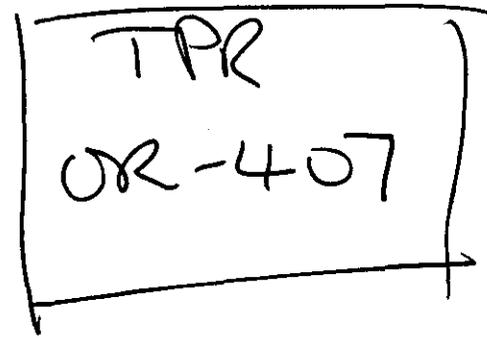




**BORAL  
ENERGY**

506001



**BASS T/25P**

**A REVIEW OF THE ENGINEERING DATA  
FOR THE PELICAN FIELD**

**SEPTEMBER 1995**

**PREPARED BY: JOE PARVAR  
SENIOR PETROLEUM ENGINEER**

**CONTENTS****SUMMARY****INTRODUCTION****DISCUSSION**

- 1 Review of the Fluid Samples (FIT & RFT)**
  - 1.1 Pelican 1 FIT Samples
  - 1.2 Pelican 2 FIT Samples
  - 1.3 Pelican 4 FIT and RFT Samples
  - 1.4 Pelican 5 RFT Samples
  
- 2 Production Test Analysis/Results (Pelican 5)**
  - 2.1 Paleocene Tests
    - 2.1.1 DSTs 1 and 2
    - 2.1.2 DSTs 2A and 3
    - 2.1.3 DST 4
  
  - 2.2 Eocene Tests
    - 2.2.1 DST 5
    - 2.2.2 DST 5A
    - 2.2.3 DST 6
  
- 3 RFT Interpretation/Results**
  - 3.1 Pelican 5 RFT Interpretation
  - 3.2 Pelican 4 RFT Interpretation
  
- 4 Core Data**
  
- 5 Evaluation of the Sand Units**
  - 5.1 Eocene Sands
    - 5.1.1 Unit A
    - 5.1.2 Unit B
    - 5.1.3 Unit C
    - 5.1.4 Unit D
    - 5.1.5 Unit E
    - 5.1.6 Unit F
    - 5.1.7 Unit G
    - 5.1.8 Unit H
  
  - 5.2 Paleocene Sands

**CONCLUSION**

**TABLES**

<b>Table 1</b>	Pelican 1 FIT Samples
<b>Table 2</b>	Pelican 2 FIT Samples
<b>Table 3</b>	Pelican 4 RFT and FIT Samples
<b>Table 4</b>	Pelican 5 RFT Samples
<b>Table 5</b>	Pelican 5 DST Summary
<b>Table 6</b>	Pelican 5 RFT Data
<b>Table 7</b>	Pelican 5 RFT Data
<b>Table 8</b>	Pelican 4 RFT Data

**FIGURES**

<b>Figure 1</b>	Pelican Field Location Map
<b>Figure 2</b>	Pelican Field Structural Map
<b>Figure 3</b>	Bass Basin Stratigraphic Column
<b>Figure 4</b>	Pelican 1 FIT Samples (Fluid Recovery)
<b>Figure 5</b>	Pelican 1 FIT Samples (Water Resistivity)
<b>Figure 6</b>	Pelican 2 FIT Samples (Fluid Recovery)
<b>Figure 7</b>	Pelican 2 FIT Samples (Water Resistivity)
<b>Figure 8</b>	Pelican 4 RFT & FIT Samples (Fluid Recovery)
<b>Figure 9</b>	Pelican 4 RFT & FIT Samples (Water Resistivity)
<b>Figure 10</b>	Pelican 5 RFT Samples (Fluid Recovery)
<b>Figure 11</b>	Pelican 5 RFT Samples (Water Resistivity)
<b>Figure 12</b>	Log-Log Plot (Pelican 5 DST 1)
<b>Figure 13</b>	Log-Log Plot (Pelican 5 DST 2A)
<b>Figure 14</b>	Log-Log Plot (Pelican 5 DST 3 Buildup 1)
<b>Figure 15</b>	Log-Log Plot (Pelican 5 DST 3 Buildup 2)
<b>Figure 16</b>	Log-Log Plot (Pelican 5 DST 3 Buildup 3)
<b>Figure 17</b>	Test Overview (Pelican 5 DST 4)
<b>Figure 18</b>	Log-Log Plot (Pelican 5 DST 4 Buildup 2)
<b>Figure 19</b>	Radial Flow Plot (Pelican 5 DST 4 Buildup 2)
<b>Figure 20</b>	Type Curve Plot (Pelican 5 DST 4 Buildup 2)
<b>Figure 21</b>	Test Overview (Pelican 5 DST 5)
<b>Figure 22</b>	Log-Log Plot (Pelican 5 DST 5 Buildup 1)
<b>Figure 23</b>	Log-Log Plot (Pelican 5 DST 5 Buildup 2)
<b>Figure 24</b>	Log-Log Plot (Pelican 5 DST 5 Buildup 3)
<b>Figure 25</b>	Radial Flow Plot (Pelican 5 DST 5 Buildup 3)
<b>Figure 26</b>	Type Curve Plot (Pelican 5 DST 5 Buildup 3)
<b>Figure 27</b>	Test Overview (Pelican 5 DST 6)
<b>Figure 28</b>	Log-Log Plot (Pelican 5 DST 6 Buildup 1)
<b>Figure 29</b>	Radial Flow Plot (Pelican 5 DST 6 Buildup 1)
<b>Figure 30</b>	Type Curve Plot (Pelican 5 DST 6 Buildup 2)
<b>Figure 31</b>	Log-Log Plot (Pelican 5 DST 6 Buildup 2)

- Figure 32** Radial Flow Plot (Pelican 5 DST 6 Buildup 2)
- Figure 33** Type Curve Plot (Pelican 5 Buildup 2)
- Figure 34** Pelican 5 RFT (HP and Strain Gauges)
- Figure 35** Pelican 5 RFT (Hydrostatic Pressure)
- Figure 36** Pelican 5 RFT Plot (HP Gauge)
- Figure 37** Pelican 5 RFT Plot (Strain Gauge)
- Figure 38** Pelican 4 RFT Plot
- Figure 39** Pelican 5 and 4 RFT Plot
- Figure 40** Pelican Field (Core Data)

**Attachment** Schematic Structural Cross-Section Map

**SUMMARY**

The Pelican Field was discovered in 1970 when Pelican 1 encountered a number of gas bearing sands in the Eocene and Paleocene sections (refer to the attached map). By 1986, five wells were drilled in the Pelican Field and a number of gas bearing zones were identified in these wells.

FIT and RFT tools were used to collect formation fluid from selected sands at the wells. The sample results have been reviewed in detail and presented in this report. The following table shows a summary for some of the samples taken from the Eocene zones.

UNITS	PELICAN 1		PELICAN 2		PELICAN 4		PELICAN 5	
	Gas cu.ft	Water cc	Gas cu.ft	Water cc	Gas cu.ft	Water cc	Gas cu.ft	Water cc
A	26.5	100000	-	-	-	-	-	-
B	139.0	6000	-	-	-	-	-	-
C	0.0	22000	-	-	-	-	-	-
D	69.8	1750	0.0	1600	47.7	13000	-	-
E	0.0	1750	37.0	13000	0.3	15700	38.4	5000
F	0.4	1600	3.7	16300	69.5	11400	0.0	9500
G	0.0	4800	1.7	4400	-	-	-	-
H	3.2	21000	-	-	-	-	-	-

A FIT sample taken from the top of the Paleocene section at Pelican 1 recovered 37.8 cu.ft of gas.

An RFT tool was also run to perform pretests in Pelican 4 and 5 in order to identify the formation fluid gradients. The RFT data has been interpreted and presented in this report. An RFT pressure plot is presented in Figure 39 which includes the data from both wells. Based on this plot the formation has a water gradient of 0.434 psi/ft. The pressure points recorded in the A to D units lie on the water line (line 1) while the points recorded over the lower units (E to G) lie to the right of line 1 by a pressure difference of 164 psi (line 2). This could be as a result of the formation being supercharged during the drilling activities or overpressured during a geological event. The RFT data recorded over the paleocene zones lies to the right of line 1 by an average pressure difference of 1240 psi indicating that the formation could have been overcharged possibly as a result of uplift.

Eight cased hole DSTs were conducted in Pelican 5. The test data has been analysed in detail and presented in this report while a DST summary is presented in the following table:

Test No.	Zone	Gas Rate MMSCFD	Cond. Rate STB/D	Water Rate BBL/D	FWHP PSIG	Thickness FT	Perm. md	Skin
DST 1	Paleocene	-	No flow					
DST 2	Paleocene	-	No flow					
DST 2A	Paleocene	-	No flow					
DST 3	Paleocene	-	No measurable flow - reversed out gas cut mud (very poor permeability)					
DST 4	Paleocene (Top)	0.43	-	-	35.0	20.0	0.25	14.0
DST 5	Eocene (Unit F)	0.0	-	12.0	8.0	23.0	0.27	-0.5
DST 5A	Eocene (Unit F)	-	No flow to surface - reversed out gas cut mud (very low permeability)					
DST 6	Eocene (Unit E)	5.50	441.0	662.0	525.0	13.0	6.00	4.0

DST 1 to 4 shows that the formation permeability in the Paleocene section is very poor. DST 4 (the best test in Paleocene) has a flow capacity of 5.0 md.ft indicating that the well would not be able to flow at a commercial rate even if the skin could be reduced. DST 5, conducted over the F Unit of the Eocene section flowed water at a rate of 12 BBL/D. The test results indicate a very poor flow capacity (6.2 md.ft) for this zone. DST 6 which tested the E sand and flowed gas (5.5 MSCF/day) and water (662 BBL/day) has a flow capacity of 78.0 md.ft. The results of the tests conducted in the Eocene section show that the gas reserve in this field is small (formation water was produced during DSTs) and the formation does not have sufficient flow capacity to flow at a commercial rate (for an offshore well).

The core data (porosity/permeability cross plot) shows that at least two types of reservoir can be identified in Pelican Field. The good quality sand (shoreface sand) has been mostly developed in the upper part of the Eocene section (A & B Units) around Pelican 1 while the poor quality sand (channel sand) is present throughout the field.

The evaluation of the sand units in Pelican Field shows that the gas zones in this field are not extensive and are limited to small localised accumulations. The only gas zone in Unit A is limited to the top part of the sand at Pelican 1. A good quality sand containing rich gas exists in Unit B, however this sand does not extend to the other well locations. No significant hydrocarbons were detected in Unit C. The gas column encountered by Pelican 1 in Unit D does not extend to Pelican 2 and 5 locations while the gas zone in Pelican 4 appears to be localised. Small gas columns found in Unit E in Pelican 2 and 5 do not extend to the Pelican 2 and 4 locations. The small gas zone in Unit F intersected in Pelican 4 does not extend to the other well locations. No significant hydrocarbons were found in Unit G and H. Gas was found in a thin sand at top of the Paleocene section at Pelican 1 and 5 with the formation having very poor permeability.

In summary, a number of small localised gas accumulations exists in the Pelican Field. However, due to the lack of continuity of these zones, insufficient gas reserves and the low permeability of most of the sands, development of this field will not be economic.

## **INTRODUCTION**

The Pelican Field is located in the south west of the Bass Basin within the T/25P permit (Figure 1). Figure 2 shows the Field structural map. Five wells have been drilled in the field which was discovered by Esso in March 1970 when Pelican 1 encountered a number of gas/condensate bearing zones in the Eocene and Paleocene sections (Figure 3 shows the Bass Basin stratigraphic column). Pelican 2 was drilled in July 1970 by Esso. Pelican 3 was drilled by Esso in May 1972 with the well results indicating only minor gas shows (Pelican 3 was actually located in a different structural setting). Pelican 4 was drilled by Hematite Petroleum in January 1979. Pelican 5 was drilled by Amoco Production Company in January 1986.

An FIT (Formation Interval Tester) was run in Pelican 1, 2, 3 and 4 to collect the formation fluid. The RFT was used in Pelican 4 and 5 to identify the formation fluid gradients and to take fluid samples. Six cased hole drill stem tests were conducted at Pelican 5 to estimate the formation productivity. The purpose of this study is to review and analyse the FIT, RFT and production test data and to evaluate the field.

## **DISCUSSION**

Five wells have been drilled in the Pelican Field (Pelican 3, located to the north on a separate fault block, did not encounter hydrocarbons). The enclosed map shows a schematic structural cross section of the Eocene section. As can be seen on this map, eight correlatable units (A through H) can be identified in the Eocene section. In order to evaluate the sands, in addition to open hole logs, which were run in all wells, the FIT (Schlumberger Formation Tester) had been used in Pelican 1, 2 and 3 to collect formation fluid samples from the selected sands. In Pelican 4, FIT and RFT (Repeat Formation Tester) were run for sampling while formation pressure was recorded by RFT tool for identifying fluid gradients. In Pelican 5, the RFT was run to collect formation fluid samples and to identify fluid gradients while a production test was conducted over the selected sands for estimating the reservoir productivity and identifying the fluid types.

### **1 REVIEW OF THE FLUID SAMPLES (FIT & RFT)**

FIT and RFT tools were used in the Pelican Field to collect reservoir fluid samples from selected sand units. The major gas recoveries were from the A, B and D units in Pelican 1, the E unit in Pelican 2, the D and F units in Pelican 4 and the E unit in Pelican 5.

#### **1.1 PELICAN 1 FIT SAMPLES**

A total of twenty one FIT runs were made in Pelican 1. Table 1 shows a summary of the results for these runs. It appears that the shallower sand units (the sands above the "D" unit) have better permeability in comparison with the deeper sands based on the reported pressure drawdown during the sampling. A summary of the fluid recoveries and the resistivity of the produced water is also presented in Table 1. Figure 4 shows the gas and water quantities recovered from Pelican 1 during the FIT runs (the symbols on the graph denote the sand units). As can be seen in this figure, the major gas recoveries are from the A and B units while the FIT sample over the "F" sand collected a very minor gas quantity (0.4 cu.ft). FIT 8, which recovered 37.8 cu.ft of gas, was sampled in the paleocene section.

Figure 5 shows the resistivity of the recovered water samples in comparison with the mud filtrate and the formation water resistivities. The formation water was assumed to have a resistivity of 0.98 ohm-m at 77°F based on a water sample from the "F" sand taken during the production testing of Pelican 5 (DST 5A). The mud filtrate resistivity in Pelican 1 was reported to be 0.714 ohm-m at 78°F. As can be seen in this figure most of the FIT samples have a resistivity between the mud filtrate and the formation water suggesting that formation water was produced during the sampling of these sands.

## 1.2 PELICAN 2 FIT SAMPLES

A total of eleven FIT samples were collected from the selected sands in Pelican 2 of which nine were successful. Table 2 summarises the results of these samples. A high pressure drawdown recorded during the sampling suggests that the permeability in these sands could be very low. The most significant sample was FIT 1-1 which recovered 37.0 cu.ft of gas and 13000.0 cc of water from the E sand as shown in Table 2 and Figure 6. A small volume of gas (3.7 cu.ft) was also recovered from the F sand during the FIT 3-4. Figure 6 exhibits a quantitative analysis of the recovered fluid. A fluid sample was not taken from the A, B and C sands as the open hole log results did not indicate sufficient hydrocarbon shows to warrant its requirement.

Figure 7 shows the resistivity of the recovered water samples, mud filtrate, formation water (based on a water sample from Pelican 5 DST 5A) and mud. The symbols in this figure denote the sand units while the numbers reflect the FIT runs. The mud filtrate and mud resistivities were reported to be 1.08 ohm-m (at 56°F) and 1.4 ohm-m (at 56°F) respectively. As can be seen in this figure all of the samples have a resistivity higher than the mud filtrate with most of them are close to the mud resistivity. This may suggest that the FIT samples were contaminated.

## 1.3 PELICAN 4 FIT AND RFT SAMPLES

Four FIT and three RFT samples were collected from Pelican 4. A summary of the sample results is presented in Table 4. As shown in this table the reported pressure drawdown during the sampling of Pelican 4 is very high suggesting a very low formation permeability. Figure 8 shows the volumes of the recovered gas and water from the Pelican 4 FIT samples. As shown in this figure, the major gas recoveries were from the "D" and "F" sands. The quantity of the recovered gas from these two sands during the sampling were 69.5 and 47.7 cu.ft respectively. A fluid sample was not taken from the A, B and C units as the open hole logs did not indicate sufficient hydrocarbon shows to warrant its requirement.

The resistivity of the fluid samples have been compared with the mud filtrate and formation water resistivities and have been presented in Figure 9. The mud filtrate resistivity varied slightly during the runs and has an average of 0.199 ohm-m at 68°F. It was noted that the mud and filtrate resistivities were less than the estimated formation water resistivity (based on a DST sample from Pelican 5). As shown in this figure, the resistivity of the water samples are close to the mud filtrate resistivity indicating mud filtrate was produced during the sampling.

#### 1.4 PELICAN 5 RFT SAMPLES

A total of four RFT fluid samples was taken from Pelican 5. A 2¼ gallon sample chamber was used during the sampling. The recorded pressure drawdown suggests that the sampled sands have a very low permeability. Table 4 shows a summary of the sample results. As shown in this table the only gas recovery is from RFT 4 which recovered 38.4 cu.ft of gas and 5000 cc of water. Figure 10 exhibits a quantitative analysis of the recovered fluid from Pelican 5.

Figure eleven shows the resistivity of the recovered water samples in comparison with the mud filtrate and formation water resistivities. As shown in this figure all the samples have resistivities close to the formation water resistivity implying formation water was produced during the sampling.

## 2 PRODUCTION TEST ANALYSIS/RESULTS (PELICAN 5)

Pelican 5 is the only well in Pelican Field which was production tested for hydrocarbons. The following discussion covers a summary of the operations and an interpretation of the Pelican 5 production tests.

A total of seven tests were conducted at Pelican 5. A Halliburton downhole tool with 3½" production string was used during the production tests. The selected test intervals were perforated with Schlumberger's wireline or TCP systems.

A summary of the DST results is presented in Table 5.

### 2.1 PALEOCENE TESTS

DST 1, 2 (and 2A), 3 and 4 were conducted over the selected zones within the Paleocene section. An interpretation of the test data suggests that the Paleocene sands are tight or have a very low permeability and are not commercially significant.

#### 2.1.1 DSTs 1 and 2

DST 1 was conducted over the interval between 3672 to 3699m KB on 13 March 1986. After running the test string a Schlumberger 2⅝" Enerjet was run to perforate the interval with 2000 psi underbalanced pressure. There was a very slight indication of well flowing at the surface. The interval between 3686 to 3699m KB was reperfdrated with the Enerjet guns. There was no indication of well flowing at the surface. A static gradient survey conducted at the well showed no change in the liquid gradient across the formation. Schlumberger was rigged up and ran into the hole with 2⅝"

Enerjet to perforate the DST 2 interval (3607 to 3619m KB) with 3000 psi underbalanced pressure. Due to operational problems the well was only open for a short period during DST 2 which showed no indication of flow.

The well was opened totally for approximately 21.27 hours during DST 1 and 2 before being shutin for a very short period of 1.4 hours. Figure 12 is a log-log derivative plot of the buildup data. The diagnostic plot indicates that wellbore storage effect has dominated the test results. The buildup period was not long enough to provide enough data for interpretation. However, based on the well performance during the flow period the only conclusion that can be drawn is that the formation is tight.

### 2.1.2 DST 2A and 3

Since the DST 2 was conducted over a section of the well that the 5½" and 7" casing is overlapped, the decision was made to re-perforate the interval from 3611 to 3617m KB (DST 2A) with a 3¾" casing gun which could carry bigger charges. The well was opened to flow for 1.67 hours on 20 March 1986. There was no indication of the well flowing at the surface. The well was shutin for a 2 hour buildup test. Figure 13 is a log-log derivative plot of the first buildup data. The diagnostic plot indicates that the buildup test was dominated by well storage mainly due to the tight characteristics of the formation.

The well was reopened for the second period and showed no indication of flow. A Schlumberger production logging tool was run across the interval which indicated no flow from the formation. The well performance during DST 2A supports the previous conclusion that the formation is tight.

A 2½" Enerjet gun was run into the well and the DST 3 interval (from 3440 to 3451m KB) was perforated with 2200 psi underbalanced pressure. The surface pressure increased to 30 psi but slowly dropped to 0 psi after 10 minutes. The well was shutin at the choke manifold for 268 minutes and the wellhead tubing pressure increased to 1000 psig. Figure 14 shows a log-log derivative plot of the first buildup data which indicates that the test was dominated by well storage. After the first flow and buildup tests the well was reopened on a 16/64" choke. The wellhead pressure dropped to 0 psi after 4 minutes.

The well was opened again for 68 minutes before being shutin at the choke manifold for a 202 minute period. The well was logged with a production logging tool which showed a small fluctuation in the density of the fluid. The wellhead pressure increased to 1175 psi at the end of the shutin period. Figure 15 shows a log-log derivative plot of the second buildup.

The well was reopened, (the wellhead pressure dropped to 0 after 4 minutes), for approximately 2 hours before being shutin for 95 minutes and the wellhead pressure increased to 800 psi. Figure 16 is a log-log derivative plot of the buildup data. The well reversed out gas cut mud. The well performance during DST 3 suggests that the formation permeability was too low to produce any measurable fluid.

### 2.1.3 DST 4

The interval between 3143 to 3162.5m KB was perforated using a 5" tubing conveyed perforating system. Diesel was used as cushion which provided approximately 2300 psi underbalanced pressure during perforation. The well was opened for a 12 minute preflow period during which the wellhead pressure increased to 5 psi. The well was shutin at the choke manifold for one hour and the wellhead pressure increased to 1350 psi. After the preflow - buildup period the well was opened on a  $16/64$ " choke and the wellhead pressure dropped to 0 psi after 6 minutes. The well started to unload the diesel cushion. After 7 hours, when the well had unloaded 33 bbls of diesel, gas reached the surface. The well was opened for a total period of 21.83 hours when it was producing at approximately 0.3 MMSCF/day through a  $16/64$ " choke at a wellhead pressure of 325 psig. The well was shutin downhole for approximately 15 hours (main buildup) before being reopened for a 2.9 hour flow period.

During the second flow period the well produced at a rate of .433 MMSCF/day on  $128/64$ " choke with the wellhead pressure dropping to approximately 35 psi.

The main buildup test was analysed using pan system software. Figure 17 is an overview of DST 4. Figure 18 shows a log-log derivative plot of the buildup data. As can be seen on diagnostic plot there is a short period of transition flow followed by a pseudo steady state period which could be due to the very low permeability characteristic of the formation or a permeability barrier close to the well location.

Figure 19 shows the Horner analysis of the buildup data which indicates a permeability of 0.19 md (assuming a net thickness of 20 ft), a skin factor of 14 and an initial reservoir pressure of 5847 psia (at 3126m KB). Figure 20 shows the type curve analysis of the buildup test which gives a permeability of 0.25 md and skin of 14 which is consistent with the results from the Horner method. In summary, the results of the interpretation of the build-up test are as follows:

Flow Rate	=	0.3 MMSCF/day
WHP	=	325.0
K	=	0.25 md
S	=	14.0
Pi	=	5854 psia (at mid perforation)

The test results show that the formation does not have sufficient permeability to flow at commercial rates even if the skin could be reduced.

The results from DST 1 to 4 show that the Paleocene sands have a very low permeability. While some sands contain gas, due to poor productivity of the formation, they are not commercially significant.

## 2.2 EOCENE TESTS

DST, 5, 5A and 6 were conducted over the selected Eocene sands. The test results show that the tested sands in Pelican 5 do not have sufficient gas reserves and permeability to justify development of the field.

### 2.2.1 DST 5

This test was conducted over the interval between 2869 to 2883m KB within the "F" unit. The test interval was perforated with 5" TCP gun at 3000 psi underbalanced pressure using a 2410m of nitrogen cushion with a surface pressure of 1350 psig. The well was opened on a  $1\frac{1}{8}$ " choke on 30 March 1985. Gas reached to surface after 89 minutes with a wellhead pressure of 210 psi. Fluid reached the surface after 130 minutes. After a total of 170 minutes from the start of the test the well was flowing 100% muddy water. The well was opened to flow for a total of 6 hours before being shutin at the choke manifold for approximately 6.5 hours. The wellhead pressure increased to 790 psig. The well was reopened to flow for 2.167 hours during which the wellhead pressure dropped to 1 psig. The second buildup duration was approximately 8.5 hours during which the wellhead pressure increased to 437 psi. The third flow period took 9.5 hours. After 3.75 hours condensate reached to surface (API = 49 degrees) and after 4.0 hours the well was producing 100% water. A total of 4.75

bbls of water was collected at the surface. A stable flow rate was not obtained, however, the average water rate during this period was about 12 bbls per day. The wellhead pressure at the end of this period was approximately 8 psi.

Figure 21 shows an overview of DST 5. Figures 22 and 23 are the log-log derivative plot of the first and second buildup tests. Both plots suggest that the tests have been dominated by well storage. Figure 24 is a log-log derivative plot of the third buildup data while figure 25 is a Horner plot of the buildup data. The Horner method analysis of the buildup data resulted a permeability of 0.24 md (assuming a net thickness of 23 ft) and a skin of -1.0. The calculated initial reservoir pressure of 4186 psia is ambiguous as the buildup period was very short and a possibility of a second slope due to reservoir heterogeneities can not be rejected. The type curve analysis of the pressure data indicates a permeability of 0.27 and skin of -0.5 (Figure 26).

In summary, DST 5 flowed a minor volume of gas and condensate and then 100% water suggesting that the zone is water bearing. The interpretation of the test data suggests that the formation permeability is very low. The -0.5 skin implies that the well had not been damaged during the drilling and other activities. The test interpretation results can be outlined as follows:

Flowrate	=	12.0 bbls/day
WHP	=	8.0 psig
K	=	0.27 md (for net thickness of 23 ft)
Skin	=	-0.5

### 2.2.2 DST 5A

This test was conducted over the interval between 2855-2860.5m KB within the "F" sand. The interval was perforated with 3000 psi underbalanced pressure with 2½" Enerjet guns on 9 April 1986. During DST 5A there was a weak blow at the surface. When the well was reversed out gas cut water was recovered. There was no pressure data available for this DST. However, based on the well performance during this test it appears that the formation is water bearing and has very poor permeability.

### 2.2.3 DST 6

The test was conducted over the interval between 2786-2790m KB. The test interval was perforated using 2½" Enerjet gun at 2100 psi underbalanced pressure on 10 April 1986. Nitrogen was used as cushion and HP gauge was run to record the bottom hole pressure performance. The well was perforated with the choke manifold at closed position.

The well was opened to flow on a  $1\frac{6}{64}$ " adjustable choke. Gas and condensate reached the surface after 13 and 18 minutes respectively. The well was opened to flow for a total of 9.3 hours at a rate of 3.4 MMSCF/day of gas with a tubing wellhead pressure of 1625 psi for the first flow period. The reported condensate and water production were 448 and 79 bbls/day respectively. The well was shutin downhole for a period of 5.5 hours before being re-opened for the second flow period. The second flow duration was approximately 5 hours during which the well was flowing at a rate of 5.5 MMSCF/day of gas and 441 bbls/day of condensate at a wellhead pressure of 525 psig. The water production increased to 662 bbl/day towards the end of the second flow period.

Figure 27 is an overview of the DST 6. Figure 28 is a log-log derivative plot of the first buildup data. As can be seen in this figure, the derivative plot follows a downward trend which could be due to a gradual increase in transmissibility (the sand could be thickening or the permeability may be improving). Figure 29 is a Horner plot of the buildup data. The Horner method analysis of the buildup test suggests a permeability of 6.6 md and a skin of 6.3. The extrapolation of the pressure data indicates a  $P^*$  of 3995 psi at the gauge depth which was set at 2479m KB (about 307 metres above the formation). Figure 30 is the type curve analysis of the pressure data. Based on the type curve analysis method the formation permeability and skin factor are estimated to be 6.5 md and 6.0 respectively.

Figure 31 is a log-log derivative plot of the second build data. The diagnostic plot of the second build-up data indicates the same behaviour as the first buildup test. The formation permeability and skin factor are estimated to be 6.0 md and 4.0 respectively based on the Horner analysis of the second buildup test (Figure 32). The type curve method estimates a permeability of 6.0 md and a skin of 4.0 (Figure 33). The results of the interpretation can be summarised as follows:

Gas Flowrate	=	5.5 MMSCF/day
Condensate Flowrate	=	441 STB/day
Water Rate	=	662 bbls/day
WHP	=	325 PSIG
K	=	6.0 md
H	=	4 metres
S	=	4.0

The test results shows that the formation does not have sufficient gas reserve (formation water produced during the test), and flow capacity to justify development of the field.

### 3 RFT INTERPRETATION/RESULTS

RFT data from Pelican 4 and 5 were analysed to identify the formation fluid gradient and the formation pressure. The RFT pressure profile suggests that the Paleocene section is probably overpressured significantly. The results also imply that the lower zones in the Eocene section are possibly overpressured.

#### 3.1 PELICAN 5 RFT INTERPRETATION

A summary of the RFT pressure data for Pelican 5 is presented in Table 5 and 6. HP and strain gauges were used in Run 1 while strain gauge was used during Run 2. Figure 34 shows the pressure difference between the HP and the strain gauges during the pretests. Figure 35 exhibits a plot of the initial hydrostatic mud pressure measured with the HP gauge.

Figure 36 is a plot of the formation pressure measured with the HP gauge. The plot shows a profile of the formation pressure versus depth and also the position of the pressure points in relation to the Eocene units (A to G). As can be seen in this figure the pressure points recorded in the A to D units lie on a straight line with a gradient of 0.434 psi/ft equivalent to a fresh water gradient (Line 1). As shown in this plot, the RFT pressure points recorded over the lower units (E to G) lie to the right of the Line 1 indicating an average pressure increase of 164 psi over the initial water line (shown as Line 2). The identified pressure change in the formation pressure profile of the lower units is unlikely to be due to a change in the formation fluid density because the sands in the F unit produced formation water during DST 5 and DST 5A while gas and water was recovered during DST 6, from the E unit, suggesting the intervals proximity to the gas water contact. The shift in the pressure profile could not be related to any gauge problem as both the HP (Figure 36) and strain (Figure 37) gauges have recorded the same pressure behaviour, and also the mud hydrostatic pressure profile (Figure 35) supports that the gauges were functioning well during the RFT survey. This leaves two possible explanations for the pressure increase in the lower units (E to G) of the Eocene section.

**Possibility 1** - Under this scenario, the sands in the lower units could have been supercharged due to their low permeability characteristics. This scenario becomes less likely considering that the RFT pressure profile from Pelican 4 shows exactly the same behaviour (Figure 38).

