Permit #: 20001

Date Issued: 01-24-75

County: HARRISON

Date Cancelled:

CONFIDENTIAL UNTIL:

Date Plugged: 02-09-75

OGC FORMS	Date Received
1	
2	
3	01-24-75
3i	
4	01-24-75
4i	
5	05-24-76
6	05-24-76
7	05-24-76
8	
11	
12	
Misc. Form 2	

	TYPE	ID #	Date Received
Logs			
Samples	chip		
	core		
Analyses	water		
	core		

Additional Submitted Data:

COMMENTS:

STRIPPED 10-27-81 da

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MO. GEOL. SURVEY

8 revised
Form DGC - 3

MISSOURI OIL AND GAS COUNCIL

APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK

APPLICATION TO DRILL ☒ DEEPEN ☐ PLUG BACK ☐

NAME OF COMPANY OR OPERATOR The Anschutz Corporation DATE 1-22-75

1110 Denver Club Bldg Denver, Colo 80202
Address City State

DESCRIPTION OF WELL AND LEASE

Name of lease	Well number	Elevation (ground)
Garland R. Swartz	#1	1000 est

WELL LOCATION (give footage from section lines)
910' ft. from (N) (S) sec. line 660 ft. from (E) (W) sec. line

WELL LOCATION Section 34 Township 64N Range 29W County Harrison

Nearest distance from proposed location to property or lease line: 660 feet

Distance from proposed location to nearest drilling, completed or applied - for well on the same lease: _____ feet

Proposed depth: 2500'

Rotary or Cable tools:

Approx. date work will start: 1-25-75

Number of acres in lease: 180

Number of wells on lease, including this well, completed in or drilling to this reservoir: 1

Number of abandoned wells on lease: 0

If lease, purchased with one or more wells drilled, from whom purchased: Name _____ Address _____

No. of Wells: producing _____ inactive _____ abandoned _____

Status of Bond

Single Well ☐ Amt. _____ Blanket Bond ☒ Amt. 30,000

☒ ON FILE ☐ ATTACHED

Remarks: (If this is an application to deepen or plug back, briefly describe work to be done, giving present producing zone and expected new producing zone) use back of form if needed.

Proposed casing program:

amt.	size	wt./ft.	cem.
260	8 5/8	24 lb	to surf
To TD	5 1/2"	15.5 lb	150 sx

Approved casing -- To be filled in by State Geologist

amt.	size	wt./ft.	cem.

I, the undersigned, state that I am the geologist of the Anschutz Corp (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature Henry Ohlen

Permit Number: 20001

Approval Date: 24 Jan '75

Approved By: Wallace B. Howe

☑ SAMPLES REQUIRED

☐ SAMPLES NOT REQUIRED

Note: This Permit not transferable to any other person or to any other location.

Remit two copies to: Missouri Oil and Gas Council P.O. Box 250 Rolla, Mo. 65401
One will be returned.

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MO. OIL & GAS COUNCIL

WATER SAMPLES REQUIRED @: any DST's

MISSOURI OIL AND GAS COUNCIL

Form OGC - 6

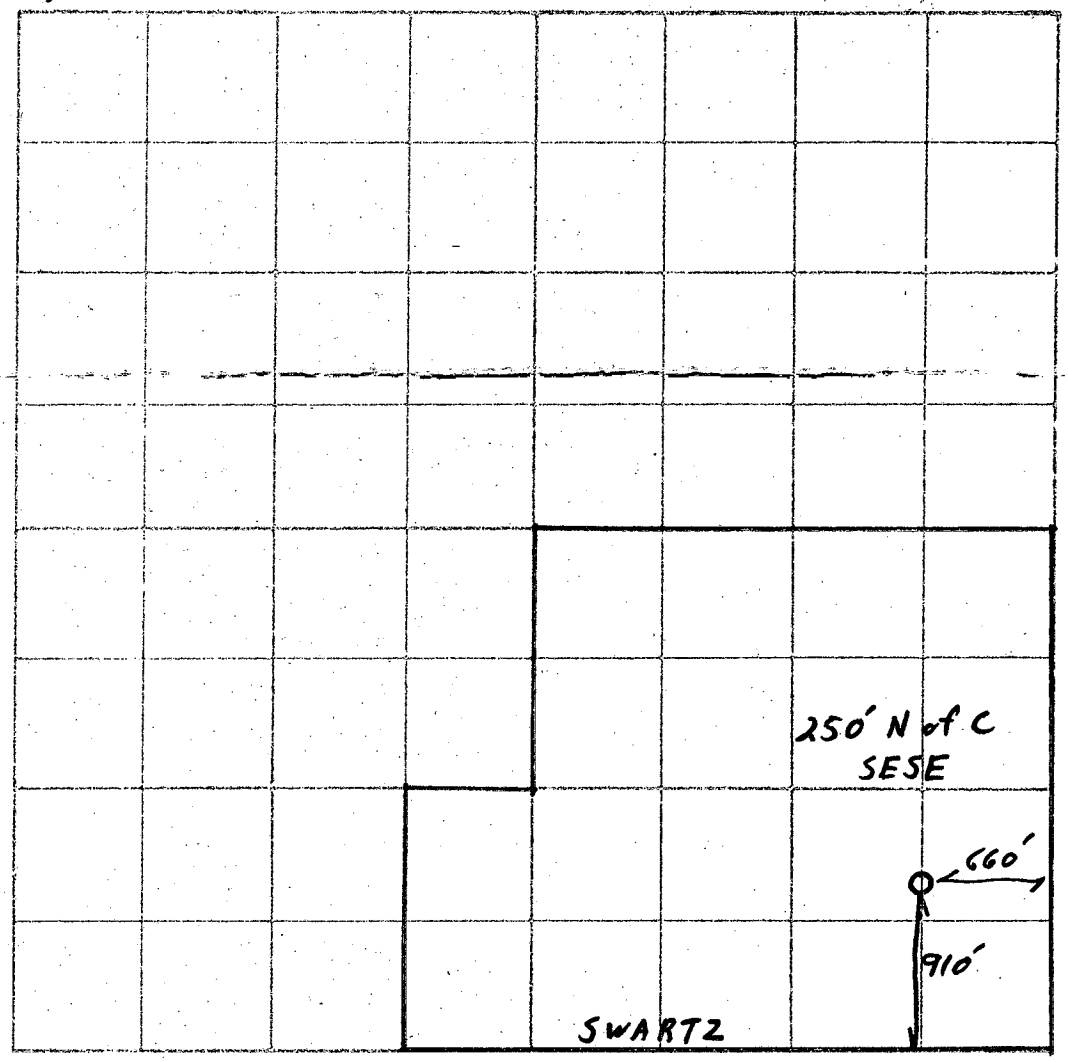
WELL LOCATION PLAT

Owner: The Anschutz Corporation

Lease Name: Garland R. Swartz County, Harrison

910 feet from (N) (S) line and 660 feet from (E) (W) line of Sec. 34 Twp: 64N Range 29W

SCALE
1" = 1000'



REMARKS:

INSTRUCTIONS

On the above plat, show distance of the proposed well from the two nearest lease and section lines, and from the nearest well on the same lease completed in or drilling to the same reservoir. If the location requested is not in conformance with the applicable well-spacing rules, show all off-setting wells to the proposed well. Do not confuse survey lines with lease lines. See rule 7 - 3 (b) for survey requirements.

(SEAL)

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250 Rolla, Mo. 65401
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MO. OIL & GAS COUNCIL

Registered Land Surveyor

MISSOURI OIL AND GAS COUNCIL

Form OGC-5

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

New Well [X] Work-Over [ ] Deepen [ ] Plug Back [ ] Same Reservoir [ ] Different Reservoir [ ] Oil [ ] Gas [ ] Dry [X]

Owner: The Anschutz Corporation	Address: 1110 Denver Club Building
Lease Name: G. R. Swartz	Well Number: 1 — Denver, Colorado 80202
Location: NE SE	Sec. — TWP-Range or Block & Survey: Sec. 34-T64N-R29W
County: Harrison	Permit number (OGC3 number): 20001

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.) feet	Elevation of casing hd. flange feet
1-28-75	2-6-75	P & A 2-9-75	1048 RKB	1040

Total depth	P. B. T. D.
2285'	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
none	From 0 to 2285' Drilling Fluid used water & gel	From none to

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
no	no	-	-

Type of electrical or other logs run (list logs filed with the State Geologist): Dual Induction Laterolog, GR-Neutron-FDC — Date filed: 3-75

CASING RECORD

Casing (report all strings set in well—conductor, surface, intermediate, producing, etc.)

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
Surface	12-1/4"	8-5/8"	24#	299'	160	none

TUBING RECORD			LINER RECORD				
Size in.	Depth set ft.	Packer set at ft.	Size in.	Top ft.	Bottom ft.	Sacks cement	Screen (ft.)

PERFORATION RECORD			ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD	
Number per ft.	Size & type	Depth Interval	Am't. & kind of material used	Depth Interval

INITIAL PRODUCTION

Date of first production	Producing method (indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)

Date of test	Hrs. tested	Choke size	Oil prod. during test bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity API (Corr.)

