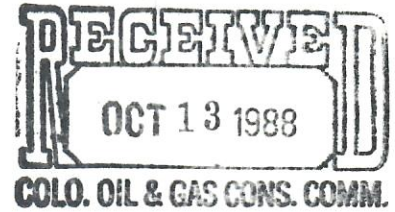




CONFIDENTIAL

Geological Report

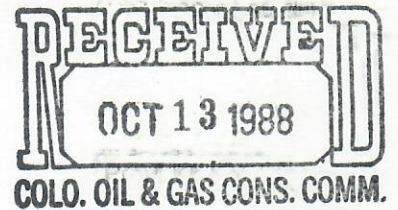


CONFIDENTIAL

Box Elder #11-24
E/2 SW Section 11, T3S, R65W
Adams County, Colorado

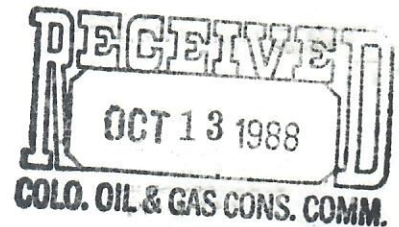
Larry S. Burt
Consulting Geologist

X



Chronological Well Record

Date	8:00 AM Depth	Footage Made 24 Hours	Present Operation	Activity During Previous 24 Hour Period
7-14-88	0	0	Rig Up	Move On Location
7-15-88	1240	1240	Drilling	Spud 9:30 A.M. 7-14-88. Ran 5 Jts 9 5/8" 36# Csg 202'. Set @ 212' K.B. Plug Down 3:45 P.M. 3-14-88. Woc 10 1/2 Hrs. Drill 5 1/2 Hrs.
7-16-88	3616	2376	Drilling	Drill 9 1/2 Hrs. Trip For N.B. 3 1/2 Hrs. Drill 11 Hrs.
7-17-88	4995	1379	Drilling	Drill & Survey 24 Hrs.
7-18-88	6079	1084	Drilling	Drill & Survey 24 Hrs.
7-19-88	7238	1159	Drilling	Drill & Survey 24 Hrs.
7-20-88	7764	526	Drilling	Drill 7 Hrs. Trip N.B. 10 Hrs. Drill 7 Hrs.
7-21-88	8208	444	Drilling	Drill 10 Hrs. Trip N.B. 7 1/2 Hrs. Drill 5 1/2 Hrs.
7-21-88	8282	74	T.D.	Drill 9 Hrs. 10 Min. Reach T.D. 8282 @ 5:10 P.M. 7-21-88 Condition For Logs. Run Logs. Plug & Abandon.



Well History

Operator: Ampet, Inc.

Well Name: Box Elder 11-24

Well Location: C E/2 SW/4 Section 11, T3S, R65W
Adams County, Colorado

Field: Mandala

Elevation: GL 5397 KB 5407

Spud Date: 9:30 A.M. 7-14-88

Completed Drilling: 5:10 P.M. 7-21-88

Surface Casing: Ran 5 Jts 9 5/8" 36# Csg 202'. Set @ 212' K.B.
Cmt W/180 Sxs 3% CaCl₂. Plug Down 3:45 P.M.
7-14-88.

Contractor: Allison Bros. Drilling
Tool Pusher: D. Jackson

Mud Company: Quality
Engineer: F. Rothage

Electric Logs: Welex
Engineer: B. Hockert
Dil 210' -- 8279'
FDC/CNL 7380' -- 8279'

DST: None

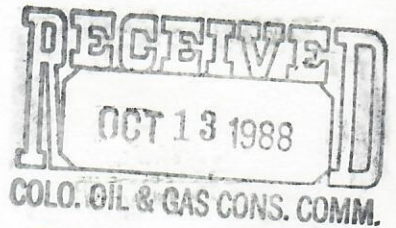
Cores: None

Geologist: Larry S. Burt

Samples: 10' Samples 7900' - T.D.

