30-19-21

TORP

Post-it® Fax Note 7671	Date 4/1/97	# of pages ▶ 1
To Tim Carr	From Rodney Reynolds	
Co./Dept. KG-S	Co. TORP	
~~Phone #~~ cc: Paul G + Saibal	Phone # 4-4491	
Fax # 4-5317	Fax # 4-4967	

Memo

To: Paul Willhite
Don Green
Shapour Vossoughi

From: Rodney Reynolds

CC: Tim Carr
Paul Gerlach
Saibal Bhattacharya

Date: April 1, 1997

Re: Wellbore flowing pressures in the Schaben Field

I am in receipt of a copy of the recent fluid level data acquired by Ritchie Exploration on the wells they operate in the Schaben Field. From my experience as a production engineer, I am familiar with how this data is acquired, the instruments used to acquire this data, the accuracy limitations associated with these instruments, and how to interpret the data. My evaluation of the data indicates that of the 23 wells on which data was received, 15 of the wells are operating in a pumped off condition. This is the general practice of the oil industry, especially when dealing with marginal production. However, occasionally situations dictate that backpressure be held against the formation in wells that have high productivity, produce excessive amounts of water, to assist in reducing lifting costs, or in some instances may assist in maintaining some percentage in oil cut. I also spoke with Danny Biggs (production superintendent) and Jack Gurley (petroleum engineer) for Pickrell Drilling Company, concerning fluid levels on their wells. They indicated that they have not recently shot fluid levels, but in general they try to pump the wells off, however they have a few large water producers they cannot pump off. They said its time to shoot fluid levels and they will supply a copy of the results to me.

I have also compared the recently acquired fluid level data to the fluid level information acquired from the historic information contained in the well files, on which TORP based the model and simulation. The recent data correlates with the data we used, with 2 exceptions. The recent data indicates the Moore B-6 is carrying approx. 200' fluid above the perforations and the well files indicated it to be pumped off and the Moore D-4 which Ritchie field personnel indicated to me had "a lot of fluid in the hole" and the recent data indicates it is pumped off.

15-135

30-19-21
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Name	Interval		Vis.	Oil gr.	B= FVF	K	Phi	C	Skin	Final pr.	Temp	Water Sp gr.	Chlorides	Sulfates	Calcium	Magnesium	Kh/Vis.
	To	From	cp			md		vol/vol/psi*10^6			F						
Moore B5	4395	4405	3		1.2		0.15	10	6.87	1375	118						
15-135-30062	4385	4395	3		1.2	30	0.15	10	5.41	1382	118						
Moore B1	4430	4440										1.029	25800	2500	2140	300	= 30740
15-135-29844	4313	4325		39 @ 60							119						
	4380	4396									116						
	4330	4396									116						
	4396	4410	2.5	42.6	1.2	115	0.15	12	-3.96	665	120						
	4410	4420	2.5		1.2	13.65	0.15	10	2.02	1397	119						
	4420	4430	2.5		1.2	87	0.15	12	-2.91	1413	120						
	4430	4440									118						
Moore B4	4402	4412	3		1.2	11.45	0.15	10	0.353	1273	118						
15-135	4412	4422	3		1.2	216	0.15	10	20.8	1377	120						
30042	4393	4402									118						
Moore B6	4415	4427									112						
15-135	4427	4437									112						
19004	4437	4447		39 @ 60							118						
Moore C2	Prod. Int			38													
19003	4304	4319									110						
Moore C3	DST 7																21.75
21024	DST 6					3.45											9.19
Moore D1	4392		28 @ 77F										25000				25000
30047	4366	4383	3		1.2	1.17	0.15	10	0.727	1405	100						
	4383	4398	3	40.5-60	1.2	28	0.17	10	2.49	1377	100						
	4398	4410	3		1.2	13.8	0.13	10	3.195	1407	100						
Moore D2	4365	4386	2.5		1.2			10	0.5	1340	116						
30023	4386	4393									118						
Moore D3	4400	4410									119						
30030	4381	4388									118						
	4388	4400	3		1.15	21.1	0.15	10	8.08	1383	119						
	4400	4410	3		1.15	100	0.15	10	11.65	1372	119						
Moore D4	4408	4418									112						
	4418	4428		36							112						
	4428	4436		38							112						
Foos A2	4409	4414		36 @ 60							115	1.035	29200	3250	2000	250	
30025	4401	4409									115						
Humburg A2												1.04	29201	5000	1222	793	
19015	4391	4401	3		1.2	17.3	0.15	10	0.695	1370	110						
	4401	4411	3		1.2	20.4	0.15	10		1275	112						
	4295	4310									110						
Borger A1	4405	4422		38 @ 60							115						
19012	4308	4323									115						
Borger A2	4398	4410	3		1.2		0.15	10	0.435	1389							
30004	4389	4398	3		1.2	9.6	0.15	10	1.7	1456	100						
	4369	4378									100						

Total diss. solids

↓
Avg.
1.035

P.TS Laboratories, Inc.

Kansas Geological Survey
File No.: 21397

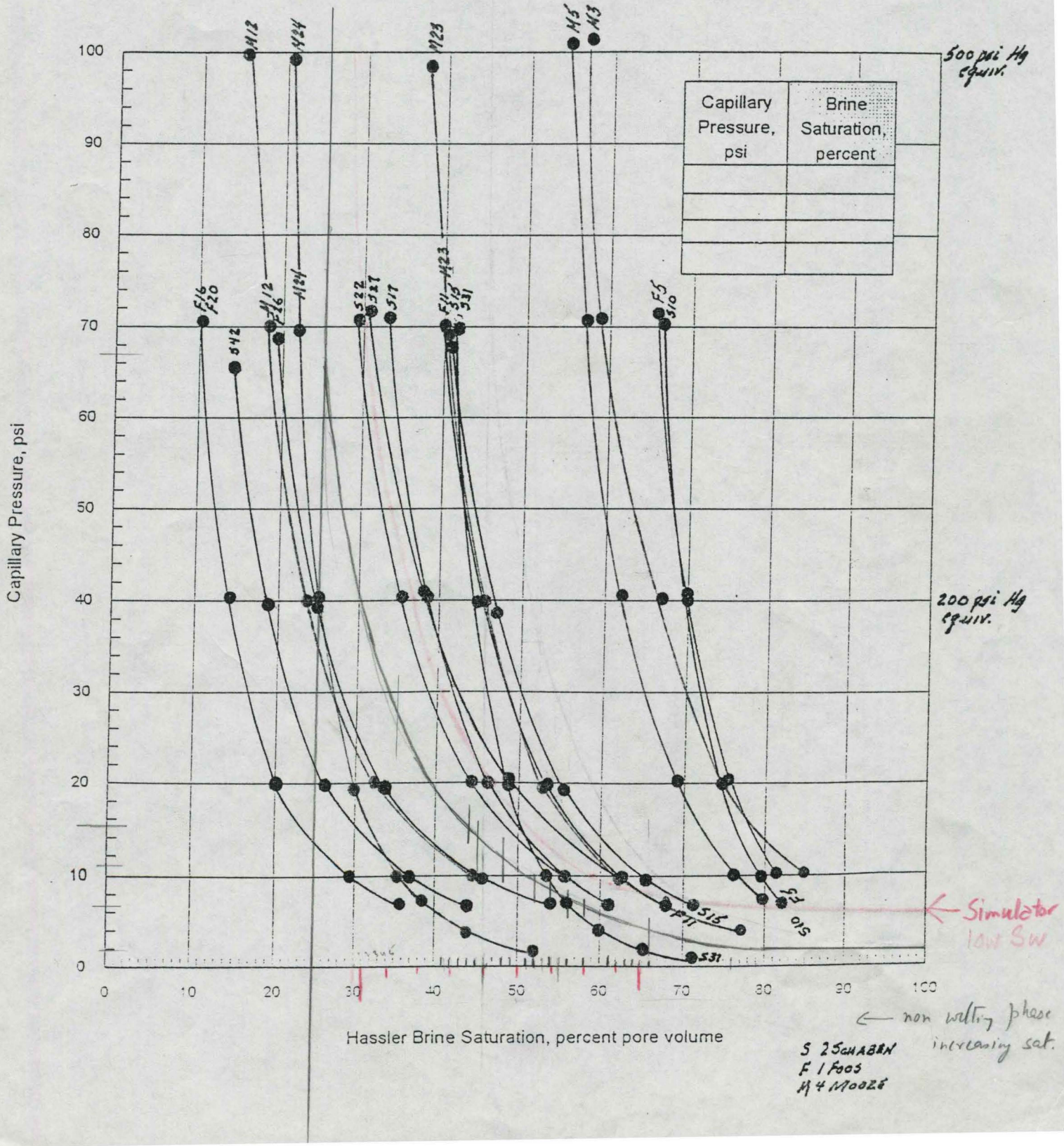
CENTRIFUGE CAPILLARY PRESSURE

Air Displacing Brine System
Ambient Conditions

$P_{c(atm)} = .3608\, P_{c(atm)}$

Well: Ritchie
Field: Schaben
Location: Ness County, Kansas

Sample ID:
Depth, ft.:
Permeability to Air, md:
Porosity, percent:



Schaben Field

	Cap. P Sample ID	depth	K air	core PHI helium deter.	MRIL core PHI saturation deter.
Moore 4	2	4394.8	0.036	7.4	7.02
	3	4399.4	0.144	12.6	13.97
	5	4411.2	1.38	16.5	15.12
	12	4423.5	8.54	19.8	21.32
	23	4437.1	0.777	10.8	9.74
	24	4437.8	149	14.7	11.56
Foos 1	5	4398	0.21	6	7.09
	11	4405.7	13	18.6	18.65
	16	4410.8	43	23.5	22.69
	20	4416.4	64	24.5	23.47
	26	4427.6	14	18.4	18.49
Lyle 2	10	4398.8	3.7	14.5	13.53
	15	4403.8	7.5	14	16.25
	17	4405.8	48	16.9	16.38
	22	4411.8	25	18.4	18.72
	27	4417.2	2.8	16.8	17.23
	31	4421.7	1030(frac)	12.9	12.82
	42	4434.8	33	22.7	22.04

PTS Laboratories, Inc

NMR DATA SUMMARY

Kansas Geological Survey
File No. 1397

Well: Ritchie 2 Lyle Schaben "P"

100 % Saturated Sample Data

Sample ID	10	15	17	22	27	31	42
Regularized Fluid Filled Porosity, %	14.61	16.17	16.49	18.82	17.27	12.91	21.95
MRIL Fluid Filled Porosity, %	13.53	16.25	16.38	18.72	17.23	12.82	22.04
"Free" Water Saturation, %	44.1	59.8	67.3	77.1	79.2	42.7	80.1
"Free" Average T_2, ms	220.	180.	237.	113.4	80.16	717.	114.3
"Bound" Water Saturation, %	55.9	40.2	32.7	22.9	20.8	57.3	19.9
"Bound" Average T_2, ms	15.33	17.35	21.24	13.98	11.72	25.	14.43
Calculated Permeability, md	2.10	15.4	30.4	139.	128.	1.5	382.
Desaturated Sample Data (Original) *(70 psi)*							
Regularized Fluid Filled Porosity, %	10.54	8.22	6.77	7.44	7.41	5.04	6.23
MRIL Fluid Filled Porosity, %	10.38	8.41	6.93	7.60	6.68	4.98	6.39
"Free" Water Saturation, %	46.70	70.00	66.40	60.30	69.20	26.30	58.50
"Free" Average T_2, ms	58.32	37.81	49.02	51.04	39.80	222.67	29.77
"Bound" Water Saturation, %	53.30	30.00	33.60	39.70	30.80	73.70	41.50
"Bound" Average T_2, ms	7.23	7.41	8.30	8.11	7.58	12.46	7.05
Desaturated Sample Data (100 psi)							
Regularized Fluid Filled Porosity, %	10.62	8.89	6.27	6.51	7.40	4.68	4.73
MRIL Fluid Filled Porosity, %	10.27	8.99	6.33	6.52	7.49	4.19	4.71
"Free" Water Saturation, %	44.11	66.18	61.93	53.68	62.08	28.16	33.76
"Free" Average T_2, ms	63.98	39.88	41.47	47.62	41.96	606.17	31.27
"Bound" Water Saturation, %	55.89	33.82	38.07	46.32	37.92	71.84	66.24
"Bound" Average T_2, ms	7.41	7.61	7.71	7.29	7.31	14.31	6.27
Desaturated Sample Data (1000 psi)							
Regularized Fluid Filled Porosity, %	6.75	5.46	3.93	2.68	3.26	2.76	2.58
MRIL Fluid Filled Porosity, %	6.52	5.41	3.89	2.59	3.18	2.23	2.03
"Free" Water Saturation, %	42.33	61.92	51.41	34.36	21.63	35.87	1.48
"Free" Average T_2, ms	40.08	32.40	31.06	31.41	34.18	449.13	6253.08
"Bound" Water Saturation, %	57.67	38.08	48.59	65.64	78.37	64.13	98.52
"Bound" Average T_2, ms	5.31	5.94	6.06	4.93	5.51	10.06	8.59

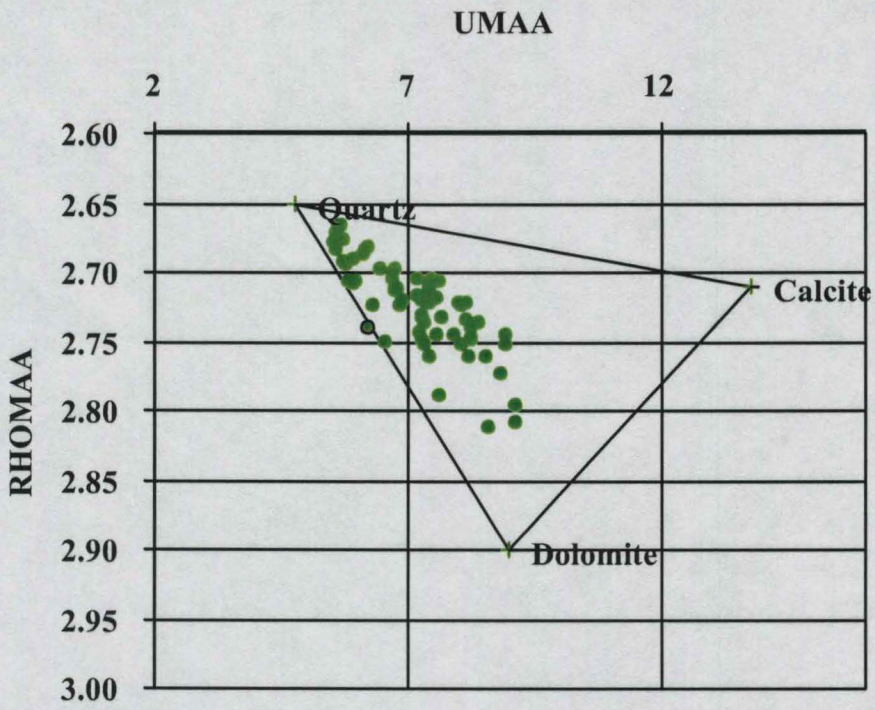


Figure --: RHOMAA-UMAA plot constructed on log data from Lyle Schaben 2P well to analyze lithologic composition of the reservoir rock.

