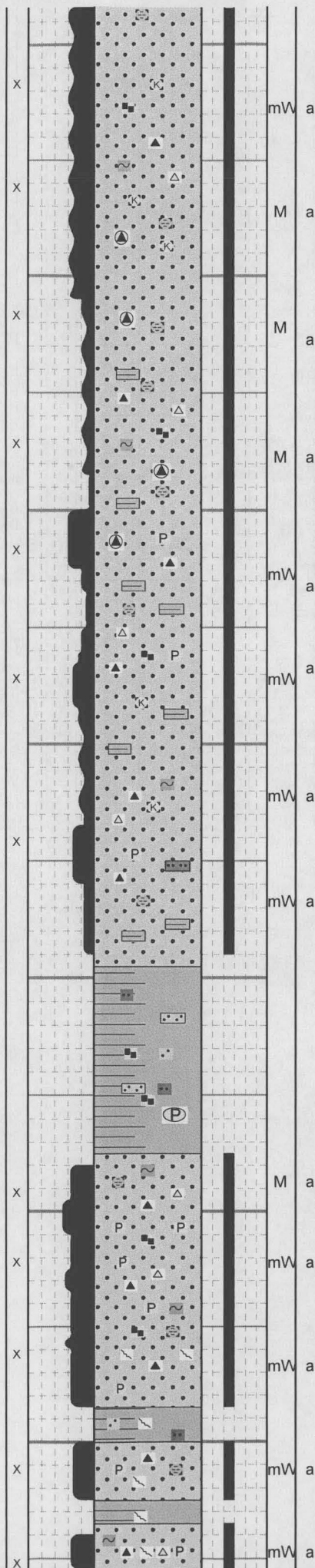
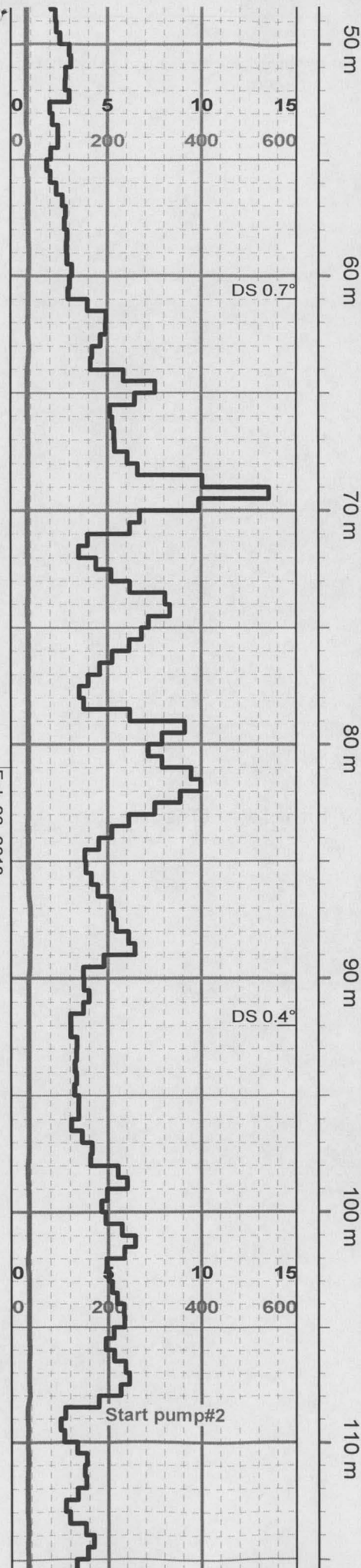
Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Black Gold Geotechnical	Dave Lawrence	0 m - m	Feb 25, 2013 -

Remarks

Drilling Progress					Lithology Description									
Date	Total Gas (units)			Slide - Rotate	Depth	Core	Porosity Type	Oil Shows	Porosity (%)	Interpreted Lithology	Grain Size	Sorting	Rounding	
	0	200	400											
	Drill Rate (min/m)													
	0	5	10	15										
	Gamma Ray (gapi)													
	0	50	100	150										
	Final gamma (gapi)													
	0	50	100	150										

Feb 26, 2013



shows.

Ss: s&p, u f gred, sb ang, modly w srt, qtz & gy cht, mn r kao cmt, slly sils, abnt uncons, carb lit grs, p tr glaucic, 12% por? no vis shows.

Ss: s&p, u f gred, sb ang, m srtg, qtz & gy cht, mn r kao cmt, slly sils, predly uncons, carb lit grs, p tr glaucic, tr occ gy cht pbl frags, 15% intgran por? no vis shows.

Ss: aa / mn r Sh lams, lt gy, blkly, slty, sdy ip, tr pyr.

Ss: lt gy, f gred, sb ang, m srtg, cly cmt, abnt uncons, carb lit grs, tr pyric, tr glaucic, occ vcol cht pbls, 10% por? no vis shows / mn r Sh lams aa.

Ss: aa / Ss v lt gy, vit qtzs, mn r lt gy cht, f gred, sb ang, modly w srt, cly cmt, tr mn r dk lit grs, tr pyric, p intgran por 4-7%, no vis shows.

Ss: aa

Ss: v lt gy aa / Ss s&p, u f gred, sb ang, modly w srt, kao cmt, dk lit grs, tr pyric, tr glaucic, mn r carb mat, p - fr intgran por 4-9%, no vis shows.

Ss: s&p aa / 10% Sh lams, lt gy, blkly, slty, sdy ip, occly grds to shy vf gred ss ip, carb mat.

Sh: lt - m gy, blkly, occly slty, slly sdy ip, tr carb mat, p tr pyr nods.

Ss: lt gy, s&p, u f gred, sb ang, m srtg, slly sils, mn r kao cmt, abnt uncons, dk lit grs, pyric, tr glaucic, fr intgran por? 14%, no vis shows.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows / 10% sh lams aa.

Ss: lt gy, s&p, u f gred, sb ang, modly w srt, cly cmt, abnt pyr, carb mat, tr glaucic, g tr fros calc from vugs or fracs? fr intgran por? 10%, no vis shows

