

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Operator Copy

FORM APPROVED
OMB No 1004-0135
Expires: January 31, 2004

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE- Other instructions on reverse side.1. Type of Well
☐ Oil Well ☐ Gas Well ☒ Other

2 Name of Operator Frontier Field Services

3a Address
4200Skelly Dr , St. 700, Tulsa OK 7413N/A53b Phone No. (include area code)
918-384-8408

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

130' FSL, 1813' FEL Sec 2N/A1, T 17 S, R 32 E, NMPM, Lea Co. NM
Acid Gas Injection Well, Unorthodox Location5. Lease Serial No.
LC 029509BB

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No
N/A8. Well Name and No.
Maljamar AGI#19. API Well No
30-025-4042010. Field and Pool, or Exploratory Area
Exploratory (Lower Wolfcamp)11 County or Parish, State
Lea

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other demonstration of no recoverable hydrocarbons
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

The above-referenced AGI well (Maljamar AGI #1 ÖAGI #30-025-40420) was drilled in March-June, 2012 at the approved location pursuant to an approved APD dated 1/3/2012 and NMOCD Order R-13443. The final perforation and completion of the well is scheduled to take place over the next three weeks in September-October 2012. After the well is perforated it will be tested and a sample of the formation fluid in the injection zone will be collected. It is anticipated that injection operations will commence prior to year end.

The summary formation evaluation for the purpose of establishing that the zone is void of recoverable hydrocarbons is included as Attachment A. As per your request, we have also included a copy of the log suite that was run across for the well including the mud log (Attachment B). Based on all of the attached information we are confident you will concur with our assessment that the pore space in the Lower Wolfcamp Formation at this location is wet and completely void of recoverable hydrocarbons.

I hereby certify that the analysis of the NMOCD-approved injection zone within the Lower Wolfcamp in this well contains no recoverable hydrocarbons and that completion into this zone for acid gas injection is appropriate and should be permitted.

Operator to provide an analysis of the formation fluids to the BLM.

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed)

Alberto A Gutierrez, RG

Title Consultant to Frontier Field Services, LLC and AKA Energy

Signature

Digitally signed by Alberto A. Gutierrez
DN: cn=Alberto A. Gutierrez, o=Geolex
Inc., ou=email-asap@geolex.com, c=US
Date: 2012.09.24 10:28:56 -0600

Date

9/24/12

9/24/12

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

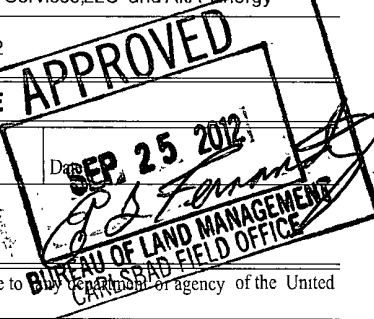
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Title

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)



SEP 26 2012

ATTACHMENT A



EVALUATION OF GEOPHYSICAL LOGS, SIDEWALL CORE AND FORMATION MICROIMAGING RESULTS, AND INJECTION POTENTIALS:

