

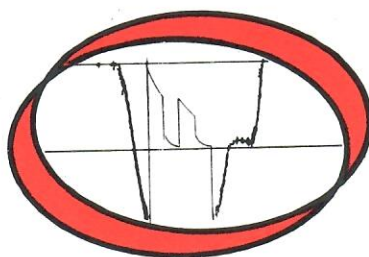
# Formation Testing Service Report

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COLO. OIL & GAS CONS. COMM.



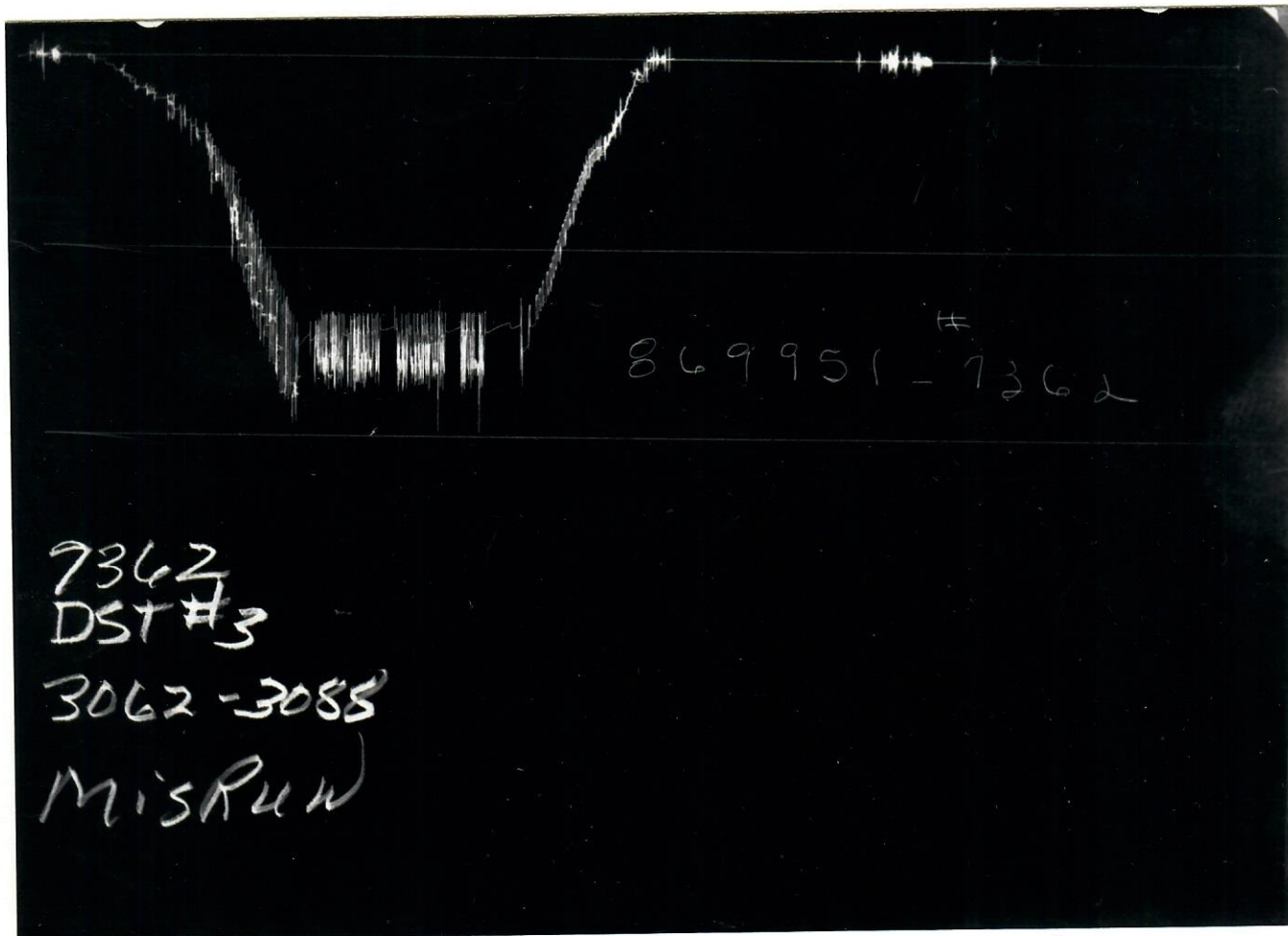
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**HALLIBURTON SERVICES**

