

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088
SANTA FE, NEW MEXICO 87501Form C-122
Revised 10-1-78

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☒ Special				Test Date 4/24/91			
Company RAY WESTALL				Connection FLARE		N/A	
Pool west ANTELOPE RIDGE <i>atoka gas</i>				Formation ATOKA		Unit N/A	
Completion Date 4/19/91		Total Depth 14150		Plug Back TD 13000		Elevation 3518 KB	
Farm or Lease Name BACK BASIN UNIT							
Eq. Size 9.625	Wt. 36.0	d 8.921	Set At 14150	Perforations: From 12620 To 12841		Well No. 1	
Thq. Size 2.875	Wt. 6.5	d 2.441	Set At 11854	Perforations: From 0 To 0		Unit Sec. Twp. Rye. S20-T23S-R34E	
Type Well - Single - (Gradenhead - G.G. or G.O. Multiple) SINGLE (GAS)				Packer Set At 11854		County LEA	
Producing Thru TBG (GAS)		Reservoir Temp. °F 187 @ 12731		Mean Annual Temp. °F 60.0		Baro. Press. - P _a 13.2	
State N.M.							
L 12731	H 12731	G _g .659	% CO ₂ .29	% N ₂ .97	% H ₂ S .00	Prover 1 .0	Meter Run 4.0
						Taps FLANGE	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							3900	60			72.0
1.	4.00 X 1.250			210	3.0	102	3575	60	0	0	1.0
2.	4.00 X 1.250			200	7.0	105	3250	60	0	0	1.0
3.	4.00 X 1.250			240	14.0	103	2850	60	0	0	1.0
4.	4.00 X 1.250			260	20.0	100	2400	60	0	0	1.0
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{sp}	Rate of Flow Q, Mcfd
1	7.47	25.88	223.2	.9619	1.2318	1.0172	233
2	7.47	38.63	213.2	.9594	1.2318	1.0161	347
3	7.47	59.54	253.2	.9611	1.2318	1.0194	537
4	7.47	73.92	273.2	.9636	1.2318	1.0213	670
5							

NO.	P _i	Temp. °R	T _i	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1	.33	562.	1.50	.967	0	0	.659	XXXXXXX	669	374
2	.32	565.	1.51	.969						
3	.38	563.	1.51	.962						
4	.41	560.	1.50	.959						
5										

NO.	P _i ²	P _w	P _w ²	P _i ² - P _w ²
1	12875	3591	12898	2416
2	10648	3266	10668	4645
3	8198	2867	8222	7091
4	5824	2417	5840	9473
5				

(1) $\frac{P_c^2}{P_i^2 - P_w^2} = 1.6165$

(2) $\left[\frac{P_c^2}{P_i^2 - P_w^2} \right]^n = 1.4510$

AOG = Q $\left[\frac{P_i^2}{P_i^2 - P_w^2} \right]^n = 971.$

Gas Liquid Hydrocarbon Ratio 0 Mcf/bbl.

A.P.I. Gravity of Liquid Hydrocarbons 0 Deg.

Specific Gravity Separator Gas .659 XXXXXXXXXX

Specific Gravity Flowing Fluid XXXXX .659

Critical Pressure 669 P.S.I.A. 669 P.S.I.A.

Critical Temperature 374 R 374 R

Absolute Open Flow	971	Mcfd @ 15.025	Angle of Slope	52.2	Slope, n	.775
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Remarks:	CHOKE SIZES: 1ST RATE 4/64	2ND RATE: 6/64
	3RD RATE: 8 1/2 /64	4TH RATE: 9 1/2 /64

