

**Ritchie Exploration, Inc.**

**#2 Lyle Schaben "P"**

**Sec. 31 T19S R21W**

**Ness County, Kansas**

**Precision Core Analysis, Inc.**

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 #2 Lyle Schaben "P"  
 Section 31 T19S R21W  
 Ness County, Kansas

Job:  
 Date:

9611  
 22-Mar-96

Reference Number	Depth (ft)	Permeability		Helium Porosity (%)	Saturations		Grain Density (g/cc)	Sample Description
		Air (md)	Klink (md)		Water (%)	Oil (%)		
<i>Core No. 1 4382.0'-4409.0' Rec. 27.0'/27.0'</i>								
1	4389.8	3.21	2.48	8.8	54.1	15.4	2.62	Brec brn-gry cht nods glauc pyr
2	4390.8	16.0	12.7	11.1	38.1	9.5	2.61	Brec brn-gry cht nods glauc
3	4391.8	4.65	3.66	13.7	52.7	15.8	2.60	Brec brn-gry cht nods glauc
4	4392.8	2.26	1.76	11.0	60.1	13.0	2.61	Brec brn-gry cht nods glauc anhy
5	4393.8	5.48	4.29	13.2	48.4	13.8	2.59	Brec brn-gry cht nods glauc
6	4394.6	2.45	1.83	12.4	33.6	15.0	2.59	Brec brn-gry cht nods glauc
7	4395.8	27.2	22.5	20.4	35.0	10.8	2.85	Mdst brn-gry anhy
8	4396.7	0.852	0.645	14.7	25.2	19.5	2.83	Mdst brn-gry cht
9	4397.9	0.584	0.424	14.1	18.7	7.5	2.81	Mdst brn-gry cht nods styl microfracs
10	4398.8	1.000	0.770	14.5	25.9	8.6	2.65	Brec brn-gry cht nods glauc
11	4399.8	13.2	10.5	17.5	77.2	11.5	2.62	Brec brn-gry cht nods glauc
12	4400.6	7.92	6.28	13.0	43.3	9.9	2.62	Brec brn-gry cht nods glauc
13	4401.7	0.071	0.037	10.2	72.4	13.1	2.61	Mdst brn-gry microfracs pyr
14	4402.8	4.88	3.86	15.6	79.5	14.7	2.69	Brec brn-gry cht nods
15	4403.8	3.46	2.73	14.0	48.7	16.2	2.67	Brec brn-gry cht nods
16	4404.9	1.76	1.38	13.5	49.7	11.0	2.73	Brec brn-gry cht nods styl
17	4405.8	60.2	51.4	16.9	44.5	14.4	2.67	Brec brn-gry cht nods
18	4406.8	11.4	9.13	20.6	88.5	0.0	2.79	Mdst brn-gry cht styl microfrac scat pp vugs
19	4408.5	5.60	4.11	17.8	68.3	16.2	2.73	Brec brn-gry cht nods stn
<i>Core No. 2 4409.0'-4428.0' Rec. 19.0'/19.0'</i>								
20	4409.8	2.13	1.68	18.5	66.6	0.0	2.73	Mdst brn-gry cht styls
21	4410.8	1.30	1.03	15.5	69.6	13.9	2.76	Mdst brn-gry cht wspy lams frac
22	4411.8	8.06	6.43	18.4	52.9	16.1	2.81	Mdst brn-gry cht nods styls wspy lams fracs
23	4413.9	1.60	1.25	14.0	45.2	23.4	2.80	Mdst brn-gry cht styls
24	4414.9	1.25	0.986	14.3	63.4	15.1	2.75	Brec brn-gry cht
25	4415.9	36.7	30.7	12.8	80.1	0.0	2.65	Brec brn-gry cht anhy
26	4416.6	50.1	42.4	12.4	53.4	0.0	2.72	Brec brn cht microfracs sdy
27	4417.2	2.73	2.15	16.8	68.0	18.1	2.85	Brec brn-gry wspy lams
28	4418.3	0.813	0.613	16.6	50.5	18.0	2.82	Mdst brn-gry cht microfrac
29	4419.4	0.129	0.076	11.9	61.8	0.0	2.83	Mdst gry cht wspy lams
30	4420.3	0.217	0.138	11.6	75.2	0.0	2.82	Mdst gry-brn cht styl glauc

