

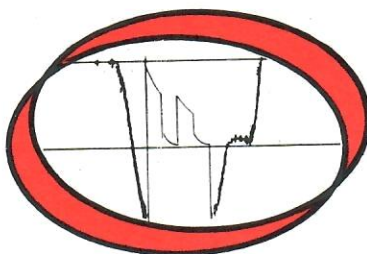
# Formation Testing Service Report



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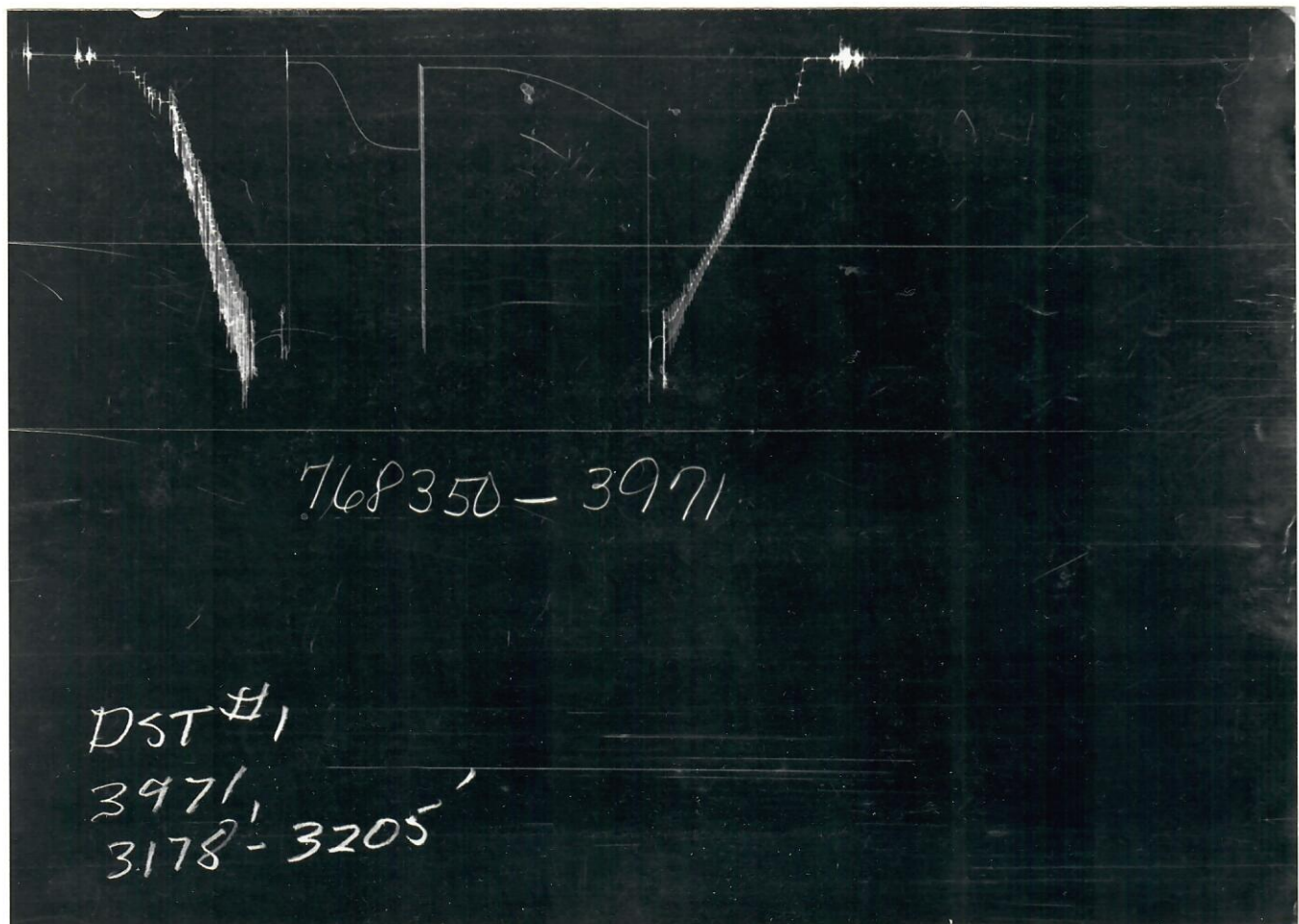