AKA ENERGY GROUP MALJAMAR AGI #1

Sec. 21-Twp. 17S-32E
Lea County, New Mexico

Prepared for
AKA Energy Group
Frontier Field Services, LLC

by
Geolex, Inc.
500 Marquette Avenue NW Suite 1350
Albuquerque, NM 87102

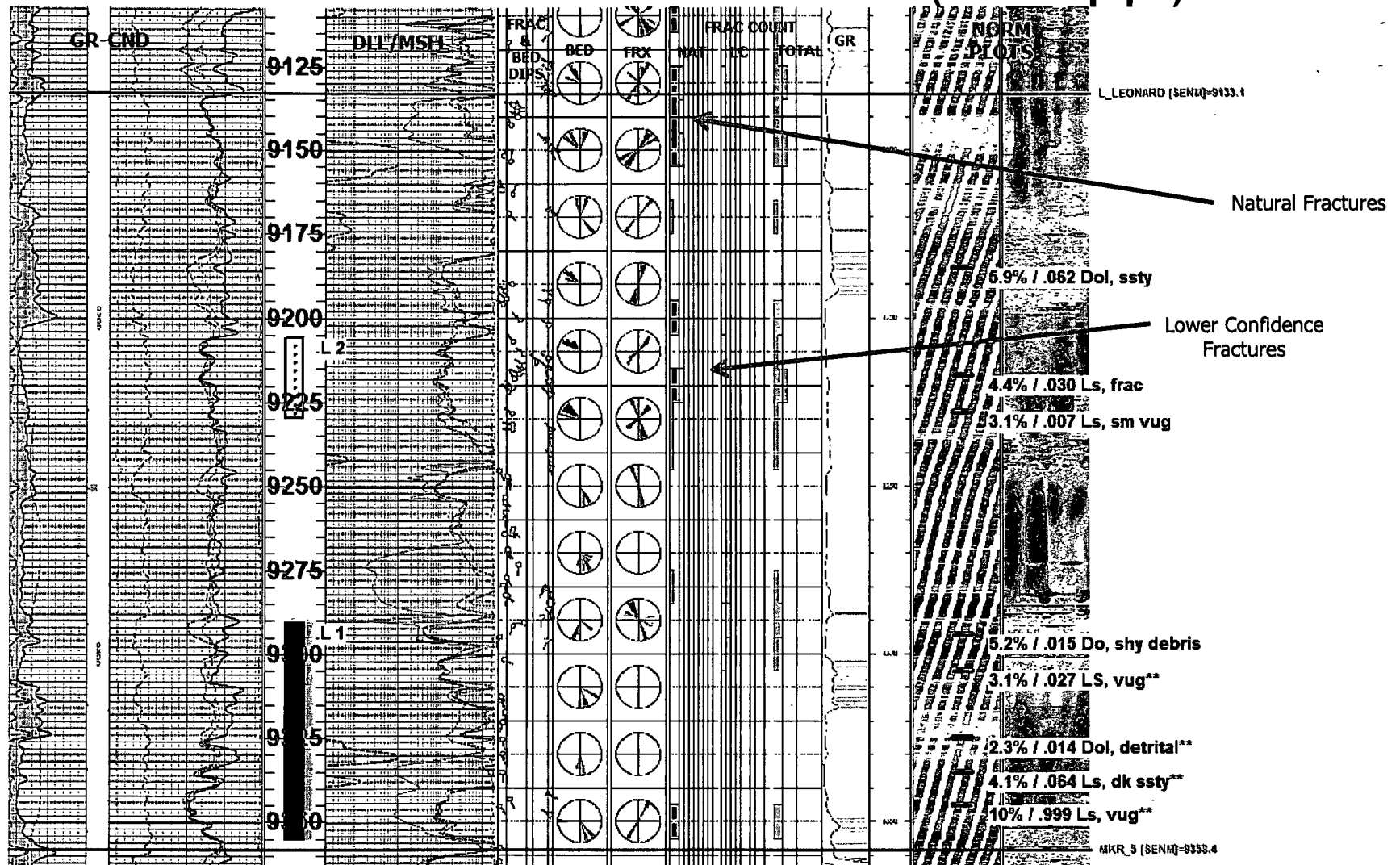
GEOLEX
INCORPORATED

August 8, 2012

SUMMARY OF FACTORS TO CONSIDER IN RESERVOIR AND CAP ROCK EVALUATION

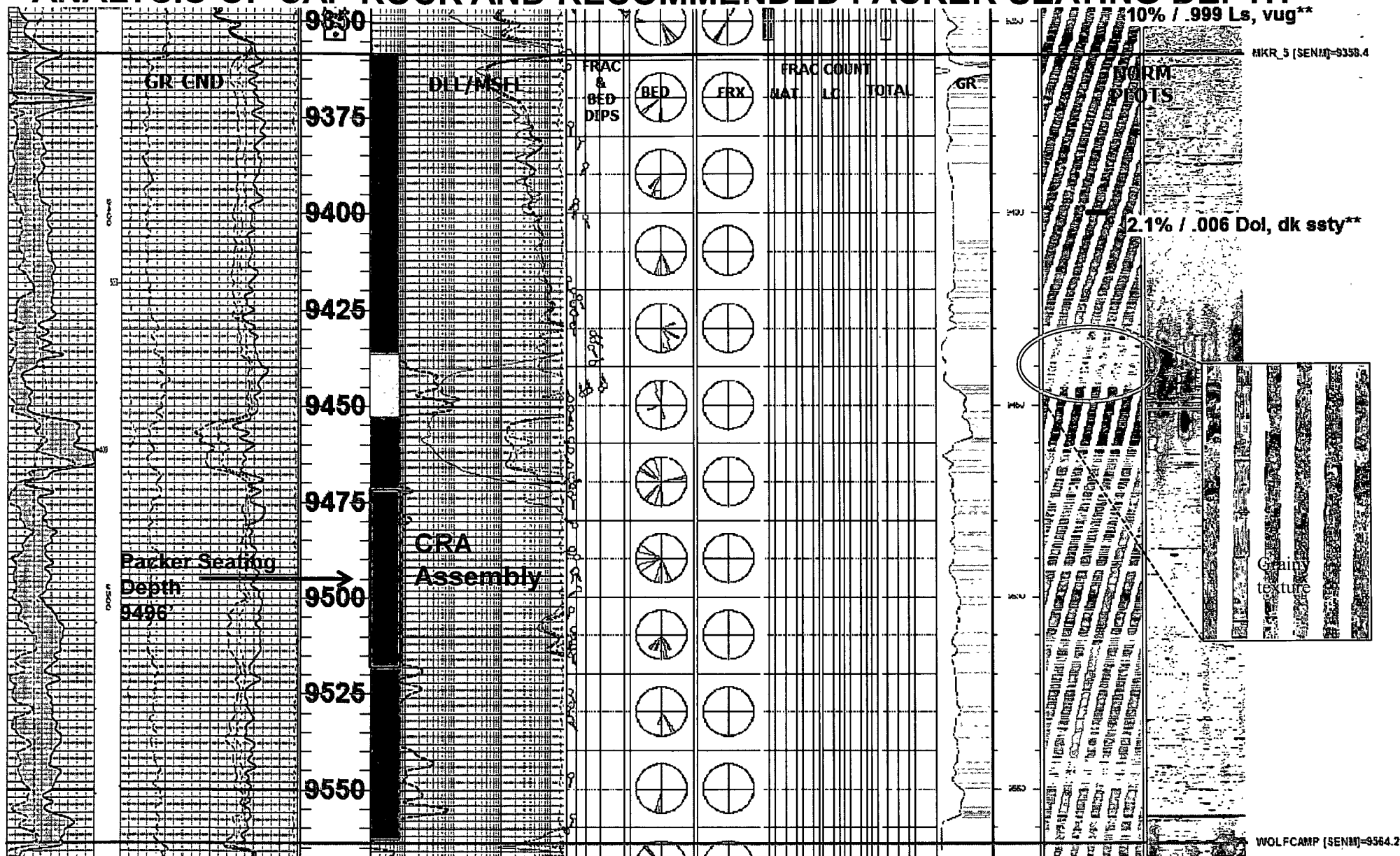
- The successful evaluation of reservoir and cap rock characteristics using sidewall cores requires the careful considerations of the limitations of the samples obtained since each actual sidewall is only representative of 1- 1 ½ inches of the sampled formation. The overall evaluation of the cap rock and reservoir requires the simultaneous consideration of various data types and sources in order to arrive at a reasonable conceptual model of predicted injection performance. These additional data types are evaluated and considered in this analysis and include the complete geophysical log suite for the well including the triple combo, porosity, resistivity and formation microimager (FMI) logs, mudlogs, drilling condition reports and on-site observations. The overall evaluation and recommendations included herein for completion is the result of the analyses and evaluation of these multiple data types.
- The facies that were sampled in the lower Leonard to Wolfcamp are dominated by shelf margin detrital carbonates, which are variously composed of lithoclasts and bioclasts in either a carbonate or, more typically, shaley or silty matrix.
- Because of the nature of the facies being sampled, it is not always certain whether the sidewall core has sampled tighter clasts, the matrix, or a combination of both. Some of these detrital carbonates contain lithoclasts that are larger than the size of the sampled core, and porosity is more commonly found in the interparticle matrix.
- Therefore, porosity-permeability measurements of sidewall cores do not always “see” the true parameters of the rock being sampled, and generally result in pessimistically low porosity and permeability measurements when considered in isolation. For this reason it is equally important to consider the corresponding log signatures and drilling notes and experience. In addition, log-indicated porosity may be influenced by the directional nature of some porosity, like isolated vugs or fractures, and may not always read true on a single logging pass. This is aided by the utilization of the FMI log to evaluate strike and dip and fracture orientation.
- In the following slides, I have indicated which core samples sampled obvious detrital carbonate, based upon the white and blue-light core photographs, direct examination and (to a lesser extent), the lithologic descriptions provided by Weatherford Labs. It is critical to note that this does not rule out the fact that other cores may include detrital carbonate since any particular sidewall core may have simply sampled only the tighter, clastic fraction of the rock, or perhaps, a locally tighter slope facies. The borehole image processed log is also included on each log composite, to identify major fractured zones. Its value in identifying rock textures is possible in most cases by examining the normalized image tracks.

ANALYSES OF LOWER LEONARD FORMATION (behind pipe)



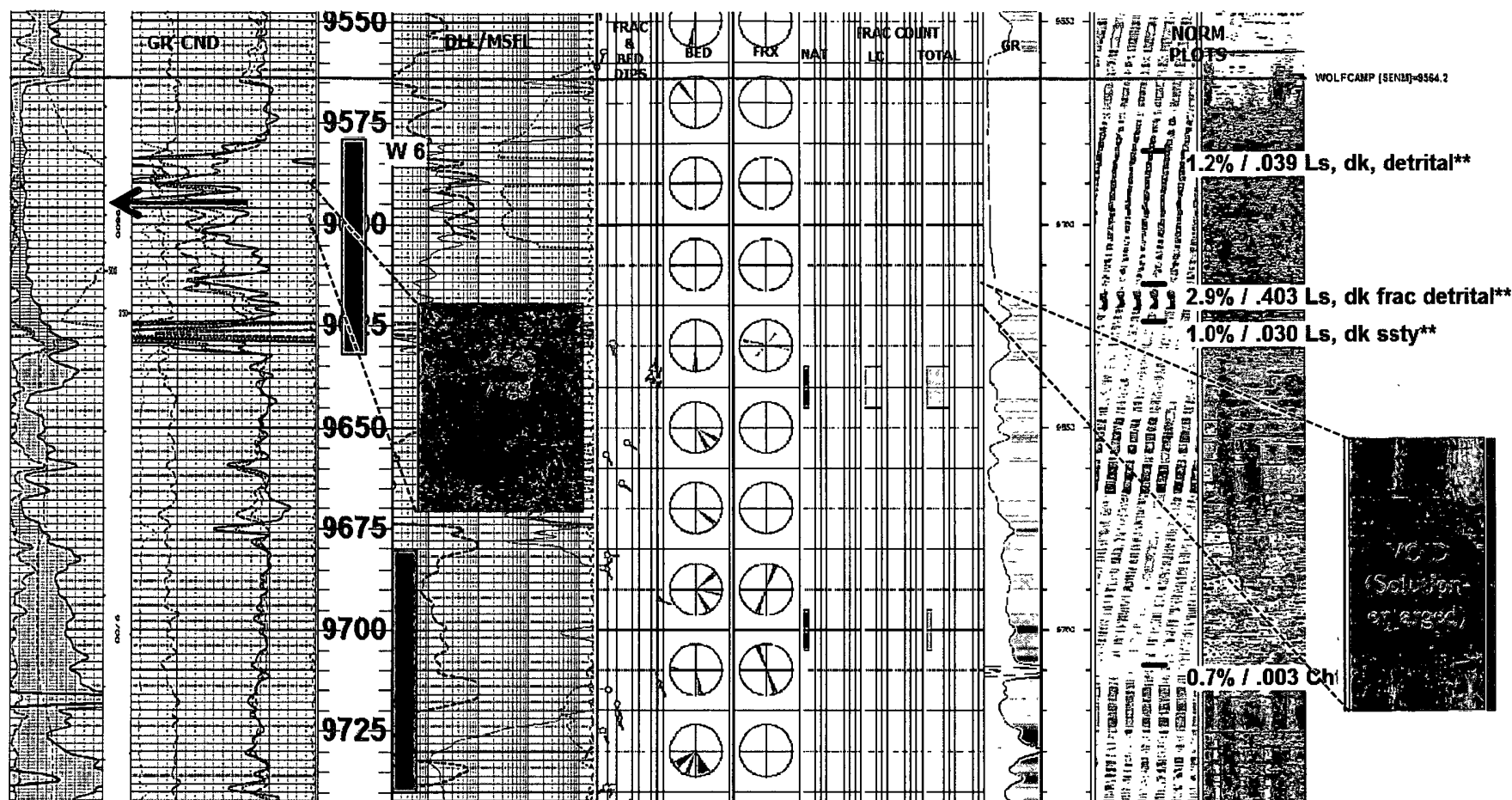
On this and subsequent slides, yellow shading denotes porosity >5% in carbonates; the numbers and notations on the right refer to measured sidewall core porosity / permeability (% and md, respectively) and a brief lithologic description. Core points with double asterisks calculated Sws of greater than 40%, which is generally considered water productive in this area. The solid blue bars denote the preferred injection intervals. The lower part of the lower Leonard section (L1) reads almost consistently wet, with porosity up to 10%. Anything with porosity over 4% should be adequate for injection purposes. Some of the lower porosity rock may be in the clastic fraction of these detrital carbonates. This portion of the section will be behind pipe and not perforated. The CRA joint was set at 9474' and initial injection intervals will be below this level.

