

Division of Geological & Geophysical Surveys

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**2006 BRISTOL BAY, ALASKA PENINSULA FIELD SUMMARY AND
OUTCROP SAMPLE RESULTS FROM POROSITY & PERMEABILITY
AND MERCURY INJECTION CAPILLARY PRESSURE ANALYSES**

by

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Introduction

This non-interpretive report summarizes the type, quantity, and spatial distribution of samples collected during the 2006 field season from the Port Moller, Herendeen Bay, Zachary Bay, Unga Island, and Chignik Bay areas of the Alaska Peninsula Bristol Bay basin region, Alaska (fig. 1). This report also presents preliminary results of porosity and permeability measurements as well as mercury injection capillary pressures (MICP) derived from outcrop samples. Helicopter-supported fieldwork conducted by geologists from the Alaska Division of Geological & Geophysical Surveys (ADGGS) and the Alaska Division of Oil & Gas (ADOG) between July 31 and August 14, 2006, marked the end of a three-year geological research project which was funded by the U.S. Department of Energy through the Arctic Energy Technology Development Laboratory at the University of Alaska Fairbanks, the Bristol Bay Native Corporation, ADGGS, and ADOG. The aim of the overall project was to better understand the hydrocarbon potential of the Bristol Bay basin. The focus of field studies in 2006 was manifold and included: (1) reservoir assessment of the Tertiary section in the Herendeen Bay and Port Moller areas, (2) thermal maturity sample collection to assess source

rock, (3) structural analysis of outcrop geology to tie to potential reservoirs and plays in the subsurface, (4) stratigraphic studies of the Unga Formation (fig. 2) to tie to subsurface seismic data and previously published stratigraphic studies of Miocene deposits in the area (Finzel *et al.*, 2005; Decker *et al.*, 2005), and (5) coal sample collection from the Chignik and Herendeen Bay areas for analysis of coal quality and gas adsorption. A final ADGGS report will be issued late in 2007. All tabular data presented in this report are available for download as a digital Microsoft Excel file on the DGGS website (<http://www.dggs.dnr.state.ak.us>).

The distribution of 350 outcrop stations is shown in figure 3. Approximately 165 samples were collected for various analyses and are summarized in detail in table 1. Presently, all samples have been shipped to DGGS-contracted vendors for analysis, but only results for porosity and permeability and seal capacity (mercury injection capillary pressure) of five samples have been reported.

Porosity and Permeability

The results of porosity and permeability analyses for 18 outcrop samples (fig. 4) are summarized in table 2. Analyses were performed by Core Mongers, Soldotna, Alaska. One sample was too extensively fractured to analyze. Three other fractured samples were analyzed and yield suspect values. These samples are not included in the graph showing porosity versus permeability in figure 5. Klinkenberg permeabilities range between 0.0008 and 3.33 millidarcies (md) and air permeabilities are between 0.0023 and 3.74 md. The range of porosity values is 2.28–23.06 percent.

One of the two samples from the Unga Formation was too badly fractured for reliable analysis, but the other yielded a porosity of 7.16 percent and a permeability of 0.0528 md.

Two samples from the Stepovak Formation were analyzed. One was too badly fractured for reliable permeability analysis, but the other sample has a porosity of 15.53 percent with a permeability of 3.33 md.

The two samples from the Tolstoi Formation have porosities of 8.87 and 2.28 percent and permeabilities of 0.1132 and 0.0008 md, respectively.

Two samples from the Hoodoo Formation yielded porosities of 10.09 and 7.87 percent and respective permeabilities of 0.0323 and 0.0108 md.

Five samples from the Chignik Formation were analyzed, two of which were fractured too badly to yield reliable results. The range of porosity values for the Chignik Formation samples is 8.6–23.06 percent and the permeability range is 0.0365–3.17 md.

Two Herendeen Formation samples had porosity and permeability values of 3.61 percent at 0.0577 md and 3.8 percent at 0.0031 md.

Three samples were collected from the Naknek Formation. The porosity range of these three samples is between 8.55 and 10.54 percent and the permeability range is between 0.64–2.14 md.

Mercury Injection Capillary Pressure

The results of mercury injection capillary pressure (MICP) analyses for five outcrop samples from the Early Cretaceous Staniukovich Formation are summarized in table 3. Analyses were performed on siltstones by PetroTech Associates, Houston, Texas. The samples were dried in a low-temperature oven and then examined using a reflected light microscope (50X) to ensure sample quality.

During capillary pressure testing, the volume of mercury injected was monitored at 118 pressure points from 1.64 to 59,500 pounds per square inch absolute. These data were then corrected for closure (i.e., mercury conformance to the sample surface). Tables of the data (tables 4a–4e) and separate plots of cumulative bulk volume (figs. 6a–6e) and wetting phase saturation versus capillary pressure (figs. 7a–7e), as well as the incremental pore aperture size distribution (tables 8a–8e), are included for each sample.

A composite plot of the drainage data (fig. 9) and a series of “thumbnail” pore aperture size distribution plots (fig. 10) are provided as an aid when comparing samples.

Tables 5a–5e contain the porosity and permeability data derived from the capillary pressure analysis. The porosity ranges from 4.9 percent to 12.6 percent and averages 8.17 percent. Permeability calculated using the Swanson equation varied from 0.0002 md to 0.048 md with a geometric mean value of 0.0032 md. The capillary pressure data displayed in figure 10 show that the pore structures range from slightly to moderately bimodal. The initial intrusion peak occurs at apertures larger than 0.1 micron and may correspond to the remnants of interparticle pore space. The second peak occurs at approximately 0.01–0.02 microns and is most likely related to the clay microfabric.

The air/mercury capillary pressure data were converted to gas/water and oil/water systems assuming a gas/water surface tension of 50 dynes/centimeter and an oil/water interfacial tension of 30 dynes/centimeter. Subsequent conversion to equivalent height was made using the following values (reservoir conditions):

Water Density	Gas Density	Oil Density
1.016 grams/cubic centimeter	0.28 grams/cubic centimeter	0.69 grams/cubic centimeter

Calculations of potential seal capacity (hydrocarbon column held) were made for hydrocarbon saturations in the seal of 0 percent (entry), 5 percent, 7.5 percent, and 10 percent and are plotted in figures 11 and 12 for oil and gas, respectively. The value at a saturation of 7.5 percent is commonly used to indicate the point where the hydrocarbon phase in the seal rock is continuous enough to cause the seal to leak. Separate plots of these values is included for both oil and gas systems (figs. 13 and 14).

Capillary pressure values indicate the Staniukovich Formation can provide a seal for gas columns ranging from 200 to 1000 feet in height. Additional results for 16 samples collected primarily from the Miocene Bear Lake Formation are pending.

Data Acquisition

All porosity and permeability data were acquired from Core Mongers, Soldotna, Alaska. Table 2 is modified from a table generated by Core Mongers.

PetroTech Associates in Houston, Texas, provided all MICP data. Figures 6a–14 and Tables 3–5e are modified from their report to DGGS.

References

- Burk, C.A., 1965, Geology of the Alaska Peninsula–Island Arc and Continental Margin: The Geological Society of America Memoir 99, 250 p., 3 sheets.
- Decker, P.L., Finzel, E.S., Ridgway, K.D., Reifenhuth, R.R., and Blodgett, R.B., 2005, Preliminary summary of the 2005 field season: Port Moller, Herendeen Bay, and Dillingham areas, Bristol Bay Basin, Alaska Peninsula: Alaska Division of Geological & Geophysical Surveys Preliminary Interpretive Report 2005-7, 55 p.
- Finzel, E.S., Reifenhuth, R.R., Decker, P.L., and Ridgway, K.D., 2005, Sedimentology, stratigraphy, and hydrocarbon reservoir-source rock potential, using surface and subsurface data, of Tertiary and Mesozoic strata, Bristol Bay Basin and Alaska Peninsula: Alaska Division of Geological & Geophysical Surveys Preliminary Interpretive Report 2005-4, 67 p.

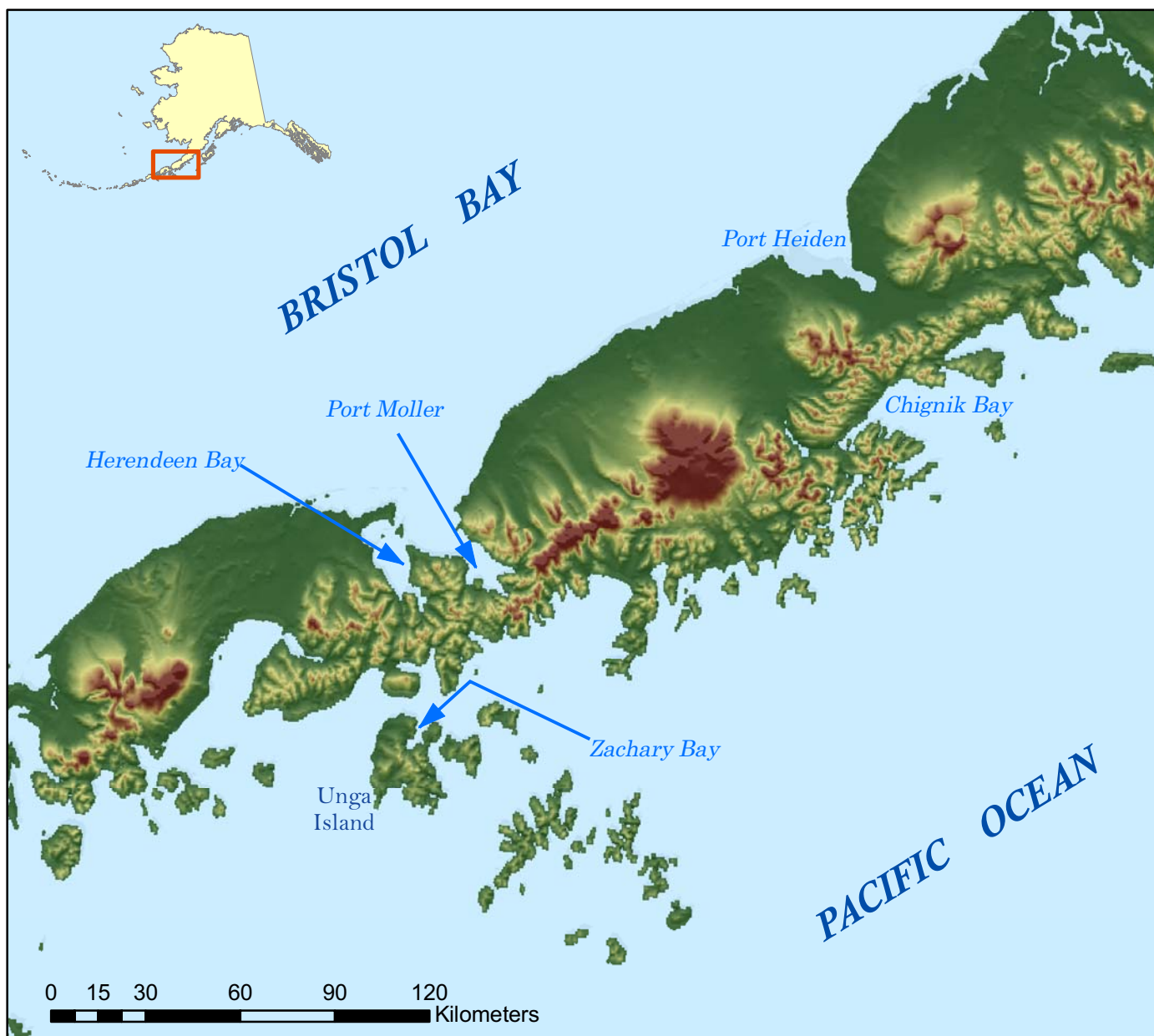


Figure 1. Digital Elevation Model and shaded relief map showing the Bristol Bay study area.

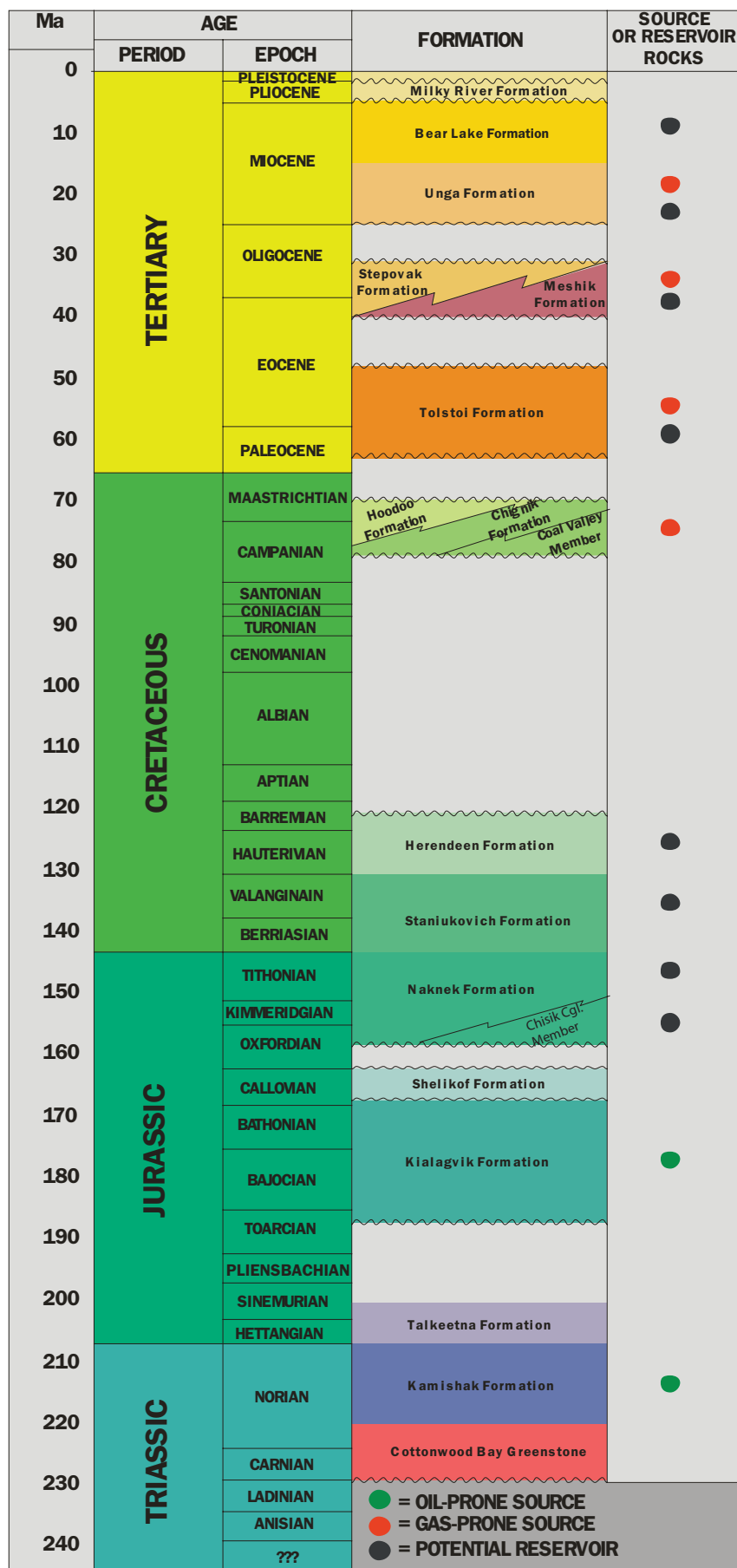


Figure 2. Stratigraphic column of the Bristol Bay area indicating potential source and reservoir units (modified from Burk, 1965).

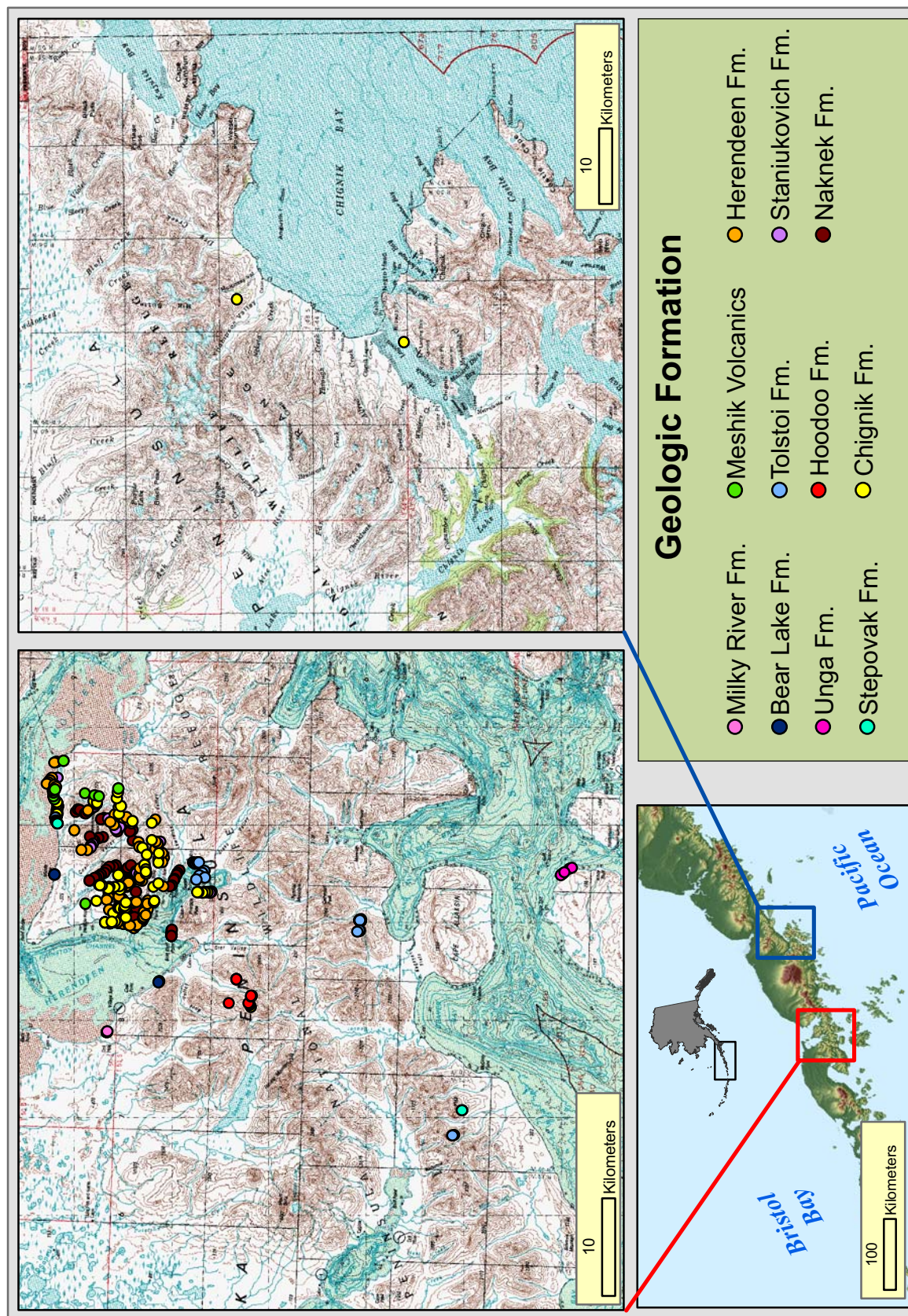


Figure 3. Maps showing the locations of geologic stations visited during the 2006 Bristol Bay field season.

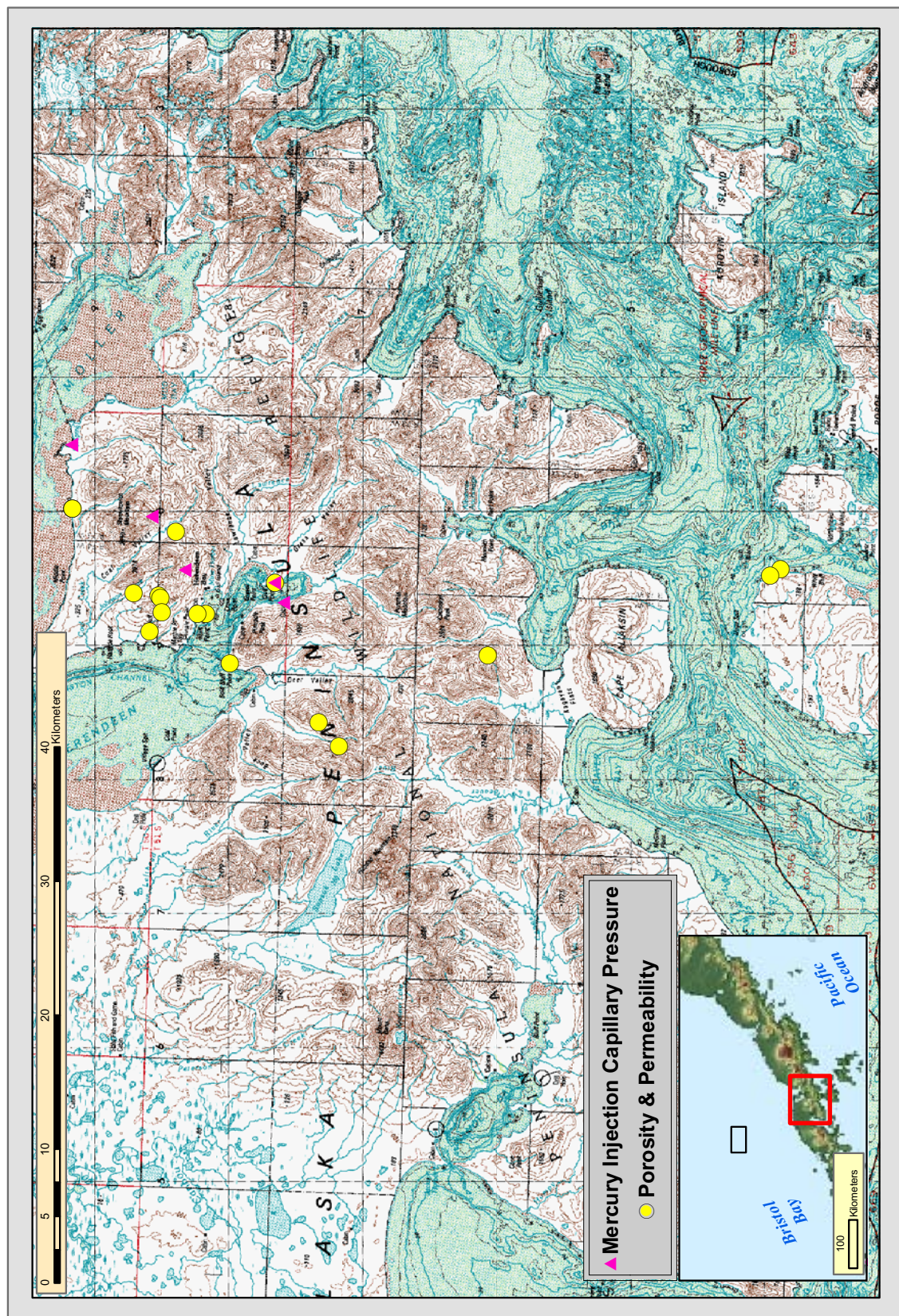


Figure 4. Map showing the locations of porosity and permeability and mercury injection capillary pressure samples.

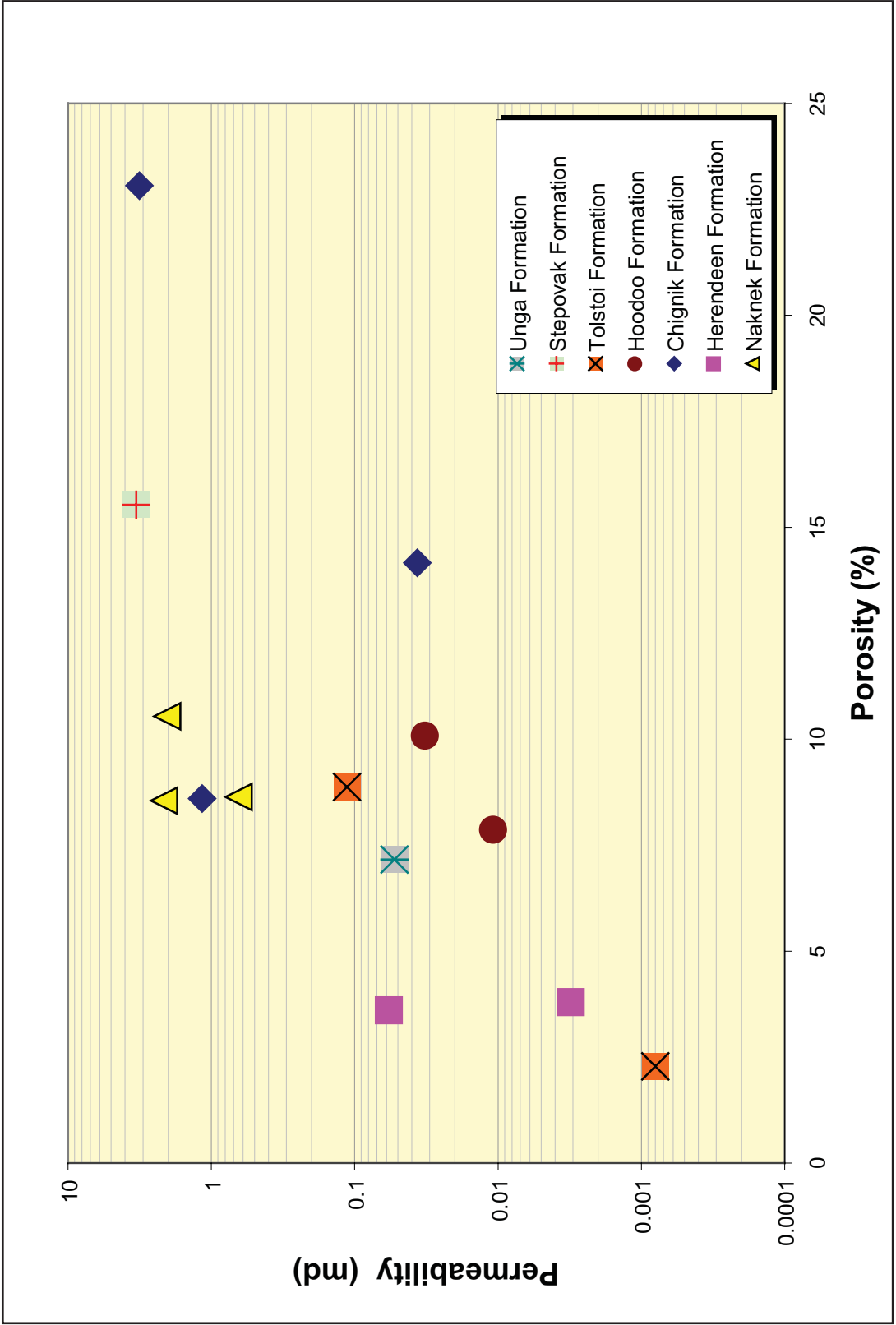


Figure 5. Porosity and permeability data for samples collected during the 2006 Bristol Bay field program. The data are summarized in Table 2.

