Hydraulic Conductivity

ASTM D 5084

Method C: Falling Head Rising Tailwater

Attachment 7

Job No:	353-069	**Boring:**		**Date:**	02/11/10
Client:	Smith Emery Geoservices	**Sample:**	12/31-7	**By:**	MD/PJ
Project:	J 5337-17	**Depth, ft.:**	4	**Remolded:**	

Visual Classification: Dark Gray Slurry

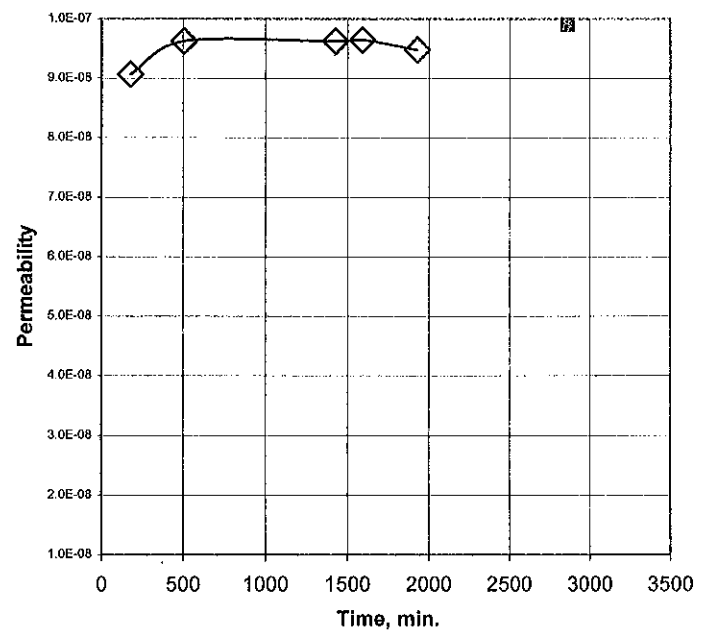
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
53.5	49.5	47.5	5

B: = >0.95 ("B" is an indication of saturation)

Max Hydraulic Gradient: = 12

Date	Minutes	Head, (in)	K,cm/sec
2/2/2010	0.00	70.38	Start of Test
2/2/2010	178.00	69.78	9.1E-08
2/2/2010	506.00	68.58	9.6E-08
2/3/2010	1426.00	65.58	9.6E-08
2/3/2010	1590.00	64.88	9.6E-08
2/3/2010	1927.00	63.83	9.5E-08
2/4/2010	2862.00	60.78	9.9E-08



Average Permeability: 1.E-07 cm/sec

Sample Data:	Initial		Final
Height, in	6.02		6.04
Diameter, in	3.00		3.00
Area, in2	7.07		7.07
Volume in3	42.55		42.69
Total Volume, cc	697.3		699.6
Volume Solids, cc	378.5		378.5
Volume Voids, cc	318.8		321.2
Void Ratio	0.8		0.8
Total Porosity, %	45.7		45.9
Air-Filled Porosity, %	1.1		0.3
Water-Filled Porosity,%	44.6		45.6
Saturation, %	97.6		99.2
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1333.0		1340.6
Dry Weight, gm	1021.9		1021.9
Tare, gm	0.00		0.00
Moisture, %	30.4		31.2
Dry Density, pcf	91.4		91.1

Remarks:

Attachment 7

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	353-069	**Boring:**		**Date:**	02/10/10
Client:	Smith-Emery Geoservices	**Sample:**	12/31-7	**By:**	MD/PJ
Project:	J 5337-17	**Depth, ft.:**	4	**Remolded:**	