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Reference Number	Depth (ft)	Permeability		Helium Porosity (%)	Saturations		Grain Density (g/cc)	Sample Description
		Air (md)	Klink (md)		Water (%)	Oil (%)		
31	4421.7	436	401	12.9	84.1	0.0	2.61	Brec brn-gry cht fracs
32	4422.8	2.14	1.69	14.3	76.5	0.0	2.65	Brec brn-gry cht glauc
33	4423.8	4.62	3.66	20.4	62.8	21.3	2.85	Brec brn-gry pp vugs bl-gr mat
34	4424.8	0.004	0.001	1.0	70.5	0.0	2.75	Brec brn microfrac pyr
35	4426.1	0.016	0.006	6.9	86.9	0.0	2.84	Mdst brn anhy microfrac
36	4427.9	0.002	0.000	6.0	92.2	0.0	2.79	Mdst brn org mat microfracs
<i>Core No. 3 4428.0'-4439.0' Rec. 10.0'/11.0'</i>								
37	4428.9	4.55	3.60	17.3	73.9	7.6	2.85	Mdst gry-brn wspy lams
38	4429.3	7.90	6.30	20.0	64.4	1.1	2.84	Mdst gry-brn anhy few pp vugs
39	4430.3	5.19	4.11	17.3	70.9	0.0	2.86	Mdst gry- brn cht nod glauc
40	4431.2	3.41	2.69	15.4	70.9	0.0	2.86	Mdst brn-gry fracs
41	4433.6	2.96	2.31	17.7	62.1	0.9	2.86	Mdst gry-brn anhy nod styl
42	4434.4	33.6	27.9	22.7	71.6	2.6	2.85	Mdst gry-brn sndy
<i>Core No. 4 4439.0'-4442.0' Rec. 1.0'/3.0'</i>								
43	4439.3	8.42	6.75	18.0	73.6	6.1	2.76	Mdst gry cht styls scat sm vugs
<i>Core No. 5 4442.0'-4466.0' Rec. 24.0'/24.0'</i>								
44	4442.2	3.81	3.03	15.6	80.0	1.3	2.84	Mdst gry anhy nod microfracs
45	4443.5	4.06	3.24	10.6	78.9	3.3	2.87	Mdst gry scat sm vugs styl glauc
46	4444.6	1.79	1.37	11.0	68.3	0.0	2.88	Mdst gry sm scat vugs styl microfrac
47	4445.5	14.3	11.5	16.2	46.5	1.3	2.77	Brec gry-wh cht anhy glauc
48	4446.1	5.24	4.12	19.3	53.4	1.3	2.86	Mdst gry sdy styl glauc
49	4447.6	0.025	0.011	5.9	42.8	3.1	2.82	Mdst gry-brn anhy styls microfracs pyr
50	4448.7	0.328	0.219	12.0	78.4	2.1	2.78	Mdst gry microfracs glauc
51	4449.8	0.478	0.338	12.5	61.9	1.0	2.85	Mdst gry anhy nod fracs

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Ness County, Kansas

Job: 9611  
Date: 7-Mar-56

Reference Number	Depth (ft)	Permeability			Helium Porosity (%)	Grain Density (g/cc)
		Max (md)	90 (md)	Vert. (md)		
<i>Full Diameter Results</i>						
1F	4392	13.0	10.8	5.01	14.9	2.62
2F	4396	2.05	1.47	0.167	14.6	2.79
3F	4404	4.50	3.91	0.195	14.2	2.72
4F	4410	5.91	4.20	0.157	13.8	2.74
5F	4413	4.92	3.59	0.149	14.0	2.77
6F	4417	15.3	11.4	1.46	13.7	2.66
7F	4433	25.1	21.5	3.08	21.3	2.88
8F	4444	1.65	1.30	0.297	12.9	2.83

