

**FINGAL 55B**  
**DRILL STEM TEST**  
**FINAL REPORT**  
**“D” ZONE COAL SEAM**  
**OPEN HOLE INTERVAL 239.0 – 246.1 mGL**  
**JUNE 5, 2007**

**Prepared for:**  
**Pure Energy Resources Limited**



**Prepared by:**  
**Focal Petroleum Engineering Pty Ltd.**

**July 11, 2007**

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Pure Energy Resources Limited  
P.O. Box 952  
SOUTH PERTH, WA 6951

**Attention: Mr. Steve Beardsall**

Dear Sir

***Re: Fingal 55b Coal "D" Drill Stem Test Report***

The following is a summary of the results obtained from the drill stem test conducted on June 5, 2007 over the "D" Coals, open hole interval from circa 239.0 – 246.05 mGL.

The DST was conducted through the drillpipe and coring bit, using an off bottom inflatable packer. Prior to testing, circa 120 meters of water was displaced from the drillpipe with air to allow inflow from the reservoir to occur.

The test was comprised of a 23 minute flow period followed by a buildup period of 60 minutes. A low flow gas meter was used to measure the gas recovery and a fluid recorder in the drill pipe was used to establish daily water production volumes (bbl/day) from the inflow of water into the wellbore.

During the inflation of the isolation packers, a rapid increase in pressure followed by a slow fall-off was noted below the packer, suggesting that the permeability within the test interval was very low.

During the shut-in procedure (raising the drill string 70mm) for the downhole tool, a sharp drop in pressure was noted to start the buildup. This was the result of some upward movement by the packer, creating a small amount of suction in the wellbore. For the purpose of this report, the drawdown data was corrected to match the start of the buildup.

## Comments and Conclusions

- The pressure response observed during the flow and buildup periods suggested a reservoir with very low flow capacity to water. Since the inflow from the reservoir was predominantly water, the test was analysed as a water well. The gas volume recovered was insignificant (< 1 cf) and was not used in the interpretation.
- The net pay of 9.0 ft (2.75 m) was obtained from the core samples. A default porosity of 2% was used for the interpretation.
- A water rate of circa 0.3 bbl/d was calculated using the pressure increase from the inflow of water into the wellbore during the flow period.
- A reservoir pressure ( $P_i$ ) of 268 psia was extrapolated from the late-time semi-log data. The subject reservoir is slightly under-pressured with a reservoir gradient of 0.35 psi/ft.
- The pressure derivative indicated wellbore storage was overcome by the start of radial flow (zero slope) at about 20 minutes after shut-in. The pressure derivative then followed an upward trend for an additional 20 minutes before returning to the initial radial flow trend. This non reservoir response has been attributed to a shift in the liquid level in the wellbore.
- Conventional analysis and Simulation were both conducted. A line was placed through the initial radial flow portion on the semi-log plot to determine permeability and skin. A second line of identical slope was placed through the late-time semi-log data to extrapolate reservoir pressure.
- The positive skin value is considered moderate and is likely attributed to coal fines in the near wellbore region.

A summary of the Test Results is as follows:

<b>Average Reservoir Pressure (Pr) @ 234.4 mGL</b>	<b>268 psia (semi-log)</b>
<b>Apparent Skin Factor</b>	<b>+3.3</b>
<b>Average Permeability to Water</b>	<b>0.2 md</b>
<b>Flow Capacity to Water</b>	<b>1.8 md.ft</b>
<b>Radius of Investigation</b>	<b>4 ft</b>

If further clarification of the test interpretation is required, please contact the undersigned on (08) 94749622.