Tubing pressure	Casing pressure	Cal'ted rate of Production per 24 hrs.	Oil bbls.	Gas MCF	Water bbls.	Gas—oil ratio

Disposition of gas (state whether vented, used for fuel or sold):

Method of disposal of mud pit contents: Pits were backfilled and leveled

CERTIFICATE: I, the undersigned, state that I am the Oper. Engr. of the Anschutz Corp. (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Wayne C. Pierce
Signature

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MO. OIL & GAS COUNCIL

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DETAIL OF FORMATIONS PENETRATED

Formation	Top	Bottom	Description*
Cherokee	505'		
Mississippian	1144		
Kinderhook	1415		
Lime Creek	1446		
Hunton	1520		
Viola	1917		
Lower Viola	2092		
Simpson	2181		
St. Peter	2250		
Arbuckle	2272		
Total Depth	2285		

	Min	Psi	Recovery
DST #1 (2020 - 2032')			
IF	5	16-24	450' slightly
ISI			muddy water
FF	60	33-96	
FSI	120	725	
DST #2 (1975 - 1985')			
Mis-run			
DST #3 (1975 - 1985')			
IF	7	25-65	892' slightly
FF	60	90-400	muddy water
ISI		712	
FSI		711	

*Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

INSTRUCTIONS:

Attach drillers log or other acceptable log of well if available.

This Well Completion or Recompletion report and well log shall be filed with the Missouri State Geologist not later than 30 days after project completion.

MISSOURI OIL AND GAS COUNCIL

Form OGC-6

NOTICE OF INTENTION TO ABANDON WELL

Name of Lease G. R. Swartz Date

Well No. 1 is located 910 feet from (N) (S) line and 660

feet from (E) (W) line of Section 34 Township 64N Range 29W

Harrison County The elevation of the ground at well site is 1040'

feet above sea level.

Name and address of Contractor or Company which will do work is:

Halliburton Services

P. O. Drawer 1431, Duncan, Oklahoma 73533

DETAILS OF WORK

(Indicate size, kind, and depth of plugs, where casing will be pulled, other pertinent details)

25 sx cement plug @ 2050 - 1950'
25 sx " " @ 1200 - 1100'
25 sx " " @ 350 - 250'

Surface casing capped and welded

CERTIFICATE: I, the undersigned, state that I am the Oper. Engr. of the Anschutz Corp. (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Wayne C. Pierce
Signature

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Form OGC-7

MISSOURI OIL AND GAS COUNCIL
PLUGGING RECORD

Owner: The Anschutz Corporation		Address: 1110 Denver Club Building	
Name of Lease: G. R. Swartz	Well No.: 1	Denver, Colorado 80202	
Location of Well: 910' FSL & 660' FEL		Sec-Twp-Rge or Block & Survey: Sec. 34, T64N, R29W	County: Harrison
Application to drill this well was filed in name of: The Anschutz Corp.	Has this well ever produced oil or gas: no	Character of well at completion (initial production) Oil (bbls/day): none; Gas (MCF/day): none	Dry?: yes
Date Abandoned: 2-9-75	Total depth: 2285'	Amount well producing prior to abandonment. Oil (bbls/day): - ; Gas (MCF/day): -	Water (bbls/day): -

Name of each formation containing oil or gas. Indicate which formation open to wellbore at time of abandonment	Fluid content of each formation	Depth interval of each formation	Size, kind & depth of plugs used. Indicate zones squeeze cemented, giving amount cement
none			
	Cement plugs set as follows:		
	25 sx at 250 - 350'		
	25 sx at 1100 - 1200'		
	25 sx at 1950 - 2050		

Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of parting casing (shot, ripped etc)	Packers and shoes
8-5/8"	301'	-	301'		casing shoe @ 299'

Was well filled with mud-laden fluid? yes

Indicate deepest formation containing fresh water: N/A

NAMES AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE

Name	Address	Direction from this well:

Method of disposal of mud pit contents: Pits were backfilled & leveled

Use reverse side for additional detail

File this form in duplicate with

CERTIFICATE: I, the undersigned, state that I am the Oper. Engr. of the Anschutz Corp. (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Wayne C. Price
Signature

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— F.W. Ware —

BKC	340	25 sx
	503	
	1153	25 sx
	1446	
	1520	
	1976	
Well	907	
	2092	
		25 sx

Af 8 – buying a gun

No. 8 Haynes –

took two test in
Swartz in upper Viola
Some Lime shows
changing facies – to a
cleaner water – good
porosity.

<-800 would be
hydrostatic

Hunton no good. Red sh
some good strontiferous 2020 – 2032 –
tabulate back reef prob fish.
– tidal flats not 450' of sli mdw.
evaporite but has
for mudst to evaporite: 2' zone 1975 – 85
at top of Viola
Some weak

892' of dk gry
brackish water w/good
pressures – close to hydrostatic

Formation Testing Service Report

G. R. SWARTZ
Lease Name

1
Well No.

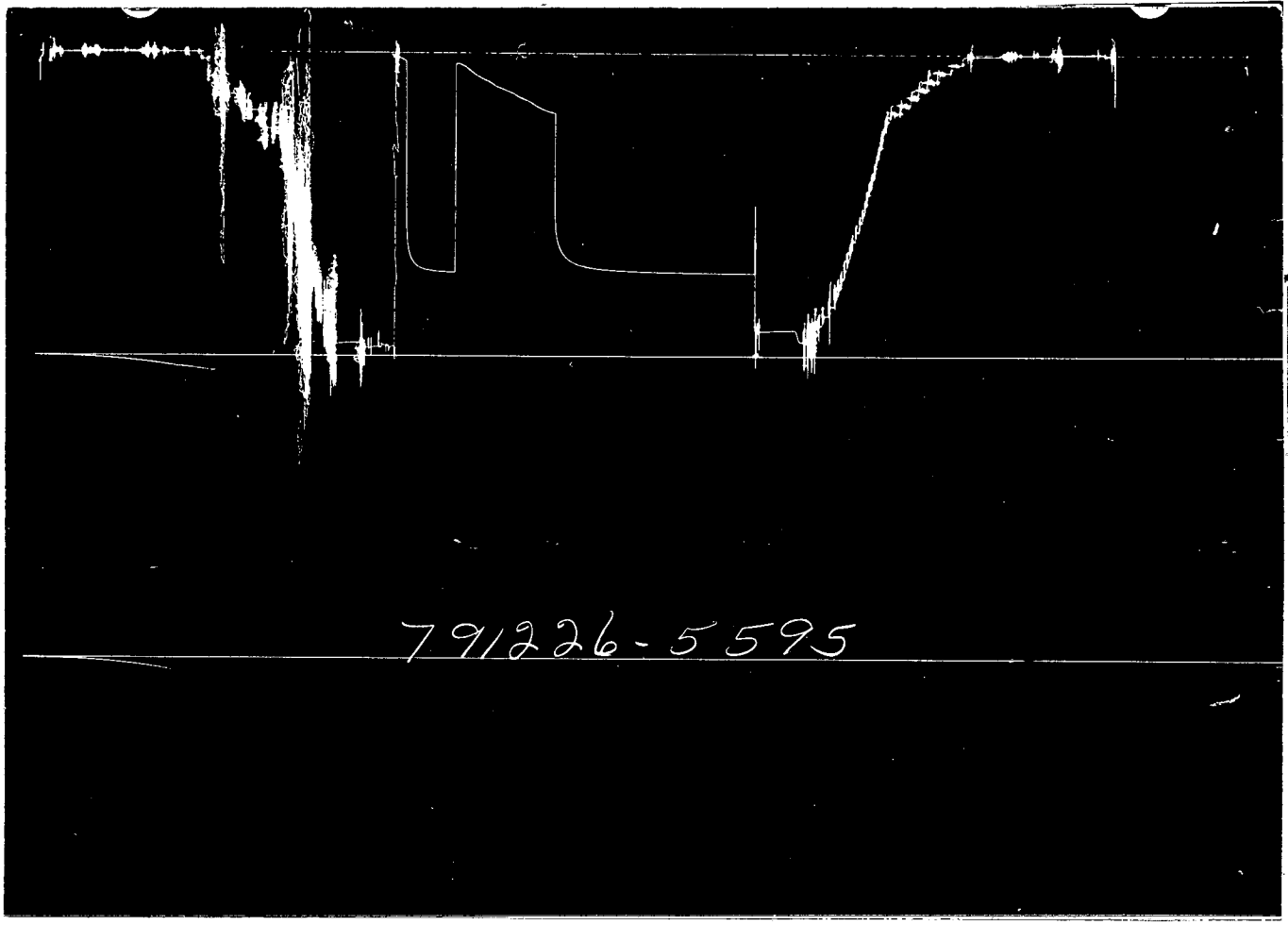
1
Test No.