**Possibility 2** - This is a scenario under which the Eocene sands in the lower units (E to G) could have been overpressured by 164 psi (equivalent to an uplift of 115.0 metres). As shown in Figure 36, a water line (Line 2) with a gradient of 0.434 psi/ft (the same slope as Line 1) can be fitted through the pressure points in the lower units. A gas line was also drawn through the points recorded in the E unit, to show the proximity of the DST 6 interval to the gas water contact.

As can be seen in Figure 36 a few pressure points have been plotted for the paleocene section (and also possibly include a part of the H unit). Some of these RFT points are believed to be fairly reliable as the formation pressure calculated from DST 4 ( $P_i = 5854$  at 3150m KB) reasonably supports this data. A water line (Line 3) with a 0.434 psi/ft gradient (assuming the same gradient as the Line 1 and 2) was drawn through the points indicating a pressure increase of 1240 psi (equivalent to an uplift of 870 metres) from the Line 1. A gas line was also drawn based on DST 4 pressure data.

Figure 37 is the Pelican 5 RFT pressure profile based on the strain gauge data which is consistent with the HP gauge results. No attempt was made to draw any conclusion for the pressure points recorded at the bottom zone (3500 to 3600m KB) as this part has a very low permeability and all the points could have been severely supercharged.

### 3.2 PELICAN 4 RFT INTERPRETATION

Table 8 shows a summary of the Pelican 4 RFT data. A plot of the RFT pressure profile for Pelican 4 is presented in Figure 38. As can be seen in this figure the profile of the formation pressure in Pelican 4 is showing exactly the same behaviour as the RFT pressure profile in Pelican 5 (Figure 36). As shown, the RFT pressure profile follows a gradient slope of 0.434 psi/ft and then a pressure shift (164 psi) to the right (possibly due to the formation being overpressured). Two gas lines were also drawn based on the gas recovery from the RFT samples taken from the D and F sands. Figure 39 exhibits the RFT pressure profile of Pelican 5 data and including Pelican 4 RFT data for comparison.

#### **4 CORE DATA**

A detailed review of the routine core analysis, special core analysis, petrological and petrophysical data is subject to a separate study if warranted. However, a permeability/porosity cross plot of the routine core data, as shown in Figure 40, suggests that at least two reservoir types can be identified in the Eocene section. Based on the present understanding of the Pelican field geological model, the depositional process has controlled the sand quality in the Eocene section. The good quality sand, the shoreface sand, has mostly developed in the upper part of the Eocene units (A & B) around Pelican 1 while the poor quality sand, the channel sand, is present throughout the field.

#### **5 EVALUATION OF THE SAND UNITS**

The sands in the Eocene and Paleocene sections have been studied based on the FIT, RFT and DST results. A complete evaluation of these sands will require a detailed petrophysical, geological, geophysical and reservoir engineering input. However, undertaking such a comprehensive study will depend on the usefulness of the results in the evaluation of the other prospects within the permit.

##### **5.1 EOCENE SANDS**

The enclosed map exhibits a schematic structural cross section over the Eocene zones. The map shows at least eight correlatable units can be identified in the Eocene section (A to H).

##### **5.1.1 Unit A**

The attached map shows a correlation for sand development in this unit. The only gas recovery from Unit A was from FIT 5 conducted at 2473.5m KB (Table 1) in Pelican 1 (at the top of the sand) which recovered 26.5 cu.ft of gas, 1,000 cc of condensate and 10,000 cc of mud filtrate as shown in Table 1, Figure 4 and Figure 5 (the high pressure draw down recorded during the sampling suggests that the sand permeability is very low at this depth). However, FIT 5 conducted at 2480.0m KB (approximately 6.5 metres deeper than FIT 4) in Pelican 1 recovered 21,500 cc of water (Table 1 and Figure 4) suggesting that the gas zone in this sand is very limited. Also, there were no significant hydrocarbon shows in unit A at the other well locations to suggest that the gas zone in Pelican 1 is extensive. The Pelican 5 RFT pressure profile (Figure 36) indicates that unit A is water bearing (log data shows a very high shale content for this unit at Pelican 5). It should be noted that the open hole logs and mud logs from Pelican 2 and Pelican 4 did not indicate significant hydrocarbon shows in this unit to warrant any requirement for running FIT or RFT over the sands.

In summary the only gas accumulation in this unit is limited to the top part of the sand intersected in Pelican 1 which is likely to be localised and commercially insignificant.

### 5.1.2 Unit B

Gas and condensate was recovered from Unit B only at Pelican 1 in this unit. FIT 21 conducted at 2550.3m KB recovered 139.0 cu.ft of gas and 6,000 cc of condensate (Table 1 and Figure 4). FIT 2 (2586.0m KB) recovered 118.0 cu.ft of gas, 2500 cc of condensate and 7,500 cc of mud filtrate (Table 1, Figures 4 and 5). FIT 3 conducted at 2550.3m KB (the same depth as FIT 21) recovered 108.0 cu.ft of gas, 3250 cc of condensate and 6250 cc of water (Table 1 and Figure 4). The FIT 3 water sample was reported to have a resistivity of 1.02 ohm-m at 78.0°F which is close to the resistivity of the formation water (Figure 5). However, the measurement is suspect as no formation water was produced during FIT 2 and 21. It is worthwhile to note that both the FIT pressure data and core data suggest that the unit B sands at Pelican 1 have very good permeability. However, neither the gas zones (in unit B) nor the good quality sands at Pelican 1 appear to have extended to the other well locations.

Unit B at Pelican 4 and 5 contain a high volume of shale with minor sand development. The RFT data recorded in Unit B at Pelican 5 and 4 (Tables 6 and 8) lies on the water line on the RFT pressure plots (Figures 36 and 38) suggesting the sands are water bearing at these well locations. The open hole logs and mud logs from Pelican 2 do not indicate any significant gas shows (no RFT or FIT were run over the B unit in Pelican 2).

In summary a good quality sand containing rich gas exists in Unit B at the Pelican 1 location. However, neither the gas zone nor the good permeability sands extend to the other well locations suggesting that the gas reserves in unit B are not commercially significant.

### 5.1.3 Unit C

This unit appears to contain a high volume of shale which have been seen at all well locations. The open hole logs and mud logs from Pelican 1 through 5 do not indicate any significant hydrocarbon shows. The RFT pressure profiles from Pelican 5 (Figure 36) and Pelican 4 (Figure 38) suggest this unit is water bearing. One fluid sample was taken from this unit at Pelican 1. FIT 20 conducted at 2633.5m KB recovered 22,000 cc of mainly mud filtrate (Table 1, Figures 4 and 5) with no hydrocarbons. The FIT pressure data suggests that the sand has good permeability at the sample depth.

In summary no hydrocarbon was recovered from Unit C and the available data suggests this unit is water bearing.

#### 5.1.4 Unit D

Gas and condensate were recovered from Unit D at Pelican 1 and 4. In Pelican 1, FIT 19 conducted at 2738.7m KB recovered 69.8 cu.ft of gas, 1,000 cc of condensate and 1,750 cc of water (Table 1 and Figure 4). The resistivity of the water sample was not reported, however the produced water is expected to be mud filtrate as it is a relatively small quantity. The reported FIT pressure data suggests that the formation permeability at the sampled depth is good.

In Pelican 2, FIT 2-1 conducted at 2788.6m KB recovered 1600 cc of mud filtrate (Table 2, Figures 6 and 7) suggesting that the gas zone in Pelican 1 does not extend to this location. The high pressure drawdown recorded during FIT 2-1 suggests that the formation permeability is very poor at this location.

In Pelican 4, FIT 1 conducted at 2739.5m KB recovered 47.7 cu.ft of gas, 1500 cc of condensate and 13000 cc of mud filtrate (Table 3, Figures 8 and 9). The pressure data implies that the formation permeability at the FIT 2 location is very poor. The Pelican 4 RFT data recorded within the D unit lies slightly to the right of the water line on the RFT pressure profile (Figures 38 and 39). This could suggest the presence of a small gas column in the Pelican 4 region.

No fluid sample was taken from the D unit at Pelican 5 as the open hole log results did not indicate any significant hydrocarbon shows for this unit at this location. The RFT pressure data recorded within the D unit lies close to the water line (slightly to the right probably due to a supercharged effect) suggesting that the sand is water bearing at this location (while a possibility of the presence of a very small gas column can not be totally rejected).

In summary, the gas column encountered in Pelican 1 does not extend to the Pelican 2 and 5 locations while the gas sample recovered from Pelican 4 appears to belong to a small gas column within the well region. The formation permeability in this unit, with the exception of Pelican 1, is expected to be low.

### 5.1.5 Unit E

Fluid samples were taken from the E unit at all the Pelican wells. In Pelican 1, FIT 17 conducted at 2794.1m KB recovered 1750 cc of water (Table 1 and Figure 4) which probably contained some formation water (Figure 5).

In Pelican 2, FIT 1-1 was run to a depth of 2879.5m KB and collected 37.0 cu.ft of gas with 750 cc of condensate and 13000 cc of mud filtrate (Table 2, Figure 6 and Figure 7).

In Pelican 4, RFT 1 and 2, and, FIT 1 and 2 conducted over the E unit recovered mainly mud filtrate and negligible gas and condensate volumes (Table 3, Figure 8 and Figure 9). The sample result is consistent with the RFT pressure data recorded within the E unit which lies on the water line on the RFT pressure plot (Figures 38 and 39).

In Pelican 5, RFT 4 conducted at 2788.2m KB recovered 38.4 cu.ft of gas, 400 cc condensate and 5000 cc of water (Table 4 and Figure 10). The recovered water sample is interpreted to be mainly formation water as shown in figure 11 (RFT 1 also recovered 9500 cc of mainly formation water from a depth of 2788.3m KB). The RFT sample result is supported by the RFT pressure data which lies to the right of the water line on the RFT pressure plot (Figure 36) suggesting the presence of a small gas column. The RFT pressure data and sample results are consistent with the DST 6 performance (conducted over a 4 metre interval between 2786 to 2790m KB) which flowed 5.5 MMSCFD of gas with 441 BPD of condensate and 662 bbls of water per day, as shown in Table 5, suggesting the test interval is close to the gas water contact.

The FIT and RFT pressure data recorded during the sampling of Pelican 1, 2, 4 and 5 suggest that the formation permeability is low in this unit. This is supported by the DST 6 results which indicate a low flow capacity (78.0 md ft).

In summary, small gas zones exist around Pelican 2 and 5 do not extend to Pelican 1 and 4. The gas zones in the E unit are very similar to those in the D unit, localised accumulations which are commercially insignificant.

### 5.1.6 Unit F

As shown on the attached cross sectional map, a major sand, developed in the F unit, extends throughout the Pelican Field. FIT and RFT fluid samples were taken from this sand at Pelican 1 to 5 to identify the formation fluid type.

In Pelican 1, the FIT 15 and FIT 16 samples, taken from 2872.5m KB and 2858.4m KB, recovered 1600 cc and 5500 cc of water respectively (Table 1 and Figure 4). The water samples are interpreted to contain formation water as demonstrated in Figure 5.

In Pelican 2, FIT 3-4 conducted at 2958.4m KB recovered a very small volume of gas (3.7 cu.ft) and 16300 cc of water (Table 2 and Figure 6) while the fluid recoveries from FIT 3-6 (taken at 2982.5m KB) and FIT 3-8 (taken at 2982.2m KB) were 3400 cc and 5300 cc of water respectively and only negligible quantities of gas (Table 2 and Figure 6). The nature of the water samples cannot be precisely identified as there is not enough contrast between the resistivity of the formation water and the mud filtrate in this well.

In Pelican 4, an RFT sample taken at 2884.7m KB recovered 69.5 cu.ft of gas, 900 cc of condensate and 11400 cc of mud filtrate (Table 3, Figure 8 and Figure 9). The Pelican 4 RFT pressure data, recorded within the D unit, lies slightly to the right of the water line on the pressure plot (Figures 38 and 39). The proximity of the RFT data to the water line supports the presence of only a small gas column at this location.

In Pelican 5, RFT 2 and RFT 3 conducted at 2881 and 2882m KB recovered 6500 cc and 9500 cc of water respectively and no hydrocarbons. The water samples are interpreted to be formation water. The Pelican 5 RFT pressure data, recorded within the F unit, lies on the water line on the RFT pressure plot (Figure 36) suggesting the presence of a water zone, which supports the sample results. This is consistent with the results from DST 5 (and also DST 5A), conducted over an interval between 2869 to 2893m KB, which flowed water at a rate of 12 bbls per day (Table 5).

The sampling pressure data (FIT and RFT) recorded in Pelican 1, 2, 4 and 5 suggests that the formation permeability in the F unit is low. This is supported by the Pelican 5 DST 5 results which indicate a low flow capacity (6.2 md ft) for this sand. The core data (Pelican 5 Core 2 and 3) also shows a low permeability for this sand at the Pelican 5 location (with the exception of a very thin zone).

In summary, the gas zone intersected in Pelican 4 does not extend to the other well locations. The gas zone in this unit is similar to the other units which is limited to some localised accumulations which are non-continuous and commercially insignificant.

### 5.1.7 Unit G

There was not any significant hydrocarbon shows within Unit G section at the existing well locations. In Pelican 1, FIT 11 conducted at 3004.8m KB recovered 4800 cc of water (Table 1 and Figure 4). The recovered water sample is interpreted to contain formation water (Figure 5).

The Pelican 2, FIT 3-3 and FIT 3-7 conducted at 3019.4 and 3018m KB recovered 2100 cc and 4400 cc of water and negligible quantities of gas (Table 2 and Figure 6). The water sample is interpreted to contain formation water (Figure 7).

No fluid sample was taken from this unit at Pelican 4 and 5, however, the open hole logs and mud logs did not indicate any significant hydrocarbon shows for this unit.

In summary, the hydrocarbon indicators used in the Pelican wells do not suggest any significant shows for this unit.

### 5.1.8 Unit H

There was only one FIT sample, taken at Pelican 1 from Unit H. FIT 13 conducted at 3060.5m KB recovered 21000 cc of water (Table 1) and a minor quantity of gas. The recovered sample is interpreted to contain formation water based on the reported water resistivity (Table 1). Also, the open hole logs and mud logs did not indicate any significant hydrocarbon shows for this unit.

## 5.2 PALEOCENE SANDS

This section was fully evaluated in Pelican 5 where five cased hole DSTs were conducted over the selected zones. Table 5 shows a summary of the DST results. During DST 1, 2, 2A (conducted over the intervals 3672-3699, 3607-3619 and 3611-3617m KB) there were no indication of flow, suggesting the test intervals were impermeable. DST3 tested an interval between 3440-3451m KB reversed out gas cut mud and indicated very poor formation permeability. DST 4 conducted at the top of Paleocene section over an interval between 3143-3162.5m KB flowed gas at a rate of 0.433 MMSCFD with a well head flowing pressure of 35 psig. The formation permeability was estimated to be 0.25 md with a skin of 14. This indicates that the formation does not have sufficient permeability to flow at a commercial rate even if the skin could be removed.

In Pelican 1, FIT 8 conducted at 3161.4m KB recovered 37.8 cu.ft of gas and 550 cc of condensate. The pressure drawn down recorded during the sampling suggests that the formation permeability is low.

In summary, a gas zone was found in a thin sand at the top of the Paleocene at Pelican 1 and 5. The extent and continuity of this small gas zone is not defined, however, the Pelican 1 FIT and Pelican 5 DST pressure data suggest that the formation flow capacity is not sufficient to produce gas at a commercial flow rate.

**CONCLUSION**

The evaluation of the sands in the Pelican Field suggests that the gas zones in this field are non-extensive and are limited to small, localised accumulations. Under a possible scenario this could have been due to lack of major structural seals (a leaking fault) during hydrocarbon migration into the field where gas could have only been trapped in localised sands (such as Unit B at Pelican 1) and small culminations (such as Unit F in Pelican 4). Some low gas saturation zones could have also been formed due to capillary pressure effect (such as Unit F in Pelican 2).

The study shows that the small gas zone in Unit A is limited to the Pelican 1 area. The gas zone found in Unit B at Pelican 1 does not extend to the other well locations. No gas zone was found in Unit C. The gas zones found in Unit D at Pelican 1 and 4 appears to be localised. The small gas zones encountered in Unit E at Pelican 2 and 5 are likely to be limited to the well regions. The small gas zone in Unit F intersected by Pelican 4 does not extend to the other well locations. No significant hydrocarbons were found in Unit G and H. The thin gas zone at top of the Paleocene section has a very poor permeability.

In summary, a number of small, localised gas accumulations exists in the Pelican Field. However, due to lack of continuity of these zones, insufficient gas reserves and the low permeability characteristic of most of the sands, development of this field will not be economic.

506027

**PELICAN #1 FIT SAMPLES**

SAMPLES NO.	DEPTH m KB	SAND TYPE	VOLUME gal	PRESSURE			RECOVERY					REMARKS	
				FLOWING psig	FINAL psig	SURFACE psig	GAS Cu Ft	COND. CC	WATER CC	WATER RESISTIVITY			
										ohm-m	@ oF		
FIT #1	2608.2												MISRUN
FIT#2	2586.0	B	5.90	3680.0	3710.0	2400.0	118.00	2500.0	7500.0	1.560	79.0		
FIT #3	2550.3	B	5.90	3040.0	3530.0	2200.0	108.00	3250.0	6250.0	1.020	78.0		
FIT #4	2480.0	A	5.90	3660.0	3660.0	0.0	0.00	0.0	21500.0	1.280	78.0		
FIT#5	2473.5	A	5.90	34.0	1140.0	950.0	26.50	1000.0	10000.0	1.600	74.0		
FIT #6	2595.4		5.90	0.0	3600.0	0.0	0.00	0.0	125.0	1.910	73.0		
FIT #7													MISRUN
FIT #8	3161.4		5.90	500.0	5900.0	2900.0	37.80	550.0	0.0				
FIT #9	3058.1												MISRUN
FIT #10	3061.7												MISRUN
FIT #11	3004.8	G	5.90	100.0	5100.0	0.0	0.00	0.0	4800.0	1.230	70.0		
FIT #12	2887.7		5.90	200.0	4350.0	600.0	0.00	0.0	21000.0	1.560	70.0		
FIT #13	3060.5	H	5.90	4500.0	5500.0	600.0	3.20	0.0	21000.0	1.270	70.0		
FIT #14	2871.9	F	5.90										DRY TEST
FIT #15	2872.5	F	5.90	0.0	4500.0	0.0	0.40	0.0	1600.0	1.080	90.0		
FIT #16	2858.4	F	5.90				0.00	0.0	5500.0	1.220	90.0		
FIT #17	2794.1	E	5.90	100.0	4250.0		0.00	0.0	1750.0	1.310	80.0		
FIT #18	2775.8	E	5.90	100.0			0.00	0.0	230.0				
FIT #19	2738.7	D	5.90	3950.0	4100.0	1200.0	69.80	1000.0	1750.0				
FIT #20	2633.5	C	5.90	2950.0	3950.0	0.0	0.00	0.0	22000.0	1.430	70.0		
FIT #21	2550.3	B	5.90	3740.0	3760.0	1600.0	139.00	6000.0	0.0				

TABLE 1

506028

**PELICAN #2 FIT SAMPLES**

SAMPLES NO.	DEPTH m KB	SAND TYPE	VOLUME gal	PRESSURE			RECOVERY					REMARKS
				FLOWING psig	FINAL psig	SURFACE psig	GAS Cu Ft	COND. CC	WATER CC	WATER RESISTIVITY		
										ohm-m	@ oF	
FIT #1-1	2879.5	E	5.90	500.0	4600.0	1000.0	37.00	750.0	13000.0	1.410	60.0	
FIT #1-2	2838.3											MISRUN
FIT #2-1	2788.6	D	5.90	100.0	3800.0		0.00	0.0	1600.0	1.400	58.0	
FIT #3-1	3050.1		5.90	250.0			0.00	0.0	50.0			
FIT #3-2	2982.2	F	5.90	250.0			0.00	0.0	50.0			
FIT #3-3	3019.4	G	5.90	100.0	4700.0	0.0	0.40	0.0	2100.0	1.310	58.0	
FIT #3-4	2958.4	F	5.90	500.0	4700.0	300.0	3.70	0.0	16300.0	1.610	56.0	
FIT #3-5	3049.9		5.90	200.0								TOOL STUCK
FIT #3-6	2982.5	F	5.90	200.0			0.60	0.0	3400.0	1.230	70.0	
FIT #3-7	3018.8	G	5.90	200.0	4950.0	0.0	1.70	0.0	4400.0	1.330	72.0	
FIT #3-8	2982.2	F	5.90	250.0	4800.0	0.0	0.60	0.0	5300.0	1.390	62.0	

TABLE 2





506031

**PELICAN #5**  
**DST SUMMARY**

TEST	DEPTH METRES KB	CHOKE SIZE INCHES	FLOW PERIOD HRS	AVERAGE FLOW			AVERAGE FWHP PSIG	AVERAGE FBHP PSIG	NET THICKNESS FT	PERM. K MD	SKIN DAMAGE
				GAS MMSCF/D	OIL/COND. STB/DAY	WATER BBL/DAY					
<b>DST#1</b>	3672 - 3699	<i>- NO INDICATION OF FLOW. FORMATION IS TIGHT.</i>									
<b>DST#2</b>	3607 - 3619	<i>- NO INDICATION OF FLOW. FORMATION IS TIGHT.</i>									
<b>DST#2A</b>	3611 - 3617	<i>- NO INDICATION OF FLOW. FORMATION IS TIGHT.</i>									
<b>DST#3</b>	3440 - 3451	<i>- NO MEASURABLE FLOW. REVERSED OUT GAS CUT MUD. FORMATION HAS A VERY POOR PERMEABILITY.</i>									
<b>DST#4</b>	3143 - 3162.5										
(FLOW #1)		16/64"	21.83	0.30	-	-	325.0	967.0	20.0	0.25	14.00
(FLOW #2)		128/64"	2.90	0.43	-	-	35.0	366.0	20.0		
<b>DST#5</b>	2869 - 2883										
(FLOW #3)		128/64"	9.50	-	-	12.00	8.0	3850.0	23.0	0.27	-0.50
<b>DST#5A</b>	28855 - 2860.5	<i>- NO FLOW TO SURFACE. REVERSED OUT GAS CUT WATER. FORMATION HAS A VERY LOW PERMEABILITY.</i>									
<b>DST#6</b>	2786 - 2790										
(FLOW #1)		24/64"	9.30	3.40	448.00	79.00	1625.0	2488.0	13.0		
(FLOW #2)		96/64"	5.00	5.50	441.00	662.00	525.0	1550.0	13.0	6.00	4.00

TABLE 5

**PELICAN #5 RFT DATA****SUITE #2 (RUN 1)**

TEST NO	DEPTH m kb	HYDROSTATIC PRESSU		FORMATION PRESSUR	
		HP	STRAIN	HP	SG
		psia	psig	psia	psig
4	2424.0	3959.0	3949.0	3543.1	3531.0
5	2430.5	3988.0	3978.0	3552.7	3539.0
6	2440.0	4000.0	3979.0	3566.8	3554.0
7	2445.0	3992.0	3983.0	3573.8	3560.0
8	2448.0	3992.0	3976.0	3576.4	3564.0
9	2466.5	4023.0	4009.0	3606.7	3592.0
11	2476.0	4054.0	4038.0	3623.9	3609.0
13	2535.5	4134.0	4119.0	3702.1	3686.0
14	2538.5	4137.0	4121.0	3705.2	3691.0
15	2541.5	4161.0	4143.0	3709.7	3695.0
16	2548.0	4168.0	4152.0	3718.9	3704.0
17	2617.0	4262.0	4247.0	3819.9	3805.0
18	2623.0	4270.0	4256.0	3821.5	3809.0
19	2651.0	4304.0	4289.0	3926.0	3913.0
20	2650.5	4314.0	4299.0	3883.0	3868.0
27	2744.0	4462.0	4443.0	4040.0	4026.0
28	2748.0	4445.0	4430.0	4025.8	4011.0
30	2786.5	4578.0	4498.0	4170.6	4155.0
33	2789.0	4533.0	4512.0	4246.5	4213.0
34	2788.5	4523.0	4507.0	4170.3	4156.0
38	2787.0	4600.0	4585.0	4176.1	4162.0
43	2819.0	4556.0	4538.0	4283.5	4269.0
44	2822.5	4549.0	4535.0	4317.0	4325.0
50	2857.5	4613.0	4597.0	4347.5	4332.0
51	2858.5	4623.0	4611.0	4344.5	4330.0
53	2427.0		3919.0		3930.0
57	2873.5		4628.0		4558.0
58	2876.5		4624.0		4343.0
62	2912.5		4707.0		4417.0
75	2740.5	4430.0	4410.0	4108.0	4091.0
77	2750.0	4403.0	4384.0	4024.2	4010.0
78	2742.0	4390.0	4372.0	4043.0	4027.0
81	2787.0	4461.0	4440.0	4181.1	4162.0
82	2789.5	4467.0	4448.0	4215.0	4197.0
83	2816.5	4533.0	4513.0	4362.7	4354.0
84	2819.5	4513.0	4483.0	4354.0	4353.0
85	2822.5	4519.0	4491.0	4366.0	4348.0
86	2855.0	4604.0	4577.0	4357.0	4342.0
87	2858.0	4576.0	4556.0	4332.6	4316.0
90	2859.5	4565.0	4548.0	4545.5	4329.0
94	2873.8		4580.0		4460.0
96	2877.0	4604.0	4579.0	4366.3	4348.0
97	2879.0	4608.0	4587.0	4366.0	4349.0
98	2881.0	4608.0	4589.0	4375.8	4355.0
99	2883.0	4609.0	4589.0	4353.0	4333.0
105	2890.5	4626.0	4605.0	4352.3	4336.0
106	2891.5	4614.0	4595.0	4446.0	4430.0
107	2914.0	4683.0	4659.0	4460.5	4441.0
109	2919.5	4670.0	4646.0	4451.8	4432.0
115	2882.0		4540.0		4341.0
118	2788.2		4221.0		4224.0

TABLE 6-

**PELICAN #5 RFT DATA****SUITE #3 (RUN 1)**

TEST NO	DEPTH m kb	HYDROSTATIC PRESSU		FORMATION PRESSUR	
		HP	STRAIN	HP	SG
		psia	psig	psia	psig
4	3021.5	7588.0	7587.0	5659.0	5659.0
5	3022.0	7593.0	7588.0	5634.0	5627.0
6	3108.0	7802.0	7804.0	5582.0	5571.0
8	3157.4	7920.0	7921.0	6203.0	6187.0

**SUITE #3 (RUN 2)**

TEST NO	DEPTH m kb	HYDROSTATIC PRESSU		FORMATION PRESSUR	
		HP	STRAIN	HP	SG
		psia	psig	psia	psig
2	3617.0		9092.0		9040.0
3	3616.0		9066.0		9029.0
8	3592.5		8966.0		8808.0
9	3586.7		8945.0		8680.0
10	3587.0		8941.0		8643.0
11	3592.7		8973.0		8880.0
15	3510.0		8743.0		8585.0
20	3508.0		8770.0		8623.0
21	3108.0		7803.0		5652.0

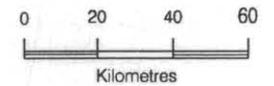
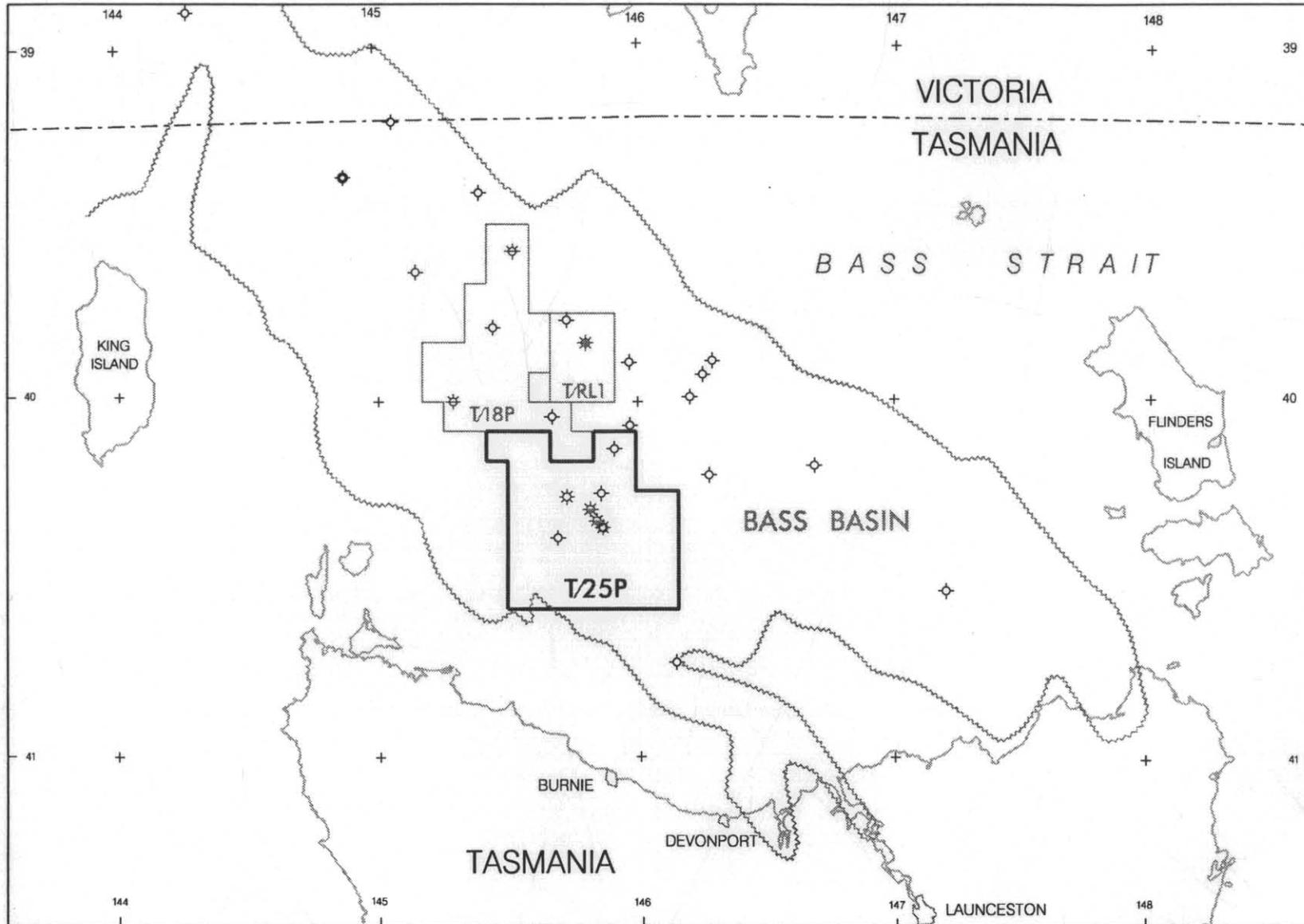
TABLE 7