Total Depth: Driller 8282 Logger 8281

Status: Plug And Abandon



Bit Record

No.	Size	Make	Type	Depth Out	Footage Made	Hour Run
1A	13 3/8	HTC	DSC3	220	220	2
1	7 7/8	STC	FDS	2664	2434	13 1/2
2	7 7/8	CRYSTA	SB	7510	4864	79 3/4
3	7 7/8	HTC	J-05	8139	629	15 3/4
4	7 7/8	HTC	J-44	8282	143	14 1/2

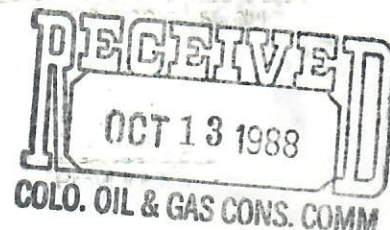
Deviation

Depth	Deviation	Depth	Deviation	Depth	Deviation
220	1/2	4115	2 3/4	5992	1/4
1240	1/4	4588	4	6457	3/4
2230	1/4	4715	4 3/4	6949	1/2
2664	1/2	4840	4 1/4	7510	4
2938	2	4965	3 3/4	7997	3/4
3183	1/2	5212	3 3/4	8139	1
3615	1	5492	2	8282	1

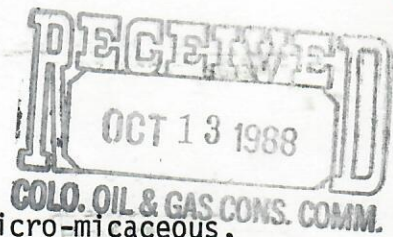
Mud Properties

<u>Date</u>	<u>Depth</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Water Loss</u>
7-20-88	8050	8.8	36	7.2
7-21-88	8193	8.9	40	7.4
7-21-88	8282	9.0	97	7.2

Sample Description
(Corrected To Log Depth)

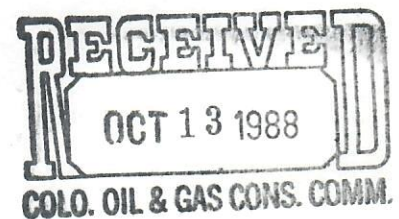


- 7900-7910 Shale, medium to dark gray, blocky to fissile, micro-micaceous, trace siltstone, off-white to light gray, salt and pepper, trace glauconite, finely micaceous, trace bentonite, off-white to gray-green, finely micaceous, no show, no fluor, very slightly calcareous.
- 7910-7920 Shale, medium to dark gray, blocky to fissile, micaceous, trace bentonite, off-white, finely micaceous, no show, no fluor, very slightly calcareous.
- 7920-7930 Shale, as above.
- 7930-7940 Shale, medium to dark gray, blocky to fissile, trace splintery, micro-micaceous, trace siltstone, as above, trace bentonite, off-white to tan, finely micaceous, no show, no fluor, very slightly calcareous.
- 7940-7950 Shale, as above.
- 7950-7960 Shale, medium to dark gray, blocky to fissile, micro-micaceous, increase in siltstone, as above, trace bentonite, as above, no show, no fluor, very slightly calcareous.
- 7960-7970 Shale, medium to dark gray, fissile to blocky, micro-micaceous, trace bentonite, off-white to light gray, finely micaceous, trace siltstone, as above, no show, no fluor, very slightly calcareous.
- 7970-7980 Shale, as above, increase in siltstone, off-white to light gray, salt and pepper, trace micaceous, trace glauconite, trace bentonite, off-white to light gray, finely micaceous, no show, no fluor, very slightly calcareous.
- 7980-7990 Shale, as above.
- 7990-8000 Shale, medium to dark gray, blocky to fissile, micro-micaceous, trace bentonite, as above, trace siltstone, as above, no show, no fluor, very slightly calcareous.
- 8000-8010 Shale, medium to dark gray, blocky to fissile, trace splintery, micro-micaceous, trace bentonite, as above, trace siltstone, as above, no show, no fluor, very slightly calcareous.
- 8010-8020 Shale, as above.
- 8020-8030 Shale, medium to dark gray, blocky to fissile, trace splintery, micro-micaceous, some bentonite, off-white to gray-green, finely micaceous, no show, no fluor, very slightly calcareous.