2020-2032'
Tested Interval

ANSCHUTZ CORPORATION
Lease Owner/Company Name

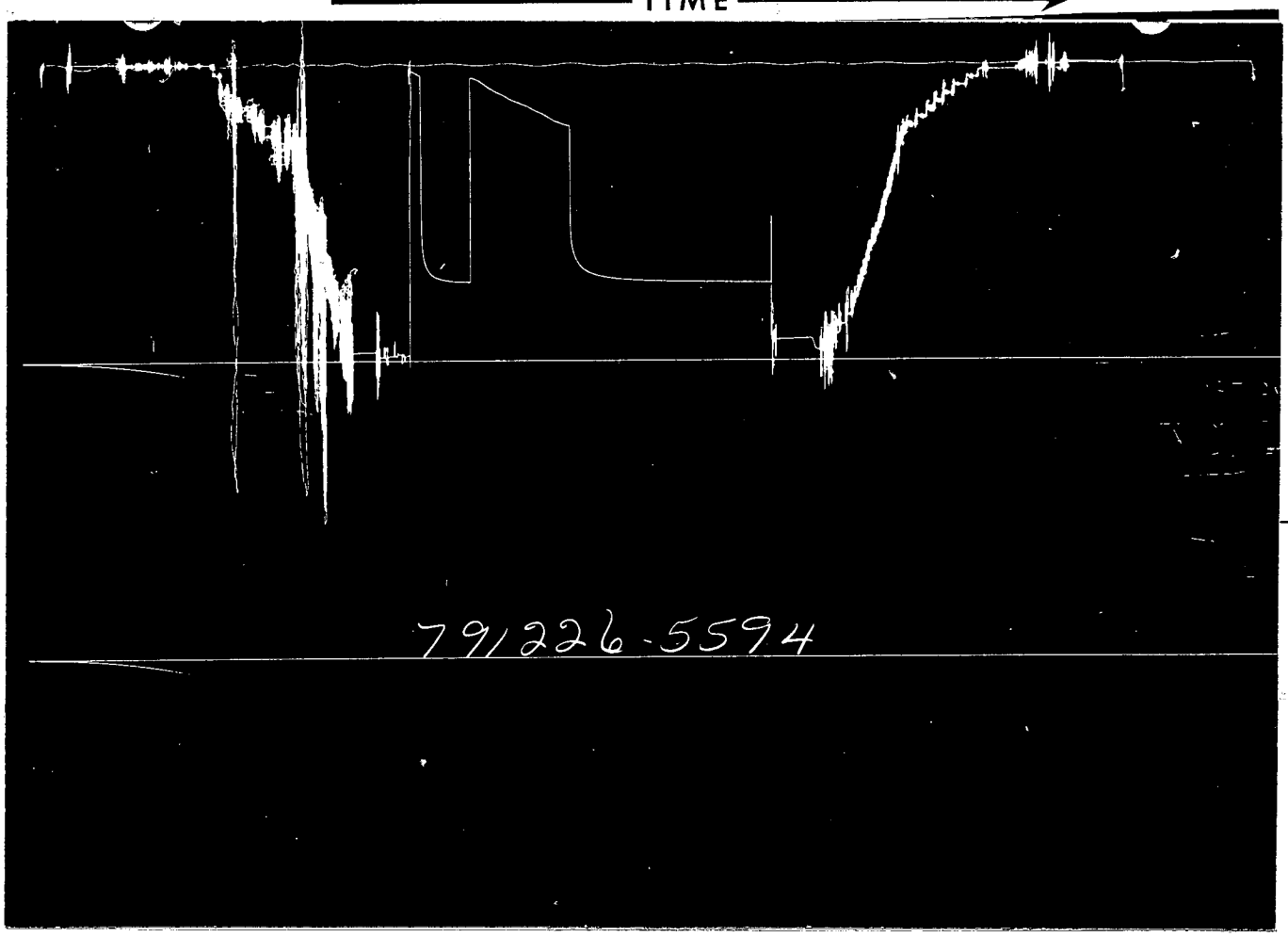
FEB 24 1975
MO. OIL & GAS COUNCIL

HALLIBURTON SERVICES
DUNCAN, OKLAHOMA



PRESSURE

TIME



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

Formation Testing Service Report

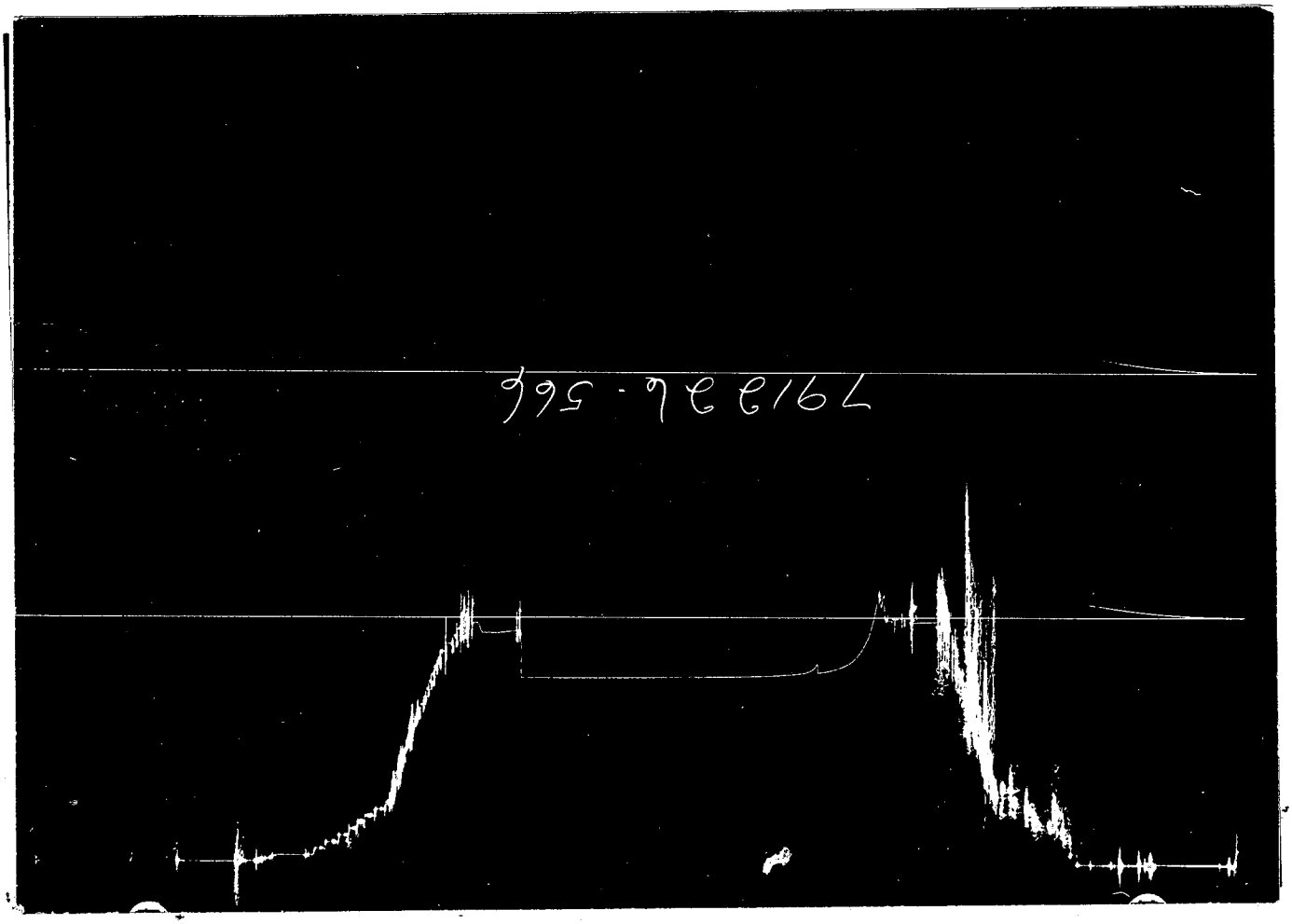
G. R. SWARTZ
Lease Name

1
Well No.

1
Test No.

2020-2032'
Tested Interval

ANSCHUTZ CORPORATION
Lease Owner/Company Name



FLUID SAMPLE DATA

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.

	RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F.	ppm
Recovery Mud	@	°F.	ppm
Recovery Mud Filtrate	@	°F.	ppm
Mud Pit Sample	@	°F.	ppm
Mud Pit Sample Filtrate	@	°F.	ppm

Mud Weight 9.0 vis 57 cp

Date 2-5-75 Ticket Number 791226
Kind of Job HOOK WALL STRADDLE Halliburton District EL DORADO
Tester MR. BUTCHER Witness MR. WARE
Drilling Contractor LOHMAN AND JOHNSON RIG # 15 DR S

EQUIPMENT & HOLE DATA

Formation Tested Viola Lime
Elevation 1048' KB Ft.
Net Productive Interval 12' Ft.
All Depths Measured From Kelly Bushing
Total Depth 2285' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 425' I.D. 2.125"
Drill Pipe Length 1549' I.D. 3.826"
Packer Depth(s) 2016-2020-2032' Ft.
Depth Tester Valve 1999' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke 1/4" Bottom Choke 3/4"

Recovered 450 Feet of slightly muddy water
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Mea. From Tester Valve

Remarks SEE PRODUCTION TEST DATA SHEET

TEMPERATURE	Gauge No. 5595 Depth: 2001 Ft.	Gauge No. 5594 Depth: 2026 Ft.	Gauge No. 566 Depth: 2040 Ft.	TIME
Calc. Est. 120 °F.	12 Hour Clock	12 Hour Clock	12 Hour Clock	Tool Opened 12:35 A.M. P.M.
	Blanked Off No	Blanked Off No	Blanked Off Yes	Opened Bypass 2:12 A.M. P.M.
Actual °F.	Pressures	Pressures	Pressures	

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		976	972		985		993		
First Period Flow	Initial	16	11		21			—	—
	Final	24	29		38			7	7
	Closed in	725	726		739	HYDROSTATIC		30	30
Second Period Flow	Initial	33	38		48	RELEASE:	752	—	—
	Final	196	200		209			60	60
	Closed in	725	729		739			120	120
Third Period Flow	Initial							—	—
	Final								
	Closed in								
Final Hydrostatic		920	917		931		943	—	—

Legal Location Sec. - Twp. - Rng. 34-64-29W
Lease Name G. R. SWARTZ
Well No. 1
Test No. 1
Field Area WILDCAT
Tested Interval 2020-2032'
County HARRISON
State MISSOURI
Lease Owner/Company Name ANSCHUTZ CORPORATION

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 6/74

5

Casing perfs. _____ Bottom choke 3/4" Surf. temp _____ °F Ticket No. 791226
Gas gravity _____ Oil gravity _____ GOR _____
Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F
INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
9:30					Truck called out
8:30 PM					On location
9:00					Made up tools
9:30					Picked up tools
10:00					Went in hole
12:32					On bottom-no trouble
12:35					Opened tool with a weak blow
12:37					Weak blow 2" in water
12:39					Fair blow 4" in water
12:42					Closed tool
1:12					Opened tool with a weak blow
1:18					Fair blow 4" in water
1:35					Good blow 6" in water
1:55					Good blow 8" in water
2:12					Good blow 8" in water
4:12					Off bottom

