

December 3, 1965

Cactus Drilling Corporation Drawer 71 San Angelo, Texas

> RE: Formation Test No. 4 Navajo "A" No. 1 Field Report No. 17666-A

Gentlemen:

Enclosed is a copy of the Productivity Log obtained during the above referenced test along with the Technical Reports.

The subject test was conducted utilizing our "MFE" and Productivity Logging system of tools. The recovery data indicate this to be essentially a dry test as no show of formation fluid was noted in the recovery.

The log obtained "Before" test is presented for your review. An "After" log was not obtained due to a malfunction in the starting mechanism. The equipment was completely checked at the conclusion of this job and the trouble removed.

Please accept our appreciation for your use of this service.

Yours very truly,

A. T. Campbell, Jr.

A. T. Campus &

Manager, Interpretation and

Evaluation

ATC:mc





MULTI-FLOW EVALUATOR (MFE)

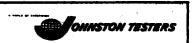
Field Data Technical Report

The Multi-Flow Evaluator (MFE) is a wholly new formation evaluation tool that provides test data on an unlimited number of flow and shut-in pressure tests, plus a pressurized formation fluid sample under final flowing pressure. This sample may be drained at the well site, at our field location, or in your laboratory.

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SURFACE INF	ORMATION			EQUIPMENT, H	OLE & MUD [DATA	
		Pressure	Surface	M E	E. AND PR		
Description (Rate of Flow)	Time	(P.S.I.G.)	Choke	Type Test	_		
Occasi Taal	1235	0	1"	Formation Tested ———	4954 к.в.	F1.	
Opened Tool	+		 	Elevation —	-		
VERY WEAK BLOW	1240	_	11	Net Productive Interval —	-		
CLOSED FOR INITIAL SHUT-IN	1240		"	Estimated Porosity			
FINISHED SHUT-IN	1340	_	- "	All Depths Measured From			
RE-OPENED TOOL	1342		"	EQUIPMEN	T SEQUENCE		
VERY WEAK BLOW	1343	0	,,	COMPONENTS	Size/Type	Depth/Length/ I.D.	
MUD FALLING IN ANNULUS	1344	_	"	DRILL PIPE	4" FH	62801/	
MUD HELD	1350	_	"			3.2"	
NO BLOW FOR REMAINDER OF				DRILL COLLARS	4 1 " хн	270'/	
TEST	<u> </u>	1242-			~	2.25"	
CLOSED FOR FINAL SHUT-IN	1442	-	17	CIRCULATING SUB	4 <u>1</u> "		
PULLED PACKER LOOSE	1542		17	DRILL COLLARS	<u>4รู๊ฅ</u> хн	90'/2.25'	
POLLED FACKER COOL				MULTI-FLOW		7 7 7 2 2 2 2	
	+		-	EVALUATOR	5"		
	+		 	BY-PASS VALVE	3½" MFE		
	+			JARS	3 1 н s− 1		
	+		-	RECORDER CARRIER	3½" т	6'	
			-	RECORDER CARRIER	3늘" J	6 '	
					3 manus se	U	
				SAFETY JOINT	35"		
	- 			BY-PASS SUB	4 <u>=</u> "		
	-			SAFETY SEAL	6 3/4"	6664 '	
			 	BOB-TAIL PACKER	6 3/4"	6670 '	
	 			BOB-TAIL PACKER	4늘" HVY	5.	
				PERF. ANCHOR			
				DRILL COLLARS	4½" ×H	60'/2.25'	
	ļ <u>-</u>		-	BOB-TAIL PACKER	6 3/4"	6735	
			<u> </u>	BOB-TAIL PACKER	6 3/4"	6741 '	
RECOVER	YDATA			PERF. ANCHOR	4늘" HVY	4.	
				DRILL COLLARS	4½" xH	210'/	
Description		Amı	ount			2.25"	
		0.000 (4.1)		PROD. LOG TOOL	0.77	221	
DRILLING MUD		270'(1.	32 BB LS)		977	Ft.	
				Main Hole/Casing Size 7	7/8"		
				Rat Hole/Liner Size	•		
				Bottom Choke Size	•	10.0	
				Mud Type FRESH WA		wt. 10.8	
				Viscosity4	Water Lo	ss <u>8.0</u> c.c.	
				Cushion Type A	Amount	Pressure	
					-		
Remarks:	· · · · · ·						
					•		
Address DRAWER 71; SAN AN	GELO, TE	XAS					
CompanyCACTUS DRILLING C	ORPORATIO	N		Field	WILD CAT		
Well NAVAJO "A" #1		Loc	ation 880FE	Field	1 R18W		
Test Interval 6670' TO 6735'		Tes	t #4	Date	11-26-65		
1031 111101101							
County SAN JUAN	State		NEW N	MEXICO Fie	eld Report No.	17666 A	
County			MR. E. W.	C.100EL1	-	19(Avte)	
Technician BARTLETT (HOBBS) Test Approved By MR. E. W. RUSSELL No. Reports Requested 18(4x's)							