- 8030-8040 Shale, as above.
- 8040-8050 Shale, medium to dark gray, blocky to fissile, micro-micaceous, trace bentonite, as above, trace pyrite, no show, no fluor, very slightly calcareous.
- 8050-8060 Shale, medium to dark gray, blocky to fissile, trace splintery, micro-micaceous, trace bentonite, off-white to tan, finely micaceous, no show, no fluor, very slightly calcareous.
- 8060-8070 Shale, as above.
- 8070-8080 Shale, medium to dark gray, blocky to fissile, micro-micaceous, trace bentonite, as above, no show, no fluor, very slightly calcareous.
- 8080-8090 Shale, medium to dark gray, blocky to fissile, micro-micaceous, trace bentonite, off-white to tan, finely micaceous, trace pyrite, no show, no fluor, very slightly calcareous.
- 8090-8100 Shale, as above.
- 8100-8110 Shale, medium to dark gray, blocky to fissile, micro-micaceous, trace bentonite, as above, trace pyrite, no show, no fluor, siliceous.
- 8110-8120 Shale, as above.
- 8120-8126 Shale, medium to dark gray, fissile to blocky, micro-micaceous, trace bentonite, off-white, finely micaceous, trace pyrite, sandy in part, no show, no fluor, siliceous.
- 8126-8150 Sandstone, light gray to tan, some off-white to clear, salt and pepper, fine grain, poorly to moderately sorted, abundant clay filling, trace glauconite, trace fluor, slow streaming milky cut, poor show.
- 8150-8160 Shale, medium to dark gray, blocky to fissile, micro-micaceous, trace bentonite, off-white, finely micaceous, trace pyrite, sandy in part, no show, no fluor, siliceous.
- 8160-8170 Shale, medium to dark gray, fissile to blocky, micro-micaceous, trace pyrite, no show, no fluor, siliceous.
- 8170-8190 Sandstone, off-white to clear, some tan to brown, fine grain, moderately to poorly sorted, abundant clay filling, tight, no show, spotted weak fluor, weak milky cut, siliceous.
- 8190-8200 Sandstone, clear to off-white, some tan to brown, fine to trace medium grain, moderately sorted, some clay filling, trace staining, trace fluor, fair streaming cut, fair show, siliceous.

- 8200-8210 Sandstone, as above, shale stringer, medium to dark gray, fissile to blocky, micro-micaceous, trace pyrite, show and fluor, as above.
- 8210-8220 Shale, medium to dark gray, blocky to fissile, micro-micaceous, sandstone stringer, as above, siliceous.
- 8220-8230 Shale, medium to dark gray, fissile to blocky, micro-micaceous, trace bentonite, off-white to tan, finely micaceous, trace pyrite, no show, no fluor, siliceous.
- 8230-T.D. Shale, medium to dark gray, fissile to blocky, some splintery, micro-micaceous, trace bentonite, off-white to tan, finely micaceous, trace pyrite, no show, no fluor, slightly calcareous.



Geological Summary

The Box Elder #11-24, drilled to a total depth of 8282' in the E/2 SW Section 11, T3S, R65W, Adams County, Colorado. This well encountered no mechanical problems during the drilling of this J Sand test. The following is a summary of the possible producing zones encountered during the drilling of this well.

The "D" Sand was topped at 8126' (-2719). There was no significant drill rate change encountered during the drilling of this formation. Resistivity reached a maximum of 30 OHMS, with a maximum of 6% density porosity and no FDC/CNL cross-over. The gas detection unit showed an increase of 54 units through this zone. This zone would not be commercial at this location.

The "J" Sand was topped at 8170' (-2763'). There was no significant drill rate change associated with this zone. Resistivity reached a maximum of 20 OHMS, with a maximum of 9% density porosity and 2' of FDC/CNL cross-over. The gas detection unit showed an increase of 20 units in this zone. This zone would not be commercial at this location.

RECEIVED
OCT 13 1988
COLO. OIL & GAS CONS. COMM.