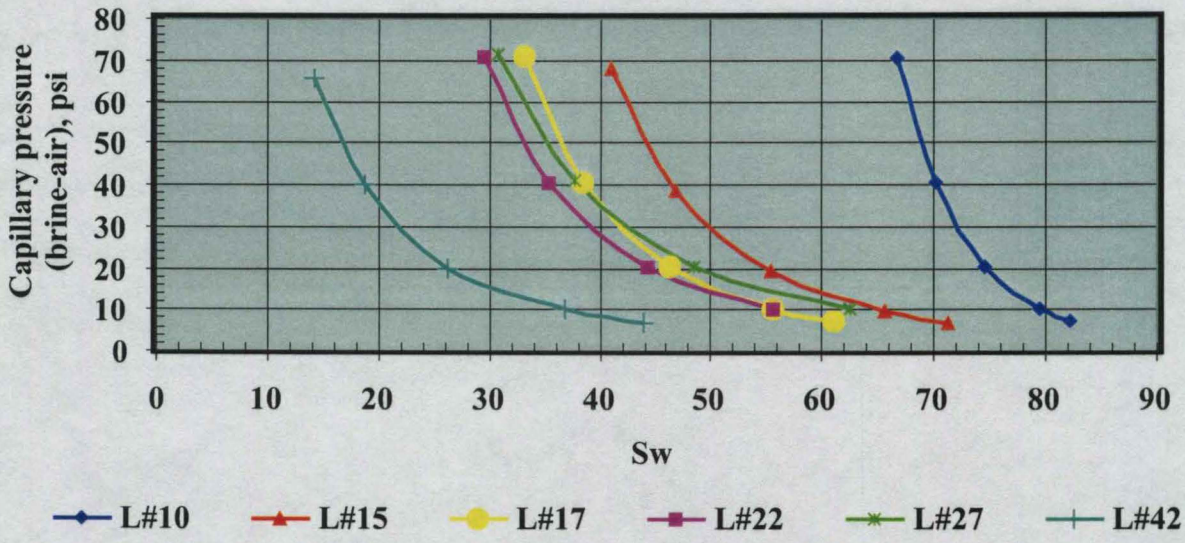
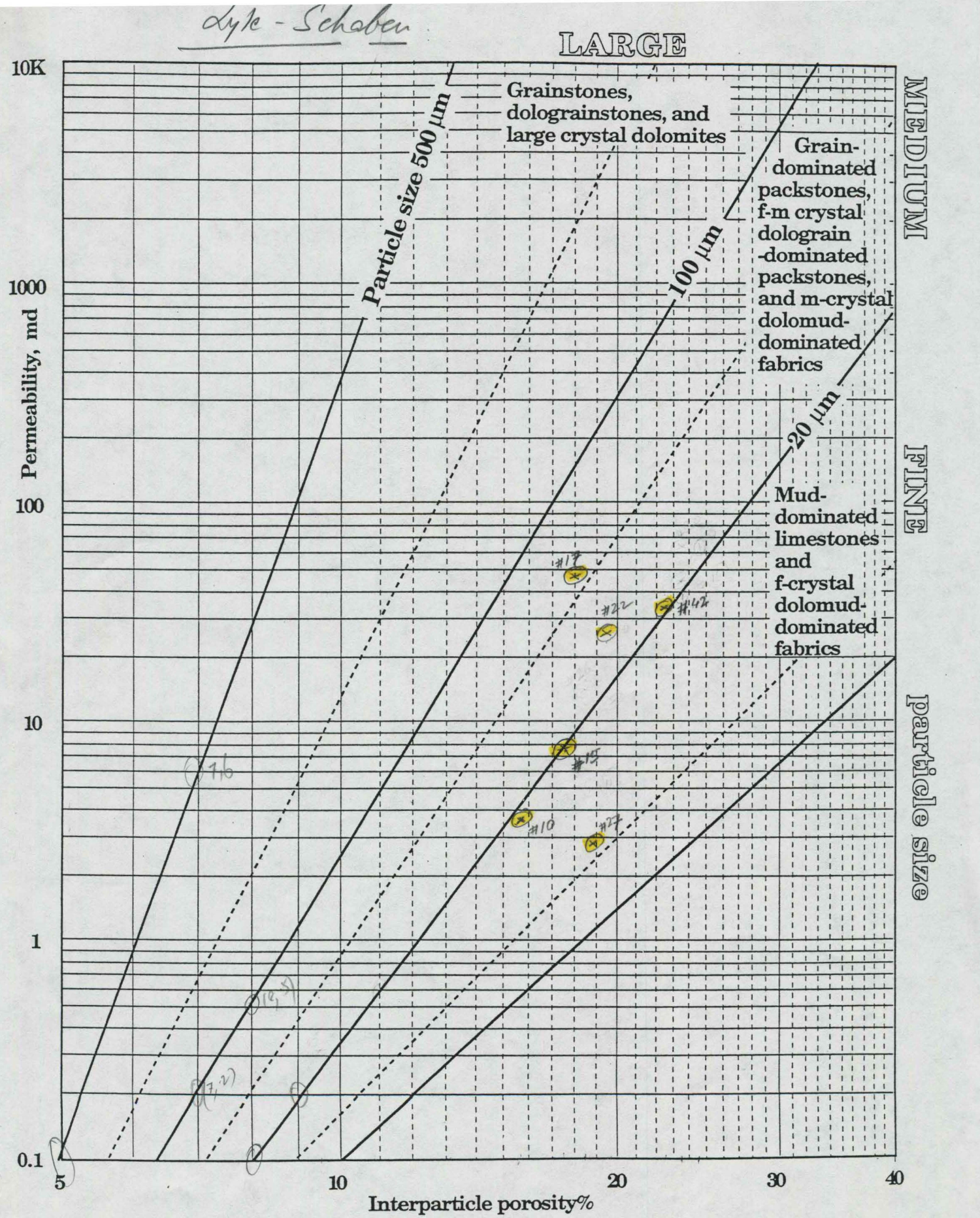
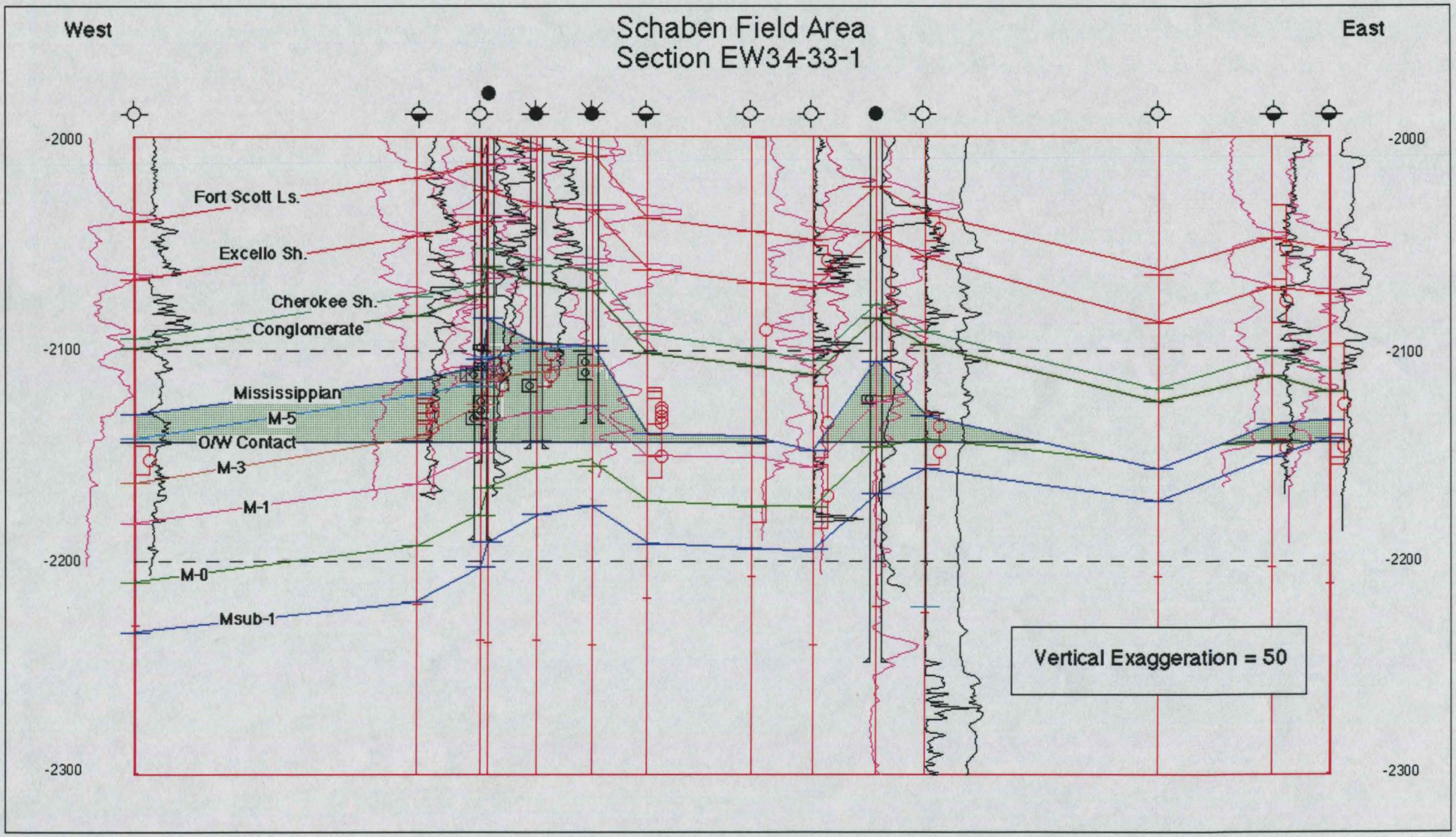


Figure --: Capillary pressure curves measured at (or near) 70 psi (brine-air) on Mississippian plugs taken from Lyle Schaben 2P.

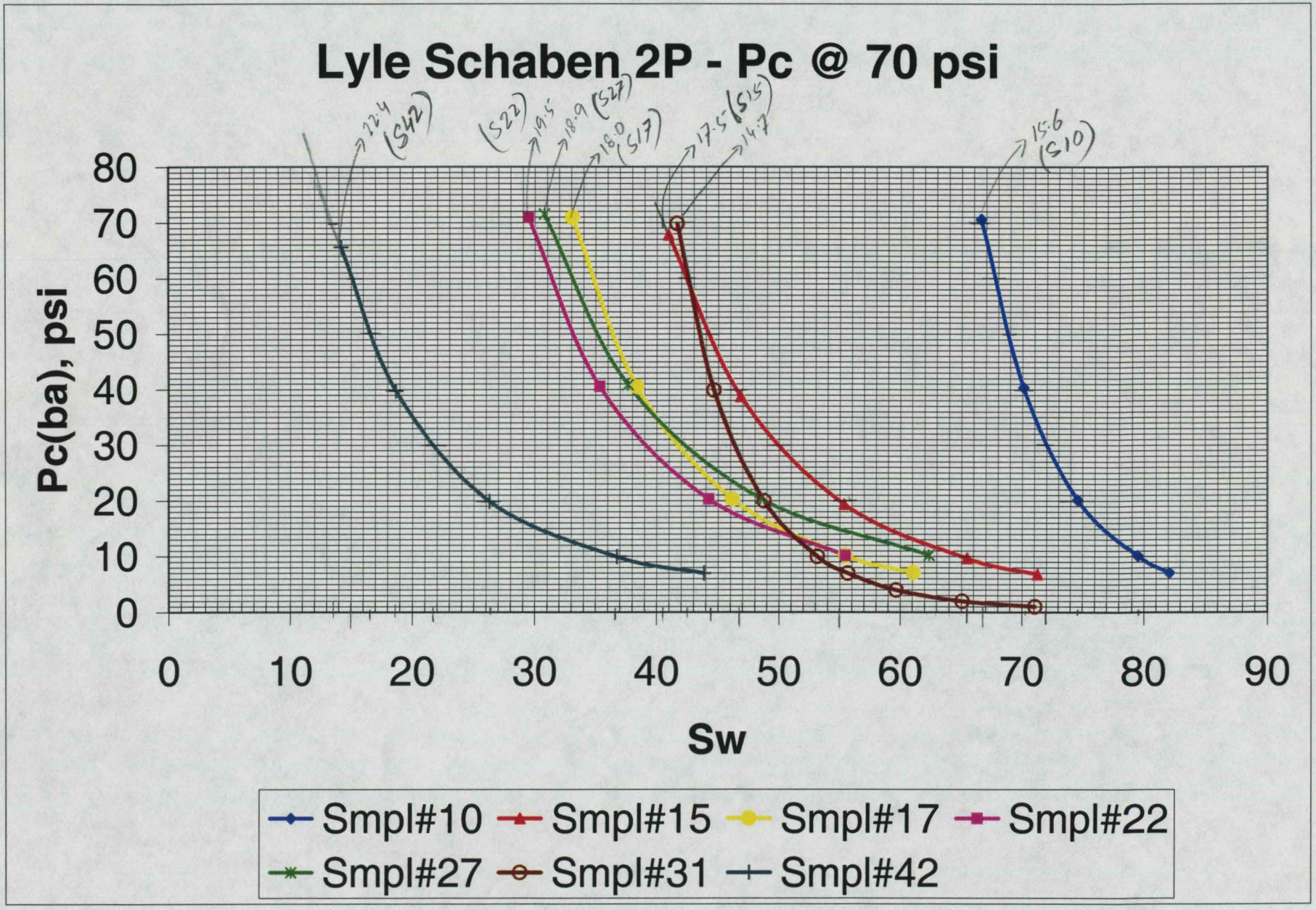


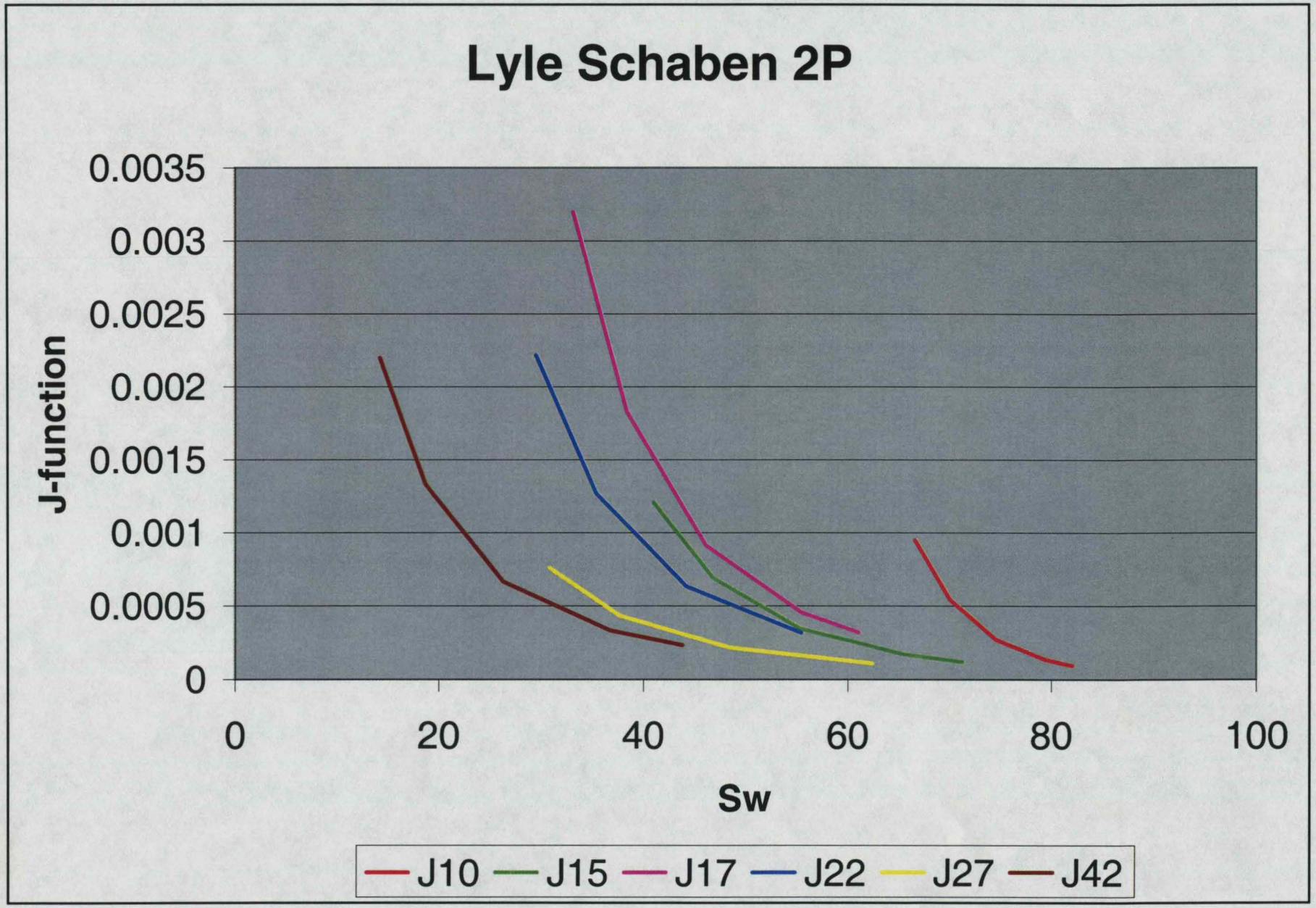
Lucia (1983, 1995) non-vuggy carbonate classification of porosity-permeability fields by particle size class. Sloping dashed lines are RMA fits for each class.

