

DEC 30 1977 A BRANCH

**IMPORTANT**  
Kans. Geo. Survey request  
samples on this well.

**KANSAS DRILLERS LOG**

S. 1 T. 17S R. 40 W. W  
Loc. NW NW  
County Greely

API No. 15 — 071 — 20,153  
County Number

Operator  
Wayman W. Buchanan

Address  
444 Petroleum Commerce Bldg., San Antonio, Texas 78205

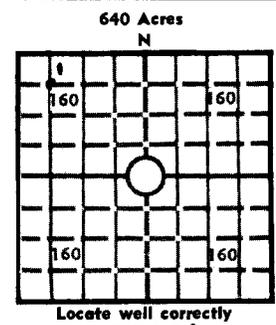
Well No. #1 Lease Name Sleigh

Footage Location  
660 FNL & 660 FWL  
feet from (N) (S) line feet from (E) (W) line

Principal Contractor Snyder Drlg. Co. Geologist None

Spud Date 1-17-78 Total Depth 3030' P.B.T.D. 2995'

Date Completed 1-24-78 Oil Purchaser None



Elev.: Gr. 3608'  
DF 3615' KB 3616'

**CASING RECORD**

Report of all strings set — surface, intermediate, production, etc.

Purpose of string	Size hole drilled	Size casing set (in O.D.)	Weight lbs./ft.	Setting depth	Type cement	Sacks	Type and percent additives
Surface	12-1/4"	8-5/8"	20#	248'	Class "H"	250	Cmt. Circ. 2% CaCl <sub>2</sub>
Prod. Csg.	7-7/8"	4-1/2"	10.5	3030'	Pre-hydrated Class "H"	400	15# gilsonite/sk 10.7# per gal.
					50-50 Poz "A" Class "H"	100	10% salt 0.75% CFR-2/sk

**LINER RECORD**

**PERFORATION RECORD**

Top, ft.	Bottom, ft.	Sacks cement	Shots per ft.	Size & type	Depth interval
			1 at ea. pt.	3/8 jet	2936' - 2945'
					2951' - 2952'
					2953'

Size	Setting depth	Packer set at	Shots per ft.	Size & type	Depth interval
2-3/8"	2890.50'	N/A	1 per foot	3/8 jet	2964' - 2974'

**ACID, FRACTURE, SHOT, CEMENT SQUEEZE RECORD**

Amount and kind of material used	Depth interval treated
Acidized with 1000 gals. 15% ACL Acid, Sand-Water	2939' - 2974'
Frac with 24,000 gals. gelled 2% KCL water	
13,500# 20/40 mesh sand, 4000# 10-20 mesh sand.	

**INITIAL PRODUCTION**

Date of first production <u>2-04-78</u>	Producing method (flowing, pumping, gas lift, etc.) <u>Flowing</u>
RATE OF PRODUCTION PER 24 HOURS <u>0</u> Oil bbls.	Gas <u>CAOF-24, 212 MCFPD</u> Water <u>10 (est.)</u> bbls. Gas-oil ratio <u>—</u> CFPB
Disposition of gas (vented, used on lease or sold) <u>Vented</u>	Producing interval (s) <u>2936' - 2974'</u>

INSTRUCTIONS: As provided in KCC Rule 82-2-125, within 90 days after completion of a well, one completed copy of this Drillers Log shall be transmitted to the State Geological Survey of Kansas, 4150 Monroe Street, Wichita, Kansas 67209. Copies of this form are available from the Conservation Division, State Corporation Commission, 3830 So. Meridian (P.O. Box 17027), Wichita, Kansas 66217. Phone AC 316-522-2206. If confidential custody is desired, please note Rule 82-2-125. Drillers Logs will be on open file in the Oil and Gas Division, State Geological Survey of Kansas, Lawrence, Kansas 66044.

Operator Wayman W. Buchanan DESIGNATE TYPE OF COMP.: OIL, GAS, DRY HOLE, SWDW, ETC.:

Well No. 1 Lease Name Sleigh Gas

S 1 T 17SR 40W<sup>E</sup><sub>W</sub>

WELL LOG

Show all important zones of porosity and contents thereof; cored intervals, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

SHOW GEOLOGICAL MARKERS, LOGS RUN, OR OTHER DESCRIPTIVE INFORMATION.

