

**APPENDIX D**

**Demonstration of No Reasonable Hydrocarbons,  
Maljamar AGI #1 (September 25, 2012)**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Operator Copy

FORM APPROVED  
OM B 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/A5      3b. Phone No. (include area code): 818-384-8408

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 Location

5. Lease Serial No.: LC 029509BB

6. If Indian, Allottee or Tribe Name: \_\_\_\_\_

7. If Unit or CA/Agreement, Name and/or No: N/A

8. Well Name and No: Maljamar AGI#1

9. API Well No: 30-025-40420

10. 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 recomplete 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.)

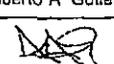
The above-referenced AGI well (Maljamar AGI #1 OAGI # 30-025-40420) was drilled in March-June, 2012 at the approved location pursuant to an approved APD dated 1/3/2012 and NMOC Order R-13443. The final perforation and completion of the well is scheduled to take place over the next three weeks in September-October 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 NMOC 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.**

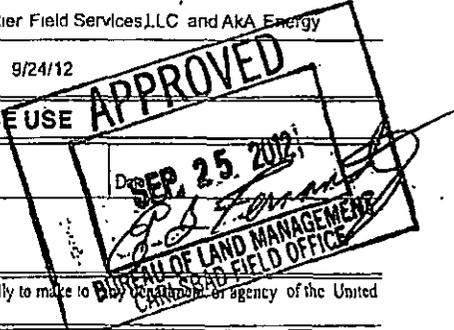
14. I hereby certify that the foregoing is true and correct  
 Name (Printed/Typed): Alberto A. Gutierrez, RG  
 Title: Consultant to Frontier Field Services, LLC and AKA Energy

Signature:  Date: 9/24/12      9/24/12

Digitally signed by Alberto A. Gutierrez  
 DN: cn=Alberto A. Gutierrez, o=Company  
 Date: 2012.09.24 10:29:46 -0500

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by: \_\_\_\_\_ Title: \_\_\_\_\_  
 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. 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)

# 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

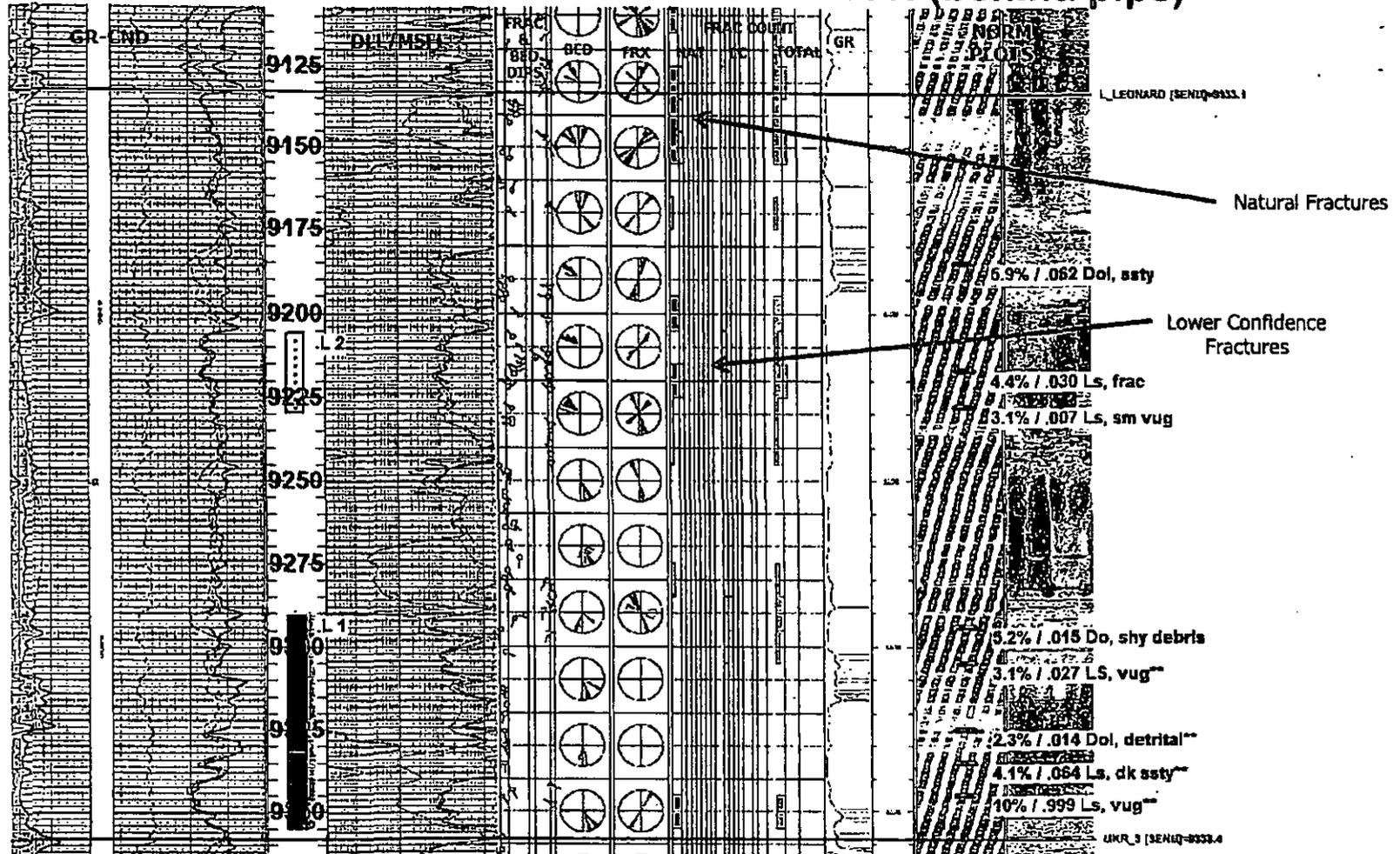
August 8, 2012

**GEOLEX**  
INCORPORATED

## SUMMARY OF FACTORS TO CONSIDER IN RESERVOIR AND CAP ROCK EVALUATION

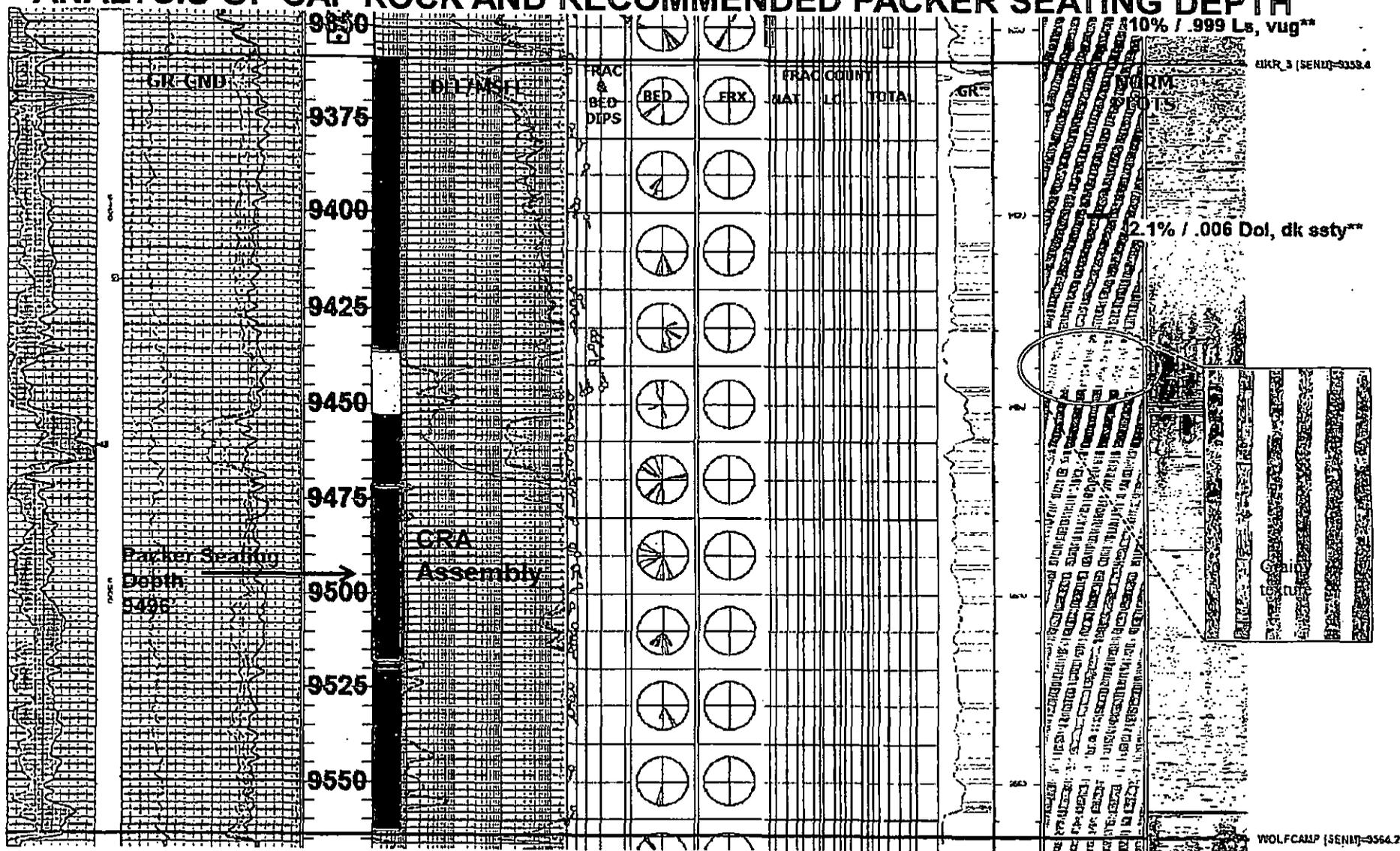
- The successful evaluation of reservoir and cap rock characteristics using sidewall cores requires the careful considerations of the limitations of the samples obtained since each actual sidewall is only representative of 1- 1 ½ inches of the sampled formation. The overall evaluation of the cap rock 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 S<sub>w</sub>s 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.

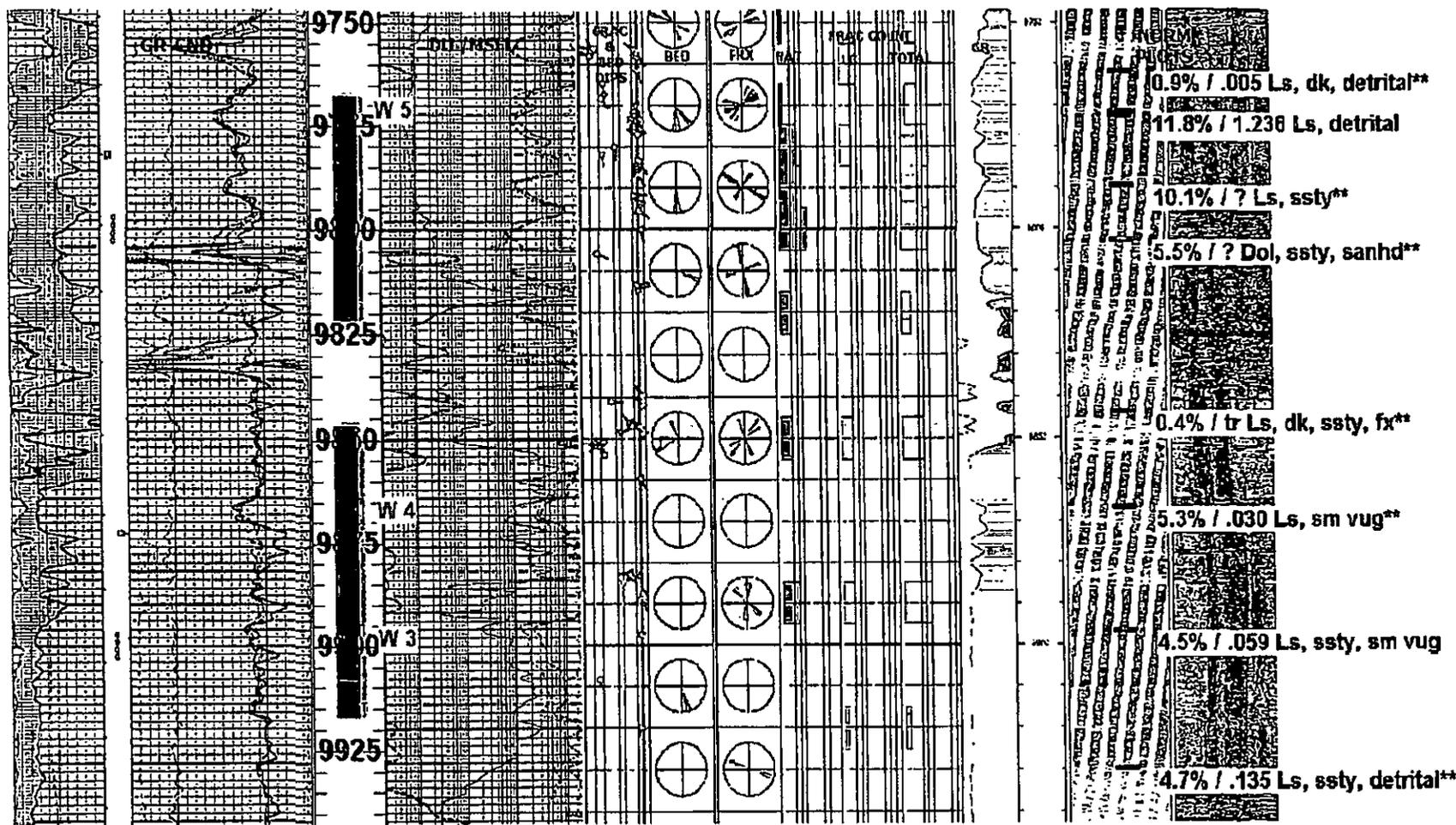
# ANALYSIS OF CAP ROCK AND RECOMMENDED PACKER SEATING DEPTH



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'.

