GEOIL TECHNOLOGY INC,
SUCURSAL DEL PERU

FINAL WELL REPORT

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

AUGUST, 2001

PETRO-TECH PERUANA S.A.

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INTRODUCTION

Geoil Technology Inc. Sucursal del Perú, started Mud Logging operations on the Development Well Z-2B-24-079-D-LO6 (LO6-25 ST), on July 16th, 2001 at 16:00 Hrs.

The Z-2B-24-079-D-LO6 (LO6-25 ST) directional side track well was drilled from 9 5/8''casing shoe LO6-25 well at 5980', because of the stuck pipe problem presented during the reaming jobs in this well, It's located in the Lobitos Area, 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 ST from 5980 feet to the Final Total Depth at 9803 feet into Basal Salina formation, that reached on August 29th, 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 ST)	
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:	JULY 16th, 2001	
End Date:	AUGUST 29th, 2001	
Objectives:	Basal Salina, Mogollón, Río Bravo Fm	
Total depth:	9803 ft	
Drilling Contractor / Rig:	PEPESA 48	
Drilling Fluids:	M-I	
Logging Contractor:	Schlumberger / Halliburton.	
Mudlogging / Unit:	Geoil Technology Inc. Suc. del Perú	
Geoil Crew:	Heller Alberca S.	
	Julio Ortíz N.	
	Nestor Gonzales	


Colombia
Ecuador
67
39
AB
8
68
64
32
8X
WELL:
L06-25 ST
33
87
AMERICA DEL SUR
Brasil
Z-9
10
Z-29
Z-13
Z-14
31
85
86
D
71
40
34
35
75
OCEANO
PACIFICO
Z-39
Z-2
Z-40
Z-22
Z-41
Z-42
78
Bolivia
Z-51
Z-52
Chile
GEOIL
PETRO-TECH PERUANA S.A.
LOCATION MAP
WELL: L06 – 25 ST
0 100 200 300 km
0 100 200 mi
FECHA
JULY-AUG, 2001
LOTE
Z-2B

STRATIGRAPHIC SEQUENCE

WELL: LO6 – 25 ST

The stratigraphic column expected 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: Rio Bravo (Eocene), Palegreda (Eocene), Mogollón (Eocene), San Cristobal (Eocene), Basal Salina (Eocene).

RIO BRAVO Fm. **Interval: 6030' to 6270'**

The Rio Bravo formation is comformed in the upper section by sandstones and sand, the lower section conformed by interbedding of claystone and siltstone.
Sand was white, hyaline, quartz grains, mostly fine to medium grained, minor coarse grained, sub angular to sub rounded, fair sorted, clean.
Sandstone was white, slightly whitish gray, predominantly very fine to fine grained, minor medium grained, subangular to subrounded, well sorted, slightly argillaceous matrix, calcareous cement, friable to moderately hard, poor to fair visual porosity.
Siltstone was gray, medium gray, light gray, sub blocky, micro micaceous, micro carbonaceous, non to slightly calcareous, grading in part to very fine sandstone.
Claystone was light gray, medium gray, subblocky to subplaty, soft to moderately firm, non calcareous, micromicaceous, microcarbonaceous.
The more common accessories were calcite, traces coal.

OIL SHOWS

From 6030' to 6050' the maximum fluorescence was 15%
From 6060' to 6100' the maximum fluorescence was 20%
From 6110' to 6180' the maximum fluorescence was 15%

GAS SHOW:

The maximum gas shows in this formation was 16 units of Total Gas at 6091' with complete chromatography.

PALEGREDA Fm. Interval: 6270' to 7010'

This formation composed by claystones with some intercalations of thin layers of sandstone and siltstone.
Claystone was light gray, medium gray, minor brownish gray, blocky to subblocky, sub bloky to sub platy, moderately firm to soft, non calcareous to slightly calcareous in part, micromicaceous, microcarbonaceous.
The more common accessories were calcite.
NO OIL SHOWS
GAS SHOW
The maximun gas readings was 65 units of Total Gas at 6573' with complete chromatography.

MOGOLLON Fm. Interval: 7010' to 7900'

The Mogollón formation was the secondary objective of this well, is comformed by sandstones interbedding with claystones.
Sandstone was slightly grayish white, minor whitish, very fine to medium grained, subangular to subrounded, fair sorted, clay and silty matrix in part, very calcareous, friable to moderately hard, slightly dirty, micromicaceous and dark grain inclusion, poor visual porosity.
Claystone was gray, brownish gray, blocky to subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous with laminar coal inclusion occasionally.
The more common accessories were calcite, pyrite.

OIL SHOWS
From 7110' to 7180' the maximum fluorescence was 5%
From 7320' to 7500' the maximum fluorescence was 30%
From 7750' to 7820' the maximum fluorescence was 5%
GAS SHOW
The maximum gas shows in this formation was 77 units of Total Gas at 7519' containing all gas.

SAN CRISTOBAL Fm. Interval: 7900' to 9100'

This formation composed by claystones with intercalations of siltstone and sandstones.
Claystone was gray, medium gray, brownish gray, blocky to subblocky, moderately firm to soft, non calcareous, micromicaceous , microcarbonaceous, locally micropyrite inclusion.
The more common accessories were calcite, coal, traces of mica.
OIL SHOWS
From 8550' to 8580' the maximum fluorescence was 15%
From 8640' to 8650' the maximum fluorescence was 5%
GAS SHOW
The maximum gas shows was 412 units of Total Gas at 8633', with complete chromatography

BASAL SALINA Fm. Interval: 9100' to 9803'(F.T.D)

This formation was the main objective of this well, it's constituted by two secuences:
The secuence first constituted by four bodies of clean sand with intercalation of sandstone and shale breaks.

The lower secuence was an massive bodie clean sand, with interbedded of sandstone and thin layers of claystone.

Sand was hyaline, white, minor smoky white, quartzose, fine to very coarse grains, predominantly subangular to subrounded, poor to fair sorted, hackly occasionally, some dark & traces smoky, light green grains.

Sandstone was white, whitish, grayish white, minor light gray, very fine to fine grained, fair to well sorted, slightly clean, silty matrix predominantly, calcareous cement, some with siliceous cement, moderately friable to moderately hard, dark grain inclusion, fair to poor visual porosity.

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

The more common accessories were calcite, pyrite.

OIL SHOWS

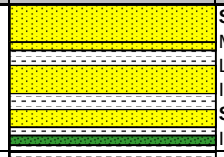
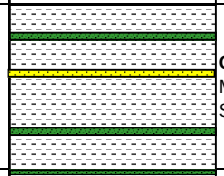
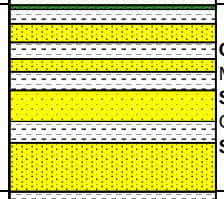
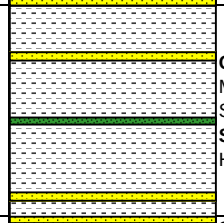
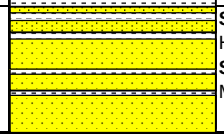
From 9100’ to 9140’ the maximum fluorescence was 30%
From 9220’ to 9280’ the maximum fluorescence was 15%
From 9310’ to 9510’ the maximum fluorescence was 30%
From 9550’ to 9803’ the maximum fluorescence was 20%

GAS SHOW:

The maximum gas show in this formation was 38.96 units of Total Gas at 9109’ containing all gas.

STRATIGRAPHIC COLUMN

WELL : LO6-25ST

AGE	FORMATION	THICKNESS (ft)	LITHOLOGY	DESCRIPTION
TERTIARY	**RIO BRAVO (6030' - 6270')**	240		**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 GR INCL, P VIS POR. **CLAYSTONE:** GY, LIGHT GY, MD 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.
	PALEGREDA (6270' - 7010')	740		**CLAYSTONE:** GY, LIGHT GY, MD GY, SBBLKY, MNR SBPLTY, MOD FM MNR SFT, NON CALC, V MICRMIC, MNR MICCARB, V R W/ LAM COAL INCL. **SILTSTONE:** LT GY, GY, SBBLKY, BLKY IN PT, FRM, LOC HD, MICRMIC, MICRCARB, V SL CALC, GRAD V F GR SS.
	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 CMT, 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' - 9100')	1200		**CLAYSTONE:** GY, OCC SL DK GY, SBBLKY MNR SBPLTY, SFT MNR MOD FRM, NON CALC, V MICRMIC, MICRCARB, SLTY IN PT. **SILTSTONE:** LT GY, SBBLKY, MOD FRM, SL CALC, MICRMIC, MICRCARB, OCC W/ LAM COAL INCL, LOC SDY. **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 (9100' - 9803')	703		**SAND:** HYAL, WH, TRNSP, QTZ, F, M, C - GRNL GR, PRED SBANG - SBRD, MNR , P SRT, FRACT, HACKLY, SOME DK MNR SMKY, LT GN, LT GY GR, FR/ OIL SHOW. **SANDSTONE:** GY'SH WH, WH'SH, V F - F MNR M GR, SBANG - SBRD, FR SRT, SL CLN, SLTY MTX, ARG MTX IN PT, CALC CMT, FRI & MOD HD, DK GR INCL, P - FR VIS POR.

FORMATION TOPS
WELL: LO6 - 25ST

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'	3242'	2433'	-2383'
RIO BRAVO	4550'	3150'	-3100'	4550'	3302'	-3252'	3797'	2786'	-2736'
PALEGREDA	6250'	4450'	-4400'	6270'	4615'	-4565'	6160'	4553'	-4503'
MOGOLLON	6850'	4950'	-4900'	7010'	5345'	-5295'	7095'	5420'	-5370'
SAN CRISTOBAL	7800'	5850'	-5800'	7900'	6177'	-6127'	7767'	6055'	-6005'
BASAL SALINA	8900'	6950'	-6900'	9100'	7292'	-7242'	9205'	7418'	-7368'
TOTAL DEPTH	9900'	7850'	-7800'	9803	7980'	-7930	9803	7980'	-7930'

LITHOLOGYCAL DESCRIPTIONS

WELL: LO6- 25 ST

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
DRILLING SPUDDED ON JULY 18th, 2001 at 00:30 hrs			
RIO BRAVO FM.			
6030 – 6040	70 30	**SAND:** white, hyaline, translucent, quartzose, 70% fine, 30% fine to medium grains, subangular to subrounded, fair sorted. **SANDSTONE:** grayish white, whitish, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, friable, with dark grain inclusion, poor visual porosity **Fluorescence:** slightly bright, dull yellowish, slow streaming slightly yellowish cut, milky white on residual ring.	15
6040 – 6050	60 40	**SAND:** white, hyaline, translucent, quartzose, 70% fine, 30% fine to medium grains, subangular to subrounded, fair sorted. **SANDSTONE:** grayish white, whitish, 90% very fine, 10% fine grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, friable, dark grain inclusion, poor visual porosity **Fluorescence:** slightly bright, dull yellowish, slow streaming cut, milky white on residual ring.	15
6050 – 6070	20 80	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains. **SANDSTONE:** light grayish white, whitish, 70% very fine, 30% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain and 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. Acc: traces mica, slickenside and calcite.	20
6070 – 6080	20 70 10	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains. **SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain and occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming milky white cut, slightly milky white residual ring. **CLAYSTONE:** gray, light gray, blocky to subblocky, soft, non calcareous, micromicaceous, microcarbonaceous.	20
6080 – 6100	10 80	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, occasionally some dark grains. **SANDSTONE:** whitish gray, whitish, 100% very fine to fine grains, subrounded minor subangular, well sorted, clay matrix, calcareous, friable, dark grain inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming milky white cut, slightly milky white residual ring.	20

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		cement, moderately hard, slightly friable in part, dark grain and occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming milky white cut, slightly milky white residual ring.	
	20	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft, non calcareous, micromicaceous, microcarbonaceous. Acc: traces mica and calcite.	
6160 – 6170	20	**SAND:** white, hyaline, minor smoky white, quartz, 20% fine, 60% medium, 20% coarse grain, subangular to subrounded, well sorted.	5-15
	30	**SANDSTONE:** whitish gray, whitish, quartzose, 90% very fine, 10% fine to medium grains, subrounded minor subangular, well sorted, clay matrix, calcareous cement, moderately hard, slightly friable in part, dark grain inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming slightly milky white cut, slightly milky white residual ring.	
	50	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm in part, non calcareous, micromicaceous, micro carbonaceous. Acc: traces mica and calcite.	
6170 – 6180	20	**SAND:** white, hyaline, minor smoky white, greenish grain occasionally, quartz, 20% fine, 50% medium, 30% coarse grain, subangular to subrounded, poor sorted.	5-15
	20	**SANDSTONE:** whitish gray, whitish, quartzose, 90% very fine, 10% fine to medium grains, subrounded minor subangular, well sorted, clay matrix, calcareous cement, moderately hard, slightly friable in part, dark grain, coal occasionally inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming slightly milky white cut, slightly milky white residual ring.	
	60	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, non calcareous, micromicaceous, micro carbonaceous. Acc: traces mica and calcite.	
6180 – 6200	10	**SAND:** white, hyaline, minor smoky white, greenish grain, quartz, 20% fine, 50% medium, 30% coarse grain, subangular to subrounded, poor sorted.	NF
	10	**SANDSTONE:** whitish gray, whitish, quartzose, 90% very fine, 10% fine to medium grains, subrounded minor subangular, well sorted, clay matrix, calcareous cement, moderately hard, slightly friable in part, dark grain inclusion, poor visual porosity	
	80	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, non calcareous, micromicaceous, microcarbo naceous.	
6200 – 6210	10	**SANDSTONE:** whitish gray, whitish, quartzose, 90% very fine, 10% fine to medium grains, subrounded minor subangular, well sorted, clay matrix, calcareous cement, moderately hard, slightly friable in part, dark grain inclusion, poor visual porosity.	NF
	90	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous. Acc: traces mica and calcite.	
6210 – 6220	10	**SANDSTONE:** whitish gray, whitish, quartzose, 90% very fine, 10% fine to medium grains, subrounded minor subangular, well sorted, clay matrix, calcareous cement, moderately hard, slightly friable in part, dark grain inclusion, poor visual porosity.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10 80	**SILTSTONE:** gray, light gray, blocky to subbloky , moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous **CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, slightly to non calcareous, micromicaceous, micro carbonaceous.	
6220 – 6240	10 90	**SILTSTONE:** gray, light gray, bloke to subblocky , moderately firm, slightly calcareous, very micro micaceous occasionally, micro carbonaceous. **CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, slightly to non calcareous, micromicaceous, microcarbonaceous. Acc: calcite and traces coal.	NF
6240 – 6250	20 80	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, very micro micaceous occasionally, micro carbonaceous. **CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, slightly to non calcareous, micromicaceous, microcarbonaceous.	NF
6260 – 6270	10 20 70	**SANDSTONE:** whitish gray, light gray, dirty sandstone, quartzose, 80% very fine to fine, 20% fine to medium grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, moderately hard, dark grain and lithic inclusions, poor visual porosity. **SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous. **CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, slightly to non calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite mica and coal.	NF
		PALEGREDA FM AT 6270 ft.	
6270 – 6290	10 10 80	**SANDSTONE:** whitish gray, light gray, dirty sandstone, quartzose, 80% very fine to fine, 20% fine to medium grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, moderately hard, dark grain and lithic inclusion, poor visual porosity. **SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous. **CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, slightly to non calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite, mica and coal.	NF
6290 – 6300	10 90	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous slightly microcarbonaceous. **CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous. Acc: traces calcite and mica.	NF
6300 – 6310	100	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous.	NF
6310 – 6320	20	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, very micro micaceous occasionally, micro carbonaceous.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	80	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous. Acc: traces calcite and mica.	
6320 – 6330	10	**SANDSTONE:** whitish gray, light gray, dirty sandstone, quartzose, 90% very fine to fine, 10% fine to medium grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, moderately hard, slightly friable in part, with dark grain inclusion, coal inclusion occasionally, poor visual porosity.	NF
	10	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, very micro micaceous occasionally, microcarbonaceous.	
	80	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous. Acc: traces calcite, mica and coal.	
6330 – 6340	10	**SANDSTONE:** light gray, whitish gray, quartzose, 100% very fine to fine grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, moderately hard, slightly friable in part, with dark grain inclusion, coal inclusion occasionally, poor visual porosity.	NF
	10	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, microcarbonaceous.	
	80	**CLAYSTONE:** gray, light gray, blocky to subblocky, minor subplaty, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous.	
6340 – 6350	20	**SANDSTONE:** light gray, whitish gray, quartzose, 100% very fine to fine grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, slightly friable to loose, with dark grain inclusion, coal inclusion occasionally, poor visual porosity.	NF
	20	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, microcarbonaceous.	
	60	**CLAYSTONE:** gray, light gray, blocky to subblocky, minor subplaty, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous.	
6350 – 6380	10	**SANDSTONE:** light gray, whitish gray, quartzose, 100% very fine to fine grains, subangular to subrounded, well sorted, clay matrix, calcareous cement, slightly friable to loose, with dark grain inclusion, coal inclusion occasionally, poor visual porosity.	NF
	20	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, microcarbonaceous.	
	70	**CLAYSTONE:** gray, light gray, blocky to subblocky, minor subplaty, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous. Acc: traces calcite, mica, and coal.	
6380 – 6400	20	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, microcarbonaceous.	NF
	80	**CLAYSTONE:** gray, light gray, blocky to subblocky, minor subplaty, soft to moderately firm, non calcareous, very micromicaceous occasionally microcarbonaceous. Acc: traces calcite, mica, and coal.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6400 – 6440	10 90	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray occasionally, subblocky to subplaty, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite, mica, and coal.	NF
6440 – 6460	10 90	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, micro carbonaceous. **CLAYSTONE:** gray, light gray, medium gray occasionally, subblocky to subplaty, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite, mica, and coal.	NF
6460 – 6470	100	**CLAYSTONE:** gray, light gray, medium gray occasionally, subblocky to subplaty, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite, mica, and coal..	NF
6470 – 6500	100	**CLAYSTONE:** gray, light gray, medium gray, platy to sub platy, subblocky occasionally, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite.	NF
6500 – 6530	10 90	**SANDSTONE:** grayish white, dirty sandstone, quartzose, 100% very fine to fine grained, subangular to subrounded, well sorted, clay and silty matrix, calcareous cement, moderately hard to slightly friable, poor visual porosity. **CLAYSTONE:** gray, light gray, medium gray, platy to sub platy, subblocky occasionally, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite.	NF
6530 – 6540	10 10 80	**SANDSTONE:** grayish white, dirty sandstone, quartzose, 100% very fine to fine grained, subangular to subrounded, well sorted, clay and silty matrix, calcareous cement, moderately hard to slightly friable, poor visual porosity. **SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, platy to sub platy, subblocky occasionally, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous, occasionally laminar coal inclusions. Acc: traces calcite.	NF
6540 – 6570	10 10 80	**SANDSTONE:** grayish white, dirty sandstone, quartzose, 100% very fine to fine grained, subangular to subrounded, well sorted, clay and silty matrix, calcareous cement, moderately hard to slightly friable, poor visual porosity. **SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, subblocky to subplaty, soft to moderately firm, non to slightly calcareous, micro micaceous, microcarbonaceous.	NF
6570 – 6590	10	**SANDSTONE:** grayish white, dirty sandstone, quartzose, 100% very fine to fine grained, subangular to subrounded, well sorted, clay and silty matrix, calcareous cement, moderately hard to slightly friable, poor visual porosity.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20 70	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, subblocky to subplaty, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite.	
6590 – 6630	20 80	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, , slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, subblocky to subplaty, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite, mica, and pyrite.	NF
6630 – 6660	10 90	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, subblocky to subplaty, soft to moderately firm, non to slightly calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite and pyrite.	NF
6660 – 6670	10 90	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, grading to very fine sandstone in part, slightly calcareous, micro micaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, subblocky to subplaty, soft to moderately firm, non calcareous to slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite, pyrite and mica.	NF
6670 – 6700	100	**CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: calcite.	NF
6700 – 6720	10 90	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite, pyrite and mica.	NF
6720 – 6740	10 90	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite, pyrite and mica.	NF
6740 – 6760	10 10 80	**SANDSTONE:** grayish white, dirty sandstone, quartzose, 100% very fine to fine grained, subangular to subrounded, well sorted, clay and silty matrix, calcareous cement, moderately hard to slightly friable, poor visual porosity. **SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite.	NF
6760 – 6770	10	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	90	**CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite.	
6770 – 6780	10	**SANDSTONE:** grayish white, dirty sandstone, quartzose, 100% very fine to fine grained, subangular to subrounded, well sorted, clay and silty matrix, calcareous cement, moderately hard to slightly friable, poor visual porosity.	NF
	10	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous	
	80	**CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor sub platy, moderately firm, slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite.	
6780 – 6790	10	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous.	NF
	90	**CLAYSTONE:** gray, light gray, medium gray, blocky to sub blocky, minor subplaty, moderately firm, slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite.	
6790 – 6810	20	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous.	NF
	80	**CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, non to slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: calcite, traces slickenside and mica.	
6810 – 6830	90	**CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, non to slightly calcareous in part, micromicaceous, microcarbonaceous.	NF
	10	**SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to very fine sandstone. Acc: calcite and traces mica.	
6830 – 6860	100	**CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, non to slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: calcite, traces micromicaceous.	NF
6860 – 6890	100	**CLAYSTONE:** gray, light gray, medium gray, blocky to subblocky, minor subplaty, moderately firm, non to slightly calcareous in part, micromicaceous, microcarbonaceous. Acc: traces calcite and traces mica.	NF
6890 – 6940	100	**CLAYSTONE:** gray, light gray, minor medium brownish gray, brown, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, very rare with laminar coal inclusions. Acc: traces massive calcite.	NF
6940 – 6970	10	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, very rare with laminar coal, locally sandy .	NF
	90	**CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous slightly silty in part. Acc: traces massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
6970 – 6980	20 80	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces massive calcite.	NF
6980 – 7010	20 80	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous, locally grading to sandy Siltstone. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	NF
MOGOLLON FM AT 7010 ft.			
7010 – 7020	10 20 70	**SANDSTONE:** gray, light gray, whitish gray, quartzose, 100% very fine grained, subangular to subrounded, well sorted, calcareous cement, abundant clay matrix, slightly friable to moderately consolidate, tight occasionally, with dark grains inclusions, very poor visual porosity. **SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, micromicaceous, locally microcarbonaceous occasionally grading to sandy Siltstone. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	NF
7020 – 7030	10 90	**SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, very micromicaceous microcarbonaceous, occasionally grading to very fine sandstone. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	NF
7030 – 7040	20 20 60	**SANDSTONE:** gray, light gray, whitish gray, quartzose, 100% very fine grained, subangular to subrounded, well sorted, calcareous cement, abundant clay matrix, slightly friable to moderately tight, with dark grains inclusions, very poor visual porosity. **SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, very slightly calcareous, very micromicaceous occasionally, micro carbonaceous, grading to sandy siltstone occasionally. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous.	NF
7040 – 7050	20 10 70	**SANDSTONE:** gray, light gray, whitish gray, quartzose, 100% very fine grained, subangular to subrounded, well sorted, calcareous cement, abundant clay matrix, slightly friable to moderately tight, with dark grains inclusions, very poor visual porosity. **SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, very micromicaceous, microcarbonaceous occasionally grading to sandy Siltstone. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7050 – 7070	20 20 60	**SANDSTONE:** gray, light gray, whitish gray, quartzose, 100% very fine grained, subangular to subrounded, well sorted, calcareous cement, abundant clay matrix, slightly friable to moderately tight, with dark grains inclusions, very poor visual porosity. **SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous, grading to sandy siltstone occasionally. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	NF
7070 – 7090	20 20 60	**SANDSTONE:** gray, light gray, whitish gray, quartzose, 100% very fine grained, subangular to subrounded, well sorted, calcareous cement, abundant clay matrix, slightly friable to moderately consolidate, with dark grains and mica inclusions, very poor visual porosity. **SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous, grading to sandy Siltstone occasionally. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	NF
7090 – 7100	10 20 20 50	**SAND:** white, hyaline, translucent, quartz, 80%fine to medium, 20% medium to coarse grained, subangular to subrounded, fairly sorted. **SANDSTONE:** gray, light gray, whitish gray, quartzose, 100% very fine grained, subangular to subrounded, well sorted, calcareous cement, abundant clay matrix, slightly friable to moderately consolidate, with dark grains and micromica inclusions, very poor visual porosity. **SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous, grading to sandy Siltstone occasionally. **CLAYSTONE:** gray, light gray, medium gray, brownish gray occasionally, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	NF
7100 – 7110	10 30 20 40	**SAND:** white, hyaline, translucent, quartzose, 60%fine to medium, 30% medium to coarse, 10% very coarse grained, subangular to subrounded, fairly sorted. **SANDSTONE:** light gray, whitish gray, minor gray, quartzose, 100% very fine grained, subangular to subrounded, well sorted, calcareous cement, abundant clay matrix, slightly friable to moderately consolidate, with dark grains and micromicaceous inclusions, very poor visual porosity. **Fluorescence:** dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring. **SILTSTONE:** gray, light gray, subblocky to blocky, moderately firm, slightly calcareous, very micromicaceous occasionally, micro carbonaceous, occasionally grading to sandy Siltstone. **CLAYSTONE:** gray, light gray, brownish gray, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, microcarbonaceous. Acc: calcite.	5