Visual Classification: Dark Gray Slurry

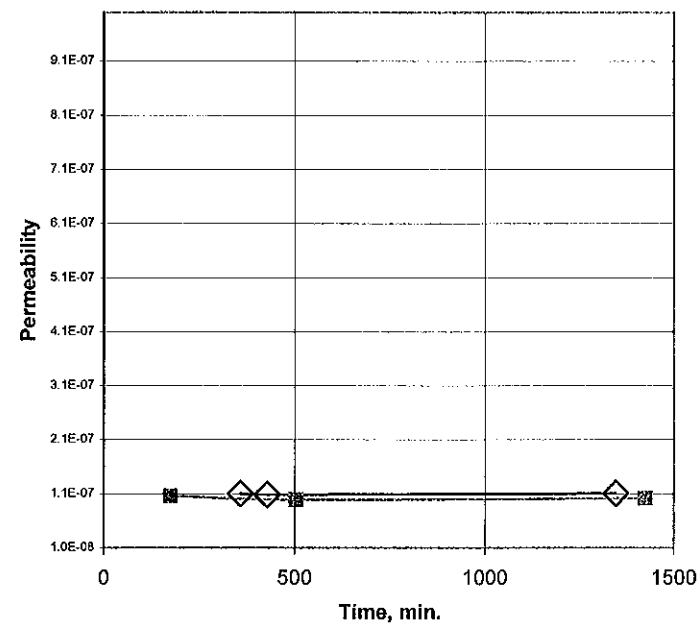
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
43.5	39.5	37.5	5

B: = >0.95 ("B" is an indication of saturation)

Max Hydraulic Gradient: = 12

Date	Minutes	Head, (in)	K,cm/sec
2/1/2010	0.00	42.69	Start of Test
2/1/2010	359.00	41.79	1.1E-07
2/1/2010	429.00	41.64	1.1E-07
2/2/2010	1347.00	39.49	1.1E-07
2/2/2010	177.00	69.68	1.1E-07
2/2/2010	503.00	68.53	9.9E-08
2/3/2010	1426.00	65.28	1.0E-07



Average Permeability: 1.E-07 cm/sec

Sample Data:	Initial		Final
Height, in	5.99		6.00
Diameter, in	3.00		3.00
Area, in2	7.07		7.07
Volume in3	42.32		42.40
Total Volume, cc	693.5		694.8
Volume Solids, cc	377.4		377.4
Volume Voids, cc	316.0		317.3
Void Ratio	0.8		0.8
Total Porosity, %	45.6		45.7
Air-Filled Porosity, %	0.9		0.1
Water-Filled Porosity,%	44.6		45.6
Saturation, %	98.0		99.8
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1328.7		1335.7
Dry Weight, gm	1019.1		1019.1
Tare, gm	0.00		0.00
Moisture, %	30.4		31.1
Dry Density, pcf	91.7		91.5

Remarks:

Attachment 7

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	353-069	**Boring:**		**Date:**	02/16/10
Client:	Smith-Emery Geoservices	**Sample:**	CSM 3A 1-14	**By:**	MD/PJ
Project:	J5337-17	**Depth, ft.:**	44	**Remolded:**	
Visual Classification:	Gray Slurry				

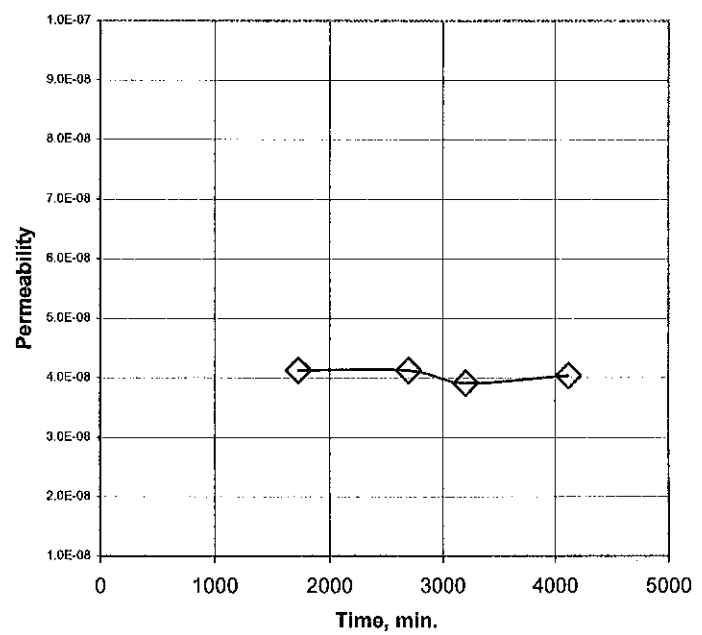
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
73.5	69.5	67.5	5

B: = >0.95 ("B" is an indication of saturation)

Max Hydraulic Gradient: = 28

Date	Minutes	Head, (in)	K,cm/sec
2/8/2010	0.00	167.66	Start of Test
2/9/2010	1727.00	162.66	4.1E-08
2/10/2010	2695.00	160.36	4.1E-08
2/10/2010	3202.00	159.06	3.9E-08
2/11/2010	4117.00	156.86	4.0E-08