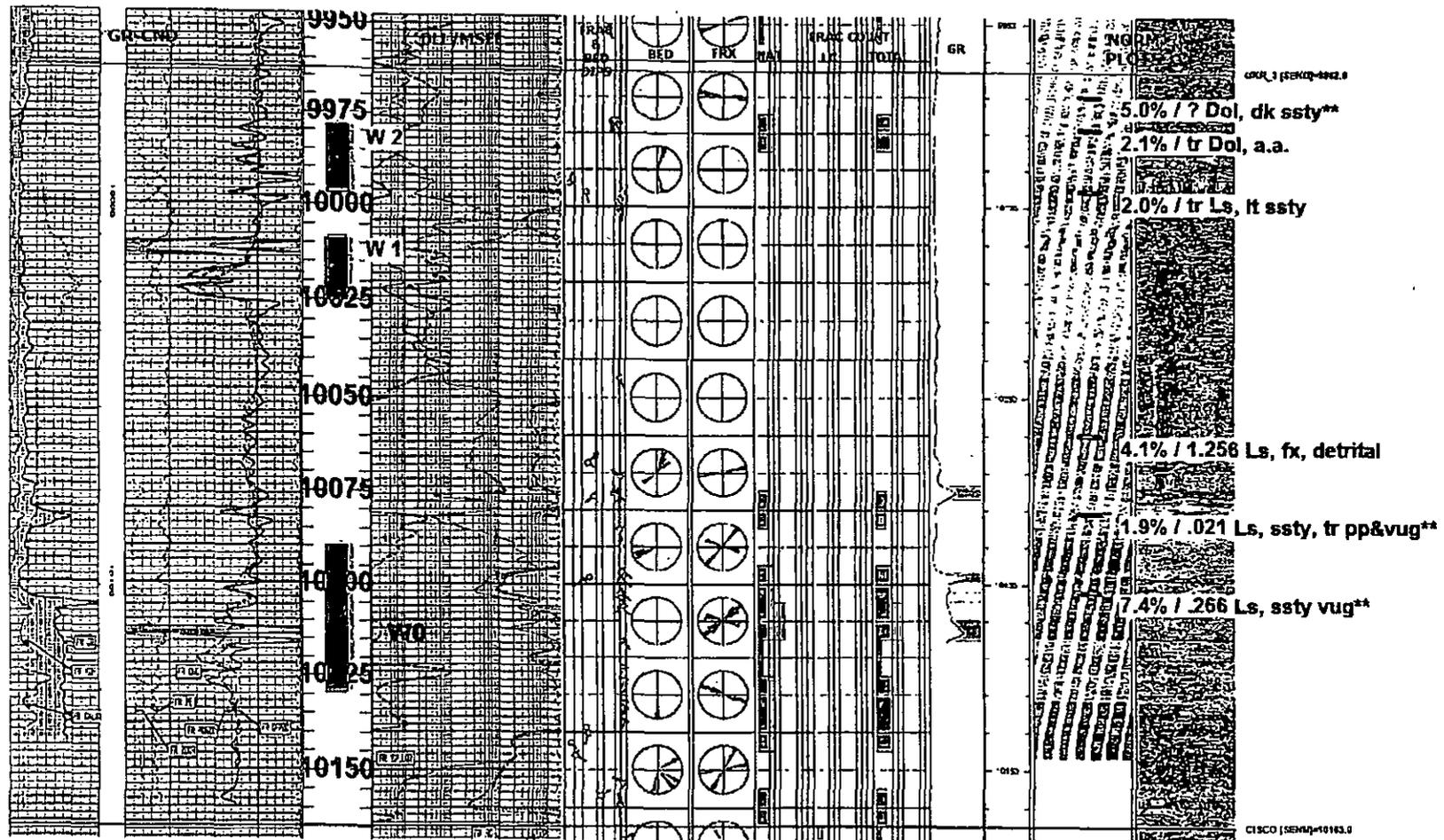


# ANALYSIS OF MIDDLE RECOMMENDED INJECTION ZONES – W 5, W 4 AND W 3



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

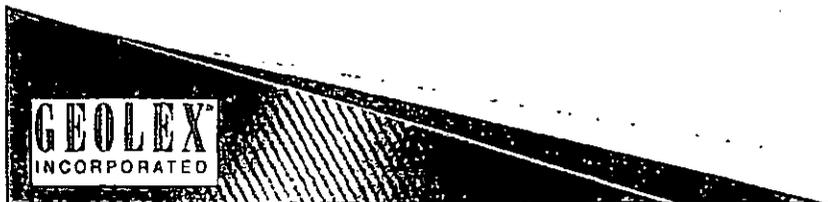


Similarly, these lower Wolfcamp zones should be perforated across the three intervals with the blue bars. The lowest recommended perforation interval (W0) has been added on the basis of the density of fracturing, and primary porosities in core up to 7.4%. The fractures would serve to effectively inter-connect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

djones@mfsinc-us.com  
(361)728-4874

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

## Rock Types

<ul style="list-style-type: none"> <li>UNKNOWN</li> <li>ANHYDRITE</li> <li>GYPSUM</li> <li>SALT</li> <li>SIDERITE or LIMONITE</li> <li>LIMESTONE</li> </ul>	<ul style="list-style-type: none"> <li>DOLOMITE</li> <li>CHERT</li> <li>COAL</li> <li>MARLSTONE</li> <li>CLAYSTONE</li> <li>SHALE</li> </ul>	<ul style="list-style-type: none"> <li>SHALE GRAY</li> <li>SHALE COLORED</li> <li>SILTSTONE</li> <li>SANDSTONE</li> <li>CONGLOMERATE</li> <li>BRECCIA</li> </ul>	<ul style="list-style-type: none"> <li>TILL</li> <li>BENTONITE</li> <li>TUFF</li> <li>IGNEOUS</li> <li>METAMORPHIC</li> </ul>
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## Accessories

### Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

### F FOSSIL

- GASTROPOD
- ODLITE
- 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
- FELSOPAR

### ● FERRUGINOUS PELLET

- FERRUGINOUS

### ∨ GLAUCONITE

- GYPSIFEROUS
- HEAVY MINERAL
- KADLIN
- 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
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC

### ∩ MOLDIC

- ORGANIC
- PINPOINT
- VUGGY

### Engineering

- BIT
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL

### FAULT

- FORMATION TDP
- GAS SHOW
- MIN DEPTH 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

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

### Textures

- BOUNDSTONE
- CHALKY
- CRYPTOXLN

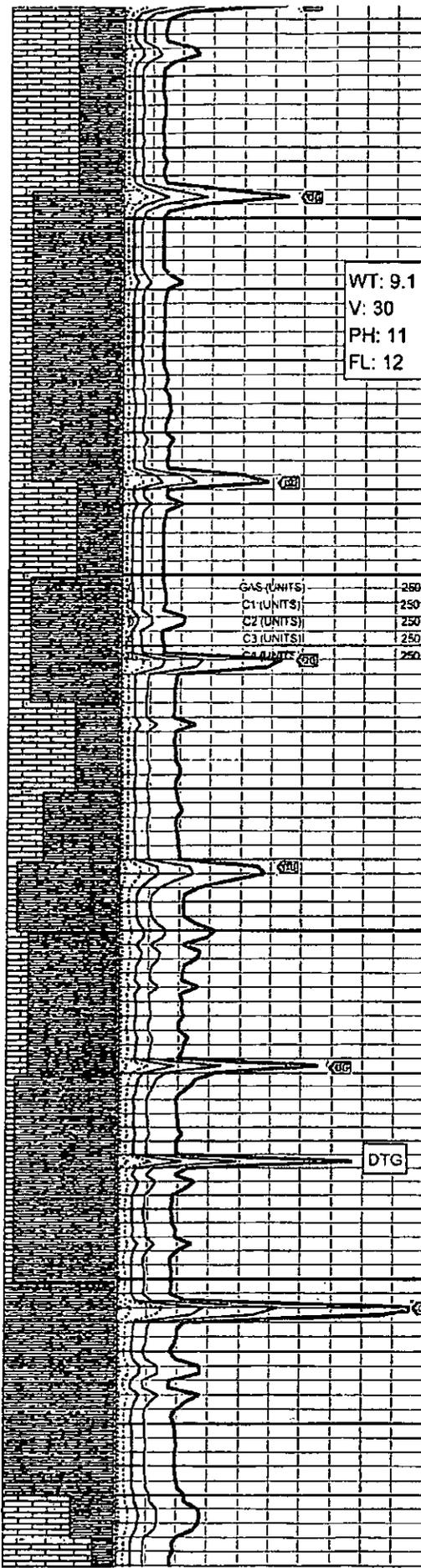
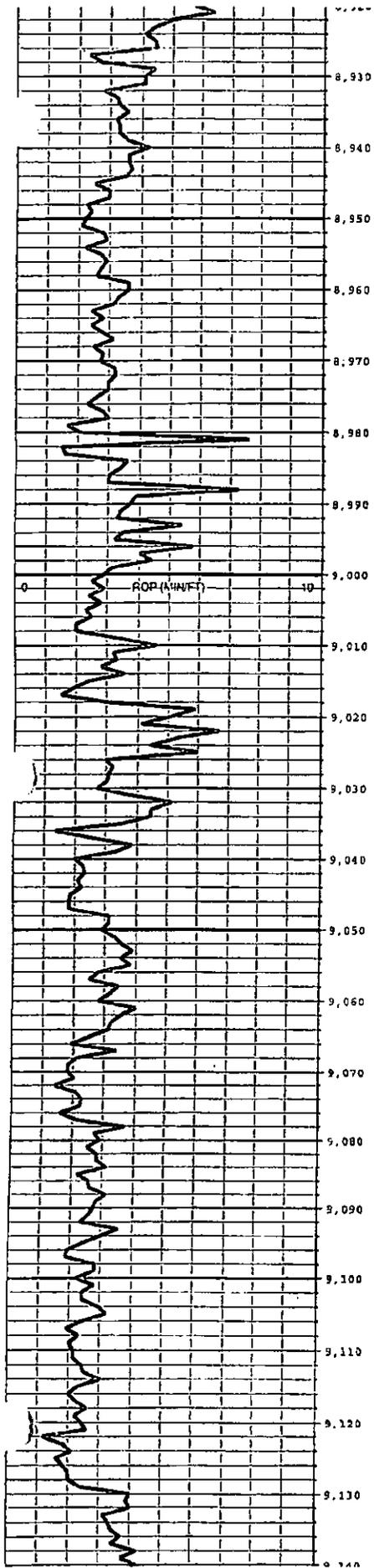
### E EARTHY

- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKSTONE

### Sorting

- M MODERATE
- POOR
- W WELL

ROP ROF 	Depth Labels	% Lith	Total Gas & Chromatograph GAS  C1  C2  C3  C4 	Lithology Descriptions	% Porosity 6 12 18 24 30	Oil Show TR P FR G E



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

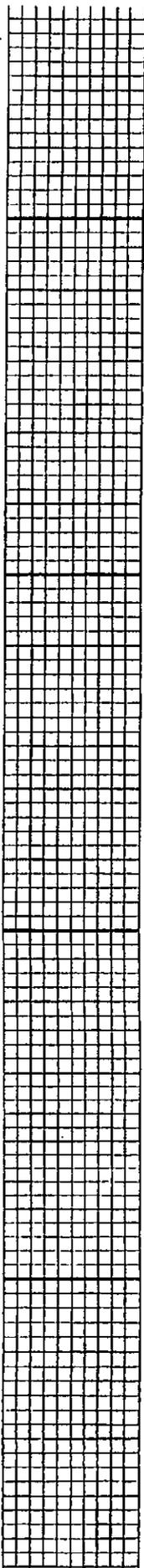
LS OFFWH LTGY TN  
LTBN VF FX DNS DOL'C  
GRDS TO LMY DOL

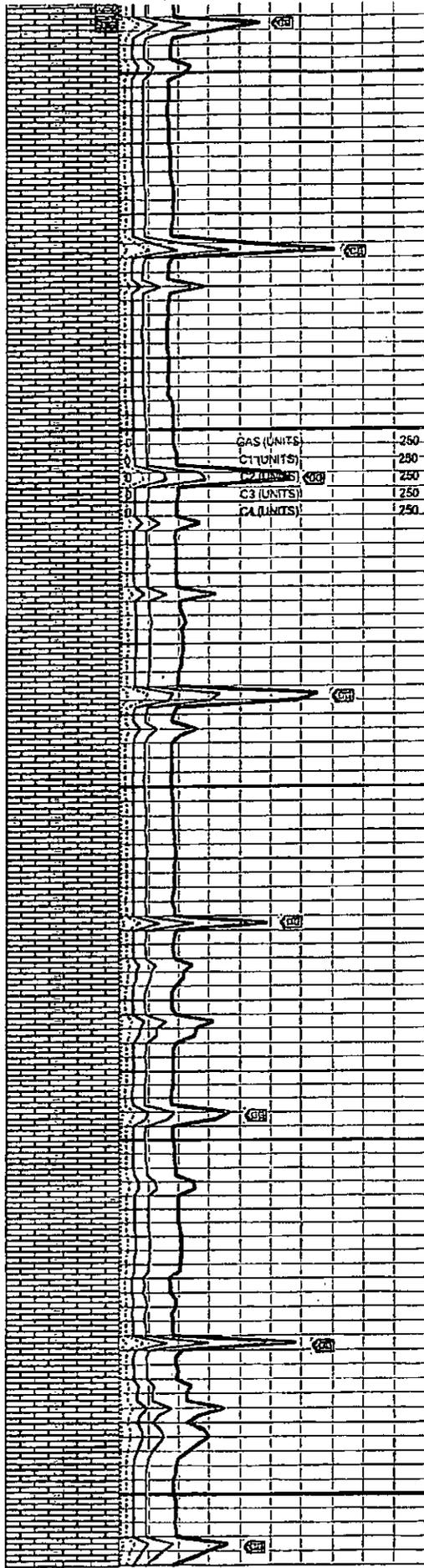
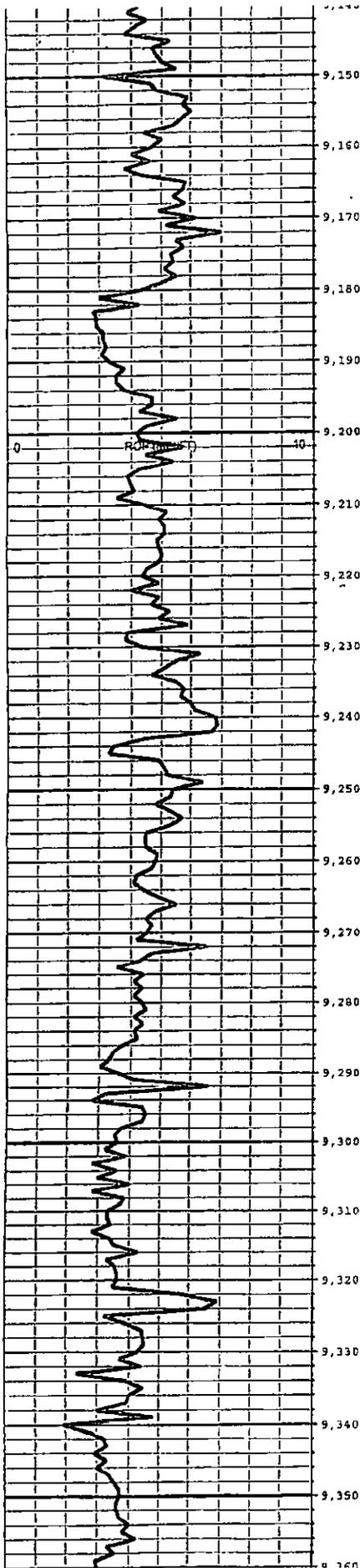
DOL WH OFFWH BUFF  
FX TR INT-X POR AREN  
IP DNS IP SL SUC FR  
WH/YEL FLU NO WET  
CUT

