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Final Report: Pilot-scale Cross-flow Filtration Test - Envelope A + Entrained Solids

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Final Report: Pilot-scale Cross-flow Ultrafiltration Test Using a Hanford Site Tank 241-AN-105 Waste Simulant – Envelope A + Entrained Solids

February 23, 2000

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SUMMARY

This report discusses the results of the operation of a cross-flow filter in a pilot-scale experimental facility that was designed, built, and run by the Experimental Thermal Fluids Laboratory of the Savannah River Technology Center of the Westinghouse Savannah River Company. This filter technology was evaluated for its inclusion in the pretreatment section of the nuclear waste stabilization plant being designed by BNFL, Inc. The plant will be built at the U.S. Department of Energy's Hanford Site as part of the River Protection Project.

The filter element under study was recommended by BNFL, Inc. and it was manufactured by the Mott Metallurgical Corporation in Connecticut. The filter unit contained seven 316 stainless steel sintered metal tubes. Each tube had an inside diameter of 0.375 inch, an outside diameter of 0.5 inch, a porous length of 40 inches, and a filter pore size that is classified as a nominal rated 0.1 micron. These dimensions give an active filter surface area of 2.29 ft^2. At the time of this task these aforementioned dimensions were given as prototypic, therefore each filter tube was considered full size to the filter, which would be built for the plant. Only the number of tubes was expected to change.

The filter was tested with a simulated nuclear waste of Tank 241-AN-105, which is referred to as envelope A waste. The recipe for the simulant was developed by Waste Process Technology section of SRTC and the simulant was made by TFL personnel specifically for this task. The supernatant portion of the simulant was non-organic, alkalinic, pH > 14, and had molarities of sodium, nitrates, and nitrites, of approximately 5 M, 1.4 M, and 1.2 M, respectively. To the supernatant insoluble solids were added to simulate those in the real waste. The solids loading began at 0.5 wt% and then was eventually raised to about 16 wt% during the test. The particle sizes ranged from 0.5 to 5 microns by design. At 25°C, and a solids loading of 0.5 wt%, this slurry had a density of approximately 1.23 g/mL, a viscosity of 3 cP, and Newtonian rheological characteristics. However, as the solids loading increased a yield stress was present, but it dropped very fast to revert to a Newtonian fluid while in motion. The flow conditions for the test varied: Axial slurry velocities ranged from 3 ft/s to 15 ft/s (1 m/s to 4.6 m/s) and transmembrane pressures ranged from 15 psid to 70 psid (100 kPa to 480 kPa) at a temperature of 25°C.

The results showed a good filtrate flux and separation. Under the optimum flow conditions of a slurry velocity of 12.4 ft/s and a transmembrane pressure of 42 psid (3.8 m/s and 300 kPa), the observed filtrate flux was consistently greater than 0.10 gpm/ft^2 (4.1 lpm/m^2), even without backpulsing for more than 7 hours. However, a backpulse frequency of 30 minutes would increase the flux to 0.16 gpm/ft^2 (6.5 lpm/m^2). A filtrate flux could be maintained above 0.10 gpm/ ft^2 as the insoluble solids loading increased to 16 wt% and at no time did the filter plug from a slurry cake build up. To free the filter surface of the slurry cake, a volume of only 0.036 gal/ft^2 (1.17 liters/m^2) was needed. This backpulse volume leads to a lost flux of 0.0012 gpm/ft^2 (0.05 lpm/m^2) for a backpulse frequency of 30 minutes. Finally, for all test runs the measurable amount of insoluble solids was insignificant in the filtrate.

ACKNOWLEDGMENTS

The author would like to thank all that were involved in this task. Andy Foreman's care and dedication in running this experiment allowed it to be successfully completed. Support from the other Experimental Thermal Fluids Laboratory personnel: Mike Armstrong, Vern Bush, Jimmy Mills, and Jerry Corbett was instrumental in keeping the experiment on track and maintaining the test rig ready, from instrumental calibration to last minute changes that were needed due to unforeseen difficulties. The Lab supervisor, Susan Hatcher, is to be commended for keeping us safe, even when things seemed to be the most hectic. A special thanks is in order to all those individuals just mentioned for the long hours they invested in the experiment, which at times disrupted their family life. I would also like to thank Charles Nash and John Steimke for their help in planning the test from their expertise and past work in filtration. The management of both Dan Burns and Martha Ebra made this task's successful completion a sure thing. Thanks to Hector Guerrero who had the unenviable task of reviewing this report, and to Gwen Watts, who would probably want to forget all the cutting and pasting. Finally, I would like to thank both my SRS customer, Steve Wach, and my BNFL customers, Paul Townson and Mike Johnson, for their support and insight, which made this work possible.

NOMENCLATURE

BNFL	BNFL, Inc.
DIF	Deionized and Filtered (0.2 micron) Water
i.d.	Inside Diameter
LAW	Low Activity Waste
nominal	The word "nominal" for a filter rating is a vague term because its meaning is manufacturer depend. Further, a "nominal" rating does not give an exact size to a filter medium; but rather an approximation to the expected performance of a filter. In the case of Mott, a nominal rated 0.1-μm filter means that approximately 95% of particles greater than 0.1 μm will not pass the filter.
RPP	River Protection Project
o.d.	Outside Diameter
SRTC	Savannah River Technology Center
TMP	Transmembrane Pressure (the average pressure drop across the thickness of the filter medium – perpendicular to the slurry flow.)
TR	Test Rig
TTR	Technical Task Request
V	Velocity of the slurry flow along the length of the filter tubes
WPT	Waste Processing Technology
WSRC	Westinghouse Savannah River Company
XF	Cross-flow Filter

LIST OF FIGURES

This list only includes those figures in the body of this report. The figures in each of the appendices are listed at the beginning of each appendix.