**PELICAN #4 RFT DATA****RUN 1,2 & 3**

TEST NO	DEPTH m kb	HYDROSTATIC PRESSURE		FORMATION PRESSURE	
		HP	STRAIN	HP	SG
		psia	psig	psia	psig
	2619.0				3694.0
	2574.1				3742.0
	2580.9				3783.0
	2643.3				3833.0
	2675.6				3895.0
	2692.0				3905.0
	2705.4				3907.0
	2734.1				4027.0
	2767.9				4087.0
	2796.3				4232.0
	2822.8				4246.0
	2824.0				4253.0
	2793.2				4270.0
	2888.9				4382.0
	2884.7				4388.0
	2895.6				4405.0
	2857.8				4489.0
	2970.9				4886.0
	3024.3				6128.0
	3023.7				6155.0

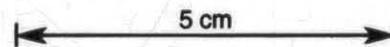
**TABLE 8**

506035



BASS BASIN - TASMANIA

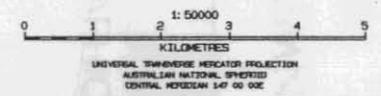
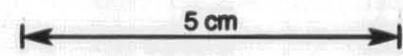
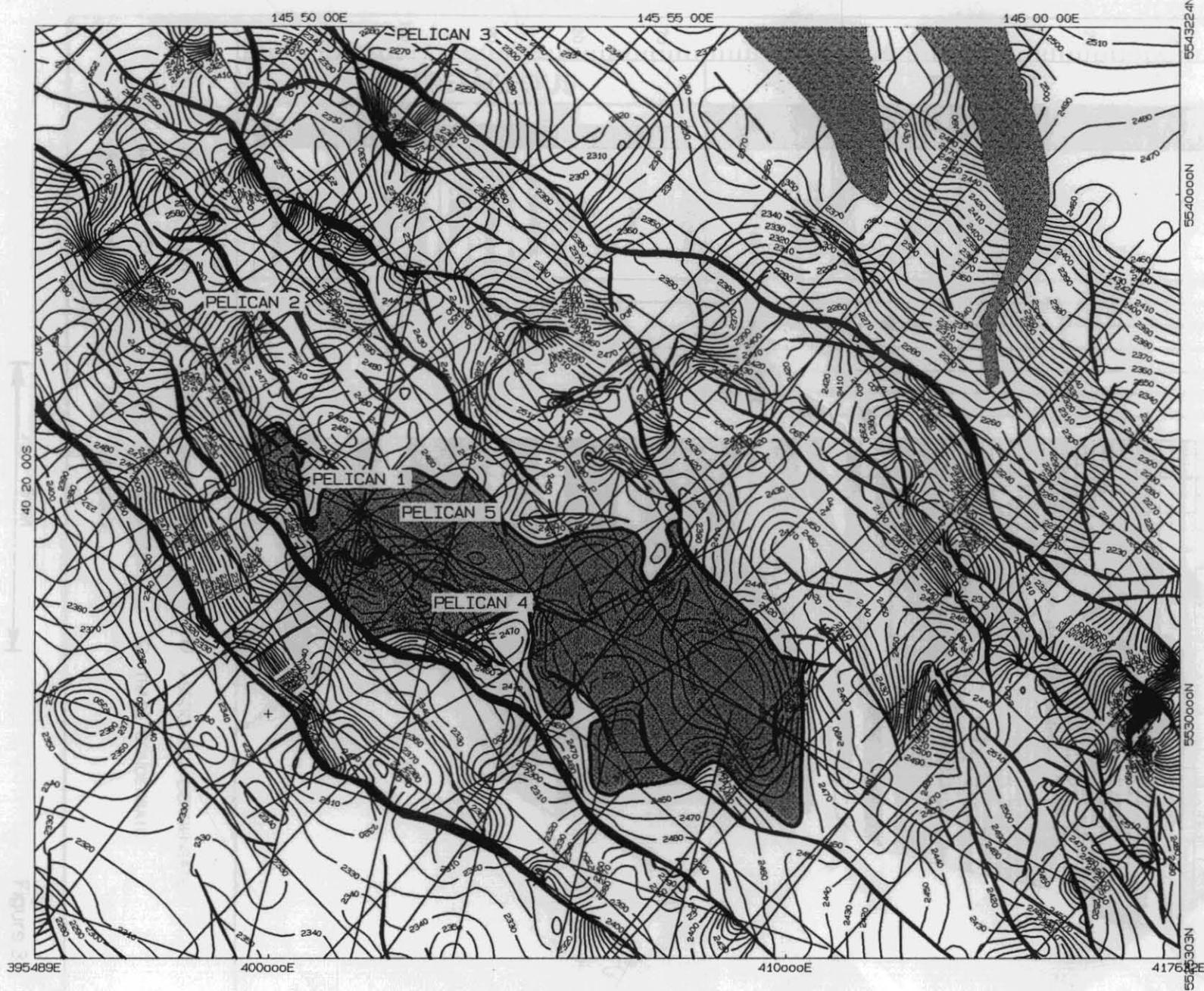
**T/25P**  
**LOCATION MAP**



No: 10822.0794

Figure 1

506036



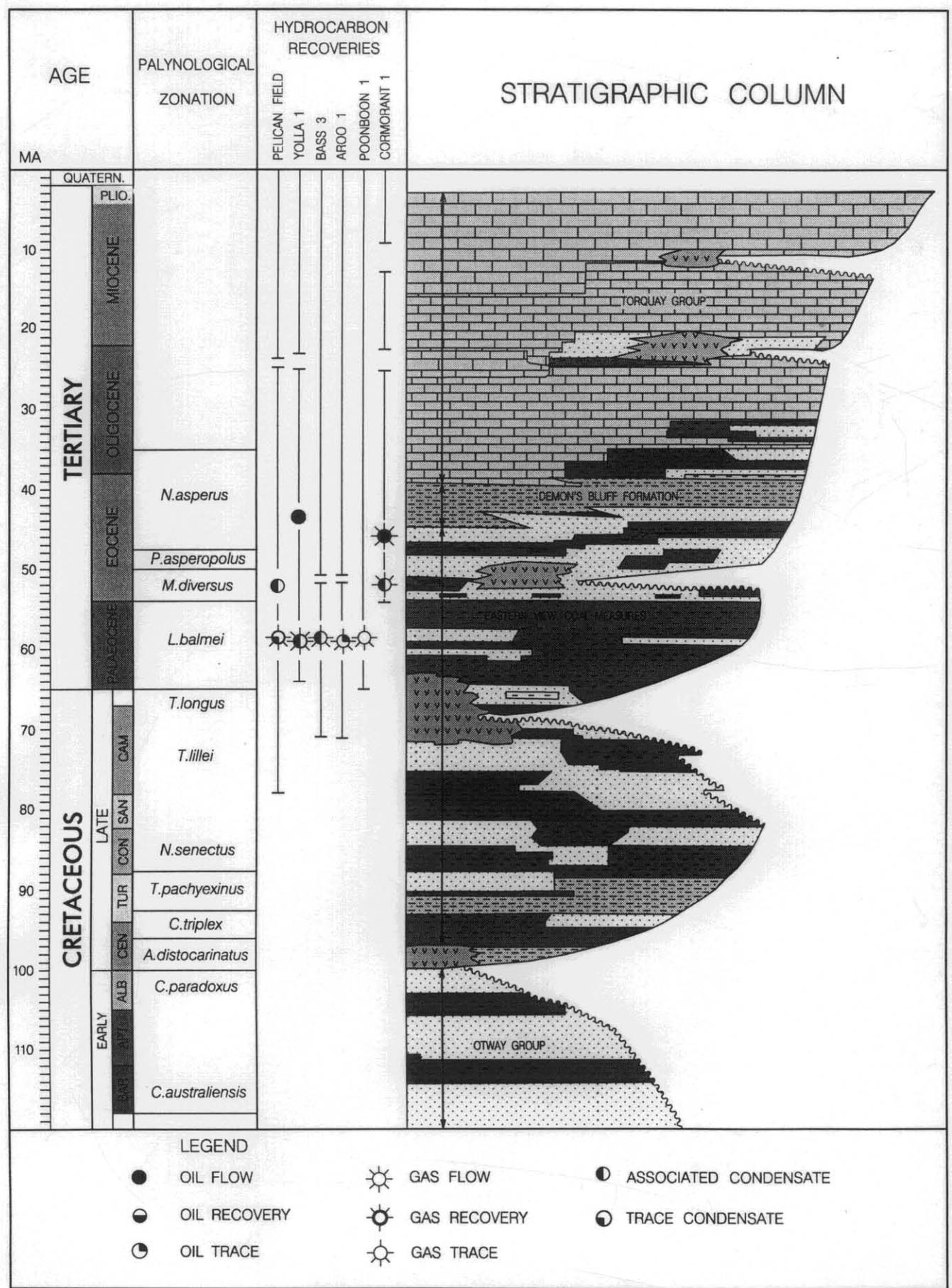
**BORAL ENERGY**

PERMIT T/25P, TASMANIA  
PELICAN FIELD  
TOP MIDDLE M. DIVERSUS  
DEPTH STRUCTURE  
(METRES)

Author:	Drawn:	Reviewed:
Checked by:	Checked by:	Checked by:
Date:	Date:	Date:
Drawn by:	Checked by:	Reviewed:

FIGURE 2

# BASS BASIN - TASMANIA STRATIGRAPHIC COLUMN



- LEGEND
- OIL FLOW
  - OIL RECOVERY
  - ◐ OIL TRACE
  - ☀ GAS FLOW
  - ☀ GAS RECOVERY
  - ☀ GAS TRACE
  - ◐ ASSOCIATED CONDENSATE
  - ◐ TRACE CONDENSATE

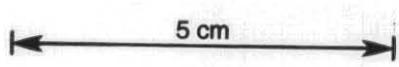


Figure 3

500008

# PELICAN #1 FIT SAMPLES GAS & WATER RECOVERY

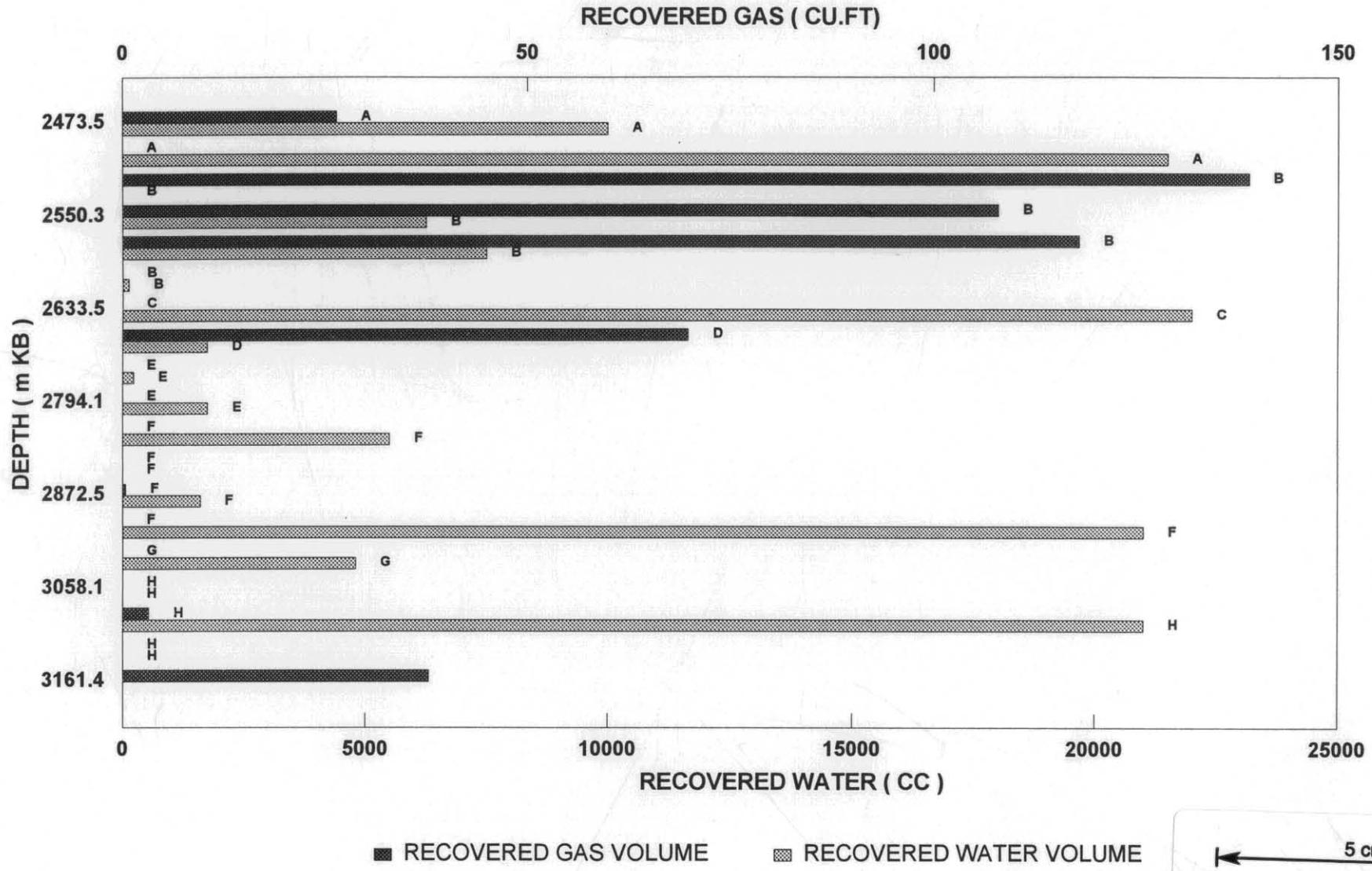


FIGURE 4

# PELICAN #1

## FIT SAMPLES ( WATER RESISTIVITY )

506039

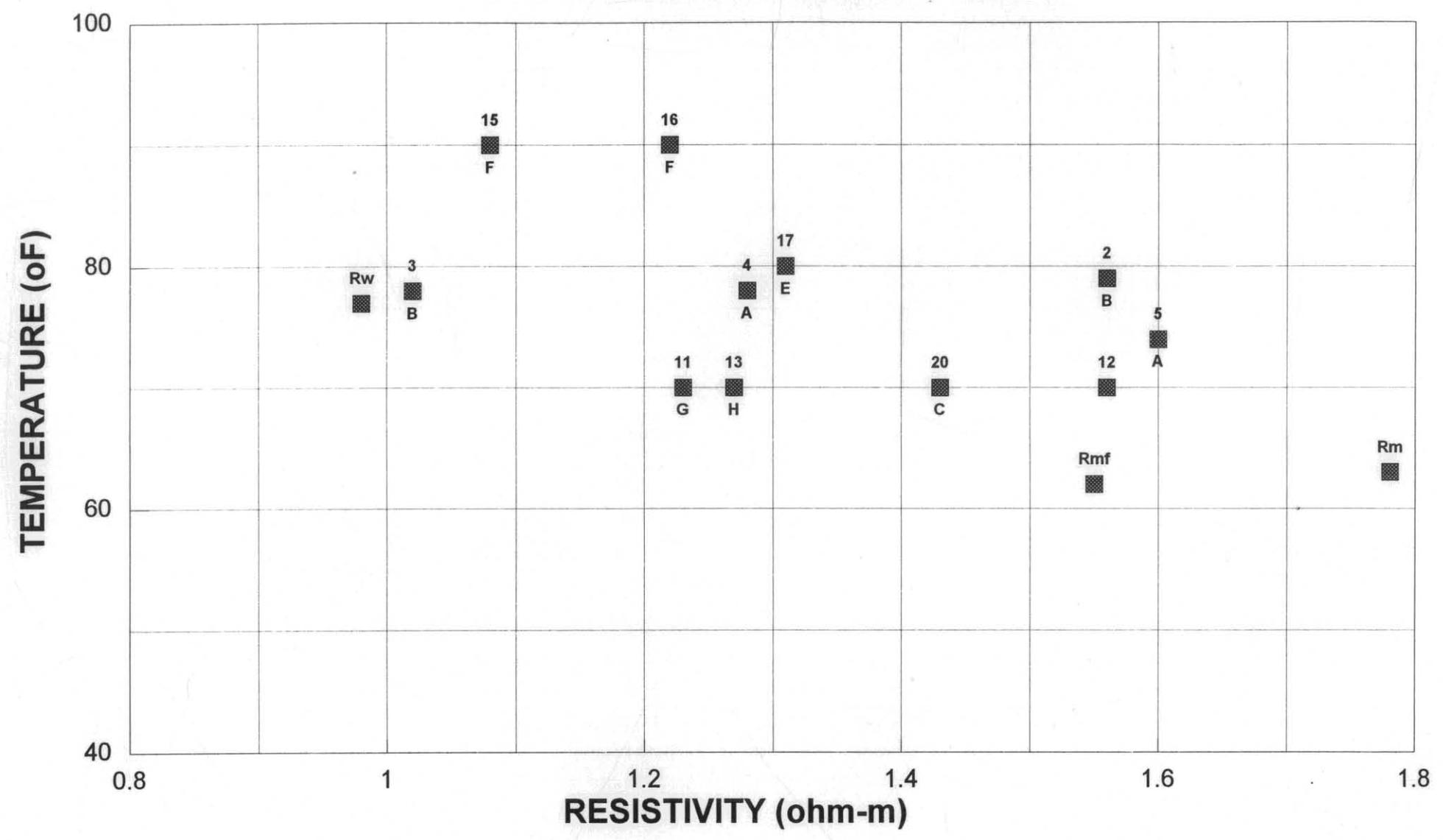
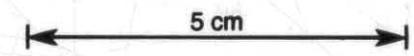
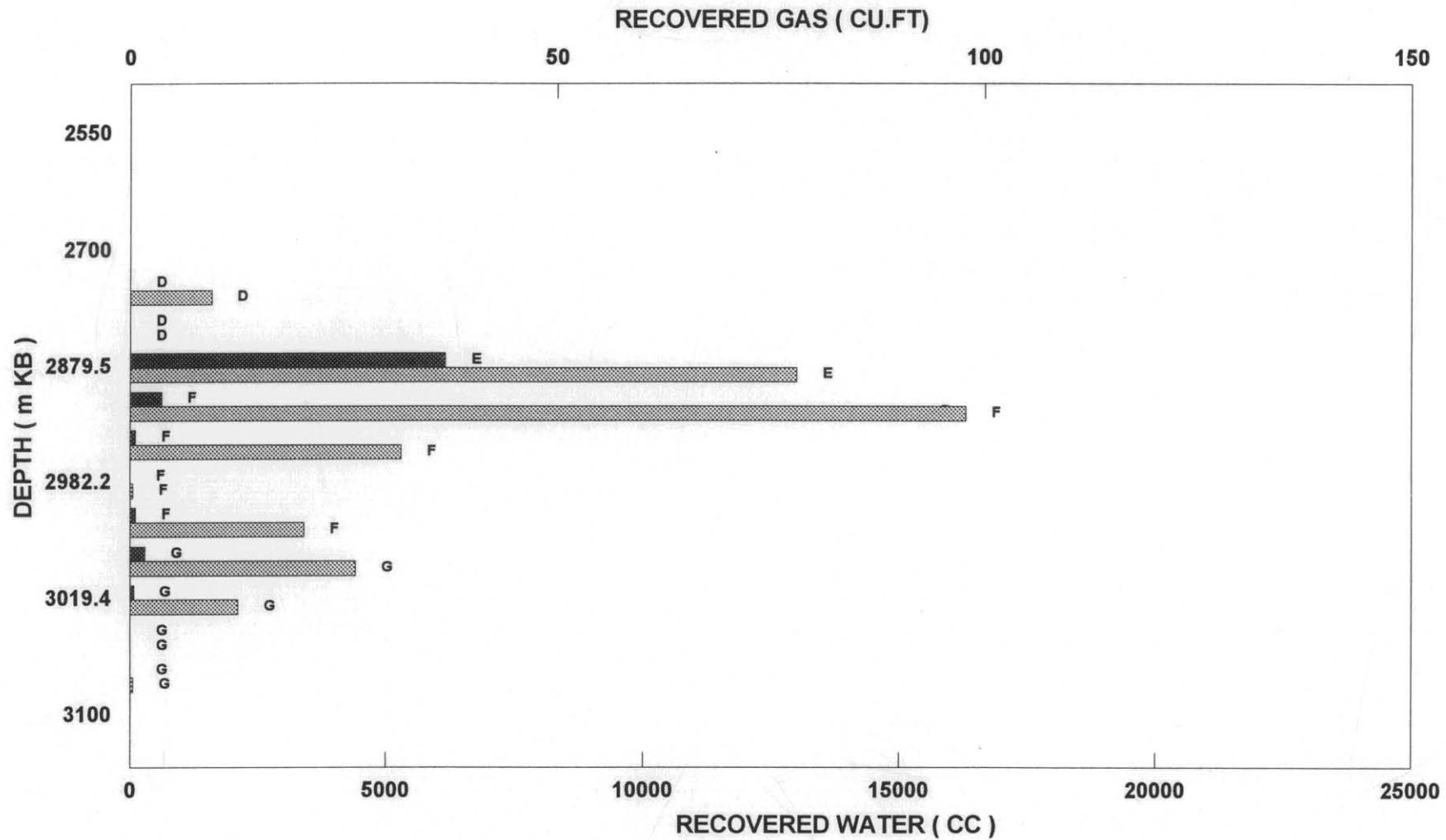


FIGURE 5



506040

# PELICAN #2 FIT SAMPLES GAS & WATER RECOVERY



5 cm

■ RECOVERED GAS VOLUME    ▨ RECOVERED WATER VOLUME

FIGURE 6

**PELICAN #2**  
**FIT SAMPLES (WATER RESISTIVITY)**

506041

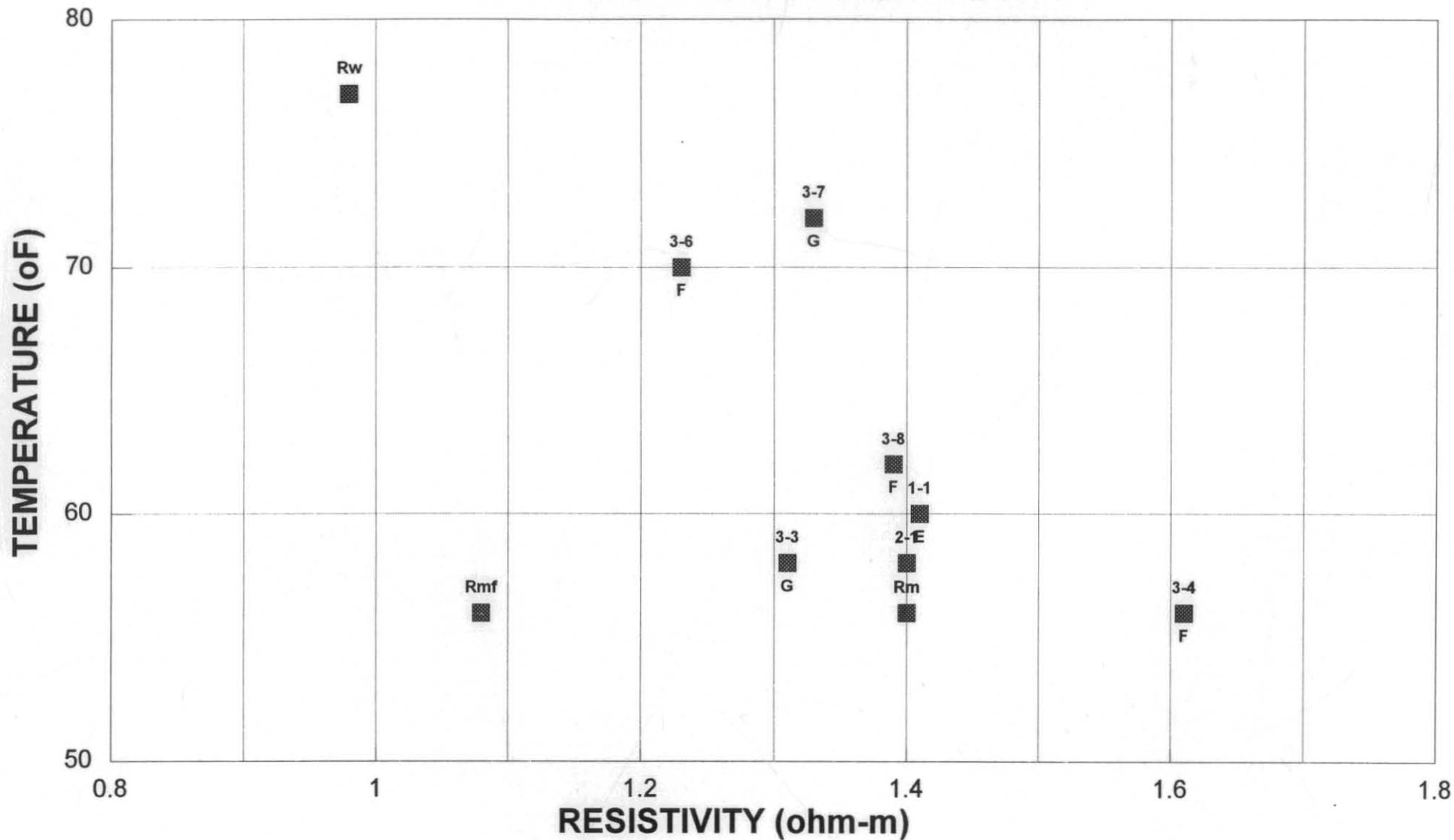
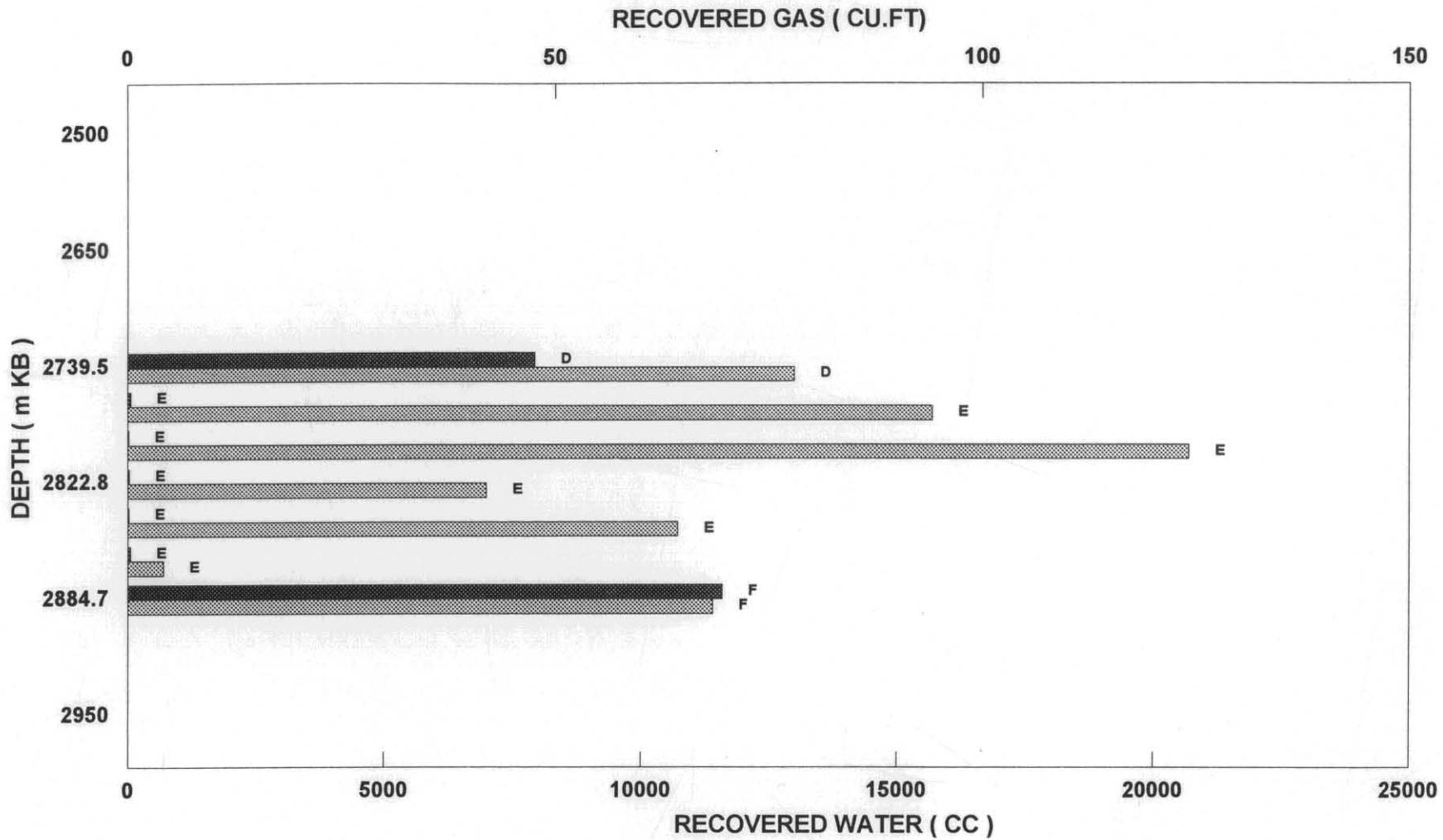