PRODUCTION TEST DATA

Gauge No. 5595	Depth 2001	Clock No. 7101	12 hour	Ticket No. 791226

	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	.000	11	.000		29	.000	38	.000		200					
1	.0063	11	.0201		674	.067	63	.0539		683					
2	.0126	14	.0402		701	.134	95	.1077		704					
3	.0189	17	.0603		713	.201	123	.1616		713					
4	.0252	20	.0804		718	.268	150	.2154		718					
5	.0315	23	.1005		721	.335	180	.2693		721					
6	.0377	26	.1206		724	.402	200	.3232		722					
7	.0440	29	.1407		725			.3770		723					
8			.1608		726			.4309		724					
9			.1809		726			.4847		725					
10			.2010		726			.5386		726					
11								.5925		727					
12								.6463		728					
13								.7002		729					
14								.7540		729					
15								.8080		729					

Gauge No. 5594	Depth 2026'	Clock No. 7047	hour 12

0	.000	21	.000		38	.000	48	.000		209					
1	.0063	23	.0200		687	.0673	73	.0542		695					
2	.0126	25	.0400		713	.1347	105	.1084		715					
3	.0189	28	.0600		723	.2020	132	.1626		724					
4	.0252	30	.0800		729	.2693	161	.2168		729					
5	.0315	33	.1000		733	.3367	190	.2710		733					
6	.0377	36	.1200		735	.4040	209	.3252		735					
7	.0440	38	.1400		737			.3794		736					
8			.1600		738			.4336		737					
9			.1800		739			.4878		738					
10			.2000		739			.5420		738					
11								.5962		739					
12								.6504		739					
13								.7045		739					
14								.7588		739					
15								.8130		739					
Reading Interval	1		3			10		8							Minutes

REMARKS:

SPECIAL PRESSURE DATA

TICKET NO. 791226

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5 3/4"	2.75"	1'	
	5 3/4"	2.75"	1' Double Pin	
Water Cushion Valve				
Drill Pipe	4½"	3.826"	1549'	
Drill Collars	6"	2.125"	425'	
Handling Sub & Choke Assembly	4½"		4'	
Dual CIP Valve	5"	.87"	5'	
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	1999'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.75"	4'	2001'
Hydraulic Jar	5"	1.75"	5'	
VR Safety Joint	5"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.50"	4'	2016'
Distributor				
Packer Assembly	6 3/4"	1.50"	4'	2020'
Flush Joint Anchor	5"	3.84"	4'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case	5"	3.75"	4'	2026'
Drill Collars	5"	3.84"	1' Blanked off	
Anchor Pipe Safety Joint				
Packer Assembly	6 3/4"	1.50"	4'	2032'
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor	6 3/4"		7'	2035'
Drill Collars				
Flush Joint Anchor	5"	3.84"	1'	
Blanked-Off B.T. Running Case	5"	2.75"	4'	2040'
Total Depth				2285'

FORM 187-R1—PRINTED IN U.S.A.

EQUIPMENT DATA

LITTLE'S 96676 75C 6/74

NOMENCLATURE

b	= Approximate Radius of Investigation	Feet
b_1	= Approximate Radius of Investigation (Net Pay Zone h_1)	Feet
D.R.	= Damage Ratio	—
El	= Elevation	Feet
GD	= B.T. Gauge Depth (From Surface Reference)	Feet
h	= Interval Tested	Feet
h_1	= Net Pay Thickness	Feet
K	= Permeability	md
K_1	= Permeability (From Net Pay Zone h_1)	md
m	= Slope Extrapolated Pressure Plot (Psi^2/cycle Gas)	psi/cycle
OF_1	= Maximum Indicated Flow Rate	MCF/D
OF_2	= Minimum Indicated Flow Rate	MCF/D
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_{ot}	= 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	—
μ	= Viscosity Gas or Liquid	CP
Log	= Common Log	