FORMATION DESCRIPTION, CONTENTS, ETC.	TOP	BOTTOM	NAME	DEPTH
			U. Winfield	2899'
			L. Winfield	2914'
			U. Ft. Riley	2949'
			L. Ft. Riley	2958'

USE ADDITIONAL SHEETS, IF NECESSARY, TO COMPLETE WELL RECORD.

Date Received

*Dan Bennett*  
Signature

*Agent*  
Title

10-28-78  
Date

311376

TYPE TEST:  Deliverability  Open Flow TEST DATE: 2/6-7/78 **1-17-40W**  
 COMPANY: W.W. Buchanan LEASE: Sleigh WELL NO.: 1  
 COUNTY: Greeley LOCATION: 660' FNL & 660' FWL SECTION: 1 TWP: 17S RNG: 40W ACRES:  
 FIELD: Tribune RESERVOIR: PIPELINE CONNECTION:

COMPLETION DATE: PLUG BACK TOTAL DEPTH: 3008 PACKER SET AT:  
 CASINO SIZE: 4 1/2" WT. 11.6 I.D. 4.000 SET AT 2995 PERF. TO 2936 TO 2974  
 TUBING SIZE: 2 3/8" WT. 4.7 I.D. 1.995 SET AT 2890.3 PERF. TO

TYPE COMPLETION (Describe): Single Zone TYPE FLUID PRODUCTION: Water  
 PRODUCING THRU: Tubing RESERVOIR TEMPERATURE: BAR. PRESS - P<sub>a</sub>: 14.4 Psia

GAS GRAVITY - G<sub>g</sub>: .700 (est.) % CARBON DIOXIDE: % NITROGEN: API GRAVITY OF LIQUID:

VERTICAL DEPTH (H): 2955 TYPE METER CONN.: (METER RUN)(PROVER) SIZE: 2"

SHUT-IN PRESSURE: SHUT IN 19 AT (AM)(PM) TAKEN 19 AT (AM)(PM)  
 FLOW TEST: STARTED 19 AT (AM)(PM) TAKEN 19 AT (AM)(PM)

OBSERVED DATA

SHUT-IN OR FLOW	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIFF. in. (h <sub>w</sub> )(h <sub>d</sub> )	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASINO WELL-HEAD PRESS.		TUBING WELL-HEAD PRESS.		DURATION OF SHUT-IN HR.	LIQUID PROD. Bbls.
						psig	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia	psig	(P <sub>w</sub> )(P <sub>i</sub> )(P <sub>c</sub> ) psia		
SHUT-IN						515	529.4	515	529.4		
FLOW	3/8	472		60°		496	510.4	472	486.4	24	

RATE OF FLOW CALCULATIONS

COEFFICIENT (F <sub>p</sub> )(F <sub>d</sub> ) Mcd	(METER) (PROVER) PRESSURE psia	EXTENSION √P <sub>m</sub> h <sub>w</sub>	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP. FACTOR F <sub>t</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW R Mcd	GOR	G <sub>m</sub>
2.439	486.4		1.195	1.000	1.061	1504		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>w</sub>)<sup>2</sup> = 280.3 ; (P<sub>w</sub>)<sup>2</sup> = 260.5 ; P<sub>d</sub> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ ; (P<sub>w</sub>)<sup>2</sup> = 0.207 ; (P<sub>d</sub>)<sup>2</sup> = \_\_\_\_\_

(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup> or (P <sub>c</sub> ) <sup>2</sup> - (P <sub>d</sub> ) <sup>2</sup>	(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup>	$\frac{P_c^2 - P_w^2}{P_c^2 - P_d^2}$	LOG [ ]	"n"	n x LOG [ ]	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcd
280.1	19.8	14.146	1.1506	.912	1.0494	11.204	16852

OPEN FLOW 16,852 Mcd @ 14.65 psia DELIVERABILITY Mcd @ 14.65 psia

The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

Executed this the 8th day of February, 1978.