FIGURE 7

5 cm

# PELICAN #4 RFT & FIT SAMPLES

## GAS & WATER RECOVERY



5 cm

■ RECOVERED GAS VOLUME      ▨ RECOVERED WATER VOLUME

FIGURE 8

# PELICAN #4

## RFT & FIT SAMPLES ( WATER RESISTIVITY )

506043

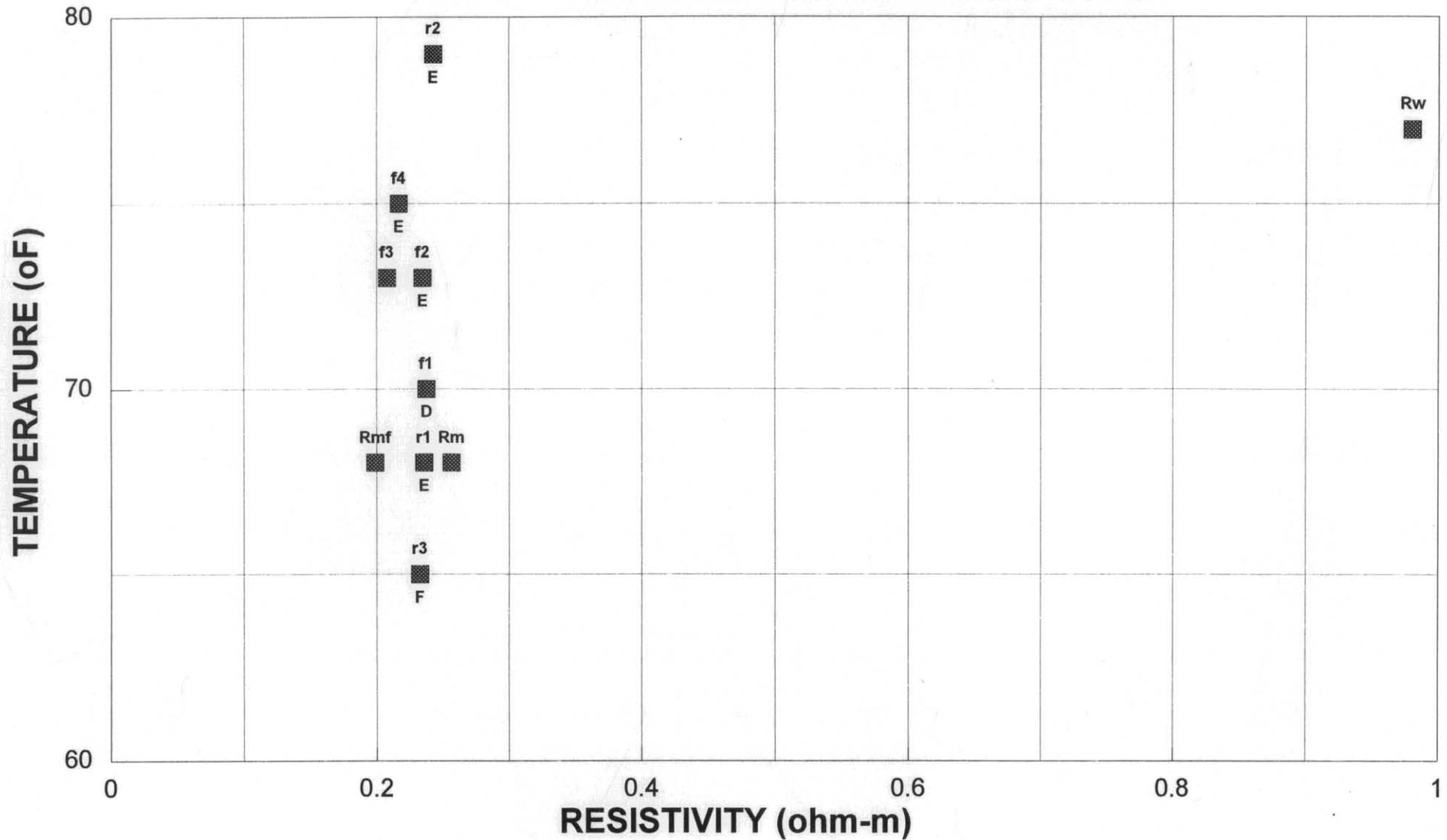


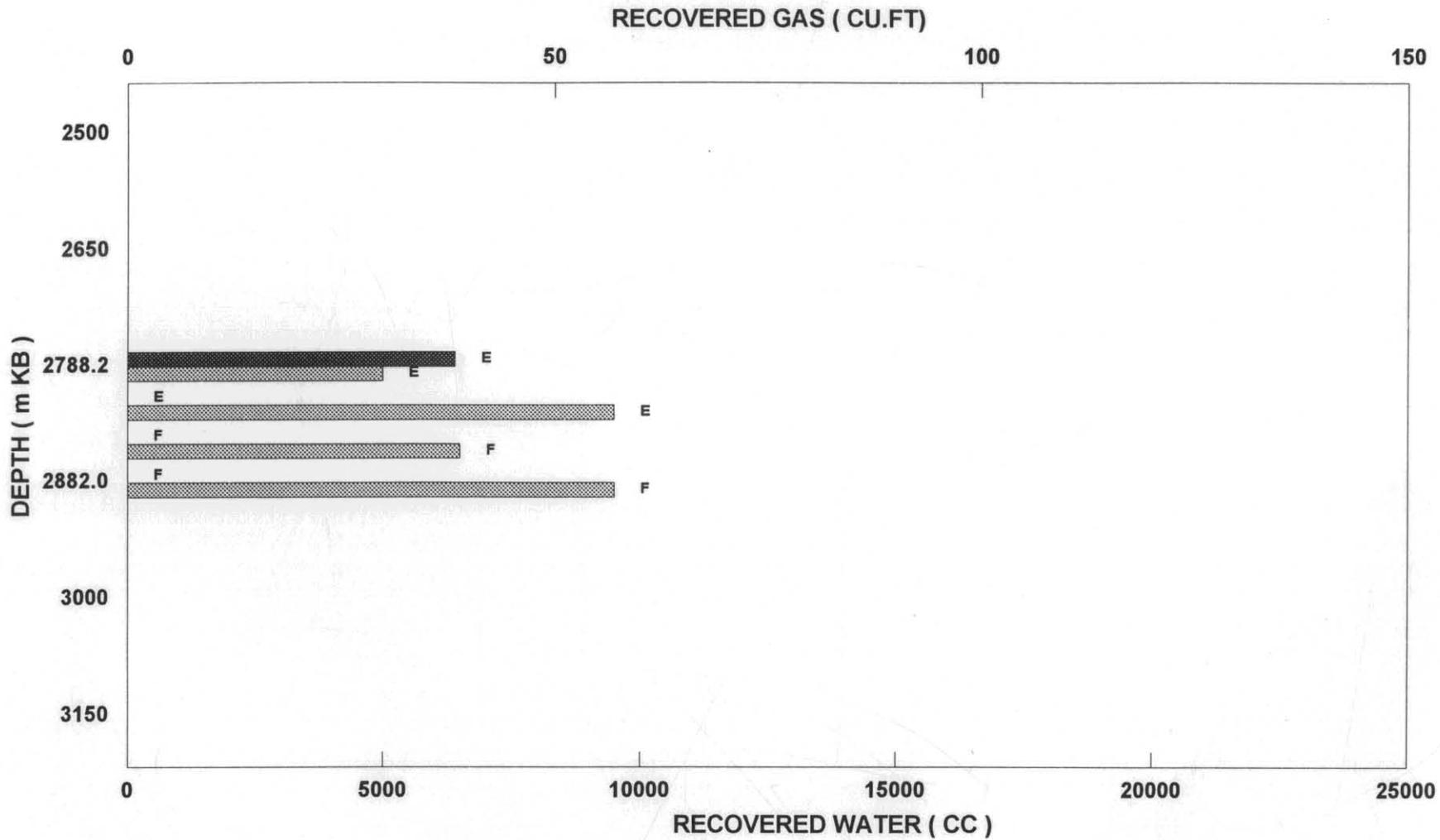
FIGURE 9

5 cm

# PELICAN #5 RFT SAMPLES

## GAS & WATER RECOVERY

506044



5 cm

■ RECOVERED GAS VOLUME

▨ RECOVERED WATER VOLUME

FIGURE 10

**PELICAN #5**  
**RFT SAMPLES ( WATER RESISTIVITY )**

506045

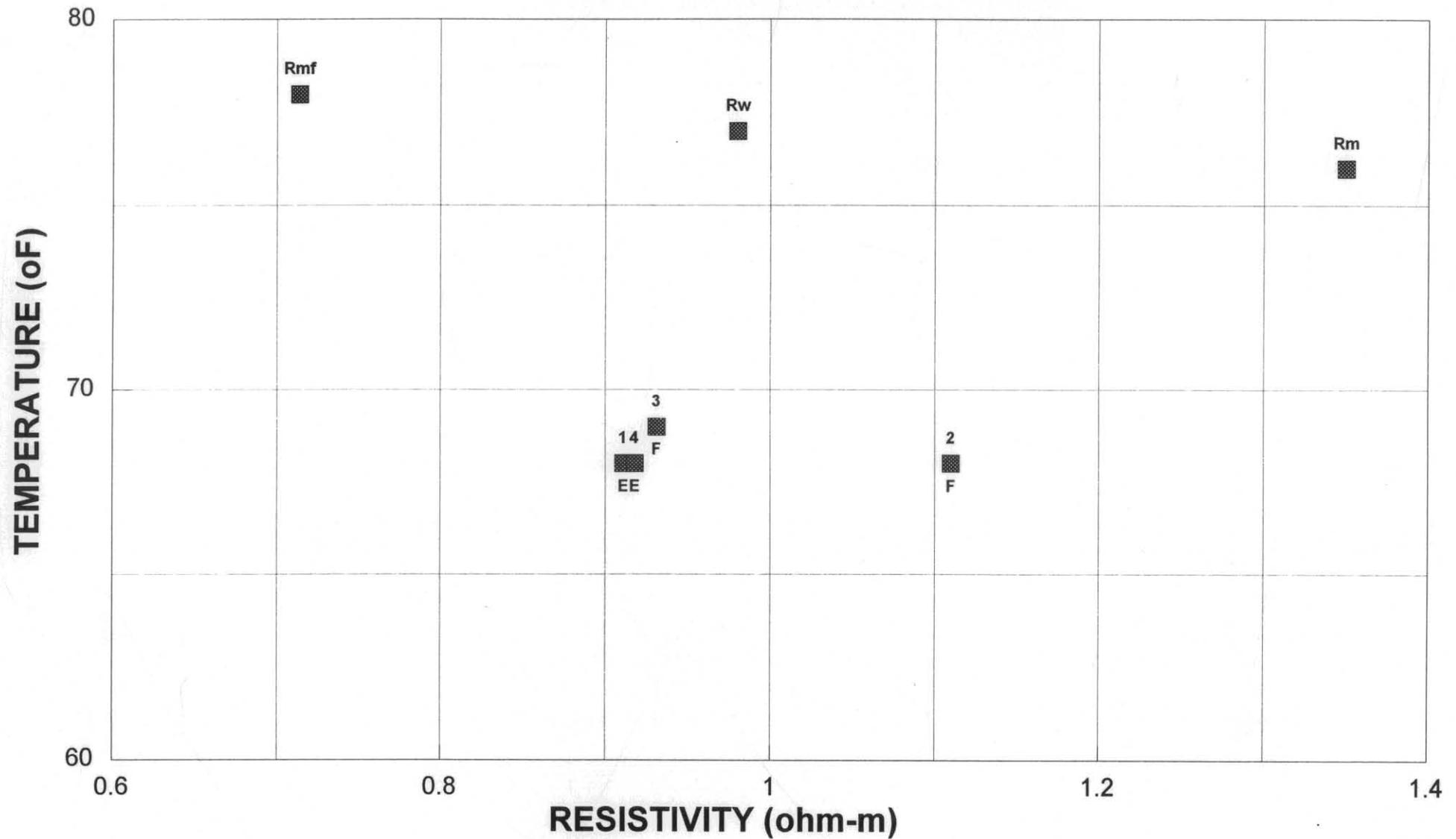
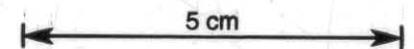


FIGURE 11



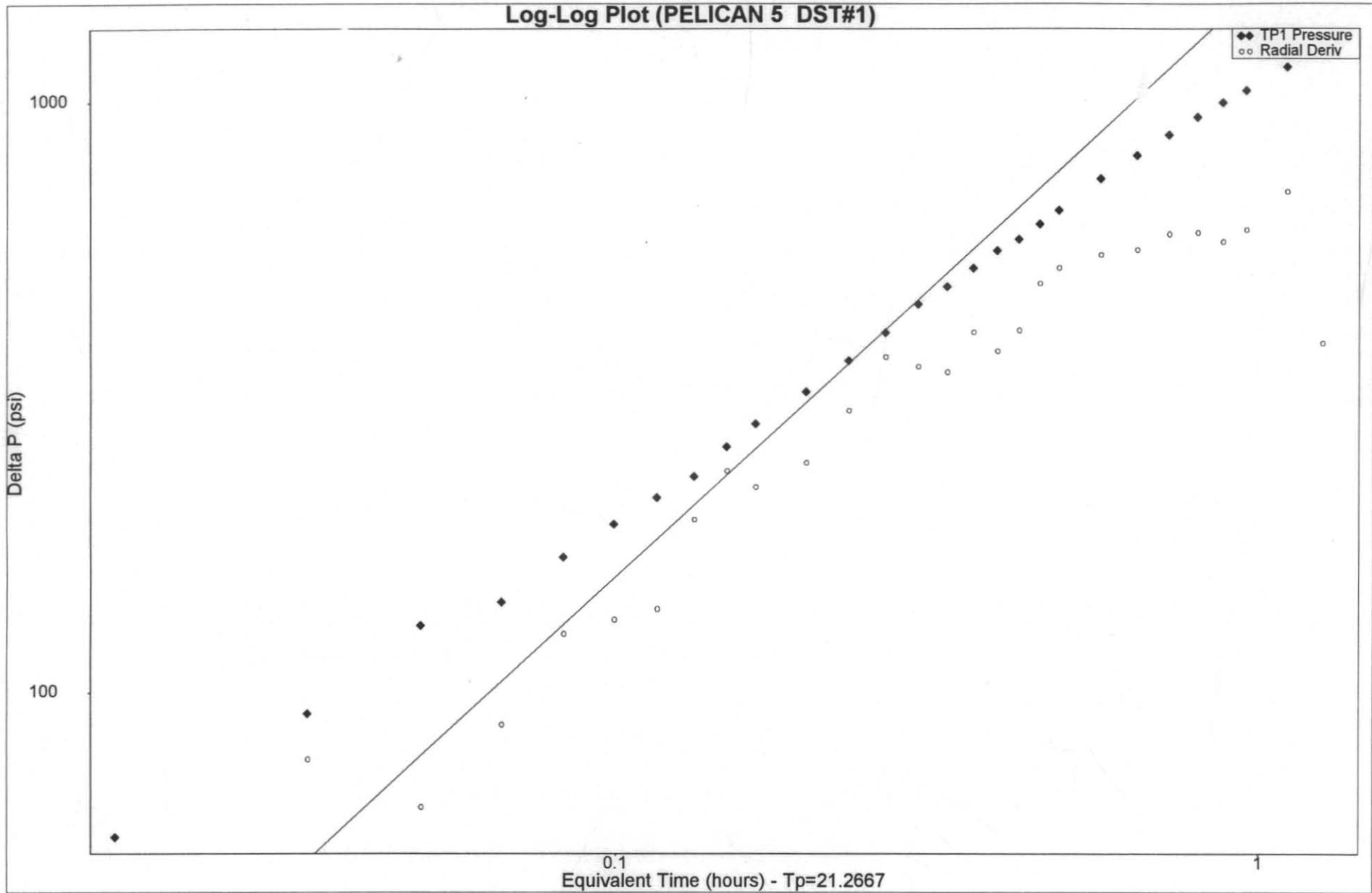
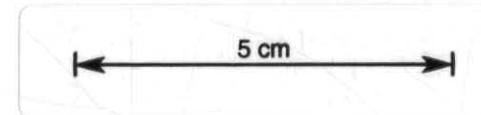


FIGURE 12



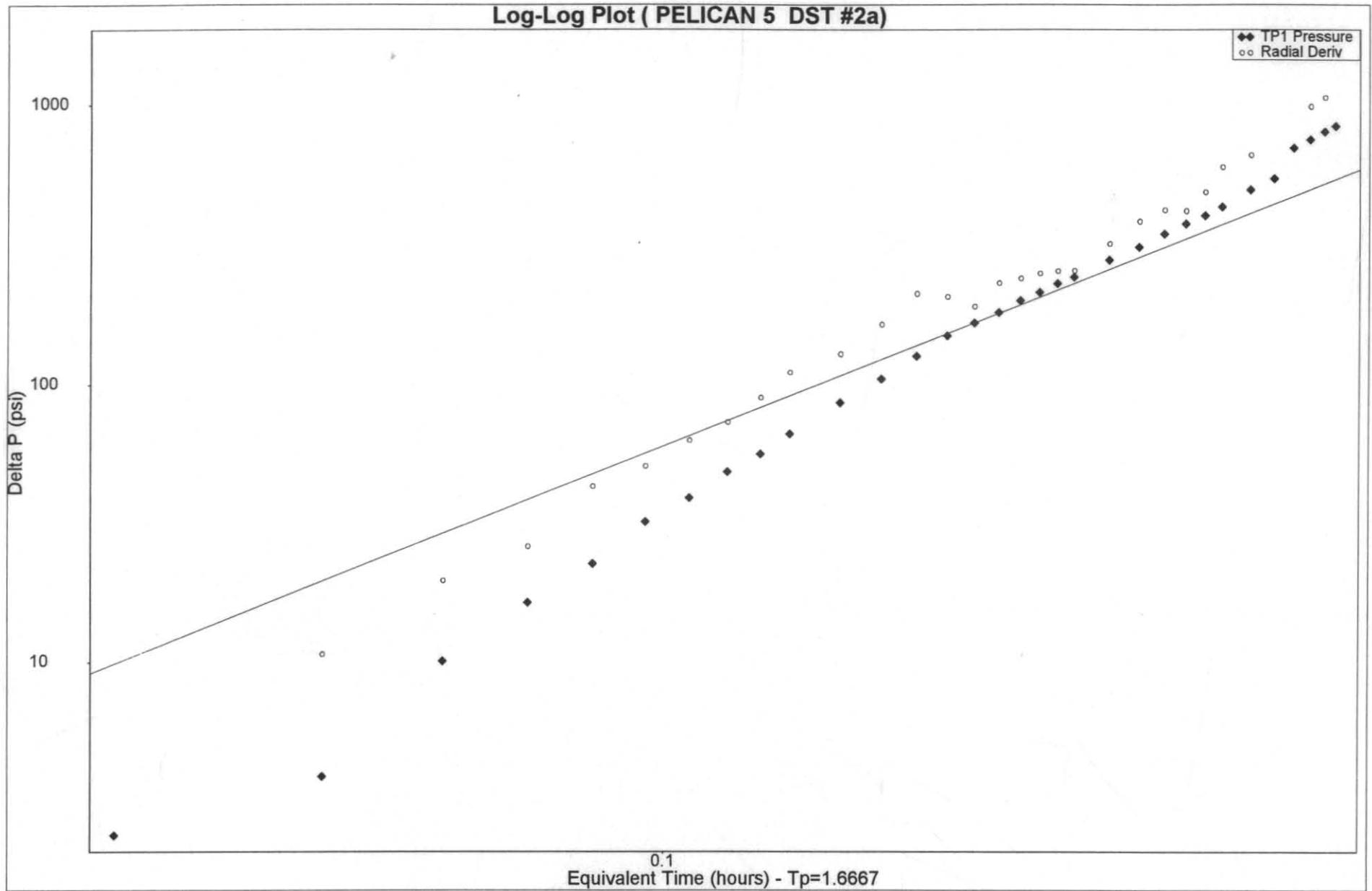
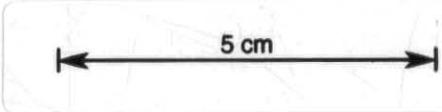


FIGURE 13



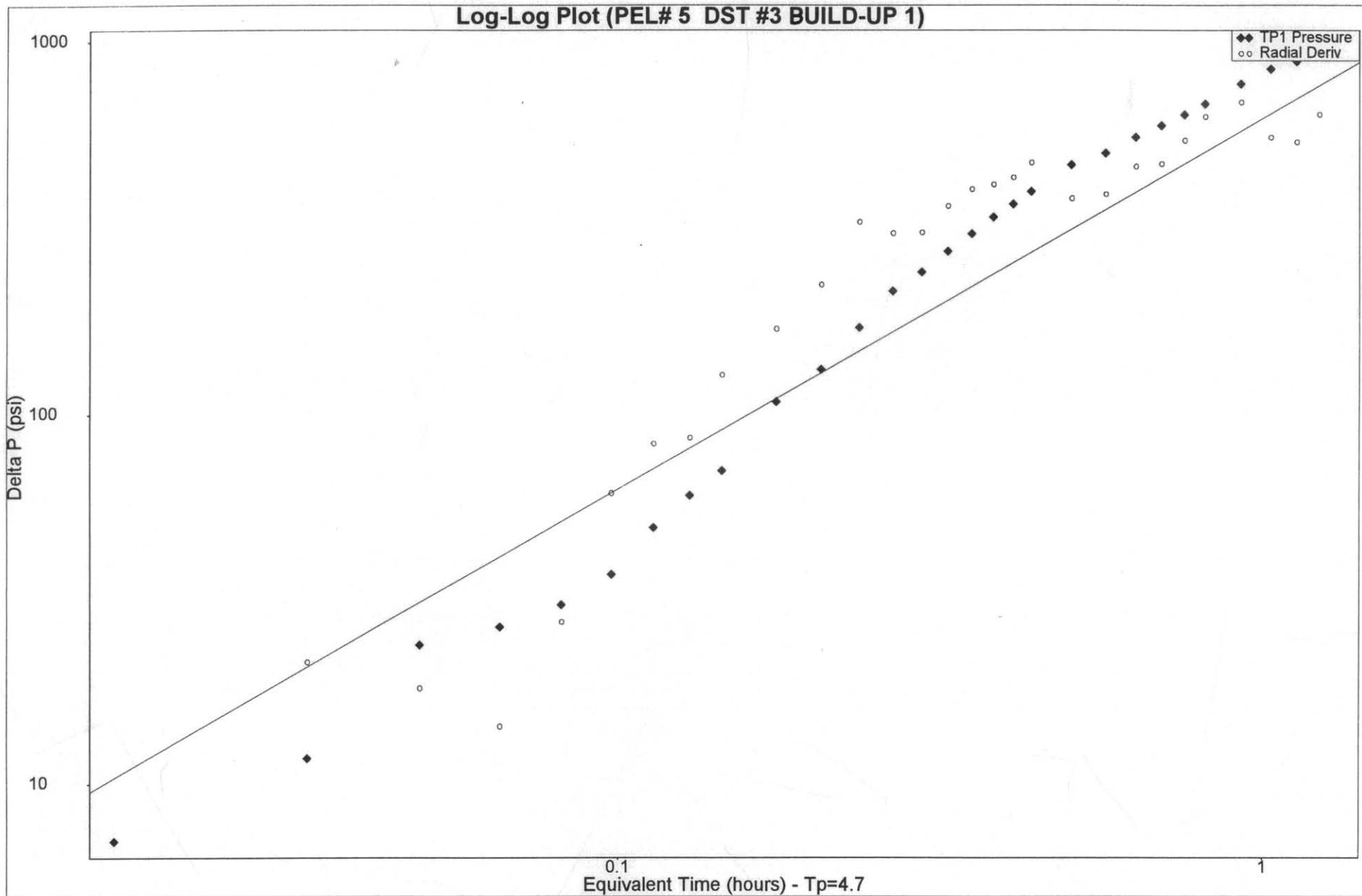
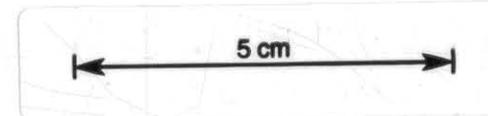


FIGURE 14



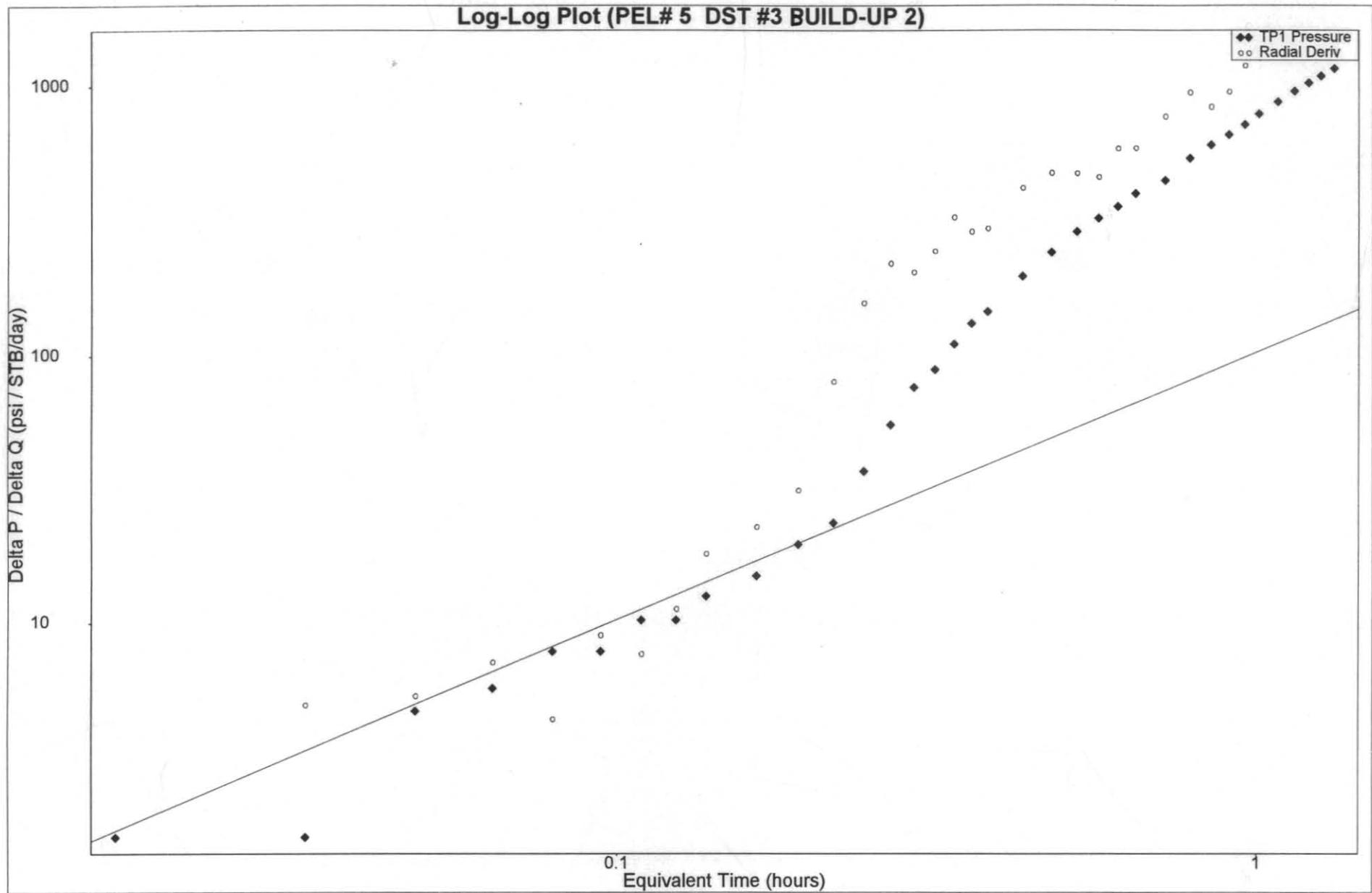


FIGURE 15

5 cm

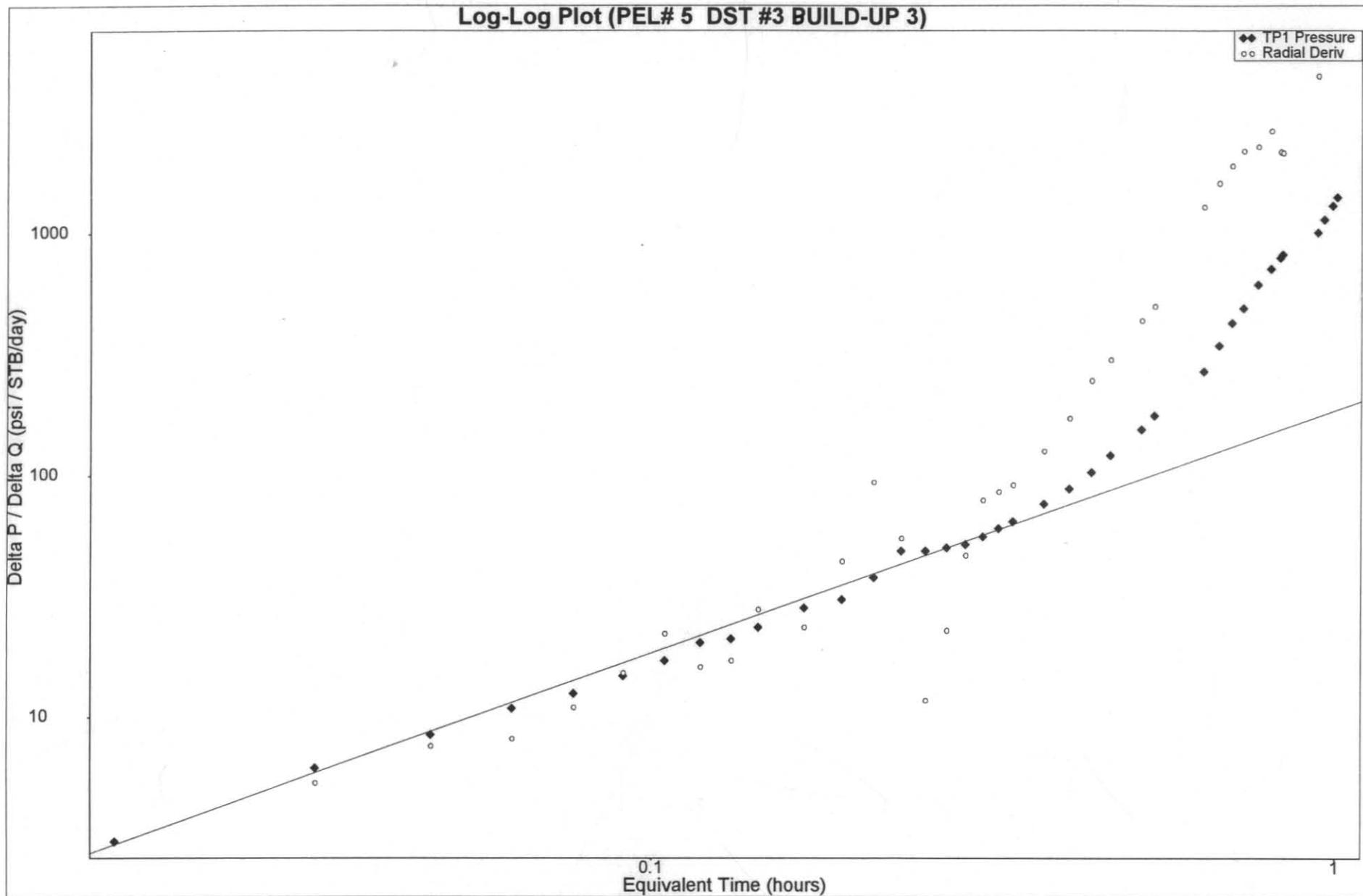
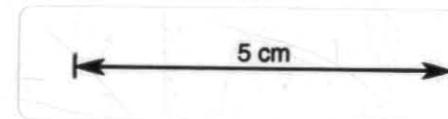