Average Permeability: 4.E-08 cm/sec

Sample Data:	Initial		Final
Height, in	6.00		6.00
Diameter, in	3.01		3.01
Area, in2	7.12		7.12
Volume in3	42.69		42.69
Total Volume, cc	699.6		699.6
Volume Solids, cc	361.6		361.6
Volume Voids, cc	338.0		338.0
Void Ratio	0.9		0.9
Total Porosity, %	48.3		48.3
Air-Filled Porosity, %	1.4		0.0
Water-Filled Porosity,%	46.9		48.3
Saturation, %	97.0		100.0
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1304.4		1314.4
Dry Weight, gm	976.4		976.4
Tare, gm	0.00		0.00
Moisture, %	33.6		34.6
Dry Density, pcf	87.1		87.1

Remarks:

Hydraulic Conductivity

ASTM D 5084

Method C: Falling Head Rising Tailwater

Attachment 7

Job No:	353-069	**Boring:**		**Date:**	02/16/10
Client:	Smith-Emery Geoservices	**Sample:**	CSM-3A 1-14	**By:**	MD/PJ
Project:	J5337-17	**Depth, ft.:**	44	**Remolded:**	

Visual Classification: Gray Slurry

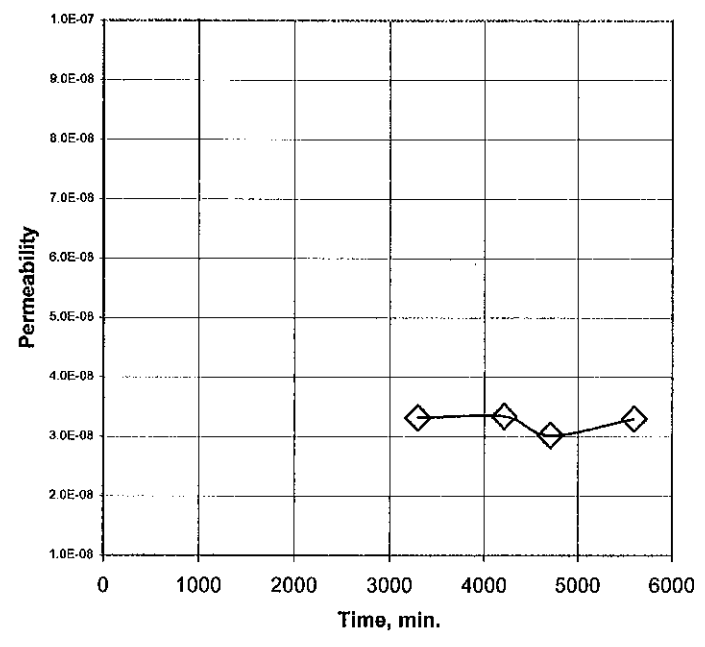
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
53.5	49.5	47.5	5

B: = >0.95 ("B" is an indication of saturation)

Max Hydraulic Gradient: = 13

Date	Minutes	Head, (in)	K,cm/sec
2/8/2010	0.00	79.38	Start of Test
2/10/2010	3295.00	74.78	3.3E-08
2/11/2010	4212.00	73.78	3.3E-08
2/11/2010	4704.00	73.28	3.0E-08
2/12/2010	5597.00	72.18	3.3E-08



Average Permeability: 3.E-08 cm/sec

Sample Data:	Initial		Final
Height, in	5.98		5.99
Diameter, in	3.01		3.01
Area, in2	7.12		7.12
Volume in3	42.55		42.62
Total Volume, cc	697.3		698.5
Volume Solids, cc	360.3		360.3
Volume Voids, cc	337.0		338.2
Void Ratio	0.9		0.9
Total Porosity, %	48.3		48.4
Air-Filled Porosity, %	1.7		0.4
Water-Filled Porosity,%	46.6		48.1
Saturation, %	96.5		99.3
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1298.1		1308.5
Dry Weight, gm	972.9		972.9
Tare, gm	0.00		0.00
Moisture, %	33.4		34.5
Dry Density, pcf	87.1		86.9

Remarks:

Hydraulic Conductivity

ASTM D 5084

Method C: Falling Head Rising Tailwater

Attachment 7

Job No:	353-069	**Boring:**		**Date:**	02/11/10
Client:	Smith-Emery Geoservices	**Sample:**	CSM-4C	**By:**	MD/PJ
Project:	J 5337-17	**Depth, ft.:**	25	**Remolded:**	

