189-22048

CONFIDENTIAL
12/20/11

COMPANY: LACLEDE GAS COMPANY
WELL: LACLEDE # T-1
FIELD: FLORISSANT
COUNTY: ST. LOUIS
STATE: MO
API NO: - -
LAT: 38.50180
LONG: -90.1632

RECEIVED
DEC 20 2010
Mo Oil & Gas Council

LOCATION:
156' FSL, 613' FWL,
SEC 6, TN 47 N,
RANGE 7 E

K.B.	526
D.F.	524
G.L.	512

GEOSITE, INC.
Geological Services

P.O. Box 590
San Angelo, TX 76902
1-800-265-4356
www.geosite.us
geosite@geosite.us

Version: 2.0.0.545
Actual Log

COUNTY: ST. LOUIS
FIELD: FLORISSANT
LOCATION: 156' FSL, 613' FWL, SEC 6, TN 47 N, RANGE 7 E
STATE: MO
COMPANY: LACLEDE GAS COMPANY
WELL: LACLEDE # T-1

Geosite, Inc / 9/23/2010 11:42:29 AM / Geolog Version: 2.0.0.545 / lab12-GMWSO-ECU15 / scale 5 inch / Depth From:400 / Depth To:2918

Logged By:
KYLE JOHNSON

Unit No. 28

	FROM	TO
Depth:	400	2918
Date:	9/5/2010	9/15/2010

COMPANY REP: JOAN P. LEVICK
REP PHONE: 314-741-5690
DRILLING CONT: LES WILSON, INC.
RIG NUMBER: 22
RIG PHONE: 618-838-3692
TOOL PUSHER: MIKE WITHROW
PUSHER PHONE: 618-384-1562
MUD CONT: FRANKLIN SERVICES
MUD ENGINEER: BOBBY WARREN
ENGINEER PHONE: 618-943-0249

GAS RATE COLUMN ABBREVIATIONS

CG	CONNECTION GAS
C/	CONNECTION DEPTH
CHL	CHLORIDE
WT	MUD WEIGHT
VIS	VISCOSITY
PH	POTENTIAL HYDROGEN
WL	LOG AFTER TRIP
LAST	LOG AFTER SHORT TRIP
FIL	FILTRATE
CK	MUD CAKE
HW	HOTWIRE

DRILL RATE COLUMN ABBREVIATIONS

WOB	WEIGHT ON BIT
RPM	ROTARY RPM
PP	PUMP PRESSURE
SPM	PUMP STROKES
BOB	BACK ON BOTTOM
TOH	TRIP OUT OF HOLE
TFNB	TRIP FOR NEW BIT
TIH	TRIP IN HOLE
NB	NEW BIT
CRG	CORING
CO	CIRCULATING OUT
DST	DRILL STEM TEST
NR	NO RETURNS

DISCLAIMER:

All interpretations are opinions based on inferences from the hole condition, sampling, electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and who shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, for expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents, or employees.

▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Anhydrite	Chert	Dolomite	Lime	Sand	Shale	Siltstone	Hot Shale	Shaley Lime	Cement

Drill Rate
Minutes per Foot

GD ■
FR ✕
TR /

Por

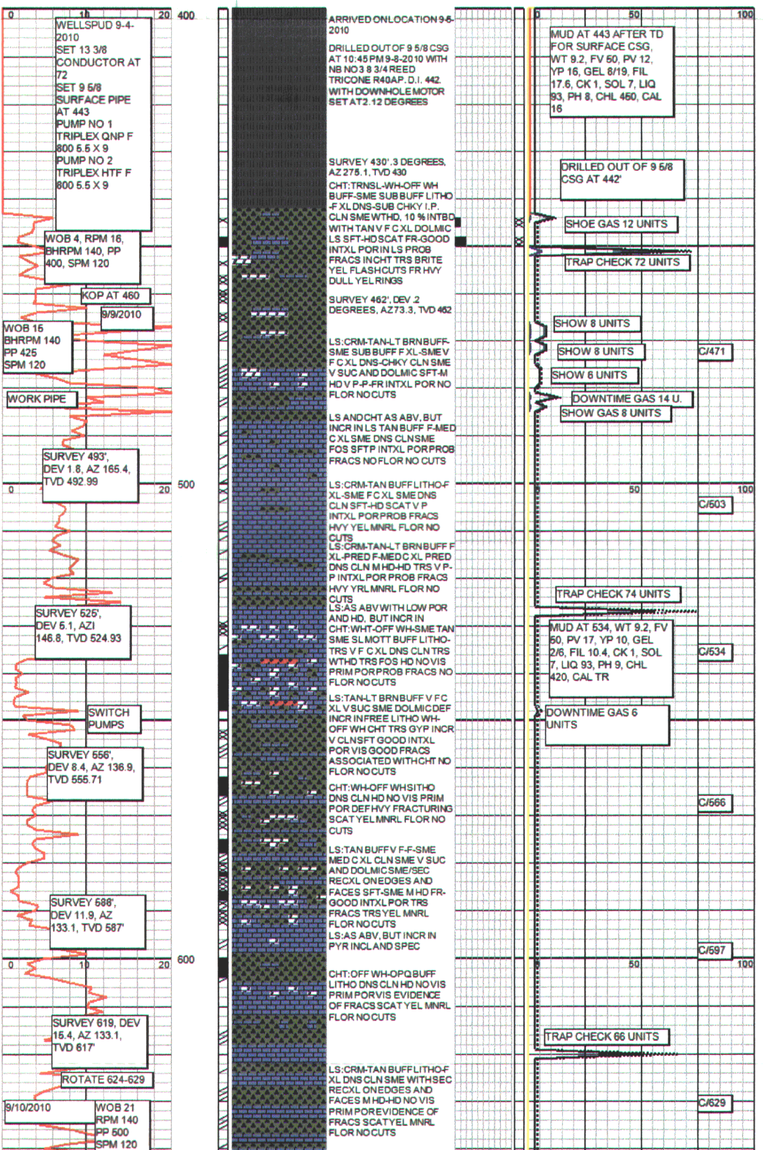
Lithology

Oil

Cut

Gas Analysis
Hot Wire -------
Total Gas

Methane - C1
Ethane - C2
Propane - C3
Butane - C4
Pentane - C5



WELLSPUD 9-4-2010
SET 13 3/8 CONDUCTOR AT 72
SET 9 5/8 SURFACE PIPE AT 443
PUMP NO 1 TRIPLEX QNP F 800 5.5 X 9
PUMP NO 2 TRIPLEX HTF F 800 5.5 X 9

WOB 4, RPM 16, BHRPM 140, PP 400, SPM 120

KOP AT 460

9/9/2010

WOB 15 BHRPM 140 PP 425 SPM 120

WORK PIPE

SURVEY 493', DEV 1.8, AZ 165.4, TVD 492.99

SURVEY 525', DEV 5.1, AZI 146.8, TVD 524.93

SWITCH PUMPS

SURVEY 556', DEV 8.4, AZ 136.9, TVD 555.71

SURVEY 588', DEV 11.9, AZ 133.1, TVD 587'

SURVEY 619, DEV 15.4, AZ 133.1, TVD 617'

ROTATE 624-629

9/10/2010

WOB 21 RPM 140 PP 500 SPM 120

ARRIVED ON LOCATION 9-5-2010

DRILLED OUT OF 9 5/8 CSG AT 10:45 PM 9-8-2010 WITH NB NO 3 8 3/4 REED TRICONE R40AP. D.I. 442. WITH DOWNHOLE MOTOR SET AT 2.12 DEGREES

SURVEY 430'.3 DEGREES, AZ 275.1, TVD 430

CHT:TRNSL-WH-OFF WH BUFF-SME SUB BUFF LITHO-F XL DNS-SUB CHKY I.P. CLN SME WTHD, 10 % INTBD WITH TAN V F C XL DOLMIC LS SFT-HD SCAT FR-GOOD INTXL POR IN LS PROB FRACS IN CHT TRS BRITE YEL FLASHCUTS FR HVY DULL YEL RINGS

SURVEY 462', DEV .2 DEGREES, AZ 73.3, TVD 462

LS:CRM-TAN-LT BRN BUFF-SME SUB BUFF F XL-SME V F C XL DNS-CHKY CLN SME V SUC AND DOLMIC SFT-M HD V P-P-FR INTXL POR NO FLOR NO CUTS

LS AND CHT AS ABV, BUT INCR IN LS TAN BUFF F-MED C XL SME DNS CLN SME FOS SFT P INTXL POR PROB FRACS NO FLOR NO CUTS

LS:CRM-TAN BUFF LITHO-F XL-SME F C XL SME DNS CLN SFT-HD SCAT V P INTXL POR PROB FRACS HVY YEL MNRL FLOR NO CUTS

LS:CRM-TAN-LT BRN BUFF F XL-PRED F-MED C XL PRED DNS CLN M HD-HD TRS V P-P INTXL POR PROB FRACS HVY YRL MNRL FLOR NO CUTS