Figure 6a. Mercury Injection Capillary Pressure (Bulk Volume)

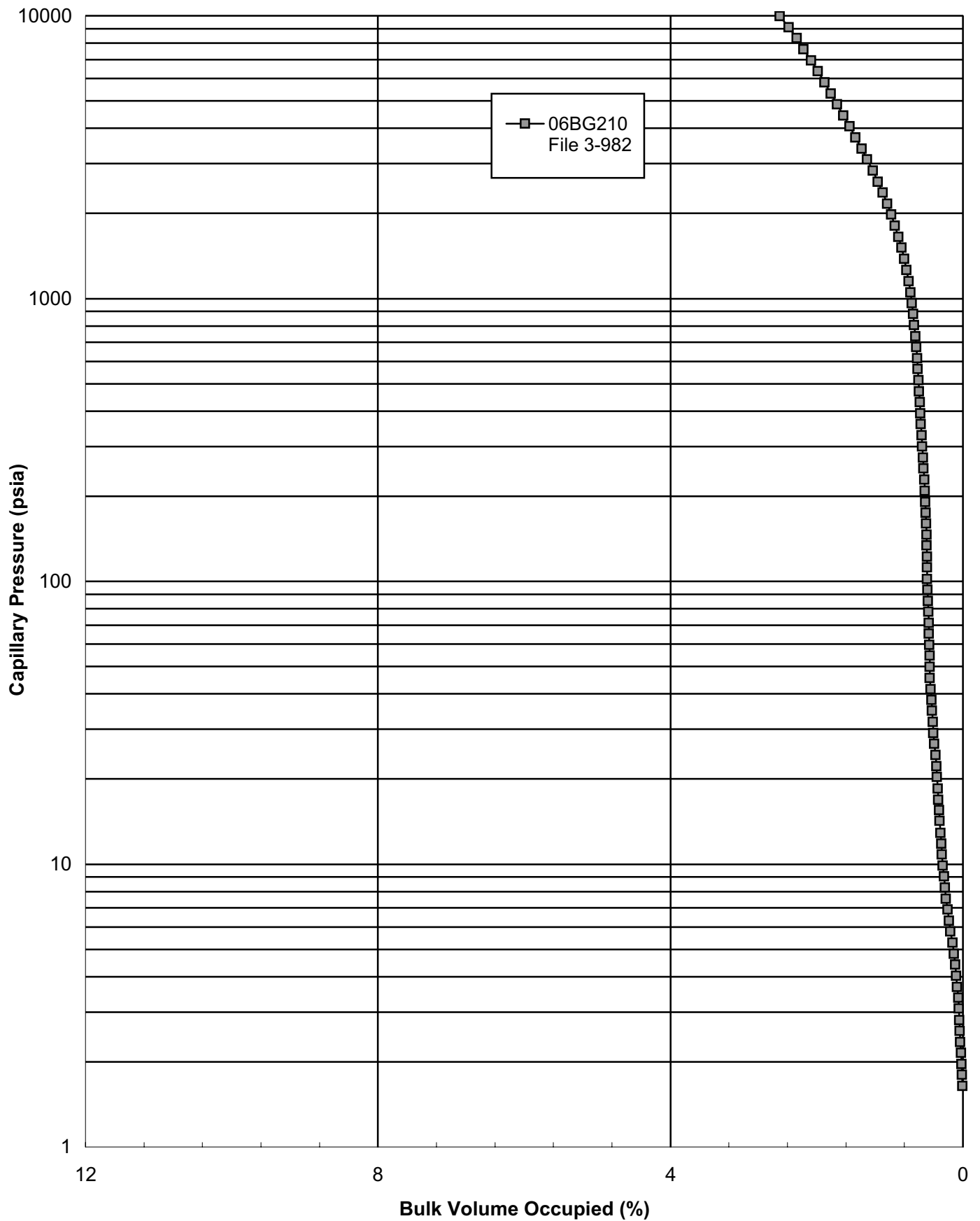


Figure 6b. Mercury Injection Capillary Pressure (Bulk Volume)

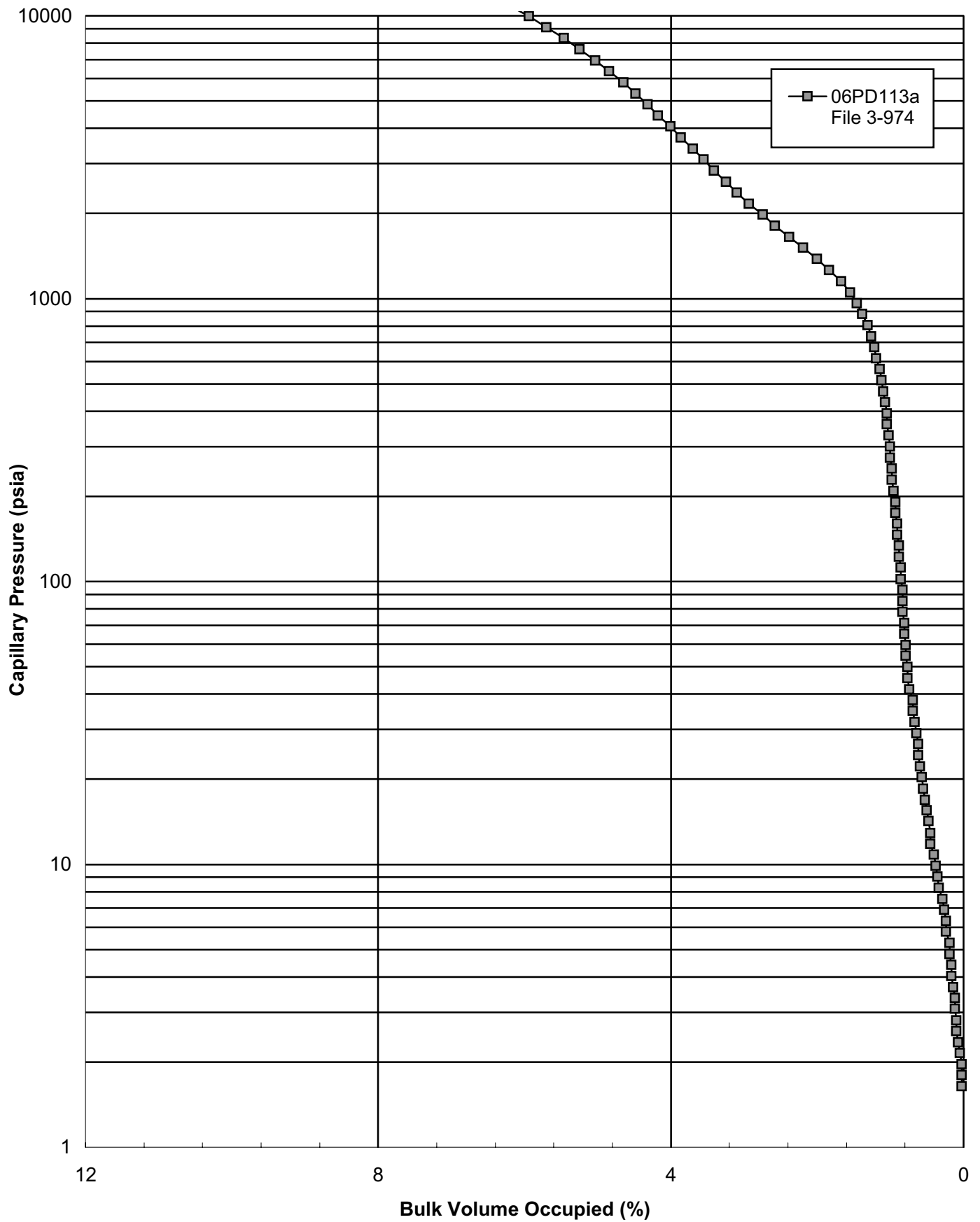


Figure 6c. Mercury Injection Capillary Pressure (Bulk Volume)

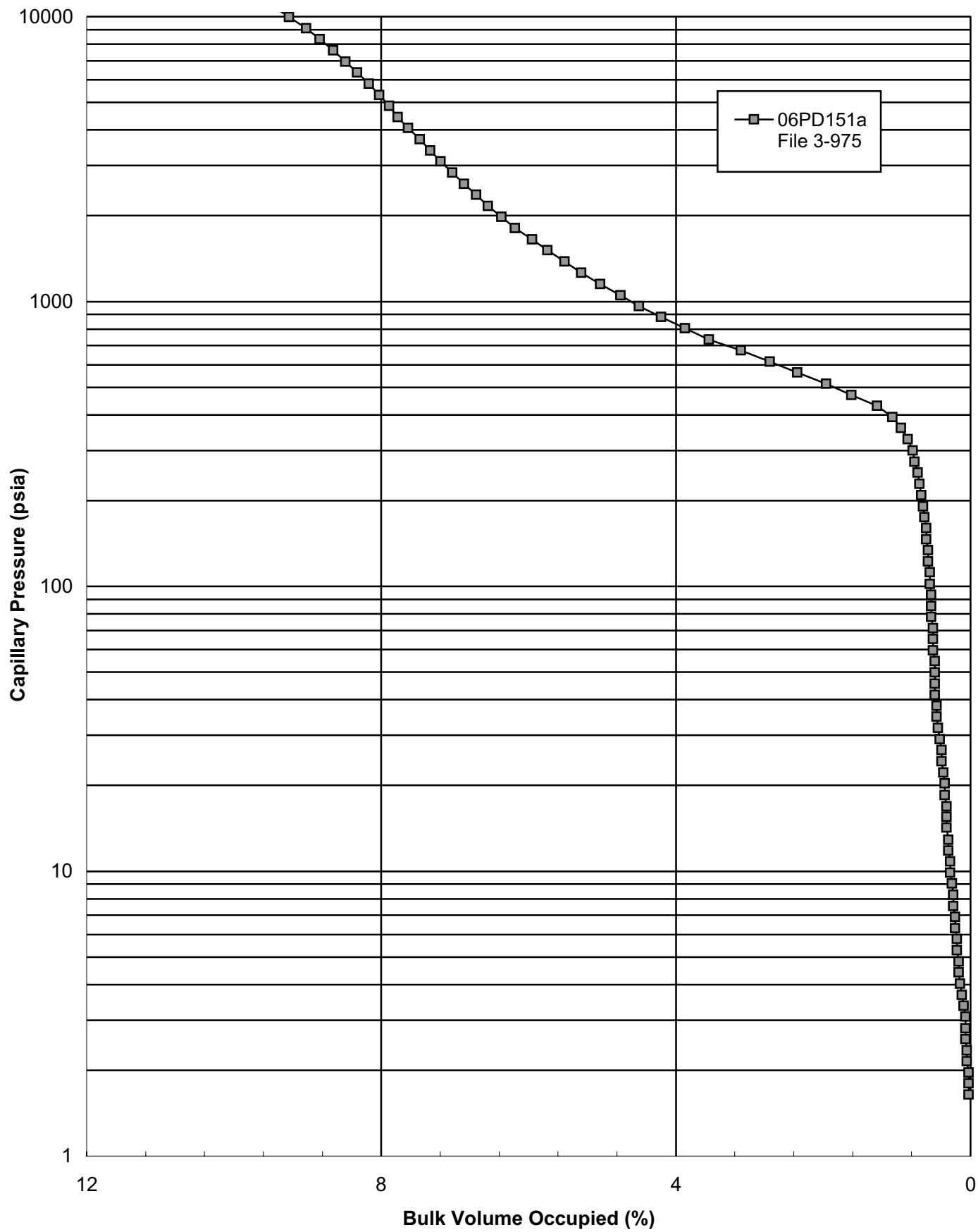


Figure 6d. Mercury Injection Capillary Pressure (Bulk Volume)

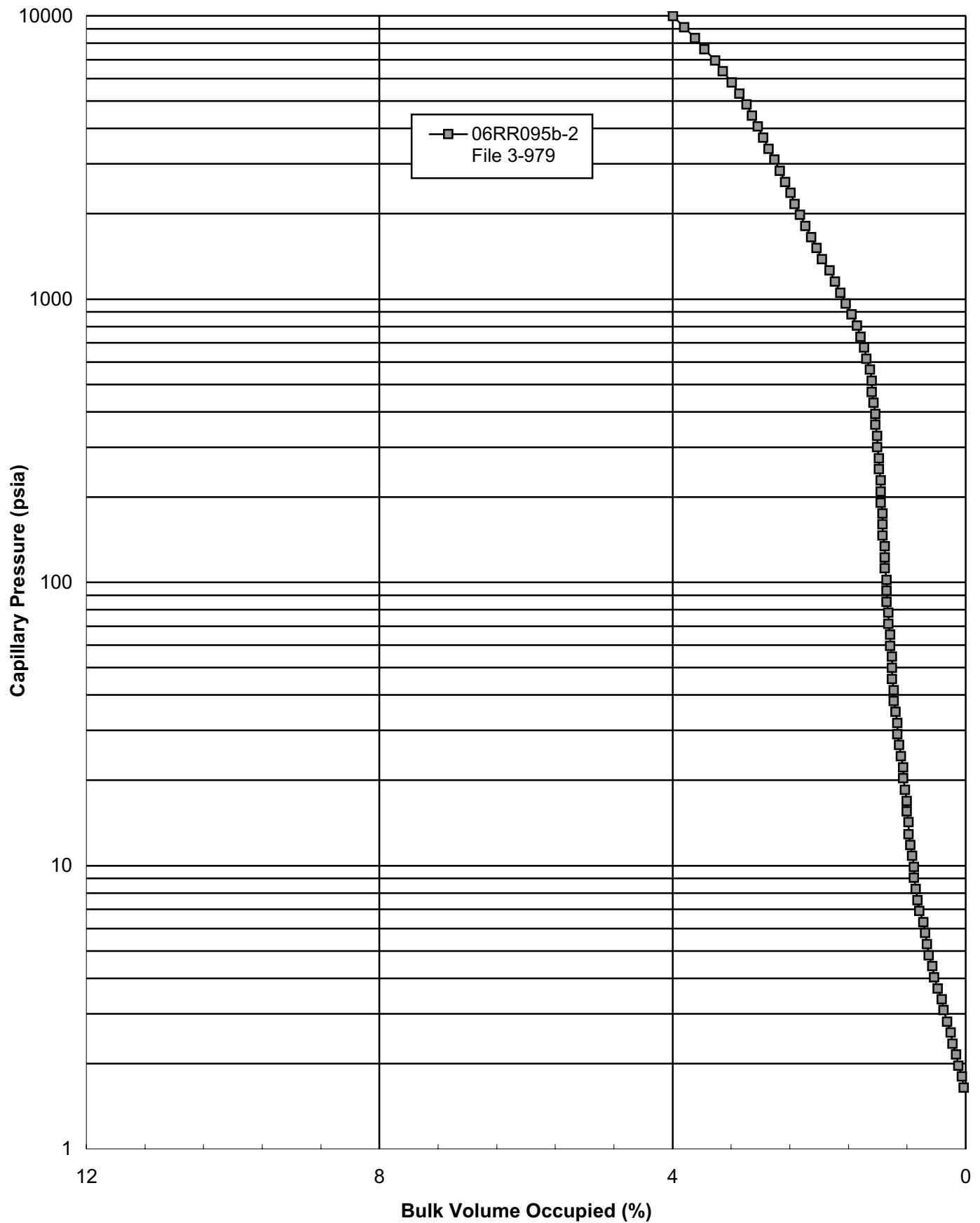


Figure 6e. Mercury Injection Capillary Pressure (Bulk Volume)

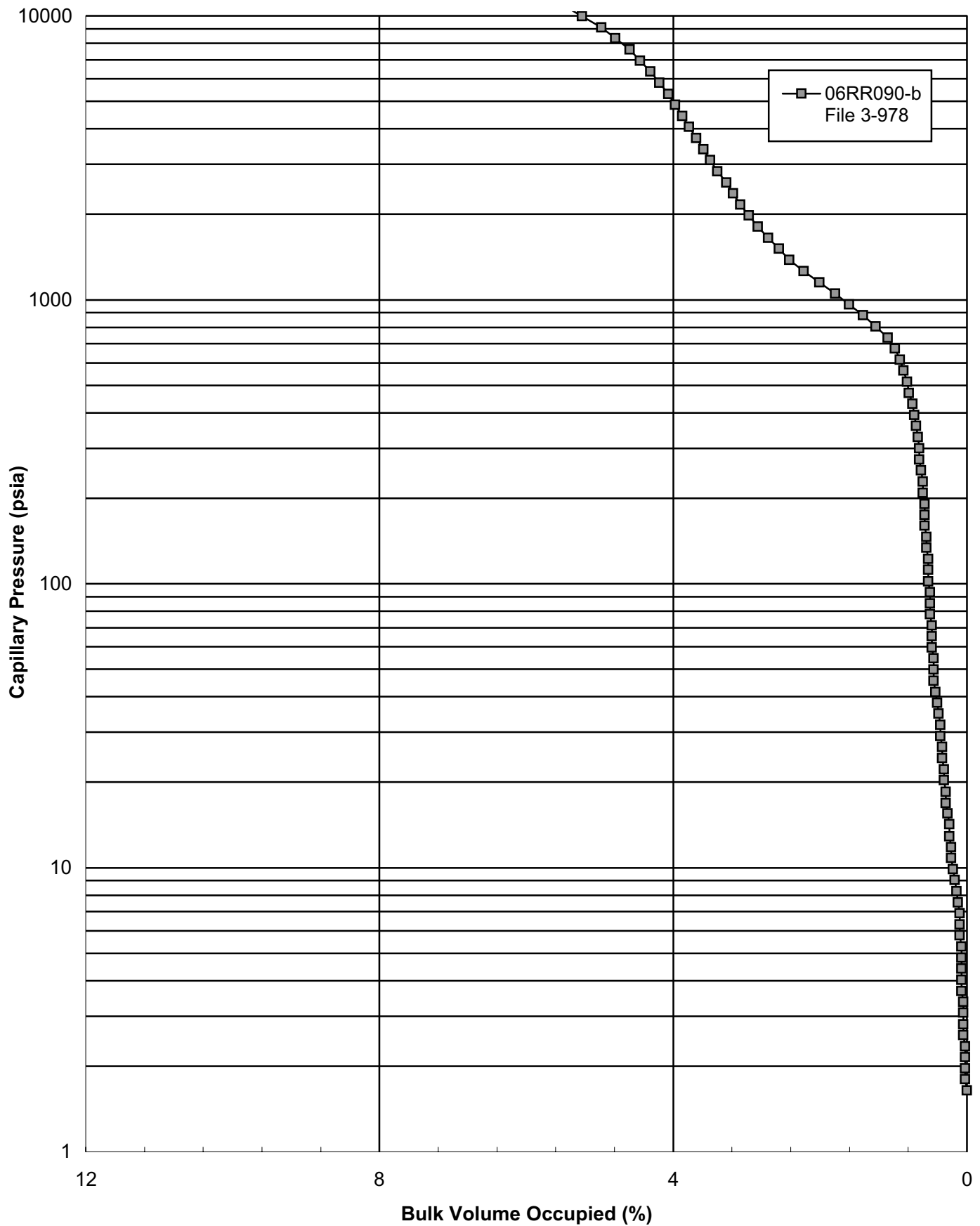


Figure 7a. Mercury Injection Capillary Pressure (Pore Volume)

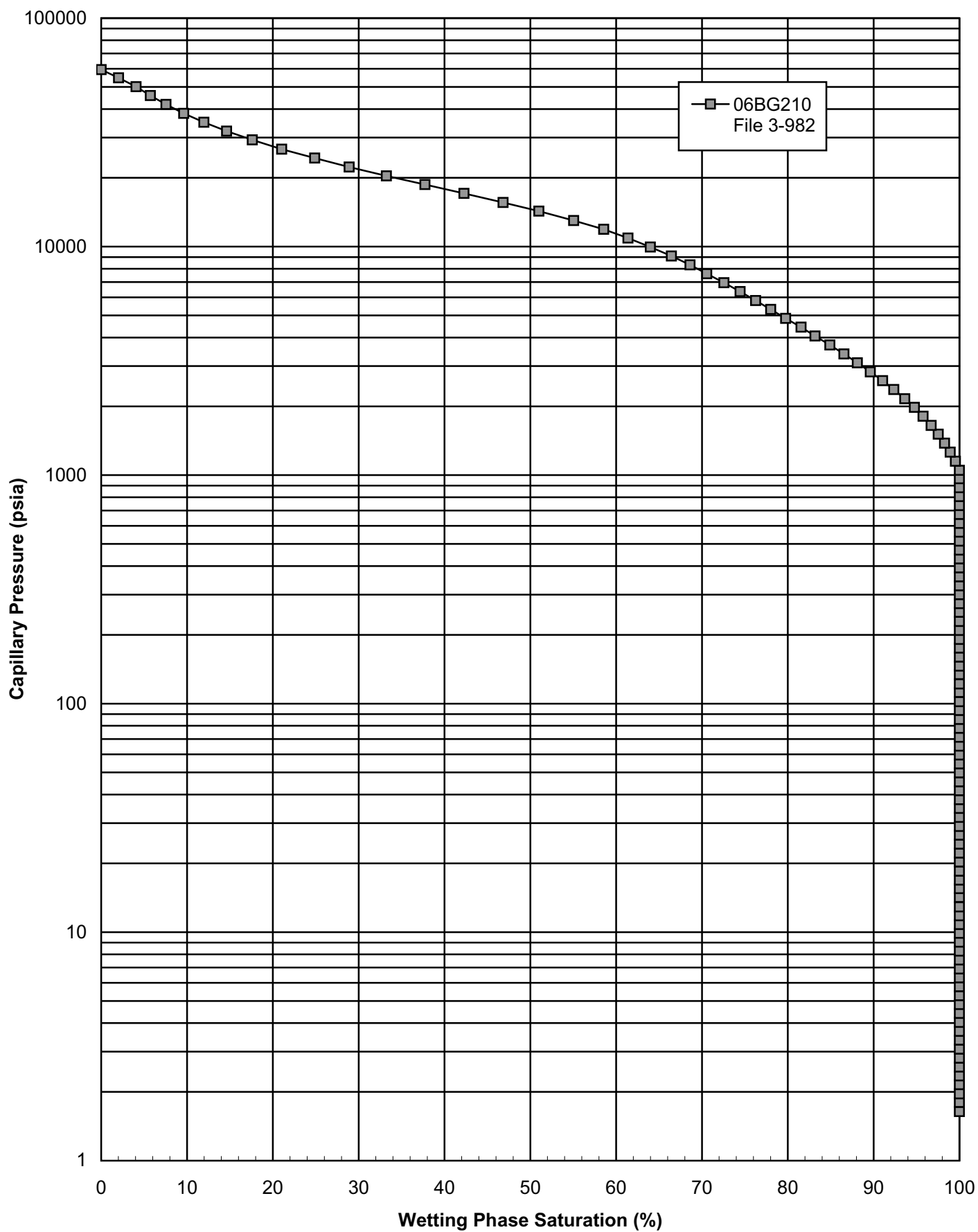


Figure 7b. Mercury Injection Capillary Pressure (Pore Volume)

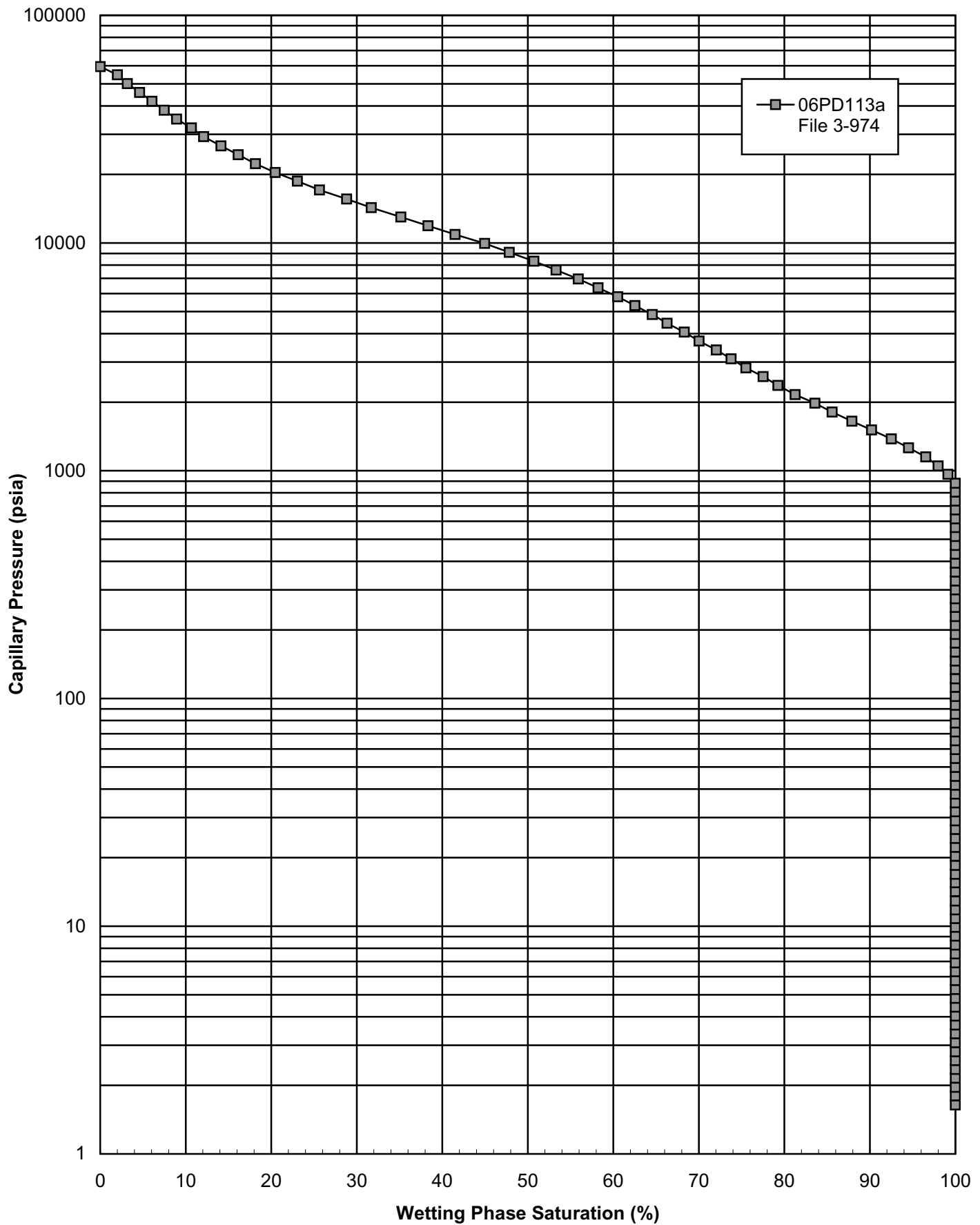


Figure 7c. Mercury Injection Capillary Pressure (Pore Volume)

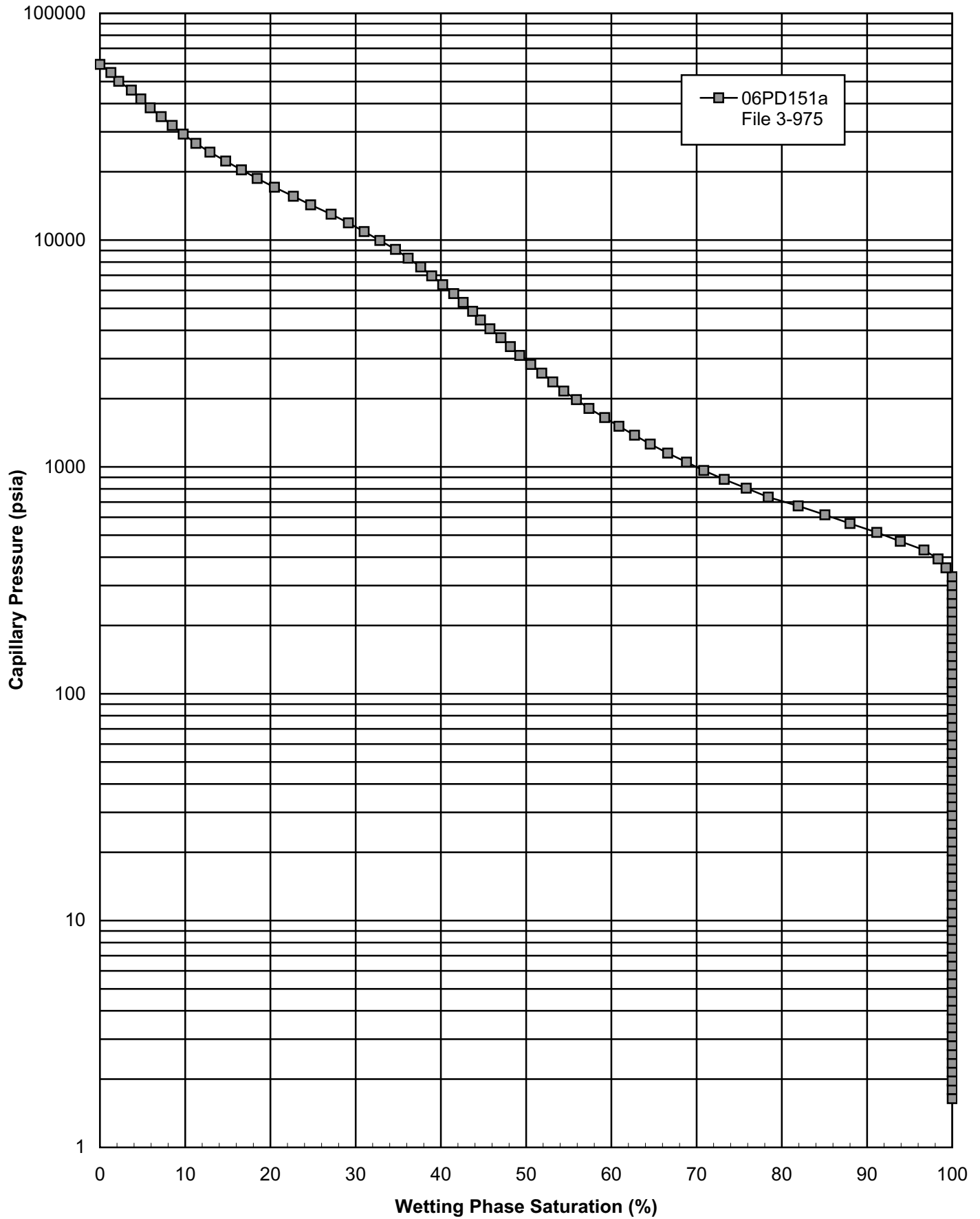


Figure 7d. Mercury Injection Capillary Pressure (Pore Volume)

