Schlumberger

SIMULTANEOUS
COMPENSATED NEUTRON-FORMATION DENSITY

UGR File L 81

FILE COPY

COMPANY	KENTUCKY WEST VIRGINIA GAS CO.
WELL	NICHOLAS COMBS #7239
FIELD	HAZARD
COUNTY	PERRY
STATE	KENTUCKY
LOCATION	N. 155.98, E. 165, ON WATERS OF BOWMAN BR. OF LOST CREEK PERMIT #28682
Other Services:	BHC-AMP, HDT, HRT

Permanent Datum: GROUND LEVEL	Elev. 1079.60	Elev.: K.B. 1089.60
Log Measured From K.B., 10 Ft. Above Perm. Datum		D.F.
Drilling Measured From K.B.		G.L. 1079.60

Date	7-4-75			
Run No.	ONE			
Depth—Driller	2734			
Depth—Logger	2729			
Btm. Log Interval	2728			
Top Log Interval	1896			
Casing—Driller	7" @ 1895	@	@	@
Casing—Logger	1896			
Bit Size	7-7/8"			
Type Fluid in Hole	FRESH WATER			
Dens. / Visc.				
pH / Fluid Loss	12.0 / ml	ml	ml	ml
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Source: Rmf / Rmc				
Rm @ BHT	@ °F	@ °F	@ °F	@ °F
Circulation Stopped				
Logger on Bottom				
Max. Rec. Temp.	71 °F	°F	°F	°F
Equip. / Location	7699 / PAINTSVILLE			
Recorded By	HALL-ROBERTS			
Witnessed By	HAGER-RHOADES			

EASTERN GAS SHALES PROJECT
MORGANTOWN ENERGY RESEARCH CENTER
P. O. BOX 880
MORGANTOWN, W.VA. 26505

FOLD HERE — The well name, location and borehole reference data were furnished by the customer.

RUN NO.	ONE
Service Order No.	18688
Fluid Level	
Salinity, PPM CL.	
Speed - F.P.M.	
EQUIPMENT DATA	
Dens. Panel	256
Dens. Cart.	227
Dens. Skid.	1095
Dens. Sonde	120
Dens. Source	2931
Dens. Calibrator	311
Neut. Panel	304
Neut. Cart.	
Neut. Source	303
Neut. Calibrator	298
GR Cart.	424
Memorizer Panel	219
Tape Recorder (TTR)	866
Depth Encoder (DRE)	
Pressure Wheel (CPW)	
Centralizers: Enter Spring, Standoffs, In-line, or None — Type / No. / S. O. — Inches	
CALIBRATION DATA	
GR — BKG. CPS	100
GR — Source CPS	CAL
GR — Sens. - Cal	
GR — T. C. - Cal	600
CNL — Short Spacing - Before Log	3120
CNL — Long Spacing - Before Log	1360
CNL — Short Spacing - After Log	3120
CNL — Long Spacing - After Log	1360
FDC — P¹ — Before Log	480
FDC — P² — Before Log	728
FDC — P¹ — After Log	480
FDC — P² — After Log	728

SCALE CHANGES			
Type Log	Depth	Scale Up Hole	Scale Down Hole
GR	2251	0-200	0-400