ANALYSIS OF CAP ROCK AND RECOMMENDED PACKER SEATING DEPTH



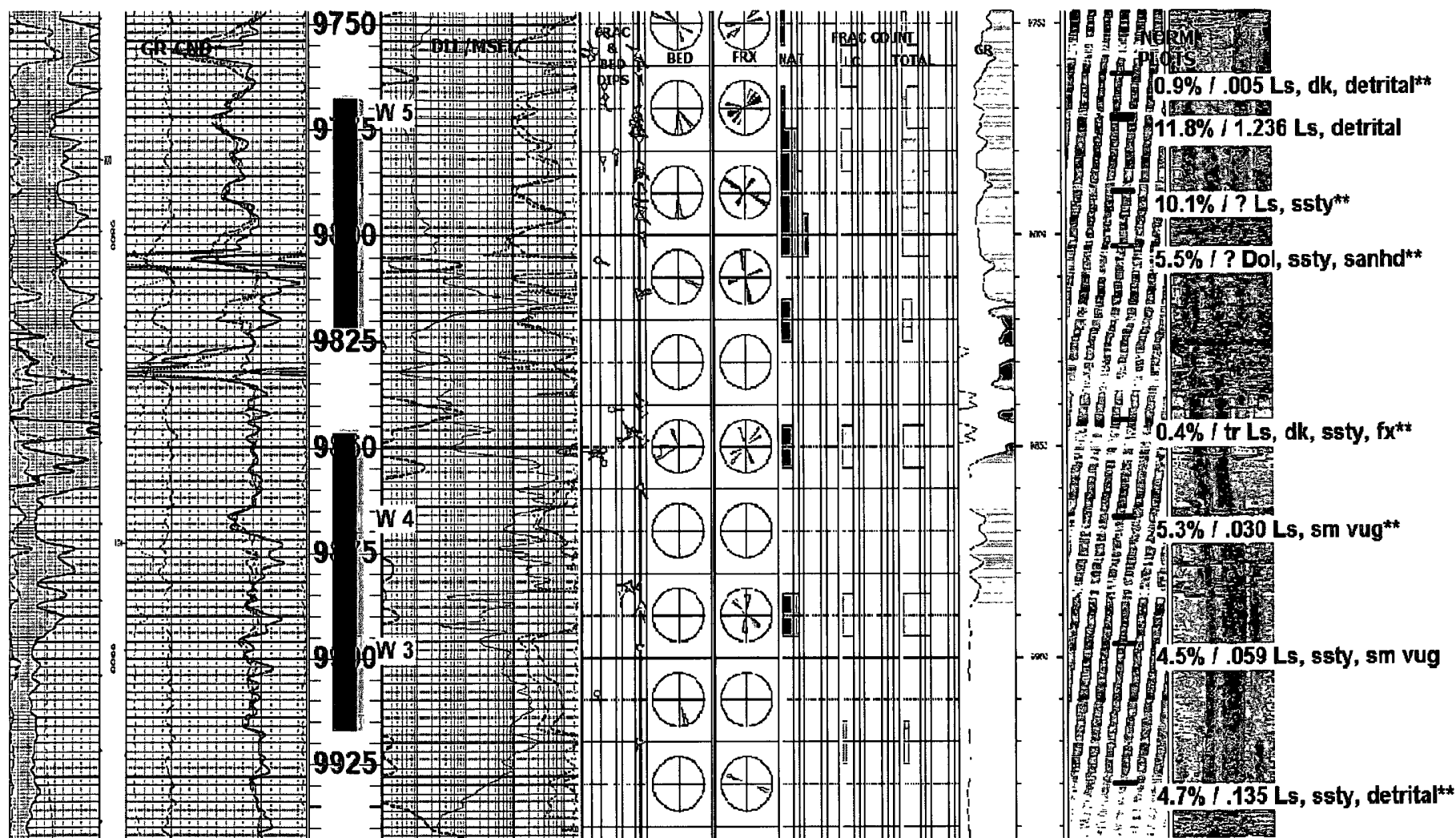
The intervals indicated by the brown bars appear to be dominated by dark, silty and shaley slope facies, with very low to trace permeability. The green bar denotes a tight lime grainstone, which can be seen on the image plot (green circle) This interval will make an excellent caprock for injection zones below which is why CRA assembly was set here and packer will be set at 9496'.