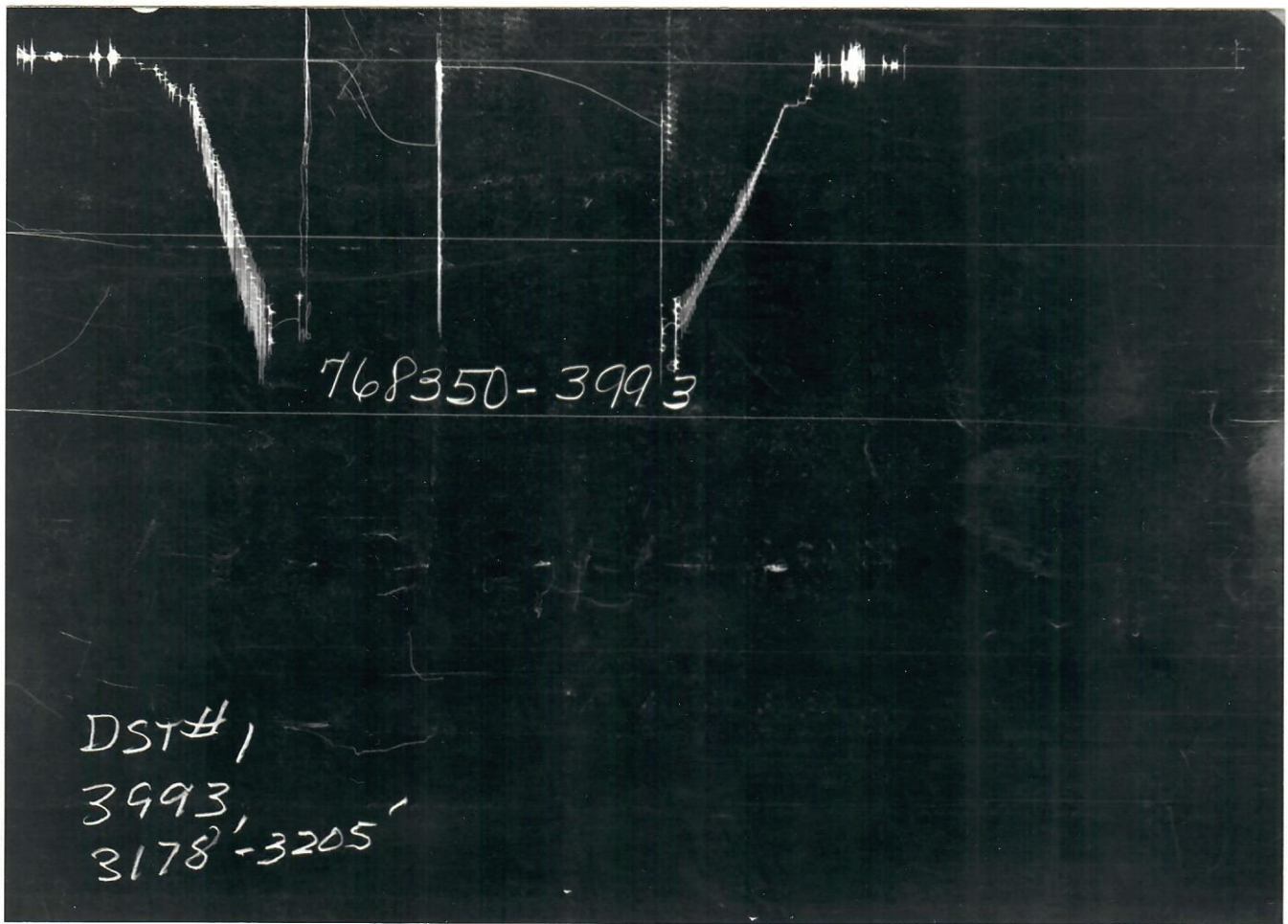


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

**HALLIBURTON SERVICES**

DUNCAN, OKLAHOMA

↑ PRESSURE ↓



Each Horizontal Line Equal to 1000 p.s.i.