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

Formation Testing Service Report

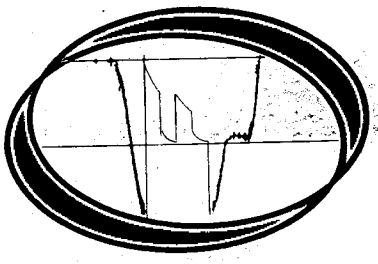
G.R. SWARTZ
Lease Name

1
Well No.

2
Test No.

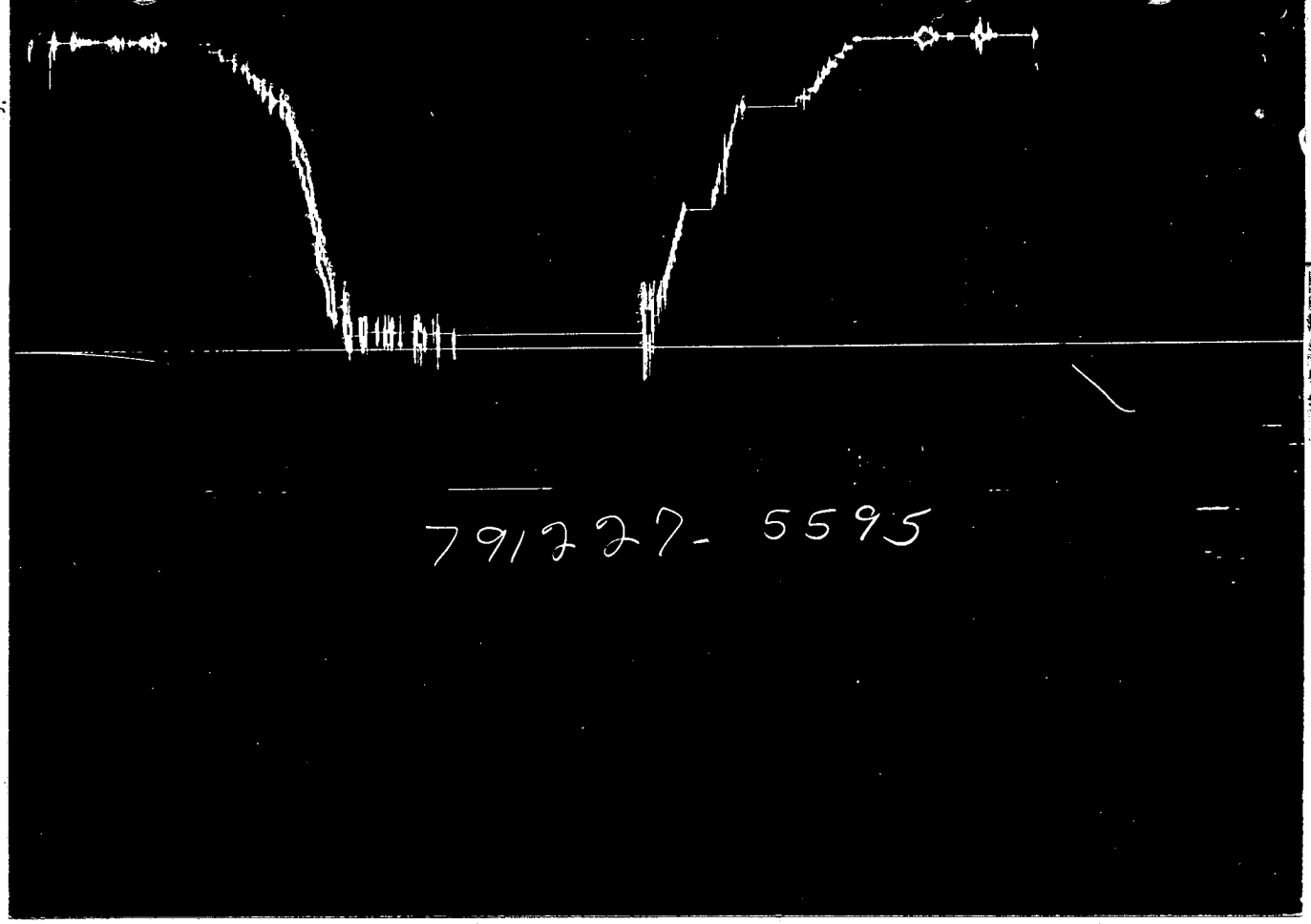
1975'-1985'
Tested Interval

ANSCHUTZ CORPORATION
Lease Owner/Company Name



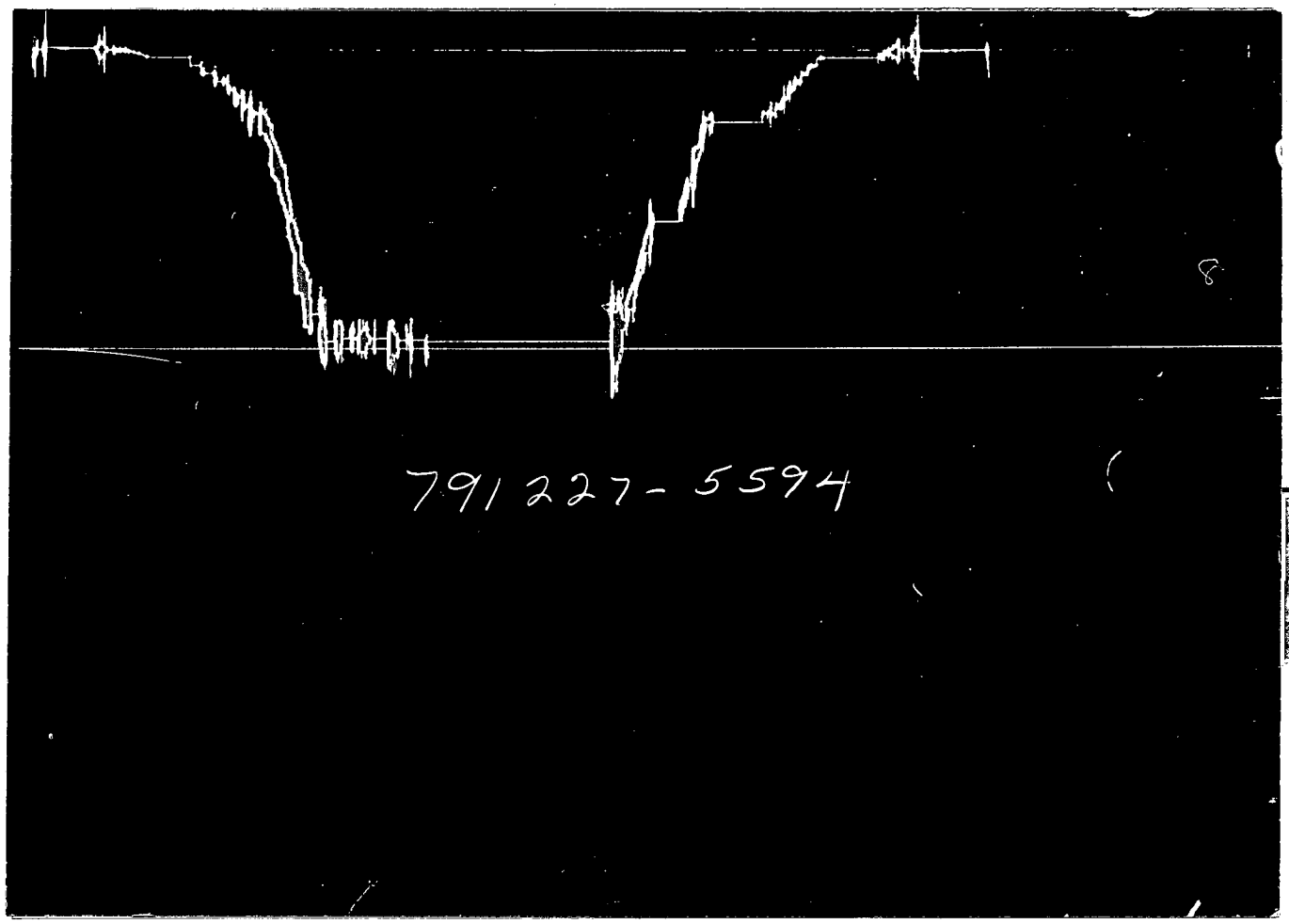
FEB 24 1975
MO. OIL & GAS COUNCIL

HALLIBURTON SERVICES
DUNCAN, OKLAHOMA



PRESSURE

TIME



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

FLUID SAMPLE DATA

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.

	RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@ °F.		ppm
Recovery Mud	@ °F.		ppm
Recovery Mud Filtrate	@ °F.		ppm
Mud Pit Sample	@ °F.		ppm
Mud Pit Sample Filtrate	@ °F.		ppm

Mud Weight 9.0 vis 57 cp

Date 2-6-75 Ticket Number 791227

Kind of Job OPEN HOLE STRADDLE Halliburton District EL DROADO

Tester MR. BUTCHER Witness MR. WARE

Drilling Contractor LOHMAN AND JOHNSON RIG # 15 DR

EQUIPMENT & HOLE DATA

Formation Tested Viola Upper Lime
Elevation 1048' KB Ft.
Net Productive Interval 10' Ft.
All Depths Measured From Kelly Bushing
Total Depth 2285' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 425' I.D. 2.125"
Drill Pipe Length 1504' I.D. 3.826"
Packer Depth(s) 1971-1975'-1985' Ft.
Depth Tester Valve 1954' Ft.

Cushion TYPE AMOUNT Depth Back Pres. Valve Ft. Surface Choke 1/4" Bottom Choke 3/4"

Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks Hook wall assembly would not set at area of test. Would set @ 2090 top packer. SEE PRODUCTION TEST DATA SHEET

TEMPERATURE	Gauge No. 5595 Depth: 1956 Ft.	Gauge No. 5594 Depth: 1991 Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 8:35 A.M. P.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	
Actual °F.	Pressures	Pressures	Pressures	Opened A.M. Bypass P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic									
First Period	Flow Initial								
	Flow Final	NO READINGS AVAILABLE, DID NOT GET TO BOTTOM							
	Closed in								
Second Period	Flow Initial								
	Flow Final								
	Closed in								
Third Period	Flow Initial								
	Flow Final								
	Closed in								
Final Hydrostatic									

Legal Location Sec. - Twp. - Rng. 34-64-29W

G.R. SWARTZ Lease Name

1 Well No.

2 Test No.

1975'-1985' Tested Interval

Field Area WILDCAT

Meas. From Tester Valve

County HARRISON

State MISSOURI

ANSCHUTZ CORPORATION Lease Owner/Company Name

Casing perfs. _____ Bottom choke 3/4" Surf. temp _____ °F Ticket No. 791227
Gas gravity _____ Oil gravity _____ GOR _____
Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F
INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
9:00					Completed test #1
10:00					Released
1:30 PM					Truck called out
5:00					On location
5:30					Picked up tools
6:00					Made up tools
6:15					Went in hole
8:35					On bottom with hook
					Hook would not set
					Move down 2'
					Would not set
					Moved down 2'
					Would not set was trying to take weight
					Tried again @ 1975'
					Would not set
					Tool would set @ 2090'
9:30					Waited on orders
2-7-75 2:00 Am					Layed down tools
4:00					Made trip with bit.
					Will test open hole from Dt.

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 06672 5M 8/74

TICKET NO. 791227

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5 3/4"	2.75"	1'	
	5 3/4"	2.75"	1' Double Pin	
Water Cushion Valve				
Drill Pipe	4½"	3.826"	1504'	
Drill Collars	6"	2.125"	425'	
Handling Sub & Choke Assembly	4½"		4'	
Dual CIP Valve	5"	.87"	5'	
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75'	5'	1954'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.75"	4'	1956'
Hydraulic Jar	5"	1.75'	5'	
VR Safety Joint	5"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.50"	4'	1971'
Distributor				
Packer Assembly	6 3/4"	1.50"	4'	1975'
Flush Joint Anchor	5"	3.84"	6'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars	5"	3.84"	1' Blanked off	
Anchor Pipe Safety Joint				
Packer Assembly	6 3/4"	1.50"	4'	1985'
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor	6 3/4"		7'	1988'
Drill Collars				
Flush Joint Anchor	5"	3.84"	1'	
Blanked-Off B.T. Running Case	5"	2.75"	4'	1991'
Total Depth				2285'

EQUIPMENT DATA

Formation Testing Service Report

G. R. SWARTZ
Lease Name

1
Well No.

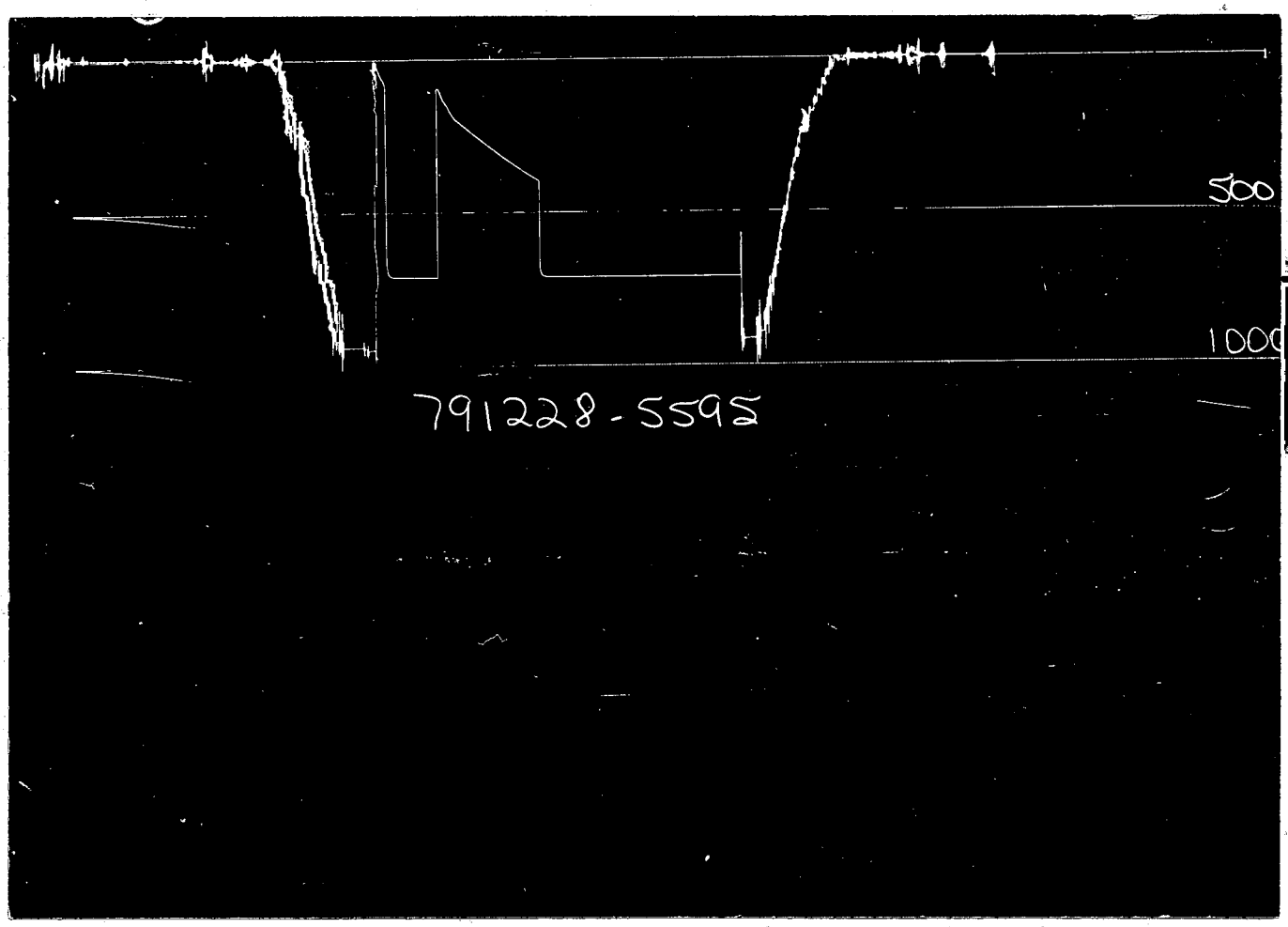
3
Test No.