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7110 – 7120	10 30 20 40	**SAND:** white, hyaline, translucent, quartzose, 50%fine to medium, 40% medium to coarse, 10% very coarse grained, subangular to subrounded, fairly sorted. **SANDSTONE:** grayish white, white, 100% very fine to fine quartz grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, very poor visual porosity, with dark **SILTSTONE:** gray, light gray, blocky to subblocky , moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. green grain inclusions. **Fluorescence:** dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring. **CLAYSTONE:** brownish gray, gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces massive calcite and coal.	5
7120 – 7130	10 20 20 50	**SAND:** white, hyaline, translucent, quartzose, 40%fine to medium, 50% medium to coarse, 10% very coarse grained, subangular to subrounded, fairly sorted. **SANDSTONE:** light gray, grayish white, white, 100% very fine to fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, friable occasionally, dirty, with dark and green grain inclusions, poor visual porosity. **Fluorescence:** dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring. **SILTSTONE:** light gray, gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces massive calcite.	5
7130 – 7140	10 30 20 40	**SAND:** white, hyaline, translucent, quartzose, 50%fine to medium, 40% medium to coarse, 10% very coarse grained, subangular to subrounded, fairly sorted. **SANDSTONE:** grayish white, white, 100% very fine to fine quartz grains, subrounded, very well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, with dark and green grain inclusions, very poor visual porosity. **Fluorescence:** dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring. **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, occasionally silty. Acc: traces massive calcite and rare coal.	5
7140 – 7160	10 30 	**SAND:** white, hyaline, translucent, quartzose, 30%fine to medium, 50% medium to coarse, 20% coarse to very coarse grained, subangular to subrounded, fairly sorted. **SANDSTONE:** grayish white, white, 70% very fine, 30% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, with dark and green grain inclusions, very poor visual porosity. **Fluorescence:** dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	5

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20 40	**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 and rare coal.	
7160 – 7180	20 20 60	**SANDSTONE:** grayish white, white, 100% very fine to fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, very poor visual porosity, with dark and green grain inclusions. **Fluorescence:** dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring. **SILTSTONE:** light gray, gray, subblocky, slightly soft, firm in part, 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 and rare coal.	5
7180 – 7190	10 10 80	**SANDSTONE:** grayish white, white, 100% very fine to fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, very poor visual porosity, with dark and green grain inclusions. **SILTSTONE:** light gray, gray, subblocky to blocky, slightly firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, occasionally very micromicaceous, microcarbonaceous. silty in part. Acc: traces massive calcite.	NF
7190 – 7210	TR 20 80	**SANDSTONE:** grayish white, white, 100% very fine to fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, very poor visual porosity, traces with dark grain inclusions. **SILTSTONE:** light gray, gray, subblocky to blocky, slightly firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, occasionally very micromicaceous, microcarbonaceous. silty in part. Acc: traces massive calcite.	NF
7210 – 7230	10 90	**SILTSTONE:** light gray, gray, subblocky to blocky, slightly firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy. **CLAYSTONE:** gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous. silty in part. Acc: traces massive calcite.	NF
7230 – 7240	10 10	**SANDSTONE:** grayish white, white, 100% very fine to fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, very poor visual porosity, traces with dark grain inclusions. **SILTSTONE:** light gray, gray, subblocky to blocky, slightly firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	80	**CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, occasionally very micromicaceous, microcarbonaceous. silty in part. Acc: traces massive calcite and rare massive pyrite.	
7240 – 7250	10	**SAND:** white, hyaline, translucent, quartzose, 60% fine to medium, 30% medium to coarse, 10% very coarse grained, subangular to subrounded, fairly sorted.	NF
	30	**SANDSTONE:** grayish white, whitish, 70% very fine to fine, 20% medium, 10% medium to coarse quartzose grains, subrounded to subangular, fairly sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, with dark, green grain and coal inclusions very poor visual porosity.	
	20	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous. Acc: traces massive calcite and rare pyrite.	
7250 – 7260	10	**SAND:** white, hyaline, translucent, quartzose, 60% fine to medium, 30% medium to coarse, 10% coarse, traces very coarse grained, subangular to subrounded, fairly sorted, few with green grains.	NF
	30	**SANDSTONE:** grayish white, whitish, 80% very fine to fine, 20% medium quartzose grains, subrounded to subangular, fairly sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, with dark, green grain and coal inclusions very poor visual porosity.	
	20	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky, moderately soft, non calcareous, very micromicaceous, microcarbonaceous.	
7260 – 7280	20	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted, few with green grains.	NF
	10	**SANDSTONE:** grayish white, whitish, 6% very fine, 40% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, calcareous cement, slightly hard, slightly dirty, with dark, green grain coal inclusions poor visual porosity.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	60	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty in part. Acc: traces massive calcite and rare pyrite.	
7280 – 7290	10	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted, few with green grains.	NF
	20	**SANDSTONE:** grayish white, whitish, 80% very fine, 20% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, calcareous cement, slightly hard, dirty, with dark grain, traces glauconite, pyrite and coal inclusions, very poor visual porosity.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	60	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous.	
7290 – 7310	30	**SAND:** white, hyaline, translucent, minor smoky white, 50% fine, 30% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	TR
	10	**SANDSTONE:** grayish white, whitish, 70% very fine, 30% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, slightly dirty, with dark grain and coal inclusions, very poor visual porosity. **Fluorescence:** dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	50	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough surface. Acc: traces massive calcite and rare pyrite.	
7310 – 7320	40	**SAND:** white, hyaline, translucent, minor smoky white, 30% fine, 50% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	15
	10	**SANDSTONE:** grayish white, whitish, 70% very fine, 30% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, consolidate in part, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	40	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous locally micropyritic, silty in part. Acc: traces massive calcite and rare pyrite.	
7320 – 7330	40	**SAND:** white, hyaline, translucent, minor smoky white, 40% fine, 40% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	20
	10	**SANDSTONE:** grayish white, whitish, 80% very fine, 20% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, consolidate in part, slightly dirty, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	40	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous locally micropyritic, silty in part. Acc: traces massive calcite and rare pyrite.	
7330 – 7340	40	**SAND:** white, smoky white, minor hyaline, 20% fine, 40% medium, 30% coarse, 10% very coarse quartzose grains, subangular to subrounded, poorly sorted.	20

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10	**SANDSTONE:**, whitish, grayish white, 70% very fine, 30% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, consolidate in part, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	50	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous locally micropyritic, silty in part. Acc: few massive calcite and rare pyrite.	
7340 – 7350	40	**SAND:** white, smoky white, minor hyaline, 20% fine, 60% medium, 20% coarse to very coarse quartzose grains, subangular to subrounded, fairly sorted.	30
	20	**SANDSTONE:**, whitish, grayish white, 70% very fine, 30% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, consolidate in part, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	40	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite and rare pyrite.	
7350 – 7360	20	**SAND:** white, smoky white, minor hyaline, 30% fine, 40% medium, 30% coarse quartzose grains, subangular to subrounded, fairly sorted.	5 - 15
	10	**SANDSTONE:**, whitish, grayish white, 70% very fine, 30% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	60	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite and rare pyrite.	
7360 – 7370	20	**SAND:** white, smoky white, hyaline, 30% fine, 40% medium, 30% coarse quartzose grains, subangular to subrounded, fairly sorted.	15
	10	**SANDSTONE:**, whitish, grayish white, 70% very fine, 30% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	60	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite and traces mica.	
7370 – 7390	10	**SAND:** white, smoky white, minor hyaline, 40% fine, 40% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	10	**SANDSTONE:**, whitish, grayish white, 80% very fine, 20% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	80	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite and traces mica.	
7390 – 7400	20	**SAND:** white, smoky white, minor hyaline, 50% fine, 30% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	15
	20	**SANDSTONE:**, whitish, grayish white, 60% very fine, 40% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	50	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite and traces mica.	
7400 – 7410	10	**SAND:** white, smoky white, minor hyaline, 40% fine, 40% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	5 - 15
	30	**SANDSTONE:**, whitish, grayish white, 60% very fine, 40% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, locally silty matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	50	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite.	
7410 – 7420	30	**SAND:** white, smoky white, hyaline, 40% fine, 40% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	5 - 15

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20	**SANDSTONE:**, whitish, grayish white, 60% very fine, 40% fine quartz grains, subrounded to subangular, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	40	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite.	
7420 – 7430	60	**SAND:** white, smoky white, minor hyaline, 30% fine, 50% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	10	**SANDSTONE:**, whitish, grayish white, 50% very fine, 50% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	30	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite.	
7430 – 7450	30	**SAND:** white, smoky white, minor hyaline, 40% fine, 40% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	5 - 15
	10	**SANDSTONE:**, whitish, grayish white, 70% very fine, 30% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	50	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite.	
7450 – 7460	40	**SAND:** white, smoky white, minor hyaline, 40% fine, 40% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted.	15
	10	**SANDSTONE:**, whitish, grayish white, 70% very fine, 30% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, slightly rough texture. Acc: few massive calcite.	
7460 – 7480	10	**SAND:** white, smoky white, minor hyaline, 30% fine, 60% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	20	**SANDSTONE:**, whitish, grayish white, 70% very fine, 30% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	60	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, slightly rough texture. Acc: few massive calcite.	
7480 – 7500	20	**SAND:** white, smoky white, minor hyaline, 40% fine, 50% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	10	**SANDSTONE:**, whitish, grayish white, 60% very fine, 40% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, slightly dirty, few with dark grain and coal inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluorescence, slow weak streaming milky white cut, slightly yellow residual ring.	
	10	**SILTSTONE:** light gray, gray, subblocky, moderately soft, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, locally sandy.	
	60	**CLAYSTONE:** medium gray, gray, brownish gray, minor light gray, subblocky, moderately firm, non calcareous, micromicaceous, micro carbonaceous, slightly rough texture.	
7500 – 7510	20	**SAND:** white, hyaline, translucent, 40% fine, 40% medium, 20% medium to coarse quartzose grains, subangular to subrounded, fairly sorted.	NF
	10	**SANDSTONE:**, whitish, light grayish white, 70% fine, 30% fine to medium quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, few with dark grain and coal inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, subblocky, firm, very slightly to non calcareous, micromicaceous, microcarbonaceous, locally sandy.	
	60	**CLAYSTONE:** gray, light gray, subblocky, moderately firm, locally hard, non calcareous, micromicaceous, microcarbonaceous. Acc: common massive calcite and traces massive pyrite.	
7510 – 7520	20	**SAND:** white, hyaline, translucent, 40% fine, 40% medium, 20% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted.	NF
	20	**SANDSTONE:**, whitish, light grayish white, 70% fine, 30% fine to medium quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, few with dark grain and coal inclusions, poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	30	**SILTSTONE:** gray, subblocky, firm, very slightly to non calcareous, micromicaceous, microcarbonaceous, locally sandy.	
	30	**CLAYSTONE:** gray, light gray, subblocky, moderately firm, locally hard, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: common massive calcite and traces massive pyrite.	
7520 – 7530	30	**SAND:** white, hyaline, translucent, 30% fine, 50% medium, 20% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted.	NF
	10	**SANDSTONE:**, whitish, light grayish white, 60% fine, 40% fine to medium quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, few with dark grain and coal inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, subblocky, firm, very slightly to non calcareous, micromicaceous, microcarbonaceous, locally sandy.	
	40	**CLAYSTONE:** gray, light gray, subblocky, moderately firm, locally hard, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: common massive calcite and traces massive pyrite.	
7530 – 7540	20	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	30	**SANDSTONE:**, light grayish white, whitish, 80% fine, 20% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain and calcite inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, light gray, subblocky to blocky, firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	40	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, slightly micro carbonaceous, slightly rough texture, silty in part. Acc: calcite.	
7540 – 7550	30	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	10	**SANDSTONE:**, light gray white, whitish, 80% fine, 20% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain and calcite inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, light gray, subblocky to blocky, firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	40	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, slightly micro carbonaceous, slightly rough texture, silty in part. Acc: some massive calcite.	
7550 – 7560	20	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	20	**SANDSTONE:**, light gray white, whitish, 80% fine, 20% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain and calcite inclusions, poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10	**SILTSTONE:** gray, light gray, subblocky to blocky, firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	50	**CLAYSTONE:** gray, brownish gray, subblocky to blocky, moderately firm to firm, non calcareous, micromicaceous, slightly micro carbonaceous, slightly rough texture, silty in part. Acc: few massive calcite and traces pyrite.	
7560 – 7570	30	**SAND:** white, hyaline, translucent, 50% fine, 40% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	10	**SANDSTONE:**, light gray, whitish, 90% fine, 10% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	60	**CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, slightly rough texture, silty in part. Acc: few massive calcite.	
7570 – 7580	20	**SAND:** white, hyaline, translucent, 50% fine, 40% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	30	**SANDSTONE:**, light gray, whitish, 90% fine, 10% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky to blocky, firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	40	**CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, slightly rough texture, silty in part. Acc: few massive calcite.	
7580 – 7590	10	**SAND:** white, hyaline, translucent, 50% fine, 40% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	30	**SANDSTONE:**, light gray, whitish, 90% fine, 10% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	60	**CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, slightly rough texture, silty in part.	
7590 – 7600	30	**SAND:** white, hyaline, translucent, 50% fine, 40% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	5
	20	**SANDSTONE:**, light gray, whitish, 90% fine, 10% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	50	**CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, slightly rough texture, silty in part.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7600– 7610	30	**SAND:** white, hyaline, translucent, 40% fine, 50% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	40	**SANDSTONE:**, light gray, whitish, 80% fine, 20% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	30	**CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, slightly rough texture, silty in part. Acc: few massive calcite.	
7610– 7630	40	**SAND:** white, hyaline, translucent, 40% fine, 50% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	40	**SANDSTONE:**, light gray, whitish, 80% fine, 20% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	20	**CLAYSTONE:** brownish gray, gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, slightly rough texture, silty in part. Acc: few massive calcite.	
7630 – 7640	30	**SAND:** white, hyaline, translucent, 30% fine, 50% medium, 20% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	TR
	30	**SANDSTONE:**, light gray, whitish, 80% fine, 20% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky to blocky, firm, very slightly calcareous, micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	30	**CLAYSTONE:** gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, slightly rough texture, silty in part. Acc: few massive calcite.	
7640 – 7650	20	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark and smoky grains.	TR
	30	**SANDSTONE:**, light gray, whitish, 90% fine, 10% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	20	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	30	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: few massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7650 – 7660	20	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark and smoky grains.	NF
	20	**SANDSTONE:**, light gray, whitish, 90% fine, 10% fine to medium quartz grains, subrounded, well sorted, locally argillaceous matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	40	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: some massive calcite and few massive pyrite.	
7660 – 7670	20	**SAND:** white, hyaline, translucent, 30% fine, 50% medium, 20% medium to coarse, traces coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark and smoky grains.	NF
	20	**SANDSTONE:** light gray, whitish, 100% fine quartz grains, subrounded, well sorted, locally silty matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	50	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: traces massive calcite, massive pyrite and mica.	
7670 – 7690	10	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	TR
	10	**SANDSTONE:** light gray, whitish, 100% fine quartz grains, sub rounded, well sorted, locally silty matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	30	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	50	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: traces massive calcite, massive pyrite and mica.	
7690 – 7700	10	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	TR
	40	**SANDSTONE:**, light gray, whitish, 100% fine quartz grains, subrounded, very well sorted, locally silty matrix, argillaceous matrix in part, calcareous cement, moderately consolidate, occasionally friable, few with dark grain inclusions, slightly dirty poor visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	50	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: traces massive calcite, massive pyrite and mica.	
7700 – 7710	20	**SAND:** white, hyaline, translucent, 90% fine, 10% medium quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	10	**SANDSTONE:**, light gray, whitish, 100% fine quartz grains, subrounded, well sorted, locally silty matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	60	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, slightly rough texture, silty in part. Acc: traces massive calcite, massive pyrite and mica.	
7710 – 7720	20	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	50	**SANDSTONE:**, light gray, whitish, 100% fine quartz grains, subrounded, well sorted, locally silty matrix, calcareous cement, moderately consolidate, minor friable, few with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	20	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty in part. Acc: traces massive calcite, massive pyrite and mica.	
7720 – 7730	20	**SAND:** white, hyaline, translucent, 70% fine, 20% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	50	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, few with dark grain inclusions, poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions.	
	20	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty in part.	
7730 – 7740	20	**SAND:** white, hyaline, translucent, 70% fine, 20% medium, 10% coarse quartzose grains, subangular to subrounded, fairly sorted, traces dark grains.	NF
	20	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, few with dark grain inclusions, poor visual porosity.	
	20	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty in part. Acc: few massive calcite and traces mica.	
7740 – 7750	50	**SAND:** white, hyaline, translucent, 80% fine, 20% medium coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	20	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, dirty, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions locally grading to sandy Siltstone.	
	20	**CLAYSTONE:** medium gray, gray, minor brownish gray, subblocky, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part.	
7750 – 7770	30	**SAND:** white, hyaline, translucent, 80% fine, 20% medium coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	20	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, dirty, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions locally grading to sandy Siltstone.	
	40	**CLAYSTONE:** medium gray, gray, minor brownish gray, subblocky, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite, traces pyrite and mica.	
7770 – 7780	50	**SAND:** white, hyaline, translucent, 80% fine, 20% medium coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	20	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, dirty, few with dark grain inclusions, poor visual porosity. **Fluorescence:** slightly dull yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions locally grading to sandy Siltstone.	
	20	**CLAYSTONE:** medium gray, gray, minor brownish gray, subblocky, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part. Acc: few massive calcite, traces pyrite and mica.	
7780 – 7790	30	**SAND:** white, hyaline, translucent, 70% fine, 30% medium coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	20	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, dirty, few with dark grain inclusions, poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly dull yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions locally grading to sandy Siltstone.	
	40	**CLAYSTONE:** medium gray, gray, minor brownish gray, subblocky, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part.	
		Acc: few massive calcite, traces pyrite and mica.	
7790 – 7800	20	**SAND:** white, hyaline, translucent, 70% fine, 30% medium coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	20	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, dirty, few with dark grain inclusions, poor visual porosity.	
		Fluorescence: slightly dull yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions locally grading to sandy Siltstone.	
	50	**CLAYSTONE:** medium gray, gray, minor brownish gray, subblocky, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part.	
		Acc: few massive calcite, traces pyrite and mica.	
7800 – 7810	10	**SAND:** white, hyaline, translucent, 80% fine, 20% medium coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	20	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, dirty, few with dark grain inclusions, poor visual porosity.	
		Fluorescence: slightly dull yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, very slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions locally grading to sandy Siltstone.	
	60	**CLAYSTONE:** medium gray, gray, minor brownish gray, subblocky, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part.	
		Acc: few massive calcite, traces pyrite and mica.	
7810 – 7820	20	**SAND:** white, hyaline, translucent, 80% fine, 20% medium coarse quartzose grains, subangular to subrounded, fairly sorted.	5
	10	**SANDSTONE:**, light gray, whitish, minor gray, 100% fine quartz grains, subrounded, well sorted, argillaceous matrix, calcareous cement, moderately consolidate, locally friable, dirty, few with dark grain inclusions, poor visual porosity.	
		Fluorescence: slightly dull yellowish white natural fluorescence, slow weak streaming milky white cut, slightly yellowish residual ring.	
	10	**SILTSTONE:** gray, light gray, subblocky, firm, slightly calcareous micromicaceous, locally microcarbonaceous, few with laminar coal inclusions locally grading to sandy Siltstone.	
	60	**CLAYSTONE:** medium gray, gray, minor brownish gray, subblocky, moderately firm, non calcareous, locally very micromicaceous, micro carbonaceous, silty in part.	
		Acc: few massive calcite and traces mica.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7820 – 7840	10	**SANDSTONE:**, light gray, grayish white, 60% very fine 40% fine quartz grains, subrounded, minor subangular, well sorted, slightly friable, locally consolidate, argillaceous matrix, calcareous cement, dirty in part, few with dark grain inclusions, poor to very poor visual porosity.	NF
	20	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions.	
	70	**CLAYSTONE:** brownish gray, medium gray, subblocky to blocky, moderately firm, occasionally soft, non calcareous, micromicaceous, microcarbonaceous, silty in part, locally rough texture. Acc: few massive calcite and traces massive pyrite.	
7840 – 7850	20	**SANDSTONE:**, light gray, grayish white, minor whitish, 70% very fine 30% fine quartz grains, subrounded, minor subangular, well sorted, slightly friable, locally consolidate, argillaceous matrix, calcareous cement, dirty in part, few with dark grain inclusions, poor to very poor visual porosity.	NF
	10	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy in part.	
	70	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, occasionally soft, non calcareous, very micromicaceous, micro carbonaceous, silty in part, locally rough texture.	
7850 – 7860	10	**SANDSTONE:**, light gray, grayish white, minor whitish, 80% very fine, 20% fine quartz grains, subrounded, minor subangular, well sorted, slightly friable, locally consolidate, argillaceous matrix, calcareous cement, dirty in part, few with dark grain inclusions, poor to very poor visual porosity.	NF
	10	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions, sandy in part.	
	80	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, occasionally soft, non calcareous, very micromicaceous, micro carbonaceous, silty in part, locally rough texture.	
7860 – 7870	20	**SANDSTONE:**, light gray, minor whitish, 80% very fine, 20% fine quartz grains, subrounded, well sorted, locally consolidate, occasionally hard, argillaceous matrix, calcareous cement, dirty in part, few with dark grain, coal and mica inclusions, poor to very poor visual porosity.	NF
	10	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions.	
	70	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, occasionally soft, non calcareous, very micromicaceous, micro carbonaceous, locally silty. Acc: few massive calcite and traces mica.	
7870 – 7890	10	**SANDSTONE:**, light gray, minor whitish, 80% very fine, 20% fine quartz grains, subrounded, well sorted, locally consolidate, occasionally hard, argillaceous matrix, calcareous cement, dirty in part, few with dark grain, coal and mica inclusions, poor to very poor visual porosity.	NF
	10	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous, micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	80	**CLAYSTONE:** dark brownish gray, brownish gray, minor medium gray, subblocky, minor subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, locally rough texture. Acc: common massive calcite.	
7890 – 7900	20	**SANDSTONE:**, light gray, minor whitish, 80% very fine, 20% fine quartz grains, subrounded, well sorted, locally consolidate, occasionally hard, argillaceous matrix, calcareous cement, dirty in part, few with dark grain, coal and mica inclusions, poor to very poor visual porosity, locally grading to silty sandstone.	NF
	80	**CLAYSTONE:** dark brownish gray, brownish gray, minor medium gray, subblocky, minor subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, locally rough texture. Acc: common massive calcite and traces massive pyrite.	
SAN CRISTOBAL FM AT 7900 ft.			
7900 – 7910	10	**SANDSTONE:**, light gray, minor whitish, 100% very fine quartz grains, subrounded, well sorted, locally consolidate, occasionally hard, argillaceous matrix, calcareous cement, dirty in part, few with dark grain, coal and mica inclusions, poor to very poor visual porosity, locally grading to silty sandstone.	NF
	10	**SILTSTONE:** gray, subblocky to blocky, moderately firm, very slightly calcareous micromicaceous, slightly microcarbonaceous, few with laminar coal inclusions.	
	80	**CLAYSTONE:** dark brownish gray, brownish gray, minor medium gray, subblocky, minor subplaty, moderately firm, non calcareous, very micromicaceous, microcarbonaceous, locally rough texture. Acc: common massive calcite and traces massive pyrite.	
7910 – 7930	10	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, locally sandy.	NF
	90	**CLAYSTONE:** gray, brownish gray, subblocky, subplaty in part, moderately firm, non calcareous, very micromicaceous, micro carbonaceous, locally rough texture. Acc: some massive calcite.	
7930 – 7950	10	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, locally sandy.	NF
	90	**CLAYSTONE:** medium gray, brownish gray, minor dark brownish gray subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: common massive calcite.	
7950 – 7970	10	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, locally sandy.	NF
	90	**CLAYSTONE:** medium gray, brownish gray, minor dark brownish gray subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	
7970 – 7990	10	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, locally sandy.	NF
	90	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
7990 – 8000	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	NF
8000 – 8020	100	**CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	NF
8020 – 8030	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	NF
8030 – 8050	100	**CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	NF
8050 – 8060	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	NF
8060 – 8070	20 80	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, locally grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	NF
8070 – 8090	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, locally grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous, microcarbonaceous, locally silty.	NF
8090 – 8100	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, microcarbonaceous, some with very fine grain inclusions, locally grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, very slightly to non calcareous, very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite & traces mica.	NF
8100 – 8140	100	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, very slightly to non calcareous, micro micaceous, microcarbonaceous, dusty pyrite scattered, locally silty. Acc: traces calcite, traces pyrite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8140 – 8160	100	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, very slightly to non calcareous, very micromicaceous, microcarbonaceous, dusty pyrite scattered, locally silty. Acc: traces calcite and pyrite.	NF
8160 – 8170	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, some with very fine grain inclusions, locally grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray, subblocky to subplaty, moderately firm, very slightly to non calcareous, moderately rough texture, with galuconite inclusions, occasionally very micromicaceous, microcarbonaceous, locally silty. Acc: some massive calcite and traces mica.	NF
8170 – 8180	100	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, very slightly to non calcareous, very micromicaceous, microcarbonaceous, dusty pyrite scattered, locally silty. Acc: traces calcite and mica.	NF
8180 – 8190	100	**CLAYSTONE:** brownish gray, medium gray, subblocky to subplaty, moderately soft, firm in part, very slightly to non calcareous, very micromicaceous, microcarbonaceous. Acc: traces calcite and mica.	NF
8190 – 8200	10 90	**SANDSTONE:** light grayish white, light gray, quartzose, 100% very fine to fine, sub angular to subrounded, very well sorted, calcareous cement, clay matrix, slightly friable, with coal and mica inclusions, fair to poor visual porosity. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray, subblocky to subplaty, moderately firm, very slightly to non calcareous, moderately rough texture, with galuconite inclusions, occasionally very micromicaceous, microcarbonaceous, locally silty. Acc: calcite, traces coal.	NF
8200 – 8220	10 90	**SANDSTONE:** light grayish white, dirty white, quartzose, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, with coal traces and mica inclusions, very fine grain inclusions, locally grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray, subblocky to subplaty, moderately firm, very slightly to non calcareous, moderately rough texture, with laminar coal inclusions, occasionally very micromicaceous, microcarbonaceous, locally silty. Acc: calcite and traces coal.	NF
8220 – 8230	10 10 80	**SANDSTONE**: light grayish white, dirty white, quartzose, subblocky, moderately firm, very lightly calcareous micromicaceous, slightly microcarbonaceous, with coal traces and mica inclusions, very fine grain inclusions, locally grading to sandy Siltstone. **SILTSTONE:** gray, light gray, subblocky, soft to moderately firm, micromicaceous, slightly microcarbonaceous, grading to sandy silstone in part. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray, subblocky to subplaty, moderately firm, very slightly to non calcareous, moderately rough texture, with laminar coal inclusions, occasionally very micromicaceous, microcarbonaceous, locally silty. Acc: calcite and traces coal.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8230 – 8250	20 80	**SILTSTONE:** gray, light gray, subblocky, moderately firm, soft occasionally, micromicaceous, slightly microcarbonaceous, grading to sandy silstone in part. **CLAYSTONE:** brownish gray, medium gray, minor dark brownish gray, subblocky to subplaty, moderately firm, very slightly to non calcareous, moderately rough texture, with laminar coal inclusions, micromicaceous, microcarbonaceous, locally silty. Acc: calcite and traces coal.	NF
8250 – 8260	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, soft occasionally, micromicaceous, slightly microcarbonaceous, grading to sandy Siltstone in part. **CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, moderately rough texture. Acc: calcite and traces coal.	NF
8260 – 8270	100	**CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately soft, firm in part, non calcareous, micromicaceous, microcarbonaceous, moderately rough texture. Acc: calcite.	NF
8270 – 8290	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, soft occasionally, micromicaceous, slightly microcarbonaceous, grading to sandy Siltstone in part. **CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, microcarbona ceous, moderately rough texture. Acc: calcite and traces coal.	NF
8290 – 8320	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, soft occasionally, micromicaceous, slightly microcarbonaceous, grading to sandy Siltstone in part. **CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, microcarbona ceous, moderately rough texture. Acc: calcite.	NF
8320 – 8340	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, soft occasionally, micromicaceous, very occasionally laminar coal inclusions, slightly microcarbonaceous. **CLAYSTONE:** brownish gray, light gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, microcarbonaceous, silty in part, moderately rough on surface. Acc: calcite.	NF
8340 – 8350	100	**CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous occasionally, microcarbonaceous, moderately rough texture. Acc: calcite, traces massive pyrite and coal.	NF
8350 – 8360	20 80	**SILTSTONE:** gray, light gray, subblocky, moderately firm, soft occasionally, micromicaceous, very occasionally laminar coal inclusions, slightly microcarbonaceous. **CLAYSTONE:** brownish gray, light gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous microcarbonaceous, silty in part, moderately rough on surface. Acc: calcite and traces coal.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8360 – 8380	100	**CLAYSTONE:** medium gray, brownish gray, subblocky to subplaty, moderately soft, firm in part, non calcareous, very micromicaceous occasionally, microcarbonaceous, grading silty in part occasionally, moderately rough texture. Acc: calcite, traces massive pyrite and coal.	NF
8380 – 8390	10 90	**SANDSTONE:** gray, light gray**,** grayish white**,** quartzose, 100% very fine grained, sub angular to sub rounded, very well sorted, calcareous cement, argillaceous matrix, slightly friable to moderately tight, with coal and mica inclusions, fair to poor visual porosity. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surface. Acc: calcite and coal.	NF
8390 – 8400	100	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surface. Acc: calcite and coal.	NF
8400 – 8410	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, soft occasionally, micromicaceous, very occasionally laminar coal inclusions, slightly microcarbonaceous. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surf. Acc: calcite and coal.	NF
8410 – 8440	100	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surf. Acc: calcite and coal.	NF
8440 – 8470	100	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surf. Acc: calcite and coal.	NF
8470 – 8490	10 90	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to very fine sandstone in part. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surf. Acc: calcite and traces coal.	NF
8490 – 8500	10 90	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to very fine sandstone in part. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surf.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8500 – 8520	20 80	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to very fine sandstone in part. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, silty in part occasionally.	NF
8520 – 8540	10 90	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to very fine sandstone in part. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, slightly rough on surf. Acc: calcite and traces coal.	NF
8540 – 8550	20 80	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains and lithics inclusions, fair to poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluor, moderately slow streaming milky white cut, yellowish fluor on residual ring. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: calcite.	5-15
8550 – 8560	20 80	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains and lithics inclusions, fair to poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluor, moderately slow streaming milky white cut, yellowish fluor on residual ring. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous, dusty pyrite scattered occasionally, silty in part occasionally.	5-15
8560 – 8570	10 90	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains and lithics inclusions, fair to poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluor, moderately slow streaming milky white cut, yellow fluor on residual ring. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous.	5
8570 – 8580	10	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains and lithics inclusions, fair to poor visual porosity.	5