INTRODUCTION

BNFL, Inc. (BNFL) has been contracted by the Department of Energy to design a facility to stabilize liquid radioactive waste that is stored at the Hanford Site. Because of its experience with radioactive waste stabilization, the Savannah River Technology Center (SRTC) of the Westinghouse Savannah River Company is working with BNFL to help design and test certain parts of the waste treatment facility. One part of the process is the separation of radioactive solids from the liquid wastes by cross-flow filtration. This task tested a cross-flow filter with a simulated radioactive waste, made to prototypically represent the waste chemical and physical characteristics.

This technical baseline research and development work was initiated by a Technical Task Request (TTR) (1) that was issued in October of 1998. This TTR came about from the BNFL specifications (2, 3) to design and test a pilot scale cross-flow filtration system. With initial documentation in place (4, 5, 6) the task began by defining a slurry to be filtered. A recipe for a low activity waste (LAW) slurry simulant, which would contain entrained solids, was developed by the Waste Process Technology section of SRTC to represent the waste in Hanford Tank 241-AN-105 (7, 8). This waste is referred to as Envelope A waste. At the beginning of this task the exact composition of the complex slurry was not completely defined, however, enough information did exist to begin work by modifying an existing test rig and getting the appropriate approvals to insure its safe operation (9, 10, 11). Previous work (12, 13, 14) assisted in guiding the plan of this task.

Envelope A simulant was the first in a series of two that would be used in this task. This report deals solely with this first simulant to evaluate a cross-flow filter. The chosen filter was manufactured by the Mott Metallurgical Corporation to meet the required specification (2, 3):

- 7 filter tubes with each having an inside diameter of 0.375 inch
- 40-inch porous length for each filter tube and made of stainless steel
- Nominal rated 0.1 micron filter element (the Nomenclature explains 'nominal')

and the test rig was modified to meet the required specification (2, 3):

- Maximum recirculation flow of 5 m/s (16 ft/s)
- Maximum transmembrane pressure (TMP) of 80 psid
- Maximum recirculation flow to be achievable at the maximum TMP
- Instrumentation to monitor the recirculation flow rate, the filtrate flow rate, the TMP, and the slurry temperature
- All materials to be compatible with 1 M nitric acid solution

All specifications were met or exceeded. A short history of task activities is:
Arrival of the filter from Mott - February 19, 1999
Shakedown activities began – March 1, 1999
Envelope A simulant was defined - March 2, 1999
Simulant was made - April 16, 1999
Permission was received from BNFL to begin testing - May 12, 1999
Test was completed - July 26, 1999
Preliminary data were sent to BNFL on November 9, 1999 (15)

EXPERIMENTAL

<u>Equipment</u>

In general, the equipment assembled for this task was done to conform to the Test Specification (2, 3). To facilitate understanding of the experimental equipment an explanation of the salient features follows.

Test Rig

Figure 1 is a schematic of the entire Test Rig (TR) and Fig. 2 is a photograph of the same. It stood approximately 25-feet tall and was serviced by a two-level mezzanine. The TR was much taller than the 3-foot tall filter element because it originally was used to test a 10-foot tall filter in 1994 (12). Several modifications were made in order to install the meter-long cross-flow filter. The entire TR was made of 300 series stainless steel with the majority being of 304 stainless steel.