Through Lyle Schaben 2P



M9 = 17
M10 = 5
22


Lyle Schaben 2P - Pc @ 70 psi
Pc(ba), psi
Sw
0
10
20
30
40
50
60
70
80
90
22.4 (S42)
(S22)
19.5
18.9 (S27)
18.0 (S17)
17.5 (S15)
14.7
15.6 (S10)
Smpl#10
Smpl#15
Smpl#17
Smpl#22
Smpl#27
Smpl#31
Smpl#42



J10 J17 J15 J22 J27 J42

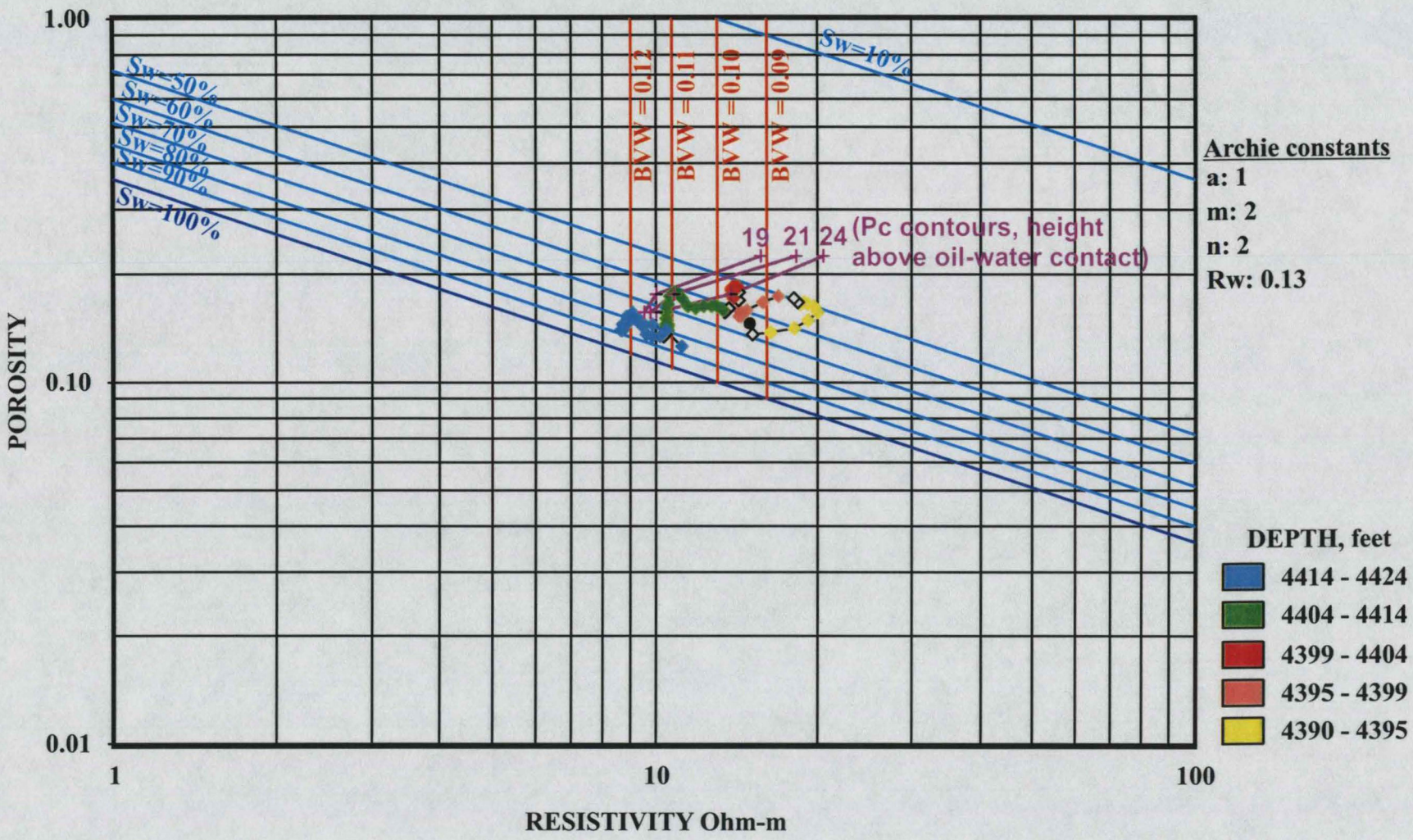
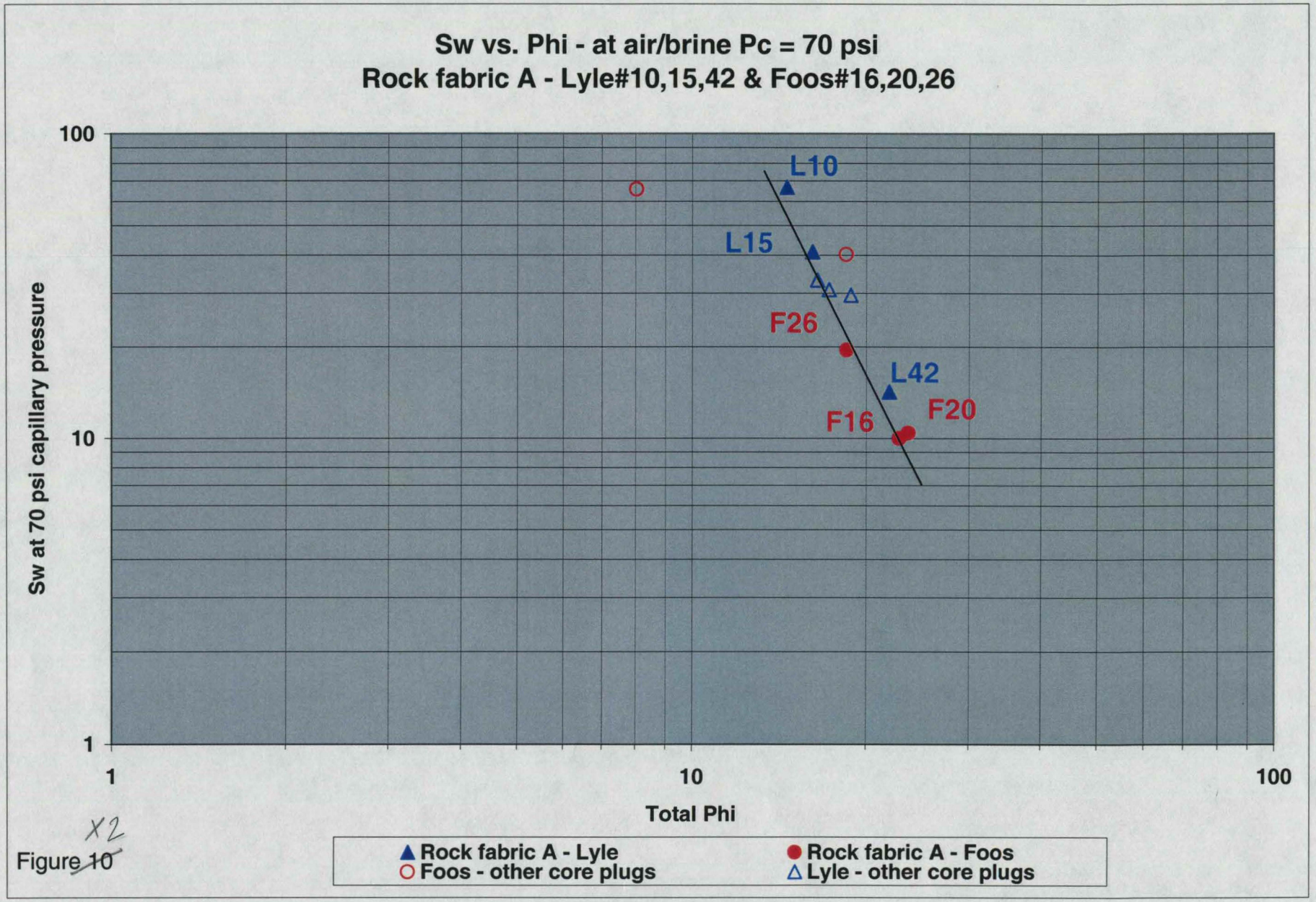


Figure --: Super Pickett plot of Lyle Schaben 2P well. Capillary pressure data from core plugs L#10, L#15, and L#42 plotted as height above oil-water contact contours. Perforated interval extends from 4400-4404 feet. Initial production rates: 53 bopd and 97 bwpd.


Sw vs. Phi - at air/brine Pc = 70 psi
Rock fabric A - Lyle#10,15,42 & Foos#16,20,26
Sw at 70 psi capillary pressure
100
10
1
1
10
100
Total Phi
L10
L15
F26
L42
F16
F20
Rock fabric A - Lyle
Foos - other core plugs
Rock fabric A - Foos
Lyle - other core plugs

X2

Figure ~~10~~

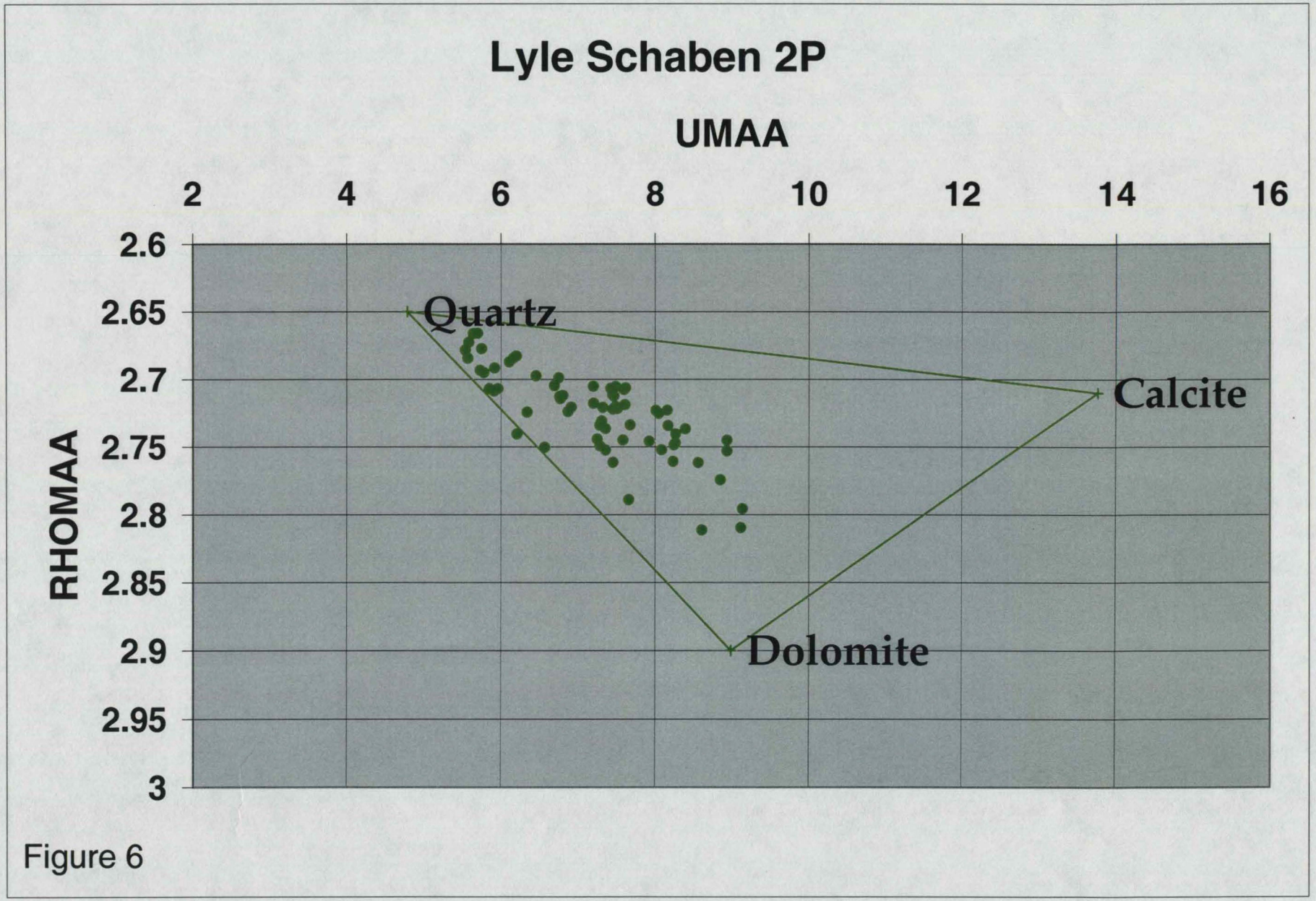

Lyle Schaben 2P
UMAA
2
4
6
8
10
12
14
16
RHOMAA
2.6
2.65
2.7
2.75
2.8
2.85
2.9
2.95
3
Quartz
Calcite
Dolomite

Figure 6

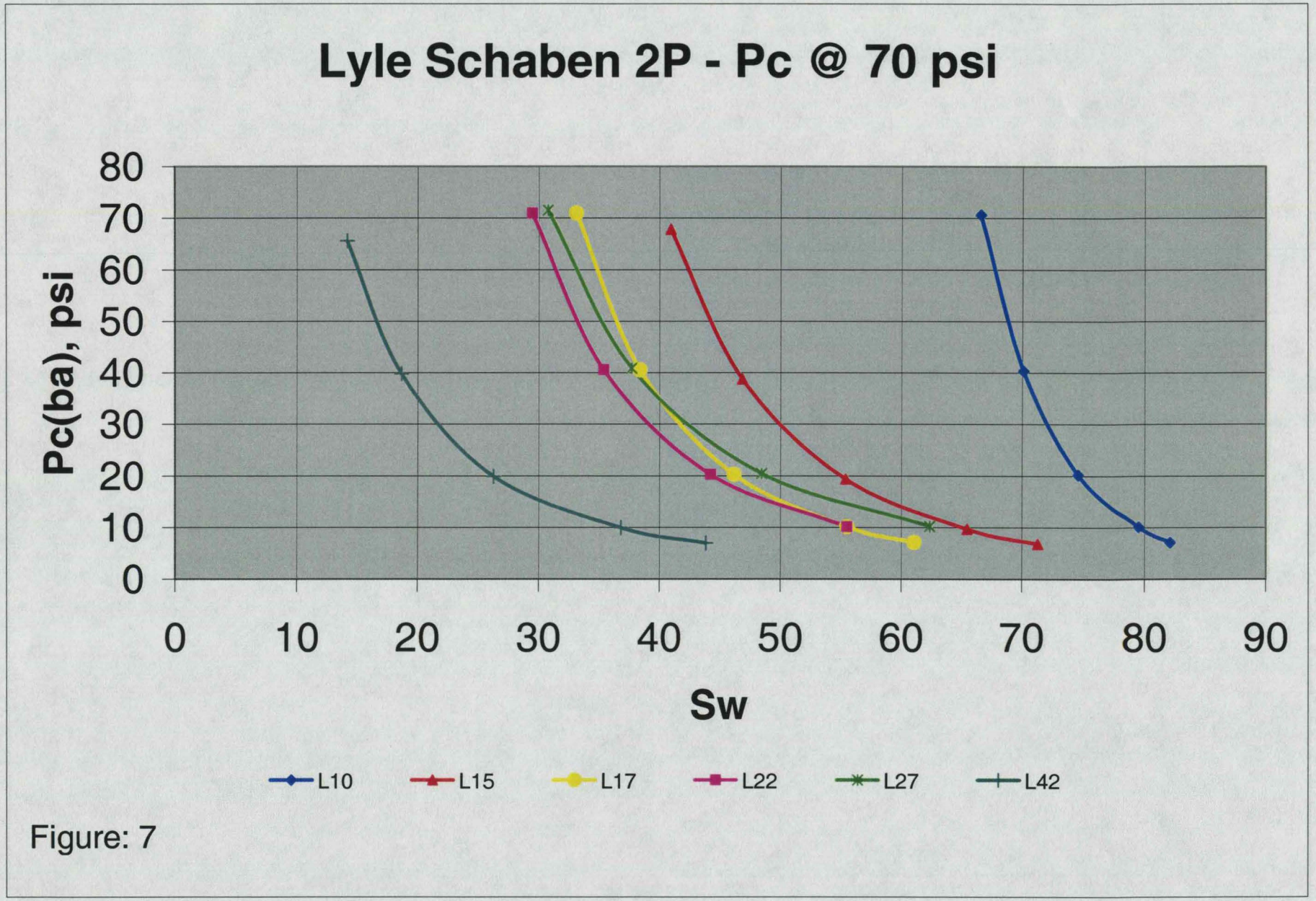

Lyle Schaben 2P - Pc @ 70 psi
Pc(ba), psi
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
Sw
L10
L15
L17
L22
L27
L42