LS:AS ABV WITH LOW POR AND HD, BUT INCR IN CHT:WHT-OFF WH-SME TAN SME SL MOTT BUFF LITHO-TRS V F C XL DNS CLN TRS WTHD TRS FOS HD NO VIS PRIM POR PROB FRACS NO FLOR NO CUTS

LS:TAN-LT BRN BUFF V F C XL V SUC SME DOLMIC DEF INCR IN FREE LITHO WH-OFF WH CHT TRS GYP INCR V CLN SFT GOOD INTXL POR VIS GOOD FRACS ASSOCIATED WITH CHT NO FLOR NO CUTS

CHT:WH-OFF WH SITHO DNS CLN HD NO VIS PRIM POR DEF HVY FRACTURING SCAT YEL MNRL FLOR NO CUTS

LS:TAN BUFF V F-F-SME MED C XL CLN SME V SUC AND DOLMIC SME/SEC RECXL ON EDGES AND FACES SFT-SME M HD FR-GOOD INTXL POR TRS FRACS TRS YEL MNRL FLOR NO CUTS

LS:AS ABV, BUT INCR IN PYR INCL AND SPEC

CHT:OFF WH-OPQ BUFF LITHO DNS CLN HD NO VIS PRIM POR VIS EVIDENCE OF FRACS SCAT YEL MNRL FLOR NO CUTS

LS:CRM-TAN BUFF LITHO-F XL DNS CLN SME WITH SEC RECXL ON EDGES AND FACES M HD-HD NO VIS PRIM POR EVIDENCE OF FRACS SCAT YEL MNRL FLOR NO CUTS

MUD AT 443 AFTER TD FOR SURFACE CSG, WT 9.2, FV 50, PV 12, YP 16, GEL 8/19, FIL 17.6, CK 1, SOL 7, LIQ 93, PH 8, CHL 450, CAL 16

DRILLED OUT OF 9 5/8 CSG AT 442'

SHOE GAS 12 UNITS

TRAP CHECK 72 UNITS

SHOW 8 UNITS

SHOW 8 UNITS

SHOW 6 UNITS

DOWNTIME GAS 14 U.

SHOW GAS 8 UNITS

TRAP CHECK 74 UNITS

MUD AT 534, WT 9.2, FV 50, PV 17, YP 10, GEL 2/6, FIL 10.4, CK 1, SOL 7, LIQ 93, PH 9, CHL 420, CAL TR

DOWNTIME GAS 6 UNITS

TRAP CHECK 66 UNITS

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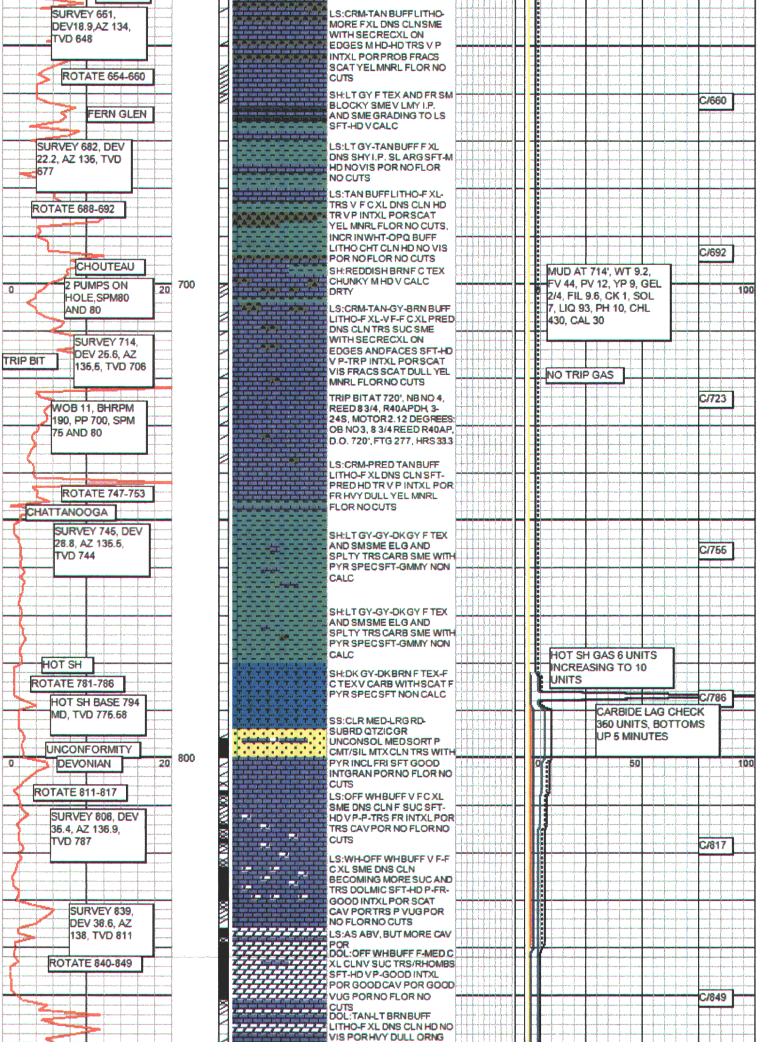

SURVEY 651, DEV18.9,AZ 134, TVD 648

ROTATE 654-660

FERN GLEN

SURVEY 682, DEV 22.2, AZ 136, TVD 677

ROTATE 688-692

CHOUTEAU

2 PUMPS ON HOLE,SPM80 AND 80

SURVEY 714, DEV 25.6, AZ 135.5, TVD 706

TRIP BIT

WOB 11, BHRPM 190, PP 700, SPM 75 AND 80

ROTATE 747-753

CHATTANOOGA

SURVEY 745, DEV 28.8, AZ 135.5, TVD 744

HOT SH

ROTATE 781-786

HOT SH BASE 794 MD, TVD 775.68

UNCONFORMITY

DEVONIAN

ROTATE 811-817

SURVEY 808, DEV 35.4, AZ 136.9, TVD 787

SURVEY 839, DEV 38.6, AZ 138, TVD 811

ROTATE 840-849

LS:CRM-TAN BUFF LITHO-MORE FXL DNS CLN SME WITH SECRECXL ON EDGES M HD-HD TRS V P INTXL POR PROB FRACS SCAT YEL MNRL FLOR NO CUTS

SH:LT GY F TEX AND FR SM BLOCKY SME V LMY I.P. AND SME GRADING TO LS SFT-HD V CALC

LS:LT GY-TAN BUFF F XL DNS SHY I.P. SL ARG SFT-M HD NO VIS POR NO FLOR NO CUTS

LS:TAN BUFF LITHO-F XL-TRS V F C XL DNS CLN HD TR V P INTXL POR SCAT YEL MNRL FLOR NO CUTS, INCR IN WHT-OPQ BUFF LITHO CHT CLN HD NO VIS POR NO FLOR NO CUTS

SH:REDDISH BRN F C TEX CHUNKY M HD V CALC DRTY

LS:CRM-TAN-GY-BRN BUFF LITHO-F XL-V F-F C XL PRED DNS CLN TRS SUC SME WITH SECRECXL ON EDGES AND FACES SFT-HD V P-TRP INTXL POR SCAT VIS FRACS SCAT DULL YEL MNRL FLOR NO CUTS

TRIP BIT AT 720', NB NO 4, REED 8 3/4, R40APDH, 3-24S, MOTOR 2.12 DEGREES: OB NO 3, 8 3/4 REED R40AP, D.O. 720', FTG 277, HRS 33.3

LS:CRM-PRED TAN BUFF LITHO-F XL DNS CLN SFT-PRED HD TR V P INTXL POR FR HVY DULL YEL MNRL FLOR NO CUTS

SH:LT GY-GY-DK GY F TEX AND SM SME ELG AND SPLTY TRS CARB SME WITH PYR SPEC SFT-GMMY NON CALC

SH:LT GY-GY-DK GY F TEX AND SM SME ELG AND SPLTY TRS CARB SME WITH PYR SPEC SFT-GMMY NON CALC

SH:DK GY-DK BRN F TEX-F C TEX V CARB WITH SCAT F PYR SPEC SFT NON CALC

SS:CLR MED-LRG RD-SUBRD QTZ IC GR UNCONSOL MED SORT P CMT/SIL MTX CLN TRS WITH PYR INCL FRI SFT GOOD INTGRAN POR NO FLOR NO CUTS