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly dull yellowish natural fluor, moderately slow streaming milky white cut, yellow fluor on residual ring.	
	10	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to very fine sandstone in part.	
	80	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous.	
8580 – 8590	100	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: calcite.	NF
8590 – 8600	10	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous.	NF
	90	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite.	
8600 – 8610	20	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous.	NF
	80	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite, traces pyrite.	
8610 – 8620	10	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to sandstone in part.	NF
	90	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite, traces pyrite.	
8620 – 8640	10	**SAND:** white, hyaline, transparent, quartz, 100% very fine to fine grained, sub angular to subrounded, well sorted, clean.	5
	30	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains and lithics inclusions, fair to poor visual porosity. **Fluorescence:** slightly dull yellowish natural fluor, slow yellowish cut, slightly yellow fluor on residual ring.	
	60	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite, traces pyrite.	
8640 – 8650	10	**SAND:** white, hyaline, transparent, quartz, 100% very fine to fine grained, sub angular to subrounded, well sorted, clean.	5
	30	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous cement, moderately consolidated, slightly friable, tight occasionally, with dark grains and lithics inclusions, fair to poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly dull yellowish natural fluor, slow yellowish cut, slightly yellow fluor on residual ring.	
	60	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous.	
8650 – 8670	10	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains inclusions, fair to poor visual porosity.	TR
	10	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to very fine sandstone in part.	
	80	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite.	
8670 – 8680	10	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, sub angular to sub rounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains inclusions, fair to poor visual porosity.	NF
	20	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to sandstone in part.	
	70	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite.	
8680 – 8690	10	**SANDSTONE:** whitish, grayish white, minor grayish, quartzose, 100%very fine to fine, subangular to subrounded, well sorted, calcareous cement, argillaceous matrix, moderately consolidated, slightly friable, tight occasionally, with dark grains inclusions, fair to poor visual porosity.	NF
	10	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to very fine sandstone in part.	
	70	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite.	
8690 – 8710	10	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to very fine sandstone in part.	NF
	90	**CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, very micromicaceous occasionally, microcarbonaceous. Acc: traces calcite.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8710 – 8730	10 10 80	**SANDSTONE:** grayish, light gray, quartzose, 100%very fine to fine, subangular to subrounded, well sorted, calcareous cement, argillaceous and silty matrix, moderately consolidated to slightly friable, tight occasionally, with dark grains and mica inclusions, fair to poor visual porosity. **SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, sandy in part. **CLAYSTONE:** brownish gray, minor dark brownish gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite.	NF
8730 – 8750	10 90	**SILTSTONE:** gray, whitish gray, light gray, minor light brownish gray, subblocky, moderately firm, slightly calcareous, micro micaceous, microcarbonaceous, grading to sandstone in part. **CLAYSTONE:** gray, brownish gray, medium gray, subblocky to subplaty, moderately firm, soft occasionally, non calcareous, micromicaceous, microcarbonaceous. Acc: traces calcite.	NF
8750 – 8760	20 80	**SILTSTONE:** light gray, medium gray, subblocky, moderately firm slightly calcareous, micromicaceous, microcarbonaceous , grading to sandy Siltstone, occasionally disseminated pyrite grain inclusions,. **CLAYSTONE:** light gray, brownish gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, occasionally with laminar coal and glauconite grain inclusions. Acc: traces massive calcite.	NF
8760 – 8770	10 90	**SILTSTONE:** light gray, medium gray, subblocky, moderately firm slightly calcareous, micromicaceous, microcarbonaceous , grading to sandy Siltstone, occasionally disseminated pyrite grain inclusions,. **CLAYSTONE:** light gray, brownish gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, occasionally with laminar coal and glauconite grains inclusions. Acc: traces massive calcite.	NF
8770 – 8780	20 80	**SILTSTONE:** light gray, medium gray, subblocky, moderately firm slightly calcareous, micromicaceous, microcarbonaceous, sandy, occasionally cubic pyrite inclusions, . **CLAYSTONE:** light gray, brownish gray, medium gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, micro carbonaceous, occasionally with laminar coal inclusions. Acc: traces massive calcite.	NF
8780 – 8800	10 90	**SILTSTONE**: light gray, gray, subblocky, moderately firm to firm, slightly calcareous, micromicaceous, microcarbonaceous, traces with laminar coal inclusions, sandy in part. **CLAYSTONE**: medium gray, brownish gray, subblocky, moderately firm, occasionally soft, very slightly to non calcareous, micro micaceous, microcarbonaceous, locally silty. Acc: some massive calcite and rare cubic pyrite.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
8800 – 8810	10 10 80	**SANDSTONE:** light gray, grayish white, 100% very fine quartz grains, subrounded, very well sorted, calcareous cement, argillaceous matrix, moderately consolidated, traces with laminar coal and mica inclusions, very poor visual porosity. **SILTSTONE:** light gray, gray, subblocky, moderately firm to firm, slightly calcareous, micromicaceous, microcarbonaceous, traces with laminar coal inclusions, sandy in part. **CLAYSTONE:** medium gray, brownish gray, subblocky, moderately firm, occasionally soft, very slightly to non calcareous, micro micaceous, microcarbonaceous, locally silty. Acc: some massive calcite.	NF
8810 – 8830	10 90	**SILTSTONE:** light gray, gray, subblocky, moderately firm to firm, slightly calcareous, micromicaceous, microcarbonaceous, traces with laminar coal inclusions, grading to sandy Siltstone. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, locally silty. Acc: some massive calcite and few mica.	NF
8830 – 8840	100	**CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, soft in part, very slightly to non calcareous, micromicaceous, microcarbonaceous, occasionally with micropyritic inclusions, locally silty, moderately rough texture. Acc: some massive calcite and traces mica.	NF
8840 – 8850	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, soft in part, slightly calcareous to non calcareous, micro micaceous, microcarbonaceous, locally silty, moderately rough texture. Acc: calcite and traces mica.	NF
8850 – 8860	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** brownish gray, medium gray, subblocky, moderately firm, soft in part, slightly calcareous to non calcareous, micro micaceous, microcarbonaceous, locally silty, moderately rough texture. Acc: calcite and traces mica.	NF
8860 – 8870	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous. **CLAYSTONE:** gray, brownish gray, minor medium gray, subblocky to sub platy, moderately firm, minor soft, slightly calcareous occasionally, micromicaceous, microcarbonaceous, moderately rough texture. Acc: calcite and traces mica.	NF
8870 – 8880	20 80	**SILTSTONE:** gray, light gray, greenish gray occasionally, subblocky, moderately firm, slightly calcareous, micromicaceous, micro carbonaceous, grading to very fine sandstone. **CLAYSTONE:** gray, medium gray, brownish gray, subblocky to sub platy, moderately firm, minor soft, slightly calcareous occasionally, micromicaceous, microcarbonaceous to very microcarbonaceous occasionally, pyritized on surf occasionally.	NF
8880 – 8900	10	**SILTSTONE:** gray, light gray, occasionally, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to very fine sandstone.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	90	**CLAYSTONE:** gray, medium gray, brownish gray subblocky to sub platy, moderately firm, minor soft, slightly calcareous occasionally, micromicaceous, microcarbonaceous. Acc: calcite.	
8900 – 8910	100	**CLAYSTONE:** gray, medium gray, brownish gray subblocky to sub platy, moderately firm, slightly calcareous occasionally, micro micaceous, microcarbonaceous. Acc: calcite.	NF
8910 – 8920	10 90	**SILTSTONE:** gray, light gray, occasionally, subblocky, moderately firm, slightly calcareous, micromicaceous, micro carbonaceous, grading to very fine sandstone. **CLAYSTONE:** gray, medium gray, brownish gray subblocky to sub platy, moderately firm, minor soft, slightly calcareous occasionally, micromicaceous, microcarbonaceous. Acc: calcite.	NF
8920 – 8940	100	**CLAYSTONE:** medium gray, light brownish gray, brownish gray, subblocky, occasionally subplaty, moderately firm, very slightly to non calcareous, locally very micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately silty. Acc: some massive calcite and rare microfossil.	NF
8940 – 8960	100	**CLAYSTONE:** light brownish gray, brownish gray, medium gray, subblocky to subplaty, moderately firm, occasionally soft, very slightly to non calcareous, micromicaceous, microcarbonaceous, locally smooth surface, silty in part. Acc: some massive calcite and rare microfossil.	NF
8960 – 8980	100	**CLAYSTONE:** gray, medium gray, brownish gray, subblocky to subplaty, moderately firm to firm in part, very slightly to non calcareous, locally very micromicaceous, microcarbonaceous, rough texture, moderately silty. Acc: some massive calcite.	NF
8980 – 9000	100	**CLAYSTONE:** medium gray, brownish gray, minor gray, light brownish gray, subblocky to subplaty, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, very locally micro pyritic with laminar coal inclusions, moderately silty. Acc: some massive calcite.	NF
9000 – 9010	100	**CLAYSTONE:** brownish gray, medium gray, minor light brownish gray, subblocky to subplaty, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, very locally micro pyritic with laminar coal and rare glauconite grains inclusions, moderately silty. Acc: some massive calcite.	NF
9010 – 9020	10 90	**SANDSTONE:** grayish, light gray, 100%very fine quartz grains, subrounded, very well sorted, moderately friable, argillaceous matrix, calcareous cement, dirty, some with coal and traces glauconite grains inclusions, very poor visual porosity. **CLAYSTONE:** brownish gray, medium gray, minor light brownish gray, subblocky to subplaty, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately silty. Acc: some massive calcite.	NF
9020 – 9040	100	**CLAYSTONE:** gray, medium gray, brownish gray, subblocky to sub platy, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately silty. Acc: some massive calcite and traces coal.	NF

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
9040 – 9060	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to very fine sandstone. **CLAYSTONE:** gray, medium gray, brownish gray, subblocky to sub platy, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately silty. Acc: some massive calcite and traces coal.	NF
9060 – 9080	10 90	**SILTSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, locally sandy **CLAYSTONE:** gray, medium gray, brownish gray, subblocky to sub platy, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, slightly rough texture, moderately silty. Acc: some massive calcite and traces coal.	NF
9080 – 9100	100	**CLAYSTONE:** gray, medium gray, brownish gray, subblocky, locally firm, very slightly calcareous, micromicaceous, microcarbonaceous, with laminar coal inclusions, moderately rough texture. Acc: some massive calcite and traces coal.	NF
BASAL SALINA AT 9100 ft.			
9100 – 9110	40 30 30	**SAND:** white, hyaline white, translucent, quartzose, 20% fine, 50% medium, 20% coarse, 10% very coarse grains, subangular to subrounded, fairly sorted, moderately hackly, few dark and smoky grains. **SANDSTONE**: grayish white, light gray, 50% fine to medium, 50% medium to coarse quartzose grains, subangular to subrounded, fairly to well sorted, locally sandy to silty matrix, calcareous cement, moderately friable to tight in part, with dark grain inclusions, fair visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slightly slow weak streaming milky white cut, non visual residual ring. **CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, rough texture. Acc: traces pyrite.	15-30
9110 – 9120	30 40 30	**SAND:** white, hyaline white, translucent, quartzose, 10% fine, 50% medium, 30% coarse, 10% very coarse grains, subangular to subrounded, fairly sorted, moderately hackly, few dark and smoky grains, clean. **SANDSTONE**: grayish white, light gray, 60% fine to medium, 40% medium to coarse quartzose grains, subangular to subrounded, fairly sorted, locally sandy to silty matrix, calcareous cement, moderately friable to tight in part, with dark grain inclusions, fair visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slightly slow weak streaming milky white cut, slightly yellowish white residual ring. **CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, rough texture. Acc: traces pyrite.	30
9120 – 9130	30	**SAND:** white, hyaline white, translucent, quartzose, 20% fine, 60% medium, 20% coarse grains, subangular to subrounded, fairly to well sorted, moderately hackly, few dark and smoky grains, clean.	15

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**SANDSTONE**: grayish white, light gray, 60% fine to medium, 40% medium to coarse quartzose grains, subangular to subrounded, fairly sorted, locally sandy to silty matrix, calcareous cement, moderately friable to tight in part, with dark grain inclusions, fair visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slightly slow weak streaming milky white cut, slightly yellowish white residual ring.	
	30	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, rough texture. Acc: traces pyrite.	
9130 – 9135	10	**SAND:** white, hyaline white, translucent, quartzose, 20% fine, 50% medium, 30% coarse grains, subangular to subrounded, fairly to well sorted, moderately hackly, few dark and smoky grains, clean.	10
	30	**SANDSTONE**: grayish white, light gray, 40% fine, 40% medium, 20% coarse quartzose grains, subangular to subrounded, fairly sorted, locally sandy to silty matrix, calcareous cement, moderately friable to tight in part, with dark grain inclusions, fair visual porosity. **Fluorescence:** slightly bright yellowish white natural fluorescence, slightly slow weak streaming milky white cut, slightly yellowish white residual ring.	
	60	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, rough texture. Acc: traces massive calcite.	
9135 – 9140	10	**SANDSTONE**: grayish white, whitish, 70% fine, 30% medium quartzose grains, subangular to subrounded, well sorted, sandy to silty matrix, calcareous cement, moderately friable to hard, with dark grain inclusions, fair visual porosity.	NF
	90	**CLAYSTONE**: brownish gray, medium gray, subblocky, subplaty in part, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, occasionally glauconite inclusions, rough texture. Acc: traces massive calcite.	
9140 – 9150	10	**SANDSTONE**: grayish white, whitish, 30% very fine, 50% fine, 20% fine to medium quartzose grains, subangular to subrounded, well sorted, sandy to silty matrix, calcareous cement, moderately friable to hard in part, some with dark grain inclusions, poor to fair 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, brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to sandy Siltstone	
	80	**CLAYSTONE**: brownish gray, medium gray, subblocky, subplaty in part, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, occasionally glauconite inclusions, rough texture. Acc: few massive calcite and traces massive pyrite.	
9150 – 9160	10	**SANDSTONE**: grayish white, whitish, 20% very fine, 60% fine, 20% fine to medium quartzose grains, subangular to subrounded, well sorted, sandy to silty matrix, calcareous cement, moderately friable to hard, some with dark grain inclusions, poor to fair visual porosity.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	10	**SILTSTONE:** light gray, gray, brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to sandy Siltstone	
	80	**CLAYSTONE**: brownish gray, medium gray, subblocky, subplaty in part, moderately firm, very slightly calcareous, micromicaceous, microcarbonaceous, rough texture.	
		Acc: few massive calcite and traces massive pyrite.	
9160 – 9170	10	**SAND:** white, hyaline white, translucent, quartzose, 50% fine, 40% medium, 10% medium to coarse grains, subangular to subrounded, fairly to well sorted, clean.	TR
	10	**SANDSTONE**: predominantly whitish, minor light gray, 80% fine, 20% fine to medium quartzose grains, subangular to subrounded, well sorted, sandy to silty matrix, calcareous cement, moderately friable to hard in part, some with dark grain inclusions, poor to fair visual porosity.	
		Fluorescence: slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	80	**CLAYSTONE**: brownish gray, medium gray, subblocky, subplaty in part, moderately firm, very slightly to non calcareous, micro micaceous, microcarbonaceous, locally silty.	
		Acc: few massive calcite and traces massive pyrite.	
9170 – 9180	10	**SAND:** white, hyaline white, translucent, quartzose, 60% fine, 40% medium grains, subangular to subrounded, well sorted, clean.	TR
	10	**SANDSTONE**: whitish, minor light gray, 80% fine, 20% fine to medium quartzose grains, subangular to subrounded, well sorted, sandy to silty matrix, calcareous cement, moderately friable to hard in part, some with dark grain inclusions, poor to fair visual porosity.	
		Fluorescence: slightly bright yellowish white natural fluorescence, slow weak streaming milky white cut, non visual residual ring.	
	80	**CLAYSTONE**: brownish gray, medium gray, subblocky, subplaty in part, moderately firm, very slightly to non calcareous, micro micaceous, microcarbonaceous, locally silty.	
		Acc: few massive calcite and traces massive pyrite.	
9170 – 9190	10	**SANDSTONE**: predominantly whitish, minor light gray, 70% fine, 20% fine to medium, 10% medium quartzose grains, subangular to subrounded, well sorted, sandy to silty matrix, calcareous cement, moderately friable to hard in part, some with dark grain inclusions, poor to fair visual porosity.	NF
	90	**CLAYSTONE**: brownish gray, minor medium gray, subblocky, locally subplaty, moderately firm, very slightly to non calcareous, micro micaceous, microcarbonaceous, locally silty.	
		Acc: few massive calcite and traces massive pyrite.	
9190 – 9200	10	**SILTSTONE:** light gray, gray, brownish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, grading to very fine sandstone.	NF
	90	**CLAYSTONE**: gray, brownish gray, medium gray, subblocky to subplaty, moderately firm, slightly calcareous in part, micro micaceous, microcarbonaceous, locally silty occasionally.	
9200 – 9210	100	**CLAYSTONE**: gray, medium gray, slightly brownish gray, subblocky to subplaty, moderately firm, very slightly calcareous, micro micaceous, microcarbonaceous, locally silty occasionally.	NF
		Acc: few calcite, traces pyrite and abundant pellets.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
9210 – 9220	80 10 10	**SAND:** white, hyaline, translucent, quartz, 20%fine, 60%medium, 20%coarse grains, sub angular to sub rounded, poor sorted, clean. **SANDSTONE:** whitish predominantly, minor light gray, quartzose, 80%fine, 20%medium grains, subangular to subrounded, fair sorted, calcareous cement, sandy and silty matrix, moderately friable with dark grain inclusion, poor to fair visual porosity. **Fluorescence:** yellowish white slightly bright natural fluorescence, moderately slow, moderately weak streaming milky white cut, non visual residual ring. **CLAYSTONE**: gray, medium gray, slightly brownish gray, subblocky to subplaty, moderately firm, very slightly calcareous, micro micaceous, microcarbonaceous, locally silty occasionally. Acc: calcite and traces pyrite.	5
9220 – 9230	30 30 40	**SAND:** white, hyaline, dark and grayish grains occasionally, quartz, 50%medium, 40%coarse, 10%very coarse grains, subangular to sub rounded, hackly very occasionally poor sorted, clean. **SANDSTONE:** whitish, grayish white, quartzose, 50%fine, 50% medium grained, subangular to subrounded, fair to well sorted, calcareous cement, sandy and silty matrix occasionally, moderately friable, with dark and green grains inclusion, poor to fair visual porosity. **Fluorescence:** yellowish white slightly bright natural fluorescence, moderately slow, moderately weak streaming milky white cut, non visual residual ring. **CLAYSTONE**: gray, medium gray, slightly brownish gray, subblocky to subplaty, moderately firm, very slightly calcareous, micro micaceous, microcarbonaceous, locally silty occasionally. Acc: calcite and traces pyrite.	15
9230 – 9240	40 30 30	**SAND:** white, hyaline white, minor smoky white, grayish grains occasionally, quartz, 20%fine, 70%medium, 10%coarse grains, sub angular to sub rounded, poor sorted, clean. **SANDSTONE:** whitish, grayish white, quartzose, 50%fine, 50% medium grained, subangular to subrounded, fair to well sorted, calcareous cement, silty matrix, moderately friable, with dark grains inclusion, poor to fair visual porosity. **Fluorescence:** yellow to pale yellow fluor natural, moderately slow weak streaming milky white cut, non visual residual ring. **CLAYSTONE**: gray, medium gray, slightly brownish gray, subblocky to subplaty, moderately firm, very slightly calcareous, micro micaceous, microcarbonaceous, locally silty occasionally. Acc: calcite and traces pyrite.	5-15
9240 – 9250	40 20 40	**SAND:** white, hyaline white, minor smoky white, grayish grains occasionally, quartz, 20%fine, 70%medium, 10%coarse grains, sub angular to sub rounded, hackly occasionally, poor sorted, clean. **SANDSTONE:** whitish, grayish white, quartzose, 50%fine, 50% medium grained, sub angular to sub rounded, fair to well sorted, calcareous cement, silty matrix, moderately friable, with dark grains inclusion, poor to fair visual porosity. **Fluorescence:** pale yellow Fluor natural, moderately slow weak streaming milky white cut, no visual residual ring on natural light. **CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately firm, very slightly calcareous, micromicaceous, micro carbonaceous. Acc: calcite, traces slickenside and pyrite.	5

