GEOIL TECHNOLOGY INC,
SUCURSAL DEL PERU

FINAL WELL REPORT

WELL: Z-2B-24-079-D-LO6(LO6-25)

APRIL, 2001

PETRO-TECH PERUANA S.A.

CONTENTS

INTRODUCTION

Geoil Technology Inc. Sucursal del Perú, started Mud Logging operations on the Development Well Z-2B-24-079-D-LO6 (LO6-25) on March 18th, 2001 at 11:00 Hrs.

Z-2B-24-079-D-LO6 (LO6-25) directional well was drilled in the Lobitos Area, located in Talara Basin. The main objective was Basal Salina sand, Mogollón and Rio Bravo sands as secondary objective.

This report includes geological information and drilling rig activity from the Mud Logging Unit personnel of well LO6-25 from 565 feet to the Final Total Depth at 9790 feet into Basal Salina formation, that reached on April 16th, 2001.

Complete Lithological and Gas Show from the high speed MTI M200 Chromatograph, Drilling Operations, Bit Record, Fluorescence Data, Mud Data Record, Mud Properties, Bottom Hole Assemblies, Survey Data Record and Time Distribution in hours are included accordingly.

Also included a Drilling Geological Log, generated from the Data Acquisition Unit on Real Time, for an easy correlation and interpretation for future wells likely to be drilled around.

WELL DATA

Company:	Petro – Tech Peruana S.A.	
Well:	Z-2B-24-079-D-LO6 (LO6-25)	
Well Type:	Development	
Field:	Lobitos Offshore	
Basin:	Talara	
Región:	Piura	
State/Country:	Perú	
Surface Coordinates (UTM):	**North** 9'508,648.51 m	**East** 459,052.57 m
Elevations:	WD: 335 ft	K.B.: 50 ft
Spud Date:	March 13th, 2001	
End Date:	April 16th, 2001	
Objectives:	Basal Salina	
Total depth:	9790 ft	
Drilling Contractor / Rig:	PEPESA 48	
Drilling Fluids:	M-I	
Logging Contractor:	---------	
Mudlogging / Unit:	Geoil Technology Inc. Suc. del Perú	
Geoil Crew:	Alejandro Garro E.	
	Julio Ortiz N.	


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PETRO-TECH PERUANA S.A.
LOCATION MAP
WELL: L06 - 25
0 100 200 300 km
0 100 200 mi
FECHA
APRIL, 2001
LOTE
Z-2B

STRATIGRAPHIC SEQUENCE

WELL: LO6 – 25

The stratigraphic column expected according with offset wells and seismic data consists of Tertiary formations.

TERTIARY FORMATIONS

It is constituted mainly by continental and marine sediments, product of erosion of the Amotape chains in different lifting stages.
The Tertiary sequence is formed by the formations: Talara (Eocene), Chacra (Eocene), Rio Bravo (Eocene), Palegreda (Eocene), Mogollón (Eocene), San Cristobal (Eocene), Basal Salina (Paleocene).

TALARA Fm. — Interval: Surf. to 2830'

Talara formation consist of homogeneous sequence of Claystones with some intercalations of sandstones.
Claystone was brown, blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, silty in part, at the middle part gray, medium gray, subblocky minor blocky, soft & moderately firm, non calcareous, mcromicaceous, microcarbonaceous, very rare with laminar coal inclusion.
Sandstone was light gray, slightly greenish gray white, very fine grained, well sorted, argillaceous matrix, calcareous, moderately hard, slightly dirty, dark grain inclusion, poor to very poor visual porosity.
The more common accessories were dolomite, calcite.
NO OIL SHOW:
GAS SHOW:
The background gas was 16 units of Total Gas.

CHACRA Fm. — Interval: 2830' to 4550'

This formation was composed by claystones with thin layers of siltstones.
Claystone was brownish gray, brownish, subblocky to blocky, soft occasionally moderately firm, non calcareous, micromicaceous, microcarbonaceous, very rare with laminar coal inclusion.
Siltstone was brownish gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous.

The more common accessories were dolomite, calcite, minor glauconite.
NO OIL SHOWS
GAS SHOW
The background gas was 18.36 units of Total Gas.

RIO BRAVO Fm. Interval: 4550' to 6230'

The Rio Bravo formation is comformed by sandstones interbedding with claystone and siltstone.
Sandstone was white, slightly grayish white, very fine to fine grained, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, friable to moderately hard, poor visual porosity.
Claystone was brownish gray, gray, subblocky to subplaty, soft to moderately firm, non calcareous, very micromicaceous, locally microcarbonaceous, rare with laminar coal inclusion.
The more common accessories were calcite, shell fragments, dolomite.
OIL SHOWS
From 4550' to 4720' the maximum fluorescence was traces
From 4850' to 4960' the maximum fluorescence was traces
From 5050' to 5590' the maximum fluorescence was 20%
From 5980' to 6150' the maximum fluorescence was 25%
From 6170' to 6220' the maximum fluorescence was 5%
GAS SHOW:
The maximum gas readings in this formation was 506.32 units of Total Gas at 5544' containing all gas except C2.
SHORT TRIP GAS:
At 5853' Gas Cut Mud from 9.5 to 9.3 ppg mud weight up to 9.6 ppg and Oil Cut Mud brownish green visible oil in mud with strong odor, bubbles and good fluorescence at the fluoroscope.

PALEGREDA Fm. Interval: 6230' to 7010'

This formation composed by monotonous secuence of claystones with some intercalations of thin layers of siltstones.
Claystone was brownish gray, gray, blocky to subblocky, moderately firm to soft, non calcareous, very micromicaceous, microcarbonaceous, locally with laminar coal inclusion.
The more common accessories were calcite, microfossils.
NO OIL SHOWS
GAS SHOW
The background gas readings was 25.75 units of Total Gas

MOGOLLON Fm. Interval: 7010' to 7900'

The Mogollón formation was the secondary objective of this well, is comformed by poor sandstones interbedding with claystones.
Sandstone was slightly grayish white, minor whitish, very fine to medium grained, subangular to subrounded, fair sorted, slightly argillaceous matrix, very calcareous, friable to moderately hard, slightly dirty, micaceous, dark grain inclusion, poor visual porosity.
Claystone was gray, brownish gray, blocky to subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, scarce with laminar coal inclusion.

The more common accessories were calcite, pyrite.

OIL SHOWS

From 7380' to 7580' the maximum fluorescence was 30%
From 7590' to 7620' the maximum fluorescence was 5%
From 7650' to 7680' the maximum fluorescence was 5%

GAS SHOW

The maximum gas readings in this formation was 386.21 units of Total Gas at 7495' containing all gas.

GAS CUT MUD

While drilling at 7572' Gas Cut Mud from 9.9 to 9.7 ppg mud weight raised to 10.5 ppg.

SAN CRISTOBAL Fm. Interval: 7900' to 9210'

This formation composed by monotonous secuence of claystones with two intercalations of poor sandstones.

Claystone was brownish gray, gray, blocky to subblocky, moderately firm to soft, non calcareous, very micromicaceous, microcarbonaceous, locally with laminar coal inclusion.

The more common accessories were calcite, coal.

OIL SHOWS

From 8740' to 8780' the maximum fluorescence was 25%

GAS SHOW

The background gas readings was 11.43 units of Total Gas

BASAL SALINA Fm. Interval: 9210' to 9790' (T.D)

This formation was the main objective of this well, it's constituted by massive clean sand with some intercalation of shale breaks.

The interval 9520' to 9670' lithologically constitute the best reservoir quality of this formation.

Sand was hyaline, white, minor milky, transparent, quartzose, fine to granules grains, predominantely subrounded, poor sorted, fractured, some dark & traces smoky, light green grains.

Sandstone was white, whitish minor slightly grayish white, very fine to medium grained, fair sorted, slightly clean, very calcareous, some with siliceous cement, moderately hard to hard, dark grain inclusion, very poor to poor visual porosity.

Claystone was brownish gray, gray, subblocky to subplaty, moderately firm, non calcareous, very micromicaceous, minor microcarbonaceous.

The more common accessories were calcite.

OIL SHOWS

From 9290' to 9320' the maximum fluorescence was 30%
From 9330' to 9360' the maximum fluorescence was 10%
From 9370' to 9470' the maximum fluorescence was 25%
From 9480' to 9690' the maximum fluorescence was 50%

GAS SHOW:

The maximum gas readings in this formation was 931.17 units of Total Gas at 9616' containing all gas except C2.

GAS CUT MUD AND OIL CUT MUD

While drilling at 9474' Gas Cut Mud from 11.6 to 9.8 ppg mud weight raised to 11.9 ppg and brownish green visible oil in mud with strong odor, bubbles and good fluorescence at the fluoroscope. 2% oil concentration in mud circulating in the hole.

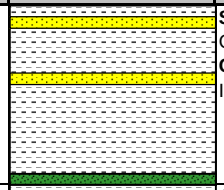
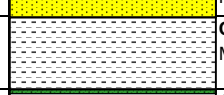
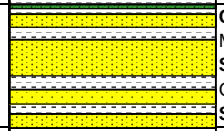
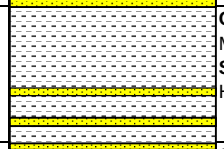
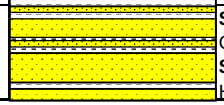
MUD SAMPLE

Mud sample taken while drilling at the depth of 9617', brownish green visible oil in mud with strong odor, with good fluorescence at the fluoroscope.

During running in hole drill collars after change bit, the well kick off, with 1850 psi in lines, well on production.

STRATIGRAPHIC COLUMN

WELL : LO6-25

AGE	FORMATION	THICKNESS (ft)	LITHOLOGY	DESCRIPTION
TERTIARY	**TALARA (SURF-2830')**	2445		**SANDSTONE**: GN'SH WH, LT GY, PRED F GR, SBRND, W SRT, ARG MTX, CALC, MOD HD, W/ SOME DK & GN GR INCL, TR COAL INCL, V P VIS POR. **CLAYSTONE:** BRN, MNR BRN'SH GY, BLKY-SBBLKY, MOD FRM, V SL CALC, MICRMIC, MICRCARB, SILTY IN PT.
	CHACRA (2830' - 4550')	1720		**CLAYSTONE:** GY, MD GY, BLKY-SBBLKY, SFT MNR MOD FRM, NON CALC, MICRMIC, MICRCARB, SOME W/ LAM COAL INCL.
	RIO BRAVO (4550' - 6230')	1680		**CLAYSTONE:**BRN'SH GY, GY, BLKY-SBBLKY, MOD FRM, NON CALC, V MICRMIC, MICRCARB, RARE W/. LAM COAL INCL, SILTY IN PT. **SILTSTONE**: GY, BRN'SH GY, BLKY, SFT, NON CALC, MICRMIC, MNR MICRCARB, SOME W/ LAM COAL INCL. **SANDSTONE:** GY'SH WH, GY'SH, V F-F GR, SBANG-SBRND, W SRTD, SL ARG MTX, V CALC, FRI MNR MOD HD, SL DRTY, DK & GN GRS, P VIS POR.
	PALEGREDA (6230' - 7010')	780		**CLAYSTONE:** BRN'SH GY, GY, SBBLKY MNR SBPLTY, MOD FM MNR SFT, NON CALC, V MICRMIC, MNR MICCARB, V R W/ LAM COAL INCL.
	MOGOLLON (7010' - 7900')	890		**CLAYSTONE:** GY, MNR BRNSH GY, GY, SBPLTY-SBBLKY, MOD FRM, NON CALC, V MICRMIC, MICRCARB, SOME W/ LAM COAL INCL. **SANDSTONE:** GY'SH WH, WH'SH, V F-M GR, FR SRTD, SL ARG MTX, CALC, FRI & MOD HD, W/. DK & GN GR INCL, P VIS POR, W/ OIL SHOW. **SAND:** HYAL, WH, TRNSP, QTZSE, F-C GR, SBANG-SBRD, FR SRTD, OCC FRACT, FW DK GRS.
	SAN CRISTOBAL (7900' - 9210')	1310		**CLAYSTONE:** GY, OCC SL DK GY, SBBLKY MNR SBPLTY, SFT MNR MOD FRM, NON CALC, V MICRMIC, MICRCARB, SLTY IN PT. **SANDSTONE:** GY'SH WH, GY'SH, VF-M GR, SBANG-SBRD, FR SRT, SL ARG MTX, CALC, FRI MNR MOD HD, SL DRTY, DK & GN GR INCL, P VIS POR, W/ OIL SHOW
	BASAL SALINA (9210' - 9790')	580		**SAND:** HYAL, WH, TRNSP, QTZ, MM-GRNL GR, PRED SBRND, P SRT, FRACT, SOME DK MNR SMKY, LT GN, LT GY GR INCL, W/ OIL SHOW. **SANDSTONE:** SL GY'SH WH, WH'SH, V F-M GR, SBANG-SBRD, FR SRT, SL CLN, SL CALC, FRI & MOD HD, DK GR INCL, P VIS POR

FORMATION TOPS

WELL: LO6 - 25

COORDINATES	**N: 9'508,648.51 mts**
(UTM)	**E: 459,052.57 mts**
KB: 50 FT	**WATER DEPTH: 335 FT**

FM / MBR	EXPECTED TOPS			MUD LOGGING TOPS			ELECTRICAL TOPS		
	MD	VD	SS	MD	VD	SS	MD	VD	SS
TALARA	SURF.	SURF.		SURF.	SURF.		SURF.	SURF.	
CHACRA	3050'	2250'	-2200'	2830'	2186'	-2136'	---	---	---
RIO BRAVO	4550'	3150'	-3100'	4550'	3302'	-3252'	---	---	---
PALEGREDA	6250'	4450'	-4400'	6230'	4615'	-4565'	---	---	---
MOGOLLON	6850'	4950'	-4900'	7010'	5311'	-5261'	---	---	---
SAN CRISTOBAL	7800'	5850'	-5800'	7900'	6134'	-6084'	---	---	---
BASAL SALINA	8900'	6950'	-6900'	9210'	---	---	---	---	---
BALCONES	9700'	7650'	-7600'						
TOTAL DEPTH	9900'	7850'	-7800'	9790'	---	---	---	---	---