LS:OFF WH BUFF V F C XL SME DNS CLN F SUC SFT-HD V P-P-TRS FR INTXL POR TRS CAV POR NO FLOR NO CUTS

LS:WH-OFF WH BUFF V F-F C XL SME DNS CLN BECOMING MORE SUC AND TRS DOLMIC SFT-HD P-FR-GOOD INTXL POR SCAT CAV POR TRS P VUG POR NO FLOR NO CUTS

LS:AS ABV, BUT MORE CAV POR

DOL:OFF WH BUFF F-MED C XL CLN V SUC TRS/RHOMBS SFT-HD V P-GOOD INTXL POR GOOD CAV POR GOOD VUG POR NO FLOR NO CUTS

DOL:TAN-LT BRN BUFF LITHO-F XL DNS CLN HD NO VIS POR HVY DULL ORNG

MUD AT 714', WT 9.2, FV 44, PV 12, YP 9, GEL 2/4, FIL 9.6, CK 1, SOL 7, LIQ 93, PH 10, CHL 430, CAL 30

NO TRIP GAS

HOT SH GAS 6 UNITS INCREASING TO 10 UNITS

CARBIDE LAG CHECK 360 UNITS, BOTTOMS UP 5 MINUTES

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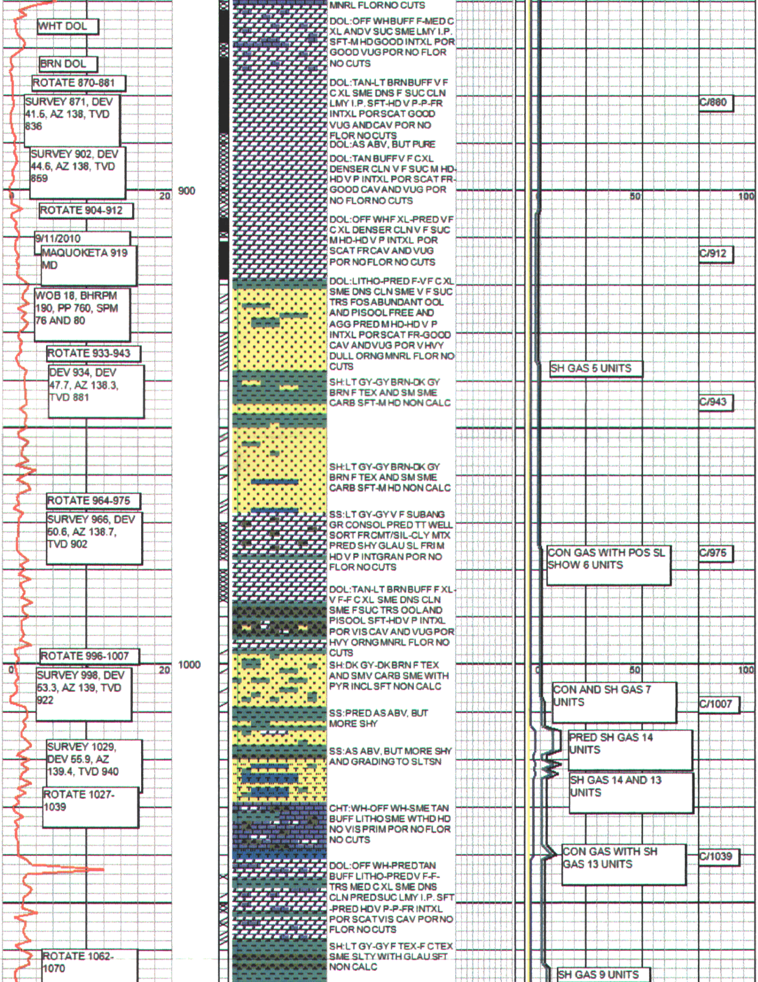


MNRL FLOR NO CUTS

DOL:OFF WH BUFF F-MED C XL AND V SUC SME LMY I.P. SFT-M HD GOOD INTXL POR GOOD VUG POR NO FLOR NO CUTS

DOL:TAN-LT BRN BUFF V F C XL SME DNS F SUC CLN LMY I.P. SFT-HD V P-P-FR INTXL POR SCAT GOOD VUG AND CAV POR NO FLOR NO CUTS

DOL:AS ABV, BUT PURE

DOL:TAN BUFF V F C XL DENSER CLN V F SUC M HD-HD V P INTXL POR SCAT FR-GOOD CAV AND VUG POR NO FLOR NO CUTS

DOL:OFF WH F XL-PRED V F C XL DENSER CLN V F SUC M HD-HD V P INTXL POR SCAT FR CAV AND VUG POR NO FLOR NO CUTS

DOL:LITHO-PRED F-V F C XL SME DNS CLN SME V F SUC TRS FOS ABUNDANT OOL AND PISOOL FREE AND AGG PRED M HD-HD V P INTXL POR SCAT FR-GOOD CAV AND VUG POR V HVY DULL ORNG MNRL FLOR NO CUTS

SH:LT GY-GY BRN-DK GY BRN F TEX AND SM SME CARB SFT-M HD NON CALC

SH:LT GY-GY BRN-DK GY BRN F TEX AND SM SME CARB SFT-M HD NON CALC

SS:LT GY-GY V F SUBANG GR CONSOL PRED TT WELL SORT FR CMT/SIL-CLY MTX PRED SHY GLAU SL FRIM HD V P INTGRAN POR NO FLOR NO CUTS

DOL:TAN-LT BRN BUFF F XL-V F-F C XL SME DNS CLN SME F SUC TRS OOL AND PISOOL SFT-HD V P INTXL POR VIS CAV AND VUG POR HVY ORNG MNRL FLOR NO CUTS

SH:DK GY-DK BRN F TEX AND SM V CARB SME WITH PYR INCL SFT NON CALC

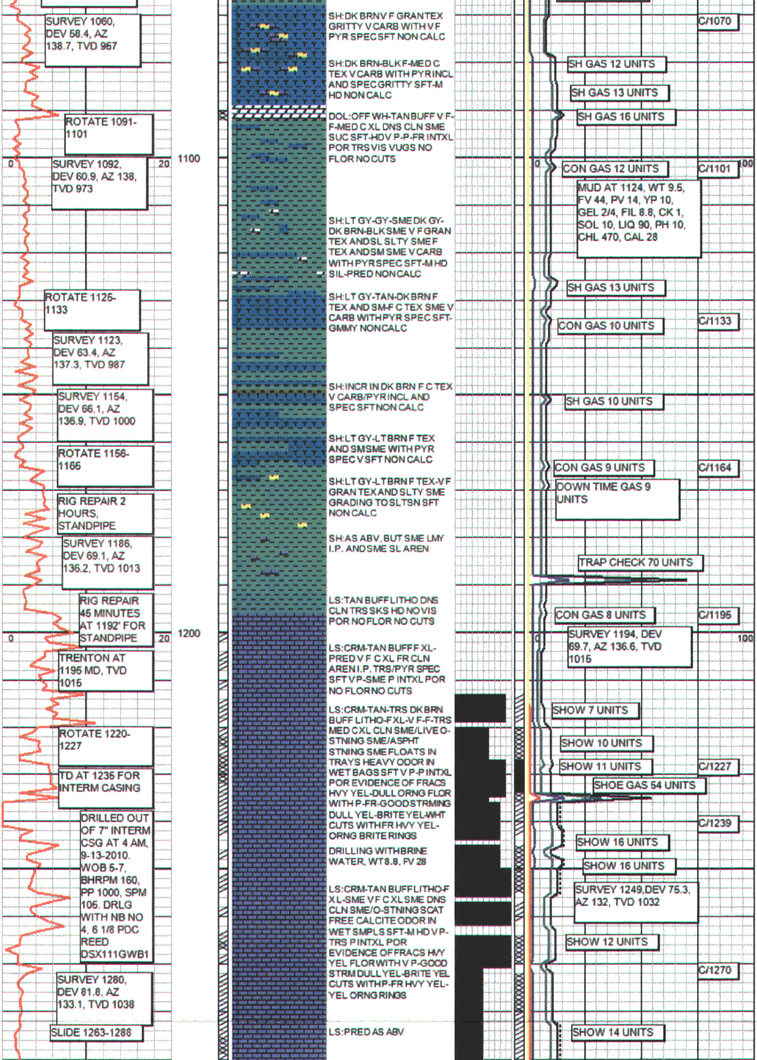
SS:PRED AS ABV, BUT MORE SHY

SS:AS ABV, BUT MORE SHY AND GRADING TO SLTSN

CHT:WH-OFF WH-SME TAN BUFF LITHO SME WTHD HD NO VIS PRIM POR NO FLOR NO CUTS

DOL:OFF WH-PRED TAN BUFF LITHO-PRED V F-F-TRS MED C XL SME DNS CLN PRED SUC LMY I.P. SFT-PRED HD V P-P-FR INTXL POR SCAT VIS CAV POR NO FLOR NO CUTS