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
9250 – 9260	30	**SAND:** white, hyaline white, minor grayish and greenish grains occasionally, quartz, 20%fine, 50%medium, 20% coarse, 10% very coarse grains, sub angular to sub rounded, hackly occasionally, poor sorted, clean.	15
	40	**SANDSTONE:** whitish, grayish white, quartzose, 50%fine, 50% medium grained, subangular to subrounded, fair to well sorted, calcareous cement, silty matrix, moderately friable, with dark grains inclusion, poor to fair visual porosity. **Fluorescence:** slightly bright yellow Fluor natural, slow weak streaming milky white cut, yellowish on residual ring on ultra violet light, no residual ring on natural light.	
	30	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micro micaceous, microcarbonaceous. Acc: calcite and traces pyrite.	
9260 – 9270	20	**SAND:** white, hyaline white, minor smoky white and grayish grains, quartz, 10%fine, 70%medium, 20%coarse grains, angular to sub angular, sub angular to sub rounded, hackly occasionally, poor sorted, pyritized grains occasionally.	15
	50	**SANDSTONE:** whitish, grayish white, hyaline white, quartzose, 70% fine, 20% medium, 10% coarse grained, subangular to subrounded, fair to well sorted, calcareous cement, silty matrix, nil matrix occasionally, moderately friable, with dark grains inclusion, pyritized grained occasionally, poor to fair visual porosity. **Fluorescence:** slightly bright yellow Fluor natural, slow weak streaming milky white cut, no residual ring on natural light.	
	30	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micro micaceous, microcarbonaceous. Acc: calcite and traces pyrite.	
9270 – 9280	10	**SAND:** white, hyaline white, grayish and greenish grains occasionally, quartz, 60%fine, 30% medium, 10%coarse grains, traces of very coarse grained, angular to subangular, subangular to subrounded, poor sorted, clean.	5
	20	**SANDSTONE:** grayish, grayish white, minor whitish, quartzose, 90% very fine to fine, 10% medium grained, subangular to subrounded, fair to well sorted, calcareous cement, silty matrix, moderately friable, with dark grains inclusion, poor visual porosity. **Fluorescence:** slightly bright yellow natural Fluor, slow weak streaming milky white cut, yellowish residual ring, no visual residual ring on natural light.	
	10	**SILSTONE:** gray, light gray, whitish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous.	
	60	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micromicaceous, micro carbonaceous.	
9280 – 9290	10	**SAND:** white, hyaline white, grayish and greenish grains occasionally, quartz, 60%fine, 30%medium, 10%coarse grains, traces of very coarse grained, angular to subangular, subangular to subrounded, poor sorted, clean.	TR
	10	**SANDSTONE:** grayish, grayish white, minor whitish, quartzose, 90% very fine to fine, 10% medium grained, subangular to subrounded, fair to well sorted, calcareous cement, silty matrix, moderately friable, with dark grains inclusion, poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: slightly bright yellow natural Fluor, slow weak streaming milky white cut, no visual residual ring on natural light.	
	10	**SILSTONE:** gray, light gray, whitish gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous.	
	70	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micromicaceous, microcarbonaceous.	
		Acc: calcite and traces pyrite.	
9290 – 9300	10	**SANDSTONE:** grayish, whitish gray, whitish occasionally, quartzose, 100% very fine to fine grained, subangular to sub rounded, well sorted, calcareous cement, silty matrix, moderately friable to moderately hard, with dark grains inclusion, poor visual porosity.	NF
	10	**SILSTONE:** gray, light gray, whitish gray, sub blocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous.	
	80	**CLAYSTONE**: gray, medium gray, subblocky to subplaty, moderately firm, non to slightly calcareous in part, micro micaceous, micro carbonaceous.	
		Acc: calcite, traces pyrite and x-cide abundant (mud chemistry material).	
9300 – 9310	10	**SAND:** hyaline, white, translucent, 40%fine, 60% medium quartzose grains, subangular, to subrounded, well sorted, hackly, traces smoky white grains clean.	5
	10	**SANDSTONE:** predominantly whitish, minor light gray, quartzose, 70% fine, 30% fine to medium grains, subrounded, minor subangular, well sorted, sandy to silty matrix, calcareous cement, moderately friable, with dark grains inclusion, poor to fair visual porosity.	
		Fluorescence: slightly bright yellowish white natural Fluor, slow weak streaming milky white cut, no visual residual ring.	
	80	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micromicaceous, microcarbonaceous, locally with laminar coal inclusions, silty in part.	
		Acc: few massive calcite and traces pyrite.	
9310 – 9320	20	**SAND:** hyaline, white, translucent, 40%fine, 50% medium, 10% coarse quartzose grains, subangular, to subrounded, well sorted, hackly, traces smoky white grains clean.	15
	30	**SANDSTONE:** predominantly whitish, minor light gray, quartzose, 70% fine, 30% fine to medium grains, subrounded, minor subangular, well sorted, sandy to silty matrix, calcareous cement, moderately friable, with dark grain inclusions, fair visual porosity.	
		Fluorescence: slightly bright yellowish white natural Fluor, slow weak streaming milky white cut, slightly yellowish white residual ring.	
	50	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micromicaceous, microcarbonaceous, locally with laminar coal inclusions, silty in part.	
9320 – 9330	20	**SAND:** hyaline, white, translucent, 30% fine, 50% medium, 20% coarse, traces very coarse quartzose grains, subangular, to subrounded, well sorted, hackly, traces smoky white grains clean.	5-15
	30	**SANDSTONE:** light grayish white, whitish, quartzose, 70% fine, 30% fine to medium grains, subrounded, minor subangular, well sorted, sandy to silty matrix, calcareous cement, moderately friable, with dark grain inclusions, poor to fair visual porosity.	
		Fluorescence: slightly bright yellowish white natural Fluor, slow	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		weak streaming milky white cut, slightly yellowish white residual ring.	
	50	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micromicaceous, microcarbonaceous, locally with laminar coal inclusions, silty in part. Acc: few massive calcite and massive pyrite.	
9330 – 9340	10	**SAND:** hyaline, white, translucent, 40% fine, 50% medium, 10% coarse quartzose grains, subangular, to subrounded, well sorted, hackly, traces smoky white grains clean.	TR
	10	**SANDSTONE:** light grayish white, whitish, quartzose, 70% fine, 30% fine to medium grains, subrounded, minor subangular, well sorted, sandy to silty matrix, calcareous cement, moderately friable, with dark grain inclusions, poor to fair visual porosity. **Fluorescence:** slightly bright yellowish white natural Fluor, slow weak streaming milky white cut, slightly yellowish white residual ring.	
	10	**SILSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal, locally sandy.	
	70	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, moderately firm, non to very slightly calcareous, micromicaceous, microcarbonaceous, locally with laminar coal inclusions. Acc: few massive calcite and massive pyrite.	
9340 – 9350	10	**SILSTONE:** gray, light gray, subblocky, moderately firm, slightly calcareous, micromicaceous, microcarbonaceous, few with laminar coal inclusions, sandy in part.	NF
	90	**CLAYSTONE**: gray, brownish gray, medium gray, subblocky to subplaty in part, moderately firm, non to very slightly calcareous, micromicaceous, microcarbonaceous. Acc: common massive calcite.	
9350 – 9360	50	**SAND:** hyaline, white, translucent, smoky white, 10% fine, 70% medium, 10% coarse, 10% very coarse quartzose grains, subangular, to subrounded, minor angular, poorly sorted, hackly, traces gray and light green grains, clean.	15-30
	10	**SANDSTONE:** light grayish white, whitish, quartzose, 90% fine, 10% fine to medium grains, subrounded, minor subangular, well sorted, sandy to silty matrix, calcareous cement, moderately friable, tight in part, with dark grain inclusions, poor to fair visual porosity. **Fluorescence:** very slightly bright pale yellow natural Fluor, slow weak streaming milky white cut, non visual residual ring on natural light.	
	40	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, moderately firm, very slightly to non calcareous, micromicaceous, microcarbonaceous, locally with laminar coal inclusions. Acc: common massive calcite.	
9360 – 9370	40	**SAND:** hyaline, white, translucent, smoky white, 20% fine, 60% medium, 10% coarse, 10% very coarse quartzose grains, subangular, to subrounded, minor angular, poorly sorted, hackly, traces gray and light green grains, clean.	15-30
	20	**SANDSTONE:** light grayish white, whitish, quartzose, 100% fine, quartz grains, subrounded, minor subangular, very well sorted, silty matrix, calcareous cement, moderately friable, tight in part, with dark grains and traces mica inclusions, poor visual porosity. **Fluorescence:** very slightly bright pale yellow natural Fluor, slow weak streaming milky white cut, non visual residual ring on natural light.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	40	**CLAYSTONE**: brownish gray, medium gray, subblocky to subplaty, moderately firm, very slightly to non calcareous, micromicaceous, microcarbonaceous, locally with laminar coal inclusions. Acc: some massive calcite.	
9370 – 9380	20 30 50	**SAND:** hyaline, white, translucent, smoky white, 70% fine, 20% medium, 10% coarse quartzose grains, subangular, to subrounded, minor angular, fairly sorted, hackly, traces gray and light green grains. **SANDSTONE:** light grayish white, whitish, quartzose, 100% fine, quartz grains, subrounded, minor subangular, very well sorted, silty matrix, calcareous cement, moderately friable, tight in part, with dark grains and traces mica inclusions, poor visual porosity. **Fluorescence:** very slightly bright pale yellow natural Fluor, slow weak streaming milky white cut, non visual residual ring on natural light. **CLAYSTONE**: brownish gray, medium gray, subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous. Acc: some massive calcite.	15
9380 – 9390	20 30 50	**SAND:** hyaline, white, translucent, smoky white, 30% fine, 50% medium, 20% coarse quartzose grains, subangular, to subrounded, minor angular, fairly sorted, hackly, traces dark grains. **SANDSTONE:**, whitish, light gray, quartzose, 70% fine, 30% fine to medium quartz grains, subrounded, minor subangular, well sorted, silty matrix, locally clay matrix, calcareous cement, hard, friable in part, few with dark grains, traces mica and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright slightly yellow natural Fluor, slow weak streaming milky white cut, non visual residual ring on natural light. **CLAYSTONE**: medium gray, brownish gray, , subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, occasionally with coal and micropyritic inclusions, locally silty. Acc: few massive calcite, traces coal and pyrite.	5-15
9390 – 9400	40 40 20	**SAND:** hyaline, white, translucent, smoky white, 20% fine, 40% medium, 30% coarse, 10% very coarse quartzose grains subangular to subrounded, minor angular, fairly sorted, hackly, traces dark, gray and light green grains. **SANDSTONE:**, whitish, light gray, quartzose, 80% fine, 20% fine to medium quartz grains, subrounded, minor subangular, well sorted, silty matrix, locally clay matrix, calcareous cement, hard, friable in part, few with dark grains, traces mica inclusions, poor visual porosity. **Fluorescence:** slightly bright slightly yellow natural Fluor, slow weak streaming milky white cut, non visual residual ring on natural light. **CLAYSTONE**: medium gray, brownish gray, , subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, occasionally with coal and micropyritic inclusions. Acc: few massive calcite, traces coal and pyrite.	5
9400 – 9410	50	**SAND:** hyaline, white, translucent, smoky white, 20% fine, 20% medium, 30% coarse, 30% very coarse, traces granules quartzose grains subangular to subrounded, minor angular, fairly sorted, hackly, traces dark, gray and light green grains.	5

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20	**SANDSTONE:**, whitish, light gray, quartzose, 70% fine, 30% fine to medium quartz grains, subrounded, minor subangular, well sorted, silty matrix, calcareous cement, moderately hard, few with mica and coal inclusions, poor visual porosity. **Fluorescence:** slightly bright slightly yellow natural fluor, slow weak streaming milky white cut, non visual residual ring on natural light.	
	30	**CLAYSTONE**: medium gray, brownish gray, subblocky, moderately firm, very slightly to non calcareous, micromicaceous, micro carbonaceous, occasionally with laminar coal inclusions. Acc: few massive calcite and traces pyrite.	
9410 – 9430	40	**SAND:** hyaline, white, smoky white, 20% fine, 20% medium, 30% coarse, 30% very coarse, traces granules quartzose grains subangular to subrounded, minor angular, fairly sorted, hackly, traces dark, gray and light green grains.	5
	20	**SANDSTONE:**, whitish, light gray, quartzose,40% very fine, 40% fine, 20% fine to medium quartz grains, subrounded to subangular in part, well sorted, silty matrix, calcareous cement, moderately hard, few with mica and coal inclusions, locally dirty, poor visual porosity. **Fluorescence:** very slightly bright slightly yellow natural fluor, slow weak streaming milky white cut, non visual residual ring on natural light.	
	40	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions. Acc: calcite and traces pyrite.	
9430 – 9450	10	**SAND:** white, hyaline white, smoky white, 20% fine, 70%medium, 10% coarse grains, quartzose, subangular to subrounded, angular occasionally, poorly sorted, clean.	TR
	20	**SANDSTONE:** gray, light gray, whitish gray, quartzose grains, 100% very fine to fine, subrounded to subangular, well sorted, silty matrix, clay matrix occasionally, calcareous cement, moderately friable, with dark grain and traces mica inclusions, fair to poor visual porosity.	
	70	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	
9450 – 9460	10	**SAND:** white, hyaline white, smoky white, 30% fine, 60% medium, 10% coarse grains, quartzose, subangular to subrounded, angular occasionally, poor sorted, clean.	TR
	10	**SANDSTONE:** gray, light gray, whitish gray, quartzose grains, 100% very fine to fine, subrounded to subangular, well sorted, silty matrix, clay matrix occasionally, calcareous cement, moderately friable, with dark grain and traces mica inclusions, fair to poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, whitish gray, subblocky, moderately firm, slightly calcareous, micromicaceous to very micromicaceous occasionally, microcarbonaceous.	
	70	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions. Acc: calcite and traces pyrite.	
9460 – 9470	10	**SANDSTONE:** gray, light gray, whitish gray, quartzose grains, 100% very fine to fine, subrounded to subangular, well sorted, silty matrix, clay matrix occasionally, calcareous cement, moderately friable, with dark grain and micropyrite inclusions occasionally, fair to poor visual porosity.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	20	**SILTSTONE:** gray, light gray, whitish gray, subblocky, moderately firm, slightly calcareous, micromicaceous to very micromicaceous occasionally, microcarbonaceous.	
	70	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions. Acc: calcite and traces pyrite.	
9470 – 9480	10	**SAND:** white, hyaline, minor smoky white, 70% fine, 30% medium, coarse grains occasionally, quartzose, subangular to subrounded, fair sorted, clean.	TR
	10	**SANDSTONE:** gray, light gray, whitish gray, quartzose grains, 100% very fine to fine, subrounded to subangular, well sorted, silty matrix, clay matrix occasionally, calcareous cement, moderately friable, with dark grain and traces mica inclusions, fair to poor visual porosity.	
	10	**SILTSTONE:** gray, light gray, whitish gray, subblocky, moderately firm, slightly calcareous, micromicaceous to very micromicaceous occasionally, microcarbonaceous.	
	70	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions. Acc: calcite, traces pyrite and slickenside.	
9480 – 9490	10	**SAND:** white, hyaline white, minor smoky white, 80% fine, 20% medium, traces coarse quartz grains, subangular to subrounded, fair sorted, clean.	5
	20	**SANDSTONE:** gray, light gray, whitish gray, quartzose grains, 100% very fine to fine, subrounded to subangular, well sorted, silty matrix, clay matrix occasionally, calcareous cement, moderately friable, with dark grain and traces mica inclusions, fair to poor visual porosity. **Fluorescence:** very slightly bright yellowish natural fluor, slow weak streaming slightly milky white cut, non visual residual ring on natural light, poor residual ring on ultra violet light.	
	10	**SILTSTONE:** gray, light gray, whitish gray, subblocky, moderately firm, slightly calcareous, micromicaceous to very micromicaceous occasionally, microcarbonaceous.	
	60	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions. Acc: calcite, traces pyrite and slickenside.	
9490 – 9494	10	**SAND:** white, hyaline, minor smoky white, 60%fine, 30% medium, 10% coarse grain, quartzose, subangular to subrounded, poor sorted, clean.	5
	10	**SANDSTONE:** gray, light gray, whitish gray, quartzose grains, 100% very fine to fine, subrounded to subangular, well sorted, silty matrix, calcareous cement, slightly friable, tight in part, occasionally, with dark grain and traces mica inclusions, fair to poor visual porosity. **Fluorescence:** very slightly bright yellowish natural fluor, slow weak streaming slightly milky white cut, non visual residual ring on natural light, poor residual ring on ultra violet light.	
	10	**SILTSTONE:** gray, light gray, whitish gray, subblocky, moderately firm, slightly calcareous, micromicaceous to very micromicaceous occasionally, microcarbonaceous.	
	70	**CLAYSTONE**: medium gray, brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous, occasionally with laminar coal inclusions.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
9494 – 9500	50 50	**SAND:** white, hyaline white, minor smoky white, 20% very fine, 60%fine, 20% medium grains, quartz, subangular to subrounded, fairly sorted, clean. **CLAYSTONE**: gray, medium gray, minor brownish gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous. Acc: calcite and traces pyrite.	TR
9500 – 9510	80 20	**SAND:** white, hyaline white, traces gray and green, 20% very fine, 50% fine, 30% medium, traces coarse quarzose grains, subangular to subrounded, traces of angular, fairly sorted, clean. **CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, micro carbonaceous. Acc: calcite and traces pyrite.	TR
9510 – 9520	80 20	**SAND:** white, hyaline white, smoky white, slightly milky white and gray occasionally, 30% fine, 60%medium, 10% coarse quartz grains, subangular to subrounded, angular occasionally, poor sorted, clean. **CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, microcarbonaceous. Acc: traces pyrite, traces mica.	NF
9520 – 9530	90 10	**SAND:** white, hyaline white, translucent, gray occasionally,10%very fine, 40% fine, 40%medium, 10% coarse grains, quartz, subangular to subrounded, angular occasionally, poor sorted, clean. **CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, micro carbonaceous. Acc: traces pyrite, traces mica.	NF
9530 – 9540	80 20	**SAND:** white, hyaline white, smoky white, gray and greenish occasionally, 30% fine, 50%medium, 20% coarse grains, quartz, subangular to subrounded, poor sorted, clean. **CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, micro carbonaceous. Acc: traces pyrite, traces mica.	NF
9540 – 9550	90 10	**SAND:** white, smoky white, minor hyaline white, gray occasionally, 20% fine, 70%medium, 10% coarse grains, quartz, subangular to subrounded, poor sorted, clean. **Fluorescence:** yellow to pale yellow natural fluorescence, very slow streaming weak slightly milky white cut, no visual residual ring on natural light, poor residual ring on ultra violet light. **CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm to firm, non calcareous, micromicaceous, micro carbonaceous. Acc: traces pyrite, traces mica.	5
9550 – 9560	90 10	**SAND:** white, smoky white, minor hyaline white, traces dark and gray grains, 10% very fine, 20% fine, 60% medium, 10% coarse grains, quartz, subangular to subrounded, angular occasionally, poorly sorted, clean. **Fluorescence:** yellow to pale yellow natural fluorescence, very slow streaming weak slightly milky white cut, no visual residual ring on natural light, poor residual ring on ultra violet light. **CLAYSTONE**: gray, medium gray, subblocky to subplaty, slightly firm to firm, non calcareous, micromicaceous, microcarbonaceous.	TR

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft, non calcareous, micromicaceous, microcarbonaceous. Acc: traces mica and calcite.	
6100 – 6110	10	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains.	15
	70	**SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain and occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming milky white cut, slightly milky white residual ring.	
	20	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft, non calcareous, micromicaceous, microcarbonaceous. Acc: traces mica and calcite.	
6110 – 6120	10	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains.	15
	80	**SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain and occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming milky white cut, slightly milky white residual ring.	
	10	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft, non calcareous, micromicaceous, microcarbonaceous. Acc: traces mica and calcite.	
6120 – 6140	10	**SAND:** white, hyaline, transparent, quartzose, 80% fine, 20% medium grains, subangular to subrounded, well sorted, some dark grains.	15
	70	**SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain and occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming milky white cut, slightly milky white residual ring.	
	20	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft, non calcareous, micromicaceous, microcarbonaceous. Acc: traces mica and calcite.	
6140 – 6150	10	**SAND:** white, hyaline, transparent, quartzose, predominantly coarse grain, minor medium grains, subangular to subrounded, well sorted.	5
	60	**SANDSTONE:** light grayish white, whitish, 80% very fine, 20% fine grains, subrounded minor subangular, well sorted, argillaceous matrix, calcareous, friable, dark grain and occasionally laminar coal inclusion, poor visual porosity **Fluorescence:** golden yellow natural fluorescence, slow weak streaming milky white cut, slightly milky white residual ring.	
	30	**CLAYSTONE:** gray, light gray, blocky to subblocky, soft, non calcareous, micromicaceous, microcarbonaceous. Acc: traces mica and calcite.	
6150 – 6160	40	**SAND:** white, hyaline, transparent, quartzose, predominantly coarse grain, minor medium grains, subangular to subrounded, well sorted.	5
	40	**SANDSTONE:** whitish gray, whitish, 90% very fine, 10% fine grains, subrounded minor subangular, well sorted, clay matrix, calcareous,	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
9560 – 9570	90	**SAND:** white, smoky, hyaline, 10% fine, 40% medium, 30% coarse, 20% quarzose grains, subangular to subrounded, poorly sorted, dark and traces green grains, clean. **Fluorescence:** pale yellow natural fluorescence, slightly slow weak streaming slightly milky white cut, no visual residual ring, poor residual ring in ultraviolet light.	5-15
	10	**CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, silty in part. Acc: traces massive pyrite.	
9570 – 9580	90	**SAND:** white, hyaline, translucent, 20% fine, 60% medium, 20% coarse quarzose grains, subangular to subrounded, locally angular fairly sorted, hackly, some dark and traces smoky, gray and green grains, clean. **Fluorescence:** pale yellow natural fluorescence, slightly slow weak streaming slightly milky white cut, no visual residual ring, poor residual ring in ultraviolet light.	5-15
	10	**CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, silty in part. Acc: traces massive pyrite.	
9580 – 9590	90	**SAND:** white, hyaline, translucent, 30% fine, 60% medium, 10% coarse, traces very coarse quarzose grains, subangular to sub rounded, locally angular fairly sorted, hackly, some dark and traces smoky, gray and green grains, some pirytized grains, clean. **Fluorescence:** pale yellow natural fluorescence, slightly slow weak streaming slightly milky white cut, no visual residual ring, poor residual ring in ultraviolet light.	5-15
	10	**CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, silty in part, occasionally rough surface. Acc: traces massive pyrite.	
9590 – 9600	90	**SAND:** white, hyaline, smoky white, translucent, 30% fine, 60% medium, 10% coarse, traces very coarse quarzose grains, sub angular to subrounded, locally angular poorly sorted, hackly, some dark and traces gray and green grains, some pirytized grains, clean. **Fluorescence:** pale yellow natural fluorescence, slightly slow weak streaming slightly milky white cut, no visual residual ring, poor residual ring in ultraviolet light.	5
	10	**CLAYSTONE**: gray, medium gray, subblocky, occasionally subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous, silty in part, occasionally rough surface. Acc: traces massive pyrite.	
9600 – 9610	80	**SAND:** white, hyaline, translucent, 30% fine, 60% medium, 10% coarse, traces very coarse quartz grains, subangular to subrounded, locally angular poorly sorted, hackly, some dark, smoky and traces gray and green grains, clean.	5
	10	**SANDSTONE:** light gray, grayish white, whitish, 80% very fine, 20% fine quartzose grains, subrounded to subangular, well sorted, silty to clay matrix, calcareous cement, slightly friable, tight in part, few with coal and traces mica inclusions, poor visual porosity. **Fluorescence:** pale yellow natural fluorescence, slightly slow weak streaming slightly milky white cut, non visual residual ring in natural light.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to subplaty, moderately soft locally firm, non calcareous, micromicaceous, slightly microcarbonaceous, occasionally rough surface. Acc: traces massive pyrite.	
9610 – 9620	70	**SAND:** white, hyaline, translucent, 30% fine, 50% medium, 20% coarse, traces very coarse quartz grains, subangular to subrounded, locally angular poorly sorted, hackly, some dark, smoky, gray and traces green grains, some pirytized grains, clean.	20
	20	**SANDSTONE:** light gray, grayish white, whitish,100% very fine to fine quartzose grains, subrounded to subangular, well sorted, silty to clay matrix in part, calcareous cement, slightly friable, tight in part, few with coal and micropyritic inclusions, poor to fair visual porosity. **Fluorescence:** golden yellow natural fluorescence, moderately slow weak streaming milky white cut, slightly yellowish white visual residual ring in ultraviolet light.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to subplaty, moderately soft locally firm, non calcareous, micromicaceous, slightly microcarbonaceous, occasionally rough surface. Acc: traces massive pyrite.	
9620 – 9630	80	**SAND:** white, hyaline, smoky white, translucent, 30% fine, 50% medium, 20% coarse, traces very coarse quartz grains, subangular to subrounded, locally angular, poorly sorted, hackly, some dark, gray and traces green grains, some pirytized grains, clean.	15
	10	**SANDSTONE:** light gray, grayish white, whitish,100% very fine to fine quartz grains, subrounded to subangular, well sorted, silty to clay matrix in part, calcareous cement, slightly friable, tight in part, few with coal and micropyritic inclusions, poor to fair visual porosity. **Fluorescence:** golden yellow natural fluorescence, moderately slow weak streaming milky white cut, slightly yellowish white visual residual ring in ultraviolet light.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to subplaty, moderately soft locally firm, non calcareous, micromicaceous, slightly microcarbonaceous, occasionally rough surface.	
9630 – 9640	80	**SAND:** white, smoky white, hyaline, dark, gray and greenish occasionally, 10% very fine, 20% fine, 60% medium, 10% coarse, traces very coarse to pebble, quartz grains, subangular to sub rounded, minor angular, hackly occasionally, poorly sorted, some pirytized grains, clean.	5
	10	**SANDSTONE:** white, grayish white, light gray, minor whitish, quartzose, 100% very fine to fine grains, subrounded to subangular, well sorted, silty matrix in part, slightly calcareous cement, slightly friable, tight in part, few with dark grain and micropyritic inclusions, poor to fair visual porosity. **Fluorescence:** golden yellow natural fluorescence, moderately slow weak streaming milky white cut, slightly yellowish white visual residual ring on ultraviolet light.	
	10	**CLAYSTONE**: gray, medium gray, dark gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly micro carbonaceous. Acc: traces pyrite, calcite.	
9640 – 9650	80	**SAND:** white, smoky white, hyaline, minor dark, gray and green,10% very fine, 30% fine, 50% medium, 10% coarse, traces very coarse, quartz grains, subangular to subrounded, minor angular, hackly occasionally, poorly sorted, some pirytized grains, clean.	5