MULTI-FLOW EVALUATOR FLUID SAMPLE REPORT

Date	11-26-6				Field I	Report No	17666 A	
Company	CACTUS	DRILLING C	CORPORATI	ON				
Well	OLAVAN	'A" #1		_ Field	WILD CAT			
County	SAN JUAI	N	<u> </u>	_ State	NEW MEXIC	80	 	
Test Interval	6670 *	т	·•6	3735	Test N	lo. <u>4</u>	· · · · · · · · · · · · · · · · · · ·	
Type of Test	M.F.E.	AND PROD.	Log	Recovery	Description _	270' of DR	ILLING M	םטו
Bot. Hole Temp.	150	_° F.		Recorded	l Pressures:	ISI B-1 * SSI FF FSI	188	psig. psig. psig. psig.
,				*Shut-in F	Pressure did no	t reach static	reservoir p	ressure.
EVALUATOR S	Prained:	☑ On Loc	tory-Name_		ce Center			
Sampler	Pressure	0	p	sig. at Surfe	ıce		1	
	Recovery: Total I	Cu. Ft. Ga cc. Oil cc. Wat er cc. Mud Liquid cc.	2000	<u>-</u> -		<i>r</i>		·
	Gravity Gas/Oil Ratio	·	°API	<u>-</u>	°F.	CI	U OBIDE CON	TENT
Mud Pit	y Mud y Mud Filtrat	1.7 - 1.8	- 0 - 70 - 0 - 70 - 0 - 70	°F.			- 400	ppm ppm ppm.
	IS APPEAR	S TO BE E	SENTIAL	LY A DRY	TEST OF A	FIGHT FORMA	ATION AS	, ,



		PRESSURE DATA		
Instrument No.	J-007			
Capacity (P.S.I.G.)	6400		Field Report No	17666 A
Instrument Depth	6646 •			
Instrument Opening	INSIDE			
Pressure Gradient P.S.I./Ft.	_		TIME	DATA
Well Temperature ^O F.	150			
Initial Hydrostatic Mud A	3778		Time Given	Time Computed
Initial Shut-in B	944	UNDETERMINED	60 Mins.	Min
Initial Flow C	31		5 Mins.	
C-1	36		Mins.	
C - 2	178		Mins.	
Final Flow D	188		60 Mins.	
Final Shut-in E	189		60 Mins.	
Final Hydrostatic Mud F	3722			
Remarks: B-1	* 90			
	`			
INITIAL SHUT-IN IS UND	ETERMINED AFT	ER POINT "B-1"		

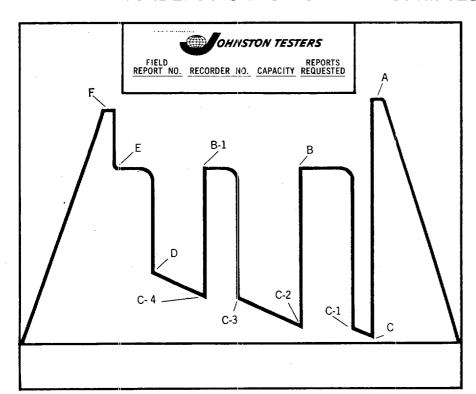
*Shut in pressure did not reach static reservoir pressure.	Clock Travel	inches per min.

PRESSURE INCREMENTS

				· · · · · · · · · · · · · · · · · · ·						
Point Minutes	Pressure	$\frac{T + \Delta_{f}}{\Delta_{f}}$	Point Minutes	Pressure	$\frac{T + \Delta_{f}}{\Delta_{f}}$	Point Minutes	Pressure	$\frac{\mathbf{T} + \Delta_{\mathbf{f}}}{\Delta_{\mathbf{f}}}$		
 										
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GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



- A. Initial Hyd. Mud
- B. Initial Shut-in
- C. Initial Flow
- D. Final Flow
- E. Final Shut-in
- F. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings, (testing different zones).

- A-1, A-2, A-3, etc. Initial Hyd. Pressures
- B-1, B-2, B-3, etc. Subsequent Shut-in Pressures
- C-1, C-2, C-3, etc. Flowing Pressures
- D-1, D-2, D-3, etc. Subsequent Final Flow Pressures
- E-1, E-2, E-3, etc. Subsequent Final Shut-in Pressures
- F-1, F-2, F-3, etc. Final Hyd. Mud Pressures
- Z Special pressure points such as pumping pressure recorded for formation breakdown.