ANALYSIS OF UPPERMOST RECOMMENDED INJECTION ZONE – W 6



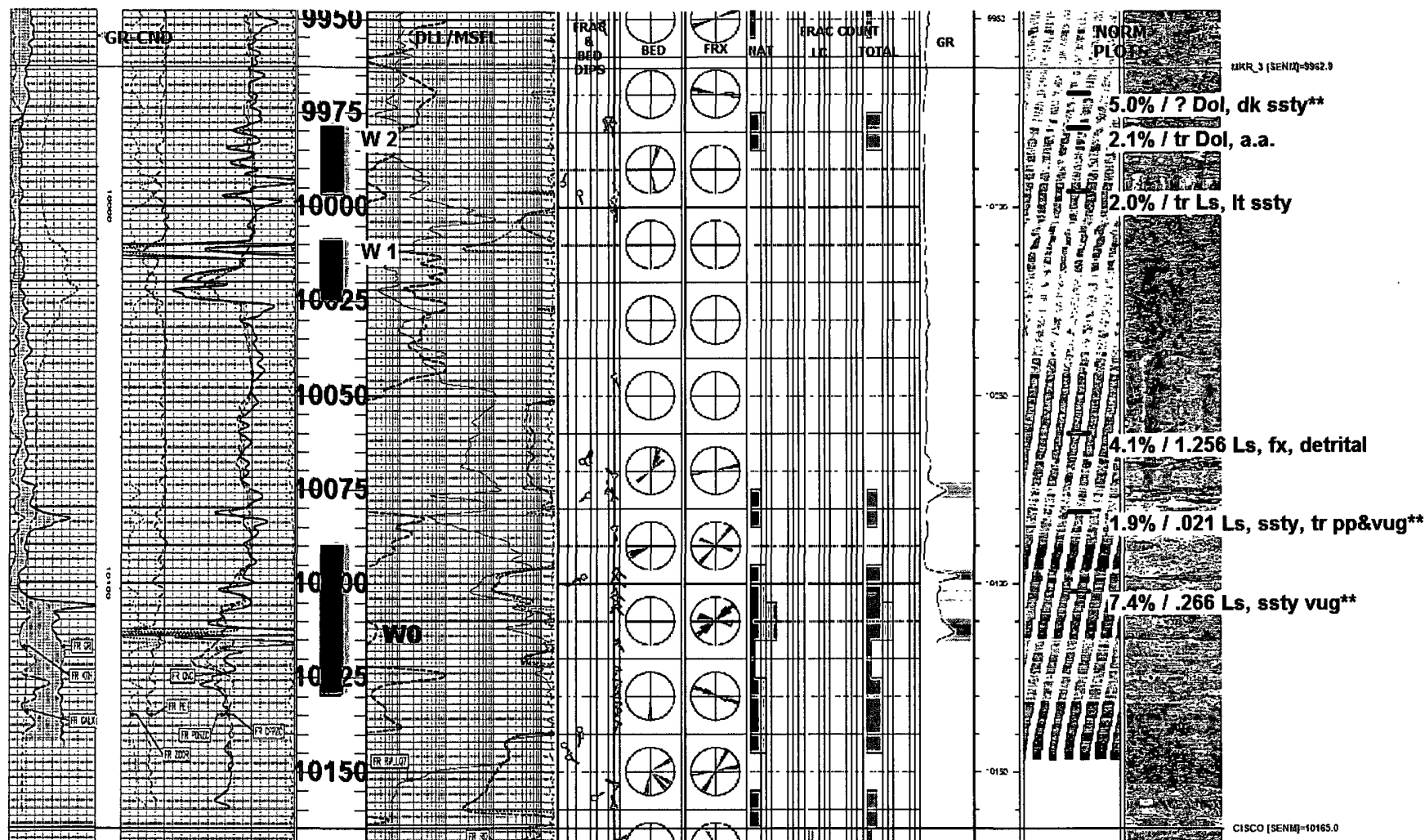
Upper Wolfcamp zone W6 is the uppermost recommended injection zone. This zone was washed out (see caliper log-blue arrow). The FMI image here indicates large voids (black) in the rock which could have caused it to slough. Tracking of the density and neutron curves support that interpretation because a simple washout would not cause the neutron log to go off-scale with the density log. One core sample through this interval recovered fractured (large fracture), detrital carbonate with good permeability. The image log there shows up as a large void, probably a solution-enlarged vug or small sinkhole. All the core samples calculated wet. The cherty zone below (brown bar) represents another caprock interval separating W6 from the underlying Wolfcamp zones.

ANALYSIS OF MIDDLE RECOMMENDED INJECTION ZONES – W 5, W 4 AND W 3.



Despite the apparent thinner-bedded nature of the porosity through these intervals, the core results here gave the best, consistent porosity readings over 4%. The FMI shows pervasive fracturing that ties the porous beds together. Zones W5, W4 and W3 should all be perforated by shooting across the entire intervals indicated in blue.

ANALYSIS OF LOWERMOST RECOMMENDED INJECTION ZONES – W 2, W 1, AND W 0



Similarly, these lower Wolfcamp zones should be perforated across the three intervals with the blue bars. The lowest recommended perforation interval (W0) has been added on the basis of the density of fracturing, and primary porosities in core up to 7.4%. The fractures would serve to effectively inter-connect porosity across the interval.

SUMMARY OF RECOMMENDED PERFORATIONS

9579'-9632'	Upper Wolfcamp (W 6); good caprock
9768'-9821'	Middle Wolfcamp (W 5); good fracturing
9850'-9917'	Middle Wolfcamp (W 3, W 4); some fracturing
9979'-9997'	Middle Wolfcamp (W 2); some fracturing
10009'-10025'	Lower Wolfcamp (W 1); good primary porosity
10090'-10130'	Lowest Wolfcamp; (W 0); heavily fractured

All zones perforated 4spf at 90°

CONCLUSIONS AND RECOMMENDATIONS

- Sidewall core results are expectedly mixed, but indicate that the predominant facies types over the intervals of interest are detrital carbonates with locally high matrix porosity and permeability and significant fracture porosity and permeability.
- Core measurements, compared with log-indicated porosity and permeability and FMI-measured fractures, indicate the following perforating and testing priority for the various units of the Wolfcamp. The lower Leonard will be left behind pipe as a potential injection zone if needed in the future:
 1. The W3 through W5 intervals are the best overall, potential injection zones, and are capped by at least 75-85 feet of tight, shaley and cherty facies.
 2. The lower Wolfcamp section, which includes zones W1 and W2 and W 0, could be added to the first intervals, and collectively perforated and tested.
 3. Zone W6 is probably a sequence of solution-enlarged porosity, and should be perforated and used even if the first lower Wolfcamp zones test adequately for injection purposes in order to comply with OCD's requirement that the uppermost perforations be no more than 100' below the packer. It is capped by a suitably thick section of tight, shaley and silty carbonates.

END OF ATTACHMENT A

ATTACHMENT B MUDLOG 9000'-TD



Scale: 5" / 100'
Measured Depth Log

Well Name MALJAMAR AGI #1A

Location 130' FSL & 1813' FEL, SEC 21, T17S, R32E

State NM

County LEA

Country USA

Rig UNITED DRILLING #41

API Number 30-025-40420

Field WILDCAT

Drilling Completed 06/09/2012

Ground Elevation 4016'

K.B. Elevation 4031'

Logged Interval 5461'

To 10183'

Total Depth 10183'

Operator

Company PB ENERGY

Geologist

Name TOM SHARP

Company GEOLEX

Other

LOGGER - DJ JONES

JOB #805

Dates Logged:
04/28/12 - 06/09/12

Rock Types

UNKNOWN	ANHYDRITE	DOLOMITE	SHALE GRAY	TILL
GYPSUM	COAL	CHERT	SHALE COLORED	BENTONITE
SALT	MARLSTONE	CLAYSTONE	SILTSTONE	TUFF
SIDERITE or LIMONITE	SHALE	CONGLOMERATE	SANDSTONE	IGNEOUS
LIMESTONE		BRECCIA		METAMORPHIC

Accessories

Fossils

ALGAE
 AMPHIPORA
 BELEMNITE
 BIOCLASTIC
 BRACHIOIPOD
 BRYOZOA
 CEPHALOPOD
 CORAL
 CRINOID
 ECHINOID

FISH

FORAMINIFERA

F FOSSIL

GASTROPOD

OOLITE
 OSTRACOD
 PELECYPOD
 PELLET
 PISOLITE
 PLANT REMAINS
 PLANT SPORES
 SCAPHOPOD
 STROMATOPOROID

Minerals

ANHYDRITIC

ARGILLACEOUS

ARGILLITE GRAIN

BENTONITE
 BITUMENOUS SUBSTANCE
 BRECCIA FRAGMENTS
 CALCAREOUS
 CARBONACEOUS FLAKES
 CHTDK
 CHTLT
 COAL - THIN BEDS
 DOLOMITIC
 FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL
 KAOLIN
 MARLSTONE
 MINERAL CRYSTALS
 NODULES
 PHOSPHATE PELLETS
 PYRITE
 SALT CAST
 SANDY
 SILICEOUS

SILTY

TUFFACEOUS

Stringer

ANHYDRITE STRINGER
 BENTONITE STRINGER
 COAL STRINGER
 DOLOMITE STRINGER
 GYPSUM STRINGER
 LIMESTONE STRINGER
 MARLSTONE (CALC) STRG
 MARLSTONE (DOL) STRG
 SANDSTONE STRINGER
 SHALE STRINGER
 SILTSTONE STRINGER

Other Symbols

Oil Show

DEAD

EVEN

QUESTIONABLE

SPOTTED STAINING

Porosity

E EARTHY

FENESTRAL

F FRACTURE

X INTERCRYSTALLINE

ϕ INTEROOLITIC

MOLDIC

ORGANIC

P PINPOINT

V VUGGY

Engineering

BIT

CONNECTION (LEFT)

CONNECTION (RIGHT)