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	10	**SANDSTONE:** white, grayish white, light gray, minor whitish, quartzose, 100% very fine to fine grains, subrounded to subangular, well sorted, silty matrix in part, slightly calcareous cement, slightly friable, tight in part, few with dark grain and micropyritic inclusions, poor to fair visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, slightly yellowish white visual residual ring on ultraviolet light.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to subplaty, moderately soft locally firm, non calcareous, micromicaceous, slightly microcarbonaceous, rough surface occasionally . Acc: traces pyrite.	
9650 – 9660	70	**SAND:** white, smoky white, hyaline, dark, gray and greenish occasionally, 10% very fine, 30% fine, 50% medium, 10% coarse, traces very coarse, quartz grains, subangular to subrounded, minor angular, hackly occasionally, poorly sorted, some pirytized grains, clean.	5
	20	**SANDSTONE:** white, grayish white, light gray, minor whitish, quartzose, 100% very fine to fine grains, subrounded to subangular, well sorted, silty matrix in part, slightly calcareous cement, slightly friable, tight in part, few with dark grain and micropyritic inclusions, poor to fair visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, slightly yellowish visual residual ring on ultraviolet light.	
	10	**CLAYSTONE**: gray, medium gray, dark gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, rough surface occasionally. Acc: traces massive pyrite.	
9660 – 9670	50	**SAND:** white, hyaline, translucent, 20% very fine, 70% fine, 10% medium, traces of coarse, quartz grains, subangular to subrounded, fairly sorted, clean.	5-15
	30	**SANDSTONE:** gray, light gray, whitish gray, quartzose, 100% very fine to fine grains, subrounded to subangular, well sorted, silty matrix in part, slightly calcareous cement, slightly friable, with dark grain inclusions, fairly visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white crush cut, yellowish visual residual ring on ultraviolet light, non visual residual ring on natural light.	
	20	**CLAYSTONE**: gray, medium gray, dark gray, subblocky to subplaty, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty clay in part. Acc: traces pyrite, calcite.	
9670 – 9680	50	**SAND:** white, hyaline, translucent, 70% fine, 30% medium, traces of coarse quartz grains, subangular to subrounded, fair to well sorted, locally hackly, few dark, smoky and traces green grains, clean.	5
	20	**SANDSTONE:** light gray, whitish 100% very fine quartzose grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	30	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, locally platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, moderately smooth surface.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
9680 – 9690	60	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% coarse quartz grains, subangular to subrounded, minor angular, fairly sorted, hackly, some dark, smoky and traces light green grains clean.	TR
	30	**SANDSTONE:** light gray, whitish 100% very fine quartzose grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, locally platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, moderately smooth surface. Acc: traces massive pyrite.	
9690 – 9700	60	**SAND:** white, hyaline, translucent, 40% fine, 40% medium, 20% coarse, traces very coarse quartz grains, subangular to subrounded, minor angular, fairly sorted, hackly, some dark, smoky and traces green grains, clean.	TR
	30	**SANDSTONE:** light gray, whitish 100% very fine quartzose grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, locally platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, locally silty. Acc: traces massive pyrite.	
9700 – 9710	80	**SAND:** white, hyaline, smoky white, gray and dark grains occasionally, 20% very fine, 50% fine, 20% medium, 10%coarse, quartz grains, subangular to subrounded, minor angular, hackly occasionally, poorly sorted, clean.	TR
	10	**SANDSTONE:** light gray, whitish 100% very fine quartzose grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, silty in part. Acc: traces massive pyrite, traces slickenside, calcite.	
9710 – 9720	60	**SAND:** white, hyaline, smoky white, gray and dark grains occasionally, 20% very fine, 40% fine, 30% medium, 10%coarse, quartz grains, subangular to subrounded, minor angular, hackly occasionally, poorly sorted, clean.	TR
	20	**SANDSTONE:** light gray, whitish 100% very fine quartzose grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**SILTSTONE:** gray, light gray, medium gray, sub blocky, very slightly calcareous, moderately firm, slightly micromicaceous and microcarbonaceous.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, locally platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, locally silty.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Acc: traces pyrite, calcite, traces slickenside.	
9720 – 9730	70	**SAND:** white, hyaline, smoky white, gray and dark grains occasionally, 20% very fine, 50% fine, 20% medium, 10%coarse, quartz grains, subangular to subrounded, minor angular, hackly occasionally, clean.	5
	20	**SANDSTONE:** light gray, whitish 100% very fine quartzose grains, subrounded, well sorted, argillaceous matrix, calcareous cement, slightly friable, few with dark grain inclusions, poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring on natural light.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky to blocky, locally platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, locally silty. Acc: traces pyrite, slickenside, mica and calcite.	
9730 – 9740	60	**SAND:** white, hyaline, translucent, 50% fine, 30% medium, 20% coarse, traces very coarse quartz grains, subangular to subrounded, minor angular, fairly sorted, hackly in part, some dark, smoky and traces green grains, clean.	TR
	30	**SANDSTONE:** light gray, whitish 80% very fine, 20% fine quartzose grains, subrounded, minor subangular, well sorted, occasionally argi llaceous matrix, calcareous cement, slightly friable, some with massive calcite, few dark grain & traces coal inclusions, poor visual porosity. **Fluorescence:** dull yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky, locally sub platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, locally silty. Acc: common massive calcite and traces massive pyrite.	
9740 – 9750	50	**SAND:** white, hyaline, translucent, 50% fine, 40% medium, 10% coarse, traces very coarse quartz grains, subangular to subrounded, minor angular, fairly sorted, hackly in part, some dark, smoky and traces green grains, clean.	TR
	30	**SANDSTONE:** light gray, whitish 80% very fine, 20% fine quartzose grains, subrounded, minor subangular, well sorted, occasionally argi llaceous matrix, calcareous cement, slightly friable, some with massive calcite, few dark grain & traces coal inclusions, poor visual porosity. **Fluorescence:** dull yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	20	**CLAYSTONE**: medium gray, brownish gray, subblocky, locally sub platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, locally silty. Acc: common massive calcite and traces massive pyrite.	
9750 – 9760	60	**SAND:** white, hyaline, translucent, 70% fine, 30% medium, traces coarse quartzose grains, subangular to subrounded, minor angular, well sorted, hackly in part, some dark, smoky and traces green grains, clean.	TR
	30	**SANDSTONE:** light gray, whitish 80% very fine, 20% fine quartzose grains, subrounded, minor subangular, well sorted, occasionally argi llaceous matrix, calcareous cement, slightly friable, some with massive calcite, few dark grain & traces coal inclusions, poor visual porosity.	

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
		Fluorescence: dull yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky, locally sub platy, moderately soft, non calcareous, micromicaceous, slightly microcarbonaceous, locally silty. Acc: some massive calcite and traces massive pyrite.	
9760 – 9770	60	**SAND:** white, hyaline, translucent, 60% fine, 30% medium, 10% coarse quartzose grains, subangular to subrounded, minor angular, well sorted, hackly, some dark, smoky and traces light green grains, clean.	TR
	30	**SANDSTONE:** light gray, whitish 80% very fine, 20% fine quartzose grains, subrounded, minor subangular, well sorted, occasionally argi llaceous matrix, calcareous cement, slightly friable, few with massive calcite, dark grain & traces coal inclusions, poor visual porosity. **Fluorescence:** dull yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, locally smooth surface. Acc: some massive calcite.	
9770 – 9780	30	**SAND:** white, hyaline, translucent, 70% fine, 20% medium, 10% coarse, traces very coarse quartzose grains, subangular to sub rounded, locally angular, well sorted, hackly, some dark, smoky and traces light green grains, clean.	TR
	60	**SANDSTONE:** light gray, whitish 80% very fine, 20% fine quartzose grains, subrounded, minor subangular, well sorted, occasionally locally silty matrix, calcareous cement, slightly consolidate, few with massive calcite, dark grain & traces coal inclusions, poor visual porosity. **Fluorescence:** dull yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, locally smooth surface. Acc: some massive calcite.	
9780 – 9790	40	**SAND:** white, hyaline, translucent, some dark and smoky white, 10% very fine, 60% fine, 20% medium, 10% coarse, traces very coarse, quartz grains, subangular to sub rounded, minor angular, poor sorted, hackly occasionally, clean.	5
	40	**SANDSTONE:** light gray, whitish gray, whitish 80% very fine, 20% fine quartzose grains, subrounded, minor subangular, well sorted, silty matrix occasionally, calcareous cement, slightly consolidate, few with massive calcite, dark grain & traces coal inclusions, poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring on natural light.	
	20	**CLAYSTONE**: medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous, locally smooth surface. Acc: some massive calcite.	
9790 – 9800	30	**SAND:** white, hyaline white, translucent, dark and smoky white occasionally, 100% very fine to fine, traces coarse, quartz grains, subangular to sub rounded, well sorted, clean.	5

INTERVAL (feet)	%	LITHOLOGICAL DESCRIPTION	FLUOR %
	60	**SANDSTONE:** light gray, whitish gray, whitish 100% very fine to fine, quartzose grains, subangular to subrounded, well sorted, silty matrix, clay matrix occasionally , calcareous cement, slightly friable to moderately consolidate in part, with dark grain, pyrite inclusions occasionally, fair to poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring on natural light.	
	10	**CLAYSTONE**: medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous. Acc: some massive calcite and pyrite.	
9800 – 9803	30	**SAND:** white, hyaline white, translucent, 100% very fine to fine, traces coarse, quartz grains, subangular to sub rounded, well sorted, clean.	5
	50	**SANDSTONE:** light gray, whitish gray, minor whitish 100% very fine to fine, quartzose grains, subangular to subrounded, well sorted, silty matrix, clay matrix occasionally , calcareous cement, slightly friable to moderately consolidate, with dark grain inclusions, fair to poor visual porosity. **Fluorescence:** dull golden yellow natural fluorescence, slow weak streaming slightly milky white cut, non visual residual ring on natural light.	
	20	**CLAYSTONE**: medium gray, brownish gray, subblocky, moderately firm, non calcareous, micromicaceous, slightly microcarbonaceous. Acc: traces massive calcite, traces pyrite.	
		DRILLING STOPPED ON AUGUST 29th, 2001 AT 10:30 am **FTD : 9803 ft**	

GEOIL™

PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25ST

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
5998-6013	FM	124	124					RIO BRAVO
6013-6017	FM	346	346					RIO BRAVO
6017-6029	FM	184	184					RIO BRAVO
6029-6039	FM	116	116					RIO BRAVO
6039-6058	FM	75	75					RIO BRAVO
6058-6074	FM	111	111					RIO BRAVO
6074-6089	FM	63	63					RIO BRAVO
6089-6124	FM	158	158					RIO BRAVO
6124-6199	FM	95	95					RIO BRAVO
6199-6219	FM	911	785	40	7	4	2	RIO BRAVO
6219-6270	FM	193	193					RIO BRAVO
6270-6283	FM	145	145					PALEGREDA
6284-6287	FM	280	280					PALEGREDA
6288-6330	FM	197	197					PALEGREDA
6330-6350	FM	238	238					PALEGREDA
6350-6409	FM	232	232					PALEGREDA
6409-6500	FM	410	387	11				PALEGREDA
6500-6512	FM	130	130					PALEGREDA
6513-6520	FM	650	610	20				PALEGREDA
6521-6540	FM	424	424					PALEGREDA
6541 - 6546	FM	1292	1100	50	10	8	6	PALEGREDA
654 - 6570	FM	373	373					PALEGREDA
6570-6580	FM	2087	1705	86	21	18	15	PALEGREDA
6580 - 6600	FM	345	345					PALEGREDA
6600 - 6790	FM	147	147					PALEGREDA
6790 - 6805	FM	181	181					PALEGREDA
6805 - 6814	FM	478	478					PALEGREDA
6814 - 6849	FM	410	410					PALEGREDA
6849 - 6860	FM	65	65					PALEGREDA
6860 - 6870	FM	195	195					PALEGREDA
6870 - 6900	FM	338	338					PALEGREDA
6900 - 6910	FM	868	833	18				PALEGREDA
6910 - 6960	FM	637	637	0				PALEGREDA
6960 - 7010	FM	835	794	20				PALEGREDA

GAS SHOWS DATA RECORD

WELL: LO6 - 25ST

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
7010 - 7100	FM	856	800	25	2			MOGOLLON
7100 - 7150	FM	447	407	20				MOGOLLON
7150 - 7220	FM	140	140					MOGOLLON
7220 - 7228	FM	93	93					MOGOLLON
7228 - 7290	FM	149	149					MOGOLLON
7290 - 7307	FM	345	315	15				MOGOLLON
7307 - 7320	FM	482	450	16				MOGOLLON
7320 - 7324	FM	255	255					MOGOLLON
7324 - 7329	FM	1080	998	41				MOGOLLON
7329 - 7332	FM	337	337					MOGOLLON
7332 - 7336	FM	3294	2760	183	36	15		MOGOLLON
7336 - 7343	FM	271	271					MOGOLLON
7343 - 7356	FM	809	761	24				MOGOLLON
7356 - 7379	FM	335	315	10				MOGOLLON
7379 - 7388	FM	703	621	41				MOGOLLON
7388 - 7402	FM	114	114					MOGOLLON
7402 - 7409	FM	13	13					MOGOLLON
7409 - 7440	FM	811	761	25				MOGOLLON
7440 - 7477	FM	632	580	26				MOGOLLON
7477 - 7515	FM	377	343	17				MOGOLLON
7515 - 7525	FM	4733	4426	106	17	11		MOGOLLON
7525 - 7530	FM	1532	1450	41				MOGOLLON
7530 - 7538	FM	465	443	11				MOGOLLON
7538 - 7543	FM	2351	2050	99	17	13		MOGOLLON
7543 - 7548	FM	777	621	36	12	12		MOGOLLON
7548 - 7587	FM	228	228					MOGOLLON
7587 - 7596	FM	565	543	11				MOGOLLON
7596 - 7605	FM	1400	1400					MOGOLLON
7605 - 7611	FM	664	664					MOGOLLON
7611 - 7614	FM	1463	1401	31				MOGOLLON
7614 - 7686	FM	349	325	12				MOGOLLON
7686 - 7700	FM	2031	1965	33				MOGOLLON
7700 - 7748	FM	470	470					MOGOLLON
7748 - 7759	FM	1362	1308	27				MOGOLLON

GEOIL™

PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25ST

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
7759 - 7768	FM	443	443					MOGOLLON
7768 - 7777	FM	2080	1964	58				MOGOLLON
7777 - 7820	FM	606	580	13				MOGOLLON
7820 - 7831	FM	542	520	11				MOGOLLON
7831 - 7849	FM	200	200					MOGOLLON
7849 - 7858	FM	747	711	18				MOGOLLON
7858 - 7872	FM	225	225					MOGOLLON
7872 - 7910	FM	375	375					MOGOLLON
7910 - 7916	FM	654	618	18				SAN CRISTOBAL
7916 - 7940	FM	115	115					SAN CRISTOBAL
7940 - 7975	FM	443	443					SAN CRISTOBAL
7975 - 8001	FM	240	240					SAN CRISTOBAL
8001 - 8064	FM	682	650	16				SAN CRISTOBAL
8064 - 8073	FM	4458	4130	114	16	13		SAN CRISTOBAL
8073 - 8095	FM	616	580	18				SAN CRISTOBAL
8095 - 8102	FM	2743	2570	70	11			SAN CRISTOBAL
8102 - 8162	FM	809	761	24				SAN CRISTOBAL
8162 - 8171	FM	6763	6208	196	29	19		SAN CRISTOBAL
8171 - 8196	FM	812	758	27				SAN CRISTOBAL
8196 - 8202	FM	4264	3860	149	22	10		SAN CRISTOBAL
8202 - 8222	FM	1104	1038	33				SAN CRISTOBAL
8222 - 8283	FM	671	621	25				SAN CRISTOBAL
8283 - 8320	FM	925	871	27				SAN CRISTOBAL
8320 - 8383	FM	1474	1305	41	13	12		SAN CRISTOBAL
8383 - 8387	FM	17856	16021	542	106	87	17	SAN CRISTOBAL
8387 - 8439	FM	1518	1340	47	12	12		SAN CRISTOBAL
8439 - 8479	FM	1930	1715	58	13	15		SAN CRISTOBAL
8479 - 8484	FM	7984	7109	275	47	46		SAN CRISTOBAL
8484 - 8505	FM	1413	1222	44	17	13		SAN CRISTOBAL
8505 - 8508	FM	8455	7607	270	59	19	11	SAN CRISTOBAL
8508 - 8529	FM	1261	998	41	21	17	10	SAN CRISTOBAL
8529 - 8544	FM	2722	2435	87	19	14		SAN CRISTOBAL
8544 - 8548	FM	9624	8700	240	53	55	13	SAN CRISTOBAL
8548 - 8572	FM	1880	1603	54	14	18	11	SAN CRISTOBAL

GEOIL™

PETRO-TECH PERUANA S.A.

GAS SHOWS DATA RECORD

WELL: LO6 - 25ST

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
8572 - 8577	FM	8492	7530	257	54	54	14	SAN CRISTOBAL
8577 - 8628	FM	1383	1222	38	11	13		SAN CRISTOBAL
8628 - 8636	FM	24286	22471	540	99	87	18	SAN CRISTOBAL
8636 - 8656	FM	2072	1964	54				SAN CRISTOBAL
8654 - 8690	FM	1414	1222	47	14	14		SAN CRISTOBAL
8690 - 8700	By pass shaker							
8700 - 8710	FM	5126	3256	438	160	81	38	Trip gas max 58 u.
8710 - 8735	FM	1288	761	76	41	33	24	SAN CRISTOBAL
8735 - 8737	FM	7059	6245	149	44	66	24	Swab gas 70 u
8737 - 8745	FM	1376	880	62	33	47	17	SAN CRISTOBAL
8745 - 8754	FM	655	443	18	12	20	12	SAN CRISTOBAL
8754 - 8902	FM	275	275					SAN CRISTOBAL
8902 - 8923	FM	507	507					SAN CRISTOBAL
8923 - 8942	FM	315	315					SAN CRISTOBAL
8942 - 8967	FM	801	761	20				SAN CRISTOBAL
8967 - 8982	FM	557	557					SAN CRISTOBAL
8982 - 9012	FM	858	814	22				SAN CRISTOBAL
9012 - 9015	FM	8289	7607	184	54	38		SAN CRISTOBAL
9015 - 9033	FM	795	761	17				SAN CRISTOBAL
9033 - 9063	FM	441	441					SAN CRISTOBAL
9063 - 9108	FM	295	295					SAN CRISTOBAL
9108 - 9111	FM	3399	3050	114	19	16		BASAL SALINA
9111 - 9116	FM	376	342	17				BASAL SALINA
9116 - 9120	FM	519	475	22				BASAL SALINA
9120 - 9125	FM	248	248					BASAL SALINA
9125 - 9129	FM	507	507					BASAL SALINA
9129 - 9137	FM	280	280					BASAL SALINA
9137 - 9159	FM	196	196					BASAL SALINA
9159 - 9210	FM	142	142					BASAL SALINA
9210 - 9214	FM	210	210					BASAL SALINA
9214 - 9225	FM	1313	1225	44				BASAL SALINA
9225 - 9260	FM	410	386	12				BASAL SALINA
9260 - 9266	FM	1683	1607	38				BASAL SALINA
9266 - 9285	FM	225	225					BASAL SALINA

GAS SHOWS DATA RECORD

WELL: LO6 - 25ST

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
9285 - 9310	FM	275	275					BASAL SALINA
9310 - 9319	FM	1872	1715	62	11			BASAL SALINA
9319 - 9335	FM	359	337	11				BASAL SALINA
9335 - 9339	FM	512	474	19				BASAL SALINA
9339 - 9347	FM	215	215					BASAL SALINA
9347 - 9357	FM	2804	2750	27				BASAL SALINA
9357 - 9378	FM	568	542	13				BASAL SALINA
9378 - 9387	FM	210	210					BASAL SALINA
9387 - 9392	FM	712	664	24				BASAL SALINA
9392 - 9407	FM	210	210					BASAL SALINA
9407 - 9412	FM	698	664	17				BASAL SALINA
9412 - 9421	FM	185	185					BASAL SALINA
9421 - 9423	FM	361	361					BASAL SALINA
9423 - 9428	FM	183	183					BASAL SALINA
9428 - 9433	FM	471	443	14				BASAL SALINA
9447 - 9477	FM	275	275					BASAL SALINA
9477 - 9482	FM	1288	1222	33				BASAL SALINA
9482 - 9489	FM	604	580	12				BASAL SALINA
9489 - 9500	FM	196	196					BASAL SALINA
9500 - 9510	FM	1193	1069	44	12			BASAL SALINA
9510 - 9532	FM	558	510	24				BASAL SALINA
9532 - 9561	FM	387	387					BASAL SALINA
9561 - 9570	FM	93	93					BASAL SALINA
9570 - 9577	FM	788	712	38				BASAL SALINA
9577 - 9587	FM	184	160	12				BASAL SALINA
9587 - 9611	FM	41	41					BASAL SALINA
9611 - 9630	FM	25	25					BASAL SALINA
9630 - 9640	FM	44	44					BASAL SALINA
9640 - 9652	FM	62	62					BASAL SALINA
9652 - 9687	FM	25	25					BASAL SALINA
9687 - 9692	FM	51	51					BASAL SALINA
9692 - 9697	FM	160	160					BASAL SALINA
9697 - 9705	FM	50	50					BASAL SALINA
9706 - 9732	FM	62	62					BASAL SALINA

GAS SHOWS DATA RECORD

WELL: LO6 - 25ST

DEPTH (feet)	DITCH SAMPLE GAS							FORMATION
	TYPE	TGC(ppm)	ppm					
			C1	C2	C3	C4	C5	
9732 - 9744	FM	101	101					BASAL SALINA
9744 - 9774	FM	56	56					BASAL SALINA
9774 - 9780	FM	31	31					BASAL SALINA
9780 - 9790	FM	33	33					BASAL SALINA
9790 - 9803	FM	54	54					BASAL SALINA

Parts per million	Units of Gas
100 ppm	1 u

FLUORESCENCE DATA RECORD

WELL: LO6 - 25ST

Depth (Feet)	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
6040 - 6050		X			15	sli bri yel'sh wh			X		X				RIO BRAVO
6050 - 6060		X			20	sli bri yel'sh wh			X		X				RIO BRAVO
6062 - 6070		X			20	sli bri yel'sh wh			X		X				RIO BRAVO
6070 - 6080		X			15	sli bri yel'sh wh			X		X				RIO BRAVO
6080 - 6890		X			20	golden yel'sh wh			X		X				RIO BRAVO
6090 - 6100		X			20	golden yel'sh wh			X		X				RIO BRAVO
6100 - 6110		X			15	golden yel'sh wh			X		X				RIO BRAVO
6110 - 6120		X			15	golden yel'sh wh			X		X				RIO BRAVO
6120 - 6130		X			10	golden yel'sh wh				X				X	RIO BRAVO
6130 - 6140		X			10	golden yel'sh wh				X				X	RIO BRAVO
6140 - 6150		X			10	golden yel'sh wh				X				X	RIO BRAVO
6150 - 6160		X			10	golden yel'sh wh				X				X	RIO BRAVO
6160 - 6170		X			10	golden yel'sh wh				X				X	RIO BRAVO
6170 - 6180		X			10	golden yel'sh wh				X				X	RIO BRAVO
7100 - 7110		X			5	yel'sh				X				X	MOGOLLON

FLUORESCENCE DATA RECORD

WELL: LO6 - 25ST

Depth (Feet)	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
7110 - 7120		X			5	yel'sh				X				X	MOGOLLON
7120 - 7130		X			5	yel'sh				X				X	MOGOLLON
7130 - 7140		X			5	yel'sh				X				X	MOGOLLON
7140 - 7150		X			5	yel'sh				X				X	MOGOLLON
7150 - 7160		X			5	yel'sh				X				X	MOGOLLON
7160 - 7170		X			5	yel'sh				X				X	MOGOLLON
7170 - 7180		X			5	yel'sh				X				X	MOGOLLON
7290 - 7310	X				TR	sli bri yel'sh				X				X	MOGOLLON
7310 - 7320		X			15	sli bri yel'sh			X		X				MOGOLLON
7320 - 7330		X			20	sli bri yel'sh			X		X				MOGOLLON
7330 - 7340		X			20	sli bri yel'sh			X		X				MOGOLLON
7340 - 7350			X		30	sli bri yel'sh		X			X				MOGOLLON
7350 - 7360		X			10	sli bri yel'sh				X	X				MOGOLLON
7360 - 7370		X			15	sli bri yel'sh			X		X				MOGOLLON
7370 - 7390		X			5	sli bri yel'sh				X	X				MOGOLLON

GEOIL™

PETRO-TECH PERUANA S.A.

