

OCT 23 2002



Lynda F. Townsend, CPL/ESA
Landman

October 22, 2002

Mr. G. A. Baber
1022 W. Broadway
Hobbs, NM 88240

RE: Pronghorn Management, State T #2
SWDW, Section 6-16S-36E
Lea County, New Mexico

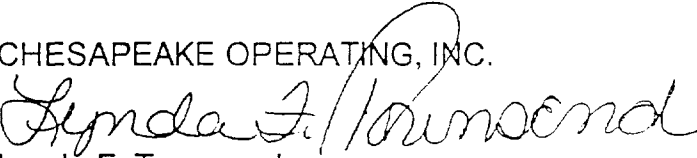
Dear Mr. Baber:

Pursuant to our recent telephone conversations, please be advised that Chesapeake Operating, Inc. has no objections to the captioned salt water disposal well and your permit to dispose into the San Andres and Glorieta formations.

Please give me a call if you need anything further.

Very truly yours,

CHESAPEAKE OPERATING, INC.


Lynda F. Townsend

Pronghorn Exhibit 4
Case No. 12905

**State 'T' SWD Hearing
Proposed Outline of Testimony**

- There are 16 wellbores in Section 6, T-16S, R-36E, that penetrate the San Andres and Glorietta formations. All completions in the section were deeper horizons. No production has been reported in the section from either interval.
- There are 19 wellbores in Section 1, T-16S, R-35E, (offsets the proposed injection location to the west) that penetrate the San Andres and Glorietta formations. All completions in the section were deeper horizons. No production could be located for either the San Andres or Glorietta.
- Scout tickets report a total of 20 completions or attempts in Section 6. No tests were reported in any wellbore, either during the drilling of the well or subsequent workovers, in either the San Andres or Glorietta. Test methods commonly reported on scout tickets include DSTs, cores, and production perforations.
- Scout tickets report a total of 22 completions or attempts in Section 1. Again, no tests of any nature were reported in either the San Andres or Glorietta.
- Formation water resistivities for the San Andres and Glorietta formations were obtained as an average of seven samples from the San Andres and four samples from the Glorietta. These averages yielded a 0.165 ohm San Andres and a 0.085 ohm Glorietta water resistivity with both corrected to bottom-hole temperature.
- The State 'T' No. 2 well was not logged with any instrument that would directly measure porosity. Two sections of permeable rock appear to be present in this well in the interval proposed for injection, 6192'-6244' and 6290'-6316'. Formation water saturations were calculated using a very optimistic estimate of 18% porosity. In carbonate reservoirs, formation water saturation is inversely proportional to the square of porosity, so the 18% estimate should yield a very optimistic (read low) estimate of the water saturation. These calculations indicate Sw of 98% in the upper permeable interval and 62% in the lower. Both of these values are too high to yield commercial production.
- One modern log suite was available on lease V-4886, the Watson 1-6 drilled by Chesapeake Operating in 1997 is a southeast offset to the proposed injection well. CNL/FDC logs indicate two zones of permeability in the proposed injection interval, 6146'-6184' and 6262'-6272'. This well was structurally 20+' downdip from the State 'T' No. 2. The logs show 8% porosity, 60 and 80 ohm resistivity, and 57% and 49% water saturation through the two sections. Again, both values too high to yield commercial production.
- A review of the TPOC records indicated that the upper permeable zone, the State 'T' No. 2 is not present in the State 'T' No. 1, one location south, or the Austral #3B, one location west.

- 5-10% dead oil stain was noted in the drilling samples for the State 'T' No. 2. No fluorescence or stain was noted in the drilling samples for the State 'T' No. 3, one location southeast. These are additional qualitative data points indicating that the zone is water bearing.

SUMMARY

1. Of the 35 wellbores and 42 completions (or attempts) there were no tests and thus no production established from either the San Andres or the Glorietta.
2. Calculations from electric log data on two wells located on V-4886 all indicate that the San Andres and Glorietta will produce water in this area.
3. Qualitative evaluations by TPOC personnel (the original operator) indicate that the zones, where present, will be water bearing.