SH:LT GY-GY F TEX-F C TEX SME SLTY WITH GLAU SFT NON CALC



SURVEY 1060, DEV 58.4, AZ 138.7, TVD 967

ROTATE 1091-1101

SURVEY 1092, DEV 60.9, AZ 138, TVD 973

ROTATE 1125-1133

SURVEY 1123, DEV 63.4, AZ 137.3, TVD 987

SURVEY 1154, DEV 66.1, AZ 136.9, TVD 1000

ROTATE 1156-1165

RIG REPAIR 2 HOURS, STANDPIPE

SURVEY 1186, DEV 69.1, AZ 136.2, TVD 1013

RIG REPAIR 45 MINUTES AT 1192' FOR STANDPIPE

TRENTON AT 1195 MD, TVD 1015

ROTATE 1220-1227

TD AT 1235 FOR INTERM CASING

DRILLED OUT OF 7" INTERM CSG AT 4 AM, 9-13-2010. WOB 5-7, BHRPM 160, PP 1000, SPM 105. DRLG WITH NB NO 4, 6 1/8 PDC REED DSX111GWB1

SURVEY 1280, DEV 81.8, AZ 133.1, TVD 1038

SLIDE 1263-1288

SH:DK BRNV F GRANTEX GRITTY V CARB WITH V F PYR SPEC SFT NON CALC

SH:DK BRN-BLK F-MED C TEX V CARB WITH PYR INCL AND SPEC GRITTY SFT-M HD NON CALC

DOL:OFF WH-TAN BUFF V F-F-MED C XL DNS CLN SME SUC SFT-HD V P-P-FR INTXL POR TRS VIS VUGS NO FLOR NO CUTS

SH:LT GY-GY-SME DK GY-DK BRN-BLK SME V F GRAN TEX AND SL SLTY SME F TEX AND SM SME V CARB WITH PYR SPEC SFT-M HD SIL-PRED NON CALC

SH:LT GY-TAN-DK BRN F TEX AND SM-F C TEX SME V CARB WITH PYR SPEC SFT-GMMY NON CALC

SH:INCR IN DK BRN F C TEX V CARB/PYR INCL AND SPEC SFT NON CALC

SH:LT GY-LT BRN F TEX AND SM SME WITH PYR SPEC V SFT NON CALC

SH:LT GY-LT BRN F TEX-V F GRAN TEX AND SLTY SME GRADING TO SLTSN SFT NON CALC

SH:AS ABV, BUT SME LMY I.P. AND SME SL AREN

LS:TAN BUFF LITHO DNS CLN TRS SKS HD NO VIS POR NO FLOR NO CUTS

LS:CRM-TAN BUFF F XL-PRED V F C XL FR CLN AREN I.P. TRS/PYR SPEC SFT V P-SME P INTXL POR NO FLOR NO CUTS

LS:CRM-TAN-TRS DK BRN BUFF LITHO-F XL-V F-F-TRS MED C XL CLN SME/LIVE O-STNING SME/ASPHT STNING SME FLOATS IN TRAYS HEAVY ODOR IN WET BAGS SFT V P-P INTXL POR EVIDENCE OF FRACS HVY YEL-DULL ORNG FLOR WITH P-FR-GOOD STRMING DULL YEL-BRITE YEL-WHT CUTS WITH FR HVY YEL-ORNG BRITE RINGS

DRILLING WITH BRINE WATER, WT 8.8, FV 28

LS:CRM-TAN BUFF LITHO-F XL-SME V F C XL SME DNS CLN SME/O-STNING SCAT FREE CALCITE ODOR IN WET SMPLS SFT-M HD V P-TRS P INTXL POR EVIDENCE OF FRACS HVY YEL FLOR WITH V P-GOOD STRM DULL YEL-BRITE YEL CUTS WITH P-FR HVY YEL-YEL ORNG RINGS

LS:PRED AS ABV

C/1070

SH GAS 12 UNITS

SH GAS 13 UNITS

SH GAS 16 UNITS

CON GAS 12 UNITS

C/1101

MUD AT 1124, WT 9.5, FV 44, PV 14, YP 10, GEL 2/4, FIL 8.8, CK 1, SOL 10, LIQ 90, PH 10, CHL 470, CAL 28

SH GAS 13 UNITS

CON GAS 10 UNITS

C/1133

SH GAS 10 UNITS

CON GAS 9 UNITS

C/1164

DOWN TIME GAS 9 UNITS

TRAP CHECK 70 UNITS

CON GAS 8 UNITS

C/1195

SURVEY 1194, DEV 69.7, AZ 136.6, TVD 1015

SHOW 7 UNITS

SHOW 10 UNITS

SHOW 11 UNITS

C/1227

SHOE GAS 54 UNITS

C/1239

SHOW 16 UNITS

SHOW 16 UNITS

SURVEY 1249, DEV 75.3, AZ 132, TVD 1032

SHOW 12 UNITS

C/1270

SHOW 14 UNITS

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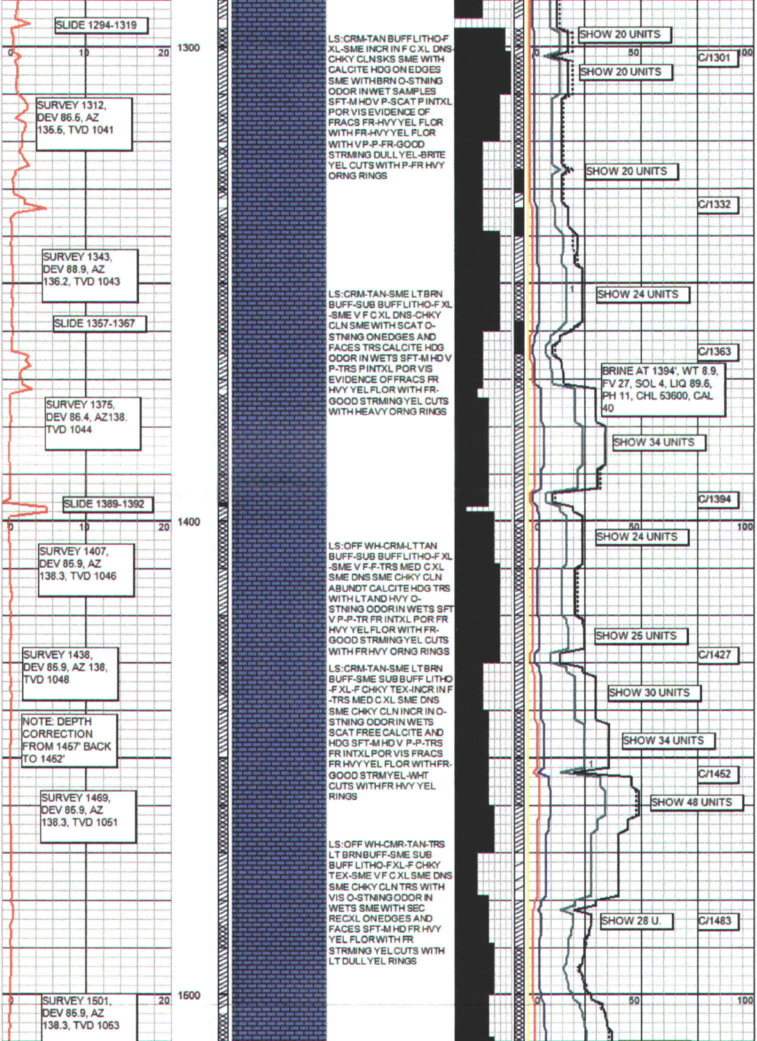

SURVEY 1312, DEV 86.5, AZ 136.5, TVD 1041

LS:CRM-TAN BUFF LITHO-F XL-SME INCR IN F C XL DNS-CHKY CLN SKS SME WITH CALCITE HDG ON EDGES SME WITH BRN O-STNING ODOR IN WET SAMPLES SFT-M HD V P-SCAT P INTXL POR VIS EVIDENCE OF FRACS FR-HVY YEL FLOR WITH FR-HVY YEL FLOR WITH V P-P-FR-GOOD STRMING DULL YEL-BRITE YEL CUTS WITH P-FR HVY ORNG RINGS

SURVEY 1343, DEV 88.9, AZ 136.2, TVD 1043

LS:CRM-TAN-SME LT BRN BUFF-SUB BUFF LITHO-F XL -SME V F C XL DNS-CHKY CLN SME WITH SCAT O-STNING ON EDGES AND FACES TRS CALCITE HDG ODOR IN WETS SFT-M HD V P-TRS P INTXL POR VIS EVIDENCE OF FRACS FR HVY YEL FLOR WITH FR-GOOD STRMING YEL CUTS WITH HEAVY ORNG RINGS