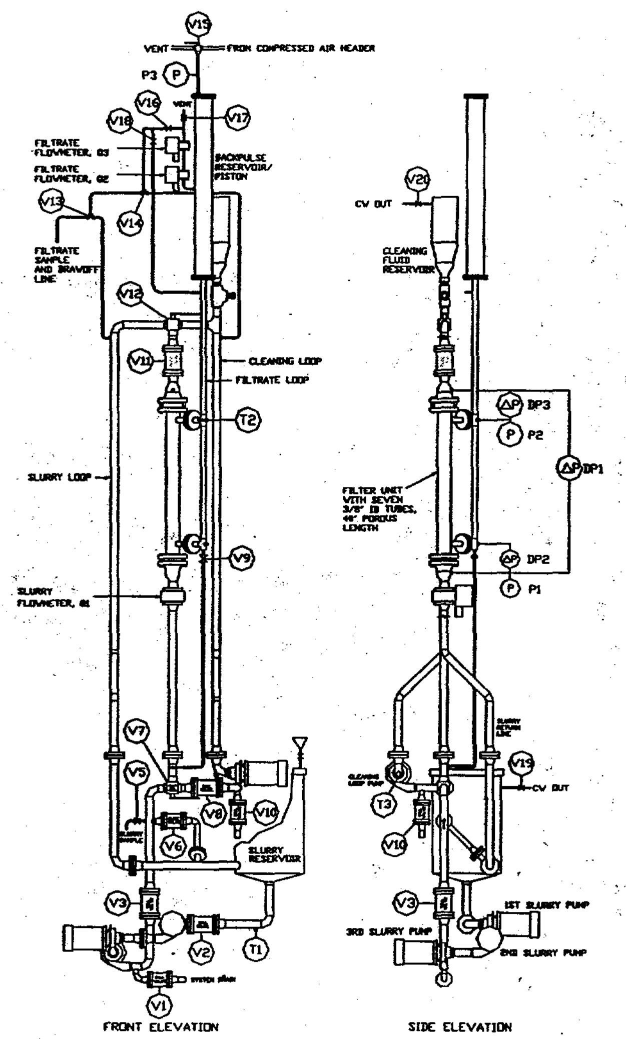


Figure 1. Schematic of the Pilot-scale Cross Flow Ultrafiltration Test Facility

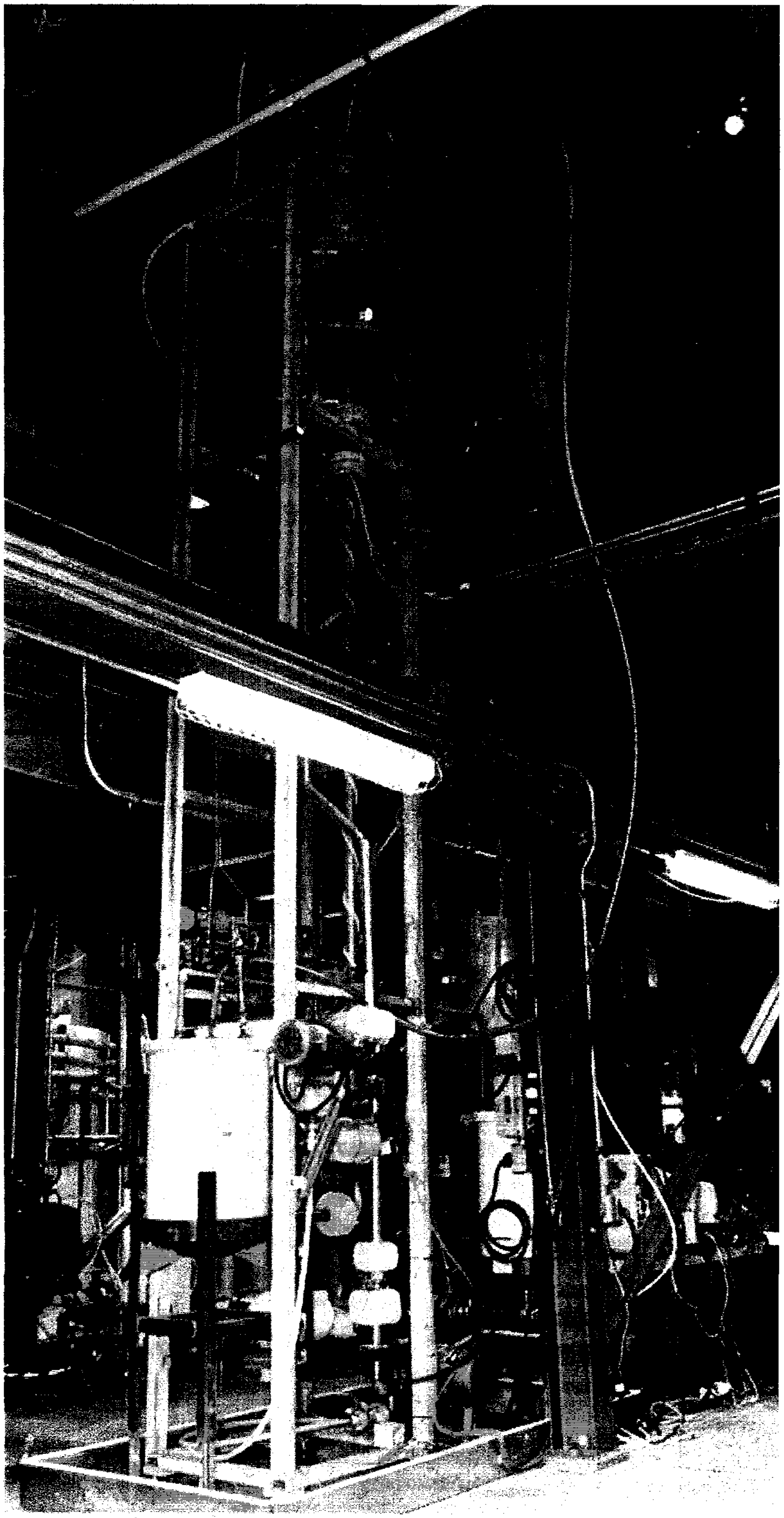


Figure 2. Pilot-scale Cross Flow Ultrafiltration Test Facility

The TR is made up of three basic flow loops:
1. Slurry loop, which contains the filter and its housing and serves as the primary flow path for circulating slurries. This loop has an internal volume of approximately 20 liters, excluding the reservoir tank.
2. Filtrate loop, which begins at the filter housing and allows the separated filtrate liquid to flow up through the backpulse piston before returning to the top of the slurry loop to close the circuit. This loop has an internal volume of approximately 6 liters.
3. Cleaning loop, which enables cleaning of the filter in place without having to remove the slurry from the test rig by correctly orienting two 3-way valves. This loop has an internal volume of approximately 15 liters.