LITHOLOGYCAL DESCRIPTIONS

WELL: LO6-25

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
DRILLING SPUDDED ON MARCH 13th, 2001 at 16:00 hrs			
TALARA FM. AT SURFACE			
560 – 570	50 50	**SANDSTONE:** gray, 100% very fine grain, well sorted, very argillaceous matrix, calcareous cement, moderately hard, dirty, some with laminar coal inclusions, very poor visual porosity. **CLAYSTONE:** grayish brown, medium brown, subblocky to blocky, moderately firm, calcareous, micromicaceous, silty. **Acc:** traces tabular coal.	NF
570 – 590	50 20 30	**SANDSTONE:** light gray, gray, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix calcareous cement, moderately friable, occasionally dark grain inclusions, poor visual porosity **SILTSTONE:** grayish brown, subblocky, slightly soft, calcareous, slightly micromicaceous, slightly microcarbonaceous. **CLAYSTONE:** brownish gray, minor medium gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, minor microcarbonaceous, slightly rough surface. **Acc:** traces calcite & coal.	NF
590 – 600	10 30 30 30	**SAND:** hyaline, translucent, white, 80% fine, 20% medium grain, quartzose, subangular to subrounded, well sorted, with few dark grains. **SANDSTONE:** light gray, gray, 60% very fine, 40% fine grain, subrounded, well sorted, argillaceous matrix calcareous cement, moderately friable, occasionally dark grain inclusions, poor visual porosity **SILTSTONE:** grayish brown, subblocky, slightly soft, calcareous, slightly micromicaceous, slightly microcarbonaceous. **CLAYSTONE:** brownish gray, subblocky to blocky, moderately firm to firm, slightly calcareous to calcareous, micromicaceous, minor microcarbonaceous, locally with few laminar coal. **Acc:** traces calcite.	NF
600 – 620	20 60 20	**SAND:** hyaline, translucent, white, 40% fine, 50% medium, 10% coarse grain, quartzose, subangular to subrounded, well sorted, with some dark grains. **SANDSTONE:** light gray, gray, 70% fine, 30% medium grain, subrounded, well sorted, argillaceous matrix, calcareous cement, hard, occasionally dark grain inclusions, poor visual porosity **CLAYSTONE:** brownish gray, subblocky to blocky, moderately firm to firm, slightly calcareous to calcareous, micromicaceous, minor microcarbonaceous, locally with few laminar coal. **Acc:** traces massive calcite.	NF
620 – 640	30	**SAND:** hyaline, translucent, white, 30% fine, 50% medium, 20% coarse grain, quartzose, subangular to subrounded, fair sorted, with some green & few dark grains.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	50	**SANDSTONE:** light greenish white, grayish white, 70% fine, 30% medium grain, quartzose, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, hard, some green & few dark grain inclusions, poor visual porosity.	NF
	20	**CLAYSTONE:** brownish gray, minor light brown, subblocky, slightly firm, slightly calcareous , micromicaceous, microcarbonaceous, silty in part. **Acc:** traces massive calcite.	
640 – 670	20	**SAND:** hyaline, translucent, white, 50% fine, 40% medium, 10% coarse grain, quartzose, subangular to subrounded, fair sorted, with some green grains.	
	60	**SANDSTONE:** light greenish, grayish white, 80% fine, 20% medium grain, quartzose, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with some green & few dark grain inclusions, poor visual porosity.	NF
	20	**CLAYSTONE:** brownish gray, minor light brown, subblocky, slightly firm, slightly calcareous , micromicaceous, microcarbonaceous, silty in part. **Acc:** traces massive calcite.	
670 – 690	10	**SAND:** hyaline, translucent, white, 60% fine, 30% medium, 10% coarse grain, quartzose, subangular to subrounded, fair sorted, with some green grains.	
	60	**SANDSTONE:** light greenish, grayish white, 90% fine, 10% medium grain, quartzose, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with some green & few dark grain inclusions, poor visual porosity.	NF
	30	**CLAYSTONE:** brownish gray, minor light brown, subblocky, slightly firm, slightly calcareous , micromicaceous, microcarbonaceous, silty in part. **Acc:** traces massive calcite.	
690 – 700	20	**SAND:** hyaline, translucent, white, 60% fine, 30% medium, 10% coarse grain, quartzose, subangular to subrounded, fair sorted, with some green grains.	
	50	**SANDSTONE:** light gray, minor greenish white, 80% fine, 20% medium grain, quartzose, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with some green, dark grain & traces coal inclusions, poor visual porosity.	NF
	10	**SILTSTONE:** gray, grayish brown, subblocky, moderately firm, calcareous, slightly micromicaceous, slightly microcarbonaceous, locally sandy.	
	20	**CLAYSTONE:** brown, brownish gray, subblocky to blocky, firm, slightly calcareous , micromicaceous, microcarbonaceous, slightly rough surface. **Acc:** few massive calcite.	
700 – 730	10	**SAND:** hyaline, translucent, white, minor milky white, 30% fine, 60% medium, 10% coarse grain, quartzose, subangular to subrounded, fair sorted, with few green & dark grains.	
	80	**SANDSTONE:** light gray, minor grayish white, 70% fine, 30% medium grain, quartzose, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, consolidate, with some green, dark grain & traces coal inclusions, poor visual porosity.	NF
	10	**CLAYSTONE:** brown, brownish gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous **Acc:** traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
730 – 760	10 70 20	**SAND:** hyaline, translucent, white, 30% fine, 50% medium, 20% coarse grain, quartzose, subangular to subrounded, fair sorted, with few green & dark grains. **SANDSTONE:** light gray, minor grayish white, 60% fine, 40% medium grain, quartzose, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, with some green & dark grain inclusions, poor visual porosity. **CLAYSTONE:** brown, brownish gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, slightly micro-carbonaceous, slightly rough surface. **Acc:** traces massive calcite.	NF
760 – 790	40 20 40	**SANDSTONE:** light gray, grayish white, 40% very fine, 50% fine, 10% medium grain, quartzose, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with some dark grain inclusions, very poor visual porosity. **SILTSTONE:** gray, grayish brown, subblocky, moderately firm, calcareous, micromicaceous, slightly microcarbonaceous, locally sandy. **CLAYSTONE:** brown, brownish gray, subblocky to blocky, moderately soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, slightly earthy surface. **Acc:** few massive calcite, traces dolomite & coal.	NF
790 – 810	10 10 80	**SANDSTONE:** light gray, grayish white, 40% very fine, 50% fine, 10% medium grain, quartzose, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with some dark grain inclusions, very poor visual porosity. **SILTSTONE:** gray, grayish brown, subblocky to blocky , moderately firm, calcareous, micromicaceous, slightly microcarbonaceous, rare with laminar coal inclusion. **CLAYSTONE:** brownish gray, brown, subblocky, moderately soft, very slightly calcareous, micromicaceous, locally microcarbonaceous silty in part. **Acc:** few massive calcite & traces dolomite.	NF
810 – 840	20 10 70	**SANDSTONE:** light gray, minor slightly greenish gray white, 100% very fine grain, well sorted, very argillaceous matrix, very calcareous, moderately hard, dirty, dark & green grain inclusions, very poor visual porosity **SILTSTONE:** brown, blocky, soft, calcareous, occasionally micaceous. **CLAYSTONE:** brown, blocky minor subblocky, soft to moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. **Acc:** traces dolomite, massive calcite	NF
840 – 870	20 80	**SANDSTONE:** slightly greenish gray white, minor light gray, 100% very fine grain, well sorted, very argillaceous matrix, calcareous, moderately hard minor friable, dirty, micaceous, dark & green grain inclusions, very poor visual porosity **CLAYSTONE:** brown, blocky, soft to moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. **Acc:** traces dolomite	NF
870 – 900	20	**SANDSTONE:** slightly greenish gray white, 90% very fine, 10% fine grain, well sorted, argillaceous matrix, very calcareous, moderately hard minor friable, dirty, micaceous, dark & green grain inclusions, poor visual porosity	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10	**SILTSTONE:** brown, blocky, soft, slightly calcareous, occasionally micaceous.	NF
	70	**CLAYSTONE:** brown, blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, some with laminar coal inclusions.	
		Acc: traces dolomite, massive calcite	
900 – 920	TR	**SANDSTONE:** slightly greenish gray white, 90% very fine, 10% fine grain, well sorted, argillaceous matrix, very calcareous, moderately hard minor friable, dirty, micaceous, dark & green grain inclusions, poor visual porosity	
	20	**SILTSTONE:** brown, blocky, soft, slightly calcareous, occasionally micaceous.	NF
	80	**CLAYSTONE:** brown, blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, some with laminar coal inclusions.	
		Acc: traces dolomite	
920 – 950	10	**SANDSTONE:** light gray, 100% very fine grain, well sorted, very argillaceous matrix, calcareous, moderately hard, dirty, micaceous, dark & green grain inclusions, very poor visual porosity	
	10	**SILTSTONE:** brown, blocky, soft, non calcareous, occasionally micaceous.	NF
	80	**CLAYSTONE:** brown, blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, silty in part.	
		Acc: traces dolomite	
950 – 980	10	**SILTSTONE:** brown, blocky, soft, non calcareous, occasionally micaceous.	
	90	**CLAYSTONE:** brown, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, silty in part.	NF
		Acc: traces dolomite	
980 – 1010	10	**SANDSTONE:** grayish white, 100% very fine grain, well sorted, argillaceous matrix, calcareous, moderately hard, dirty, micaceous, some with laminar coal inclusions, dark & green grain inclusions, poor visual porosity	NF
	90	**CLAYSTONE:** brown, blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, silty.	
		Acc: traces dolomite	
1010 – 1040	20	**SAND:** hyaline minor white, transparent, quartzose, 20% very fine, 40% fine, 30% medium, 10% coarse grain, subangular to subrounded, fair sorted.	
	10	**SANDSTONE:** white, 100% very fine grain, well sorted, clean in part, very calcareous, friable, occasionally dark grain inclusions, poor visual porosity	NF
	70	**CLAYSTONE:** brown, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, locally silty.	
		Acc: few dolomite	
1040 – 1070	40	**SAND:** hyaline minor white, transparent, quartzose, 20% very fine, 40% fine, 30% medium, 10% coarse grain, subangular to subrounded, fair sorted, traces smoky & green grains.	
	10	**SANDSTONE:** white, 90% very fine, 10% fine grain, subangular to subrounded, well sorted, clean in part, calcareous, friable, occasionally dark grain inclusions, poor visual porosity	NF
	50	**CLAYSTONE:** brown, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, locally silty.	
		Acc: traces dolomite	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
1070 – 1100	20	**SANDSTONE:** grayish white, 90% very fine, 10% fine grain, subangular to subrounded, well sorted, argillaceous matrix, calcareous, moderated hard, occasionally micromicaceous, rare with laminar coal inclusions, dark and green grain inclusions, poor visual porosity.	NF
	80	**CLAYSTONE:** brown, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, minor microcarbonaceous, some with laminar coal inclusions, locally silty. **Acc:** traces dolomite.	
1100 – 1130	40	**SANDSTONE:** grayish white, light gray, 90% very fine, 10% fine grain, well sorted, argillaceous matrix, very calcareous, moderately hard, dirty, occasionally micromicaceous, dark and green grain inclusions, poor visual porosity.	NF
	60	**CLAYSTONE:** brown, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, minor microcarbonaceous, rare with laminar coal inclusions, silty. **Acc:** traces dolomite, massive calcite.	
1130 – 1160	30	**SANDSTONE:** light gray, minor grayish white, 100% very fine grain, well sorted, very argillaceous matrix, calcareous, friable to moderately hard, dirty, occasionally micromicaceous, dark & traces green grain inclusions, very poor visual porosity.	NF
	10	**SILTSTONE:** brown, blocky, soft, slightly calcareous, micaceous.	
	60	**CLAYSTONE:** brown, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, silty. **Acc:** traces dolomite, massive calcite.	
1160 – 1190	20	**SANDSTONE:** light gray, minor grayish white, 70% very fine, 30% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, consolidate, dirty, occasionally micromicaceous, few dark & traces green grain inclusions, very poor visual porosity.	NF
	20	**SILTSTONE:** brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous.	
	60	**CLAYSTONE:** brown, brownish gray, subblocky to blocky, moderately firm, very slightly calcareous, micromicaceous, minor microcarbonaceous, silty. **Acc:** traces dolomite, massive calcite.	
1190 – 1220	20	**SANDSTONE:** light gray, minor grayish white, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, consolidate, dirty, occasionally micromicaceous, few dark & traces green grain inclusions, very poor visual porosity.	NF
	10	**SILTSTONE:** brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous.	
	70	**CLAYSTONE:** brown, brownish gray, subblocky to blocky, moderately firm, very slightly calcareous, micromicaceous, minor microcarbonaceous, silty in part. **Acc:** traces dolomite.	
1220 – 1250	10	**SANDSTONE:** light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, dirty, occasionally micromicaceous, few dark & traces green grain inclusions, very poor visual porosity.	NF
	10	**SILTSTONE:** brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous.	
	80	**CLAYSTONE:** brown, brownish gray, subblocky, moderately soft, very slightly calcareous, micromicaceous, minor microcarbonaceous, slightly rough surface.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
1250 – 1280	20	**SANDSTONE:** light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, occasionally micromicaceous, dark & green grain inclusions, very poor visual porosity.	
	10	**SILTSTONE:** brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous in part.	NF
	70	**CLAYSTONE:** brown, brownish gray, subblocky, moderately soft, very slightly calcareous, micromicaceous, minor microcarbonaceous, slightly rough surface. **Acc:** traces dolomite, massive calcite.	
1280 – 1310	10	**SANDSTONE:** light gray, 80% very fine, 20% fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately hard, occasionally micromicaceous, dark grain inclusions, moderately dirty, very poor visual porosity.	
	10	**SILTSTONE:** brownish gray, subblocky, firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	NF
	80	**CLAYSTONE:** brown, brownish gray, subblocky, moderately soft, very slightly calcareous, micromicaceous, minor microcarbonaceous, slightly rough surface. **Acc:** traces dolomite, massive calcite.	
1310 – 1340	10	**SANDSTONE:** light gray, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately hard, occasionally micromicaceous, dark grain inclusions, dirty, very poor visual porosity.	
	10	**SILTSTONE:** brownish gray, subblocky, firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	NF
	80	**CLAYSTONE:** brown, brownish gray, subblocky, moderately soft, locally firm, very slightly calcareous, micromicaceous, minor microcarbonaceous, slightly rough surface. **Acc:** traces dolomite, massive calcite.	
1340 – 1370	10	**SANDSTONE:** light gray, gray, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately hard, occasionally micromicaceous, dark grain & traces coal inclusions, dirty, very poor visual porosity.	
	90	**CLAYSTONE:** brown, brownish gray, subblocky, moderately soft, locally firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, silty. **Acc:** few dolomite & traces massive calcite.	NF
1370 – 1400	10	**SANDSTONE:** light gray, gray, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately hard, occasionally micromicaceous, dark grain inclusions, dirty, very poor visual porosity.	NF
	90	**CLAYSTONE:** brown, brownish gray, medium gray, subblocky, moderately soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, silty. **Acc:** few dolomite & traces massive calcite.	
1400 – 1430	10	**SANDSTONE:** light gray, gray, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately hard, occasionally micromicaceous, dark grain inclusions, dirty, very poor visual porosity.	
	90	**CLAYSTONE:** brown, brownish gray, medium gray, subblocky to subplaty, moderately soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, silty. **Acc:** traces dolomite & massive calcite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
1430 – 1460	100	**CLAYSTONE:** brown, minor brownish gray, subblocky to subplaty, slightly soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, with traces laminar coal. **Acc:** traces dolomite & massive calcite.	NF
1460 – 1490	100	**CLAYSTONE:** brown, minor brownish gray, subblocky to subplaty, moderately soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, with traces laminar coal, slightly earthy surface. **Acc:** traces dolomite & microfossils.	NF
1490 – 1520	100	**CLAYSTONE:** brown, minor brownish gray, subblocky to subplaty, moderately soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, with traces laminar coal, silty. **Acc:** traces dolomite & calcite.	NF
1520 – 1550	10 90	**SILTSTONE:** brown, brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy in part. **CLAYSTONE:** brown, minor brownish gray, subblocky to subplaty, slightly soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, smooth surface.	NF
1550 – 1580	100	**CLAYSTONE:** brown, brownish gray, subblocky to subplaty in part, moderately soft, locally firm, very slightly to non calcareous, micromicaceous, slightly microcarbonaceous, silty. **Acc:** traces dolomite.	NF
1580 – 1610	10 90	**SILTSTONE:** brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy. **CLAYSTONE:** brown, minor brownish gray, subblocky to subplaty, slightly soft, very slightly calcareous, micromicaceous, slightly microcarbonaceous, smooth surface. **Acc:** traces microfossils.	NF
1610 – 1640	100	**CLAYSTONE:** brown, brownish gray, minor medium gray, subblocky moderately soft, locally firm, very slightly calcareous, micro-micaceous, slightly microcarbonaceous, silty. **Acc:** traces dolomite & massive calcite.	NF
1640 – 1670	100	**CLAYSTONE:** brown, medium gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, locally silty. **Acc:** traces dolomite.	NF
1670 – 1700	100	**CLAYSTONE:** brown, minor medium gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, locally silty.	NF
1700 – 1730	10 90	**SANDSTONE:** light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark & green grain inclusions, dirty, very poor visual porosity. **CLAYSTONE:** brown, brownish gray, subblocky, moderately soft, firm in part, very slightly calcareous, micromicaceous, slightly micro-carbonaceous, silty. **Acc:** traces dolomite.	NF
1730 – 1760	10 90	**SANDSTONE:** light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark & green grain inclusions, dirty, very poor visual porosity. **CLAYSTONE:** brown, brownish gray, subblocky, moderately soft, firm in part, very slightly calcareous, micromicaceous, slightly micro-carbonaceous, silty.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
1760 – 1790	10	**SILTSTONE:** brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	
	90	**CLAYSTONE:** brown, brownish gray, minor medium gray, subblocky, moderately soft, very slightly calcareous, micro-micromicaceous, slightly microcarbonaceous, silty. **Acc:** traces dolomite.	NF
1790 – 1820	20	**SAND:** hyaline, translucent, white, quartzose, 60% fine, 40% medium grain, subangular to subrounded, well sorted, some green grains.	
	20	**SANDSTONE:** grayish white, light gray, 70% very fine, 30% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with some green grain & coal inclusions, very poor visual porosity.	NF
	60	**CLAYSTONE:** brown, brownish gray, minor medium gray, subblocky to subplaty, moderately soft, very slightly calcareous, micro micaceous, minor microcarbonaceous. **Acc:** traces dolomite	
1820 – 1850	20	**SAND:** hyaline, translucent, white, quartzose, 70% fine, 30% medium grain, subangular to subrounded, well sorted, some green grains.	
	30	**SANDSTONE:** grayish white, white, 70% very fine, 30% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable hard in part, with some green, dark grain & coal inclusions, poor visual porosity.	NF
	50	**CLAYSTONE:** brown, minor medium gray, subblocky locally subplaty, moderately soft, very slightly calcareous, micromicaceous, microcarbonaceous. **Acc:** traces dolomite	
1850 – 1880	10	**SAND:** hyaline, translucent, white, quartzose, 60% fine, 40% medium grain, subangular to subrounded, well sorted, some green grains.	
	30	**SANDSTONE:** grayish white, white, 60% very fine, 40% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, with some green, dark grain & coal inclusions, very poor visual porosity.	NF
	10	**SILTSTONE:** brown, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	
	50	**CLAYSTONE:** brown, minor medium gray, subblocky locally subplaty, moderately soft, very slightly calcareous, micromicaceous, microcarbonaceous. **Acc:** traces dolomite	
1880 – 1910	10	**SANDSTONE:** light gray, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, dirty, with some dark grain & coal inclusions, very poor visual porosity.	
	10	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	NF
	80	**CLAYSTONE:** brown, minor brownish gray, medium gray, subblocky locally subplaty, moderately soft, very slightly calcareous, micro-micaceous, microcarbonaceous. **Acc:** few massive calcite & dolomite.	
1910 – 1940	10	**SANDSTONE:** light gray, 70% very fine, 30% fine grain, quartzose, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, dirty, with coal inclusions, very poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10 80	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy. **CLAYSTONE:** brown, medium gray, subblocky locally subplaty, moderately soft, very slightly calcareous, micromicaceous, micro-carbonaceous. **Acc:** some massive calcite & few dolomite.	NF
1940 – 1970	10 10 80	**SANDSTONE:** light gray, gray, 80% very fine, 20% fine grain, quartzose, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, very poor visual porosity. **SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy. **CLAYSTONE:** brown, light brown, subblocky to subplaty in part, moderately soft, very slightly calcareous, micromicaceous, micro-carbonaceous, & minor medium gray, subblocky minor blocky, moderately soft, non calcareous, very micromicaceous, slightly microcarbonaceous. **Acc:** few massive calcite & dolomite.	NF
1970 – 2000	20 80	**SANDSTONE:** light gray, gray, 90% very fine, 10% fine grain, quartzose, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, very poor visual porosity. **CLAYSTONE:** brown, light brown, subblocky to subplaty in part, moderately soft, very slightly calcareous, micromicaceous, micro-carbonaceous, minor medium gray, subblocky, moderately soft, non calcareous, very micromicaceous, slightly microcarbonaceous, smooth surface. **Acc:** few massive calcite & dolomite.	NF
2000 – 2030	10 10 80	**SANDSTONE:** grayish white, 100% very fine grain, well sorted, silty matrix, very calcareous, friable, slightly dirty, occasionally micaceous, with dark grain inclusions, poor visual porosity. **SILTSTONE:** gray, blocky, soft, non calcareous, locally microcarbonaceous. **CLAYSTONE:** gray, medium gray, brownish gray, subblocky, soft & moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, locally silty. **Acc:** few dolomite.	NF
2030 – 2060	20 10 70	**SANDSTONE:** grayish white, minor light gray, 100% very fine grain, well sorted, silty matrix, very calcareous, friable, with dark grain inclusions, poor visual porosity. **SILTSTONE:** gray, blocky, soft, non calcareous, occasionally micro carbonaceous. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky, minor blocky, soft minor moderately firm, non calcareous, micromica ceous, minor microcarbonaceous, some with laminar coal inclusions. **Acc:** few dolomite.	NF
2060 – 2090	10 30 60	**SANDSTONE:** grayish white, light gray, 100% very fine grain, well sorted, argillaceous matrix, calcareous, moderately hard, occasionally friable, micaceous, with laminar coal & dark grain inclusions, poor visual porosity. **SILTSTONE:** gray, blocky, soft, non calcareous, slightly micro-micaceous, occasionally microcarbonaceous. **CLAYSTONE:** gray, minor brownish gray, subblocky to blocky, soft to moderately firm, non calcareous, very micromicaceous, micro-carbonaceous, rare with laminar coal inclusions. **Acc:** few dolomite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
2090 – 2120	10 20 70	**SANDSTONE:** grayish white, minor light gray, 70% very fine, 30% fine grain, subangular to subrounded, well sorted, silty matrix, calcareous, slightly hard, occasionally friable, dirty in part, with few dark & green grain inclusions, poor visual porosity. **SILTSTONE:** gray, subblocky, moderately soft, non calcareous, slightly micromicaceous, occasionally microcarbonaceous. **CLAYSTONE:** gray, minor brownish gray, subblocky minor subplaty soft minor moderately firm, non calcareous, micromicaceous, micro-carbonaceous, some with laminar coal inclusions. **Acc:** few dolomite.	NF
2120 – 2150	10 10 80	**SANDSTONE:** grayish white, 100% very fine grain, well sorted, argillaceous matrix, very calcareous, friable to moderately hard, micaceous, occasionally with dark grain & laminar coal inclusions, poor visual porosity. **SILTSTONE:** gray, blocky, moderately soft, slightly calcareous, micromicaceous, occasionally with laminar coal inclusions. **CLAYSTONE:** gray, minor brownish gray, brown, subblocky to blocky soft & moderately firm, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusion. **Acc:** traces dolomite.	NF
2150 – 2180	10 90	**SILTSTONE:** gray, blocky, soft, slightly calcareous, micromicace-ous, occasionally microcarbonaceous, occasionally with laminar coal inclusions. **CLAYSTONE:** gray, occasionally brownish gray, subblocky minor subplaty, soft & moderately firm, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusion. **Acc:** few dolomite, traces massive calcite.	NF
2180 – 2200	10 90	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micro-micaceous, locally microcarbonaceous, occasionally with laminar coal inclusions. **CLAYSTONE:** gray, minor brownish gray, subblocky minor subplaty soft & moderately firm, non calcareous, micromicaceous, micro-carbonaceous, some with laminar coal inclusion. **Acc:** common to few dolomite, traces massive calcite.	NF
2200 – 2230	100	**CLAYSTONE:** gray, minor brownish gray, subblocky to subplaty soft, very slightly calcareous, micromicaceous, microcarbonaceous. **Acc:** traces massive calcite.	NF
2230 – 2260	100	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky to subplaty soft, very slightly to non calcareous, micromicaceous, microcarbonaceous. **Acc:** traces massive calcite & dolomite.	NF
2260 – 2290	TR 10 90	**SANDSTONE:** light gray, 100% very fine grain, subrounded, well sorted, argillaceous matrix, very calcareous, moderately friable, occasionally with dark grain poor visual porosity. **SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous,slightly micromicaceous, with laminar coal inclusions. **CLAYSTONE:** gray, minor brownish gray, subblocky to subplaty, soft, non calcareous, micromicaceous, microcarbonaceous smooth surface. **Acc:** traces dolomite & massive calcite.	NF
2290 – 2320	20 10	**SAND:** hyaline, translucent, white, quartzose, 30% fine, 60% medium, 10% coarse grain, subangular to subrounded, fair sorted. **SANDSTONE:** light gray, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix, very calcareous,	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		moderately friable, hard in part, occasionally with dark grain inclusions, very poor visual porosity.	NF
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous,slightly micromicaceous, ocasionally microcarbonaceous.	
	60	**CLAYSTONE:** gray, minor brownish gray, subblocky to subplaty, soft, non calcareous, micromicaceous, microcarbonaceous smooth surface.	
		Acc: traces massive calcite.	
2320 – 2350	20	**SAND:** hyaline, translucent, white, quartzose, 30% fine, 60% medium, 10% coarse grain, subangular to subrounded, fair sorted.	
	10	**SANDSTONE:** light gray, 70% very fine, 30% fine grain, subrounded, well sorted, argillaceous matrix, very calcareous, moderately consolidate, occasionally with dark grain inclusions, very poor visual porosity.	NF
	70	**CLAYSTONE:** gray, minor brownish gray, subblocky to subplaty, soft, non calcareous, micromicaceous, slightly microcarbonaceous smooth surface.	
		Acc: few dolomite & traces massive calcite.	
2350 – 2380	20	**SANDSTONE:** light gray, 60% very fine, 40% fine grain, subrounded, well sorted, argillaceous matrix, very calcareous, moderately consolidate, occasionally with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous,slightly micromicaceous, ocasionally microcarbonaceous.	NF
	70	**CLAYSTONE:** gray, minor brownish gray, light gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous.	
		Acc: few massive calcite.	
2380 – 2410	10	**SAND:** hyaline, translucent, white, quartzose, 40% fine, 50% medium, 10% coarse grain, subangular to subrounded, fair sorted.	
	10	**SANDSTONE:** gray, grayish white, 50% very fine, 50% fine grain, subrounded, well sorted, argillaceous matrix, very calcareous, moderately consolidate, occasionally with dark grain inclusions, poor visual porosity.	NF
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous,slightly micromicaceous, ocasionally microcarbonaceous.	
	70	**CLAYSTONE:** gray, minor brownish gray, light gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous.	
		Acc: few massive calcite.	
2410 – 2440	30	**SANDSTONE:** gray, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, very calcareous, moderately consolidate, friable in part, with dark & green grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous,slightly micromicaceous sandy in part.	NF
	60	**CLAYSTONE:** gray, light gray, subblocky, ocasionally subplaty, locally firm, non calcareous, micromicaceous, microcarbonaceous.	
		Acc: few massive calcite & traces massive pyrite.	
2440 – 2470	40	**SANDSTONE:** gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately consolidate, friable in part, with dark & green grain inclusions, poor visual porosity.	TR
		Fluorescence: slightly bright yellowish white natural fluorescence,	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		slightly fast slightly strong streaming yellowish white cut, fair residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous,slightly micromicaceous sandy in part.	
	50	**CLAYSTONE:** gray, light gray, subblocky, ocasionally subplaty, locally firm, non calcareous, micromicaceous, microcarbonaceous.	
		Acc: few massive calcite.	
2470 – 2500	50	**SANDSTONE:** gray, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement , moderately consolidate, friable in part, with dark & green grain inclusions, poor visual porosity.	TR
		Fluorescence: slightly bright yellowish white natural fluorescence, slightly fast slightly strong streaming yellowish white cut, fair residual ring.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, ocasionally subplaty, locally firm, non calcareous, micromicaceous, microcarbonaceous.	
		Acc: few massive calcite.	
2500 – 2530	30	**SANDSTONE:** gray, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark & green grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, minor light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF
	60	**CLAYSTONE:** gray, brownish gray, subblocky, ocasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, micro carbonaceous.	
		Acc: few massive calcite & traces dolomite.	
2530 – 2560	20	**SANDSTONE:** gray, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark & green grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, minor light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky, ocasionally subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous.	
		Acc: few massive calcite & traces dolomite.	
2560 – 2590	20	**SANDSTONE:** light gray, grayish white, 100% very fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark & green grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, smooth surface.	
		Acc: few massive calcite & traces dolomite.	
2590 – 2620	10	**SANDSTONE:** gray, grayish white, 100% very fine grain, sub rounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	70	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, smooth surface. **Acc:** traces massive calcite.	
2620 – 2650	10	**SANDSTONE:** gray, grayish white, 100% very fine grain, sub rounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF
	70	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, smooth surface. **Acc:** traces massive calcite.	
2650 – 2680	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	
	80	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, smooth surface. **Acc:** traces massive calcite.	NF
2680 – 2710	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	
	80	**CLAYSTONE:** gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous. **Acc:** traces massive calcite & dolomite.	NF
2710 – 2740	10	**SANDSTONE:** gray, grayish white, 100% very fine grain, sub rounded, well sorted, argillaceous matrix, calcareous, moderately hard, slightly dirty, with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF
	80	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, smooth surface. **Acc:** traces massive calcite & dolomite.	
2740 – 2770	10	**SANDSTONE:** gray, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark grain inclusions, very poor visual porosity.	
	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF
	70	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly soft, non calcareous, micromicaceous, micro carbonaceous, smooth surface. **Acc:** traces massive calcite & dolomite.	
2770 – 2800	10	**SANDSTONE:** gray, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark grain inclusions, very poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions.	NF
	80	**CLAYSTONE:** gray, light gray, subblocky, minor subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, smooth surface. **Acc:** traces massive calcite & dolomite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
2800 – 2830	10 20 70	**SANDSTONE:** gray, grayish white, 100% very fine grain, sub rounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark grain inclusions, very poor visual porosity. **SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally microcarbona-ceous, locally with laminar coal inclusions. **CLAYSTONE:** gray, light gray, subblocky, minor subplaty, slightly firm to firm, non calcareous, micromicaceous, microcarbonaceous. slightly rough surface. **Acc:** traces dolomite.	NF
CHACRA FM AT 2830'			
2830 – 2860	20 80	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, slightly micromicaceous, occasionally coal inclusions. **CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous. **Acc:** traces dolomite & massive pyrite.	NF
2860 – 2890	20 80	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, occasionally coal inclusions. **CLAYSTONE:** gray, light gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. **Acc:** traces dolomite & massive pyrite.	NF
2890 – 2920	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately soft, firm in part, slightly calcareous, micromicaceous, occasionally laminar coal inclusions. **CLAYSTONE:** gray, light gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous. **Acc:** traces dolomite.	NF
2920 – 2950	20 80	**SILTSTONE:** gray, light gray, subblocky, moderately soft, firm in part, slightly calcareous, micromicaceous, occasionally laminar coal inclusions. **CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous smooth surface. **Acc:** traces dolomite.	NF
2950 – 2980	30 70	**SILTSTONE:** gray, light gray, subblocky, moderately soft, firm in part, slightly calcareous, micromicaceous, occasionally laminar coal inclusions. **CLAYSTONE:** gray, light gray, brownish gray, subblocky, minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous smooth surface.	NF
2980 – 3010	30 70	**SILTSTONE:** gray, light gray, subblocky, slightly soft, firm in part, slightly calcareous, micromicaceous, occasionally coal inclusions. **CLAYSTONE:** gray, light gray, brownish gray, subblocky minor subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, smooth surface. **Acc:** traces dolomite & massive calcite.	NF
3010 – 3040	30 70	**SILTSTONE:** gray, light gray, subblocky, slightly soft, firm in part, slightly calcareous, micromicaceous, occasionally coal inclusions. **CLAYSTONE:** gray, light gray, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, smooth surface. **Acc:** traces dolomite & massive calcite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
3040 – 3070	10	**SANDSTONE:** light gray, gray, 100% very fine grain, subrounded, very well sorted, locally silty matrix, calcareous cement, moderately friable, slightly dirty, with dark grain inclusions, poor visual porosity, silty in part.	
	10	**SILTSTONE:** brownish gray, subblocky, slightly soft, firm in part, slightly calcareous, micromicaceous, occasionally coal inclusions.	NF
	80	**CLAYSTONE:** gray, minor brownish gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, microcarbona ceous, occasionally with laminar coal inclusions.	
		Acc: traces dolomite & massive calcite.	
3070 – 3100	10	**SANDSTONE:** light gray, gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly friable, slightly dirty, with dark grain inclusions, very poor visual porosity.	
	20	**SILTSTONE:** brownish gray, subblocky, slightly soft, firm in part, slightly calcareous, micromicaceous, occasionally coal inclusions.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky to subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, occasionally laminar coal inclusions.	
		Acc: traces dolomite & massive calcite.	
3100 – 3130	10	**SANDSTONE:** light gray, gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, micaceous, with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** brownish gray, subblocky, slightly soft, firm in part, slightly calcareous, micromicaceous, locally coal inclusions.	NF
	80	**CLAYSTONE:** gray, minor brownish gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, microcarbona ceous occasionally with laminar coal inclusions.	
		Acc: traces dolomite & massive calcite.	
3130 – 3160	10	**SANDSTONE:** light gray, gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, micaceous, with dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** brownish gray, subblocky, slightly soft, firm in part, slightly calcareous, micromicaceous, locally coal inclusions.	NF
	70	**CLAYSTONE:** gray, minor brownish gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, microcarbona ceous occasionally with laminar coal inclusions.	
		Acc: few dolomite & traces massive calcite.	
3160 – 3190	10	**SANDSTONE:** light gray, grayish white, 100% very fine grain, sub rounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, micaceous, with dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** brownish gray, subblocky, moderately soft, slightly calcareous, micromicaceous, locally coal inclusions.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky to subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions.	
		Acc: few dolomite & traces massive calcite.	
3190 – 3220	20	**SILTSTONE:** gray, brownish gray, subblocky to blocky, locally soft, slightly calcareous, micromicaceous, locally microcarbonaceous.	
	80	**CLAYSTONE:** gray, brownish gray, subblocky to subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions.	NF
		Acc: few dolomite & traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
3220 – 3250	10 10 80	**SANDSTONE:** light gray, grayish white, 100% very fine grain, sub rounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable hard in part, slightly micaceous, with dark grain inclusions, poor visual porosity. **SILTSTONE:** brownish gray, subblocky, moderately soft, slightly calcareous, micromicaceous, locally coal inclusions. **CLAYSTONE:** gray, brownish gray, subblocky to subplaty, slightly soft to firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions. **Acc:** few dolomite & traces massive calcite.	 NF
3250 – 3280	10 90	**SANDSTONE:** light gray, grayish white, 100% very fine grain, sub rounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable hard in part, slightly micaceous, with dark grain inclusions, poor visual porosity. **CLAYSTONE:** gray, brownish gray, subblocky to blocky, moderately firm, non calcareous, locally very micromicaceous, slightly micro carbonaceous, with laminar coal inclusions. **Acc:** few dolomite & traces massive calcite.	 NF
3280 – 3310	10 10 80	**SANDSTONE:** light gray, grayish white, 100% very fine grain, sub rounded, very well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, slightly micaceous, with dark grain inclusions, poor visual porosity. **SILTSTONE:** gray, medium gray, subblocky, moderately firm, slightly calcareous, micromicaceous, sandy in part. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, silty. **Acc:** few dolomite & traces massive calcite.	 NF
3310 – 3340	10 90	**SANDSTONE:** light gray, grayish white, 100% very fine grain, sub rounded, very well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, slightly micaceous, with dark grain inclusions, poor visual porosity. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, silty. **Acc:** few dolomite & traces massive calcite.	 NF
3340 – 3370	20 80	**SILTSTONE:** gray, medium gray, subblocky, moderately firm, slightly calcareous, micromicaceous, with laminar coal inclusions. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, silty. **Acc:** few dolomite & traces massive calcite.	 NF
3370 – 3400	20 80	**SILTSTONE:** gray, medium gray, subblocky, moderately soft to firm, slightly calcareous, micromicaceous, with laminar coal inclusions. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, silty. **Acc:** few dolomite.	 NF
3400 – 3430	20 80	**SILTSTONE:** gray, medium gray, subblocky, moderately soft to firm, slightly calcareous, micromicaceous, with laminar coal inclusions. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, silty. **Acc:** few dolomite.	 NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
3430 – 3460	10 90	**SILTSTONE:** gray, medium gray, subblocky, moderately soft to firm, slightly calcareous, micromicaceous, with laminar coal inclusions,. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, rough surface. **Acc:** traces dolomite & massive calcite.	NF
3460 – 3490	20 80	**SILTSTONE:** gray, medium gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, slightly micro carbonaceous **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, rough surface. **Acc:** traces dolomite & massive calcite.	NF
3490 – 3520	10 10 80	**SANDSTONE:** light gray, 100% very fine grain, subrounded, very well sorted, silty matrix in part, calcareous cement, moderately hard, with few dark grain inclusions, poor visual porosity. **SILTSTONE:** gray, medium gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, slightly micro carbonaceous **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to subplaty, soft, non calcareous, locally very micromicaceous, micro carbonaceous, with laminar coal inclusions, silty in part. **Acc:** traces dolomite & massive calcite.	NF
3520 – 3550	20 80	**SILTSTONE:** gray, medium gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, locally sandy. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to subplaty, soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, silty in part. **Acc:** traces dolomite & massive calcite.	NF
3550 – 3580	20 80	**SILTSTONE:** gray, gray, subblocky to blocky, moderately firm, slightly calcareous, slightly micromicaceous, slightly microcarbo naceous, with laminar coal inclusions. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, with laminar coal inclusions, rough surface. **Acc:** traces dolomite & massive calcite.	NF
3580 – 3610	10 90	**SILTSTONE:** gray, light gray, subblocky, soft to moderately firm, slightly calcareous, slightly micromicaceous, occasionally micro carbonaceous, with laminar coal inclusions. **CLAYSTONE:** gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, rough surface. **Acc:** traces dolomite & massive calcite.	NF
3610 – 3640	20 80	**SILTSTONE:** gray, light gray, subblocky, soft to moderately firm, slightly calcareous, slightly micromicaceous, occasionally micro carbonaceous, with laminar coal inclusions, sandy. **CLAYSTONE:** gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, rough surface in part. **Acc:** traces dolomite & massive calcite.	NF
3640 – 3670	20	**SILTSTONE:** gray, light gray, subblocky to blocky, soft to moderately firm, slightly calcareous, slightly micromicaceous, occasionally micro carbonaceous, with laminar coal inclusions.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	80	**CLAYSTONE:** gray, medium gray, subblocky , moderately firm, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, rough surface in part. **Acc:** traces dolomite & massive calcite.	NF
3670 – 3700	10	**SILTSTONE:** gray, light gray, subblocky to blocky, soft to moderately firm, slightly calcareous, slightly micromicaceous, occasionally micro carbonaceous, with laminar coal inclusions, sandy.	NF
	90	**CLAYSTONE:** gray, medium gray, subblocky occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, with laminar coal inclusions, rough surface in part. **Acc:** traces dolomite, massive calcite & pyrite.	
3700 – 3730	10	**SILTSTONE:** gray, light gray, subblocky to blocky, soft to moderately firm, slightly calcareous, slightly micromicaceous, occasionally micro carbonaceous, with laminar coal inclusions, sandy.	NF
	90	**CLAYSTONE:** gray, medium gray, subblocky occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, with laminar coal inclusions, rough surface in part. **Acc:** traces dolomite, massive calcite & pyrite.	
3730 – 3760	20	**SILTSTONE:** gray, light gray, subblocky, soft to moderately firm, slightly calcareous, slightly micromicaceous, occasionally micro carbonaceous, with laminar coal inclusions, sandy.	NF
	80	**CLAYSTONE:** gray, medium gray, subblocky occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, with laminar coal inclusions, rough surface in part. **Acc:** traces dolomite & massive calcite.	
3760 – 3790	10	**SANDSTONE:** light gray, 100% very fine grain, subrounded, very well sorted, silty matrix in part, calcareous cement, moderately hard, with few dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	TR
	10	**SILTSTONE:** gray, light gray, subblocky, soft to moderately firm, slightly calcareous, slightly micromicaceous, occasionally micro carbonaceous, with laminar coal inclusions, sandy.	
	80	**CLAYSTONE:** gray, medium gray, subblocky occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, with laminar coal inclusions, slightly rough surface. **Acc:** traces dolomite & massive calcite.	
3790 – 3820	10	**SANDSTONE:** light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark grain inclusions, poor visual porosity.	NF
	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, occasionally microcarbonaceous, with laminar coal inclusions, sandy.	
	70	**CLAYSTONE:** gray, medium gray, subblocky occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, slightly rough surface. **Acc:** traces dolomite & massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
3820 – 3850	20	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, with laminar coal inclusions, sandy.	
	80	**CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, moderately firm, locally soft, non calcareous, micro micaceous, slightly microcarbonaceous, slightly rough surface. **Acc:** traces dolomite & massive calcite.	NF
3850 – 3880	30	**SILTSTONE:** brownish gray, subblocky, moderately soft, slightly calcareous, micromicaceous, minor microcarbonaceous, with coal inclusions, sandy.	
	70	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF
3880 – 3910	30	**SILTSTONE:** brownish gray, subblocky, moderately soft, slightly calcareous, micromicaceous, minor microcarbonaceous, with coal inclusions, locally sandy.	
	70	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces dol.	NF
3910 – 3940	50	**SILTSTONE:** brownish gray, subblocky to blocky, soft to moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, rare with coal inclusions, locally sandy.	
	50	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF
3940 – 3970	50	**SILTSTONE:** brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, rare with coal inclusions, locally sandy.	
	50	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces glauconite.	NF
3970 – 4000	60	**SILTSTONE:** brownish gray, subblocky, moderately soft, slightly calcareous, micromicaceous, minor microcarbonaceous, rare with coal inclusions, sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, soft, moderately firm in part, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF
4000 – 4030	60	**SILTSTONE:** brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, rare with coal inclusions, locally sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4030 – 4040	60	**SILTSTONE:** brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, minor microcarbonaceous, rare with coal inclusions, locally sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF
4040 – 4060	60	**SILTSTONE:** brownish gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, locally sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces dolomite.	NF
4060 – 4070	60	**SILTSTONE:** brownish gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, locally sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky, soft, occasionally firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF
4070 – 4090	50	**SILTSTONE:** brownish gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, sandy.	
	50	**CLAYSTONE:** brownish gray, gray, subblocky, soft, occasionally firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite & glauconite.	NF
4090 – 4100	10	**SANDSTONE:** light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark grain inclusions, poor visual porosity.	
	40	**SILTSTONE:** brownish gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, sandy.	NF
	50	**CLAYSTONE:** brownish gray, gray, subblocky, soft, occasionally firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite & glauconite.	
4100 – 4110	50	**SILTSTONE:** brownish gray, subblocky to blocky, moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, sandy.	
	50	**CLAYSTONE:** brownish gray, gray, subblocky, soft, occasionally firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces glauconite.	NF
4110 – 4120	10	**SANDSTONE:** cream white, gray, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark & green grain inclusions, poor visual porosity.	
	30	**SILTSTONE:** gray, subblocky, moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, sandy.	NF
	60	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions. **Acc:** traces massive calcite & glauconite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4120 – 4130	10	**SANDSTONE**: gray, cream white, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark & green grain inclusions, very poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, moderately soft, non calcareous, micromicaceous, minor microcarbonaceous, sandy.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions.	
		Acc: traces pyrite, massive calcite & glauconite.	
4130 – 4140	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark & green grain inclusions, very poor visual porosity.	
	30	**SILTSTONE:** gray, subblocky, moderately soft, non calcareous, micromicaceous, occasionally microcarbonaceous, with glauconite inclusions, sandy.	NF
	60	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions.	
		Acc: traces massive calcite & glauconite.	
4140 – 4160	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, moderately soft, non calcareous, micromicaceous, occasionally microcarbonaceous, sandy.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, few with laminar coal inclusions.	
		Acc: traces massive calcite & pyrite.	
4160 – 4170	TR	**SANDSTONE**: light gray, grayish white, very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately friable, with few dark grain inclusions, very poor visual porosity.	
	30	**SILTSTONE:** gray, subblocky, moderately soft, non calcareous, micromicaceous, occasionally microcarbonaceous, with glauconite inclusions, sandy.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty, some with laminar coal inclusions.	
		Acc: traces massive calcite & glauconite.	
4170 – 4180	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, occasionally microcarbonaceous, sandy few with & laminar coal inclusions.	
	80	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, slightly soft, firm in part, non calcareous, micromicaceous, slightly micro carbonaceous, silty, few with glauconite & laminar coal inclusions.	NF
		Acc: traces massive calcite.	
4180 – 4190	20	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately firm, with few dark grain & glauconite inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, moderately soft, non calcareous, micromicaceous, occasionally microcarbonaceous, sandy.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	60	**CLAYSTONE:** gray, brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, with laminar coal & rare glauconite inclusions. **Acc:** traces massive calcite.	
4190 – 4200	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded very well sorted, argillaceous matrix, calcareous cement, moderately firm, with few dark grain & glauconite inclusions, poor visual porosity.	
	20	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous in part, sandy.	NF
	70	**CLAYSTONE:** brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty, with laminar coal & rare glauconite inclusions. **Acc:** traces massive calcite.	
4200 – 4210	20	**SANDSTONE**: slightly greenish, light gray, 80% very fine, 20% fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately firm, with few dark grain & glauconite inclusions, dirty, very poor visual porosity.	
	20	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous in part, sandy.	NF
	60	**CLAYSTONE:** brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, with some glauconite inclusions, silty in part. **Acc:** traces dolomite & massive pyrite.	
4210 – 4220	10	**SANDSTONE**: slightly greenish, light gray, 80% very fine, 20% fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately firm, with few dark grain & glauconite inclusions, dirty, very poor visual porosity.	
	20	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous in part, sandy.	NF
	70	**CLAYSTONE:** brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, with some glauconite inclusions, silty in part. **Acc:** traces dolomite.	
4220 – 4230	TR	**SANDSTONE**: slightly greenish, light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, soft to firm in part, with few dark grain inclusions, slightly dirty, poor visual porosity.	NF
	20	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous in part, sandy.	
	80	**CLAYSTONE:** brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, silty. **Acc:** traces dolomite.	
4230 – 4240	10	**SANDSTONE**: slightly greenish, light gray, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, some glauconite inclusions, dirty, very poor visual porosity.	
	20	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous.	NF
	70	**CLAYSTONE:** brownish gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some glauconite inclusions, silty. **Acc:** traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4240 – 4250	10	**SANDSTONE**: slightly greenish, light gray, 80% very fine, 20% fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately friable, some glauconite inclusions, dirty, very poor visual porosity.	
	30	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous, locally sandy.	NF
	60	**CLAYSTONE:** brownish gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some glauconite inclusions, silty in part. **Acc:** traces massive calcite.	
4250 – 4270	40	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous, locally sandy.	
	60	**CLAYSTONE:** brownish gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some glauconite inclusions, silty in part. **Acc:** traces massive calcite & pyrite.	NF
4270 – 4300	30	**SILTSTONE:** brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous, occasionally coal inclusions, locally sandy.	
	70	**CLAYSTONE:** brownish gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, slightly rough surface. **Acc:** traces massive calcite.	NF
4300 – 4320	20	**SILTSTONE:** brownish gray, subblocky, moderately soft, firm in part, non calcareous, micromicaceous, microcarbonaceous, occasionally glauconite & coal inclusions, locally sandy.	
	80	**CLAYSTONE:** brownish gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, slightly rough surface. **Acc:** traces massive calcite & pyrite.	NF
4320 – 4340	30	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous in part with glauconite & coal inclusions, locally sandy.	
	70	**CLAYSTONE:**, gray, light gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, slightly rough surface. **Acc:** traces massive calcite & pyrite.	NF
4340 – 4350	20	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous in part with glauconite & coal inclusions, locally sandy.	
	80	**CLAYSTONE:**, gray, light gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, slightly rough surface, silty in part. **Acc:** traces massive calcite & pyrite.	NF
4350 – 4370	30	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, locally microcarbonaceous some with glauconite & coal inclusions, sandy.	
	70	**CLAYSTONE:**, gray, light gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, rough surface. **Acc:** traces massive calcite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4370 – 4380	10	**SANDSTONE**: slightly greenish, light gray, 100% very fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately friable, some glauconite inclusions, dirty, very poor visual porosity.	
	30	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, locally microcarbonaceous, some with glauconite & coal inclusions, sandy.	NF
	60	**CLAYSTONE:**, gray, light gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, silty. **Acc:** traces massive calcite.	
4380 – 4390	10	**SANDSTONE**: slightly greenish, light gray, 100% very fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately friable, some glauconite inclusions, dirty, very poor visual porosity.	
	20	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, locally microcarbonaceous, some with glauconite & coal inclusions, sandy.	NF
	70	**CLAYSTONE:**, gray, light gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, silty. **Acc:** traces massive calcite & pyrite.	
4390 – 4420	30	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous some with glauconite & coal inclusions, sandy.	
	70	**CLAYSTONE:**, gray, light gray, minor brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, some glauconite & laminar coal inclusions, silty. **Acc:** traces massive calcite.	NF
4420 – 4430	TR	**SANDSTONE**: slightly greenish, light gray, 100% very fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately friable, some glauconite inclusions, dirty, very poor visual porosity.	
	30	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous some with glauconite & coal inclusions, sandy.	NF
	70	**CLAYSTONE:**, gray, light gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, silty. **Acc:** traces massive calcite & pyrite.	
4430 – 4460	30	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, some with glauconite & coal inclusions, sandy.	
	70	**CLAYSTONE:**, gray, light gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, some glauconite & laminar coal inclusions, silty. **Acc:** traces dolomite & massive calcite.	NF
4460 – 4480	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, some with glauconite & coal inclusions, sandy.	
	80	**CLAYSTONE:**, gray, medium gray, brownish gray, subblocky-blocky slightly soft, non calcareous, micromicaceous, microcarbonaceous, rough surface. **Acc:** traces dolomite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4480 – 4490	30	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	
	70	**CLAYSTONE:**, gray, medium gray, brownish gray, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, rough surface. **Acc:** traces dolomite & massive calcite.	NF
4490 – 4510	20	**SILTSTONE:** gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	
	80	**CLAYSTONE:**, gray, medium gray, brownish gray, subblocky to blocky slightly soft, non calcareous, micromicaceous, microcarbonaceous, rough surface. **Acc:** traces dolomite, calcite & glauconite.	NF
4510 – 4520	50	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky occasionally subplaty slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces dolomite & calcite.	NF
4520 – 4530	60	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	40	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces dolomite & calcite.	NF
4530 – 4550	50	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces dolomite & calcite.	NF
RIO BRAVO FM. AT 4550'			
4550 – 4560	10	**SANDSTONE**: light gray, 80% very fine, 20% fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	50	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	40	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces dolomite.	
4560 – 4570	10	**SANDSTONE**: light gray, 80% very fine, 20% fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	50	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces massive calcite & pyrite.	
4570 – 4590	10	**SANDSTONE**: light gray, 70% very fine, 30% fine grain, subrounded well sorted, argillaceous matrix, calcareous cement, moderately friable, green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	40	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces massive calcite & massive pyrite.	
4590 – 4610	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, very slightly yellowish white residual ring.	TR
	30	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous in part, few with laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces massive calcite & massive pyrite.	
4610 – 4620	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, very slightly yellowish white residual ring.	TR
	40	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous in part, few with laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty slightly soft, non calcareous, micromicaceous, microcarbonaceous, silty, with laminar coal inclusions. **Acc:** traces massive calcite & massive pyrite.	
4620 – 4640	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately consolidate, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous in part, few with laminar coal inclusions, sandy in part.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	60	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately rough surface . **Acc:** traces massive calcite & massive pyrite.	
4640 – 4650	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately consolidate, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	40	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous in part, few with laminar coal inclusions, sandy in part.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky minor subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately rough surface . **Acc:** traces massive calcite & massive pyrite.	
4650 – 4670	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous in part, few with laminar coal inclusions, sandy in part.	
	60	**CLAYSTONE:** gray, brownish gray, subblocky, occasionally subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately rough surface . **Acc:** traces massive calcite & massive pyrite.	
4670 – 4680	20	**SANDSTONE**: light gray, grayish white, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, moderately sandy.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately rough surface . **Acc:** traces massive calcite.	
4680 – 4690	10	**SANDSTONE**: light gray, grayish white, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, moderately sandy.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	60	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately rough surface . **Acc:** traces massive calcite.	
4690 – 4700	20	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, slightly clean, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, moderately sandy.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, silty in part. **Acc:** traces massive calcite.	
4700 – 4710	20	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, slightly clean, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	40	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, moderately sandy.	
	40	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, silty in part. **Acc:** traces massive calcite.	
4710 – 4720	20	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain & coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** gray, brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, moderately sandy.	
	50	**CLAYSTONE:** brownish gray, brownish, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, silty in part. **Acc:** traces massive calcite.	
4720 – 4750	10	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain & coal inclusions, poor visual porosity.	
	40	**SILTSTONE:** gray, brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, moderately sandy.	NF
	50	**CLAYSTONE:** brownish gray, brownish, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, silty in part. **Acc:** traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4750 – 4760	20 30 50	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, slightly micaceous, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** brownish gray, light gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, locally silty. **Acc:** traces massive calcite.	NF
4760 – 4790	20 20 60	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** brownish gray, light gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, locally silty. **Acc:** traces dolomite & massive calcite.	NF
4790 – 4800	10 20 70	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** brownish gray, light gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, with laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions.	NF
4800 – 4810	10 30 60	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** brownish gray, light gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, with laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF
4810 – 4820	10 20 70	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** brownish gray, light gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE:** brownish gray, light gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal & rare glauconite inclusions. **Acc:** traces massive calcite & pyrite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4820 – 4830	20 20 60	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** brownish gray, light gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal & rare glauconite inclusions. **Acc:** traces massive calcite & pyrite.	NF
4830 – 4840	30 20 50	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** brownish gray, light gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal & rare glauconite inclusions. **Acc:** traces massive calcite & pyrite.	NF
4840 – 4850	20 20 60	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, hard in part, with dark grain inclusions, poor visual porosity. **SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	NF
4850 – 4860	30 20 50	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, hard in part, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow milky white cut, non visual residual ring. **SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	TR
4860 – 4870	40 20 40	**SANDSTONE**: light gray, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, hard in part, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow milky white cut, non visual residual ring. **SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, laminar coal inclusions. **CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4870 – 4880	50	**SANDSTONE**: light gray, grayish white, 90% very fine, 10% fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, friable, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly pale yellowish white natural fluorescence, slow milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	30	**CLAYSTONE:** brownish gray, brownish, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal & glauconite inclusions. **Acc:** traces massive calcite & glauconite.	
4880 – 4890	40	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, friable, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	40	**CLAYSTONE:** brownish gray, brownish, subblocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal & glauconite inclusions. **Acc:** traces massive calcite.	
4890 – 4900	50	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, friable, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	30	**CLAYSTONE:** brownish gray, minor gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	
4900 – 4920	40	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions.	
	30	**CLAYSTONE:** brownish gray, brownish, subblocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4920 – 4930	40	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, friable in part, dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	5
	30	**SILTSTONE:** gray, light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions.	
	30	**CLAYSTONE:** brownish gray, brownish, subblocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	
4930 – 4950	30	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, friable minor hard in part, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	30	**SILTSTONE:** light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, sandy.	
	40	**CLAYSTONE:** brownish gray, brownish, subblocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions. **Acc:** traces massive calcite.	
4950 – 4960	30	**SANDSTONE**: light gray, grayish white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, friable minor hard in part, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	40	**SILTSTONE:** light gray, brownish gray, subblocky, soft, non calcareous, micromicaceous, slightly microcarbonaceous, sandy.	
	40	**CLAYSTONE:** brownish gray, brownish, subblocky, slightly soft, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface. **Acc:** traces massive calcite.	
4960 – 4970	40	**SANDSTONE**: light gray, grayish white, 80% very fine, 20% fine grain, subrounded, well sorted, silty matrix in part, calcareous cement, friable minor hard in part, with dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy.	NF
	40	**CLAYSTONE:** medium gray, gray, brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, moderately rough surface. **Acc:** traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
4970 – 4980	30 30 40	**SANDSTONE**: light gray, grayish white, minor white, 100% very fine grain, subrounded, very well sorted, silty matrix, calcareous cement, friable minor hard in part, with dark & green grain inclusions, poor visual porosity. **SILTSTONE:** gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy. **CLAYSTONE:** medium gray, gray, brownish gray, subblocky, slightly soft, non calcareous, micromicaceous, slightly microcarbonaceous, moderately rough surface. **Acc:** few massive calcite.	 NF
4980 – 4990	40 20 40	**SANDSTONE**: light gray, grayish white, minor white, 100% very fine grain, subrounded, very well sorted, silty matrix, calcareous cement, moderately friable, with dark grain & laminar coal inclusions, poor visual porosity. **SILTSTONE:** gray, light gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly micro carbonaceous, sandy. **CLAYSTONE:** medium gray, brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, rough surface. **Acc:** traces massive calcite.	 NF
4990 – 5000	30 20 50	**SANDSTONE**: light gray, grayish white, minor white, 100% very fine grain, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain & coal inclusions, dirty, very poor visual porosity. **SILTSTONE:** gray, light gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly micro carbonaceous, sandy. **CLAYSTONE:** medium gray, brownish gray, subblocky, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous.	 NF
5000 – 5010	20 10 70	**SANDSTONE**: light grayish white, minor white, 80% very fine, 20% fine grain, subrounded, well sorted, silty matrix, calcareous cement, moderately friable, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** gray, light gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly micro carbonaceous, sandy. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, locally laminar coal inclusions, silty in part. **Acc:** traces dolomite & massive calcite.	 NF
5010 – 5020	30 10 60	**SANDSTONE**: light grayish white, minor white, 80% very fine, 20% fine grain, subrounded, well sorted, silty matrix, calcareous cement, moderately friable, with dark grain & coal inclusions, poor visual porosity. **SILTSTONE:** gray, light gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly micro carbonaceous, sandy. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, locally laminar coal inclusions, silty in part. **Acc:** traces massive calcite.	 NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
5020 – 5050	30 10 60	**SANDSTONE**: grayish, grayish white, 100% very fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, slightly dirty, with dark & green grain inclusions, very poor visual porosity. **SILTSTONE:** gray, brownish gray, subblocky, locally soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, few with glauconite inclusions, sandy. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, locally laminar coal inclusions, silty in part. **Acc:** traces massive calcite.	 NF
5050 – 5080	40 10 50	**SANDSTONE**: grayish, grayish white, 100% very fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, with dark & green grain inclusions, slightly dirty, very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring. **SILTSTONE:** gray, brownish gray, subblocky, locally soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, few with glauconite inclusions, sandy. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, locally laminar coal inclusions, silty in part. **Acc:** traces massive calcite.	10
5080 – 5110	50 10 40	**SANDSTONE**: grayish, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, slightly clean, calcareous cement, slightly hard, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring. **SILTSTONE:** gray, minor brownish gray, subblocky, soft, slightly calcareous, locally micromicaceous, slightly microcarbonaceous, sandy in part. **CLAYSTONE:** gray light gray, minor brownish gray, subblocky, ocasionally subplaty, moderately soft, non calcareous, micro micaceous, microcarbonaceous, silty in part. **Acc:** traces massive calcite & pyrite.	15
5110 – 5140	60 10 30	**SANDSTONE**: grayish, grayish white, 80% very fine, 20% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, with dark & green grain inclusions, slightly clean, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring. **SILTSTONE:** gray, minor brownish gray, subblocky, soft, slightly calcareous, locally micromicaceous, slightly microcarbonaceous, sandy in part. **CLAYSTONE:** gray light gray, minor brownish gray, subblocky, ocasionally subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty in part. **Acc:** traces massive calcite & pyrite.	20
5140 – 5170	60	**SANDSTONE**: grayish, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence,	20