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 OFFWH TN BN  
DKBN MOTT VF FX DNS  
ARG IP TR FOSS

LS WH OFFWH MOTT  
LTGY VFX CHKY

LS OFFWH CRM LTTN  
LTGY FX DNS IP CHKY  
IP FOSS

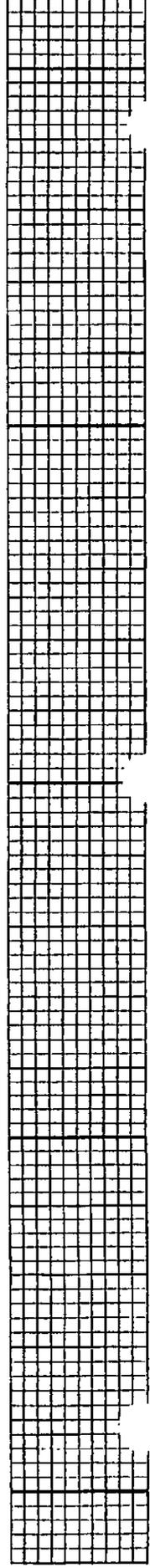
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SL SUC

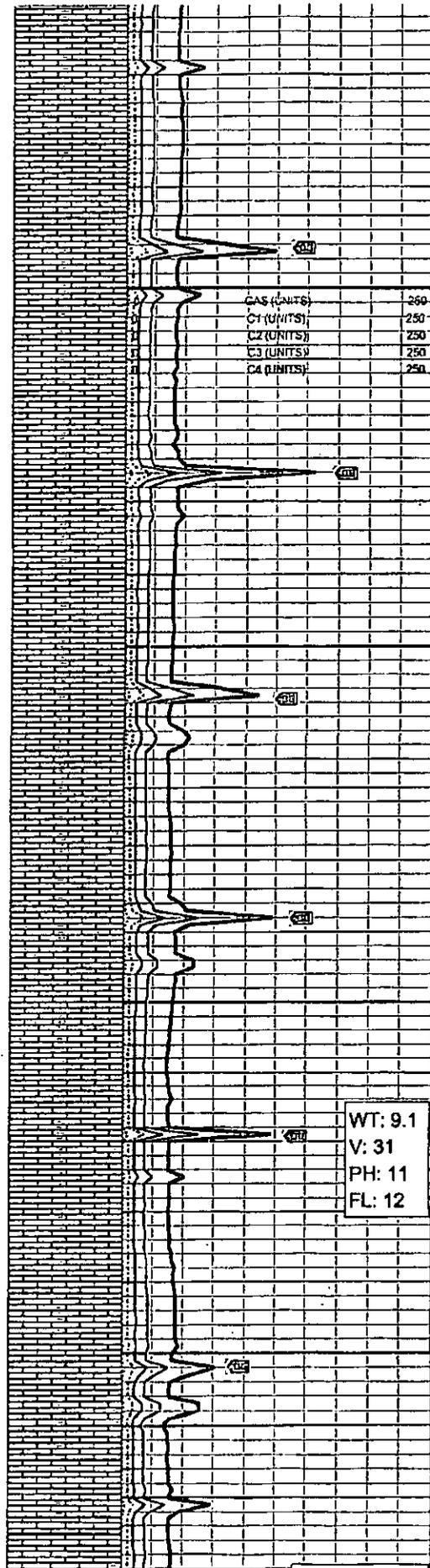
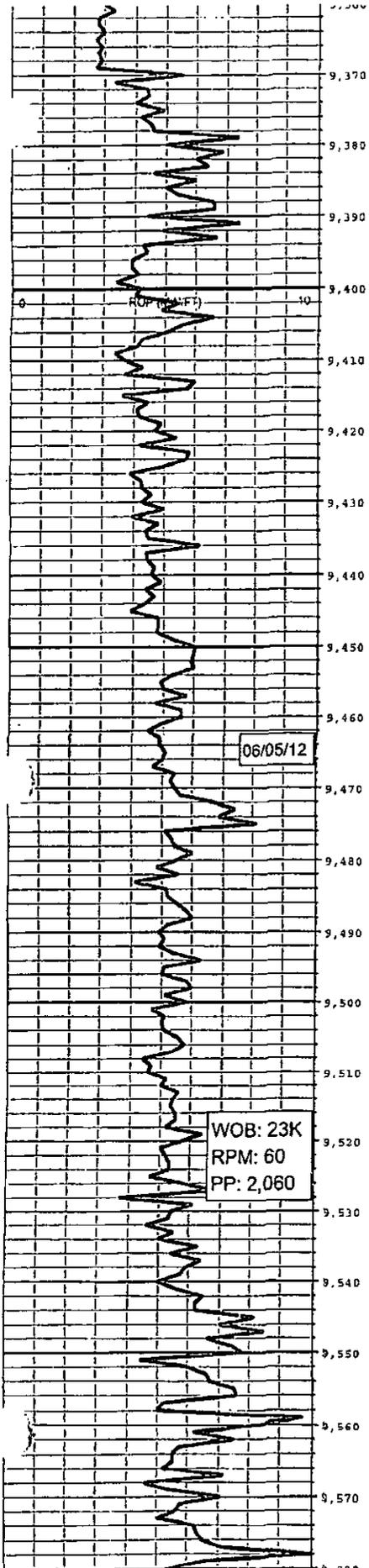
LS WH OFFWH MOTT  
LTGY BN DKBN FX DNS  
SL SUC CHKY IP

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

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

LS WH OFFWH 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

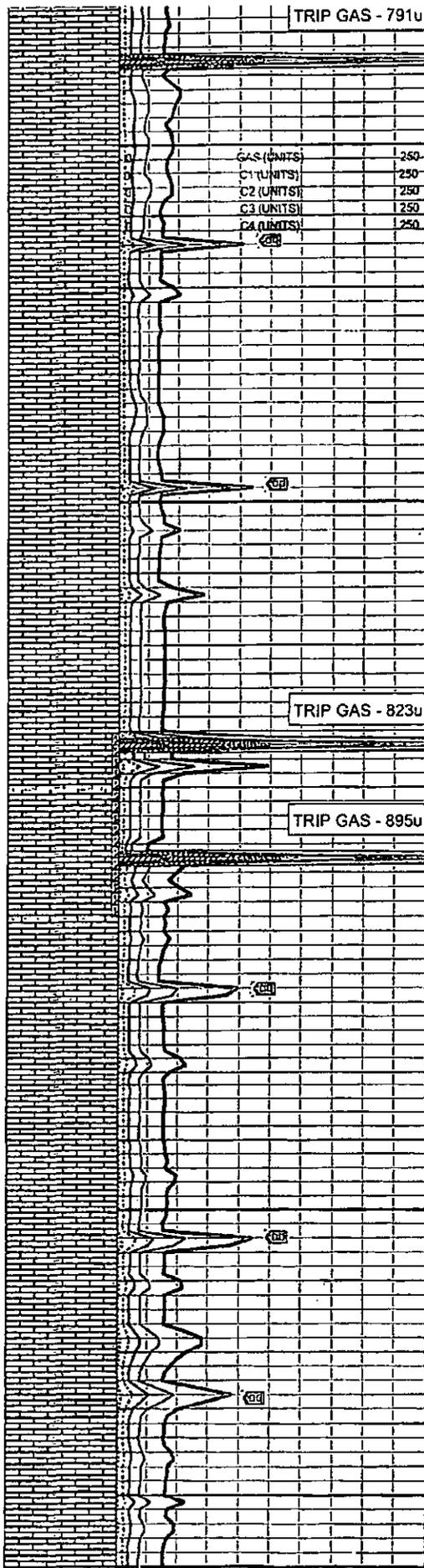
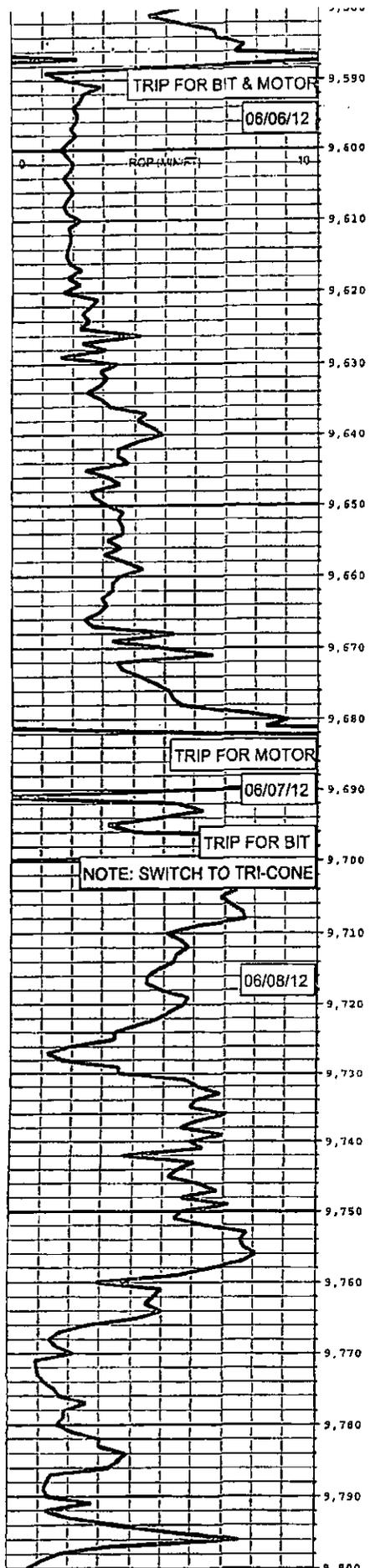
LS OFFWH LTTN LTBN  
GY DKG VF FX DNS SIL  
IP

LS OFFWH LTTN LTBN  
GY GYBN VF FX DNS SIL  
IP

LS OFFWH MOTT GY  
DKG DKBN VFX V/ DNS

LS OFFWH LTGY GY  
DKG BN DKBN VFX V/  
DNS

LS WH OFFWH BUFF  
LTTN VFX DNS CLN



LS WH OFFFWH BUFF  
VFX DNS CLN

SH TR GY DKGY BLK  
SLTY SFT FRM GRTTY  
TXT SB-PLTY MICA  
CARB

LS WH OFFFWH CRM  
BUFF LTTN VF FX DNS  
IP CLN ARG IP

LS WH OFFFWH BUFF  
LTTN BN IP VF FX DNS  
IP TR FOSS

CHT CLR LTTN TN  
TRNSL TRNSP

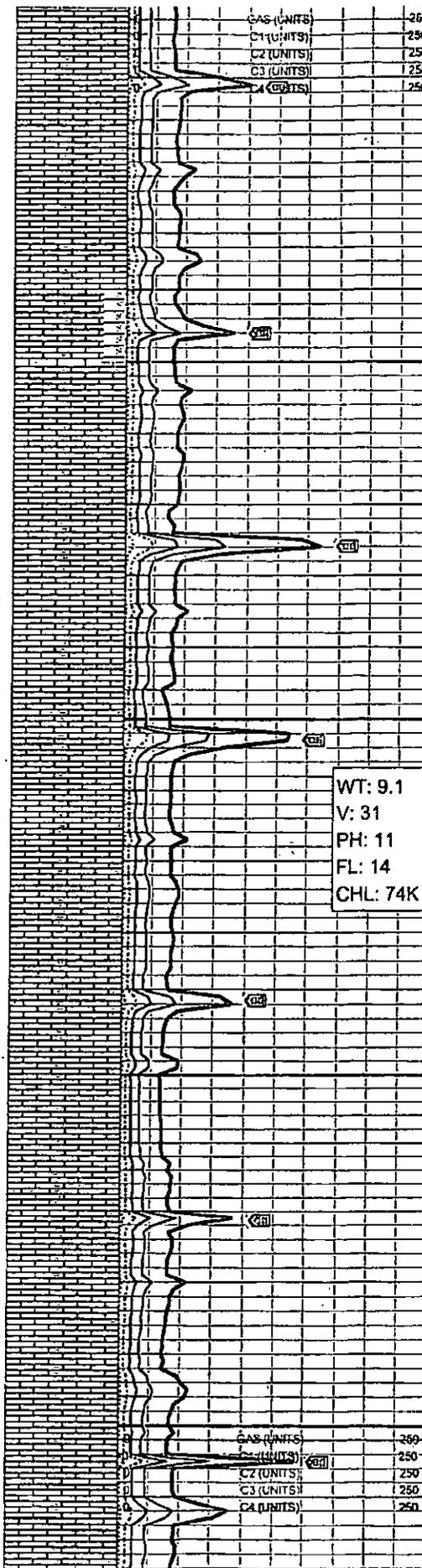
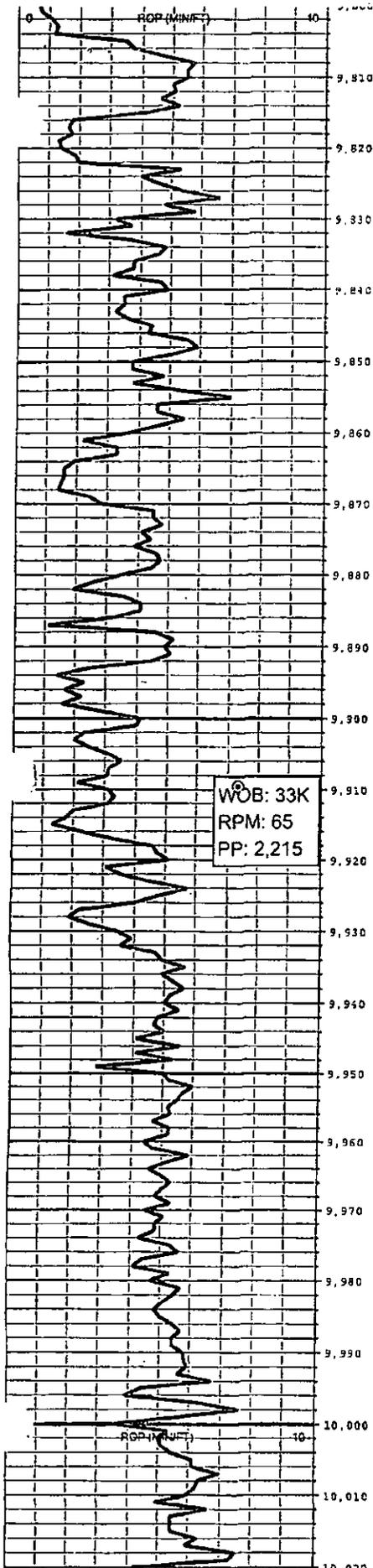
LS WH OFFFWH LTTN  
TN LTBN BN VF FX DNS