Electric Log Tops

<u>Formation</u>	<u>Log Tops</u>	<u>Sub-Sea</u>
X-Bentonite	8028	-2621
'D' Sand	8126	-2719
'J ₁ ' Sand	8170	-2763
'J ₂ ' Sand	8187	-2780
'J ₃ ' Sand	8206	-2799
T.D.	8281	-2874

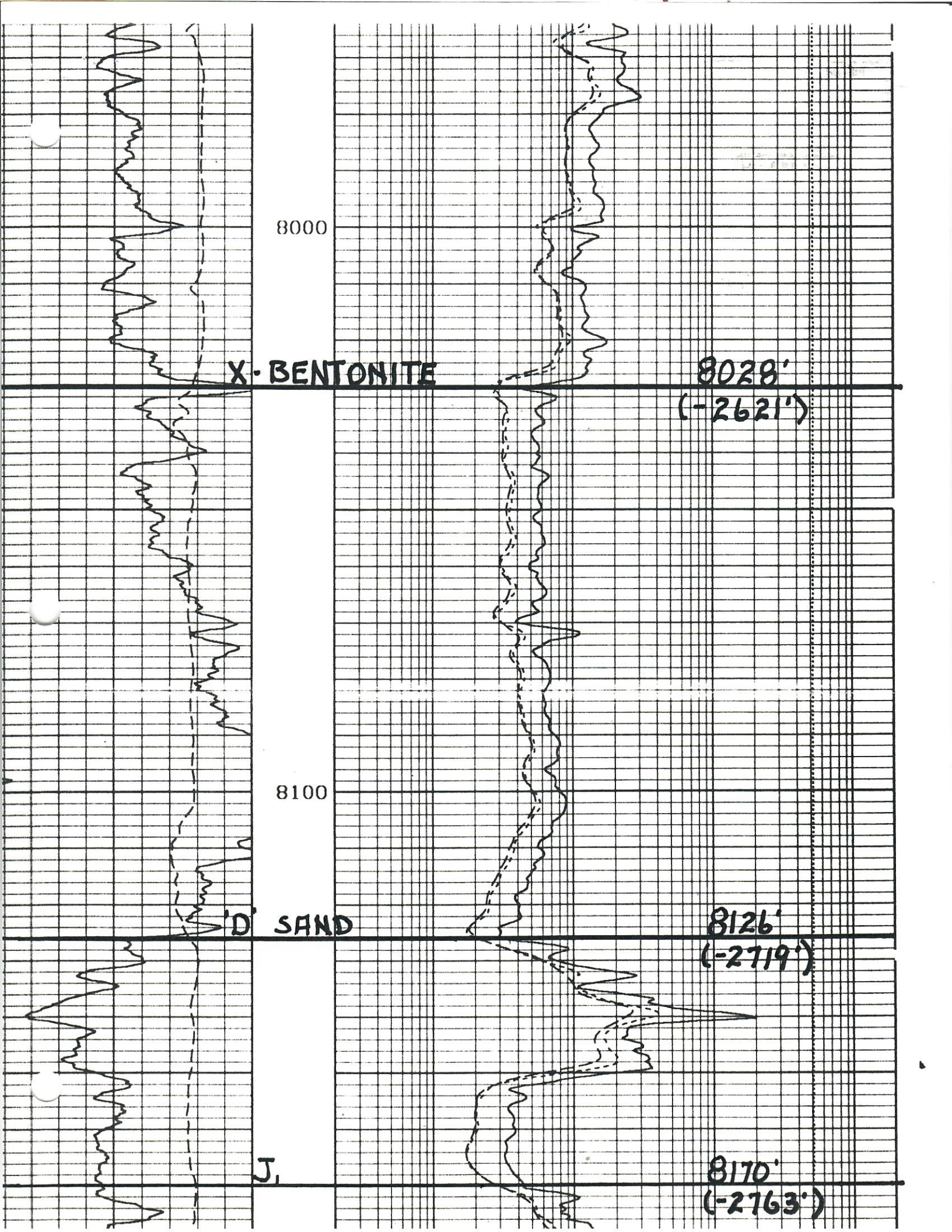
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OCT 13 1988
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DUAL INDUCTION SHORT GUARD LOG