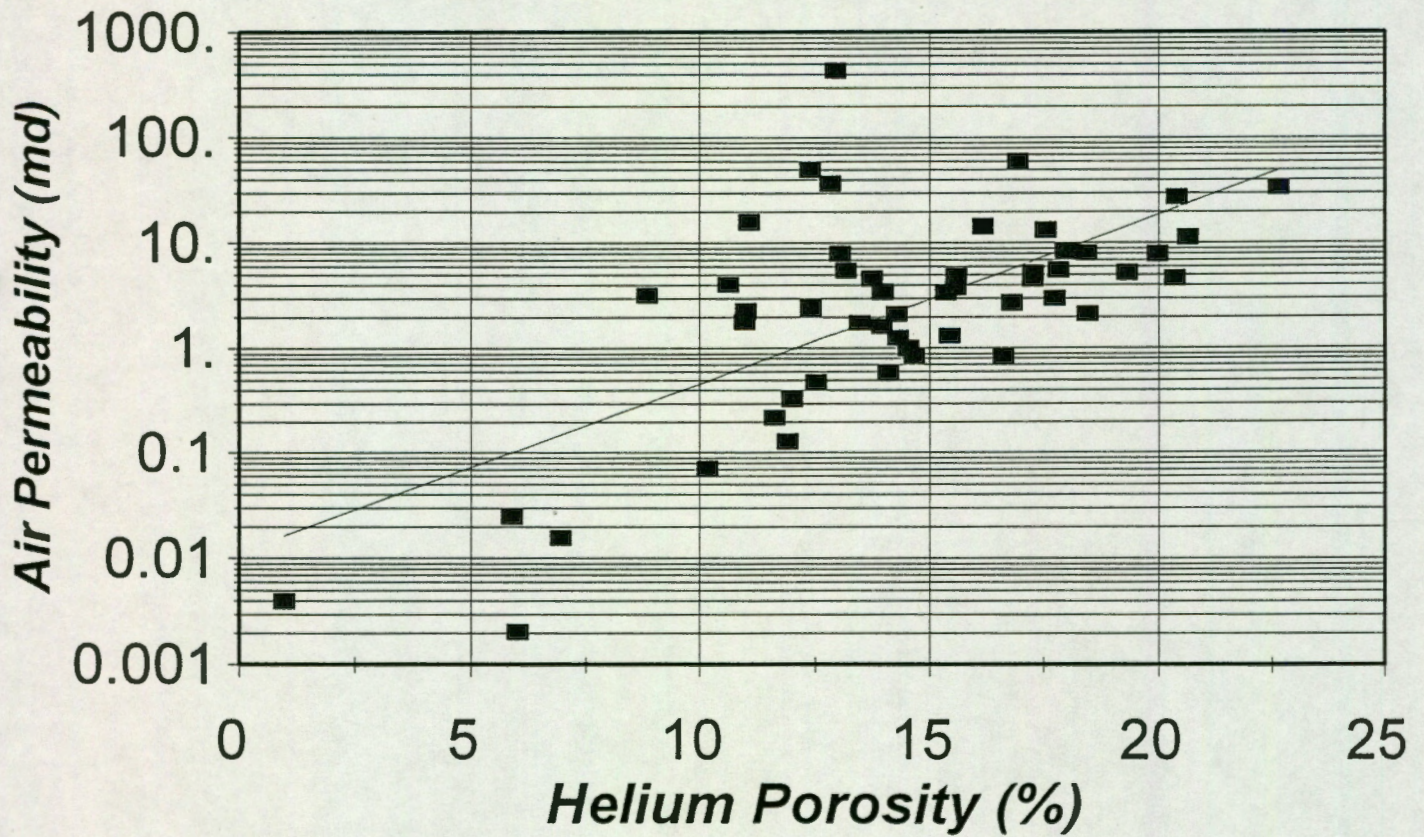
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22-Mar-96

