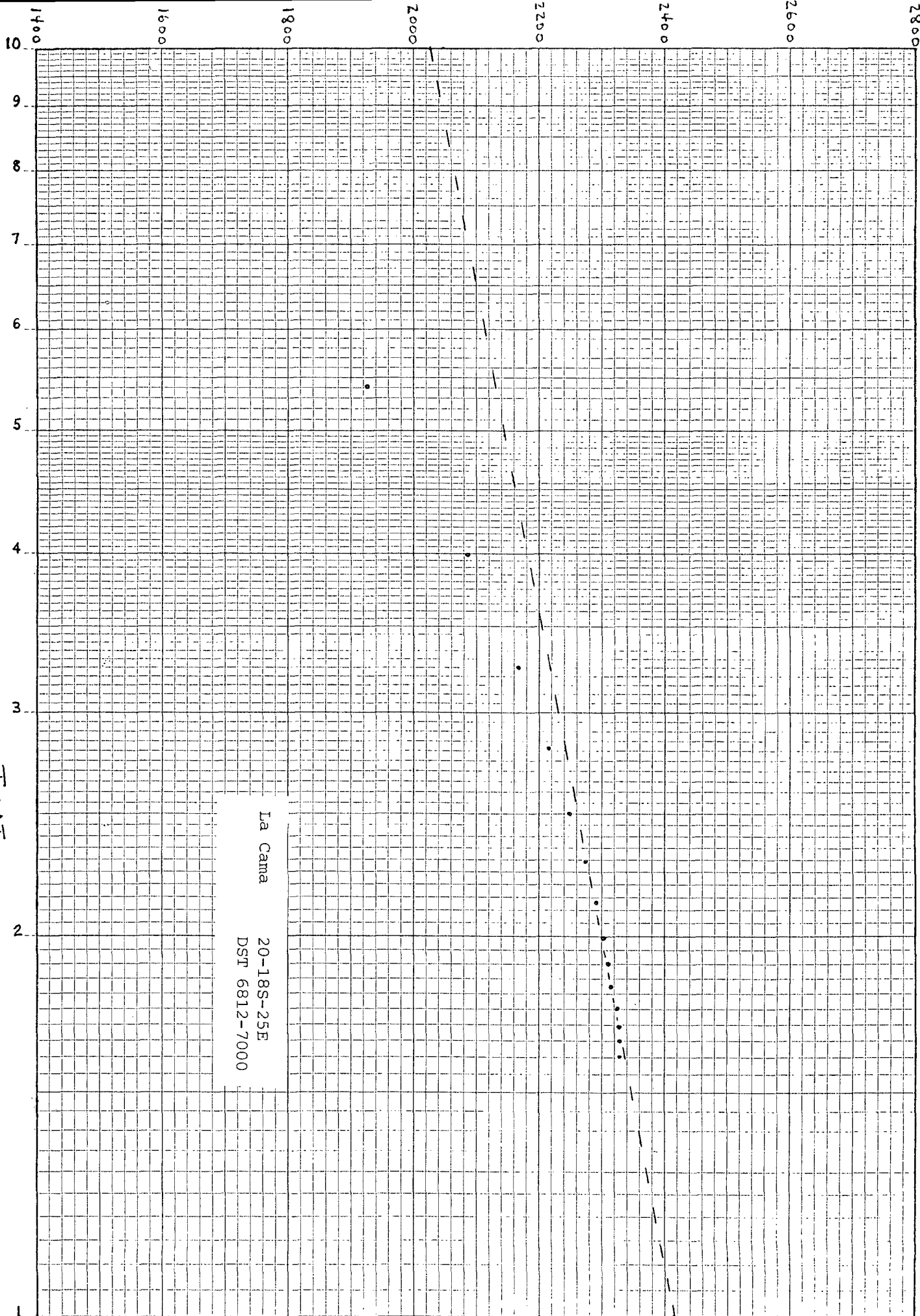


FLUID SAMPLE DATA						Date	Ticket Number
Sampler Pressure _____ P.S.I.G. at Surface						Kind of Job OPEN HOLE TEST	Halliburton District ARTESIA
Recovery: Cu. Ft. Gas _____ cc. Oil _____ cc. Water _____ cc. Mud _____ Tot. Liquid cc. _____						Tester RAINES	Witness J. MC DONALD
Gravity _____ ° API @ _____ °F.						Drilling Contractor MORAN BROTHERS DRILLING COMPANY PW	
Gas/Oil Ratio _____ cu. ft./bbl. RESISTIVITY CHLORIDE CONTENT	EQUIPMENT & HOLE DATA						
Formation Tested _____	CISCO						Ft.
Elevation _____	3578'						Ft.
Net Productive Interval _____	16'						Ft.
All Depths Measured From _____	Kelly Bushing-	AGL 3593'					
Total Depth _____	7000'						Ft.
Main Hole/Casing Size _____	7 7/8"						I.D.
Drill Collar Length _____	379' ?	I.D.	2.250"				
Drill Pipe Length _____	6448'	I.D.	3.340"				
Packer Depth(s) _____	6800' - 6806' - 6812'						Ft.
Depth Tester Valve _____	6775'						Ft.
Mud Weight 9.3 vis sec							
Type Amount Cushion	TYPE AMOUNT	Depth Back Pres. Valve	Surface Choke	Bottom Choke			
Recovered 1383 Feet of drilling mud - 500' of water.							
Recovered Feet of							
Recovered Feet of							
Recovered Feet of							
Recovered Feet of							
Remarks SEE PRODUCTION TEST DATA SHEET.....							
TEMPERATURE Gauge No. 1114 Depth: 6784 Ft.	Gauge No. 1113 Depth: 6844 Ft.	Gauge No. _____ Depth: _____ Ft.	TIME				
Est. _____ °F.	Blanked Off No	Blanked Off no	Tool Opened 1315 A.M.				
Actual 127°F.	Pressures	Pressures	Open By Pass 2330 P.M.				
	Field Office Field Office	Field Office	Reported Computed Minutes Minutes				
Initial Hydrostatic	3461 3286	3320 3299					
Flow Initial Final Closed in	249 269 392 400 2178 2157	282 366 405 405 2149 2149					
Second Period Flow Initial Final Closed in	392 555 551 551 2320 2327	370 594 563 549 2324 2327					
Third Period Flow Initial Final Closed in							
Final Hydrostatic	3264 3273	3285 3288					

$$\frac{T + \Delta T}{\Delta T}$$



La Cama
 20-18S-25E
 DST 6812-7000

Casing perms. _____ Bottom choke .75" Surf. temp. _____ °F Ticket No. 139167
 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
1315		3/8"	1#			Opened tool with a good blow.
1320		"	5			Good blow.
1325		"	15			Good blow - no gas.
1330		"	20			"
1335		"	23	129.20		Gas to the surface in 20 minutes.
1340		"	24	132.60		Flared gas.
1345		"	24	132.60		"
1350		"	"	"		"
1355		"	23	129.20		"
1400		"	"	"		" Closed tool.
1530		"	2			Reopened tool with a good blow.
1535		"	28	146		Gas to flare in 3 minutes.
1545		"	43	197		Gas flare.
1600		"	34	166		"
1615		"	25	136		"
1630		"	20	119		"
1645		"	17	108		"
1700		"	18	112		"
1730		"	23	129		"
1800		"	24	132		Slight increase.
1830		"	25	136		Closed tool.
2330						Opened bypass - pulled loose.

COMPENSATED NEUTRON-
FORMATION DENSITY

MORRIS R. ANTWEIL

LA CAMA # 1

DINKUS RANCH

EDDY STATE NEW MEXICO

21' FNL & 198' FWL

Other Services:

DLL

NO SEC TWP RANGE
20 18-S 25-E

Elev.: K.B. 3593

D.F. 3592

G.I. 3578

Elev.: 3578

15 Ft. Above Perm. Datum

B.