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		slow weak streaming milky white cut, non visual residual ring.	
	20	**SILTSTONE:** gray, minor brownish gray, subblocky, soft, slightly calcareous, micromicaceous, microcarbonaceous, sandy in part.	
	20	**CLAYSTONE:** gray light gray, minor brownish gray, subblocky, ocasionally subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty.	
		Acc: traces massive calcite & pyrite.	
5170 – 5200	60	**SANDSTONE**: grayish, grayish white, 100% very fine grain, sub rounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark & green grain inclusions, poor visual porosity.	15
		Fluorescence: slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	10	**SILTSTONE:** gray, minor brownish gray, subblocky, soft, slightly calcareous, micromicaceous, slightly microcarbonaceous.	
	30	**CLAYSTONE:** gray light gray, minor brownish gray, subblocky, occasionally subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface.	
		Acc: traces massive calcite.	
5200 – 5230	60	**SANDSTONE**: grayish, grayish white, 90% very fine, 10% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark & green grain inclusions, poor visual porosity.	15
		Fluorescence: slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, sligthly yellowish white residual ring.	
	10	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micro micaceous, slightly microcarbonaceous, few with laminar coal inclusions.	
	30	**CLAYSTONE:** gray light gray, minor brownish gray, subblocky-occasionally subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface.	
		Acc: traces massive calcite.	
5230 – 5260	60	**SANDSTONE**: gray, grayish white, 100% fine grain, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark & green grain inclusions, poor visual porosity.	10
		Fluorescence: slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	
	20	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, slightly micro micaceous, few with laminar coal inclusions.	
	20	**CLAYSTONE:** gray light gray, minor brownish gray, subblocky-occasionally blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface.	
		Acc: traces massive calcite.	
5260 – 5290	70	**SANDSTONE**: gray, grayish white, 100% fine grain, subrounded, well sorted, argillaceous matrix, calcareous cement, friable minor moderately hard, with dark & green grain inclusions, slightly dirty, poor visual porosity.	10
		Fluorescence: slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, slightly yellowish white, residual ring.	
	10	**SILTSTONE:** gray, subblocky to blocky, soft, slightly calcareous, micromicaceous, few with laminar coal inclusions.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20	**CLAYSTONE:** gray light gray, minor brownish gray, subblocky to blocky, slightly firm, locally soft, non calcareous, micromicaceous, microcarbonaceous, rough surface. **Acc:** traces massive calcite.	
5290 – 5320	40	**SANDSTONE:** grayish, 100% very fine grain, subangular to subrounded, well sorted, argillaceous matrix, calcareous, moderately hard, slightly dirty, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	5
	30	**SILTSTONE:** gray, subblocky to blocky, soft, slightly calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	
	30	**CLAYSTONE:** gray, brownish gray, subblocky to locally subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty in part. **Acc:** traces massive calcite & massive pyrite.	
5320 – 5350	40	**SANDSTONE:** grayish, occasionally gray, 100% very fine grain, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, friable, slightly dirty, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	5
	20	**SILTSTONE:** gray, subblocky to blocky, soft, slightly calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	
	40	**CLAYSTONE:** light gray, brownish gray, subblocky, occasionally subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, silty. **Acc:** traces massive calcite & massive pyrite.	
5350 – 5380	50	**SANDSTONE:** gray, grayish white, 100% very fine grain, subangular to subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, slightly dirty, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	10
	20	**SILTSTONE:** gray, subblocky to blocky, soft, slightly calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	
	30	**CLAYSTONE:** light gray, brownish gray, subblocky to blocky, occasionally subplaty, soft to slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. **Acc:** traces massive calcite, some massive pyrite.	
5380 – 5410	50	**SANDSTONE:** grayish, grayish white, 90% fine, 10% medium grain, subangular to subrounded, well sorted, argillaceous matrix, some clean, calcareous cement, slightly friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	10
	20	**SILTSTONE:** gray, subblocky, soft, non calcareous, micromicace-	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		ous, microcarbonaceous, occasionally with laminar coal inclusions.	
	30	**CLAYSTONE:** light gray, brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty. **Acc:** traces massive calcite & massive pyrite.	
5410 – 5440	40	**SANDSTONE:** grayish white, slightly grayish white, 90% very fine, 10% fine grain, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, friable occasionally moderately hard, occasionally micaceous, dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright, yellowish white natural fluorescence, moderately fast, slightly strong streaming , milky white cut, slightly yellowish white residual ring.	TR
	10	**SILTSTONE:** gray, subblocky, soft to slightly firm, slightly calcareous, slightly micromicaceous, microcarbonaceous, sandy.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty. **Acc:** few massive calcite.	
5440 – 5470	40	**SANDSTONE:** gray, grayish white, 100% fine, trace medium grain, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous cement, friable, dark and green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	TR
	20	**SILTSTONE:** gray, minor brownish gray, subblocky, soft to slightly firm, slightly calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	
	40	**CLAYSTONE:** light gray, brownish gray, subblocky to blocky, occasionally subplaty, soft to moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty. **Acc:** few massive calcite.	
5470 – 5500	40	**SANDSTONE:** gray, grayish white, 100% fine, trace medium grain, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous cement, friable, dark and green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	TR
	20	**SILTSTONE:** gray, minor brownish gray, subblocky, soft, slightly calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	
	40	**CLAYSTONE:** light gray, brownish gray, subblocky to blocky, soft to slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty, occasionally glauconite inclusions. **Acc:** traces massive calcite.	
5500 – 5530	50	**SANDSTONE:** grayish white, 100% fine, traces medium grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous cement, friable minor moderately hard, dark and green grains inclusions, occasionally with laminar coal, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20	**SILTSTONE:** gray, occasionally brownish gray, soft, subblocky, slightly calcareous, microcarbonaceous.	
	30	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky to blocky, soft to slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. **Acc:** traces massive calcite & massive pyrite.	
5530 – 5560	40	**SANDSTONE:** grayish white, 100% fine, traces medium grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous cement, friable minor moderately hard, occasionally with laminar coal and dark, green grains inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	TR
	20	**SILTSTONE:** gray, occasionally brownish gray, soft, subblocky, slightly calcareous, microcarbonaceous.	
	40	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, soft firm in part, non calcareous, micromicaceous, microcarbonaceous, silty. **Acc:** traces massive calcite.	
5560 – 5590	50	**SANDSTONE:** light gray, grayish white, 50% very fine, 50% fine, traces medium grains, subrounded, well sorted, slightly argillaceous matrix, calcareous, friable minor moderately hard, locally with laminar coal and dark, green grains inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	TR
	20	**SILTSTONE:** gray, occasionally brownish gray, soft, subblocky, slightly calcareous, microcarbonaceous.	
	30	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, soft firm in part, non calcareous, micromicaceous, microcarbonaceous, silty. **Acc:** traces massive calcite.	
5590 – 5620	40	**SANDSTONE:** light gray, 50% very fine, 50% fine grains, sub rounded, well sorted, argillaceous matrix, slightly calcareous, friable, whit dark lithic grains inclusions, poor visual porosity, in part grading to siltstone. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	TR
	40	**SILTSTONE:** gray, subblocky, firm, non calcareous, micromicaceous, microcarbonaceous, occasionally sandy.	
	20	**CLAYSTONE:** gray, brownish gray, subplaty to subblocky, moderately firm, slightly calcareous, occasionally micromicaceous, with laminar coal inclusions, in party silty. **Acc:** traces massive calcite.	
5620 – 5650	30	**SANDSTONE:** light gray, 100% very fine grains, well sorted, argillaceous matrix, slightly calcareous, friable, whit dark lithic grain inclusions, poor visual porosity, in party grading to siltstone. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	TR
	30	**SILTSTONE:** gray, subblocky, firm, non calcareous, micromicaceous, slightly microcarbonaceous, with some coal inclusions, occasionally sandy.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**CLAYSTONE:** gray, brownish gray, subplaty to subblocky, moderately firm, non calcareous, occasionally micromicaceous, with laminar coal inclusions, in party silty. **Acc:** traces massive calcite.	
5650 – 5680	30	**SANDSTONE:** light gray, grayish white, 100% very fine grains, subrounded, well sorted, argillaceous matrix, locally silty, calcareous cement, friable, whit some dark and green grains inclusions, poor visual porosity.	
	30	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	NF
	40	**CLAYSTONE:** gray, minor grayish brown, subblocky, subplaty in party, soft, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: some mass calc	
5680 – 5710	50	**SANDSTONE:** grayish white, 70% very fine, 30% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, very calcareous, friable to moderately hard, occasionally micaceous, dark grains inclusions, poor visual porosity & light gray, 100% very fine grain, well sorted, argillaceous matrix, slightly calcareous, friable to moderately hard, micaceous, dirty, dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	NF
	40	**CLAYSTONE:** brownish gray, gray, subplaty & subblocky, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, very rare with laminar coal inclusions, silty. Acc: traces mass calc	
5710 – 5740	40	**SANDSTONE:** grayish white, 70% very fine, 30% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, very calcareous, friable to moderately hard, occasionally micaceous, dark grains inclusions, poor visual porosity & light gray, 100% very fine grain, well sorted, argillaceous matrix, slightly calcareous, friable to moderately hard, micaceous, dirty, dark grain inclusions, poor visual porosity.	NF
	30	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	
	30	**CLAYSTONE:** brownish gray, gray, subplaty & subblocky, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, very rare with laminar coal inclusions, silty. Acc: traces mass calc	
5740 – 5770	30	**SANDSTONE:** slightly grayish white, light gray, 100% very fine grains, well sorted, argillaceous matrix, calcareous, friable minor moderately hard, micaceous, dark grains inclusions, poor visual porosity.	
	40	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, sandy.	NF
	30	**CLAYSTONE:** brownish gray, gray, subplaty & subblocky, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, very rare with laminar coal inclusions, silty. Acc: traces mass calc	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
5770 – 5800	20 30 50	**SANDSTONE:** slightly grayish white, light gray, 100% very fine grains, well sorted, argillaceous matrix, mainly calcareous, friable minor moderately hard, micaceous, dark grains inclusions, poor visual porosity. **SILTSTONE:** brownish gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusion, locally sandy. **CLAYSTONE:** brownish gray, gray, subblocky minor subplaty, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, silty. Acc: traces mass calc	 NF
5800 – 5830	20 20 60	**SANDSTONE:** slightly grayish white, light gray, 100% very fine grains, well sorted, argillaceous matrix, mainly calcareous, friable minor moderately hard, micaceous, dark grains inclusions, poor visual porosity. **SILTSTONE:** brownish gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, very rare with laminar coal inclusion, locally sandy. **CLAYSTONE:** brownish gray, gray, subblocky minor subplaty, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, silty. Acc: traces mass calc	 NF
5830 – 5860	40 10 50	**SANDSTONE:** slightly grayish white, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, friable minor moderately hard, occasionally micaceous, locally with laminar coal inclusion, dark grains, poor visual porosity & minor grayish white, light gray same as above. **SILTSTONE:** brownish gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, locally sandy. **CLAYSTONE:** brownish gray, gray, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, micro carbonaceous, silty. Acc: traces mass calc, shell fragments	 NF
5860 – 5890	30 10 60	**SANDSTONE:** white, slightly grayish white, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, friable, some with laminar coal inclusion, poor visual porosity & minor grayish white, same as above. **Fluorescence:** yellowish white natural fluorescence, very slow very weak streaming slightly milky white cut, no visual residual ring. **SILTSTONE:** brownish gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, locally sandy. **CLAYSTONE:** brownish gray, gray, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, micro carbonaceous, silty. Acc: traces mass calc	TR
5890 – 5920	30 20	**SANDSTONE:** slightly grayish white, whitish, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, friable, dark grain inclusion, poor visual porosity **Fluorescence:** yellowish white natural fluorescence, very slow very moderately weak streaming slightly milky white cut, no visual residual ring. **SILTSTONE:** brownish gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, locally sandy.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	50	**CLAYSTONE:** brownish gray, gray, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, microcarbonaceous, silty. Acc: traces mass calc	
5920 – 5950	20	**SANDSTONE:** slightly grayish white, whitish, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, slightly friable, dark grain inclusion, poor visual porosity	
	30	**SILTSTONE:** gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	NF
	50	**CLAYSTONE:** brownish gray, gray, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, microcarbonaceous, occasionally with glauconite inclusion. Acc: traces mass calc	
5950 – 5980	30	**SANDSTONE:** whitish gray, grayish, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, slightly friable, dark grain inclusion, poor visual porosity **Fluorescence:** yellowish white natural fluorescence, very slow very weak streaming slightly milky white cut, no visual residual ring.	TR
	20	**SILTSTONE:** gray, subblocky to blocky, soft, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	
	50	**CLAYSTONE:** brownish gray, gray, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, microcarbonaceous, occasionally with glauconite inclusion. Acc: traces mass calc	
5980 – 5990	70	**SAND:** white, hyaline, transparent, quartzose, 20% fine, 50% medium, 30% coarse grains, subangular to subrounded, fair sorted, 15% dark grains.	
	20	**SANDSTONE:** white, 80% very fine, 20% fine, traces medium grains, subangular to subrounded, well sorted, slightly clean, very calcareous, friable, dark grain inclusion, poor to fair visual porosity **Fluorescence:** very slightly bright yellowish white natural fluorescence, slow weak streaming slightly milky white cut, no visual residual ring.	5
	10	**CLAYSTONE:** gray, minor grayish brown, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces mass calc	
5990 – 6000	70	**SAND:** white, hyaline, transparent, quartzose, 20% fine, 50% medium, 30% coarse grains, subangular to subrounded, fair sorted, 15% dark & traces smoky grains.	
	10	**SANDSTONE:** white, 60% very fine, 40% fine, traces medium grains, subangular to subrounded, well sorted, slightly clean, slightly calcareous to calcareous, friable, dark grain inclusion, poor to fair visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, yellowish white residual ring.	10
	20	**CLAYSTONE:** gray, minor grayish brown, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces shell fragments	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6000 – 6010	60	**SAND:** white, hyaline, transparent, quartzose, 40% fine, 50% medium, 10% coarse grains, subangular to subrounded, fair sorted, 15% dark & traces smoky grains.	
	10	**SANDSTONE:** whitish, minor grayish white, 60% very fine, 40% fine, traces medium grains, subangular to subrounded, well sorted, slightly clean, slightly calcareous, friable, dark grain inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, yellowish white residual ring.	10
	10	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some with laminar coal inclusion.	
	20	**CLAYSTONE:** gray, minor grayish brown, subplaty to subblocky, soft & moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces shell fragments	
6010 – 6020	50	**SAND:** white, hyaline, transparent, quartzose, 50% fine, 40% medium, 10% coarse grains, subangular to subrounded, fair sorted, 15% dark & traces smoky grains.	
	20	**SANDSTONE:** whitish, minor grayish white, 70% very fine, 30% fine, traces medium grains, subangular to subrounded, well sorted, slightly clean, slightly calcareous, friable, dark grain inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, yellowish white residual ring.	10
	10	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some with laminar coal inclusion.	
	20	**CLAYSTONE:** gray, minor grayish brown, subblocky, soft minor moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces shell fragments	
6020 – 6030	30	**SAND:** white, hyaline, transparent, quartzose, 70% fine, 30% medium, traces coarse grains, subangular to subrounded, fair sorted, some dark & traces smoky grains.	
	30	**SANDSTONE:** grayish white, whitish, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, argillaceous matrix, slightly calcareous, friable, dark grain inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, yellowish white residual ring.	10
	20	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some with laminar coal inclusion.	
	20	**CLAYSTONE:** gray, grayish brown, subblocky, soft minor moderately firm, non calcareous, very micromicaceous, micro carbonaceous. Acc: traces shell fragments	
6030 – 6040	30	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, fair sorted, some dark & traces smoky grains.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**SANDSTONE:** grayish white, whitish, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, argillaceous matrix, calcareous, friable, dark grain inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast moderately strong streaming milky white cut, yellowish white residual ring.	5
	10	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some with laminar coal inclusion.	
	20	**CLAYSTONE:** gray, grayish brown, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous. Acc: few shell fragments	
6040 – 6050	10	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains.	
	80	**SANDSTONE:** light grayish white, whitish, 60% very fine, 40% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	20
	10	**CLAYSTONE:** gray, grayish brown, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal inclusion. Acc: traces calcite	
6050 – 6060	10	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains.	
	80	**SANDSTONE:** light grayish white, whitish, 70% very fine, 30% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	25
	10	**CLAYSTONE:** gray, grayish brown, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal inclusion. Acc: traces massive calcite	
6060 – 6080	10	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains.	
	80	**SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	25
	10	**CLAYSTONE:** gray, grayish brown, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal inclusion. Acc: traces massive calcite	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6080 – 6090	10	**SAND:** white, hyaline, transparent, quartzose, 90% fine, 10% medium grains, subangular to subrounded, well sorted, some dark grains.	
	60	**SANDSTONE:** light grayish white, whitish, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous, friable, occasionally micaceous, dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	20
	10	**SILTSTONE:** light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusion.	
	20	**CLAYSTONE:** gray, brownish gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal inclusion. Acc: traces massive calcite	
6090 – 6100	40	**SANDSTONE:** light grayish white, whitish, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, friable, with dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	10
	10	**SILTSTONE:** light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusion.	
	50	**CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, rare with laminar coal inclusion. Acc: traces massive calcite	
6100 – 6110	30	**SANDSTONE:** light grayish white, whitish, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, very slightly yellowish white residual ring.	5
	70	**CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, rare with laminar coal inclusion. Acc: traces massive calcite	
6110 – 6120	20	**SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, very slightly yellowish white residual ring.	5
	80	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, moderately smooth surface. Acc: traces massive calcite	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6120 – 6130	20	**SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, very slightly yellowish white residual ring.	5
	10	**SILTSTONE:** light gray, subblocky, soft, slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusion.	
	70	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, moderately smooth surface. Acc: traces massive calcite	
6130 – 6140	10	**SANDSTONE:** light grayish white, whitish, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain & occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE:** light gray, brownish gray, subblocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, sandy in part	
	80	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, moderately smooth surface. Acc: traces massive calcite	
6140 – 6150	10	**SANDSTONE:** light grayish white, whitish, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain inclusion, locally dirty, poor visual porosity **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE:** light gray, gray, subblocky, soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy in part	
	80	**CLAYSTONE:** brownish gray, gray, subblocky, locally subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, moderately rough surface.	
6150 – 6160	20	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous.	
	80	**CLAYSTONE:** brownish gray, gray, subblocky, locally subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, moderately rough surface.	NF
6160 – 6170	20	**SANDSTONE:** light grayish white, whitish, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain inclusion, locally dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, subblocky, locally subplaty, moderately soft, non calcareous, very micromicaceous, micro carbonaceous, moderately rough surface. Acc: traces massive calcite & pyrite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6170 – 6180	10	**SAND:** hyaline, transparent, white, quartzose, 100% fine, traces medium grain, subanguler & subrounded, well sorted.	5
	20	**SANDSTONE:** light grayish white, whitish, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain inclusion, locally dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, minor dark gray, subblocky, locally subplaty, moderately firm, non calcareous, very micro micaceous, microcarbonaceous, moderately rough surface. Acc: traces massive calcite.	
6180 – 6190	30	**SANDSTONE:** light grayish white, whitish, 60% very fine, 40% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain inclusion, locally dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, minor dark gray, subblocky, locally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite.	
6190 – 6200	30	**SANDSTONE:** light grayish white, whitish, 70% very fine, 30% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain & coal inclusion, locally dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, minor dark gray, subblocky, locally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite.	
6200 – 6210	10	**SANDSTONE**: grayish, light grayish white, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain inclusion, dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	
	80	**CLAYSTONE:** gray, brownish gray, minor dark gray, subblocky, locally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6210 – 6220	10	**SANDSTONE**: grayish, light grayish white, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain inclusion, dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	
	70	**CLAYSTONE:** gray, brownish gray, minor dark gray, subblocky, locally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. Acc: traces massive calcite.	
6220 – 6230	10	**SANDSTONE**: grayish, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, with dark grain inclusion, dirty, poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	NF
	70	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, occasionally silty.	
PALEGREDA FM AT 6230'			
6230 – 6240	20	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions.	
	80	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, moderately rough surface. Acc: traces massive calcite & pyrite.	NF
6240 – 6250	30	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions, locally sandy.	
	70	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, moderately rough surface.	NF
6250 – 6260	20	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions, locally sandy.	
	80	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, moderately rough surface. Acc: traces massive calcite.	NF
6260 – 6270	30	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions, sandy in part.	
	70	**CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, very micromicaceous, locally micro carbonaceous, moderately rough surface.	NF
6270 – 6290	30	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, some laminar coal inclusions, sandy.	
	70	**CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, very micromicaceous, locally micro carbonaceous, moderately rough surface, silty.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6290 – 6310	10 90	**SILTSTONE:** light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy in part. **CLAYSTONE:** gray, medium gray, subblocky to subplaty in part, firm, non calcareous, very micromicaceous, microcarbonaceous, slightly rough surface. Acc: traces massive calcite.	NF
6310 – 6330	10 90	**SILTSTONE:** light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy in part. **CLAYSTONE:** gray, medium gray, subblocky to subplaty in part, firm, non calcareous, very micromicaceous, microcarbonaceous, slightly rough surface, occasionally steely surface. Acc: traces massive calcite.	NF
6330 – 6340	20 80	**SILTSTONE:** light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy in part. **CLAYSTONE:** gray, medium gray, subblocky to subplaty in part, firm, non calcareous, very micromicaceous, microcarbonaceous, slightly rough surface, occasionally steely surface. Acc: traces massive calcite.	NF
6340 – 6350	10 90	**SILTSTONE:** light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy in part. **CLAYSTONE:** gray, medium gray, subblocky to subplaty in part, firm, non calcareous, very micromicaceous, microcarbonaceous, slightly smooth surface. Acc: traces massive calcite.	NF
6350 – 6380	100	**CLAYSTONE:** gray, medium gray, subblocky to subplaty, soft, non calcareous, micromicaceous, locally microcarbonaceous, slightly rough surface, occasionally steely surface. Acc: traces massive calcite.	NF
6380 – 6410	100	**CLAYSTONE:** gray, medium gray, subblocky to blocky, soft, non calcareous, very micromicaceous, locally microcarbonaceous, silty in part. Acc: traces massive calcite.	NF
6410 – 6440	100	**CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part. Acc: traces massive calcite.	NF
6440 – 6470	100	**CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky, soft to moderately firm, non calcareous, very micromicaceous, micro carbonaceous, with few laminar coal inclusions, slightly rough surface. Acc: traces massive calcite.	NF
6470 – 6500	100	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, with few laminar coal inclusions, slightly rough surface. Acc: traces massive calcite & coal.	NF
6500 – 6510	20 80	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, locally sandy **CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, with few laminar coal inclusions, slightly rough surface. Acc: traces massive calcite & coal.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6510 – 6530	20	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, laminar coal inclusions, sandy in part.	
	80	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, occasionally subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, with few laminar coal inclusions, slightly rough surface. Acc: traces massive calcite & coal.	NF
6530 – 6550	10	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, laminar coal inclusions, sandy in part.	
	90	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, firm, non calcareous, micromicaceous, microcarbonaceous, with few laminar coal inclusions, slightly rough surface. Acc: traces massive calcite.	NF
6550 – 6570	10	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, laminar coal inclusions, sandy in part.	
	90	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, firm, non calcareous, micromicaceous, microcarbonaceous, with few laminar coal inclusions. Acc: traces massive calcite.	NF
6570 – 6580	10	**SANDSTONE**: grayish, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain inclusion, dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slightly fast moderately strong streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, laminar coal inclusions, sandy in part.	
	70	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky, firm, non calcareous, micromicaceous, microcarbonaceous, with few laminar coal inclusions, slightly rough to smooth surface.	
6580 – 6590	20	**SANDSTONE**: grayish, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain inclusion, dirty, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slightly fast moderately strong streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy.	
	60	**CLAYSTONE:** gray, medium gray, brownish gray, subblocky, firm, non calcareous, micromicaceous, locally microcarbonaceous, with few laminar coal inclusions, moderately rough surface. Acc: traces massive calcite.	
6590 – 6610	10	**SANDSTONE**: grayish, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, with dark grain inclusion, dirty, poor visual porosity.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy.	NF
	80	**CLAYSTONE:** gray, medium gray, brownish gray, subblocky, firm, non calcareous, micromicaceous, locally microcarbonaceous, with few laminar coal inclusions, moderately rough surface.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6610 – 6630	10 90	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, locally microcarbonaceous, with laminar coal inclusions, moderately rough surface. Acc: traces massive calcite.	NF
6630 – 6650	10 90	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions, sandy. **CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, locally microcarbonaceous, moderately rough surface. Acc: traces massive calcite.	NF
6650 – 6660	100	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, locally microcarbonaceous, moderately rough surface. Acc: traces massive calcite.	NF
6660 – 6670	10 90	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions, locally sandy. **CLAYSTONE:** gray, light gray, brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, locally micro carbonaceous, moderately rough surface. Acc: traces massive calcite.	NF
6670 – 6700	100	**CLAYSTONE:** gray, light gray, minor brownish gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface. Acc: traces massive calcite.	NF
6700 – 6720	100	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, subplaty in part firm, non calcareous, micromicaceous, microcarbonaceous, occasionally laminar coal inclusions, moderately rough surface. Acc: traces massive calcite.	NF
6720 – 6740	100	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to blocky, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, moderately rough surface, silty. Acc: traces massive calcite.	NF
6740 – 6750	10 90	**SILTSTONE:** light gray, gray, subblocky to blocky, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, sandy in part. **CLAYSTONE:** gray, light gray, brownish gray, subblocky to blocky, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, moderately rough surface, silty.	NF
6750 – 6780	100	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, few with laminar coal inclusions moderately rough surface, silty. Acc: traces massive calcite.	NF
6780 – 6800	10 90	**SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, sandy in part. **CLAYSTONE:** gray, light gray, brownish gray, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, few with laminar coal inclusions.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6800 – 6820	20	**SILTSTONE:** gray, subblocky, soft to moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, With rare laminar coal, sandy in part.	
	80	**CLAYSTONE:** brownish gray, brown, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, very rare with laminar coal inclusions. Acc: traces massive calcite.	NF
6820 – 6850	30	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, very rare with laminar coal, locally sandy .	
	70	**CLAYSTONE:** brownish gray, brown, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, with laminar coal inclusions, slightly smooth. Acc: traces massive calcite.	NF
6850 – 6870	20	**SILTSTONE:** gray, subblocky to blocky, soft, moderately firm in part, very slightly calcareous, micromicaceous, microcarbonaceous, rare with laminar coal inclusion.	
	80	**CLAYSTONE:** brownish gray, gray, subblocky, minor subplaty, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, some with laminar coal inclusions. Acc: traces massive calcite.	NF
6870 – 6890	20	**SILTSTONE:** brownish gray, subblocky, soft to moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusion.	
	80	**CLAYSTONE:** brownish gray, subblocky, minor subplaty, soft, non calcareous, very micromicaceous, microcarbonaceous, some with laminar coal inclusions, silty. Acc: traces massive calcite.	NF
6890 – 6900	30	**SILTSTONE:** brownish gray, subblocky, soft to moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, few With laminar coal.	
	70	**CLAYSTONE:** brownish gray, gray, subblocky minor subplaty, soft, moderately firm in part, non calcareous, very micromicaceous, minor microcarbonaceous, some with laminar coal inclusions, silty in part, locally sandy.	NF
6900 – 6910	40	**SILTSTONE:** gray, subblocky to blocky, soft, very slightly to non calcareous, micromicaceous, microcarbonaceous, few with laminar coal, locally sandy.	
	60	**CLAYSTONE:** brownish gray, gray, subblocky to blocky, slightly soft, moderately firm in part, non calcareous, very micromicaceous, microcarbonaceous, some with laminar coal inclusions, very silty. Acc: traces massive calcite.	NF
6910 – 6940	30	**SILTSTONE:** gray, subblocky to blocky, soft, very slightly to non calcareous, micromicaceous, microcarbonaceous.	
	70	**CLAYSTONE:** brownish gray, gray, subblocky, subplaty, slightly soft to moderately firm, non calcareous, very micromicaceous, micro carbonaceous, some with laminar coal inclusions, silty. Acc: traces massive calcite.	NF
6940 – 6960	20	**SILTSTONE**: light gray, gray, subblocky, moderately soft, non calcareous, micromicaceous, microcarbonaceous, few with laminar coal, locally sandy.	
	80	**CLAYSTONE:** gray, light gray, subblocky, subplaty, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, some with laminar coal inclusions, moderately rough surface, silty.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6960 – 6980	10 90	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal, locally sandy. **CLAYSTONE:** gray, medium gray, slightly brownish gray, subblocky to subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, some with laminar coal inclusions, moderately rough surface. Acc: traces massive calcite.	 NF
6980 – 7010	100	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, moderately firm, very slightly calcareous, micromicaceous, micro carbonaceous, some with laminar coal inclusions, moderately rough surface. Acc: traces massive calcite.	 NF
MOGOLLON FM AT 7010'			
7010 – 7020	10 20 70	**SANDSTONE:** grayish white, whitish, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, poor visual porosity **SILTSTONE**: light gray, gray, subblocky to blocky, moderately soft to firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal & traces glauconite inclusions, locally sandy. **CLAYSTONE:** brownish gray, gray minor dark gray, subblocky, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, rare with laminar coal inclusion. Acc: traces massive calcite & coal.	 NF
7020 – 7030	10 40 50	**SANDSTONE:** grayish white, whitish, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, poor visual porosity **SILTSTONE**: light gray, gray, subblocky to blocky, moderately soft to firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE:** brownish gray, gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces massive calcite & coal.	 NF
7030 – 7040	10 40 50	**SANDSTONE:** grayish white, whitish, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, very poor visual porosity, with dark & green grain inclusions. **SILTSTONE**: light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE:** brownish gray, gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal inclusion. Acc: traces massive calcite, coal & rare glauconite.	 NF
7040 – 7060	10 30 60	**SANDSTONE:** grayish white, whitish, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, very poor visual porosity, with dark & green grain inclusions. **SILTSTONE**: light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE:** brownish gray, gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces massive calcite & coal.	 NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7060 – 7070	20	**SILTSTONE**: light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy in part.	
	80	**CLAYSTONE:** brownish gray, gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, occasionally glauconite inclusions. Acc: traces massive calcite & coal.	NF
7070 – 7100	30	**SILTSTONE**: light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few With laminar coal inclusions, sandy in part.	
	70	**CLAYSTONE:** brownish gray, occasionally dark brown, subblocky, subplaty in part, moderately soft, non calcareous, micromicaceous, microcarbonaceous, occasionally laminar coal inclusions. Acc: traces massive calcite & coal.	NF
7100 – 7110	10	**SANDSTONE:** light gray, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, very poor visual porosity, with dark & coal grain inclusions.	
	40	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, sandy.	NF
	50	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface. Acc: traces massive calcite & coal.	
7110 – 7120	10	**SANDSTONE:** light gray, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, very poor visual porosity, with dark grain & coal inclusions.	
	50	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, sandy.	NF
	40	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface. Acc: traces massive calcite.	
7120 – 7130	50	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately calcareous, micromicaceous, microcarbonaceous, with coal inclusions, sandy.	
	50	**CLAYSTONE:** gray, medium gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally rough surface. Acc: traces massive calcite.	NF
7130 – 7140	40	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, with coal inclusions, sandy in part.	
	60	**CLAYSTONE:** gray, medium gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally rough surface. Acc: traces massive calcite.	NF
7140 – 7150	10	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard to moderately friable, dirty, very poor visual porosity, with dark & green grain inclusions.	
	40	**SILTSTONE**: light gray, gray, subblocky - to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, locally	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		laminar coal inclusions, sandy.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous. Acc: traces massive calcite.	
7150 – 7160	10	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard to moderately friable, dirty, very poor visual porosity, with dark & green grain inclusions.	
	50	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, locally laminar coal inclusions, sandy.	NF
	40	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite & massive pyrite.	
7160 – 7170	20	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hardtomoderately friable, dirty, very poor visual porosity, with dark & green grain inclusions.	
	40	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately soft in part, slightly calcareous, micromicaceous, micro carbonaceous, occasionally laminar coal inclusions, sandy.	NF
	40	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. Acc: traces massive calcite & massive pyrite.	
7170 – 7180	30	**SANDSTONE:** grayish white, 80% very fine, 20% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, poor visual porosity, with dark grain inclusions.	
	20	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, sandy.	NF
	50	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface, locally silty. Acc: traces massive calcite & massive pyrite.	
7180 – 7190	30	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, poor visual porosity, with dark grain inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, sandy.	NF
	60	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface, locally silty.	
7190 – 7200	40	**SANDSTONE:** grayish white, 70% very fine, 30% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, poor visual porosity, with dark grain inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, sandy.	NF
	50	**CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky, moderately firm to soft, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface, locally silty.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7200 – 7210	30	**SANDSTONE:** grayish white, 70% very fine, 30% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, poor visual porosity, with dark grain inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, sandy.	NF
	60	**CLAYSTONE:** gray, medium gray, minor brownish gray, subblocky, moderately firm to soft, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface, locally silty. Acc: traces massive calcite.	
7210 – 7220	30	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, sandy.	
	70	**CLAYSTONE:** gray, medium gray minor brownish gray, subblocky, moderately firm to soft, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface, locally silty. Acc: traces massive calcite.	NF
7220 – 7230	30	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, poor visual porosity, with dark grain & coal inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, sandy.	NF
	60	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, locally silty. Acc: traces massive calcite.	
7230 – 7240	40	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, poor visual porosity, with dark grain & coal inclusions.	NF
	60	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, locally silty. Acc: traces massive calcite & rare coal.	
7240 – 7250	30	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately friable, dirty, poor visual porosity, with dark & green grain inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky to blocky, moderately firm, moderately calcareous, micromicaceous, microcarbonaceous, some with laminar coal inclusions, sandy.	NF
	60	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, locally silty. Acc: few massive calcite & traces massive pyrite.	
7250 – 7260	10	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, dirty, poor visual porosity, with dark & green grain inclusions.	
	10	**SILTSTONE**: light gray, subblocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	80	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. Acc: traces massive calcite & rare massive pyrite.	
7260 – 7270	10	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, dirty, poor visual porosity, with dark & green grain inclusions.	NF
	90	**CLAYSTONE:** gray, medium gray, brownish gray, subblocky, soft to firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. Acc: traces massive calcite.	
7270 – 7280	10	**SANDSTONE:** grayish white, 80% very fine, 20% fine grains, subrounded, very well sorted, argillaceous to occasionally silty matrix, calcareous cement, moderately hard, dirty, poor visual porosity, with dark & green grain inclusions.	
	10	**SILTSTONE**: light gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	NF
	80	**CLAYSTONE:** medium gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, Acc: traces massive calcite.	
7280 – 7300	10	**SANDSTONE:** grayish white, 90% very fine, 10% fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, dirty, poor visual porosity, with dark & green grain inclusions.	NF
	90	**CLAYSTONE:** gray, medium gray, brownish gray, subblocky, soft to firm, non calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, locally silty. Acc: traces massive calcite.	
7300 – 7310	10	**SAND:** white, hyaline, translucent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains.	
	20	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, dirty, poor visual porosity, with dark & green grain inclusions.	NF
	10	**SILTSTONE**: light gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	
7310 – 7320	30	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, dirty, poor visual porosity, with dark & green grain inclusions.	
	10	**SILTSTONE**: light gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	NF
	60	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite & coal.	
7320 – 7330	20	**SAND:** white, hyaline, translucent, quartzose, 90% fine, 10% medium grains, subangular to subrounded, well sorted, some dark grains.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20	**SANDSTONE:** grayish white, 60% very fine, 20% fine, 20% medium grains, subrounded, fair sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions.	NF
	10	**SILTSTONE**: light gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty in part. Acc: traces massive calcite, coal & shell fragment.	
7330 – 7340	20	**SANDSTONE:** grayish white, 80% very fine, 20% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, poor visual porosity, with dark & green grain inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty in part. Acc: traces massive calcite, coal & shell fragment.	
7340 – 7350	10	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, poor visual porosity, with dark & green grain inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	NF
	80	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, occasionally subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: traces massive calcite & shell fragment.	
7350 – 7360	10	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, poor visual porosity, with dark & green grain inclusions.	
	20	**SILTSTONE**: light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	NF
	70	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, occasionally subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, rough surface. Acc: traces massive calcite & shell fragment.	
7360 – 7370	10	**SAND:** white, hyaline, translucent, quartzose, 90% fine, 10% medium grains, subangular to subrounded, well sorted, some dark grains.	
	10	**SANDSTONE:** grayish white, 60% very fine, 20% fine, 20% medium grains, subrounded, fair sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions.	NF
	20	**SILTSTONE**: light gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite, coal & shell fragment.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7370 – 7380	10	**SANDSTONE:** grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, poor visual porosity, with dark & green grain inclusions.	
	10	**SILTSTONE**: light gray, gray, subblocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions, sandy	NF
	80	**CLAYSTONE:** gray, brownish gray, subblocky to subplaty in part, slightly firm, non calcareous, micromicaceous, micro carbonaceous, rough surface. Acc: traces massive calcite.	
7380 – 7390	20	**SAND:** white, hyaline, translucent, quartzose, 90% fine, 10% medium grains, subangular to subrounded, well sorted, some dark grains.	
	20	**SANDSTONE:** grayish white, 80% very fine, 20% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE**: light gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite & pyrite.	
7390 – 7400	10	**SAND:** white, hyaline, translucent, quartzose, 90% fine, 10% medium grains, subangular to subrounded, well sorted, some dark & smoky grains.	
	20	**SANDSTONE:** grayish white, 80% very fine, 20% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE**: light gray, subblocky to blocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, subblocky , slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface, occasionally silty. Acc: traces massive calcite.	
7400 – 7410	20	**SAND:** white, hyaline, translucent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark & smoky grains.	
	30	**SANDSTONE:** grayish white, 70% very fine, 30% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	5
	10	**SILTSTONE**: light gray, subblocky to blocky, moderately soft, slightly calcareous to calcareous, micromicaceous, micro carbonaceous, locally laminar coal inclusions.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface, occasionally silty. Acc: traces massive calcite.	
7410 – 7420	20	**SAND:** white, hyaline, translucent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark & smoky grains.	
	40	**SANDSTONE:** grayish white, 70% very fine, 30% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	10
	40	**CLAYSTONE:** gray, brownish gray, subblocky , subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous. Acc: traces massive calcite, shell fragment & coal.	
7420 – 7430	10	**SAND:** white, hyaline, translucent, quartzose, 90% fine, 10% medium grains, subangular to subrounded, well sorted, some dark & smoky grains.	
	30	**SANDSTONE:** grayish white, 90% very fine, 10% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE**: light gray, subblocky to blocky, moderately soft, slightly calcareous to calcareous, micromicaceous, microcarbo naceous, laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous. Acc: traces massive calcite.	
7430 – 7440	30	**SANDSTONE:** grayish, grayish white, 80% very fine, 20% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, poor visual porosity, with dark & green grain inclusions. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous to calcareous, micromicaceous, microcarbonaceous, sandy laminar coal inclusions.	
	60	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite & pyrite.	
7440 – 7450	10	**SAND:** white, hyaline, translucent, quartzose, 90% fine, 10% medium grains, subangular to subrounded, well sorted, some dark grains.	
	50	**SANDSTONE:** grayish, grayish white, 50% very fine, 40% fine, 10% medium grains, subrounded minor subangular, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, poor visual porosity, with dark, green & laminar coal grain inclusions. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	20