CONNECTION GAS

CORE - LOST

CORE - RECOVERED

DST INTERVAL

FAULT

FORMATION TOP

GAS SHOW

MINDEPTH MN DEPTH

NORMAL FAULT

OIL SHOW

OVERTURNED STRATA

REVERSE FAULT

SIDEWALL CORE (LEFT)

SIDEWALL CORE (RIGHT)

SLIDE

SURVEY

TRIP GAS

WIRELINE TESTED - LEFT

WIRELINE TESTED - RT

Rounding

A ANGULAR

R ROUNDED

SUBANG

SUBRND

Textures

BS BOUNDSTONE

C CHALKY

CX CRYPTOXLN

E EARTHY

FX FINELYXLN

GS GRAINSTONE

L LITHOGRAPHIC

MX MICROXLN

MS MUDSTONE

PS PACKSTONE

WS WACKESTONE

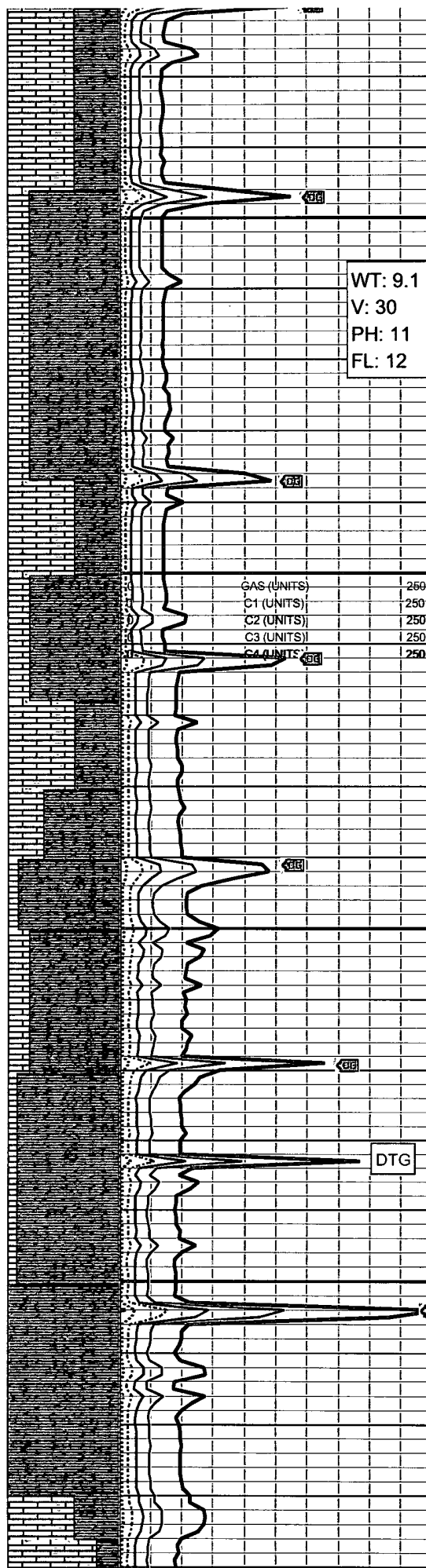
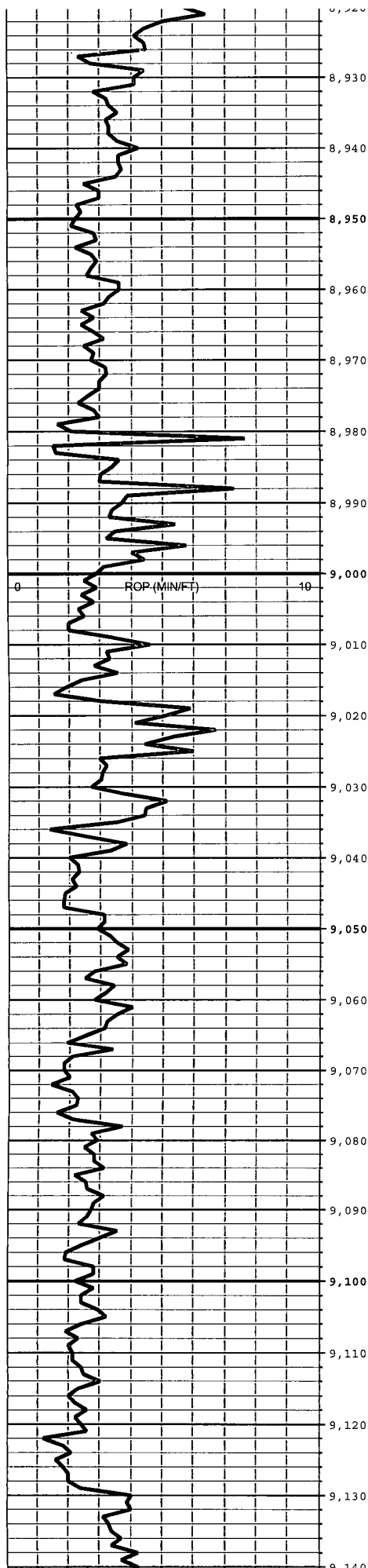
Sorting

M MODERATE

P POOR

W WELL

[illegible]



TN LTBN VFX DNS
DOL'C IP

DOL OFFWH LTTN TN
LTBN BN FX TR INT-X
POR AREN SUC DNS IP
LMY IP FR YEL/GN FLU
NO WET CUT SL TR
DRY CUT

DOL OFFWH BUFF
LTTN TN LTBN VF FX
AREN SL SUC DNS IP
TR FRACS LMY IP

LS OFFWH TN LTBN
VFX DNS DOL'C

DOL WH OFFWH BUFF
LTTN TN VF FX AREN
DNS IP SL SUC LMY IP
FR WH/YEL FLU NO
WET CUT

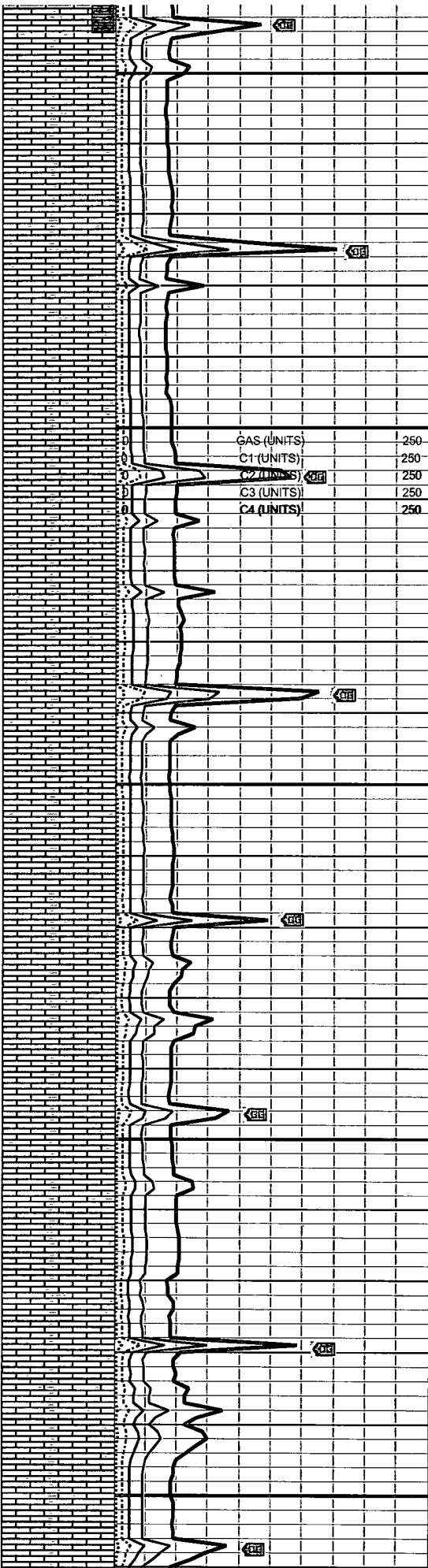
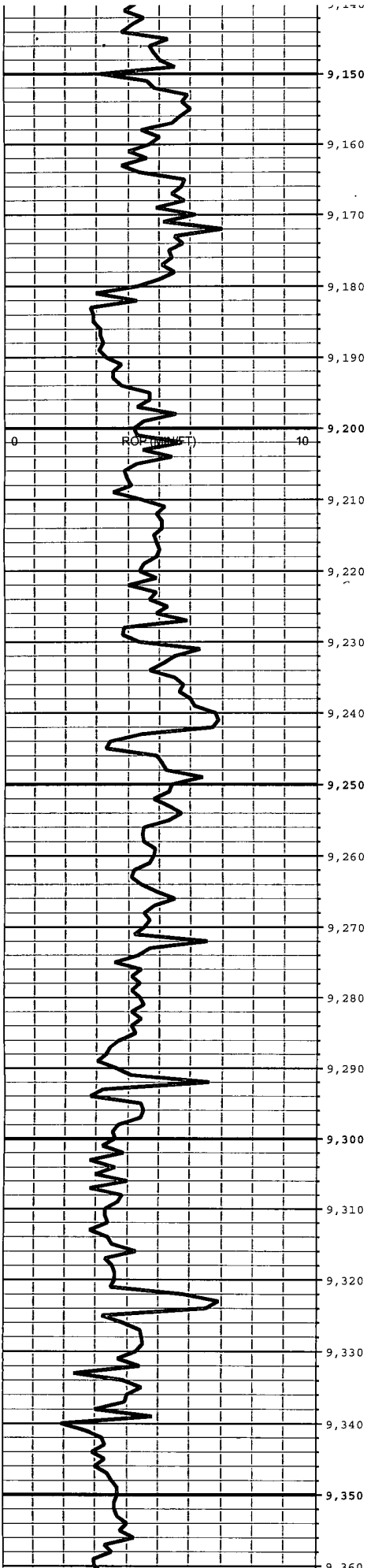
LS OFFWH LTGY TN
LTBN VF FX DNS DOL'C
GRDS TO LMY DOL