FIGURE 16



506051

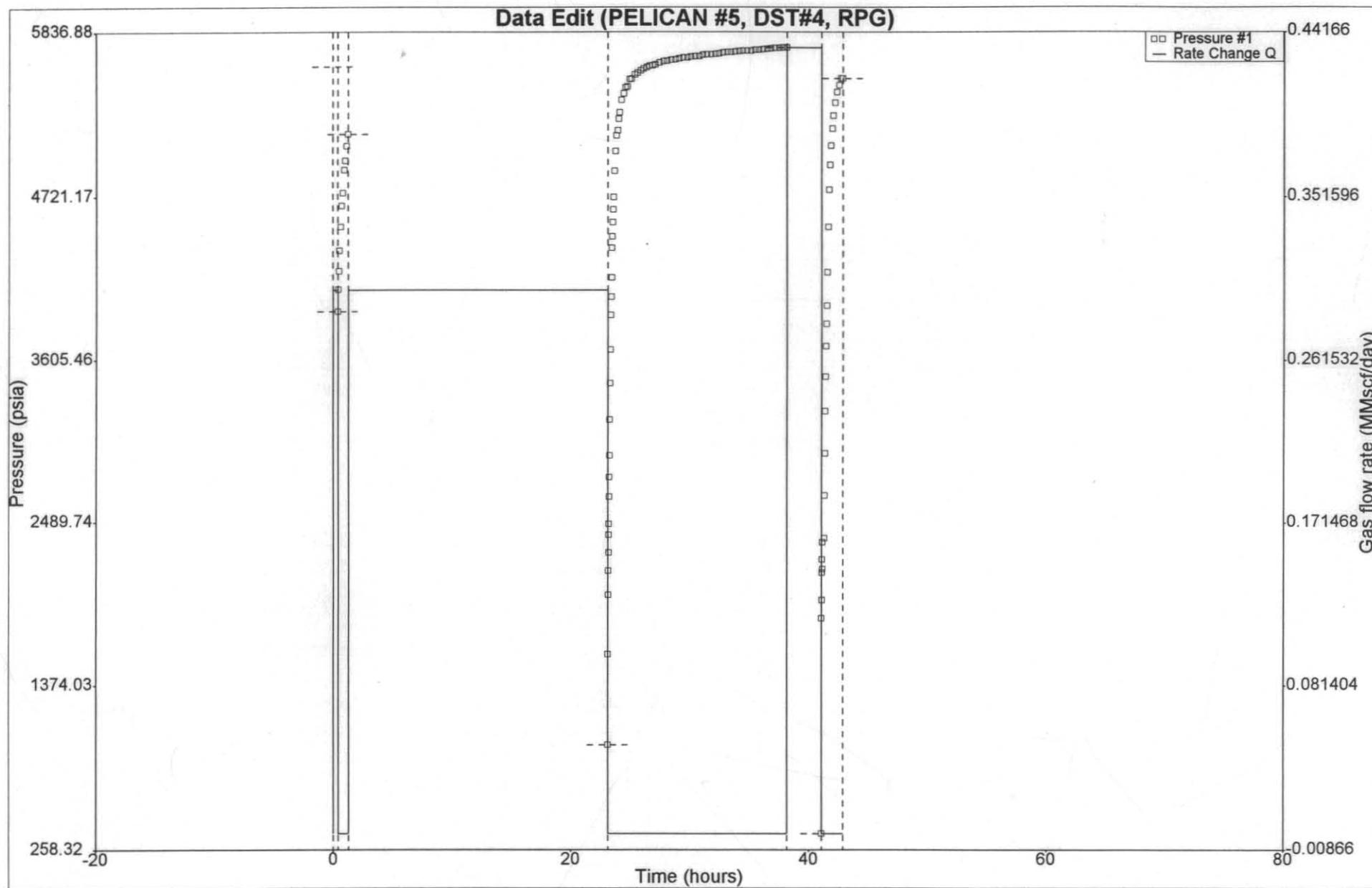
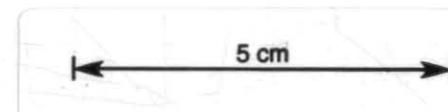


FIGURE 17



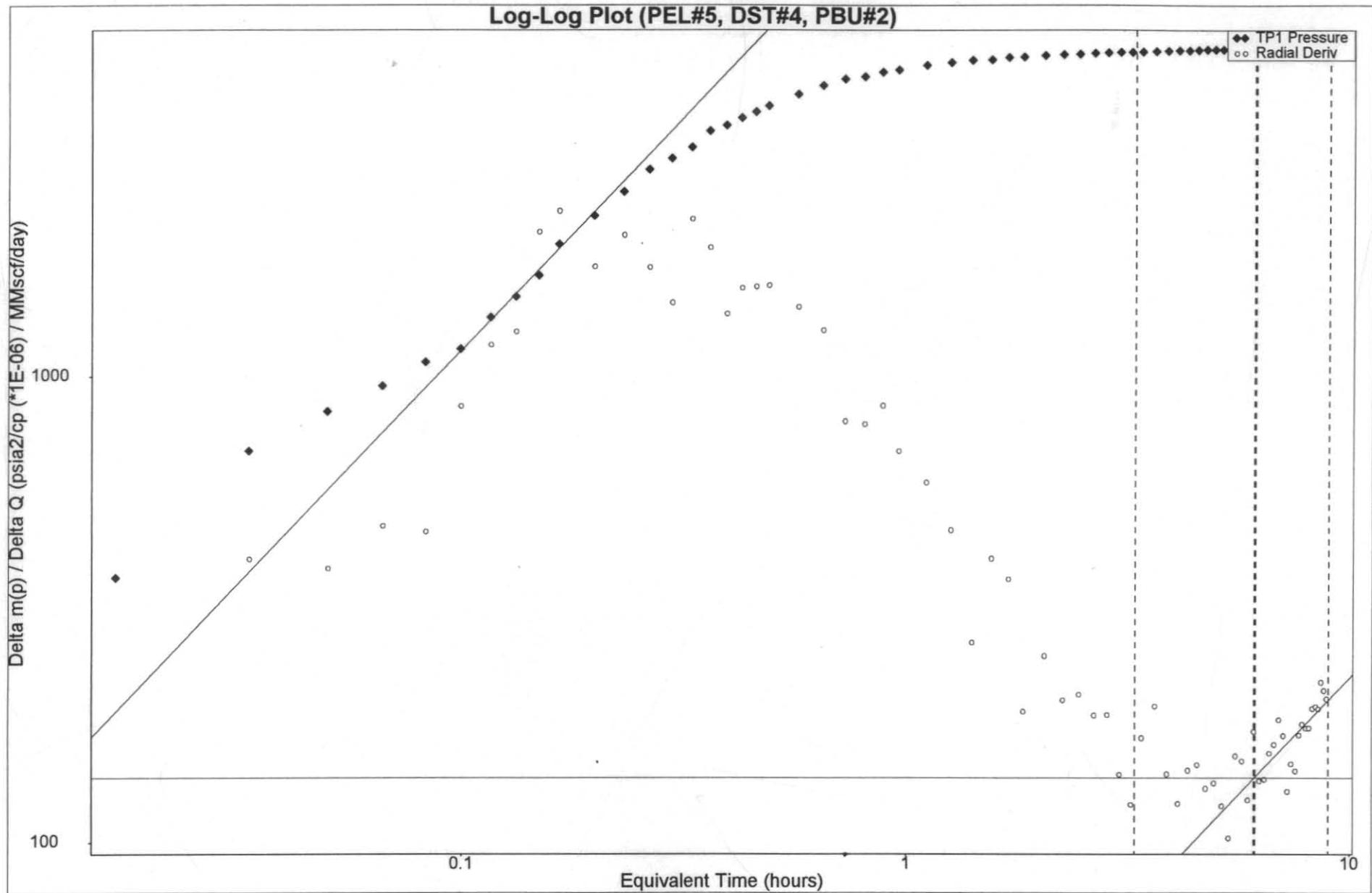


FIGURE 18

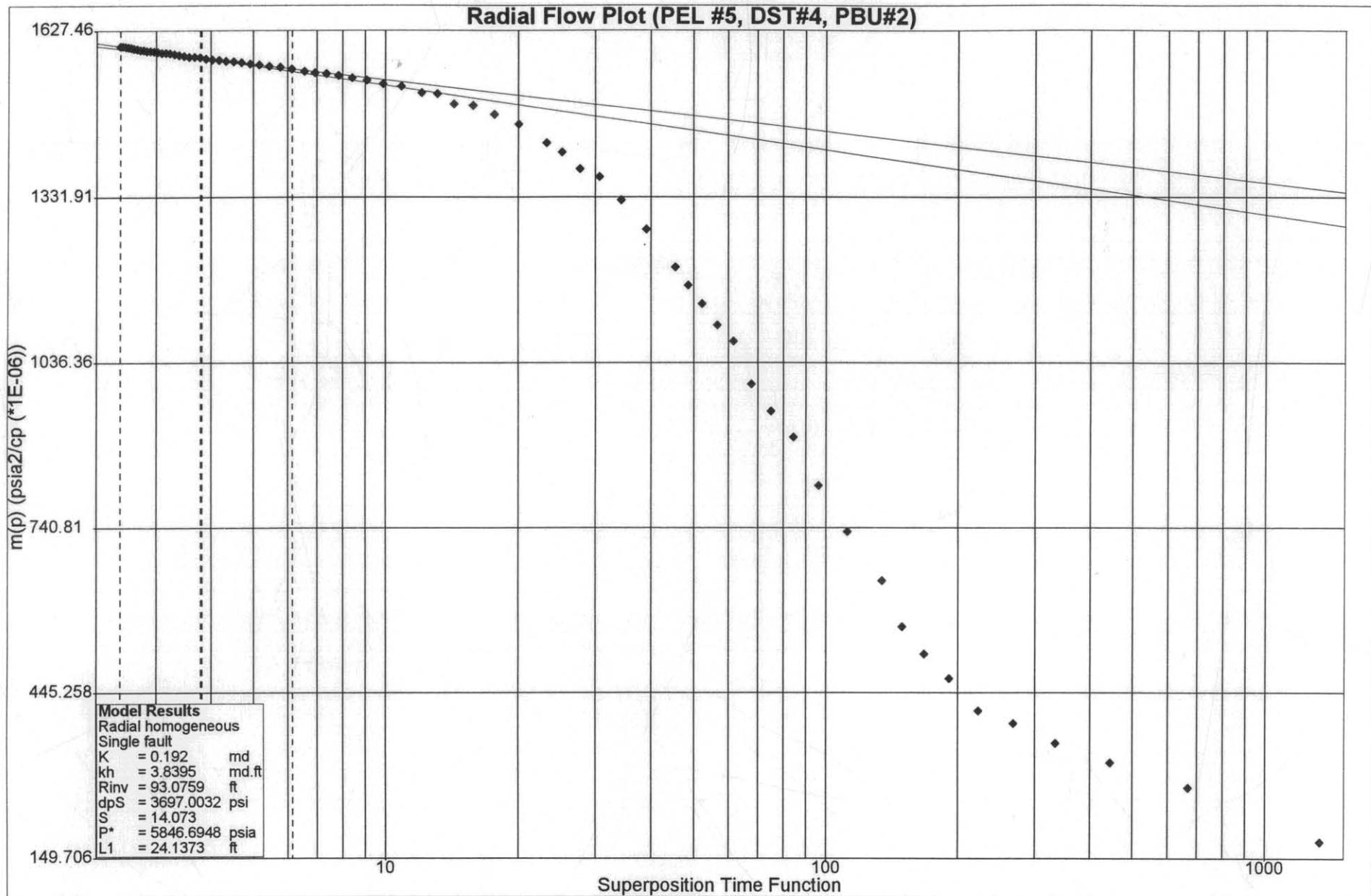
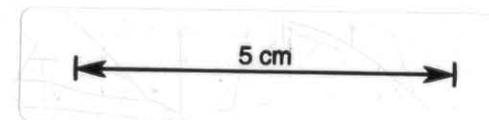


FIGURE 19



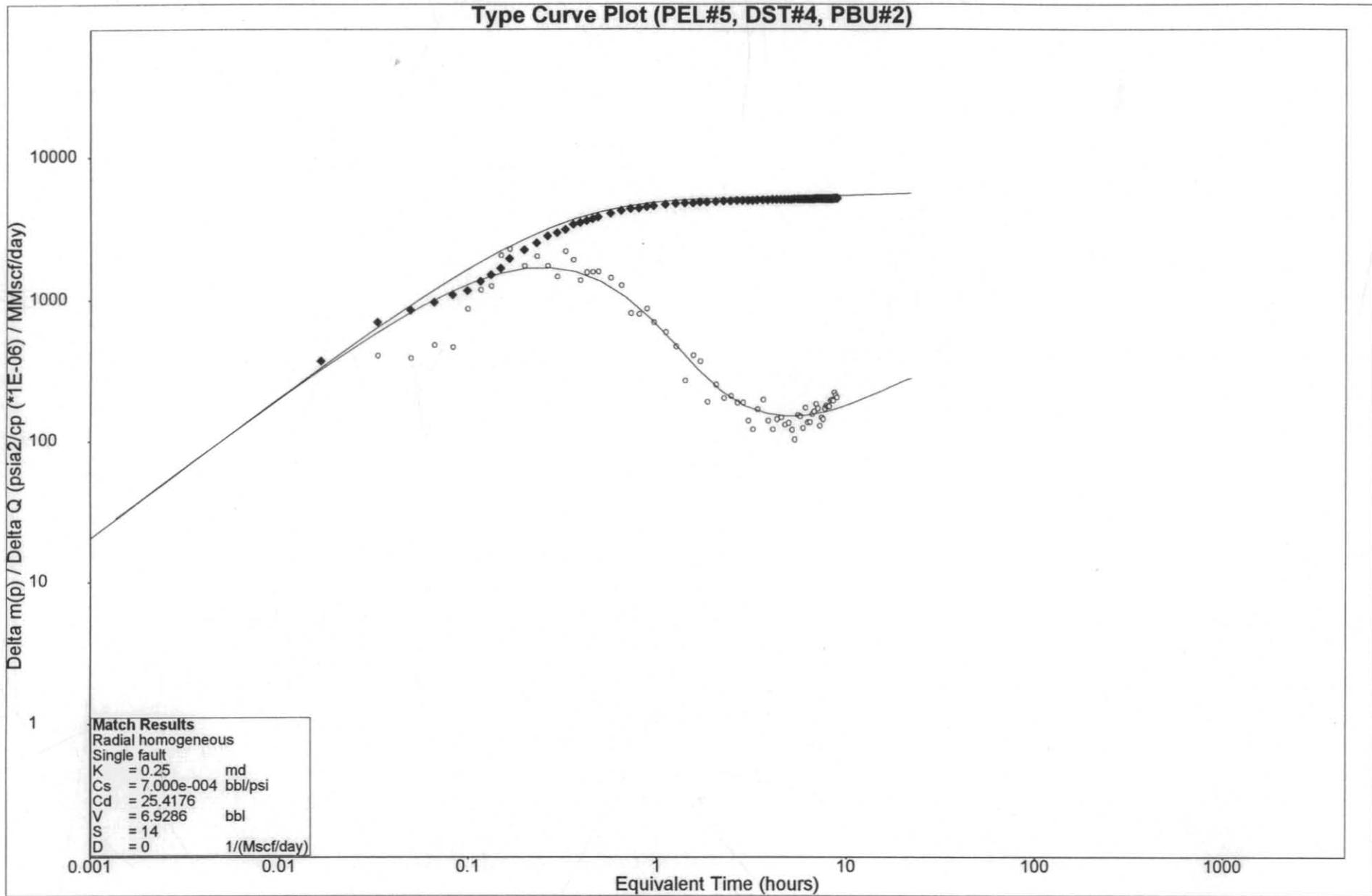
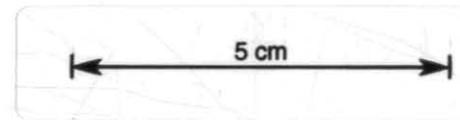


FIGURE 20



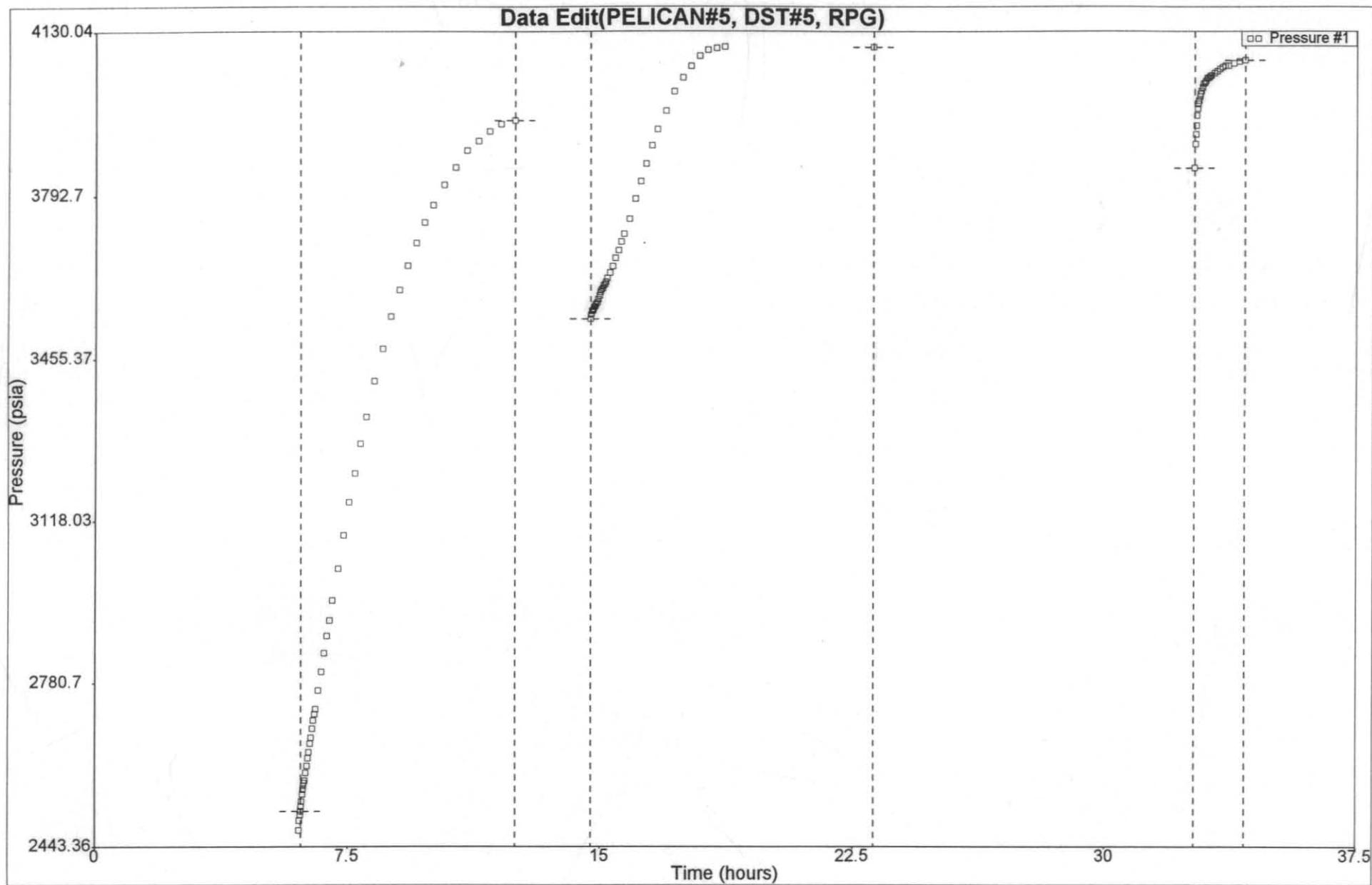
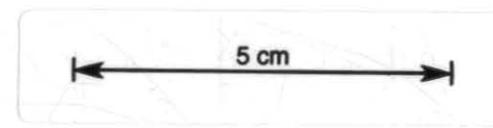


FIGURE 21



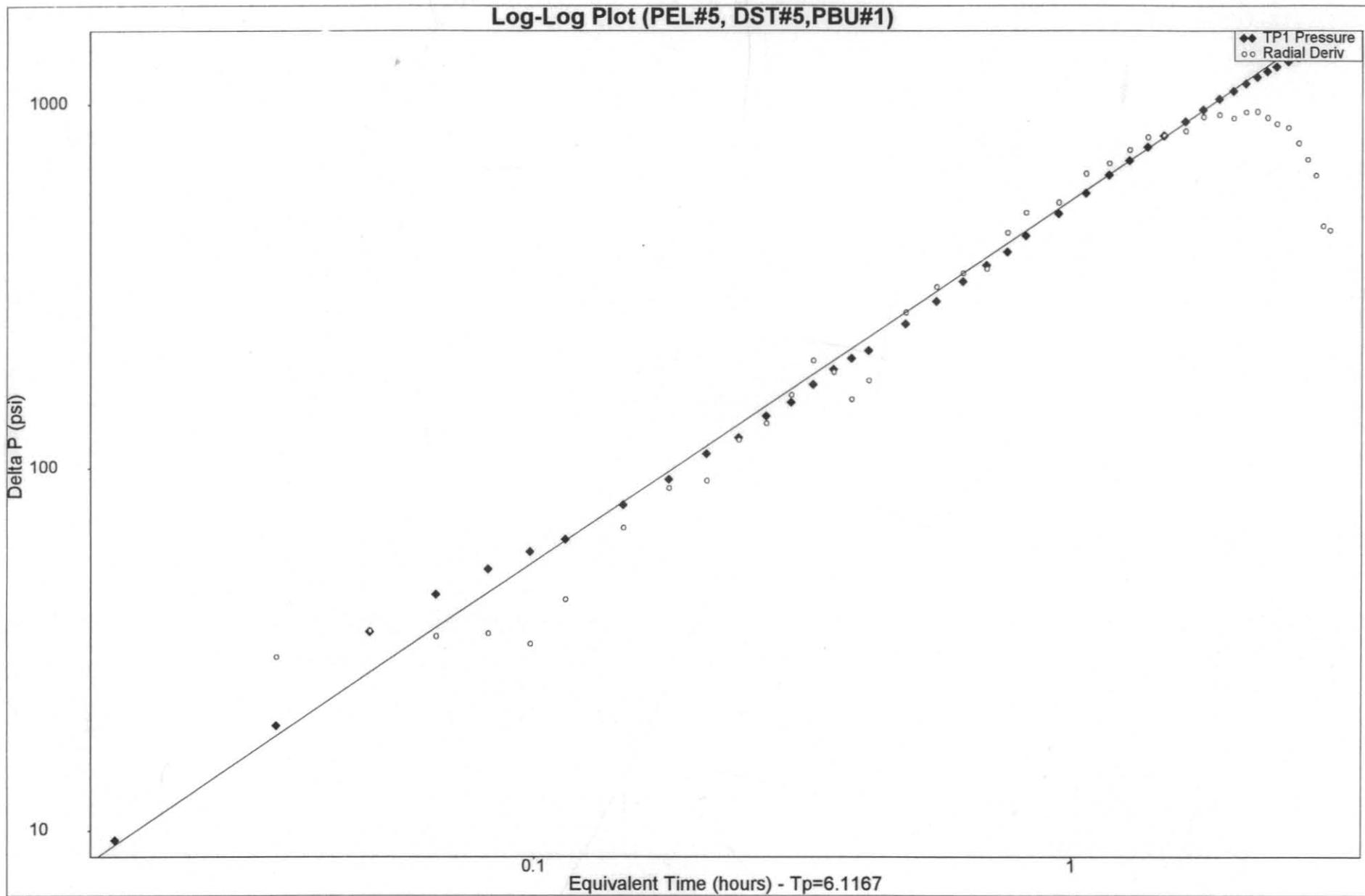
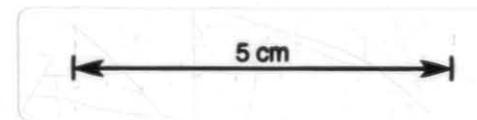


FIGURE 22



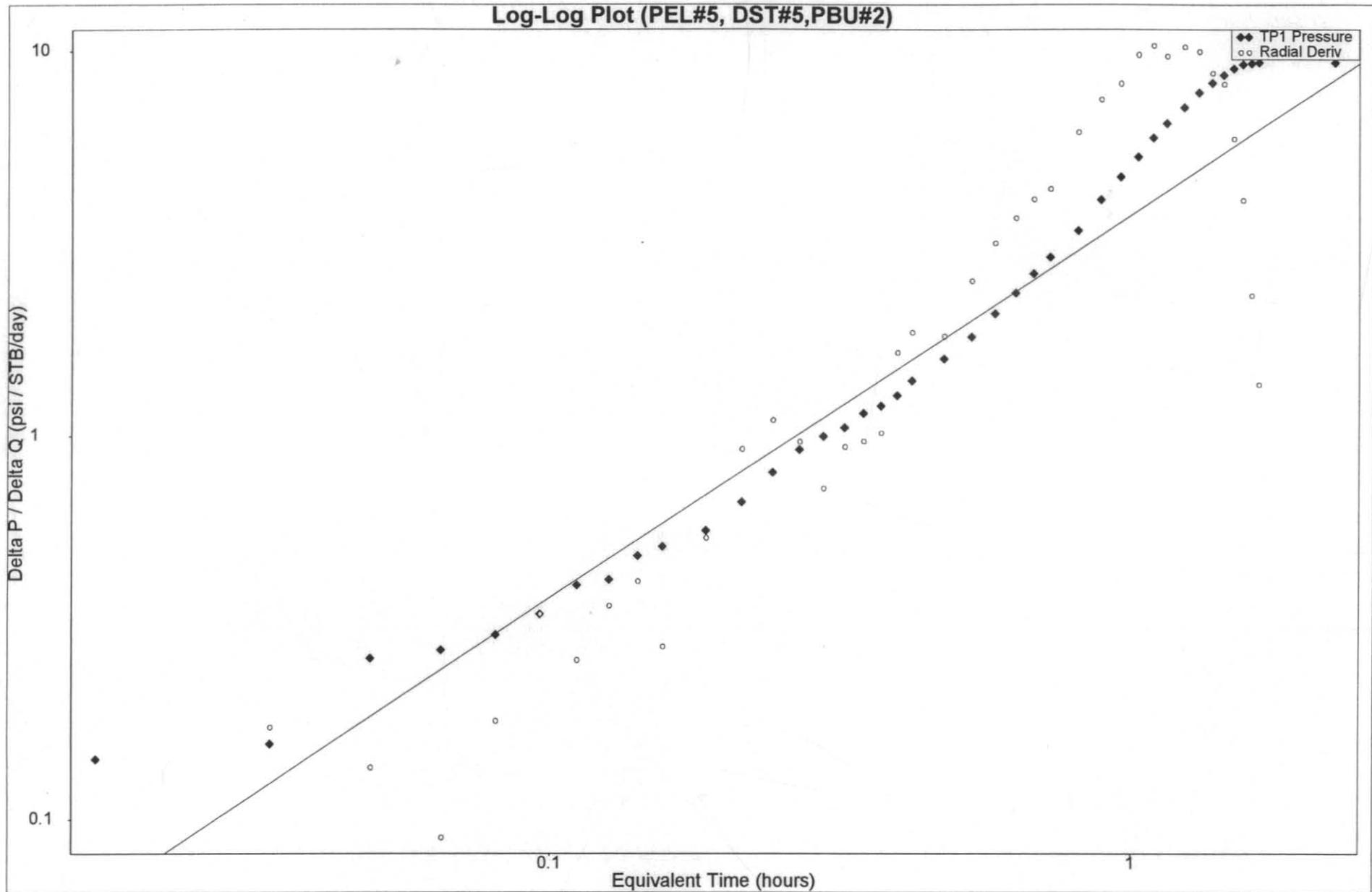
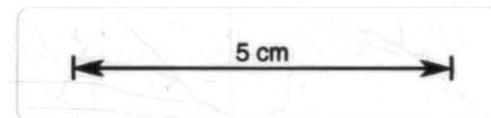


FIGURE 23



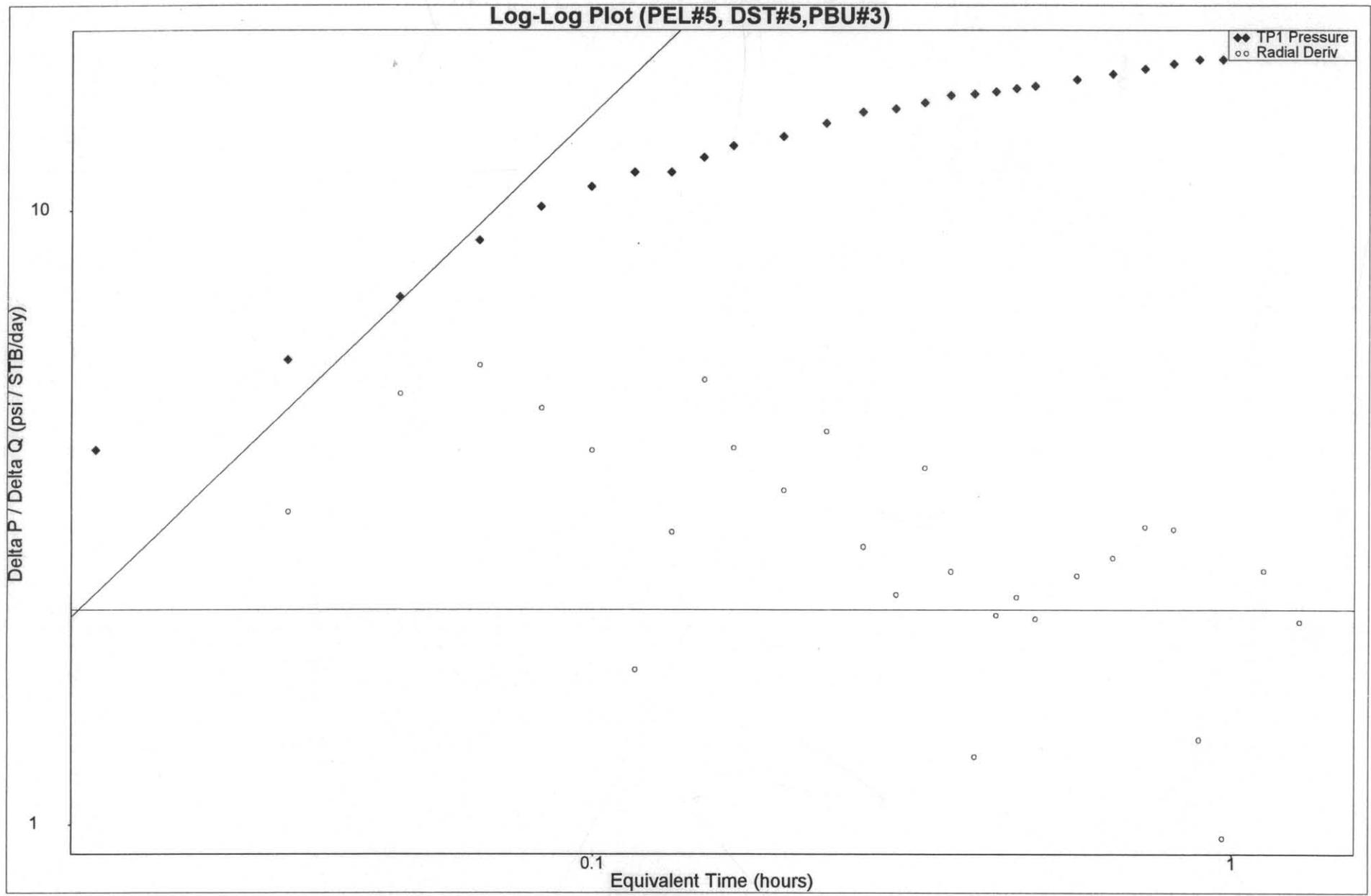
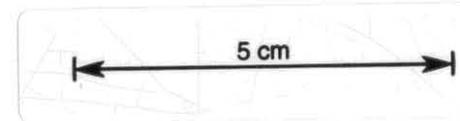