Figure: 7

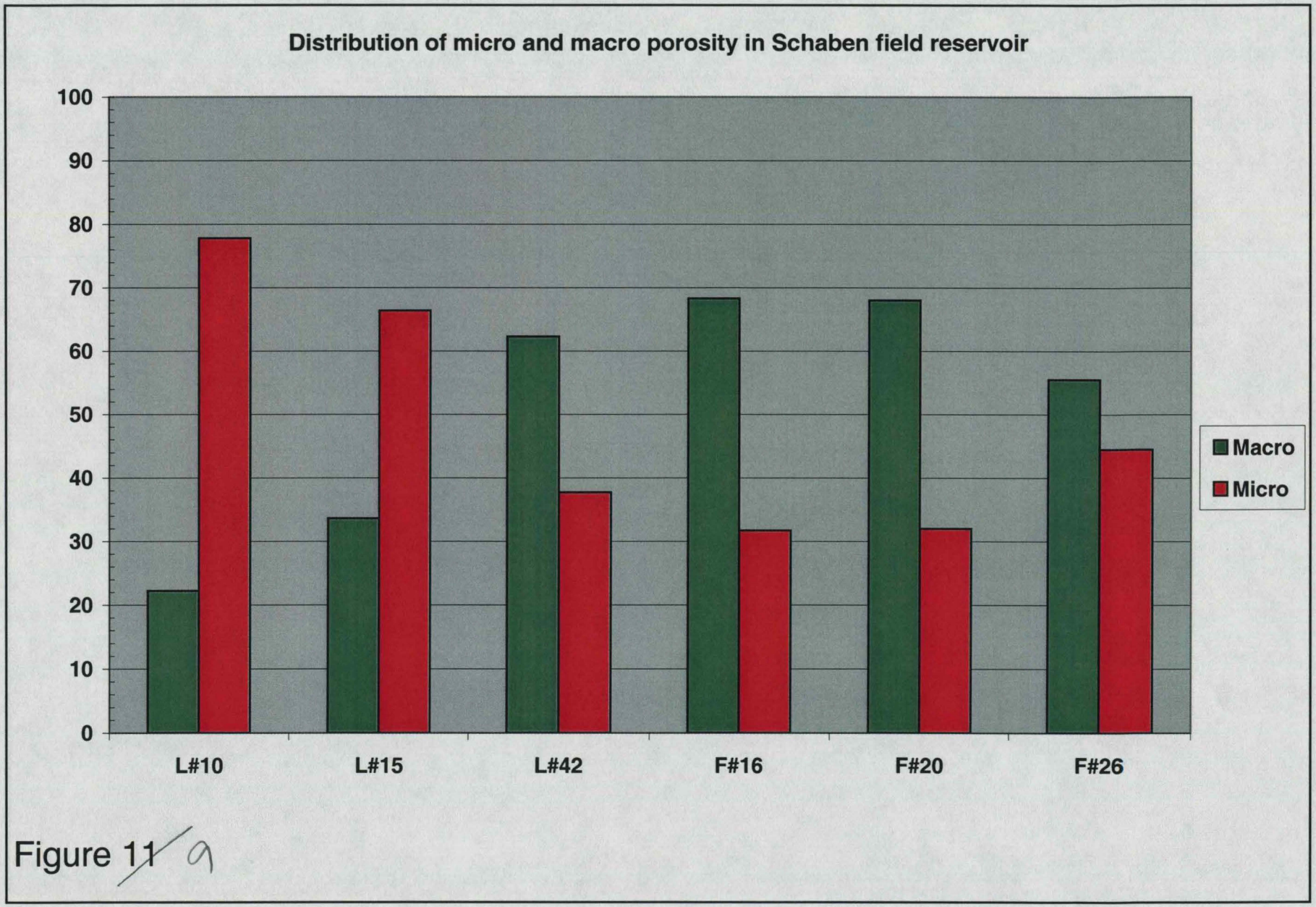

Distribution of micro and macro porosity in Schaben field reservoir
100
90
80
70
60
50
40
30
20
10
0
L#10
L#15
L#42
F#16
F#20
F#26
Macro
Micro

Figure 11 a

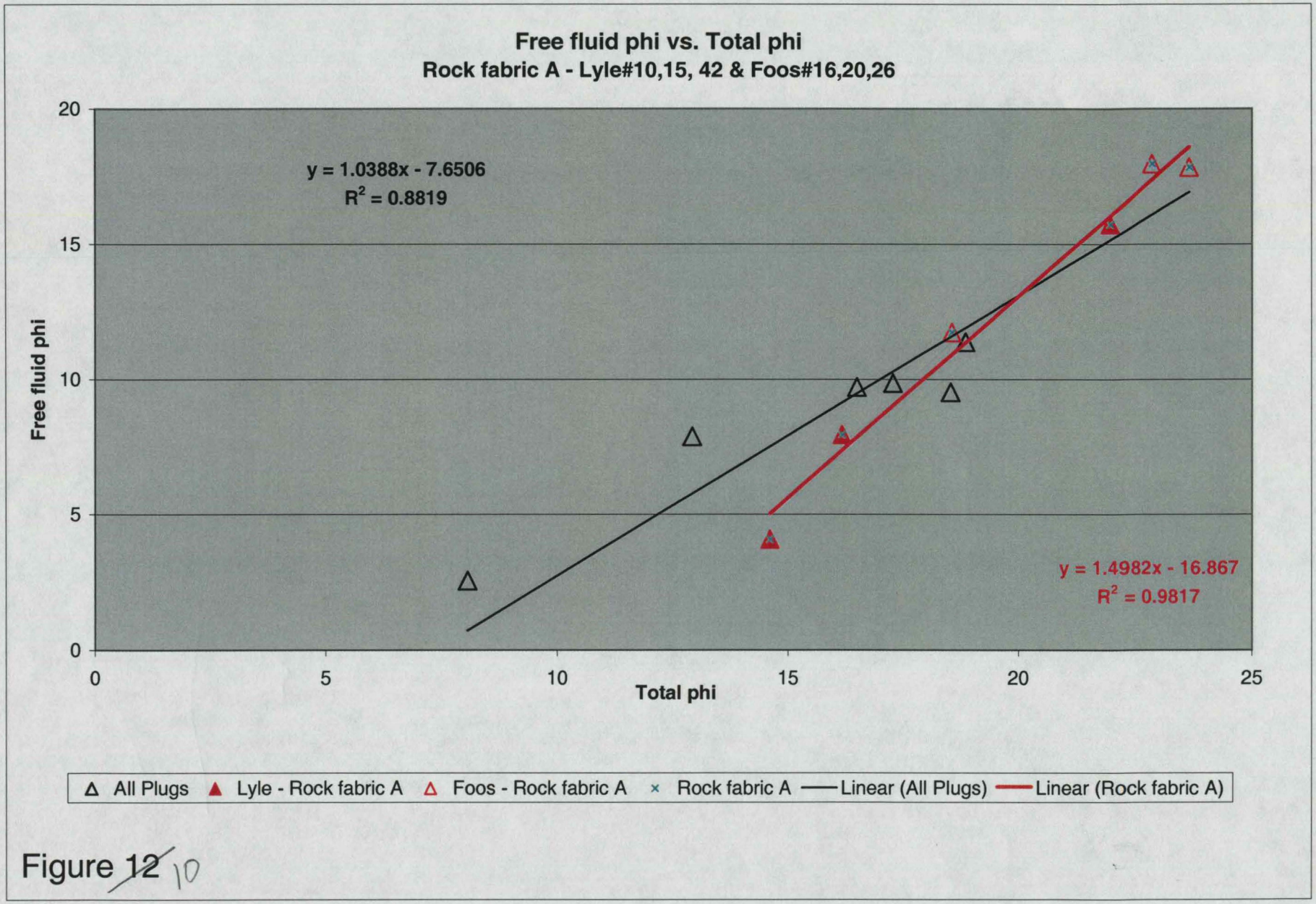
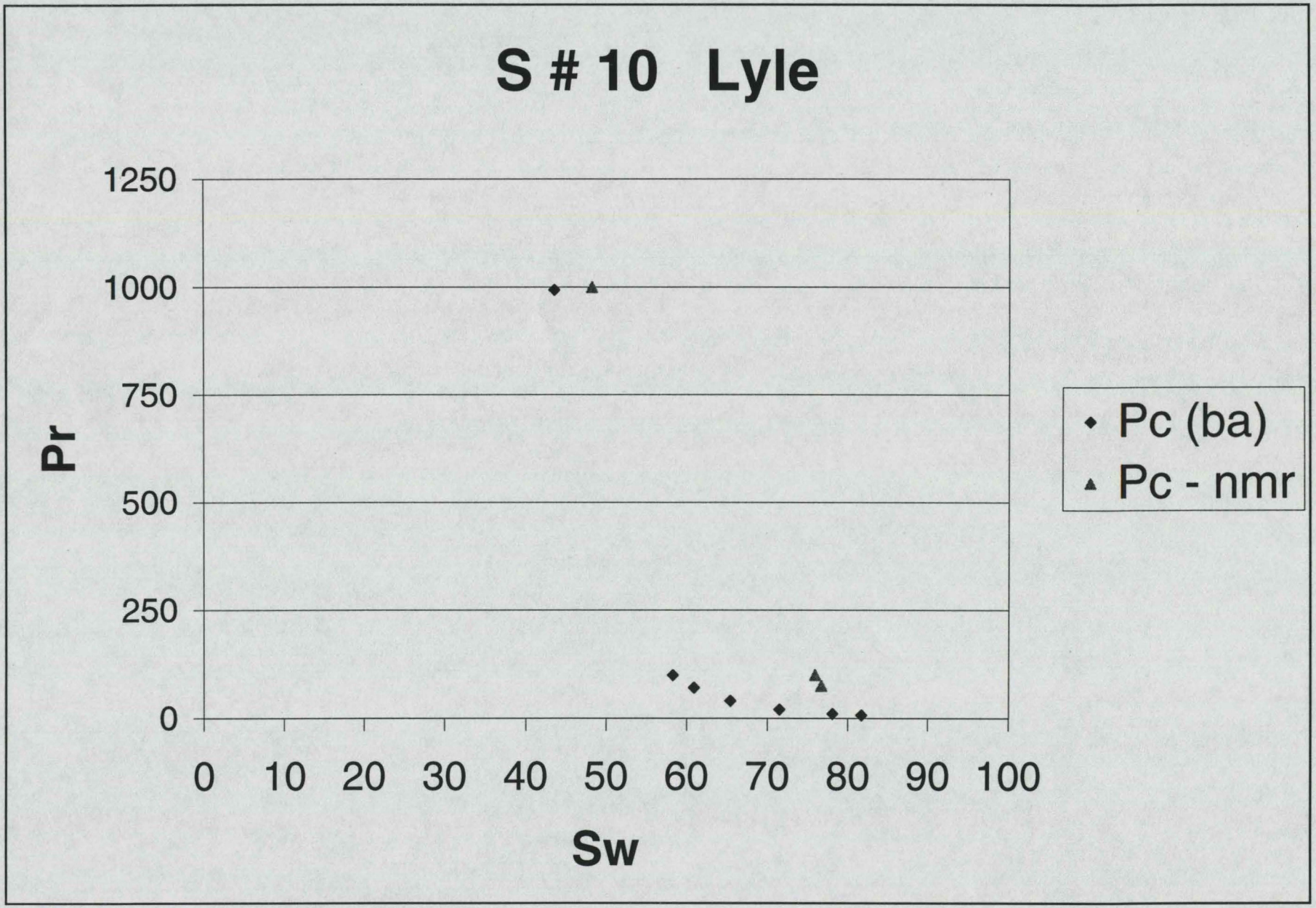
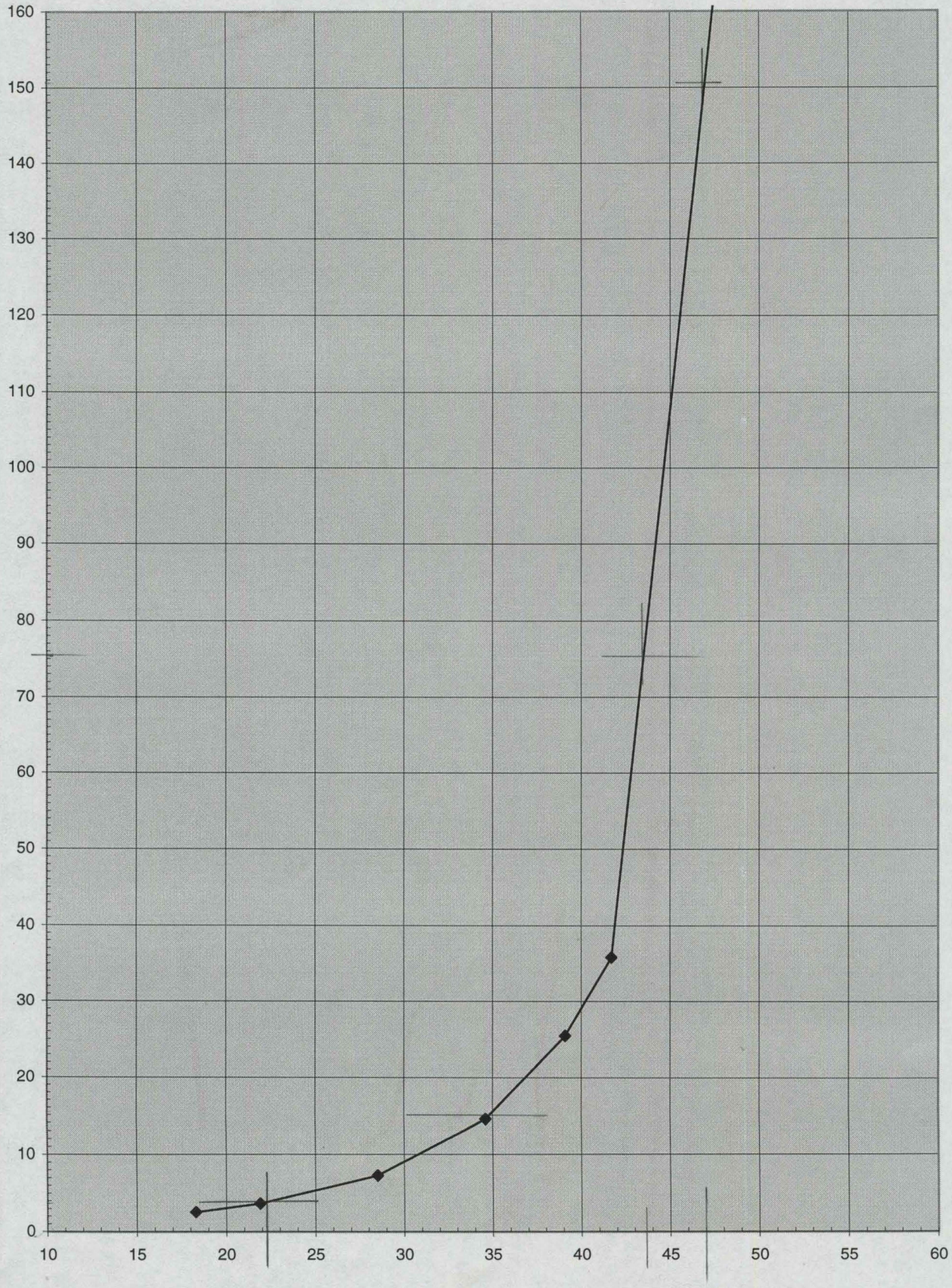