REMARKS:
NOTE: REPEATS ONLY
G-R IS RECORDED 6' DEEP
CNL IS RECORDED 13' SHALLOW

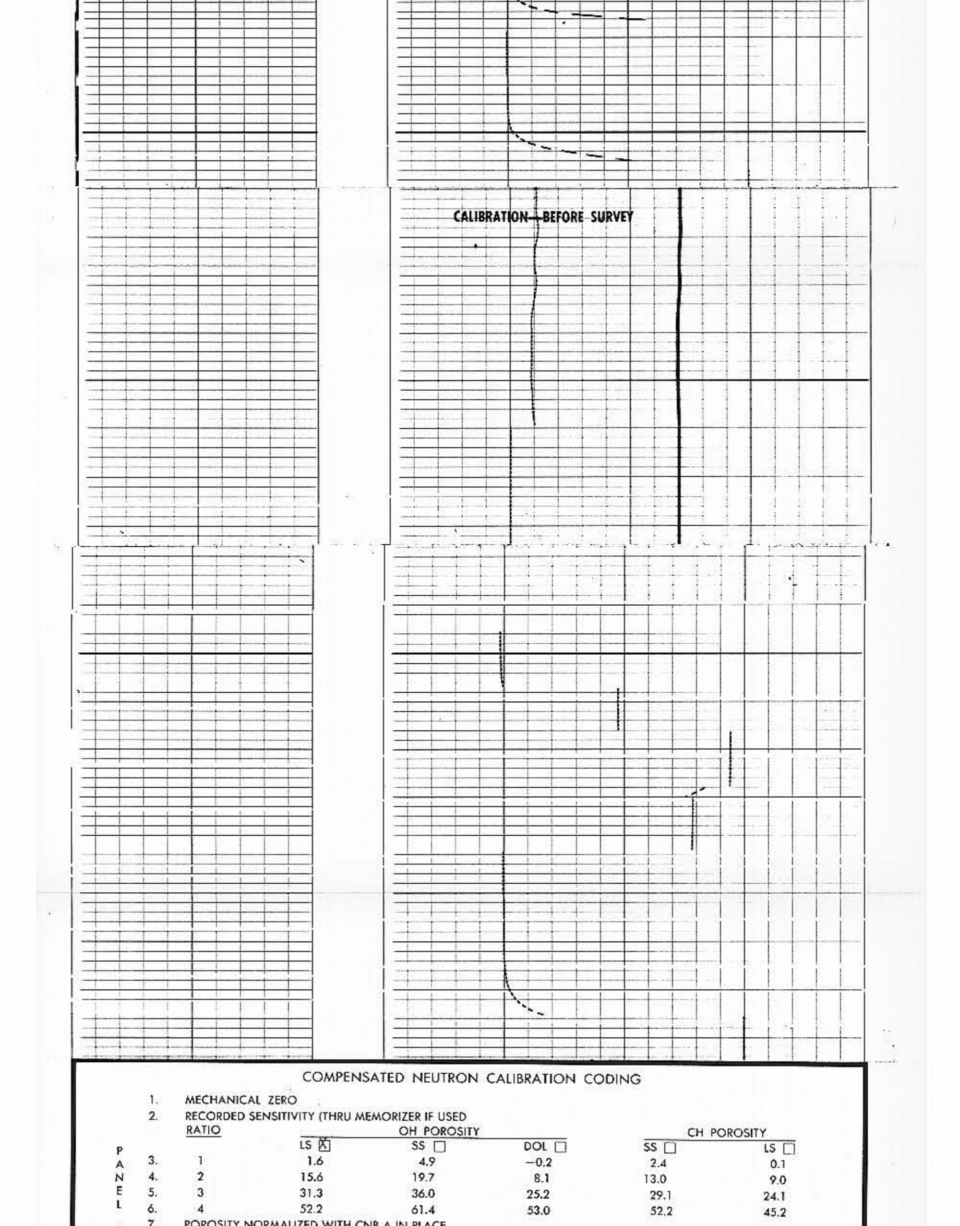
LOGGING DATA

Depth Top	Depth Bottom	CNP Porosity Scale	CNP Matrix	CNP Auto Corr. or Hole Size Setting	FDC Porosity Scale	FDC Grain Density	FDC Liquid Density	FDC Hole Fluid	GR Sens. Logged	GR T. C.	GR Zero Div. Left	GR Scale Per 100 Div.
T.D.	CSG	30/-10	LM	YES	30/-10	2.71	1.0	LIQ.				

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and we do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to Clause 7 of our General Terms and Conditions as set out in our current Price Schedule.

CALIPER — DIAM. IN INCHES	DEPTH	POROSITY INDEX % LIME MATRIX — COMPENSATED FORMATION DENSITY POROSITY
6 — 16		30 — 20 — 10 — 0 — -10
GAMMA RAY — API UNITS: 0 — 200; 200 — 400		COMPENSATED NEUTRON POROSITY

CALIPER — DIAM. IN INCHES	DEPTH	CORRECTION — GRAMS CC
6 — 16		Use this scale when correction curve is presented in Track 2 OR Use this scale when correction curve is presented in Track 3
GAMMA RAY — API UNITS: 0 — 200; 200 — 400		BULK DENSITY — GRAMS CC: 30 — 20 — 10 — 0 — -10
		FORMATION FACTOR



COMPENSATED NEUTRON CALIBRATION CODING

1. MECHANICAL ZERO
2. RECORDED SENSITIVITY (THRU MEMORIZER IF USED)

PANEL TEST	RATIO	OH POROSITY LS ☒	OH POROSITY SS ☐	OH POROSITY DOL ☐	CH POROSITY SS ☐	CH POROSITY LS ☐
3.	1	1.6	4.9	-0.2	2.4	0.1
4.	2	15.6	19.7	8.1	13.0	9.0
5.	3	31.3	36.0	25.2	29.1	24.1
6.	4	52.2	61.4	53.0	52.2	45.2

7. POROSITY NORMALIZED WITH CNB-A IN PLACE
7A. TOOL IN NCT-B
8. LOG POSITION WITH CNB-A IN PLACE
8A. LOG POSITION WITH TOOL IN NCT-B

OH LS	OH SS	OH DOL	CH SS	CH LS
18	22.2	10.4	15.3	11.2

RATIO (NORMALIZED) = 2.17 RATIO (NCT-B) RATIO LOG