FLUORESCENCE DATA RECORD

WELL: LO6 - 25ST

Depth	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
(Feet)	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
7390 - 7400		X			15	sli bri yel'sh				X	X				MOGOLLON
7400 - 7410		X			10	sli bri yel'sh				X	X				MOGOLLON
7410 - 7420		X			5	sli bri yel'sh				X	X				MOGOLLON
7420 - 7430		X			5	yel'sh				X				X	MOGOLLON
7430 - 7450		X			10	yel'sh				X				X	MOGOLLON
7450 - 7460		X			15	yel'sh				X				X	MOGOLLON
7460 - 7470		X			5	yel'sh				X				X	MOGOLLON
7470 - 7480		X			5	yel'sh				X				X	MOGOLLON
7480 - 7490		X			5	yel'sh				X				X	MOGOLLON
7490 - 7500		X			5	yel'sh				X				X	MOGOLLON
7590 - 7600		X			5	yel'sh				X	X				MOGOLLON
7630 - 7650	X				TR	yel'sh				X	X				MOGOLLON
7680 - 7700	X				TR	yel'sh				X	X				MOGOLLON
7740 - 7750	X				TR	yel'sh				X	X				MOGOLLON
7750 - 7770		X			5	yel'sh				X	X				MOGOLLON

FLUORESCENCE DATA RECORD

WELL: LO6 - 25ST

Depth	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
(Feet)	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
7770 - 7780		X			5	yel'sh				X	X				MOGOLLON
7780 - 7790		X			5	yel'sh				X	X				MOGOLLON
7790 - 7800		X			5	yel'sh				X	X				MOGOLLON
7800 - 7820		X			5	yel'sh				X	X				MOGOLLON
8540 - 8550		X			10	yel'sh				X				X	SAN CRISTOBAL
8550 - 8560		X			5	yel'sh				X				X	SAN CRISTOBAL
8560 - 8570		X			5	yel'sh				X				X	SAN CRISTOBAL
8570 - 8580		X			5	yel'sh				X				X	SAN CRISTOBAL
8640 - 8650		X			5	yel'sh				X				X	SAN CRISTOBAL
8650 - 8670	X				TR	yel'sh				X				X	SAN CRISTOBAL
9100 - 9110		X			20	sli bri yel'sh			X		X				BASAL SALINA
9110 - 9120			X		30	sli bri yel'sh		X			X				BASAL SALINA
9120 - 9130		X			15	sli bri yel'sh			X		X				BASAL SALINA
9130 - 9135		X			10	sli bri yel'sh				X	X				BASAL SALINA
9135 - 9140	X				TR	sli bri yel'sh				X	X				BASAL SALINA

FLUORESCENCE DATA RECORD

WELL: LO6 - 25ST

Depth	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
(Feet)	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
9150 - 9160	X				TR	sli bri yel'sh				X	X				BASAL SALINA
9160 - 9180	X				TR	sli bri yel'sh				X	X				BASAL SALINA
9210 - 9220	X				5	sli bri yel'sh				X	X				BASAL SALINA
9220 - 9230		X			15	sli bri yel'sh			X		X				BASAL SALINA
9230 - 9240		X			10	yel'sh				X		X			BASAL SALINA
9240 - 9250	X				5	sli bri yel'sh				X		X			BASAL SALINA
9250 - 9270		X			15	sli bri yel'sh			X		X				BASAL SALINA
9270 - 9280	X				5	sli bri yel'sh				X	X				BASAL SALINA
9280 - 9290	X				TR	sli bri yel'sh				X	X				BASAL SALINA
9300 - 9310	X				5	sli bri yel'sh				X	X				BASAL SALINA
9310 - 9320		X			15	sli bri yel'sh			X		X				BASAL SALINA
9320 - 9330		X			10	sli bri yel'sh				X	X				BASAL SALINA
9330 - 9340	X				TR	sli bri yel'sh				X	X				BASAL SALINA
9350 - 9360		X			20	yel'sh			X			X			BASAL SALINA
9360 - 9370		X			20	yel'sh			X			X			BASAL SALINA

FLUORESCENCE DATA RECORD

WELL: LO6 - 25ST

Depth (Feet)	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
9370 - 9380		X			15	yel'sh			X			X			BASAL SALINA
9380 - 9390		X			10	sli bri yel'sh				X	X				BASAL SALINA
9390 - 9410	X				5	sli bri yel'sh				X	X				BASAL SALINA
9410 - 9430	X				5	sli bri yel'sh				X	X				BASAL SALINA
9430 9450	X				TR	sli bri yel'sh				X	X				BASAL SALINA
9450 - 9460	X				TR	sli bri yel'sh				X	X				BASAL SALINA
9470 - 9480	X				TR	sli bri yel'sh				X	X				BASAL SALINA
9480 - 9494	X				5	sli bri yel'sh				X	X				BASAL SALINA
9494 - 9510	X				TR	yel'sh				X		X			BASAL SALINA
9550	X				5	yel'sh				X		X			BASAL SALINA
9570 - 9590					15	yel'sh			X			X			BASAL SALINA
9590 - 9610	X				5	yel'sh				X		X			BASAL SALINA
9610 - 9630					20	golden yell								X	BASAL SALINA
9630 - 9680	X				5	golden yell								X	BASAL SALINA
9680 - 9700	X				TR	golden yell				X				X	BASAL SALINA

FLUORESCENCE DATA RECORD

WELL: LO6 - 25ST

Depth (Feet)	FLUORESCENCE					COLOUR	DISTRIBUTION				INTENSITY				FORMATION
	Traces	Poor	Fair	Good	%		Even	Motled	Patchy	Spotty	Bright	Pale	Faint	Dull	
9700 - 9730	X				5	golden yell				X				X	BASAL SALINA
9730 - 9780	X				TR	golden yell				X				X	BASAL SALINA
9790 - 9803	X				5	golden yell				X				X	BASAL SALINA

DAILY OPERATION REPORT

WELL: LO6-25 ST

JULY 16, 2001

00:00 - 08:00	WAIT ON CEMENT, MAKE UP CUP TESTER, TESTING RAMS OF 5" WITH 1500 psi .
08:00 - 10:00	WAIT ON CEMENT, PUT ON KELLY AND CLEAN SOFT CEMENT FROM 5029' - 5401'
10:00 - 18:30	CLEAN CEMENT MODERATELY HARD FROM 5401' TO 5780'
18:30 - 24:00	WAIT ON CEMENT , CIRCULATING AND LAY DOWN 36 DRILL PIPE, MAKE UP 12 STANDS AND RIH , MUD WEIGHT CONDITION TO 9,8 Lb/gal.

JULY 17, 2001

00:00 - 00:30	MAKE UP 2 STANDS AND RIH TO 5780'
00:30 - 01:00	CIRCULATING MUD WEIGHT 9,8 lb/gls.
01:00 - 07:00	DRILLING CEMENT FROM 5780' TO 5990'
07:00 - 08:00	CIRCULATING FOR TRIP TO MAKE UP MUD MOTOR.
08:00 - 12:00	PUMPING SLUG AND POOH.
12:00 - 15:30	MAKE UP 8 1/2" TRICONIC BIT, MFDS SMITH, 2X22, 1X18, 1X10, WITH MUD MOTOR.
15:30 - 17:30	RIH TO 200', TESTING TOOL MWD, (NEGATIVE), POOH AND CHECKING TOOL. RIH FOR TESTING TOOL MWD WITH 491 gpm AND 800 psi (ok).
17:30 - 23:30	RIH TO 5956'.
23:30 - 24:00	PICK UP KELLY, CIRCULATING AND MUD CONDITIONED TO 9,5 lb/gal.

JULY 18, 2001

00:00 - 00:30	CIRCULATING AND ORIENTATION TOOL.
00:30 - 15:00	DRILLING SIDE TRACK SLIDING FROM 5990' TO 6088'.
15:00 24:00	DRILLING WITH ROTATION FROM 6088 TO 6270'.

JULY 19, 2001

00:00 - 00:30	DRILLING FROM 6270' TO 6276'.
00:30 - 01:30	CIRCULATING AND PUMPING STOPPER
01:30 - 06:00	POOH TOTAL.
06:00 - 08:00	CHANGE MUD MOTOR AND RIH TO 80' WITH TRICONIC BIT.
08:00 - 08:30	TESTING SLIM ONE, WITH 490 gpm, 600psi.
08:30 - 09:00	RIG REPAIR .
09:00 - 15:00	POOH AND CHANGE TRICONIC BIT FOR PDC RR DS 110 NSV, 5X16, 1X18.
15:00 - 15:30	CIRCULATING AND ORIENTATION TOOL.
15:30 - 16:00	DRILLING FROM 6276' TO 6283'
16:00 - 17:30	CHANGE HIGH LINE, REPAIR MUD PUMP.
17:30 - 24:00	SLIDING AND ROTARY DRILLING FROM 6283' TO 6385'

JULY 20, 2001

00:00 - 14:00	SLIDING AND ROTARY DRILLING FROM 6385' TO 6786'
14:00 - 15:00	CIRCULATING FOR SHORT TRIP.
15:00 - 17:00	SHORT TRIP TO 9 5/8" CASING SHOE AT 5980'.
17:00 - 24:00	SLIDING AND ROTARY DRILLING FROM 6786' TO 6857'.

JULY 21, 2001

00:00 - 12:00	SLIDING AND ROTARY DRILLING FROM 6857' TO 7105'.
12:00 - 15:30	PICK UP BIT AT 7003' , WASH PIPE REPAIR.
15:30 - 16:30	LAY DOWN KELLY AND MAKE UP BIT AT 6735' TO CHANGE WASH PIPE.
16:30 - 24:00	ORIENTATION TOOL, SLIDING AND ROTARY DRILLING FROM 7105' - 7159'

JULY 22, 2001

00:00 - 03:30	SLIDING AND ROTARY DRILLING FROM 7159' TO 7186'.
03:30 - 04:30	CIRCULATING FOR CHANGE MUD MOTOR + BIT.
04:30 - 11:00	POOH , MAX PULL 280,000 LBS.
11:00 - 12:30	MAKE UP MUD MOTOR AND TRICONIC OLD BIT, RIH AT 107' PUT ON SLIM ONE AND TESTING WITH 120 SPM, 850 PSI, 420 GPM, (OK).
12:30 - 17:30	POOH FOR CHANGE BIT, MAKE UP NEW BIT, GTM - 09 AND RIH.
17:30 - 18:00	RIG REPAIR.
18:00 - 19:30	CUT OFF 80' DRLLING CABLE, RUN 85'.
19:30 - 20:30	CONTINUE RIH AND PROTECTORS PUT AT 7161'.
20:30 - 22:00	CIRCULATING AND REAMING FROM 7161' TO 7186'.
22:00 - 24:00	SLIDING AND ROTARY DRILLING FROM 7186' TO 7202'.

JULY 23, 2001

00:00 - 12:00	SLIDING AND ROTARY DRILLING FROM 7202' TO 7380'
12:00 - 12:30	RIG REPAIR.
12:30 - 21:00	SLIDING AND ROTARY DRILLING FROM 7380' TO 7538'.
21:00 - 23:00	SHORT TRIP AT 6974', PULL MAXIMUM 280,000 LBS.
23:00 - 24:00	SLIDING AND ROTARY DRILLING FROM 7538' TO 7562'.

JULY 24, 2001

00:00 - 17:00	SLIDING DRILLING FROM 7562' TO 7820'.
17:00 - 17:30	SURVEY .
17:30 - 18:30	CIRCULATING + SLUG.
18:30 - 24:00	POOH.

JULY 25, 2001

00:00 - 01:00	CONTINUE POOH.
01:00 - 03:00	MAKE UP NEW B.H.A. WITH SLIM ONE AND BIT, RIH AT 300'.
03:00 - 03:30	TESTING SLIM ONE, WITH 418 GPM AND 550 PSI.
03:30 - 08:30	RIH CONTINUE, PUT ON CORROTION RING , RIH AT 6032'
08:30 - 11:00	REAMING FROM 6032' TO 6895'.
11:00 - 11:30	RIH WITH STANDS AT 7245'.
11:30 - 13:00	REAMING FROM 7245' TO 7343'.
13:00 - 15:00	PULL OUT 21 DRILL PIPE OF HOLE, AND RIH WITH STANDS AT 7398'.
15:00 - 19:30	REAMING FROM 7398' TO 7820', PUT ON CORROTION RING IN PIPE 218 AND 219.
19:30 - 24:00	DRILLING FROM 7820' TO 7832'.

JULY 26, 2001

00:00 - 10:00	DRILLING FROM 7832' TO 7916'
10:00 - 11:00	CIRCULATING FOR BIT CHANGE (LOW ROP) PUMPING BARITE SLUG.
11:00 - 16:30	POOH, LAY DOWN BIT, TWO JETS OBSTRUCT.
16:30 - 17:30	MAKE UP NEW BIT PDC 8 1/2", HA89PX, 6X16; CHANGE STB NEAR BIT.
17:30 - 18:00	TESTING MWD TOOL.
18:00 - 22:30	RIH AT 7866'.
22:30 - 24:00	CIRCULATING FOR FLUID OUT NORMALIZED.

JULY 27, 2001

00:00 - 24:00	DRILLING FROM 7916' TO 8335', MUD WEIGHT CONDITIONED AT 11,2 Lb/gal.

JULY 28, 2001

00:00 - 03:30	DRILLINF FROM 8335' TO 8439'.
03:30 - 04:30	CHANGE BHA, MAKE UP SAME PDC BIT, RIH TO 323 FT
04:30 - 06:00	SHORT TRIP AT 7839', MAXIMUM PULL 440,000 LBS.
06:00 - 10:30	DRILLING FROM 8439' TO 8565'.
10:30 - 11:00	RIG REPAIR.
11:00 - 12:30	DRILLING FROM 8565' TO 8596'.
12:30 - 13:30	CIRCULATING FOR CLEAN HOLE, CONDIOTIONED MUD WEIGHT AT 11,4 Lbs/gal.
13:30 - 19:00	DRILLING FROM 8576' to 8691'
19:00 - 20:30	CIRCULATING FOR TRIP, PUMPING VISCOSITY PILL.
20:30 - 24:00	POOH .

JULY 29, 2001

00:00 - 05:00	POOH CONTINUE, POOL OUT MWD TOOL AND MONELS.
05:00 - 11:30	RIH WITH NEW ASSEMBLIE TO 9 5/8" CSG SHOE AT 5980', CIRCULATING AND RIH CONTINUE TO 8691'.
11:30 - 12:00	PICK UP KELLY AND CIRCULATING AT 8691'.
12:00 - 15:30	DRILLING FROM 8691' TO 8735'.
15:30 - 16:00	POOL PIPE AT 8520'.
16:00 - 18:30	CHANGE WASH PIPE
18:30 - 21:00	DRILLING FROM 8735' TO 8747'.
21:00 - 21:30	CIRCULATING FOR CLEANING BIT.
21:30 - 24:00	DRILLING FROM 8747' TO 8753'.

JULY 30, 2001

00:00 - 01:30	CIRCULATING FOR POOH (LOW ROP).
01:30 - 04:30	POOH WITH TENSIÓN FROM 270 - 340,000 lbs.
04:30 - 05:30	WORKING ON DRILL PIPE TO 6335' MANIPULING WITH ROTARY TABLE.
05:30 - 09:00	POOH TOTAL (OK).
09:00 - 12:00	MAKE UP BIT AND BHA FOR REAMING HOLE.
12:00 - 14:30	RIH TO 3000'
14:30 - 16:00	CIRCULATING FOR CLEAN HOLE WITH 436 GPM AND 1100 PSI.
16:00 - 19:00	CONTINUE RIH TO 5975', LAY DOWN 21 PIPES.
19:00 - 19:30	CIRCULATING.
19:30 - 21:00	RUN AND CUT OFF 100' OF DRILLING CABLE.
21:00 - 21:30	CIRCULATING BOTTOM UP.
21:30 - 22:00	RIH CONTINUE.
22:30 - 24:00	REAMING HOLE FROM 6239' TO 6342'.

JULY 31, 2001

00:00 - 13:00	REAMING FROM 6342'- 6939' WORKING ON TIGHT HOLE FROM 6562' TO 6594'.
13:00 - 14:00	CIRCULATING AND PUMPING PILL.
14:00 - 20:30	POOH TOTAL.
20:30 - 24:00	MAKE UP BIT 8 1/2" GT03; 3X24 AND BHA =1033.46'.

AUGUST 01, 2001

00:00 - 00:30	RIH CONTINUE TO CASING SHOE
00:30 - 01:30	PICK UP KELLY AND CIRCULATING TO 4826'
01:30 - 03:00	RIH CONTINUE TO 5369 FT
03:00 - 05:00	PICK UP KELLY AND CIRCULATING GAS CUT MUD FROM 11,6 TO 10,8 lb/gal. UP MUD WEIGHT TO 11,8.
05:00 - 07:00	REAMING WITH DIFFICULT FROM 7388' TO 7440'.
07:00 - 08:00	RIH AT 7798'.
08:00 - 10:00	REAMING FROM 7798' TO 7900'.
10:00 - 10:30	RIH AT 8016'.
10:30 - 12:30	REAMING WITH DIFFICULT FROM 8016' TO 8056'.
12:30 - 13:00	RIH AT 8330'.
13:00 - 13:30	RIG REPAIR.
13:30 - 14:00	RIH AT 8530'.
14:00 - 20:00	REAMING FROM 8530' TO 8753'; MUD WEIGHT UP 12,0 lb/gal.
20:00 - 24:00	DRILLING FROM 8753' TO 8795'.

AUGUST 02, 2001

00:00 - 04:00	DRILLING FROM 8795' TO 8840'.
04:00 - 05:00	WORK ON PIPE TO CONECTION.
05:00 - 13:00	DRILLING FROM 8840' TO 8904'.
13:00 - 14:30	PULL OUT BIT AT 8716' WITH CIRCULATION, RIH PIPE BY PIPE TO WELL CALIBRATION.
14:30 - 16:00	DRILLING FROM 8920' TO 8935'.
16:00 - 18:00	PULL BIT AT 8876' TO RIG REPAIR (DRAW WORKS MOTOR).
18:00 - 20:00	DRILLING FROM 8920' TO 8935'.
20:00 - 21:00	GASKET CHANGE OF DRAW WORKS MOTOR.
21:00 - 24:00	DRILLING FROM 8935' TO 8970'. KICK GAS SIMULACRE.

AUGUST 03, 2001

00:00 - 00:30	RIG SERVICE.
00:30 - 06:30	DRILLING FROM 8970' TO 9029'.
06:30 - 08:30	PULL BIT WITH CIRCULATION AT 8779'.
08:30 - 12:30	DRILLING FROM 9029' TO 9065'.
12:30 - 13:00	RIG REPAIR (ROTARY TABLE).
13:00 - 20:00	DRILLING FROM 9065' TO 9123'.
20:00 - 21:00	PULL BIT WITH CIRCULATION AT 8967'.
21:00 - 23:00	DRILLING FROM 9123' TO 9136'
23:00 - 24:00	CIRCULATING FOR BIT CHANGE AND NEW BHA. MUD WEIGHT UP 12,2 lb/gal.

AUGUST 04, 2001

00:00 - 00:30	CIRCULATING AT 9136' MUD WEIGHT ON 12,2 lb/gal.
00:30 - 01:30	PULL PIPE BY PIPE AT 8833' WITH CIRCULATION.
01:30 - 02:00	PUMPING 100 BBLS OF BED POLYMERS.
02:00 - 10:30	POOH STANDS BY STANDS FOR BIT CHANGE.
10:30 - 13:30	RIH NEW BHA, AND PULL OUT 2 DC, 4HW, AND RIH AT 3000'.
13:30 - 14:00	DRILL PIPE FULLING UP.

14:00 - 15:00	RIH CONTINUE AT 5970'.
15:00 - 15:30	MUD PUMPING ON PIPE.
15:30 - 18:00	RIH CONTINUE AT 9116'.
18:00 - 19:30	CIRCULATING AT 9116', TRIP GAS , MUD WEIGHT DOWN 11,6.
19:30 - 24:00	BREACK IN THE BIT AND DRILLING FROM 9136' TO 9160'.

AUGUST 05, 2001

00:00 - 03:30	DRILLING FROM 9160' TO 9176'.
03:30 - 04:00	RIG REPAIR (ROTARY TABLE CHAIN).
04:00 - 11:00	DRILLING FROM 9176' TO 9210'.
11:00 - 13:00	PULL THE BIT AT 8888', CIRCULATE, MAXIMUN PULL 420,000 lbs.
13:00 - 17:00	PULL OUT KELLY AND PULL PIPE AT CASING SHOE.
17:00 - 24:00	RIG REPAIR (CHANGE TRANSMITION BOX OF DRAW WORKS MOTOR).

AUGUST 06, 2001

00:00 - 00:30	FINISH INSTALATION DRAW WORKS MOTOR.
00:30 - 02:00	RIH AND BREACK IN AT 8381'.
02:00 - 02:30	RIH CIRCULATING FROM 8381' TO 8500'.
02:30 - 03:30	RIH CONTINUE IN STANDS AT 9080'.
03:30 - 04:00	PICK UP KELLY AND DRILL PIPE FULLING UP AND CIRCULATE AT 9210'.
04:00 - 06:00	CIRCULATE BY TRIP GAS, MUD WEIGHT DOWN 11.7,UP MW AT 12,2 lb/gal
06:00 - 14:30	DISPLACE SLUG, POOH FOR BIT CHANGE.
14:30 - 18:00	MAKE UP TRICONIC BIT GT-M1 RR AND NEW BHA.
18:00 - 18:30	PUMPING PIPE.
18:30 - 20:00	RIH CONTINUE AT 6270'.
20:00 - 24:00	REAMING FROM 6270' TO 6541'.

AUGUST 07, 2001

00:00 - 08:00	REAMING CONTINUE FROM 6541' TO 7159'.
08:00 - 10:00	PULL BIT AT 6273' AND LAY DOWN 25 PIPE.
10:00 - 14:00	POOH CONTINUE IN STANDS.
14:00 - 17:00	MAKE UP BIT MX-20DX WITH NEW BHA, AND RIH AT 5960'
17:00 - 17:30	MUD PUMPING ON PIPE, CIRCULATE.
17:30 - 18:30	RUN CABLE 85' AND CUT OFF DRILLING CABLE.
18:30 - 19:30	RIH CONTINUE AT 7381' AND BRECK IN THE BIT.
19:30 - 20:30	PICK UP KELLY AND RIH PIPE BY PIPE AT 7581'.
20:30 - 21:30	RIH CONTINUE IN STANDS AT 8857', BREACK IN THE BIT.
21:30 - 23:30	LAY DOWN 5 PIPE AND DOWN 2 STANDS AND RIH AT 9054'.
23:30 - 24:00	CIRCULATING TO MUD NORMALIZATE AND CHECKING.

AUGUST 08, 2001

00:00 - 00:30	CIRCULATE FOR TRIP GAS, MUD WEIGHT DOWN 11.7;NORMALIZATED 12,2 lb/gal. NORMALIZATED 12,2 lb/gal.
00:30 - 03:30	REAMING WITH DIFFICULT FROM 9454' TO 9210'.
03:30 - 11:00	DRILLING FROM 9210' TO 9266'.
11:00 - 11:30	RIG REPAIR (ROTARY TABLE CHAIN).
11:30 - 18:30	DRILLING FROM 9266' TO 9308'.
18:30 - 19:30	PULL BIT AT 9143' WITH CIRCULATION, MAXIMUN PULL 450,000 lbs.
19:30 - 23:30	DRILLING FROM 9308' TO 9332'.
23:30 - 24:00	RIG REPAIR (ROTARY TABLE CHAIN).

AUGUST 09, 2001

00:00 - 01:30	DRILLING FROM 9332' TO 9342'.
01:30 - 04:00	RIG REPAIR (ROTARY TABLE CHAIN).
04:00 - 05:00	DRILLING FROM 9342' TO 9347'.
05:00 - 06:30	PULL OUT 9 PIPE.
06:30 - 12:00	RIG REPAIR (SPROCKET AND CHAIN OF ROTARY TABLE).
12:00 - 13:00	RIH WITH KELLY FROM 9050' TO 9347'.
13:00 - 24:00	DRILLING FROM 9347' TO 9411'.

AUGUST 10, 2001

00:00 - 03:00	DRILLING FROM 9411' TO 9431'.
00:00 - 05:00	SHORT TRIP AT 9205', PULLING AND WORKING WITH KELLY AND CIRCULATE. MAXIMUM PULL 450,000 - 460,000 Lbs.
05:00 - 17:00	DRILLING FROM 9431' TO 9494'.
17:00 - 18:30	CIRCULATE AND WELL PREPAIR TO ELECTRIC LOG.
18:30 - 19:30	TRIP, POOH W/KELLY 12 PIPES, AND CIRCULATE, MAXIMUN PULL 470,000 LBS.
19:30 - 24:00	TRIP AT CASING SHOE, THEN RIH.

AUGUST 11, 2001

00:00 - 01:30	RIH CONTINUE AT 9070'.
01:30 - 02:30	RIH PIPE BY PIPE WITH KELLY AND CIRCULATING BOTTOM AT 9494'.
02:30 - 05:00	CIRCULATE AND WELL CONDITION TO ELECTRIC LOG.
05:00 - 05:30	POOH WITH KELLY AT 9266', MAXIMUN PULL OUT 450,000 lbs.
05:00 - 12:00	POOH IN STANDS, PULL OUT BIT.
12:00 - 13:30	MAKE UP EQUIPMENT SLUMBERGER COMPANY.
13:30 - 22:00	RIH SLUMBERGER TOOL AND LOGGED DLL, GR, POROSITY FROM 9485' TO CASING SHOE, GAMMA RAY AT SURFACE.
22:00 - 23:00	RIG DOWN SLUMBERGER TOOL.
23:00 - 24:00	MAKE UP BIT 8 1/2" AND RIH.

AUGUST 12, 2001

00:00 - 03:30	RIH TO CASING SHOE (5980'),
03:30 - 04:00	PICK UP KELLY AND BREACK CIRCULATION.
04:00 - 06:00	RIH TO 9266'.
06:00 - 07:00	RIH WITH KELLY, CIRCULATING TO BOTTOM.
07:00 - 10:00	CIRCULATE AND MUD CONDITION TO RUN CASING.
10:00 - 14:30	CHAIN REPAIR OF DRAW WORKS MOTOR.
14:30 - 16:00	POOH AND LAY DOWN WITH KELLY TO 8960'.
16:00 - 16:30	PUMPING SLUG OF BARITE, LAY DOWN CONTINUE TO 8804'.
16:30 - 18:00	TRIP TANK FULLING UP, THE 4 1/2" HOSE BETWEEN TENDER BARGE AND PLATFORM GET PRESSURE AND BURST.
18:00 - 23:30	LAY DOWN PIPE CONTINUE TO 5238'.
23:30 - 24:00	CHANGE THE 4 1/2" HOSE BETWEEN TENDER BARGE AND PLATFORM.

AUGUST 13, 2001

00:00 - 01:00	FINISH CHANGE THE 4 1/2" HOSE BETWEEN TENDER BARGE AND PLATFORM.
01:00 - 05:30	LAY DOWN PIPE JOINT BY JOINT.
05:30 - 08:00	POOH BHA.
08:00 - 09:00	PREPARE TO RIH 5 1/2" CASING.
09:00 - 18:30	RI 5 1/2" CASING
18:30 - 19:00	PICK UP CEMENTING HEAD.

19:00 - 21:30	CIRCULATE AND MUD CONDITIONED.
21:30 - 22:30	PICK UP PLUG RED AND BLACK, TESTING LINE WITH 3500 psi (ok).
22:30 - 24:00	CEMENTING.

AUGUST 14, 2001

00:00 - 02:00	FINISH CEMENT AND DISPLACEMENT WITH 220 BBLS OF MUD AT 12,3 lb/gal.
02:00 - 04:30	HOLD UP BOP BREACK IN SLIPS.
04:30 - 07:30	NIPPLE DOWN BOP, OPEN WINDOW IN THREE LEVEL.
07:30 - 12:00	K & C COMPANY PREPAIR AND MAKE UP TOOL, CANCEL WORK OF TOP CEMENT.
12.00 - 16:00	NIPPLE DOWN BOP IN SECTIONS, HOLD AT THREE LEVEL.
16:00 - 17:00	CUT OFF 5 1/2" CASING, PICK UP TUBING HEAD.
17:00 - 19:00	CLOSE WINDOW IN THREE LEVEL,
19:00 - 24:00	LAY DOWN HEAVY WATES AND DRILL COLLARS.