COOK

Lease Name

7-7  
Well No.1  
Test No.3178' to 3205'  
Tested IntervalMICHIGAN WISCONSIN PIPELINE COMPANY  
Ledge Owner/Company NameLegal Location  
Sec. - Twp. - Rng.

7 33S 43W

Field Area  
Med. From Tester Valve  
SOUTH WALSH, CO.

County

BACA

State  
COLORADO

FLUID SAMPLE DATA				Date 10-19-80		Ticket Number 768350	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of D.S.T. OPEN HOLE		Halliburton Location LAUREL	
Recovery: Cu. Ft. Gas _____				Tester MR. MOORE		Witness MR. HATTON	
cc. Oil _____				Drilling Contractor WAKEFIELD DRILLING COMPANY bj			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud 2200				Formation Tested Topeka "B"			
Tot. Liquid cc. 2200				Elevation 3988' GL Ft.			
Gravity _____ ° API @ _____ ° F.				Net Productive Interval 12' Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From 3998' Kelly Bushing			
RESISTIVITY _____ CHLORIDE CONTENT _____				Total Depth 3205' Ft.			
Recovery Water _____ @ _____ ° F. _____ ppm				Main Hole/Casing Size 7 7/8"			
Recovery Mud _____ @ _____ ° F. _____ ppm				Drill Collar Length 468' I.D. 2.25"			
Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm				Drill Pipe Length 2678' I.D. 3.826"			
Mud Pit Sample _____ @ _____ ° F. 4500 ppm				Packer Depth(s) 3170' 3178' Ft.			
Mud Pit Sample Filtrate _____ @ _____ ° F. 4500 ppm				Depth Tester Valve 3150' Ft.			
Mud Weight 9.1 vis 45 sec.							
TYPE		AMOUNT		Depth Back		Surface	
Cushion				Ft. Pres. Valve		Choke .25" Bottom Choke .75"	
Recovered 85		Feet of		drilling mud.			
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks SEE PRODUCTION TEST DATA SHEET....							
TEMPERATURE		Gauge No. 3993		Gauge No. 3971		Gauge No.	
Depth:		3154' Ft.		3201' Ft.		Depth: Ft.	
12 Hour Clock		12 Hour Clock		12 Hour Clock		TIME (00:00-24:00 hrs.)	
Est. ° F.		Blanked Off NO		Blanked Off YES		Blanked Off	
3200'						Tool Opened 1030	
Actual 85? ° F.		Pressures		Pressures		Pressures	
		Field Office		Field Office		Field Office	
Initial Hydrostatic		1521.3 1563		1544.4			
Flow Initial		8.5 8		32.4			
Flow Final		9.9 8		33.7			
Closed in		472.9 456		498.6			
Flow Initial		35.6 57		58.1			
Flow Final		38.4 57		62.1			
Closed in		353.2 356		379.7			
Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic		1468.7 1563		1493.2			

Casing perms. \_\_\_\_\_ Bottom choke \_\_\_\_\_ Surf. temp \_\_\_\_\_ °F Ticket No. \_\_\_\_\_  
 Gas gravity \_\_\_\_\_ Oil gravity \_\_\_\_\_ GOR \_\_\_\_\_  
 Spec. gravity \_\_\_\_\_ Chlorides \_\_\_\_\_ ppm Res. \_\_\_\_\_ @ \_\_\_\_\_ °F

[illegible]



Gauge No. 3993			Depth 3154'		Clock No. 20686			12 hour		Ticket No. 768350					
First Flow Period			First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log} \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log} \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log} \frac{t + \theta}{\theta}$	PSIG Temp. Corr.
0	.0000	8.5	.0000		9.9	.0000	35.6	.0000		38.4					
1	.1130	9.9	.0334*		31.3	.2990	38.4	.6040		353.2					
2			.0602		66.9										
3			.0869		126.7										
4			.1137		207.9										
5			.1404		296.2										
6			.1672		363.2										
7			.1939		405.9										
8			.2207		434.4										
9			.2474		450.1										
10			.2742		458.6										
11			.3009		464.3										
12			.3277		467.2										
13			.3544		470.0										
14			.3812		471.5										
15			.4080		472.9										