## *Air Permeability vs Helium Porosity*



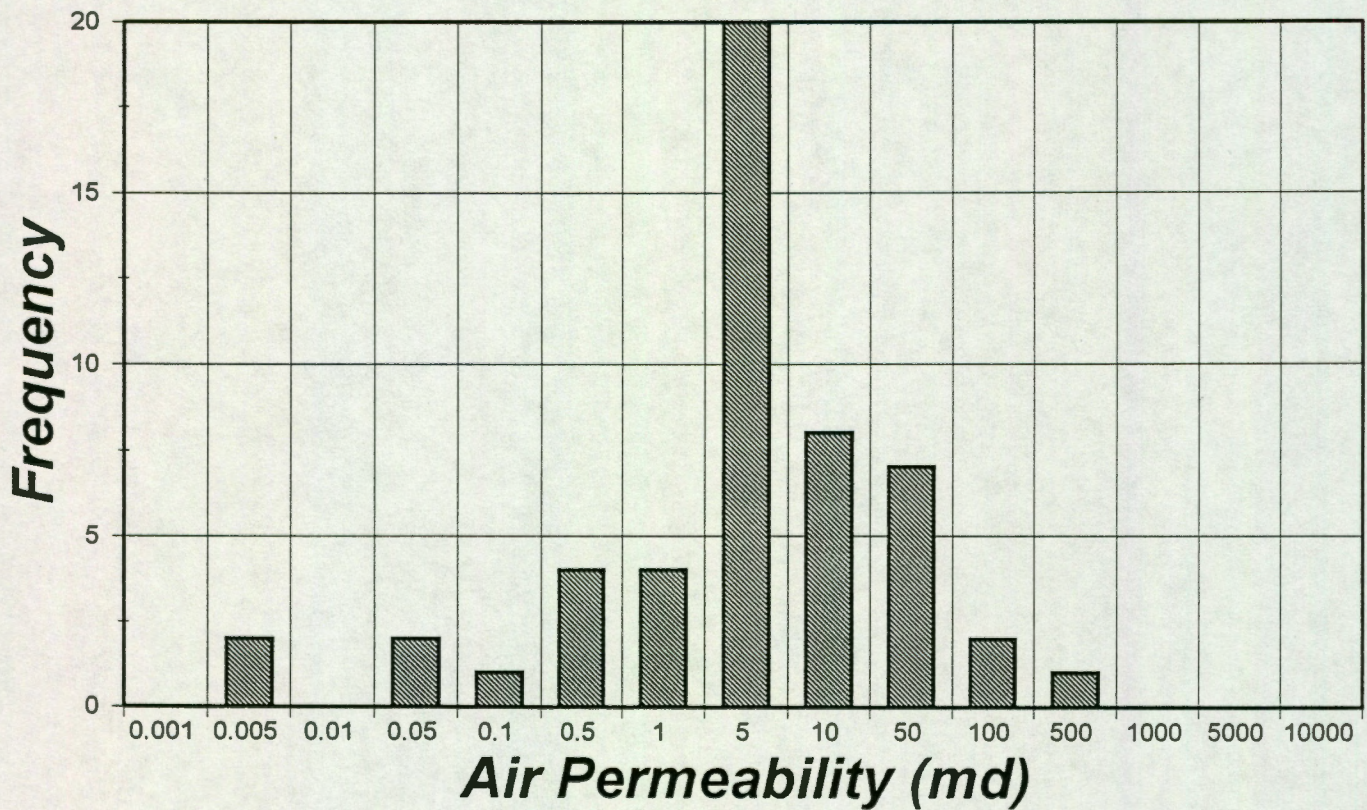
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## *Air Permeability Frequency Distribution*