FIGURE 24



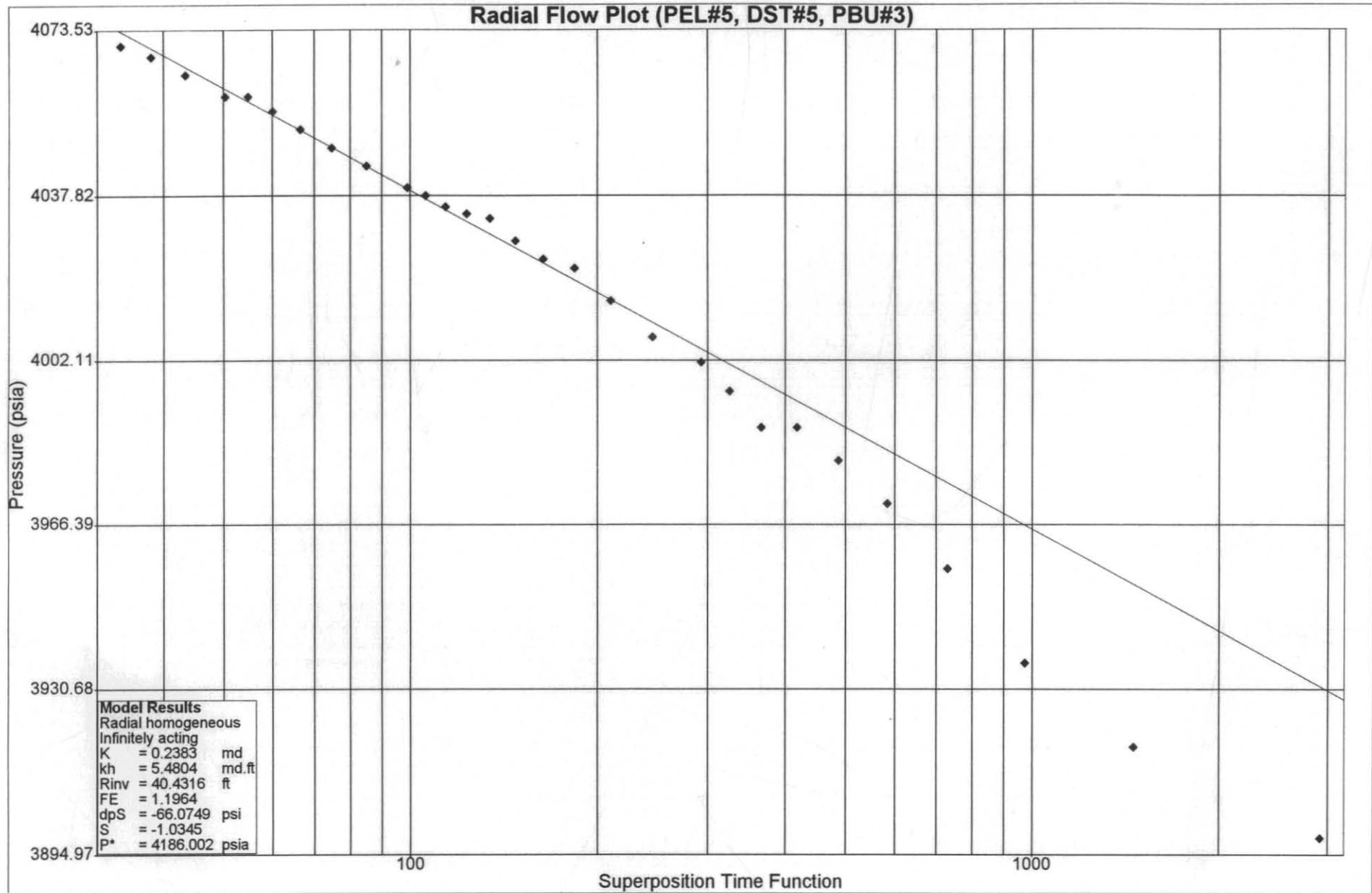
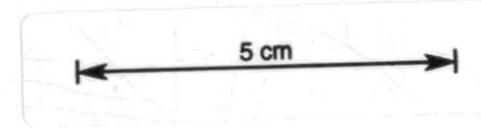


FIGURE 25



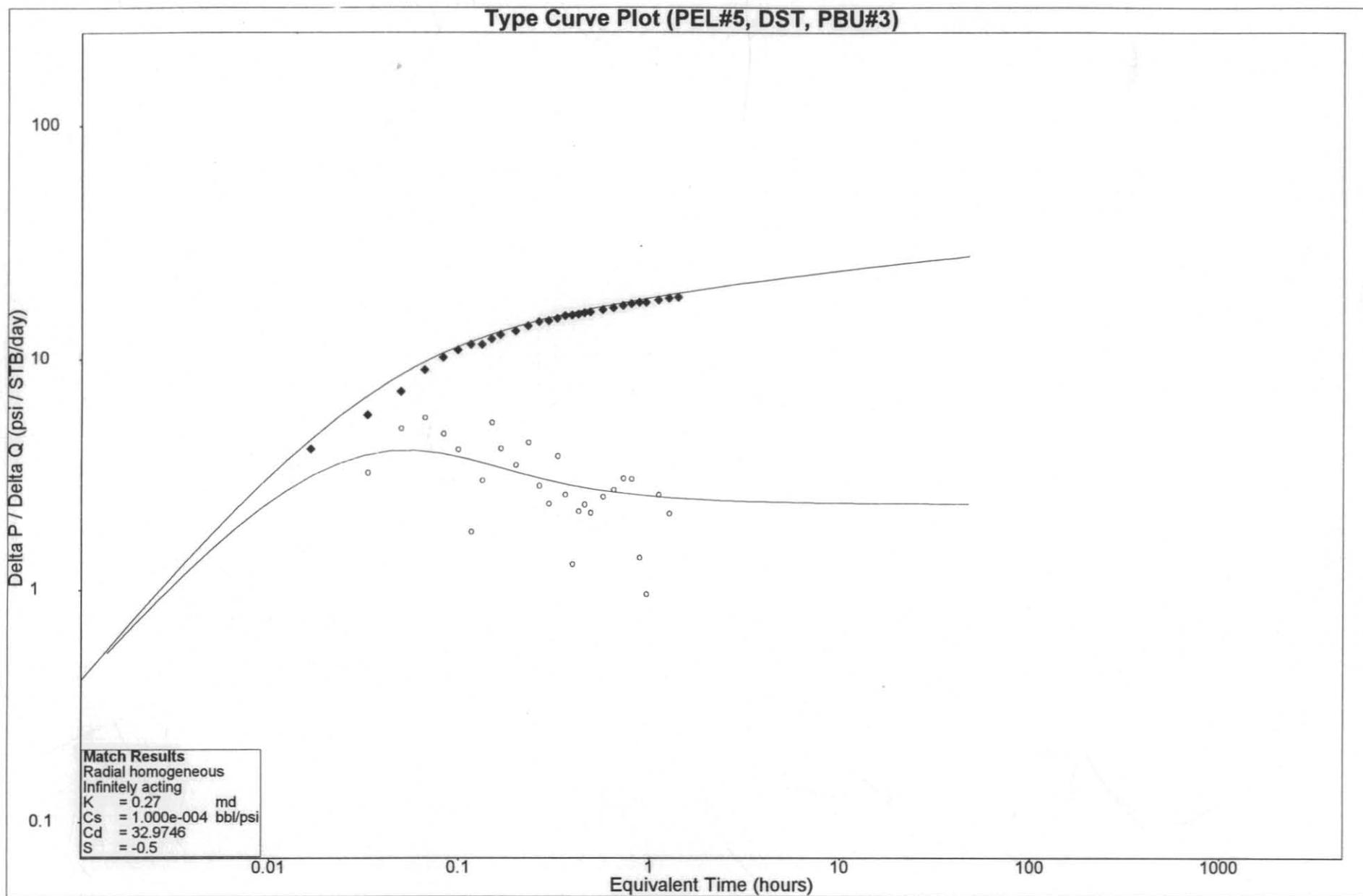
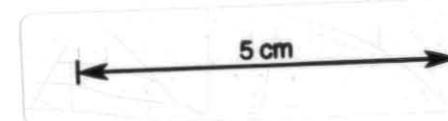


FIGURE 26



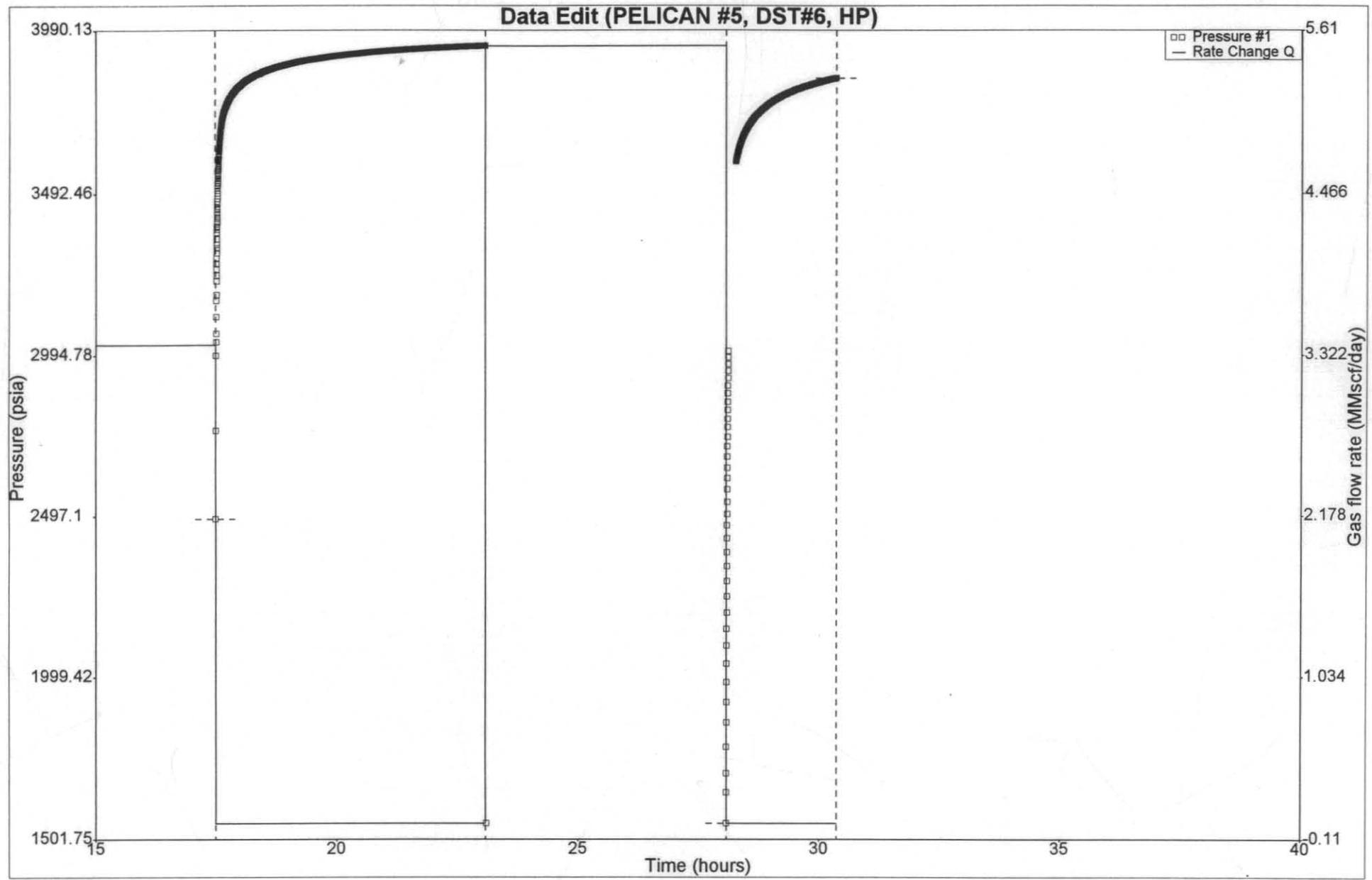
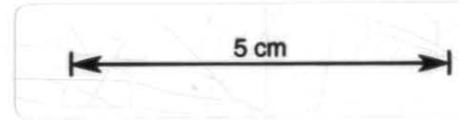


FIGURE 27



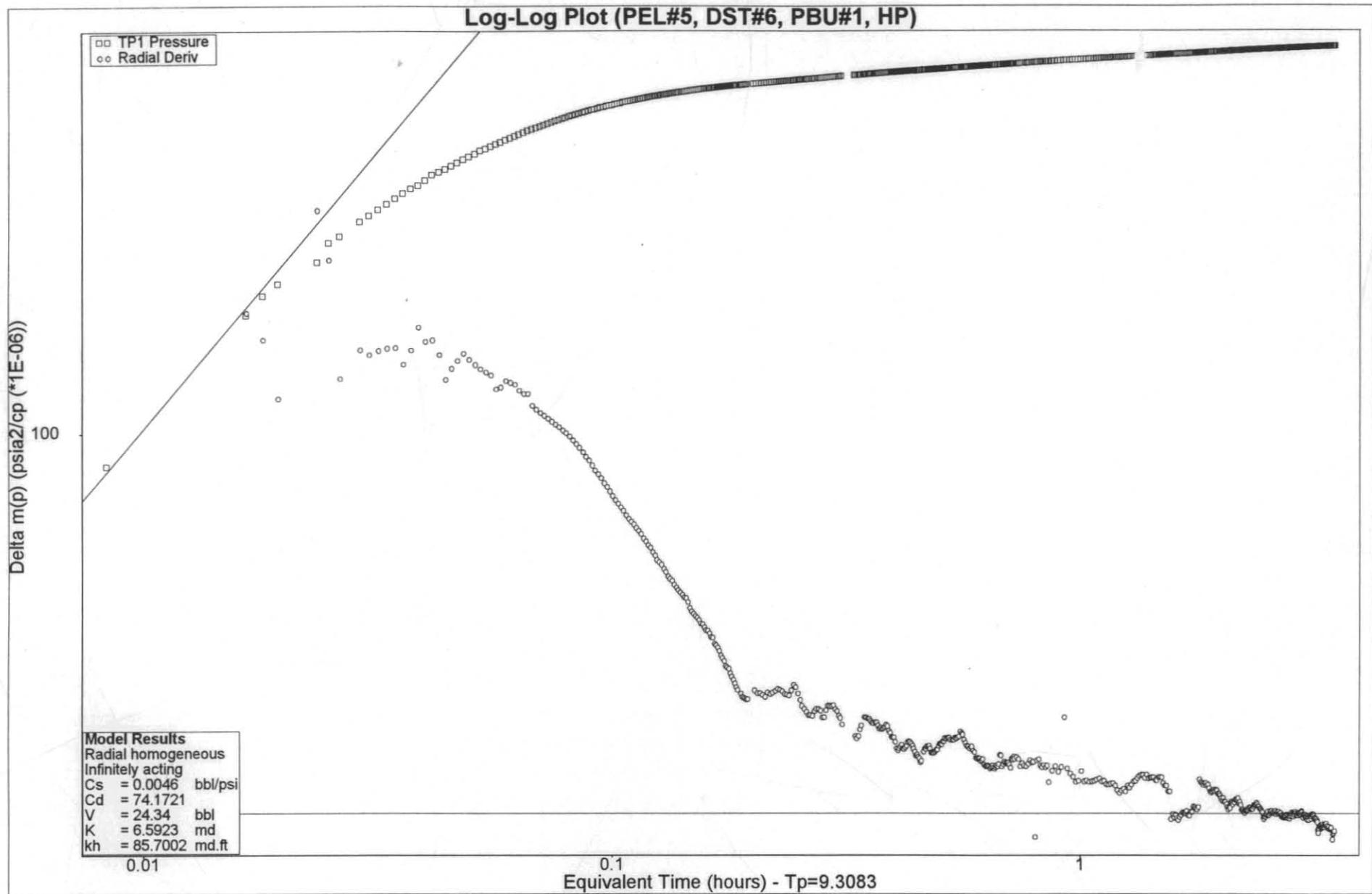


FIGURE 28

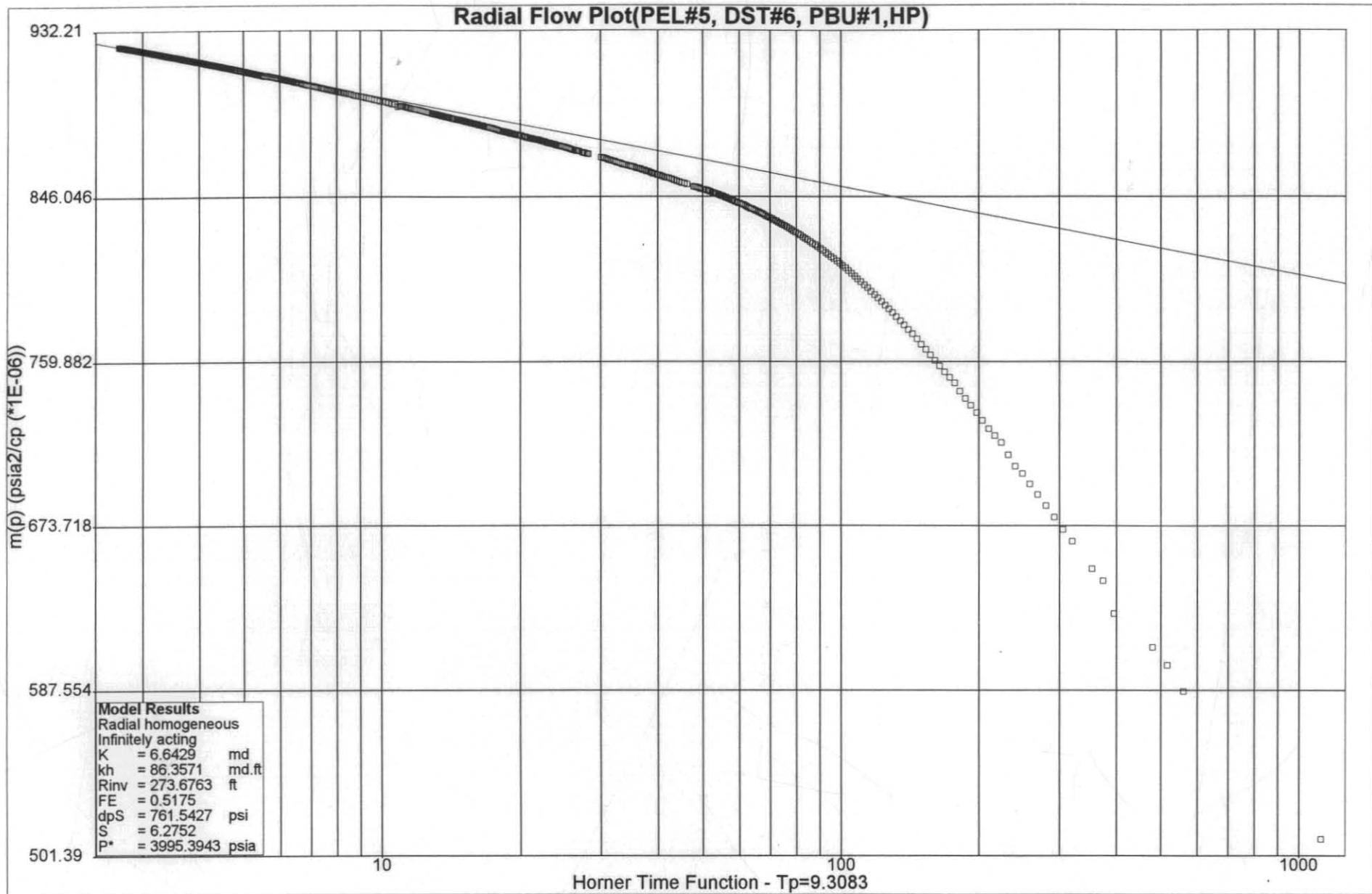
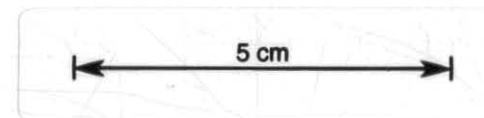


FIGURE 29



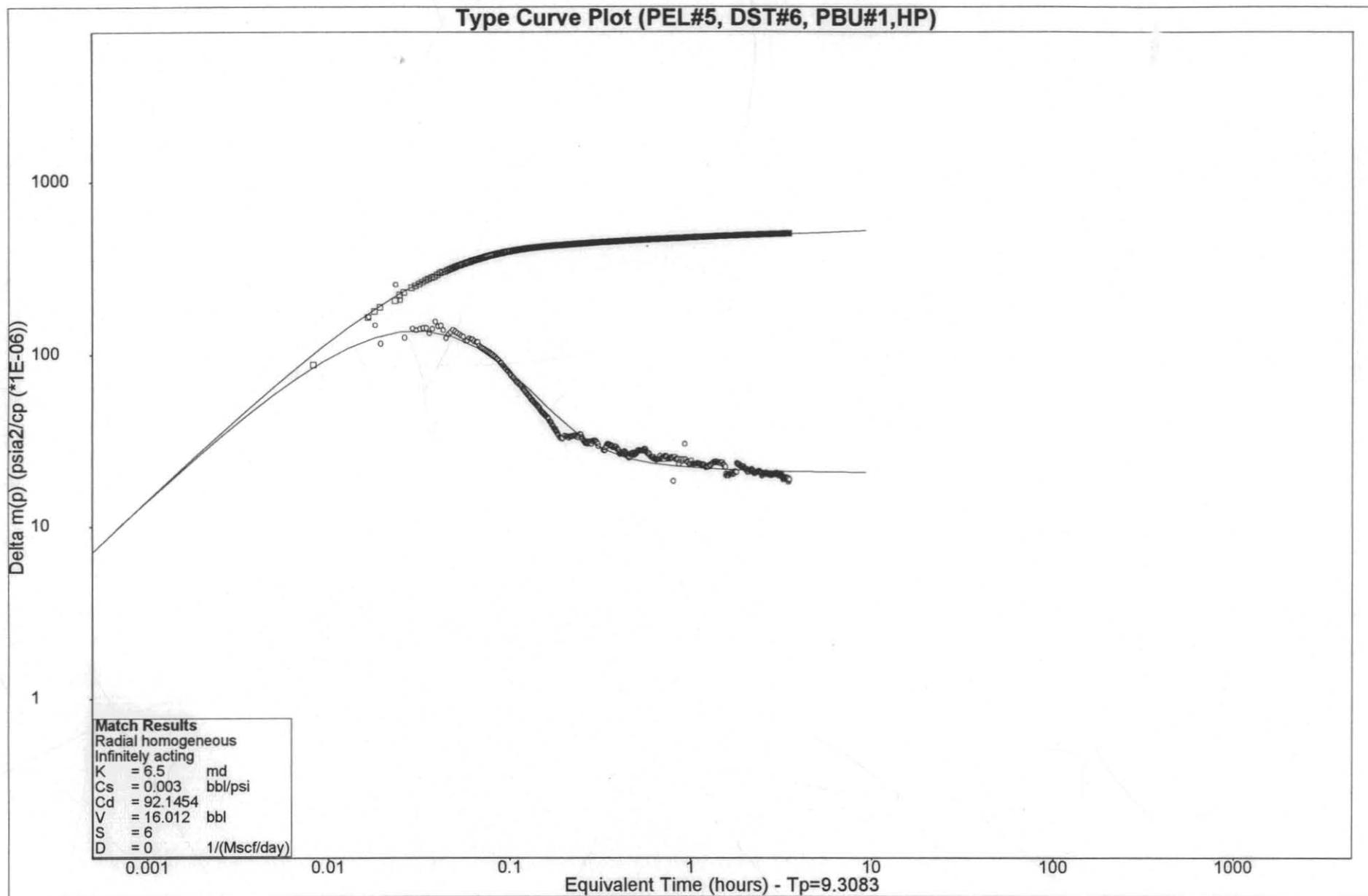
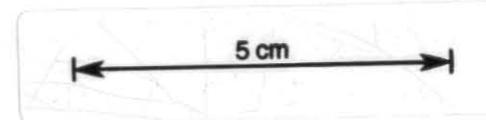


FIGURE 30



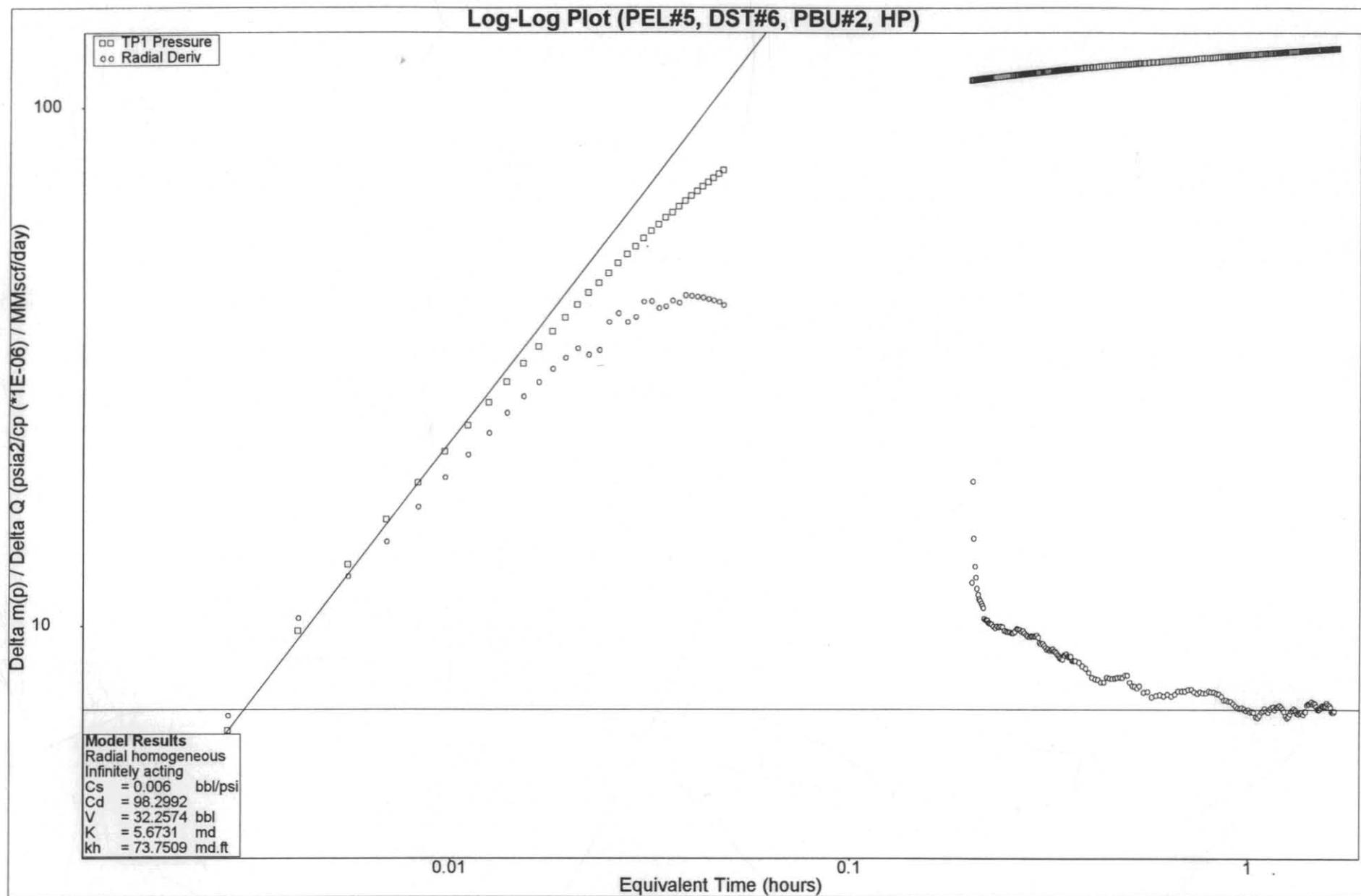
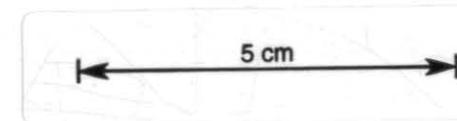