EXHIBITS

1. Ownership map showing review area,
2. State 'T' No. 2 Electric Log showing Sw calculations,
3. State 'T' No. 2 MicroLog detail showing zones of permeability, and
4. Watson 1-6 CNL/FDC and Array Induction Logs showing Sw calculations.



Location of Well

	4290'	f	S/L
	500'	f	W/L

SEC. 6-165-36E

Elevation: D.F.:

K.B.:
or G.L.:

FILING No.

COI TEXAS PACIFIC
MOAL & OIL CO
WEI STATE T # 2
FIELD TOWNSEND
LOCATION SEC. 6 - 16S-36E
COUNTY LEA
STATE NEW MEXICO

COUNTY Lea
FIELD or
LOCATION Townsend
WELL State T #2
COMPANY Texas Pacific
Coal & Oil Co.

RUN No.

10-31-57

10693

4753

5940

4753

4749

10696

10692

卷二

Chem.

9356

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76 @ 37

L2 @ 77

1.6 @ 77

②

CC-30 m

77/8"

Don't

3275

1957

11/12/88

1758-HO

Winkle

Working Copy



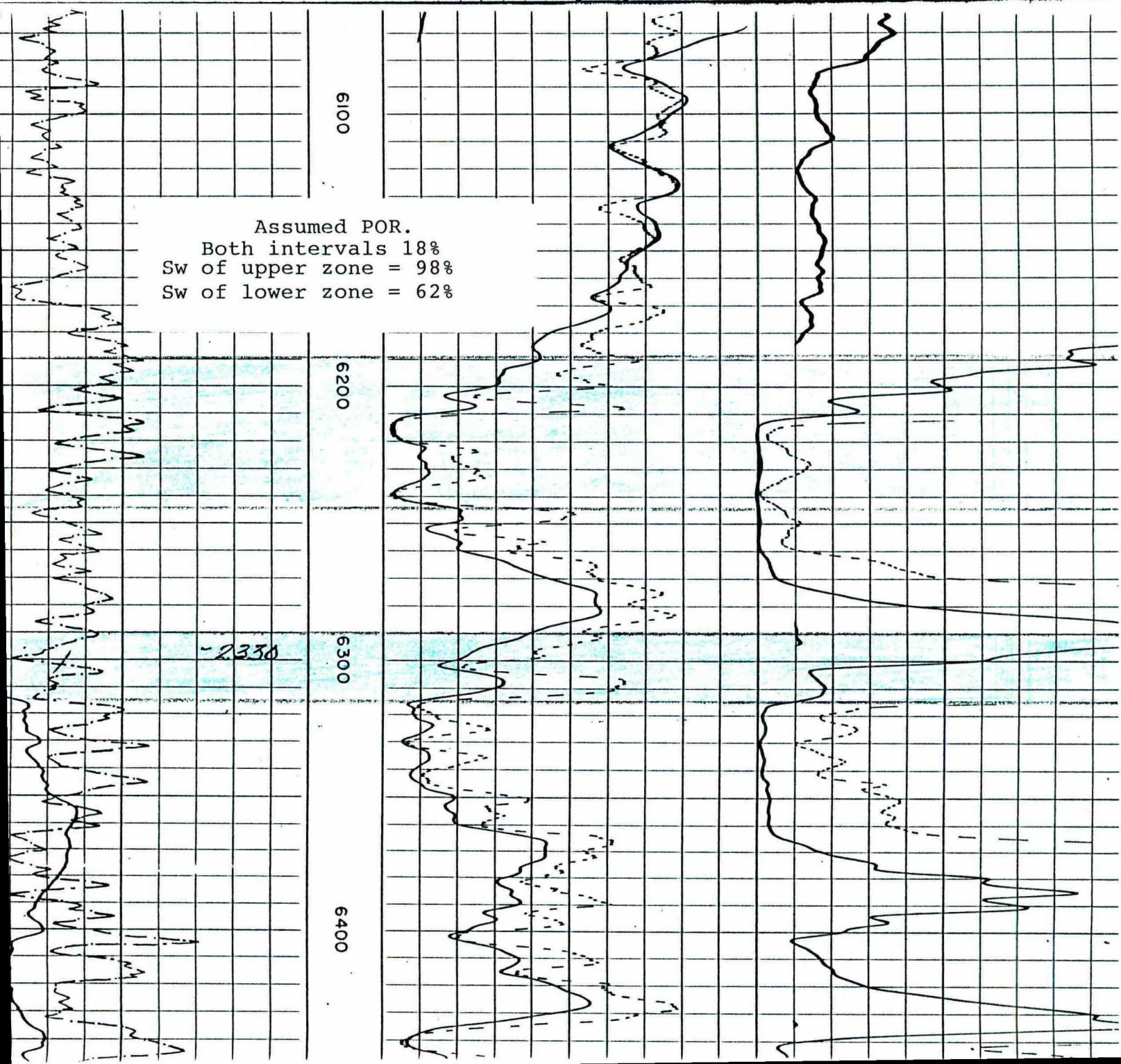