LS OFFFWH LTTN TN  
LTBN BN VF FX TR VUG  
DNS IP

LS OFFFWH LTTN TN BN  
DKBN VF FX DNS ARG IP

LS WH OFFFWH BUFF  
LTTN VF FX FR VUG  
POR TR INT-X POR DNS  
IP SL AREN IP TR  
YEL/GN FLU NO WET  
CUT NO DRY CUT

LS OFFFWH CRM LTTN  
TN LTBN IP VF FX TR



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

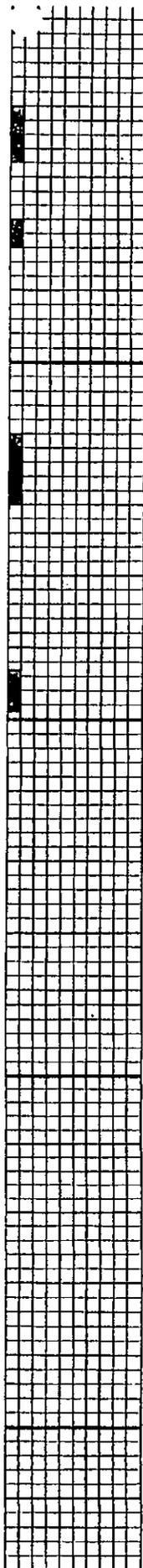
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LTTN TN VF FX DNS IP  
CLN TR FOSS NO FLU

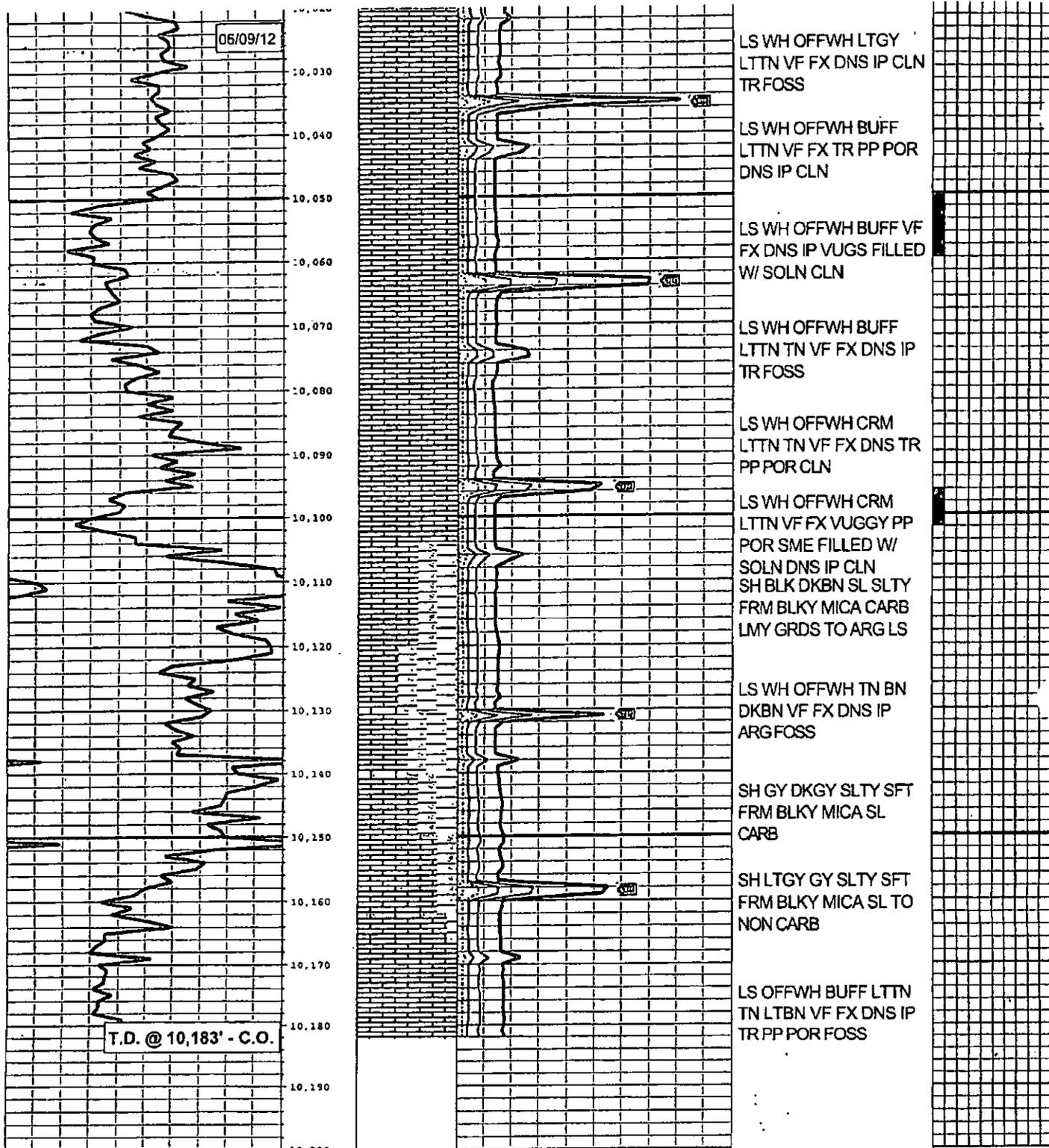
LS WH OFFWH BUFF  
LTTN VF FX TR VUG  
DNS IP CLN TR FOSS  
TR GN FLU NO CUTS

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**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

Operator Copy

FORM APPROVED  
OMB No 1034-0135  
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 <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other		5. Lease Serial No. LC 029509BB
2. Name of Operator Frontier Field Services		6. If Indian, Allottee or Tribe Name
3a. Address 4200Skelly Dr , St. 700,Tulsa OK 7413N/A5	3b. Phone No. (include area code) 918-384-8408	7. If Unit or CA/Agreement, Name and/or No N/A
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, NMPPM, Lea Co. NM Acid Gas Injection Well, Unorthodox Location		8. Well Name and No Maljamar AGI#1
		9. API Well No 30-025-40420
		10. 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 recomplete 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.)

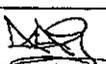
The above-referenced AGI well (Maljamar AGI #1 OAGI # 30-025-40420) was drilled in March-June, 2012 at the approved location pursuant to an approved APD dated 1/3/2012 and NMOC Order R-13443. The final perforation and completion of the well is scheduled to take place over the next three weeks in September-October 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 NMOC 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  Date 9/24/12 9/24/12

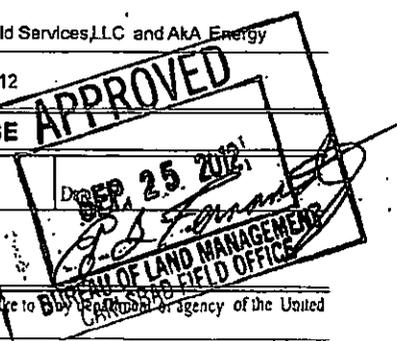
Copied by Alberto A Gutierrez  
DN: cn=Alberto A Gutierrez, o=BLM  
dn: ou=analyses@blm.gov, ou=BLM  
Date: 2012 09 24 12:28:36 -0500

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by \_\_\_\_\_ Title \_\_\_\_\_  
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. 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 Federal, State, 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

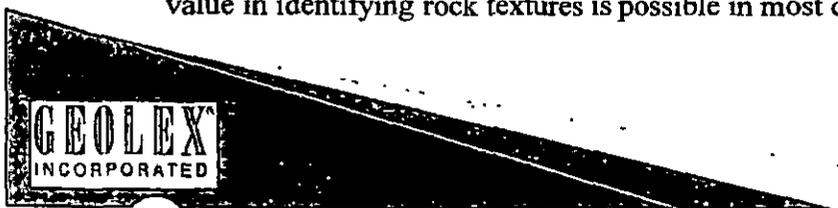
by  
Geolex, Inc.  
500 Marquette Avenue NW Suite 1350  
Albuquerque, NM 87102