Approved By Division	Conducted By: BENNETT-CATHEY	Calculated By: JIM SMITH P.E.	Checked By: M. R. RANDOLPH G.M.
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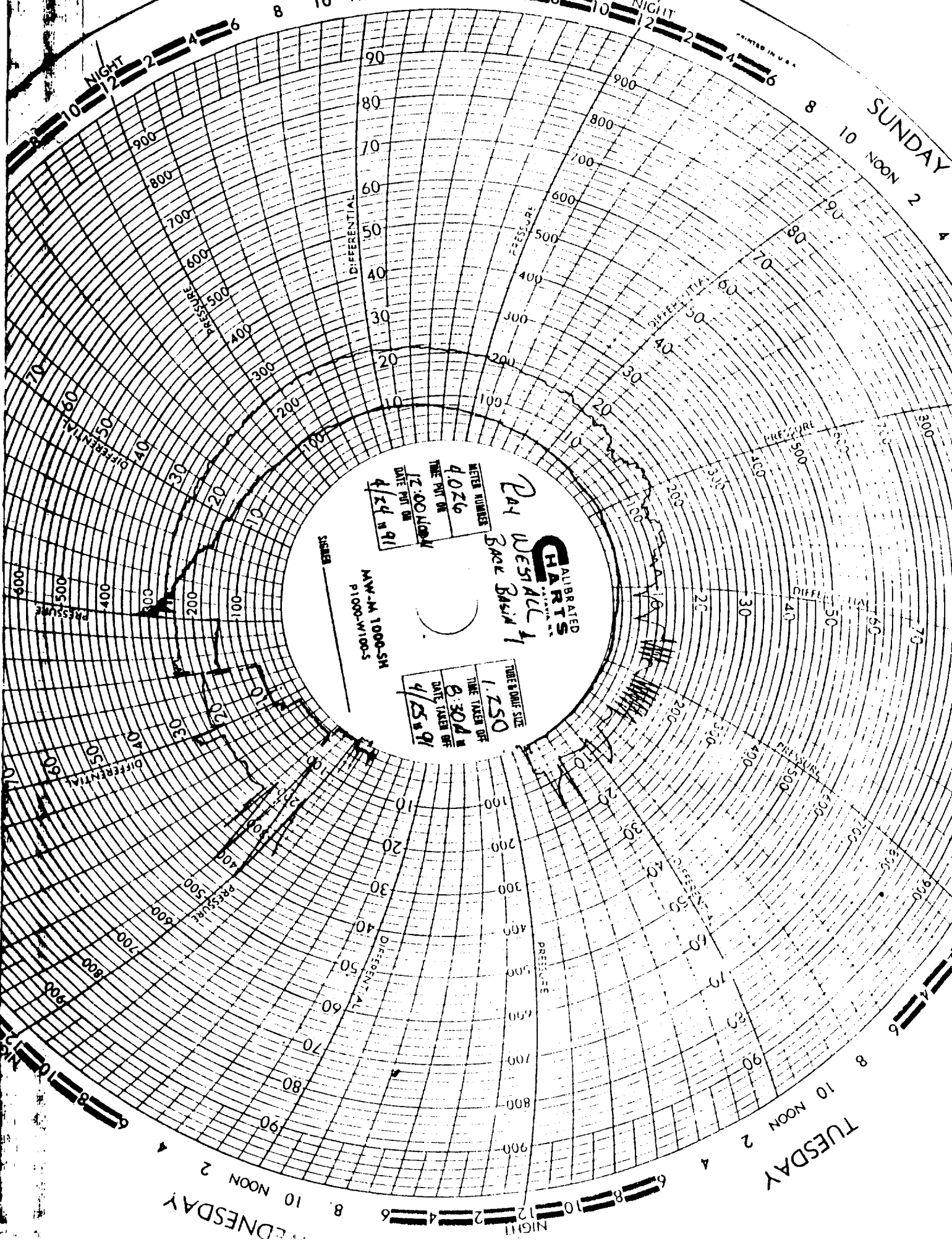
SATURDAY

8 10 NOON 2 4 6 8 10 NIGHT

PRINTED IN U.S.A.