Gauge No. 3971			Depth 3201'			Clock No. 20685			12 hour						
0	.0000	32.4	.0000		33.7	.0000	58.1	.0000		62.1					
1	.1150	33.7	.0337*		56.7	.3040	62.1	.6070		379.7					
2			.0606		94.5										
3			.0876		156.7										
4			.1145		239.1										
5			.1415		322.9										
6			.1684		389.2										
7			.1954		433.7										
8			.2223		460.8										
9			.2493		477.0										
10			.2762		485.1										
11			.3032		490.5										
12			.3301		493.2										
13			.3571		495.9										
14			.3840		497.3										
15			.4110		498.6										
Reading Interval			4									Minutes			

REMARKS: \* INTERVAL = 5 MINUTES

## SPECIAL PRESSURE DATA

## LABORATORY WATER ANALYSIS

TICKET NO. 768350

TO MICHIGAN WISCONSIN PIPELINE COMPANY

DATE

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

Submitted by \_\_\_\_\_ Date Rec. \_\_\_\_\_

Well No. Cook #1 - 7 Depth \_\_\_\_\_ Formation Topeka 13

County BACA Field \_\_\_\_\_ Source DST

Sample Marked	TOP	BOTTOM		
pH	11.0	10.0		
Resistivity Ohm m <sup>2</sup> /m	1.25	1.05		
Temperature °F	70	70		
Specific Gravity	1.001	1.001		
Chlorides MPL	1671	2108		

## Sampler

Pressure	_____ PSI	pH	9.0
Mud	_____ cc	Resistivity Ohm m <sup>2</sup> /m	1.01
Oil	_____ cc	Temperature	70
Gas	_____ ft. <sup>3</sup>	Specific Gravity	1.001
Water	_____ cc	Chlorides MPL	2235
Total Recovery	_____ cc	Calcium MPL	NEG.
Remarks		Magnesium MPL	NEG.
		Sulfates	LIGHT
		Iron	NEG.

Analyst: \_\_\_\_\_

cc: \_\_\_\_\_

HALLIBURTON COMPANY

By \_\_\_\_\_  
CHEMIST

## NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether it be to act or omission, resulting from such report or its use.

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	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Drill Collars				
Reversing Sub	5.75"	2.75"	1.00'	
Water Cushion Valve				
Drill Pipe	4.50"	3.826"	2678'	
Drill Collars	6.25"	2.25"	468'	
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5.00"	.87"	7.00'	3146'
Hydro-Spring Tester	5.00"	.75"	5.00'	3150'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.00"	3.06"	4.00'	3154'
Hydraulic Jar	5.03"	1.75"	5.00'	
VR Safety Joint	5.00"	1.00"	3.00'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6.00'	3170'
Distributor	5.00"	1.53"	2.00'	
Packer Assembly				
Flush Joint Anchor				
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly	6.75"	1.53"	6.00'	3178'
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5.00"	3.24"	20'	
	5.00"		1.50'	
Blanked-Off B.T. Running Case	5.00"	2.44"	4.00'	3201'
Total Depth				3205'

# TEMPERATURE RECORDER CHART



10° each circle

- $OF_3$  = Theoretical Open Flow Potential with/Damage Removed Max. .... MCF/D  
 $OF_4$  = Theoretical Open Flow Potential with/Damage Removed Min. .... MCF/D  
 $P_s$  = Extrapolated Static Pressure ..... Psig.  
 $P_f$  = Final Flow Pressure ..... Psig.  
 $P_{or}$  = Potentiometric Surface (Fresh Water \*) ..... Feet  
 $Q$  = Average Adjusted Production Rate During Test ..... bbls/day  
 $Q_1$  = Theoretical Production w/Damage Removed ..... bbls/day  
 $Q_g$  = Measured Gas Production Rate ..... MCF/D  
 $R$  = Corrected Recovery ..... bbls  
 $r_w$  = Radius of Well Bore ..... Feet  
 $t$  = Flow Time ..... Minutes  
 $t_o$  = Total Flow Time ..... Minutes  
 $T$  = Temperature Rankine ..... °R  
 $Z$  = Compressibility Factor .....  
 $\mu$  = Viscosity Gas or Liquid ..... CP  
**Log** = Common Log

\* Potentiometric Surface Reference to Rotary Table When Elevation Not Given,  
Fresh Water Corrected to 100° F.