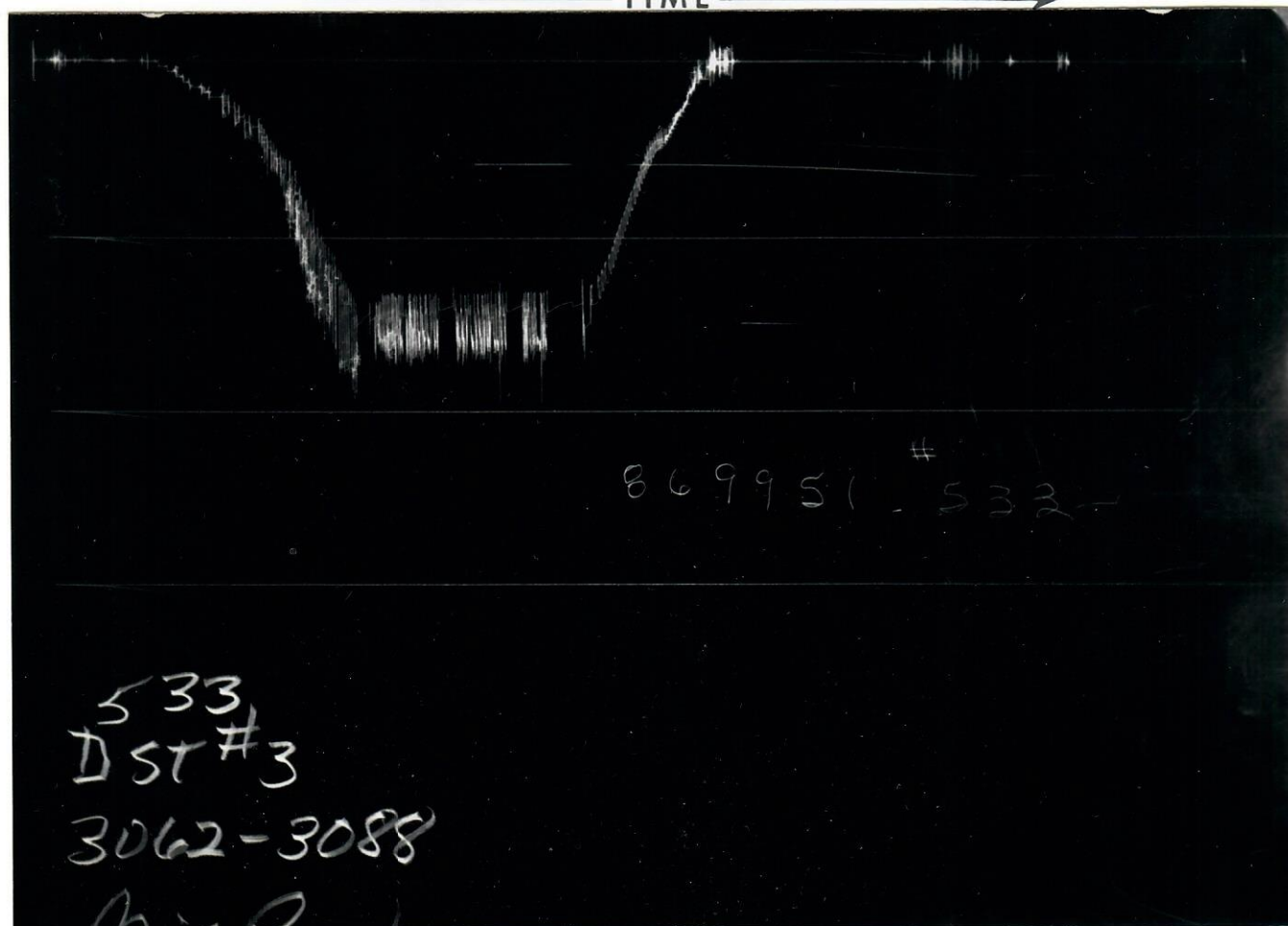
DUNCAN, OKLAHOMA



PRESSURE  
↓



TIME →



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

FLUID SAMPLE DATA				Date 10-23-80		Ticket Number 869951																																																																																																																																	
Sampler Pressure _____ P.S.I.G. at Surface Recovery: Cu. Ft. Gas _____ cc. Oil _____ cc. Water _____ cc. Mud _____ Tot. Liquid cc. _____ Gravity _____ ° API @ _____ °F. Gas/Oil Ratio _____ cu. ft./bbl.				Kind of D.S.T. OPEN HOLE OFF Halliburton Location LAMAR Tester MOORE                      Witness HATTON		Legal Location Sec. - Twp. - Rng. 7 - 33S - 43W																																																																																																																																	
Drilling Contractor WAKEFIELD DRILLING COMPANY NM				Lease Name COOK																																																																																																																																			
EQUIPMENT & HOLE DATA																																																																																																																																							
Formation Tested Wabuansee Elevation 3988' K.B. _____ Ft. Net Productive Interval _____ Ft. All Depths Measured From Kelly Bushing - 3998' _____ Ft. Total Depth 3475' _____ Ft. Main Hole/Casing Size 7 7/8" _____ Drill Collar Length 468' I.D. 2.25" _____ Drill Pipe Length 2573' I.D. 3.826" _____ Packer Depth(s) 3062' - 3088' _____ Ft. Depth Tester Valve 3045' _____ Ft.				Well No. 7-7 Test No. 3 Tested Interval 3062' - 3088'																																																																																																																																			
Recovery Water _____ @ _____ °F. _____ ppm Recovery Mud _____ @ _____ °F. _____ ppm Recovery Mud Filtrate _____ @ _____ °F. _____ ppm Mud Pit Sample _____ @ _____ °F. _____ ppm Mud Pit Sample Filtrate _____ @ _____ °F. 4500 ppm Mud Weight 9.2 vis 60 sec.		RESISTIVITY _____ CHLORIDE CONTENT _____		Field S. WALSH, COLORADO Meq. From Tester Valve																																																																																																																																			
Cushion TYPE NONE AMOUNT _____ Depth Back Pres. Valve NONE Surface Choke .25" Bottom Choke .75"				County BACA State COLORADO																																																																																																																																			
Recovered _____ Feet of Recovered _____ Feet of Recovered _____ Feet of Recovered _____ Feet of Recovered _____ Feet of																																																																																																																																							