COMPANY		COMPANY AMPET INC.		
WELL		WELL BOX ELDER NO. 11-24		
FIELD		FIELD WATTENBERG		
COUNTY		COUNTY ADAMS	STATE CO	
		API NO.	OTHER SERVICES	
		LOCATION C - E/2 - SW/4	DIGL	
			DSNII-SDL	
		SEC. 11	TWP 3S	RGE 65W
PERMANENT DATUM G.L.		ELEV. 5397	ELEV.: K.B. 5407	
LOG MEASURED FROM KB		10 FT. ABOVE PERM. DATUM	D.F. 5406	
DRILLING MEASURED FROM KB			G.L. 5397	
DATE	7/22/88			
RUN NO.	ONE			
DEPTH-DRILLER	8282			
DEPTH-WELEX	8281			
BTM. LOG INTER.	8279			
TOP LOG INTER.	210			
CASING-DRILLER	9 5/8*212	.	.	.
CASING-WELEX	210			
BIT SIZE	7 7/8			
TYPE FLUID IN HOLE	GEL CHEM			
DENS. : VISC	9.0 : 137	:	:	:
PH : FLUID LOSS	8.0 : 17.2	:	:	:
SOURCE OF SAMPLE	CIRC			
RM * MEAS. TEMP.	5.0 * 85	.	.	.
RMF * MEAS. TEMP.	4.4 * 85	.	.	.
RMC * MEAS. TEMP.	6.1 * 85	.	.	.
SOURCE RMF : RMC	MEAS : MEAS	:	:	:
RM * BHT	2.3 * 180	.	.	.
TIME SINCE CIRC.	5 HRS			
TIME ON BOTTOM	0200			
MAX. REC. TEMP.	180 * TD	.	.	.
EQUIP. : LOCATION	8281 : BRIGH	:	:	:
RECORDED BY	HOCKERT	FROST		
WITNESSED BY	L. BURT			

RECEIVED
OCT 13 1988
COLO. OIL & GAS CONS. COMM.



8000

X-BENTONITE

8028'
(-2621')