AUGUST 21, 2001

00:00 - 01:00	CIRCULATING.
01:00 - 05:00	PULL OUT 2 7/8" PIPE IN STANDS.
05:00 - 08:30	MAKE UP PACKER, RTTS -ARROW RIH WITH 2 7/8" TUBING TO 5823'.
08:30 - 11:30	BREAK IN PACKER RTTS TO 5823', TESTING WITH 1100 psi FOR ANNULAR, BJ COMPANY TESTING TWO LINE AT 2500 psi, OPEN VALVE.
11:30 - 12:00	CIRCULATE WITH PUMP PZ7 WITH 115 spm, 830 psi, 153 GPM.
12:00 - 17:30	PULL OUT 2 7/8" TUBING AND LAY DOWN PIPE BY PIPE.
17:30 - 19:00	CUT OFF 115' OF DRILLING CABLE.
19:00 - 24:00	MAKE UP MAGNET TOOL + 2 DRILL COLLAR + 24 HEAVY WATES + 2 7/8"PIPE H-90 X-95 GRADE TO 2163'.

AUGUST 22, 2001

00:00 - 07:00	RIH PIPE BY PIPE H-90.
07:00 - 08:00	PICK UP KELLY, BREAK NEGATIVE CIRCULATION, PLUGGED MAGNET TOOL.
08:00 - 13:30	RIH CONTINUE FROM 6172' TO 9447'. PICK UP KELLY AND MAGNET TOOL WORKING.
13:30 - 19:00	POOH AND PULL OUT MAGNET TOOL WITH OUT FISH.
19:00 - 22:30	MAKE UP BIT 4 3/4" WITH JUNK BASKET AND RIH TO 5000'.
22:30 - 23:00	BREAK CIRCULATION.
23:00 - 24:00	RIH CONTINUE TO 6611'.

AUGUST 23, 2001

00:00 - 01:30	RIH WITH BIT DRS AND JUNK BASKET TO 9447' WORK ON FISH (BILL OF TONG).
01:30 - 06:00	DRILLING CEMENT AND VALVE AND GUIDE SHOE.
06:00 - 07:30	CIRCULATE FOR POOH, PUMPING SLUG.
07:30 - 13:30	POOH, LAY DOWN 02 DRILL COLLAR, BIT AND JUNK BASKET, RECOVER BILL OF TONGS.
13:30 - 14:30	MAKE UP 4 3/4" BIT, HTC, STR-20, 3X16 WITH 3 1/2" VECTOR MOTOR. PULL OUT KELLY.
14:30 - 15:00	PICK UP KELLY, TESTING MOTOR WITH 110GPM, 500 psi, PULL OUT KELLY.
15:00 - 19:30	RIH CONTINUE WITH 2 7/8" DRILL PIPE TO 9474'.
19:30 - 20:00	PICK UP KELLY, RIH WITH CIRCULATION, BREAK IN THE BIT AT 9494'.
20:00 - 24:00	RETIRE HOSE BURST, WAIT NEW HOSE.

AUGUST 24, 2001

00:00 - 03:00	WAIT 4 1/2" HOSE NEW.
03:00 - 06:30	MAKE UP NEW HOSE BETWEEN STANDPIPE AND SWIVEL.
06:30 - 07:30	BREAK IN THE BIT.

07:30 - 24:00	DRILLING FROM 9494' TO 9590'.

AUGUST 25, 2001

00:00 - 02:00	DRILLING FROM 9590' TO 9593', LOW RATE OF PENETRATION.
02:00 - 02:30	CIRCULATE FOR TRIP, PUMP SLUG.
02:30 - 09:00	POOH, CHECKING MUD MOTOR, MAKE UP BIT STR-20 SERIE X83PJ, JETS 3X16.
09:00 - 15:00	RIH, PUT ON 53 CASING PROTECTORS, RIH AT 9494'.
15:00 - 16:00	PICK UP KELLY, REAMING FOR PRECAUTION TO BOTTOM.
16:00 - 24:00	DRILLING FROM 9593' TO 9617'.

AUGUST 26, 2001

00:00 - 18:00	DRILLING FROM 9617' TO 9667'.
18:00 - 19:00	CHECKING SURF SISTEM AND MUD PUMP FOR PRESSURE DOWN WASH PUMP MODULE.
19:00 - 19:30	PUMPING BARITE SLUG.
19.30 - 24:00	POOH FOR BIT CHANGE.

AUGUST 27, 2001

00:00 - 03:30	POOH FINISHED PULL OUT BIT, RETIRE PUMP MODULE.
03:30 - 04:30	MAKE UP BIT SMITH MF2, JETS 3X16, RIH BHA.
04:30 - 10:00	RIH CONTINUE AT 9450', PICK UP KELLY.
10:00 - 13:00	WAIT PUMP MODULE.
13:00 - 18:30	MAKE UP PUMP MODULE PZ-7.
18:30 - 19:00	TESTING CIRCULATION WITH 110 GPM AND 2000 psi.
19:00 - 20:00	PULL OUT KELLY AND RIH 2 STANDS AT 9667'(BOTTOM)
20:00 - 21:00	BREAK IN THE BIT AND DRILLING FRM 9667' TO 9671'.
21:00 - 22:00	CHECKING MUD PUMP FOR PRESSURE DOWN.(UP VALVE).
22:00 - 24:00	DRILLING FROM 9671' TO 9674'.

AUGUST 28, 2001

00:00 - 02:30	DRILLING FROM 9674' TO 9681'.
02:30 - 03:00	MUD PUMP REPAIR.
03:00 - 24:00	DRILLING FROM 9681' TO 9767'.

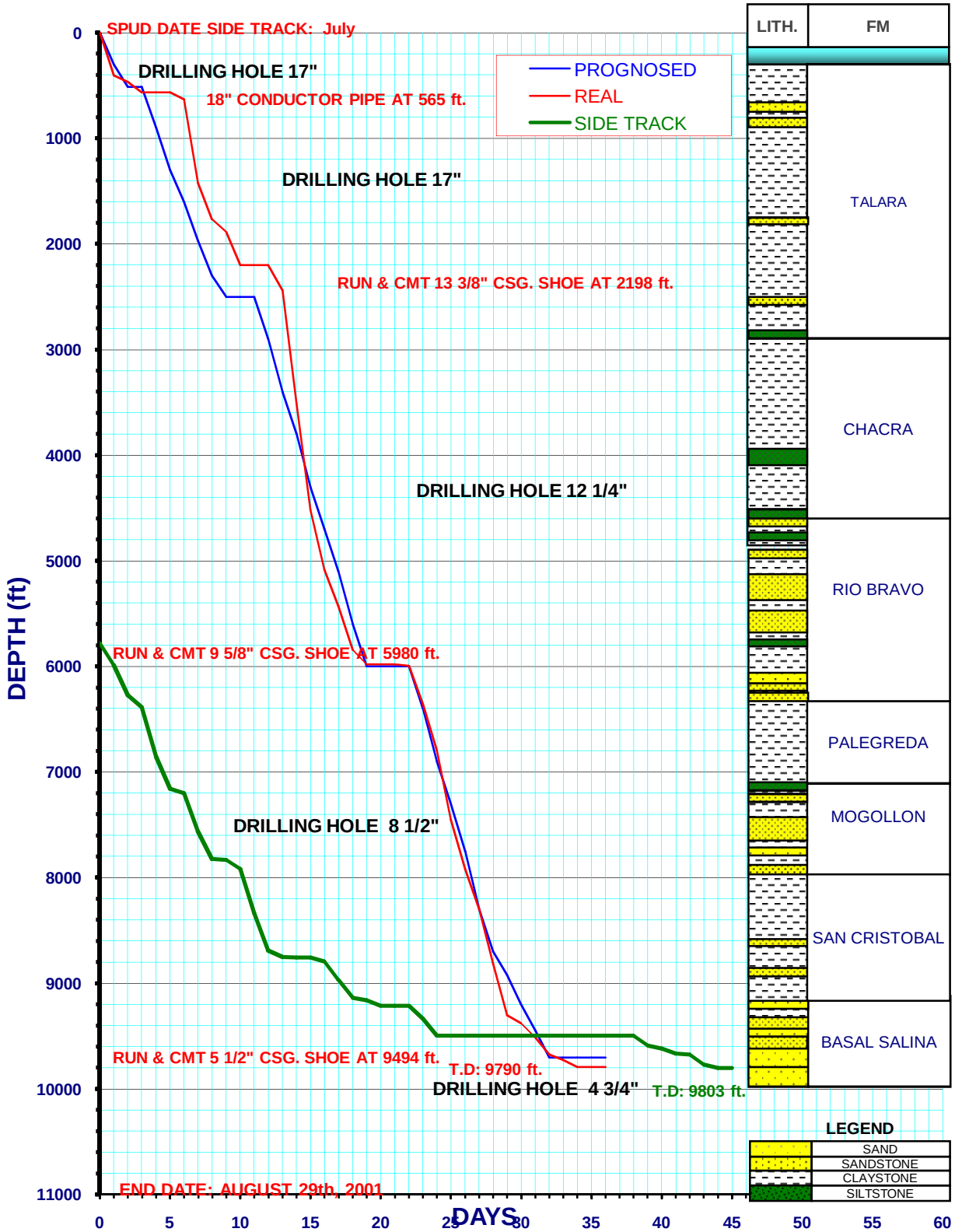
AUGUST 29, 2001

00:00 - 10:30	DRILLING FROM 9767' TO 9803'.
10:30 - 11:30	CIRCULATE FOR SHORT TRIP.
11:30 - 12:30	SHORT TRIP AT 9494' (OK).
12:30 - 14:30	CIRCULATING FOR CONDITION MUD.
14:30 - 19:30	POOH, PULL OUT BIT.
19:30 - 24:00	WAIT HALLIBURTON UNITS TO ELECTRIC LOG.

GEOIL™

PETRO-TECH PERUANA S.A.

DRILLING PROGRESS CURVE



GEOIL

PETRO-TECH PERUANA S.A.

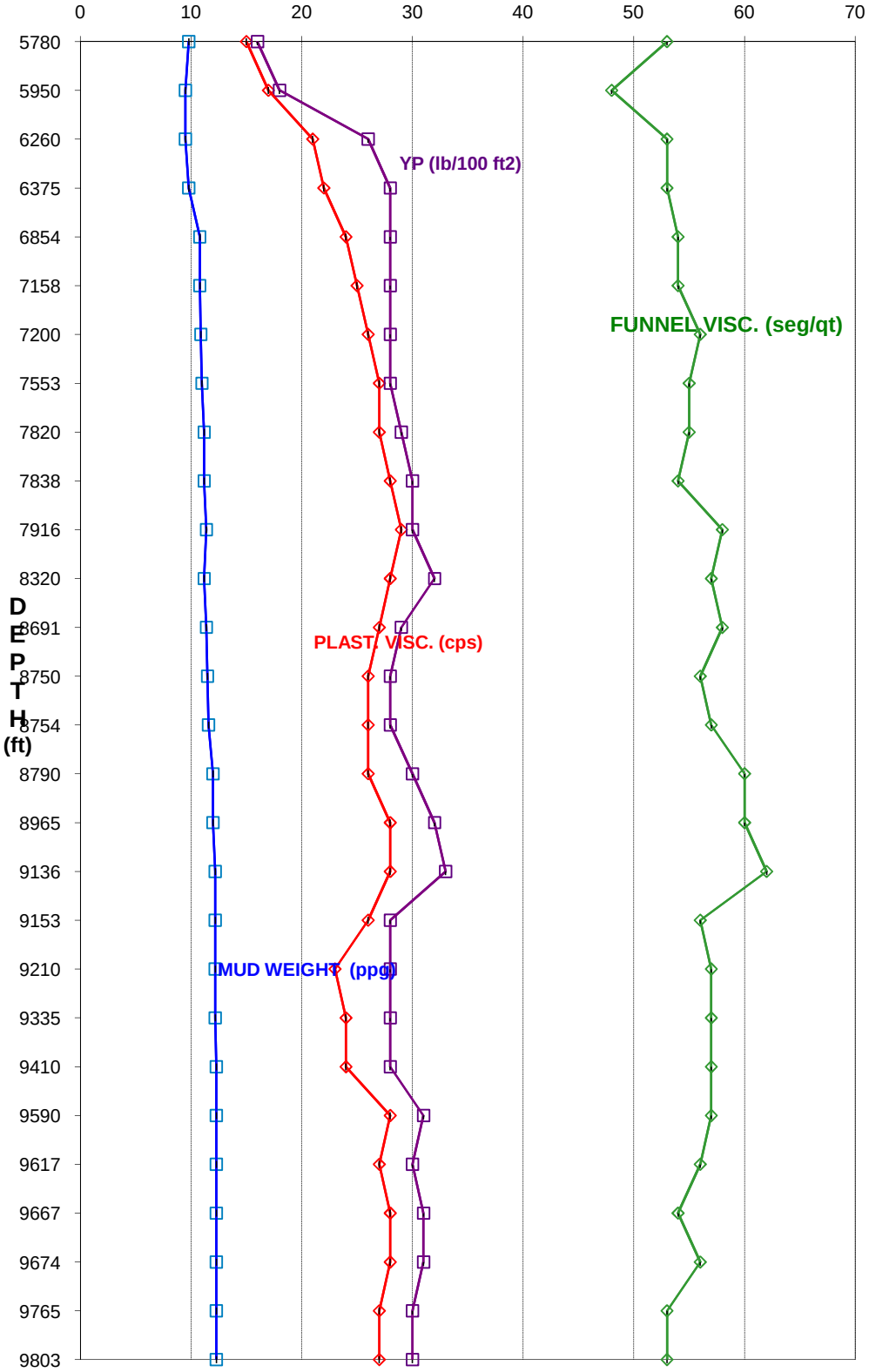
MUD DATA RECORD

WELL: LO6-25ST

DATE	DEPTH	M.W.	FV	PV/YP	GELS	FIL	PH	CALC.	CHLR	SOL.	SAND	MBT	MUD TYPE
07/15/01	5980'	12.1	62	27/28	8/18/22	5.8	10.4	160	16000	16	0.40	12.5	FLO-DRILL
07/16/01	5780'	9.8	53	15/16	4/10/13	9.0	12.6	440	18000	8	0.20	7.5	FLO-DRILL
07/17/01	5990'	9.5	48	17/18	5/12/18	7.8	12.4	320	18600	7	0.20	12.5	FLO-DRILL
07/18/01	6260'	9.5	53	21/26	7/14/20	5.8	11.6	240	24000	7	0.50	15.0	FLO-DRILL
07/19/01	6375'	9.8	53	22/28	7/15/24	5.6	11.6	280	24000	8	0.50	12.5	FLO-DRILL
07/20/01	6854'	10.8	54	24/28	7/17/28	5.4	10.9	320	25000	12	0.50	14.0	FLO-DRILL
07/21/01	7158'	10.8	54	25/28	7/18/29	5.4	10.8	280	28000	13	0.50	15.0	FLO-DRILL
07/22/01	7200'	10.9	56	26/28	7/19/28	5.4	10.4	400	27000	13	0.50	15.0	FLO-DRILL
07/23/01	7553'	11.0	55	27/28	7/20/28	5.4	10.0	400	29000	13	0.50	15.0	FLO-DRILL
07/24/01	7820'	11.2	55	27/29	8/23/35	5.2	9.5	400	28000	14	0.50	17.5	FLO-DRILL
07/25/01	7838'	11.2	54	28/30	7/22/30	5.0	9.2	400	29000	14	0.50	17.5	FLO-DRILL
07/26/01	7916'	11.4	58	29/30	7/25/35	5.0	9.6	400	29000	15	0.50	17.5	FLO-DRILL
07/27/01	8320'	11.2	57	28/32	7/25/35	5.0	9.8	400	29000	13	0.50	17.5	FLO-DRILL
07/28/01	8691'	11.4	58	27/29	8/25/35	5.0	10.0	400	30000	15	0.50	17.0	FLO-DRILL
07/29/01	8750'	11.5	56	26/28	8/25/35	5.4	10.2	400	28500	16	0.50	18.0	FLO-DRILL
07/30/01	8754'	11.6	57	26/28	8/26/36	5.4	10.0	360	28000	17	0.50	18.0	FLO-DRILL
07/31/01	8754'	11.6	57	26/28	8/25/35	5.4	10.2	380	27000	17	0.50	18.0	FLO-DRILL
08/01/01	8790'	12.0	60	27/30	8/26/30	5.4	10.4	360	27000	18	0.50	18.0	FLO-DRILL
08/02/01	8965'	12.0	60	28/32	10/32/32	5.4	10.7	240	28000	19	0.40	19.0	FLO-DRILL
08/03/01	9136'	12.2	62	28/33	10/34/46	5.2	10.4	100	28000	20	0.40	20.0	FLO-DRILL
08/04/01	9153'	12.2	56	26/28	8/29/39	5.6	10.5	200	29000	19	0.30	18.0	FLO-DRILL
08/05/01	9210'	12.2	57	23/28	8/24/33	5.6	10.5	260	28000	19	0.40	18.0	FLO-DRILL
08/06/01	9210'	12.2	57	23/29	8/25/34	5.4	10.5	240	28000	19	0.40	18.0	FLO-DRILL
08/07/01	9210'	12.2	58	25/28	8/26/36	5.4	10.6	280	27500	19	0.5	18	FLO-DRILL
08/08/01	9335'	12.2	57	24/28	8/25/35	5.4	10.6	320	26000	19	0.5	19	FLO-DRILL
08/09/01	9410'	12.3	57	24/28	8/24/35	5.4	10.6	300	26000	19	0.5	18	FLO-DRILL
08/10/01	9494'	12.3	57	24/28	8/24/35	5.4	10.5	300	26000	19	0.5	18	FLO-DRILL
08/11/01	9494'	12.3	58	24/28	8/24/35	5.4	10.5	300	26000	20	0.5	18	FLO-DRILL
08/12/01	9494'	12.3	58	24/28	8/26/36	5.4	10.5	280	25000	20	0.5	18	FLO-DRILL
08/13/01	9494'	12.3	58	24/28	8/26/36	5.4	10.5	280	25000	20	0.5	18	FLO-DRILL
08/13-20/01	RIG CONDITION (GEOIL PERSONAL IN STAND BY)												FLO-DRILL
08/21/01	9494'	12.2	53	21/24	6/21/29	5.8	11.0	320	23000	19	0.5	18	FLO-DRILL
08/22/01	9494'	12.2	53	21/24	6/21/29	5.8	11.0	320	23000	19	0.5	18	FLO-DRILL

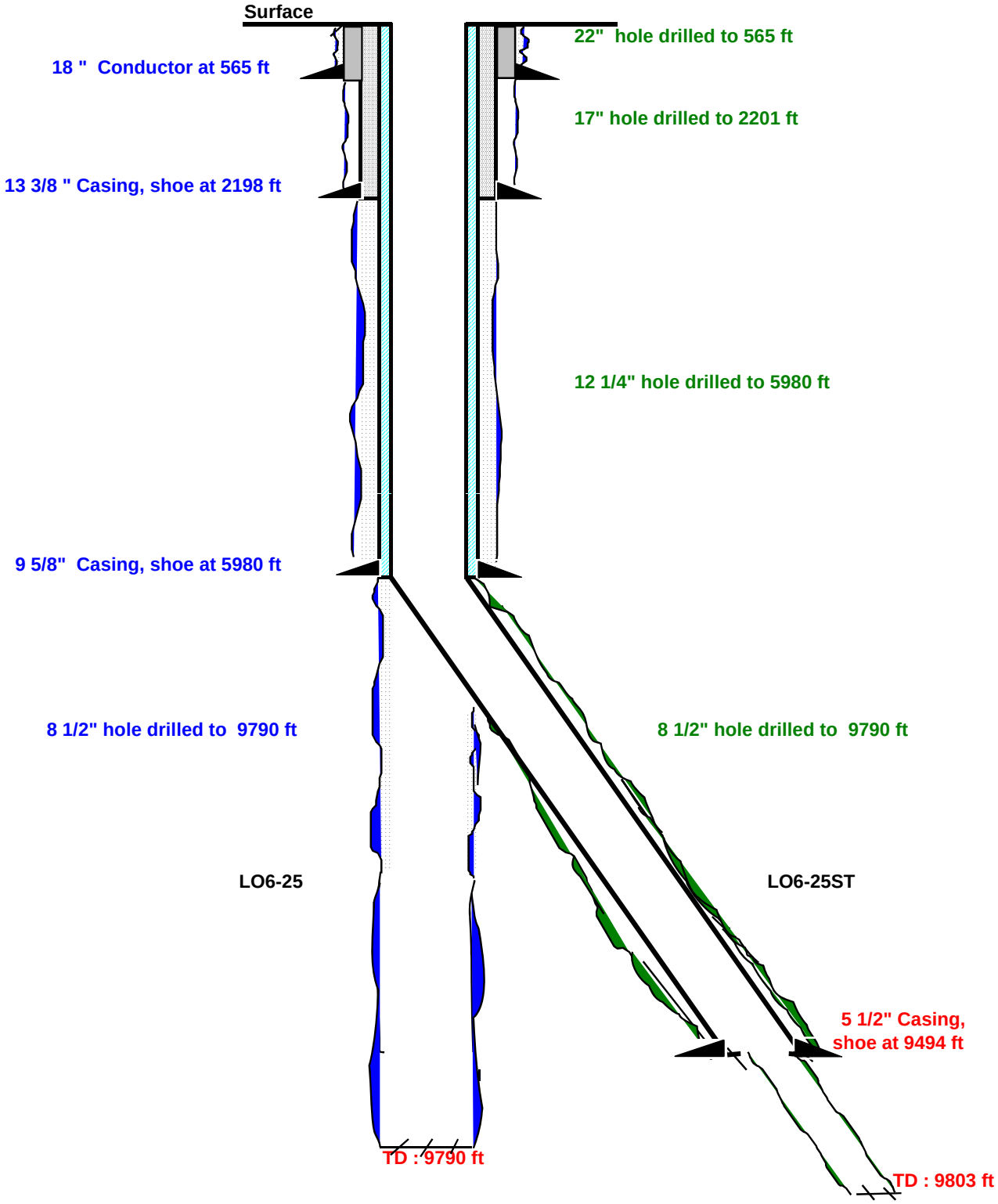
08/24/01	9590'	12.3	57	28/31	8/24/32	5.4	10.5	200	26000	19	0.4	15	FLO-DRILL
08/25/01	9617'	12.3	56	27/30	8/23/30	5.4	10.5	200	27000	19	0.5	15	FLO-DRILL
08/26/01	9667'	12.3	54	28/31	8/24/32	5.4	10.4	200	27000	19	0.5	15	FLO-DRILL
08/27/01	9674'	12.3	56	28/31	8/24/32	5.4	10.3	200	27000	19	0.5	15	FLO-DRILL
08/28/01	9765'	12.3	53	27/30	8/23/30	5.4	10.3	200	25000	19	0.5	15	FLO-DRILL
08/29/01	9803'	12.3	53	27/30	8/23/30	5.4	10.2	200	25000	19	0.5	15	FLO-DRILL

MUD PROPERTIES
WELL: LO6 - 25ST



WELLBORE SCHEME

WELL: LO6 - 25ST



BIT RECORD TABLE

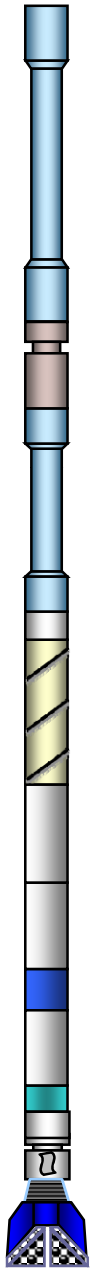
FIELD: LOBITOS	WELL: Z-2B-24-079-D-LO6	PETRO-TECH N°: LO6-25ST	RIG: PEPESA 48	UNIT: GEOIL

Bit identification							Bit performance and drilling									
				Make	Serial #	Jets	Depth In	Depth Out	Ft Drill.	Hrs.	Rop Ft/Hr	WOB Klbs	RP Ta			ull
N	1	8 1/2	Bu-536	SMITH	LW4136	2x22 1x18	5990	6276	286	24	12	10	5			6
RR	2	8 1/2	DS110	HYCLOG	H47611	5x16 1x18	6276	7186	910	51	17	20/30	60	490	1950	4-2-1/4
N	3	8 1/2	GTM 09	HTC	R15DD	3x24	7186	7820	634	40.5	15	35	100/90	410	2000	3-3-1/16
RR	4	8 1/2	DS110NSV	PDC	H47615	5x16	7820	7916	96	14.5	7	35	100/90	420	2000	10%
N	5	8 1/2	DS89PX	PDC	JS2239	6x16	7916	8691	775	39	20	40	100	435	2000	8%
RR	6	8 1/2	DS89PX	PDC	JS2239	5x16 1x18	8691	8754	63	8.5	7.4	40	100	469	2000	5%
RR	7	8 1/2	GTM1	HTC	SO5DV	2x22 1x24	8754	8754	R E A	M I N	G	40	50	419	2000	3-3-1/8
N	8	8 1/2	GT03	HTC	A53DA	3x24	8754	9136	382	41.5	9	30	100	417	1850	3-3-1/16
N	9	8 1/2	MX20	HTC	T62DA	3x24	9136	9210	74	15	5	35/40	80/100	400	1800	2-1-1/32
RR	10	8 1/2	GTM1	HTC	SO5DV	3x24	9210	9210	R E A	M I N	G	10	90/100	412	1450	3-3-1/8
N	11	8 1/2	MX20DX	HTC	M29DX	3x24	9210	9494	284	47	6	40	90	400	1800	2-2-1/32
N	12	4 3/4	DSR	HTC	AO3034	3x16	9494	9494	C M T	C L	E A N	-	-	-	-	4-3-1
N	13	4 3/4	STR-20	HTC	X84JP	3x16	9494	9593	99	18.5	5.1	12	50/60	110	2200	3-4-1
N	14	4 3/4	STR-20	HTC	X83JP	3X16	9593	9667	74	26	2.8	15/18	70	110	2200	3-4-1
N	15	4 3/4	HF2	SMITH	MH2531	3x16	9667	9803	136	37	3.6	18	70	120	2200	4-3-1

BHA No. 01

WELL : LO6 - 25ST

JULY 17th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**947.53**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**495.91**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**463.64**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**190.67**
3 DC's	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	85.28	**186.74**
NMDC	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.62	**101.46**
NMDC MWD Slim 1	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.57	**70.84**
UBHO	6 5/8"	2 13/16"	4 1/2" HX	4 1/2" XH	2.27	**40.27**
NMDC	6 7/16"	2 11/16"	4 1/2" XH	4 1/2" XH	7.57	**38.00**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**30.43**
X/O	6 3/4"	2 7/8"	4 1/2" IF	4 1/2" XH	2.53	**28.59**
675"MUD MOTOR	6 5/8"		4 1/2" Reg	4 1/2" IF	25.25	**26.06**
BIT#1 8 1/2" SMITH BD-536 JET: 2x22,1x18,1x10	8 1/2"			4 1/2" Reg	0.81	**0.81**

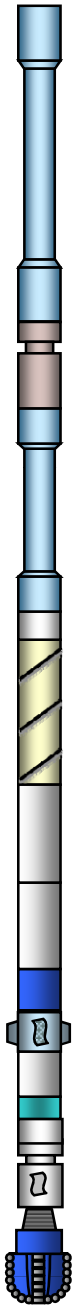
TOTAL LENGTH	**947.53**

DEPTH IN: 5990 Ft.