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite, massive pyrite & shell fragment.	
7450 – 7460	10	**SAND:** white, hyaline, translucent, quartzose, 50% fine, 50% medium grains, subangular to subrounded, well sorted, some dark grains.	
	60	**SANDSTONE:** grayish, grayish white, 30% very fine, 50% fine, 20% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	30
	30	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite, massive pyrite & shell fragment.	
7460 – 7470	10	**SAND:** white, hyaline, translucent, quartzose, 40% fine, 60% medium grains, subangular to subrounded, well sorted, some dark grains.	
	50	**SANDSTONE:** grayish, grayish white, 30% very fine, 50% fine, 20% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	20
	40	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite, massive pyrite, shell fragment & coal.	
7470 – 7480	20	**SAND:** white, hyaline, translucent, quartzose, 30% fine, 50% medium, 20% coarse grains, subangular to subrounded, fair sorted, some dark grains.	
	50	**SANDSTONE:** grayish, grayish white, 30% very fine, 40% fine, 30% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	25
	30	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, rough surface. Acc: traces massive calcite, massive pyrite, shell fragment & coal.	
7480 – 7490	10	**SAND:** white, hyaline, translucent, quartzose, 40% fine, 50% medium, 10% coarse grains, subangular to subrounded, fair sorted, some dark grains.	
	60	**SANDSTONE:** grayish, grayish white, 30% very fine, 40% fine, 30% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	15
	30	**CLAYSTONE:** gray, light gray, brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7490 – 7500	30	**SAND:** white, hyaline, translucent, quartzose, 50% fine, 40% medium, 10% coarse grains, subangular to subrounded, fair sorted, some dark grains.	
	50	**SANDSTONE:** grayish, grayish white, 20% very fine, 40% fine, 40% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	30
	20	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7500 – 7510	10	**SAND:** white, hyaline, translucent, quartzose, 60% fine, 40% medium grains, subangular to subrounded, well sorted, some dark grains.	
	60	**SANDSTONE:** grayish, grayish white, 30% very fine, 40% fine, 30% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	15
	30	**CLAYSTONE:** gray, light gray, brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7510 – 7530	10	**SAND:** white, hyaline, translucent, quartzose, 70% fine, 30% medium, grains, subangular to subrounded, well sorted, some dark grains.	
	50	**SANDSTONE:** grayish, grayish white, 40% very fine, 40% fine, 20% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	10
	40	**CLAYSTONE:** gray, brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7530 – 7550	50	**SANDSTONE:** grayish, grayish white, 90% very fine, 10% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	5
	50	**CLAYSTONE:** gray, brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface, silty. Acc: traces massive calcite & massive pyrite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7550 – 7560	20	**SAND:** white, hyaline, translucent, quartzose, 20% very fine, 40% fine, 40% medium, grains, subangular to subrounded, well sorted, some dark grains.	
	50	**SANDSTONE:** grayish, grayish white, 50% very fine, 50% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	25
	30	**CLAYSTONE:** brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite, massive pyrite & rare coal.	
7560 – 7570	20	**SAND:** white, hyaline, translucent, quartzose, 20% very fine, 40% fine, 40% medium, grains, subangular to subrounded, well sorted, some dark grains.	
	60	**SANDSTONE:** grayish, grayish white, 50% very fine, 50% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark & green grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	30
	20	**CLAYSTONE:** brownish gray, grayish, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite, massive pyrite & rare coal.	
		NOTE: While drilling at 7572' GCM from 9.9 to 9.7 ppg mud weight raised to 10.5 ppg	
7570 – 7580	40	**SANDSTONE:** light grayish, grayish white, 70% very fine, 30% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark grain & coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, fast moderately strong streaming milky white cut, slightly yellowish white residual ring.	5
	10	**SILTSTONE:** light gray, gray, subblocky to blocky, slightly firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, with coal inclusions, sandy.	
	50	**CLAYSTONE:** brownish gray, medium gray, subblocky to blocky moderately firm, non calcareous, micromicaceous, locally micro carbonaceous, slightly rough surface.	
7580 – 7590	10	**SAND:** white, hyaline, translucent, quartzose, 60% fine, 40% medium, grains, subangular to subrounded, well sorted, few dark grains.	
	30	**SANDSTONE:** grayish, grayish white, 50% very fine, 50% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark & green grain inclusions, poor visual porosity.	NF
	60	**CLAYSTONE:** brownish gray, grayish, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite, massive pyrite & rare coal.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7590 – 7600	40	**SANDSTONE:** grayish, grayish white, 70% very fine, 30% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, non visual residual ring.	5
	10	**SILTSTONE:** light gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, locally with coal inclusions, sandy.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7600 – 7610	50	**SANDSTONE:** grayish, grayish white, 80% very fine, 20% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark grain & laminar coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, non visual residual ring.	5
	10	**SILTSTONE:** light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, locally with coal inclusions, sandy.	
	40	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7610 – 7620	40	**SANDSTONE:** grayish, grayish white, 80% very fine, 20% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, occasionally friable, with dark grain & laminar coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, locally with laminar coal inclusions, sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7620 – 7630	30	**SANDSTONE**: light gray, 100% very fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, with dark grain & laminar coal inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions.	NF
	60	**CLAYSTONE:** brownish gray, minor dark brown, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7630 – 7640	20	**SANDSTONE**: light gray, 100% very fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, with dark grain & laminar coal inclusions, poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	80	**CLAYSTONE:** brownish gray, minor dark brown, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	NF
7640 – 7650	40	**SANDSTONE**: light gray, 30% very fine, 20% fine, 50% medium grains, subrounded to subangular, fair sorted, slightly argillaceous matrix, calcareous cement, moderately hard, with dark grain & laminar coal inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions.	NF
	50	**CLAYSTONE:** brownish gray, minor dark brown, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7650 – 7660	50	**SANDSTONE**: light gray, 50% very fine to fine, 50% medium grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, with dark grain & laminar coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, non visual residual ring.	TR
	50	**CLAYSTONE:** brownish gray, minor dark brown, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7660 – 7670	10	**SAND:** white, hyaline, translucent, quartzose, 70% fine, 30% medium, grains, subangular to subrounded, well sorted, few dark grains.	
	50	**SANDSTONE**: light gray, 50% very fine to fine, 50% medium grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, with dark grain & laminar coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, non visual residual ring.	5
	40	**CLAYSTONE:** brownish gray, minor dark brown, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	
7670 – 7680	50	**SANDSTONE**: light gray, 50% very fine to fine, 50% medium grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, with dark grain & laminar coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	50	**CLAYSTONE**: gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite & massive pyrite.	
7680 – 7690	30	**SANDSTONE**: light gray, 40% very fine to fine, 60% medium grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark, green grain & laminar coal inclusions, poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20 50	**SILTSTONE:** gray, minor light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE**: gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: traces massive calcite & massive pyrite.	NF
7690 – 7700	20 30 50	**SANDSTONE**: light gray, 40% very fine to fine, 60% medium grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark, green grain & laminar coal inclusions, poor visual porosity. **SILTSTONE:** gray, minor light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions. **CLAYSTONE**: gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface with disseminate pyrite inclusions. Acc: traces massive calcite & massive pyrite.	NF
7700 – 7710	20 10 70	**SANDSTONE**: light gray, 70% very fine to fine, 30% medium grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark, green grain & laminar coal inclusions, poor visual porosity. **SILTSTONE:** gray, minor light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE**: gray, brownish gray, subblocky to blocky, locally subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, slightly rough surface, silty. Acc: traces massive calcite & massive pyrite.	NF
7710 – 7740	10 20 70	**SANDSTONE**: light gray, 100% very fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, poor visual porosity. **SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE**: medium gray, brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite.	NF
7740 – 7770	10 10 80	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, poor visual porosity. **SILTSTONE:** light gray, subblocky, firm, slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, **CLAYSTONE**: medium gray, brownish gray, subblocky to blocky slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite.	NF
7770 – 7780	10	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, poor visual porosity.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	90	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite.	
7780 – 7790	10 90	**SILTSTONE:** light gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE**: medium gray, brownish gray, subblocky – blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: traces massive calcite.	NF
7790 – 7800	10 90	**SILTSTONE:** light gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE**: gray, medium gray, brownish gray, subblocky to blocky, subplaty in part, slightly firm, non calcareous, micro micaceous, microcarbonaceous, slightly rough surface, few with laminar coal inclusions. Acc: traces massive calcite.	NF
7800 – 7810	100	**CLAYSTONE**: brown, brownish gray, minor medium gray, subblocky to blocky, subplaty in part, slightly firm, non calcareous, micro micaceous, microcarbonaceous, slightly earthy surface. Acc: traces massive calcite.	NF
7810 – 7820	10 90	**SILTSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly micro carbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE**: gray, medium gray, brownish gray, subblocky to blocky, subplaty in part, slightly firm, non calcareous, micro micaceous, microcarbonaceous, slightly rough surface, few with laminar coal inclusions. Acc: traces massive calcite.	NF
7820 – 7830	20 80	**SANDSTONE**: light gray, minor dirty yellowish, 70% very fine, 30% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, very poor visual porosity. **CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: traces massive calcite.	NF
7830 – 7840	30 10 60	**SANDSTONE**: light gray, minor dirty yellowish, 80% very fine, 20% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, dirty, with dark grain & laminar coal inclusions, very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring. **SILTSTONE:** light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: few massive calcite.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7840 – 7850	30	**SANDSTONE**: light gray, minor dirty yellowish, 80% very fine, 20% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, dirty, very poor visual porosity.	
	10	**SILTSTONE:** light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy.	NF
	60	**CLAYSTONE**: brownish gray, occasionally brown, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: few massive calcite.	
7850 – 7860	40	**SANDSTONE**: light gray, minor dirty yellowish, 80% very fine, 20% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, poor visual porosity.	
	10	**SILTSTONE:** light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy.	NF
	50	**CLAYSTONE**: brownish gray, minor brown, gray, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: few massive calcite & traces massive pyrite.	
7860 – 7870	30	**SANDSTONE**: light gray, grayish white, 50% very fine, 20% fine, 30% medium grains, subrounded, fair sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	20	**SILTSTONE:** light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy.	
	50	**CLAYSTONE**: brownish gray, occasionally brown, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: few massive calcite & traces massive pyrite.	
7870 – 7880	30	**SANDSTONE**: light gray, grayish white, 50% very fine, 20% fine, 30% medium grains, subrounded, fair sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	TR
	10	**SILTSTONE:** light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy.	
	60	**CLAYSTONE**: brownish brown, gray, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty.	
7880 – 7890	20	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy.	
	80	**CLAYSTONE**: brownish gray, minor brown, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & coal.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7890 – 7900	10 90	**SANDSTONE**: light gray, grayish white, 100% very fine grains, subrounded, fair sorted, argillaceous matrix, calcareous cement, moderately hard, friable in part, with dark grain & laminar coal inclusions, poor visual porosity. **CLAYSTONE**: brownish gray, brown, gray, subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface, silty. Acc: traces massive calcite & coal.	NF
SAN CRISTOBAL FM AT 7900'			
7900 – 7930	10 90	**SILTSTONE:** gray, minor light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, slightly microcarbonaceous, sandy. **CLAYSTONE**: brownish, gray, gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: traces massive calcite & coal.	NF
7930 – 7940	100	**CLAYSTONE**: gray, brownish gray, subblocky, blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, smooth surface.	NF
7940 – 7950	10 90	**SILTSTONE:** light gray, gray, subblocky to blocky, moderately soft, firm in part, slightly calcareous, slightly micromicaceous, locally microcarbonaceous. **CLAYSTONE**: brownish gray, medium gray, subblocky to blocky, firm, non calcareous, micromicaceous, microcarbonaceous, slightly silty. Acc: traces massive calcite.	NF
7950 – 7980	100	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, minor subplaty, firm, non calcareous, micromicaceous, locally microcarbonaceous, slightly smooth surface. Acc: traces massive calcite.	NF
7980 – 8010	100	**CLAYSTONE**: gray, brownish gray, occasionally brown, subblocky to blocky, minor subplaty, firm, non calcareous, micromicaceous, locally microcarbonaceous, rough surface, silty in part. Acc: traces massive calcite & massive pyrite.	NF
8010 – 8030	100	**CLAYSTONE**: gray, brownish gray, minor light brown, subblocky to blocky, firm, non calcareous, micromicaceous, microcarbonaceous, slightly earthy surface, silty in part. Acc: traces massive calcite & rare coal.	NF
8030 – 8060	10 90	**SILTSTONE:** light gray, gray, occasionally brownish gray, subblocky moderately soft to firm, slightly calcareous, slightly micromicaceous, locally microcarbonaceous, sandy. **CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, slightly soft, non calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions, silty in part. Acc: traces massive calcite.	NF
8060 – 8090	100	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, few laminar coal inclusions, moderately rough surface. Acc: traces massive calcite.	NF
8090 – 8120	100	**CLAYSTONE**: brownish gray, medium gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, moderately rough surface. Acc: traces massive calcite & rare coal.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8120 – 8150	100	**CLAYSTONE**: brownish gray, medium gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, moderately rough surface. Acc: traces massive calcite & rare coal.	NF
8150 – 8180	100	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, few with laminar coal inclusions, moderately rough surface. Acc: traces massive calcite, rare coal & massive pyrite.	NF
8180 – 8210	100	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, few with laminar coal inclusions, rough surface. Acc: traces massive calcite & rare massive pyrite.	NF
8210 – 8240	100	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, occasionally subplaty, moderately firm, minor soft non calcareous, micro micaceous, microcarbonaceous, few with laminar coal inclusions, rough surface. Acc: traces massive calcite & rare coal grains.	NF
8240 – 8270	100	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, occasionally subplaty, moderately firm, minor soft non calcareous, micro micaceous, microcarbonaceous, few with laminar coal inclusions, rough surface. Acc: traces massive calcite & rare coal grains.	NF
8270 – 8300	100	**CLAYSTONE**: gray, minor brownish gray, subblocky, occasionally subplaty, moderately firm, minor soft non calcareous, very micro micaceous, microcarbonaceous, rough surface, silty. Acc: traces massive calcite & rare coal grains.	NF
8300 – 8320	100	**CLAYSTONE**: gray, minor brownish gray, subblocky, subplaty in part, moderately firm, minor soft non calcareous, very micro micaceous, microcarbonaceous, rough surface, silty. Acc: traces massive calcite.	NF
8320 – 8340	100	**CLAYSTONE**: gray, minor brownish gray, subblocky, subplaty in part, moderately firm, minor soft non calcareous, very micro micaceous, microcarbonaceous, rare with laminar coal, silty. Acc: traces massive calcite.	NF
8340 – 8350	30 70	**SANDSTONE**: light gray, grayish white, 90% very fine, 10% fine, grains, subrounded, well sorted, slightly argillaceous matrix, very calcareous cement, moderately hard, friable in part, dirty in part, with laminar coal inclusions, poor visual porosity. **CLAYSTONE**: gray, minor slightly dark gray, brownish gray, subblocky, subplaty in part, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite & coal grains.	NF
8350 – 8360	20 80	**SANDSTONE**: light gray, grayish white, 90% very fine, 10% fine, grains, subrounded, well sorted, slightly argillaceous matrix, very calcareous cement, moderately hard, friable in part, dirty in part, with laminar coal inclusions, poor visual porosity. **CLAYSTONE**: gray, occasionally slightly dark gray & brownish gray, subblocky, subplaty in part, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal, silty. Acc: traces massive calcite & coal grains.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8360 – 8370	10 90	**SANDSTONE**: light gray, grayish white, 90% very fine, 10% fine, grains, subrounded, well sorted, slightly argillaceous matrix, very calcareous cement, moderately hard, friable in part, dirty in part, with laminar coal inclusions, poor visual porosity. **CLAYSTONE**: gray, occasionally slightly dark gray & brownish gray, subblocky, subplaty in part, soft to moderately firm, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal, silty. Acc: some coal grains & traces massive calcite.	NF
8370 – 8400	100	**CLAYSTONE**: gray, occasionally slightly dark gray, subblocky to subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal, silty. Acc: some coal grains & traces massive calcite.	NF
8400 – 8430	100	**CLAYSTONE**: gray, occasionally slightly dark gray, subblocky to subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, rare with laminar coal, silty. Acc: traces massive calcite & coal grains.	NF
8430 – 8460	100	**CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to blocky, moderately firm, very slightly calcareous, very micro micaceous, microcarbonaceous, slightly earthy surface. Acc: traces massive calcite & rare coal grains.	NF
8460 – 8490	100	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately soft, non calcareous, very micromicaceous, microcarbonaceous, slightly rough surface, locally silty. Acc: traces massive calcite & rare coal grains.	NF
8490 – 8520	100	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, micro carbonaceous, slightly rough surface. Acc: traces massive calcite.	NF
8520 – 8540	100	**CLAYSTONE**: gray, medium gray, subblocky to blocky, subplaty in part, moderately firm to firm, non calcareous, very micromicaceous, microcarbonaceous, rough surface, silty in part. Acc: traces massive calcite.	NF
8540 – 8560	100	**CLAYSTONE**: gray, medium gray, subblocky to blocky, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, rough surface, silty in part. Acc: traces massive calcite.	NF
8560 – 8580	10 90	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, slightly micromicaceous, locally microcarbonaceous, sandy. **CLAYSTONE**: gray, medium gray, subblocky to blocky, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, rough surface, silty in part. Acc: traces massive calcite & coal grains.	NF
8580 – 8610	100	**CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to blocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, rough surface.	NF
8610 – 8620	20 80	**SILTSTONE:** gray, subblocky, moderately firm, slightly calcareous, slightly micromicaceous, locally microcarbonaceous, sandy. **CLAYSTONE**: gray, medium gray, minor dark gray, subblocky to blocky, subplaty in part, moderately firm, non calcareous, micro micaceous, occasionally microcarbonaceous, rough surface, silty. Acc: traces massive calcite, coal & rare pyrite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8620 – 8640	10 90	**SILTSTONE:** gray, minor light gray, subblocky, slightly firm, slightly calcareous, micromicaceous, locally microcarbonaceous, few with coal inclusions, sandy. **CLAYSTONE**: gray, medium gray, subblocky to blocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, locally microcarbonaceous, rough surface.	NF
8640 – 8670	100	**CLAYSTONE**: gray, medium gray, subblocky to blocky, subplaty in part, moderately firm, occasionally fissible, non calcareous, very micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite.	NF
8670 – 8690	100	**CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to subplaty in part, moderately soft, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface. Acc: traces massive calcite.	NF
8690 – 8710	100	**CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface, silty. Acc: traces massive calcite & rare pyrite.	NF
8710 – 8730	20 80	**SANDSTONE**: gray, grayish white, 90% very fine, 10% fine, grains, subrounded, well sorted, slightly argillaceous matrix, very calcareous cement, moderately hard, friable in part, dirty in part, with dark grain & coal inclusions, poor visual porosity. **CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface, silty. Acc: traces massive calcite & rare coal grains.	NF
8730 – 8740	20 80	**SANDSTONE**: gray, grayish white, 90% very fine, 10% fine, grains, subrounded, well sorted, slightly argillaceous matrix, very calcareous cement, moderately hard, friable in part, dirty in part, with dark grain & coal inclusions, poor visual porosity. **CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to subplaty, moderately soft, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface, silty. Acc: traces massive calcite & rare coal grains.	NF
8740 – 8750	10 20 70	**SAND:** hyaline, white, translucent, quartzose, 100% fine grains, subangular to subrounded, well sorted, few dark grains. **SANDSTONE**: light gray, 90% very fine, 10% fine grains, subrounded, well sorted, slightly argillaceous matrix, calcareous cement, moderately friable, slightly dirty, with dark, green grain & coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, non visual residual ring. **CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface. Acc: traces massive calcite & rare massive pyrite.	10
8750 – 8760	20 30	**SAND:** hyaline, white, translucent, quartzose, 30% fine, 40% medium, 30% coarse grains, subangular to subrounded, fair sorted, few dark grains. **SANDSTONE**: light gray, grayish white, 70% very fine, 20% fine, 10% medium grains, subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, moderately friable, locally clean, with dark, green grain & coal inclusions, poor visual porosity.	25