SURVEY 1375, DEV 86.4, AZ138, TVD 1044

BRINE AT 1394', WT 8.9, FV 27, SOL 4, LIQ 89.6, PH 11, CHL 53600, CAL 40

SURVEY 1407, DEV 85.9, AZ 138.3, TVD 1046

LS:OFF WH-CRM-LT TAN BUFF-SUB BUFF LITHO-F XL -SME V F-F-TRS MED C XL SME DNS SME CHKY CLN ABUNDT CALCITE HDG TRS WITH LT AND HVY O-STNING ODOR IN WETS SFT V P-P-TR FR INTXL POR FR HVY YEL FLOR WITH FR-GOOD STRMING YEL CUTS WITH FR HVY ORNG RINGS

SURVEY 1438, DEV 85.9, AZ 138, TVD 1048

LS:CRM-TAN-SME LT BRN BUFF-SME SUB BUFF LITHO -F XL-F CHKY TEX-INCR IN F -TRS MED C XL SME DNS SME CHKY CLN INCR IN O-STNING ODOR IN WETS SCAT FREE CALCITE AND HDG SFT-M HD V P-P-TRS FR INTXL POR VIS FRACS FR HVY YEL FLOR WITH FR-GOOD STRM YEL-WHT CUTS WITH FR HVY YEL RINGS

NOTE: DEPTH CORRECTION FROM 1457' BACK TO 1452'

SURVEY 1469, DEV 85.9, AZ 138.3, TVD 1051

LS:OFF WH-CMR-TAN-TRS LT BRN BUFF-SME SUB BUFF LITHO-F XL-F CHKY TEX-SME V F C XL SME DNS SME CHKY CLN TRS WITH VIS O-STNING ODOR IN WETS SME WITH SEC RECXL ON EDGES AND FACES SFT-M HD FR HVY YEL FLOR WITH FR STRMING YEL CUTS WITH LT DULL YEL RINGS

SURVEY 1501, DEV 85.9, AZ 138.3, TVD 1053

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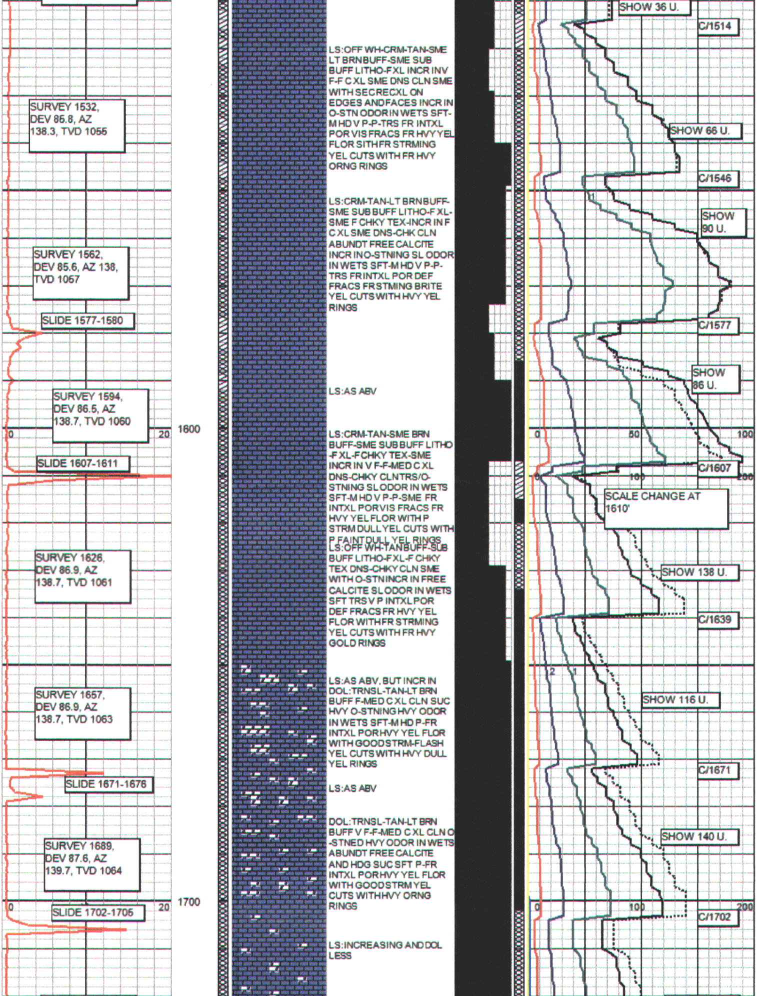


LS:OFF WH-CRM-TAN-SME LT BRN BUFF-SME SUB BUFF LITHO-F XL INCR INV F-F C XL SME DNS CLN SME WITH SEC RECXL ON EDGES AND FACES INCR IN O-STN ODOR IN WETS SFT-M HD V P-P-TRS FR INTXL POR VIS FRACS FR HVY YEL FLOR SITH FR STRMING YEL CUTS WITH FR HVY ORNG RINGS

LS:CRM-TAN-LT BRN BUFF-SME SUB BUFF LITHO-F XL-SME F CHKY TEX-INCR IN F C XL SME DNS-CHK CLN ABUNDT FREE CALCITE INCR IN O-STNING SL ODOR IN WETS SFT-M HD V P-P-TRS FR INTXL POR DEF FRACS FR STMING BRITE YEL CUTS WITH HVY YEL RINGS

LS:AS ABV

LS:CRM-TAN-SME BRN BUFF-SME SUB BUFF LITHO -F XL-F CHKY TEX-SME INCR IN V F-F-MED C XL DNS-CHKY CLN TRS/O-STNING SL ODOR IN WETS SFT-M HD V P-P-SME FR INTXL POR VIS FRACS FR HVY YEL FLOR WITH P STRM DULL YEL CUTS WITH P FAINT DULL YEL RINGS

LS:OFF WH-TAN BUFF-SUB BUFF LITHO-F XL-F CHKY TEX DNS-CHKY CLN SME WITH O-STN INCR IN FREE CALCITE SL ODOR IN WETS SFT TRS V P INTXL POR DEF FRACS FR HVY YEL FLOR WITH FR STRMING YEL CUTS WITH FR HVY GOLD RINGS

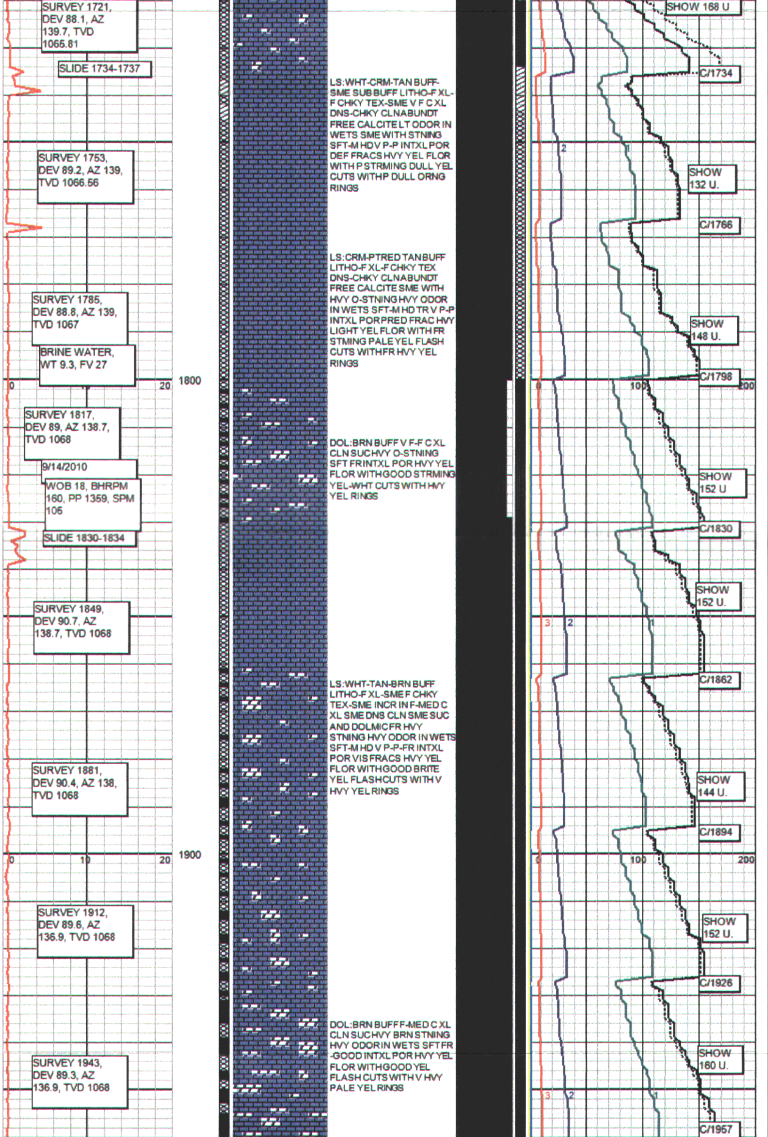
LS:AS ABV, BUT INCR IN DOL:TRNSL-TAN-LT BRN BUFF F-MED C XL CLN SUC HVY O-STNING HVY ODOR IN WETS SFT-M HD P-FR INTXL POR HVY YEL FLOR WITH GOOD STRM-FLASH YEL CUTS WITH HVY DULL YEL RINGS