Free fluid phi vs. Total phi
Rock fabric A - Lyle#10,15, 42 & Foos#16,20,26
y = 1.0388x - 7.6506
R2 = 0.8819
y = 1.4982x - 16.867
R2 = 0.9817
Free fluid phi
Total phi
0
5
10
15
20
25
All Plugs
Lyle - Rock fabric A
Foos - Rock fabric A
Rock fabric A
Linear (All Plugs)
Linear (Rock fabric A)

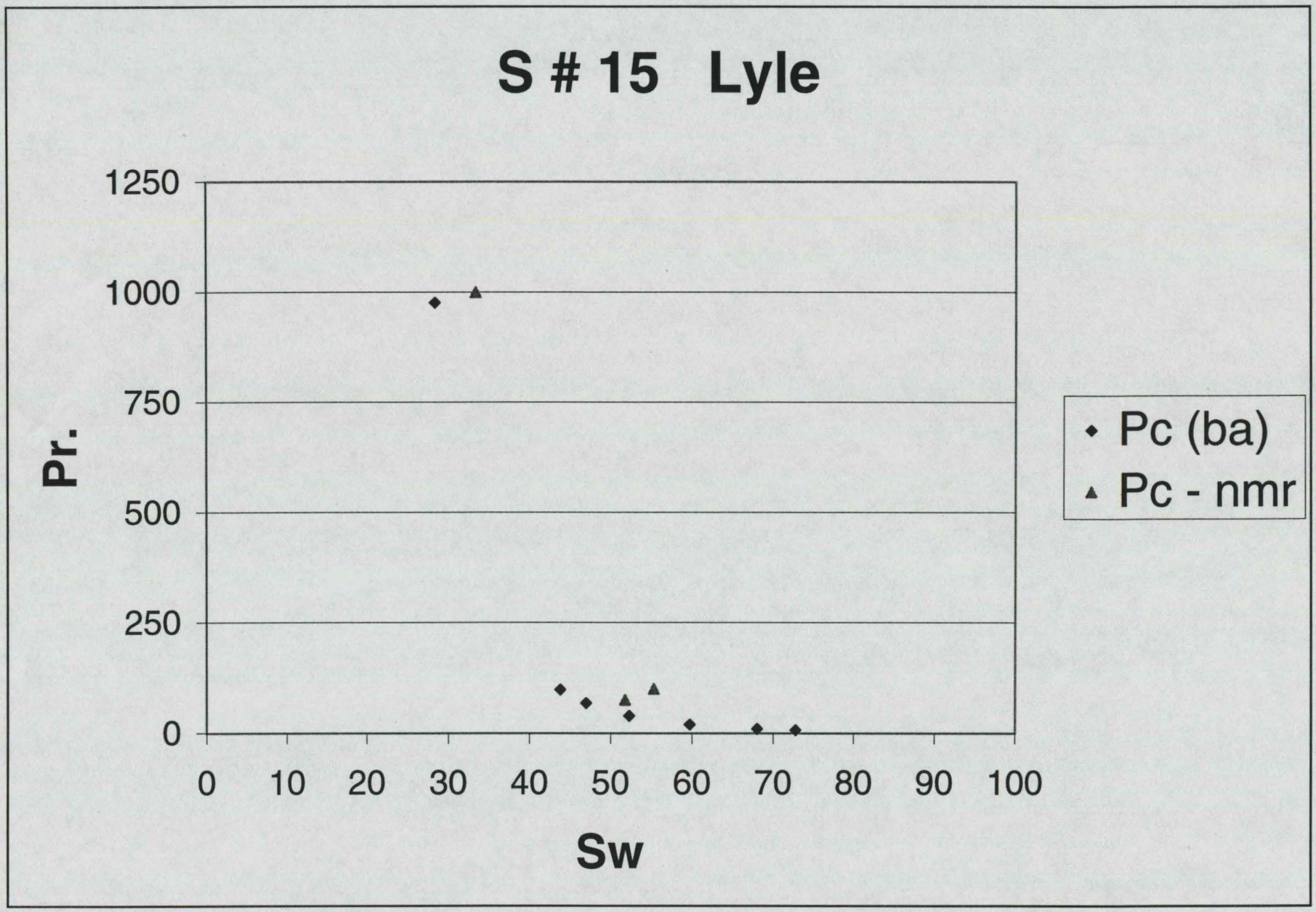
Figure ~~12~~ 10


S # 10 Lyle
1250
1000
750
500
250
0
Pr
0
10
20
30
40
50
60
70
80
90
100
Sw
Pc (ba)
Pc - nmr

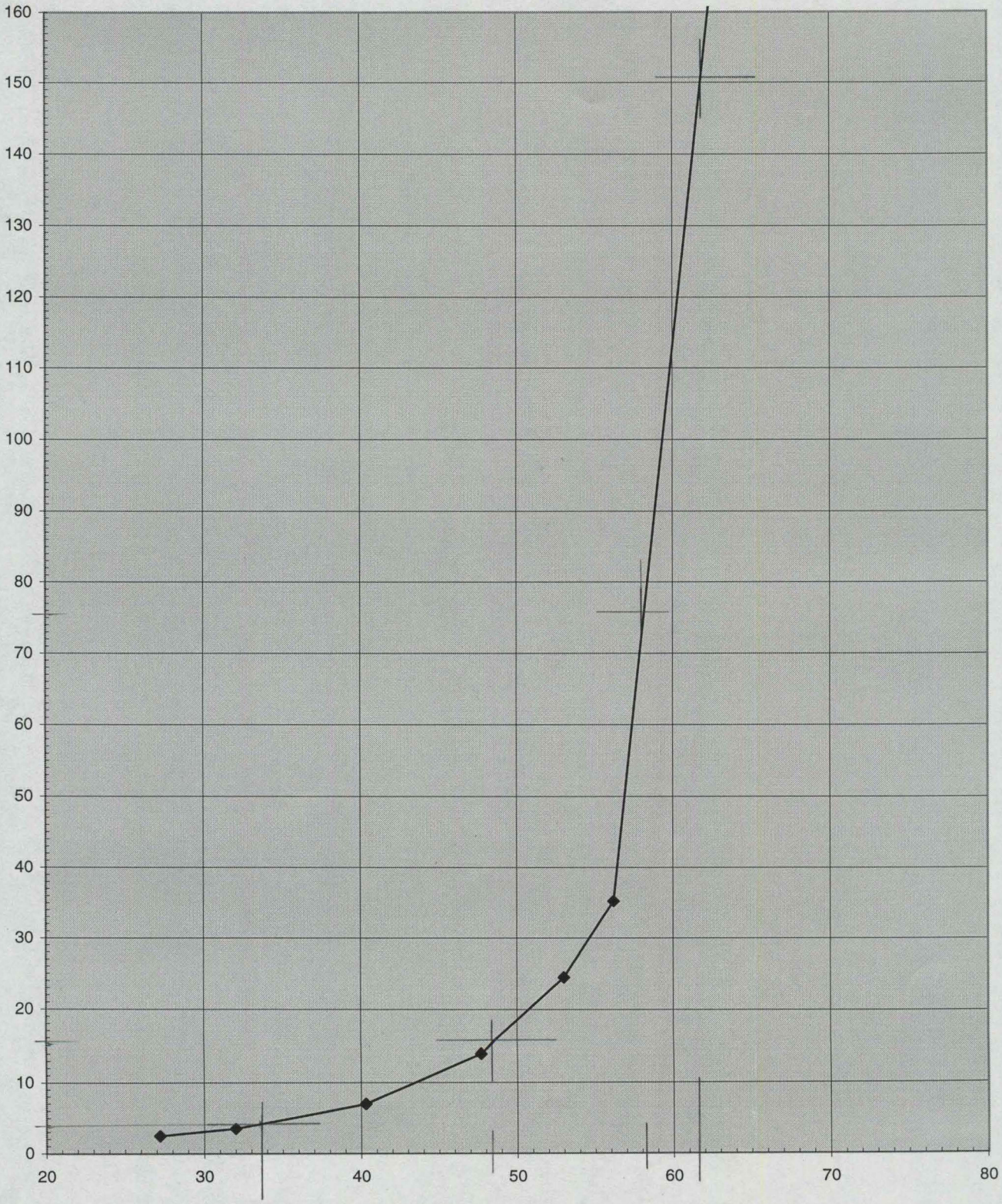
Lyle Schaben

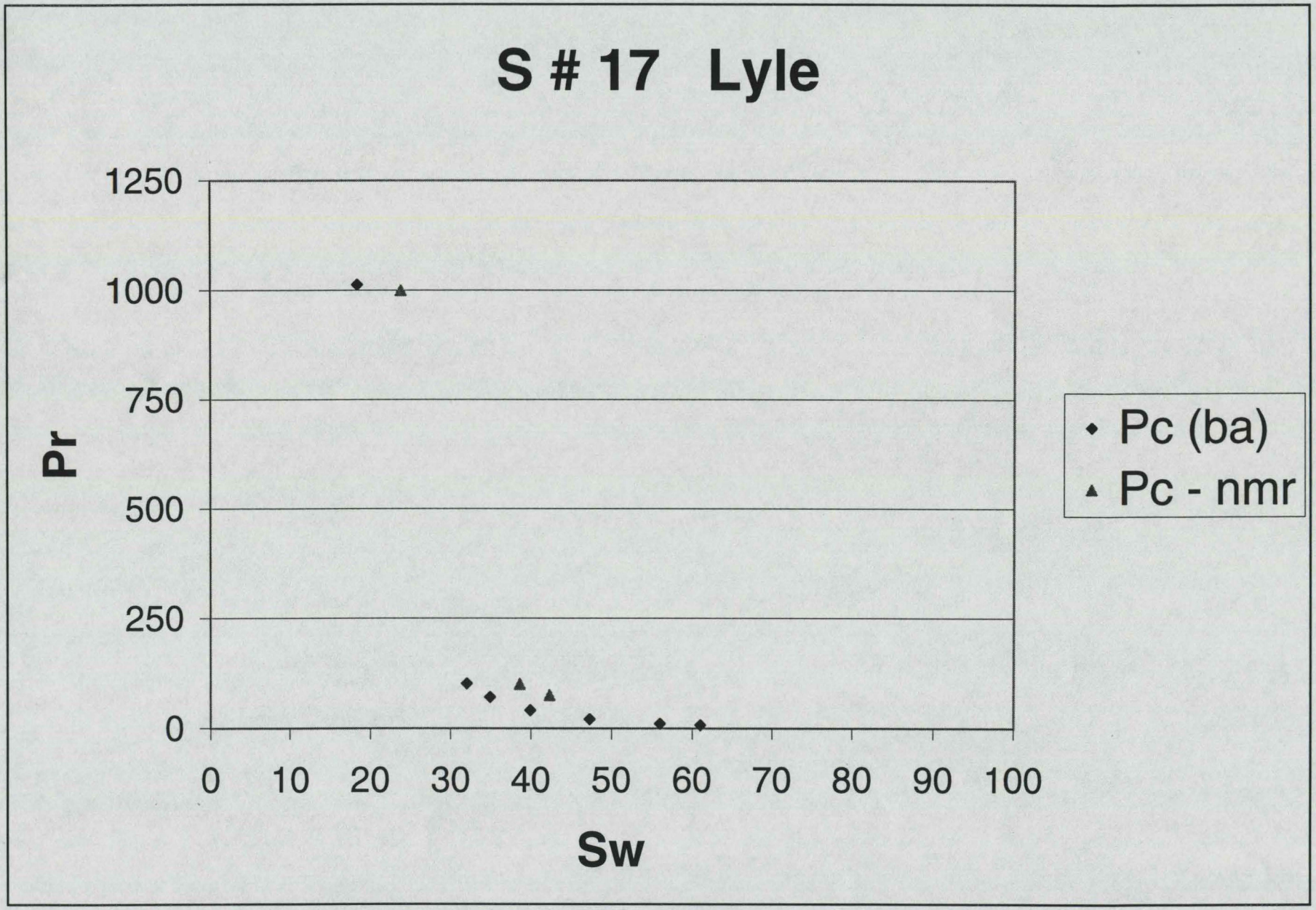
Sample #10 Lyle Schaben



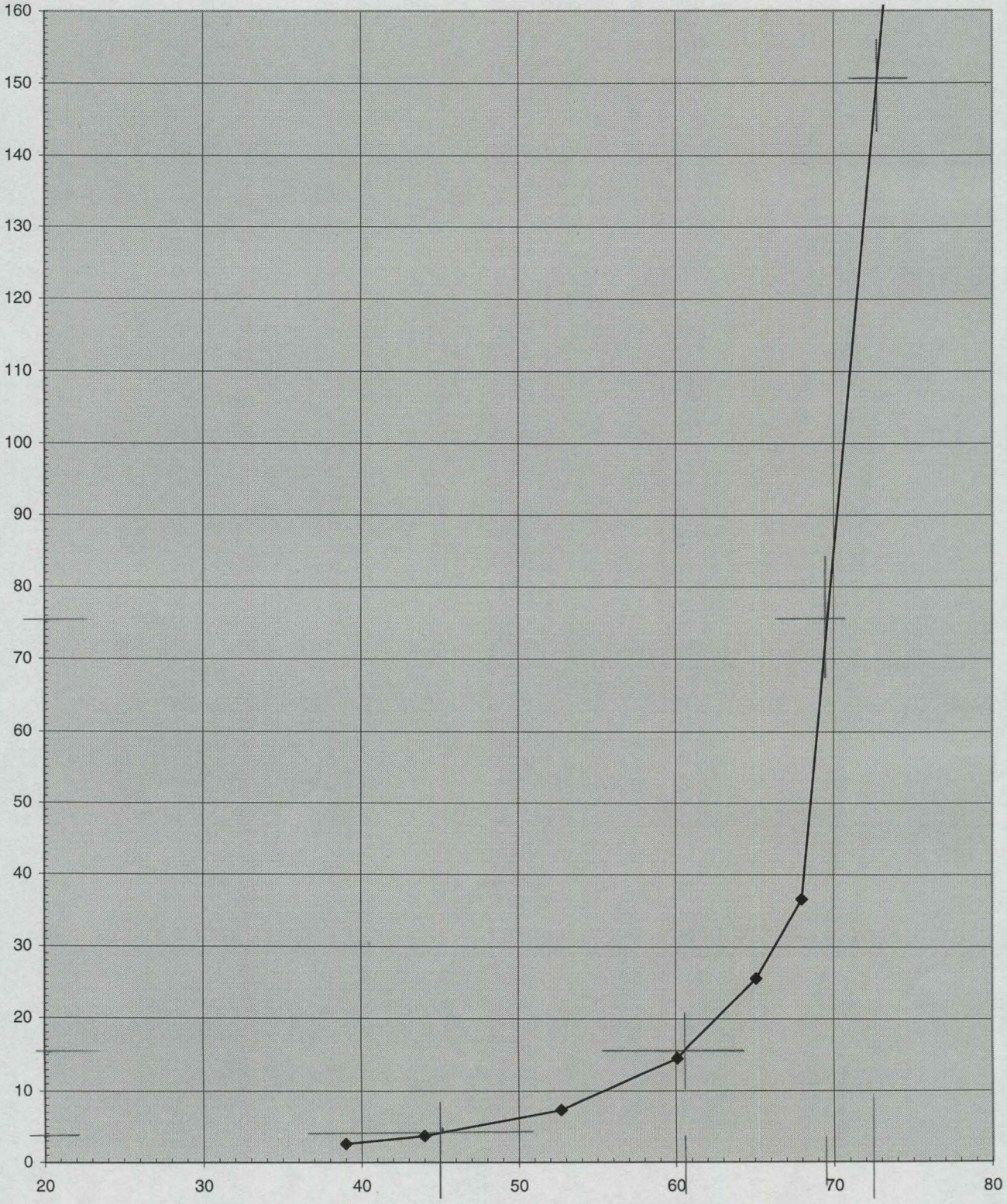

S # 15 Lyle
1250
1000
750
500
250
0
Pr.
0
10
20
30
40
50
60
70
80
90
100
Sw
Pc (ba)
Pc - nmr