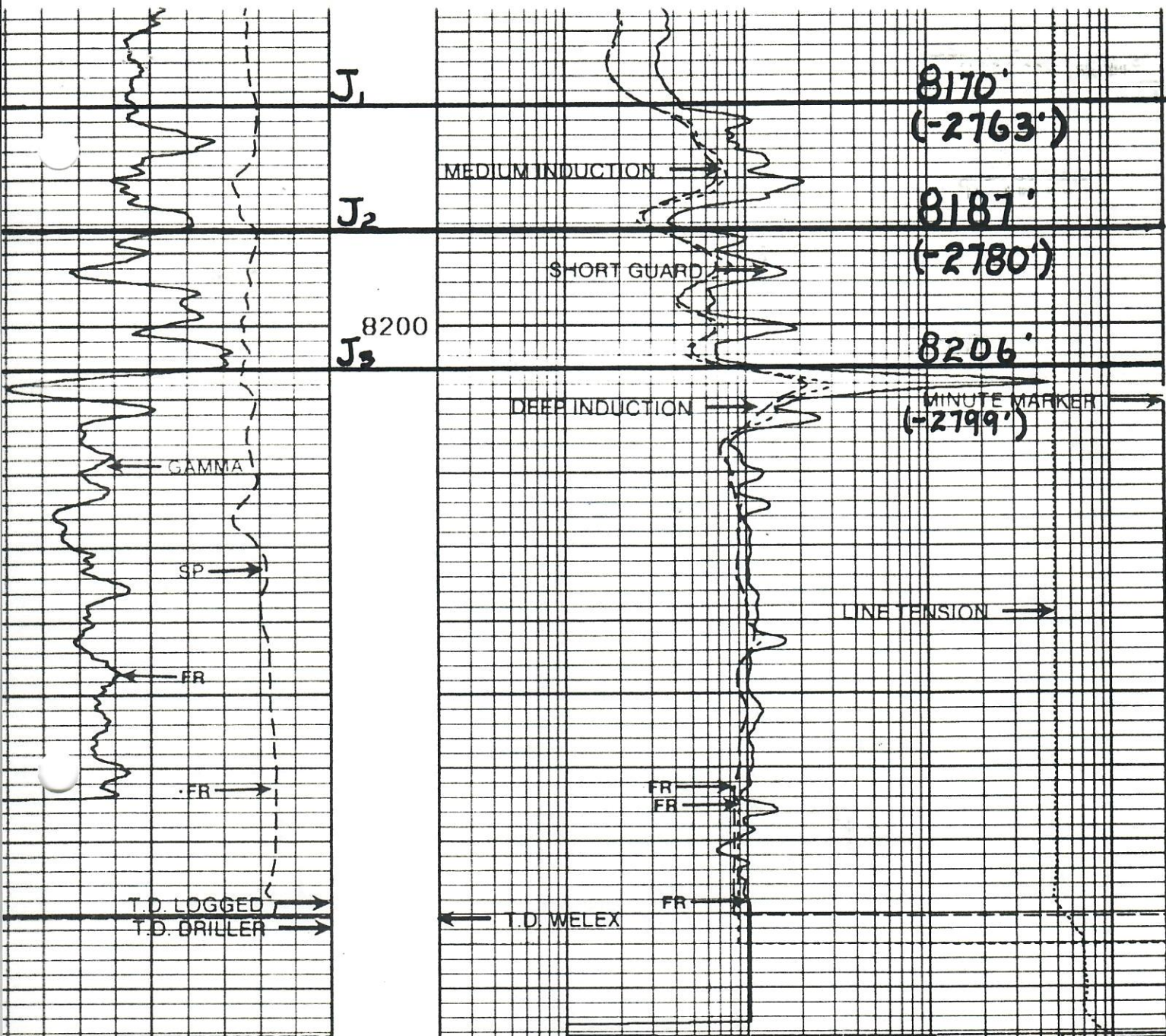
8100

D SAND

8126'
(-2719')

J

8170'
(-2763')