DOL WH OFFWH BUFF
FX TR INT-X POR AREN
IP DNS IP SL SUC FR
WH/YEL FLU NO WET
CUT

DOL OFFWH BUFF
LTTN LTBN IP F-MX
RHOMBS FR INT-X POR
AREN FR GN FLU NO
WET CUT SL TR DRY
CUT

DOL OFFWH BUFF
LTTN LTBN IP F-MX TR
INT-X POR AREN DNS
IP LMY IP TR TO FR YEL
FLU NO WET CUT TR
MURKY DRY CUT

LS WH OFFWH LTTN
TN LTBN FX DNS SDY
IP DOL'C



LS WH OFFFWH TN BN
DKBN MOTT VF FX DNS
ARG IP TR FOSS

LS WH OFFFWH MOTT
LTGY VFX CHKY

LS OFFFWH CRM LTTN
LTGY FX DNS IP CHKY
IP FOSS

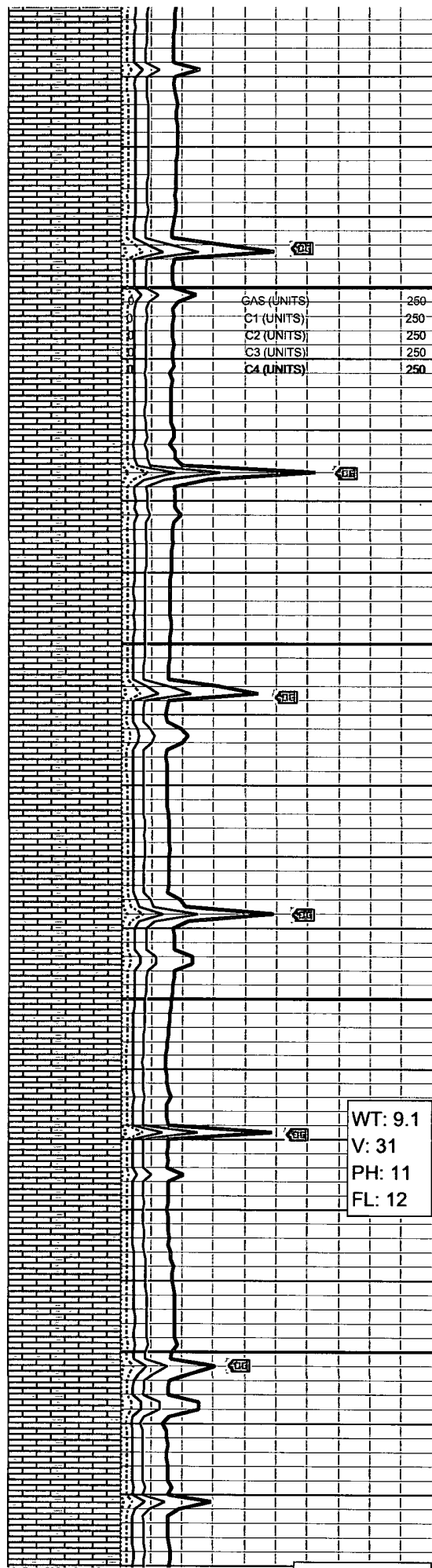
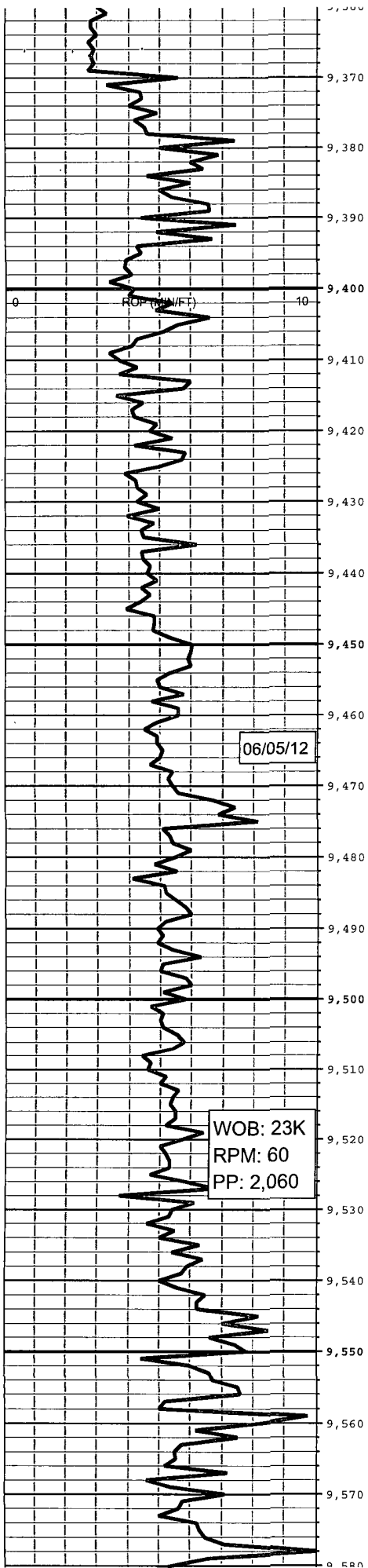
LS BN DKBN VF FX DNS
SL SUC