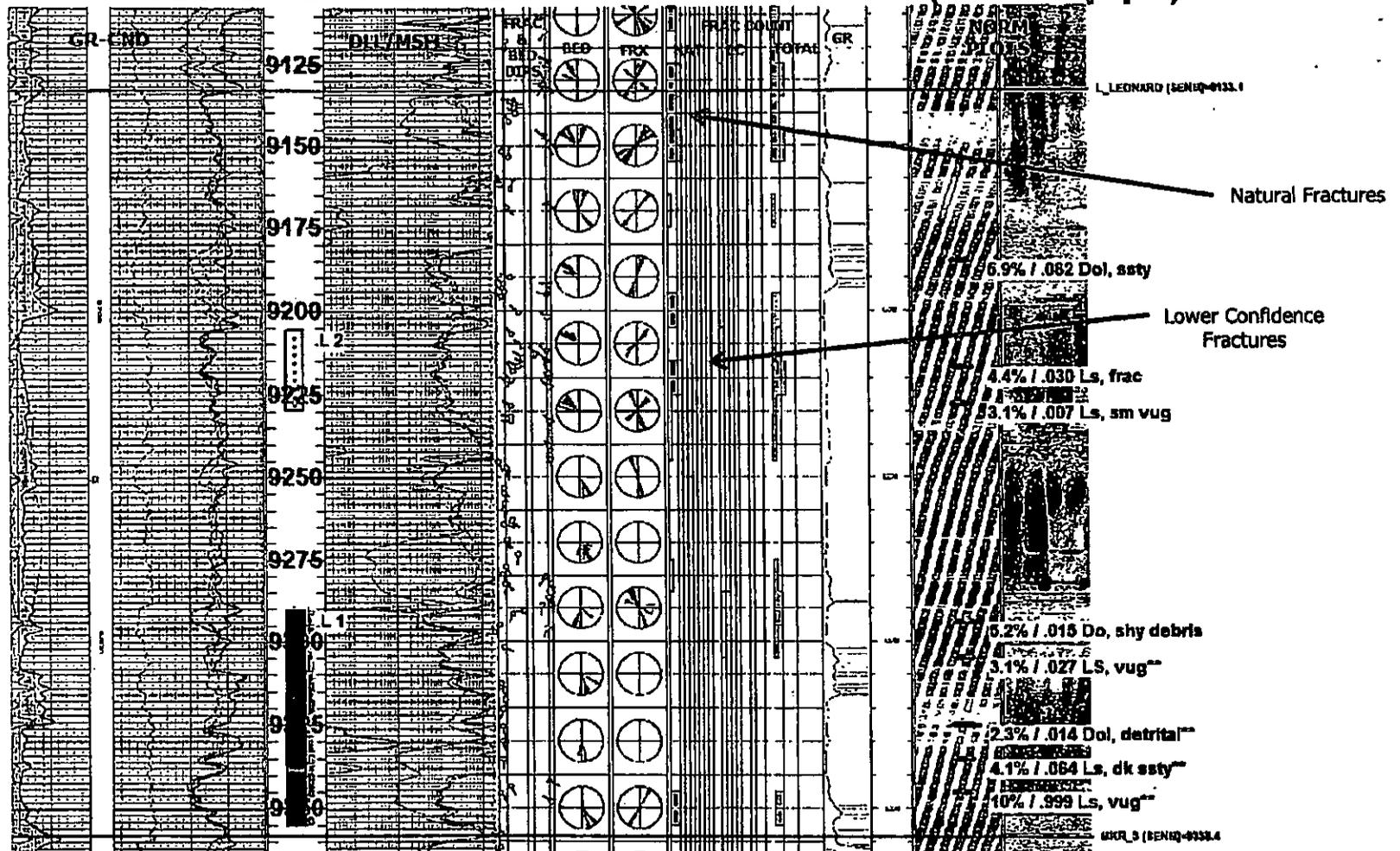
August 8, 2012

## 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.

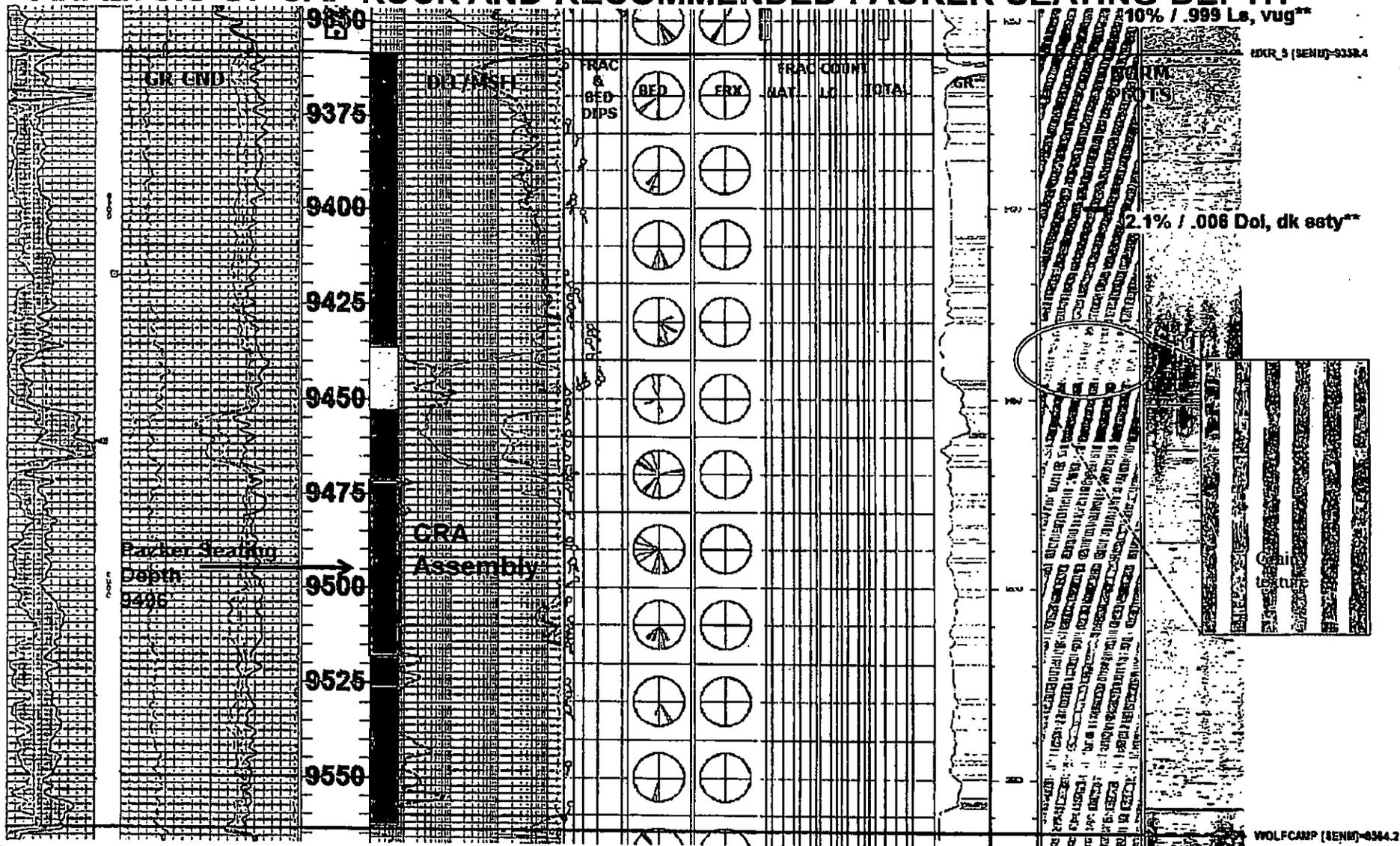


# ANALYSES OF LOWER LEONARD FORMATION (behind pipe)



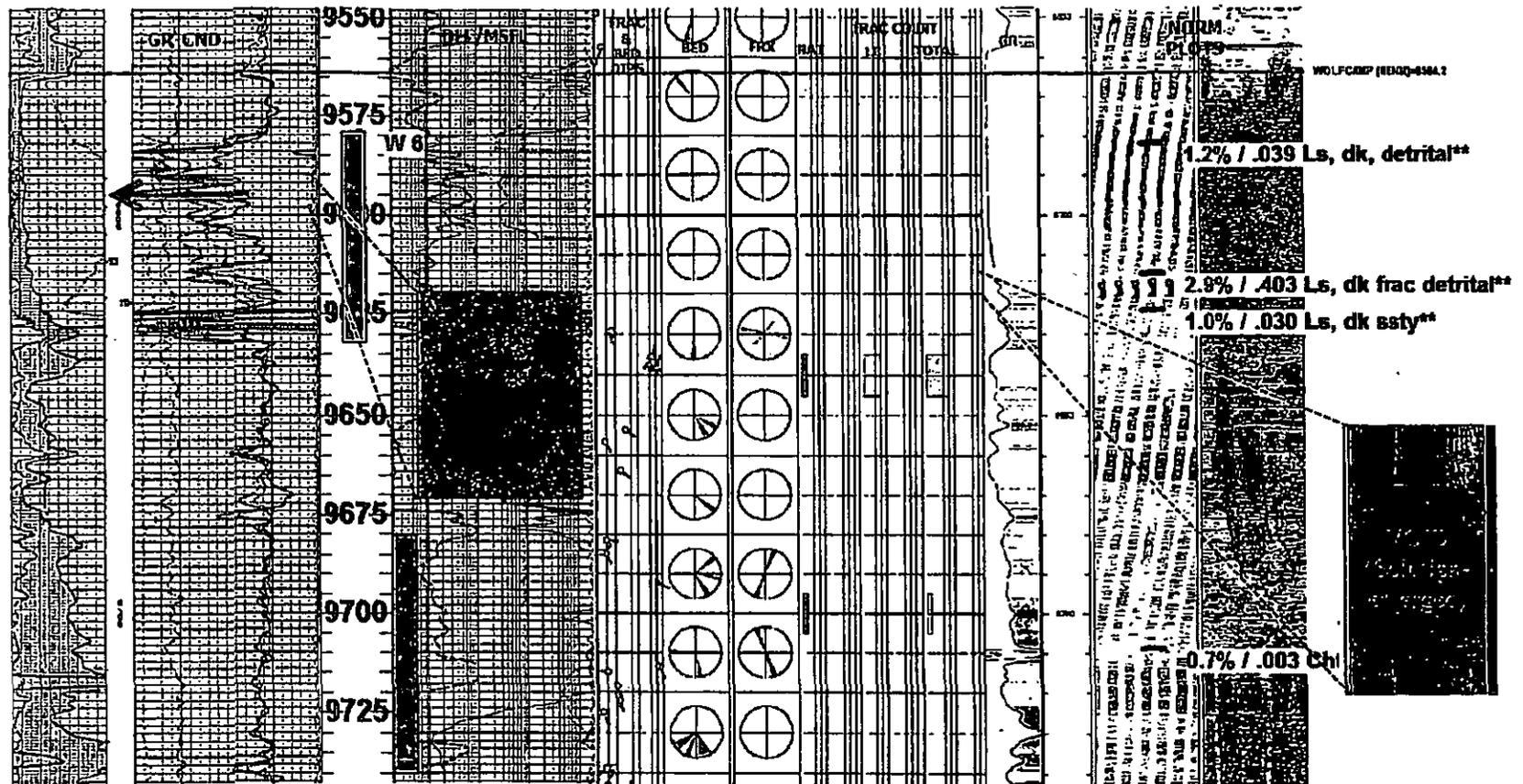
On this and subsequent slides, yellow shading denotes porosity >5% in carbonates; the numbers and notations on the right refer to measured sidewall core porosity / permeability (% and md, respectively) and a brief lithologic description. Core points with double asterisks calculated Sws of greater than 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

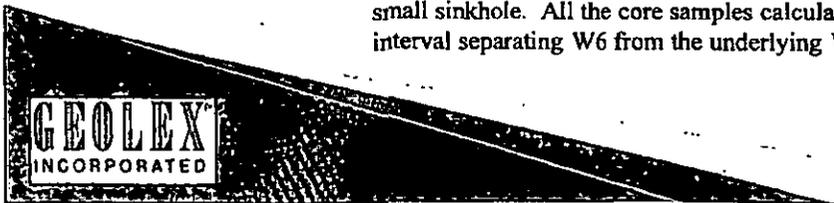


The intervals indicated by the brown bars appear to be dominated by dark, silty and shaley slope facies, with very low to trace permeability. The green bar denotes a tight lime grainstone, which can be seen on the image plot (green circle). This interval will make an excellent caprock for injection zones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

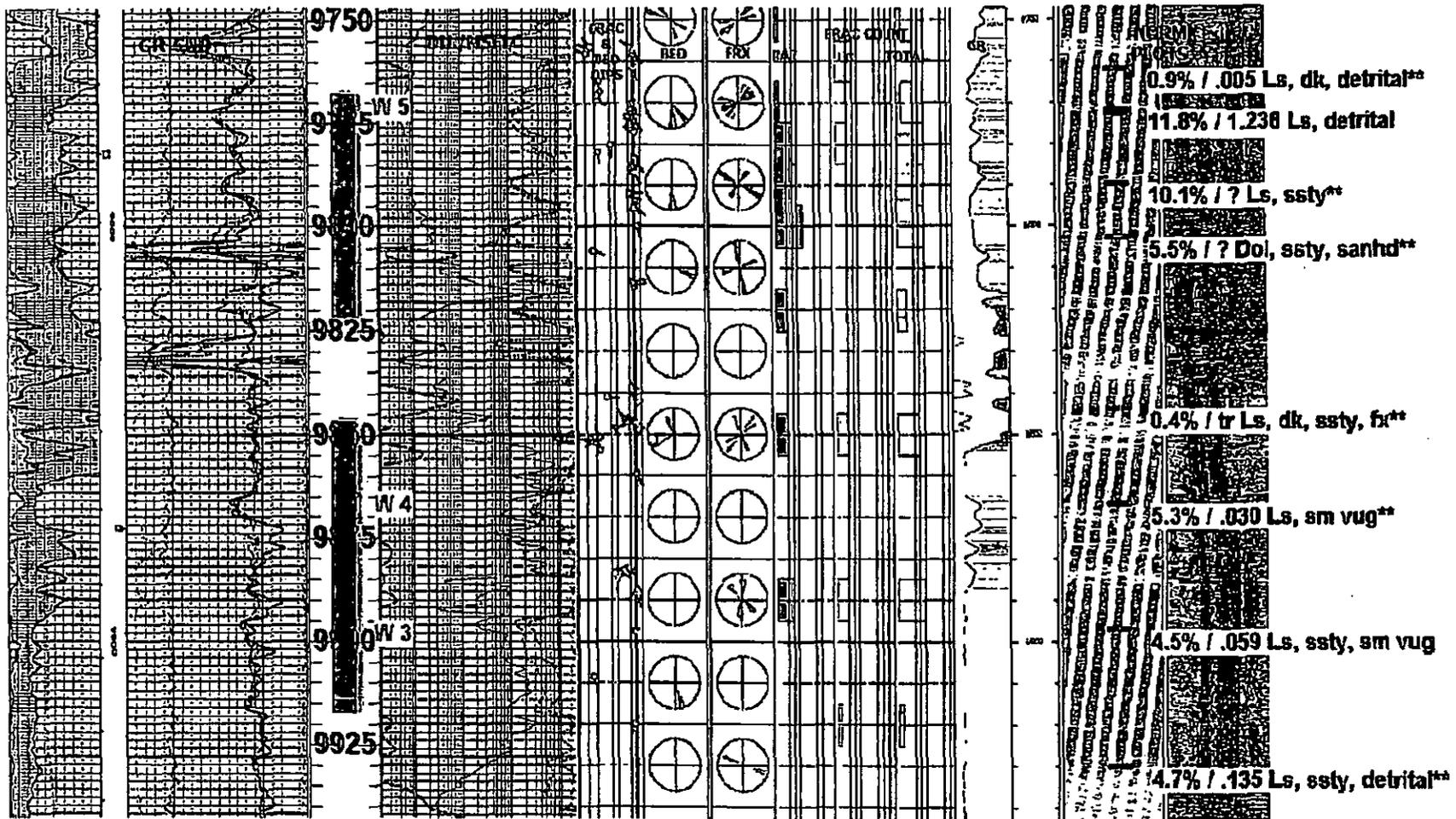
# ANALYSIS OF UPPERMOST RECOMMENDED INJECTION ZONE – W 6



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.