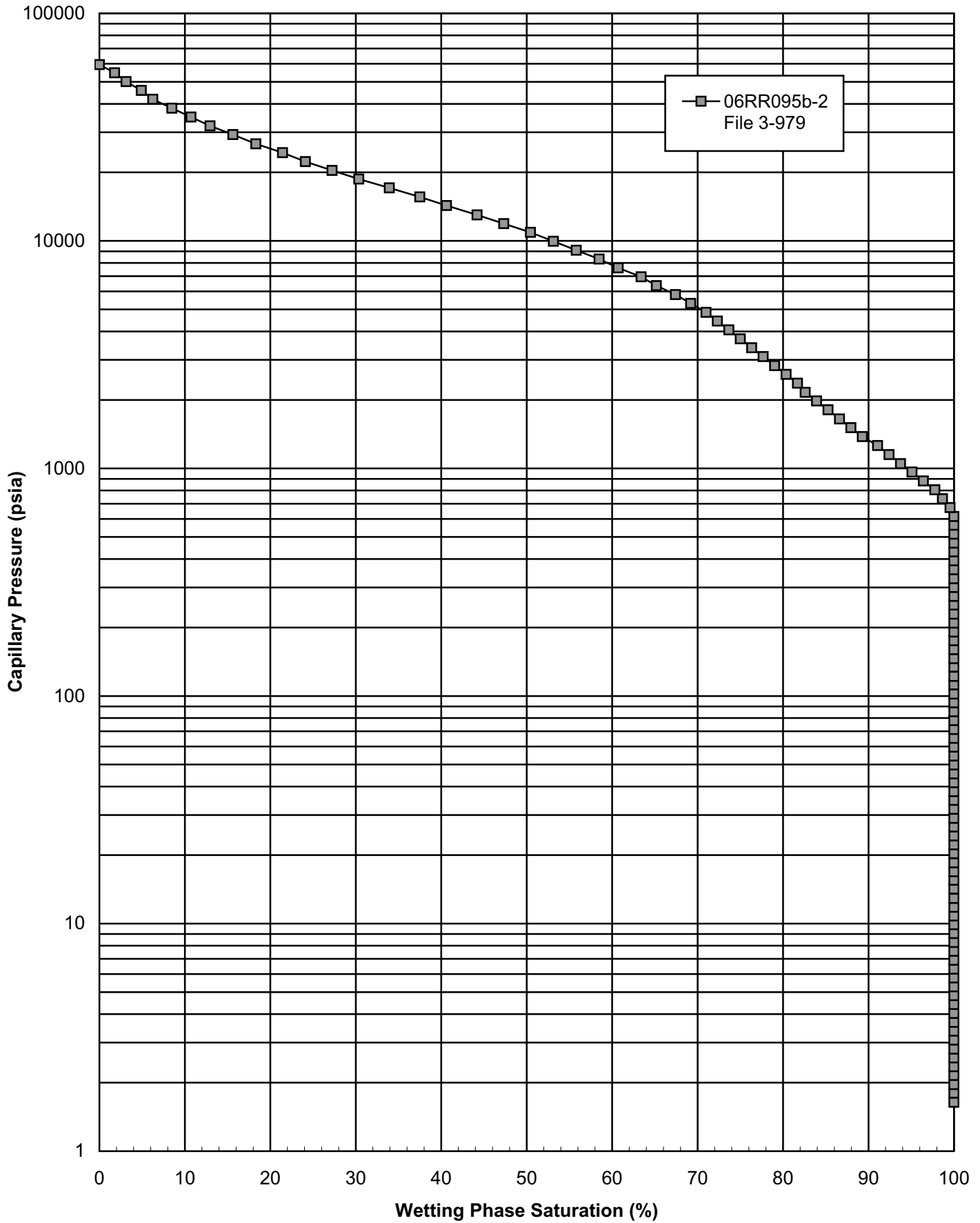


Figure 7e. Mercury Injection Capillary Pressure (Pore Volume)

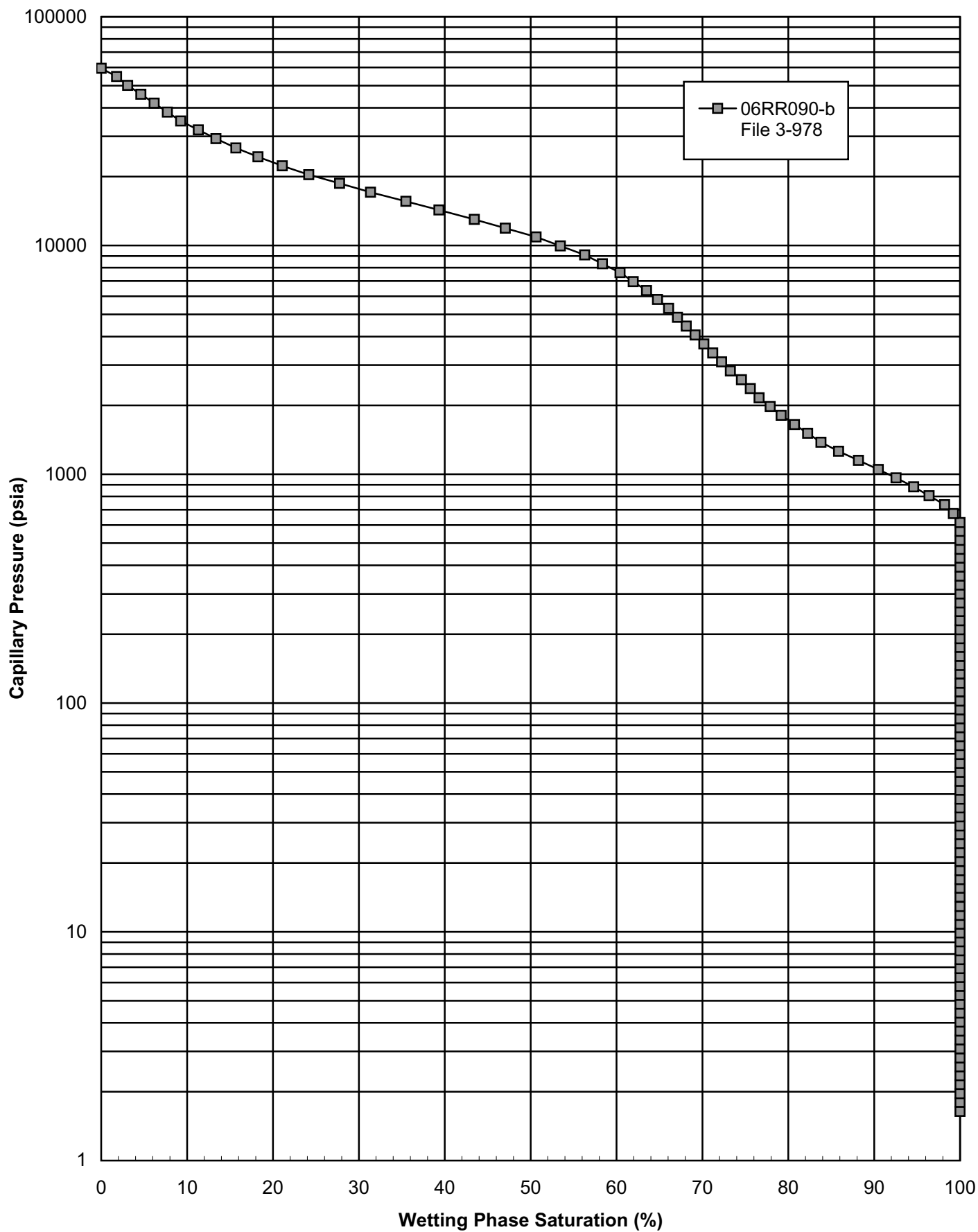


Figure 8a. Pore Aperture Size Distribution

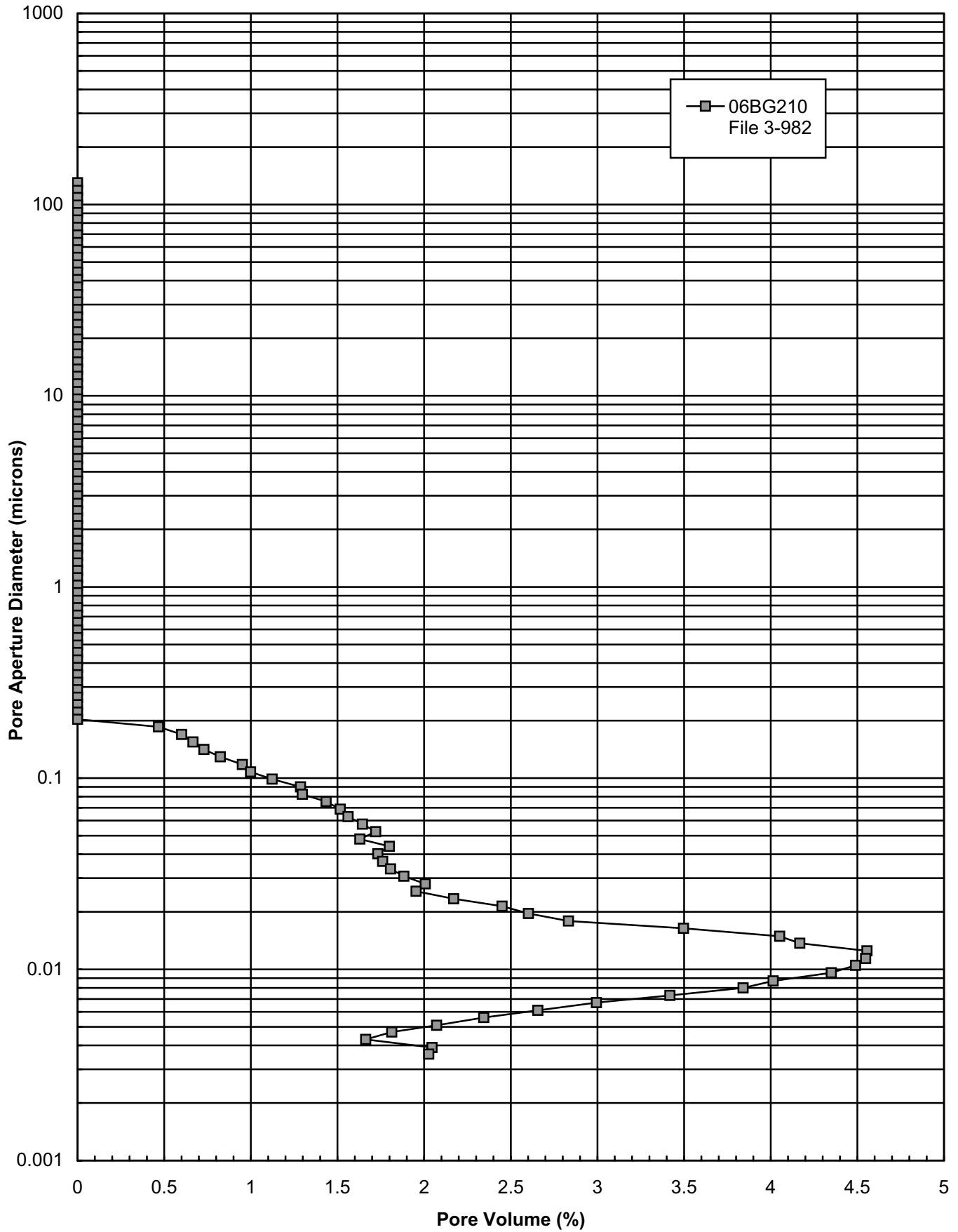


Figure 8b. Pore Aperture Size Distribution

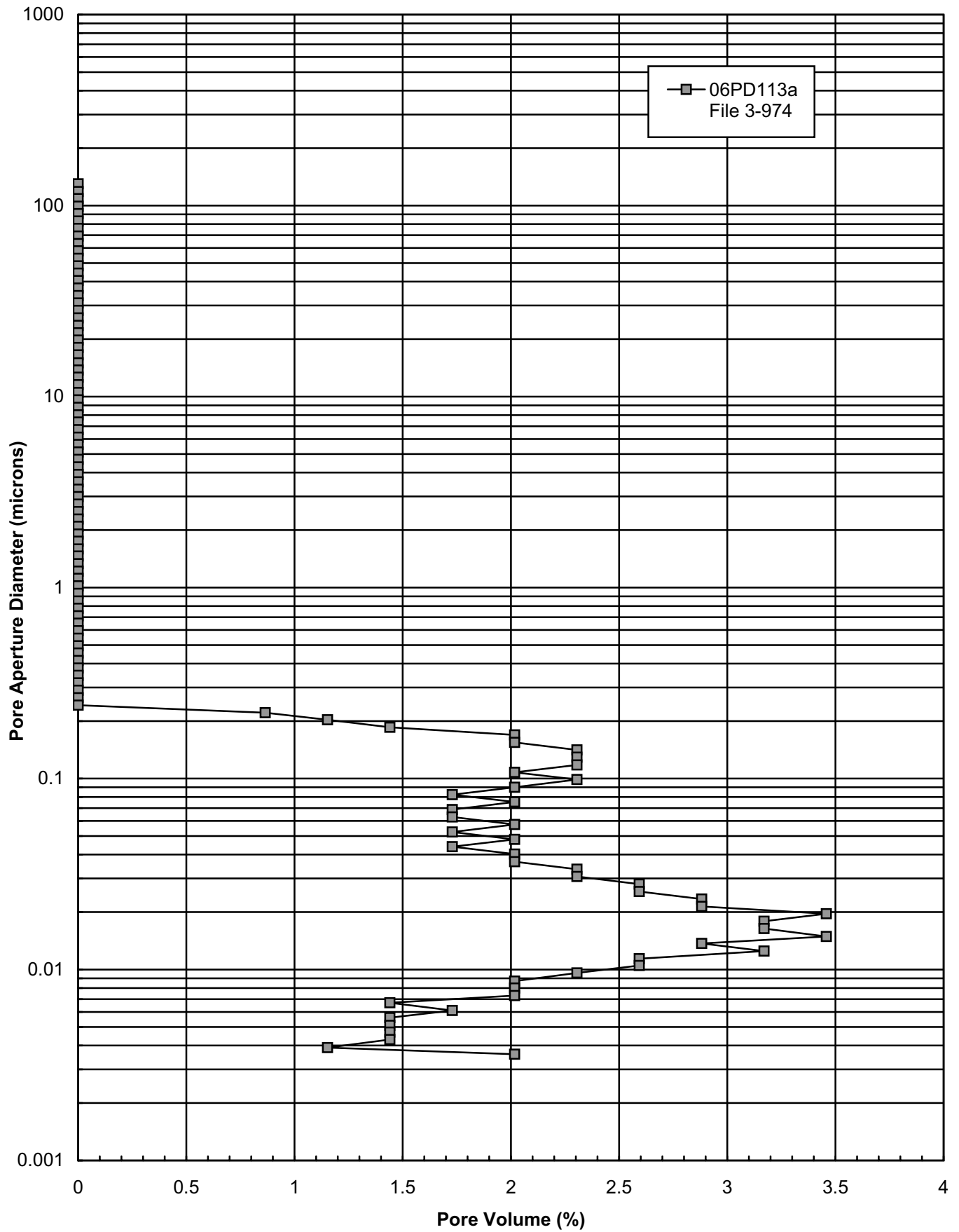


Figure 8c. Pore Aperture Size Distribution

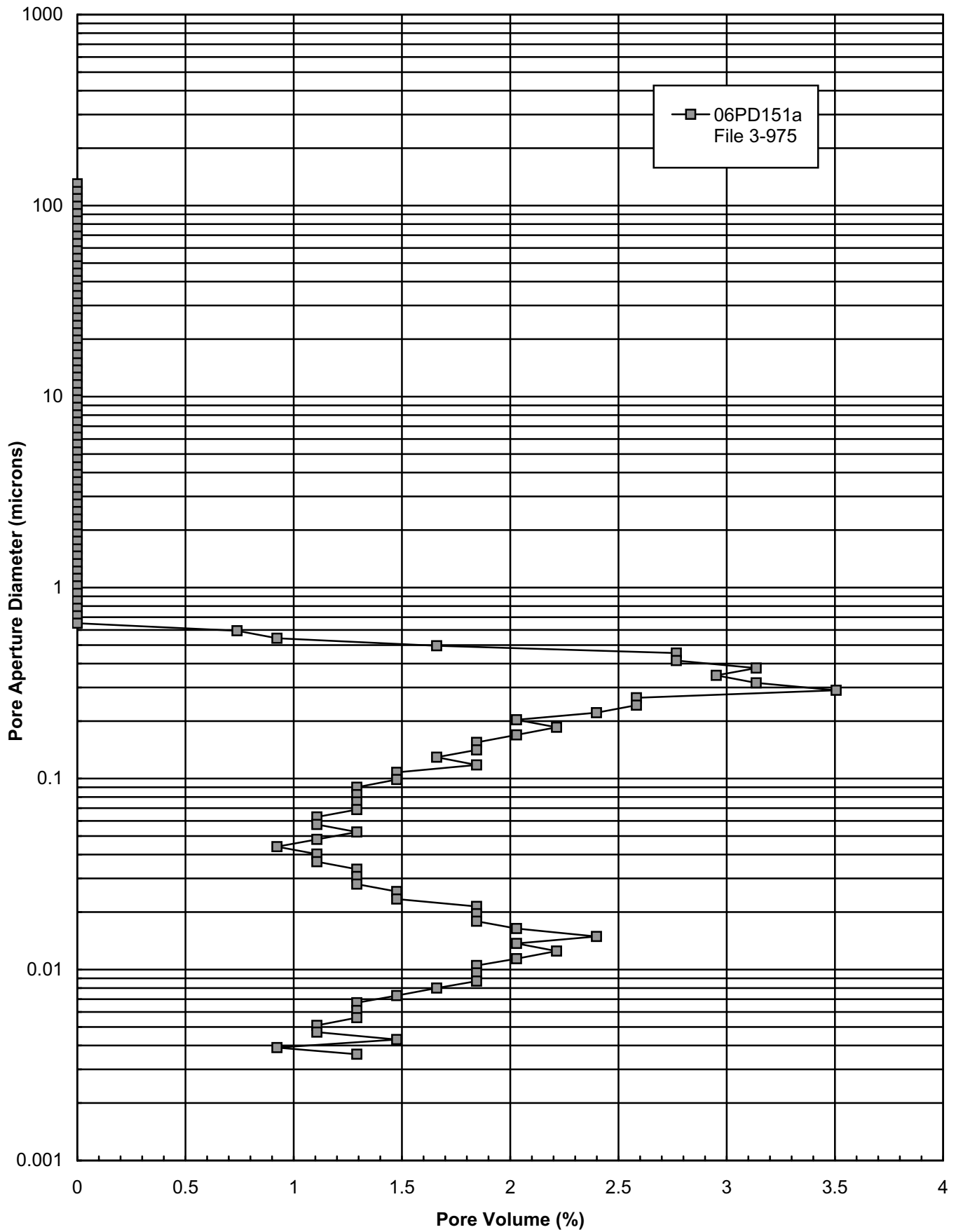


Figure 8d. Pore Aperture Size Distribution

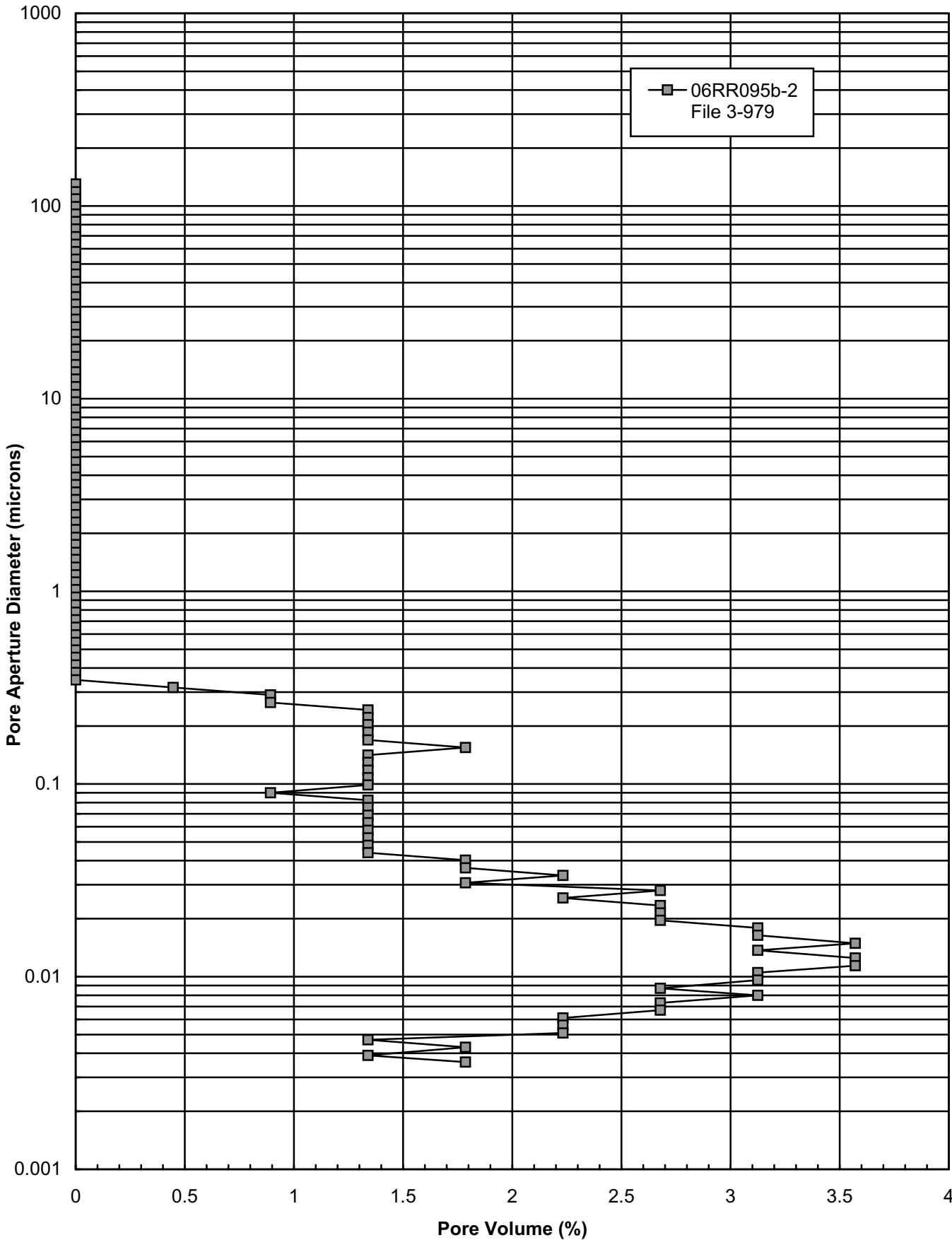


Figure 8e. Pore Aperture Size Distribution

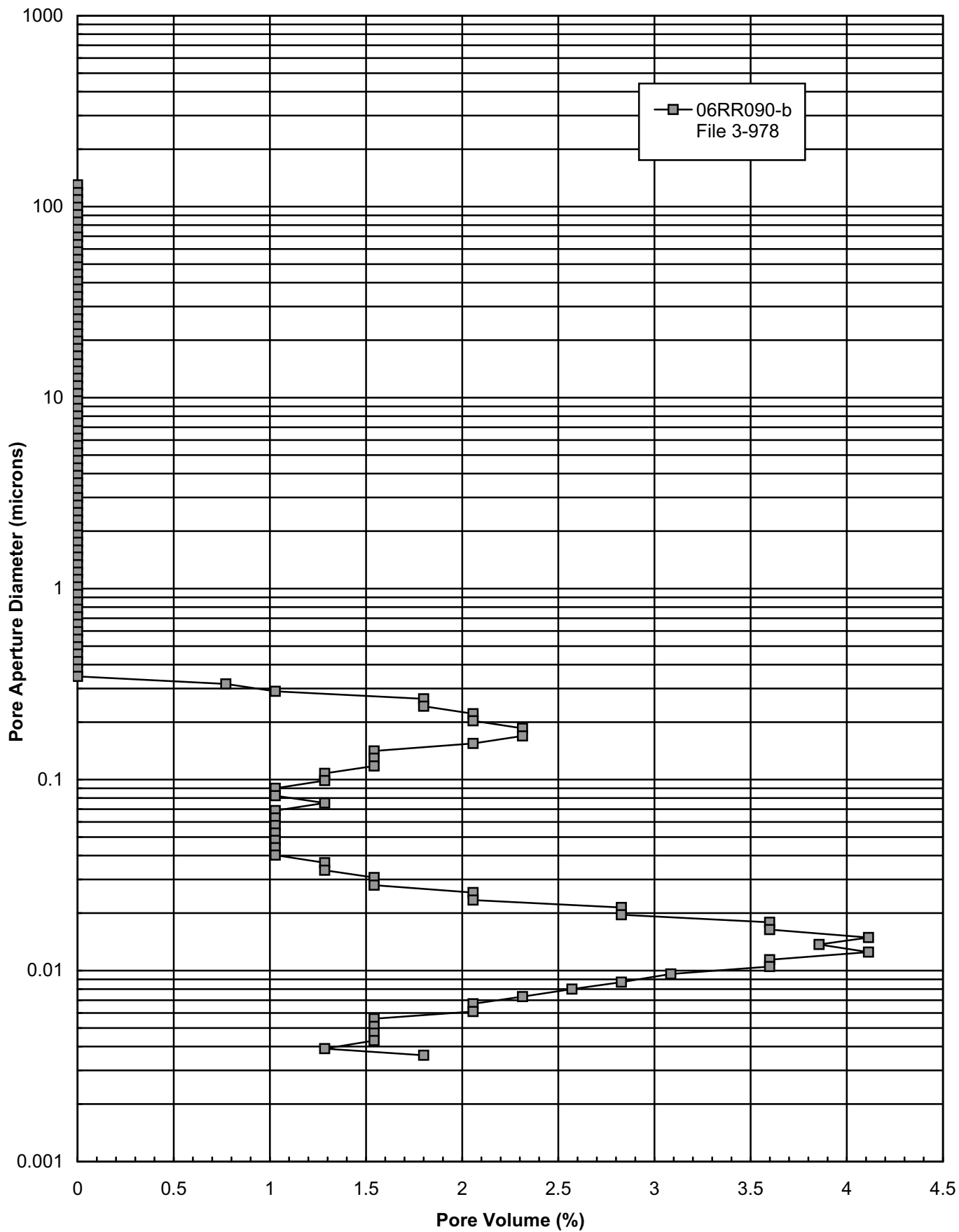


Figure 9. Mercury Injection Capillary Pressure (Pore Volume)

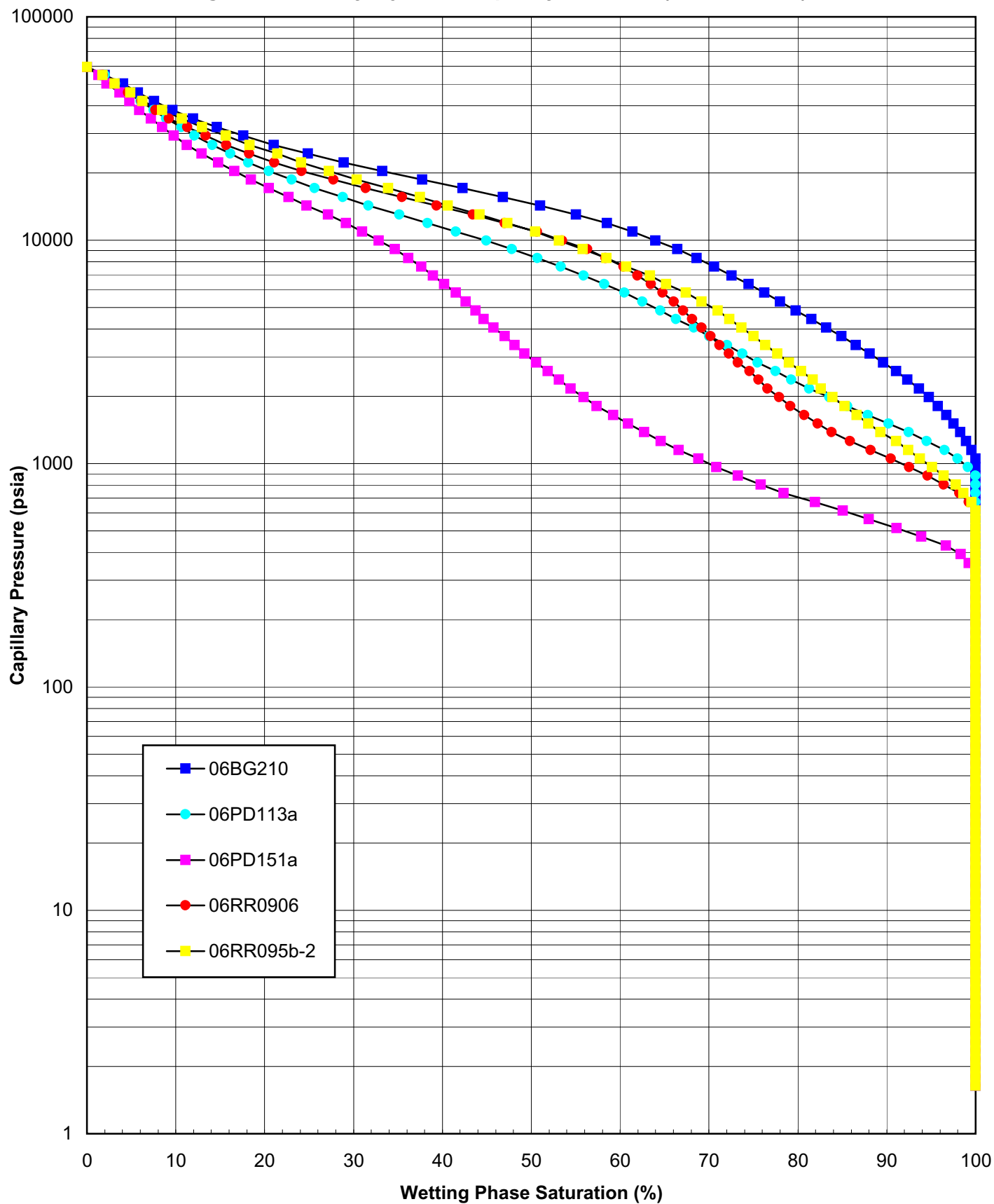


Figure 10. Pore aperture size distributions.