LS:AS ABV

DOL:TRNSL-TAN-LT BRN BUFF V F-F-MED C XL CLN O-STNED HVY ODOR IN WETS ABUNDT FREE CALCITE AND HDG SUC SFT P-FR INTXL POR HVY YEL FLOR WITH GOOD STRM YEL CUTS WITH HVY ORNG RINGS

LS:INCREASING AND DOL LESS

Geosite, Inc / 9/23/2010 11:12:29 AM / Geolog Version: 2.0.0.5.45 / 1b12-GNV50-ECUL5 / scale 5 Inch / Depth From:400 / Depth To:2068



SURVEY 1721, DEV 88.1, AZ 139.7, TVD 1065.81

SHOW 168 U

SLIDE 1734-1737

C/1734

LS:WHT-CRM-TAN BUFF-SME SUB BUFF LITHO-F XL-F CHKY TEX-SME V F C XL DNS-CHKY CLN ABUNDT FREE CALCITE LT ODOR IN WETS SME WITH STNING SFT-M HD V P-P INTXL POR DEF FRACS HVY YEL FLOR WITH P STRMING DULL YEL CUTS WITH P DULL ORNG RINGS

SURVEY 1753, DEV 89.2, AZ 139, TVD 1066.56

SHOW 132 U.

C/1766

LS:CRM-PTRED TAN BUFF LITHO-F XL-F CHKY TEX DNS-CHKY CLN ABUNDT FREE CALCITE SME WITH HVY O-STNING HVY ODOR IN WETS SFT-M HD TR V P-P INTXL POR PRED FRAC HVY LIGHT YEL FLOR WITH FR STMING PALE YEL FLASH CUTS WITH FR HVY YEL RINGS

SURVEY 1785, DEV 88.8, AZ 139, TVD 1067

SHOW 148 U.

BRINE WATER, WT 9.3, FV 27

C/1798

SURVEY 1817, DEV 89, AZ 138.7, TVD 1068

DOL:BRN BUFF V F-F C XL CLN SUC HVY O-STNING SFT FR INTXL POR HVY YEL FLOR WITH GOOD STRMING YEL-WHT CUTS WITH HVY YEL RINGS

9/14/2010

WOB 18, BHRPM 160, PP 1359, SPM 105

SHOW 152 U

SLIDE 1830-1834

C/1830

SHOW 152 U.

SURVEY 1849, DEV 90.7, AZ 138.7, TVD 1068

C/1862

LS:WHT-TAN-BRN BUFF LITHO-F XL-SME F CHKY TEX-SME INCR IN F-MED C XL SME DNS CLN SME SUC AND DOLMIC FR HVY STNING HVY ODOR IN WETS SFT-M HD V P-P-FR INTXL POR VIS FRACS HVY YEL FLOR WITH GOOD BRITE YEL FLASH CUTS WITH V HVY YEL RINGS

SURVEY 1881, DEV 90.4, AZ 138, TVD 1068

SHOW 144 U.

C/1894

SURVEY 1912, DEV 89.6, AZ 136.9, TVD 1068

SHOW 152 U.

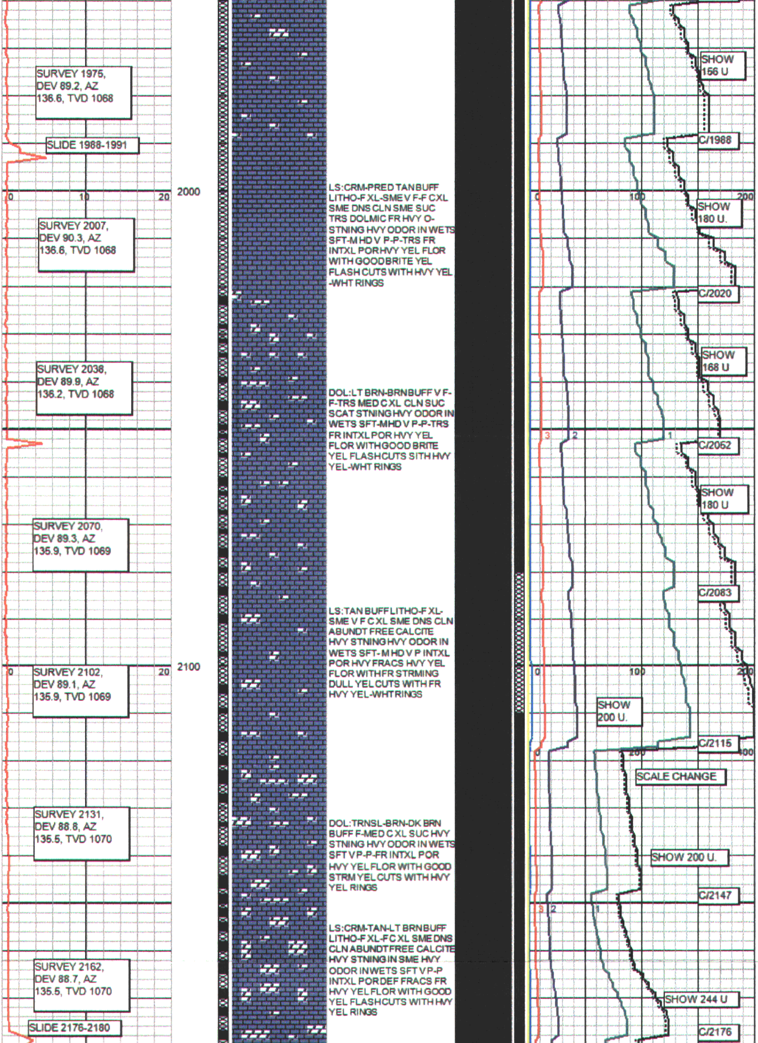
C/1926

DOL:BRN BUFF F-MED C XL CLN SUC HVY BRN STNING HVY ODOR IN WETS SFT FR-GOOD INTXL POR HVY YEL FLOR WITH GOOD YEL FLASH CUTS WITH V HVY PALE YEL RINGS

SURVEY 1943, DEV 89.3, AZ 136.9, TVD 1068

SHOW 160 U.

C/1957



LS:CRM-PRED TAN BUFF LITHO-F XL-SME V F-F C XL SME DNS CLN SME SUC TRS DOLMIC FR HVY O-STNING HVY ODOR IN WETS SFT-M HD V P-P-TRS FR INTXL POR HVY YEL FLOR WITH GOOD BRITE YEL FLASH CUTS WITH HVY YEL-WHT RINGS

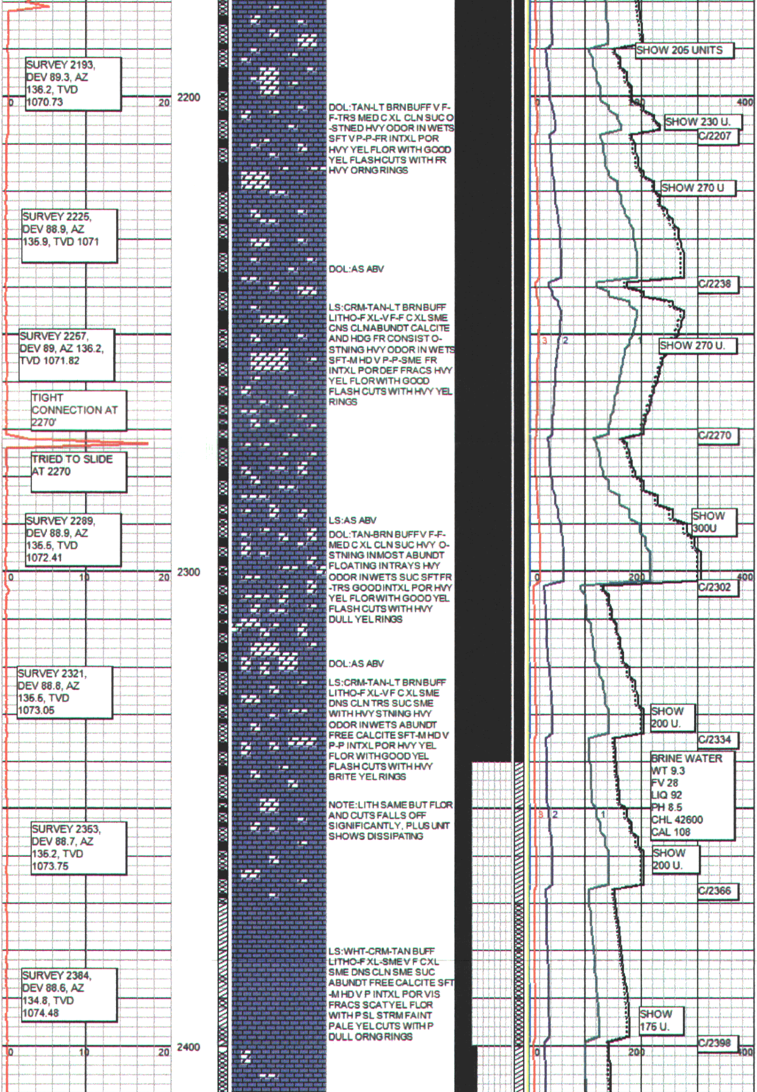
DOL:LT BRN-BRN BUFF V F-F-TRS MED C XL CLN SUC SCAT STNING HVY ODOR IN WETS SFT-M HD V P-P-TRS FR INTXL POR HVY YEL FLOR WITH GOOD BRITE YEL FLASH CUTS SITH HVY YEL-WHT RINGS