1975' - 1985'
Tested Interval

ANSCHUTZ CORPORATION
Lease Owner/Company Name

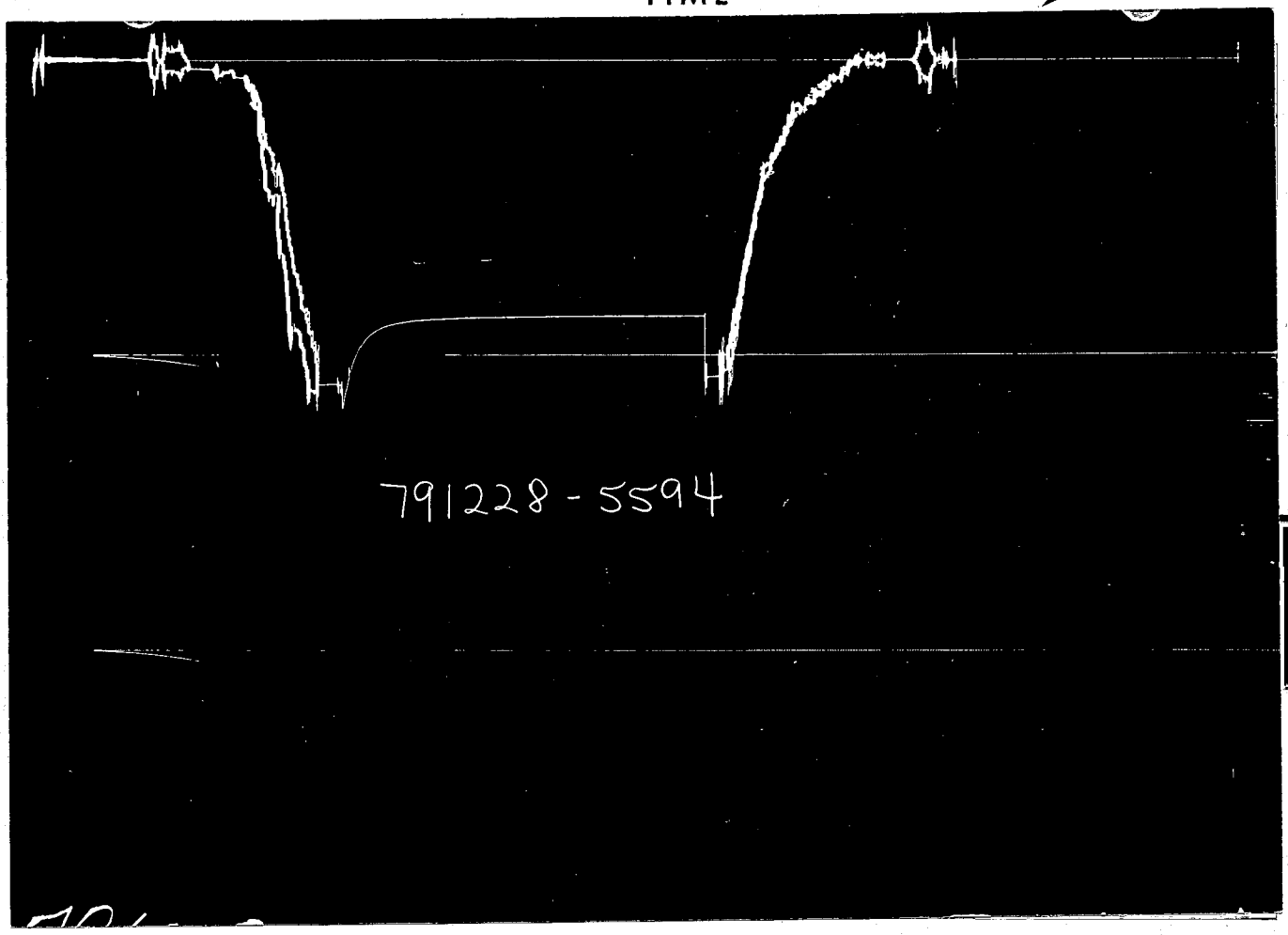
FEB 24 1975
MO. OIL & GAS COUNCIL

HALLIBURTON SERVICES
DUNCAN, OKLAHOMA



PRESSURE

TIME



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

FLUID SAMPLE DATA

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.

	RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@ °F.		ppm
Recovery Mud	@ °F.		ppm
Recovery Mud Filtrate	@ °F.		ppm
Mud Pit Sample	@ °F.		ppm
Mud Pit Sample Filtrate	@ °F.		ppm

Mud Weight 9.0 vis 57 cp

Date	2-7-75
Ticket Number	791228
Kind of Job	STRADDLE OPEN HOLE TEST
Halliburton District	EL DORADO
Tester	MR. BUTCHER
Witness	MR. WARE
Drilling Contractor	LOHMAN JOHNSON DRILLING COMPANY RIG#15

EQUIPMENT & HOLE DATA PW S

Formation Tested	Viola (Upper Lime)	
Elevation	K.B. 1048'	Ft.
Net Productive Interval	10'	Ft.
All Depths Measured From	Kelly Bushing	
Total Depth	2285'	Ft.
Main Hole/Casing Size	7 7/8"	
Drill Collar Length	425' I.D. 2.125"	
Drill Pipe Length	1515' I.D. 3.826"	
Packer Depth(s)	1971' - 1975' - 1985'	Ft.
Depth Tester Valve	1954'	Ft.

Cushion TYPE AMOUNT Depth Back Pres. Valve Ft. Surface Choke 1/4" Bottom Choke 3/4"

Recovered 892 Feet of Slightly muddy water.

Recovered Feet of

Recovered Feet of

Recovered Feet of

Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET.....

Mea. From Tester Valve

TEMPERATURE	Gauge No. 5595	Gauge No. 5594	Gauge No.	TIME	
	Depth: 1956 Ft.	Depth: 2281 Ft.	Depth: Ft.		
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool	A.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened 3:57	P.M.
				Opened	A.M.
Actual °F.	Pressures	Pressures	Pressures	Bypass 5:33	P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		944	946		1102				
First Period Flow	Initial	25	11					—	—
	Final	65	82	HYDROSTATIC				6	7
	Closed in	717	712	RELEASE:	870			30	30
Second Period Flow	Initial	90	98					—	—
	Final	400	398					60	60
	Closed in	717	711					120	119
Third Period Flow	Initial							—	—
	Final								
	Closed in								
Final Hydrostatic		920	914		1074			—	—

Legal Location Sec. - Twp. - Rng.: 34 - 64 - 29W

Lease Name: G. R. SWARTZ

Well No.: 1,

Test No.: 3

Tested Interval: 1975' - 1985'

Lease Owner/Company Name: ANSCHUTZ CORPORATION

Field Area: WILDCAT

County: HARRISON

State: MISSOURI

FORMATION TEST DATA

Casing perfs. _____ Bottom choke 3/4" Surf. temp _____ °F Ticket No. 791228
Gas gravity _____ Oil gravity _____ GOR _____
Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F
INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
5:00					Waiting - trip bit to bottom - circulate
					for 2 hours.
11:30					Condition hole.
11:30					Triping out test #3.
1:30					Picked up tool.
2:45					Went in hole.
3:53					On bottom with no trouble.
3:57					Opened tool with a fair blow.
4:00					Good blow.
4:03					Closed tool.
4:33					Reopened tool with a fair blow.
4:40					Good blow.
4:45					Strong blow.
5:00					Strong blow.
5:15					Strong blow.
5:30					Strong blow. No gas to surface.
5:33					Closed tool.
7:33					Off bottom.

PRODUCTION TEST DATA

Gauge No. 5595	Depth 1956'	Clock No. 7047	12 hour	Ticket No. 791228

	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	.000	11	.000		82	.000	98	.000		398					
1	.0063	18	.0068		692	.0675	189	.0067		700					
2	.0126	28	.0136		705	.1350	237	.0134		707					
3	.0189	38	.0204		709	.2025	281	.0201		709					
4	.0252	52	.0272		709	.2700	324	.0268		709					
5	.0315	63	.0340		710	.3375	363	.0335		710					
6	.0378	70	.0408		710	.4050	398	.0402		710					
7	.0440	82	.0476		711			.0469		710					
8			.0544		711			.0536		710					
9			.0612		711			.0603		710					
10			.0680		711			.0670		710					
11			.0951		711			.2010		711					
12			.1222		711			.3350		711					
13			.1493		711			.4690		711					
14			.1764		712			.6030		711					
15			.2030		712			.7970		711					

Gauge No. 5594	Depth 2281'	Clock No. 7101	24 hour

0															
1															
2															
3															
4															
5															
6			HYDROSTATIC RELEASE:			870									
7															
8															
9															
10															
11															
12															
13															
14															
15															
Reading Interval	1		*			10		**							Minutes

REMARKS:

* = First 10 intervals are equal to 1 minute each; the next 5 intervals are equal to 4 minutes each. ** = First 10 intervals are equal to 1 minute each; the next 4 intervals are equal to 20 minutes each; the last interval is equal to 29 minutes.