77

CE

@ 1200

@

@

@

GEL

60 ml

6 ml

@ 86 °F

@ 86 °F

@ 86 °F

LC

@ 148 °F

°F

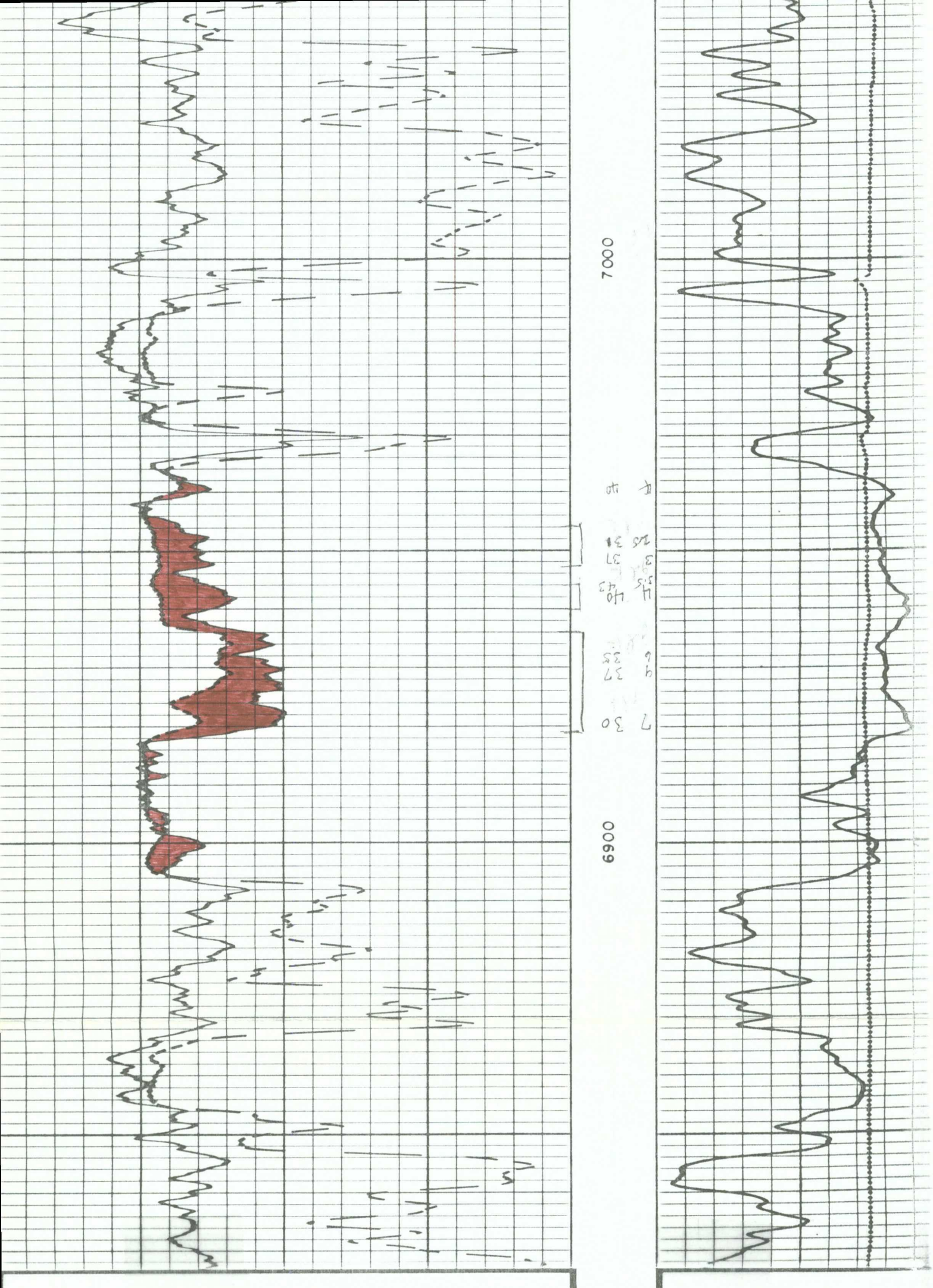
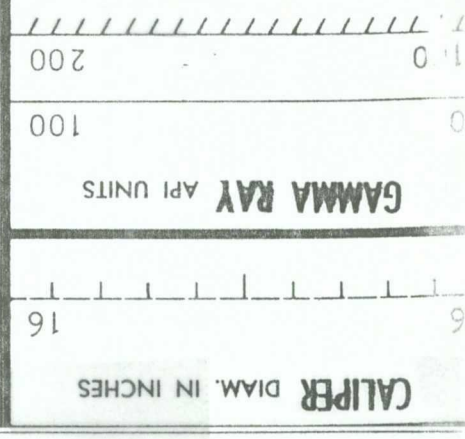
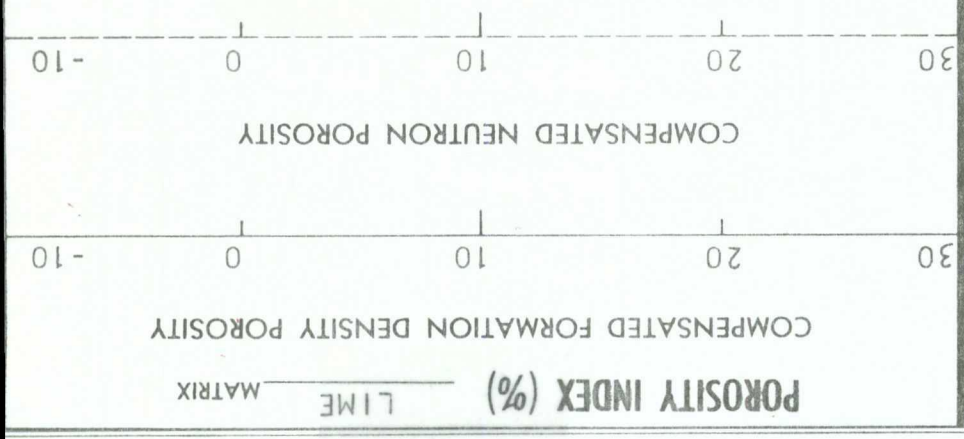
°F

°F

HOBBS

The well name, location and borehole reference data were furnished by the customer.

OLD HERE



EL PASO NATURAL GAS COMPANY

RPT-ASL

314

CHROMATOGRAPHIC GAS ANALYSIS REPORT

RPT DATE 02 03 81

METER- STA 61894

ANAL DATE 01 29 81

METER STATION NAME

OPER 9841

LA CAMA COM #1

TYPE CODE	SAMPLE DATE	EFF. DATE	USE MOS.	SCALE	H2S GRAINS	LOCATION
00	01 21 81	02 03 81	06		0000*	1 J 16

NORMAL
MOL%

GPM

C O 2

00.00

0.000

H 2 S

00.00*

0.000

N2

01.74

0.000

METHANE

83.51

0.000

ETHANE

08.93

2.387

PROPANE

03.21

0.883

ISO-BUTANE

00.36

0.118

NORM-BUTANE

01.14

0.359

ISO-PENTANE

00.34

0.124

NORM-PENTANE

00.35

0.127

HEXANE PLUS

00.42

0.183

TOTALS

100.00

4.181

SPECIFIC GRAVITY

0.684

MIXTURE HEATING VALUE

(BTU/CF @ 14.73 PSIA, 60 DEGREES, DRY) 1187

RATIO OF SPECIFIC HEATS

1.287

* NO TEST SECURED FOR DETERMINATION H2S CONTENT.

WELL NAME: Box Canyon #4A

LOCATION: 23-21S-21E

DST INTERVAL: 5876-6051

$$P^* = 1904 \text{ psi} \quad \text{slope (M)} = 92 \text{ psi/cycle}$$

$$T_c = 365 ^\circ\text{R} \quad P_c = 670 \text{ psi}$$

$$T = 130 + 460^\circ = 590^\circ\text{R} \quad P_{wf} = 1592 \text{ psi}$$

$$P_{avg} = \frac{P^* + P_{wf}}{2} = \frac{1904 + 1592}{2} = 1748 \text{ psi (Note 1)}$$

$$T_r = \frac{T}{T_c} = \frac{590}{365} = 1.62$$

$$P_r = \frac{P_{avg}}{P_c} = \frac{1748}{670} = 2.61$$

$$Z = 0.84 \quad T_{sc} = 520^\circ\text{R} \quad P_{sc} = 13.3 \text{ psi}$$

$$B_g = Z \cdot \frac{T}{T_{sc}} \cdot \frac{P_{sc}}{P_{avg}} = 0.84 \cdot \frac{590}{520} \cdot \frac{13.3}{1748} = 0.0073 \text{ (Note 1)}$$