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">TEMPERATURE</th> <th colspan="2">Gauge No. 7362</th> <th colspan="2">Gauge No. 533</th> <th colspan="2">Gauge No. _____</th> <th rowspan="2">TIME (00:00-24:00 hrs.)</th> </tr> <tr> <th>Depth:</th> <th>3046' Ft.</th> <th>Depth:</th> <th>3084' Ft.</th> <th>Depth:</th> <th>Ft.</th> </tr> </thead> <tbody> <tr> <td>Est. °F.</td> <td>12</td> <td>Hour Clock</td> <td>12</td> <td>Hour Clock</td> <td colspan="2">Hour Clock</td> <td>Tool</td> </tr> <tr> <td></td> <td>Blanked Off</td> <td>NO</td> <td>Blanked Off</td> <td>YES</td> <td colspan="2">Blanked Off</td> <td>Opened</td> </tr> <tr> <td>Actual °F.</td> <td colspan="2">Pressures</td> <td colspan="2">Pressures</td> <td colspan="2">Pressures</td> <td>Opened Bypass</td> </tr> <tr> <td></td> <td>Field</td> <td>Office</td> <td>Field</td> <td>Office</td> <td>Field</td> <td>Office</td> <td>Reported Minutes</td> </tr> <tr> <td>Initial Hydrostatic</td> <td>-</td> <td>1405.2</td> <td>-</td> <td>1421.8</td> <td></td> <td></td> <td>Computed Minutes</td> </tr> <tr> <td rowspan="3">First Period Flow</td> <td>Initial</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Final</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Closed in</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td rowspan="3">Second Period Flow</td> <td>Initial</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Final</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Closed in</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td rowspan="3">Third Period Flow</td> <td>Initial</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Final</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Closed in</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Final Hydrostatic</td> <td>-</td> <td>1405.2</td> <td>-</td> <td>1421.8</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								TEMPERATURE	Gauge No. 7362		Gauge No. 533		Gauge No. _____		TIME (00:00-24:00 hrs.)	Depth:	3046' Ft.	Depth:	3084' Ft.	Depth:	Ft.	Est. °F.	12	Hour Clock	12	Hour Clock	Hour Clock		Tool		Blanked Off	NO	Blanked Off	YES	Blanked Off		Opened	Actual °F.	Pressures		Pressures		Pressures		Opened Bypass		Field	Office	Field	Office	Field	Office	Reported Minutes	Initial Hydrostatic	-	1405.2	-	1421.8			Computed Minutes	First Period Flow	Initial	-	-	-				Final	-	-	-				Closed in	-	-	-				Second Period Flow	Initial	-	-	-				Final	-	-	-				Closed in	-	-	-				Third Period Flow	Initial	-	-	-				Final	-	-	-				Closed in	-	-	-				Final Hydrostatic	-	1405.2	-	1421.8			
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Casing perms. \_\_\_\_\_ Bottom choke \_\_\_\_\_ Surf. temp. \_\_\_\_\_ °F Ticket No. \_\_\_\_\_  
 Gas gravity \_\_\_\_\_ Oil gravity \_\_\_\_\_ GOR \_\_\_\_\_  
 Spec. gravity \_\_\_\_\_ Chlorides \_\_\_\_\_ ppm Res. \_\_\_\_\_ @ \_\_\_\_\_ °F

**INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED.**

FORM 182-R1—PRINTED IN U.S.A.