Yours faithfully,

**FOCAL PETROLEUM ENGINEERING PTY LTD**

Ryan Gee

**WELL TEST CONSULTANT**

Terry Primeau

**MANAGING DIRECTOR**

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# Validata Plot

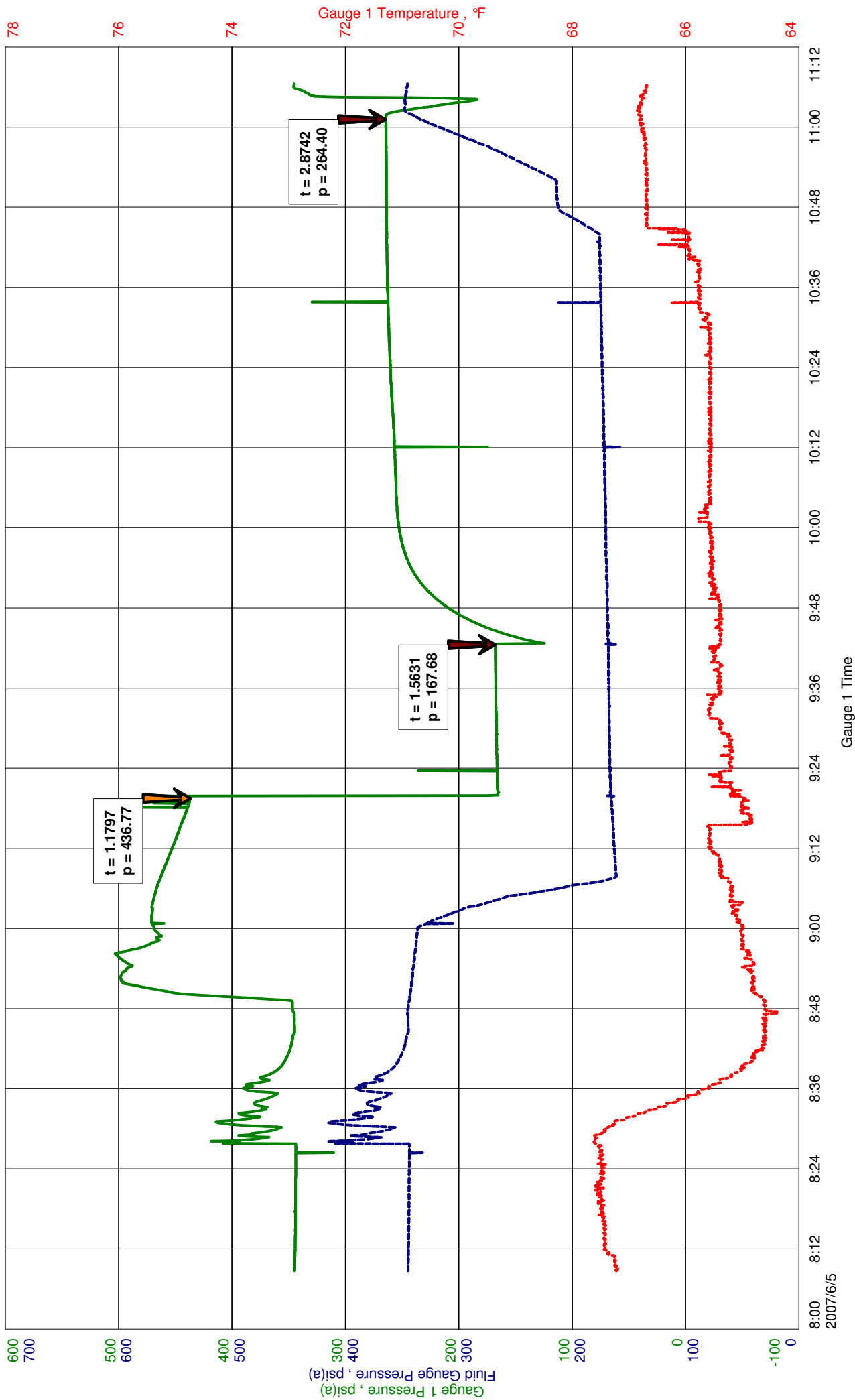
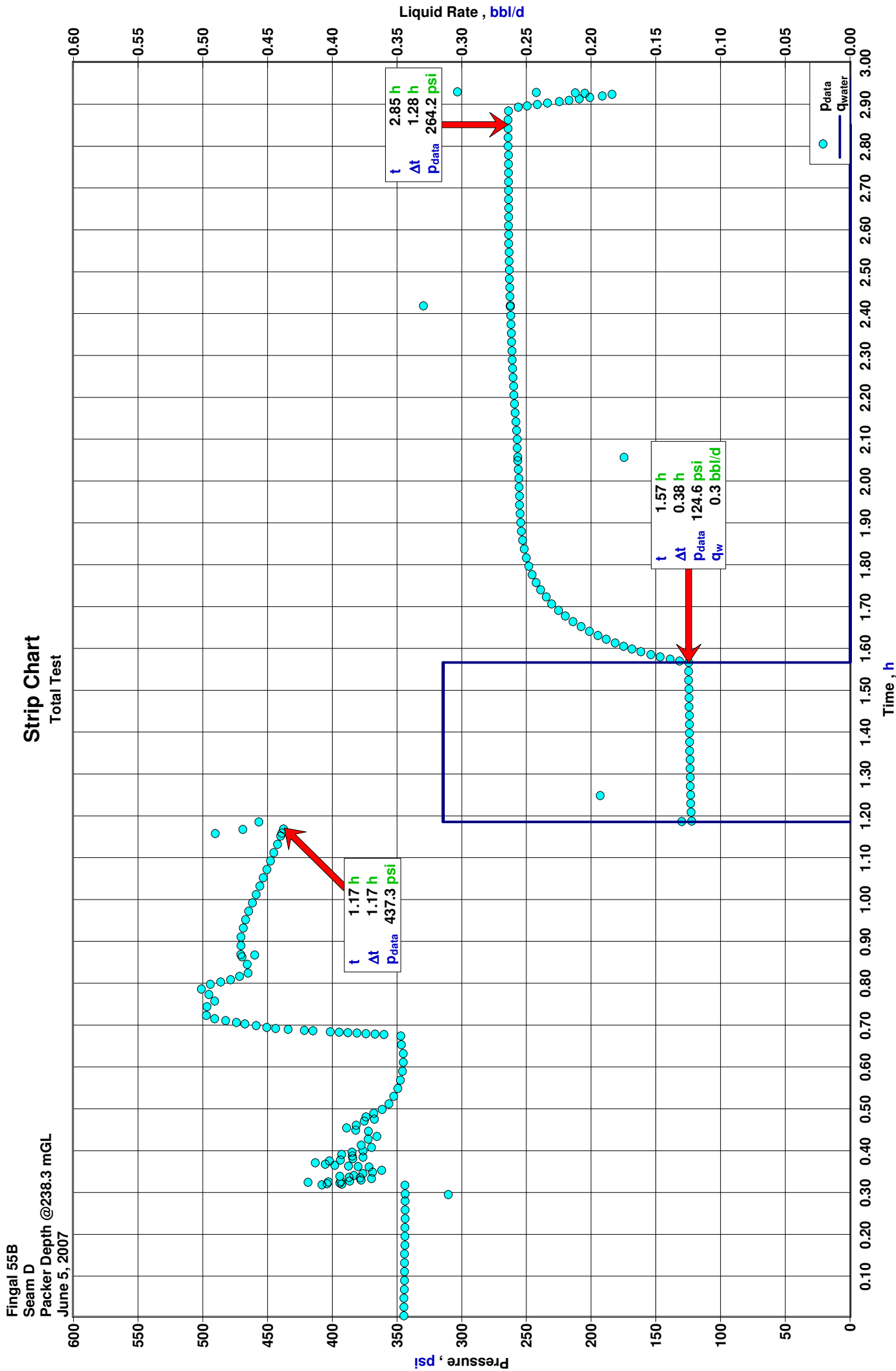
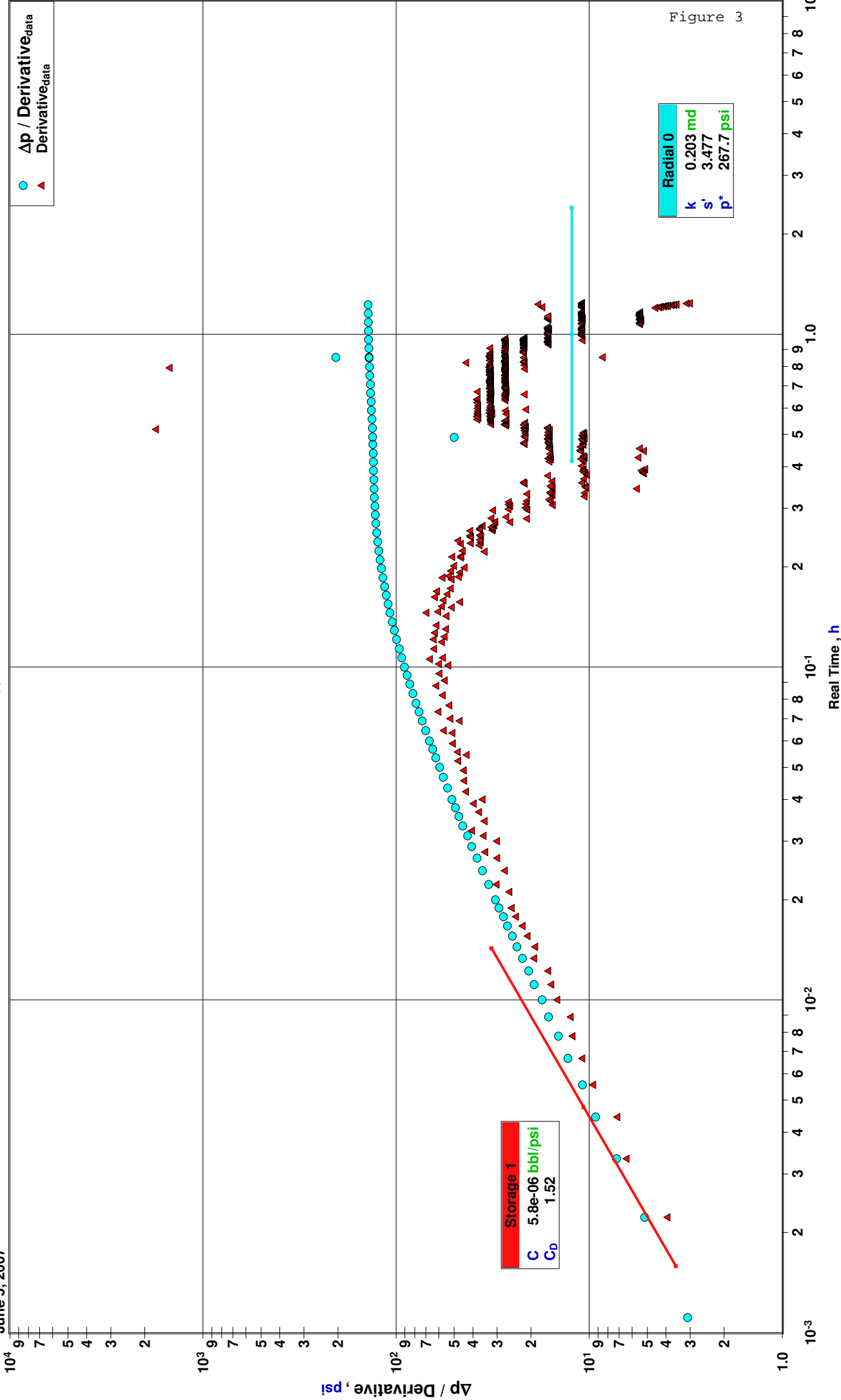