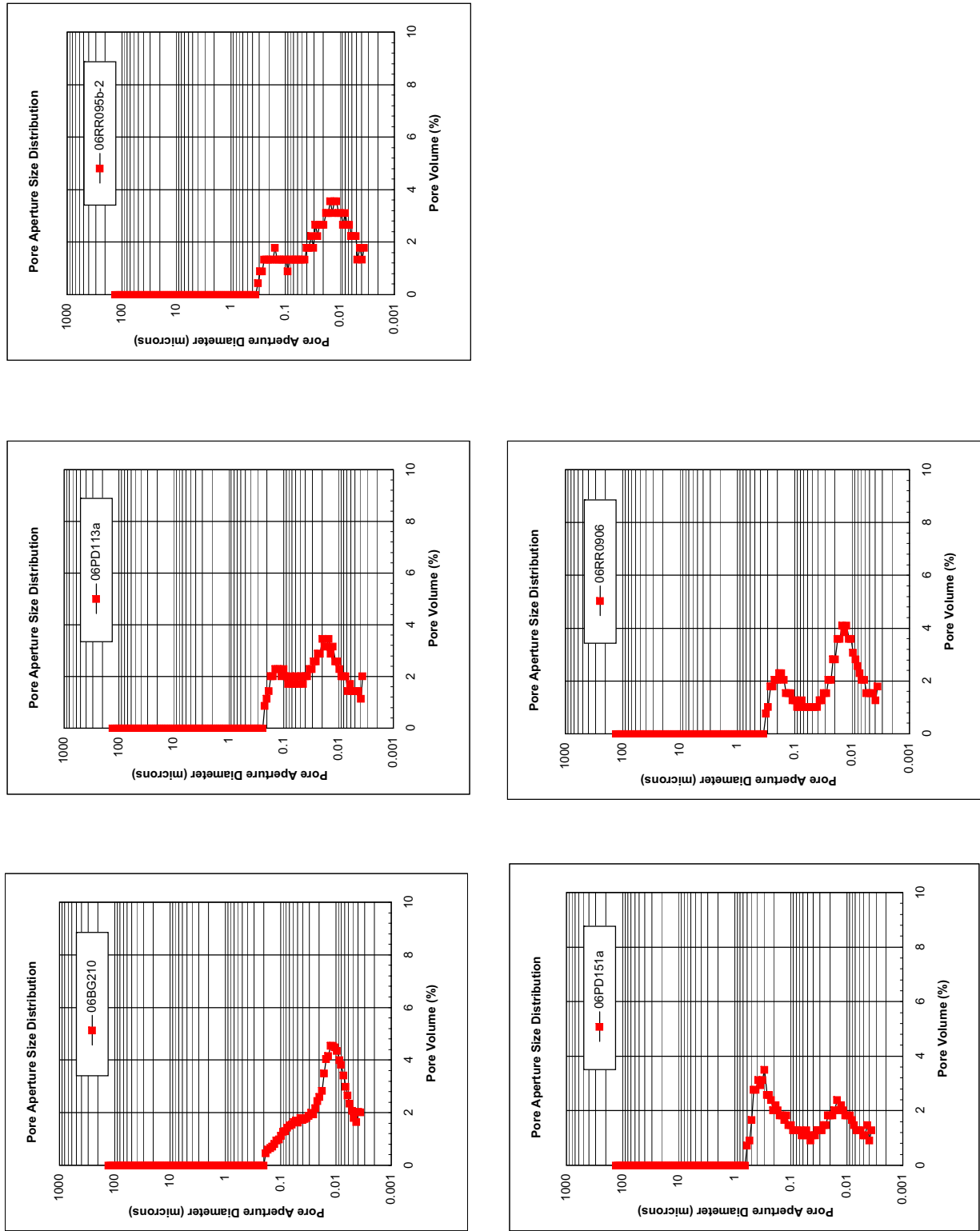


Figure 11. Potential Seal Capacity (Gas/Water System)

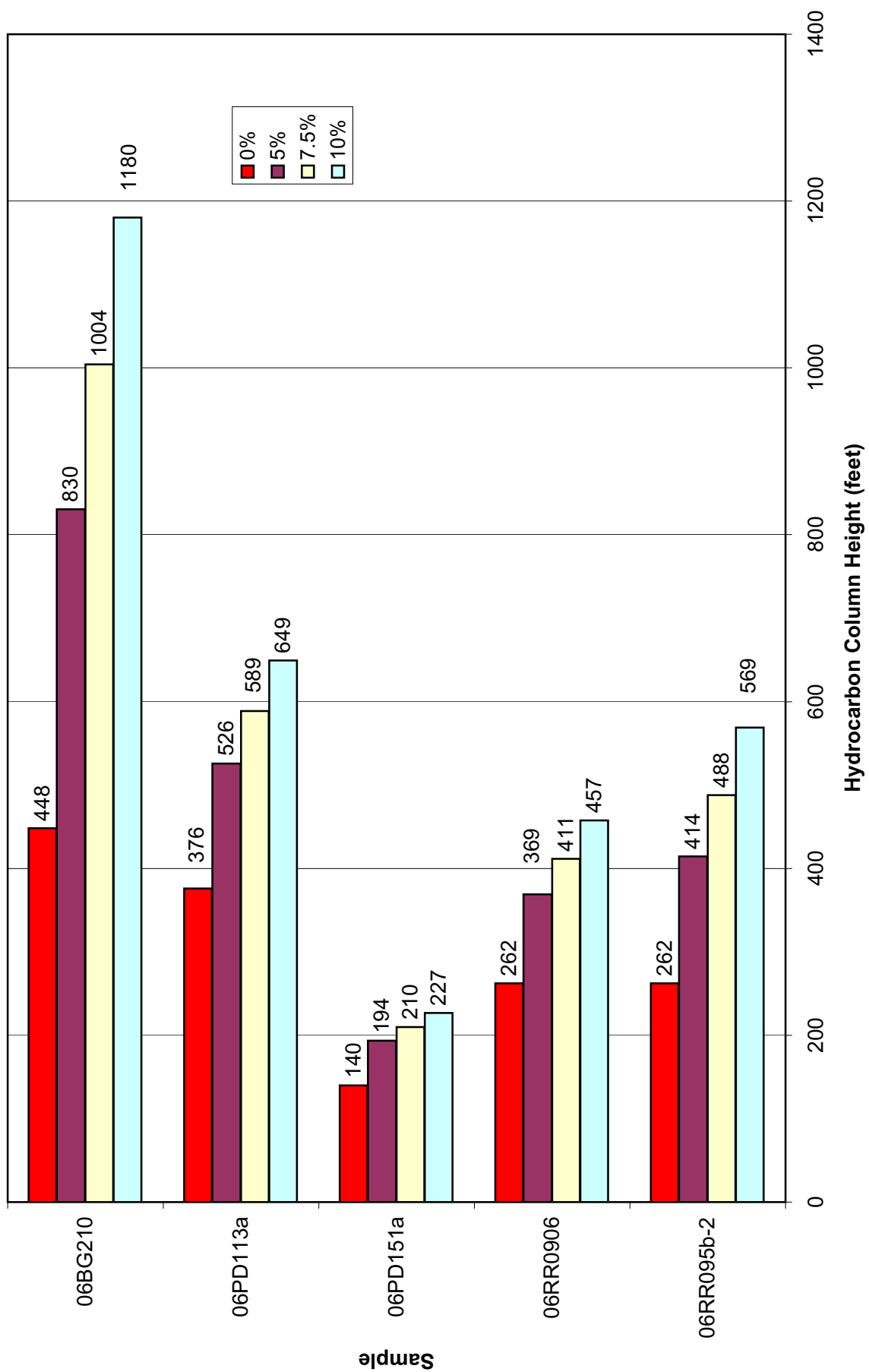


Figure 12. Potential Seal Capacity (Oil/Water System)

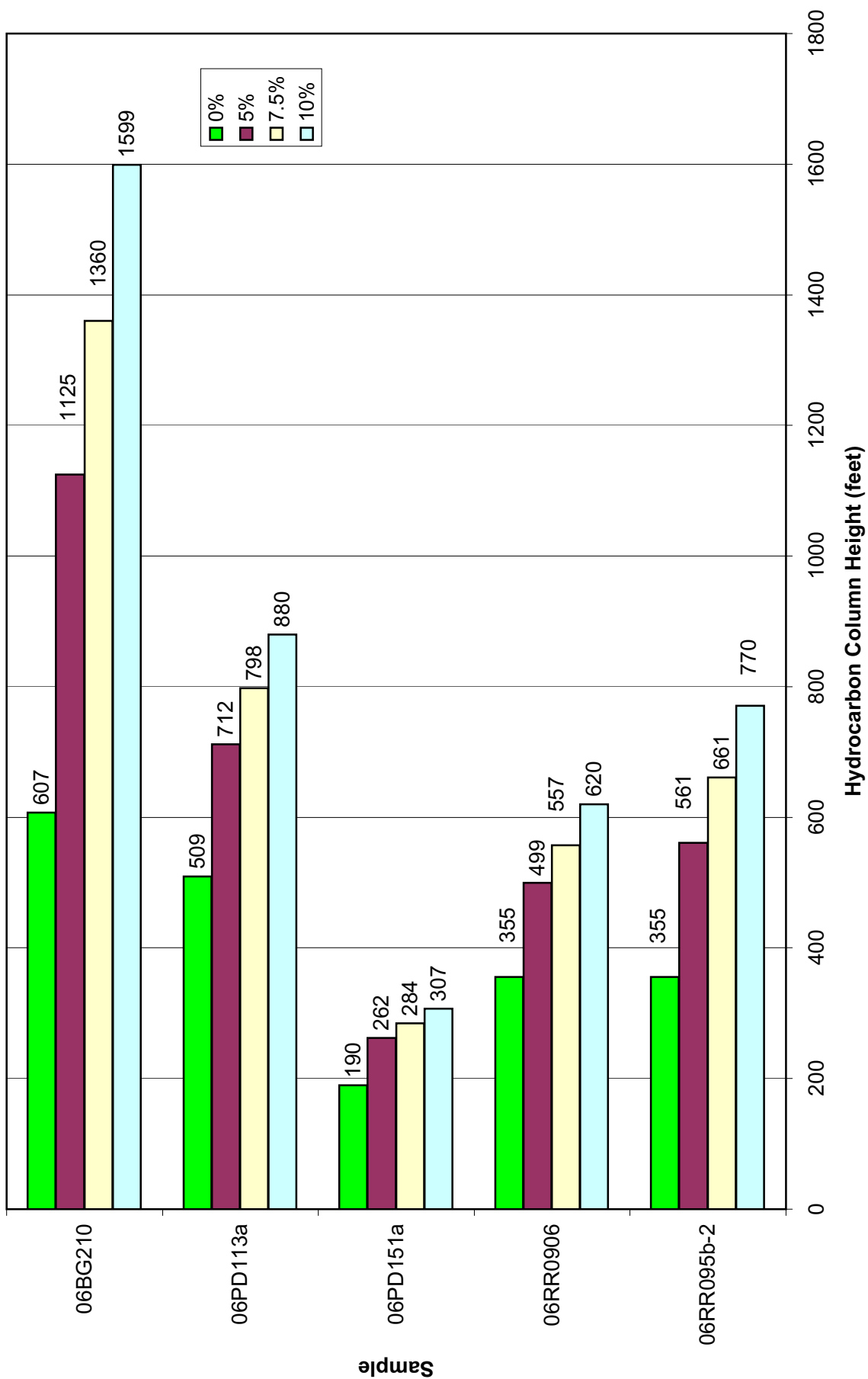


Figure 13. Potential Seal Capacity At 7.5% Gas Saturation In Seal

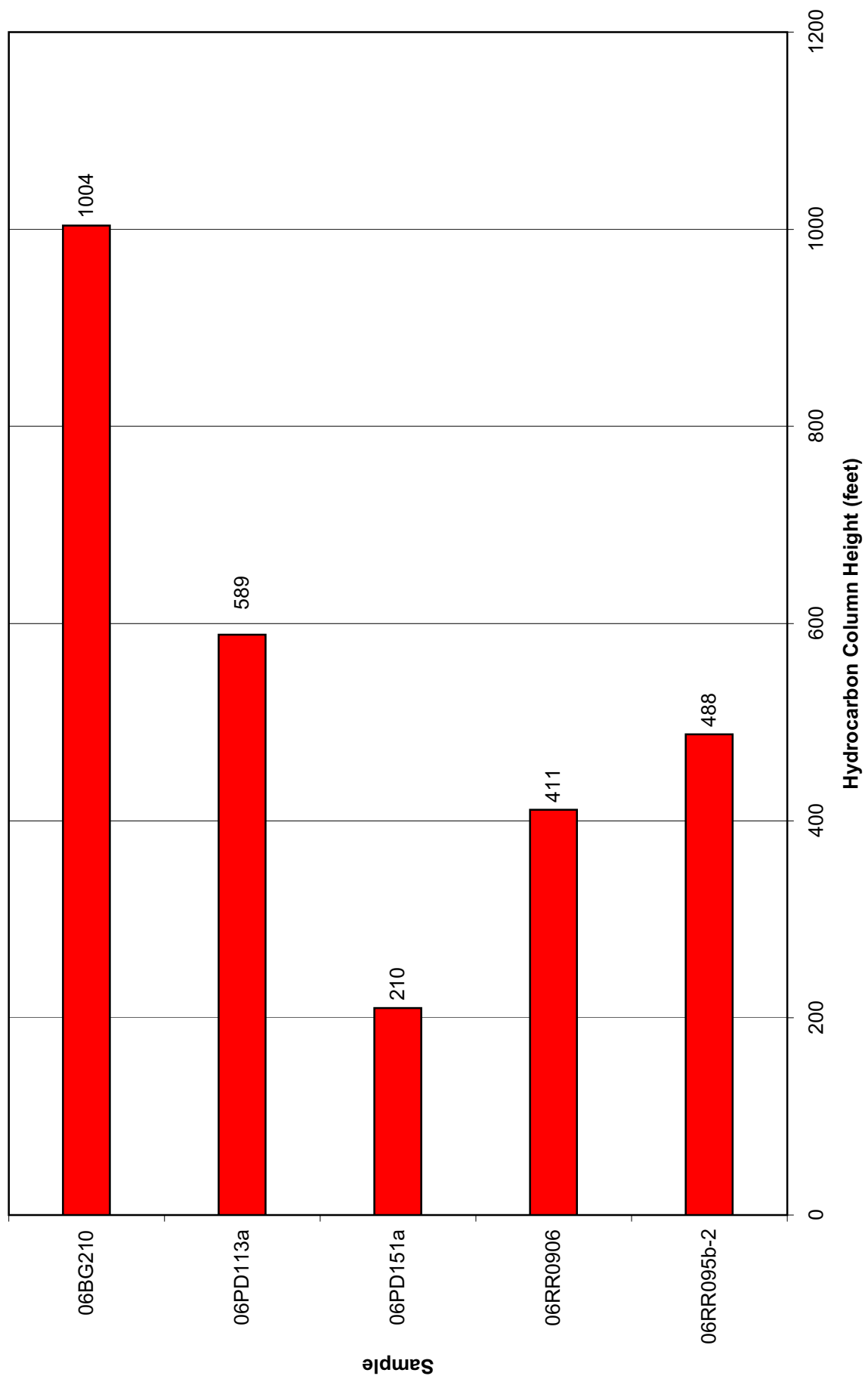


Figure 14. Potential Seal Capacity At 7.5% Oil Saturation In Seal

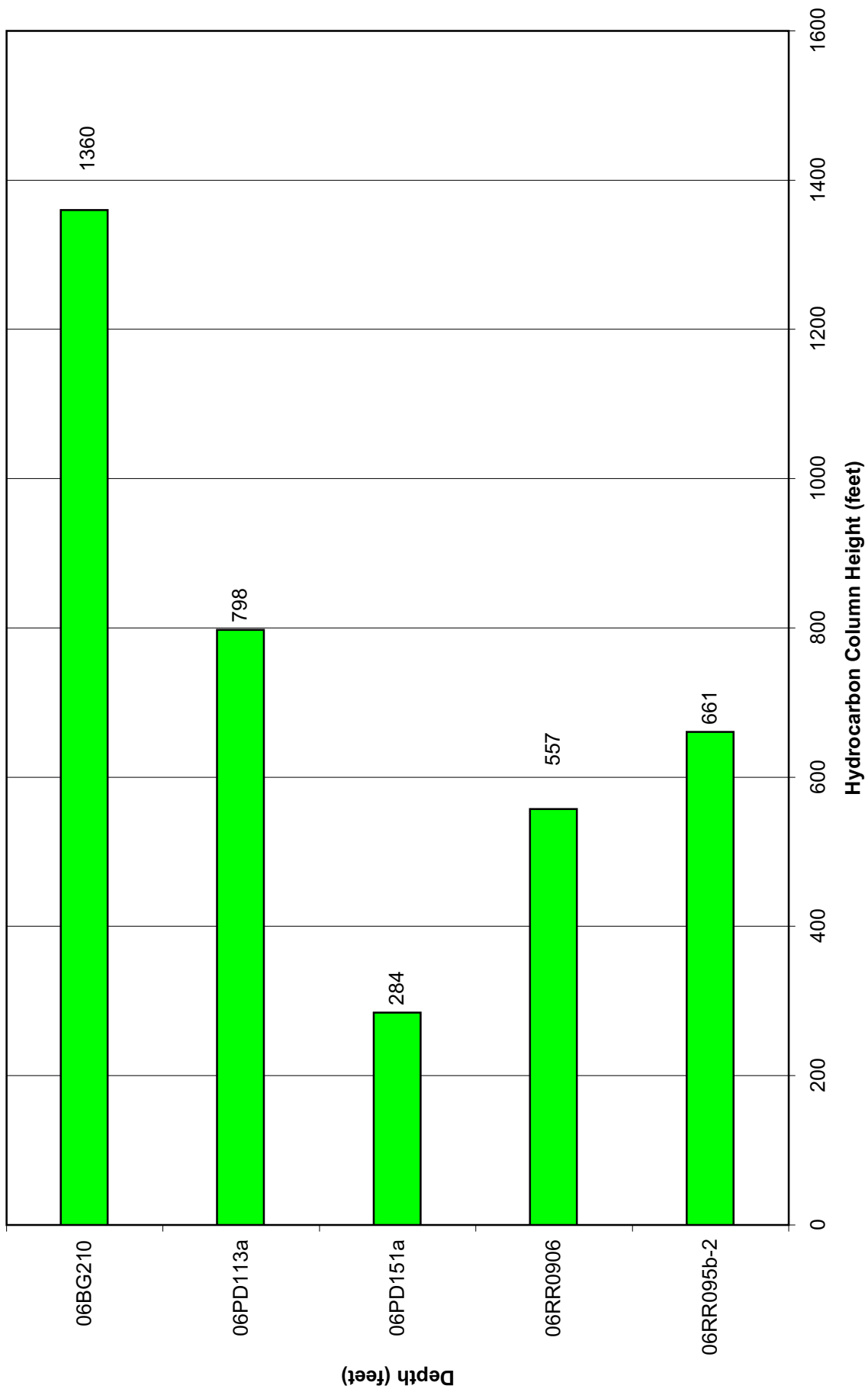


Table 1. List of samples collected during the 2006 field program.

SAMPLE TYPE	SAMPLE ID	LITHOLOGY	FORMATION	LATITUDE	LONGITUDE	COMMENT
Age	06BG166a	bentonite	Chignik Formation	55.80869	-160.75320	
	06BG166b	tuff	Chignik Formation	55.80869	-160.75320	Not certain of lithology; may be reworked if tuff
	06RR087b	tuff	Chignik Formation	55.86129	-160.58150	
	06RR092b	basalt	Meshik Volcanics	55.85596	-160.48970	
	06PD057a	basalt	Meshik Volcanics	55.86358	-160.55281	
	06PD064a	basalt	Quaternary Volcanics?	55.82553	-160.75539	
	06RR97f	tuff	Milky River Formation	55.80936	-160.93073	
	06PD120b	basalt	Meshik Volcanics	55.83256	-160.72356	
	06RR136a	tuff	Unga Formation	55.38457	-160.64462	
	06PD043a	bitumen	Herendeen Formation	55.79268	-160.75520	
Biomarkers	06RR096a-2	sandstone	Tolstoi Formation	55.73098	-160.67905	
	06RR97d	sandstone	Milky River Formation	55.80936	-160.93073	
Coal Adsorption	06RR099c	coal	Chignik Formation	55.76614	-160.65273	
	06RR138b	coal	Chignik Formation	56.32427	-158.51172	
Coal Quality	06RR080d	coal	Chignik Formation	55.81374	-160.75304	
	06RR081a	coal	Chignik Formation	55.80781	-160.75153	
	06PD052a	coal	Chignik Formation	55.86074	-160.57512	
	06RR087a	coal	Chignik Formation	55.86129	-160.58150	
	06RR099a	coal	Chignik Formation	55.76614	-160.65273	
	06RR114a	coal	Chignik Formation	55.77294	-160.58806	
	06RR138a	coal	Chignik Formation	56.32427	-158.51172	
	06RR138d		Chignik Formation	56.32427	-158.51172	sample collected ~4 meters down section from the rest of the 06RR138 samples
	06RR139a	coal	Chignik Formation	56.47816	-158.43860	
	06RR139c	coal	Chignik Formation	56.47816	-158.43860	
Extraction	06RR096a-2	sandstone	Tolstoi Formation	55.73098	-160.67905	
	06RR97d	sandstone	Milky River Formation	55.80936	-160.93073	
Fission Track	06BG222a	sandstone	Tolstoi Formation	55.57811	-160.73761	
	06BG223a	sandstone	Tolstoi Formation	55.57916	-160.75562	
Lithology	06PD033b	conglomerate clast	Naknek Formation	57.48019	-156.80980	
	06PD081b	sandstone	Herendeen Formation	55.80657	-160.73679	
	06PD084a	sandstone	Chignik Formation	55.80118	-160.69864	
	06PD101a	sandstone	Herendeen Formation	55.81054	-160.73172	
	06PD121a	sandstone	Chignik Formation	55.82244	-160.71811	
Megafossil	06PD137a	sandstone	Chignik Formation	55.79491	-160.74411	
	06RR080c	sandstone	Chignik Formation	55.81374	-160.75304	pelecypod
	06RR089a	sandstone	?	55.86092	-160.57297	
	06RR089b	sandstone	?	55.86092	-160.57297	
	06PD073a	sandstone	Tolstoi Formation	55.72833	-160.67229	
Megafossil	06PD138a	sandstone	Naknek Formation	55.78555	-160.73073	
	06PD152a	sandstone	Staniukovich Formation	55.78679	-160.66780	may be Naknek
	06RR131a	basalt/oyster fossils	Meshik Volcanics	55.82632	-160.54440	
Mercury Injection Capillary Pressure	06RR090b	siltstone	Staniukovich Formation	55.86139	-160.51714	
	06RR095b-2	siltstone	Tolstoi Formation	55.72308	-160.67584	
	06BG210a	siltstone	Staniukovich Formation	55.71653	-160.69841	
	06PD113a	siltstone	Staniukovich Formation	55.80635	-160.60031	
	06PD151a	siltstone	Staniukovich Formation	55.78324	-160.66277	
Microfossil	06PD035b	claystone	Chignik Formation	55.80990	-160.75426	
	06PD050a	claystone	Chignik Formation	55.86129	-160.58150	
	06PD095b	shale	Tolstoi Formation	55.57833	-160.73959	
	06RR104b	shale	Tolstoi Formation	55.57934	-160.73911	
	06RR106b	siltstone	Tolstoi Formation	55.58117	-160.75697	
Porosity & Permeability	06PD045a-1	sandstone	Chignik Formation	55.76908	-160.71509	
	06RR084a-2	sandstone	Stepovak Formation	55.86042	-160.59235	Black magnetite-rich sandstone
	06RR084b-2	sandstone	Stepovak Formation	55.86042	-160.59235	
	06RR095a-2	sandstone	Tolstoi Formation	55.72308	-160.67584	Brown sandstone
	06RR098b	sandstone	Naknek Formation	55.75225	-160.77206	
	06PD081a-1	sandstone	Herendeen Formation	55.80657	-160.73679	
	06PD082a-1	sandstone	Herendeen Formation	55.80101	-160.69402	
	06PD083b-1	sandstone	Chignik Formation	55.79994	-160.69707	
	06RR105a-2	sandstone	Tolstoi Formation	55.57925	-160.75507	
	06PD102a-1	sandstone	Naknek Formation	55.79038	-160.61748	
	06PD134a-1	sandstone	Naknek Formation	55.79881	-160.71384	
	06RR115a-2	sandstone	Hoodoo Formation	55.69156	-160.84027	
	06PD157a-1	sandstone	Chignik Formation	55.81771	-160.69191	
	06RR134a-2	sandstone	Herendeen Formation	55.77503	-160.71518	Formation questionable
	06PD170a-1	sandstone	Hoodoo Formation	55.67767	-160.86740	
	06RR136d	sandstone	Unga Formation	55.38457	-160.64462	
	06RR137b-2	sandstone	Unga Formation	55.39154	-160.65288	
	06RR138c-2	sandstone	Chignik Formation	56.32427	-158.51172	
Palynology	06PD035a	carbonaceous siltstone	Chignik Formation	55.80990	-160.75426	
	06PD036a	carbonaceous shale	Chignik Formation	55.80876	-160.75317	
	06PD050b	carbonaceous mudstone	Chignik Formation	55.86129	-160.58150	
	06RR97a	siltstone	Milky River Formation	55.80936	-160.93073	

Table 1. List of samples collected during the 2006 field program.

SAMPLE TYPE	SAMPLE ID	LITHOLOGY	FORMATION	LATITUDE	LONGITUDE	COMMENT
<i>Palynology</i>	06PD083a	siltstone	Chignik Formation	55.79994	-160.69707	
	06BG267a	siltstone	Unga Formation	55.39273	-160.65472	
	06ALS39a	siltstone	Unga Formation	55.38684	-160.64705	
	06RR136c	tuff	Unga Formation	55.38457	-160.64462	
<i>Vitrinite Reflectance</i>	06RR136-116	siltstone	Unga Formation	55.38457	-160.64462	
	06PD054a	coal	Chignik Formation	55.86024	-160.56435	
	06RR97g	organic material	Milky River Formation	55.80936	-160.93073	
	06RR104c	organic material	Tolstoi Formation	55.57934	-160.73911	
	06RR105b	shale	Tolstoi Formation	55.57925	-160.75507	
	06RR106a	siltstone	Tolstoi Formation	55.58117	-160.75697	
	06RR115c	coal	Hoodoo Formation	55.69156	-160.84027	
	06ALS39b	siltstone	Unga Formation	55.38684	-160.64705	
	06RR136b	tuff	Unga Formation	55.38457	-160.64462	
	06RR137a	coalified wood	Unga Formation	55.39154	-160.65288	
<i>Rockeval and/or TOC</i>	06RR084c	sandstone	Stepovak Formation	55.86042	-160.59235	
	06RR096a-2	sandstone	Tolstoi Formation	55.73098	-160.67905	
	06RR97d	sandstone	Milky River Formation	55.80936	-160.93073	
	06PD040a-2	siltstone	Staniukovich Formation	55.80124	-160.75320	
<i>Seal/MICP</i>	06PD043a	bitumen	Herendeen Formation	55.79268	-160.75520	
	06PD033a	conglomerate	Naknek Formation	57.48019	-156.80980	
	06BG166c	tuff	Chignik Formation	55.80869	-160.75320	
	06BG168a	tuffaceous sandstone	Chignik Formation	55.80550	-160.75063	Lithology questionable
<i>Sealed pyrolysis-GCMS</i>	06BG168b	tuffaceous sandstone	Chignik Formation	55.80550	-160.75063	Lithology questionable
	06PD040a-1	siltstone	Staniukovich Formation	55.80124	-160.75320	
	06PD045a-2	sandstone	Chignik Formation	55.76908	-160.71509	
	06PD048a	sandstone	Tolstoi Formation	55.86227	-160.58302	Lower fine-grained
<i>Thin Section</i>	06RR080a	sandstone	Chignik Formation	55.81374	-160.75304	
	06RR080b	sandstone	Chignik Formation	55.81374	-160.75304	
	06RR080c	sandstone	Chignik Formation	55.81374	-160.75304	Magnetite bearing
	06RR084a-1	sandstone	Stepovak Formation	55.86042	-160.59235	Black magnetite-rich sandstone
<i>Thin Section</i>	06RR084b-1	sandstone	Stepovak Formation	55.86042	-160.59235	Brown sandstone
	06RR084d	basalt	Stepovak Formation	55.86042	-160.59235	
	06RR085a	sandstone	Tolstoi Formation	55.86225	-160.58304	
	06RR087b-1	tuff	Chignik Formation	55.86129	-160.58150	
<i>Thin Section</i>	06RR090a	siltstone	Staniukovich Formation	55.86139	-160.51714	
	06RR092a	basalt	Meshik Volcanics	55.85596	-160.48970	
	06RR095a-1	sandstone	Tolstoi Formation	55.72308	-160.67584	
	06RR095b-1	siltstone	Tolstoi Formation	55.72308	-160.67584	
<i>Thin Section</i>	06RR096a-1	sandstone	Tolstoi Formation	55.73098	-160.67905	
	06PD069a	sandstone	Tolstoi Formation	55.73022	-160.65154	
	06PD070a	sandstone	Tolstoi Formation	55.72888	-160.65135	
	06BG200a	sandstone	Naknek Formation	55.75144	-160.68086	
<i>Thin Section</i>	06BG200b	sandstone	Naknek Formation	55.75144	-160.68086	
	06PD077b	sandstone	Naknek Formation	55.75218	-160.76193	
	06RR97b	sandstone	Milky River Formation	55.80936	-160.93073	Black sandstone
	06RR97c	sandstone	Milky River Formation	55.80936	-160.93073	Brown sandstone
<i>Thin Section</i>	06RR97e	tuff	Milky River Formation	55.80936	-160.93073	
	06RR098a	sandstone	Naknek Formation	55.75225	-160.77206	
	06RR099b	sandstone	Chignik Formation	55.76614	-160.65273	
	06RR102a	sandstone	Herendeen Formation	55.76928	-160.63072	
<i>Thin Section</i>	06PD081a-2	sandstone	Herendeen Formation	55.80657	-160.73679	
	06PD082a-2	sandstone	Herendeen Formation	55.80101	-160.69402	
	06PD083b-2	sandstone	Chignik Formation	55.79994	-160.69707	
	06BG223b	sandstone	Tolstoi Formation	55.57916	-160.75562	Same rock as sample 06BG223a
<i>Thin Section</i>	06PD095a	sandstone	Tolstoi Formation	55.57833	-160.73959	
	06RR104a	sandstone	Tolstoi Formation	55.57934	-160.73911	
	06RR104d	calcareous sandstone	Tolstoi Formation	55.57934	-160.73911	
	06RR105a-1	sandstone	Tolstoi Formation	55.57925	-160.75507	
<i>Thin Section</i>	06RR107a	sandstone	Tolstoi Formation	55.48826	-161.08405	
	06RR107b	tuff	Tolstoi Formation	55.48826	-161.08405	
	06RR108a	sandstone	Stepovak Formation	55.48021	-161.04294	
	06RR109a	sandstone	Herendeen Formation	55.76703	-160.62164	
<i>Thin Section</i>	06PD102a-2	sandstone	Naknek Formation	55.79038	-160.61748	
	06PD120a	basalt	Meshik Volcanics	55.83256	-160.72356	
	06PD134a-2	sandstone	Naknek Formation	55.79881	-160.71384	
	06RR115a-1	sandstone	Unga Formation Formation	55.69156	-160.84027	
<i>Thin Section</i>	06RR115b	basalt	Hoodoo Formation	55.69156	-160.84027	basalt (?) or sandstone
	06RR117a	sandstone	Bear Lake Formation	55.99220	-160.00529	
	06RR118a	sandstone	Bear Lake Formation	55.99185	-160.00500	
	06RR119a	sandstone	Bear Lake Formation	55.99063	-160.00278	
<i>Thin Section</i>	06RR120a	sandstone	Bear Lake Formation	55.99046	-160.00116	
	06RR121a	sandstone	Bear Lake Formation	55.99011	-159.99995	
	06RR122a	sandstone	Bear Lake Formation	55.99309	-160.00621	
	06RR123a	sandstone	Bear Lake Formation	55.99371	-60.00739	
<i>Thin Section</i>	06RR124a	sandstone	Bear Lake Formation	55.99408	-160.00818	
	06PD157a-2	sandstone	Chignik Formation	55.81771	-160.69191	
	06BG268a	sandstone	Unga Formation	55.39434	-160.65726	

Table 1. List of samples collected during the 2006 field program.