$$q = 25 \text{ mcf/d} \quad 178.1 = 4452.50 \text{ b/d}$$

$$u = (0.0114) (1.3) = 0.0148 \text{ cp (Note 2)}$$

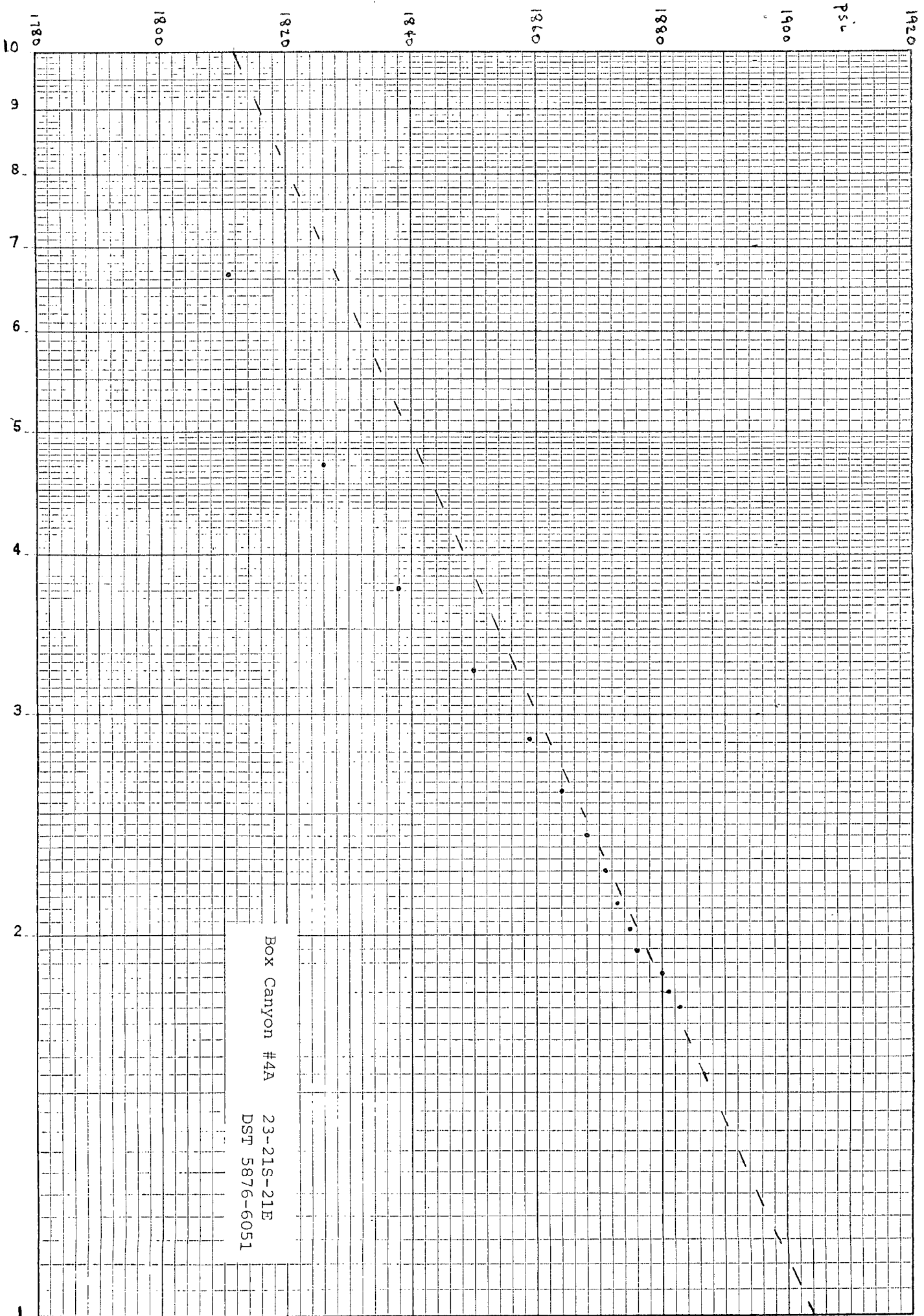
$$kh = \frac{162.6 \cdot q \cdot u \cdot B}{M} = \frac{162.6 (4452.5) (0.0148) (0.0073)}{92}$$

$$kh = 0.8502 \text{ md} \cdot \text{ft}$$

$$h = 40 \text{ ft (Note 3)}$$

$$k = 0.021 \text{ md}$$

- 1) C.S. Matthews - D.G. Russell eqn 3.21a
- 2) C.S. Matthews - D.G. Russell Fig. G.3A&B
- 3) h estimated from log



RPT-ASL

221

EL PASO NATURAL GAS COMPANY
CHROMATOGRAPHIC GAS ANALYSIS REPORT

RPT DATE 07 27 79

ANAL DATE 07 12 79

METER STATION NAME
BOX CANYON 4A #1

METER STA 61929

OPER 9641

TYPE CODE	SAMPLE DATE	EFF. DATE	USE MDS.	SCALE	H2S GRAINS	LOCATION
00	07 10 79	07 27 79	06		0000*	1 J 13

NORMAL
MOL%

GPM

C O 2

00.00

0.000

H 2 S

00.00*

0.000

N2

01.09

0.000

METHANE

90.35

0.000

ETHANE

05.34

1.427

PROPANE

01.83

0.503

ISO-BUTANE

00.33

0.108

NORM-BUTANE

00.51

0.161

ISO-PENTANE

00.17

0.062

NORM-PENTANE

00.14

0.051

HEXANE PLUS

00.24

0.105

TOTALS

100.00

2.417

SPECIFIC GRAVITY

0.628

MIXTURE HEATING VALUE

(BTU/CF @ 14.73 PSIA, 60 DEGREES, DRY) 1111

RATIO OF SPECIFIC HEATS

1.299

* NO TEST SECURED FOR DETERMINATION H2S CONTENT.

FLUID SAMPLE DATA				Date 2-4-78		Ticket Number 253334	
Sampler Pressure 1850 P.S.I.G. at Surface				Kind of Job STRADDLE		Halliburton District ARTESIA	
Recovery: Cu. Ft. Gas 3.2				PITTMAN		Tester LAMAR	
cc. Oil				Lamar		Witness JONAS	
cc. Water 1800				Drilling Contractor MORANCO RIG # 5 DR			
cc. Mud				EQUIPMENT & HOLE DATA			
Tot. Liquid cc. 1800				Formation Tested Upper Canyon			
Gravity ° API @ ° F.				Elevation 4592' Ft.			
Gas/Oil Ratio cu. ft./bbl.				Net Productive Interval 32 Ft.			
RESISTIVITY				All Depths Measured From Kelly Drive Bushing (13')			
CHLORIDE CONTENT				Total Depth 8400' Ft.			
Recovery Water @ ° F. ppm				Main Hole/Casing Size 7 7/8"			
Recovery Mud @ ° F. ppm				Drill Collar Length 430' I.D. 2.25"			
Recovery Mud Filtrate @ ° F. ppm				Drill Pipe Length 5404' I.D. 3.826"			
Mud Pit Sample @ ° F. 25,000 ppm				Packer Depth(s) 5870-5876-6051-6057' Ft.			
Mud Pit Sample Filtrate @ ° F. ppm				Depth Tester Valve 5863' Ft.			
Mud Weight 9 vis 42 sec							
TYPE		AMOUNT		Depth Back Surface		Bottom	
Cushion				Ft. Pres. Valve		Choke 1" Adj. Choke .75"	
Recovered Approximately 200 Feet of drilling mud							
Recovered Approximately 2000 Feet of formation fluid							
Recovered Feet of							
Recovered Feet of							
Recovered Feet of							
Remarks SEE PRODUCTION TEST DATA SHEET							
TEMPERATURE		Gauge No. 512		Gauge No. 113		Gauge No.	
Depth:		5964 Ft.		5905 Ft.		Ft.	
Calc.		24 Hour Clock		24 Hour Clock		Hour Clock	
Est. 130 °F.		Blanked Off NO		Blanked Off YES		Blanked Off	
Actual °F.		Pressures		Pressures		Pressures	
		Field Office		Field Office		Field Office	
Initial Hydrostatic		2836 2817		2857 2846			
First Period	Flow Initial	355 446		398 575			
	Flow Final	801 781		519 811			
	Closed in	1895 1896		1904 1909			
Second Period	Flow Initial	749 733		767 759			
	Flow Final	1591 1592		1626 1622			
	Closed in	1895 1883		1904 1893			
Third Period	Flow Initial						
	Flow Final						
	Closed in						
Final Hydrostatic		2809 2800		2830 2829			

Field Area
 Med. From Tester Valve
 WILDCAT
 County
 EDDY
 State
 NEW MEXICO

Gauge No. 512		Depth		5864'		Clock No. 13736		24 hour		Ticket No. 253334	
First Flow Period		Closed In Pressure		Second Flow Period		Closed In Pressure		Third Flow Period		Closed In Pressure	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.
0 .000	446	.000	781	.000	733	.000	1592				
1 .0167	396	.0201	1745	.0503	797	.0269	1788				
2 .0333	485	.0403	1805	.1007	1158	.0537	1811				
3 .0500	526	.0604	1832	.1510	1318	.0806	1826				
4 .0667	628	.0805	1850	.2013	1435	.1075	1838				
5 .0834	720	.1007	1860	.2517	1525	.1344	1850				
6 .1000	781	.1208	1864	.3020	1592	.1612	1859				
7		.1409	1868			.1881	1864				
8		.1610	1868			.2150	1868				
9		.1812	1869			.2418	1871				
10		.2013	1873			.2687	1873				
11		.2214	1877			.2956	1875				
12		.2416	1884			.3224	1876				
13		.2617	1888			.3493	1880				
14		.2818	1892			.3762	1881				
15		.3020	1896			.4030	1883				