Visual Classification: Gray Slurry

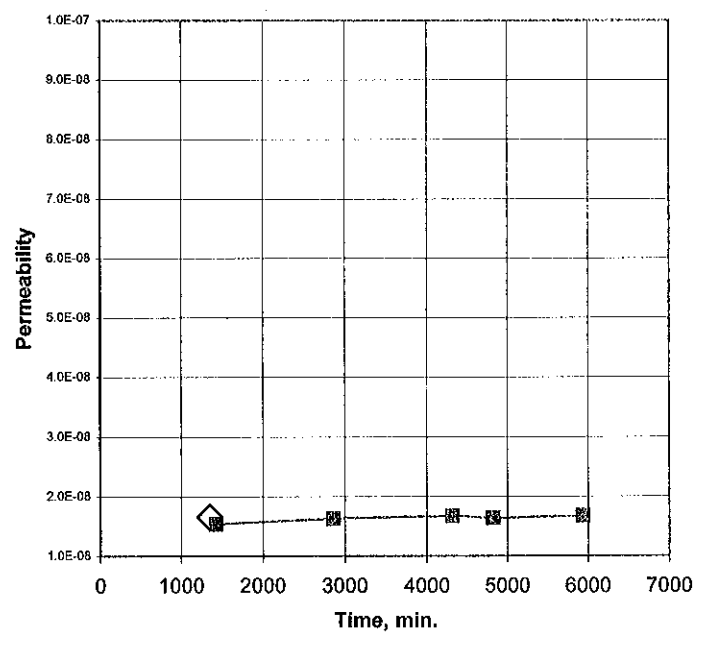
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
64	60	58	5

B: = >0.95 ("B" is an indication of saturation)

Max Hydraulic Gradient: = 12

Date	Minutes	Head, (in)	K,cm/sec
2/1/2010	0.00	42.69	Start of Test
2/2/2010	1349.00	42.19	1.7E-08
2/3/2010	1425.00	69.58	1.5E-08
2/4/2010	2859.00	68.68	1.6E-08
2/5/2010	4314.00	67.78	1.7E-08
2/5/2010	4821.00	67.43	1.6E-08
2/6/2010	5938.00	66.78	1.7E-08



Average Permeability: 2.E-08 cm/sec

Sample Data:	Initial		Final
Height, in	5.98		6.00
Diameter, in	3.01		3.01
Area, in2	7.12		7.12
Volume in3	42.55		42.66
Total Volume, cc	697.3		699.1
Volume Solids, cc	337.4		337.4
Volume Voids, cc	359.9		361.7
Void Ratio	1.1		1.1
Total Porosity, %	51.6		51.7
Air-Filled Porosity, %	2.1		0.4
Water-Filled Porosity,%	49.5		51.4
Saturation, %	96.0		99.3
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1256.3		1269.9
Dry Weight, gm	910.9		910.9
Tare, gm	0.00		0.00
Moisture, %	37.9		39.4
Dry Density, pcf	81.5		81.3

Remarks:

Attachment 7

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	353-069	**Boring:**		**Date:**	02/11/10
Client:	Smith-Emery Geoservices	**Sample:**	CSM-4C	**By:**	MD/PJ
Project:	J 5337-17	**Depth, ft.:**	25	**Remolded:**	

Visual Classification: Gray Slurry

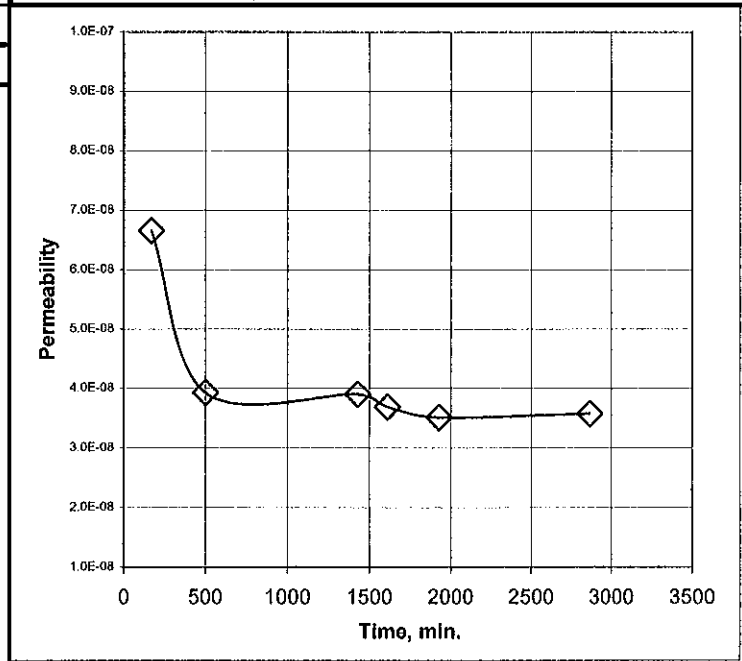
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
53.5	49.5	47.5	5