	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing .....				
Drill Collars .....	5.75"	2.75"	1'	
Reversing Sub .....				
Water Cushion Valve .....	4.5"	3.826"	2573'	
Drill Pipe .....	6.25"	2.25"	468'	
Drill Collars .....	5"	3.25"	4'	
Handling Sub & Choke Assembly .....				
Dual CIP Valve .....	5"	.87"	7'	3041'
Dual CIP Sampler .....	5"	.75"	5'	3045'
Hydro-Spring Tester .....				
Multiple CIP Sampler .....				
Extension Joint .....				
AP Running Case .....	5"	3.06"	4'	3046'
Hydraulic Jar .....	5.03"	1.75"	5'	
VR Safety Joint .....	5"	1.00"	3'	
Pressure Equalizing Crossover .....	5"	-	1'	
Packer Assembly .....	6.75"	1.53"	6'	3062'
Distributor .....				
Packer Assembly .....				
Flush Joint Anchor .....	5"	3.24"	19'	
Pressure Equalizing Tube .....	1"	.75"	19' ?	
Blanked-Off B.T. Running Case .....	5"	3.06"	4'	3084'
Drill Collars .....				
Anchor Pipe Safety Joint .....				
Packer Assembly .....				
Distributor .....				
Packer Assembly .....	6.75"	1.53"	6'	3088'
Anchor Pipe Safety Joint .....				
Side Wall Anchor .....	6.75"	1.53"	5'	3094'
Drill Collars .....				
Flush Joint Anchor .....				
Blanked-Off B.T. Running Case .....				
Total Depth .....				3475'

# NOMENCLATURE

<b>b</b>	= Approximate Radius of Investigation	Feet
<b>b<sub>1</sub></b>	= Approximate Radius of Investigation (Net Pay Zone h <sub>1</sub> )	Feet
<b>D.R.</b>	= Damage Ratio	—
<b>EI</b>	= Elevation	Feet
<b>GD</b>	= B.T. Gauge Depth (From Surface Reference)	Feet
<b>h</b>	= Interval Tested	Feet
<b>h<sub>1</sub></b>	= Net Pay Thickness	Feet
<b>K</b>	= Permeability	md
<b>K<sub>1</sub></b>	= Permeability (From Net Pay Zone h <sub>1</sub> )	md
<b>m</b>	= Slope Extrapolated Pressure Plot (Psi <sup>2</sup> /cycle Gas)	psi/cycle
<b>OF<sub>1</sub></b>	= Maximum Indicated Flow Rate	MCF/D
<b>OF<sub>2</sub></b>	= Minimum Indicated Flow Rate	MCF/D
<b>OF<sub>3</sub></b>	= Theoretical Open Flow Potential with/Damage Removed Max.	MCF/D
<b>OF<sub>4</sub></b>	= Theoretical Open Flow Potential with/Damage Removed Min.	MCF/D
<b>P<sub>s</sub></b>	= Extrapolated Static Pressure	Psig.
<b>P<sub>f</sub></b>	= Final Flow Pressure	Psig.
<b>P<sub>or</sub></b>	= Potentiometric Surface (Fresh Water *)	Feet
<b>Q</b>	= Average Adjusted Production Rate During Test	bbls/day
<b>Q<sub>1</sub></b>	= Theoretical Production w/Damage Removed	bbls/day
<b>Q<sub>g</sub></b>	= Measured Gas Production Rate	MCF/D
<b>R</b>	= Corrected Recovery	bbls
<b>r<sub>w</sub></b>	= Radius of Well Bore	Feet
<b>t</b>	= Flow Time	Minutes
<b>t<sub>o</sub></b>	= Total Flow Time	Minutes
<b>T</b>	= Temperature Rankine	°R
<b>Z</b>	= Compressibility Factor	—
<b>μ</b>	= Viscosity Gas or Liquid	CP
<b>Log</b>	= Common Log	

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