SAMPLE TYPE	SAMPLE ID	LITHOLOGY	FORMATION	LATITUDE	LONGITUDE	COMMENT
<i>Thin Section</i>	06PD164a	sandstone	Hoodoo Formation	55.67734	-160.88472	Formation questionable
	06PD170a-2	sandstone	Hoodoo Formation	55.67767	-160.86740	Formation questionable
	06PD173a	sandstone	Hoodoo-Naknek Formations	55.69788	-160.87965	Formation questionable
	06ALS39c	sandstone	Unga Formation	55.38684	-160.64705	
	06RR136a-1	tuff	Unga Formation	55.38457	-160.64462	
	06RR136d-1	sandstone	Unga Formation	55.38457	-160.64462	
	06RR136-115	sandstone	Unga Formation	55.38457	-160.64462	
	06RR137b-1	sandstone	Unga Formation	55.39154	-160.65288	
	06RR138c-1	sandstone	Chignik Formation	56.32427	-158.51172	
	06RR139b	sandstone	Chignik Formation	56.47816	-158.43860	
	06RR139d	sandstone	Chignik Formation	56.47816	-158.43860	
	06RR134a-1	sandstone	Herendeen Formation	55.77503	-160.71518	
	<i>Trace elements</i>	06BG178a	Stepovak Formation	55.86112	-160.59006	

Table 2. Results of porosity and permeability analyses for samples collected from the Bristol Bay area in 2006.

	Sample ID	Notes	Air Permeability (md)	Klinkenberg Permeability (md)	Porosity (%)	Grain Density (g/cc)
	06PD045A-1	Chignik Formation; sandstone; Bluff Point	1.38	1.16	8.60	2.67
	06PD081A-1	Chignik Formation (formation questionable: possibly Herendeen Formation); sandstone	42.9 (FRACTURED)	41.3 (FRACTURED)	9.84	2.66
	06PD083B-1	Chignik Formation; sandstone	3.57	3.17	23.06	2.64
	06PD157A-1	Chignik Formation; sandstone	Indeterminate- Too badly fractured for analysis	Indeterminate- Too badly fractured for analysis	9.88	2.60
	06RR138C-2	Chignik Formation; sandstone; Chignik Lagoon	0.0594	0.0365	14.16	2.64
	06PD082A-1	Herendeen Formation; sandstone	0.0852	0.0577	3.61	2.67
	06RR134A-2	Herendeen Formation; sandstone; Herendeen Bay	0.0076	0.0031	3.80	2.68
	06PD102A-1	Naknek Formation; sandstone	2.47	2.14	8.55	2.68
	06PD134A-1	Naknek Formation; sandstone	0.7961	0.6444	8.64	2.65
	06RR098B	Naknek Formation; sandstone; Indecision Creek Member; Herendeen Bay	2.34	2.03	10.54	2.66
	06RR084A-2	Stepovak Formation; sandstone; Port Moller	3.74	3.33	15.53	2.67
	06RR084B-2	Stepovak Formation; sandstone	11.7 (FRACTURED)	10.9 (FRACTURED)	19.17	2.59
	06RR095A-2	Tolstoi Formation; sandstone; Herendeen Bay	0.1593	0.1132	8.87	2.70
	06RR105A-2	Tolstoi Formation; sandstone; Beaver Bay	0.0023	0.0008	2.28	2.68
	06RR115A-2	Hoodoo Formation; sandstone; Buck Creek	0.0544	0.0323	10.09	2.70
	06PD170A-1	Hoodoo Formation (formation questionable); sandstone	0.0210	0.0108	7.87	2.73
	06RR136D	Unga Formation; sandstone	3.6417 (FRACTURED)	3.2327 (FRACTURED)	13.66	2.66
	06RR137B-2	Unga Formation; sandstone; Unga Island	0.0810	0.0528	7.16	2.70

Table 3. Results of seal capacity analyses for Staniukovich Formation samples collected from the Bristol Bay area in 2006.

Pore System and Capillary Properties Summary Alaska Outcrop							
Sample Depth (ft.)	Porosity (%)	Kair (md)	Median Aperture	Capillary Pressure at Various Mercury Saturations			
				entry	5%	7.5%	10%
06BG210	4.98	0.00002	0.0146	1050	1946	2353	2766
06PD113a	8.30	0.0064	0.0251	881	1232	1380	1522
06PD151a	12.6	0.048	0.0724	328	454	492	531
06RR0906	9.33	0.0088	0.0193	615	864	964	1072
06RR095b-2	5.65	0.0061	0.0194	615	971	1143	1333
0.003193							
Median aperture size is diameter in microns							

Table 4a. Summary of volume of mercury injected for sample 06BG210.
PetroTech Associates

WIN9400 Series Unit 117 Port 4/1 Page 1
V2.00

06BG210
File 3-982

File: C:\WIN9420\DATA\003-982.SMP

LP Analysis Time: 08/30/06 15:21:30 Sample Weight: 16.292 g
HP Analysis Time: 08/31/06 08:55:47 Correction Type: None
Report Time: 08/31/06 09:26:06 Show Neg. Int: No

Summary Report

Penetrometer: 03_#3 (0132)6/00

Pen. Constant: 20.994 $\mu\text{L/pF}$ Adv. Contact Angle: 140.000 degrees
Pen. Weight: 62.6480 g Rec. Contact Angle: 130.000 degrees
Stem Volume: 1.1310 mL Hg Surface Tension: 480.000 dynes/cm
Max. Head Pressure: 4.4500 psia Hg Density: 13.5335 g/mL
Pen. Volume: 15.8796 mL Sample Weight: 16.2920 g
Assembly Weight: 206.8110 g

Low Pressure:

Evacuation Pressure: 25.000 μmHg
Evacuation Time: 15mins
Mercury Filling Pressure: 1.49psia
Equilibration Time: 20secs

High Pressure:

Equilibration Time: 45secs

No Blank Correction

Intrusion Data Summary

Total Intrusion Volume = 0.0225 mL/g
Total Pore Area = 6.531 m^2/g
Median Pore Diameter (Volume) = 0.0172 μm
Median Pore Diameter (Area) = 0.0082 μm
Average Pore Diameter (4V/A) = 0.0138 μm
Bulk Density = 2.5333 g/mL
Apparent (skeletal) Density = 2.6864 g/mL
Porosity = 5.6973 %
Stem Volume Used = 32 %
Spl. Wt= 16.292
BulkVol= 6.4311

		Closure= 0.002833757							
Pc (Psia)	Pore Aperture	Incremental Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
1.64	130.0748	2.29376E-05	2.29376E-05	0.1024	0.005810816	0	0	0	100
1.8	118.5126	2.57152E-05	4.86528E-05	0.2172	0.012325285	0	0	0	100
1.96	108.8381	2.80448E-05	7.66976E-05	0.3424	0.019429916	0	0	0	100
2.15	99.2198	3.08896E-05	0.000107587	0.4803	0.027255223	0	0	0	100
2.35	90.7756	2.75296E-05	0.000135117	0.6032	0.034229337	0	0	0	100
2.57	83.0049	2.30944E-05	0.000158211	0.7063	0.040079875	0	0	0	100
2.81	75.9155	0.000024752	0.000182963	0.8168	0.046350336	0	0	0	100
3.08	69.2606	2.47968E-05	0.00020776	0.9275	0.052632146	0	0	0	100
3.37	63.3005	2.66336E-05	0.000234394	1.0464	0.059379275	0	0	0	100
3.68	57.9681	7.18144E-05	0.000306208	1.367	0.077572122	0	0	0	100

Pc (Psia)	Pore Aperture	Increm Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Increm Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
4.03	52.9337	0.000055776	0.000361984	1.616	0.091701938	0	0	0	100
4.41	48.3725	4.81152E-05	0.000410099	1.8308	0.103891032	0	0	0	100
4.82	44.2578	7.55328E-05	0.000485632	2.168	0.123025867	0	0	0	100
5.27	40.4787	6.16672E-05	0.000547299	2.4433	0.138648109	0	0	0	100
5.77	36.971	0.000121677	0.000668976	2.9865	0.169472672	0	0	0	100
6.31	33.8071	0.000068768	0.000737744	3.2935	0.18689377	0	0	0	100
6.9	30.9163	9.5536E-05	0.00083328	3.72	0.211096045	0	0	0	100
7.55	28.2547	7.32256E-05	0.000906506	4.0469	0.229646394	0	0	0	100
8.26	25.826	5.29984E-05	0.000959504	4.2835	0.243072556	0	0	0	100
9.04	23.5976	6.63936E-05	0.001025898	4.5799	0.259892144	0	0	0	100
9.89	21.5695	5.74112E-05	0.001083309	4.8362	0.274436208	0	0	0	100
10.8	19.7521	4.73536E-05	0.001130662	5.0476	0.286432365	0	0	0	100
11.8	18.0782	4.07456E-05	0.001171408	5.2295	0.296754508	0	0	0	100
12.9	16.5366	3.61536E-05	0.001207562	5.3909	0.305913352	0	0	0	100
14.2	15.0227	3.8192E-05	0.001245754	5.5614	0.315588588	0	0	0	100
15.5	13.7628	4.29408E-05	0.001288694	5.7531	0.326466843	0	0	0	100
16.9	12.6226	3.37792E-05	0.001322474	5.9039	0.335024178	0	0	0	100
18.5	11.531	3.86624E-05	0.001361136	6.0765	0.34481858	0	0	0	100
20.3	10.5085	3.56384E-05	0.001396774	6.2356	0.353846908	0	0	0	100
22.2	9.6091	3.84384E-05	0.001435213	6.4072	0.363584565	0	0	0	100
24.3	8.7787	4.9392E-05	0.001484605	6.6277	0.376097112	0	0	0	100
26.6	8.0196	5.14752E-05	0.00153608	6.8575	0.3891374	0	0	0	100
29	7.356	5.60896E-05	0.00159217	7.1079	0.403346661	0	0	0	100
31.8	6.7083	3.35104E-05	0.00162568	7.2575	0.4118359	0	0	0	100
34.8	6.13	3.36896E-05	0.00165937	7.4079	0.420370536	0	0	0	100
38	5.6138	3.3552E-05	0.001692925	7.5577	0.428871124	0	0	0	100
41.6	5.1279	4.04992E-05	0.001733424	7.7385	0.439130846	0	0	0	100
45.5	4.6884	0.000044128	0.001777552	7.9355	0.450309857	0	0	0	100
49.8	4.2836	0	0.001777552	7.9355	0.450309857	0	0	0	100
54.5	3.9142	1.568E-05	0.001793232	8.0055	0.454282094	0	0	0	100
59.6	3.5792	1.48288E-05	0.001808061	8.0717	0.458038696	0	0	0	100
65.2	3.2718	1.79648E-05	0.001826026	8.1519	0.462589745	0	0	0	100
71.3	2.9919	1.85024E-05	0.001844528	8.2345	0.467276985	0	0	0	100
78	2.7349	2.3856E-05	0.001868384	8.341	0.47332046	0	0	0	100
85.3	2.5009	1.40224E-05	0.001882406	8.4036	0.476872776	0	0	0	100
93.4	2.284	1.63968E-05	0.001898803	8.4768	0.481026601	0	0	0	100
102	2.0914	2.42592E-05	0.001923062	8.5851	0.48717222	0	0	0	100
112	1.9047	1.1984E-05	0.001935046	8.6386	0.490208144	0	0	0	100
122	1.7485	1.02592E-05	0.001945306	8.6844	0.492807122	0	0	0	100
134	1.592	1.4112E-05	0.001959418	8.7474	0.496382136	0	0	0	100
146	1.4611	7.6384E-06	0.001967056	8.7815	0.498317183	0	0	0	100
160	1.3333	0.000015008	0.001982064	8.8485	0.502119182	0	0	0	100
175	1.219	2.01824E-05	0.002002246	8.9386	0.507232019	0	0	0	100
191	1.1169	2.63872E-05	0.002028634	9.0564	0.513916727	0	0	0	100
209	1.0207	3.27936E-05	0.002061427	9.2028	0.522224378	0	0	0	100
229	0.9315	2.8224E-05	0.002089651	9.3288	0.529374405	0	0	0	100
251	0.8499	3.75424E-05	0.002127194	9.4964	0.538885076	0	0	0	100
274	0.7785	3.34432E-05	0.002160637	9.6457	0.547357291	0	0	0	100
300	0.7111	3.19424E-05	0.002192579	9.7883	0.555449306	0	0	0	100
328	0.6504	3.76544E-05	0.002230234	9.9564	0.564988351	0	0	0	100
359	0.5942	3.09568E-05	0.00226119	10.0946	0.572830682	0	0	0	100
393	0.5428	2.72384E-05	0.002288429	10.2162	0.579731026	0	0	0	100
430	0.4961	0.00003192	0.002320349	10.3587	0.587817366	0	0	0	100
470	0.4539	4.45984E-05	0.002364947	10.5578	0.599115545	0	0	0	100
514	0.415	0.000031248	0.002396195	10.6973	0.607031646	0	0	0	100
563	0.3789	3.85728E-05	0.002434768	10.8695	0.61680335	0	0	0	100
615	0.3469	3.83264E-05	0.002473094	11.0406	0.626512633	0	0	0	100
673	0.317	0.000044912	0.002518006	11.2411	0.637890256	0	0	0	100
736	0.2898	4.70624E-05	0.002565069	11.4512	0.649812643	0	0	0	100
806	0.2647	6.42432E-05	0.002629312	11.738	0.666087467	0	0	0	100
881	0.2421	5.48352E-05	0.002684147	11.9828	0.679978949	0	0	0	100
964	0.2213	7.42336E-05	0.002758381	12.3142	0.698784656	0	0	0	100
1050	0.2032	7.5376E-05	0.002833757	12.6507	0.717879768	0	0	0	100
1150	0.1855	9.14144E-05	0.002925171	13.0588	0.741037912	0.46720466	0.46720466	0.004672047	99.53279534
1260	0.1693	0.000117533	0.003042704	13.5835	0.770812669	0.600691706	1.067896366	0.005460834	98.93210363
1380	0.1546	0.000130	0.00317305	14.1654	0.803833311	0.666175917	1.734072282	0.005551466	98.26592772
1510	0.1413	0.000142688	0.003315738	14.8024	0.839980672	0.729255987	2.463328269	0.005609661	97.53667173

Pc (Psia)	Pore Aperture	Incremental Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
1650	0.1293	0.000161123	0.003476861	15.5217	0.880798248	0.823475403	3.286803672	0.005881967	96.71319633
1810	0.1179	0.000186166	0.003663027	16.3528	0.927960056	0.95146727	4.238270942	0.00594667	95.76172906
1980	0.1077	0.000195418	0.003858445	17.2252	0.977465483	0.998748702	5.237019644	0.005874992	94.76298036
2160	0.0988	0.000219699	0.004078144	18.206	1.033122204	1.122848151	6.359867795	0.006238045	93.6401322
2370	0.09	0.000251798	0.004329942	19.3301	1.096910662	1.286902127	7.646769923	0.006128105	92.35323008
2590	0.0824	0.000253792	0.004583734	20.4631	1.161204162	1.297091104	8.943861027	0.005895869	91.05613897
2830	0.0754	0.00028065	0.004864384	21.716	1.232301537	1.434356085	10.37821711	0.005976484	89.62178289
3100	0.0688	0.000296621	0.005161005	23.0402	1.307444919	1.515982383	11.8941995	0.00561475	88.1058005
3390	0.0629	0.000305536	0.005466541	24.4042	1.384846802	1.561546572	13.45574607	0.005384643	86.54425393
3710	0.0575	0.000321686	0.005788227	25.8403	1.46634009	1.644088733	15.0998348	0.005137777	84.9001652
4060	0.0525	0.00033665	0.006124877	27.3432	1.551624027	1.720563302	16.8203981	0.004915895	83.1796019
4440	0.048	0.000318774	0.006443651	28.7663	1.632379614	1.629205958	18.44960406	0.004287384	81.55039594
4850	0.044	0.000352128	0.006795779	30.3383	1.721584717	1.799670976	20.24927504	0.004389441	79.75072496
5310	0.0402	0.000339024	0.007134803	31.8518	1.807470164	1.732698488	21.98197352	0.003766736	78.01802648
5810	0.0367	0.000344512	0.007479315	33.3898	1.894745895	1.760746795	23.74272032	0.003521494	76.25727968
6360	0.0335	0.00035336	0.007832675	34.9673	1.984263102	1.805967535	25.54868785	0.003283577	74.45131215
6950	0.0307	0.00036848	0.008201155	36.6123	2.077610681	1.883243483	27.43193134	0.003191938	72.56806866
7610	0.028	0.000392605	0.00859376	38.365	2.177069831	2.006541552	29.43847289	0.003040214	70.56152711
8320	0.0256	0.000382323	0.008976083	40.0718	2.273924329	1.953993907	31.3924668	0.002752104	68.6075332
9100	0.0234	0.000424771	0.009400854	41.9681	2.38153224	2.170938977	33.56340577	0.002783255	66.43659423
9960	0.0214	0.00047936	0.009880214	44.1081	2.502969212	2.449933772	36.01333955	0.00284876	63.98666045
10900	0.0196	0.000509085	0.010389299	46.3808	2.631936412	2.601852562	38.61519211	0.002767928	61.38480789
11900	0.0179	0.0005544	0.010943699	48.8558	2.772383377	2.833451442	41.44864355	0.002833451	58.55135645
13000	0.0164	0.000684208	0.011627907	51.9103	2.945714794	3.496879769	44.94552332	0.003178982	55.05447668
14300	0.0149	0.00079287	0.012420778	55.4499	3.146573816	4.052236251	48.99775957	0.003117105	51.00224043
15600	0.0137	0.000815539	0.013236317	59.0907	3.353175558	4.168092933	53.1658525	0.003206225	46.8341475
17100	0.0125	0.00089143	0.014127747	63.0703	3.579002929	4.555960952	57.72181345	0.003037307	42.27818655
18700	0.0114	0.00088984	0.015017587	67.0428	3.804427402	4.547832667	62.26964612	0.002842395	37.73035388
20400	0.0105	0.000878528	0.015896115	70.9648	4.02698619	4.49001881	66.75966493	0.002641188	33.24033507
22300	0.0096	0.00085111	0.016747226	74.7644	4.242599236	4.349891756	71.10955669	0.002289417	28.89044331
24400	0.0087	0.000785523	0.017532749	78.2712	4.441596981	4.014685865	75.12424255	0.001911755	24.87575745
26700	0.008	0.000751565	0.018284314	81.6264	4.631991995	3.841129809	78.96537236	0.001670056	21.03462764
29300	0.0073	0.000668886	0.0189532	84.6125	4.801441968	3.418573475	82.38394584	0.001314836	17.61605416
32000	0.0067	0.00058585	0.01953905	87.2279	4.949856107	2.994185414	85.37813125	0.001108958	14.62186875
35000	0.0061	0.00051977	0.020058819	89.5483	5.081530102	2.656460899	88.03459215	0.000885487	11.96540785
38300	0.0056	0.00045873	0.020517549	91.5962	5.197740745	2.344495033	90.37908718	0.000710453	9.620912818
41900	0.0051	0.000405485	0.020923034	93.4064	5.300462804	2.072369212	92.45145639	0.000575658	7.548543606
45800	0.0047	0.000354771	0.021277805	94.9902	5.390337513	1.813179957	94.26463635	0.000464918	5.735363649
50100	0.0043	0.000325382	0.021603187	96.4428	5.472767114	1.66297841	95.92761476	0.000386739	4.072385239
54800	0.0039	0.000400243	0.02200343	98.2296	5.574161311	2.045580216	97.97319498	0.00043523	2.026805023
59500	0.0036	0.00039657	0.0224	100	5.67462487	2.026805023	100	0.000431235	0

Table 4b. Summary of volume of mercury injected for sample 06PD113a.
PetroTech Associates

WIN9400 Series Unit 117 Port 3/1 Page 1
V2.00

06PD113a
File 3-974

File: C:\WIN9420\DATA\003-974.SMP

LP Analysis Time: 08/29/06 12:16:12 Sample Weight: 12.863 g
HP Analysis Time: 08/29/06 14:21:21 Correction Type: None
Report Time: 08/29/06 14:23:17 Show Neg. Int: No

Summary Report

Penetrometer: 03_#2 (0253) 03/05

Pen. Constant: 22.065 $\mu\text{L/pF}$ Adv. Contact Angle: 140.000 degrees
Pen. Weight: 61.8080 g Rec. Contact Angle: 130.000 degrees
Stem Volume: 1.1310 mL Hg Surface Tension: 480.000 dynes/cm
Max. Head Pressure: 4.4500 psia Hg Density: 13.5335 g/mL
Pen. Volume: 16.4668 mL Sample Weight: 12.8630 g
Assembly Weight: 224.5210 g

Low Pressure:

Evacuation Pressure: 25.000 μmHg
Evacuation Time: 15mins
Mercury Filling Pressure: 1.35psia
Equilibration Time: 20secs

High Pressure:

Equilibration Time: 45secs

No Blank Correction

Intrusion Data Summary

Total Intrusion Volume = 0.0406 mL/g
Total Pore Area = 8.592 m^2/g
Median Pore Diameter (Volume) = 0.0336 μm
Median Pore Diameter (Area) = 0.0090 μm
Average Pore Diameter (4V/A) = 0.0189 μm
Bulk Density = 2.3846 g/mL
Apparent (skeletal) Density = 2.6401 g/mL
Porosity = 9.6796 %
Stem Volume Used = 46 %
Spl. Wt= 12.863
BulkVol= 5.3943

		Closure= 0.0058								
Pc (Psia)	Pore Aperture	Increm Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Increm Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)	
1.64	130.0748	0	0.0001	0.1391	0.023845541	0	0	0	100	
1.8	118.5126	0	0.0001	0.2287	0.023845541	0	0	0	100	
1.96	108.8381	0	0.0001	0.3277	0.023845541	0	0	0	100	
2.15	99.2198	0.0001	0.0002	0.4661	0.047691081	0	0	0	100	
2.35	90.7756	0.0001	0.0003	0.6378	0.071536622	0	0	0	100	
2.57	83.0049	0.0001	0.0004	0.8734	0.095382163	0	0	0	100	

Pc (Psia)	Pore Aperture	Incremental Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
2.81	75.9155	0.0001	0.0004	1.0726	0.095382163	0	0	0	100
3.08	69.2606	0.0001	0.0005	1.1983	0.119227703	0	0	0	100
3.37	63.3005	0	0.0005	1.3183	0.119227703	0	0	0	100
3.68	57.9681	0.0001	0.0006	1.4655	0.143073244	0	0	0	100
4.03	52.9337	0.0001	0.0007	1.6341	0.166918785	0	0	0	100
4.41	48.3725	0.0001	0.0007	1.7723	0.166918785	0	0	0	100
4.82	44.2578	0.0001	0.0008	1.9241	0.190764325	0	0	0	100
5.27	40.4787	0.0001	0.0008	2.0744	0.190764325	0	0	0	100
5.77	36.971	0.0001	0.001	2.354	0.238455407	0	0	0	100
6.31	33.8071	0.0001	0.001	2.577	0.238455407	0	0	0	100
6.9	30.9163	0.0001	0.0011	2.8377	0.262300947	0	0	0	100
7.55	28.2547	0.0001	0.0012	3.0701	0.286146488	0	0	0	100
8.26	25.826	0.0001	0.0014	3.3856	0.333837569	0	0	0	100
9.04	23.5976	0.0001	0.0015	3.6066	0.35768311	0	0	0	100
9.89	21.5695	0.0001	0.0016	3.8563	0.381528651	0	0	0	100
10.8	19.7521	0.0001	0.0017	4.1593	0.405374191	0	0	0	100
11.8	18.0782	0.0002	0.0019	4.6174	0.453065273	0	0	0	100
12.9	16.5366	0.0001	0.0019	4.8106	0.453065273	0	0	0	100
14.2	15.0227	0.0001	0.002	5.0526	0.476910813	0	0	0	100
15.5	13.7628	0.0001	0.0021	5.2458	0.500756354	0	0	0	100
16.9	12.6226	0.0001	0.0022	5.4096	0.524601895	0	0	0	100
18.5	11.531	0.0001	0.0023	5.6369	0.548447435	0	0	0	100
20.3	10.5085	0.0001	0.0024	5.8592	0.572292976	0	0	0	100
22.2	9.6091	0.0001	0.0025	6.1468	0.596138517	0	0	0	100
24.3	8.7787	0.0001	0.0026	6.3236	0.619984057	0	0	0	100
26.6	8.0196	0.0001	0.0026	6.5082	0.619984057	0	0	0	100
29	7.356	0.0001	0.0027	6.6857	0.643829598	0	0	0	100
31.8	6.7083	0.0001	0.0028	6.8914	0.667675139	0	0	0	100
34.8	6.13	0.0001	0.0029	7.0757	0.691520679	0	0	0	100
38	5.6138	0.0001	0.0029	7.2747	0.691520679	0	0	0	100
41.6	5.1279	0.0001	0.0031	7.6144	0.739211761	0	0	0	100
45.5	4.6884	0.0001	0.0032	7.9202	0.763057301	0	0	0	100
49.8	4.2836	0	0.0032	7.9874	0.763057301	0	0	0	100
54.5	3.9142	0	0.0033	8.0611	0.786902842	0	0	0	100
59.6	3.5792	0	0.0033	8.168	0.786902842	0	0	0	100
65.2	3.2718	0.0001	0.0034	8.3095	0.810748383	0	0	0	100
71.3	2.9919	0	0.0034	8.4212	0.810748383	0	0	0	100
78	2.7349	0	0.0035	8.53	0.834593923	0	0	0	100
85.3	2.5009	0	0.0035	8.6246	0.834593923	0	0	0	100
93.4	2.284	0	0.0035	8.7439	0.834593923	0	0	0	100
102	2.0914	0.0001	0.0036	8.8842	0.858439464	0	0	0	100
112	1.9047	0.0001	0.0036	9.0136	0.858439464	0	0	0	100
122	1.7485	0	0.0037	9.1095	0.882285005	0	0	0	100
134	1.592	0.0001	0.0037	9.2487	0.882285005	0	0	0	100
146	1.4611	0	0.0038	9.3516	0.906130545	0	0	0	100
160	1.3333	0	0.0038	9.4656	0.906130545	0	0	0	100
175	1.219	0.0001	0.0039	9.6127	0.929976086	0	0	0	100
191	1.1169	0.0001	0.0039	9.7624	0.929976086	0	0	0	100
209	1.0207	0.0001	0.004	9.8898	0.953821627	0	0	0	100
229	0.9315	0.0001	0.0041	10.0377	0.977667167	0	0	0	100
251	0.8499	0	0.0041	10.1455	0.977667167	0	0	0	100
274	0.7785	0.0001	0.0042	10.2809	1.001512708	0	0	0	100
300	0.7111	0.0001	0.0042	10.4383	1.001512708	0	0	0	100
328	0.6504	0.0001	0.0043	10.5909	1.025358249	0	0	0	100
359	0.5942	0.0001	0.0044	10.765	1.049203789	0	0	0	100
393	0.5428	0.0001	0.0044	10.9591	1.049203789	0	0	0	100
430	0.4961	0.0001	0.0045	11.1616	1.07304933	0	0	0	100
470	0.4539	0.0001	0.0046	11.4234	1.096894871	0	0	0	100
514	0.415	0.0001	0.0047	11.6602	1.120740411	0	0	0	100
563	0.3789	0.0001	0.0048	11.9446	1.144585952	0	0	0	100
615	0.3469	0.0001	0.005	12.266	1.192277033	0	0	0	100
673	0.317	0.0002	0.0051	12.6502	1.216122574	0	0	0	100
736	0.2898	0.0002	0.0053	13.1785	1.263813655	0	0	0	100