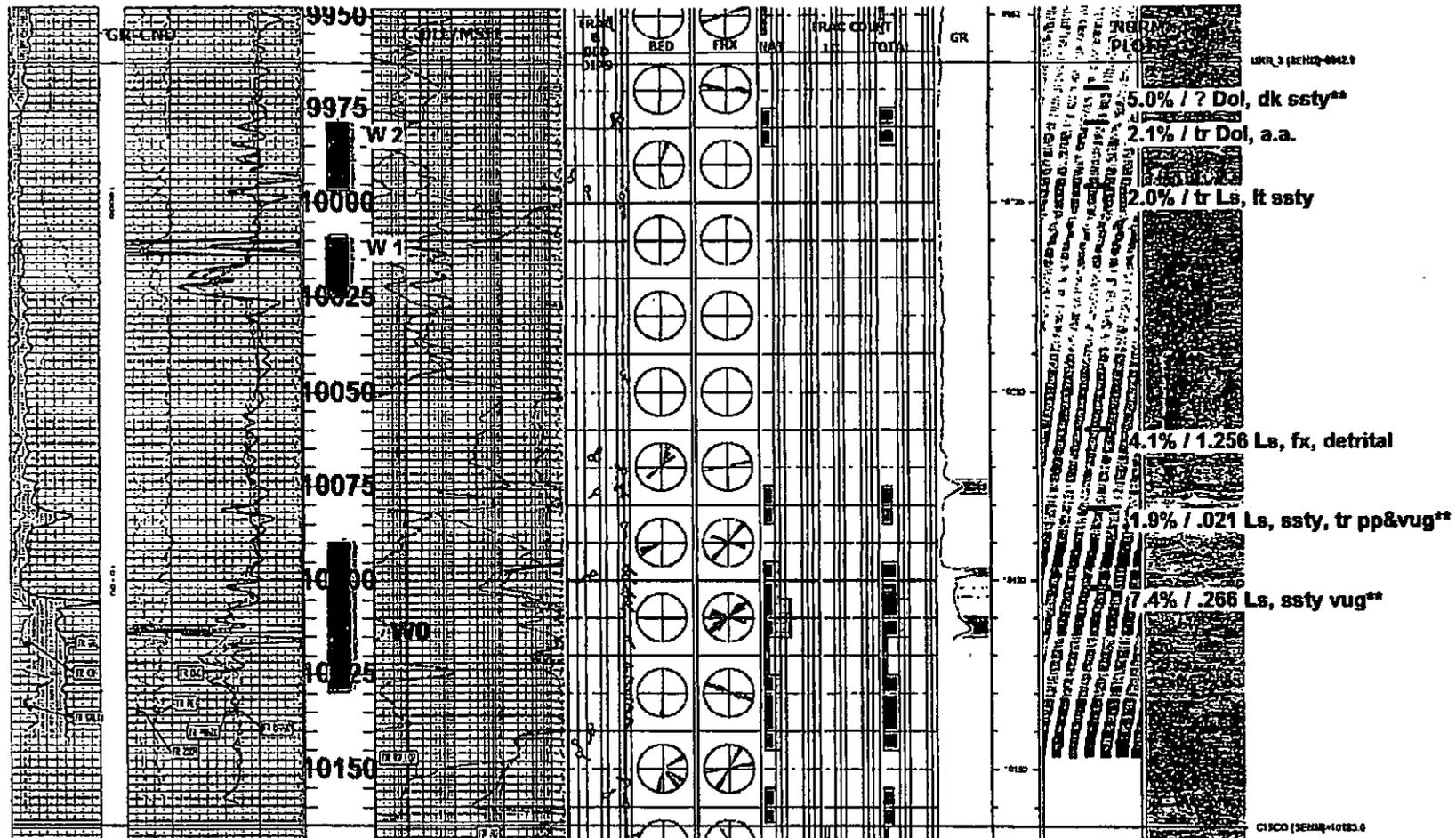


# ANALYSIS OF MIDDLE RECOMMENDED INJECTION ZONES – W 5, W 4 AND W 3.



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

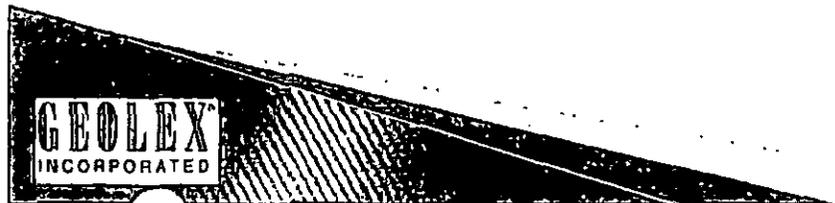


Similarly, these lower Wolfcamp zones should be perforated across the three intervals with the blue bars. The lowest recommended perforation interval (W0) has been added on the basis of the density of fracturing, and primary porosities in core up to 7.4%. The fractures would serve to effectively inter-connect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

djones@mfsinc-us.com  
(361)728-4874

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

## Rock Types

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

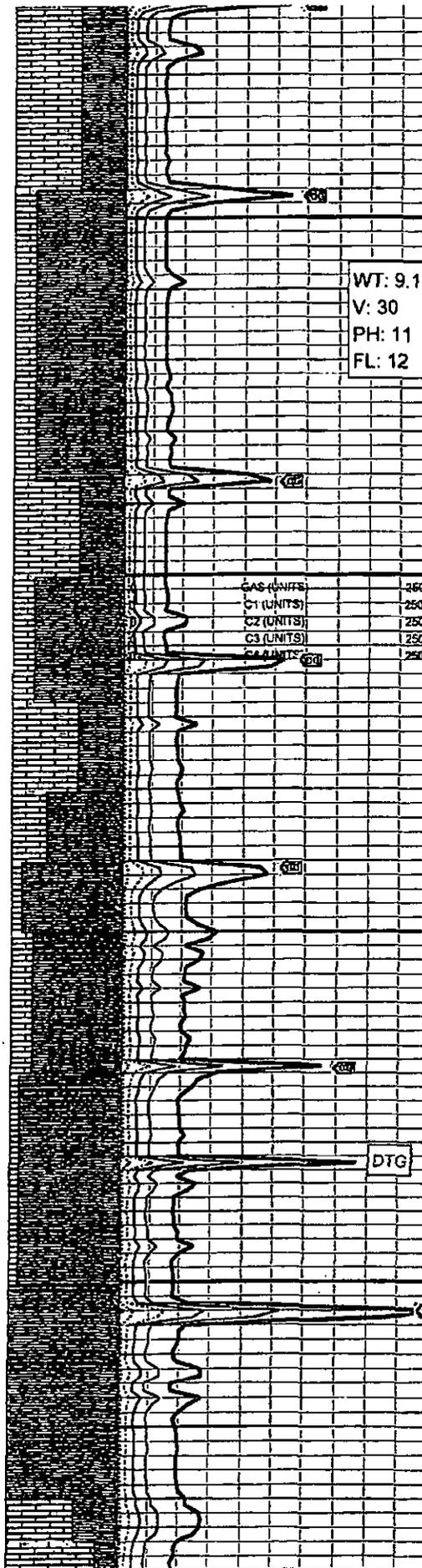
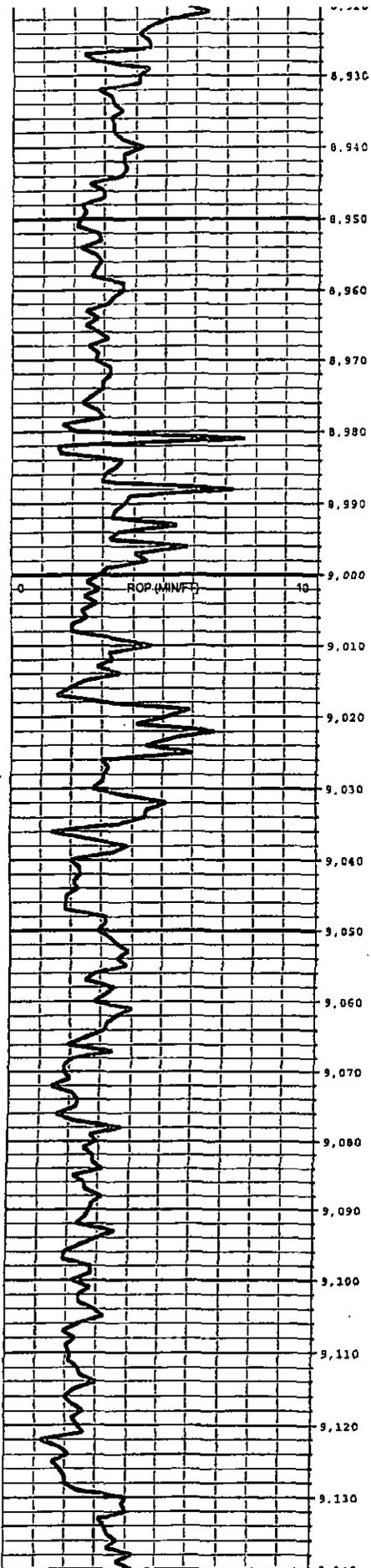
## Accessories

<b>Fossils</b>	<b>F FOSSIL</b>	<b>- ARGILLACEOUS</b>	<b>✓ GLAUCONITE</b>	<b>Stringer</b>
ALGAE	GASTROPOD	<b>/ ARGILLITE GRAIN</b>	GYPSIFEROUS	ANHYDRITE STRINGER
AMPHIPORA	OOLITE	BENTONITE	HEAVY MINERAL	BENTONITE STRINGER
BELEMNITE	OSTRACOD	BITUMENOUS SUBSTANCE	KAOLIN	COAL STRINGER
BIOCLASTIC	PELECYPOD	BRECCIA FRAGMENTS	MARLSTONE	DOLOMITE STRINGER
BRACHIOPOD	PELLET	CALCAREOUS	MINERAL CRYSTALS	GYPSUM STRINGER
BRYOZOA	PISOLITE	CARBONACEOUS FLAKES	NODULES	LIMESTONE STRINGER
CEPHALOPOD	PLANT REMAINS	CHTDK	PHOSPHATE PELLETS	MARLSTONE (CALC) STRG
CORAL	PLANT SPORES	CHTLT	PYRITE	MARLSTONE (DOL) STRG
CRINOID	SCAPHOPOD	COAL - THIN BEDS	SALT CAST	SANDSTONE STRINGER
ECHINOID	STROMATOPOROID	DOLOMITIC	SANDY	SHALE STRINGER
FISH	<b>Minerals</b>	FELDSPAR	SILTY	SILTSTONE STRINGER
FORAMINIFERA	ANHYDRITIC	FERRUGINOUS PELLET	TUFFACEOUS	
		FERRUGINOUS		

## Other Symbols

<b>Oil Show</b>	MOLDIC	FAULT	WIRELINE TESTED - LEFT	<b>E EARTHY</b>
DEAD	ORGANIC	FORMATION TOP	WIRELINE TESTED - RT	<b>FX FINELYXLN</b>
EVEN	PINPOINT	GAS SHOW	<b>Rounding</b>	<b>ES GRAINSTONE</b>
QUESTIONABLE	VUGGY	MN DEPTH	ANGULAR	<b>L LITHOGRAPHIC</b>
SPOTTED STAINING	<b>Engineering</b>	NORMAL FAULT	ROUNDED	<b>MX MICROXLN</b>
<b>Porosity</b>	BIT	OVERTURNED STRATA	SUBANG	<b>MS MUDSTONE</b>
<b>E EARTHY</b>	CONNECTION (LEFT)	REVERSE FAULT	SUBRND	<b>PS PACKSTONE</b>
FENESTRAL	CONNECTION (RIGHT)	SIDEWALL CORE (LEFT)	<b>Textures</b>	<b>WS WACKESTONE</b>
FRACTURE	CONNECTION GAS	SIDEWALL CORE (RIGHT)	BOUNDSTONE	<b>Sorting</b>
INTERCRYSTALLINE	CORE - LOST	SLIDE	CHALKY	<b>M MODERATE</b>
INTERCUTIC	CORE - RECOVERED	SURVEY	CRYPTOXLN	<b>P POOR</b>
	DST INTERVAL	TRIP GAS		<b>W WELL</b>





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

WT: 9.1  
V: 30  
PH: 11  
FL: 12

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

GAS (UNITS)	260
C1 (UNITS)	250
C2 (UNITS)	250
C3 (UNITS)	250
CA (UNITS)	250

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

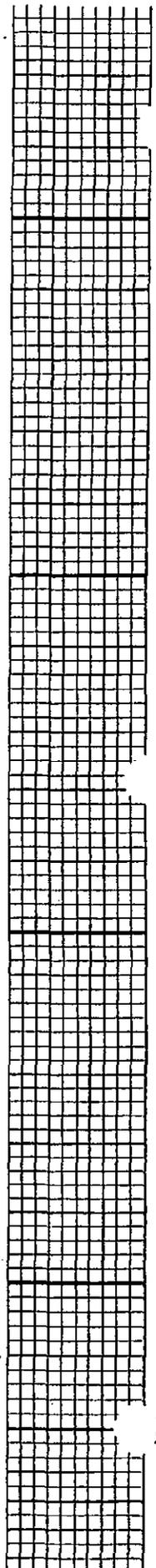
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WH/YEL FLU NO WET  
CUT

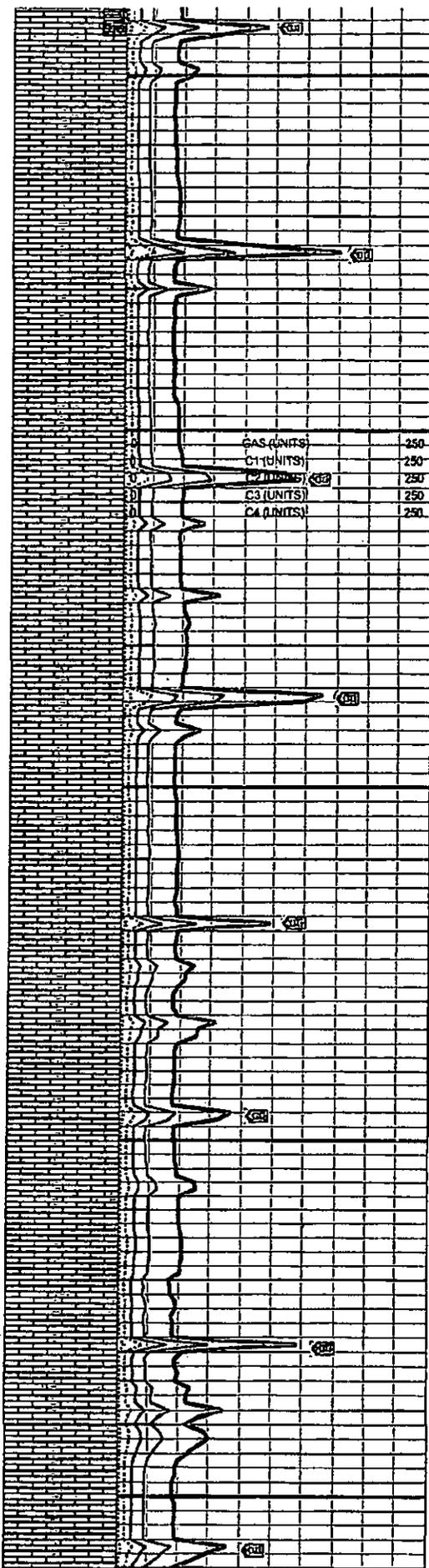
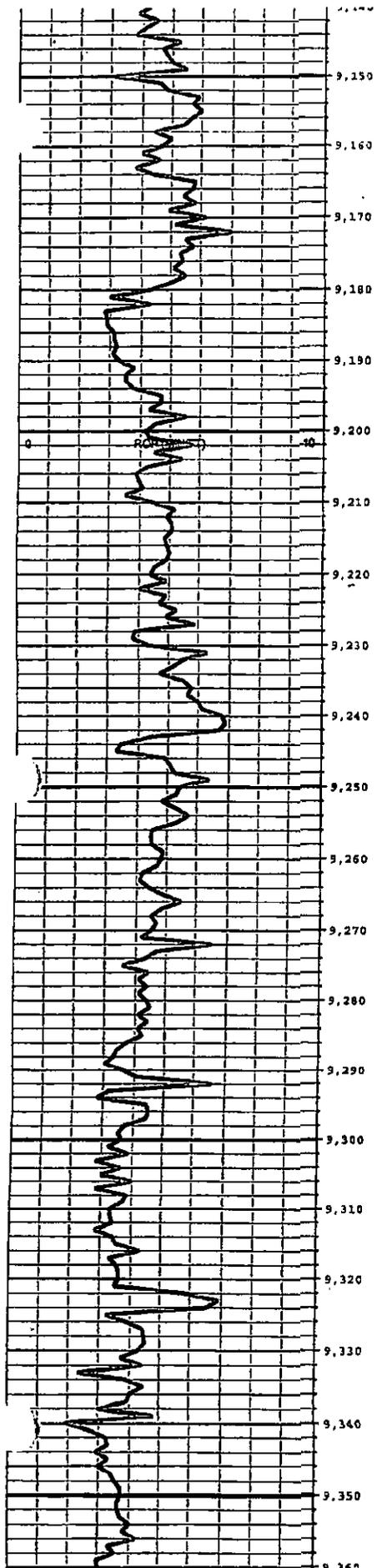
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RHOMBS FR INT-X POR  
AREN FR GN FLU NO  
WET CUT SL TR DRY  
CUT