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, non visual residual ring.	
	50	**CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, moderately rough surface.	
8760 – 8770	20	**SAND:** hyaline, white, translucent, quartzose, 20% fine, 50% medium, 30% coarse grains, subangular to subrounded, fair sorted, moderately hackly, few dark grains.	
	30	**SANDSTONE**: light gray, grayish white, 60% very fine, 20% fine, 20% medium grains, subrounded, fair sorted, argillaceous matrix, calcareous cement, moderately friable, locally clean, with dark, green grain & coal inclusions, poor visual porosity.	25
		Fluorescence: slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, non visual residual ring.	
	50	**CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, moderately rough surface.	
		Acc: traces massive calcite, rare massive pyrite & coal grains.	
8770 – 8780	20	**SANDSTONE**: light gray, grayish white, 50% very fine, 50% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, slightly dirty, with dark, green grain & coal inclusions, poor visual porosity.	TR
		Fluorescence: slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, non visual residual ring.	
	80	**CLAYSTONE**: gray, medium gray, brownish gray, subblocky, subplaty in part, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface.	
		Acc: traces massive calcite, rare massive pyrite & coal grains.	
8780 – 8790	10	**SANDSTONE**: light gray, grayish white, 50% very fine, 50% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately friable, slightly dirty, with dark, green grain & coal inclusions, poor visual porosity.	TR
		Fluorescence: slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, non visual residual ring.	
	90	**CLAYSTONE**: gray, medium gray, brownish gray, subblocky, subplaty in part, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface.	
8790 – 8800	100	**CLAYSTONE**: gray, medium gray, subblocky, subplaty in part, slightly firm, non calcareous, micromicaceous, microcarbonaceous, rough surface.	NF
		Acc: traces massive calcite & coal grains.	
8800 – 8810	10	**SILTSTONE:** gray, subblocky, slightly soft, slightly calcareous, micro micaceous, microcarbonaceous, few with coal inclusions, sandy.	
	90	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous.	NF
		Acc: traces massive calcite & coal grains.	
8810 – 8840	100	**CLAYSTONE**: gray, medium gray, occasionally brownish gray, subblocky to subplaty, slightly firm, non calcareous, micromicaceous, microcarbonaceous, slightly silty.	NF
		Acc: traces massive calcite & coal grains.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8840 – 8870	100	**CLAYSTONE**: grayish brown, minor brownish, subblocky to subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	NF
8870 – 8900	100	**CLAYSTONE**: grayish brown, minor brownish to subblocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	NF
8900 – 8910	10 90	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, moderately hard, slightly dirty, with dark grain inclusions, poor visual porosity. **CLAYSTONE**: grayish brown, brownish, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	NF
8910 – 8920	40 60	**SANDSTONE**: grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, with dark grain inclusions, very poor visual porosity. **CLAYSTONE**: grayish brown, brownish, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	NF
8920 – 8930	40 60	**SANDSTONE**: grayish white, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, with dark grain inclusions, very poor visual porosity. **CLAYSTONE**: grayish brown, brownish, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	NF
8930 – 8940	20 80	**SANDSTONE**: grayish, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark grain inclusions, very poor visual porosity. **CLAYSTONE**: gray, brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty	NF
8940 – 8950	10 90	**SANDSTONE**: grayish, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly friable, with dark grain inclusions, very poor visual porosity. **CLAYSTONE**: gray, brownish gray, subblocky to blocky, occasionally subplaty, slightly firm, non calcareous, micromicaceous, micro carbonaceous, locally silty. Acc: traces massive calcite & rare coal grains.	NF
8950 – 8970	10 90	**SILTSTONE:** gray, light gray, subblocky, slightly soft, slightly calcareous, micromicaceous, microcarbonaceous, sandy in part. **CLAYSTONE**: gray, brownish gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. Acc: traces massive calcite & rare coal grains.	NF
8970 – 8980	100	**CLAYSTONE**: gray, brownish gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, locally silty. Acc: traces massive calcite, rare coal grains & massive pyrite.	NF
8980 – 8990	10 90	**SILTSTONE:** gray, light gray, subblocky, slightly soft, slightly calcareous, micromicaceous, microcarbonaceous, few with coal inclusions. Sandy in part. **CLAYSTONE**: gray, brownish gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite & rare coal grains.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8990 – 9010	100	**CLAYSTONE**: gray, brownish gray, minor dark gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface.	NF
9010 – 9030	100	**CLAYSTONE**: gray, brownish gray, dark gray, subblocky to blocky, occasionally subplaty moderately firm, non calcareous, micro micaceous, microcarbonaceous, rough surface. Acc: traces massive calcite & rare coal grains.	NF
9030 – 9040	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with coal inclusions. **CLAYSTONE**: gray, dark gray, brownish gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micro micaceous, microcarbonaceous, rough surface. Acc: traces massive calcite & rare coal grains.	NF
9040 – 9050	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with coal inclusions. **CLAYSTONE**: gray, dark gray, brownish gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micro micaceous, microcarbonaceous, rough surface. Acc: traces massive calcite & rare coal grains.	NF
9050 – 9060	100	**CLAYSTONE**: gray, dark gray, brownish gray, subblocky to blocky, subplaty in part, moderately firm, non calcareous, micromicaceous, microcarbonaceous, rough surface. Acc: traces massive calcite & rare coal grains.	NF
9060 – 9070	10 90	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with coal inclusions. **CLAYSTONE**: gray, dark gray, brownish gray, subblocky to blocky, occasionally subplaty, moderately firm, non calcareous, micro micaceous, microcarbonaceous, rough surface.	NF
9070 – 9100	100	**CLAYSTONE**: gray, dark gray, brownish gray, subblocky, subplaty in part, moderately soft to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally silty. Acc: traces massive calcite & coal grains.	NF
9100 – 9130	100	**CLAYSTONE**: gray, medium gray, subblocky to blocky, subplaty in part, moderately firm, non calcareous, micromicaceous, micro carbonaceous, occasionally silty. Acc: traces massive calcite & rare coal grains.	NF
9130 – 9160	100	**CLAYSTONE**: gray, medium gray, subblocky to blocky, subplaty in part, moderately firm, non calcareous, micromicaceous, micro carbonaceous, moderately smooth surface. Acc: traces massive calcite & rare massive pyrite.	NF
9160 – 9190	100	**CLAYSTONE**: gray, medium gray, brownish gray, subblocky to blocky, subplaty in part, moderately firm, non calcareous, micromicaceous, microcarbonaceous, moderately smooth surface. Acc: traces massive calcite & rare coal grains.	NF
9190 – 9210	100	**CLAYSTONE**: gray, brownish gray, subblocky to subplaty, locally firm, non calcareous, very micromicaceous, microcarbonaceous, moderately smooth surface, silty in part. Acc: traces massive calcite & rare coal grains.	NF
BASAL SALINA FM AT 9210'			
9210 – 9220	20	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, argillaceous matrix, non calcareous , friable, dirty, with dark grain inclusions, very poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	80	**CLAYSTONE**: gray, slightly brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	NF
9220 – 9230	10	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, very argillaceous matrix, non calcareous, friable, dirty, with dark grain inclusions, very poor visual porosity.	
	90	**CLAYSTONE**: gray, slightly brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, microcarbonaceous, silty. Acc: traces massive calcite.	NF
9230 – 9240	20	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, very argillaceous matrix, non calcareous, friable, hard in part, dirty, with dark grain inclusions, very poor visual porosity.	
	80	**CLAYSTONE**: gray, slightly brownish gray, subblocky to blocky, slightly firm, non calcareous, micromicaceous, occasionally micro carbonaceous, rare with calcite veins inclusions, silty. Acc: traces massive calcite.	NF
9240 – 9250	20	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, very argillaceous matrix, calcareous cement, friable, hard in part, dirty, with dark grain inclusions, very poor visual porosity.	
	10	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, occasionally microcarbonaceous, sandy.	NF
	70	**CLAYSTONE**: gray, slightly brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, occasionally microcarbonaceous, some with glauconite inclusions, silty.	
9250 – 9260	10	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, very argillaceous matrix, calcareous cement, friable, hard in part, dirty, with dark grain inclusions, very poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, occasionally microcarbonaceous, sandy.	NF
	70	**CLAYSTONE**: gray, slightly brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, occasionally microcarbonaceous, some with glauconite inclusions, silty.	
9260 – 9270	10	**SANDSTONE**: light gray, 100% very fine grains, subrounded, very well sorted, very argillaceous matrix, calcareous cement, friable, hard in part, dirty, with dark grain inclusions, very poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, occasionally microcarbonaceous, sandy.	NF
	70	**CLAYSTONE**: gray, slightly brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, occasionally microcarbonaceous, some with glauconite inclusions, silty. Acc: traces massive calcite.	
9270 – 9290	TR	**SANDSTONE**: light gray, 50% very fine, 50% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, friable, dirty, with dark grain inclusions, very poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, moderately soft, slightly calcareous, micromicaceous, occasionally microcarbonaceous, sandy.	NF
	80	**CLAYSTONE**: gray, slightly brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, occasionally microcarbonaceous, some with glauconite inclusions, silty.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
9290 – 9300	60	**SAND:** hyaline, white, translucent, quartzose, 20% fine, 50% medium, 30% coarse grains, subangular to subrounded, fair sorted, moderately hackle, few dark grains.	
	20	**SANDSTONE**: light gray, 50% very fine, 50% fine grains, subrounded, well sorted, argillaceous matrix, calcareous cement, friable, dirty, with dark grain inclusions, very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately fast slightly strong streaming milky white cut, slightly yellowish white residual ring.	30
	20	**CLAYSTONE**: gray, slightly brownish gray, subblocky, slightly firm, non calcareous, micromicaceous, occasionally microcarbonaceous, some with glauconite inclusions, silty. Acc: traces massive calcite.	
9300 – 9310	20	**SAND:** hyaline, white, transparent, quartzose, 30% fine, 50% medium, 20% coarse grains, subangular minor subrounded, fair sorted, some fractured, few dark % traces smoky grains.	
	40	**SANDSTONE**: whitish, 20% very fine, 50% fine, 30% medium grains, subangular to subrounded, fair sorted, slightly argillaceous matrix, calcareous cement, friable, clean, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderately slow weak streaming milky white cut, slightly yellowish white residual ring.	15
	40	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, micromicaceous, occasionally microcarbonaceous, occasionally with glauconite inclusions. Acc: traces massive calcite, massive pyrite.	
9310 – 9320	TR	**SAND:** hyaline, white, transparent, quartzose, 20% medium, 40% coarse, 40% very coarse grains, subangular, fair sorted, fractured, occasionally dark grains.	
	30	**SANDSTONE**: slightly grayish white, whitish, 70% very fine, 30% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, slightly calcareous some with siliceous cement, hard, tight, occasionally micaceous, with dark grain inclusions, very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	5
	70	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, micromicaceous, occasionally microcarbonaceous, occasionally with glauconite inclusions.	
9320 – 9330	10	**SANDSTONE**: slightly grayish white, whitish, 70% very fine, 30% fine grains, subangular - subrounded, well sorted, argillaceous matrix, calcareous cement, locally siliceous cement, hard, with dark grain inclusions, very poor visual porosity.	NF
	90	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, micromicaceous, occasionally microcarbonaceous, occasionally with glauconite inclusions. Acc: traces massive calcite.	
9330 – 9340	40	**SAND:** hyaline, white, transparent, quartzose, 40% fine, 40% medium, 20% coarse grains, subangular to subrounded, fair sorted, occasionally fractured, occasionally dark & traces smoky grains.	
	20	**SANDSTONE**: grayish white, grayish, 60% very fine, 30% fine, 10% medium grains, subangular to subrounded, fair sorted, slightly	10

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		argillaceous matrix, slightly calcareous some with siliceous cement, hard, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	
	40	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: traces massive calcite, massive pyrite.	
9340 – 9350	10	**SAND:** hyaline, white, transparent, quartzose, 80% fine, 10% medium, 10% coarse grains, subangular to subrounded, fair sorted, occasionally dark & traces smoky grains.	
	20	**SANDSTONE**: grayish, 70% very fine, 20% fine, 10% medium grains, subangular to subrounded, fair sorted, slightly argillaceous matrix, slightly calcareous, hard, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	5
	70	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: traces massive calcite, massive pyrite.	
9350 – 9360	10	**SAND:** hyaline, white, transparent, quartzose, 70% fine, 20% medium, 10% coarse grains, subangular to subrounded, fair sorted, occasionally dark & traces smoky grains.	
	20	**SANDSTONE**: grayish, 70% very fine, 20% fine, 10% medium grains, subangular to subrounded, fair sorted, slightly argillaceous matrix, slightly calcareous, hard, with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish white residual ring.	5
	70	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: traces massive calcite, massive pyrite.	
9360 – 9370	10	**SANDSTONE**: grayish, 100% very fine grains, subrounded, well sorted, argillaceous matrix, calcareous, hard, some dirty, with dark grain inclusions, very poor visual porosity.	
	10	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micromica-ceous, minor microcarbonaceous, some with laminar coal inclusion.	NF
	80	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: traces massive calcite, massive pyrite.	
9370 – 9380	20	**SAND:** hyaline, white, transparent, quartzose, 40% fine, 40% medium, 20% coarse grains, subangular to subrounded, fair sorted, some dark & traces smoky grains.	
	40	**SANDSTONE**: grayish, grayish white, 70% very fine, 30% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, slightly calcareous, moderately hard to hard, slightly dirty, rare with laminar coal inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence,	20

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		moderate slow weak streaming milky white cut, slightly yellowish white residual ring.	
	40	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: traces massive calcite, massive pyrite.	
9380 – 9390	10	**SAND:** hyaline, white, transparent, quartzose, 50% fine, 30% medium, 20% coarse grains, subangular, fair sorted, some dark & traces smoky grains.	
	40	**SANDSTONE**: grayish white, 80% very fine, 20% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, slightly calcareous, moderately hard to hard, slightly dirty, rare with laminar coal inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate slow weak streaming milky white cut, slightly yellowish white residual ring.	20
	50	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: traces massive calcite, massive pyrite, laminar coal.	
9390 – 9400	20	**SAND:** hyaline, white, transparent, quartzose, 30% fine, 30% medium, 30% coarse, 10% very coarse grains, subangular to subrounded, fair sorted, occasionally fractured, some dark & traces smoky grains.	
	40	**SANDSTONE**: grayish white, light gray, 80% very fine, 20% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, slightly calcareous, moderately hard to hard, slightly dirty, rare with laminar coal inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate slow weak streaming milky white cut, slightly yellowish white residual ring.	15
	40	**CLAYSTONE**: gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: few massive calcite, traces massive pyrite, laminar coal.	
9400 – 9410	40	**SAND:** hyaline, white, transparent, quartzose, 20% fine, 30% medium, 30% coarse, 20% very coarse grains, subangular to subrounded, fair sorted, occasionally fractured, some dark & traces smoky grains.	
	20	**SANDSTONE**: grayish white, light gray, 100% very fine grains, subangular to subrounded, well sorted, argillaceous matrix, calcareous, moderately hard, slightly dirty, very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate slow weak streaming milky white cut, slightly yellowish white residual ring.	25
	40	**CLAYSTONE**: brownish gray, gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: few massive calcite, traces massive pyrite, laminar coal.	
9410 – 9420	50	**SAND:** hyaline, white, transparent, quartzose, 20% fine, 20% medium, 40% coarse, 20% very coarse grains, subangular to subrounded, fair sorted, fractured, some dark & traces smoky grains.	
	20	**SANDSTONE**: grayish white, light gray, 100% very fine grains, subangular to subrounded, well sorted, argillaceous matrix,	25

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		calcareous, moderately hard, slightly dirty, very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate slow weak streaming milky white cut, slightly yellowish white residual ring.	
	30	**CLAYSTONE**: brownish gray, gray, slightly dark gray, subblocky minor subplaty, moderately firm, non calcareous, shaly in part, micromicaceous, occasionally microcarbonaceous. Acc: few massive calcite.	
9420 – 9430	60	**CONGLOMERATIC SAND:** hyaline, white, occasionally milky, transparent, quartzose, 20% coarse, 30% very coarse, 50% granules grains, subrounded to rounded, poor sorted, very fractured, 15% light green, dark & smoky grains.	
	10	**SANDSTONE**: white, 20% very fine, 40% fine, 40% medium grains, subangular to subrounded, fair sorted, clean in part, calcareous, some with silicious cement, moderately hard to hard, tight, dark grain inclusion, poor visual porosity. **Fluorescence:** dull yellowish white natural fluorescence, slow weak streaming slightly milky white cut, slightly yellowish white residual ring.	15
	30	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, minor micro carbonaceous.	
9430 – 9440	TR	**CONGLOMERATIC SAND:** hyaline, white, occasionally milky, transparent, quartzose, 20% coarse, 30% very coarse, 50% granules grains, subrounded to rounded, poor sorted, very fractured, 15% light green, dark & smoky grains.	
	30	**SANDSTONE**: grayish white-light gray, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, very calcareous, slightly dirty, moderately hard to friable, micaceous, dark grain inclusion, poor visual porosity. **Fluorescence:** dull yellowish white natural fluorescence, slow weak streaming slightly milky white cut, slightly yellowish white residual ring.	5
	70	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm , non calcareous, micromicaceous, minor micro carbonaceous. Acc: few massive calcite.	
9440 – 9450	50	**SANDSTONE**: whitish, slightly grayish white, 80% very fine, 20% fine grains, subangular to subrounded, well sorted, slightly clean, slightly calcareous, friable & moderately hard, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, yellowish white residual ring.	10
	50	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, minor micro carbonaceous. Acc: traces massive calcite, massive pyrite	
9450 – 9470	20	**SAND:** hyaline, white, transparent, quartzose, 20% fine, 30% medium, 30% coarse, 20% very coarse grains, subangular minor subrounded, fair sorted, some fractured, dark grains.	
	50	**SANDSTONE**: whitish, slightly grayish white, 70% very fine, 20% fine, 10% medium grains, subangular to subrounded, fair sorted, slightly clean, slightly calcareous, moderately hard, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence,	25

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		slow weak streaming milky white cut, yellowish white residual ring.	
	30	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, minor microcarbonaceous. Acc: traces massive pyrite	
		NOTE: After wash out at 9472' while drilling at 9474' GCM from 11.6 to 9.8 ppg mud weight raised to 11.9 ppg, and OCM brownish green color with good fluorescence. 2% oil concentration in mud circulating in the hole.	
9470 – 9480	10	**SAND:** hyaline, white, transparent, quartzose, 40% fine, 30% medium, 30% coarse grains, subangular minor subrounded, fair sorted, some fractured, dark & traces smoky grains.	
	20	**SANDSTONE**: light gray, slightly grayish white, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, argillaceous matrix, slightly calcareous, moderately hard, dark grain inclusion, poor to very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, yellowish white residual ring.	TR
	70	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, minor micro carbonaceous. Acc: traces massive calcite, pyrite	
9480 – 9490	20	**SAND:** hyaline, white, transparent, quartzose, 30% fine, 50% medium, 20% coarse grains, subangular minor subrounded, fair sorted, few fractured, dark & traces smoky grains.	
	20	**SANDSTONE**: slightly grayish white, 80% very fine, 20% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dark grain inclusion, poor to very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, yellowish white residual ring.	10
	60	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, minor micro carbonaceous.	
9490 – 9500	30	**SAND:** hyaline, white, transparent, quartzose, 20% fine, 60% medium, 20% coarse grains, subangular minor subrounded, fair sorted, few fractured, dark & traces smoky grains.	
	30	**SANDSTONE**: slightly grayish white, 80% very fine, 20% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dark grain inclusion, poor to very poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, yellowish white residual ring.	20
	40	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, minor micro carbonaceous. Acc: traces massive calcite, pyrite.	
9500 – 9510	TR	**SAND:** hyaline, white, transparent, quartzose, 20% fine, 60% medium, 20% coarse grains, subangular minor subrounded, fair sorted, few fractured, dark & traces smoky grains.	
	20	**SANDSTONE**: grayish white, grayish, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dark grain inclusion, poor visual porosity.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, yellowish white residual ring.	
	10	**SILTSTONE:** gray, subblocky, soft, slightly calcareous, micromicaceous, microcarbonaceous in part.	
	70	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, minor micro carbonaceous.	
9510 – 9520	20	**SAND:** hyaline, white, transparent, quartzose, 30% fine, 30% medium, 20% coarse, 20% very coarse grains, subangular minor subrounded, fair sorted, few fractured, some dark grains.	
	30	**SANDSTONE**: grayish white, grayish, 60% very fine, 30% fine 10% medium grains, subangular to subrounded, fair sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity.	15
		Fluorescence: slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, yellowish white residual ring.	
	50	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous.	
		Acc: traces massive calcite, massive pyrite	
9520 – 9530	70	**SAND:** hyaline, white, transparent, quartzose, 50% medium, 20% coarse, 20% very coarse, 10% granules grains, subrounded, poor sorted, very fractured, some dark & traces smoky grains.	
	10	**SANDSTONE**: grayish white, grayish, 50% fine, 50% medium grains, subangular to subrounded, fair sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity.	50
		Fluorescence: slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	
	20	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous.	
		Acc: traces massive calcite	
9530 – 9540	50	**SAND:** hyaline, white, transparent, quartzose, 50% medium, 20% coarse, 20% very coarse, 10% granules grains, subrounded, poor sorted, very fractured, some dark & traces smoky, orange grains.	
	20	**SANDSTONE**: grayish white, grayish, 50% fine, 50% medium grains, subangular to subrounded, fair sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity.	30
		Fluorescence: slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	
	30	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm, non calcareous, very micromicaceous, microcarbonaceous.	
		Acc: traces massive calcite.	
9540 – 9550	50	**SAND:** hyaline, white, transparent, quartzose, 50% medium, 30% coarse, 20% very coarse grains, subrounded, fair sorted, fractured, some dark & traces smoky, orange grains.	
	20	**SANDSTONE**: grayish white, grayish, 50% fine, 50% medium grains, subangular to subrounded, fair sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity.	20

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	
	30	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous. Acc: traces massive calcite	
9550 – 9560	50	**SAND:** hyaline, white, transparent, quartzose, 50% medium, 30% coarse, 20% very coarse grains, subrounded minor subangular, fair sorted, fractured, some dark & traces smoky, orange grains.	
	10	**SANDSTONE**: grayish white, grayish, 80% very fine, 20% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	30
	40	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous. Acc: traces massive calcite	
9560 – 9570	60	**SAND:** hyaline, white, transparent, quartzose, 40% medium, 40% coarse, 20% very coarse grains, subrounded minor subangular, fair sorted, fractured, some dark & traces smoky, orange grains.	
	10	**SANDSTONE**: grayish white, grayish, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	50
	30	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm, non calcareous, very micromicaceous, microcarbonaceous.	
9570 – 9580	60	**SAND:** hyaline, white, transparent, quartzose, 40% medium, 40% coarse, 20% very coarse grains, subrounded minor subangular, fair sorted, fractured, some dark & traces smoky, orange grains.	
	10	**SANDSTONE**: grayish white, grayish, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	50
	30	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous. Acc: traces massive calcite, pyrite.	
9580 – 9590	70	**SAND:** hyaline, white, transparent, quartzose, 10% medium, 30% coarse, 30% very coarse, 30% granules grains, subrounded, poor sorted, very fractured, some dark & traces smoky, light green, light red grains.	
	10	**SANDSTONE**: grayish white, grayish, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor	30

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	
	20	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces massive calcite, pyrite.	
9590 – 9600	80	**SAND:** hyaline, white, transparent, quartzose, 10% medium, 30% coarse, 30% very coarse, 30% granules grains, subrounded, poor sorted, very fractured, some dark & traces smoky, light green, light red grains. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	50
	20	**CLAYSTONE**: brownish gray, gray, subblocky to blocky, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous. Acc: traces massive calcite, pyrite.	
9600 – 9610	80	**SAND:** hyaline, white, transparent, quartzose, 20% medium, 30% coarse, 30% very coarse, 20% granules grains, subrounded occasionally rounded, poor sorted, very fractured, some dark & traces smoky, light green, light red grains. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	50
	20	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty.	
		NOTE: Mud Sample taken at 9617' oil presence in mud, brownish green color, yellowish white fluorescence with strong odor to oil.	
9610 – 9620	80	**SAND:** hyaline, white, transparent, quartzose, 20% medium, 30% coarse, 30% very coarse, 20% granules grains, subrounded occasionally rounded, poor sorted, very fractured, some dark & traces smoky, light green, light red grains. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	50
	20	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty.	
9620 – 9630	60	**SAND:** hyaline, white, transparent, quartzose, 20% medium, 30% coarse, 30% very coarse, 20% granules grains, subrounded occasionally rounded, poor sorted, very fractured, some dark & traces smoky, light green, light red grains. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	30
	40	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite, pyrite.	
9630 – 9640	50	**SAND:** hyaline, white, transparent, quartzose, 20% medium, 30% coarse, 30% very coarse, 20% granules grains, subrounded occasionally rounded, poor sorted, very fractured, some dark &	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		traces smoky, light green, light red grains.	
	10	**SANDSTONE**: grayish white, occasionally grayish, 80% very fine, 20% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	25
	40	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty.	
9640 – 9650	70	**SAND:** hyaline, white, transparent, quartzose, 10% medium, 40% coarse, 30% very coarse, 20% granules grains, subrounded, poor sorted, very fractured, some dark & traces smoky, light green, light red grains. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	40
	30	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite	
9650 – 9660	70	**SAND:** hyaline, white, transparent, quartzose, 20% medium, 30% coarse, 40% very coarse, 10% granules grains, subrounded minor subangular, poor sorted, fractured, few dark & traces smoky grains. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	40
	30	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty.	
9660 – 9670	70	**SAND:** hyaline, white, transparent, quartzose, 20% medium, 30% coarse, 30% very coarse, 20% granules grains, subrounded minor subangular, poor sorted, very fractured, some dark & traces smoky grains. **Fluorescence:** slightly bright yellowish white natural fluorescence, moderate fast moderate strong stream milky white cut, yellowish white residual ring.	40
	30	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite	
9670 – 9680	20	**SAND:** hyaline, white, transparent, quartzose, 40% medium, 40% coarse, 20% very coarse grains, subrounded to subangular, fair sorted, occasionally fractured, some dark & traces smoky grains.	
	20	**SANDSTONE**: grayish white, occasionally grayish, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderately hard, dirty in part, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak stream milky white cut, slightly yellowish white residual ring.	TR
	10	**SILTSTONE:** gray occasionally light gray, subblocky, soft, non calcareous, micromicaceous, minor microcarbonaceous.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	50	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite, pyrite	
9680 – 9690	50	**SANDSTONE**: whitish minor slightly grayish white, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly clean, calcareous, friable, occasionally micaceous, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak stream milky white cut, slightly yellowish white residual ring.	TR
	50	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite, pyrite	
9690 – 9700	10	**SANDSTONE**: whitish minor slightly grayish white, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly clean, calcareous, friable, occasionally micaceous, dark grain inclusion, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak stream milky white cut, slightly yellowish white residual ring.	TR
	20	**SILTSTONE:** gray occasionally light gray, subblocky, soft, non calcareous, micromicaceous, minor microcarbonaceous.	
	70	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite	
9700 – 9710	10	**SANDSTONE**: grayish white, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderate hard, dirty, dark grain inclusion, very poor visual porosity.	
	30	**SILTSTONE:** gray, light gray, subblocky, soft, non calcareous, micromicaceous, minor microcarbonaceous.	NF
	60	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite, massive pyrite.	
9710 – 9720	20	**SAND:** hyaline, white, transparent, quartzose, 40% medium, 40% coarse, 20% very coarse grains, subrounded to subangular, fair sorted, occasionally fractured, some dark & traces smoky grains.	
	10	**SANDSTONE**: whitish minor slightly grayish white, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly clean, calcareous, friable, occasionally micaceous, dark grain inclusion, poor visual porosity.	NF
	10	**SILTSTONE:** gray occasionally light gray, subblocky – blocky, soft, slightly firm, non calcareous, micromicaceous, minor micro carbonaceous.	
	60	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite, massive pyrite.	
9720 – 9730	30	**SAND:** hyaline, white, transparent, quartzose, 30% medium, 50% coarse, 20% very coarse grains, subrounded to subangular, fair sorted, occasionally fractured, some dark & traces smoky grains.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20	**SANDSTONE**: grayish white, light gray, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderate hard minor friable, occasionally micaceous, dark grain inclusion, poor visual porosity.	NF
	50	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite, tabular coal	
9730 – 9740	40	**SAND:** hyaline, white, transparent, quartzose, 20% fine, 40% medium, 30% coarse, 10% very coarse grains, subangular to subrounded, fair sorted, scarce fractured, some dark & traces smoky grains.	
	20	**SANDSTONE**: grayish white, light gray, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderate hard minor friable, occasionally micaceous, dark grain inclusion, poor visual porosity.	NF
	40	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: abundant massive calcite, tabular coal	
9740 – 9750	20	**SAND:** hyaline, white, transparent, quartzose, 20% fine, 40% medium, 30% coarse, 10% very coarse grains, subangular to subrounded, fair sorted, fractured, some dark & traces smoky grains.	
	10	**SANDSTONE**: grayish white, light gray, 100% very fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous, moderate hard minor friable, occasionally micaceous, dark grain inclusion, poor visual porosity.	NF
	10	**SILTSTONE:** gray occasionally light gray, subblocky, soft, non calcareous, micromicaceous, minor microcarbonaceous.	
	60	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: abundant massive calcite	
9750 – 9760	60	**SAND:** hyaline, white, transparent, quartzose, 10% medium,40% coarse, 30% very coarse, 20% granules grains, subrounded, poor sorted, very fractured, scarce dark & traces smoky grains.	
	20	**SANDSTONE**: whitish, 60% very fine, 40% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, very calcareous (mud support), moderate hard, dark grain inclusion, poor visual porosity & minor very light brown, 60% very fine, 40% fine, traces medium grain, subangular to subrounded, fair sorted, slightly argillaceous matrix, very calcareous (mud support), moderate hard to hard, dark grain inclusion, very poor visual porosity .	NF
	20	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty. Acc: traces massive calcite, shell fragments	
9760 – 9770	30	**SAND:** hyaline, white, transparent, quartzose, 40% coarse, 30% very coarse, 30% granules grains, subrounded, poor sorted, very fractured, scarce dark & traces smoky grains.	
	20	**SANDSTONE**: whitish, 60% very fine, 40% fine grains, subangular to subrounded, well sorted, slightly argillaceous matrix, very calcareous (mud support), moderate hard, dark grain inclusion, poor visual porosity & minor very light brown, 60% very fine, 40% fine,	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		traces medium grain, subangular to subrounded, fair sorted, slightly argillaceous matrix, very calcareous (mud support), moderate hard to hard, dark grain inclusion, very poor visual porosity .	
	50	**CLAYSTONE**: brownish gray, gray, subblocky minor subplaty, moderately firm to firm, non calcareous, very micromicaceous, minor microcarbonaceous, occasionally silty.	
		Acc: traces massive calcite	
9770 –9780	10	**SANDSTONE**: gray, light gray, 100% very fine grains, well sorted, argillaceous matrix, slightly calcareous, moderate hard, dirty, dark grain inclusion, very poor visual porosity.	
	10	**SILTSTONE:** gray occasionally light gray, subblocky, soft, non calcareous, micromicaceous, minor microcarbonaceous.	NF
	80	**CLAYSTONE**: brownish gray, gray, subplaty to subblocky, moderately firm, non calcareous, very micromicaceous, minor microcarbonaceous, silty.	
		Acc: traces massive calcite	
9780 – 9785	20	**SANDSTONE**: gray, light gray, 100% very fine grains, well sorted, argillaceous matrix, slightly calcareous, moderate hard, dirty, dark grain inclusion, very poor visual porosity.	
	10	**SILTSTONE:** gray occasionally light gray, subblocky, soft, non calcareous, micromicaceous, minor microcarbonaceous.	NF
	70	**CLAYSTONE**: brownish gray, gray, subplaty to subblocky, moderately firm, non calcareous, very micromicaceous, minor microcarbonaceous, silty.	
		Acc: traces massive calcite	
		Drilling stopped at 9790' M.D on April 16th, 2001 due to kick off, with 1850 psi in lines, well on production.	

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PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
560 - 650	BK	23	23					TALARA
650 - 670	FM	41	41					TALARA
670 - 750	FM	22	22					TALARA
750 - 850	FM	36	36					TALARA
850 - 980	FM	24	24					TALARA
980 - 1060	FM	66	66					TALARA
1060 - 1220	FM	135	135					TALARA
1220 - 1400	FM	150	150					TALARA
1400 - 1540	FM	414	414					TALARA
1540 - 1600	FM	580	580					TALARA
1600 - 1650	FM	761	761					TALARA
1650 - 1690	FM	1330	1222	54				TALARA
1690 - 1703	FM	542	542					TALARA
1703 - 1720	FM	140	140					TALARA
1720 - 1800	FM	225	225					TALARA
1800 - 1806	FM	1680	1600	40				TALARA
1806 - 1823	FM	8093	7607	183	24	12		TALARA
1806 - 1833	FM	2530	2406	62				TALARA
1833 - 1846	FM	1068	1068					TALARA
1846 - 1856	FM	1861	1785	38				TALARA
1856 - 1873	FM	140	140					TALARA
1873 - 1888	FM	414	414					TALARA
2216 - 2243	FM	338	338					TALARA
2243 - 2254	FM	686	686					TALARA
2254 - 2268	FM	2437	2249	76	12			TALARA
2268 - 2275	FM	138	138					TALARA
2275 - 2307	FM	240	240					TALARA
2307 - 2320	FM	449	449					TALARA
2320 - 2337	FM	4096	3865	93	15			TALARA
2337 - 2350	FM	1601	1499	33	12			TALARA
2350 - 2376	FM	812	812					TALARA
2376 - 2383	FM	1929	1835	47				TALARA
2383 - 2396	FM	4011	3612	114	19	16	10	TALARA
2396 - 2405	FM	6225	5765	142	0	29	12	TALARA
2405 - 2417	FM	2856	2406	185	0	20		TALARA
2417 - 2431	FM	2020	1830	71	0	12		TALARA
2431 - 2440	FM	3613	3371	91	0	15		TALARA

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PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
2440 - 2471	FM	904	661	33	13	22	10	TALARA
2471 - 2484	FM	3149	2249	114	50	93	30	TALARA
2484 - 2523	FM	1210	1068	71				TALARA
2523 - 2579	FM	2882	2579	58	16	21	11	TALARA
2579 - 2591	FM	1063	933	65				TALARA
2591 - 2636	FM	2995	2518	121	22	26	13	TALARA
2536 - 2664	FM	4151	3376	150	44	47	31	TALARA
2664 - 2692	FM	2550	2102	99	23	29	13	TALARA
2692 - 2718	FM	8874	7607	316	62	76	29	TALARA
2718 - 2759	FM	26721	19630	1143	367	581	276	TALARA
2759 - 2822	FM	6766	5068	240	106	130	76	TALARA
2822 - 2844	FM	3226	2949	106	0	0	13	CHACRA
2844 - 2877	FM	932	932					CHACRA
2877 - 2887	FM	443	443					CHACRA
2887 - 2903	FM	1005	815	18	11	14	13	CHACRA
2903 - 2943	FM	664	664					CHACRA
2943 - 2987	FM	339	339					CHACRA
2987 - 3005	FM	761	761					CHACRA
3005 - 3024	FM	9267	7607	338	87	122	47	CHACRA
3024 - 3036	FM	974	974					CHACRA
3036 - 3151	FM	218	218					CHACRA
3151 - 3206	FM	128	128					CHACRA
3206 - 3236	FM	212	212					CHACRA
3236 - 3359	FM	148	148					CHACRA
3359 - 3389	FM	386	386					CHACRA
3389 - 3419	FM	101	101					CHACRA
3419 - 3450	FM	443	443					CHACRA
3450 - 3474	FM	101	101					CHACRA
3474 - 3508	FM	258	258					CHACRA
3508 - 3524	FM	5511	2406	443	183	275	114	CHACRA
3524 - 3584	FM	2156	1715	76	36	24	17	CHACRA
3584 - 3662	FM	1371	1142	50	12	17	5	CHACRA
3662 - 3734	FM	2234	1964	99	24			CHACRA
3734 - 3756	FM	106	106					CHACRA
3756 - 3793	FM	1073	932	36	5	11	2	CHACRA
3793 - 3822	FM	1576	1308	62	16	19	4	CHACRA
3822 - 3836	FM	578	542	18				CHACRA

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PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
3836 - 3865	FM	1627	1400	62	13	11	4	CHACRA
3865 - 3937	FM	770	664	50	2			CHACRA
3937 - 3990	FM	861	761	47	2			CHACRA
3990 - 4033	FM	1225	998	38	12	15	11	CHACRA
4033 - 4049	FM	2050	1603	81	22	31	19	CHACRA
4049 - 4152	FM	94	94					CHACRA
4152 - 4165	FM	261	261					CHACRA
4165 - 4218	FM	2310	1932	81	17	25	13	CHACRA
4218 - 4285	FM	1379	1143	41	13	15	11	CHACRA
4285 - 4326	FM	1790	1498	58	15	19	11	CHACRA
4326 - 4341	FM	6101	4736	258	91	99	36	CHACRA
4341 - 4358	FM	1652	1400	54	11	14	11	CHACRA
4358 - 4368	FM	3995	3155	183	41	54	27	CHACRA
4368 - 4390	FM	1684	1404	66	11	15	11	CHACRA
4390 - 4409	FM	4639	3612	196	62	81	25	CHACRA
4409 - 4435	FM	1334	1068	44	14	19	12	CHACRA
4435 - 4467	FM	2805	2245	106	29	44	17	CHACRA
4467 - 4484	FM	59	59					CHACRA
4484 - 4496	FM	12237	8650	711	210	275	87	CHACRA
4496 - 4517	FM	2783	2050	140	44	54	21	CHACRA
4517 - 4532	FM	18776	11418	1222	814	443	140	CHACRA
4532 - 4550	FM	1104	684	50	45	20	21	CHACRA
4550 - 4599	FM	1273	711	54	50	31	36	RIO BRAVO
4599 - 4614	FM	2541	1308	149	99	87	58	RIO BRAVO
4614 - 4626	FM	211	87	29	12	5	2	RIO BRAVO
4626 - 4646	FM	1800	998	99	66	54	38	RIO BRAVO
4646 - 4708	FM	1006	580	66	36	24	18	RIO BRAVO
4708 - 4741	FM	369	301	19	10			RIO BRAVO
4741 - 4760	FM	138	138					RIO BRAVO
4760 - 4801	FM	378	277	31	13			RIO BRAVO
4801 - 4814	FM	78	78					RIO BRAVO
4814 - 4884	FM	350	258	25	14			RIO BRAVO
4884 - 4896	FM	638	580	29				RIO BRAVO
4896 - 4903	FM	240	240					RIO BRAVO
4903 - 4969	FM	1809	1223	122	54	25	16	RIO BRAVO
4969 - 5022	FM	1063	712	75	29	16	10	RIO BRAVO
5022 - 5084	FM	7885	5802	474	171	93	50	RIO BRAVO