Pc (Psia)	Pore Aperture	Incremental Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
806	0.2647	0.0002	0.0055	13.669	1.311504736	0	0	0	100
881	0.2421	0.0003	0.0058	14.3288	1.383041358	0	0	0	100
964	0.2213	0.0003	0.0061	15.1705	1.45457798	0.864553314	0.864553314	0.010416305	99.13544669
1050	0.2032	0.0004	0.0065	16.1105	1.549960143	1.152737752	2.017291066	0.013403927	97.98270893
1150	0.1855	0.0005	0.007	17.3955	1.669187846	1.44092219	3.458213256	0.014409222	96.54178674
1260	0.1693	0.0006	0.0077	18.9797	1.836106631	2.017291066	5.475504323	0.01833901	94.52449568
1380	0.1546	0.0007	0.0084	20.7499	2.003025416	2.017291066	7.492795389	0.016810759	92.50720461
1510	0.1413	0.0008	0.0092	22.6647	2.193789741	2.305475504	9.798270893	0.017734427	90.20172911
1650	0.1293	0.0008	0.01	24.6109	2.384554066	2.305475504	12.1037464	0.016467682	87.8962536
1810	0.1179	0.0008	0.0108	26.6168	2.575318392	2.305475504	14.4092219	0.014409222	85.5907781
1980	0.1077	0.0008	0.0115	28.5229	2.742237176	2.017291066	16.42651297	0.011866418	83.57348703
2160	0.0988	0.0007	0.0123	30.2919	2.933001502	2.305475504	18.73198847	0.012808197	81.26801153
2370	0.09	0.0007	0.013	32.0311	3.099920286	2.017291066	20.74927954	0.009606148	79.25072046
2590	0.0824	0.0007	0.0136	33.6541	3.24299353	1.729106628	22.47838617	0.007859576	77.52161383
2830	0.0754	0.0006	0.0143	35.2428	3.409912315	2.017291066	24.49567723	0.008405379	75.50432277
3100	0.0688	0.0007	0.0149	36.8573	3.552985559	1.729106628	26.22478386	0.006404099	73.77521614
3390	0.0629	0.0006	0.0155	38.4154	3.696058803	1.729106628	27.95389049	0.005962437	72.04610951
3710	0.0575	0.0006	0.0162	39.9912	3.862977587	2.017291066	29.97118156	0.006304035	70.02881844
4060	0.0525	0.0006	0.0168	41.5933	4.006050831	1.729106628	31.70028818	0.004940305	68.29971182
4440	0.048	0.0007	0.0175	43.2046	4.172969616	2.017291066	33.71757925	0.005308661	66.28242075
4850	0.044	0.0006	0.0181	44.7786	4.31604286	1.729106628	35.44668588	0.004217333	64.55331412
5310	0.0402	0.0007	0.0188	46.4769	4.482961645	2.017291066	37.46397695	0.004385415	62.53602305
5810	0.0367	0.0007	0.0195	48.2662	4.649880429	2.017291066	39.48126801	0.004034582	60.51873199
6360	0.0335	0.0008	0.0203	50.1776	4.840644755	2.305475504	41.78674352	0.004191774	58.21325648
6950	0.0307	0.0008	0.0211	52.1392	5.03140908	2.305475504	44.09221902	0.003907586	55.90778098
7610	0.028	0.0009	0.022	54.2977	5.246018946	2.593659942	46.68587896	0.003929788	53.31412104
8320	0.0256	0.0009	0.0229	56.5621	5.460628812	2.593659942	49.2795389	0.003653042	50.7204611
9100	0.0234	0.001	0.0239	59.0283	5.699084219	2.88184438	52.16138329	0.003694672	47.83861671
9960	0.0214	0.0011	0.0249	61.6568	5.937539625	2.88184438	55.04322767	0.003350982	44.95677233
10900	0.0196	0.0011	0.0261	64.4091	6.223686113	3.458213256	58.50144092	0.00367895	41.49855908
11900	0.0179	0.0011	0.0272	67.156	6.48598706	3.170028818	61.67146974	0.003170029	38.32853026
13000	0.0164	0.0011	0.0283	69.9228	6.748288008	3.170028818	64.84149856	0.002881844	35.15850144
14300	0.0149	0.0012	0.0295	72.8453	7.034434496	3.458213256	68.29971182	0.002660164	31.70028818
15600	0.0137	0.0011	0.0305	75.4468	7.272889902	2.88184438	71.1815562	0.002216803	28.8184438
17100	0.0125	0.001	0.0316	78.0061	7.53519085	3.170028818	74.35158501	0.002113353	25.64841499
18700	0.0114	0.001	0.0325	80.3643	7.749800716	2.593659942	76.94524496	0.001621037	23.05475504
20400	0.0105	0.0009	0.0334	82.479	7.964410582	2.593659942	79.5389049	0.001525682	20.4610951
22300	0.0096	0.0008	0.0342	84.4702	8.155174907	2.305475504	81.8443804	0.001213408	18.1556196
24400	0.0087	0.0008	0.0349	86.335	8.322093691	2.017291066	83.86167147	0.000960615	16.13832853
26700	0.008	0.0007	0.0356	88.0465	8.489012476	2.017291066	85.87896254	0.000877083	14.12103746
29300	0.0073	0.0007	0.0363	89.6602	8.655931261	2.017291066	87.8962536	0.000775881	12.1037464
32000	0.0067	0.0006	0.0368	91.0658	8.775158964	1.44092219	89.33717579	0.000533675	10.66282421
35000	0.0061	0.0005	0.0374	92.4248	8.918232208	1.729106628	91.06628242	0.000576369	8.933717579
38300	0.0056	0.0005	0.0379	93.6947	9.037459911	1.44092219	92.50720461	0.000436643	7.492795389
41900	0.0051	0.0005	0.0384	94.8986	9.156687615	1.44092219	93.9481268	0.000400256	6.051873199
45800	0.0047	0.0005	0.0389	96.0375	9.275915318	1.44092219	95.38904899	0.000369467	4.610951009
50100	0.0043	0.0006	0.0394	97.4397	9.395143021	1.44092219	96.82997118	0.000335098	3.170028818
54800	0.0039	0.0004	0.0398	98.4477	9.490525184	1.152737752	97.98270893	0.000245263	2.017291066
59500	0.0036	0.0006	0.0405	100	9.657443969	2.017291066	100	0.000429211	0

Table 4c. Summary of volume of mercury injected for sample 06PD151a.
PetroTech Associates

WIN9400 Series Unit 117 Port 4/2 Page 1
V2.00

06PD151a
File 3-975

File: C:\WIN9420\DATA\003-975.SMP

LP Analysis Time: 08/29/06 12:16:12 Sample Weight: 12.375 g
HP Analysis Time: 08/29/06 14:21:21 Correction Type: Blank
Report Time: 08/29/06 14:23:17 Show Neg. Int: No

Summary Report

Penetrometer: 03_#3 (0132)6/00

Pen. Constant: 20.994 $\mu\text{L/pF}$ Adv. Contact Angle: 140.000 degrees
Pen. Weight: 62.6380 g Rec. Contact Angle: 130.000 degrees
Stem Volume: 1.1310 mL Hg Surface Tension: 480.000 dynes/cm
Max. Head Pressure: 4.4500 psia Hg Density: 13.5335 g/mL
Pen. Volume: 15.8796 mL Sample Weight: 12.3750 g
Assembly Weight: 217.3140 g

Low Pressure:

Evacuation Pressure: 25.000 μmHg
Evacuation Time: 15mins
Mercury Filling Pressure: 1.35psia
Equilibration Time: 20secs

High Pressure:

Equilibration Time: 45secs

Blank Correction Sample:

Blank Correction ID: No Blank Data

Intrusion Data Summary

Total Intrusion Volume = 0.0581 mL/g
Total Pore Area = 10.117 m^2/g
Median Pore Diameter (Volume) = 0.0910 μm
Median Pore Diameter (Area) = 0.0083 μm
Average Pore Diameter (4V/A) = 0.0230 μm
Bulk Density = 2.3067 g/mL
Apparent (skeletal) Density = 2.6635 g/mL
Porosity = 13.3981 %
Spl. Wt= 12.375
BulkVol= 5.3649

		Closure= 0.0037								
Pc (Psia)	Pore Aperture	Incremental Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)	
1.64	130.0748	0	0.0001	0.1037	0.0230666	0	0	0	100	
1.8	118.5126	0	0.0001	0.1665	0.0230666	0	0	0	100	
1.96	108.8381	0	0.0001	0.2272	0.0230666	0	0	0	100	
2.15	99.2198	0	0.0002	0.298	0.046133199	0	0	0	100	
2.35	90.7756	0	0.0002	0.3724	0.046133199	0	0	0	100	
2.57	83.0049	0	0.0003	0.4484	0.069199799	0	0	0	100	
2.81	75.9155	0	0.0003	0.5182	0.069199799	0	0	0	100	

Pc (Psia)	Pore Aperture	Increm Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Increm Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
3.08	69.2606	0	0.0003	0.5916	0.069199799	0	0	0	100
3.37	63.3005	0.0001	0.0004	0.7683	0.092266398	0	0	0	100
3.68	57.9681	0.0001	0.0005	0.908	0.115332998	0	0	0	100
4.03	52.9337	0.0001	0.0006	1.043	0.138399597	0	0	0	100
4.41	48.3725	0.0001	0.0007	1.1474	0.161466197	0	0	0	100
4.82	44.2578	0	0.0007	1.2321	0.161466197	0	0	0	100
5.27	40.4787	0.0001	0.0008	1.3259	0.184532797	0	0	0	100
5.77	36.971	0.0001	0.0008	1.4209	0.184532797	0	0	0	100
6.31	33.8071	0.0001	0.0009	1.5178	0.207599396	0	0	0	100
6.9	30.9163	0.0001	0.0009	1.6087	0.207599396	0	0	0	100
7.55	28.2547	0.0001	0.001	1.7082	0.230665996	0	0	0	100
8.26	25.826	0	0.001	1.7931	0.230665996	0	0	0	100
9.04	23.5976	0.0001	0.0011	1.8887	0.253732595	0	0	0	100
9.89	21.5695	0.0001	0.0012	1.991	0.276799195	0	0	0	100
10.8	19.7521	0	0.0012	2.0603	0.276799195	0	0	0	100
11.8	18.0782	0.0001	0.0013	2.1582	0.299865794	0	0	0	100
12.9	16.5366	0	0.0013	2.2248	0.299865794	0	0	0	100
14.2	15.0227	0.0001	0.0014	2.3316	0.322932394	0	0	0	100
15.5	13.7628	0	0.0014	2.4083	0.322932394	0	0	0	100
16.9	12.6226	0	0.0014	2.4854	0.322932394	0	0	0	100
18.5	11.531	0	0.0015	2.5717	0.345998993	0	0	0	100
20.3	10.5085	0	0.0015	2.6537	0.345998993	0	0	0	100
22.2	9.6091	0.0001	0.0016	2.776	0.369065593	0	0	0	100
24.3	8.7787	0.0001	0.0017	2.8728	0.392132193	0	0	0	100
26.6	8.0196	0.0001	0.0017	2.975	0.392132193	0	0	0	100
29	7.356	0.0001	0.0018	3.0824	0.415198792	0	0	0	100
31.8	6.7083	0.0001	0.0019	3.2452	0.438265392	0	0	0	100
34.8	6.13	0.0001	0.002	3.367	0.461331991	0	0	0	100
38	5.6138	0.0001	0.002	3.4536	0.461331991	0	0	0	100
41.6	5.1279	0.0001	0.0021	3.5605	0.484398591	0	0	0	100
45.5	4.6884	0.0001	0.0021	3.662	0.484398591	0	0	0	100
49.8	4.2836	0	0.0021	3.6702	0.484398591	0	0	0	100
54.5	3.9142	0	0.0021	3.7092	0.484398591	0	0	0	100
59.6	3.5792	0	0.0022	3.7629	0.50746519	0	0	0	100
65.2	3.2718	0	0.0022	3.8172	0.50746519	0	0	0	100
71.3	2.9919	0	0.0022	3.8723	0.50746519	0	0	0	100
78	2.7349	0	0.0023	3.9287	0.53053179	0	0	0	100
85.3	2.5009	0	0.0023	3.9712	0.53053179	0	0	0	100
93.4	2.284	0	0.0023	4.0432	0.53053179	0	0	0	100
102	2.0914	0	0.0024	4.1036	0.55359839	0	0	0	100
112	1.9047	0.0001	0.0024	4.1997	0.55359839	0	0	0	100
122	1.7485	0	0.0025	4.2736	0.576664989	0	0	0	100
134	1.592	0	0.0025	4.3327	0.576664989	0	0	0	100
146	1.4611	0.0001	0.0026	4.4217	0.599731589	0	0	0	100
160	1.3333	0.0001	0.0026	4.5347	0.599731589	0	0	0	100
175	1.219	0.0001	0.0027	4.6902	0.622798188	0	0	0	100
191	1.1169	0.0001	0.0028	4.8279	0.645864788	0	0	0	100
209	1.0207	0.0001	0.0029	4.966	0.668931387	0	0	0	100
229	0.9315	0.0001	0.003	5.1876	0.691997987	0	0	0	100
251	0.8499	0.0001	0.0031	5.3525	0.715064586	0	0	0	100
274	0.7785	0.0002	0.0033	5.6169	0.761197786	0	0	0	100
300	0.7111	0.0002	0.0034	5.9346	0.784264385	0	0	0	100
328	0.6504	0.0003	0.0037	6.3694	0.853464184	0	0	0	100
359	0.5942	0.0004	0.0041	7.0086	0.945730582	0.73800738	0.73800738	0.02380669	99.26199262
393	0.5428	0.0006	0.0046	7.9743	1.06106358	0.922509225	1.660516605	0.027132624	98.33948339
430	0.4961	0.0009	0.0055	9.518	1.268662976	1.660516605	3.32103321	0.044878827	96.67896679
470	0.4539	0.0015	0.007	12.0596	1.614661969	2.767527675	6.088560886	0.069188192	93.91143911
514	0.415	0.0015	0.0085	14.6807	1.960660963	2.767527675	8.856088561	0.062898356	91.14391144
563	0.3789	0.0017	0.0102	17.5963	2.352793156	3.136531365	11.99261993	0.064010844	88.00738007
615	0.3469	0.0016	0.0118	20.3943	2.721858749	2.95202952	14.94464945	0.056769798	85.05535055
673	0.317	0.0016	0.0135	23.2415	3.113990941	3.136531365	18.08118081	0.054078127	81.91881919
736	0.2898	0.0019	0.0154	26.5701	3.552256333	3.505535055	21.58671587	0.055643414	78.41328413
806	0.2647	0.0014	0.0168	29.0716	3.875188727	2.58302583	24.1697417	0.036900369	75.8302583
881	0.2421	0.0014	0.0182	31.4303	4.198121121	2.58302583	26.75276753	0.034440344	73.24723247

Pc (Psia)	Pore Aperture	Increm Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Increm Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
964	0.2213	0.0013	0.0195	33.655	4.497986915	2.398523985	29.15129151	0.028897879	70.84870849
1050	0.2032	0.0011	0.0206	35.6015	4.75171951	2.029520295	31.18081181	0.023599073	68.81918819
1150	0.1855	0.0012	0.0218	37.6258	5.028518705	2.21402214	33.39483395	0.022140221	66.60516605
1260	0.1693	0.0011	0.0229	39.5265	5.2822513	2.029520295	35.42435424	0.018450185	64.57564576
1380	0.1546	0.001	0.0239	41.3334	5.512917296	1.84501845	37.26937269	0.015375154	62.73062731
1510	0.1413	0.001	0.0249	43.0281	5.743583291	1.84501845	39.11439114	0.01419245	60.88560886
1650	0.1293	0.0009	0.0258	44.6105	5.951182687	1.660516605	40.77490775	0.011860833	59.22509225
1810	0.1179	0.0009	0.0268	46.1836	6.181848683	1.84501845	42.6199262	0.011531365	57.3800738
1980	0.1077	0.0008	0.0276	47.6217	6.36638148	1.47601476	44.09594096	0.00868244	55.90405904
2160	0.0988	0.0008	0.0284	48.9491	6.550914276	1.47601476	45.57195572	0.008200082	54.42804428
2370	0.09	0.0008	0.0291	50.2981	6.712380473	1.291512915	46.86346863	0.006150062	53.13653137
2590	0.0824	0.0007	0.0298	51.5265	6.87384667	1.291512915	48.15498155	0.005870513	51.84501845
2830	0.0754	0.0007	0.0305	52.6966	7.035312867	1.291512915	49.44649446	0.005381304	50.55350554
3100	0.0688	0.0007	0.0312	53.8594	7.196779064	1.291512915	50.73800738	0.004783381	49.26199262
3390	0.0629	0.0006	0.0318	54.9529	7.335178661	1.10701107	51.84501845	0.00381728	48.15498155
3710	0.0575	0.0006	0.0324	56.0179	7.473578259	1.10701107	52.95202952	0.00345941	47.04797048
4060	0.0525	0.0006	0.0331	57.0671	7.635044456	1.291512915	54.24354244	0.003690037	45.75645756
4440	0.048	0.0006	0.0337	58.0981	7.773444053	1.10701107	55.35055351	0.002913187	44.64944649
4850	0.044	0.0006	0.0342	59.0753	7.888777051	0.922509225	56.27306273	0.002250023	43.72693727
5310	0.0402	0.0006	0.0348	60.113	8.027176648	1.10701107	57.3800738	0.002406546	42.6199262
5810	0.0367	0.0006	0.0354	61.1764	8.165576246	1.10701107	58.48708487	0.002214022	41.51291513
6360	0.0335	0.0007	0.0361	62.3032	8.327042443	1.291512915	59.77859779	0.002348205	40.22140221
6950	0.0307	0.0007	0.0368	63.4614	8.488508639	1.291512915	61.0701107	0.002189005	38.9298893
7610	0.028	0.0007	0.0375	64.725	8.649974836	1.291512915	62.36162362	0.001956838	37.63837638
8320	0.0256	0.0008	0.0383	66.0653	8.834507633	1.47601476	63.83763838	0.002078894	36.16236162
9100	0.0234	0.0009	0.0391	67.5356	9.019040429	1.47601476	65.31365314	0.001892327	34.68634686
9960	0.0214	0.0009	0.0401	69.1595	9.249706425	1.84501845	67.15867159	0.00214537	32.84132841
10900	0.0196	0.001	0.0411	70.9126	9.480372421	1.84501845	69.00369004	0.001962786	30.99630996
11900	0.0179	0.0011	0.0421	72.7301	9.711038416	1.84501845	70.84870849	0.001845018	29.15129151
13000	0.0164	0.0011	0.0432	74.6391	9.964771012	2.029520295	72.87822878	0.001845018	27.12177122
14300	0.0149	0.0012	0.0445	76.7557	10.26463681	2.398523985	75.27675277	0.001845018	24.72324723
15600	0.0137	0.0011	0.0456	78.724	10.5183694	2.029520295	77.30627306	0.001561169	22.69372694
17100	0.0125	0.0012	0.0468	80.7374	10.7951686	2.21402214	79.5202952	0.001476015	20.4797048
18700	0.0114	0.0011	0.0479	82.6646	11.04890119	2.029520295	81.5498155	0.00126845	18.4501845
20400	0.0105	0.001	0.0489	84.4639	11.27956719	1.84501845	83.39483395	0.001085305	16.60516605
22300	0.0096	0.001	0.0499	86.1736	11.51023318	1.84501845	85.2398524	0.000971062	14.7601476
24400	0.0087	0.001	0.0509	87.8172	11.74089918	1.84501845	87.08487085	0.00087858	12.91512915
26700	0.008	0.0009	0.0518	89.3493	11.94849857	1.660516605	88.74538745	0.000721964	11.25461255
29300	0.0073	0.0008	0.0526	90.8021	12.13303137	1.47601476	90.22140221	0.000567698	9.778597786
32000	0.0067	0.0007	0.0533	92.075	12.29449757	1.291512915	91.51291513	0.000478338	8.487084871
35000	0.0061	0.0007	0.054	93.3029	12.45596376	1.291512915	92.80442804	0.000430504	7.195571956
38300	0.0056	0.0007	0.0547	94.4573	12.61742996	1.291512915	94.09594096	0.000391368	5.904059041
41900	0.0051	0.0006	0.0553	95.5496	12.75582956	1.10701107	95.20295203	0.000307503	4.79704797
45800	0.0047	0.0006	0.0559	96.5844	12.89422916	1.10701107	96.3099631	0.000283849	3.6900369
50100	0.0043	0.0007	0.0567	97.8278	13.07876195	1.47601476	97.78597786	0.000343259	2.21402214
54800	0.0039	0.0005	0.0572	98.6763	13.19409495	0.922509225	98.70848708	0.000196279	1.291512915
59500	0.0036	0.0008	0.0579	100	13.35556115	1.291512915	100	0.00027479	0

Table 4d. Summary of volume of mercury injected for sample 06RR095b-2.
PetroTech Associates

WIN9400 Series Unit 117 Port 4/2 Page 1
V2.00

06RR095b-2
File 3-979

File: C:\WIN9420\DATA\003-979.SMP

LP Analysis Time: 08/30/06 09:59:53 Sample Weight: 13.746 g
HP Analysis Time: 08/30/06 12:18:36 Correction Type: None
Report Time: 08/30/06 12:54:10 Show Neg. Int: No

Summary Report

Penetrometer: 03_#2 (0253) 03/05

Pen. Constant: 22.065 $\mu\text{L/pF}$ Adv. Contact Angle: 140.000 degrees
Pen. Weight: 61.8050 g Rec. Contact Angle: 130.000 degrees
Stem Volume: 1.1310 mL Hg Surface Tension: 480.000 dynes/cm
Max. Head Pressure: 4.4500 psia Hg Density: 13.5335 g/mL
Pen. Volume: 16.4668 mL Sample Weight: 13.7460 g
Assembly Weight: 224.3090 g

Low Pressure:

Evacuation Pressure: 25.000 μmHg
Evacuation Time: 15mins
Mercury Filling Pressure: 1.49psia
Equilibration Time: 20secs

High Pressure:

Equilibration Time: 45secs

No Blank Correction

Intrusion Data Summary

Total Intrusion Volume = 0.0279 mL/g
Total Pore Area = 6.375 m^2/g
Median Pore Diameter (Volume) = 0.0292 μm
Median Pore Diameter (Area) = 0.0082 μm
Average Pore Diameter (4V/A) = 0.0175 μm
Bulk Density = 2.5107 g/mL
Apparent (skeletal) Density = 2.6995 g/mL
Porosity = 6.9937 %
Stem Volume Used = 34 %
Spl. Wt= 13.746
BulkVol= 5.475

		Closure=		0.0054							
Pc (Psia)	Pore Aperture	Incremental Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi		Cumulative Intrusion (%)	
1.64	130.0748	0.0001	0.0001	0.3016	0.025106849	0	0	0		100	
1.8	118.5126	0.0001	0.0002	0.7663	0.050213699	0	0	0		100	
1.96	108.8381	0.0002	0.0004	1.3494	0.100427397	0	0	0		100	
2.15	99.2198	0.0001	0.0005	1.8406	0.125534247	0	0	0		100	
2.35	90.7756	0.0001	0.0007	2.3659	0.175747945	0	0	0		100	
2.57	83.0049	0.0002	0.0008	2.982	0.200854795	0	0	0		100	
2.81	75.9155	0.0002	0.001	3.6217	0.251068493	0	0	0		100	
3.08	69.2606	0.0002	0.0012	4.2368	0.301282192	0	0	0		100	
3.37	63.3005	0.0002	0.0013	4.844	0.326389041	0	0	0		100	
3.68	57.9681	0.0002	0.0015	5.5201	0.37660274	0	0	0		100	
4.03	52.9337	0.0002	0.0017	6.0902	0.426816438	0	0	0		100	

4.41	48.3725	0.0002	0.0018	6.6502	0.451923288	0	0	0	100
4.82	44.2578	0.0001	0.002	7.1565	0.502136986	0	0	0	100
5.27	40.4787	0.0001	0.0021	7.6357	0.527243836	0	0	0	100
5.77	36.971	0.0001	0.0022	8.0646	0.552350685	0	0	0	100
6.31	33.8071	0.0001	0.0023	8.4498	0.577457534	0	0	0	100
6.9	30.9163	0.0001	0.0025	8.86	0.627671233	0	0	0	100
7.55	28.2547	0.0001	0.0026	9.2096	0.652778082	0	0	0	100
8.26	25.826	0.0001	0.0027	9.5873	0.677884932	0	0	0	100
9.04	23.5976	0.0001	0.0028	9.9112	0.702991781	0	0	0	100
9.89	21.5695	0.0001	0.0028	10.2118	0.702991781	0	0	0	100
10.8	19.7521	0.0001	0.0029	10.499	0.72809863	0	0	0	100
11.8	18.0782	0.0001	0.003	10.7751	0.753205479	0	0	0	100
12.9	16.5366	0.0001	0.0031	11.0039	0.778312329	0	0	0	100
14.2	15.0227	0	0.0031	11.1566	0.778312329	0	0	0	100
15.5	13.7628	0.0001	0.0032	11.3666	0.803419178	0	0	0	100
16.9	12.6226	0.0001	0.0032	11.5872	0.803419178	0	0	0	100
18.5	11.531	0.0001	0.0033	11.8392	0.828526027	0	0	0	100
20.3	10.5085	0.0001	0.0034	12.0834	0.853632877	0	0	0	100
22.2	9.6091	0.0001	0.0034	12.2723	0.853632877	0	0	0	100
24.3	8.7787	0.0001	0.0035	12.684	0.878739726	0	0	0	100
26.6	8.0196	0.0001	0.0036	12.9454	0.903846575	0	0	0	100
29	7.356	0.0001	0.0037	13.1481	0.928953425	0	0	0	100
31.8	6.7083	0.0001	0.0037	13.409	0.928953425	0	0	0	100
34.8	6.13	0.0001	0.0038	13.6399	0.954060274	0	0	0	100
38	5.6138	0.0001	0.0039	13.9116	0.979167123	0	0	0	100
41.6	5.1279	0.0001	0.0039	14.2019	0.979167123	0	0	0	100
45.5	4.6884	0.0001	0.004	14.4789	1.004273973	0	0	0	100
49.8	4.2836	0	0.004	14.5155	1.004273973	0	0	0	100
54.5	3.9142	0	0.004	14.5542	1.004273973	0	0	0	100
59.6	3.5792	0	0.0041	14.5971	1.029380822	0	0	0	100
65.2	3.2718	0	0.0041	14.6705	1.029380822	0	0	0	100
71.3	2.9919	0.0001	0.0042	14.95	1.054487671	0	0	0	100
78	2.7349	0.0001	0.0042	15.1588	1.054487671	0	0	0	100
85.3	2.5009	0	0.0043	15.2991	1.079594521	0	0	0	100
93.4	2.284	0	0.0043	15.4298	1.079594521	0	0	0	100
102	2.0914	0	0.0043	15.5372	1.079594521	0	0	0	100
112	1.9047	0	0.0044	15.663	1.10470137	0	0	0	100
122	1.7485	0	0.0044	15.795	1.10470137	0	0	0	100
134	1.592	0	0.0044	15.9101	1.10470137	0	0	0	100
146	1.4611	0	0.0045	16.0241	1.129808219	0	0	0	100
160	1.3333	0	0.0045	16.1832	1.129808219	0	0	0	100
175	1.219	0	0.0045	16.2803	1.129808219	0	0	0	100
191	1.1169	0	0.0046	16.3775	1.154915068	0	0	0	100
209	1.0207	0	0.0046	16.5398	1.154915068	0	0	0	100
229	0.9315	0	0.0046	16.6677	1.154915068	0	0	0	100
251	0.8499	0	0.0047	16.8366	1.180021918	0	0	0	100
274	0.7785	0	0.0047	16.9819	1.180021918	0	0	0	100
300	0.7111	0	0.0048	17.1493	1.205128767	0	0	0	100
328	0.6504	0.0001	0.0048	17.3431	1.205128767	0	0	0	100
359	0.5942	0.0001	0.0049	17.5249	1.230235616	0	0	0	100
393	0.5428	0.0001	0.0049	17.7149	1.230235616	0	0	0	100
430	0.4961	0.0001	0.005	17.9581	1.255342466	0	0	0	100
470	0.4539	0.0001	0.0051	18.2238	1.280449315	0	0	0	100
514	0.415	0.0001	0.0051	18.5205	1.280449315	0	0	0	100
563	0.3789	0.0001	0.0052	18.8385	1.305556164	0	0	0	100
615	0.3469	0.0001	0.0054	19.2843	1.355769863	0	0	0	100
673	0.317	0.0001	0.0055	19.8137	1.380876712	0.446428571	0.446428571	0.007697044	99.55357143
736	0.2898	0.0002	0.0057	20.4382	1.431090411	0.892857143	1.339285714	0.014172336	98.66071429
806	0.2647	0.0002	0.0059	21.2596	1.48130411	0.892857143	2.232142857	0.012755102	97.76785714
881	0.2421	0.0003	0.0062	22.1701	1.556624658	1.339285714	3.571428571	0.017857143	96.42857143
964	0.2213	0.0003	0.0065	23.2679	1.631945205	1.339285714	4.910714286	0.016135972	95.08928571
1050	0.2032	0.0003	0.0068	24.3304	1.707265753	1.339285714	6.25	0.01557309	93.75
1150	0.1855	0.0003	0.0071	25.4987	1.782586301	1.339285714	7.589285714	0.013392857	92.41071429
1260	0.1693	0.0003	0.0074	26.7568	1.857906849	1.339285714	8.928571429	0.012175325	91.07142857
1380	0.1546	0.0004	0.0078	28.0891	1.958334247	1.785714286	10.71428571	0.014880952	89.28571429
1510	0.1413	0.0003	0.0081	29.2523	2.033654795	1.339285714	12.05357143	0.010302198	87.94642857
1650	0.1293	0.0003	0.0084	30.3272	2.108975342	1.339285714	13.39285714	0.009566327	86.60714286
1810	0.1179	0.0003	0.0087	31.3556	2.18429589	1.339285714	14.73214286	0.008370536	85.26785714
1980	0.1077	0.0003	0.009	32.3211	2.259616438	1.339285714	16.07142857	0.007878151	83.92857143
2160	0.0988	0.0003	0.0093	33.2848	2.334936986	1.339285714	17.41071429	0.007440476	82.58928571