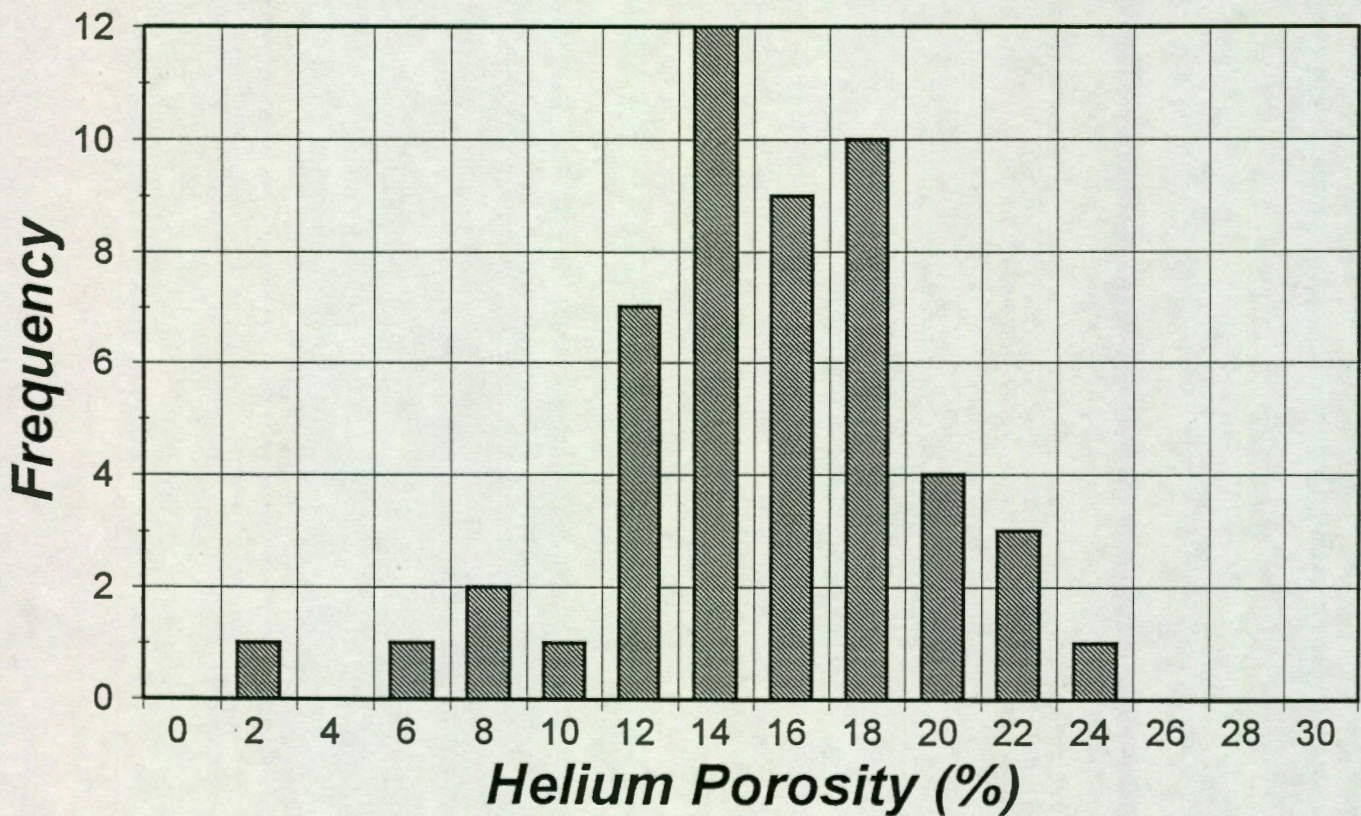
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## Helium Porosity Frequency Distribution