LS:TAN BUFF LITHO-F XL-SME V F C XL SME DNS CLN ABUNDT FREE CALCITE HVY STNING HVY ODOR IN WETS SFT- M HD V P INTXL POR HVY FRACS HVY YEL FLOR WITH FR STRMING DULL YEL CUTS WITH FR HVY YEL-WHT RINGS

DOL:TRNSL-BRN-DK BRN BUFF F-MED C XL SUC HVY STNING HVY ODOR IN WETS SFT V P-P-FR INTXL POR HVY YEL FLOR WITH GOOD STRM YEL CUTS WITH HVY YEL RINGS

LS:CRM-TAN-LT BRN BUFF LITHO-F XL-F C XL SME DNS CLN ABUNDT FREE CALCITE HVY STNING IN SME HVY ODOR IN WETS SFT V P-P INTXL POR DEF FRACS FR HVY YEL FLOR WITH GOOD YEL FLASH CUTS WITH HVY YEL RINGS

Geosite, Inc / 9/23/2010 11:42:29 AM / GeoLog Version: 2.0.0.545 / lab12-GNV60-ECU15 / scale:5 Inch / Depth From:400 / Depth To:2988



DOL:TAN-LT BRN BUFF V F-F-TRS MED C XL CLN SUC O-STNED HVY ODOR IN WETS SFT V P-P-FR INTXL POR HVY YEL FLOR WITH GOOD YEL FLASHCUTS WITH FR HVY ORNG RINGS

DOL:AS ABV

LS:CRM-TAN-LT BRN BUFF LITHO-F XL-V F-F C XL SME CNS CLN ABUNDT CALCITE AND HDG FR CONSIST O-STNING HVY ODOR IN WETS SFT-M HD V P-P-SME FR INTXL POR DEF FRACS HVY YEL FLOR WITH GOOD FLASH CUTS WITH HVY YEL RINGS

LS:AS ABV

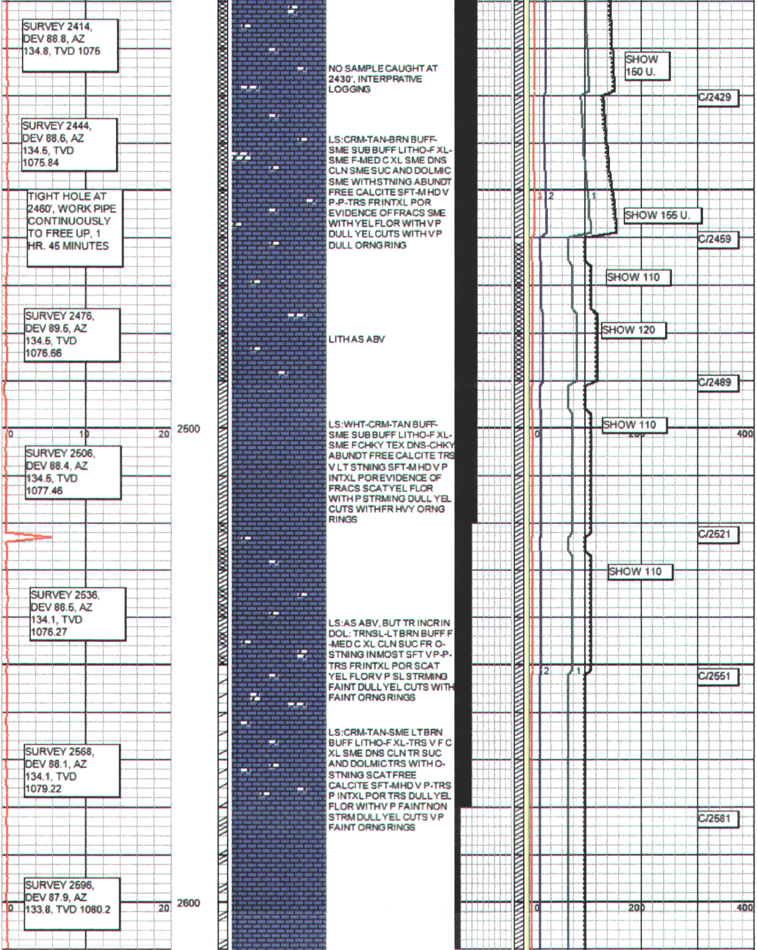
DOL:TAN-BRN BUFF V F-F-MED C XL CLN SUC HVY O-STNING IN MOST ABUNDT FLOATING IN TRAYS HVY ODOR IN WETS SUC SFT FR-TRS GOOD INTXL POR HVY YEL FLOR WITH GOOD YEL FLASH CUTS WITH HVY DULL YEL RINGS

DOL:AS ABV

LS:CRM-TAN-LT BRN BUFF LITHO-F XL-V F C XL SME DNS CLN TRS SUC SME WITH HVY STNING HVY ODOR IN WETS ABUNDT FREE CALCITE SFT-M HD V P-P INTXL POR HVY YEL FLOR WITH GOOD YEL FLASH CUTS WITH HVY BRITE YEL RINGS

NOTE:LITH SAME BUT FLOR AND CUTS FALLS OFF SIGNIFICANTLY, PLUS UNIT SHOWS DISSIPATING

LS:WHT-CRM-TAN BUFF LITHO-F XL-SME V F C XL SME DNS CLN SME SUC ABUNDT FREE CALCITE SFT-M HD V P INTXL POR VIS FRACS SCAT YEL FLOR WITH P SL STRM FAINT PALE YEL CUTS WITH P DULL ORNG RINGS



SURVEY 2414, DEV 88.8, AZ 134.8, TVD 1075

NO SAMPLE CAUGHT AT 2430', INTERPRATIVE LOGGING

SURVEY 2444, DEV 88.6, AZ 134.5, TVD 1075.84

LS:CRM-TAN-BRN BUFF-SME SUB BUFF LITHO-F XL-SME F-MED C XL SME DNS CLN SME SUC AND DOLMIC SME WITHSTNING ABUNDT FREE CALCITE SFT-M HD V P-P-TRS FR INTXL POR EVIDENCE OF FRACS SME WITH YEL FLOR WITH V P DULL YEL CUTS WITH V P DULL ORNG RING

TIGHT HOLE AT 2460', WORK PIPE CONTINUOUSLY TO FREE UP, 1 HR. 45 MINUTES

SURVEY 2476, DEV 89.5, AZ 134.5, TVD 1076.66

LITH AS ABV

LS:WHT-CRM-TAN BUFF-SME SUB BUFF LITHO-F XL-SME F CHKY TEX DNS-CHKY ABUNDT FREE CALCITE TRS V LT STNING SFT-M HD V P INTXL POR EVIDENCE OF FRACS SCAT YEL FLOR WITH P STRMING DULL YEL CUTS WITH FR HVY ORNG RINGS