Figure 2



Fingal 55B  
Seam D  
Packer Depth @238.3 mGL  
June 5, 2007

# Diagnostic Analysis Typecurve





Fingal 55B  
Seam D  
Packer Depth @238.3 mGL  
June 5, 2007

Diagnostic Analysis  
Radial

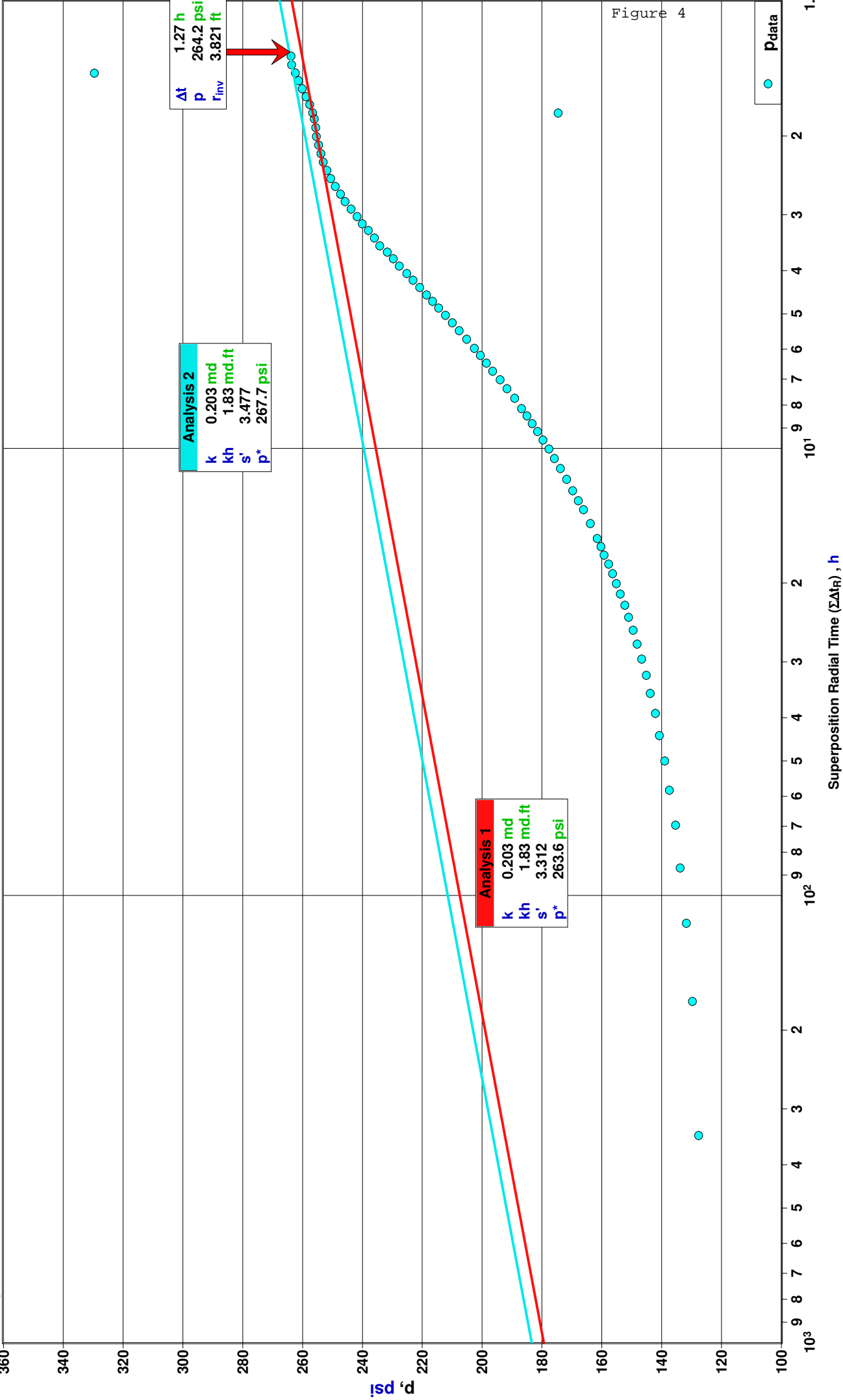


Figure 4

# Water Well Test - Buildup

## Radial Flow Analysis

Fingal 55B  
Seam D

Packer Depth @238.3 mGL  
June 5, 2007

### Analysis Results

Total Sandface Rate ( $q_t B_t$ )	0.314 bbl/d	Apparent Skin ( $s'$ )	3.477
Semilog Slope (m)	28.08	Skin - Damage	3.477
Gas Permeability ( $k_g$ )	md	Skin - Inclination	
Oil Permeability ( $k_o$ )	md	Skin - Partial Penetration	
Water Permeability ( $k_w$ )	0.203 md	Pressure Drop Due to Skin ( $\Delta p_s$ )	84.84 psi
Flow Capacity (kh)	1.827 md.ft	Damage Ratio (DR)	2.525
Total Mobility ( $k/\mu_t$ )	0.20 md/cp	Flow Efficiency (FE)	0.396
Total Transmissivity(kh/ $\mu_t$ )	1.82 md.ft/cp		

### Reservoir Parameters

Net Pay (h)	9.022 ft
Total Porosity ( $\phi_t$ )	2.00 %
Water Saturation ( $S_w$ )	95.00 %
Oil Saturation ( $S_o$ )	0.00 %
Gas Saturation ( $S_g$ )	5.00 %
Wellbore Radius ( $r_w$ )	0.30 ft
Formation Temperature (T)	67.5 °F
Formation Compressibility ( $c_f$ )	9.482e-6 psi <sup>-1</sup>
Total Compressibility ( $c_t$ )	2.109e-4 psi <sup>-1</sup>

### Pressures

Initial Pressure ( $p_i$ )	265.00 psi
Extrapolated Pressure ( $p^*$ )	267.65 psi
Final Flowing Pressure ( $p_{wfo}$ )	124.53 psi

### Production and Times

Corrected Flow Time ( $t_c$ )	0.3811 hr
Cumulative Water Production	0.005 bbl
Final Water Rate	0.314 bbl/d

### Fluid Properties

Water Compressibility ( $c_w$ )	3.29556e-6 psi <sup>-1</sup>
Water Formation Volume Factor ( $B_w$ )	0.999
Water Viscosity ( $\mu_w$ )	1.005 cp
Solution Gas Ratio ( $R_{sw}$ )	0 scf/bbl
Specific Gravity (G)	1.000
Gas Gravity (G)	0.650
PVT Reference Pressure ( $p_{pVT}$ )	265.00 psi