DTG

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

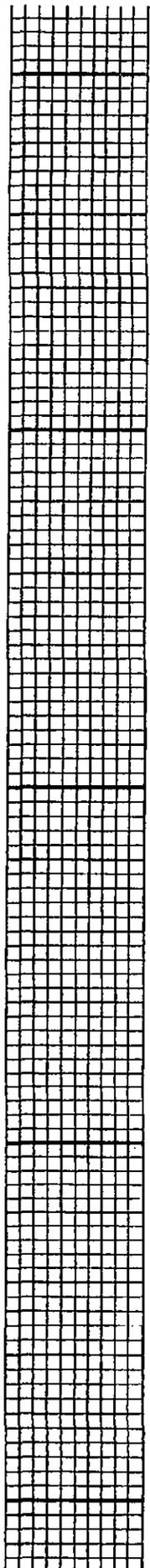
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SL SUC

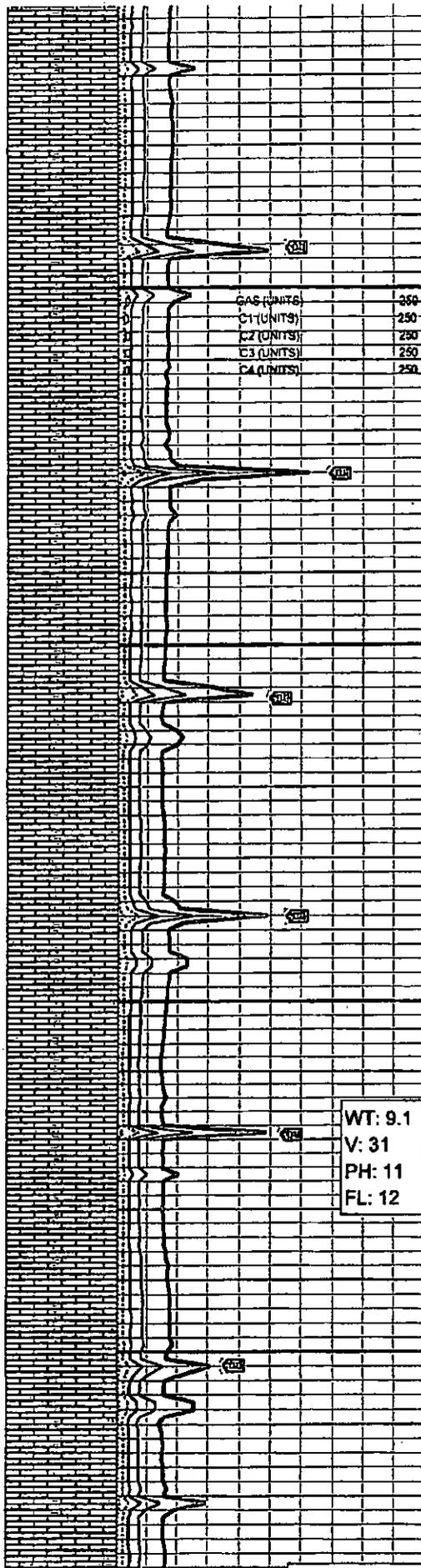
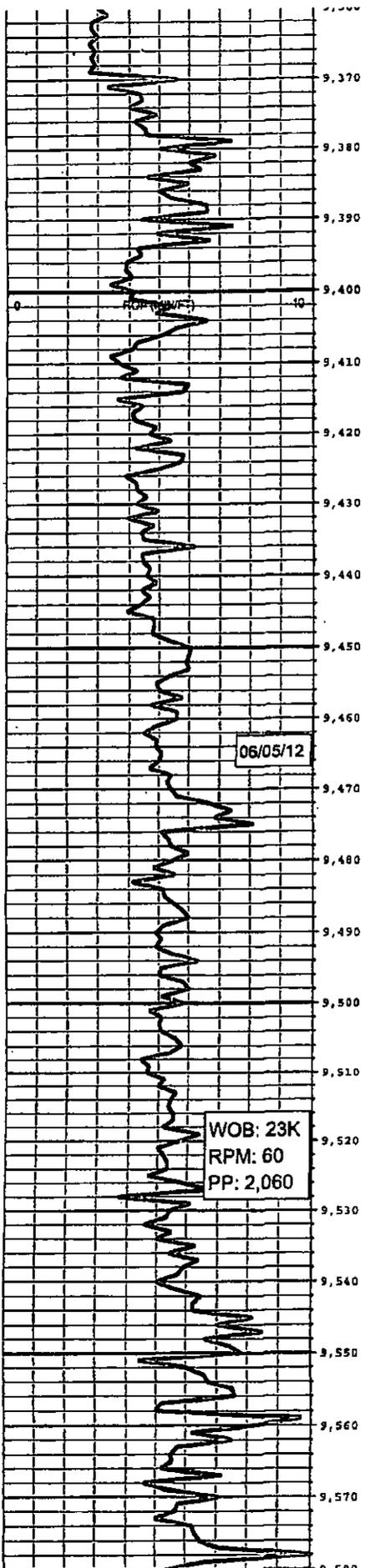
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DKBN VF-MX DNS SL  
SUC CHKY IP ARG IP

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

LS OFFWH LTTN LTBN  
GY DKG VF FX DNS SIL  
IP

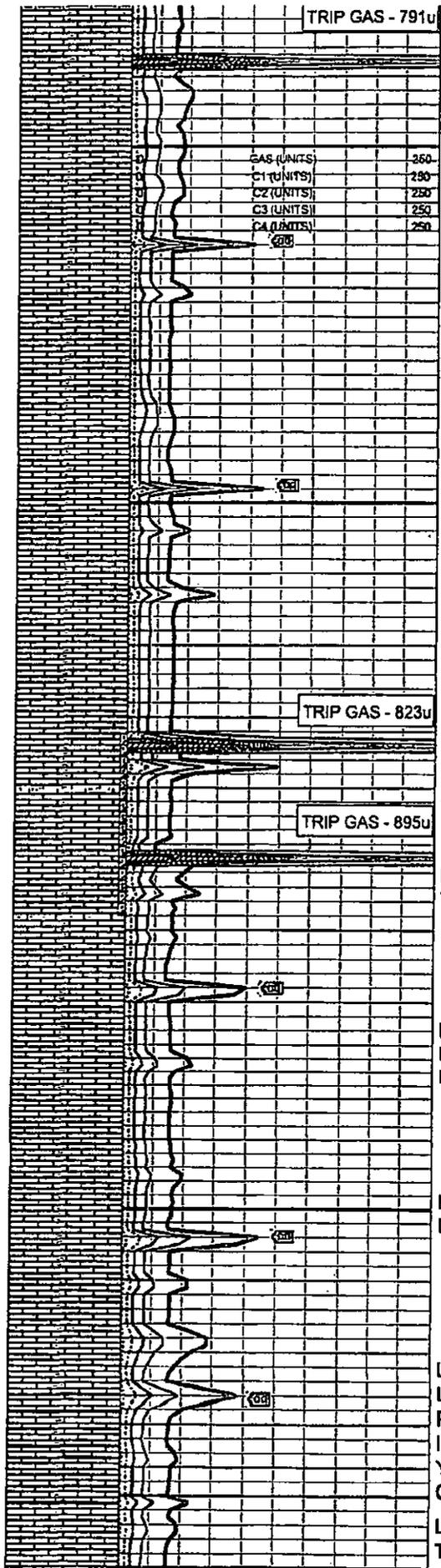
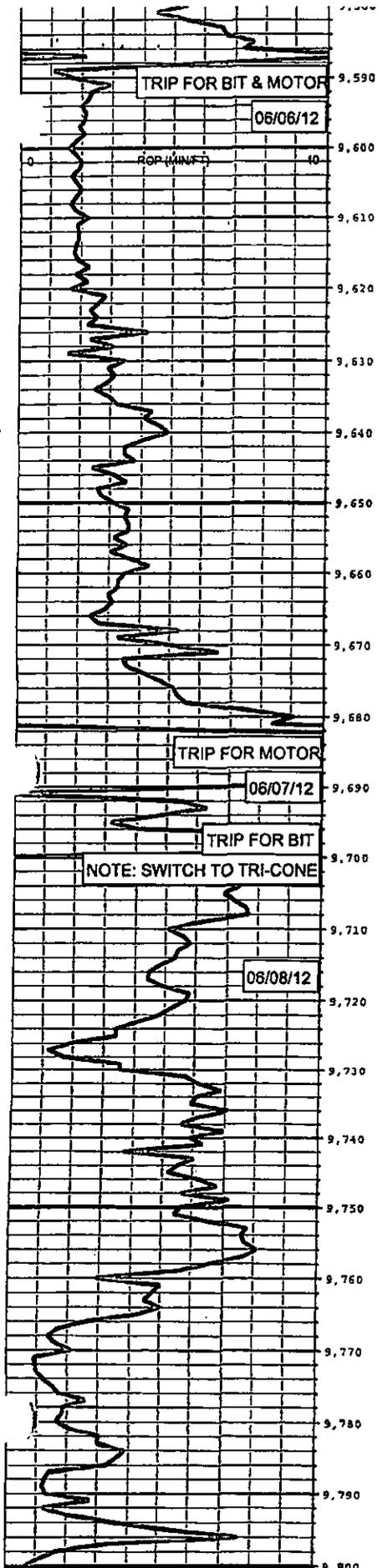
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GY GYBN VF FX DNS SIL  
IP

LS OFFWH MOTT GY  
DKG DKBN VFX V/ DNS

LS OFFWH LTGY GY  
DKG BN DKBN VFX V/  
DNS

LS WH OFFWH BUFF  
LTTN VFX DNS CLN

WT: 9.1  
V: 31  
PH: 11  
FL: 12



LS WH OFFWH BUFF  
VFX DNS CLN

SH TR GY DKG Y BLK  
SLTY SFT FRM GRTTY  
TXT SB-PLTY MICA  
CARB

LS WH OFFWH CRM  
BUFF LTTN VF FX DNS  
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LS WH OFFWH BUFF  
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IP TR FOSS

CHT CLR LTTN TN  
TRNSL TRNSP

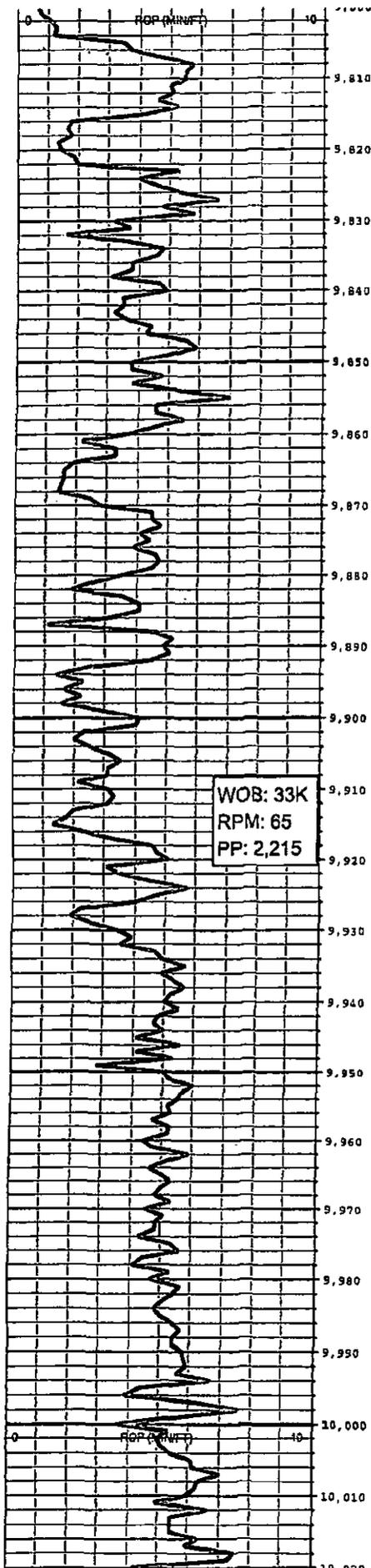
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LS OFFWH LTTN TN  
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DNS IP

