

Step Rate Test

12/6/99 Edwards Energy Corporation (Pudrogon)
Frontier A#1 A. 8-26-12

Bottom hole bomb @ 3702' ~~2 3/8~~ pipe - Plastic lined

0.27 gpm T₁ - 750

T₂

T₃ - 760

Q

Pressure

0.36

T₁ - 810

0.37

T₂ - 810

0.36

T₃ - 820

0.45

T₁ - 850

0.45

T₂ - 850

0.45

T₃ - 850

0.53

T₁ - 880

0.54

T₂ - 880

0.54

T₃ - 880

0.74

T₁ - 910

0.74

T₂ - 930

0.74

T₃ - 940

* Pressure jumping between 880 + 980 psi.

0.99

T₁ - 970

1.00

T₂ - 980

0.99

T₃ - 980

12/6/99 Cont

<u>Q</u>	<u>Pressure</u>
1.27	$T_1 - 1040$
1.27	$T_2 - 1040$
1.27	$T_3 - 1050$

Pressure fluctuating between 1000 + 1090

1.57	$T_1 - 1120$
1.36	$T_2 - 1120$
1.57	$T_3 - 1130$

Pressure fluctuating between 1080-1130

2.00	$T_1 - 1210$
1.99	$T_2 - 1220$
2.00	$T_3 - 1220$

2.51	$T_1 - 1350$
2.50	$T_2 - 1360$
2.50	$T - 1370$

Gear Change

2.97	$T_1 - 1500$
2.97	$T_2 - 1500$
2.96	$T_3 - 1500$

3.60	$T_1 - 1730$
3.60	$T_2 - 1730$
3.61	$T_2 - 1730$

12/16/99
Gear Chg

<u>Q</u>	<u>Pressure</u>
4.05	T ₁ -1910
4.05	T ₂ -1920
4.06	T ₃ -1910

4.56	T ₁ -2130
4.59	T ₂ -2140
4.62	T ₃ -2150

5.05	T ₁ -2350
5.05	T ₂ -2340
5.05	T ₃ -2320

Gear Chg

5.52	T ₁ -2570
5.53	T ₂ -2560
5.54	T ₃ -2580

<u>Q</u>	<u>Q</u>
6.24 lost air truck T ₁ -2930	
	T ₂ -
	T ₃ -

<u>Q</u>	<u>Pressure</u>
6.00	T ₁ -2810
6.02	T ₂ -2800
6.02	T ₃ -2830

1332 psi - 5.0
1591
~~1725~~ psi - 5.5 } Friction loss
1850 psi - 6.0

Shut down pressure $\approx$ 1120 ~~1120~~ psi