TENSION
 10000 POUNDS 0

DEEP		
.2	OHM-M	2000
	MEDIUM	
.2	OHM-M	2000
	GUARD	
.2	OHM-M	2000

SP	
-120 [+	
GAMMA	
API	200



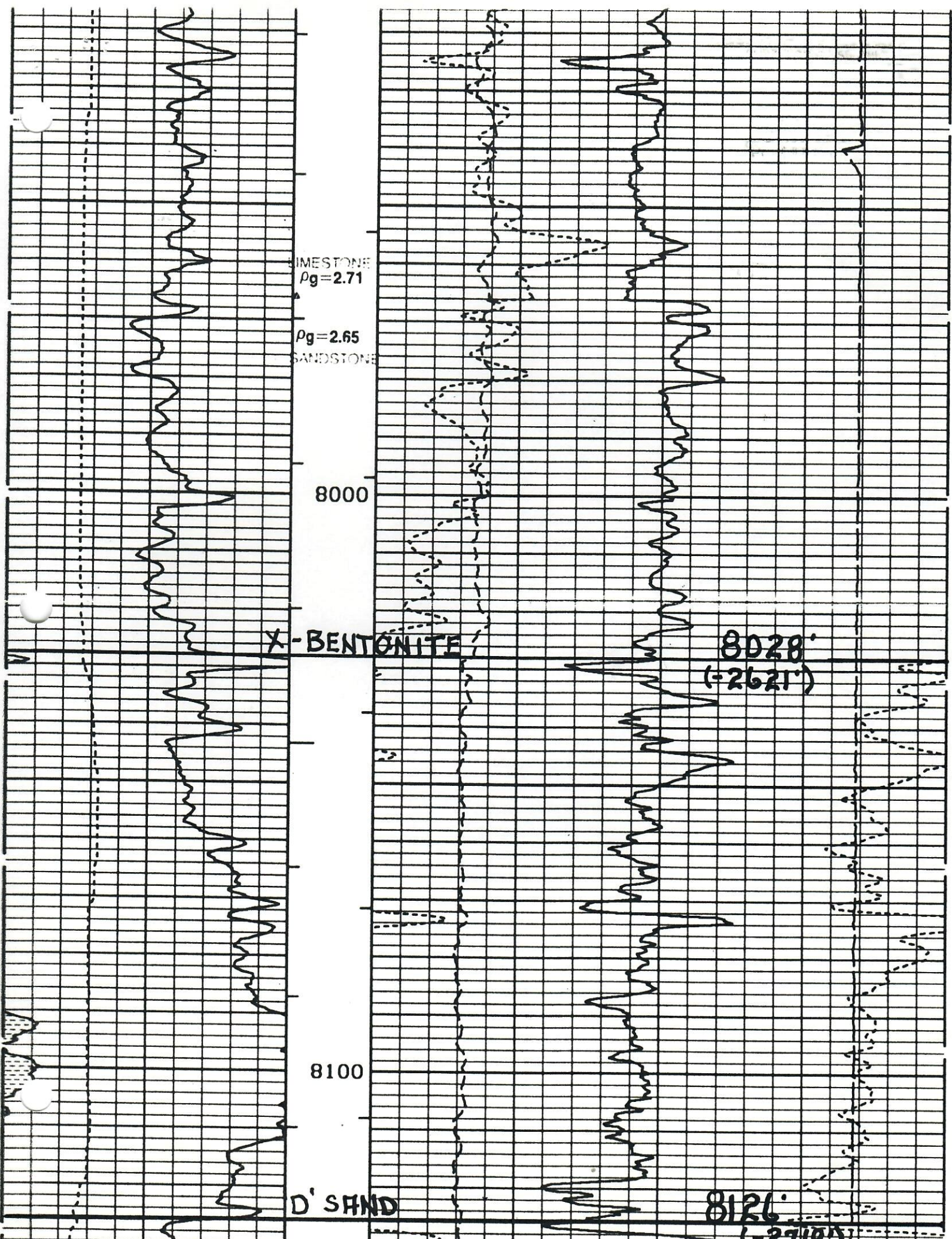
**SPECTRAL DENSITY
DUAL SPACED
NEUTRON II LOG**

COMPANY AMPET INC.
WELL BOX ELDER NO. 11-24
FIELD WATTENBERG
COUNTY ADAMS STATE CO

API NO. LOCATION C - E/2 - SW/4
SEC. 11 TWP 3S RGE 65W
OTHER SERVICES DIGL

PERMANENT DATUM G.L. ELEV. 5397
LOG MEASURED FROM KB 10 FT. ABOVE PERM. DATUM
DRILLING MEASURED FROM KB ELEV.: K.B. 5407
D.F. 5406
G.L. 5397

DATE	7/22/88			
RUN NO.	ONE			
DEPTH-DRILLER	8282			
DEPTH-WELEX	8281			
BTM. LOG INTER.	8279			
TOP LOG INTER.	7380			
CASING-DRILLER	9 5/8*212	e	e	e
CASING-WELEX	210			
BIT SIZE	7 7/8			
TYPE FLUID IN HOLE	GEL CHEM			
DENS. : VISC	9.0 : 137	i	i	i
PH : FLUID LOSS	8.0 : 7.2	i	i	i
SOURCE OF SAMPLE	CIRC			
RM e MEAS. TEMP.	5.0 e85	e	e	e
RMF e MEAS. TEMP.	4.4 e85	e	e	e
RMC e MEAS. TEMP.	6.1 e85	e	e	e
SOURCE RMF : RMC	MEAS : MEAS	i	i	i
RM e BHT	2.3 e180	e	e	e
TIME SINCE CIRC.	5 HRS			
TIME ON BOTTOM	0200			
MAX. REC. TEMP.	180 eTD	e	e	e
EQUIP. : LOCATION	8281 : BRIGH	i	i	i
RECORDED BY	HOCKERT	FROST		
WITNESSED BY	L. BURT			