SPECIAL PRESSURE DATA

TICKET NO. 791228

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5 3/4"	2.75"	1'	
~~Water Cushion Valve~~ D. - Pin	5 3/4"	2.75"	1'	
Drill Pipe	4 1/2" XH	3.826"	1515'	
Drill Collars	6"	3.125"	425'	
Handling Sub & Choke Assembly	4 1/2"		4'	
Dual CIP Valve	5"	.87"	5'	
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	1954'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.75"	4'	1956'
Hydraulic Jar	5"	1.75"	5'	
VR Safety Joint	5"	1"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.50"	4'	1971'
Distributor				
Packer Assembly	6 3/4"	1.50"	4'	1975'
Flush Joint Anchor	5"	3.84"	6'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
~~Drill Collars~~ Blanked-Off	5"	3.84"	1'	
Anchor Pipe Safety Joint				
Packer Assembly	6 3/4"	1.50"	4'	1985'
~~Distributor~~ Change Overs	5 3/4"	2.75"	1 1/2'	
Packer Assembly				
Anchor Pipe Safety Joint				
~~Side Wall Anchor~~ Drill Pipe	4 1/2" XH	3.826"	281'	
~~Drill Collars~~ Change Over	5 3/4"	2.75"	1 1/2'	
Flush Joint Anchor	5"	3.84"	10'	
Blanked-Off B.T. Running Case	5"	2.75"	4'	2281'
Total Depth				2285'

EQUIPMENT DATA

MUD AND CUTTINGS ANALYSIS

THE ANSCHUTZ CORPORATION-NCRA-DOW CHEMICAL

NO. 1 SWARTZ

WILDCAT

HARRISON COUNTY, MISSOURI

RECEIVED
MAR 12
MO. OIL & GAS COUNCIL

RECEIVED
MAR 12 1975
MO. OIL & GAS COUNCIL

CORE LAB
PETROLEUM RESERVOIR ENGINEERING

SUMMARY OF WELL DATA

I. WELL DATA

Well Name: No. 1 G. R. Swartz

Operator: The Anschutz Corporation, NCRA, Dow Chemical

Location: NE SE SEC 34-64N-29W Harrison County, Missouri

Field: Wildcat

Lease: G. R. Swartz

Elevation: 1048' KB 1040' GL

Geology: Well Site Geology by Charles L. Ard

Casing: 303' 8 5/8" Steel Casing from Surface

Bit Size: 7 7/8"

Total Depth: Schlumberger - 2285'
Geolograph - 2287'

Status: Dry and Abandoned

II. TESTS

DST No. 1 - Depth: 2020' - 2032' Formation: Lower Viola

	Time	Pressure (lbs.)
IHP		976
IF	5 min.	16-24
ISI	30 min.	725
FF	60 min.	33-196
FSI	120 min.	726
FHP		920

GTS - None
MTS - None
OTS - None

Recovered: 425' water in collars, 10' water in drill pipe for total 1.80 bbls fluid recovered.

DST No. 2 - Depth: 1975' - 1985' Formation: Viola

Misrun

II. TESTS (Continued)

DST No. 3 - Depth: 1975' - 1985' Formation: Viola

	Time	Pressure (lbs.)
IHP		944
IF	5 min.	25-65
ISI	30 min.	717
FF	60 min.	90-400
FSI	120 min.	717
FHP		920

GTS - None
MTS - None
OTS - None

Recovered: 425' water in drill collars, 467' water in pipe for total 8.20 bbls fluid recovered.

III. CORES

No Cores

IV. PLUGGING DATA

Plug No.	Interval	Sacks Cement
1	2050' - 1950'	25 Sacks class A cement
2	1200' - 1100'	25 Sacks class A cement
3	350' - 250'	25 Sacks class A cement
4	Surface	10 Sacks with ½" steel plate

V. GEOLOGIC SUMMARY

The Mississippian limestone was encountered at a depth of 1153'. It was a white to gry white and tan limemud type limestone, abun fossils mostly fragmented and unrecognizable. Porosity was very poor and there were no shows.

The Kinderhook shale was encountered at 1418'. No shows of hydrocarbons.

The Lime Creek came in at 1450' and was alternating beds of limestone, shale, and siltstones. No shows of hydrocarbons.

The top of the Hunton was at 1520'. No shows were recorded.

The Upper Viola was encountered at 1920' and was predominantly a white to light gray, dolomite good xtal structure, rhombs well developed. Several cuts were evident, one very good streaming cut at 2020-2040. There was also 1 green pinpoint fluor. There were no indications of hydrocarbons on gas detection machines.

The Lower Viola came in at 2093' and was markedly browner with much blk staining and several fair to good cuts throughout the formation. No shows were indicated by gas detection equipment.

V. GEOLOGIC SUMMARY (Continued)

The Simpson was encountered at 2180' and was composed of alternating ls, dolo, and sandy silts. There were several fair cuts when crushed in chloro ethene but no fluor and no indications on gas detection equipment.

The St. Peter sandstone was encountered at 2250'. No shows of hydrocarbons.

The Arbuckle came in at 2272' as a wht to tan chalky dolomite. No shows were recorded.

VI. ANOMALIES RECORDED ON GAS DETECTION INSTRUMENTS

No abnormal readings indicating the possible presence of hydrocarbons was encountered.

VII. LOG AND SAMPLE FORMATION TOPS

	Log Top		Sample Top	
Formation	Depth	Datum	Depth	Datum
Mississippian	1153	- 105	1155	- 107
Kinderhook	1418	- 370	1424	- 376
Lime Creek	1450	- 402	1450	- 402
Hunton	1520	- 472	1524	- 476
Maqueketa	1895	- 855	1890	- 850
Viola	1920	- 880	1920	- 880
Lower Viola	2093	-1053	2091	-1051
Simpson	2180	-1140	2180	-1140
St. Peter	2250	-1210	2260	-1220
Arbuckle	2272	-1232	2280	-1244

VIII. SAMPLE DESCRIPTIONS

Interval	Description
400 - 440	SS - wht, clr, s & p, f-vfg, fri, wl-mod cons, sub rnd-sub ang, mod srtd, pyrite glauc, tr mich, occ gdng to sltst
440 - 450	SH - brn, lgry, frm, dns, slty ip, s/calc
450 - 480	SH - varicolored, red, brn, gry, grn, frm-sft slty, vs/calc, tr pyrite, occ small limestone lenses
480 - 530	LS - wht, lbrn, "dirty," mottled, sft, chlky, v/argil, thin shales interbedded
530 - 540	SLTST - gry, lgry, frm, blocky, v/calc occ gdng to slty ls
540 - 560	LS - tan, lbrn, sft-med/hd, v/slty, dolo ip
560 - 580	SH - gry, lgry, sft, slty, vs/calc, occ pyrite
580 - 590	SS - wht, gry, s & p, f-vfg, wlcons, fri, mod-p/srtd, subrnd-subang, s/calc, glauc, pyric, slty-v/slty, interbeds of varicolored shales.
590 - 610	Interbedded thin shales and limestones with the above sandstone. Shales are varicolored, with occ very thin black laminations. Abun pyrite & coal
610 - 670	SS - wht, clr, lgry, f-mg, wlcons, fri, prly-mod/srtd, subrnd-subang, vs/calc, micac, v/slty, "dirty", interbedded with gy sh & siltstone
670 - 700	SH - varicolored, grn, gry, blk, frm-sft, slty ip, ls/calc, pyric, tr mica
700 - 710	LS - tan, buff, hd, dns, non/xtln, no vis fos, no vis porosity, slty, sndy ip
710 - 740	SH - dbrn, hd, dns, fis, brtl, earthy, micac, pyric
740 - 760	SLTST -gry, mottled, speckled black, frm-sft, sndy-v/sndy, s/calc, micac, pyric
760 - 780	SS - gry, mottled, f-mg, fri, prly cons, prly srtd, subrnd, v/slty, s/calc, pyric, micac
780 - 800	No Sample
800 - 820	SS - wht, tan, m-cg, wl cons, fri, mod srtd, rnd-subrnd, black shale fragments throughout. silty-v/slty
820 - 840	SLTST - wht, lgry, frm-hd, sndy ip, occ gdng to vfg ss, calc
840 - 860	SH - blk, hd, fis, brtl, vs/calc, pyric
860 - 910	SLTST & SH as above interbedded, grdgng to sltst at bottom
910 - 960	SH - blk, hd, fis, brtl, pyric, occ lignitic, abun clr calcite
960 - 970	SLTST - wht, lgry, frm-hd, sndy ip, occ gdng to vfg ss
970 - 990	SS - wht, clr, lgry, f-mg, wl cons, fri, wl srtd, sub rnd, occ slty, micac,pyric
990 - 1020	SH - blk, hd, fis, brtl, pyric, earthy
1020 - 1050	SLTST - wht, lgry, frm, sandy ip, occ gdng to vfg ss
1050 - 1140	SS - wht, lgry, f-mg, fri, wl-mod/cons, wl srtd, rnd-sub rnd, slty, occ gdng to sndy sltst
Sample Top Mississippian	
1140 - 1190	LS - wht, tan, lbrn, hd, dns, mstly n/xtln, featureless "mudstone" no vis fos, no vis porosity, occ chlky & v/sft, occ dolo
1190 - 1210	No Sample
1210 - 1230	LS - tan, brn, hd, xtln-n/xtln, mstly crystaline, "dirty", mottled, sndy ip, slty, sndy. Occ chlky, pyric, v/cherty
1230 - 1250	LS - tan, lbrn, hd, fragmental, xtln, poor porosity, occ chalky, sft, slty, very abund chert