*Harold R. Lauer*  
 For Company

RAINBO SERVICE COMPANY  
 Checked by

Witness (if any)

For Commission

TYPE TEST:  Initial  Annual  Special TEST DATE: 2-6-78

COMPANY: W.W. Buchanan LEASE: Sleigh WELL NO.: 1 **1-17-40W**

COUNTY: Greeley LOCATION: 660' FNL & 660' FWL SECTION: 1 TWP: 17S RNG: 40W ACRES:

FIELD: Tribume RESERVOIR: PIPELINE CONNECTION:

COMPLETION DATE: PLUG BACK TOTAL DEPTH: 3008 PACKER SET AT:

CASING SIZE: 4 1/2" WT. 10.5 ID 4.000 SET AT 2995 PERF. 2936 TO 2974

TUBING SIZE: 2 3/8 WT. 4.7 ID 1.995 SET AT 2890.3 PERF. TO

TYPE COMPLETION (Describe): Single Zone - Gas TYPE FLUID PRODUCTION: Water

PRODUCING THRU: Tubing RESERVOIR TEMPERATURE F: BAR PRESS - P<sub>e</sub>: 14.4 Psia

GAS GRAVITY - G<sub>g</sub>: .700 (est.) % CARBON DIOXIDE: % NITROGEN: API GRAVITY OF LIQUID:

VERTICAL DEPTH (H): 2955 TYPE METER CONN.: (METER RUN) (PROVER) SIZE: 2"

REMARKS:

OBSERVED DATA

RATE NO.	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIF. (h <sub>w</sub> ) (h <sub>d</sub> )	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASING WELLHEAD PRESS.		TUBING WELLHEAD PRESS.		DURATION OF SHUT-IN HR.	LIQUID PROD. Psia.
						psig	(P <sub>w</sub> )(P <sub>t</sub> )(P <sub>e</sub> ) psia	psig	(P <sub>w</sub> X P <sub>t</sub> X P <sub>e</sub> ) psia		
1	1/8	513		56°		515	529.4	515	529.4		
2	7/32	506		56°		513	527.4	513	527.4	1	
3	1/4	502		58°		509	523.4	506	520.4	1	
4	3/8	480		60°		507	521.4	502	516.4	1	
5	1/2	430		62°		502	516.4	480	494.4	1	
						493	507.4	430	444.4	1	

RATE OF FLOW CALCULATIONS

RATE NO.	COEFFICIENT (F <sub>d</sub> )(F <sub>p</sub> ) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION √P <sub>m</sub> xh <sub>w</sub>	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP. FACTOR F <sub>t</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW Q Mcfd	GOR	Q <sub>m</sub>
1	.2716	527.4		1.195	1.004	1.068	184		
2	.8608	520.4		1.195	1.004	1.067	573		
3	1.115	516.4		1.195	1.002	1.066	735		
4	2.439	494.4		1.195	1.000	1.062	1530		
5	4.388	444.4		1.195	.9981	1.056	2456		

PRESSURE CALCULATIONS

RATE NO.	P <sub>t</sub> psia	P <sub>e</sub> psia	P <sub>w</sub> psia.	(P <sub>e</sub> ) <sup>2</sup> THOUSANDS	(P <sub>w</sub> ) <sup>2</sup> THOUSANDS	PLOTTING POINTS		% SHUT-IN $100 \left[ \frac{P_w - P_e}{P_e - P_a} \right]$
						(P <sub>e</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup> THOUSANDS	Q Mcfd	
1		529.4	527.4	280.3	278.2	2.1	184	99%
2		529.4	523.4	280.3	273.9	6.4	573	99%
3		529.4	521.4	280.3	271.9	8.4	735	98%
4		529.4	516.4	280.3	266.7	13.6	1530	98%
5		529.4	507.4	280.3	257.5	22.8	2456	96%