Fingal 55B  
Seam D  
Packer Depth @238.3 mGL  
June 5, 2007

# Fingal 55B Total Test

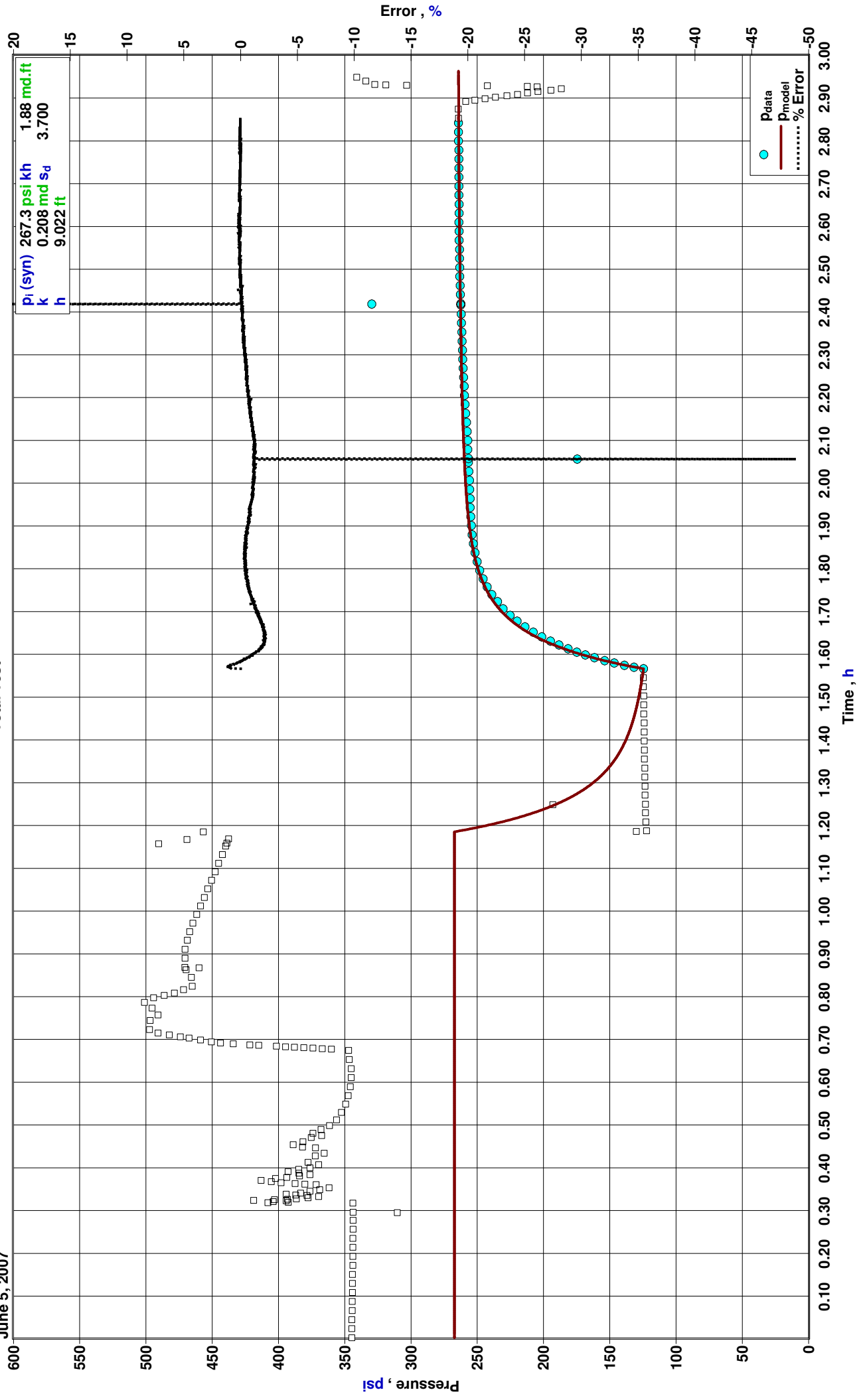