Gauge No. 113		Depth		5905'		Clock No. 13528		24 hour	
First Flow Period		Closed In Pressure		Second Flow Period		Closed In Pressure		Third Flow Period	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.
0 .000	575	.000	811	.000	759	.000	1622		
1 .0172	422	.0203	1765	.050	996	.0272	1804		
2 .0343	519	.0405	1816	.100	1180	.0544	1827		
3 .0515	549	.0608	1848	.150	1334	.0816	1841		
4 .0687	656	.0811	1865	.200	1455	.1088	1855		
5 .0859	739	.1014	1874	.250	1549	.1360	1862		
6 .1030	811	.1216	1880	.300	1622	.1632	1872		
7		.1419	1882			.1904	1878		
8		.1622	1884			.2176	1881		
9		.1824	1885			.2448	1884		
10		.2027	1889			.2720	1885		
11		.2230	1893			.2992	1886		
12		.2432	1898			.3264	1889		
13		.2635	1902			.3536	1890		
14		.2838	1906			.3808	1892		
15		.3040	1909			.4080	1893		
Reading Interval 5		6		19		8		Minutes	

REMARKS:

Casing perms. _____ Bottom choke .75" Surf. temp. _____ °F Ticket No. 253334
 Gas gravity _____ Oil gravity _____ GOR _____
 Spec. gravity _____ Chlorides _____ Res. _____ @ _____ °F
 INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED 1/4 x 60 PSI gauge

Date Time	a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1000			1 1/2#			Opened tool with a good blow
1005		1/4"	35	73.50		Opened on 1/4" choke
1010		"	53	99.96		Gas to surface
1015		"	55	102.90		
1020		"	57	105.84		Started losing pressure
1025		"	52	98.49		-
1030		"	43	85.26		Closed tool
1200		"	0	-		Opened tool
1205		"	0	-		
1210		"	0	-		
1215		"	0	-		
1230		"	2	24.99		Pressure climbing
1245		"	5	29.40		
1200		"	2	24.99		
1215		"	2	24.99		
1330		"	2	24.99		Closed tool
1530						Pulled loose and started out of hole.
1600						Pulled 7 stands and reversed out.
						NOTE: Attempted to straddle section at
						6304'-6490', could not hook, came up
						and straddled section at 5876'-6051'.
						Got hook to set and went on with test.

WELL NAME: Cities JG State #1

LOCATION: 13-18S-24E

DST INTERVAL: 6544-6865

$$P^* = 2312 \text{ psi} \quad \text{slope (M)} = 260 \text{ psi/cycle}$$

$$T_c = 377 \text{ }^\circ\text{R} \quad P_c = 669 \text{ psi}$$

$$T = 122 + 460^\circ = 582 \text{ }^\circ\text{R} \quad P_{wf} = 116 \text{ psi}$$

$$P_{avg} = \frac{P^* + P_{wf}}{2} = \frac{2312 + 116}{2} = 1214 \text{ psi} \quad (\text{Note 1})$$

$$T_r = \frac{T}{T_c} = \frac{582}{377} = 1.54$$

$$P_r = \frac{P_{avg}}{P_c} = \frac{1214}{669} = 1.81$$

$$Z = 0.885 \quad T_{sc} = 520^\circ\text{R} \quad P_{sc} = 13.3 \text{ psi}$$

$$B_g = Z \cdot \frac{T}{T_{sc}} \cdot \frac{P_{sc}}{P_{avg}} = 0.885 \cdot \frac{582}{520} \cdot \frac{13.3}{1214} = 0.0109 \quad (\text{Note 1})$$

$$q = 189 \text{ mcf/d} \quad 178.1 = 33660.9 \text{ b/d}$$

$$u = (1.2) (0.0114) = 0.0137 \quad \text{cp} \quad (\text{Note 2})$$

$$kh = \frac{162.6 \cdot q \cdot u \cdot B}{M} = \frac{162.6 (33660.9) (0.0137) (0.0109)}{260}$$

$$kh = 3.144 \text{ md} \cdot \text{ft}$$

$$h = 45 \text{ ft} \quad (\text{Note 3})$$

$$k = 0.69 \text{ md}$$

- 1) C.S. Matthews - D.G. Russell eqn. 3.21a
- 2) C.S. Matthews - D.G. Russell Fig. G.3A&B
- 3) h estimated from Log

2600

PSL

2400

2200

2000

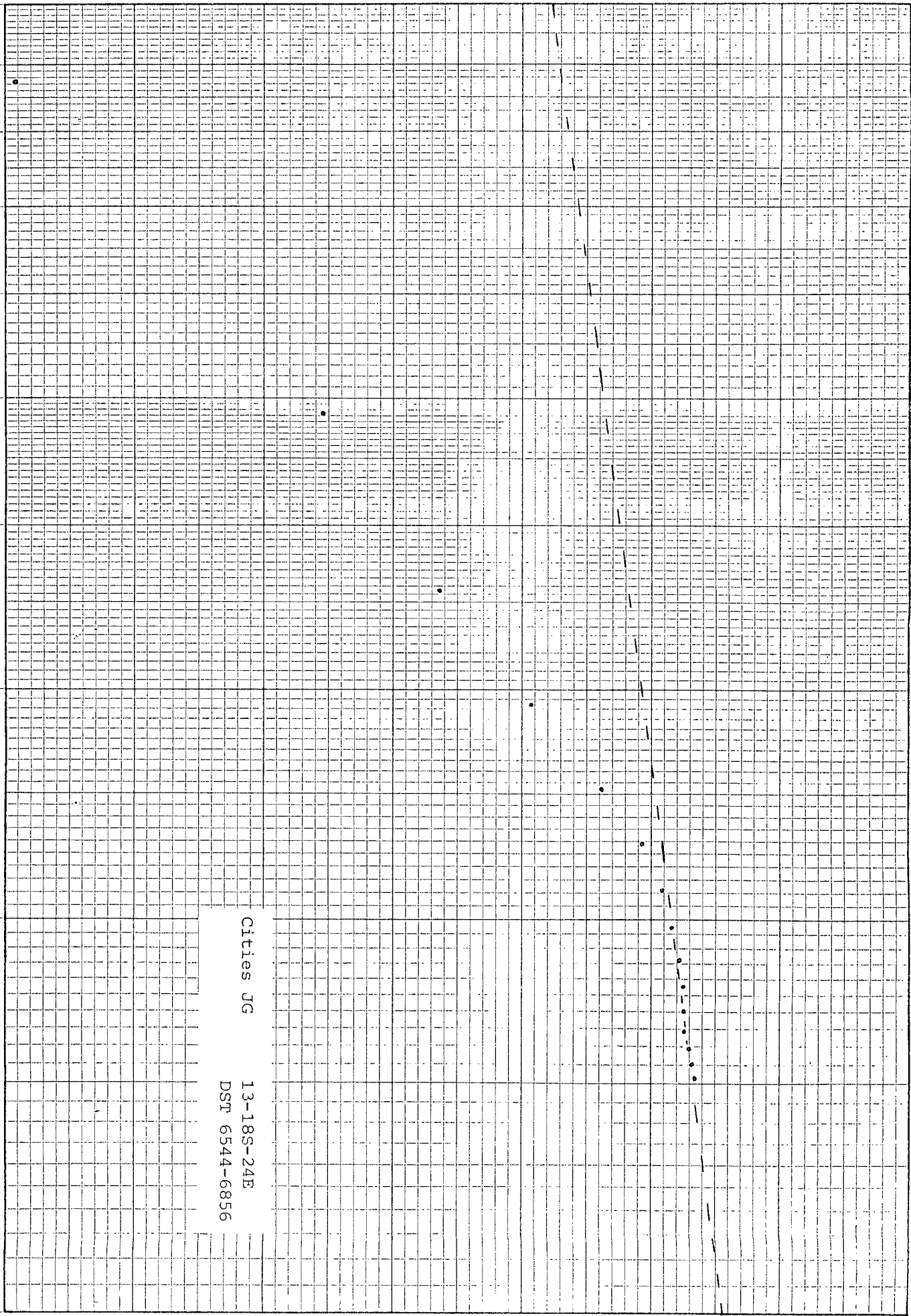
1800

1600

1400

1200

10
9
8
7
6
5
4
3
2
1



Cities JG

13-18S-24E

DST 6544-6856

46 4652

SEMI-LOGARITHMIC 1 CYCLE X 10 DIVISIONS
REUTEL & ESSER CO. MADE IN U.S.A.