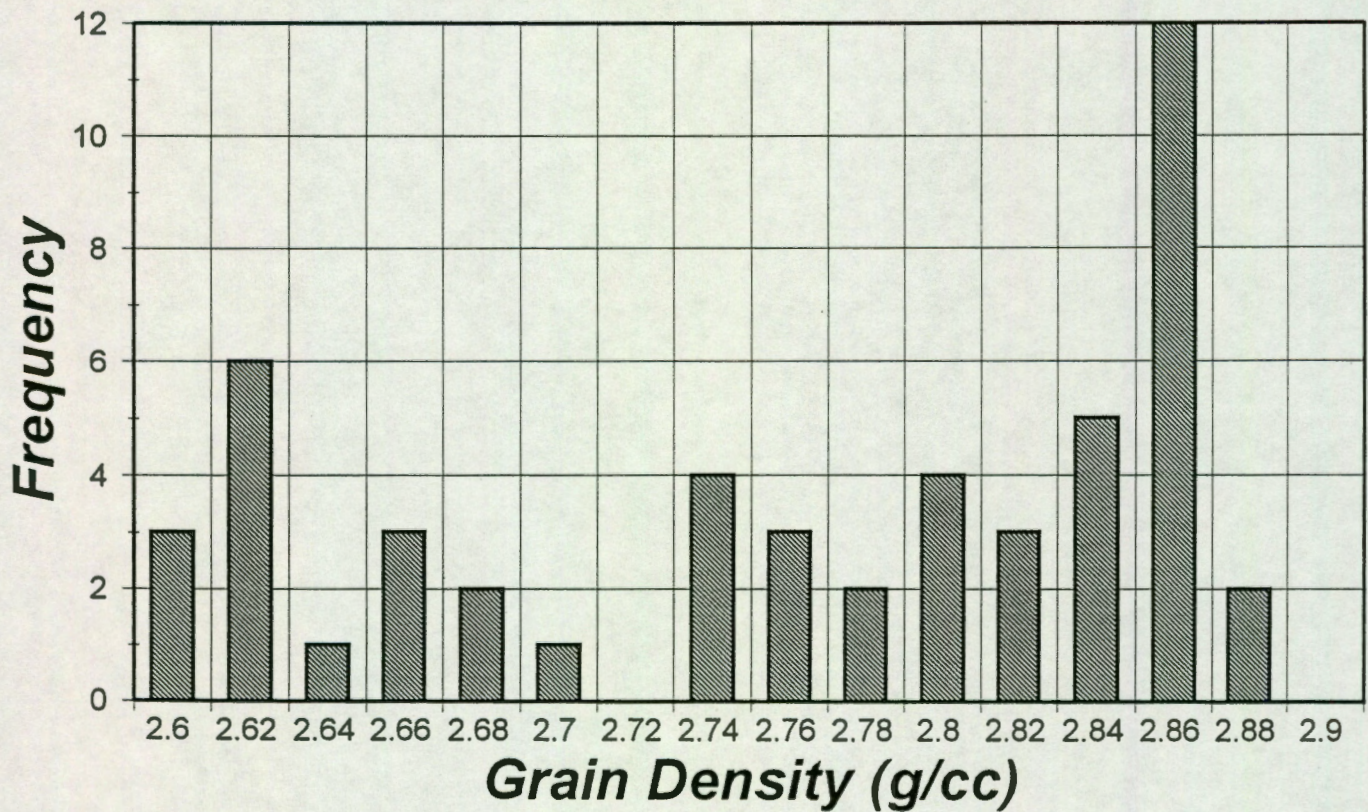
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## Grain Density Frequency Distribution