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PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
5084 - 5140	FM	5198	3155	414	183	99	54	RIO BRAVO
5140 - 5187	FM	5925	3865	337	196	122	62	RIO BRAVO
5187 - 5296	FM	2297	1498	140	66	44	29	RIO BRAVO
5296 - 5369	FM	3346	2249	183	93	58	44	RIO BRAVO
5369 - 5402	FM	6530	4736	386	171	76	41	RIO BRAVO
5402 - 5430	FM	2525	1603	149	81	54	33	RIO BRAVO
5430 - 5464	FM	16317	7109	933	761	711	443	RIO BRAVO
5464 - 5511	FM	28529	17140	1223	933	761	620	RIO BRAVO
5511 - 5531	FM	6526	3865	0	257	225	198	RIO BRAVO
5531 - 5556	FM	55501	38621	0	2575	1400	711	RIO BRAVO
5556 - 5571	FM	4349	2948	0	150	114	99	RIO BRAVO
5571 - 5637	FM	13796	10671	0	414	257	171	RIO BRAVO
5637 - 5668	FM	4864	2755	0	225	196	130	RIO BRAVO
5668 - 5689	FM	1929	932	0	87	89	76	RIO BRAVO
5689 - 5798	FM	2458	1222	0	88	93	120	RIO BRAVO
5798 - 5810	FM	2531	1308	0	114	99	97	RIO BRAVO
5810 - 5853	FM	40794	13990	0	4136	1964	1308	RIO BRAVO
5853 - 5860	FM	365348	183245	0	27531	13990	8710	RIO BRAVO
5860 - 5894	FM	42315	21000	0	2755	1835	1142	RIO BRAVO
5894 - 5946	FM	23299	7710	0	1303	1535	1108	RIO BRAVO
5946 - 5954	FM	85170	47317	730	4956	2755	2101	RIO BRAVO
5954 - 5980	FM	27633	9972	0	3376	932	761	RIO BRAVO
5980 - 5999	FM	942	391	0	11	57	58	RIO BRAVO
5999 - 6012	FM	1027	507	81	12	33	38	RIO BRAVO
6012 - 6023	FM	1970	1222	92	22	47	62	RIO BRAVO
6023 - 6040	FM	821	410	21	18	20	47	RIO BRAVO
6040 - 6076	FM	2821	1850	150	0	54	91	RIO BRAVO
6076 - 6088	FM	3415	2249	165	62	55	86	RIO BRAVO
6088 - 6103	FM	1212	761	50	21	27	36	RIO BRAVO
6103 - 6141	FM	15949	9972	998	928	183	93	RIO BRAVO
6141 - 6166	FM	956	761	47	19	11		RIO BRAVO
6166 - 6233	FM	15899	10671	1068	474	240	142	RIO BRAVO
6223 - 6261	FM	7129	4165	540	238	160	106	PALEGREDA
6261 - 6286	FM	442	210	0	21	16	21	PALEGREDA
6286 - 6308	FM	6451	3612	0	621	149	76	PALEGREDA
6308 - 6328	FM	1973	1222	0	0	99	71	PALEGREDA
6328 - 6335	FM	6652	4150	0	316	226	130	PALEGREDA

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PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
6335 - 6357	FM	1522	871	0	60	54	51	PALEGREDA
6357 - 6410	FM	9792	1964	664	490	580	542	PALEGREDA
6410 - 6415	FM	2912	510	190	81	171	219	PALEGREDA
6415 - 6441	FM	6487	1222	105	631	443	278	PALEGREDA
6441 - 6476	FM	3372	930	0	93	312	183	PALEGREDA
6476 - 6541	FM	3284	1650	0	48	210	130	PALEGREDA
6541 - 6567	FM	2253	1085	0	26	130	114	PALEGREDA
6567 - 6575	FM	5145	3865	0	58	114	130	PALEGREDA
6575 - 6586	FM	1943	871	196	30	65	66	PALEGREDA
6586 - 6617	FM	3868	2949	0	27	87	98	PALEGREDA
6617 - 6670	FM	2553	1861	0	26	76	62	PALEGREDA
6670 - 6681	FM	1544	1222	0	17	29	31	PALEGREDA
6681 - 6747	FM	3352	2756	106	29	33	33	PALEGREDA
6747 - 6765	FM	2107	1715	93	21	17	15	PALEGREDA
6765 - 6804	FM	3384	2755	140	47	22	24	PALEGREDA
6804 - 6826	FM	1299	998	58	24	12	13	PALEGREDA
6826 - 6871	FM	4075	2755	210	122	71	50	PALEGREDA
6871 - 6893	FM	931	665	36	18	15	16	PALEGREDA
6893 - 6914	FM	368	338	15				PALEGREDA
6914 - 6953	FM	1058	810	41	14	11	16	PALEGREDA
6953 - 6962	FM	3514	2755	149	54	41	27	PALEGREDA
6962 - 6985	FM	1429	1143	62	16	11	14	PALEGREDA
6985 - 7048	FM	736	621	41	11			MOGOLLON
7048 - 7062	FM	3796	3155	160	20	29	29	MOGOLLON
7062 - 7156	FM	538	478	30				MOGOLLON
7156 - 7244	FM	772	664	36	12			MOGOLLON
7244 - 7298	FM	439	389	25				MOGOLLON
7298 - 7334	FM	1700	1143	93	54	31	17	MOGOLLON
7334 - 7379	FM	472	414	26	2			MOGOLLON
7379 - 7406	FM	12940	10671	665	197	62	20	MOGOLLON
7406 - 7422	FM	1041	872	58	15	2		MOGOLLON
7422 - 7465	FM	5981	4736	338	114	38	15	MOGOLLON
7465 - 7504	FM	38938	31523	2102	711	197	58	MOGOLLON
7504 - 7531	FM	2315	1836	107	44	17	13	MOGOLLON
7531 - 7565	FM	56583	47318	2407	872	295	131	MOGOLLON
7565 - 7572	FM	85407	72034	3549	1285	455	120	MOGOLLON
7572 - 7579	FM	3003	2101	122	62	63	44	MOGOLLON

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PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
7579 - 7582	FM	40598	36098	1308	338	140	62	MOGOLLON
7582 - 7587	FM	2449	1603	106	62	62	40	MOGOLLON
7587 - 7596	FM	29507	25729	1068	316	106	54	MOGOLLON
7596 - 7616	FM	3520	2755	130	54	47	31	MOGOLLON
7616 - 7638	FM	1742	1172	87	33	38	29	MOGOLLON
7638 - 7644	FM	111995	25730	7150	3158	14989	507	MOGOLLON
7644 - 7671	FM	1609	1223	71	22	22	18	MOGOLLON
7671 - 7687	FM	71623	36525	6643	3865	1603	761	MOGOLLON
7687 - 7728	FM	1051	665	50	25	29	19	MOGOLLON
7728 - 7735	FM	16068	12218	761	338	196	106	MOGOLLON
7735 - 7827	FM	1338	761	58	44	41	33	MOGOLLON
7827 - 7836	FM	8521	5802	386	240	183	99	MOGOLLON
7836 - 7859	FM	1649	1268	62	25	18	22	MOGOLLON
7859 - 7865	FM	12985	9770	761	275	122	76	MOGOLLON
7865 - 7891	FM	1451	933	91	27	25	31	MOGOLLON
7891 - 7897	FM	103162	36093	13990	6643	3155	1308	MOGOLLON
7897 - 7923	FM	1103	711	54	26	24	22	SAN CRISTOBAL
7923 - 7938	FM	3679	2102	258	149	81	58	SAN CRISTOBAL
7938 - 7945	FM	5984	2592	414	338	225	130	SAN CRISTOBAL
7945 - 7971	FM	1591	761	106	71	50	41	SAN CRISTOBAL
7971 - 7978	FM	3423	1603	240	149	122	81	SAN CRISTOBAL
7978 - 8000	FM	1931	871	122	99	71	47	SAN CRISTOBAL
8000 - 8009	FM	5217	3865	196	122	81	54	SAN CRISTOBAL
8009 - 8029	FM	1963	1142	106	71	54	36	SAN CRISTOBAL
8029 - 8035	FM	4967	3612	240	122	76	41	SAN CRISTOBAL
8035 - 8045	FM	1978	1068	130	76	58	38	SAN CRISTOBAL
8045 - 8062	FM	3105	2102	160	87	58	38	SAN CRISTOBAL
8062 - 8066	FM	5723	4427	240	99	71	47	SAN CRISTOBAL
8066 - 8094	FM	2432	1603	130	71	44	36	SAN CRISTOBAL
8094 - 8097	FM	15526	13990	275	114	76	68	SAN CRISTOBAL
8097 - 8131	FM	2493	1836	114	50	36	27	SAN CRISTOBAL
8131 - 8137	FM	18180	14970	814	196	171	62	SAN CRISTOBAL
8137 - 8157	FM	2638	1964	114	49	36	31	SAN CRISTOBAL
8157 - 8194	FM	5405	3865	338	122	62	50	SAN CRISTOBAL
8194 - 8222	FM	1607	1143	93	30	22	20	SAN CRISTOBAL
8222 - 8236	FM	12045	9973	543	196	62	30	SAN CRISTOBAL
8236 - 8284	FM	1195	872	51	22	15	19	SAN CRISTOBAL

GEOIL™

PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
8284 - 8341	FM	1205	882	62	23	15	14	SAN CRISTOBAL
8341 - 8348	FM	1121	761	106	15	12	11	SAN CRISTOBAL
8348 - 8355	FM	28401	22471	1603	580	171	60	SAN CRISTOBAL
8355 - 8403	FM	1212	999	52	18	0	11	SAN CRISTOBAL
8403 - 8413	FM	3472	2651	172	71	36	24	SAN CRISTOBAL
8413 - 8471	FM	1666	1330	71	27	12	13	SAN CRISTOBAL
8471 - 8478	FM	8131	6850	225	99	71	50	SAN CRISTOBAL
8478 - 8490	FM	2292	1600	130	66	31	22	SAN CRISTOBAL
8490 - 8506	FM	1103	932	54	21			SAN CRISTOBAL
8506 - 8533	FM	2684	1720	183	81	50	31	SAN CRISTOBAL
8533 - 8566	FM	2211	1308	99	80	65	41	SAN CRISTOBAL
8566 - 8570	FM	20559	17140	761	337	149	58	SAN CRISTOBAL
8570 - 8597	FM	1392	1068	62	25	15	13	SAN CRISTOBAL
8597 - 8604	FM	20730	17140	871	316	140	68	SAN CRISTOBAL
8604 - 8628	FM	1650	1069	71	44	38	31	SAN CRISTOBAL
8628 - 8632	FM	6474	5423	240	93	38	28	SAN CRISTOBAL
8632 - 8659	FM	1026	711	50	24	17	15	SAN CRISTOBAL
8659 - 8664	FM	24900	19625	1498	443	160	62	SAN CRISTOBAL
8664 - 8690	FM	1368	998	66	29	19	15	SAN CRISTOBAL
8690 - 8697	FM	54908	45318	2755	761	318	105	SAN CRISTOBAL
8697 - 8766	FM	1843	1223	114	54	30	22	SAN CRISTOBAL
8766 - 8820	FM	2072	1498	107	54	27	18	SAN CRISTOBAL
8820 - 8825	FM	1316	985	66	25	16	12	SAN CRISTOBAL
8825 - 8834	FM	2418	1995	110	29	14	12	SAN CRISTOBAL
8834 - 8887	FM	1142	871	58	19	12	10	SAN CRISTOBAL
8887 - 8895	FM	1951	1603	87	21	14	11	SAN CRISTOBAL
8895 - 8901	FM	7951	7101	225	62	31	18	SAN CRISTOBAL
8901 - 8922	FM	947	663	55	21	14	11	SAN CRISTOBAL
8922 - 8937	FM	1182	965	58	19	11		SAN CRISTOBAL
8937 - 8945	FM	16562	13991	761	210	66	31	SAN CRISTOBAL
8945 - 8972	FM	1021	711	58	19	18	13	SAN CRISTOBAL
8972 - 8987	FM	442	315	44	13			SAN CRISTOBAL
8987 - 9004	FM	917	761	54	16			SAN CRISTOBAL
9004 - 9007	FM	6873	5801	315	81	31	15	SAN CRISTOBAL
9007 - 9014	FM	426	340	25	12			SAN CRISTOBAL
9014 - 9034	FM	1333	1071	71	24	12		SAN CRISTOBAL
9034 - 9039	FM	3972	3350	196	31	18	13	SAN CRISTOBAL

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PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
9039 - 9066	FM	1338	1085	95	21			SAN CRISTOBAL
9066 - 9074	FM	10326	8710	471	140	41	18	SAN CRISTOBAL
9074 - 9096	FM	849	761	44				SAN CRISTOBAL
9096 - 9102	FM	1462	1176	81	24	13		SAN CRISTOBAL
9102 - 9107	FM	4080	3376	225	62	17		SAN CRISTOBAL
9107 - 9132	FM	1270	1143	44	13			SAN CRISTOBAL
9132 - 9137	FM	3255	2758	99	41	24	16	SAN CRISTOBAL
9137 - 9161	FM	1049	872	47	13	11		SAN CRISTOBAL
9161 - 9177	FM	1993	1603	107	26	12	10	SAN CRISTOBAL
9177 - 9210	FM	3928	2928	206	81	50	29	SAN CRISTOBAL
9210 - 9241	FM	3960	2948	210	81	51	29	BASAL SALINA
9241 - 9255	FM	1194	665	67	47	36	22	BASAL SALINA
9255 - 9287	FM	3416	2575	160	66	47	27	BASAL SALINA
9287 - 9303	FM	38632	29460	2949	543	295	93	BASAL SALINA
9303 - 9325	FM	3718	1068	241	276	210	100	BASAL SALINA
9325 - 9356	FM	1265	543	107	54	44	34	BASAL SALINA
9356 - 9363	FM	459	228	17	13	17	18	BASAL SALINA
9363 - 9372	FM	100	100					BASAL SALINA
9372 - 9377	FM	1555	1220	76	27	13	10	BASAL SALINA
9377 - 9401	FM	296	258	19				BASAL SALINA
9401 - 9422	FM	558	510	24				BASAL SALINA
9422 - 9430	FM	396	362	17				BASAL SALINA
9430 - 9449	FM	884	621	46	16	12	15	BASAL SALINA
9449 - 9468	FM	1661	1403	93	24			BASAL SALINA
9468 - 9473	FM	410	410					BASAL SALINA
9473 - 9525	FM	9029	1835	76	371	381	881	BASAL SALINA
9525 - 9537	FM	25683	5423	0	380	560	3376	BASAL SALINA
9537 - 9550	FM	15276	2756	0	664	507	1700	BASAL SALINA
9550 - 9589	FM	24432	8710	0	225	443	2655	BASAL SALINA
9589 - 9621	FM	31639	14970	0	241	424	2850	BASAL SALINA
9621 - 9625	FM	10493	7607	0	196	387	150	BASAL SALINA
9625 - 9653	FM	20429	9973	0	107	240	1835	BASAL SALINA
9653 - 9676	FM	11647	4150	0	45	83	1406	BASAL SALINA
9676 - 9684	FM	6018	2756	0	18	27	620	BASAL SALINA
9684 - 9694	FM	4142	1510	0	12	14	508	BASAL SALINA
9694 - 9740	FM	2963	860	0	10	12	405	BASAL SALINA
9740 - 9745	FM	9249	5423	0	106	42	668	BASAL SALINA

GAS SHOWS DATA RECORD

WELL: LO6 - 25

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
9745 - 9751	FM	1582	932	0	0	0	130	BASAL SALINA
9751 - 9755	FM	7170	2406	0	130	81	810	BASAL SALINA
9755 - 9769	FM	2292	871	0	79	61	188	BASAL SALINA
9769 - 9778	FM	1156	443	0	17	13	122	BASAL SALINA
9778 - 9790	FM	10714	3155	0	171	99	1330	BASAL SALINA

UNITS CONVERTION

Parts per million	Units of Gas
100 ppm	1 u

FLUORESCENCE DATA RECORD

WELL: LO6 - 25

Depth (Feet)	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
2440 - 2500	X				-5	sli bri yel'sh wh				X	X				TALARA
3760 - 3790	X				-5	sli bri yel'sh wh				X	X				CHACRA
4550 - 4660	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
4670 - 4720	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
4850 - 4920	X				-5	sli pale yel'sh wh				X		X			RIO BRAVO
4920 - 4930		X			5	sli pale yel'sh wh				X		X			RIO BRAVO
4930 - 4960	X				-5	sli pale yel'sh wh				X		X			RIO BRAVO
5050 - 5080		X			10	sli bri yel'sh wh				X	X				RIO BRAVO
5080 - 5110		X			15	sli bri yel'sh wh			X		X				RIO BRAVO
5110 - 5140		X			20	sli bri yel'sh wh			X		X				RIO BRAVO
5140 - 5170		X			20	sli bri yel'sh wh			X		X				RIO BRAVO
5170 - 5200		X			15	sli bri yel'sh wh			X		X				RIO BRAVO
5200 - 5230		X			15	sli bri yel'sh wh			X		X				RIO BRAVO
5230 - 5260		X			10	sli bri yel'sh wh				X	X				RIO BRAVO
5260 - 5290		X			10	sli bri yel'sh wh				X					RIO BRAVO

FLUORESCENCE DATA RECORD

WELL: LO6 - 25

Depth	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
(Feet)	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
5290 - 5320		X			5	sli bri yel'sh wh				X	X				RIO BRAVO
5320 - 5350		X			5	sli bri yel'sh wh				X	X				RIO BRAVO
5350 - 5380		X			10	sli bri yel'sh wh				X	X				RIO BRAVO
5380 - 5410		X			10	sli bri yel'sh wh				X	X				RIO BRAVO
5410 - 5430		X			10	sli bri yel'sh wh				X	X				RIO BRAVO
5430 - 5440	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5440 - 5470	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5470 - 5500	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5500 - 5530	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5530 - 5560	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5560 - 5590	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5620 - 5650	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5860 - 5890	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5950 - 5980	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
5980 - 5990		X			5	sli bri yel'sh wh				X	X				RIO BRAVO

GEOIL™

PETRO-TECH PERUANA S.A.

FLUORESCENCE DATA RECORD

WELL: LO6 - 25

Depth	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
(Feet)	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
5990 - 6030		X			10	sli bri yel'sh wh				X	X				RIO BRAVO
6030 - 6040		X			5	sli bri yel'sh wh				X	X				RIO BRAVO
6040 - 6090		X			20	sli bri yel'sh wh			X		X				RIO BRAVO
6090 - 6100		X			10	sli bri yel'sh wh				X	X				RIO BRAVO
6100 - 6130		X			5	sli bri yel'sh wh				X	X				RIO BRAVO
6130 - 6150	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
6170 - 6220	X				-5	sli bri yel'sh wh				X	X				RIO BRAVO
6570 - 6590	X				-5	sli bri yel'sh wh				X	X				PALEGREDA
7380 - 7400	X				-5	sli bri yel'sh wh				X	X				MOGOLLON
7400 - 7410		X			5	sli bri yel'sh wh				X	X				MOGOLLON
7410 - 7420		X			10	sli bri yel'sh wh				X	X				MOGOLLON
7420 - 7440	X				-5	sli bri yel'sh wh				X	X				MOGOLLON
7440 - 7450		X			20	sli bri yel'sh wh			X		X				MOGOLLON
7450 - 7460			X		30	sli bri yel'sh wh			X		X				MOGOLLON
7460 - 7480		X			20	sli bri yel'sh wh			X		X				MOGOLLON

FLUORESCENCE DATA RECORD

WELL: LO6 - 25

Depth	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
(Feet)	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
7480 - 7490		X			15	sli bri yel'sh wh			X		X				MOGOLLON
7490 - 7500			X		30	sli bri yel'sh wh			X		X				MOGOLLON
7500 - 7530		X			10	sli bri yel'sh wh				X	X				MOGOLLON
7530 - 7550		X			5	sli bri yel'sh wh				X	X				MOGOLLON
7550 - 7570			X		30	sli bri yel'sh wh			X		X				MOGOLLON
7570 - 7580		X			5	sli bri yel'sh wh				X	X				MOGOLLON
7590 - 7610		X			5	sli bri yel'sh wh				X	X				MOGOLLON
7610 - 7620	X				-5	sli bri yel'sh wh				X	X				MOGOLLON
7650 - 7680	X				-5	sli bri yel'sh wh				X	X				MOGOLLON
7860 - 7880	X				-5	sli bri yel'sh wh				X	X				MOGOLLON
8740 - 8750		X			10	sli bri wh'sh yel				X	X				SAN CRISTOBAL
8750 - 8770		X			25	sli bri wh'sh yel			X		X				SAN CRISTOBAL
8770 - 8790	X				-5	sli bri wh'sh yel				X	X				SAN CRISTOBAL
9290 - 9300			X		30	sli bri yel'sh wh			X		X				BASAL SALINA
9300 - 9310		X			15	sli bri yel'sh wh			X		X				BASAL SALINA

FLUORESCENCE DATA RECORD

WELL: LO6 - 25

Depth	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
(Feet)	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
9310 - 9320		X			5	sli bri yel'sh wh				X	X				BASAL SALINA
9330 - 9340		X			10	sli bri yel'sh wh				X	X				BASAL SALINA
9340 - 9360		X			5	sli bri yel'sh wh				X	X				BASAL SALINA
9370 - 9390		X			20	sli bri wh'sh yel			X		X				BASAL SALINA
9390 - 9400		X			15	sli bri yel'sh wh			X		X				BASAL SALINA
9400 - 9420		X			25	sli bri wh'sh yel			X		X				BASAL SALINA
9420 - 9430		X			15	dull yel'sh wh			X					X	BASAL SALINA
9430 - 9440		X			5	dull yel'sh wh				X	X				BASAL SALINA
9440 - 9450		X			10	sli bri yel'sh wh				X	X				BASAL SALINA
9450 - 9470		X			25	sli bri yel'sh wh			X		X				BASAL SALINA
9470 - 9480	X				-5	sli bri yel'sh wh				X	X				BASAL SALINA
9480 - 9490		X			10	sli bri yel'sh wh				X	X				BASAL SALINA
9490 - 9500		X			20	sli bri yel'sh wh			X		X				BASAL SALINA
9500 - 9510	X				-5	sli bri yel'sh wh				X	X				BASAL SALINA
9510 - 9520		X			15	sli bri yel'sh wh			X		X				BASAL SALINA

FLUORESCENCE DATA RECORD

WELL: LO6 - 25

Depth (Feet)	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
9520 - 9530			X		50	sli bri yel'sh wh		X			X				BASAL SALINA
9530 - 9540			X		30	sli bri yel'sh wh		X			X				BASAL SALINA
9540 - 9550		X			20	sli bri yel'sh wh			X		X				BASAL SALINA
9550 - 9560			X		30	sli bri yel'sh wh		X			X				BASAL SALINA
9560 - 9580			X		50	sli bri yel'sh wh		X			X				BASAL SALINA
9580 - 9590			X		30	sli bri yel'sh wh		X			X				BASAL SALINA
9590 - 9620			X		50	sli bri yel'sh wh		X			X				BASAL SALINA
9620 - 9630			X		30	sli bri yel'sh wh		X			X				BASAL SALINA
9630 - 9640		X			25	sli bri yel'sh wh			X		X				BASAL SALINA
9640 - 9670			X		40	sli bri yel'sh wh		X			X				BASAL SALINA
9670 - 9690	X				-5	sli bri yel'sh wh				X	X				BASAL SALINA

DAILY OPERATION REPORT

WELL: LO6-25

MARCH 14, 2001

00:00 - 00:30	WELD CONDUCTOR IN FIRST LEVEL (CONDUCTOR A 399 FT)
00:30 - 02:30	DRIILLING WITHOUT RETURN FROM 405 FT TO 466 FT
02:30 - 04:00	POOH
04:00 - 09:30	MAKE UP MAGNET, RUN 3 TIMES, RECOVERED 3 KG. JUNK
09:30 - 11:30	LAY DOWN MAGNET, RUN 17" BIT AND LATERAL JET, SET AT 450 FT
11:30 - 12:00	PICK UP KELLY, CLEAN FROM 450 FT TO 466 FT, INTENT DRILL NEGATIVE, JUNK IN HOLE
12:00 - 13:00	POOH
13:00 - 18:00	RIH W/. MAGNET TO 466 FT IN 3 TIMES, RECOVERED 8 KG JUNK
18:00 - 22:00	ADD 10 FT CONDUCTOR (CONDUCTOR A 409 FT)
22:00 - 24:00	RIH W/. MAGNET TO 466, RECOVERED 2 KG JUNK

MARCH 15, 2001

00:00 - 02:00	RIH W/. MAGNET AT 466 FT IN 3 TIMES , RECOVERED 7 KG JUNK, LAY DOWN MAGNET
02:00 - 03:30	RIH W/. 12 1/4" MILL AT 466 FT
03:30 - 04:30	WORK W/. MILL FROM 466 FT TO 468 FT
04:30 - 05:30	POOH AND LAY DOWN MILL
05:30 - 09:00	RIH W/. MAGNET AT 468 FT IN 2 TIMES , RECOVERED 8 KG JUNK, LAY DOWN MAGNET
09:00 - 10:00	MAKE UP 17" BIT, RIH TO 466 FT
10:00 - 14:30	DRILLING W/. DIFFICULTY DUE JUNK FROM 466 FT TO 565 FT
14:30 - 16:00	POOH
16:00 - 19:00	MAKE UP 17" BIT W/. RED, JET LATERAL AND RIH TO 414 FT
19:00 - 22:30	WIDEN HOLE W/. JET LATERAL FROM 414 FT TO 565 FT
22:30 - 24:00	PUMP VISCOSITY PILL AND POOH

MARCH 16, 2001

00:00 - 01:30	CONTINUE POOH
01:30 - 02:00	PREPAIR TO RUN 18" CONDUCTOR
02:00 - 06:00	RUN CONDUCTOR FROM 407 FT TO 565 FT
06:00 - 07:30	WELD CONDUCTOR, CUT AND WELD ADDAPTER FLANGE
07:30 - 10:30	NIPPLE UP BOP's 21" OK
10:30 - 11:30	MAKE UP 17" BIT AND RIH TO 565 FT
11:30 - 12:00	CIRCULATE AND ROTATE ON BOTTOM
12:00 - 12:30	POOH AND LAY DOWN BIT
12:30 - 15:30	MAKE UP MAGNET AND RIH TO 565 FT FOR 2 TIMES, RECOVERED 2 KG JUNK

15:30 - 17:00	MAKE UP JUNK BASKET AND RIH TO 565 FT, WORK ON BOTTOM, POOH AND RECOVERED 1 KG JUNK
17:00 - 17:30	RIH W/. 5" D.P OPEN END TO 565 FT
17:30 - 18:00	CIRCULATE, CLOSE BOP's, CIRCULATE WITHOUT RETURN, OK
18:00 - 18:30	B.J RIG UP LINES AND TEST W/. 2000 PSI
18:30 - 19:30	PUMP 50 BLS CEMENT AND DISPLACE W/. 24 BLS SEA WATER, FINAL PRESSURE 125 PSI
19:30 - 24:00	WOC

MARCH 17, 2001

00:00 - 01:00	CONTINUE WOC
01:00 - 16:00	CIA. GYRO DATA WORK ON WELLS #13, #14, #18
16:00 - 19:00	CIA. GYRO DATA TAKE SURVEY IN WELL # 19
19:00 - 21:00	WELD FLOW LINE
21:00 - 21:30	DRILL CEMENT FROM 553 FT TO 565 FT
21:30 - 22:00	DRILLING FROM 565 FT TO 567 FT WITH HIGH TORQUE
22:00 - 24:00	POOH AND LAY DOWN 17" BIT

MARCH 18, 2001

00:00 - 01:30	LAY DOWN 17" BIT, MAKE UP 12 1/4" BIT W/. JUNK BASKET, RIH TO 567 FT
01:30 - 02:30	DRILLING FROM 567 FT TO 571 FT
02:30 - 03:30	POOH, LAY DOWN BIT AND JUNK BASKET
03:30 - 05:30	MAKE UP 11" MAGNET, RIH TO 571 FT, WORK ON BOTTOM, POOH NO JUNK
05:30 - 07:30	MAKE UP 17" BIT W/. JUNK BASKET, RIH TO 567 FT
07:30 - 08:30	DRILLING FROM 567 FT TO 576 FT
08:30 - 11:00	POOH, LAY DOWN BIT, JUNK BASKET, 6 1/4" AND 7 3/4 DC's
11:00 - 13:30	MAKE UP NEW 17" BIT, POWER PAK, SHORT MONEL, UBHO, MONEL
13:30 - 14:30	REPAIR CHAIN OF ROTARY TABLE
14:30 - 17:00	CONTINUE MAKE UP ASSY, PUT SLIM 1, RIH TO 570 FT
17:00 - 17:30	CIRCULATE W/. 800 GPM, LOST MUD BY SHALE SHAKER
17:30 - 21:00	WORK ON SHALE SHAKER
21:00 - 23:30	DRILLING W/. DOWN HOLE MOTOR FROM 576 FT TO 630 FT
23:30 - 24:00	CHANGE FILTER MOTOR IN PUMP#2

MARCH 19, 2001

00:00 - 00:30	FINISHED CHANGE FILTER MOTOR IN PUMP#2
00:30 - 01:30	DRILLING W/. DOWN HOLE MOTOR FROM 630 FT TO 650 FT
01:30 - 02:00	CHANGE LINER GASKET IN PUMP#2, MODULE 1
02:00 - 08:30	DRILLING W/. DOWN HOLE MOTOR FROM 650 FT TO 889 FT
08:30 - 09:00	CHANGE LINER GASKET IN PUMP#2, MODULE 2
09:00 - 10:30	DRILLING W/. DOWN HOLE MOTOR FROM 889 FT TO 971 FT
10:30 - 11:00	CHANGE PISTON IN PUMP#2, MODULE 2
11:00 - 13:00	DRILLING W/. DOWN HOLE MOTOR FROM 971 FT TO 1076 FT
13:00 - 13:30	CIRCULATE
13:30 - 15:00	SHORT TRIP TO CONDUCTOR, RIH SET AT 1016 FT
15:00 - 15:30	CLEAN HOLE FROM 1016 FT TO 1076 FT
15:30 - 24:00	DRILLING W/. DOWN HOLE MOTOR FROM 1076 FT TO 1421 FT

MARCH 20, 2001

00:00 - 07:00	DRILLING W/. DOWN HOLE MOTOR FROM 1421 FT TO 1704 FT
07:00 - 08:00	CIRCULATE
08:00 - 09:30	POOH W/. DIFFICULTY AT 1507 FT MAX PULL 150,000 POUNDS
09:30 - 12:00	POOH W/. CIRCULATION JOINT BY JOINT TO 947 FT

12:00 - 18:00	CONTINUE POOH IN STD TO 75 FT, LAY DOWN SLIM 1, CHANGE JET, RIH SAME BIT CHANGE BENT HOUSING, PUT AND TEST SLIM 1 W/. 698 GPM, 1700 PSI OK
18:00 - 19:00	RIH, SET AT 1316 FT
19:00 - 22:00	RIH W/. CIRCULATION JOINT BY JOINT FROM 1316 FT TO 1704 FT
22:00 - 24:00	DRILLING W/. DOWN HOLE MOTOR FROM 1704 FT TO 1767 FT

MARCH 21, 2001

00:00 - 02:00	DRILLING WITH DOWN HOLE MOTOR FROM 1767 FT TO 1857 FT
02:00 - 02:30	CHANGE LINER GASKET IN PUMP # 1
02:30 - 03:30	DRILLING WITH DOWN HOLE MOTOR FROM 1857 FT TO 1889 FT
03:30 - 04:00	CHECK MUD PUMP , PUMP # 1 WITH MODULE WASHED, PUMP # 2 WITH MODULE WASHED AND BROKEN PLUNGER
04:00 - 07:00	POOH TO 18" CONDUCTOR WITH CIRCULATE, PIPE BY PIPE TO1315 FT, AFTER IN STAND TO 560 FT
07:00 - 20:30	REPAIR AND CHANGE MODULE IN MUD PUMPS # 1 AND # 2
20:30 - 21:00	TEST SLIM 1 WITH 700 GPM. , 1500 PSI , 100 X 100 SPM.
21:00 - 22:00	RIH IN STAND TO 1315 FT , AFTER PIPE BY PIPE, SET TO 1598 FT
22:00 - 24:00	RUN WITH CIRCULATE PIPE BY PIPE FROM 1598 FT TO 1889 FT

MARCH 22, 2001

00:00 - 00:30	CHANGE PISTON AND PUMP LINER IN PUMP#2
00:30 - 11:00	DRILLING SLIDING FROM 1889 FT TO 2135 FT
11:00 - 11:30	CHANGE PACKING LINER IN PUMP#1
11:30 - 14:00	DRILLING FROM 2135 FT TO 2201 FT
14:00 - 15:00	CIRCULATE
15:00 - 22:00	POOH WITH KELLY AND CIRCULATE FROM 2201 FT TO 1440 FT, CONTINUE POOH IN STANDS, LAY DOWN MOTOR AND BIT
22:00 - 24:00	MAKE UP 17" BIT, RED. , STB AND DC's , PREPAIR TO RIH

MARCH 23, 2001

00:00 - 01:00	RIH, SET AT 1654 FT
01:00 - 02:30	PICK UP KELLY CONTINUE RIH CIRCULATING AND ROTATING FROM 1654 FT TO 1755 FT
02:30 - 04:30	CONTINUE RIH W/. CIRCULATION FROM 1755 FT TO 1912 FT, AFTER FREE FROM 1912 FT TO 2001 FT
04:30 - 05:30	CIRCULATE
05:30 - 07:30	SHORT TRIP TO SHOE OK
07:30 - 09:00	RIH TO BOTTOM OK
09:00 - 10:00	CIRCULATE
10:00 - 13:00	POOH, LAY DOWN 17" BIT, 7 3/4" DC's
13:00 - 14:00	PREPAIR TO RUN CASING
14:00 - 16:30	RUN 13 3/8" CASING TO 1133 FT
16:30 - 17:00	TOP SERV REPAIR TONG
17:00 - 19:30	CONTINUE RUN CASING, SET AT 2193 FT
19:30 - 20:30	PUT 13 3/8" CIRCULATE HEAD, WORK W/. PUMP NEGATIVE
20:30 - 22:00	B.J MAKE UP CEMENT HEAD (18" UP ROTARY TABLE)
22:00 - 23:00	CIRCULATE, RUN TO 2198 FT
23:00 - 24:00	TEST CEMENT LINES W/. 2000 PSI, B.J CEMENT

MARCH 24, 2001

00:00 - 03:00	PUMP AND DISPLACE CEMENT, DISPLACE W/. 333 BLS OF MUD, FINAL PRESSION 1165 PSI
03:00 - 03:30	B.J RIG DOWN LINES

03:30 - 24:00	W.O.C

MARCH 25, 2001

00:00 - 04:30	WELD FLOW LINE, MAKE UP 4" LINE OF MANIFOLD
04:30 - 05:00	TEST BOP'S W/ 1250 PSI OK
05:00 - 07:00	RIH W/ 12 1/4" BIT, TOP CEMENT AT 2130 FT
07:00 - 08:00	PICK UP KELLY , TEST 5" RAMS W/ 1250 PSI OK, HYDRILL W/ 850 PSI OK
08:00 - 09:30	DRILLING CEMENT FROM 2130 FT TO 2201 FT
09:30 - 10:00	DRILLING FORMATION FROM 2201 FT TO 2216 FT
10:00 - 12:30	POOH, LAY DOWN 6 1/4" DC's AND BIT
12:30 - 16:00	MAKE UP 12 1/4" BIT S91PX, RIH TO 313 FT
16:00 - 16:30	PICK UP KELLY , TEST SLIM 1 W/ 700 GPM
16:30 - 17:30	CONTINUE RIH TO 2176 FT
17:30 - 19:00	RUN AND CUT OFF DRILLING LINE 80 FT
19:00 - 19:30	PICK UP KELLY AND REAM TO 2216 FT
19:30 - 21:00	DRILLING FROM 2216 FT TO 2284 FT
21:00 - 21:30	CHANGE PACKING LINER
21:30 - 23:30	DRILLING FROM 2284 FT TO 2440 FT
23:30 - 24:00	CIRCULATE FOR TRIP