FLUID SAMPLE DATA				Date 11-14-78		Ticket Number 520451	
Sampler Pressure <u>85</u> P.S.I.G. at Surface Recovery: Cu. Ft. Gas <u>.107</u> cc. Oil _____ cc. Water _____ cc. Mud <u>500</u> Tot. Liquid cc. _____ Gravity _____ ° API @ _____ ° F. Gas/Oil Ratio _____ cu. ft./bbl. RESISTIVITY CHLORIDE CONTENT				Kind of Job <u>OPEN HOLE</u> Tester <u>RICHARD PEPPERS</u> Witness <u>J. JONAS</u> Drilling Contractor <u>LANDIS DRILLING # 4</u> DR		Holliburton District <u>ARTESIA</u>	
EQUIPMENT & HOLE DATA							
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 <u>8.6</u> vis <u>28</u> sec				Formation Tested <u>Lower Cisco</u> Elevation <u>3651'</u> Ft. Net Productive Interval <u>20'</u> Ft. All Depths Measured From <u>Kelly Bushing</u> Total Depth <u>6856'</u> Ft. Main Hole/Casing Size <u>7 7/8"</u> Drill Collar Length <u>352'</u> I.D. <u>1.25"</u> Drill Pipe Length <u>6156'</u> I.D. <u>3.826"</u> Packer Depth(s) <u>6538-6544'</u> Ft. Depth Tester Valve <u>6518'</u> Ft.			
Cushion		TYPE	AMOUNT	Depth Back Ft.	Surface Choke	Bottom Choke	
					<u>5/8"</u>	<u>.75"</u>	
Recovered		<u>442 Feet of drilling mud</u>					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks		<u>SEE PRODUCTION TEST DATA SHEET</u>					
TEMPERATURE	Gauge No. <u>1114</u> Depth: <u>6522</u> Ft.	Gauge No. <u>1113</u> Depth: <u>6852</u> Ft.	Gauge No. _____ Depth: _____ Ft.	TIME			
Est. _____ ° F.	<u>24</u> Hour Clock Blanked Off <u>NO</u>	<u>24</u> Hour Clock Blanked Off <u>YES</u>	Hour Clock Blanked Off _____	Tool _____ A.M. Opened <u>0800</u> P.M. Opened _____ A.M. Bypass <u>1300</u> P.M.			
Actual <u>122</u> ° F.	Pressures		Pressures		Pressures		
	Field	Office	Field	Office	Field	Office	
Initial Hydrostatic	<u>2993</u>	<u>2964</u>	<u>3153</u>	<u>3106</u>			
First Period	Flow Initial	<u>125</u>	<u>226</u>	<u>214</u>	<u>416</u>		
	Flow Final	<u>178</u>	<u>178</u>	<u>285</u>	<u>312</u>		
	Closed in	<u>2300</u>	<u>2297</u>	<u>2477</u>	<u>2429</u>		
Second Period	Flow Initial	<u>178</u>	<u>395</u>	<u>267</u>	<u>382</u>		
	Flow Final	<u>125</u>	<u>116</u>	<u>231</u>	<u>246</u>		
	Closed in	<u>2265</u>	<u>2265</u>	<u>2406</u>	<u>2394</u>		
Third Period	Flow Initial						
	Flow Final						
	Closed in						
Final Hydrostatic	<u>2975</u>	<u>2952</u>	<u>3135</u>	<u>3099</u>			

Legal Location Sec. Twp. Rng. 13-18S-24E

Field Area _____

Meo. From Tester Valve _____

County _____

EDDY

State _____

NEW MEXICO

CITY "UG" STATE COMM.

Lease Name _____

Well No. 1

Test No. 1

Tested Interval _____

6544-6856'

YATES PETROLEUM CORPORATION

Lease Owner/Company Name _____

Casing perms. _____ Bottom choke _____ Surf. temp. _____ °F Ticket No. **520451**
 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
0800		1/8"				Opened tool with a good blow
0805		"	18			Good blow, no gas
0810		"	28			"
0815		"	38			"
0820		"	49			"
0825		"	60			"
0830		"	70			Closed tool
0834						Gas to surface
1000		5/8"				Opened tool, gas flare
1005		"	15	299		
1010		"	10	249		Gas depleting
1015		"	6	209		Gas Stabilized
1020		"	6	209		"
1025		"	6	209		"
1030		"	6	209		"
1035		"	6	209		"
1040		"	6	209		"
1045		"	6	209		"
1050		"	5	199		Gas depleting
1055		"	4	189		"
1100		"	4	189		Closed tool
1300						Pulled tool loose

Gauge No.	1114	Depth	6522'	Clock No.	13428	24 hour	Ticket No.	520451
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First Flow Period		First Closed In Pressure		Second Flow Period		Second Closed In Pressure		Third Flow Period		Third Closed In Pressure	
Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$
0	.000	336		.000	178	.000					
1	.0197	89*		.0165	848**	.0342	121	.0265	116		
2	.0362	110		.0363	1502	.0683	107	.0531	1219		
3	.0526	132		.0562	1850	.1025	112	.0796	1693		
4	.0691	148		.0760	1970	.1367	114	.1061	1876		
5	.0855	164		.0958	2057	.1709	116	.1327	2018		
6	.1020	178		.1156	2125	.2050	116	.1592	2124		
7				.1354	2180			.1857	2186		
8				.1553	2217			.2122	2219		
9				.1751	2246			.2388	2235		
10				.1949	2263			.2653	2246		
11				.2147	2276			.2918	2251		
12				.2345	2284			.3184	2253		
13				.2544	2290			.3449	2256		
14				.2742	2293			.3714	2260		
15				.2940	2297			.3980	2263		

Gauge No.		1113		Depth		6852'		Clock No.		4365		hour		24	
Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	PSIG Temp. Corr.
0	.000	416		.000	312	.000		.000	246						
1	.0199	218*		.0167	1033**	.0332	237	.0267	1371						
2	.0366	244		.0367	1643	.0663	232	.0533	1807						
3	.0532	263		.0567	1957	.0995	239	.0800	2005						
4	.0698	279		.0768	2086	.1327	244	.1067	2145						
5	.0864	296		.0968	2178	.1659	246	.1334	2244						
6	.1030	312		.1168	2253	.1990	246	.1600	2310						
7				.1368	2314			.1867	2348						
8				.1568	2355			.2134	2368						
9				.1769	2383			.2400	2376						
10				.1969	2402			.2667	2383						
11				.2169	2411			.2934	2385						
12				.2369	2420			.3200	2389						
13				.2569	2427			.3467	2392						
14				.2769	2429			.3734	2394						
15				.2970	2429			.4000	2394						

Reading Interval	5	6	10	8	Minutes
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REMARKS: * - 6 minutes ** - 5 minutes Q - Questionable

SPECIAL PRESSURE DATA

chlumberger

COUNTY Eddy STATE New Mexico

Other Services: DCL/mse

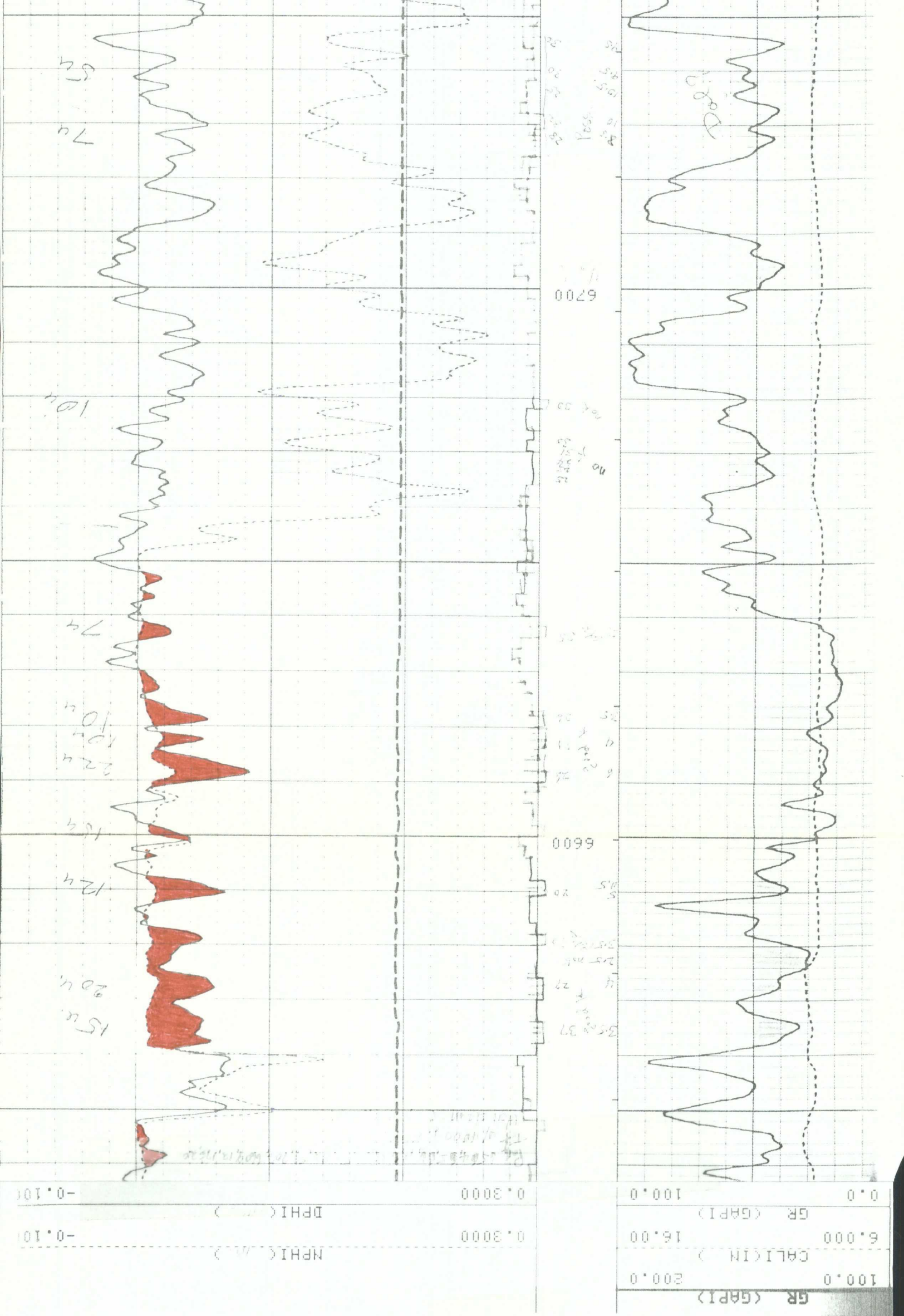
13	18-5	24-6
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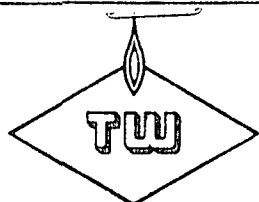
um: 6-L; Elev.: 365
From KB, 3 Ft. Above Perm. Datum
ed From KB