Figure 6

Fingal 55B  
Seam D  
Packer Depth @238.3 mGL  
June 5, 2007

Simulation  
Typecurve

$p_i$ (syn)	267.3 psi kh	1.88 md.ft
k	0.208 md s <sub>d</sub>	3.700
h	9.022 ft	

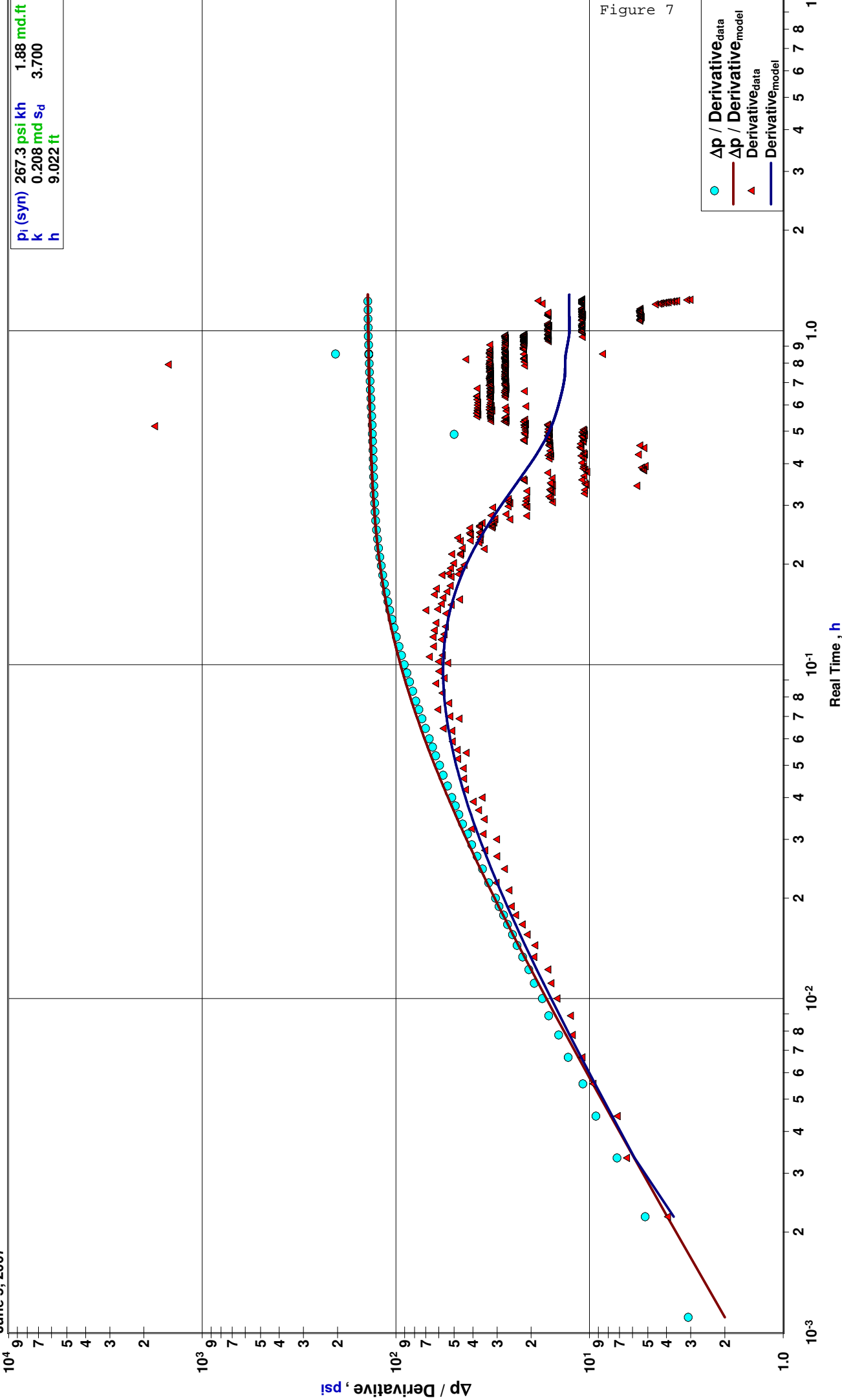
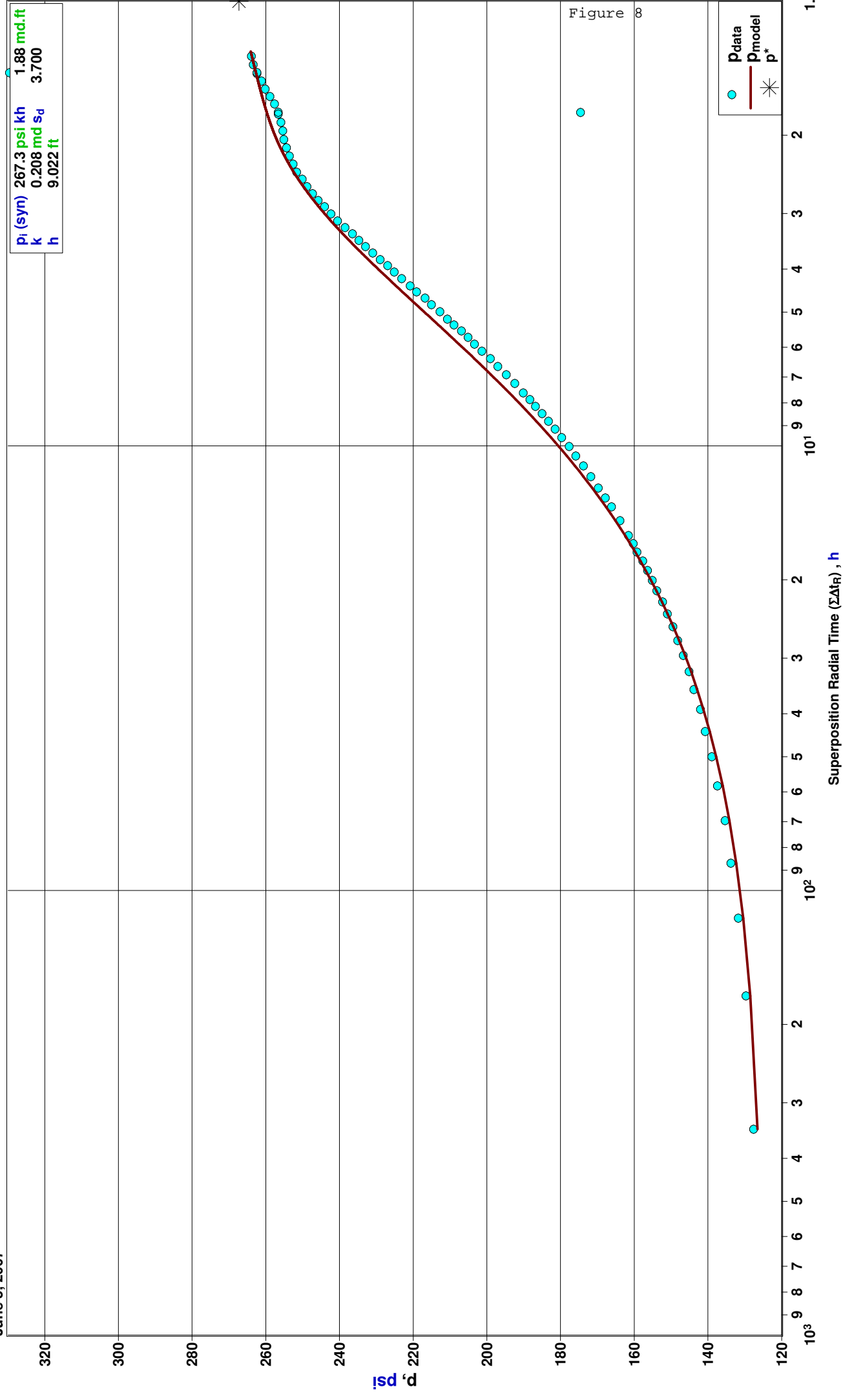


