

TYPE TEST:

☒ Open Flow☒ Deliverability

TEST DATE: 11-2-1999

API No. 15-075-20672

Company Horsehoe Operating Inc		Lease Johnson		Well Number 1A	
County Hamilton	Location E/2 SW	Section 12	TWP 24s	RNG(E/W) 41	Acres Attributed
Field Bradshaw	Reservoir Winfield	Gas Gathering Connection			
Completion Date 6/30/1999	Plug Back Total Depth 2361	Packer Set at			
Casing Size 4.500	Weight 10.500	Internal Diameter 4.052	Set at 2360	Perforations 1850	To 1851
Tubing Size 2.375	Weight 4.700	Internal Diameter 1.995	Set at 2333	Perforations	To
Type Completion (Describe) Single Gas	Type Fluid Production water	Pump Unit or Traveling Plunger? Pumping unit			
Producing Thru (Annulus/Tubing) casing	% Carbon Dioxide .023	% Nitrogen 41.187		Gas Gravity- Gg .813	
Vertical Depth (H) 2050	Pressure Taps flange	Meter Run Size 2.067			
Pressure Buildup: Shut in	10-28-1999@1:00pm	TAKEN	11-1-1999@8:30am		
Well on Line: Started	11-1-1999@8:30am	TAKEN	11-2-1999@12:00pm		

OBSERVED SURFACE DATA

Static/ Dynamic Property	Orifice Size in.	Meter Pressure psig	Pressure Diff. In. H ₂ O	Flowing Temp. t.	Wellhead Temp. t.	Casing Wellhead Press. (P _w) (P _t) (P _c)		Tubing Wellhead Press. (P _w) (P _t) (P _c)		Duration (Hours)	Liquid Prod. Barrels
						psig	psia	psig	psia		
Shut-in						114	127			92.5	
Flow	.750	61.0	33.00	62		74	87			27.5	38.4

FLOW STREAM ATTRIBUTES

COEFFICIENT (F _b) Mcfd	(METER) PRESSURE psia	EXTENSION $\sqrt{P_m \times H_w}$	GRAVITY FACTOR F _g	FLOWING TEMP FACTOR F _t	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	G _m
2.780	74.3	49.52	1.1091	.9981	1.0052	153	4570.5	1.520

(OPEN FLOW)(DELIVERABILITY) CALCULATIONS

(P _c) ² = 16.2		(P _w) ² = 7.7		47.9		% (P _c - 14.4) + 14.4 =		(P _a) ² = 0.207
(P _c) ² - (P _a) ²		(P _w) ² - (P _a) ²		LOG		n x LOG		(P _d) ² 3.72
or (P _c) ² - (P _d) ²		$\frac{(P_c)^2 - (P_a)^2}{(P_c)^2 - (P_d)^2}$		LOG		Antilog		Open Flow Deliverability = R x Antilog Mcfd
16.03		8.51		.2752		.982		285
12.48		8.51		.1667		.982		223

OPEN FLOW

285

Mcfd @ 14.65 psia

DELIVERABILITY

223

Mcfd @ 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 herein and that said report is true and correct. Executed this the 22 day of Nov, 19 99

Witness (if any)

For Commission

For Company

Checked by