FIGURE 31



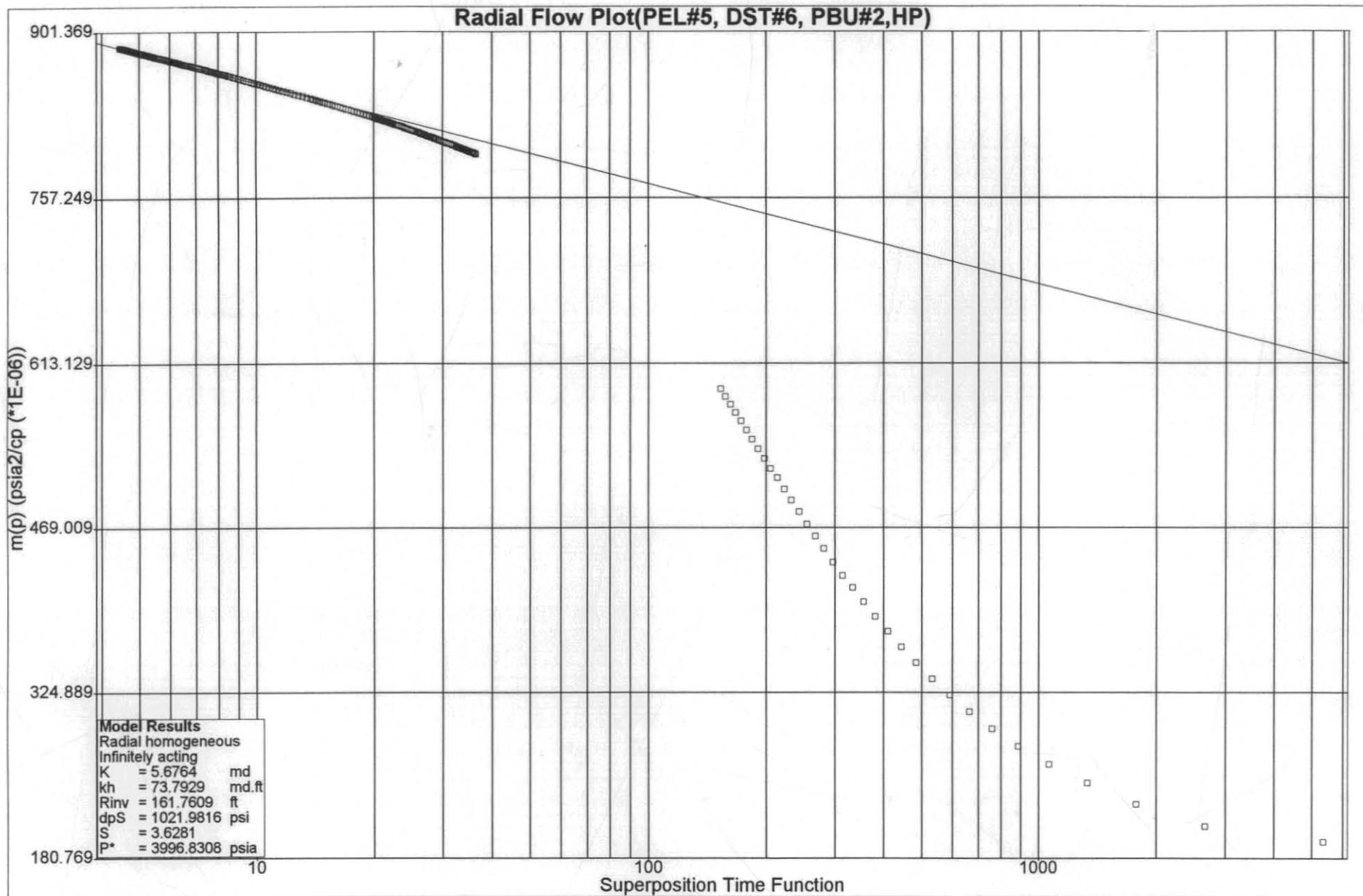
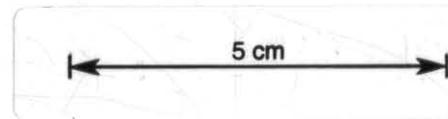


FIGURE 32



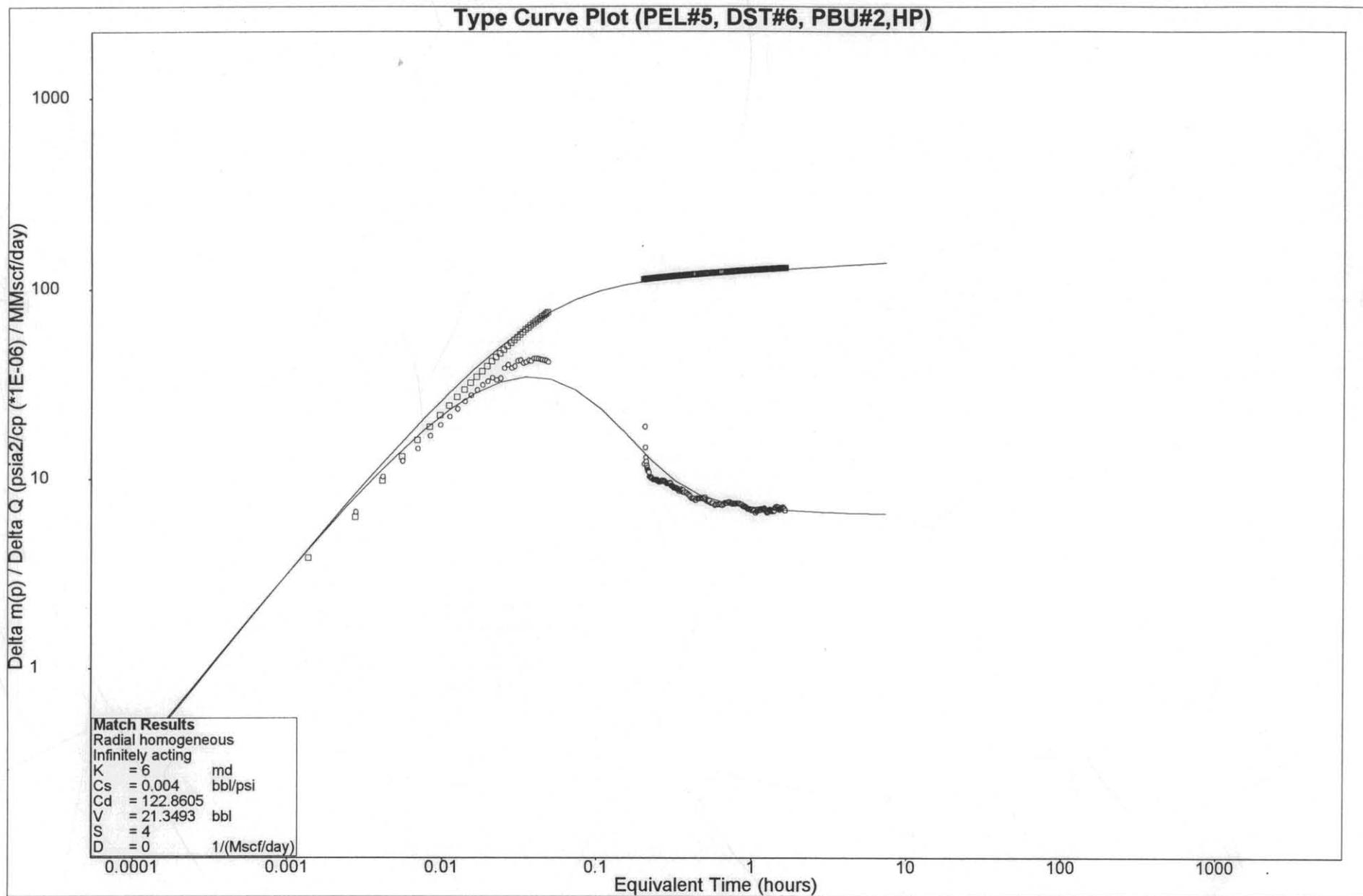
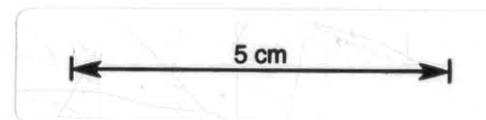


FIGURE 33



**PELICAN - 5 RFT**  
**DIFFERENCE BETWEEN HP & STRAIN GAUGES**

506068

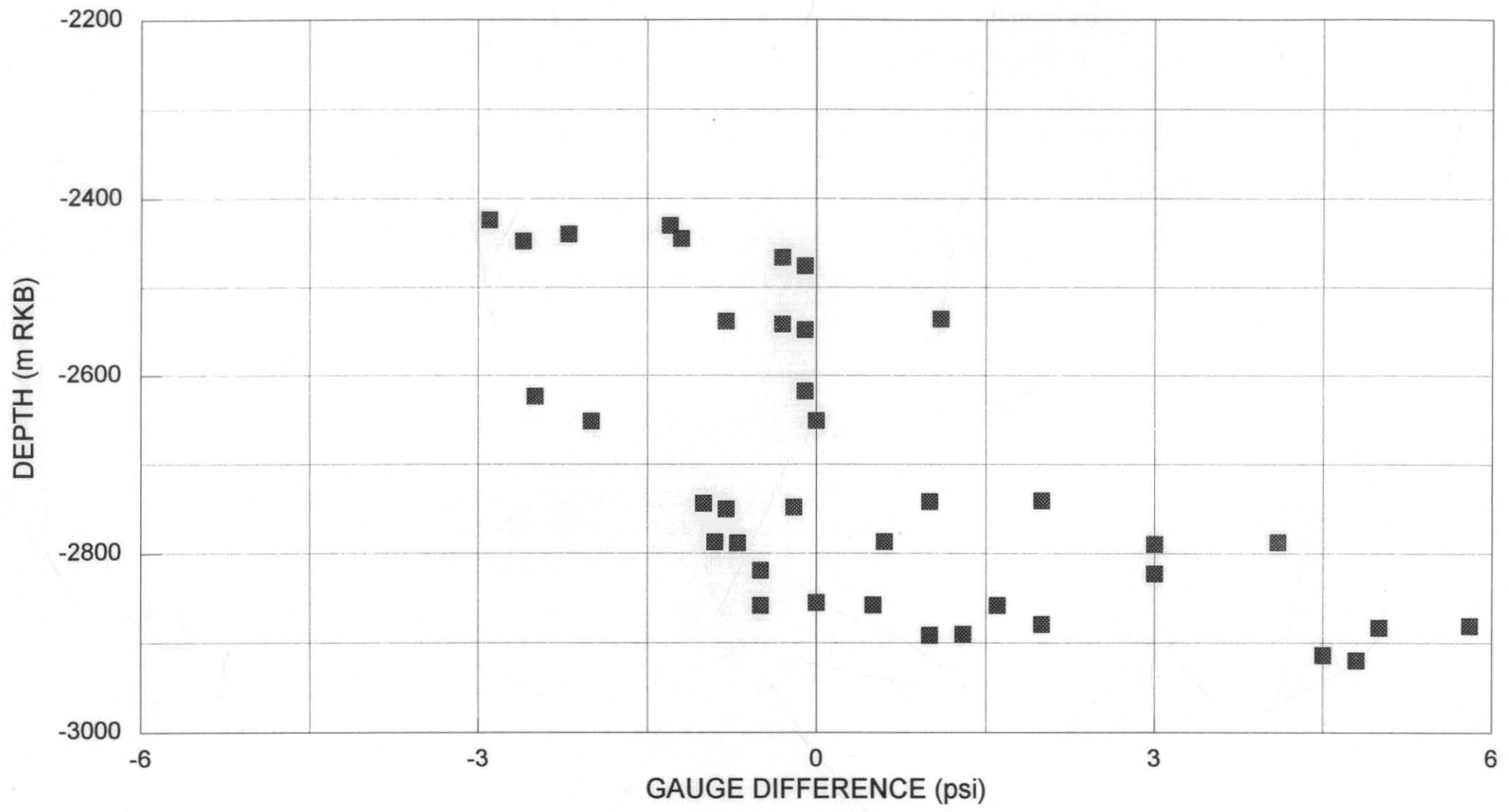


FIGURE 34

5 cm

506069

**PELICAN -5 RFT**  
INITIAL HYDROSTATIC PRESSURE (HP GAUGE)

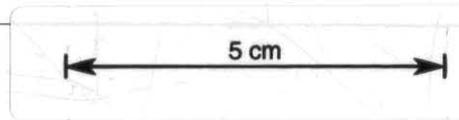
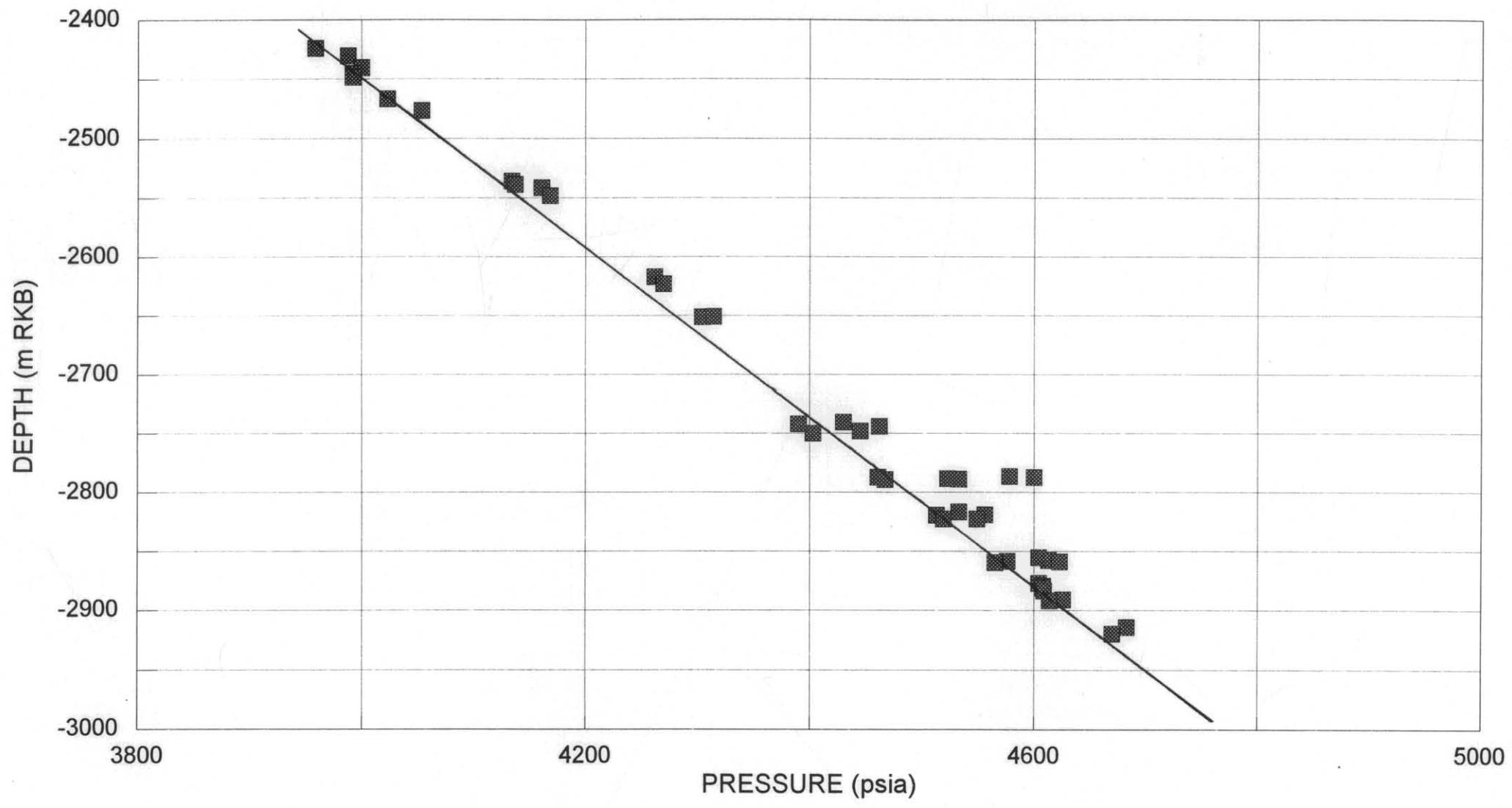


FIGURE 35

506070



# PELICAN #5 RFT PLOT (HP GAUGE)

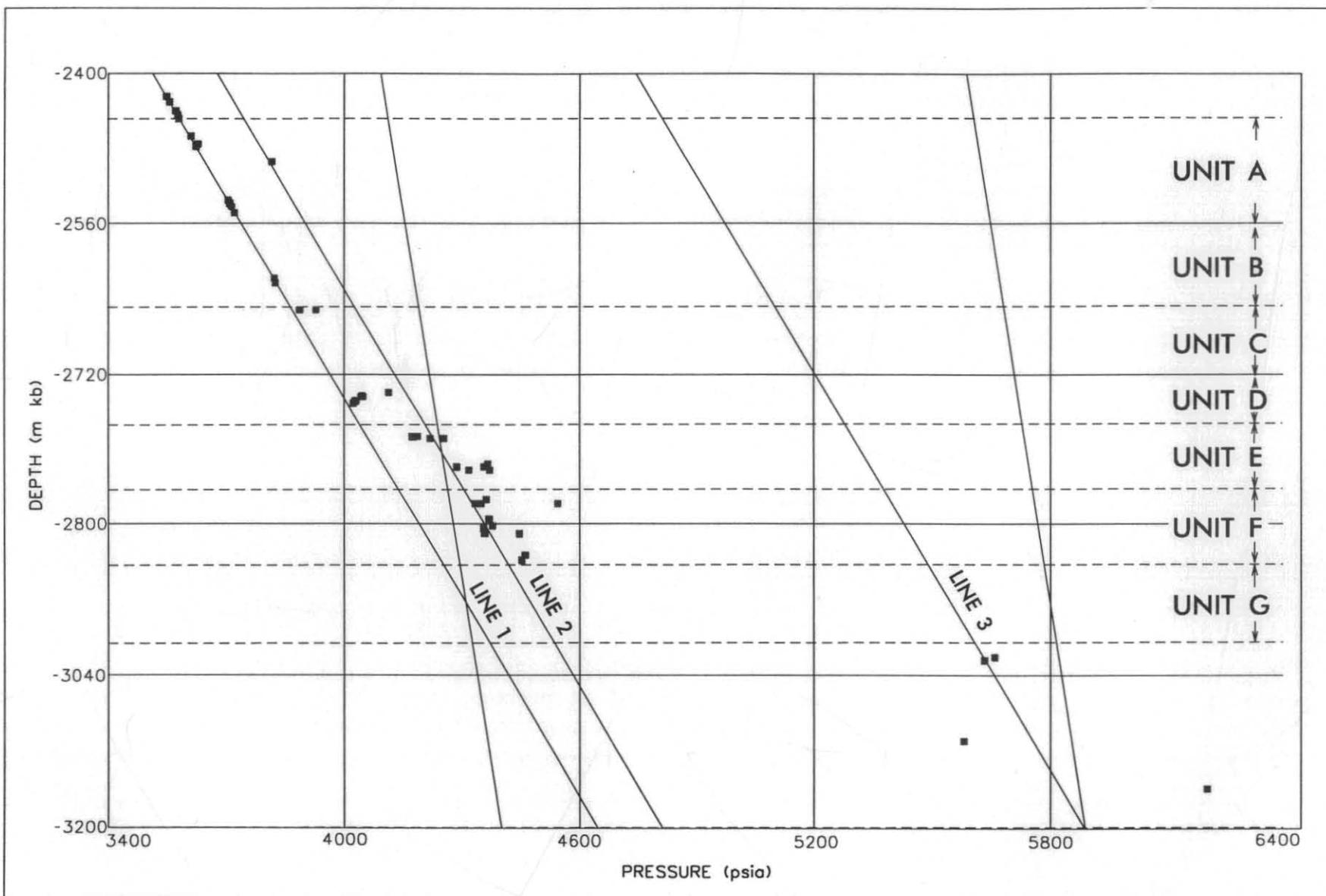
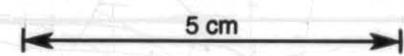


Figure 36  
13524.0995



506071

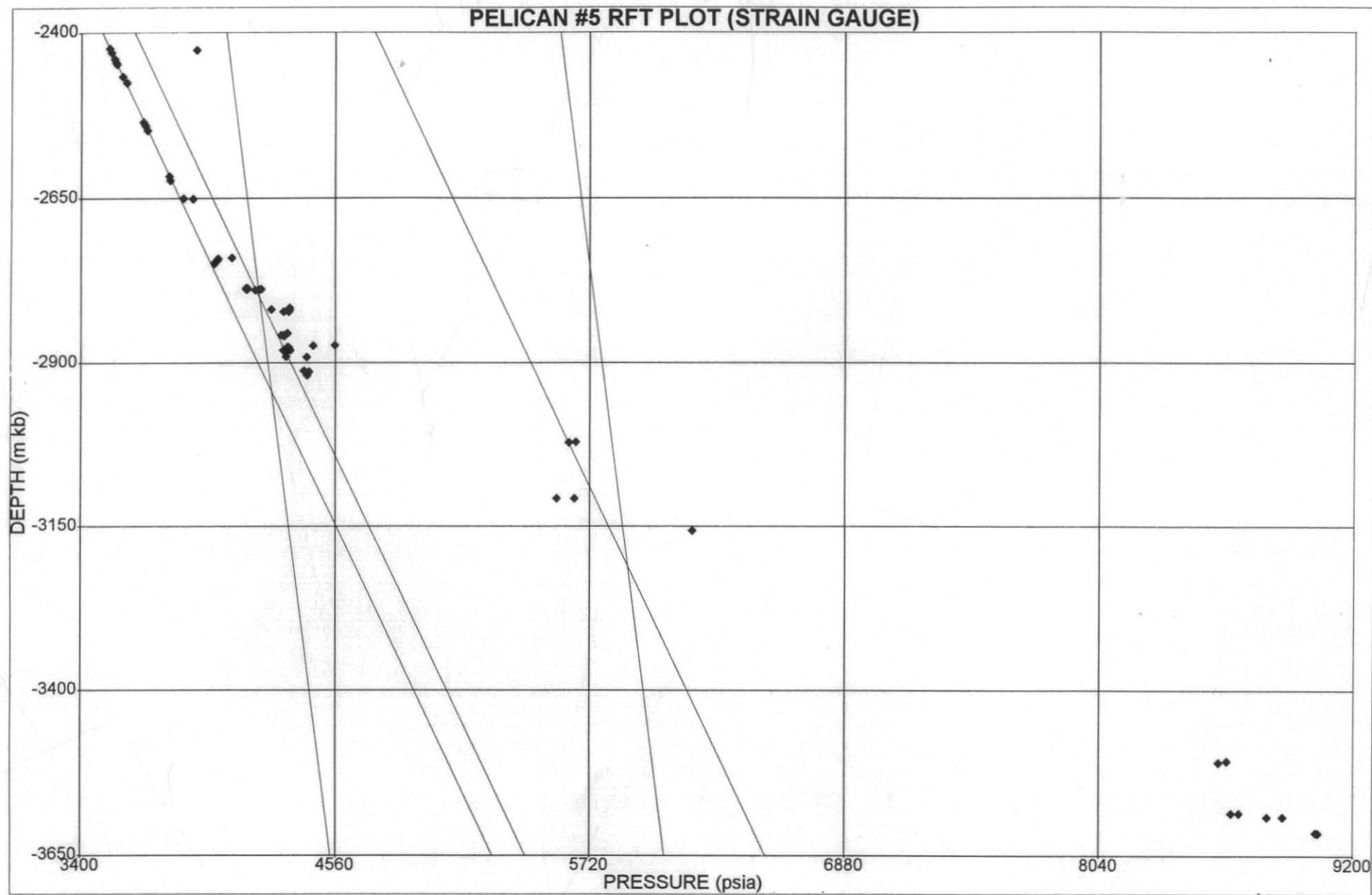
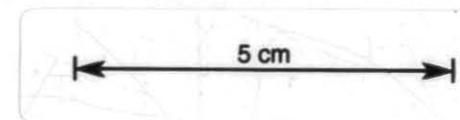


FIGURE 37



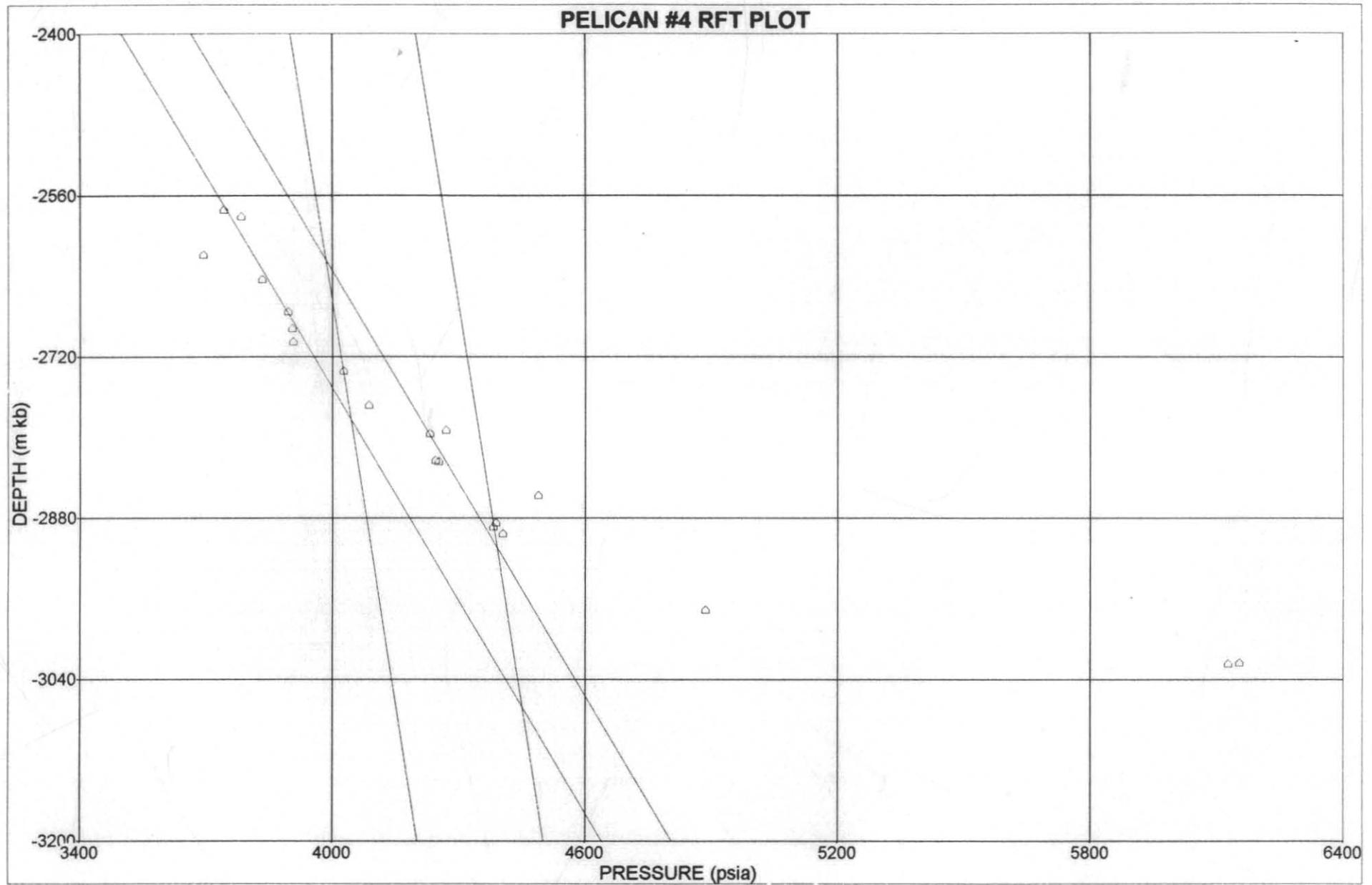
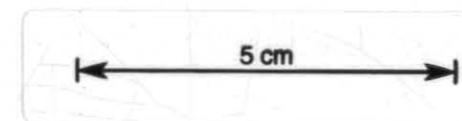