Elev.: K.B. 3664
D.F. 3657
GL

The well name, location and borehole reference data were furnished by the customer.

OLD HERE





GAS QUALITY TEST REPORT

COMPANY SELLER YATES PET. Co.STA. NO. 1232-2FIELD OR
LOCATION _____

CONTRACT NO. _____

SOURCE OR
RESERVOIR _____TEST DATE 04/01/80WELL OR
STATION NAME CITIES "JG"LAB 4

COMPOUND COMPONENTS	COMPONENT SPECIFIC GRAVITY	COMPONENT MOLE FRACTION	LIQUEFIABLE HYDROCARBONS	COMPONENT G. P. M.	MOLE FRACTION	G. P. M. CONTENT
NITROGEN	.9672	. 0126	PROPANE	27.514	.	
CARBON DIOXIDE	1.5195	. 0019	ISO-BUTANE	32.698	.	
HELIUM	.1382	.	N-BUTANE	31.510	.	
OXYGEN	1.1048	. 0002	LPG - - - - -			
HYDROGEN SULFIDE	1.1766	.	ISO-PENTANE	36.582	.	
WATER VAPOR	.6220	.	N-PENTANE	36.213	.	
HYDROCARBON DILUENTS		(. 0147)	HEXANES	41.111	.	
			HEPTANES +	46.126	.	
METHANE	.5539	. 8632	NATURAL GASOLINE - - - - -			
ETHANE	1.0382	. 0710	TOTAL LIQUEFIABLE GPM			
PROPANE	1.5225	. 0290	WATER VAPOR CONTENT:			
ISO-BUTANE	2.0068	. 0039	Gas Mixture Static Pressure PSI _____			
N-BUTANE	2.0068	. 0085	Hydrocarbon Dew Point °F _____			
ISO-PENTANE	2.4910	. 0024	Water Vapor Dew Point °F _____			
N-PENTANE	2.4910	. 0025	Lbs Water Vapor per MMCF _____			
HEXANES	2.9753	. 0028	Conversion Constant <u>X 0.000021</u>			
HEPTANES +	3.7018	. 0020	Water Vapor Mole Fraction _____			
			Moisture recorder reading _____			
			Make or type _____			

COMPOSITION - - - - - 1.0000

MIXTURE SPECIFIC GRAVITY:

Calculated From Analysis 664Determined by Test Instrument 663Instrument Make or Type Ray

MIXTURE HEATING VALUE:

(Btu/cf at 14.73 Psia, 60°F, Sat.)

Calculated From Analysis 1140

Determined by Calorimeter _____

Calorimeter Verified (_____)

SULFUR CONTENT:

H₂S - Hydrogen Sulfide, Gr./100 cf 00RSH - Mercaptans " 02RSR - Sulfides " 24RSSR - Residuals " 26Total Sulfur, Gr./100 cf 26H₂S Grains to fraction conversion X 0.0000157H₂S Mole Fraction _____Critical Pressure 668.7 by C.R.T. Critical Temperature 376.5

REMARKS _____

MEASUREMENT
AREA RosenGAS
ANALYST Arson

21

WELL NAME: Irish Hills KW #2

LOCATION: 2-19S-24E

DST INTERVAL: 6532-6640

$$p^* = 2440 \text{ psi} \quad \text{slope (M)} = 2305 \text{ psi/cycle}$$

$$T_c = 370^\circ\text{R} \quad P_c = 670 \text{ psi}$$

$$T = 125 + 460^\circ = 585^\circ\text{R} \quad P_{wf} = 77.4 \text{ psi}$$

$$P_{avg} = \frac{P^* + P_{wf}}{2} = \frac{2440 + 77.4}{2} = 1259 \text{ psi (Note 1)}$$

$$T_r = \frac{T}{T_c} = \frac{585}{370} = 1.58$$

$$P_r = \frac{P_{avg}}{P_c} = \frac{1259}{670} = 1.90 \text{ (Note 1)}$$

$$Z = 0.86 \quad T_{sc} = 520^\circ\text{R} \quad P_{sc} = 13.3 \text{ psi}$$

$$B_g = Z \cdot \frac{T}{T_{sc}} \cdot \frac{P_{sc}}{P_{avg}} = 0.86 \cdot \frac{585}{520} \cdot \frac{13.3}{1259} = 0.010 \text{ (Note 1)}$$

$$q = 69.7 \text{ mcf/d} \quad 178.1 = 12414 \text{ b/d}$$

$$u = 1.20 \times 0.0114 = 0.0137 \text{ cp (Note 2)}$$

$$kh = \frac{162.6 \cdot q \cdot u \cdot B}{M} = \frac{162.6 (12414) (0.0137) (0.010)}{2305}$$