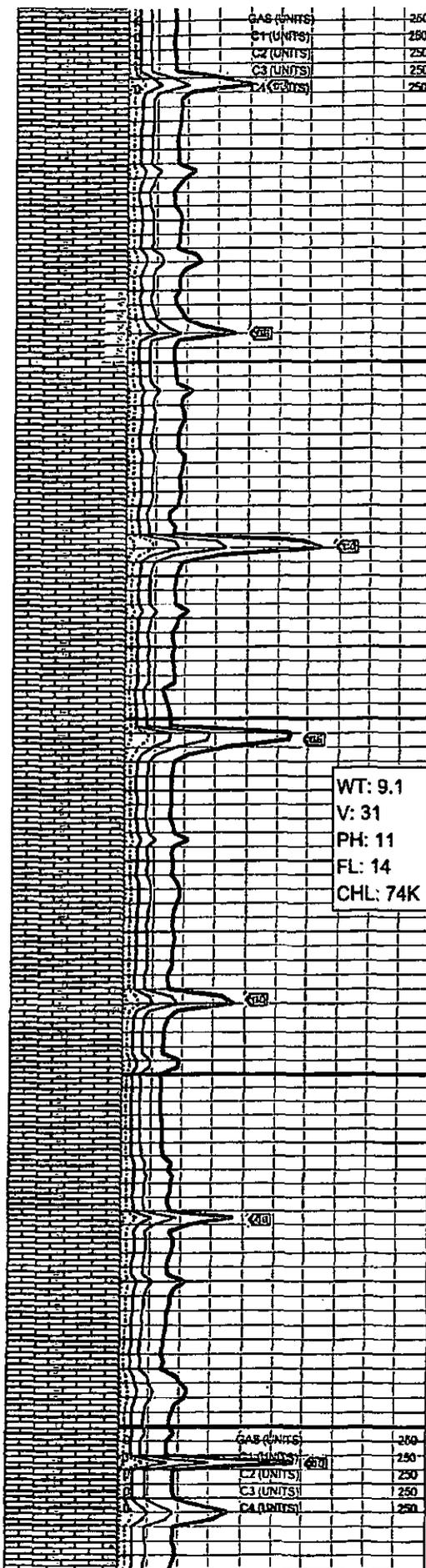
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DKBN VF FX DNS ARG IP

LS WH OFFWH BUFF  
LTTN VF FX FR VUG  
POR TR INT-X POR DNS  
IP SL AREN IP TR  
YE/ GN FLU NO WET  
CUT NO DRY CUT

LS OFFWH CRM LTTN  
TN LTBN IP VF FX TR



WOB: 33K  
RPM: 65  
PP: 2,215

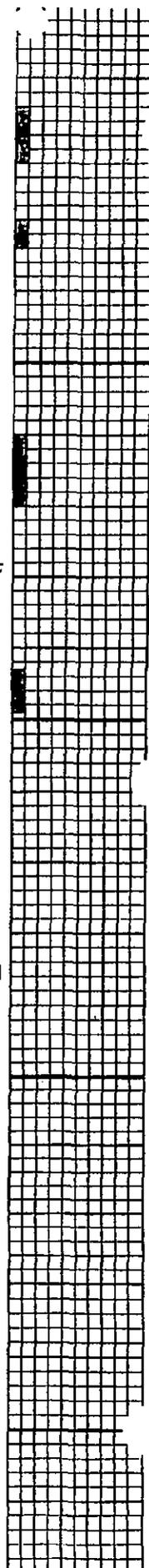


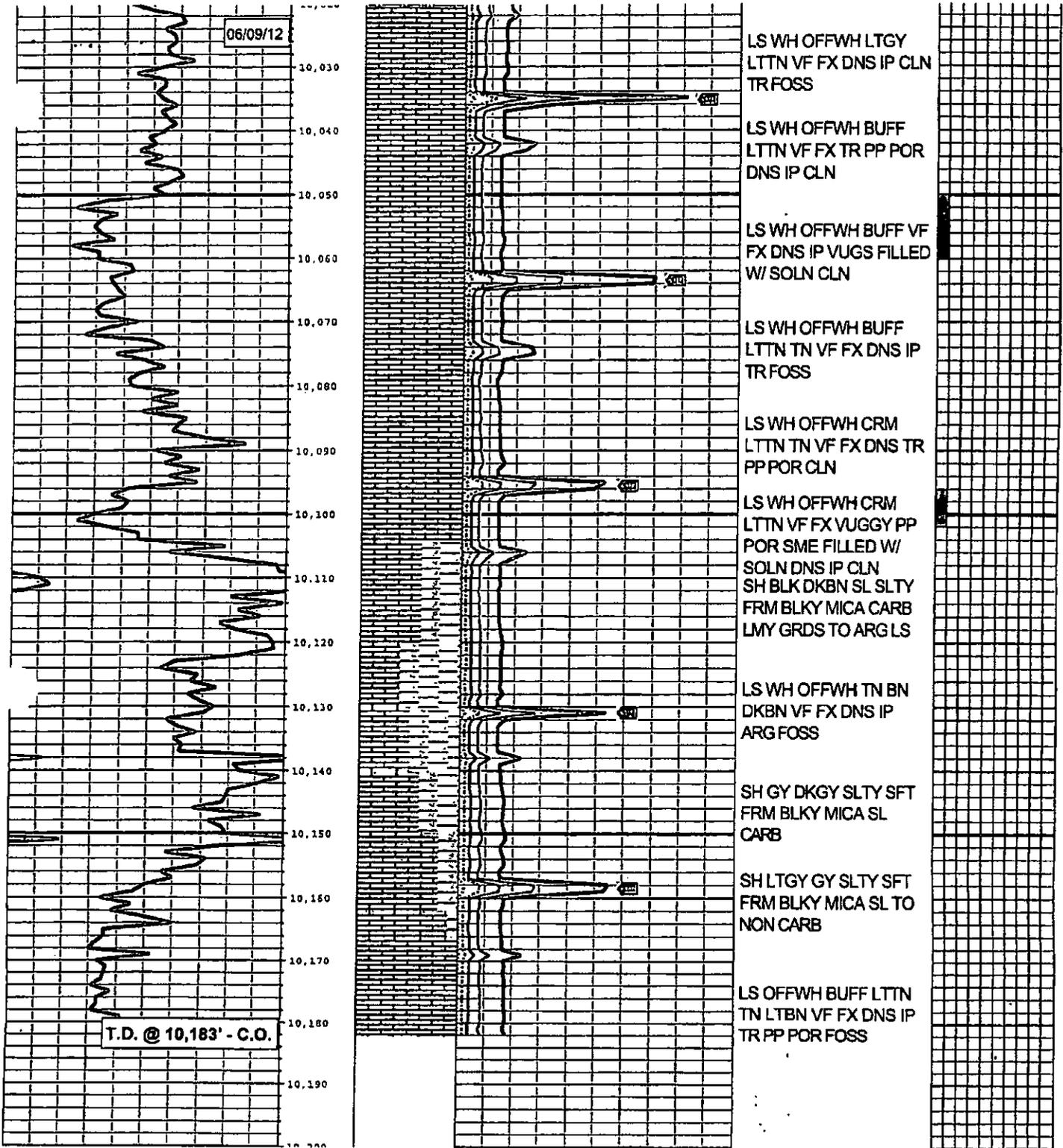
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S1 (UNITS) 250  
C2 (UNITS) 250  
C3 (UNITS) 250  
CA (UNITS) 250

WT: 9.1  
V: 31  
PH: 11  
FL: 14  
CHL: 74K

GAS (UNITS) 250  
S1 (UNITS) 250  
C2 (UNITS) 250  
C3 (UNITS) 250  
CA (UNITS) 250

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  
LS WH OFFWH BUFF  
LTTN TN VF FX DNS IP  
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**

December 28, 2012

Ed Fernandez  
Bureau of Land Management  
620 E. Greene St.  
Carlsbad, NM 88220

RE: Submittal of Form 3160-4 for Maljamar AGI #1, API # 3002540420

Dear Mr. Fernandez:

Geolex encloses one original and three copies of the above referenced document.

If you have any questions, please don't hesitate to call me, Alberto Gutierrez or Jim Hunter at (505) 842-8000.

Thank you,  
Geolex, Inc.

*Tom Sharp*

Tom Sharp  
Geologist

Enclosures

I:\10-014\Drilling Notifications and Forms (BLM&NMOC)\BLM\3160-4\12-28-12 Transmittal letter.docx

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB NO. 1004-0137  
Expires: October 31, 2014

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No.  
LC 029509B

1a. Type of Well  Oil Well  Gas Well  Dry  Other  
b. Type of Completion:  New Well  Work Over  Deepen  Plug Back  Diff. Resvr.,  
Other: Acid Gas Injection Well

6. If Indian, Allottee or Tribe Name  
N/A

7. Unit or CA Agreement Name and No.  
N/A

2. Name of Operator  
Frontier Field Services, LLC

8. Lease Name and Well No.  
Maljamar AGI #1

3. Address 4200 Skaly Dr. SE, 700, Tulsa, OK 74135

3a. Phone No. (include area code)  
(918) 492-4450

9. API Well No.  
30-025-40420

4. Location of Well (Report location clearly and in accordance with Federal requirements)\*  
130°FSL, 1813' FEL, Sec. 21, T17S, R32E NMPM, Lea Co. NM  
At surface

10. Field and Pool or Exploratory  
Wolfcamp

11. Sec., T., R., M., on Block and  
Survey or Area 130°FSL, 1813' FEL, Sec. 21,  
T17S, R32E NMPM, Lea Co. NM

12. County or Parish

13. State  
Lea County NM

At top prod. interval reported below

At total depth

14. Date Spudded 03/22/2012

15. Date T.D. Reached 06/09/2012

16. Date Completed 12/10/2012  
 D & A  Ready to Prod.

17. Elevations (DF, RKB, RT, GL)\*  
4016 GR, 4031 KB

18. Total Depth: MD  
TVD 10,183'

19. Plug Back T.D.: MD  
TVD 5187' sidetrack

20. Depth Bridge Plug Set: MD  
TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)  
Logs have already been submitted to BLM

22. Was well cored?  No  Yes (Submit analysis)  
Was DST run?  No  Yes (Submit report)  
Directional Survey?  No  Yes (Submit copy)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17 1/2"	13 3/8"	48#	0'	890'		700 sks		0'	60 bbls return to sur.
12 1/4"	8 5/8"	24#	0'	4200'		1650 sks		0'	200 bbls return to sur.
7 7/8"	5 1/2"	15 1/2#	0'	10,183'		175 sks corrosa			
						246 sks thermal			
						1150 sks lead e			
						200 sks tail halc			

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2 7/8"	9452'	9452'						

25. Producing Intervals

Formation	Top	Bottom
A) Wolfcamp-Acid Gas Injection		
B)		
C)		
D)		

26. Perforation Record

Perforated Interval	Size	No. Holes	Perf. Status
9570'-9632', 9768'-9821'		4 shots/ft	open
9850'-9917', 9979'-9997'		4 shots/ft	open
10009'-10130'		4 shots/ft	open

27. Acid, Fracture, Treatment, Cement Squeeze, etc.

Depth Interval	Amount and Type of Material
9,579'-10,130'	48 bbls 15% HCL, 171 bbls 24% HCL

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

\*(See instructions and spaces for additional data on page 2)

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

29. Disposition of Gas (Solid, used for fuel, vented, etc.)  
N/A

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof. Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

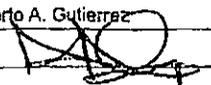
Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top
					Meas. Depth
Saiado Fm. Yates Fm.	0' 1194'	1194' 2134'	SANDSTONE: red-reddish brn, coarse to fine SANDSTONE: red-ft tan, coarse to f grained, hard		
7 Rivers Fm. Queen Fm.	2134' 3103'	3103' 3484'	SANDSTONE: red-ft tan, coarse to f grained, hard SANDSTONE: gray-dk gray-reddish brn, f grained, hard		
Grayburg Fm. San Andres Fm.	3484' 3858'	3858' 5444'	GRAINSTONE: dirt gray, very fine grained DOLOMITE: offwhite, v fine grained, dense-v dense		
Glorieta Fm. Padlock Fm.	5444' 6227'	6227' 6963'	DOLOMITE: offwhite-buff-ft tan, v fn gm, dense, tr vugs, DOLOMITE: offwhite-buff-ft tan, v fn gm, dense, tr vugs, limoy IP		
Tubb Fm. Abo Fm.	6963' 7584'	7584' 9584'	DOLOMITE: offwhite-buff-ft tan, v fn gm, al limoy. Grd to limestone interbedded dolomite, limestone, and shale		
Wolfcamp Fm.	6664'	10165'	LIMESTONE: offwhite-buff-ft tan, v fn gm, dense, thin shale interbeds		
Cisco Fm.	10165'	10183'	LIMESTONE: offwhite-buff, vfn, dense, trace fossils		

32. Additional remarks (include plugging procedure):  
Data and reports have already been submitted to BLM.

33. Indicate which items have been attached by placing a check in the appropriate boxes:

- Electrical/Mechanical Logs (1 full set req'd.)     
  Geologic Report     
  DST Report     
  Directional Survey  
 Sundry Notice for plugging and cement verification     
  Core Analysis     
  Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)\*

Name (please print) Alberto A. Gutierrez Title Consultant to Frontier Field Services, LLC  
 Signature  Date 12/28/12

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting a complete and correct well completion/recompletion report and log on all types of wells on Federal and Indian leases to a Federal agency, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal office. If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, and all types electric), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal laws and regulations. All attachments should be listed on this form, see item 33.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal office for specific instructions.

**ITEM 17:** Indicate which reported elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

**ITEM 23:** Show how reported top(s) of cement were determined, i.e. circulated (CIR), or calculated (CAL), or cement bond log (CBL), or temperature survey (TS).

## NOTICES

The Privacy Act of 1974 and the regulation in 43 CFR 2.48 (d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. et seq.; 43 CFR 3160.

**PRINCIPAL PURPOSE:** The information is to be used to evaluate the actual operations performed in the drilling, completing and testing of a well on a Federal or Indian lease.

**ROUTINE USES:** (1) Evaluate the equipment and procedures used during the drilling and completing/recompleting of a well. (2) The review of geologic zones and formation encountered during drilling. (3) Analyze future applications to drill in light of data obtained and methods used. (4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this report and disclosure of the information is mandatory once a well drilled on a Federal or Indian lease is completed/recompleted.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling and completing/recompleting wells on Federal and Indian oil and gas leases.

This information will be used to analyze operations and to compare equipment and procedures actually used with those proposed and approved.

Response to this request is mandatory only if the operator elects to initiate drilling and completing/recompleting operations on an oil and gas lease.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.