Figure 7

**Fingal 55B  
Seam D  
Packer Depth @238.3 mGL  
June 5, 2007**

## Simulation



# Vertical Water Well Model

Case Name : Simulation

Fingal 55B

Packer Depth @238.3 mGL

Seam D

June 5, 2007

## Model Parameters

Water Permeability ( $k_w$ )	0.208 md	Reservoir Length ( $X_e$ )	1000000.000 ft
Gas Permeability ( $k_g$ )	md	Reservoir Width ( $Y_e$ )	1000000.000 ft
Skin (s)	3.700	Active Well At ( $X_w$ )	ft
Total Mobility ( $k/\mu$ ) <sub>t</sub>	0.21 md/cp	Active Well At ( $Y_w$ )	ft
Total Transmissivity ( $kh/\mu$ ) <sub>t</sub>	1.87 md.ft/cp		
Wellbore Storage Constant Dim. ( $C_D$ )	1.83		

## Formation Parameters

Net Pay (h)	9.022 ft
Total Porosity ( $\phi_t$ )	2.00 %
Water Saturation ( $S_w$ )	95.00 %
Oil Saturation ( $S_o$ )	0.00 %
Gas Saturation ( $S_g$ )	5.00 %
Wellbore Radius ( $r_w$ )	0.30 ft
Formation Temperature (T)	67.5 °F
Formation Compressibility ( $c_f$ )	9.482e-6 psi <sup>-1</sup>
Total Compressibility ( $c_t$ )	2.109e-4 psi <sup>-1</sup>

## Production and Pressure

$Q_t B_t$	0.314 bbl/d
Final Water Rate	0.314 bbl/d
Final Gas Rate	MMCF/D
Final Flowing Pressure ( $p_{wfo}$ )	124.53 psi
Final Measured Pressure	345.10 psi
Cumulative Water Production	0.005 bbl

## Synthesis Results

Average Error	0.64 %
Synthetic Initial Pressure ( $p_i$ )	267.27 psi
Extrapolated Pressure at Specified Time	267.27 psi
Pressure Drop Due To Skin ( $\Delta p_s$ )	85.78 psi
Flow Efficiency (FE)	0.399
Damage Ratio (DR)	2.506

## Fluid Properties

Water Compressibility ( $c_w$ )	3.29556e-6 psi <sup>-1</sup>
Water Formation Volume Factor ( $B_w$ )	0.999
Water Viscosity ( $\mu_w$ )	1.005 cp
Solution Gas Ratio ( $R_{sw}$ )	0 scf/bbl
Specific Gravity (G)	1.000
PVT Reference Pressure ( $p_{pvt}$ )	265.00 psi

## Forecasts

Forecast Flowing Pressure ( $P_{flow}$ )	124.53 psi
3 - Month Constant Rate Forecast @ Curr. Skin	0.181 bbl/d
6 - Month Constant Rate Forecast @ Curr. Skin	0.175 bbl/d
Forecast Flow Duration ( $t_{flow}$ )	12.00 month
Constant Rate Forecast @ Curr. Skin	0.170 bbl/d
PI / II (Actual)	0.001 bbl/d/psi
Constant Rate Forecast @ Skin=0	0.255 bbl/d
PI / II (Ideal)	0.002 bbl/d/psi
Constant Rate Forecast @ Skin=-4	0.551 bbl/d