$$kh = 0.1200 \text{ md} \cdot \text{ft}$$

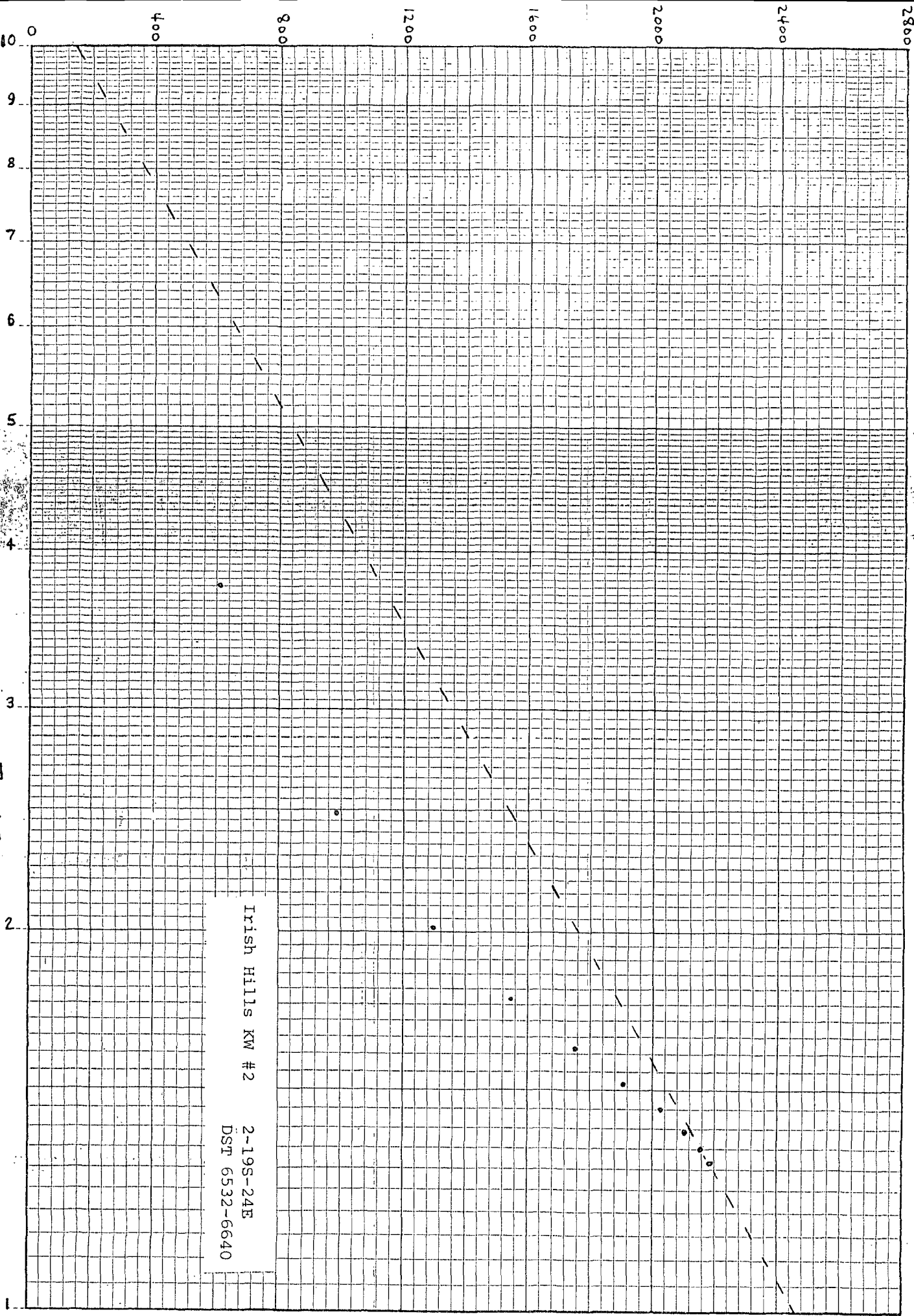
$$h = 58 \text{ ft (Note 3)}$$

$$k = 0.0021 \text{ md (Note 4)}$$

- 1) C. S. Matthews - D.G. Russell eqn. 3.21a
- 2) C. S. Matthews - D.G. Russell Fig. G.3A&B
- 3) h estimated from Log
- 4) k = 0.0026 md for T=192°F

SEMI-LOGARITHMIC CYCLE X-70 DIVISIONS KEUFFEL & ESSER CO. MADE IN U.S.A. 6552

$$\frac{T + \Delta T}{\Delta T}$$



Irish Hills KW #2
2-19S-24E
DST 6532-6640

FLUID SAMPLE DATA				Date		Ticket Number	
Sampler Pressure <u>69</u> P.S.I.G. at Surface				7-6-80		879639	
Recovery: Cu. Ft. Gas <u>.284</u>				Kind of D.S.T. <u>OPEN HOLE OFF</u>		Halliburton Location <u>ARTESIA</u>	
cc. Oil _____				MR. LAMAR		Witness MR. D. JACKSON	
cc. Water _____				Tester MR. MC KEE			
cc. Mud <u>500 drilling fluid</u>				Drilling Contractor <u>CAPITAN DRILLING COMPANY RIG # 14</u>		sm	
Tot. Liquid cc. <u>500</u>				EQUIPMENT & HOLE DATA			
Gravity _____ ° API @ _____ °F.				Formation Tested <u>Cisco</u>			
Gas/Oil Ratio _____ cu. ft./bbl.				Elevation <u>3718'</u> Ft.			
RESISTIVITY _____ CHLORIDE CONTENT _____				Net Productive Interval _____ Ft.			
Recovery Water _____ @ _____ °F. _____ ppm				All Depths Measured From <u>Kelly bushing (AGL)</u>			
Recovery Mud _____ @ _____ °F. _____ ppm				Total Depth <u>9190'</u> Ft.			
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				Main Hole/Casing Size <u>7 7/8"</u>			
Mud Pit Sample _____ @ _____ °F. _____ ppm				Drill Collar Length <u>660'</u> I.D. <u>2.25"</u>			
Mud Pit Sample Filtrate _____ @ _____ °F. _____ ppm				Drill Pipe Length <u>5835'</u> I.D. <u>3.340"</u>			
Mud Weight <u>8.9</u> vis _____ sec.				Packer Depth(s) <u>6526-6532-6640-6646'</u> Ft.			
				Depth Tester Valve <u>6507'</u> Ft.			
TYPE		AMOUNT		Depth Back Pres. Valve		Surface Choke	
Cushion				Ft.		Bottom Choke <u>.75"</u>	
Recovered		<u>180</u>		Feet of <u>drilling fluid</u>		Adj. choke	
Recovered				Feet of			
Recovered				Feet of			
Recovered				Feet of			
Recovered				Feet of			
Remarks <u>SEE PRODUCTION TEST DATA SHEET</u>							
TEMPERATURE		Gauge No. <u>512</u>		Gauge No. <u>113</u>		Gauge No. _____	
Depth:		<u>6511</u> Ft.		<u>6583</u> Ft.		Ft.	
Est. <u>192</u> °F.		24 Hour Clock		24 Hour Clock		Hour Clock	
Blanked Off <u>no</u>		Blanked Off <u>yes</u>		Blanked Off _____		TIME (00:00-24:00 hrs.)	
Actual _____ °F.		Pressures		Pressures		Tool <u>7-6-80</u>	
		Field Office		Field Office		Opened <u>1900</u>	
Initial Hydrostatic		<u>3028</u> <u>3067.2</u>		<u>2996</u> <u>3104.5</u>		Opened <u>7-7-80</u>	
Flow Initial		<u>53</u> <u>57.7</u>		<u>92</u> <u>96.0</u>		Bypass <u>0100</u>	
Flow Final		<u>66</u> <u>80.0</u>		<u>92</u> <u>100.0</u>		Reported Minutes	
Closed in		<u>1486</u> <u>1496.0</u>		<u>1490</u> <u>1509.2</u>		Computed Minutes	
Flow Initial		<u>66</u> <u>60.3</u>		<u>79</u> <u>102.6</u>		<u>30</u> <u>29</u>	
Flow Final		<u>66</u> <u>77.4</u>		<u>92</u> <u>92.1</u>		<u>90</u> <u>89</u>	
Closed in		<u>2170</u> <u>2181.5</u>		<u>2189</u> <u>2197.9</u>		<u>60</u> <u>58</u>	
Flow Initial						<u>180</u> <u>183</u>	
Flow Final							
Closed in							
Final Hydrostatic		<u>3081</u> <u>3067.2</u>		<u>3115</u> <u>3103.1</u>			

Legal Location
Sec. - Twp. - Rng.

Lease Name

Well No.

Test No.

Tested Interval

Lease Owner/Company Name

2 19 24

Field Area

MELOCAT

County

EDDY

State

NEW MEXICO

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Gauge No.		512		Depth		6511'		Clock No. 13528		24 hour		Ticket No.		879639	
First Flow Period		First Closed In Pressure				Second Flow Period		Second Closed In Pressure		Third Flow Period		Third Closed In Pressure			
Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	PSIG Temp. Corr.	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	PSIG Temp. Corr.	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	PSIG Temp. Corr.	
0	.0000	57.7	.0000	80.0	.0000	60.3	.0000		77.4						
1	.0139*	80.0	.0272**	274.2	.0268**	72.1	.0705***		628.9						
2	.0313	81.3	.0579	436.9	.0602	70.8	.1308		990.7						
3	.0488	81.3	.0885	602.6	.0936	74.8	.1912		1301.3						
4	.0662	80.0	.1192	764.4	.1271	76.1	.2516		1557.9						
5	.0836	80.0	.1498	910.5	.1606	76.1	.3120		1760.5						
6	.1010	30.0	.1804	1051.3	.1940	77.4	.3724		1911.8						
7			.2111	1184.2			.4328		2018.4						
8			.2417	1298.6			.4932		2094.7						
9			.2724	1413.1			.5536		2148.6						
10			.3030	1496.0			.6140		2181.5						
11															
12															
13															
14															
15															

Gauge No.		113		Depth		6583'		Clock No. 6728		24 hour		Minutes			
First Flow Period		First Closed In Pressure				Second Flow Period		Second Closed In Pressure				Third Flow Period		Third Closed In Pressure	
Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	PSIG Temp. Corr.	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	PSIG Temp. Corr.	Time Del. .000"	PSIG Temp. Corr.	Time Del. .000"	Log $t + \theta$	PSIG Temp. Corr.	
0	.0000	96.0	.0000	100.0	.0000	102.6	.0000		92.1						
1	.0135*	106.5	.0270**	242.1	.0270**	88.1	.0705***		609.5						
2	.0304	107.8	.0573	415.7	.0608	88.1	.1308		984.1						
3	.0473	107.8	.0876	575.2	.0946	89.4	.1912		1296.8						
4	.0642	103.9	.1180	733.5	.1284	92.1	.2516		1550.1						
5	.0811	100.0	.1483	881.2	.1622	92.1	.3120		1758.6						
6	.0980	100.0	.1787	1029.0	.1960	92.1	.3724		1915.6						
7			.2090	1163.6			.4328		2029.0						
8			.2393	1287.6			.4932		2106.9						
9			.2697	1402.4			.5536		2160.9						
10			.3000	1509.2			.6140		2197.9						
11															
12															
13															
14															
15															

Reading Interval		5		9		10		18	
REMARKS:		*First interval is equal to 4 minutes. ** = 8 minutes. *** = 21 minutes.							