LS WH OFFFWH MOTT
LTGY BN DKBN FX DNS
SL SUC CHKY IP

LS OFFFWH LTTN TN BN
DKBN VF-MX DNS SL
SUC CHKY IP ARG IP

LS WH OFFFWH LTTN
GYBN BN DKBN VF FX
DNS IP CHKY IP

LS WH OFFFWH LTTN
VFX CHKY DNS IP FOSS



LS OFFWH TN LTBN BN
DKBN VF FX DNS SL
SUC

LS OFFWH TN LTBN BN
DKBN VF FX DNS SL
SUC IP DOL'C IP

LS INCR IN GY DKG
GYBN VF FX DNS

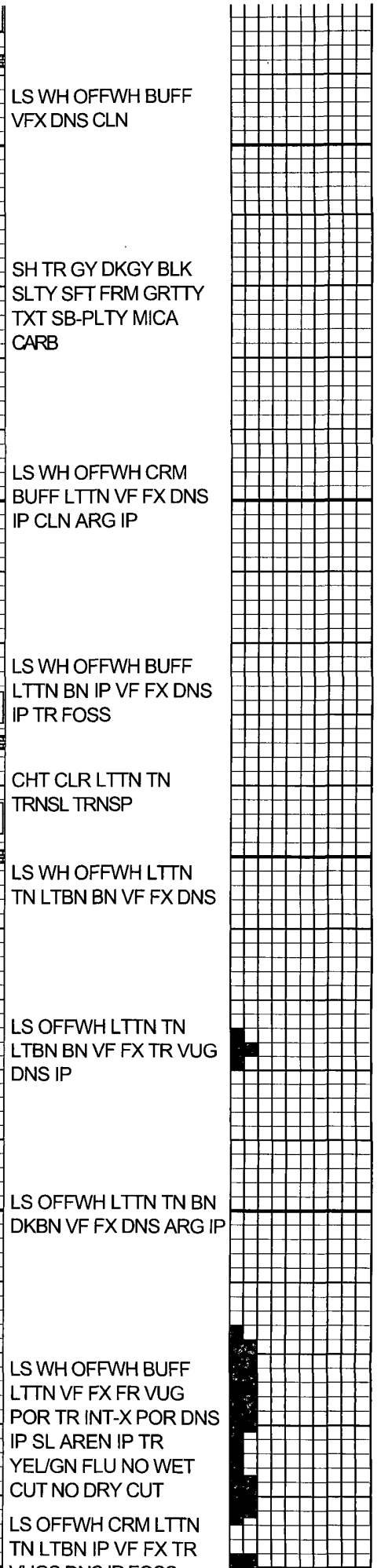
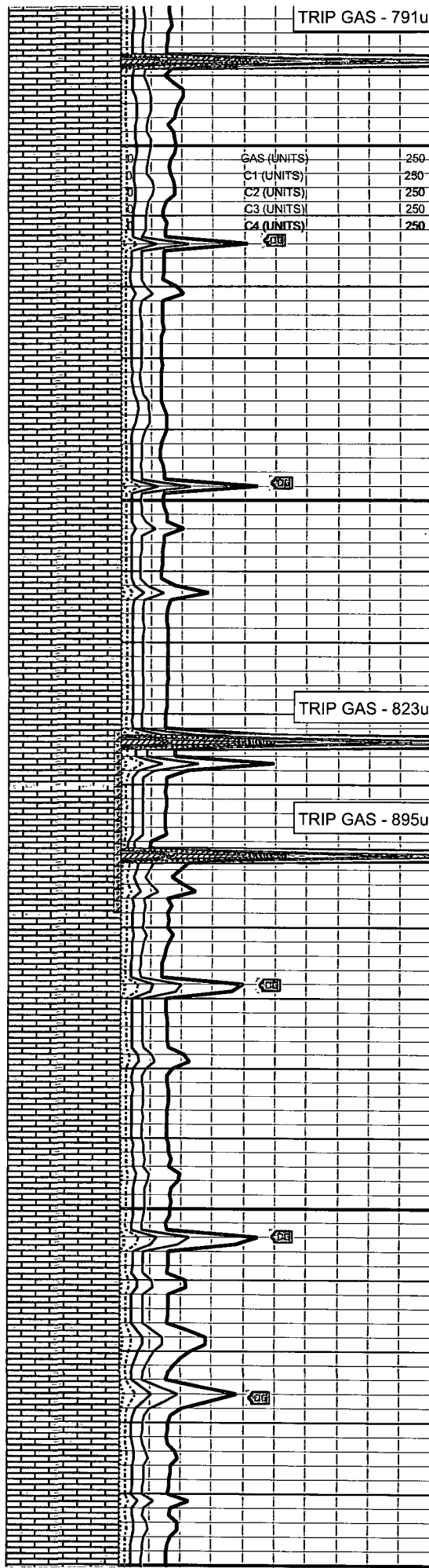
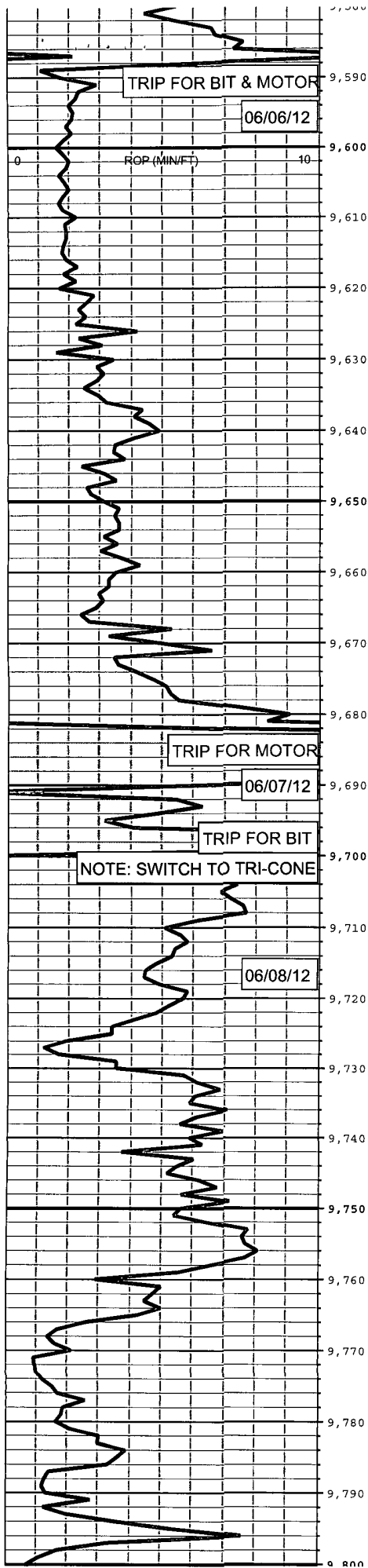
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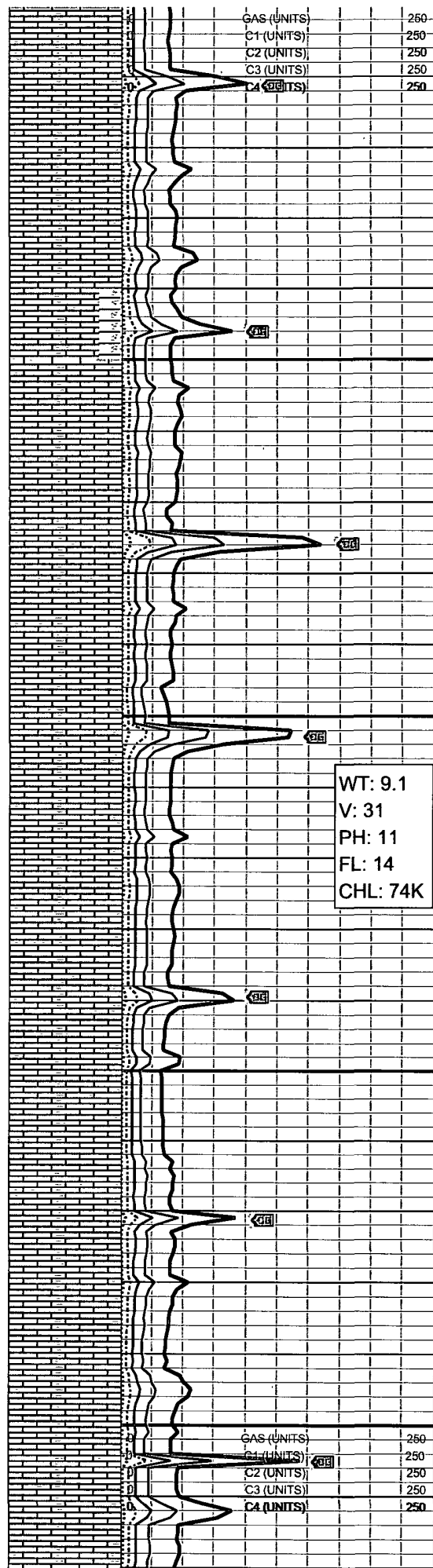
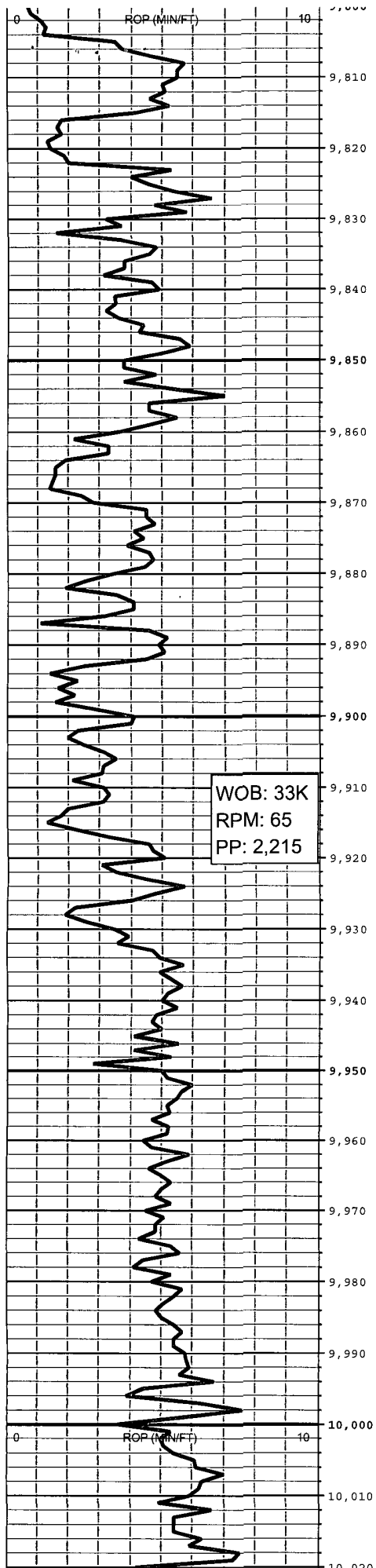
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GY GYBN VF FX DNS SIL
IP