HOUSTON, TEXAS

Electrical Log

COUNTY	Lea
FIELD or LOCATION	Townsend
WELL	State T #2
COMPANY	Texas Pacific Coal & Oil Co.
COMPANY	TEXAS PACIFIC
COAL & OIL CO.	
WELL	STATE T # 2
FIELD	TOWNSEND
LOCATION	SEC. 6 - 16S-36E
COUNTY	LEA
STATE	NEW MEXICO
Other Surveys	
GR ML	
Location of Well	
4290' f S/L	
500' f W/L	
SEC. 6-16S-36E	
Elevation: D.F.:	
K.B.:	
or G.L.:	
FILING No.	

RUN No.	1
Date	10-31-57
First Reading	10693
Last Reading	4753
Feet Measured	5940
Csg. Schlum.	4753
Csg. Driller	4749
Depth Reached	10696
Bottom Driller	10692
Depth Datum	KB 11.50' Abv. GL
Mud Nat.	Chem:
Dens. Visc.	9.3 56
Mud Resist.	1.16 @ 93 %F
Res. BHT	.76 @ 137 %F
Rmf	1.2 @ 77 %F
Rmc	1.6 @ 77 %F
pH	@ 77 %F
Wtr. Loss	5 CC30 min.
Bit Size	7 7/8"
Spchs.—AM	10" NPS
AO	32" LS
AO	19" Lat.
Op. Rig Time	1 1/2 Hrs.
Truck No.	1758-Hobbs
Recorded By	Winkler
Witness	