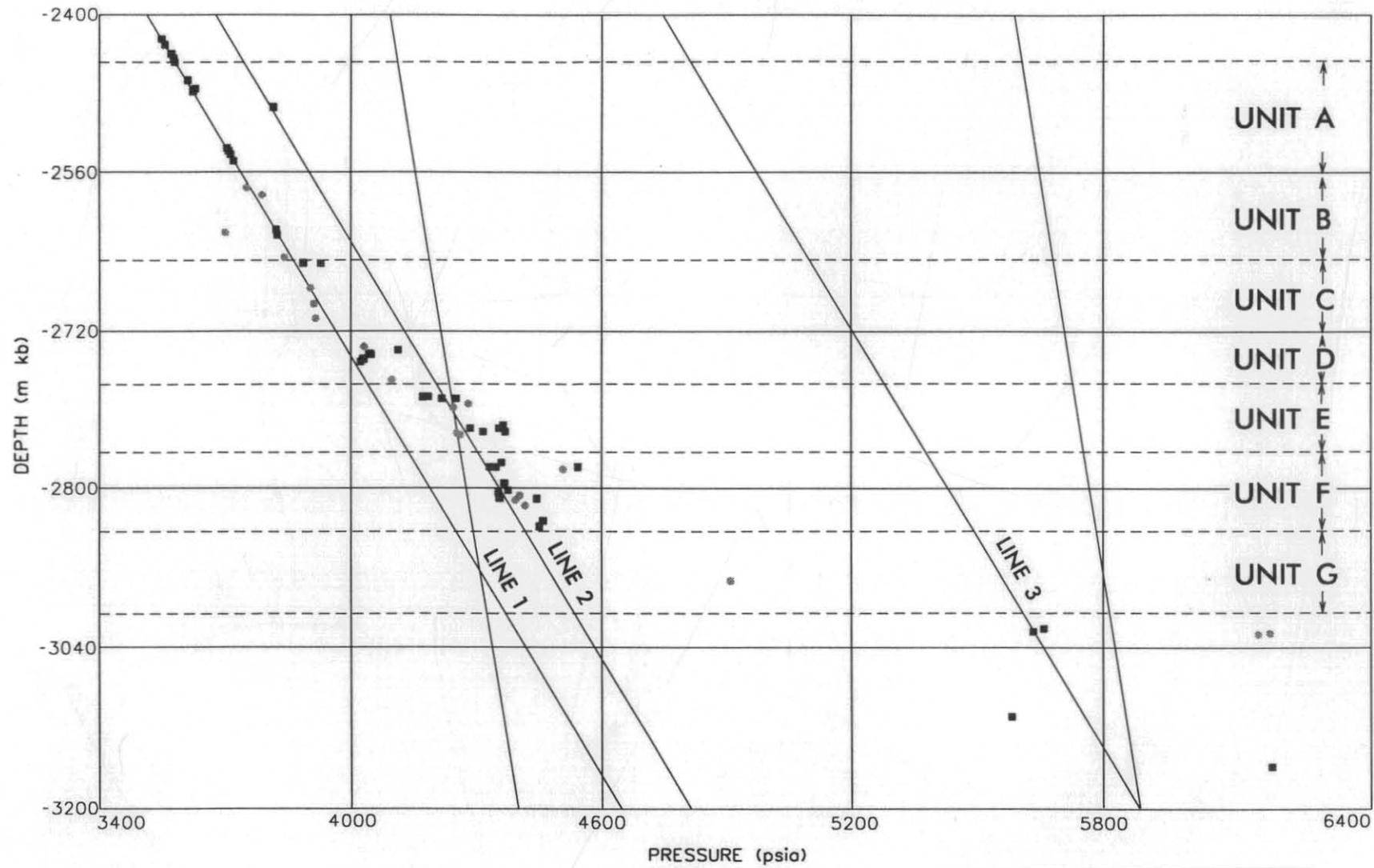
FIGURE 38



506073



# PELICAN #4 & #5 RFT PLOT



MEF9509040

- PELICAN #5 RFT PLOT
- PELICAN #4 RFT PLOT

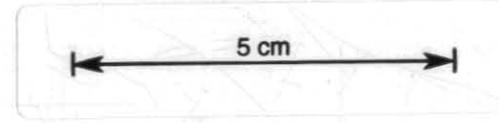


Figure 39  
13526.0995

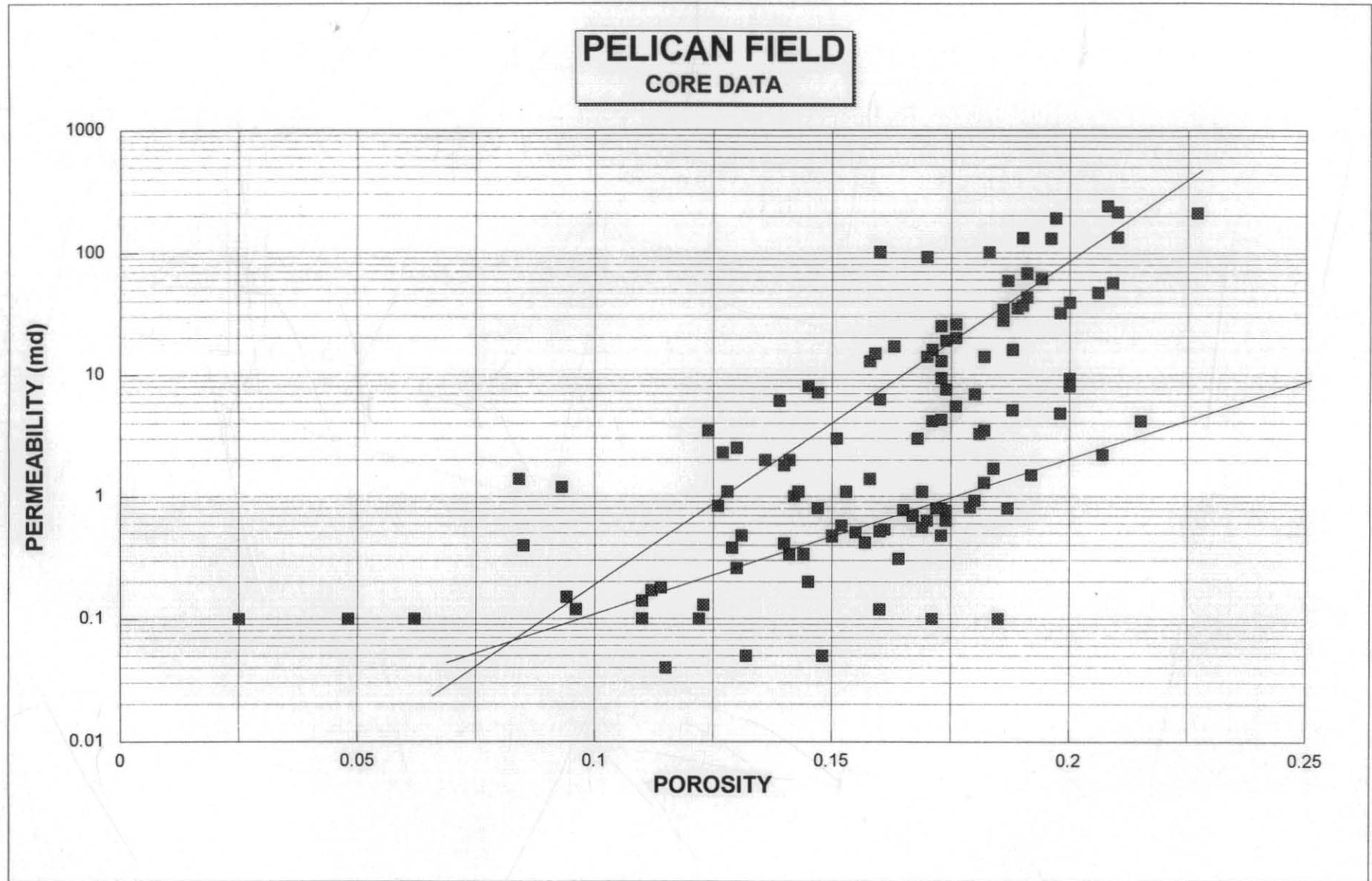
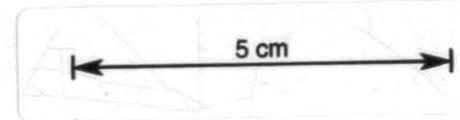


FIGURE 40



5 cm

### PELICAN 3

K.B. 9.75m (32ft)  
SPUDED 1/5/72

6.2km

### PELICAN 2

K.B. 30.48m (100ft)  
SPUDED 28/7/70

4.0km

### PELICAN 1

K.B. 30.48m (100ft)  
SPUDED 19/13/70

1.9km

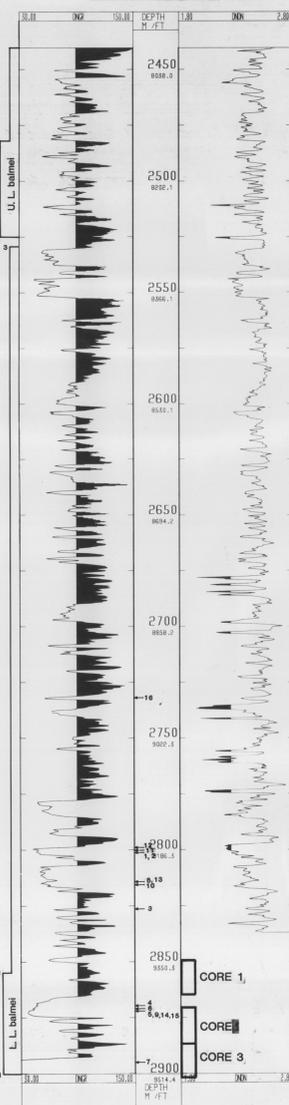
### PELICAN 5

K.B. 22.3m (73ft)  
SPUDED 29/12/85

1.9km

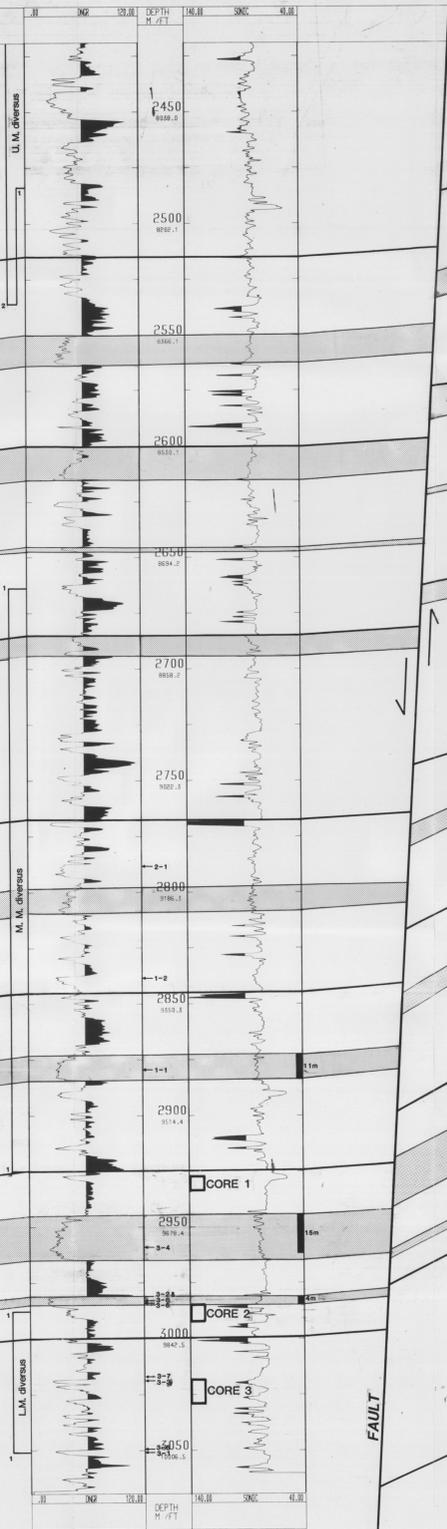
### PELICAN 4

K.B. 25.0m (82ft)  
SPUDED 17/1/79



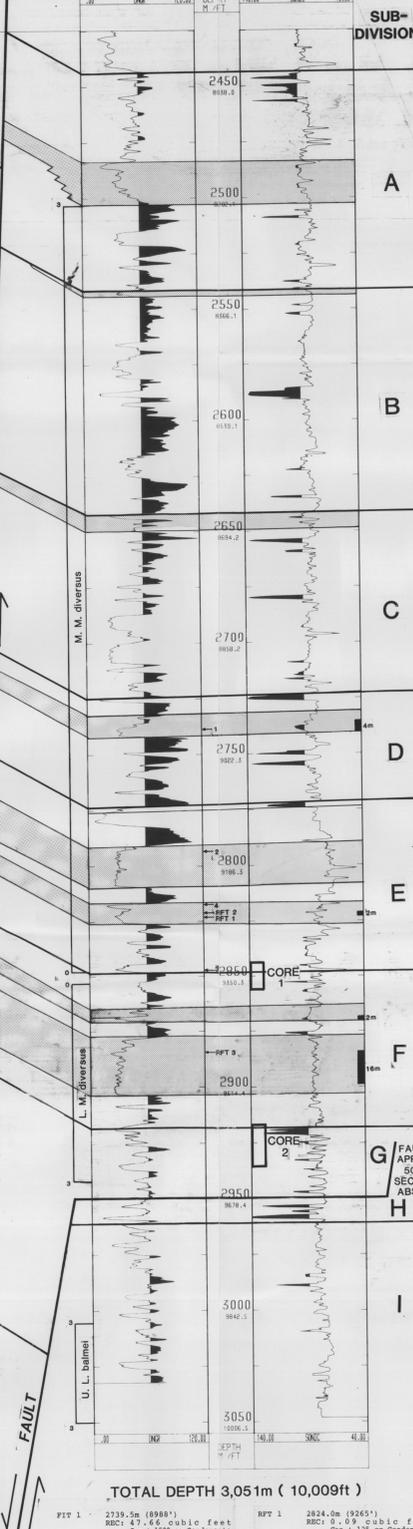
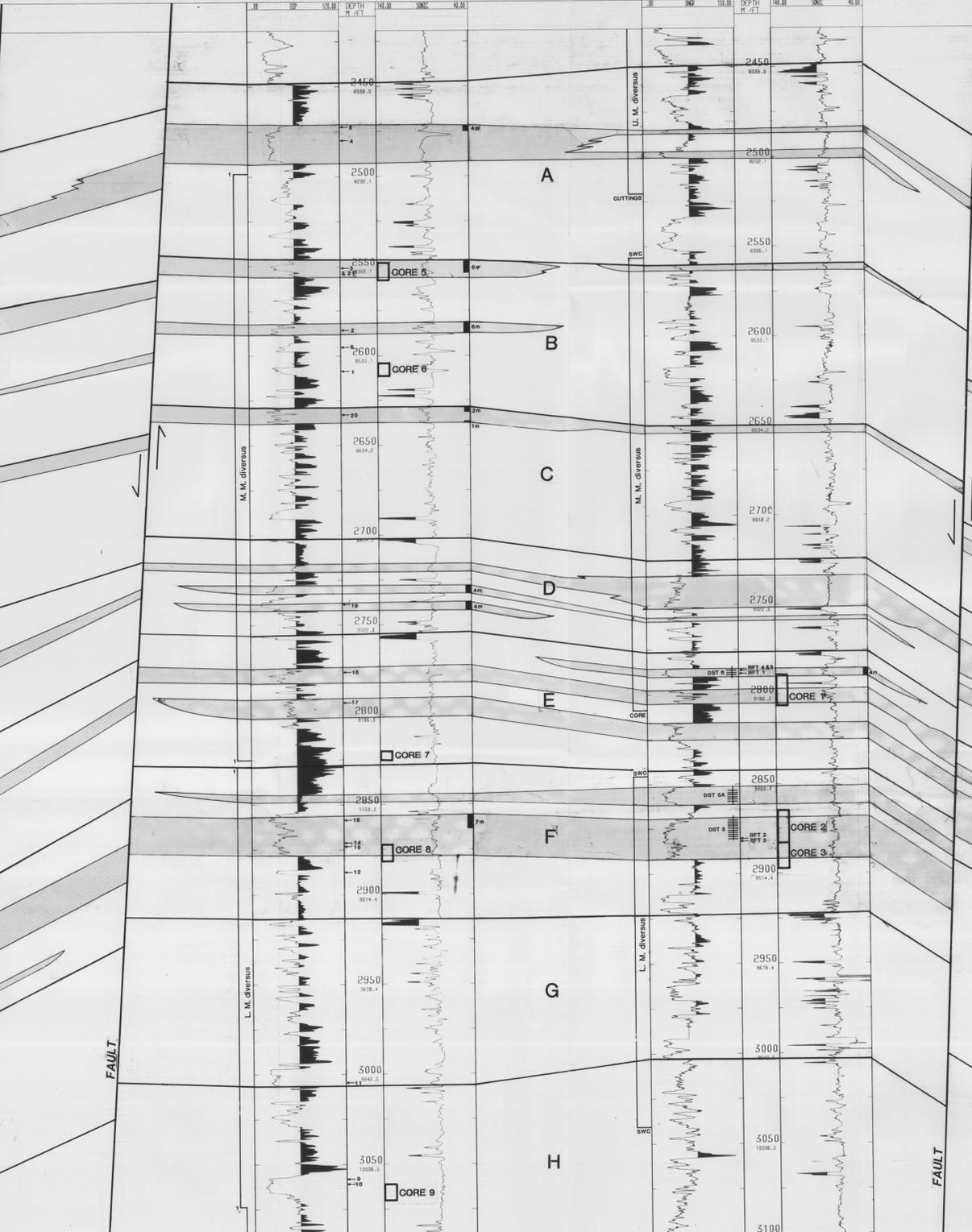
TOTAL DEPTH 2906.9m ( 9,537ft)

<p>FIT 1 2801.4m (9194') Lost seal, recovered mud. Nil recovery, light.</p> <p>FIT 2 2801.1m (9190') Nil recovery, light.</p> <p>FIT 3 2826.4m (9273') Nil recovery, light.</p> <p>FIT 4 2870.4m (9418') RBC: 0.4 cubic feet Gas + 2100 cc Water. FPIP = 5183 psi HP = 5325 psi</p> <p>FIT 5 2872.7m (9425') Nil recovery, lost seal, tight.</p> <p>FIT 6 2871.5m (9421') RBC: 23,000 cc Mud. FPIP = 5252 psi HP = 5335 psi</p> <p>FIT 7 2895.0m (9498') Nil recovery, light.</p> <p>FIT 8 2814.8m (9235') Nature of recovered fluids not identified. ISIP = 5067 psi FPIP = 4865 psi HP = 5534 psi</p>	<p>FIT 9 2872.7m (9425') RBC: 0.7 cubic feet Gas + 7000 cc Water. ISIP = 5250 psi HP = 5353 psi</p> <p>FIT 10 2835.4m (9297') RBC: 100 cc Water + trace mud, tight seal.</p> <p>FIT 11 2800.2m (9187') Recovered mud, no seal.</p> <p>FIT 12 2779.5m (9139') Nil recovery, no seal.</p> <p>FIT 13 2814.5m (9234') Nature of recovered fluids not identified. ISIP = 4900 psi FPIP = 4900 psi HP = 5700 psi</p> <p>FIT 14 2872.4m (9424') Tool failure.</p> <p>FIT 15 2872.4m (9424') Nature of recovered fluids not identified. ISIP = 5248 psi FPIP = 5759 psi</p> <p>FIT 16 2732.2m (8964') Nil recovery, light. ISIP = 4455 psi HP = 5459 psi</p>
---	--



TOTAL DEPTH 3068.1m ( 10,066ft)

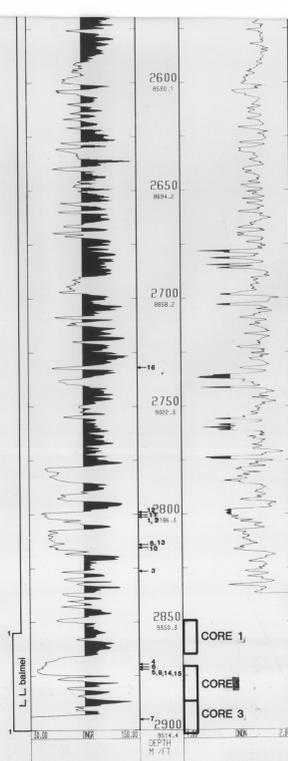
<p>FIT 1-1 2879.5m (9427') RBC: 37 cubic feet Gas + 750 cc Condensate + 13,600 cc Water. FPIP = 4330 psi HP = 407 psi</p>	<p>FIT 3-4 2958.4m (9706') RBC: 3.7 cubic feet Gas + 16,300 cc Water. FPIP = 4377 psi HP = 5130 psi</p>
---	---



TOTAL DEPTH 3,051m ( 10,009ft)

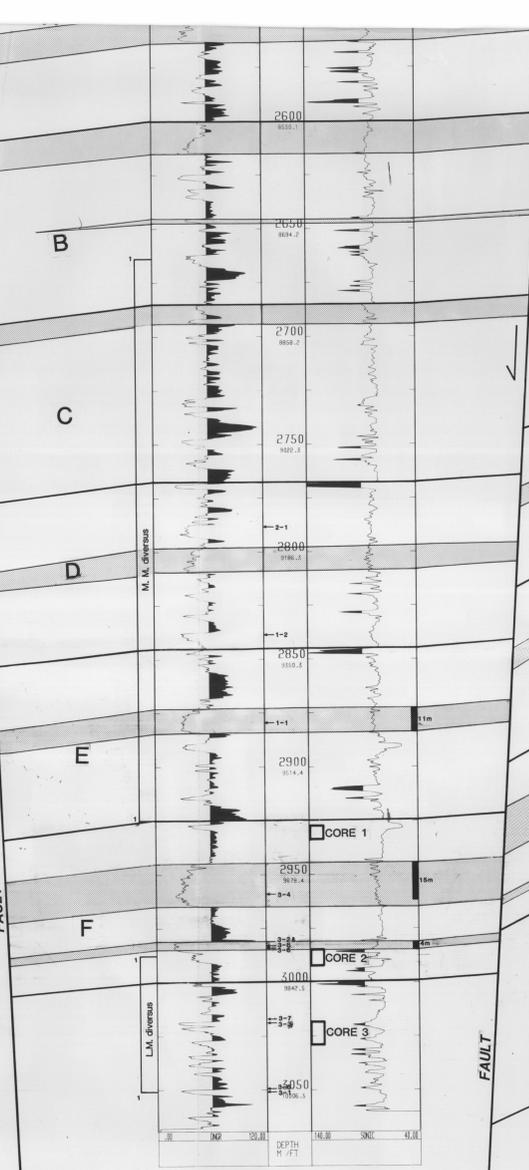
<p>FIT 1 2739.5m (9001') RBC: 47.66 cubic feet Gas + 1500 cc Condensate + 13,500 cc Water. FPIP = 4005 psi HP = 4902 psi</p> <p>FIT 2 2793.2m (9164') RBC: 0.34 cubic feet Gas + 15,700 cc Water. FPIP = 4200 psi HP = 400 psi</p>	<p>FIT 3 2884.6m (9464') RBC: 69.3 cubic feet Gas + 900 cc Condensate + 11,400 cc Water.</p>	<p>RPT 1 2824.0m (9265') RBC: 0.69 cubic feet Gas + 125 cc Condensate + 13,500 cc Water. ISIP = 4253 psi HP = 5070 psi</p> <p>RPT 2 2822.8m (9261') RBC: 0.03 cubic feet Gas + 9200 cc Water.</p> <p>RPT 3 2884.6m (9464') RBC: 69.3 cubic feet Gas + 900 cc Condensate + 11,400 cc Water.</p>
--	--	--

FAULT APPROX 50m SECTION ABSENT



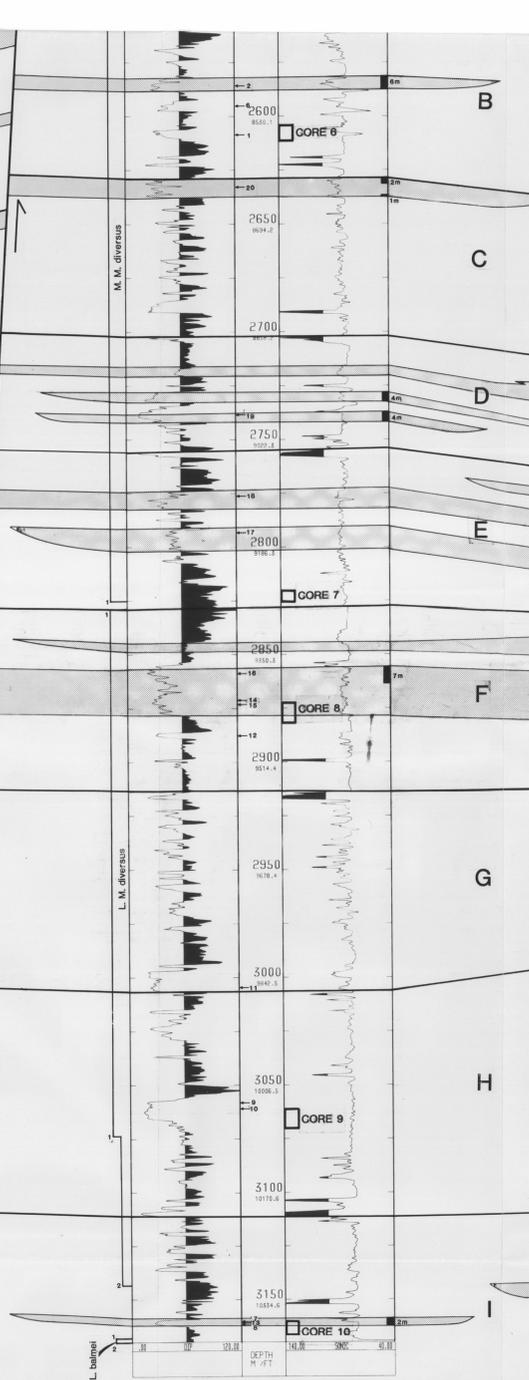
TOTAL DEPTH 2906.9m ( 9,537ft)

PIT 1	2801.4m (9194')	Lost seal, recovered mud.	PIT 9	2872.7m (9425')	RRC: 0.7 cubic feet gas + 7000 cc Water.
PIT 2	2801.1m (9190')	Nil recovery, light.	PIT 10	2815.4m (9237')	RRC: 100 cc Water + trace Mud, light sticky.
PIT 3	2826.4m (9273')	Nil recovery, light.	PIT 11	2800.2m (9187')	Recovered mud, no seal.
PIT 4	2870.6m (9418')	RRC: 0.4 cubic feet Gas + 2100 cc Water.	PIT 12	2779.5m (9115')	Nil recovery, no seal.
PIT 5	2872.7m (9425')	Nil recovery, lost seal, light.	PIT 13	2814.5m (9234')	Nature of recovered fluids not identified.
PIT 6	2871.5m (9421')	RRC: 21,000 cc Mud.	PIT 14	2872.4m (9424')	Tool failure.
PIT 7	2895.0m (9488')	Nil recovery, light.	PIT 15	2872.4m (9424')	Nature of recovered fluids not identified.
PIT 8	2814.8m (9235')	Nature of recovered fluids not identified.	PIT 16	2732.2m (8964')	Nil recovery, light.



TOTAL DEPTH 3068.1m ( 10,066ft)

PIT 1-1	2879.5m (9447')	RRC: 3.7 cubic feet Gas + 750 cc Condensate + 1,300 cc Mud Filtrate.	PIT 3-4	2958.4m (9704')	RRC: 3.7 cubic feet Gas + 1,300 cc Mud Filtrate.
PIT 1-2	2838.3m (9312')	RRC: 180 cc Mud.	PIT 3-5	3049.6m (9986')	RRC: 50 cc Mud.
PIT 2-1	2788.6m (9149')	RRC: 1.0 cubic feet Gas + 3800 cc Mud Filtrate + trace oil.	PIT 3-6	2982.5m (9785')	RRC: 0.6 cubic feet Gas + 3400 cc Mud Filtrate.
PIT 3-1	3050.1m (10,007')	RRC: 50 cc Mud.	PIT 3-7	3018.7m (9894')	RRC: 1.7 cubic feet Gas + 3400 Mud Filtrate.
PIT 3-2	2982.2m (9784')	RRC: 50 cc Mud.	PIT 3-8	2982.2m (9784')	RRC: 0.6 cubic feet Gas + 3400 Mud Filtrate.
PIT 3-3	3019.3m (9904')	RRC: 0.4 cubic feet Gas + 2100 cc Mud Filtrate.			



TOTAL DEPTH 3178.5m ( 10,428ft)

PIT 1	2608.2m (8557')	PA1100.	PIT 8	3161.4m (10,372')	RRC: 3.7 cubic feet Gas + 3500 cc Condensate.
PIT 2	2585.9m (8484')	RRC: 1.8 cubic feet Gas + 7500 cc Condensate.	PIT 9	3059.1m (10,033')	RRC: Mud, Failed.
PIT 3	2550.3m (8367')	RRC: 1.0 cubic feet Gas + 3500 cc Condensate.	PIT 10	3061.7m (10,045')	RRC: Mud, Failed.
PIT 4	2480.5m (8138')	RRC: 21,000 cc Mud Filtrate.	PIT 11	3004.7m (9858')	RRC: 4800 cc Mud Filtrate.
PIT 5	2473.5m (8115')	RRC: 1.0 cubic feet Gas + 3500 cc Condensate.	PIT 12	2887.7m (9474')	RRC: 1,500 cc Mud Filtrate.
PIT 6	2555.4m (8415')	RRC: 1.0 cubic feet Gas + 3500 cc Condensate.	PIT 13	3060.5m (10,041')	RRC: 3.2 cubic feet Gas + 3500 cc Condensate.
PIT 7	2473.5m (8115')	RRC: 1.0 cubic feet Gas + 3500 cc Condensate.	PIT 14	3011.0m (9877')	RRC: Mud, Plugged.

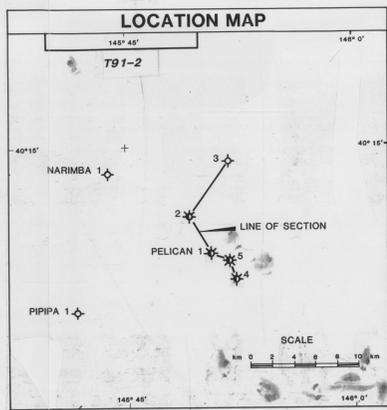


TOTAL DEPTH 4267.3m ( 14,000ft)

DEF 1	3671.9-3685.6m (12,047.0-12,092.0')	No pressure. No flow.	DEF 5A	2855.0-2860.5m (9366.6-9348.7')	RRC: 85 barrels of GCM and MOC.
DEF 1A	3685.6-3699.0m (12,092.0-12,136.0')	No pressure. No flow.	DEF 6	2786.0-2790.0m (9140.0-9135.0')	GTS at 3.5 MFCPD with 400 BOPD on a 3/8" choke.
DEF 2	3611.9-3618.0m (11,850.0-11,870.0')	No pressure. No flow.	RPT 1	2788.3m (9148')	RRC: 9500 cc Mud Filtrate.
DEF 3	3611.9-3618.0m (11,850.0-11,870.0')	No pressure. No flow.	RPT 2	2801.0m (9152.1')	RRC: 6500 cc Mud Filtrate.
DEF 4	3142.0-3163.0m (10,308.0-10,376.0')	GTS at 0.75 MFCPD with 1.0 MFCPD on a 1/2" choke. GTS at 0.433 MFCPD on a 3/8" choke with 0.5 barrel of condensate heavy and paraaffinic.	RPT 3	2802.0m (9155.4')	RRC: 9500 cc Mud Filtrate.
DEF 5	2869.0-2883.0m (9412.6-9408.0')	RRC: small quantity of condensate heavy and paraaffinic.	RPT 4	2788.2m (9147.6')	RRC: 1.1 cubic feet gas. 400 cc Condensate. 5000 cc Mud Filtrate.
			RPT 5	2788.3m (9148')	RRC: 9500 cc Mud Filtrate.

TOTAL DEPTH 3,051m ( 10,009ft)

PIT 1	2739.5m (8988')	RRC: 47.66 cubic feet Gas + 1500 cc Condensate.	PIT 1	2824.0m (9265')	RRC: 0.9 cubic feet Gas + 1500 cc Condensate.
PIT 2	2793.2m (9164')	RRC: 0.4 cubic feet Gas + 1,700 cc Water.	PIT 2	2832.8m (9261')	RRC: 0.9 cubic feet Gas + 9250 cc Water.
PIT 3	2847.4m (9342')	RRC: 0.3 cubic feet Gas + 700 cc Water.	PIT 3	2884.6m (9464')	RRC: 0.9 cubic feet Gas + 800 cc Condensate.
PIT 4	2815.7m (9238')	RRC: 0.1 cubic feet Gas + 20,700 cc Water.			



**LEGEND**

**PALYNOLOGY**

**CONFIDENCE RATING**

0	Excellent	Core or SWC with zone species
1	Good	Core or SWC with zone species
2	Poor	Core or SWC non-zone species
3	Fair	Cuttings with zone species
4	Nil	Cuttings with non-zone species

**PAY**

Interval in metres

**TEST INTERVALS**

Formation interval test

Repeat formation test

Test through perforations

Sand with hydrocarbon test in at least one well

**CORES**

Cored interval and Core number

**SAGASCO Resources Ltd.**

BASS BASIN - TASMANIA

T91-2 GAZETTAL

**SCHEMATICAL STRUCTURAL CROSS - SECTION**

AUTHOR: R. SUTTILL DATE: DECEMBER 1986 PLAN No: PAC\_005604

DRAWN: P. OLDHAM DATUM: M.S.L. CHECKED: [ ]

SCALE: AS SHOWN CONTOUR INTERVAL: [ ]