Casing perms. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 879639
 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 GPD	Remarks
0700						Called out
1145						On location
1300						Picked up tools
1400						Started in hole with tools
1900						Opened with a weak blow
1905						Weak blow
1910						Blow increased to good
1915		3/8"	1½			Opened 3/8" choke
1930		"	0			Closed tool -no gas to the surface
2100		"	10			Opened tool on 3/8" choke
2105		"	12			
2106		"	11	88.4		Gas to the surface
2110		"	5½	69.7		Pressure dropped
2115		"	1/2	TSTR		"
2130		"		TSTR		"
2145		"		TSTR		"
2200		"		TSTR		Closed tool
7-7-80						
0100						Opened bypass and started out of hole.
						TSTR = too small to record

DENSITY

Corporation

ate Com. #2

New Mexico

Other Services:
DCL-MSGL

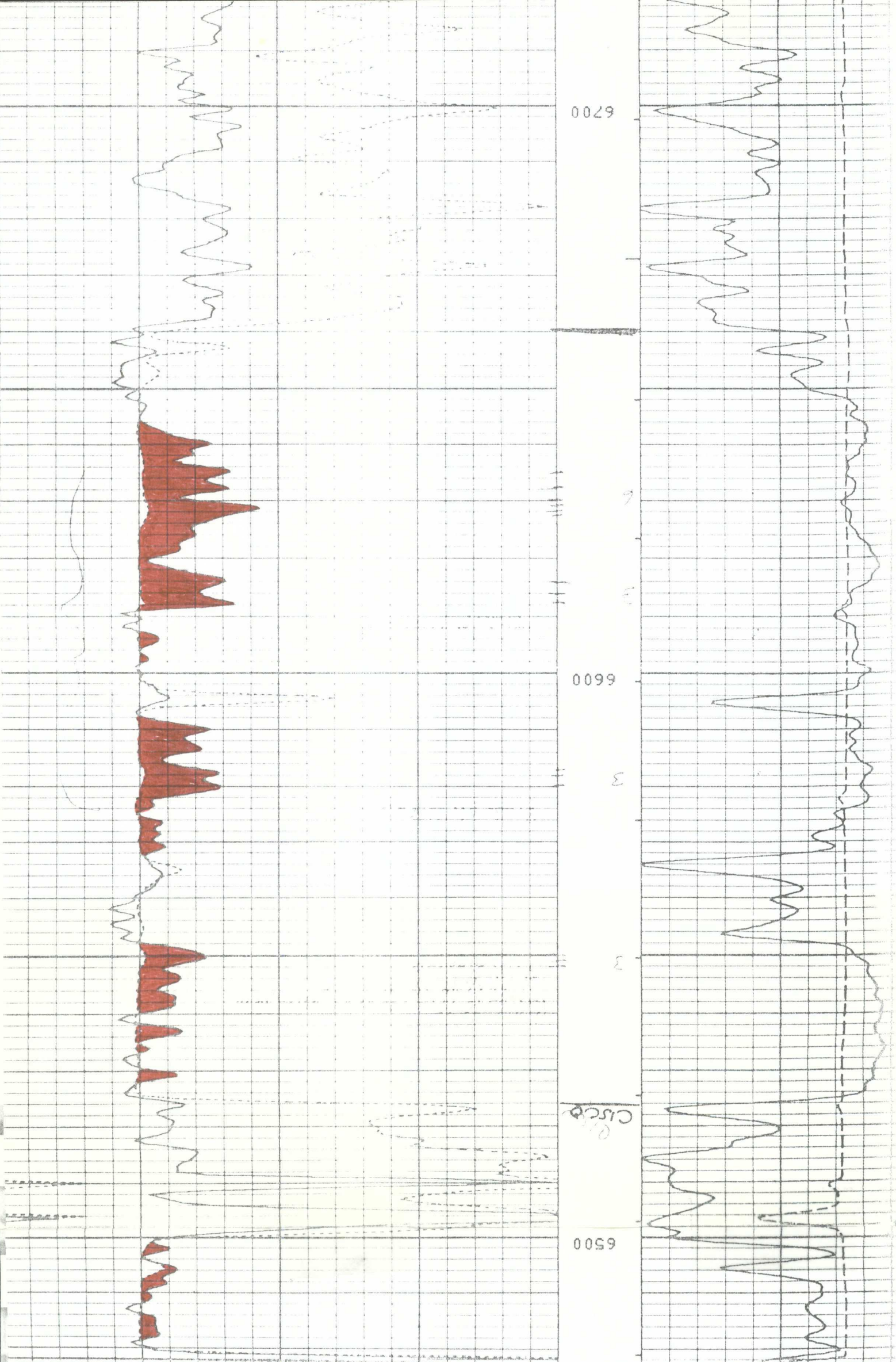
Elev.: K.B. 3720.5
D.F. 3709
G.L. 3709

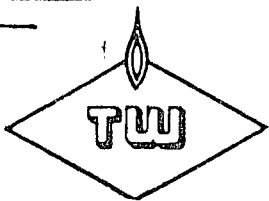
The well name, location and borehole reference data were furnished by the customer.

PARAMETERS

NAME	UNIT	VALUE	NAME	UNIT	VALUE	NAME	UNIT	VALUE
HC	BS	2.710	PSNR	2.347	BS	INCH	2.875	PHIX
MDEN	G/CC	2.710	FD	G/CC	1.100	MATR	LIME	
BHF		0.0	BHS			FPHI		
DD			CASE					

GR (GAPI)	200.0	16.00	100.0
CAL (IN)	200.0	16.00	100.0
GR (GAPI)	0.000	0.000	0.000
DRHD (G/CC)	-0.050	0.4500	2.000
RHOB (G/CC)			2.000
NPHT (MPa)			-0.100





GAS QUALITY TEST REPORT

COMPANY SELLER

YATES PET. Co.

STA. NO.

1397-1

FIELD OR
LOCATIONSOURCE OR
RESERVOIRWELL OR
STATION NAME

IRISH HILLS "KW" #2

CONTRACT NO.

TEST DATE 03/26/81

LAB 4

COMPOUND COMPONENTS	COMPONENT SPECIFIC GRAVITY	COMPONENT MOLE FRACTION	LIQUEFIABLE HYDROCARBONS	COMPONENT G. P. M.	MOLE FRACTION	G. P. M. CONTENT
NITROGEN	.9672	. 0124	PROPANE	27.514	.	
CARBON DIOXIDE	1.5195	. 0008	ISO-BUTANE	32.698	.	
HELIUM	.1382	.	N-BUTANE	31.510	.	
OXYGEN	1.1048	.	LPG - - - - -			
HYDROGEN SULFIDE	1.1766	.	ISO-PENTANE	36.582	.	
WATER VAPOR	.6220	.	N-PENTANE	36.213	.	
HYDROCARBON DILUENTS		(. 0132)	HEXANES	41.111	.	
METHANE	.5539	. 8859	HEPTANES +	46.126	.	
ETHANE	1.0382	. 0613	NATURAL GASOLINE - - - - -			
PROPANE	1.5225	. 0230	TOTAL LIQUEFIABLE GPM			
ISO-BUTANE	2.0068	. 0035	WATER VAPOR CONTENT:			
N-BUTANE	2.0068	. 0066	Gas Mixture Static Pressure PSI 6 610 [#] 65 ^o			
ISO-PENTANE	2.4910	. 0020	Hydrocarbon Dew Point °F			
N-PENTANE	2.4910	. 0018	Water Vapor Dew Point °F			
HEXANES	2.9753	. 0017	Lbs Water Vapor per MMCF 30 [#]			
HEPTANES +	3.7018	. 0010	Conversion Constant X 0.000021			
COMPOSITION - - - - - 1.0000			Water Vapor Mole Fraction			
MIXTURE SPECIFIC GRAVITY:			Moisture recorder reading			
Calculated From Analysis REAL. 643			Make or type			
Determined by Test Instrument 645						
Instrument Make or Type RNK.						
MIXTURE HEATING VALUE:			SULFUR CONTENT:			
(Btu/cf at 14.73 Psia, 60°F, Sat.)			H ₂ S - Hydrogen Sulfide, Gr./100 cf .00			
Calculated From Analysis 1109			RSH - Mercaptans "			
Determined by Calorimeter			RSR - Sulfides "			
Calorimeter Verified ()			RSSR - Residuals "			
			Total Sulfur, Gr./100 cf			
			H ₂ S Grains to fraction conversion X 0.0000157			
			H ₂ S Mole Fraction			
			Critical Pressure Critical Temperature			

REMARKS

INITIAL DELIVERY

MEASUREMENT

AREA

1

GAS

ANALYST

GARRATT / ALSTON

27