Two other flow circuits that are subsections of the other loops are the backpulse and the recirculations loops:

1. The backpulse loop is part of the filtrate loop and stands ready to reverse the flow of filtrate. A pulse forces filtrate back through the seven filter elements in order to knock off built-up slurry cake on the inside diameter of the porous tubes. [The backpulse piston assembly controls the amount of filtrate used for a backpulse. The maximum piston travel was 2 inches, but it was initially set at ¾ inch to inject 0.041 gallon back through the filter (the piston housing inside diameter is 4.026 inches) to attain a 0.018 gal/ft2 (the filter inside surface area was 2.29 ft2), as was found in a previous filtration test (12). However, starting with test run 2.09 on 5/20/99 the injection volume was doubled to 0.036 gal/ft2 because it showed a considerable improvement in the filtrate flux recovery. Even with this volume, a backpulse frequency of 30 minutes would cause an insignificant reduction in the mean filtrate flux of 0.0012 gpm/ft2.]

2. The recirculation loop is part of the slurry loop (by using valve V6). This loop is used to: better control the slurry flow, increase mixing, and keeps the slurry well-mixed when the flow through the filter needs to be stopped.

The TR is controlled through a series of valves, which are described below:

V1: Drains slurry from the test rig
V2: Isolates the slurry reservoir from the pumps
V3: Controls the slurry (cleaning fluid) flow upstream of the filter and isolates the slurry loop from the pump
V4: Allows liquid to be introduced to the slurry reservoir
V5: Allows slurry to be samples (not used for this test)
V6: Recirculates slurry to the reservoir
V7: Directs either slurry (cleaning fluid) to the filter; 3-way valve
V8: Used for the same functions as V3 but for the cleaning loop
V9: Drains the filtrate loop
V10: Drains the cleaning loop
V11: Controls the slurry (cleaning fluid) flow downstream of the filter
V12: Directs either slurry (cleaning fluid) from the filter; 3-way valve

V13: Directs filtrate to the sample port or back to the slurry loop; 3-way valve
V14: Directs filtrate to the to the slurry loop or to the cleaning loop; 3-way valve
V15: Allows air to pressurize the backpulse piston
V16: Shuts filtrate flow from the backpulse piston
V13: Directs either filtrate to the sample port or back to the slurry loop; 3-way valve
V17: Vents the test rig
V18: Allows filtrate to bypass the backpulse piston
V19: Allows coolant flow to the cooling coil in the slurry reservoir
V20: Allows coolant flow through the cooling coil in the cleaning fluid reservoir

To circulate slurries and liquids the test rig and mixing tank were serviced by five TEEL stainless steel centrifugal pumps:

			Materials			
Location	Model	hp	Housing	Shaft	Impeller-Sleeve	Seals
1.Slurry Loop	2P392	3	304SS	304SS	303SS	Graphite/Ceramic/Viton
2.Slurry Loop	2P392	3	304SS	304SS	303SS	Graphite/Ceramic/Viton
3.Slurry Loop	2P392	3	304SS	304SS	303SS	Graphite/Ceramic/Viton
4.CleaningLoop	2P392	3	304SS	304SS	303SS	Graphite/Ceramic/Viton
5.Mixing Tank	1P701B	¾	304SS	304SS	416SS	Graphite/Ceramic/Viton

Three 3 hp pumps were used in series on the slurry loop to attain the head of 80 psig at 40 gpm (~5 m/s) since one pump is able to produce about 28 psi at 40 gpm with water.

Cross Flow Filter
The heart of this entire experimental task was the cross-flow filter element that was to be tested to define its operational characteristics under required flow conditions. There were several candidates that could have been used for this test but due to availability and past experience in robust designs a Mott Filter was chosen. The specifications for the filter unit were:

Material:	316 stainless steel (sintered metal)
Porosity:	nominal rated 0.1 micron
Length:	40 inches
Diameter:	3/8-inch I.D., ½-inch O.D.
Number:	7 tubes

The unit which was received from Mott met the requirements, see Figs. 3, 4, and 5. The 40-inch length was made from two 20-inch lengths that were welded together at the center. [When subtracting the weldments at the end and middle of the tubes, the actual active porous length was 39 3/4 inches (1.01 meter)]. The 7 tubes were welded together with the tube sheets and extra support was made with a central stabilizing plate and supporting solid metal ¼-inch rods which ran the length of the tube bundle, Fig. 3c. From the figures it is possible to see that some of the porous surfaces were slightly marred. Because of the large surface area this marring was not expected to affect results and no effects were notice during testing. The tube housing, Figs. 4 and 5, was made from a 3-inch schedule 10 pipe with two pipes connected at either end to remove filtrate. For this test the filter unit was oriented vertically in the test rig, see Figs. 1, 2, and 5. The tube bundle sat in the housing such that the large tube sheet (right side of Fig. 3a) was secured to the top flange of the housing; this tube sheet also supported the weight of the assembly. The smaller, lower, tube sheet (foreground in Fig. 3b) was able to pass through the housing and separated the slurry side of the flow channel from the filtrate side with an "O" ring between the outer perimeter of the lower tube sheet and the inside diameter of the filter housing.