MARCH 26, 2001

00:00 - 02:30	POOH
02:30 - 04:30	CHANGE BHA, MAKE UP SAME PDC BIT, RIH TO 323 FT
04:30 - 05:00	PICK UP KELLY AND TEST SLIM 1 W/ 680 GPM 800 PSI
05:00 - 06:30	CONTINUE RIH , SET AT 2370 FT
06:30 - 07:00	PICK UP KELLY AND REAM FROM 2370 FT TO 2440 FT
07:00 - 08:00	DRILLING FROM 2440 FT TO 2511 FT
08:00 - 08:30	REPAIR PUMP # 2
08:30 - 14:00	DRILLING FROM 2511 FT TO 3010 FT
14:00 - 15:00	CIRCULATE
15:00 - 16:30	SHORT TRIP TO SHOE AND RIH
16:30 - 22:30	DRILLING FROM 3010 FT TO 3512 FT
22:30 - 23:30	CIRCULATE
23:30 - 24:00	SHORT TRIP

MARCH 27, 2001

00:00 - 01:00	CONTINUE SHORT TRIP TO SHOE, CLEAN DUE TIGHT HOLE FROM 2377 FT TO 257 FT, RIH TO 3472 FT
01:00 - 01:30	PICK UP KELLY AND REAM FROM 3472 FT TO 3512 FT
01:30 - 09:00	DRILLING FROM 3512 FT TO 4016 FT
09:00 - 10:00	CIRCULATE
10:00 - 11:00	SHORT TRIP 10 STD OK
11:00 - 19:30	DRILLING FROM 4016 FT TO 4517 FT
19:30 - 21:00	CIRCULATE
21:00 - 24:00	POOH, TIGHT HOLE FROM 2503 FT TO 2300FT

MARCH 28, 2001

00:00 - 04:30	CONTINUE POOH, CHANGE JETS 16x18, MAKE UP SAME BIT, CHANGE NEAR BIT, 12 1/4" STABILIZER, RIH TO 57 FT PUT SLIM 1, RIH TO 541 FT
04:30 - 05:00	PICK UP KELLY, TEST SLIM 1 W/ 691 GPM 700 PSI
05:00 - 07:00	LAY DOWN KELLY AND CONTINUE RIH TO 4477 FT
07:00 - 07:30	PICK UP KELLY, CLEAN HOLE FROM 4477 FT TO 4517 FT
07:30 - 12:30	DRILLING FROM 4517 FT TO 4770 FT

12:30 - 13:00	CIRCULATE
13:00 - 14:30	DRILLING FROM 4770 FT TO 4833 FT
14:30 - 15:00	REPAIR WEIGHT INDICATOR (MARTIN DECKER)
15:00 - 18:00	DRILLING FROM 4833 FT TO 4954 FT
18:00 - 18:30	PROBLEMS W/ MOTOR (FIRE)
18:30 - 20:30	DRILLING FROM 4954 FT TO 5022 FT
20:30 - 21:30	CIRCULATE
21:30 - 22:30	SHORT TRIP TO 4458 FT (6 STD) OK
22:30 - 24:00	DRILLING FROM 5022 FT TO 5084 FT

MARCH 29, 2001

00:00 - 10:00	DRILLING FROM 5084 FT TO 5429 FT
10:00 - 11:30	CIRCULATE
11:30 - 13:30	POOH TO 4261 FT
13:30 - 14:30	PICK UP KELLY, CONTINUE POOH W/ CIRCULATION JOINT BY JOINT FROM 4261 FT TO 4105 FT
14:30 - 20:00	LAY DOWN KELLY CONTINUE POOH W/ ELEVATOR FROM 4105 FT TO 56 FT, RETIR SLIM 1, NEAR BIT, BIT, CHANGE STABILIZER POSITION
20:00 - 20:30	TEST BOP's, CHECK LINES OF KILL MANIFOLD OK
20:30 - 22:00	MAKE UP NEW BHA W/ SAME BIT, RIH TO 30 FT PUT SLIM 1
22:00 - 22:30	RIH TO 311 FT TEST SLIM 1 W/ 644 GPM, 700 PSI
22:30 - 24:00	CONTINUE RIH

MARCH 30, 2001

00:00 - 00:30	CONTINUE RIH TO 4750 FT
00:30 - 01:30	PICK UP KELLY AND REAM FROM 4750 FT TO 4850 FT
01:30 - 02:00	CONTINUE RIH TO 5369 FT
02:00 - 02:30	REAM FROM 5369 FT TO 5429 FT
02:30 - 08:30	DRILLING FROM 5429 FT TO 5500 FT
08:30 - 10:00	REPAIR PUMP #2
10:00 - 10:30	DRILLING FROM 5500 FT TO 5510 FT
10:30 - 11:00	REPAIR PUMP #1
11:00 - 14:00	DRILLING FROM 5510 FT TO 5572 FT
14:00 - 14:30	RIG SERVICE
14:30 - 24:00	DRILLING FROM 5572 FT TO 5841 FT

MARCH 31, 2001

00:00 - 00:30	DRILLING FROM 5841 FT TO 5854 FT
00:30 - 01:30	CIRCULATE
01:30 - 02:30	SHORT TRIP TO 5344 FT (5 STD) OK
02:30 - 03:00	DRILLING FROM 5854 FT TO 5867 FT
03:00 - 03:30	CIRCULATE BY GAS (4154 UNITS OF TG)
03:30 - 08:30	DRILLING FROM 5867 FT TO 5980 FT
08:30 - 10:00	CIRCULATE, MUD WEIGHT INCREASE FROM 9.4 TO 9.6 ppg
10:00 - 11:00	POOH TO 5282 FT
11:00 - 17:30	PICK UP KELLY, POOH W/ CIRCULATION JOINT BY JOINT TO 3842 FT
17:30 - 22:30	CONTINUE POOH IN STD, LAY DOWN MONELS, SLIM 1, UBHO, PDC BIT
22:30 - 24:00	MAKE UP NEW BHA, RIH W/ TRICONIC BIT TO 1550 FT

APRIL 01, 2001

00:00 - 01:30	CONTINUE RIH IN STD FROM 1550 FT TO 4445 FT
01:30 - 03:30	RUN JOINT BY JOINT FROM 4445 FT 5793 FT AND SET
03:30 - 05:30	REAM FROM 5793 FT TO 5980 FT (TRIP GAS 5490 UNITS OF TG)

05:30 - 07:00	CIRCULATE, PUMP LOW VISCOSITY PILL AND AFTER PUMP HIGH VISCOSITY PILL
07:00 - 12:00	POOH, LAY DOWN BHA, 12 1/4"BIT
12:00 - 12:30	PREPAIR TO RUN 9 5/8" CASING
12:30 - 21:30	RUN 9 5/8" CASING, SHOE AT 5980 FT, VALVE AT 5883 FT
21:30 - 22:30	PUT HEAD AND 2" HOSE
22:30 - 24:00	CIRCULATE

APRIL 02, 2001

00:00 - 04:30	B.J RIG UP CEMENT HEAD, 2" LINES AND TEST W/ 2500 PSI. CEMENT AND DISPLACE W/ 437 BLS OF MUD
04:30 - 05:00	B.J RIG DOWN CEMENT LINES
05:00 - 24:00	W.O.C

APRIL 03, 2001

00:00 - 01:30	W.O.C
01:30 - 02:00	TEST BOP'S W/ 1500 PSI
02:00 - 05:30	RIH W/ SLICK ASSEMBLY TO 5849 FT
05:30 - 06:00	PICK UP KELLY AND CONTINUE RIH TO 5880 FT, TOP CEMENT
06:00 - 06:30	TEST 5" RAMS W/ 1500 PSI
06:30 - 13:00	TEST ANNULAR W/ 800 PSI, CLOSE OK, TO OPEN LOOSE FLUID BY ANNULAR
13:00 - 13:30	TEST ANNULAR W/ 950 PSI OK
13:30 - 15:00	DRILLING CEMENT FROM 5880 FT TO 5980 FT
15:00 - 15:30	DRILLING FROM 5980 FT TO 5995 FT
15:30 - 16:00	CIRCULATE
16:00 - 20:00	POOH
20:00 - 20:30	SECURITY MEETING
20:30 - 23:00	MAKE UP ASSEMBLY W/ 8 1/2" PDC BIT, RIH TO 375 FT
23:00 - 23:30	TEST SLIM 1 W/ 500 PSI 450 GPM 110 SPM OK
23:30 - 24:00	CONTINUE RIH

APRIL 04, 2001

00:00 - 05:30	CONTINUE RIH TO 5995 FT
05:30 - 13:00	DRILLING FROM 5995 FT TO 6262 FT
13:00 - 13:30	TAKE SURVEY 2 TIMES NEGATIVE
13:30 - 14:30	DRILLING FROM 6262 FT TO 6326 FT
14:30 - 15:00	TAKE SURVEY NEGATIVE
15:00 - 15:30	DRILLING FROM 6326 FT TO 6357 FT
15:30 - 17:00	CIRCULATE
17:00 - 22:30	POOH TO CHECK SLIM 1, CHANGE SLIM 1, TEST BOP'S
22:30 - 23:00	RIH W/ SAME BIT TO 375 FT
23:00 - 23:30	TEST SLIM 1 W/ 450 GPM 500 PSI, 511 GPM 700 PSI, WEAK SIGNAL
23:30 - 24:00	POOH TO CHECK SLIM 1

APRIL 05, 2001

00:00 - 00:30	CHECK SLIM 1
00:30 - 01:00	RIH TO 370 FT, TEST SLIM 1 W/ 490 GPM 500 PSI OK
01:00 - 05:00	RIH TO SHOE
05:00 - 07:00	CUT OFF DRILLING LINE 80 FT
07:00 - 07:30	CONTINUE RIH TO 6250 FT
07:30 - 08:00	PICK UP KELLY, REAM FROM 6250 FT TO 6357 FT
08:00 - 15:00	DRILLING FROM 6357 FT TO 6640 FT
15:00 - 16:30	REPAIR CHAIN

16:30 - 20:30	DRILLING FROM 6640 FT TO 6797 FT
20:30 - 21:00	LOOSE PRESSION IN STAND PIPE
21:00 - 21:30	POOH TO CHECK WASH OUT
21:30 - 22:00	PICK UP KELLY, POOH 3 JOINTS
22:00 - 23:00	CONTINUE POOH IN STANDS, WASH OUT AT 5229 FT
23:00 - 23:30	PICK UP KELLY, CHECK PRESSION OK
23:30 - 24:00	RIH

APRIL 06, 2001

00:00 - 00:30	RIH TO 6757 FT
00:30 - 01:00	PICK UP KELLY, REAM FROM 6757 FT TO 6797 FT
01:00 - 03:30	DRILLING FROM 6797 FT TO 6879 FT
03:30 - 04:00	REPAIR ROTARY CHAIN
04:00 - 15:30	DRILLING FROM 6879 FT TO 7298 FT
15:30 - 16:30	CIRCULATE
16:30 - 18:00	SHORT TRIP TO SHOE
18:00 - 19:00	PICK UP KELLY, REAM FROM 7267 FT TO 7298 FT
19:00 - 24:00	DRILLING FROM 7298 FT TO 7450 FT

APRIL 07, 2001

00:00 - 02:30	DRILLING FROM 7450 FT TO 7572 FT
02:30 - 06:00	CIRCULTATE BY GAS (2550 UNITS), GCM FROM 9.9 TO 9.7 PPG MUD WEIGHT UP TO 10.4 PPG
06:00 - 08:00	DRILLING FROM 7572 FT TO 7625 FT
08:00 - 08:30	CIRCULTATE BY CONNECTION GAS (442 UNITS), MUD WEIGHT UP TO 10.6 PPG
08:30 - 10:30	DRILLING FROM 7625 FT TO 7690 FT
10:30 - 11:00	RIG SERVICE
11:00 - 20:00	DRILLING FROM 7690 FT TO 7923 FT, CONNECTION GAS 760 UNITS, MUD WEIGHT UP 10.8 PPG
20:00 - 21:00	CIRCULATE, MUD WEIGHT UP TO 11.0 PPG, PUMP SLUG PIPE
21:00 - 24:00	POOH

APRIL 08, 2001

00:00 - 02:30	CONTINUE POOH, LAY DOWN ANADRILL TOOLS
02:30 - 08:30	MAKE UP SAME BIT, CHANGE 30' MONEL BY 6 1/4" DC, RIH TO 7883 FT
08:30 - 09:00	PICK UP KELLY, CIRCULATE, REAM FROM 7883 FT TO 7923 FT
09:00 - 19:30	DRILLING FROM 7923 FT TO 8240 FT
19:30 - 20:00	REPAIR ROTARY CHAIN
20:00 - 24:00	DRILLING FROM 8240 FT TO 8300 FT

APRIL 09, 2001

00:00 - 10:30	DRILLING FROM 8300 FT TO 8504 FT
10:30 - 11:00	CIRCULATE
11:00 - 13:00	SHORT TRIP TO 7780 FT, POOH W/ KELLY FROM 8120 FT TO 8030 FT
13:00 - 13:30	PICK UP KELLY REAM FROM 8465 FT TO 8504 FT
13:30 - 19:30	DRILLING FROM 8504 FT TO 8692 FT
19:30 - 20:00	REPAIR ROTARY CHAIN
20:00 - 24:00	DRILLING FROM 8692 FT TO 8815 FT

APRIL 10, 2001

00:00 - 10:00	DRILLING FROM 8815 FT TO 9161 FT
10:00 - 11:00	CIRCULATE
11:00 - 11:30	SHORT TRIP TO 8933 FT

11:30 - 12:00	RIG REPAIR
12:00 - 14:00	CONTINUE SHORT TRIP TO 8463 FT, RIH OK
14:00 - 20:00	DRILLING FROM 9161 FT TO 9303 FT
20:00 - 23:00	CIRCULATE FOR TRIP, MUD WEIGHT UP FROM 11.2 TO 11.4 PPG, PUMP SLUG
23:00 - 24:00	POOH TO CHANGE BIT

APRIL 11, 2001

00:00 - 05:00	CONTINUE POOH, CHANGE BIT PDC BY GTM-20
05:00 - 10:00	RIH TO SHOE
10:00 - 11:30	CHANGE ROLLER OF KELLY BUSHING, PICK UP KELLY, BREAK CIRCULATION
11:30 - 13:00	CONTINUE RIH TO 9237 FT
13:00 - 14:00	PICK UP KELLY, TREAM FROM 9237 FT TO 9303 FT
14:00 - 14:30	DRILLING FROM 9303 FT TO 9309 FT
14:30 - 15:00	CIRCULATE BY GAS, MUD WEIGHT UP TO 11.6
15:00 - 24:00	DRILLING FROM 9309 FT TO 9377 FT

APRIL 12, 2001

00:00 - 11:30	DRILLING FROM 9377 FT TO 9472 FT, LOOSE PRESSION
11:30 - 15:00	POOH 7 JOINTS WITH CIRCULATION, AFTER IN STANDS TO 8496 FT, FIND WASH OUT IN JOINT Nº 31, RIH TO 9472 FT
15:00 - 15:30	DRILLING FROM 9472 FT TO 9475 FT
15:30 - 17:30	CIRCULATE BY GAS, MUD WEIGHT DOWN F/. 11.6 TO 9.8, CLOSE ANNULAR, INCREASE MUD WEIGHT TO 11.9, CIRCULATE BY MANIFOLD GAS LINE
17:30 - 20:30	DRILLING FROM 9475 FT TO 9502 FT, LOOSE PRESSION
20:30 - 22:30	POOH IN STANDS TO 8652 FT, FIND WASH OUT IN JOINT Nº 26
22:30 - 24:00	DRILLING FROM 9502 FT TO 9513 FT

APRIL 13, 2001

00:00 - 11:30	DRILLING FROM 9513 FT TO 9655 FT
11:30 - 12:00	CHANGE TRANSMITION CHAIN OF MALACATE
12:00 - 14:00	POOH 5 D.P. WITH CIRCULATION TO CALIBRATE HOLE, MAX. PULL 360,000 POUND
14:00 - 18:00	DRILLING FROM 9655 FT TO 9676 FT
18:00 - 24:00	POOH 11 D.P WITH CIRCULATION, PUMP SLAG PIPE, CONTINUE POOH IN STANDS TO 2500 FT

APRIL 14, 2001

00:00 - 02:00	FINISH POOH
02:00 - 05:00	MAKE UP 8 1/2" BIT, RIH TO SHOE
05:00 - 06:30	CUTT OFF DRILLING LINE 80 FT
06:30 - 09:30	CONTINUE RIH TO 9636 FT
09:30 - 11:00	REAM FROM 9636 FT TO 9676 FT
11:00 - 14:00	DRILLING FROM 9676 FT TO 9692 FT
14:00 - 14:30	CHECK LOOSE PRESSION IN SISTEM
14:30 - 15:00	POOH 2 JOINTS WITH CIRCULATION
15:00 - 17:30	CONTINUE POOH IN STANDS, FIND WASH OUT IN JOINT Nº 39, RIH TO 9692 FT
17:30 - 24:00	DRILLING FROM 9692 FT TO 9728 FT

APRIL 15, 2001

00:00 - 01:30	DRILLING FROM 9728 FT TO 9742 FT
01:30 - 02:00	CHECK LOOSE PRESSION IN SISTEM
02:00 - 05:00	POOH 9 JOINTS WITH CIRCULATION, AFTER IN STANDS, FIND WASH OUT IN JOINT Nº 76
05:00 - 05:30	PICK UP KELLY AND TEST PRESSION
05:30 - 07:30	RIH TO 9742 FT

07:30 - 12:30	DRILLING FROM 9742 FT TO 9776 FT
12:30 - 15:00	LOOSE PRESSION POOH 3 JOINTS WITH CIRCULATION, AFTER IN STANDS, FIND WASH OUT IN JOINT Nº 41, RIH
15:00 - 15:30	REAM FROM 9746 FT TO 9776 FT
15:30 - 17:30	DRILLING FROM 9776 FT TO 9790 FT, LOOSE PRESSION
17:30 - 19:00	POOH, FIND WASH OUT IN JOINT Nº 39
19:00 - 19:30	PICK UP KELLY AND TEST PRESSION WITH 1200 PSI 106 SPM, LOOSE PRESSION T 1100 PSI, LAY DOWN KELLY
19:30 - 24:00	CONTINUE POOH IN STANDS FIND WASH OUT AT 4523 FT, CONTINUE POOH TO CHANGE BIT, RETIRE STB Nº 3

APRIL 16, 2001

00:00 - 01:30	FINISH POOH, RETIRE BIT
01:30 - 02:30	MAKE UP BIT GT-09, RIH DC's + X/O + 1 HW, IMPOSSIBLE CONTINUE RIH DUE HIGH PRESSION GAS OF HOLE
02:30 - 03:00	CLOSE ANNULAR WITH 1100 PSI IN 9 5/8" CASING, TRY TO RUN PIPE NEGATIVE, PICK UP KELLY
03:00 - 03:30	CHECK PRESSION IN CASING 1100 PSI, INCREASE TO 1500 PSI,
03:30 - 05:00	DISCHARGE MUD VOLUME TO KEEP IN 1100 PSI, PRESSION HOLE CONTINUE INCREASING TO 1900 PSI, DISCHARGE MUD VOLUME AND APPEARS MUD WITH OIL AFTER LIVE OIL WITH 1850 PSI
05:00 - 11:00	CLOSE HOLE WITH 1850 PSI, PRODUCTION PERSONAL WORK IN LINES TO PUT IN PRODUCTION
11:00 - 24:00	PRODUCTION PERSONAL MONITORING HOLE

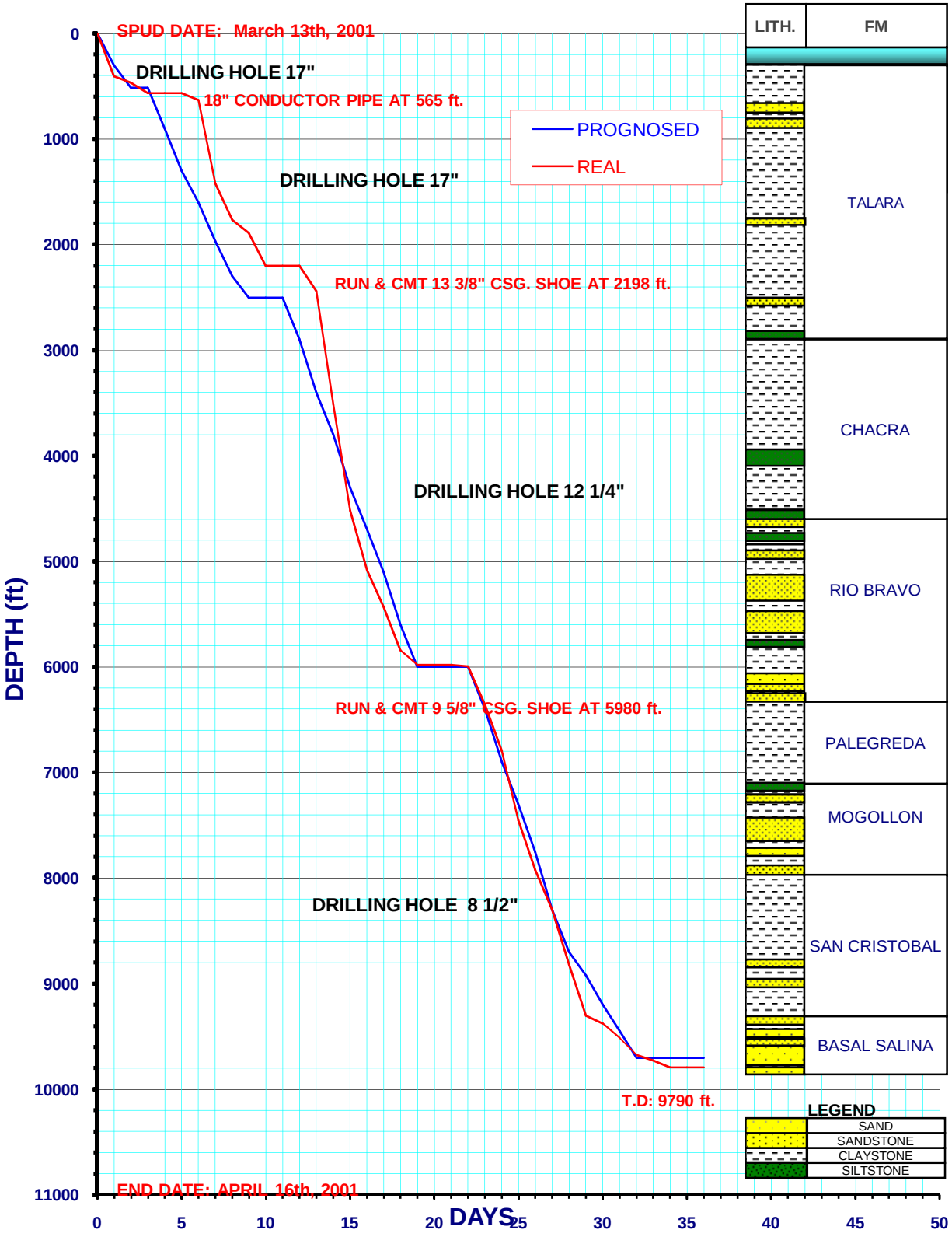
APRIL 17, 2001

00:00 - 24:00	WELL ON PRODUCTION

GEOIL™

PETRO-TECH PERUANA S.A.

DRILLING PROGRESS CURVE



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PETRO-TECH PERUANA S.A.

MUD DATA RECORD

WELL: LO6-25

DATE	DEPTH	M.W.	FV	PV/YP	GELS	FIL	PH	CALC.	CHLR	SOL.	SAND	MBT	MUD TYPE
03/16/01	565'	8.5	80										GEL MUD
03/17/01	567'	8.7	52	12/19	8/11/12	6.6	10.0	280	13000	4	TR	7.5	GEL - POLIMERO
03/18/01	639'	8.7	53	13/26	8/14/16	6.0	9.8	260	13000	5	0.30	7.5	GEL - POLIMERO
03/19/01	1420'	9.1	60	16/32	10/17/23	6.0	10.0	280	15000	6	0.50	17.5	GEL - POLIMERO
03/20/01	1764'	9.1	55	15/30	9/14/18	6.2	10.0	280	17000	5	0.30	17.5	GEL - POLIMERO
03/21/01	1888'	9.4	56	16/30	9/16/21	6.0	10.0	300	23000	6	0.40	18.0	FLODRILL
03/22/01	2201'	9.5	57	17/32	10/17/24	6.2	10.0	320	28000	8	0.40	22.5	FLODRILL
03/23/01	2201'	9.6	53	14/22	8/14/18	6.0	10.0	300	27000	8	0.30	22.5	FLODRILL
03/24/01	2201'	9.2	55	14/26	7/10/12	6.4	10.0	200	22000	6	0.25	15.0	FLODRILL
03/25/01	2440'	9.0	51	14/22	6/9/12	6.0	11.0	100	28000	5	0.25	12.0	FLODRILL
03/26/01	3512'	9.5	52	16/24	8/12/16	5.8	9.8	280	28000	7	0.30	20.0	FLODRILL
03/27/01	4517'	9.6	54	20/29	8/14/20	5.6	9.8	200	27000	8	0.40	22.5	FLODRILL
03/28/01	5084'	9.5	53	18/29	8/15/21	4.8	9.6	200	27000	7	0.30	17.5	FLODRILL
03/29/01	5429'	9.5	52	18/30	8/14/19	4.6	9.5	200	28000	7	0.30	17.5	FLODRILL
03/30/01	5841'	9.4	53	17/27	7/13/18	4.8	9.2	120	24000	7	0.50	17.5	FLODRILL
03/31/01	5980'	9.6	53	18/29	8/14/19	5.0	9.2	120	22000	9	0.50	20.0	FLODRILL
04/01/01	5980'	9.7	53	19/30	8/15/19	5.0	9.4	120	20000	9	0.40	20.0	FLODRILL
04/02/01	5980'	9.6	55	17/28	7/12/15	5.4	9.9	120	24000	7	0.25	17.5	FLODRILL
04/03/01	5995'	9.4	52	17/26	7/12/16	5.4	12.9	380	25000	7	0.30	17.5	FLODRILL
04/04/01	6357'	9.3	52	16/27	7/13/16	5.2	11.0	120	16000	6	0.30	15.0	FLODRILL
04/05/01	6797'	9.6	53	16/26	7/12/14	5.0	9.6	200	24000	8	0.30	15.0	FLODRILL
04/06/01	7450'	9.9	52	17/26	7/11/15	5.2	9.2	120	22000	10	0.25	15.0	FLODRILL
04/07/01	7923'	11.0	54	20/28	8/16/20	4.8	9.5	200	19000	14	0.30	17.5	FLODRILL
04/08/01	8300'	11.0	53	21/30	8/16/20	4.8	9.5	160	18500	14	0.30	17.5	FLODRILL
04/09/01	8795'	11.0	53	20/29	9/15/23	5.0	9.5	160	18000	14	0.30	18.0	FLODRILL
04/10/01	9303'	11.4	55	23/30	8/17/27	5.0	9.5	200	18000	16	0.30	17.5	FLODRILL
04/11/01	9374'	11.6	54	22/29	8/15/24	5.0	10.0	200	18000	17	0.30	19.0	FLODRILL
04/12/01	9510'	11.9	55	22/30	8/15/22	4.8	10.4	160	18000	18	0.30	18.0	FLODRILL
04/13/01	9676'	11.9	53	23/28	8/15/23	4.8	10.4	160	17000	18	0.30	19.0	FLODRILL
04/14/01	9728'	11.9	54	22/29	8/15/22	4.8	10.0	160	17000	18	0.25	19.0	FLODRILL
04/15/01	9790'	11.9	53	23/28	8/16/21	4.8	10.4	160	17000	17	0.30	19.0	FLODRILL
04/16/01	9790'	13.1	52	24/26	7/10/14	5.2	10.2	160	9500	21	0.50	20.0	FLODRILL

MUD PROPERTIES

WELL: LO6-25

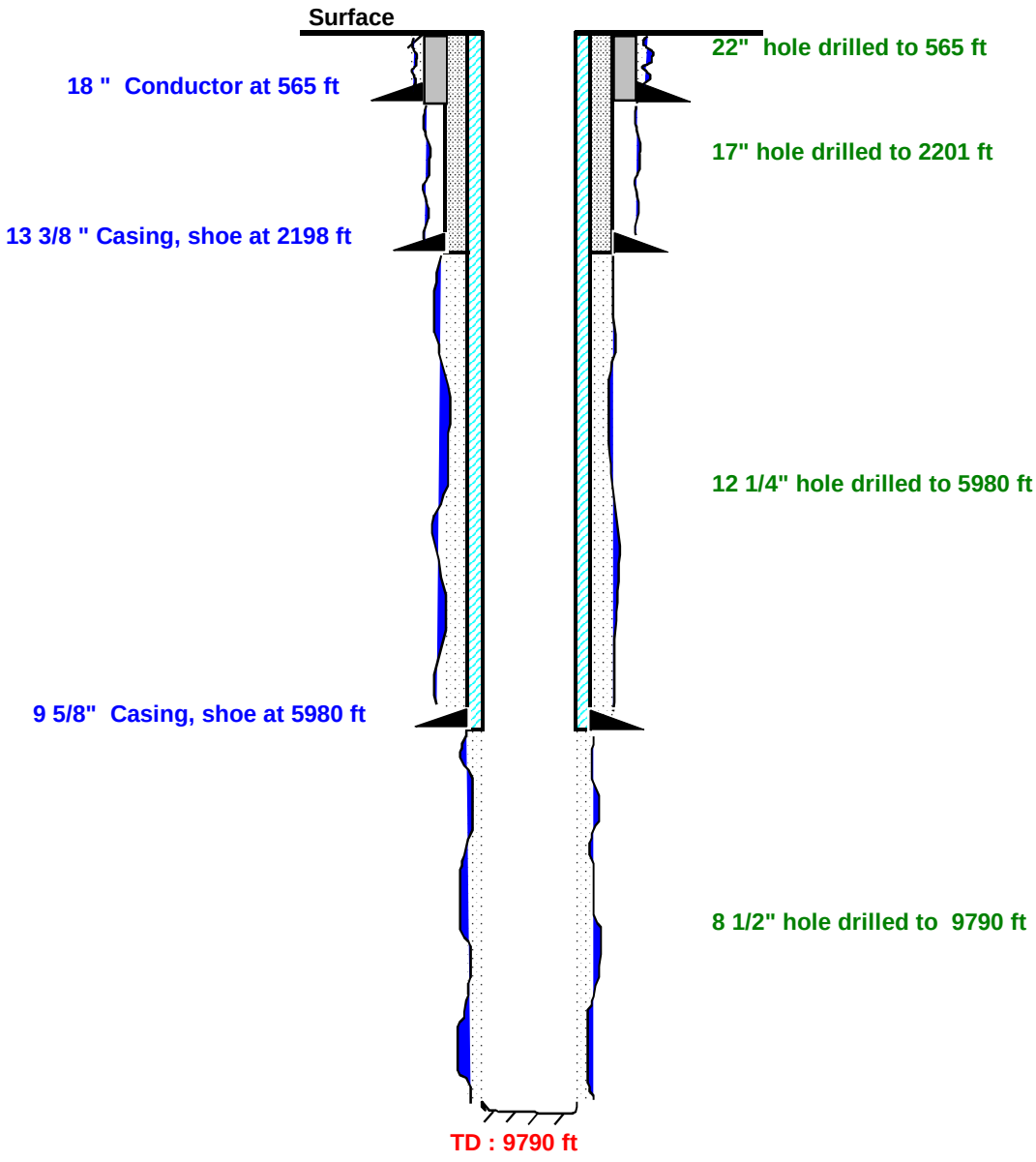
DEPTH (Feet)	MW (ppg)	FV (sec / qt)	PV (cp)	YP (lb 100 sq ft)
565	8.7	52	12	19
567	8.7	52	12	19
639	8.7	53	13	26
1420	9.1	60	16	32
1764	9.1	55	15	30
1888	9.4	56	16	30
2201	9.5	57	17	32
2440	9.0	51	14	22
3512	9.5	52	16	24
4517	9.6	54	20	29
5084	9.5	53	18	29
5429	9.5	52	18	30
5841	9.4	53	17	27
5980	9.6	53	18	29
5995	9.4	52	17	26
6357	9.3	52	16	27
6797	9.6	53	16	26
7450	9.9	52	17	26
7923	11.0	54	20	28
8300	11.0	53	21	30
8795	11.0	53	20	29
9303	11.4	55	23	30
9374	11.6	54	22	29
9510	11.9	55	22	30
9676	11.9	55	22	30
9728	11.9	54	22	29
9790	11.9	53	23	28

WELL: LO6-25

DEPTH (Feet)	MW (ppg)	FV (sec / qt)	PV (cp)	YP (lb 100 sq ft)
565	8.7	52	12	19
567	8.7	52	12	19
639	8.7	53	13	26
1420	9.1	60	16	32
1764	9.1	55	15	30
1888	9.4	56	16	30
2201	9.5	57	17	32
2440	9.0	51	14	22
3512	9.5	52	16	24
4517	9.6	54	20	29
5084	9.5	53	18	29
5429	9.5	52	18	30
5841	9.4	53	17	27
5980	9.6	53	18	29
5995	9.4	52	17	26
6357	9.3	52	16	27
6797	9.6	53	16	26
7450	9.9	52	17	26
7923	11.0	54	20	28
8300	11.0	53	21	30
8795	11.0	53	20	29
9303	11.4	55	23	30
9374	11.6	54	22	29
9510	11.9	55	22	30
9676	11.9	55	22	30
9728	11.9	54	22	29
9790	11.9	53	23	28

WELLBORE SCHEME

WELL: LO6 - 25



BIT RECORD TABLE

FIELD: LOBITOS				WELL: Z-2B-24-079-D-LO6			PETRO-TECH N°: LO6-25					RIG: PEPESA 48	UNIT: GEOIL			
Bit identification							Bit performance and drilling pa									
GEOIL®				Make	Serial #	Jets	Depth In	Depth Out	Ft Drill.	Hrs.	Rop Ft/Hr	WOB Klbs	RPM Table	PETRO-TECH PERUANA S.A.		
				HTC	W53CL	2x18 1x16	391	567	176	8	22	15/20	100			
RR	2	17	GTX-1	HTC	L21CT	2x16 1x14	567	576	9	1	9	15/20	100/130	419	450	3-3-1/16
N	3	17	GTX-C1	HTC	W52CL	4x18	576	1704	1128	29	38.9	20/25	SLD/60	700	1800	2-2-I
RR	3	17	GTX-C1	HTC	W52CL	4x18	1704	2201	497	18	27.6	40/45	50/60	716	2050	2-2-1
RR	4	12 1/4	ATX-C1	HTC	A33C1	3x16 1x18	2201	2216	15	0.5	30	10	60	700	800	3-3-1/16
RR	5	12 1/4	S91PX	PDC	JR8589	3x16 4x18	2216	5980	3764	80	47	20/25	110/120	615	1250	25% Desg
RR	4	12 1/4	ATX-C1	HTC	A33C1	1x18 3x22	5980	5980	C L E A N H O L E							
RR	6	8 1/2	GT-S1	HTC	L26CW	3x24	5980	5995	15	0.5	30	20	100	580	600	3-3-1/16
RR	7	8 1/2	BD-536	PDC	0402096	6x16	5995	9303	3308	106	31.2	25/30	90/100	499	1850	25% Desg
N	8	8 1/2	GTM-20	HTC	W36CS	3x22	9303	9676	373	41.5	8.98	40	80	412	1600	8-3-1/16
RR	9	8 1/2	EHP51AKP	REED	LX8008	2x24 1x22	9676	9790	114	18	6.33	40	80	429	1650	4-3-1/16

GEOIL™

PETRO-TECH PERUANA S.A.