Working Copy





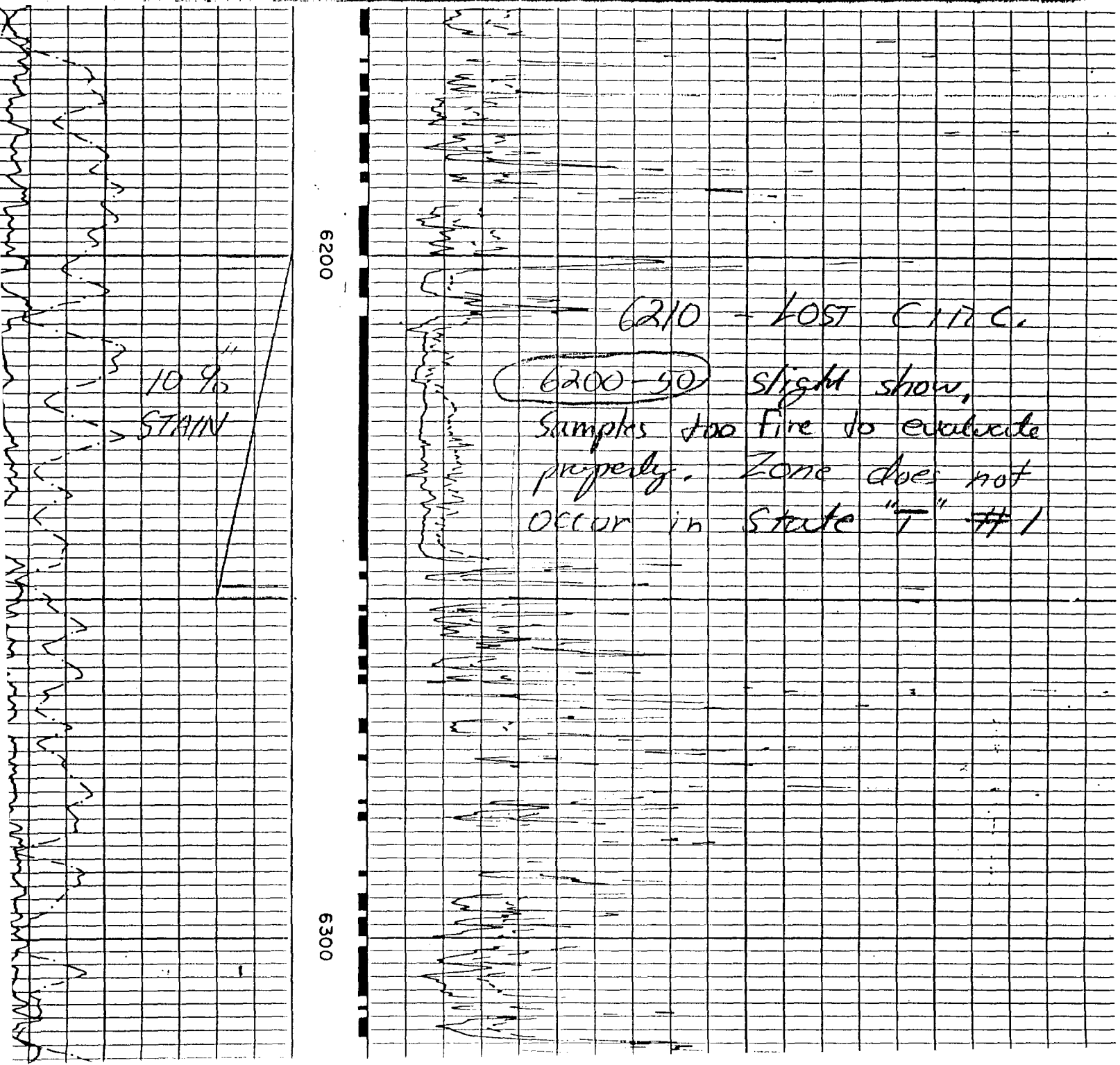
HOUSTON, TEXAS

MicroLogging®

COMPANY	TEXAS PACIFIC	Other Surveys	ES GRN
COAL & OIL CO.		Location of Well	
WELL	STATE T # 2	4290' f S/L	
FIELD	TOWNSEND	500' f W/L	
LOCATION	SEC. 6-16S-36E	SEC. 6-16S-36E	
COUNTY	LEA	Elevation: D.F.: 3975	
STATE	NEW MEXICO	K.B.: 3976	
		or G.L.: 3945	
FILING No.			