2370	0.09	0.0003	0.0095	34.3066	2.385150685	0.892857143	18.30357143	0.004251701	81.69642857
2590	0.0824	0.0003	0.0098	35.2961	2.460471233	1.339285714	19.64285714	0.006087662	80.35714286
2830	0.0754	0.0003	0.0101	36.3048	2.535791781	1.339285714	20.98214286	0.005580357	79.01785714
3100	0.0688	0.0003	0.0104	37.3465	2.611112329	1.339285714	22.32142857	0.004960317	77.67857143
3390	0.0629	0.0003	0.0107	38.4153	2.686432877	1.339285714	23.66071429	0.004618227	76.33928571
3710	0.0575	0.0003	0.011	39.4989	2.761753425	1.339285714	25	0.004185268	75
4060	0.0525	0.0003	0.0113	40.6118	2.837073973	1.339285714	26.33928571	0.003826531	73.66071429
4440	0.048	0.0003	0.0116	41.7879	2.912394521	1.339285714	27.67857143	0.003524436	72.32142857
4850	0.044	0.0003	0.0119	42.9871	2.987715068	1.339285714	29.01785714	0.003266551	70.98214286
5310	0.0402	0.0004	0.0123	44.3344	3.088142466	1.785714286	30.80357143	0.003881988	69.19642857
5810	0.0367	0.0004	0.0127	45.7949	3.188569863	1.785714286	32.58928571	0.003571429	67.41071429
6360	0.0335	0.0005	0.0132	47.4202	3.31410411	2.232142857	34.82142857	0.004058442	65.17857143
6950	0.0307	0.0005	0.0136	49.1103	3.414531507	1.785714286	36.60714286	0.003026634	63.39285714
7610	0.028	0.0005	0.0142	50.9737	3.565172603	2.678571429	39.28571429	0.004058442	60.71428571
8320	0.0256	0.0005	0.0147	52.9172	3.690706849	2.232142857	41.51785714	0.003143863	58.48214286
9100	0.0234	0.0006	0.0153	55.0052	3.841347945	2.678571429	44.19642857	0.003434066	55.80357143
9960	0.0214	0.0006	0.0159	57.203	3.991989041	2.678571429	46.875	0.003114618	53.125
10900	0.0196	0.0006	0.0165	59.4891	4.142630137	2.678571429	49.55357143	0.002849544	50.44642857
11900	0.0179	0.0007	0.0172	61.8402	4.318378082	3.125	52.67857143	0.003125	47.32142857
13000	0.0164	0.0007	0.0179	64.3556	4.494126027	3.125	55.80357143	0.002840909	44.19642857
14300	0.0149	0.0008	0.0187	67.1625	4.694980822	3.571428571	59.375	0.002747253	40.625
15600	0.0137	0.0007	0.0194	69.824	4.870728767	3.125	62.5	0.002403846	37.5
17100	0.0125	0.0008	0.0202	72.6351	5.071583562	3.571428571	66.07142857	0.002380952	33.92857143
18700	0.0114	0.0008	0.021	75.3926	5.272438356	3.571428571	69.64285714	0.002232143	30.35714286
20400	0.0105	0.0007	0.0217	77.9733	5.448186301	3.125	72.76785714	0.001838235	27.23214286
22300	0.0096	0.0007	0.0224	80.4993	5.623934247	3.125	75.89285714	0.001644737	24.10714286
24400	0.0087	0.0007	0.023	82.9065	5.774575342	2.678571429	78.57142857	0.00127551	21.42857143
26700	0.008	0.0006	0.0237	85.2366	5.950323288	3.125	81.69642857	0.001358696	18.30357143
29300	0.0073	0.0006	0.0243	87.4944	6.100964384	2.678571429	84.375	0.00103022	15.625
32000	0.0067	0.0006	0.0249	89.4935	6.251605479	2.678571429	87.05357143	0.000992063	12.94642857
35000	0.0061	0.0005	0.0254	91.4141	6.377139726	2.232142857	89.28571429	0.000744048	10.71428571
38300	0.0056	0.0005	0.0259	93.2192	6.502673973	2.232142857	91.51785714	0.000676407	8.482142857
41900	0.0051	0.0004	0.0264	94.8374	6.628208219	2.232142857	93.75	0.00062004	6.25
45800	0.0047	0.0004	0.0267	96.2188	6.703528767	1.339285714	95.08928571	0.000343407	4.910714286
50100	0.0043	0.0003	0.0271	97.4306	6.803956164	1.785714286	96.875	0.000415282	3.125
54800	0.0039	0.0003	0.0274	98.5905	6.879276712	1.339285714	98.21428571	0.000284954	1.785714286
59500	0.0036	0.0004	0.0278	100	6.97970411	1.785714286	100	0.000379939	0

Table 4e. Summary of volume of mercury injected for sample 06RR090-b.
PetroTech Associates

WIN9400 Series Unit 117 Port 3/1 Page 1
V2.00

06RR090-b
File 3-978

File: C:\WIN9420\DATA\003-978.SMP

LP Analysis Time: 08/30/06 09:59:53 Sample Weight: 13.174 g
HP Analysis Time: 08/30/06 12:18:36 Correction Type: None
Report Time: 08/30/06 12:54:10 Show Neg. Int: No

Summary Report

Penetrometer: 03_#1 (0769) 01/03

Pen. Constant: 22.065 $\mu\text{L/pF}$ Adv. Contact Angle: 140.000 degrees
Pen. Weight: 62.3980 g Rec. Contact Angle: 130.000 degrees
Stem Volume: 1.1310 mL Hg Surface Tension: 480.000 dynes/cm
Max. Head Pressure: 4.4500 psia Hg Density: 13.5335 g/mL
Pen. Volume: 15.8297 mL Sample Weight: 13.1740 g
Assembly Weight: 215.2990 g

Low Pressure:

Evacuation Pressure: 25.000 μmHg
Evacuation Time: 15mins
Mercury Filling Pressure: 1.49psia
Equilibration Time: 20secs

High Pressure:

Equilibration Time: 45secs

No Blank Correction

Intrusion Data Summary

Total Intrusion Volume = 0.0428 mL/g
Total Pore Area = 10.444 m^2/g
Median Pore Diameter (Volume) = 0.0223 μm
Median Pore Diameter (Area) = 0.0089 μm
Average Pore Diameter (4V/A) = 0.0164 μm
Bulk Density = 2.3930 g/mL
Apparent (skeletal) Density = 2.6661 g/mL
Porosity = 10.2421 %
Stem Volume Used = 50 %
Spl. Wt= 13.174
BulkVol= 5.5052

Pc (Psia)	Pore Aperture	Closure= 0.0038		Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
		Incremental Intrusion ml/g	Cumulative Intrusion ml/g						
1.64	130.0748	0	0	0.0584	0	0	0	0	100
1.8	118.5126	0	0.0001	0.1224	0.023930102	0	0	0	100
1.96	108.8381	0	0.0001	0.1908	0.023930102	0	0	0	100
2.15	99.2198	0	0.0001	0.2466	0.023930102	0	0	0	100
2.35	90.7756	0	0.0001	0.3019	0.023930102	0	0	0	100
2.57	83.0049	0	0.0002	0.3657	0.047860205	0	0	0	100
2.81	75.9155	0	0.0002	0.4284	0.047860205	0	0	0	100
3.08	69.2606	0	0.0002	0.4919	0.047860205	0	0	0	100
3.37	63.3005	0	0.0002	0.5519	0.047860205	0	0	0	100
3.68	57.9681	0	0.0003	0.5995	0.071790307	0	0	0	100
4.03	52.9337	0	0.0003	0.654	0.071790307	0	0	0	100
4.41	48.3725	0	0.0003	0.7041	0.071790307	0	0	0	100
4.82	44.2578	0	0.0003	0.7549	0.071790307	0	0	0	100
5.27	40.4787	0	0.0003	0.8077	0.071790307	0	0	0	100
5.77	36.971	0	0.0004	0.856	0.09572041	0	0	0	100
6.31	33.8071	0	0.0004	0.9181	0.09572041	0	0	0	100
6.9	30.9163	0	0.0004	0.9792	0.09572041	0	0	0	100

Pc (Psia)	Pore Aperture	Increm Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Increm Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
7.55	28.2547	0.0001	0.0005	1.1356	0.119650512	0	0	0	100
8.26	25.826	0.0001	0.0006	1.3656	0.143580615	0	0	0	100
9.04	23.5976	0.0001	0.0007	1.5537	0.167510717	0	0	0	100
9.89	21.5695	0.0001	0.0008	1.8111	0.19144082	0	0	0	100
10.8	19.7521	0.0001	0.0009	2.0024	0.215370922	0	0	0	100
11.8	18.0782	0.0001	0.0009	2.1431	0.215370922	0	0	0	100
12.9	16.5366	0.0001	0.001	2.2747	0.239301024	0	0	0	100
14.2	15.0227	0.0001	0.001	2.4468	0.239301024	0	0	0	100
15.5	13.7628	0.0001	0.0011	2.5763	0.263231127	0	0	0	100
16.9	12.6226	0.0001	0.0012	2.6988	0.287161229	0	0	0	100
18.5	11.531	0.0001	0.0012	2.829	0.287161229	0	0	0	100
20.3	10.5085	0.0001	0.0013	2.9464	0.311091332	0	0	0	100
22.2	9.6091	0.0001	0.0013	3.0816	0.311091332	0	0	0	100
24.3	8.7787	0.0001	0.0014	3.218	0.335021434	0	0	0	100
26.6	8.0196	0.0001	0.0014	3.3545	0.335021434	0	0	0	100
29	7.356	0	0.0015	3.4579	0.358951537	0	0	0	100
31.8	6.7083	0.0001	0.0015	3.6215	0.358951537	0	0	0	100
34.8	6.13	0.0001	0.0016	3.7918	0.382881639	0	0	0	100
38	5.6138	0.0001	0.0017	3.9894	0.406811742	0	0	0	100
41.6	5.1279	0.0001	0.0018	4.1728	0.430741844	0	0	0	100
45.5	4.6884	0.0001	0.0019	4.3704	0.454671947	0	0	0	100
49.8	4.2836	0	0.0019	4.4232	0.454671947	0	0	0	100
54.5	3.9142	0	0.0019	4.4904	0.454671947	0	0	0	100
59.6	3.5792	0	0.002	4.5924	0.478602049	0	0	0	100
65.2	3.2718	0	0.002	4.6903	0.478602049	0	0	0	100
71.3	2.9919	0	0.002	4.7735	0.478602049	0	0	0	100
78	2.7349	0	0.0021	4.8604	0.502532151	0	0	0	100
85.3	2.5009	0	0.0021	4.9287	0.502532151	0	0	0	100
93.4	2.284	0	0.0021	5.003	0.502532151	0	0	0	100
102	2.0914	0	0.0022	5.0695	0.526462254	0	0	0	100
112	1.9047	0	0.0022	5.149	0.526462254	0	0	0	100
122	1.7485	0	0.0022	5.2373	0.526462254	0	0	0	100
134	1.592	0	0.0023	5.3103	0.550392356	0	0	0	100
146	1.4611	0	0.0023	5.3984	0.550392356	0	0	0	100
160	1.3333	0.0001	0.0024	5.5165	0.574322459	0	0	0	100
175	1.219	0	0.0024	5.6295	0.574322459	0	0	0	100
191	1.1169	0	0.0024	5.7161	0.574322459	0	0	0	100
209	1.0207	0.0001	0.0025	5.8438	0.598252561	0	0	0	100
229	0.9315	0.0001	0.0025	5.9631	0.598252561	0	0	0	100
251	0.8499	0.0001	0.0026	6.0819	0.622182664	0	0	0	100
274	0.7785	0.0001	0.0027	6.2404	0.646112766	0	0	0	100
300	0.7111	0.0001	0.0027	6.4234	0.646112766	0	0	0	100
328	0.6504	0.0001	0.0028	6.6225	0.670042869	0	0	0	100
359	0.5942	0.0001	0.0029	6.8252	0.693972971	0	0	0	100
393	0.5428	0.0001	0.003	7.0339	0.717903073	0	0	0	100
430	0.4961	0.0001	0.0031	7.3295	0.741833176	0	0	0	100
470	0.4539	0.0001	0.0033	7.6359	0.789693381	0	0	0	100
514	0.415	0.0001	0.0034	7.964	0.813623483	0	0	0	100
563	0.3789	0.0002	0.0036	8.3785	0.861483688	0	0	0	100
615	0.3469	0.0002	0.0038	8.911	0.909343893	0	0	0	100
673	0.317	0.0003	0.0041	9.6448	0.9811342	0.771208226	0.771208226	0.013296694	99.22879177
736	0.2898	0.0004	0.0045	10.6556	1.07685461	1.028277635	1.799485861	0.016321867	98.20051414
806	0.2647	0.0006	0.0052	12.097	1.244365327	1.799485861	3.598971722	0.025706941	96.40102828
881	0.2421	0.0007	0.0059	13.775	1.411876044	1.799485861	5.398457584	0.023993145	94.60154242
964	0.2213	0.0009	0.0067	15.7851	1.603316864	2.05655527	7.455012853	0.024777774	92.54498715
1050	0.2032	0.0008	0.0075	17.6745	1.794757684	2.05655527	9.511568123	0.023913433	90.48843188
1150	0.1855	0.0009	0.0084	19.6881	2.010128606	2.313624679	11.8251928	0.023136247	88.1748072
1260	0.1693	0.0009	0.0093	21.7234	2.225499528	2.313624679	14.13881748	0.021032952	85.86118252
1380	0.1546	0.0008	0.0101	23.551	2.416940347	2.05655527	16.19537275	0.017137961	83.80462725
1510	0.1413	0.0007	0.0107	25.1196	2.560520962	1.542416452	17.7377892	0.011864742	82.2622108
1650	0.1293	0.0006	0.0113	26.5344	2.704101577	1.542416452	19.28020566	0.01101726	80.71979434
1810	0.1179	0.0006	0.0119	27.8778	2.847682191	1.542416452	20.82262211	0.009640103	79.17737789
1980	0.1077	0.0005	0.0124	29.0516	2.967332704	1.285347044	22.10796915	0.007560865	77.89203085
2160	0.0988	0.0005	0.0129	30.1204	3.086983216	1.285347044	23.3933162	0.007140817	76.6066838
2370	0.09	0.0005	0.0133	31.2066	3.182703626	1.028277635	24.42159383	0.00489656	75.57840617
2590	0.0824	0.0004	0.0137	32.2052	3.278424035	1.028277635	25.44987147	0.004673989	74.55012853
2830	0.0754	0.0004	0.0142	33.1698	3.398074548	1.285347044	26.73521851	0.005355613	73.26478149
3100	0.0688	0.0004	0.0146	34.1395	3.493794957	1.028277635	27.76349614	0.003808436	72.23650386
3390	0.0629	0.0004	0.015	35.0842	3.589515367	1.028277635	28.79177378	0.003545785	71.20822622
3710	0.0575	0.0004	0.0154	36.0295	3.685235777	1.028277635	29.82005141	0.003213368	70.17994859
4060	0.0525	0.0004	0.0158	36.9714	3.780956187	1.028277635	30.84832905	0.002937936	69.15167095
4440	0.048	0.0004	0.0162	37.94	3.876676597	1.028277635	31.87660668	0.002705994	68.12339332
4850	0.044	0.0004	0.0166	38.8737	3.972397006	1.028277635	32.90488432	0.002507994	67.09511568
5310	0.0402	0.0004	0.017	39.9157	4.068117416	1.028277635	33.93316195	0.002235386	66.06683805

Pc (Psia)	Pore Aperture	Incremental Intrusion ml/g	Cumulative Intrusion ml/g	Cumulative Intrusion (%)	Cumulative Bv (%)	Incremental Intrusion (%)	Cumulative Intrusion (%)	Intrusion/psi	Cumulative Intrusion (%)
5810	0.0367	0.0005	0.0175	41.0305	4.187767929	1.285347044	35.218509	0.002570694	64.781491
6360	0.0335	0.0005	0.018	42.2533	4.307418441	1.285347044	36.50385604	0.002336995	63.49614396
6950	0.0307	0.0006	0.0186	43.5684	4.450999055	1.542416452	38.04627249	0.002614265	61.95372751
7610	0.028	0.0006	0.0192	45.0842	4.59457967	1.542416452	39.58868895	0.002336995	60.41131105
8320	0.0256	0.0007	0.02	46.7911	4.78602049	2.05655527	41.64524422	0.002896557	58.35475578
9100	0.0234	0.0009	0.0208	48.8222	4.977461309	2.05655527	43.70179949	0.002636609	56.29820051
9960	0.0214	0.001	0.0219	51.2104	5.240692436	2.827763496	46.52956298	0.003288097	53.47043702
10900	0.0196	0.0012	0.023	53.9758	5.503923563	2.827763496	49.35732648	0.003008259	50.64267352
11900	0.0179	0.0013	0.0244	57.0347	5.838944997	3.598971722	52.9562982	0.003598972	47.0437018
13000	0.0164	0.0014	0.0258	60.3772	6.173966432	3.598971722	56.55526992	0.003271792	43.44473008
14300	0.0149	0.0016	0.0274	64.1907	6.556848071	4.11311054	60.66838046	0.003163931	39.33161954
15600	0.0137	0.0015	0.0289	67.7569	6.915799608	3.856041131	64.52442159	0.002966185	35.47557841
17100	0.0125	0.0016	0.0305	71.4178	7.298681247	4.11311054	68.63753213	0.002742074	31.36246787
18700	0.0114	0.0015	0.0319	74.8293	7.633702681	3.598971722	72.23650386	0.002249357	27.76349614
20400	0.0105	0.0013	0.0333	77.9068	7.968724115	3.598971722	75.83547558	0.002117042	24.16452442
22300	0.0096	0.0012	0.0345	80.7788	8.255885345	3.084832905	78.92030848	0.001623596	21.07969152
24400	0.0087	0.0011	0.0356	83.403	8.519116472	2.827763496	81.74807198	0.001346554	18.25192802
26700	0.008	0.001	0.0366	85.7517	8.758417496	2.570694087	84.31876607	0.001117693	15.68123393
29300	0.0073	0.0009	0.0375	87.9202	8.973788418	2.313624679	86.63239075	0.000889856	13.36760925
32000	0.0067	0.0008	0.0383	89.78	9.165229238	2.05655527	88.68894602	0.000761687	11.31105398
35000	0.0061	0.0007	0.0391	91.5087	9.356670057	2.05655527	90.74550129	0.000685518	9.254498715
38300	0.0056	0.0007	0.0397	93.0784	9.500250672	1.542416452	92.28791774	0.000467399	7.712082262
41900	0.0051	0.0006	0.0403	94.5006	9.643831287	1.542416452	93.83033419	0.000428449	6.16966581
45800	0.0047	0.0006	0.0409	95.8094	9.787411901	1.542416452	95.37275064	0.000395491	4.627249357
50100	0.0043	0.0005	0.0415	97.0944	9.930992516	1.542416452	96.9151671	0.000358702	3.084832905
54800	0.0039	0.0006	0.042	98.4356	10.05064303	1.285347044	98.20051414	0.000273478	1.799485861
59500	0.0036	0.0007	0.0427	100	10.21815375	1.799485861	100	0.000382869	0

Table 5a. Mercury Injection Capillary Pressure data for sample 06BG210.

Mercury Injection Capillary Pressure 06BG210

<u>Sample Information</u>					
Bulk Volume =	6.4311 cc	Porosity =	4.98% (mercury)		
Pore Volume =	0.3204 cc	Permeability =	0.0002 md (mercury)		
Closure = 0.72 %BV @ 1050 psia		Median Pore Aperture =	0.0146 microns (diameter)		

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1.64	130	0.01	100.0	0.00	0.0000
1.80	119	0.01	100.0	0.00	0.0000
1.96	109	0.02	100.0	0.00	0.0000
2.15	99.2	0.03	100.0	0.00	0.0000
2.35	90.8	0.03	100.0	0.00	0.0000
2.57	83.0	0.04	100.0	0.00	0.0000
2.81	75.9	0.05	100.0	0.00	0.0000
3.08	69.3	0.05	100.0	0.00	0.0000
3.37	63.3	0.06	100.0	0.00	0.0000
3.68	58.0	0.08	100.0	0.00	0.0000
4.03	52.9	0.09	100.0	0.00	0.0000
4.41	48.4	0.10	100.0	0.00	0.0000
4.82	44.3	0.12	100.0	0.00	0.0000
5.27	40.5	0.14	100.0	0.00	0.0000
5.77	37.0	0.17	100.0	0.00	0.0000
6.31	33.8	0.19	100.0	0.00	0.0000
6.90	30.9	0.21	100.0	0.00	0.0000
7.55	28.3	0.23	100.0	0.00	0.0000
8.26	25.8	0.24	100.0	0.00	0.0000
9.04	23.6	0.26	100.0	0.00	0.0000
9.89	21.6	0.27	100.0	0.00	0.0000
10.8	19.8	0.29	100.0	0.00	0.0000
11.8	18.1	0.30	100.0	0.00	0.0000
12.9	16.5	0.31	100.0	0.00	0.0000
14.2	15.0	0.32	100.0	0.00	0.0000
15.5	13.8	0.33	100.0	0.00	0.0000
16.9	12.6	0.34	100.0	0.00	0.0000
18.5	11.5	0.34	100.0	0.00	0.0000
20.3	10.5	0.35	100.0	0.00	0.0000
22.2	9.61	0.36	100.0	0.00	0.0000
24.3	8.78	0.38	100.0	0.00	0.0000
26.6	8.02	0.39	100.0	0.00	0.0000
29.0	7.36	0.40	100.0	0.00	0.0000
31.8	6.71	0.41	100.0	0.00	0.0000
34.8	6.13	0.42	100.0	0.00	0.0000
38.0	5.61	0.43	100.0	0.00	0.0000

Table 5a. Mercury Injection Capillary Pressure data for sample 06BG210.

Mercury Injection Capillary Pressure

06BG210

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
41.6	5.13	0.44	100.0	0.00	0.0000
45.5	4.69	0.45	100.0	0.00	0.0000
49.8	4.28	0.45	100.0	0.00	0.0000
54.5	3.91	0.45	100.0	0.00	0.0000
59.6	3.58	0.46	100.0	0.00	0.0000
65.2	3.27	0.46	100.0	0.00	0.0000
71.3	2.99	0.47	100.0	0.00	0.0000
78.0	2.73	0.47	100.0	0.00	0.0000
85.3	2.50	0.48	100.0	0.00	0.0000
93.4	2.28	0.48	100.0	0.00	0.0000
102	2.09	0.49	100.0	0.00	0.0000
112	1.90	0.49	100.0	0.00	0.0000
122	1.75	0.49	100.0	0.00	0.0000
134	1.59	0.50	100.0	0.00	0.0000
146	1.46	0.50	100.0	0.00	0.0000
160	1.33	0.50	100.0	0.00	0.0000
175	1.22	0.51	100.0	0.00	0.0000
191	1.12	0.51	100.0	0.00	0.0000
209	1.02	0.52	100.0	0.00	0.0000
229	0.932	0.53	100.0	0.00	0.0000
251	0.850	0.54	100.0	0.00	0.0000
274	0.779	0.55	100.0	0.00	0.0000
300	0.711	0.56	100.0	0.00	0.0000
328	0.650	0.56	100.0	0.00	0.0000
359	0.594	0.57	100.0	0.00	0.0000
393	0.543	0.58	100.0	0.00	0.0000
430	0.496	0.59	100.0	0.00	0.0000
470	0.454	0.60	100.0	0.00	0.0000
514	0.415	0.61	100.0	0.00	0.0000
563	0.379	0.62	100.0	0.00	0.0000
615	0.347	0.63	100.0	0.00	0.0000
673	0.317	0.64	100.0	0.00	0.0000
736	0.290	0.65	100.0	0.00	0.0000
806	0.265	0.67	100.0	0.00	0.0000
881	0.242	0.68	100.0	0.00	0.0000
964	0.221	0.70	100.0	0.00	0.0000
1050	0.203	0.72	100.0	0.00	0.0000
1150	0.186	0.74	99.5	0.47	0.0047
1260	0.169	0.77	98.9	0.60	0.0055
1380	0.155	0.80	98.3	0.67	0.0056
1510	0.141	0.84	97.5	0.73	0.0056
1650	0.129	0.88	96.7	0.82	0.0059

Table 5a. Mercury Injection Capillary Pressure data for sample 06BG210.

Mercury Injection Capillary Pressure

06BG210

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1810	0.1179	0.93	95.8	0.95	0.0059
1980	0.1077	0.98	94.8	1.00	0.0059
2160	0.0988	1.03	93.6	1.12	0.0062
2370	0.0900	1.10	92.4	1.29	0.0061
2590	0.0824	1.16	91.1	1.30	0.0059
2830	0.0754	1.23	89.6	1.43	0.0060
3100	0.0688	1.31	88.1	1.52	0.0056
3390	0.0629	1.38	86.5	1.56	0.0054
3710	0.0575	1.47	84.9	1.64	0.0051
4060	0.0525	1.55	83.2	1.72	0.0049
4440	0.0480	1.63	81.6	1.63	0.0043
4850	0.0440	1.72	79.8	1.80	0.0044
5310	0.0402	1.81	78.0	1.73	0.0038
5810	0.0367	1.89	76.3	1.76	0.0035
6360	0.0335	1.98	74.5	1.81	0.0033
6950	0.0307	2.08	72.6	1.88	0.0032
7610	0.0280	2.18	70.6	2.01	0.0030
8320	0.0256	2.27	68.6	1.95	0.0028
9100	0.0234	2.38	66.4	2.17	0.0028
9960	0.0214	2.50	64.0	2.45	0.0028
10900	0.0196	2.63	61.4	2.60	0.0028
11900	0.0179	2.77	58.6	2.83	0.0028
13000	0.0164	2.95	55.1	3.50	0.0032
14300	0.0149	3.15	51.0	4.05	0.0031
15600	0.0137	3.35	46.8	4.17	0.0032
17100	0.0125	3.58	42.3	4.56	0.0030
18700	0.0114	3.80	37.7	4.55	0.0028
20400	0.0105	4.03	33.2	4.49	0.0026
22300	0.0096	4.24	28.9	4.35	0.0023
24400	0.0087	4.44	24.9	4.01	0.0019
26700	0.0080	4.63	21.0	3.84	0.0017
29300	0.0073	4.80	17.6	3.42	0.0013
32000	0.0067	4.95	14.6	2.99	0.0011
35000	0.0061	5.08	12.0	2.66	0.0009
38300	0.0056	5.20	9.6	2.34	0.0007
41900	0.0051	5.30	7.5	2.07	0.0006
45800	0.0047	5.39	5.7	1.81	0.0005
50100	0.0043	5.47	4.1	1.66	0.0004
54800	0.0039	5.57	2.0	2.05	0.0004
59500	0.0036	5.67	0.0	2.03	0.0004

Table 5b. Mercury Injection Capillary Pressure data for sample 06PD113a.

Mercury Injection Capillary Pressure

06PD113a

Sample Information					
Bulk Volume =	5.3943 cc	Porosity =	8.30% (mercury)		
Pore Volume =	0.4476 cc	Permeability =	0.0064 md (mercury)		
Closure = 1.39 %BV @ 881 psia		Median Pore Aperture =	0.0251 microns (diameter)		

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1.64	130	0.02	100.0	0.00	0.0000
1.80	119	0.02	100.0	0.00	0.0000
1.96	109	0.02	100.0	0.00	0.0000
2.15	99.2	0.05	100.0	0.00	0.0000
2.35	90.8	0.07	100.0	0.00	0.0000
2.57	83.0	0.10	100.0	0.00	0.0000
2.81	75.9	0.10	100.0	0.00	0.0000
3.08	69.3	0.12	100.0	0.00	0.0000
3.37	63.3	0.12	100.0	0.00	0.0000
3.68	58.0	0.14	100.0	0.00	0.0000
4.03	52.9	0.17	100.0	0.00	0.0000
4.41	48.4	0.17	100.0	0.00	0.0000
4.82	44.3	0.19	100.0	0.00	0.0000
5.27	40.5	0.19	100.0	0.00	0.0000
5.77	37.0	0.24	100.0	0.00	0.0000
6.31	33.8	0.24	100.0	0.00	0.0000
6.90	30.9	0.26	100.0	0.00	0.0000
7.55	28.3	0.29	100.0	0.00	0.0000
8.26	25.8	0.33	100.0	0.00	0.0000
9.04	23.6	0.36	100.0	0.00	0.0000
9.89	21.6	0.38	100.0	0.00	0.0000
10.8	19.8	0.41	100.0	0.00	0.0000
11.8	18.1	0.45	100.0	0.00	0.0000
12.9	16.5	0.45	100.0	0.00	0.0000
14.2	15.0	0.48	100.0	0.00	0.0000
15.5	13.8	0.50	100.0	0.00	0.0000
16.9	12.6	0.52	100.0	0.00	0.0000
18.5	11.5	0.55	100.0	0.00	0.0000
20.3	10.5	0.57	100.0	0.00	0.0000
22.2	9.61	0.60	100.0	0.00	0.0000
24.3	8.78	0.62	100.0	0.00	0.0000
26.6	8.02	0.62	100.0	0.00	0.0000
29.0	7.36	0.64	100.0	0.00	0.0000
31.8	6.71	0.67	100.0	0.00	0.0000
34.8	6.13	0.69	100.0	0.00	0.0000
38.0	5.61	0.69	100.0	0.00	0.0000

Table 5b. Mercury Injection Capillary Pressure data for sample 06PD113a.