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 28

Date	Minutes	Head, (in)	K,cm/sec
2/2/2010	0.00	167.66	Start of Test
2/2/2010	170.00	166.86	6.7E-08
2/2/2010	500.00	166.26	3.9E-08
2/3/2010	1429.00	163.86	3.9E-08
2/3/2010	1610.00	163.46	3.7E-08
2/3/2010	1927.00	162.86	3.5E-08
2/4/2010	2867.00	160.76	3.6E-08



Average Permeability: 4.E-08 cm/sec

Sample Data:	Initial		Final
Height, in	5.95		5.97
Diameter, in	3.01		3.01
Area, in2	7.12		7.12
Volume in3	42.34		42.48
Total Volume, cc	693.8		696.1
Volume Solids, cc	325.4		325.4
Volume Voids, cc	368.4		370.8
Void Ratio	1.1		1.1
Total Porosity, %	53.1		53.3
Air-Filled Porosity, %	1.8		0.4
Water-Filled Porosity,%	51.3		52.8
Saturation, %	96.5		99.2
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1234.2		1246.3
Dry Weight, gm	878.5		878.5
Tare, gm	0.00		0.00
Moisture, %	40.5		41.9
Dry Density, pcf	79.0		78.7

Remarks:

Hydraulic Conductivity

ASTM D 5084

Method C: Falling Head Rising Tailwater

Attachment 7

Job No:	353-069	**Boring:**		**Date:**	02/11/10
Client:	Smith-Emery Geoservices	**Sample:**	TP-4 (1-5)	**By:**	MD/PJ
Project:	J 5337-17	**Depth, ft.:**		**Remolded:**	

Visual Classification: Gray Slurry

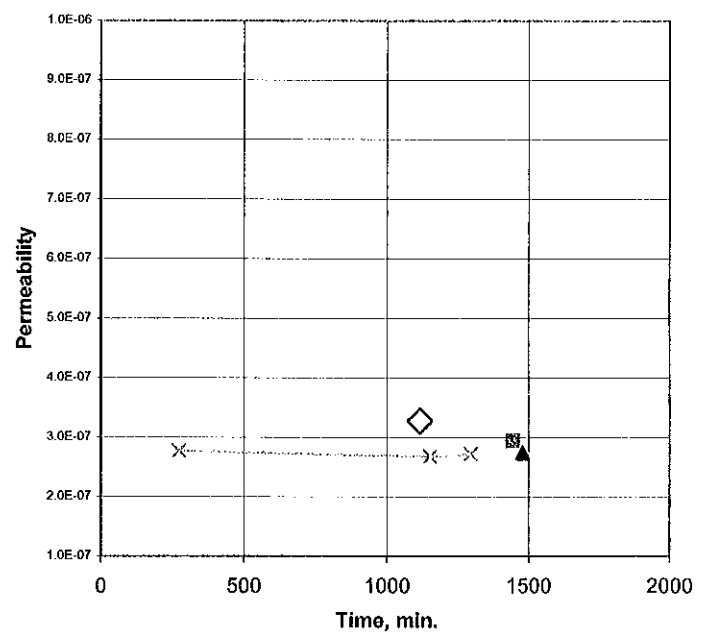
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
43.5	39.5	37.5	5

B: = >0.95 ("B" is an indication of saturation)

Max Hydraulic Gradient: = 12

Date	Minutes	Head, (in)	K,cm/sec
2/5/2010	0.00	70.38	Start of Test
2/6/2010	1115.00	58.08	3.3E-07
2/7/2010	1444.00	56.18	2.9E-07
2/8/2010	1479.00	56.68	2.7E-07
2/8/2010	274.00	67.58	2.8E-07
2/9/2010	1151.00	59.88	2.7E-07
2/9/2010	1294.00	58.68	2.7E-07