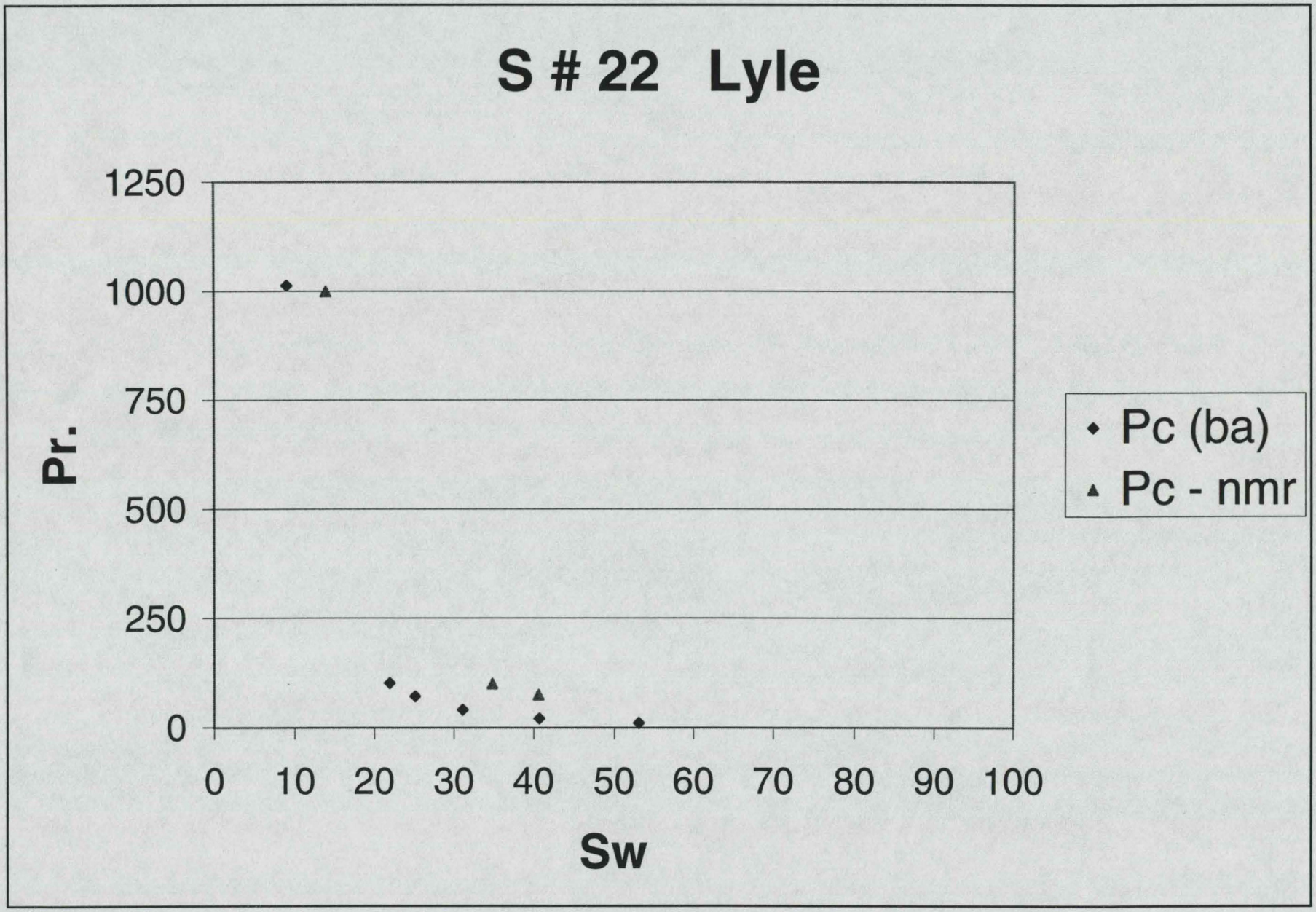
Sample #15


160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80

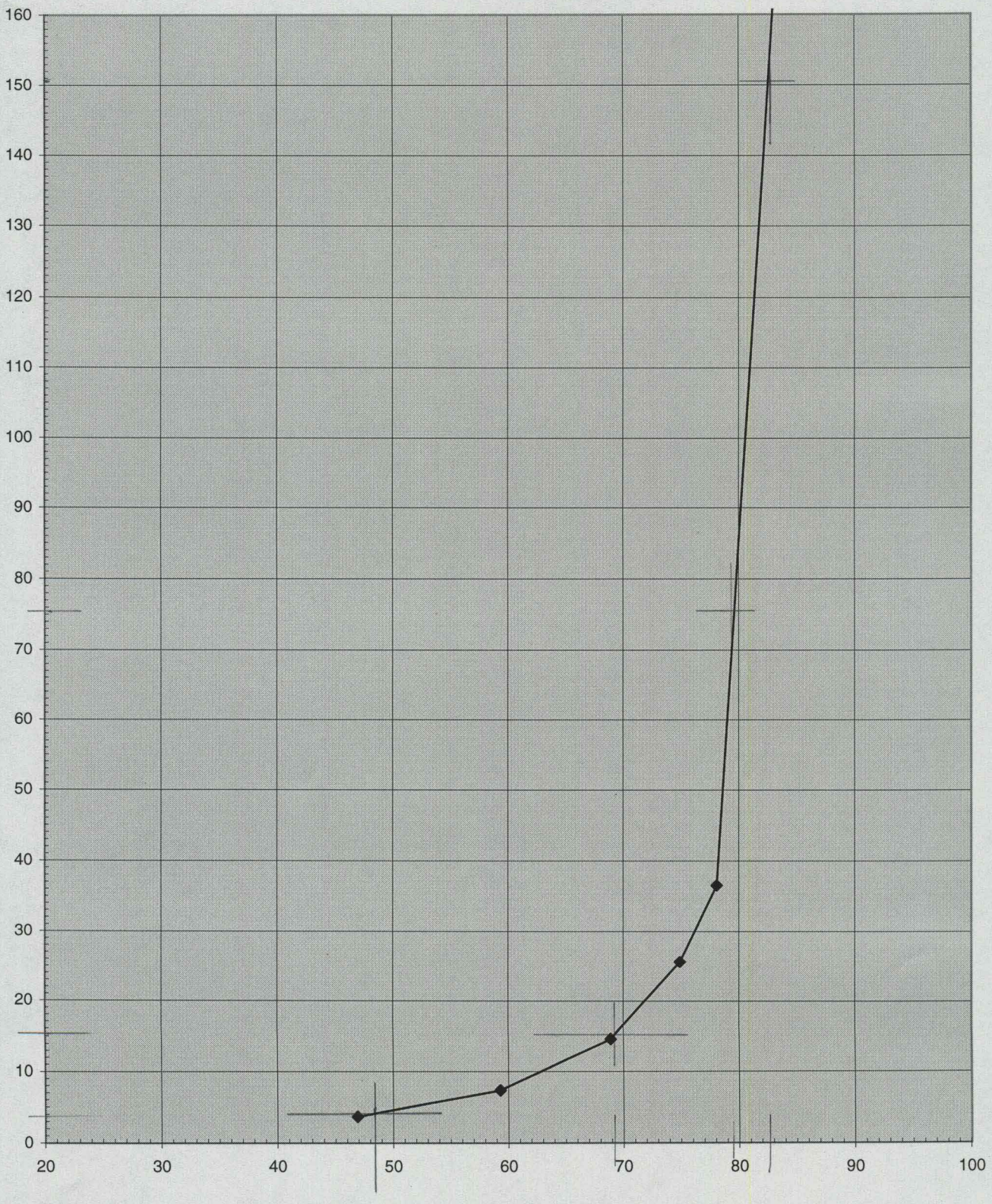

S # 17 Lyle
1250
1000
750
500
250
0
Pr
0
10
20
30
40
50
60
70
80
90
100
Sw
Pc (ba)
Pc - nmr

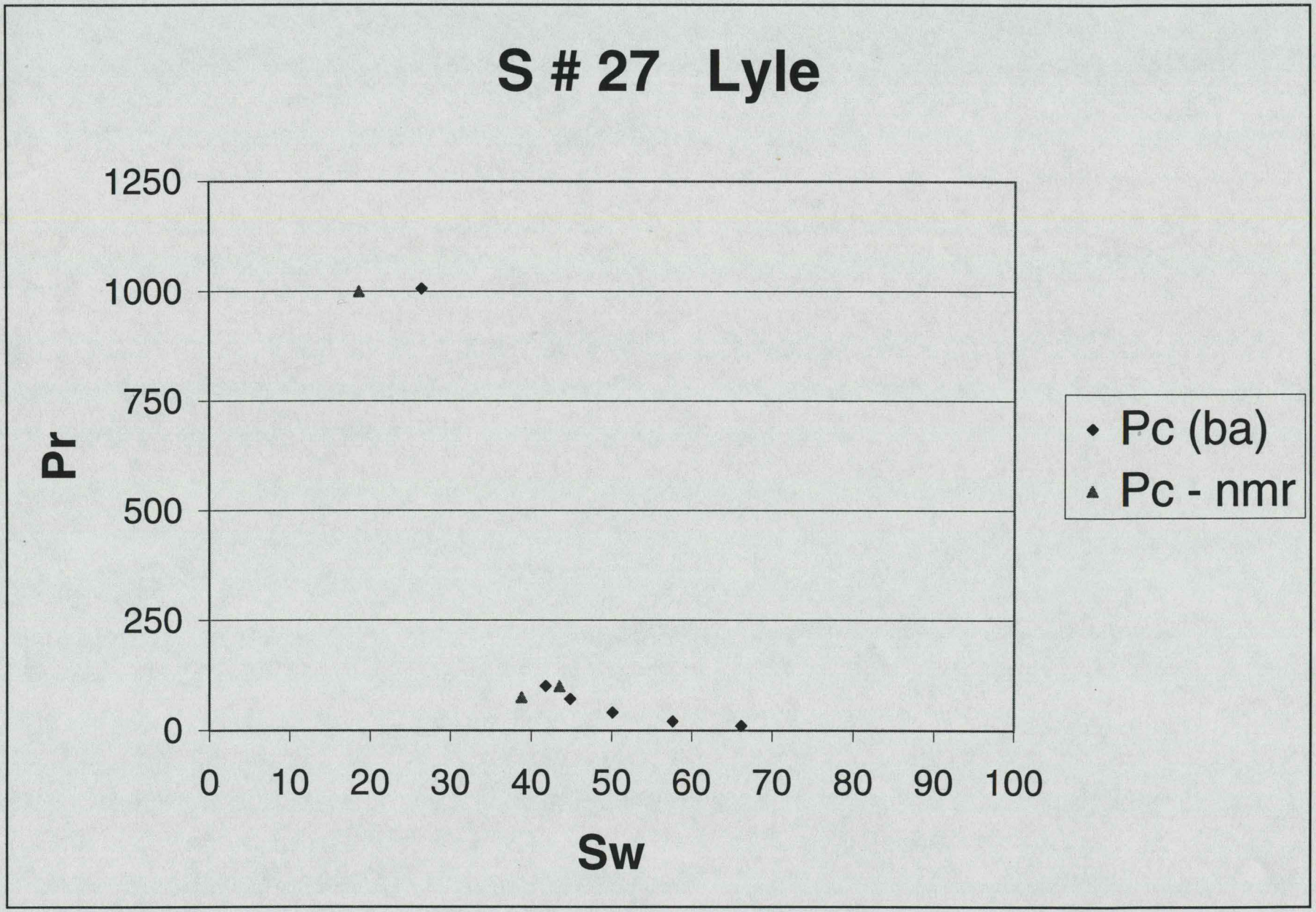
Sample #17


160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80

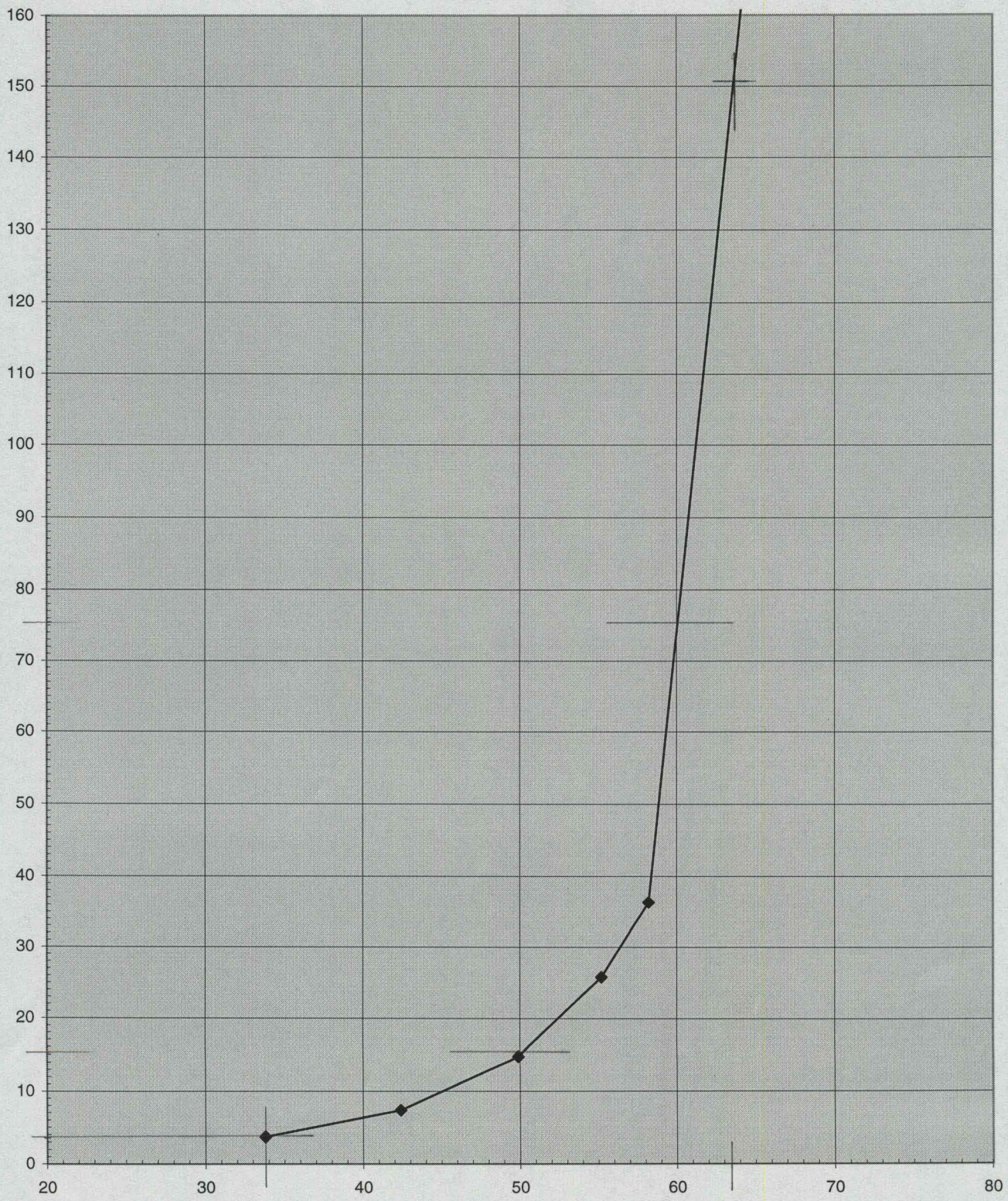

S # 22 Lyle
1250
1000
750
500
250
0
Pr.
0
10
20
30
40
50
60
70
80
90
100
Sw
Pc (ba)
Pc - nmr