INDICATED WELLHEAD OPEN FLOW 24,212 Mcfd @ 14.65 psia "n" = .912

The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

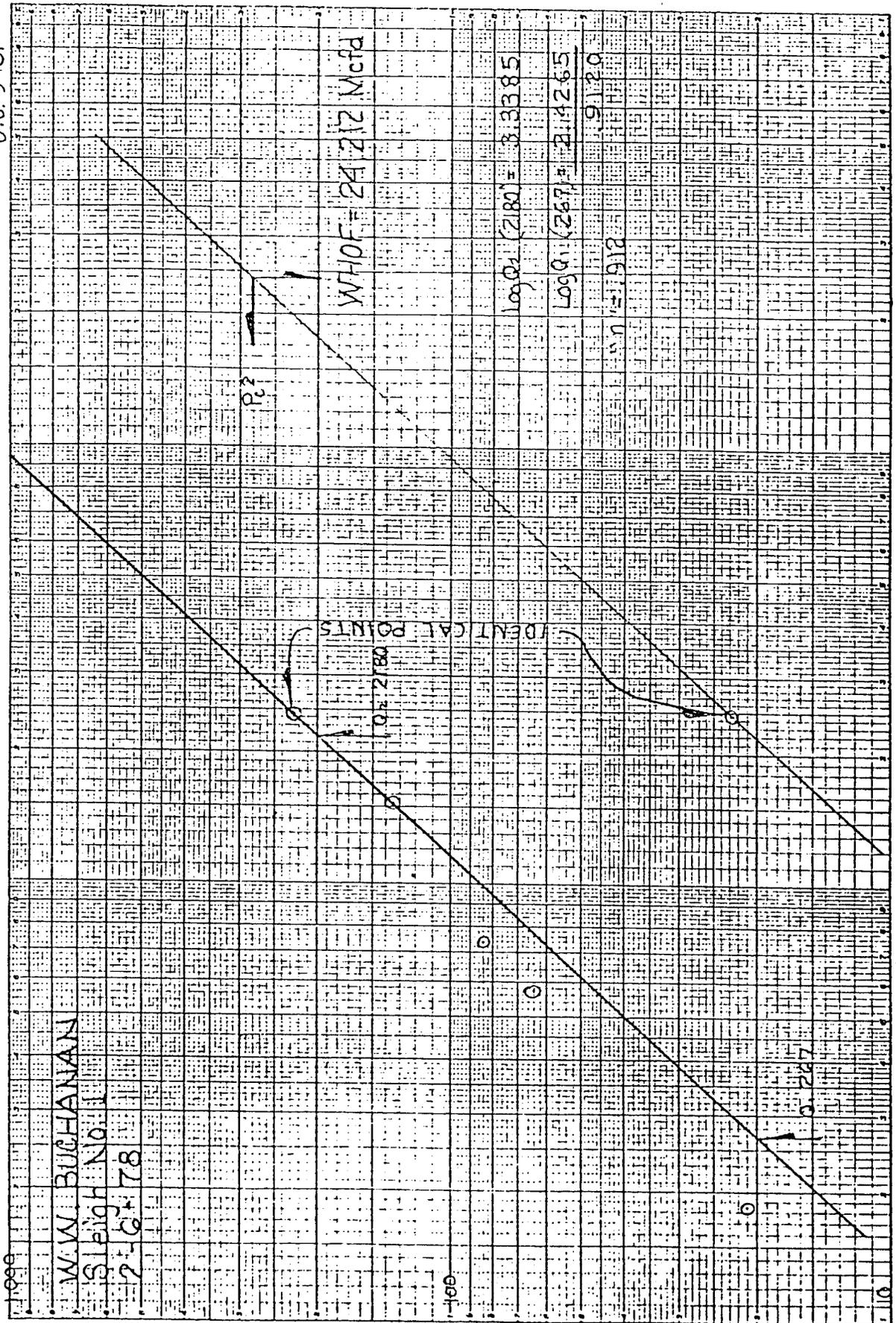
Executed this the 8th day of February, 1978.

Witness (if any)  
For Commission

*Harold R. Jones*  
For Company  
RAINBO SERVICE CO.  
Checked by

1-17-40w

0.C. 9431



100 1000 10000 100000

Q Mcfd

$P_2 - P_{w2}$  (thousands)