1250 - 1260	CHERT - brn, tan, lgry, hd, brtl, translucent, conc frac
1260 - 1300	No samples returned, complete loss of circulation at 1271' no returns
1300 - 1340	DOLOMITE - wht, ltan, hd, f-m/xtln, no inter - xtln porosity, abun wht chert, also abun chlky v/sft ls
1340 - 1345	CHERT - wht, l/blue, translucent, v/hd, brtl
1345 - 1400	LS - lgry, gry, hd, n/xtln, massive, silic, featureless. occ grdng to sltst, & traces of dolomite ls
1400 - 1410	LS - brn, tan, xtln, fragmental, hd, dns, no vis/por abun fos frag, pyric
1410 - 1430	SH - lgrn, grn, frm, fis, plty, earthy, grdng from lgrn to gry toward bottom
1430 - 1440	SH - dgry, dbrn, frm, v/fiss, plty, vs/calc. occ v/calc
1440 - 1490	LS - tan, brn, hd-sft, occ chlky, mstly n/xtln, mottled, "dirty", slty, occ pyrite
1490 - 1500	SLTST - wht, lgry, hd, calc
1500 - 1570	LS - tan, brn, lbrn, hd, dns, n/xtln, featureless lime mudstone, occ pyrite. interbedded with thn calc sltst & sh. No visible porosity. The l/tan occ grds to chalky and v/sft.
1570 - 1580	LS - tan, brn, lbrn, a/a, abun brn stain, but no fluor, no cut
1580 - 1590	LS - wht, crm, hd, dns, m/xtln, no vis porosity, blk filled styolites no fluor, no cut
1590 - 1600	LS - wht, crm, lbrn, frm-sft, mstly v/chlky, no vis porosity, abun blk, d/brn staining, no fluor, no cut
1600 - 1630	LS - tan, brn, gry, lgy, hd-frm, mstly n/xtln, slty- v/slty. no vis porosity. occ dolomite, still abun blk-dbrn stain, no fluor, no cut
1630 - 1670	LS - wht, crm, lgry, hd, dns, n/xtln, massive, wht, crm, sft-v/sft, chalky. Traces chert
1670 - 1680	LS - brn, hd, dns, n/xtln, featureless lime mudstone,occ pyrite
1680 - 1690	DOLO - d/brn, hd, granular, poor porosity. silt & shale stringers
1690 - 1700	LS - wht, sft, chlky, pyrite
1700 - 1710	DOLO - brn, lbrn, gry, hd, granular, slty.
1710 - 1720	LS - wht, lgry, crm, hd, dns, n/xtln, featureless, pyrite
1720 - 1740	DOLO - brn, dbrn, hd, granular, slty ip, no fluor, no cut - poor porosity
1740 - 1760	LS - gry, dgry, hd, dns, n/xtln, massive, occ dolomitic
1760 - 1770	LS - wht, lgry, v/sft, chlky
1770 - 1790	LS - wht, lgry, gry, frm-hd, slty texture. Dolo ip
1790 - 1800	LS - tan, l/tan, frm-hd, slty texture, dolo ip
1800 - 1820	DOLO - wht, clr, hd, m-c/xtln, dolo xtals very well developed, abund lse cir dolo rhombs, very poor inter/xtln porosity. Dead stain present in much of the sample, no fluor, no cut
1820 - 1850	DOLO - wht, clr, hd-sft, slty to chlky texture, brn, dbrn, hd, granular texture, v/tite, occ vugular porosity, no effective permeability. No fluor, no cut. Traces of stain (dead)
1850 - 1890	SS - wht, clr, hd, m-cg, prly-mod/cons, v/fri, fair to good porosity. Wl/srtd, wl/rnded- angular. Many with xtal faces. S/dolomitic cementation. Grades to wl/cons, brtl, dolomitic cemented ss. Breaks across grains. Occ grds to a lbrn sandy dolomite, with grains isolated and not touching. Occ stained dark brn, but no fluor or cut visible
1890 - 1910	DOLOMITE - wht, lgry, frm, slty texture, occ chlky, sndy ip, s/calc

1910 - 1930 DOLOMITE - wht, lgry, gry, d/gry, hd, c/xtln, good xtal structure, very poor inter/xtln porosity, no fluor, no cut. tr pyrite

1930 - 1970 DOLOMITE - wht, hd, v/xtln, tranlucent, occ good rhombic development, vp/porosity. v/s halo cut toward bottom

1970 - 2010 DOLOMITE - gry, dgr, hd, v/xtln, occ sucrosic, poor porosity, no cut. tr chert

2010 - 2020 DOLOMITE - wht, tan, mottled, hd-sft, slty, chlky ip, occ dbrn stain which does not fluor, but has vs/halo cut

2020 - 2040 DOLOMITE - wht, tan, brn, speckled brn, frm-v/sft, slty-v/slty, xtal structure v/poorly developed, mostly silty texture, v/dirty brn appearance - rare pinpoint l/grn fluor, cut ranges from fair to v/good streaming cut when crushed in trichloroethene

2040 - 2050 DOLOMITE - a/a less cut

2050 - 2070 DOLOMITE - wht, tan, frm-hd, chlky ip, xtln ip, v/abun chert over 60% of sample, no fluor, no cut

2070 - 2090 DOLOMITE - brn, tan, dirty brn, frm-hd, slty ip, shly ip, chlky, pyric, tr brn stain which when cut leaves faint halo. Poor porosity. v/abun chert, also abun clusters and single qtz crystals, well terminated growth or fracture fill type

2090 - 2120 DOLOMITE - lbrn, tan, hd, v/xtln, often sucrosic poor to fair inter/xtln porosity, some vugular porosity, vug do not appear to be extensive enough for any permeability, no fluor, vs/halo cut in samples with dbrn & blk specks. traces of dirty brn, black specked, usually v/chlky, slty dolo had fair to good cut when crushed in trichloroethene

2120 - 2130 UNRELIABLE SAMPLE - brn, dbrn, tan, dolo. xtln-slty or granular. vs/halo cut in samples with black residue

2130 - 2140 DOLOMITE - brn, tan, hd, mstly xtln with good xtal development, poor inter/xtln por, some vugular porosity but poor perm. vs halo cut present

2140 - 2150 DOLOMITE - brn, tan, dirty brn, hd, xtln, good rhombic xtals, poor porosity, very abundant black residue & stain fair to good cut, no fluor

2150 - 2170 DOLOMITE - brn, tan, hd xtln, a/a, but no staining, no fluor, no cut

2170 - 2190 DOLOMITE - gry, lgry, hd, xtln ip, pyric, v/poor porosity, no fluor, no cut

2190 - 2210 DOLOMITE - brn, dbrn, frm-hd, shly, much blk, brn staining, fair cut. very poor porosity, abundant sand incorp into dolo

2210 - 2220 Interbedded green shale & ss - SS is mstly wl rnded, m-cg, uncons, qtz grns, SH - grn, sft, wxy-sub/wxy, fis

2220 - 2230 DOLOMITE - brn, lbrn, hd, dns, vf/xtln, v/poor porosity, no cut

2230 - 2240 DOLOMITE - l tan, hd, vf/xtln, occ s/sucrosic, slty ip. no vis porosity, no cut

2240 - 2250 SHALE - choc brn, frm, fis, brtl, sub/wxy, l gold fluor, pale white cut when crushed in chloroethene

2250 - 2260 SANDSTONE - clr, cgqtz grns, uncons, often with pyrite attached

2260 - 2285 DOLOMITE - wht, lgy, frm-hd, vf/xtln, slty ip, v/poor porosity. no fluor or cut

IX. DRILL TIME CHART

AVERAGE MINUTES/FT/10 FOOT INTERVAL

	10	20	30	40	50	60	70	80	90	100
0										
100										
200										
300	-	2.0	1.75	0.75	0.75	1.0	0.5	0.5	0.5	0.5
400	1.0	2.5	1.50	2.00	2.50	0.5	0.5	1.0	0.75	0.75
500	2.25	1.25	1.50	1.50	1.50	1.0	1.0	0.5	1.0	1.0
600	1.0	0.75	1.0	1.0	0.75	1.25	1.0	1.0	1.0	1.0
700	0.75	1.50	0.75	1.0	1.50	1.0	1.0	1.0	0.75	0.50
800	0.50	0.50	0.50	0.75	1.0	0.50	0.75	1.0	2.0	2.0
900	1.75	1.25	1.50	1.50	0.75	1.0	2.5	1.50	1.50	1.25
1000	2.25	1.50	2.0	2.0	2.25	3.50	2.25	2.50	3.0	3.50
1100	3.25	2.50	2.0	1.25	0.75	1.25	3.25	3.25	1.25	1.50
1200	1.50	2.0	1.50	1.25	1.75	2.0	1.50	2.0	1.75	3.25
1300	5.50	3.75	2.50	3.75	5.25	6.50	5.50	6.50	7.50	7.0
1400	7.50	5.0	2.0	1.75	1.75	3.0	4.0	5.50	6.0	4.50
1500	3.75	4.0	4.50	4.50	5.50	5.75	6.0	5.0	2.50	2.0
1600	2.50	3.0	7.0	4.75	4.25	4.75	4.25	3.75	4.0	3.25
1700	3.0	2.50	4.25	4.25	3.0	5.25	3.50	2.25	3.0	2.75
1800	2.25	2.0	6.75	5.50	4.0	4.0	3.5	5.25	6.50	7.50
1900	6.50	6.0	4.75	2.50	3.5	4.75	4.0	5.0	3.5	4.25
2000	5.50	8.25	6.50	7.50	7.0	5.0	7.50	5.50	5.0	7.0
2100	3.25	6.75	5.50	4.75	4.25	4.25	3.0	2.0	3.0	4.25
2200	6.50	8.50	8.25	7.50	7.75	6.25	1.50	2.0	14.0	

Note: Total Depth - 2285'