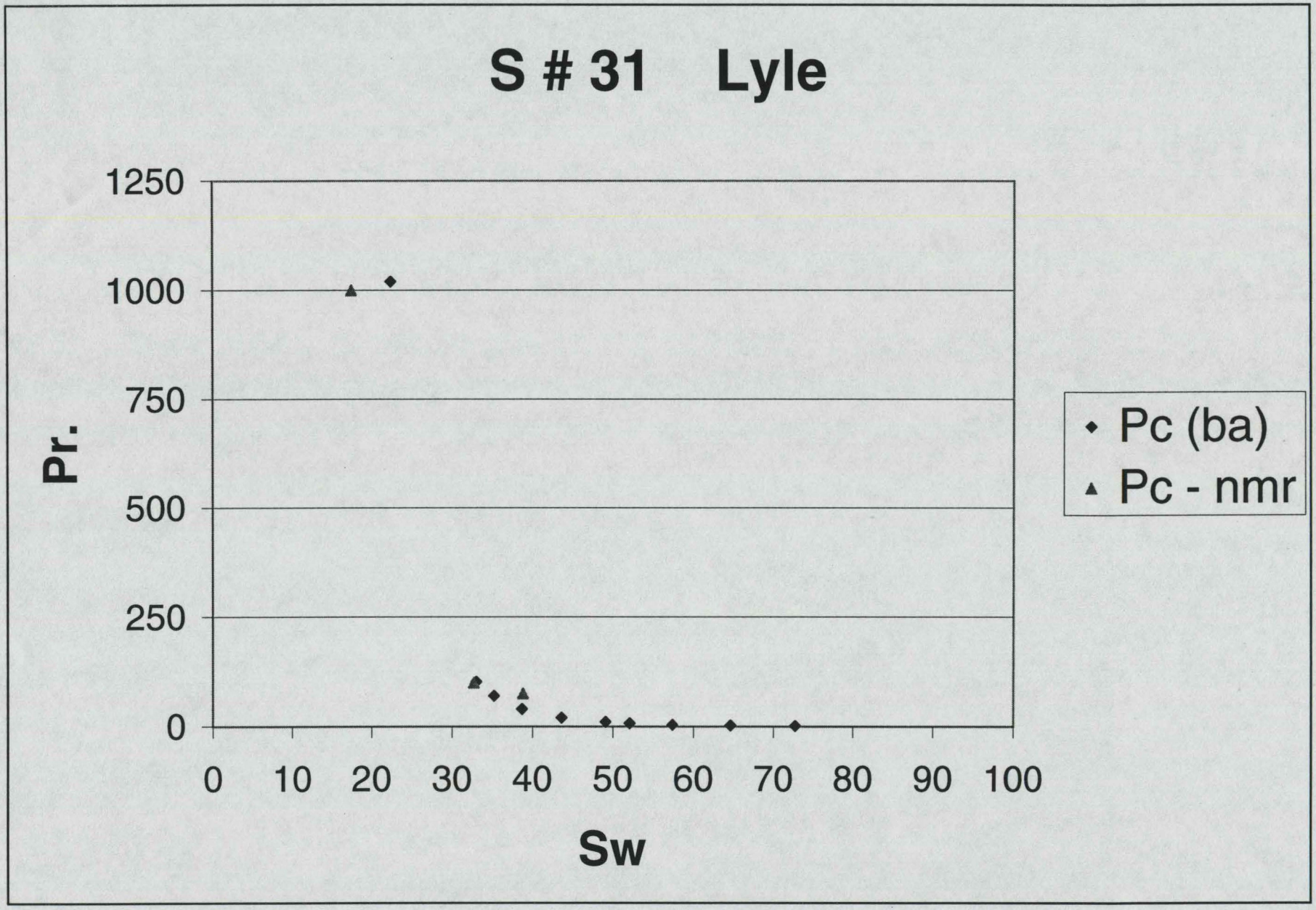
Sample #22


160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100

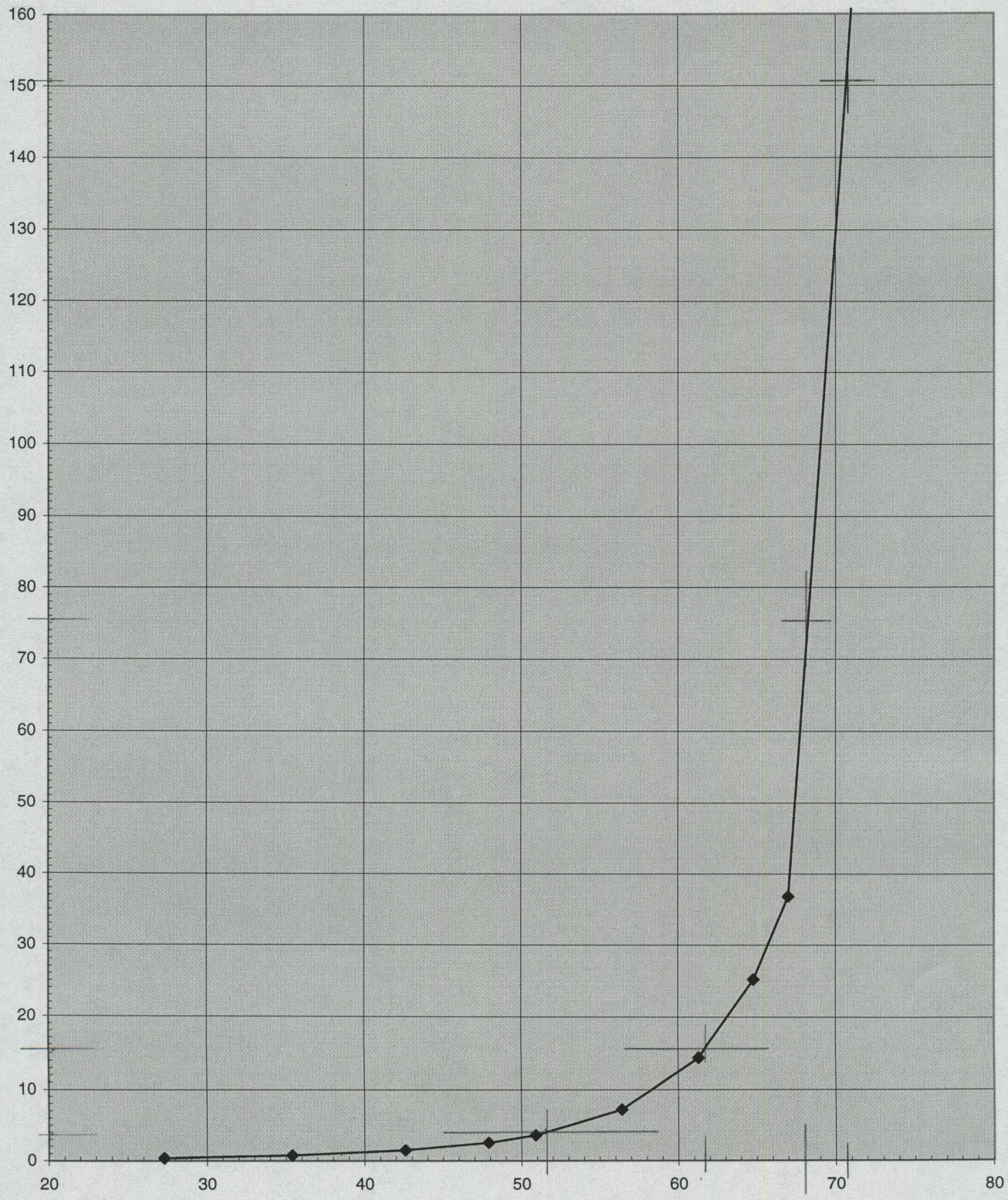

S # 27 Lyle
1250
1000
750
500
250
0
Pr
0
10
20
30
40
50
60
70
80
90
100
Sw
Pc (ba)
Pc - nmr

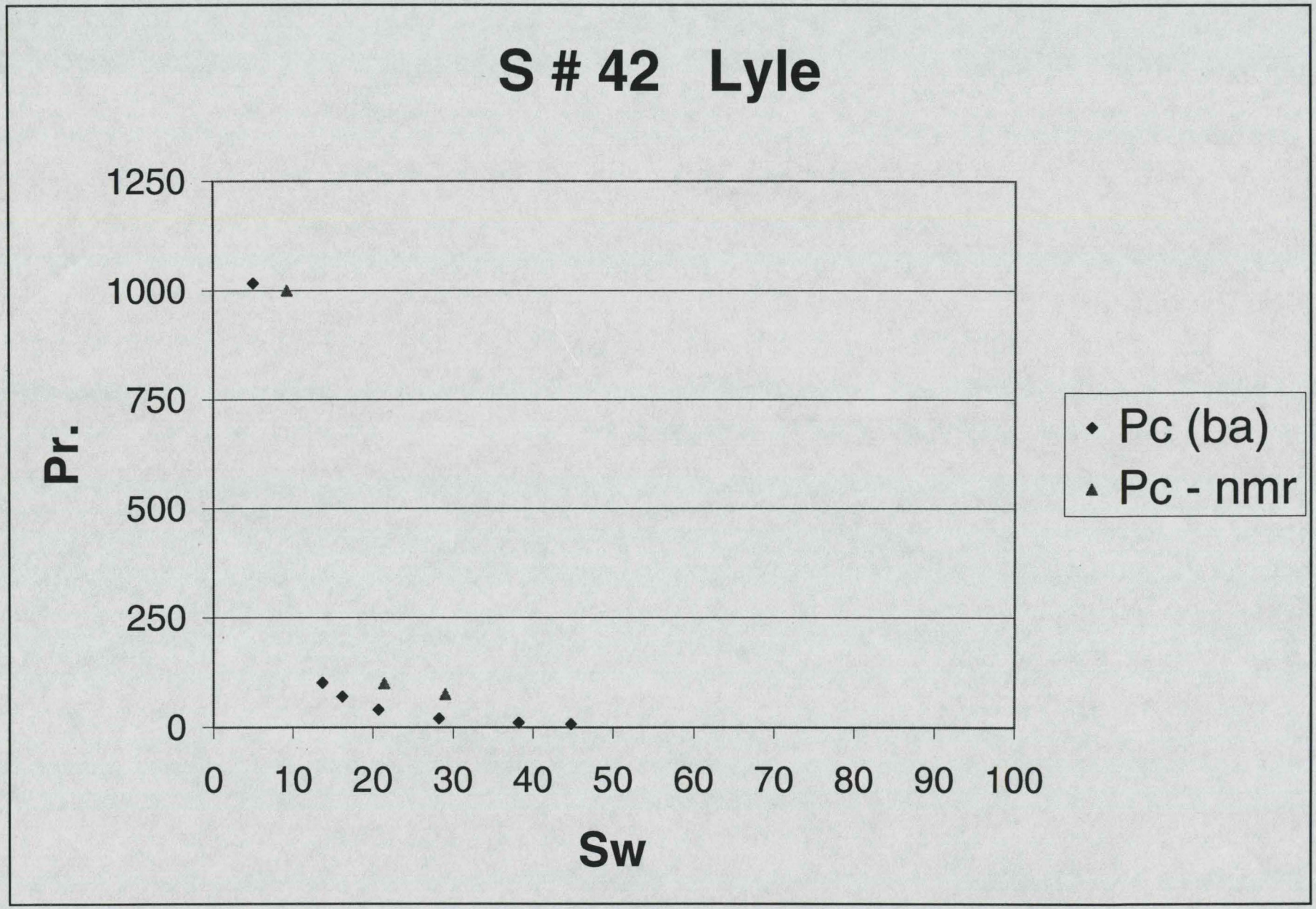
Sample #27


160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80

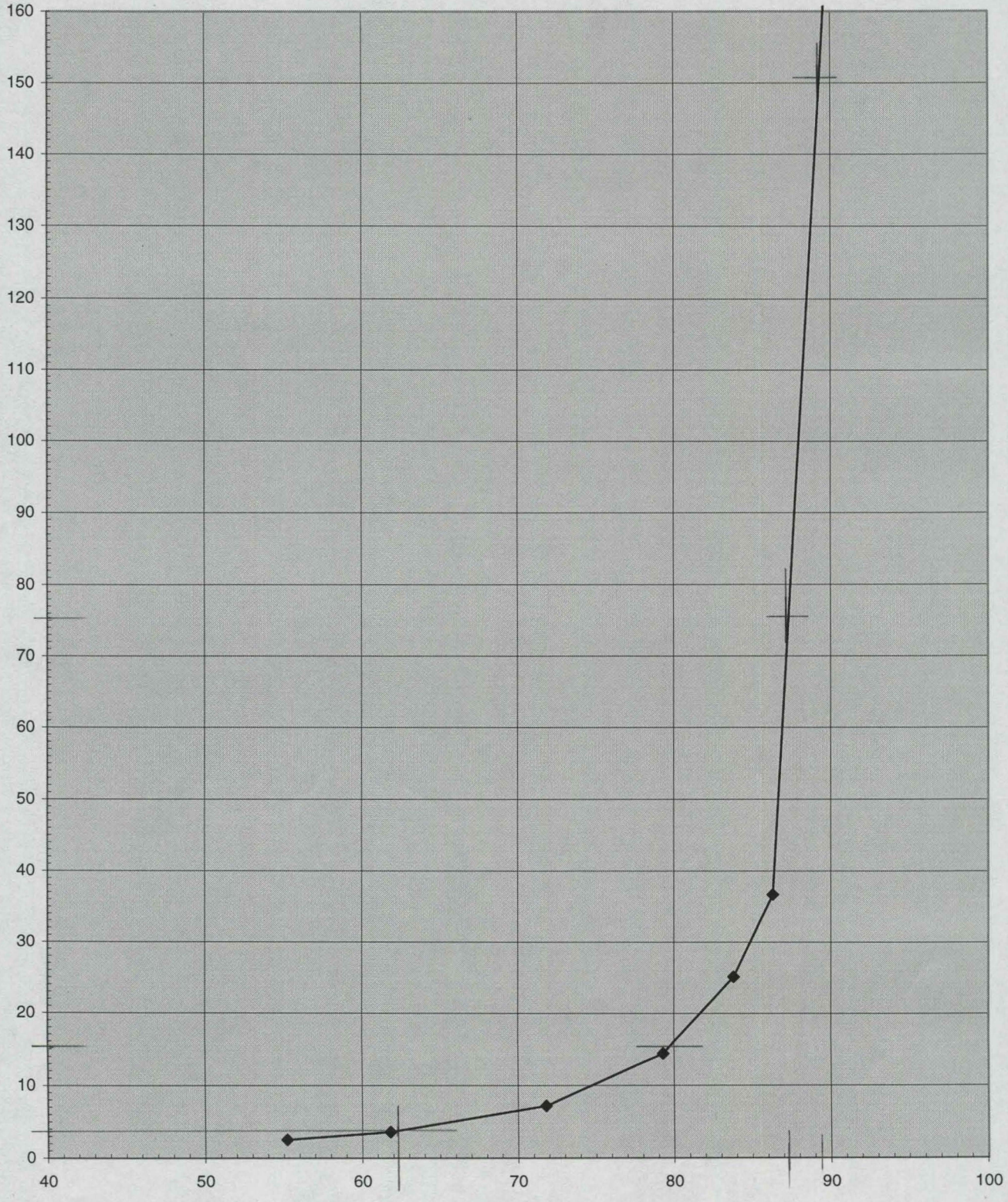

S # 31 Lyle
1250
1000
750
500
250
0
Pr.
0
10
20
30
40
50
60
70
80
90
100
Sw
Pc (ba)
Pc - nmr