LIMESTONE
 $\rho_g = 2.71$

$\rho_g = 2.65$
SANDSTONE

8000

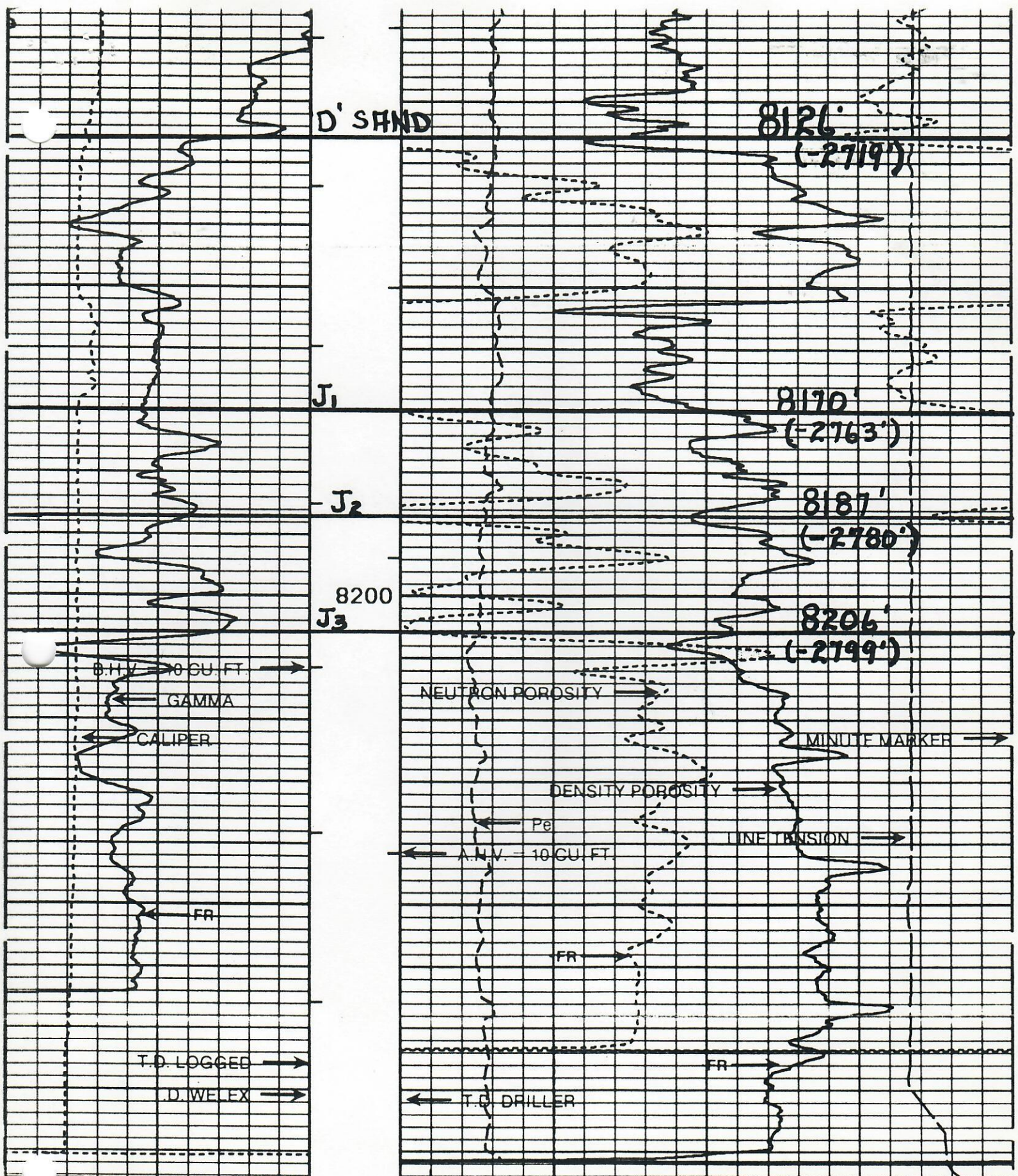
X-BENTONITE

8028'
(=2621')

8100

D' SAND

8126'



SDL PE		TENSION	
0	10	10000	0
		POUNDS	
GAMMA		DEN POROS	