LS OFFWH MOTT GY
DKGY DKBN VFX V/ DNS

LS OFFWH LTGY GY
DKGY BN DKBN VFX V/
DNS

LS WH OFFWH BUFF
LTTN VFX DNS CLN





VUGS DNS IP FOSS

LS OFFWH CRM LTTN
TN LTBN VF FX TR
VUGS DNS IP TR FOSS
TR GN FLU NO CUTS

LS WH OFFWH TN
LTBN BN VF FX DNS IP
FOSS

SH BLK DKG Y SL SLTY
FRM BLKY SB-PLTY
MICA CARB

LS WH OFFWH LTTN
VFX DNS IP TR VUG
CLN TR FOSS TR GN
FLU NO CUTS

LS WH OFFWH LTTN VF
FX TR VUG CLN DNS IP

LS WH OFFWH LTTN
TN VF FX TR VUG CLN
DNS IP TR FOSS TR
DULL YEL/GN FLU NO
CUTS

LS WH OFFWH BUFF
LTTN LTBN IP VF FX
DNS IP CHKY IP CLN

LS WH OFFWH BUFF
LTTN VF FX DNS IP CLN
NO FLU

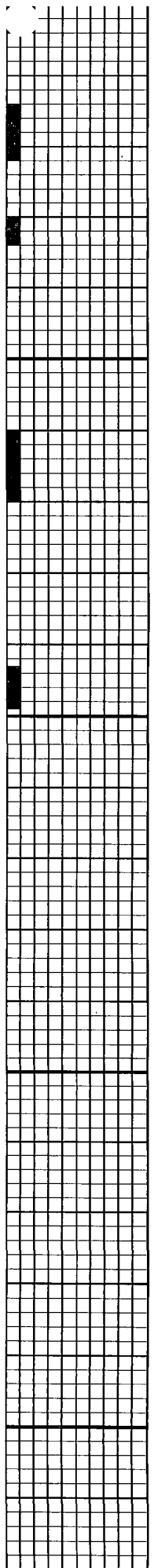
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CLN TR FOSS NO FLU

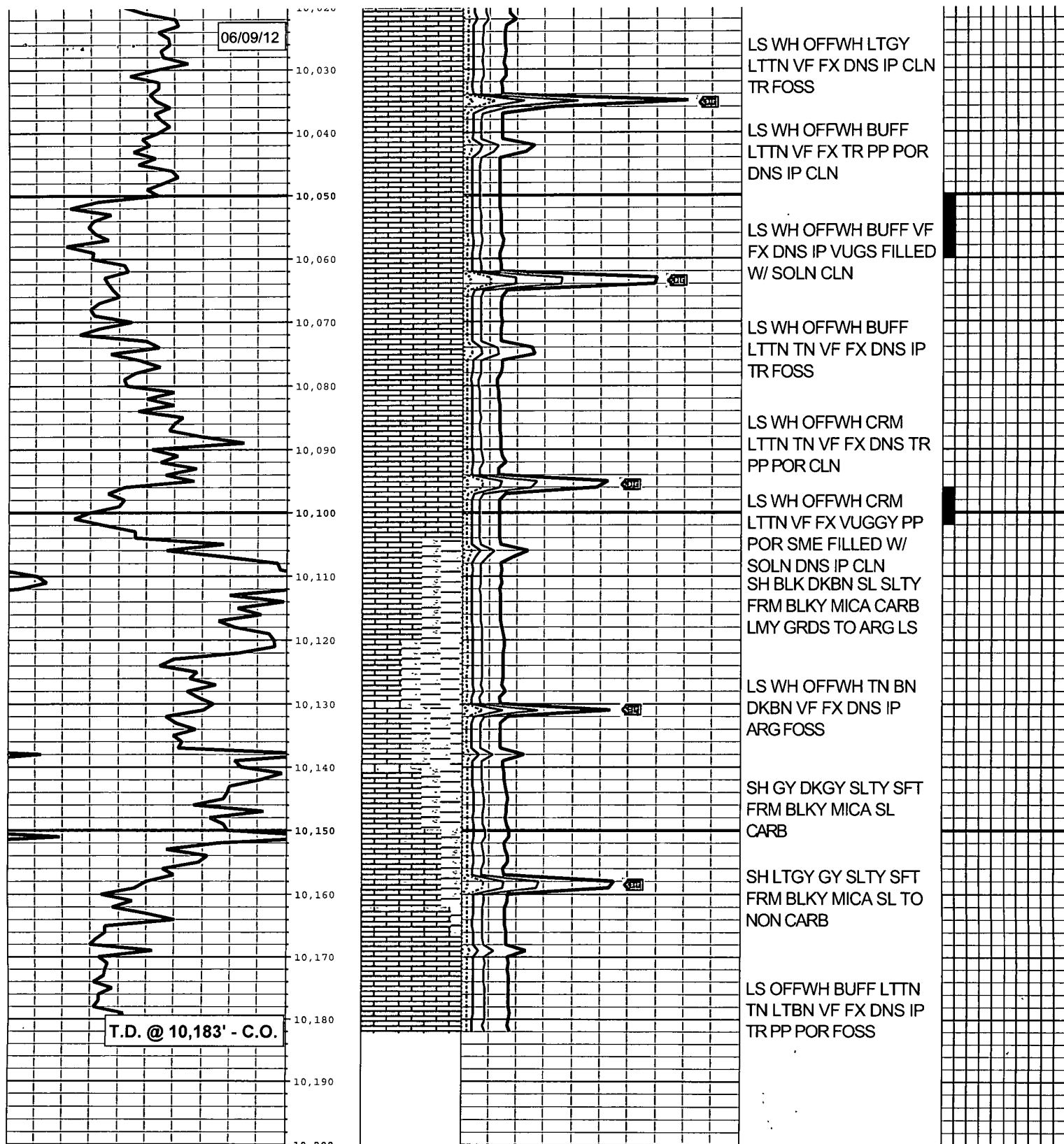
LS WH OFFWH BUFF
LTTN VF FX TR VUG
DNS IP CLN TR FOSS
TR GN FLU NO CUTS

LS WH OFFWH BUFF
LTGY VF FX TR PP POR
DNS IP CLN TR FOSS

LS WH OFFWH VF FX
DNS IP CLN

LS WH OFFWH CRM
BUFF LTGY VF FX TR
VUG DNS IP CLN





END OF ATTACHMENT B MUDLOG 9000'-TD