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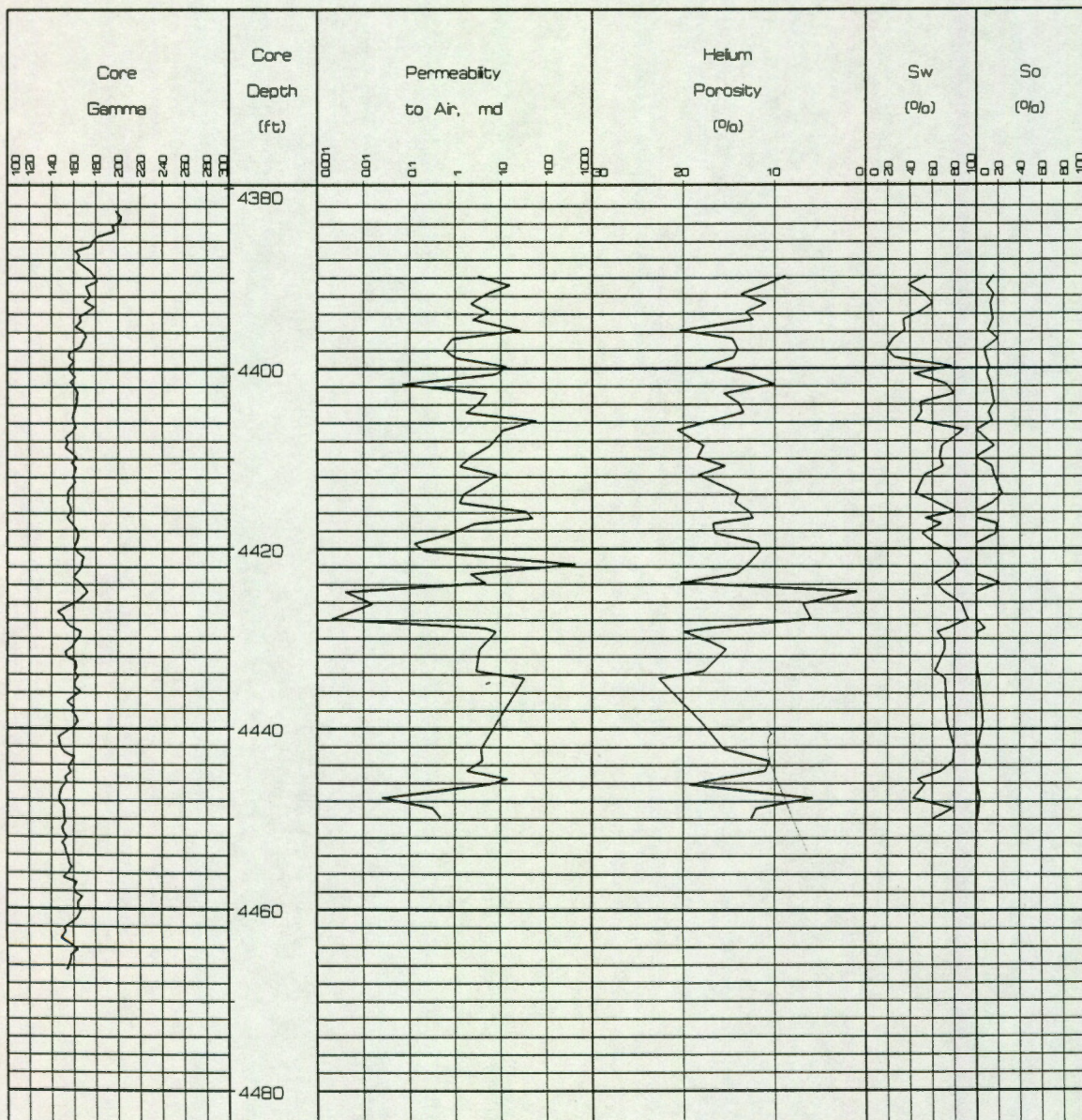
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Scale 1:240



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## Zone1 Air Permeability Regression

### Regression Output:

Constant	-1.939825
Std Err of Y Est	0.754636
R Squared	0.445211
No. of Observations	51.000000
Degrees of Freedom	49.000000

X Coefficient(s)	0.160449
Std Err of Coef.	0.025587

## Zone1 Klinkenberg Permeability Regression

### Regression Output:

Constant	-2.376414
Std Err of Y Est	0.823469
R Squared	0.461443
No. of Observations	51.000000
Degrees of Freedom	49.000000

X Coefficient(s)	0.180913
Std Err of Coef.	0.027921