Average Permeability: 3.E-07 cm/sec

Sample Data:	Initial		Final
Height, in	5.98		5.99
Diameter, in	3.00		3.00
Area, in2	7.07		7.07
Volume in3	42.27		42.34
Total Volume, cc	692.7		693.8
Volume Solids, cc	384.8		384.8
Volume Voids, cc	307.9		309.0
Void Ratio	0.8		0.8
Total Porosity, %	44.4		44.5
Air-Filled Porosity, %	1.6		0.6
Water-Filled Porosity,%	42.9		43.9
Saturation, %	96.5		98.6
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1336.0		1343.6
Dry Weight, gm	1039.0		1039.0
Tare, gm	0.00		0.00
Moisture, %	28.6		29.3
Dry Density, pcf	93.6		93.4

Remarks:

Hydraulic Conductivity

ASTM D 5084

Method C: Falling Head Rising Tailwater

Attachment 7

Job No:	353-069	**Boring:**		**Date:**	02/11/10
Client:	Smith-Emery Geoservices	**Sample:**	TP-4 (1-5)	**By:**	MD/PJ
Project:	J 5337-17	**Depth, ft.:**		**Remolded:**	

Visual Classification: Gray Slurry

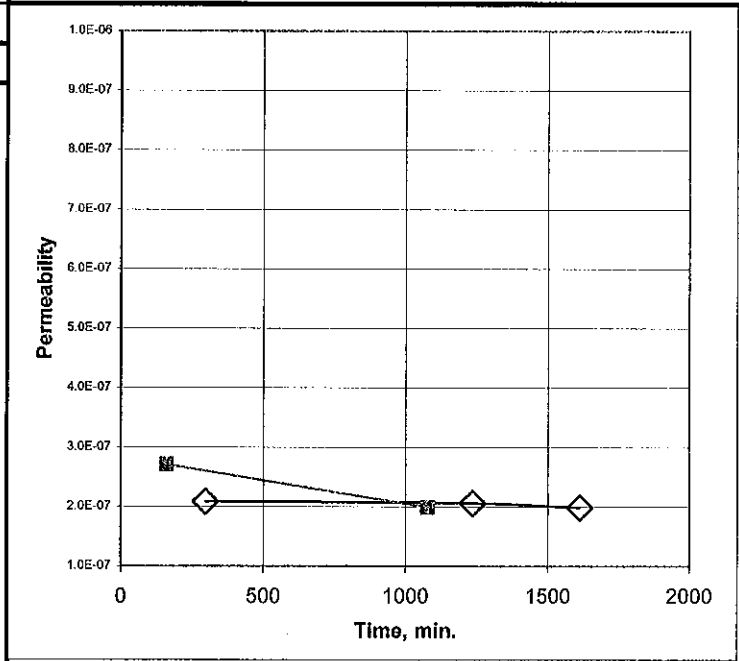
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
63.5	59.5	57.5	5

B: = >0.95 ("B" is an indication of saturation)

Max Hydraulic Gradient: = 28

Date	Minutes	Head, (in)	K,cm/sec
2/3/2010	0.00	167.66	Start of Test
2/3/2010	297.00	163.26	2.1E-07
2/4/2010	1235.00	151.06	2.1E-07
2/4/2010	1613.00	146.46	2.0E-07
2/4/2010	162.00	165.56	2.7E-07
2/5/2010	1078.00	154.46	2.0E-07



Average Permeability: 2.E-07 cm/sec

Sample Data:	Initial		Final
Height, in	5.92		5.93
Diameter, in	3.00		3.00
Area, in2	7.07		7.07
Volume in3	41.85		41.94
Total Volume, cc	685.7		687.2
Volume Solids, cc	385.0		385.0
Volume Voids, cc	300.8		302.3
Void Ratio	0.8		0.8
Total Porosity, %	43.9		44.0
Air-Filled Porosity, %	1.7		0.9
Water-Filled Porosity,%	42.1		43.1
Saturation, %	96.1		98.1
Specific Gravity	2.70	Assumed	2.70
Wet Weight, gm	1328.4		1335.8
Dry Weight, gm	1039.4		1039.4
Tare, gm	0.00		0.00
Moisture, %	27.8		28.5
Dry Density, pcf	94.6		94.4

Remarks: