GEARHART

DUAL LATEROLOG WITH MSFL

FILING NO.

COMPANY ARCO OIL AND GAS COMPANY

WELL EMMA LAWRENCE NO. 1

FIELD SOUTH KNOWLES

COUNTY LEA STATE NEW MEXICO

LOCATION: 1980' FSL & 660' FEL
API NO. 30-025-29151

SEC 23 TWP 17-S RGE BLK. 38-E

Other Services: CDL CNS

Permanent Datum GL Elev. 3663.3
Log Measured from KB 18 Ft. Above Perm. Datum
Drilling Measured from KB

Elev. K.B. 3681.3
D.F. 3680.3
G.L. 3663.3

Date	05-02-85			
Run No.	One			
Depth—Driller	12245			
Depth—Logger	12249			
Bottom Logged Interval	12247			
Top Logged Interval	5011			
Casing—Driller	8 5/8 @ 5020	@	@	@
Casing—Logger	5011			
Bit Size	7 7/8			
Type Fluid in Hole	FW Gel & Drispac			
Density / Viscosity	9.3 / 39			
ph / Fluid Loss	10 / 8.8 cc	cc	cc	cc
Source of Sample	Flowline			
Rm @ Meas. Temp.	0.242 @ 76 °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	0.237 @ 67 °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	N/A @ N/A °F	@ °F	@ °F	@ °F
Source of Rmf / Rmc	Meas. / N/A			
Rm @ BHT	0.120 @ 160 °F	@ °F	@ °F	@ °F
Time: End Circulation	1630			
Time: Logger on bottom	2300			
Max. Rec. Temp. Deg. F.	160 °F	°F	°F	°F
Equip. No / Location	7638 / Hobbs			
Recorded By	Webster			
Witnessed By	Mr. Lowder / Mr. Gates			

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Scale Changes

Type Log	Depth	Scale Up Hole	Scale Down Hole

Changes in Mud Type or Additional Samples

Date	Sample No.	Depth-Driller	Type Fluid in Hole	Dens.	Visc.	pH	Fluid Loss	Source of Sample	Rm @ Meas. Temp	Rmf @ Meas. Temp	Rmc @ Meas. Temp	Source Rmf Rmc	Rm @ BHT	Rmf @ BHT	Rmc @ BHT
							cc		°F	°F	°F		°F	°F	°F
							cc		@ °F	@ °F	@ °F		@ °F	@ °F	@ °F

EQUIPMENT DATA

DUAL LATEROLOG Run No.	Tool No.	Tool Type	Tool Position	GAMMA RAY S.O.	Tool No.	Tool Type	OTHER Tool No.
One	18	DLT-BA	Central	Spring	3056	UGR-HA	1823 MSFL

CALIBRATION DATA

Run No.	LLD High	LLD Low	LLD Gain	LLS High	LLS Low	LLS Gain	MSFL LOW	MSFL HIGH	GAMMA RAY API Scale	GAMMA RAY BKG.	GAMMA RAY STD
One	73K	N/A	1100	74K	N/A	2070	999	-0.8	0-100	80.1	585.6
	73K	N/A	1105	74K	N/A	2067	999	-0.8	Before		
									After		

REMARKS: Rig-Moranco No. 2 Chlorides-30,000 ppm

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COMPENSATED DENSITY COMPENSATED NEUTRON LOG

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DLL/MSFL

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D.F. 3680.3
G.L. 3663.3

Date		05-02-85						
Run No.		One						
Depth-Driller		12245						
Depth-Logger		12248						
Bottom logged interval		12246						
Top logged interval		Surface						
Type fluid in hole		FW Gel & Drispac						
Density	Visc.	9.3	39					
pH	Fluid Loss	10	8.8					
Max rec. temp., deg F.		160 °F		°F		°F		°F
Source of Samples		Flowline						
Rm @ Meas. Temp.		0.242 @ 76 °F		@ °F		@ °F		@ °F
Rmf @ Meas. Temp.		0.237 @ 67 °F		@ °F		@ °F		@ °F
Rmc @ Meas. Temp.		N/A @ N/A°F		@ °F		@ °F		@ °F
Source Rmf	Source Rmc	Meas.	N/A					
Time: End Circulation		1630						
Time: Logger on Bottom		0630						
Recorded By		Webster						
Witnessed By		Mr. Lowder/Mr. Gates						

Run No.	Bore-Hole Record Bit	From	To	Casing Record Size	Wgt.	From	To
One	17 1/2	418	Surface	13 3/8	54	418	Surface
One	11.0	5020	418	8 5/8	28	5020	418
One	7 7/8	12245	5020				

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EQUIPMENT DATA

Run No.	Logging Unit	Location	Gamma Ray Tool No.	Compensated Density Tool No.	Compensated Density Source No.	Compensated Density Source Type	Compensated Density Source Stg.	Compensated Neutron Tool No.	Compensated Neutron Source No.	Compensated Neutron Source Type	Compensated Neutron Source Stg.
One	7638	Hobbs	3056	2595	CSV-363	Cs-137	2 Cu	9207	712A719	AmBe 241	20 Cu

CALIBRATION DATA

Run No.	Gamma Ray Bkg. cps	Gamma Ray Std. cps	Compensated Density Magnesium LS	Compensated Density Magnesium SS	Compensated Density Aluminum LS	Compensated Density Aluminum SS	Compensated Density Test Block LS	Compensated Density Test Block SS	Compensated Density Caliper L. Ring	Compensated Density Caliper S. Ring	Compensated Neutron Calibrator LS	Compensated Neutron Calibrator SS	Compensated Neutron Caliper L. Ring	Compensated Neutron Caliper S. Ring
One	85.4	614.8	1031.0	546.8	234.6	378.0	250.8	354.4	7861	3572	413.0	381.4	7656	3694

LOGGING DATA

Run No.	General Depth From	General Depth To	General Speed FPM	Gamma Ray TC	Gamma Ray API PER LOG DIV.	Compensated Density TC	Compensated Density Matrix Density	Compensated Density Fluid Density	Compensated Neutron TC	Compensated Neutron Matrix Type	Compensated Neutron Const. "K"	Compensated Neutron Temp. Grad.	Compensated Neutron Salinity PPM NaCL	Compensated Neutron Surf. Temp.
One	12245	5020	30	Auto	10	Auto	2.71	1.10	Auto	Lime	0.976	0.8	30,000	65
	5020	Surf.	50											