SURVEYS DATA (ANADRILL)

WELL: LO6 - 25

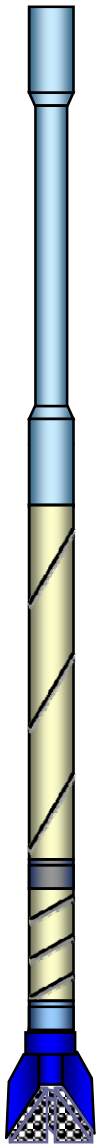
DEPTH	INCLINAT.	AZIMUTH	TVD	V. SECT.	N/ - S	E/ - W	CLOSURE
(feet)	(degree)	(degree)	(feet)	(feet)	(feet)	(feet)	(feet)
540	1.10	145.7	539.97	1.23	-4.28	2.92	5.18
601	2.30	248.7	600.95	2.47	-5.21	2.11	5.62
632	3.30	243.4	631.91	3.85	-5.84	0.73	5.88
694	6.90	226.8	693.66	9.23	-9.19	-3.58	9.86
757	11.20	220.9	755.86	19.12	-16.40	-10.35	19.39
820	15.50	217.4	817.15	33.63	-27.72	-19.47	33.88
883	19.80	216.7	877.17	52.66	-42.97	-30.97	52.97
944	23.50	217.0	933.85	75.07	-60.97	-44.46	75.46
1007	27.20	216.8	990.78	101.94	-82.54	-60.65	102.43
1070	29.80	220.0	1046.14	131.93	-106.07	-79.35	132.46
1133	33.10	222.8	1099.88	164.79	-130.69	-101.10	165.23
1196	35.00	223.7	1152.08	200.05	-156.38	-125.28	200.37
1258	37.20	224.4	1202.17	236.55	-182.63	-150.68	236.76
1321	39.40	226.4	1251.61	275.52	-210.03	-178.49	275.62
1385	41.00	224.4	1300.49	316.75	-239.04	-207.89	316.79
1448	42.90	223.7	1347.35	358.83	-269.31	-237.16	358.85
1479	44.60	223.0	1369.74	380.26	-284.90	-251.88	380.27
1510	46.50	222.8	1391.45	402.39	-301.11	-266.94	402.40
1573	49.80	220.9	1433.48	449.30	-336.07	-298.23	449.31
1604	51.80	220.2	1453.07	473.32	-354.32	-313.84	473.33
1721	54.10	222.5	1523.56	566.68	-424.39	-375.54	566.69
1815	51.20	223.6	1580..58	641.39	-479.26	-426.26	641.39
1876	49.70	223.7	1619.43	688.40	-513.46	-458.54	688.41
2002	51.70	223.7	1699.23	785.86	-583.95	-525.90	785.86
2096	52.00	221.2	1757.36	859.27	-633.47	-580.63	859.31
2217	51.00	225.8	1832.35	954.61	-707.34	-641.07	954.62
2279	52.40	225.6	1870.78	1003.16	-741.32	-675.89	1003.19
2342	54.10	225.1	1908.47	1053.55	-776.80	-711.80	1053.60
2373	54.80	225.1	1926.49	1078.73	-794.60	-729.67	1078.80
2430	56.30	225.8	1958.74	1125.64	-827.57	-763.16	1125.74
2587	55.80	225.8	2046.42	1255.58	-918.37	-856.53	1255.80
2743	54.90	226.3	2135.11	1383.58	-1007.43	-948.92	1383.97
2898	53.90	225.1	2225.34	1509.33	-1095.45	-1039.12	1509.89
3055	53.30	225.1	2318.51	1635.51	-1184.65	-1128.63	1636.21
3211	52.30	225.1	2412.83	1759.57	-1272.36	-1216.65	1760.43
3369	51.30	225.3	2510.53	1883.54	-1359.85	-1304.75	1884.56
3526	50.10	225.1	2609.97	2004.83	-1445.45	-1390.96	2006.01
3683	49.30	225.1	2711.52	2124.38	-1529.97	-1475.77	2125.73
3840	48.60	225.3	2814.62	2242.59	-1613.40	-1559.78	2244.10
3998	47.60	224.4	2920.14	2360.03	-1696.77	-1642.72	2361.68
4154	46.50	224.4	3026.43	2474.11	-1778.35	-1722.61	2475.87
DEPTH	INCLINAT.	AZIMUTH	TVD	V. SECT.	N/ - S	E/ - W	CLOSURE
(feet)	(degree)	(degree)	(feet)	(feet)	(feet)	(feet)	(feet)

4342	46.10	224.4	3156.31	2609.90	-1875.46	-1817.71	2611.78
4436	45.60	225.8	3221.79	2677.24	-1923.06	-1865.48	2679.21
4562	45.00	226.5	3310.42	2766.56	-1985.11	-1930.06	2768.72
4657	44.60	225.8	3377.83	2833.31	-2031.48	-1978.34	2835.62
4782	44.00	225.8	3467.29	2920.42	-2092.35	-2040.93	2922.89
4940	43.30	225.1	3581.61	3029.27	-2968.85	-2118.65	3031.93
5128	42.70	224.4	3719.11	3157.33	-2259.90	-2208.91	3160.14
5316	42.50	225.1	3857.49	3284.42	-2350.28	-2298.50	3287.38
5477	40.00	224.4	3978.53	3390.44	-2425.65	-2373.24	3393.53
5508	39.40	224.4	4002.38	3410.22	-2439.79	-2387.09	3413.33
5602	37.20	224.4	4076.15	3468.42	-2481.42	-2427.85	3471.58
5696	34.50	224.4	4152.33	3523.42	-2520.75	-2466.37	3526.63
5790	32.50	225.1	4230.71	3575.24	-2557.60	-2502.88	3578.51
5915	29.10	222.3	4338.07	3639.18	-2603.80	-2547.14	3642.49
6024	27.90	223.7	4432.90	3692.79	-2641.60	-2585.28	3696.18
6087	27.90	223.7	4488.58	3722.26	-2662.91	-2605.65	3725.65
6214	27.80	223.1	4600.87	3781.57	-2706.02	-2646.41	3784.97
6277	27.60	222.5	4656.65	3810.85	-2727.50	-2666.31	3814.25
6371	27.40	220.2	4740.03	3854.24	-2760.08	-2694.98	3857.59
6466	27.90	221.6	4824.18	3898.32	-2793.40	-2723.85	3901.59
6497	28.00	220.9	4851.57	3912.85	-2804.32	-2733.43	3916.10
6560	27.70	220.9	4907.27	3942.27	-2826.57	-2752.70	3945.48
6654	27.00	220.2	4990.76	3985.45	-2859.38	-2780.78	3988.58
6748	26.20	219.5	5074.81	4027.51	-2891.69	-2807.75	4030.55
6842	25.80	218.8	5159.30	4068.66	-2923.64	-2833.77	4071.60
6937	25.10	218.0	5245.08	4109.41	-2955.63	-2859.13	4112.22
7031	24.70	218.0	5330.34	4148.89	-2986.82	-2883.49	4151.58
7125	23.80	217.3	5416.05	4187.39	-3017.38	-2907.08	4189.95
7218	23.20	215.2	5501.33	4224.29	-3047.28	-2929.01	4226.70
7312	22.60	216.0	5587.87	4260.64	-3077.02	-2950.30	4262.90
7465	22.10	214.5	5729.43	4318.42	-3124.53	-2983.88	4320.44
7654	21.80	213.8	5904.73	4388.42	-3182.99	-3023.54	4390.13
7843	21.00	211.7	6080.70	4456.49	-3240.97	-3060.86	4457.89

BHA No. 1

WELL : LO6-25

March 18th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
6 HW	4 1/2"	2 3/4"	4 1/2" XH	4 1/2"XH	190.17	**350.14**
3 DC's	6 1/4"	2 1/4"	4 1/2" XH	4 1/2" XH	90.74	**159.97**
X/O	6 9/16"	4 1/2"	6 5/8" Reg	6 5/8" Reg	2.28	**69.23**
2 DC's	6 1/4"	2 1/4"	4 1/2" XH	4 1/2" XH	61.77	**66.95**
RED.	7 7/8"	3 1/8"	7 5/8" Reg	6 5/8" Reg	3.68	**5.18**
BIT#2RR 17" HTC GTX-1 L21CT JET: 2x16 1x14	17"				1.50	**1.50**

TOTAL LENGTH	**350.14**

DEPTH IN: 567'

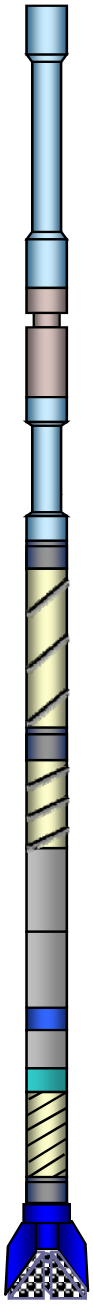
GEOIL™

PETRO-TECH PERUANA S.A.

BHA No.2

WELL : LO6-25

March 18th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**723.10**
HYDRAULIC JAR	6 5/16"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**358.04**
3 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**325.87**
X/O	6 5/16"	2 1/2"	4 1/2" XH	4 1/2" IF	2.91	**235.84**
3 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	93.13	**232.93**
XO	7 3/4"	2 15/16""	6 5/8" Reg	4 1/2 XH	2.25	**139.80**
DC	7 3/4"	2 13/16"	6 5/8" Reg	6 5/8" Reg	31.32	**137.55**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**106.23**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**75.27**
UBHO	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.24	**44.31**
Pony NMDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.46	**42.07**
Float Sub w. valve	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.56	**32.61**
Power Pak Motor	8"		6 5/8" Reg	6 5/8" Reg	27.23	**30.05**
X/O	9 9/16"	3 1/16"	7 5/8" Reg	6 5/8" Reg	1.44	**2.82**
BIT#3 17" HTC GTX-C1 W52CL JET: 4x18	17"			7 5/8" Reg	1.38	**1.38**

TOTAL LENGTH	**723.10**

DEPTH IN: 576 Ft.

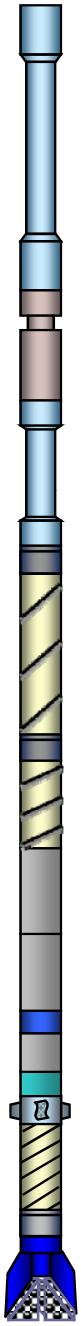
GEOIL

PETRO-TECH PERUANA S.A.

BHA No.3

WELL : LO6-25

March 20th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**814.59**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**449.53**
3 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**417.36**
X/O	6 5/16"	2 1/2"	4 1/2" XH	4 1/2" IF	2.91	**327.33**
6 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	179.47	**324.42**
XO	7 3/4"	2 15/16"	6 5/8" Reg	4 1/2 XH	2.25	**144.95**
DC	7 3/4"	2 13/16"	6 5/8" Reg	6 5/8" Reg	31.32	**142.70**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**111.38**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**80.42**
UBHO	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.24	**49.46**
Pony NMDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.46	**47.22**
Float Sub w. valve	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.56	**37.76**
15 1/2" Stb	7 11/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	5.15	**35.20**
Power Pak Motor	8"		6 5/8" Reg	6 5/8" Reg	27.23	**30.05**
X/O	9 9/16"	3 1/16"	7 5/8" Reg	6 5/8" Reg	1.44	**2.82**
BIT#4RR 17" HTC GTX-C1 W52CL JET: 4x18	17"			7 5/8" Reg	1.38	**1.38**

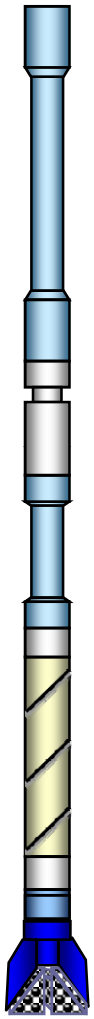
TOTAL LENGTH	**814.59**

DEPTH IN: 1704 Ft.

BHA No. 4

WELL : LO6 - 25

March 25th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP's	5"	4 1/2"	4 1/2" IF	4 1/2" IF	365.06	**675.79**
HYDRAULIC JAR	6 3/8"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**310.73**
3 HWDP's	5"	2 3/4"	4 1/2" IF	4 1/2" IF	90.03	**278.56**
XO	6 3/8"	2 13/16"	4 1/2" XH	4 1/2" IF	2.91	**188.53**
6 DC's	6 1/4"	2 3/4"	4 1/2" XH	4 1/2" XH	179.47	**185.62**
XO	6 3/8"	2 13/16"	6 5/8" Reg	4 1/2" XH	2.20	**6.15**
BIT SUB	6 3/8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.95	**3.95**
BIT# 5 RR 12 1/4" A33CD JET: 3x16 1X18	12 1/4"			6 5/8" Reg	1.00	**1.00**

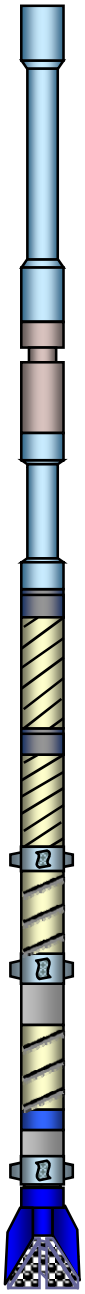
TOTAL LENGTH	**675.79**

DEPTH IN: 2201 Ft.

BHA No.5

WELL : LO6-25

March 25th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**711.87**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**346.81**
3 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**314.64**
XO	6 5/16"	2 1/2"	4 1/2 XH	4 1/2 IF	2.91	**224.61**
3 DC	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	93.13	**221.70**
XO	7 3/4"	2 15/16"	6 5/8" Reg	4 1/2 XH	2.25	**128.57**
DC	7 3/4"	2 13/16"	6 5/8" Reg	6 5/8" Reg	31.32	**126.32**
12 1/4"Stb	8 7/16"	2 7/8"	6 5/8" Reg	6 5/8" Reg	5.54	**95.00**
NMDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**89.46**
12 1/4"Stb	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	6.91	**58.50**
Pony NMDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.46	**51.59**
NMDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**42.13**
UBHO	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.24	**11.17**
Float Sub w. valve	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.56	**8.93**
12 1/4" NB Stb	8 1/2"	2 13/16"	7 5/8" Reg	6 5/8" Reg	5.54	**6.37**
BIT# 6 RR 12 1/4" PDC S91PX JET: 5X16 2X18	12 1/4"			6 5/8" Reg	0.83	**0.83**

TOTAL LENGTH	**711.87**

DEPTH IN: 2216 Ft.

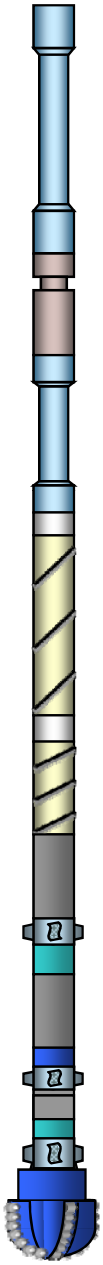
GEOIL™

PETRO-TECH PERUANA S.A.

BHA No.6

WELL : LO6 - 25

March 26th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**720.27**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**355.21**
3 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**323.04**
X/O	6 5/16	2 1/2	4 1/2" XH	4 1/2" IF	2.91	**233.01**
3 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	93.13	**230.10**
X/O	7 3/4"	2 15/16"	6 5/8" Reg	4 1/2" XH	2.25	**136.97**
DC'	7 3/4"	2 13/16"	6 5/8" Reg	6 5/8" Reg	31.28	**134.72**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**103.44**
STB	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	6.91	**72.48**
Pony MNDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.46	**65.57**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**56.11**
UBHO	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.24	**25.15**
STB	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	4.44	**22.91**
Pony NMDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.54	**18.47**
FLOAT SUB	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.56	**8.93**
NB STB	8 1/2"	2 13/16"	6 5/8" Reg	6 5/8" Reg	5.54	**6.37**
BIT# 6 RR 12 1/4" PDC S91PX JET: 5X16 2X18	12 1/4"			6 5/8" Reg	0.83	**0.83**

TOTAL LENGTH	**720.27**

DEPTH IN: 2440 ft.

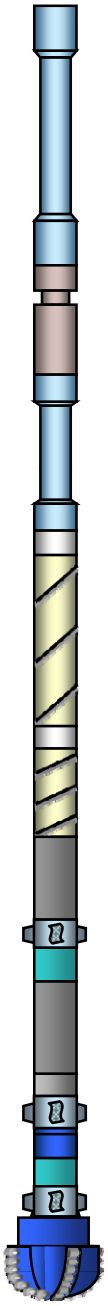
GEOIL™

PETRO-TECH PERUANA S.A.

BHA No.7

WELL : LO6 - 25

March 28th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**721.65**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**356.59**
3 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**324.42**
X/O	6 5/16	2 1/2	4 1/2" XH	4 1/2" IF	2.91	**234.39**
3 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	93.13	**231.48**
X/O	7 3/4"	2 15/16"	6 5/8" Reg	4 1/2" XH	2.25	**138.35**
DC'	7 3/4"	2 13/16"	6 5/8" Reg	6 5/8" Reg	31.28	**136.10**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**104.82**
STB	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	6.91	**73.86**
Pony MNDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.46	**66.95**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**57.49**
UBHO	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.24	**26.53**
STB	8 7/16"	2 7/8"	6 5/8" Reg	6 5/8" Reg	5.54	**24.29**
Pony NMDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.54	**18.75**
FLOAT SUB	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.56	**9.21**
NB STB	7 15/16"	2 13/16"	7 5/8" Reg	6 5/8" Reg	5.82	**6.65**
BIT# 6 RR 12 1/4" PDC S91PX JET: 5X16 2X18	12 1/4"			6 5/8" Reg	0.83	**0.83**

TOTAL LENGTH	**721.65**

DEPTH IN: 4517 ft.

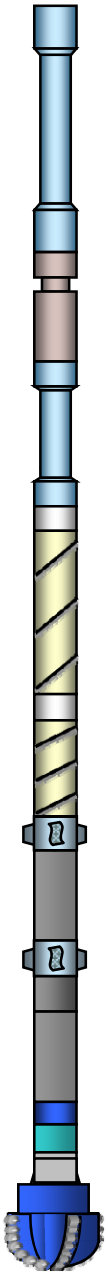
GEOIL™

PETRO-TECH PERUANA S.A.

BHA No.8

WELL : LO6 - 25

March 29th, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**709.21**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**344.15**
3 HWDP's	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**311.98**
X/O	6 5/16	2 1/2	4 1/2" XH	4 1/2" IF	2.91	**221.95**
3 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	93.13	**219.04**
X/O	7 3/4"	2 15/16"	6 5/8" Reg	4 1/2" XH	2.25	**125.91**
DC'	7 3/4"	2 13/16"	6 5/8" Reg	6 5/8" Reg	31.28	**123.66**
STB	8 7/16"	2 7/8"	6 5/8" Reg	6 5/8" Reg	5.54	**92.38**
MNDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**86.84**
STB	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	6.91	**55.88**
Pony MNDC	8 1/16"	2 13/16"	6 5/8" Reg	6 5/8" Reg	9.46	**48.97**
NMDC	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	30.96	**39.51**
UBHO	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.24	**8.55**
FLOAT SUB	8"	2 13/16"	6 5/8" Reg	6 5/8" Reg	2.56	**6.31**
BIT SUB	7 15/16"	2 13/16"	7 5/8" Reg	6 5/8" Reg	2.92	**3.75**
BIT# 6 RR 12 1/4" PDC S91PX JET: 3X16 4X18	12 1/4"			6 5/8" Reg	0.83	**0.83**

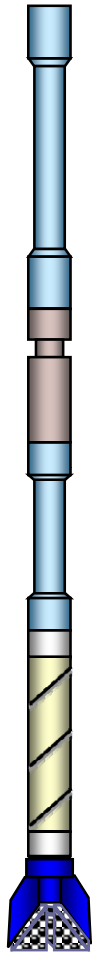
TOTAL LENGTH	**709.21**

DEPTH IN: 5430 ft.

BHA No.9

WELL : LO6-25

APRIL 03rd, 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HWDP	4 1/2"	2 3/4"	4 1/2" XH	4 1/2" XH	365.06	**587.15**
HYDRAULIC JAR	6 3/8"	2 3/4"	4 1/2" XH	4 1/2" IF	32.17	**222.09**
3 HWDP	4 1/2"	2 3/4"	4 1/2" XH	4 1/2" XH	90.03	**189.92**
X/O	6 3/8"	2 3/4"	4 1/2" XH	4 1/2" XH	2.91	**99.89**
3 DC 6 1/4"	6 1/4"	2 15/16"	4 1/2" XH	4 1/2" XH	93.13	**96.98**
X/O	6 3/8"	2 3/4"	4 1/2" XH	4 1/2" XH	3.05	**3.85**
BIT#6RR 8 1/2" GT-S1 L26CW JET: 3x24	8 1/2"			4 1/2" Reg	0.80	**0.80**

TOTAL LENGTH	**587.15**

DEPTH IN: 5980 Ft.

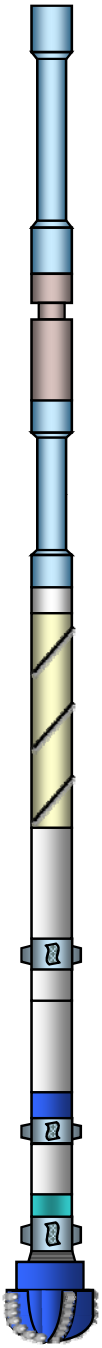
GEOIL

PETRO-TECH PERUANA S.A.

BHA No. 10

WELL : LO6 - 25

APRIL 4th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HW	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**771.56**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**406.50**
3 HW	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**374.33**
X/O	6 5/16"	2 1/2"	4 1/2" XH	4 1/2" IF	2.91	**284.30**
6 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	183.03	**281.39**
NMDC	6 1/2"	2 7/8"	4 1/2" HX	4 1/2" XH	30.57	**98.36**
STB	6 3/4"	2 13/16"	4 1/2" HX	4 1/2" XH	4.80	**67.79**
PONY NMDC	6 9/16"	2 7/8"	4 1/2" HX	4 1/2" XH	8.05	**62.99**
NMDC	6 3/8"	2 7/8"	4 1/2" HX	4 1/2" XH	30.46	**54.94**
UBHO	6 3/4"	2 7/8"	4 1/2" HX	4 1/2" XH	2.03	**24.48**
STB	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" XH	4.20	**22.45**
PONY NMDC	6 7/16"	2 7/8"	4 1/2" XH	4 1/2" XH	10.27	**18.25**
FLOAT SUB	6 3/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.96	**7.98**
NB STB	6 1/2"	2 7/8"	4 1/2" Reg	4 1/2" XH	5.22	**6.02**
BIT#7RR 8 1/2" BD-536 JET: 6X16	8 1/2"			4 1/2" Reg	0.80	**0.80**

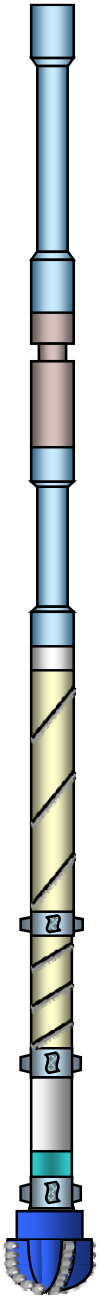
TOTAL LENGTH	**771.56**

DEPTH IN: 5995 Ft.

BHA No. 11

WELL : LO6 - 25

APRIL 8th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
12 HW	5"	3"	4 1/2" IF	4 1/2" IF	365.06	**757.31**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**392.25**
3 HW	5"	3"	4 1/2" IF	4 1/2" IF	90.03	**360.08**
X/O	6 5/16"	2 1/2"	4 1/2" XH	4 1/2" IF	2.91	**270.05**
7 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	210.91	**267.14**
8 1/2"STB	6 3/4"	2 13/16"	4 1/2" HX	4 1/2" XH	4.80	**56.23**
DC	6 3/8"	2 7/8"	4 1/2" HX	4 1/2" XH	28.95	**51.43**
8 3/8"STB	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" XH	4.20	**22.48**
PONY NMDC	6 7/16"	2 7/8"	4 1/2" XH	4 1/2" XH	10.27	**18.28**
FLOAT SUB	6 3/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.96	**8.01**
NB STB	6 1/2"	2 7/8"	4 1/2" Reg	4 1/2" XH	5.22	**6.05**
BIT#7RR 8 1/2" BD-536 JET: 6X16	8 1/2"			4 1/2" Reg	0.80	**0.83**

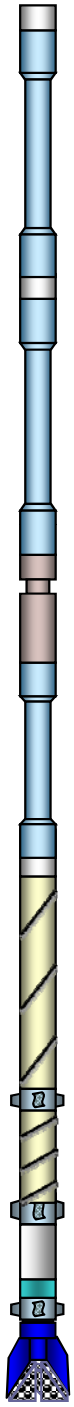
TOTAL LENGTH	**757.31**

DEPTH IN: 7923 Ft.

BHA No. 12

WELL : LO6 - 25

APRIL 11th , 2001



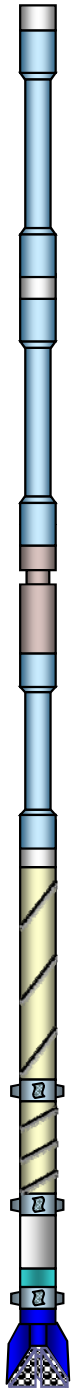
ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
X/O	6 5/16"	2 1/2"	4" IF	4 1/2" IF	0.80	**1031.19**
9 HW	4 1/2"	3.82"	4" IF	4" IF	271.58	**1030.39**
X/O	6 5/16"	2 1/2"	4 1/2" IF	4" IF	1.50	**758.81**
9 HW	5"	3"	4 1/2" IF	4 1/2" IF	274.03	**757.31**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**483.28**
6 HW	5"	3"	4 1/2" IF	4 1/2" IF	181.06	**451.11**
X/O	6 5/16"	2 1/2"	4 1/2" XH	4 1/2" IF	2.91	**270.05**
7 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	210.91	**267.14**
8 1/2"STB	6 3/4"	2 13/16"	4 1/2" HX	4 1/2" XH	4.80	**56.23**
DC	6 3/8"	2 7/8"	4 1/2" HX	4 1/2" XH	28.95	**51.43**
8 3/8"STB	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" XH	4.20	**22.48**
PONY NMDC	6 7/16"	2 7/8"	4 1/2" XH	4 1/2" XH	10.27	**18.28**
FLOAT SUB	6 3/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.96	**8.01**
NB STB	6 1/2"	2 7/8"	4 1/2" Reg	4 1/2" XH	5.22	**6.05**
BIT#8 8 1/2" HTC GTM20 JET: 3X22	8 1/2"			4 1/2" Reg	0.8.3	**0.83**

TOTAL LENGTH	**1031.19**

BHA No. 13

WELL : LO6 - 25

APRIL 14th , 2001



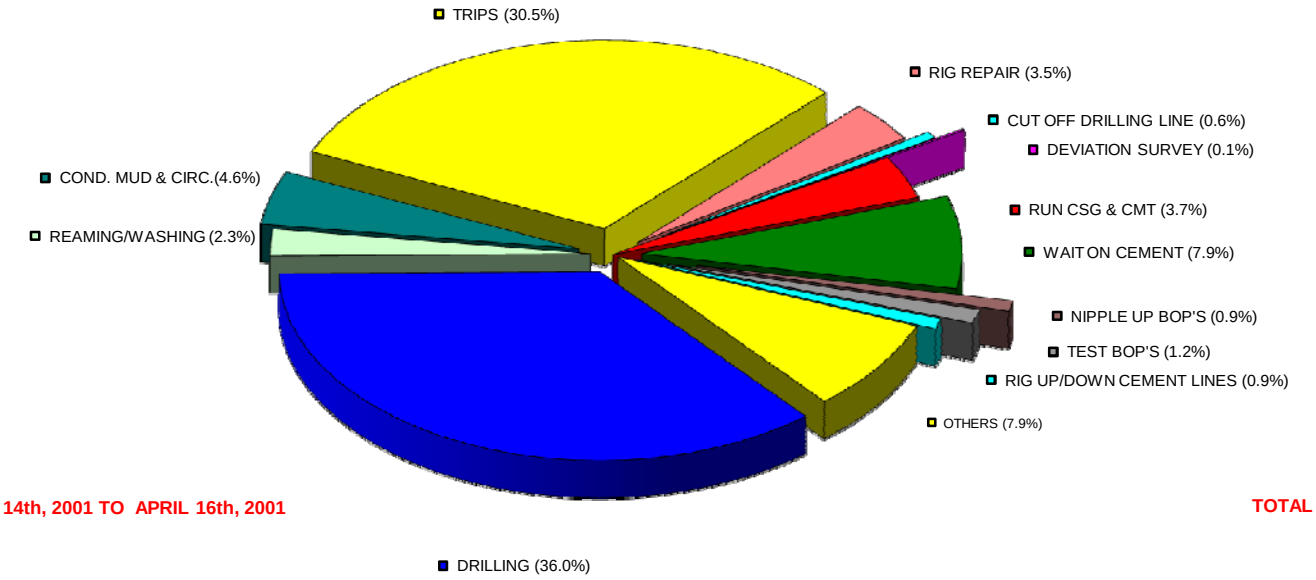
ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
X/O	6 5/16"	2 1/2"	4" IF	4 1/2" IF	0.80	**1031.19**
9 HW	4 1/2"	3.82"	4" IF	4" IF	271.58	**1030.39**
X/O	6 5/16"	2 1/2"	4 1/2" IF	4" IF	1.50	**758.81**
9 HW	5"	3"	4 1/2" IF	4 1/2" IF	274.03	**757.31**
HYDRAULIC JAR	6 1/2"	2 3/4"	4 1/2" IF	4 1/2" IF	32.17	**483.28**
6 HW	5"	3"	4 1/2" IF	4 1/2" IF	181.06	**451.11**
X/O	6 5/16"	2 1/2"	4 1/2" XH	4 1/2" IF	2.91	**270.05**
7 DC's	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	210.91	**267.14**
8 1/2"STB	6 3/4"	2 13/16"	4 1/2" HX	4 1/2" XH	4.80	**56.23**
DC	6 3/8"	2 7/8"	4 1/2" HX	4 1/2" XH	28.95	**51.43**
8 3/8"STB	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" XH	4.20	**22.48**
PONY NMDC	6 7/16"	2 7/8"	4 1/2" XH	4 1/2" XH	10.27	**18.28**
FLOAT SUB	6 3/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.96	**8.01**
NB STB	6 1/2"	2 7/8"	4 1/2" Reg	4 1/2" XH	5.22	**6.05**
BIT#9RR 8 1/2" EHP51AKPR JET: 2X24 1X22	8 1/2"			4 1/2" Reg	0.8.3	**0.83**

TOTAL LENGTH	**1031.19**

DEPTH IN: 9676 Ft.

TIME DISTRIBUTION (HOURS)

WELL: LO6-25



FROM MARCH 14th, 2001 TO APRIL 16th, 2001

TOTAL HOURS: 840

DRILLING (36.0%)	REAMING/WASHING (2.3%)	COND. MUD & CIRC.(4.6%)	TRIPS (30.5%)	RIG REPAIR (3.5%)
CUT OFF DRILLING LINE (0.6%)	DEVIATION SURVEY (0.1%)	RUN CSG & CMT (3.7%)	WAIT ON CEMENT (7.9%)	NIPPLE UP BOP'S (0.9%)
TEST BOP'S (1.2%)	RIG UP/DOWN CEMENT LINES (0.9%)	OTHERS (7.9%)		

CONCLUSION

Z-2B-24-079-D-LO6 (LO6-25) directional well drilled from platform LO6, with PEPESA 48 Rig, located in the Area Lobitos Offshore in Talara Basin. The sedimentary sequence were drilled in Tertiary Formations was follows:

Talara Fm (Surface-2830 ft), Chacra Fm (2830-4550 ft), Rio Bravo Fm (4550-6230 ft), Palegreda Fm (6230-7010 ft), Mogollón Fm (7010-7900 ft), San Cristobal Fm (7900-9210 ft), Basal Salina Fm (9210-9790 ft FTD).

Only poor oil shows were observed from 5050 ft to 6130 ft in Rio Bravo formation, and fluorescence occured in amounts ranging from 5% to 25%. They contained slightly bright yellowish white fluorescence and with solvent yielded moderately fast moderately strong streaming milky white cut, the residual ring was yellowish white .The maximun gas reading recorded for this interval was 506.32 units of Total gas at 5544 ft which showed complete chromatography except C2.

Fair oil shows were observed from 7400 ft to 7610 ft in Mogollón formation, and fluorescence occured in amounts ranging from 5% to 30%. They contained slightly bright yellowish white fluorescence and with solvent yielded fast strong streaming milky white cut, the residual ring was yellowish white. The maximun gas readings recorded for this interval was 386.21 units of Total Gas at 7495 ft which showed complete chromatography. The mud weight was raised from 9.6 to 10.5 ppg due to Gas Cut mud

The main objective was Basal Salina formation wich have good bodies of clean sands. Good oil shows were observed from 9290 ft to 9670 ft, and fluorescence occured in amounts ranging from 10% to 50%. They contained slightly bright yellowish white fluorescence and with solvent yielded fast strong streaming milky white cut, the residual ring was yellowish white. The maximun gas reading recorded for this formation was 913.17 units of Total Gas at 9616 ft which showed complete chromatography except C2. The mud weight was raised from 10.5 to 11.9 ppg due to Gas Cut Mud and Oil Cut Mud. While drilling at 9617 ft mud sample taken with oil presence in mud, which showed live oil with strong odor.

Drilling stopped at 9790 ft into Basal Salina formation due to kick off, with 1850 psi in lines, well in production.