RUN No.	10-31-57	TEXAS PACIFIC OIL COMPANY
1st Reading	10695	Prop. of 0.0000
2nd Reading	5300	
3rd Reading	1495	
4th Reading	10696	
5th Reading	10692	
6th Reading	KB 11.50	Abv. GL
7th Reading	Chem.	
8th Reading	9.3 56	
9th Reading	1.6 @ 93 °F	@ °F @ °F @ °F
10th Reading	7.6 @ 137 °F	@ °F @ °F @ °F
11th Reading	@ °F	@ °F @ °F @ °F
12th Reading	5 CC 30 min	CC 30 min CC 30 min CC 30 min
13th Reading	1.2 @ 77 °F	@ °F @ °F @ °F
14th Reading	1.6 @ 77 °F	@ °F @ °F @ °F
15th Reading	.80	
16th Reading	Limit	
17th Reading	Depth 10290	
18th Reading	7 7/8"	
19th Reading	Powered	
20th Reading	H-Pad	
21st Reading	2 Hrs	
22nd Reading	1758-Hobbs	
23rd Reading	Winkler	

TEXAS PACIFIC OIL COMPANY
GEOLOGICAL DEPARTMENT



WATSON 1-6
Shoe Bar
COUNTY: Lea
STATE: New Mexico

Shoe Bar
2857 FSL & 1417 PML
Watson 1-6
Well
Company: Chesapeake Operating, Inc.
LOCATION
2857 FSL & 1417 PML
Section A, Summary 100, Temp 200
Permanent Datum
Log Measured From
Key Building
Datum Measured From
Key Building
AP Seal No
2000 24107
SECTION
8
TOWNSHIP
N35
RANGE
2E
MILE

Shoe Bar
2857 FSL & 1417 PML
Watson 1-6
Well
Company: Chesapeake Operating, Inc.
LOCATION
2857 FSL & 1417 PML
Section A, Summary 100, Temp 200
Permanent Datum
Log Measured From
Key Building
Datum Measured From
Key Building
AP Seal No
2000 24107
SECTION
8
TOWNSHIP
N35
RANGE
2E
MILE

WATSON 1-6
Shoe Bar
COUNTY: Lea
STATE: New Mexico

Shoe Bar
2857 FSL & 1417 PML
Watson 1-6
Well
Company: Chesapeake Operating, Inc.
LOCATION
2857 FSL & 1417 PML
Section A, Summary 100, Temp 200
Permanent Datum
Log Measured From
Key Building
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Shoe Bar
2857 FSL & 1417 PML
Watson 1-6
Well
Company: Chesapeake Operating, Inc.
LOCATION
2857 FSL & 1417 PML
Section A, Summary 100, Temp 200
Permanent Datum
Log Measured From
Key Building
Datum Measured From
Key Building
AP Seal No
2000 24107
SECTION
8
TOWNSHIP
N35
RANGE
2E
MILE

Spectroscopy Gamma Ray (SGR)
(GAPI) 100
Tension (TENS)
(LBF) 0
SP (SP)
(MV) 40
Caliper (MCAL)
(IN) 10
Computed Gamma Ray (CGR)
(GAPI) 100
Uranium Indicator
Spectroscopy Gamma Ray Backup

AIT-H 80 Inch Investigation (AHF80)
(OHMM) 2000
AIT-H 60 Inch Investigation (AHF60)
(OHMM) 2000
AIT-H 40 Inch Investigation (AHF40)
(OHMM) 2000
AIT-H 20 Inch Investigation (AHF20)
(OHMM) 2000
AIT-H Mud Fall Cal (AHMF)
(OHMM) 200
AIT-H 10 Inch Investigation (AHF10)
(OHMM) 2000

Time Mark Every 60 S
Tension (TENS)
(LBF) 0
Spectroscopy Gamma Ray (SGR)
(GAPI) 100
Caliper (MCAL)
(IN) 10
Computed Gamma Ray (CGR)
(GAPI) 100
Spectroscopy Gamma Ray Backup
Uranium Indicator

Env Corr Thermal Neutron Porosity (THPN)
Std. Res. Formation Po (PEF2)
(V V) 10
Std. Res. Density Porosity (DPH2)
(V V) 10
NMR Porosity CrossPlot (PXND, NLT)
(V V) 10
Density Correction (NDRA)
(G/G) 0.06
Computed in Inverse (HIM)