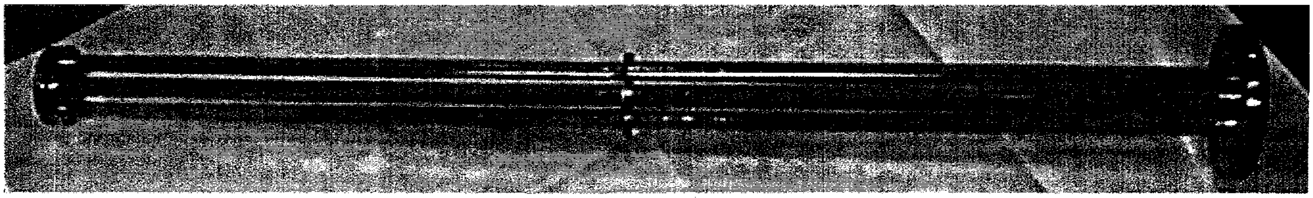


Figure 3a. 7-tube bundle of nominal rated 0.1micron filter, 3/8" i.d., ½" o.d., 40" long

Figure 3b. Upstream view of the seven-tube bundle

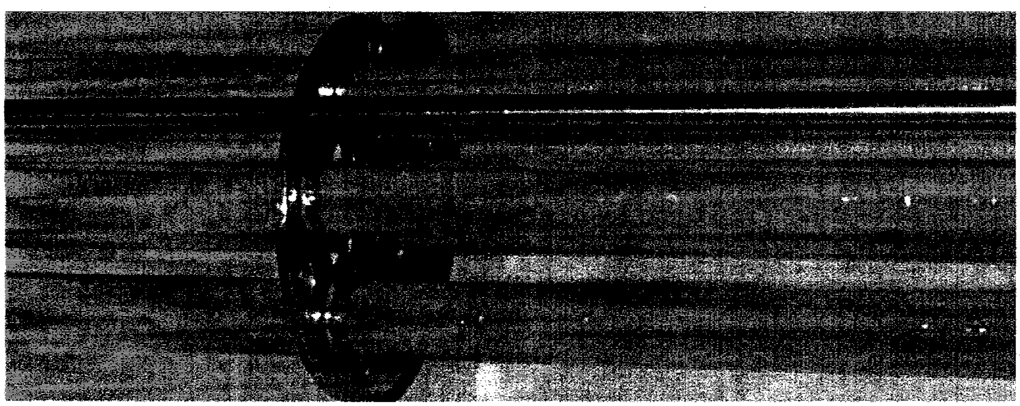


Figure 3c. Support plate at the mid-section of the seven-tube bundle

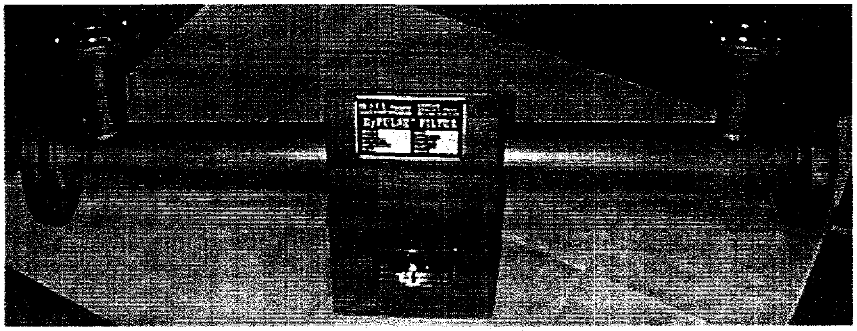


Figure 4. Cross-flow Filter Housing

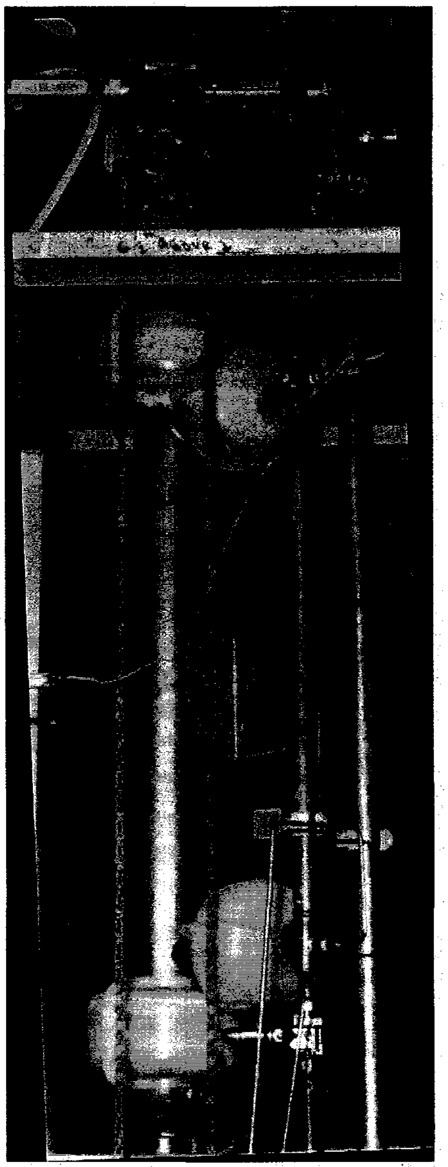


Figure 5. Cross-flow Filter in Test Rig

Mixing Tanks
There were two main tanks used for mixing and preparing the slurry solutions:

1. The slurry reservoir was a 110-liter plastic tank that primarily served as the Test Rig reservoir. It was also used (along with the recirculation loop) as a mixing tank when solids had to be added to the slurry and was the location from where slurry samples were taken. Mixing was accomplished with the recirculation loop by using valve V6. [The slurry reservoir is shown in Fig. 1 and is the large white tank in the foreground of Fig. 2.]
2. The mixing tank (MT) was a separate 110-liter plastic tank. It served to make the 75-liter batch of simulant supernate before the solids were added to complete the slurry. Since it was hard-piped to the slurry reservoir it was also used to make the cleaning fluid (1 M nitric acid) as well as the cleaning solution used to clean the entire test rig during shakedown activities (1% Alconox solution – phosphate). Mixing was accomplished with the recirculation loop by using valve V23. [Figure 6 is a schematic of this tank and can be found in Fig. 2 as the lower white tank behind the vertical I-beam at the lower right side of the photograph.]

The MT is controlled through a series of valves, which are described below:

V21: Contols the flow to the pump
V22: Drains the MT
V23: Recirculates the contents of the MT
V24: Allows the mixed contents to enter the slurry reservoir
V25: Allows liquid to be introduced into the MT

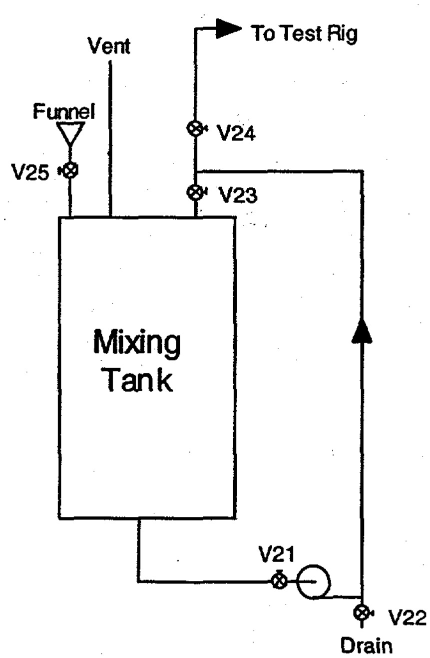


Figure 6. Main Mixing Tank for the Experiment

Instrumentation
The measurement equipment used for this experiment was:

5 Type E thermocouples with accuracies from* 1.0 to 1.5°C,
6 Variable capacitance pressure transducers with accuracies from* 0.02 to 0.38 psi, and
3 Magnetic flow meters with accuracies from* 0.005 to 0.19 gpm.
*accuracies are a function of the instrument and calibration. The uncertainty introduced through the use of the 16-bit data acquisition system was insignificant (<0.1% reading) and was not included in the values above.

Figure F1, Appendix F, shows two tables which list all the instruments and data acquisition system (DAS) channels for each of the non-thermocouple instruments. The thermocouples had their own dedicated computer card to interface and convert the temperatures properly. The calibration of the DAS was checked and that information can also be found in Fig. F1, which includes tables and graphs that show the results and the transfer functions used for each channel.

Two instrument changes were made during this task:

1. On 3/24/99, the pressure transducer used for dP2 (No. TR-00532) was recalibrated to reduce the calibrated pressure range so that the measurement uncertainty was reduced to 0.13 psid from 0.42 psid. Even though the actual experiment did not begin until May of 1999, the pre-3/24/99 calibration was used in obtaining certain shakedown data for water and thus it is included for completeness.

2. On 7/14/99, another filtrate flowmeter was added (Q3; No. TR-03562). By this date the experiment was complete, except for the final water run 2.22. This new flow meter increased the measurable range for filtrate flow from a maximum of 1.2 gpm to 5 gpm, or the flux from 0.52 gpm/ft^2 to 2.18 gpm/ft^2, respectively. However, the measurement uncertainty for the larger filtrate flow rate was larger by a factor of four. This new meter was only necessary for the water runs, since with slurry, the filtrate fluxes were always below 0.5 gpm/ft^2.

From Figs. 1, F1, and F2 the location and the usage of each instrument can be determined, however the following list will better describe the placement and usage of all the measurement instruments:

T1 – A thermocouple located in the exit pipe of the slurry reservoir to measure the slurry temperature on its way to the filter.
T2 – A thermocouple located in the filtrate line at the end of the upper filter housing filtrate exit pipe to measure the filtrate temperature as it leaves the filter housing.
T3 – A thermocouple located in the cleaning loop at the exit of the cleaning loop pump.
T4 – A thermocouple located at the top of the test rig near valve V13 to measure ambient temperature.
T5 – A thermocouple located at the bottom of the test rig near valve V5 to measure ambient temperature.

For the 6 pressure transducers also refer to Fig. F2, which indicates, pressure-line locations as well as their heights.

P1 – A gauge pressure transducer located at the beginning of the filter housing to measure the pressure of the slurry just before entering the filter tubes.
P2 – A gauge pressure transducer located in the filtrate line at the end of the upper filter housing filtrate exit pipe to measure the pressure of the filtrate as it leaves the filter housing.
P3 – A gauge pressure transducer located at the air side of the backpulse piston to measure the pressure applied to produce a backpulse.
dP1 – A differential pressure transducer located across the slurry side of the filter to measure the drop in pressure along the filter tubes.
dP2 – A differential pressure transducer located across filter and housing at the filter entrance to measure the transmembrane pressure at the beginning of the filter.
dP3 – A differential pressure transducer located across filter and housing at the filter exit to measure the transmembrane pressure at the end of the filter.
[The transmembrane pressure is determined from the average of dP2 and dP3.]