BHA No. 02

WELL : LO6 - 25ST

JULY 19th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**954.53**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**502.91**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**470.64**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**197.67**
3 DC's	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	85.28	**193.74**
NMDC	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.62	**108.46**
NMDC MWD Slim 1	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.57	**77.84**
UBHO	6 5/8"	2 13/16"	4 1/2" HX	4 1/2" XH	2.27	**47.27**
STB	6 1/2"	2 7/8"	4 1/2" HX	4 1/2" XH	5.63	**45.00**
NMDC	6 7/16"	2 11/16"	4 1/2" XH	4 1/2" XH	7.57	**39.37**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**31.80**
X/O	6 3/4"	2 7/8"	4 1/2" IF	4 1/2" XH	2.53	**29.96**
675"MUD MOTOR	6 5/8"		4 1/2" Reg	4 1/2" IF	26.48	**27.43**
BIT#2RR 8 1/2" PDC H47615 JETS: 5x16, 1x18	8 1/2"			4 1/2" Reg	0.95	**0.95**

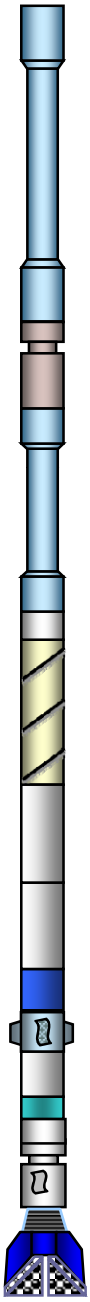
TOTAL LENGTH	**954.53**

DEPTH IN: 6277 Ft.

BHA No. 03

WELL : LO6 - 25ST

JULY 21th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**953.13**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**501.51**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**469.24**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**196.27**
3 DC's	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	85.28	**192.34**
NMDC	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.62	**107.06**
NMDC MWD Slim 1	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.57	**76.44**
UBHO	6 5/8"	2 13/16"	4 1/2" HX	4 1/2" XH	2.27	**45.87**
STB	6 1/2"	2 7/8"	4 1/2" HX	4 1/2" XH	5.63	**43.60**
NMDC	6 7/16"	2 11/16"	4 1/2" XH	4 1/2" XH	7.57	**37.97**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**30.40**
X/O	6 3/4"	2 7/8"	4 1/2" IF	4 1/2" XH	2.53	**28.56**
675"MUD MOTOR	6 5/8"		4 1/2" Reg	4 1/2" IF	25.25	**26.03**
BIT#3 8 1/2" PDC R15DD JETS: 3x24	8 1/2"			4 1/2" Reg	0.78	**0.78**

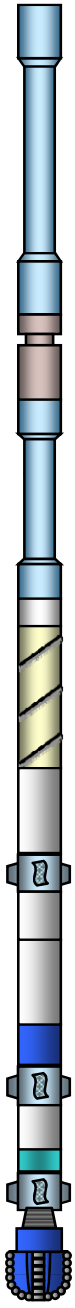
TOTAL LENGTH	**953.13**

DEPTH IN: 7186 Ft.

BHA No. 04

WELL : LO6 - 25ST

JULY 25th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**948.58**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**496.96**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**464.69**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**191.72**
3 DC's	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	85.28	**187.79**
NMDC	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.62	**102.51**
STB 8 1/2"FG	6 5/16	2 13/16	4 1/2" HX	4 1/2" XH	6.64	**71.89**
PONY NMDC	6 7/16"	2 11/16"	4 1/2" HX	4 1/2" XH	7.57	**65.25**
NMDC MWD Slim 1	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.57	**57.68**
UBHO	6 5/8"	2 13/16"	4 1/2" HX	4 1/2" XH	2.27	**27.11**
STB	6 1/2"	2 7/8"	4 1/2" HX	4 1/2" XH	5.63	**24.84**
PONY NMDC	6 5/16"	2 5/16"	4 1/2" XH	4 1/2" XH	10.36	**19.21**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**8.85**
NB STB 8 1/2" FG	6 1/4"	2 7/8"	4 1/2" XH	4 1/2" XH	6.06	**7.01**
BIT#4RR 8 1/2" PDC H47615 JETS: 5x16, 1x18	8 1/2"			4 1/2" Reg	0.95	**0.95**

TOTAL LENGTH	**948.58**

DEPTH IN: 7820 Ft.

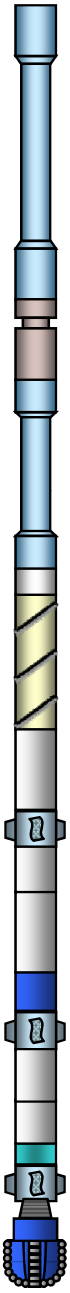
GEOIL

PETRO-TECH PERUANA S.A.

BHA No. 05

WELL : LO6 - 25ST

JULY 26th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**1008.62**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**557.00**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**524.73**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**251.76**
5 DC's	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	143.82	**247.83**
NMDC	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.62	**104.01**
STB 8 5/16" UG	6 11/16"	2 13/16	4 1/2" HX	4 1/2" XH	4.54	**73.39**
PONY NMDC	6 7/16"	2 11/16"	4 1/2" HX	4 1/2" XH	7.57	**68.85**
NMDC MWD Slim 1	6 1/2"	2 13/16"	4 1/2" HX	4 1/2" XH	30.57	**61.28**
UBHO	6 5/8"	2 13/16"	4 1/2" HX	4 1/2" XH	2.27	**30.71**
STB 8 1/8" UG	6 1/2"	2 7/8"	4 1/2" HX	4 1/2" XH	5.63	**28.44**
PONY NMDC	6 5/16"	2 5/16"	4 1/2" XH	4 1/2" XH	10.36	**22.81**
PONY DC Short	6 7/16"	2 13/16"	4 1/2" XH	4 1/2" XH	4.97	**12.45**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**7.48**
NB STB 8 3/8" UG	6 11/16"	2 3/4"	4 1/2" XH	4 1/2" XH	4.72	**5.64**
BIT#5 8 1/2" PDC JS2239 JETS: 6x16	8 1/2"			4 1/2" Reg	0.92	**0.92**

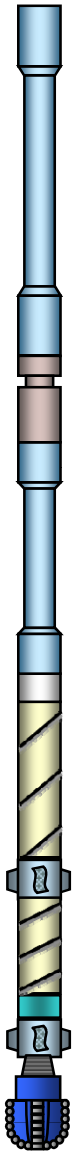
TOTAL LENGTH	**1008.62**

DEPTH IN: 7916 Ft.

BHA No. 06

WELL : LO6 - 25ST

JULY 29th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**916.63**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**465.01**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**432.74**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**159.77**
4 DC 6 1/2"	6 1/8"	2 13/16"	4 1/2" HX	4 1/2" XH	114.20	**155.84**
STB 8 5/16" UG	6 11/16"	2 13/16"	4 1/2" HX	4 1/2" XH	4.54	**41.64**
1 DC 6 1/2"	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	29.62	**37.10**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**7.48**
NB STB 8 3/8" UG	6 11/16"	2 3/4"	4 1/2" XH	4 1/2" XH	4.72	**5.64**
BIT#6RR 8 1/2" PDC JS2239 JETS: 5x16, 1x18	8 1/2"			4 1/2" Reg	0.92	**0.92**

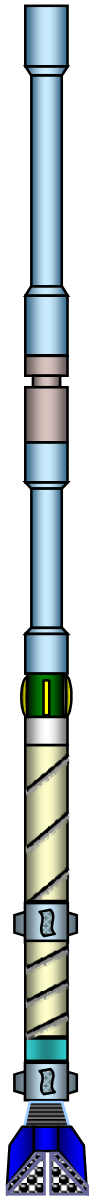
TOTAL LENGTH	**916.63**

DEPTH IN: 8691 Ft.

BHA No. 07

WELL : LO6 - 25ST

JULY 30th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**1013.24**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**561.62**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**529.35**
REAMER	4 1/2"	3 1/8"	4 1/2" IF	4 1/2" IF	7.54	**256.38**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**248.84**
7 DC 6 1/4"	6 1/8"	2 13/16"	4 1/2" HX	4 1/2" XH	203.39	**244.91**
STB 8 5/16" UG	6 11/16"	2 13/16"	4 1/2" HX	4 1/2" XH	4.54	**41.52**
1 DC 6 1/2"	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	29.62	**36.98**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**7.36**
NB STB 8 3/8" UG	6 11/16"	2 3/4"	4 1/2" XH	4 1/2" XH	4.72	**5.52**
BIT#7RR 8 1/2" GTM1 SO5DV JET: 2x22, 1x24	8 1/2"			4 1/2" Reg	0.80	**0.80**

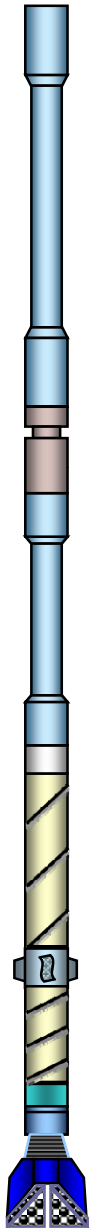
TOTAL LENGTH	**1013.24**

DEPTH IN: 8754 Ft.

BHA No. 08

WELL : LO6 - 25ST

JULY 31th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**1033.46**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**581.84**
9 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	272.97	**549.57**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**276.60**
8 DC 6 1/4"	6 1/8"	2 13/16"	4 1/2" HX	4 1/2" XH	231.15	**272.67**
STB 8 1/2"	6 11/16"	2 13/16"	4 1/2" HX	4 1/2" XH	4.54	**41.52**
1 DC 6 1/4"	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	29.62	**36.98**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**7.36**
N. BIT	6 3/4"	2 7/8"	4 1/2" XH	4 1/2" XH	4.72	**5.52**
BIT#8 8 1/2" GT03 A53D1 JETS: 3x24	8 1/2"	6.1/2"5	2 3/4"	4 1/2" Reg	0.80	**0.80**

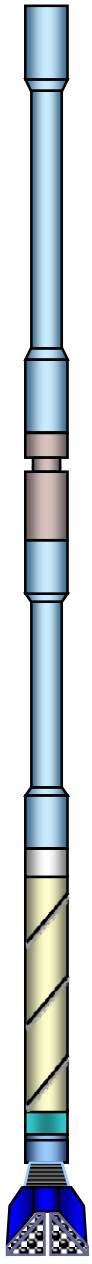
TOTAL LENGTH	**1033.46**

DEPTH IN: 8754 Ft.

BHA No. 09

WELL : LO6 - 25ST

AUGUST 04th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**1093.09**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**641.47**
13 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	393.61	**609.20**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**215.59**
7 DC 6 1/4"	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	205.97	**211.66**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**5.69**
BIT SUB	6 3/4"	2 7/8"	4 1/2" XH	4 1/2" XH	3.05	**3.85**
BIT#9 8 1/2" MX-20 T62DA JETS: 3x24	8 1/2"	6.1/2"5	2 3/4"	4 1/2" Reg	0.80	**0.80**

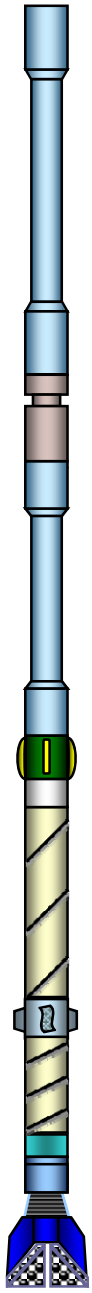
TOTAL LENGTH	**1093.09**

DEPTH IN: 9136 Ft.

BHA No. 10

WELL : LO6 - 25ST

AUGUST 06th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**1106.84**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**655.22**
13 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	393.61	**622.95**
REAMER	4 1/2"	3 1/8"	4 1/2" IF	4 1/2" IF	7.54	**229.34**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**221.80**
6 DC 6 1/4"	6 1/8"	2 13/16"	4 1/2" HX	4 1/2" XH	176.35	**217.87**
STB 8 1/8" UG	6 11/16"	2 13/16"	4 1/2" HX	4 1/2" XH	4.54	**41.52**
1 DC 6 1/4"	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	29.62	**36.98**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**7.36**
N BIT	6 11/16"	2 3/4"	4 1/2" XH	4 1/2" XH	4.72	**5.52**
BIT#10RR 8 1/2" GTM1 SO5DV JET: 3x24	8 1/2"			4 1/2" Reg	0.80	**0.80**

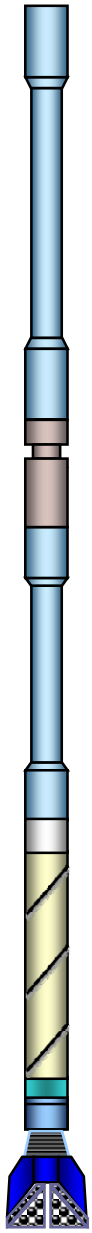
TOTAL LENGTH	**1106.84**

DEPTH IN: 9210 Ft.

BHA No. 11

WELL : LO6 - 25ST

AUGUST 07th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
15 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	451.62	**1093.09**
HYDRAULIC JAR	6 1/4"	2 1/4"	4 1/2" IF	4 1/2" IF	32.27	**641.47**
13 HW	5"	2 13/16"	4 1/2" IF	4 1/2" IF	393.61	**609.20**
X/O	6 1/2"	2 13/16"	4 1/2" XH	4 1/2" IF	3.93	**215.59**
7 DC 6 1/4"	6 1/8"	2 5/16"	4 1/2" XH	4 1/2" XH	205.97	**211.66**
FLOAT SUB	6 1/4"	2 13/16"	4 1/2" XH	4 1/2" XH	1.84	**5.69**
BIT SUB	6 3/4"	2 7/8"	4 1/2" XH	4 1/2" XH	3.05	**3.85**
BIT#11 8 1/2" 20DX M29DX JETS: 3x24	8 1/2"	6.1/2"5	2 3/4"	4 1/2" Reg	0.80	**0.80**

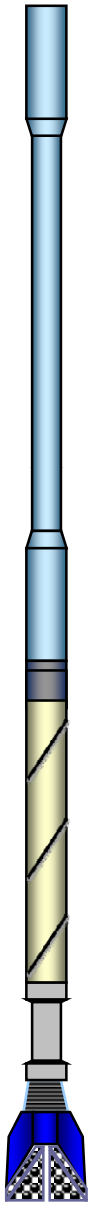
TOTAL LENGTH	**1093.09**

DEPTH IN: 9210 Ft.

BHA No. 12

WELL : LO6 - 25ST

AUGUST 22th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
24 HWDP	3 1/8"	2"	2 7/8" H-90 B	2 7/8" H-90 B	724.78	**787.85**
X/O	3 7/8"	1 3/4"	2 7/8" RP	2 7/8" H-90 B	0.92	**63.07**
02 DC	4"	2"	2 7/8" RP	2 7/8" RP	58.76	**62.15**
J. BASKET	3 3/4"	1 7/8"	2 7/8" RP	2 7/8" RP	3.04	**3.39**
BIT#12 4 3/4" HTC AO3034 JETS: 3x16	4 3/4"		4 3/4"	2 7/8" RP	0.35	**0.35**

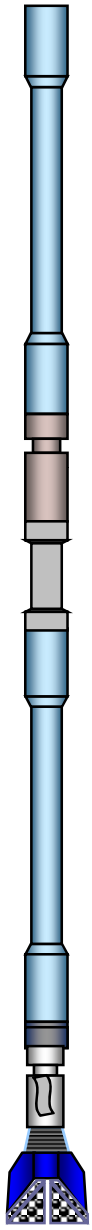
TOTAL LENGTH	**787.85**

DEPTH IN: 9494 Ft.

BHA No. 13

WELL : LO6 - 25ST

AUGUST 23th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
06 HWDP	3 1/8"	2"	2 7/8" H-90 B	2 7/8" H-90 B	181.31	**938.38**
HYDRAULIC JAR	3 7/8"	1 7/8"	2 7/8" H-90 B	2 7/8" H-90 B	7.73	**757.07**
FLEX JOINT	3 13/16"	1 1/2"	2 7/8" H-90 B	2 7/8" H-90 B	7.25	**749.34**
24 HWDP	3 1/8"	2"	2 7/8" H-90 B	2 7/8" H-90 B	724.78	**742.09**
X/O	3 7/8"	1 3/4"	2 7/8" RP	2 7/8" H-90 B	1.61	**17.31**
VECTOR MOTOR	3 1/5"	1 1/2"	2 7/8" RP	2 7/8" RP	15.20	**15.70**
BIT#13 4 3/4" HTC X84JP JETS: 3x16	4 3/4"		4 3/4"	2 7/8" RP	0.50	**0.50**

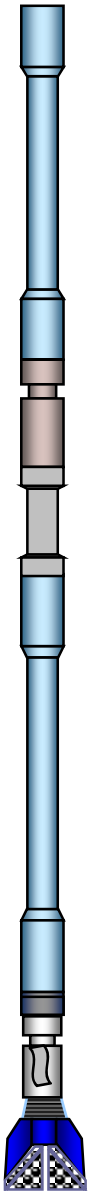
TOTAL LENGTH	**938.38**

DEPTH IN: 9494 Ft.

BHA No. 14

WELL : LO6 - 25ST

AUGUST 25th , 2001



ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
06 HWDP	3 1/8"	2"	2 7/8" H-90 B	2 7/8" H-90 B	181.31	**938.38**
HYDRAULIC JAR	3 7/8"	1 7/8"	2 7/8" H-90 B	2 7/8" H-90 B	7.73	**757.07**
FLEX JOINT	3 13/16"	1 1/2"	2 7/8" H-90 B	2 7/8" H-90 B	7.25	**749.34**
24 HWDP	3 1/8"	2"	2 7/8" H-90 B	2 7/8" H-90 B	724.78	**742.09**
X/O	3 7/8"	1 3/4"	2 7/8" RP	2 7/8" H-90 B	1.61	**17.31**
VECTOR MOTOR	3 1/5"	1 1/2"	2 7/8" RP	2 7/8" RP	15.20	**15.70**
BIT#14 4 3/4" HTC X83JP JETS: 3x16	4 3/4"		4 3/4"	2 7/8" RP	0.50	**0.50**

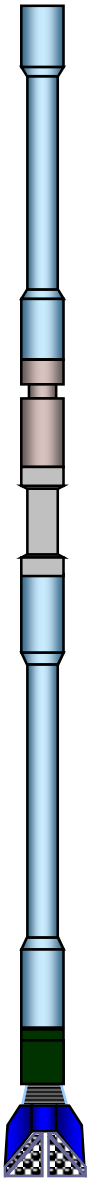
TOTAL LENGTH	**938.38**

DEPTH IN: 9593 Ft.

BHA No. 15

WELL : LO6 - 25ST

AUGUST 27th , 2001



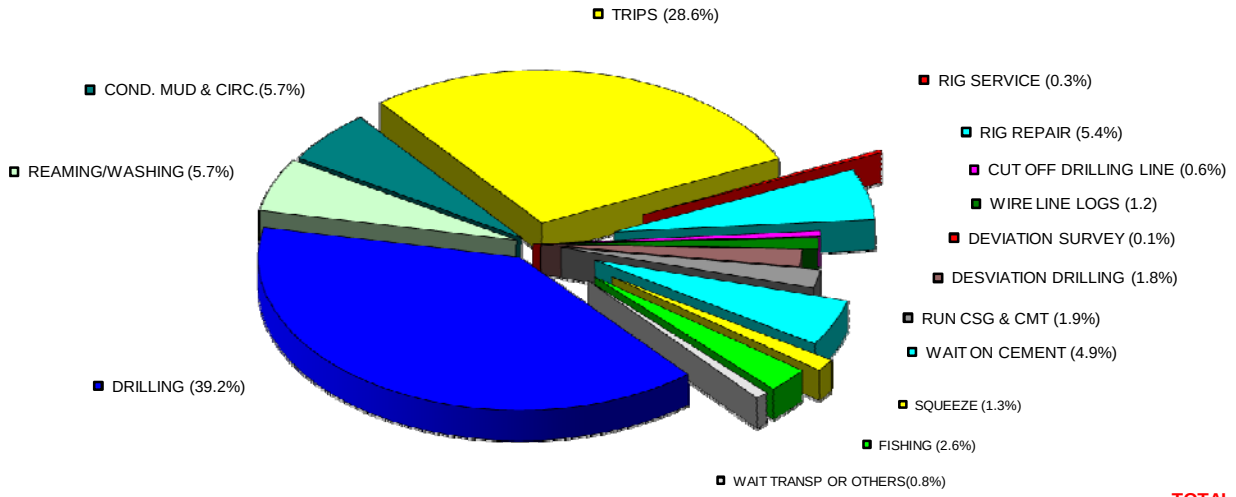
ITEM	OD	ID	BOTTOM THREAD	TOP THREAD	LENGTH	CUM. LENGTH
06 HWDP	3 1/8"	2"	2 7/8" H-90 B	2 7/8" H-90 B	181.31	**1043.99**
HYDRAULIC JAR	3 7/8"	1 7/8"	2 7/8" H-90 B	2 7/8" H-90 B	7.73	**862.68**
FLEX JOINT	3 13/16"	1 1/2"	2 7/8" H-90 B	2 7/8" H-90 B	7.25	**854.95**
28 HWDP	3 1/8"	2"	2 7/8" H-90 B	2 7/8" H-90 B	845.40	**847.70**
BIT SUB	4 1/4"	2 1/2"	2 7/8" RP	2 7/8" H-90 B	1.80	**2.30**
BIT#15 4 3/4" HTC MH2531 JETS: 3x16	4 3/4"		4 3/4"	2 7/8" RP	0.50	**0.50**

TOTAL LENGTH	**1043.99**

DEPTH IN: 9667 Ft.

TIME DISTRIBUTION (HOURS)

WELL: LO6-25 ST



FROM JULY 18th, 2001 TO AUGUST 29th, 2001

TOTAL HOURS: 936

DRILLING (39.2%)	REAMING/WASHING (5.7%)	COND. MUD & CIRC.(5.7%)	TRIPS (28.6%)	RIG SERVICE (0.3%)
RIG REPAIR (5.4%)	CUT OFF DRILLING LINE (0.6%)	DEVIATION SURVEY (0.1%)	WIRE LINE LOGS (1.2)	DESVIATION DRILLING (1.8%)
RUN CSG & CMT (1.9%)	WAIT ON CEMENT (4.9%)	SQUEEZE (1.3%)	FISHING (2.6%)	WAIT TRANSP OR OTHERS(0.8%)

CONCLUSION

The Z-2B-24-079-D-LO6 (LO6-25ST) directional side track well was drilled from 9 5/8''casing shoe LO6-25 well at 5980'; This well is located in the Lobitos Area Offshore in Talara Basin. The sedimentary sequence was drilled in Tertiary Formations as follows:

Rio Bravo Fm. (6030-6230 ft), Palegreda Fm (6270-7010 ft), Mogollón Fm (7010-7900 ft), San Cristobal Fm (7900-9100 ft), Basal Salina Fm (9100-9803 FTD).

The Rio Bravo Formation presented from 6030 ft to 6180 ft poor to fair oil shows, and fluorescence occurred in amounts ranging from 5% - 20%. They contained golden yellow natural fluorescence and with solvent yielded moderately slow and moderately weak streaming slightly milky white cut, the residual ring was slightly yellowish white to milky white .The maximum gas reading recorded for this interval was 16.19 units of Total gas at 6091 ft which showed complete chromatography.

The Mogollón Formation presented poor oil shows from 7110 ft to 7180 ft and poor to fair oil show were observed from 7320 ft to 7500 ft, poor oil show from 7750 ft to 7820 ft, the fluorescence occurred in amounts ranging from 5% to 30%; they contained dull yellowish to slightly bright yellowish white fluorescence and with solvent yielded moderately slow weak streaming milky white cut, the residual ring was yellowish white to non visual in few samples. The maximum gas readings recorded for this interval was 77 units of Total Gas at 7519 ft which showed complete chromatography.

The main objective was Basal Salina formation which have two sections, the upper section presented bodies of clean sands and sandstone interbeded with layers of claystone; The lower section presented a good bodie massive of sand from 9494' to 9803'. Poor to fair oil shows were observed from 9100 ft to 9140 ft, and fluorescence occurred in amounts ranging from traces to 30%; they contained slightly bright yellowish white natural fluorescence and with solvent yielded slightly slow streaming milky white cut, non visual residual ring on natural light**.** Poor to fair oil show were observed from 9220 ft to 9494 ft with fluorescence occurred in ranging from traces to 30%; they contained yellow to pale yellow to slightly bright yellowish natural fluorescence and with solvent yielded slightly slow streaming milky white cut, non visual residual ring on natural light. Poor oil shows were observed, fair oil show occasionally, from 9550 ft to 9803 ft, and fluorescence occurred in amounts ranging from traces to 20%; they contained dull golden yellow natural fluorescence and with solvent yielded slow weak streaming milky white cut, non visual residual ring on natural light**.**

The maximum gas reading recorded for this formation was 38.96 units of Total Gas at 9109 ft which showed complete chromatography. Drilling stopped at 9803 ft into Basal Salina formation.