Mercury Injection Capillary Pressure

06PD113a

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
41.6	5.13	0.74	100.0	0.00	0.0000
45.5	4.69	0.76	100.0	0.00	0.0000
49.8	4.28	0.76	100.0	0.00	0.0000
54.5	3.91	0.79	100.0	0.00	0.0000
59.6	3.58	0.79	100.0	0.00	0.0000
65.2	3.27	0.81	100.0	0.00	0.0000
71.3	2.99	0.81	100.0	0.00	0.0000
78.0	2.73	0.83	100.0	0.00	0.0000
85.3	2.50	0.83	100.0	0.00	0.0000
93.4	2.28	0.83	100.0	0.00	0.0000
102	2.09	0.86	100.0	0.00	0.0000
112	1.90	0.86	100.0	0.00	0.0000
122	1.75	0.88	100.0	0.00	0.0000
134	1.59	0.88	100.0	0.00	0.0000
146	1.46	0.91	100.0	0.00	0.0000
160	1.33	0.91	100.0	0.00	0.0000
175	1.22	0.93	100.0	0.00	0.0000
191	1.12	0.93	100.0	0.00	0.0000
209	1.02	0.95	100.0	0.00	0.0000
229	0.932	0.98	100.0	0.00	0.0000
251	0.850	0.98	100.0	0.00	0.0000
274	0.779	1.00	100.0	0.00	0.0000
300	0.711	1.00	100.0	0.00	0.0000
328	0.650	1.03	100.0	0.00	0.0000
359	0.594	1.05	100.0	0.00	0.0000
393	0.543	1.05	100.0	0.00	0.0000
430	0.496	1.07	100.0	0.00	0.0000
470	0.454	1.10	100.0	0.00	0.0000
514	0.415	1.12	100.0	0.00	0.0000
563	0.379	1.14	100.0	0.00	0.0000
615	0.347	1.19	100.0	0.00	0.0000
673	0.317	1.22	100.0	0.00	0.0000
736	0.290	1.26	100.0	0.00	0.0000
806	0.265	1.31	100.0	0.00	0.0000
881	0.242	1.38	100.0	0.00	0.0000
964	0.221	1.45	99.1	0.86	0.0104
1050	0.203	1.55	98.0	1.15	0.0134
1150	0.186	1.67	96.5	1.44	0.0144
1260	0.169	1.84	94.5	2.02	0.0183
1380	0.155	2.00	92.5	2.02	0.0168
1510	0.141	2.19	90.2	2.31	0.0177
1650	0.129	2.38	87.9	2.31	0.0165

Table 5b. Mercury Injection Capillary Pressure data for sample 06PD113a.

Mercury Injection Capillary Pressure

06PD113a

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1810	0.1179	2.58	85.6	2.31	0.0144
1980	0.1077	2.74	83.6	2.02	0.0119
2160	0.0988	2.93	81.3	2.31	0.0128
2370	0.0900	3.10	79.3	2.02	0.0096
2590	0.0824	3.24	77.5	1.73	0.0079
2830	0.0754	3.41	75.5	2.02	0.0084
3100	0.0688	3.55	73.8	1.73	0.0064
3390	0.0629	3.70	72.0	1.73	0.0060
3710	0.0575	3.86	70.0	2.02	0.0063
4060	0.0525	4.01	68.3	1.73	0.0049
4440	0.0480	4.17	66.3	2.02	0.0053
4850	0.0440	4.32	64.6	1.73	0.0042
5310	0.0402	4.48	62.5	2.02	0.0044
5810	0.0367	4.65	60.5	2.02	0.0040
6360	0.0335	4.84	58.2	2.31	0.0042
6950	0.0307	5.03	55.9	2.31	0.0039
7610	0.0280	5.25	53.3	2.59	0.0039
8320	0.0256	5.46	50.7	2.59	0.0037
9100	0.0234	5.70	47.8	2.88	0.0037
9960	0.0214	5.94	45.0	2.88	0.0034
10900	0.0196	6.22	41.5	3.46	0.0037
11900	0.0179	6.49	38.3	3.17	0.0032
13000	0.0164	6.75	35.2	3.17	0.0029
14300	0.0149	7.03	31.7	3.46	0.0027
15600	0.0137	7.27	28.8	2.88	0.0022
17100	0.0125	7.54	25.6	3.17	0.0021
18700	0.0114	7.75	23.1	2.59	0.0016
20400	0.0105	7.96	20.5	2.59	0.0015
22300	0.0096	8.16	18.2	2.31	0.0012
24400	0.0087	8.32	16.1	2.02	0.0010
26700	0.0080	8.49	14.1	2.02	0.0009
29300	0.0073	8.66	12.1	2.02	0.0008
32000	0.0067	8.78	10.7	1.44	0.0005
35000	0.0061	8.92	8.9	1.73	0.0006
38300	0.0056	9.04	7.5	1.44	0.0004
41900	0.0051	9.16	6.1	1.44	0.0004
45800	0.0047	9.28	4.6	1.44	0.0004
50100	0.0043	9.40	3.2	1.44	0.0003
54800	0.0039	9.49	2.0	1.15	0.0002
59500	0.0036	9.66	0.0	2.02	0.0004

Table 5c. Mercury Injection Capillary Pressure data for sample 06PD151a.

Mercury Injection Capillary Pressure

0PD151a

Sample Information			
Bulk Volume =	5.3649 cc	Porosity =	12.3% (mercury)
Pore Volume =	0.6732 cc	Permeability =	0.048 md (mercury)
Closure = 0.85 %BV @ 328 psia		0.0724 microns (diameter)	

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1.64	130	0.02	100.0	0.00	0.0000
1.80	119	0.02	100.0	0.00	0.0000
1.96	109	0.02	100.0	0.00	0.0000
2.15	99.2	0.05	100.0	0.00	0.0000
2.35	90.8	0.05	100.0	0.00	0.0000
2.57	83.0	0.07	100.0	0.00	0.0000
2.81	75.9	0.07	100.0	0.00	0.0000
3.08	69.3	0.07	100.0	0.00	0.0000
3.37	63.3	0.09	100.0	0.00	0.0000
3.68	58.0	0.12	100.0	0.00	0.0000
4.03	52.9	0.14	100.0	0.00	0.0000
4.41	48.4	0.16	100.0	0.00	0.0000
4.82	44.3	0.16	100.0	0.00	0.0000
5.27	40.5	0.18	100.0	0.00	0.0000
5.77	37.0	0.18	100.0	0.00	0.0000
6.31	33.8	0.21	100.0	0.00	0.0000
6.90	30.9	0.21	100.0	0.00	0.0000
7.55	28.3	0.23	100.0	0.00	0.0000
8.26	25.8	0.23	100.0	0.00	0.0000
9.04	23.6	0.25	100.0	0.00	0.0000
9.89	21.6	0.28	100.0	0.00	0.0000
10.8	19.8	0.28	100.0	0.00	0.0000
11.8	18.1	0.30	100.0	0.00	0.0000
12.9	16.5	0.30	100.0	0.00	0.0000
14.2	15.0	0.32	100.0	0.00	0.0000
15.5	13.8	0.32	100.0	0.00	0.0000
16.9	12.6	0.32	100.0	0.00	0.0000
18.5	11.5	0.35	100.0	0.00	0.0000
20.3	10.5	0.35	100.0	0.00	0.0000
22.2	9.61	0.37	100.0	0.00	0.0000
24.3	8.78	0.39	100.0	0.00	0.0000
26.6	8.02	0.39	100.0	0.00	0.0000
29.0	7.36	0.42	100.0	0.00	0.0000
31.8	6.71	0.44	100.0	0.00	0.0000
34.8	6.13	0.46	100.0	0.00	0.0000
38.0	5.61	0.46	100.0	0.00	0.0000

Table 5c. Mercury Injection Capillary Pressure data for sample 06PD151a.

Mercury Injection Capillary Pressure

0PD151a

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
41.6	5.13	0.48	100.0	0.00	0.0000
45.5	4.69	0.48	100.0	0.00	0.0000
49.8	4.28	0.48	100.0	0.00	0.0000
54.5	3.91	0.48	100.0	0.00	0.0000
59.6	3.58	0.51	100.0	0.00	0.0000
65.2	3.27	0.51	100.0	0.00	0.0000
71.3	2.99	0.51	100.0	0.00	0.0000
78.0	2.73	0.53	100.0	0.00	0.0000
85.3	2.50	0.53	100.0	0.00	0.0000
93.4	2.28	0.53	100.0	0.00	0.0000
102	2.09	0.55	100.0	0.00	0.0000
112	1.90	0.55	100.0	0.00	0.0000
122	1.75	0.58	100.0	0.00	0.0000
134	1.59	0.58	100.0	0.00	0.0000
146	1.46	0.60	100.0	0.00	0.0000
160	1.33	0.60	100.0	0.00	0.0000
175	1.22	0.62	100.0	0.00	0.0000
191	1.12	0.65	100.0	0.00	0.0000
209	1.02	0.67	100.0	0.00	0.0000
229	0.932	0.69	100.0	0.00	0.0000
251	0.850	0.72	100.0	0.00	0.0000
274	0.779	0.76	100.0	0.00	0.0000
300	0.711	0.78	100.0	0.00	0.0000
328	0.650	0.85	100.0	0.00	0.0000
359	0.594	0.95	99.3	0.74	0.0238
393	0.543	1.06	98.3	0.92	0.0271
430	0.496	1.27	96.7	1.66	0.0449
470	0.454	1.61	93.9	2.77	0.0692
514	0.415	1.96	91.1	2.77	0.0629
563	0.379	2.35	88.0	3.14	0.0640
615	0.347	2.72	85.1	2.95	0.0568
673	0.317	3.11	81.9	3.14	0.0541
736	0.290	3.55	78.4	3.51	0.0556
806	0.265	3.88	75.8	2.58	0.0369
881	0.242	4.20	73.2	2.58	0.0344
964	0.221	4.50	70.8	2.40	0.0289
1050	0.203	4.75	68.8	2.03	0.0236
1150	0.186	5.03	66.6	2.21	0.0221
1260	0.169	5.28	64.6	2.03	0.0185
1380	0.155	5.51	62.7	1.85	0.0154
1510	0.141	5.74	60.9	1.85	0.0142
1650	0.129	5.95	59.2	1.66	0.0119

Table 5c. Mercury Injection Capillary Pressure data for sample 06PD151a.

Mercury Injection Capillary Pressure

0PD151a

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1810	0.1179	6.18	57.4	1.85	0.0115
1980	0.1077	6.37	55.9	1.48	0.0087
2160	0.0988	6.55	54.4	1.48	0.0082
2370	0.0900	6.71	53.1	1.29	0.0062
2590	0.0824	6.87	51.8	1.29	0.0059
2830	0.0754	7.04	50.6	1.29	0.0054
3100	0.0688	7.20	49.3	1.29	0.0048
3390	0.0629	7.34	48.2	1.11	0.0038
3710	0.0575	7.47	47.0	1.11	0.0035
4060	0.0525	7.64	45.8	1.29	0.0037
4440	0.0480	7.77	44.6	1.11	0.0029
4850	0.0440	7.89	43.7	0.92	0.0023
5310	0.0402	8.03	42.6	1.11	0.0024
5810	0.0367	8.17	41.5	1.11	0.0022
6360	0.0335	8.33	40.2	1.29	0.0023
6950	0.0307	8.49	38.9	1.29	0.0022
7610	0.0280	8.65	37.6	1.29	0.0020
8320	0.0256	8.83	36.2	1.48	0.0021
9100	0.0234	9.02	34.7	1.48	0.0019
9960	0.0214	9.25	32.8	1.85	0.0021
10900	0.0196	9.48	31.0	1.85	0.0020
11900	0.0179	9.71	29.2	1.85	0.0018
13000	0.0164	9.96	27.1	2.03	0.0018
14300	0.0149	10.26	24.7	2.40	0.0018
15600	0.0137	10.52	22.7	2.03	0.0016
17100	0.0125	10.80	20.5	2.21	0.0015
18700	0.0114	11.05	18.5	2.03	0.0013
20400	0.0105	11.28	16.6	1.85	0.0011
22300	0.0096	11.51	14.8	1.85	0.0010
24400	0.0087	11.74	12.9	1.85	0.0009
26700	0.0080	11.95	11.3	1.66	0.0007
29300	0.0073	12.13	9.8	1.48	0.0006
32000	0.0067	12.29	8.5	1.29	0.0005
35000	0.0061	12.46	7.2	1.29	0.0004
38300	0.0056	12.62	5.9	1.29	0.0004
41900	0.0051	12.76	4.8	1.11	0.0003
45800	0.0047	12.89	3.7	1.11	0.0003
50100	0.0043	13.08	2.2	1.48	0.0003
54800	0.0039	13.19	1.3	0.92	0.0002
59500	0.0036	13.36	0.0	1.29	0.0003

Table 5d. Mercury Injection Capillary Pressure data for sample 06RR095b-2.

Mercury Injection Capillary Pressure

06RR095b - 2

<u>Sample Information</u>					
Bulk Volume =	5.4750 cc	Porosity =	5.65% (mercury)		
Pore Volume =	0.3093 cc	Permeability =	0.0061 md (mercury)		
Closure = 1.36 %BV @ 615 psia		Median Pore Aperture =	0.0194 microns (diameter)		

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1.64	130	0.03	100.0	0.00	0.0000
1.80	119	0.05	100.0	0.00	0.0000
1.96	109	0.10	100.0	0.00	0.0000
2.15	99.2	0.13	100.0	0.00	0.0000
2.35	90.8	0.18	100.0	0.00	0.0000
2.57	83.0	0.20	100.0	0.00	0.0000
2.81	75.9	0.25	100.0	0.00	0.0000
3.08	69.3	0.30	100.0	0.00	0.0000
3.37	63.3	0.33	100.0	0.00	0.0000
3.68	58.0	0.38	100.0	0.00	0.0000
4.03	52.9	0.43	100.0	0.00	0.0000
4.41	48.4	0.45	100.0	0.00	0.0000
4.82	44.3	0.50	100.0	0.00	0.0000
5.27	40.5	0.53	100.0	0.00	0.0000
5.77	37.0	0.55	100.0	0.00	0.0000
6.31	33.8	0.58	100.0	0.00	0.0000
6.90	30.9	0.63	100.0	0.00	0.0000
7.55	28.3	0.65	100.0	0.00	0.0000
8.26	25.8	0.68	100.0	0.00	0.0000
9.04	23.6	0.70	100.0	0.00	0.0000
9.89	21.6	0.70	100.0	0.00	0.0000
10.8	19.8	0.73	100.0	0.00	0.0000
11.8	18.1	0.75	100.0	0.00	0.0000
12.9	16.5	0.78	100.0	0.00	0.0000
14.2	15.0	0.78	100.0	0.00	0.0000
15.5	13.8	0.80	100.0	0.00	0.0000
16.9	12.6	0.80	100.0	0.00	0.0000
18.5	11.5	0.83	100.0	0.00	0.0000
20.3	10.5	0.85	100.0	0.00	0.0000
22.2	9.61	0.85	100.0	0.00	0.0000
24.3	8.78	0.88	100.0	0.00	0.0000
26.6	8.02	0.90	100.0	0.00	0.0000
29.0	7.36	0.93	100.0	0.00	0.0000
31.8	6.71	0.93	100.0	0.00	0.0000
34.8	6.13	0.95	100.0	0.00	0.0000
38.0	5.61	0.98	100.0	0.00	0.0000

Table 5d. Mercury Injection Capillary Pressure data for sample 06RR095b-2.

Mercury Injection Capillary Pressure

06RR095b - 2

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
41.6	5.13	0.98	100.0	0.00	0.0000
45.5	4.69	1.00	100.0	0.00	0.0000
49.8	4.28	1.00	100.0	0.00	0.0000
54.5	3.91	1.00	100.0	0.00	0.0000
59.6	3.58	1.03	100.0	0.00	0.0000
65.2	3.27	1.03	100.0	0.00	0.0000
71.3	2.99	1.05	100.0	0.00	0.0000
78.0	2.73	1.05	100.0	0.00	0.0000
85.3	2.50	1.08	100.0	0.00	0.0000
93.4	2.28	1.08	100.0	0.00	0.0000
102	2.09	1.08	100.0	0.00	0.0000
112	1.90	1.10	100.0	0.00	0.0000
122	1.75	1.10	100.0	0.00	0.0000
134	1.59	1.10	100.0	0.00	0.0000
146	1.46	1.13	100.0	0.00	0.0000
160	1.33	1.13	100.0	0.00	0.0000
175	1.22	1.13	100.0	0.00	0.0000
191	1.12	1.15	100.0	0.00	0.0000
209	1.02	1.15	100.0	0.00	0.0000
229	0.932	1.15	100.0	0.00	0.0000
251	0.850	1.18	100.0	0.00	0.0000
274	0.779	1.18	100.0	0.00	0.0000
300	0.711	1.21	100.0	0.00	0.0000
328	0.650	1.21	100.0	0.00	0.0000
359	0.594	1.23	100.0	0.00	0.0000
393	0.543	1.23	100.0	0.00	0.0000
430	0.496	1.26	100.0	0.00	0.0000
470	0.454	1.28	100.0	0.00	0.0000
514	0.415	1.28	100.0	0.00	0.0000
563	0.379	1.31	100.0	0.00	0.0000
615	0.347	1.36	100.0	0.00	0.0000
673	0.317	1.38	99.6	0.45	0.0077
736	0.290	1.43	98.7	0.89	0.0142
806	0.265	1.48	97.8	0.89	0.0128
881	0.242	1.56	96.4	1.34	0.0179
964	0.221	1.63	95.1	1.34	0.0161
1050	0.203	1.71	93.8	1.34	0.0156
1150	0.186	1.78	92.4	1.34	0.0134
1260	0.169	1.86	91.1	1.34	0.0122
1380	0.155	1.96	89.3	1.79	0.0149
1510	0.141	2.03	87.9	1.34	0.0103
1650	0.129	2.11	86.6	1.34	0.0096

Table 5d. Mercury Injection Capillary Pressure data for sample 06RR095b-2.

Mercury Injection Capillary Pressure

06RR095b - 2

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1810	0.1179	2.18	85.3	1.34	0.0084
1980	0.1077	2.26	83.9	1.34	0.0079
2160	0.0988	2.33	82.6	1.34	0.0074
2370	0.0900	2.39	81.7	0.89	0.0043
2590	0.0824	2.46	80.4	1.34	0.0061
2830	0.0754	2.54	79.0	1.34	0.0056
3100	0.0688	2.61	77.7	1.34	0.0050
3390	0.0629	2.69	76.3	1.34	0.0046
3710	0.0575	2.76	75.0	1.34	0.0042
4060	0.0525	2.84	73.7	1.34	0.0038
4440	0.0480	2.91	72.3	1.34	0.0035
4850	0.0440	2.99	71.0	1.34	0.0033
5310	0.0402	3.09	69.2	1.79	0.0039
5810	0.0367	3.19	67.4	1.79	0.0036
6360	0.0335	3.31	65.2	2.23	0.0041
6950	0.0307	3.41	63.4	1.79	0.0030
7610	0.0280	3.57	60.7	2.68	0.0041
8320	0.0256	3.69	58.5	2.23	0.0031
9100	0.0234	3.84	55.8	2.68	0.0034
9960	0.0214	3.99	53.1	2.68	0.0031
10900	0.0196	4.14	50.4	2.68	0.0028
11900	0.0179	4.32	47.3	3.13	0.0031
13000	0.0164	4.49	44.2	3.12	0.0028
14300	0.0149	4.69	40.6	3.57	0.0027
15600	0.0137	4.87	37.5	3.13	0.0024
17100	0.0125	5.07	33.9	3.57	0.0024
18700	0.0114	5.27	30.4	3.57	0.0022
20400	0.0105	5.45	27.2	3.13	0.0018
22300	0.0096	5.62	24.1	3.13	0.0016
24400	0.0087	5.77	21.4	2.68	0.0013
26700	0.0080	5.95	18.3	3.13	0.0014
29300	0.0073	6.10	15.6	2.68	0.0010
32000	0.0067	6.25	12.9	2.68	0.0010
35000	0.0061	6.38	10.7	2.23	0.0007
38300	0.0056	6.50	8.5	2.23	0.0007
41900	0.0051	6.63	6.2	2.23	0.0006
45800	0.0047	6.70	4.9	1.34	0.0003
50100	0.0043	6.80	3.1	1.79	0.0004
54800	0.0039	6.88	1.8	1.34	0.0003
59500	0.0036	6.98	0.0	1.79	0.0004

Table 5e. Mercury Injection Capillary Pressure data for sample 06RR090-b.

Mercury Injection Capillary Pressure

06RR090-b

<u>Sample Information</u>					
Bulk Volume =	5.5052 cc	Porosity =	9.33% (mercury)		
Pore Volume =	0.5138 cc	Permeability =	0.0088 md (mercury)		
Closure = 0.91 %BV @ 615 psia		Median Pore Aperture =	0.0193 microns (diameter)		

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1.64	130	0.00	100.0	0.00	0.0000
1.80	119	0.02	100.0	0.00	0.0000
1.96	109	0.02	100.0	0.00	0.0000
2.15	99.2	0.02	100.0	0.00	0.0000
2.35	90.8	0.02	100.0	0.00	0.0000
2.57	83.0	0.05	100.0	0.00	0.0000
2.81	75.9	0.05	100.0	0.00	0.0000
3.08	69.3	0.05	100.0	0.00	0.0000
3.37	63.3	0.05	100.0	0.00	0.0000
3.68	58.0	0.07	100.0	0.00	0.0000
4.03	52.9	0.07	100.0	0.00	0.0000
4.41	48.4	0.07	100.0	0.00	0.0000
4.82	44.3	0.07	100.0	0.00	0.0000
5.27	40.5	0.07	100.0	0.00	0.0000
5.77	37.0	0.10	100.0	0.00	0.0000
6.31	33.8	0.10	100.0	0.00	0.0000
6.90	30.9	0.10	100.0	0.00	0.0000
7.55	28.3	0.12	100.0	0.00	0.0000
8.26	25.8	0.14	100.0	0.00	0.0000
9.04	23.6	0.17	100.0	0.00	0.0000
9.89	21.6	0.19	100.0	0.00	0.0000
10.8	19.8	0.22	100.0	0.00	0.0000
11.8	18.1	0.22	100.0	0.00	0.0000
12.9	16.5	0.24	100.0	0.00	0.0000
14.2	15.0	0.24	100.0	0.00	0.0000
15.5	13.8	0.26	100.0	0.00	0.0000
16.9	12.6	0.29	100.0	0.00	0.0000
18.5	11.5	0.29	100.0	0.00	0.0000
20.3	10.5	0.31	100.0	0.00	0.0000
22.2	9.61	0.31	100.0	0.00	0.0000
24.3	8.78	0.34	100.0	0.00	0.0000
26.6	8.02	0.34	100.0	0.00	0.0000
29.0	7.36	0.36	100.0	0.00	0.0000
31.8	6.71	0.36	100.0	0.00	0.0000
34.8	6.13	0.38	100.0	0.00	0.0000
38.0	5.61	0.41	100.0	0.00	0.0000

Table 5e. Mercury Injection Capillary Pressure data for sample 06RR090-b.

Mercury Injection Capillary Pressure

06RR090-b

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
41.6	5.13	0.43	100.0	0.00	0.0000
45.5	4.69	0.45	100.0	0.00	0.0000
49.8	4.28	0.45	100.0	0.00	0.0000
54.5	3.91	0.45	100.0	0.00	0.0000
59.6	3.58	0.48	100.0	0.00	0.0000
65.2	3.27	0.48	100.0	0.00	0.0000
71.3	2.99	0.48	100.0	0.00	0.0000
78.0	2.73	0.50	100.0	0.00	0.0000
85.3	2.50	0.50	100.0	0.00	0.0000
93.4	2.28	0.50	100.0	0.00	0.0000
102	2.09	0.53	100.0	0.00	0.0000
112	1.90	0.53	100.0	0.00	0.0000
122	1.75	0.53	100.0	0.00	0.0000
134	1.59	0.55	100.0	0.00	0.0000
146	1.46	0.55	100.0	0.00	0.0000
160	1.33	0.57	100.0	0.00	0.0000
175	1.22	0.57	100.0	0.00	0.0000
191	1.12	0.57	100.0	0.00	0.0000
209	1.02	0.60	100.0	0.00	0.0000
229	0.932	0.60	100.0	0.00	0.0000
251	0.850	0.62	100.0	0.00	0.0000
274	0.779	0.65	100.0	0.00	0.0000
300	0.711	0.65	100.0	0.00	0.0000
328	0.650	0.67	100.0	0.00	0.0000
359	0.594	0.69	100.0	0.00	0.0000
393	0.543	0.72	100.0	0.00	0.0000
430	0.496	0.74	100.0	0.00	0.0000
470	0.454	0.79	100.0	0.00	0.0000
514	0.415	0.81	100.0	0.00	0.0000
563	0.379	0.86	100.0	0.00	0.0000
615	0.347	0.91	100.0	0.00	0.0000
673	0.317	0.98	99.2	0.77	0.0133
736	0.290	1.08	98.2	1.03	0.0163
806	0.265	1.24	96.4	1.80	0.0257
881	0.242	1.41	94.6	1.80	0.0240
964	0.221	1.60	92.5	2.06	0.0248
1050	0.203	1.79	90.5	2.06	0.0239
1150	0.186	2.01	88.2	2.31	0.0231
1260	0.169	2.23	85.9	2.31	0.0210
1380	0.155	2.42	83.8	2.06	0.0171
1510	0.141	2.56	82.3	1.54	0.0119
1650	0.129	2.70	80.7	1.54	0.0110

Table 5e. Mercury Injection Capillary Pressure data for sample 06RR090-b.

Mercury Injection Capillary Pressure

06RR090-b

Capillary Pressure (psia)	Pore Aperture Diameter (microns)	Cumulative Bulk Vol. (%)	Wetting Phase Saturation (%)	Incremental Wetting Phase Change (%)	Saturation Change per psia
1810	0.1179	2.85	79.2	1.54	0.0096
1980	0.1077	2.97	77.9	1.29	0.0076
2160	0.0988	3.09	76.6	1.29	0.0071
2370	0.0900	3.18	75.6	1.03	0.0049
2590	0.0824	3.28	74.6	1.03	0.0047
2830	0.0754	3.40	73.3	1.29	0.0054
3100	0.0688	3.49	72.2	1.03	0.0038
3390	0.0629	3.59	71.2	1.03	0.0035
3710	0.0575	3.69	70.2	1.03	0.0032
4060	0.0525	3.78	69.2	1.03	0.0029
4440	0.0480	3.88	68.1	1.03	0.0027
4850	0.0440	3.97	67.1	1.03	0.0025
5310	0.0402	4.07	66.1	1.03	0.0022
5810	0.0367	4.19	64.8	1.29	0.0026
6360	0.0335	4.31	63.5	1.29	0.0023
6950	0.0307	4.45	62.0	1.54	0.0026
7610	0.0280	4.59	60.4	1.54	0.0023
8320	0.0256	4.79	58.4	2.06	0.0029
9100	0.0234	4.98	56.3	2.06	0.0026
9960	0.0214	5.24	53.5	2.83	0.0033
10900	0.0196	5.50	50.6	2.83	0.0030
11900	0.0179	5.84	47.0	3.60	0.0036
13000	0.0164	6.17	43.4	3.60	0.0033
14300	0.0149	6.56	39.3	4.11	0.0032
15600	0.0137	6.92	35.5	3.86	0.0030
17100	0.0125	7.30	31.4	4.11	0.0027
18700	0.0114	7.63	27.8	3.60	0.0022
20400	0.0105	7.97	24.2	3.60	0.0021
22300	0.0096	8.26	21.1	3.08	0.0016
24400	0.0087	8.52	18.3	2.83	0.0013
26700	0.0080	8.76	15.7	2.57	0.0011
29300	0.0073	8.97	13.4	2.31	0.0009
32000	0.0067	9.17	11.3	2.06	0.0008
35000	0.0061	9.36	9.3	2.06	0.0007
38300	0.0056	9.50	7.7	1.54	0.0005
41900	0.0051	9.64	6.2	1.54	0.0004
45800	0.0047	9.79	4.6	1.54	0.0004
50100	0.0043	9.93	3.1	1.54	0.0004
54800	0.0039	10.05	1.8	1.29	0.0003
59500	0.0036	10.22	0.0	1.80	0.0004