Q1 – A magnetic flowmeter located at the entrance of the filter to measure the slurry flowrate.
Q2 – A magnetic flowmeter located at the filtrate line between the exit of the backpulse piston and valve V16 to measure the filtrate flowrate.
Q3 – A magnetic flowmeter located at the filtrate line between the exit of the backpulse piston and valve V16 to measure the filtrate flowrate.

Measurement Uncertainty

Appendix F has all the pertinent information on the uncertainties. The measurement uncertainties (at a 95% confidence level) for the important calculated quantities are:

Slurry Velocity in a Filter Tube	=	V	± 8.16 %
Transmembrane Pressure	=	TMP	± 1.07 %
Temperature Corrected Filtrate Flux	=	Fc	± 6.72 %
Permeability	=	P	± 6.80 %

These numbers are based on pre- and post-test calibrations of the instruments.

Simulated Waste Slurry

Beside the cross-flow filter, the most important aspect of this experiment was the slurry used to simulate a Hanford Site waste. The waste that was simulated is referred to as Envelope A + ES. The Envelope A components include soluble radioactive wastes in tank 241-AN-105 from the Handford Site and the ES refers to the insoluble Entrained Solids from that tank. The simulant used for this task was cold (non-radioactive), but made chemically equivalent to actual waste. The actual simulant development is beyond the scope of this task and not elaborated here. A recipe for the simulant supernate, Fig. 7,

Complete Envelope A Recipe at 5.5 Molar Na		
(valid as of 4/13/99)		
Volume of Feed	1000	mL

	Needed
	grams
Fill the container with water	200

Transition Metals and Complexing agents

Compounds	Formula	Conc., PPM	M		grams
Boric Acid	H3BO3	126	2.43E-03		0.150
Calcium Nitrate	Ca(NO3)2.4H2O	102	5.13E-04		0.121
Cesium Nitrate	CsNO3	10	6.27E-05		0.012
Magnesium Nitrate	Mg(NO3)2.6H2O	25	1.14E-04		0.029
Potassium Nitrate	KNO3	8302	9.77E-02		9.880
Zinc Nitrate	Zn(NO3)2.6H2O	20	7.94E-05		0.024
Glycolic Acid	HOCH2COOH, 70 wt%	719	7.88E-03		0.856
Sodium Chloride	NaCl	6472	1.32E-01		7.702
Sodium Fluoride	NaF	181	5.14E-03		0.216
Sodium Sulfate	Na2SO4	492	4.13E-03		0.586
Potassium Molybdate	K2MoO4	88	4.39E-04		0.105
Ammonium Acetate	CH3COONH4	221	3.42E-03		0.264

In a separate container mix the following

	grams
Fill the container with water	300

Compounds	Formula	Conc., PPM	M		grams
Aluminum Trihydroxide	Al(OH)3	49574	7.56E-01		58.993
Sodium Hydroxide	NaOH	84956	2.53E+00		101.098
Sodium meta-silicate	Na2SiO3.9H2O	922	3.86E-03		1.097
Sodium Acetate	NaCH3COO.3H2O	1670	1.46E-02		1.987
Sodium Formate	HCOONa	1879	3.29E-02		2.236
Sodium Oxalate	Na2C2O4	401	3.56E-03		0.477
Sodium Phosphate	Na3PO4.12H2O	985	3.09E-03		1.173

Mix thoroughly. Then add this solution to the first solution. Then

Add	Formula	Conc., PPM	M		grams
Sodium Carbonate	Na2CO3	9567	1.07E-01		11.385

Mix thoroughly. Then

Add	Formula	Conc., PPM	M		grams
Sodium Nitrate	NaNO3	90607	1.27E+00		107.822
Sodium Nitrite	NaNO2	71911	1.24E+00		85.574

Mix thoroughly and dilute to the mark.

The final addition of water would be, needed = 298.2 grams
based upon a density of 1.25 g/mL

	Needed grams
Final Weight	1250

Figure 7. Envelope A Simulant: Supernate Only

and one for the simulant solids, Fig. 8, were obtained from the WSRC Waste Processing Technology group.