SURVEY 2506, DEV 88.4, AZ 134.5, TVD 1077.46

SURVEY 2536, DEV 88.5, AZ 134.1, TVD 1076.27

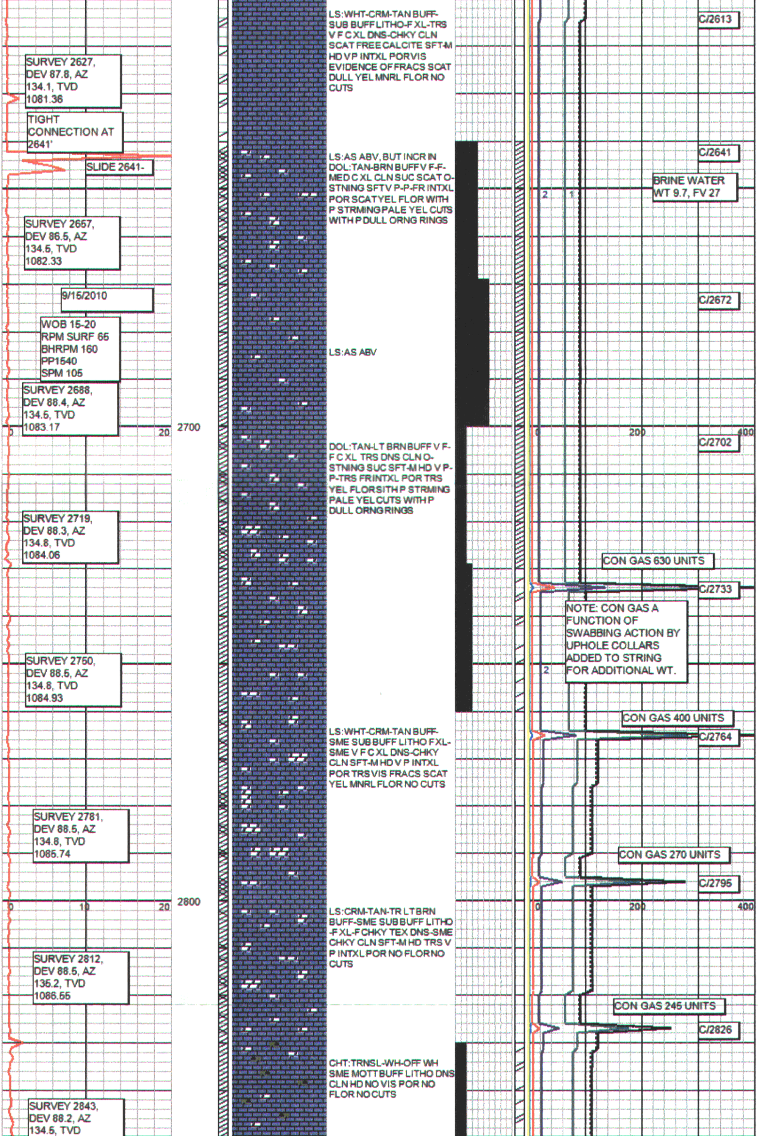
LS:AS ABV, BUT TR INCR IN DOL: TRNSL-LT BRN BUFF F-MED C XL CLN SUC FR O-STNING IN MOST SFT V P-P-TRS FR INTXL POR SCAT YEL FLOR V P SL STRMING FAINT DULL YEL CUTS WITH FAINT ORNG RINGS

LS:CRM-TAN-SME LT BRN BUFF LITHO-F XL-TRS V F C XL SME DNS CLN TR SUC AND DOLMIC TRS WITH O-STNING SCAT FREE CALCITE SFT-MHD V P-TRS P INTXL POR TRS DULL YEL FLOR WITH V P FAINT NON STRM DULL YEL CUTS V P FAINT ORNG RINGS

SURVEY 2568, DEV 88.1, AZ 134.1, TVD 1079.22

SURVEY 2596, DEV 87.9, AZ 133.8, TVD 1080.2

Geosite, Inc / 9/23/2010 11:42:29 AM / Geolog Version: 2.0.0.546 / lab12-GWSD-ECUL5 / scale 5 inch / Depth From:400 / Depth To:2868



SURVEY 2627, DEV 87.8, AZ 134.1, TVD 1081.36

TIGHT CONNECTION AT 2641'

SLIDE 2641-

SURVEY 2657, DEV 86.5, AZ 134.5, TVD 1082.33

9/15/2010

WOB 15-20
RPM SURF 65
BHRPM 160
PP1540
SPM 105

SURVEY 2688, DEV 88.4, AZ 134.5, TVD 1083.17

SURVEY 2719, DEV 88.3, AZ 134.8, TVD 1084.06

SURVEY 2750, DEV 88.5, AZ 134.8, TVD 1084.93

SURVEY 2781, DEV 88.5, AZ 134.8, TVD 1085.74

SURVEY 2812, DEV 88.5, AZ 135.2, TVD 1086.55

SURVEY 2843, DEV 88.2, AZ 134.5, TVD

LS:WHT-CRM-TAN BUFF-SUB BUFF LITHO-F XL-TRS V F C XL DNS-CHKY CLN SCAT FREE CALCITE SFT-M HD V P INTXL PORVIS EVIDENCE OF FRACS SCAT DULL YEL MNRL FLOR NO CUTS

LS:AS ABV, BUT INCR IN DOL:TAN-BRN BUFF V F-F-MED C XL CLN SUC SCAT O-STNING SFT V P-P-FR INTXL POR SCAT YEL FLOR WITH P STRMING PALE YEL CUTS WITH P DULL ORNG RINGS

LS:AS ABV

DOL:TAN-LT BRN BUFF V F-F C XL TRS DNS CLN O-STNING SUC SFT-M HD V P-P-TRS FR INTXL POR TRS YEL FLOR SITH P STRMING PALE YEL CUTS WITH P DULL ORNG RINGS

LS:WHT-CRM-TAN BUFF-SME SUB BUFF LITHO F XL-SME V F C XL DNS-CHKY CLN SFT-M HD V P INTXL POR TRS VIS FRACS SCAT YEL MNRL FLOR NO CUTS

LS:CRM-TAN-TR LT BRN BUFF-SME SUB BUFF LITHO-F XL-F CHKY TEX DNS-SME CHKY CLN SFT-M HD TRS V P INTXL POR NO FLOR NO CUTS

CHT:TRNSL-WH-OFF WH SME MOTT BUFF LITHO DNS CLN HD NO VIS POR NO FLOR NO CUTS

C/2613

C/2641

BRINE WATER WT 9.7, FV 27

C/2672

C/2702

CON GAS 630 UNITS

C/2733

NOTE: CON GAS A FUNCTION OF SWABBING ACTION BY UPHOLE COLLARS ADDED TO STRING FOR ADDITIONAL WT.

CON GAS 400 UNITS

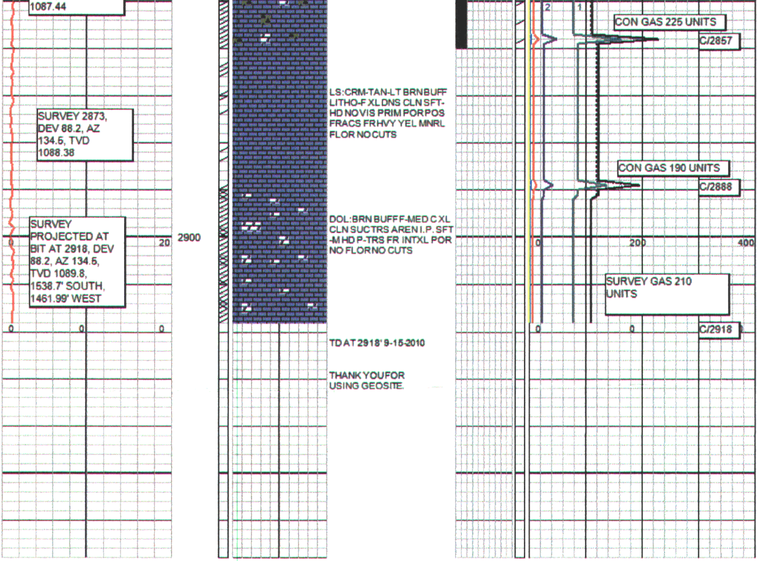
C/2764

CON GAS 270 UNITS

C/2795

CON GAS 245 UNITS

C/2826



LS:CRM-TAN-LT BRNBUFF LITHO-F XL DNS CLN SFT-HD NOVIS PRIM POR POS FRACS FR HVY YEL MNRL FLOR NO CUTS

DOL:BRN BUFF F-MED C XL CLN SUCTRS AREN I.P. SFT-M HD P-TRS FR INTXL POR NO FLOR NO CUTS

TD AT 2918' 9-15-2010

THANK YOU FOR USING GEOSITE.

Drill Rate
Minutes per Foot

GD ■
FR ╳
TR ╱

Por

Lithology

Oil

Cut

Gas Analysis
Hot Wire -------
Total Gas

Methane - C1
Ethane - C2
Propane - C3
Butane - C4
Pentane - C5

Anhydrite	Chert	Dolomite	Lime	Sand	Shale	Siltstone	Hot Shale	Shaley Lime	Cement

WELL NOTES FOR: LACLEDE # T-1