SUNDAY

8 10 NOON 2 4



METER NUMBER
4026
TIME PUT ON
12:00 AM
DATE PUT ON
4/24/91

Calibrated
CHARTS
Base Basis 1

TUBE & UNIT SIZE
1.750
TIME TAKEN OFF
8:30 AM
DATE TAKEN OFF
4/25/91

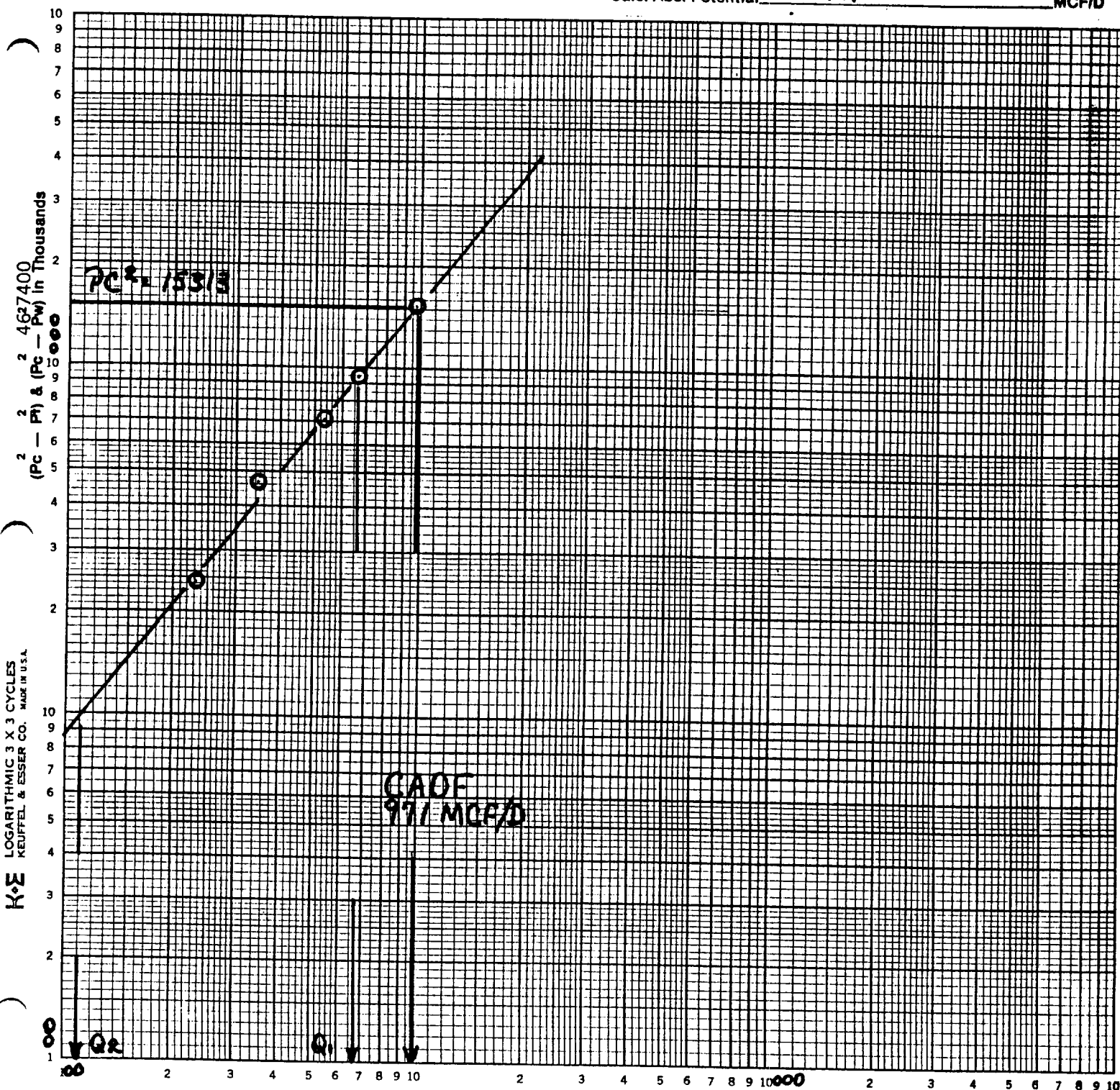
MW-M 1000-SH
P1000-W100-S

SUNDER

C & W WELL LINE, INC. d/b/a BENNETT-CATHEY WELL TESTING
BACK PRESSURE CURVE

Operator Ray Westall Lease BACK BASIN UNIT Well No. 41
 County LEA Field ANTELOPE RIDGE Location SEC. 20 T23S R34E
 Date of Test 4/24/91 Slope "n" .775 Angle of Slope 52.2

Calc. Abs. Potential 971 MCF/D



$$\Delta P_1^2 \quad P_c^2 - P_w^2 = 10,000$$

$$\Delta P_2^2 \quad P_c^2 - P_w^2 = 1,000$$

$$Q_1 = 655$$

$$Q_2 = 110$$

Q, Mcfd

$$\text{LOG } Q_1 = 2.816$$

$$\text{LOG } Q_2 = 2.041$$

$$n = .775$$

Laboratory Services

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR:

Bennett & Cathey
Attention: K. V. Shipman
P. O. Box 1784
Hobbs, New Mexico 88240

SAMPLE
IDENTIFICATION: Ray Westall
COMPANY:
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 04-24-91
ANALYSIS DATE: 04-25-91
PRESSURE - PSIG 220.00
SAMPLE TEMP. °F 100.00
ATMOS. TEMP. °F

GAS (XX) LIQUID ()
SAMPLED BY: K. V. Shipman
ANALYSIS BY: Rolland Perry

REMARKS:

COMPONENT ANALYSIS

COMPONENT		MOL PERCENT	GPM
Oxygen	(O2)		
Hydrogen Sulfide	(H2S)		
Nitrogen	(N2)	0.97	
Carbon Dioxide	(CO2)	0.29	
Methane	(C1)	86.70	
Ethane	(C2)	7.15	1.910
Propane	(C3)	2.76	0.758
I-Butane	(IC4)	0.50	0.165
N-Butane	(NC4)	0.76	0.238
I-Pentane	(IC5)	0.27	0.097
N-Pentane	(NC5)	0.21	0.076
Hexane	(C6)	0.39	0.160
Heptanes Plus	(C7+)	0.00	0.000
		100.00	3.404
BTU/CU.FT. - DRY		1151	
AT 14.650 DRY		1147	
AT 14.650 WET		1127	
AT 15.025 DRY		1176	
AT 15.025 WET		1156	
SPECIFIC GRAVITY -			
CALCULATED		0.659	
MEASURED		0.000	
			MOLECULAR WT 19.0852
			26# GASOLINE - 0.412