Sample #31


160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80


S # 42 Lyle
1250
1000
750
500
250
0
Pr.
0
10
20
30
40
50
60
70
80
90
100
Sw
Pc (ba)
Pc - nmr

Sample #42


160
150
140
130
120
110
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90
80
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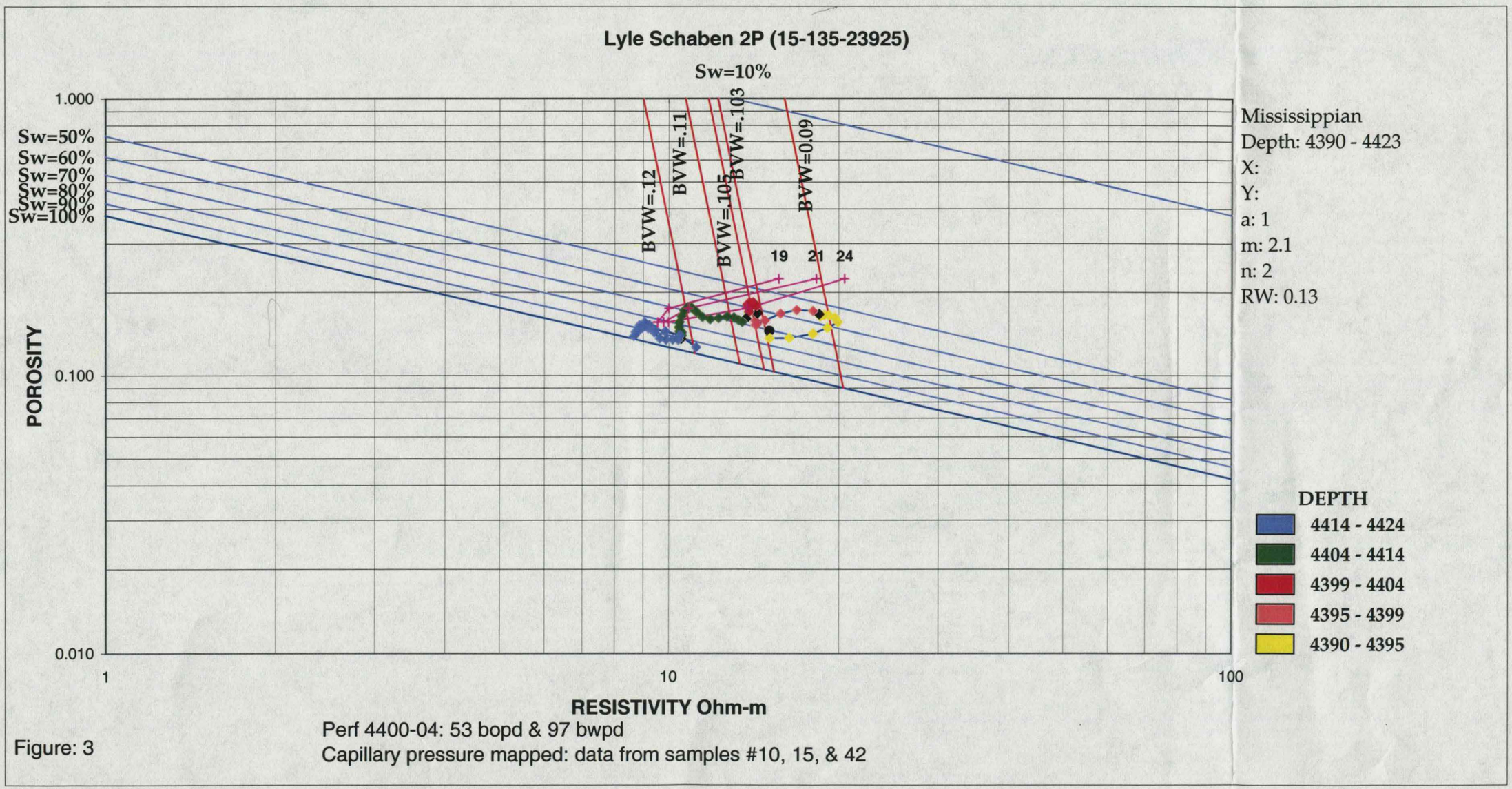
70
80
90
100



Perf 4400-04: 53 bopd & 97 bwpd
Capillary pressure mapped: data from samples #10, 15, & 42

Figure: 3

Porosity and water saturation in different Mississippian zones :

n p : zone not present, n l : no log in the well, l s : log short and ends above zone, n res : no resistivity log.

Base of pay @ -2143.5

Well name and API	KB	Base Pay	Miss top	Log ends @	M5 range	avg. range	Por.	Sw	M3 range	avg. range	Por.	Sw	M1 range	avg. range	Por.	Sw	M0 range	avg. range	Por.	Sw	Msub-range	Avg.-range	Por.	Sw	Comments
MOORE "D" #2 (API # 99-0000-0010)	2270	4413.5	4365		n p	n p			4365-75				4375-90	4382-90	15.7	63.8	4390-07	4390-94	15.8	60.00	4407-4413.5				Old Miss top @ 4377
MOORE "C" #2 (API # 99-0000-0017)	2289	4432.5	4394		n p	n p			4394-02				4402-26	4402-18	17.5	60.3	4426-32.5				n p	n p			
MOORE "B" #7 (API # 15-135-20019)	2294	4437.5	4399		n p	n p			n p	n p			4399-10				4410-35	4412-35	10.6	89.20	4435-37.5				
MOORE "D" #1 (API # 15-135-00675)	2275	4418.5	4364		n p	n p			4364-72	4365-72	15	59.3	4372-86	4372-86	17.3	56.2	4386-09	4386-01	19.4	50.70	4409-4418.5				Old OWC @ 4401
MOORE "B" #2 (API # 99-0000-0011)	2273	4416.5	4387		n p	n p			n p	n p			4387-11	4398-11	17.9	61.5	4411-16.5				n p	n p			
MOORE "B" #5 (99-000-00014)	2278	4421.5	4386		n p	n p			n p	n p			4386-96	4388-96	14.8	66.9	4396-18	4396-04	16.7	60.30	4418-21.5				
3-C MOORE (1513521024)	2296	4439.5	4416		n p	n p			n p	n p			4416-37	4416-37	18.4	62.5	4437-39.5				n p	n p			
MOORE "D" #4 (API # 99-0000-0018)	2301	4444.5	4402		n p	n p			n p	n p			4402-17	4408-17	12.4	72.6	4417-38	4417-32	15.5	65.30	4438-44.5				
MOORE "D" #3 (API # 15-135-30030)	2285	4428.5	4370		n p	n p			n p	np			4370-91	4384-91	12.4	73.7	4391-11	4391-10	14.7	74.00	4411-28.5				
MOORE "B" #4 (API # 99-0000-0013)	2297	4440.5	4389		n p	n p			n p	n p			4389-02	4394-02	13.5	70.5	4402-22	4402-22	15.6	68.70	4422-40.5				
REIN "A" #6 (API # 15-135-21023)	2314	4457.5	4423		n p	n p			n p	n p			4423-32	4426-32	20.4	43.15	4432-54	4432-54	16.3	66.54	4454-57.5	4454-57.5	14.8	86.2	
CSO 1-B MOORE 9900000009	2288	4431.5	4398		n p	n p			n p	n p			4398-22	4400-22	20.8	56	4422-31.5				n p	n p			
MOORE "B" #3 (99-000-00012)	2301	4444.5	4417		n p	n p			n p	n p			4417-33				4433-44.5	4436-44.5	17.1	53.80	n p	n p			Old Miss. top @ 4436
#6 MOORE "B" (API # 15-135-00479)	2311	4454.5	4410		n p	n p			n p	n p			4410-19				4419-36	4424-36	13.9	67.10	4436-54.5				Old Miss top @ 4418
Moore C #1 (99-000-00016)	2290	4433.5	4420		n p	n p			4420-26	4420-26	11.7	74.1	4426-33.5	4426-31	13.7	71.6	4431-33.5				n p	n p			Old OWC @ 4431
REIN NO. 4-A (API # 15-135-91401)	2316	4459.5	4429		n p	n p			n p	n p			4429-33				4433-43	4433-43	13.2	65.10	4443-59.5	4443-57	17.5	60	Old OWC @ 4457, Miss top @ 4429
REIN "A" #2 (API # 15-135-30031)	2281	4424.5	4380		n p	n p			n p	n p			4380-94	4383-94	16.1	58.5	4394-09	4394-08	16.3	63.70	4409-24.5				Old Mstop & OWC @ 4380 & 4422.
Rein A 1 (99-000-00067)	2295	4438.5	4410		n p	n p			n p	n p			4410-20	n l			4420-38.5	n l			n p	n p			No log. Old Mstop & OWC @ 4428 & 4455.
GNEISH #1 (API # 15-135-30032)	2266	4409.5	4369		n p	n p			n p	n p			4369-79	4370-79	18.8	50.4	4379-01	4379-86	14.4	76.40	4401-09.5				Old OWC @ 4407
Wittman #2 (15-135-30066)	2261	4404.5	4368		n p	n p			4368-74				4374-92	4376-92	13.3	74	4392-04.5				n p	n p			Old Mstop & OWC @ 4374 & 4395
#1 JOHN WITTMAN (API # 15-135-30046)	2275	4418.5	4378		n p	n p			n p	n p			4378-95	4380-95	14.3	63.7	4395-18.5	4395-04	14.6	66.40	n p	n p			Old OWC @ 4409
#3 Wittman (15-135-23520)	2284	4427.5	4384		n p	n p			n p	n p			4384-97	l s			4397-21	l s			4421-27.5	l s			D/N too short
HAMBURG #2-A (API # 99-0000-0031)	2283	4426.5	4392		4392-97	4393-97	10.5	66.5	4397-16	4397-16	17.1	59.4	4416-26.5	4416-26.5	19.5	61.7	n p	n p			n p	n p			
Borger #1 (99-000-0072)	2243	4386.5	4329		n p	n p			4329-34	n res			4334-48	n res			4348-73	n res			4373-86.5	n res			No Res. values
Borger #2 (15-135-30005)	2233	4376.5	4330		n p	n l			4330-47	n l			4347-62	n l			4362-76.5	n l			n p	n p			No log
Gneich #2 (99-0000-0064)	2302	4445.5	4415		n p	n p			n p	n p			4415-20	n l			4420-38	n l			4438-45.5	n l			No log
Schaben #1 (99-0000-0069)	2293	4436.5	4434		n p	n p			4434-36.5	n l			n p	n p			n p	n p			n p	n p			No log
Williams Estate #2 (99-0000-0037)	2281	4424.5	4423		n p	n p			4423-24.5	4424-24.5	14.1	68.4	n p	n p			n p	n p			n p	n p			
Lyle Schaben #2 (1513523925)	2279	4422.5	4384		n p	n p			4384-04	4390-04	16.3	61.5	4404-22.5	4404-22.5	15.1	82.4	n p	n p			n p	n p			
Humburg #1 A(1513500323)	2273	4416.5	4357		4357-66				4366-82	4368-82	16.9	61.4	4382-07	4382-92	18.4	51.3	4407-16.5				n p	n p			Old Mstop & OWC @ 4368 & 4407
BORGER #2-"A" (API # 15-135-30004)	2280	4423.5	4384		4384-86.5				4386.5-05	4391-00	16.1	63	4405-23.5				n p	n p			n p	n p			
BORGER NO.1 (15-135-23399)	2277	4420.5	4365		4365-77	4365-77	15.1	65	4377-96	4377-96	18.6	54.9	4396-20.5	4396-10	24.3	67	n p	n p			n p	n p			
Borger #2 (15-135-23524)	2285	4428.5	4391.5		4391.5-0.5	n l			4400.5-16.5	n l			4416.5-28.5	n l			n p	n p			n p	n p			No log
Borger #3 (99-000-00070)	2276	4419.5	4365		4365-73	n l			4373-92	n l			4392-19.5	n l			n p	n p			n p	n p			No log
BORGER #4 (15-135-00505)	2290	4433.5	4392		4392-0.5	4392-98	9.1	84.8	4400.5-16.7				4416.7-33.5				n p	n p			n p	n p			
#1 BORGER (API # 99-0000-0028)	2290	4433.5																							
#2 Borger (99-000-00071)	2275	4418.5	4379.5		n p	n l			4379.5-98	n l			4398-13	n l			4413-18.5	n l			n p	n p			No log
DORA WAGNER NO.1 (99-0000-0032)	2283	4426.5	4382 - M7		4385-91	4385-91	18	50.5	4391-11.5	4391-02	19.5	52	4411.5-26.5				n p	n p			n p	n p			
		4384-85	18.1/49.8																						
DORA WAGNER NO.3 (99-000-00034)	2268	4411.5	4360.5-M7		4371-86	4371-86	12.5	78.6	4386-04	4386-96	15.1	72.3	4404-11.5				n p	n p			n p	n p			
#1 ANNA M. WILLIAMS (15-135-30039)	2263	4406.5	4360-M7		4363-73.5	4363-70	18.3	47	4373.5-96				4396-06.5				n p	n p			n p	n p			
ANNA WILLIAMS #2 (API #15-135-30160)	2269	4412.5	4370-M7		4387-09				4409-12.5				n p	n p			n p	n p			n p	n p			
		4370-80	20.7/57.7																						
ANNA M WILLIAMS #3 (15-135-30159)	2262	4405.5	4347-M7		4365.5-76	4365.5-75.5	22.8	38.8	4376-98				4398-05.5				n p	n p			n p	n p			
#1 H.L. WILLIAMS EST.(99-0000-0060)	2261	4404.5	4359		4359-68	4360-68	17.1	56.8	4368-92	4368-70	17.9	45.8	4392-04.5				n p	n p			n p	n p			
GILLIG "B" NO.1 (15-135-00465)	2286	4429.5	4378.5		4378.5-86	4378.5-86	15.5	67	4386-15.5	4386-93	14.7	66	4415.5-29.5				n p	n p			n p	n p			
#1 ROBERT B. LENT (15-135-30251)	2273	4416.5	4372		4372-82	4372-82	13.2	62.5	4382-01	4382-93	16.2	63.7	4401-16.5				n p	n p			n p	n p			
Humburg #1 (99-0000-0035)	2283	4426.5	4381		n p	n p			4381-00	4383-00	20	46	4400-24.5	4400-17	18.9	55.1	4424.5-26.5								
Borger #1 A (99-0000-0029)	2290	4433.5	4385		n p	n p			4385-04	4385-04	14.9	59.4	4404-26	4404-10	18.1	59.6	4426-33.5								
GILLIG #1 (15-135-20160)	2271	4414.5	4376-M7		4379.5-90	4379.5-90	16.9	63	4390-11	4390-93	17.7	64.7	4411-14.5												
		4376-79.5	22.2/31.2																						
DORA WAGNER NO.2 (99-0000-0033)	2270	4413.5	4369-M7		4372-78	4374-78	17.1	49.1	4378-98.5	4378-94	15.6	65.4	4398.5-13.5				n p	n p							
#1 WEGLE (1513523133)	2257	4400.5																							
RAHM NO.1 (1513521155)	2225	4368.5																							
Henry #2 (15-135-21293)	2253	4396.5																							
#1B Frank Rein (15-135-22058)	2310	4453.5																							