Envelope A Entrained Solids

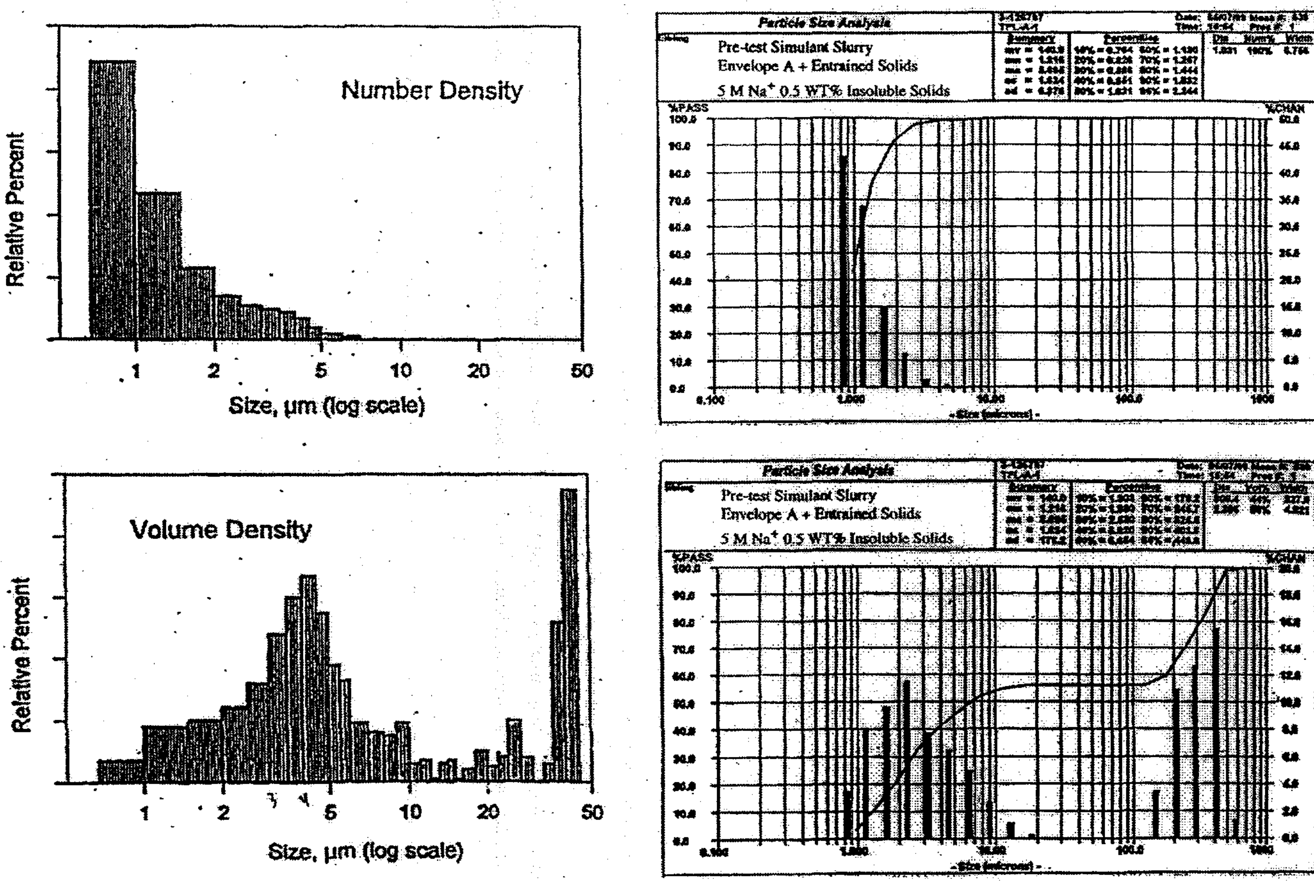
Approximate Supernate Volume	1000.0	mL
Approximate Supernate Density	1.25	g/mL
Approximate Supernate Mass	1250.0	grams
At 0.5 wt% solids loading	6.28	grams
Total Mass Supernate + Solids	1256.3	grams

Compound* Name	Compound Formula	Concentration g/100g solids	Needed grams
Alumina	Al2O3	9.20%	0.58
Calcium Oxalate	CaC2O4	5.00%	0.31
Chromium Oxide	Cr2O3	26.00%	1.63
Ferric Oxide	Fe2O3	1.10%	0.07
Manganese Oxide	MnO2	0.30%	0.02
Sodium Oxalate	Na2C2O4	52.40%	3.29
Nickel Oxide	NiO	0.50%	0.03
Silicon Oxide	SiO2	5.40%	0.34
	Total	99.90%	6.28

* All compounds should be sized between 0.5 and 5 microns

Figure 8. Envelope A Simulant: Solids Only – 0.5 wt%

Each recipe is shown on a per-liter basis. The test required a batch of 75 liters, therefore the quantities shown in both recipes were increased accordingly. (A volume of 75 liters was chosen to fill the slurry reservoir to the half-way mark, since the test rig proper held approximately 25 liters and the reservoir tank held 110 liters. The extra space was needed for foaming if it had occurred.) Along with the recipe for the solids, Fig. 8, the particle size distribution was specified: all particle should be between 0.5 and 5 microns based on the actual waste sampling, Fig. 9a. Therefore, all the solids indicated in Fig. 8 were purchased to that specification. Before adding the solids to the 75 liters of supernate the customer requested to evaluate the actual solids distribution. It was important to know if the purchased solids were of the correct size, as well as, what the distribution would be after the simulant was prepared. On 4/16/99 the 75 liters of supernate was made. On 4/19/99 a sample of 250 mL of the supernate was taken and enough solids were added to obtain 0.5 wt%. Then the sample was submitted to determine the solids distribution. The distribution was obtained by Microtrac, Fig. 9b, on 5/12/99 and sent to the customer by facsimile transmission. On the same day the approval to begin testing was obtained. Both the actual waste and the simulant show a relatively small number of particles greater than 20 microns. In fact, for the simulant the large particles (thought to be soft sodium oxalate) eventually were broken up and do not show up in later distributions. Run 2.00 (water) began the following day and the simulant was finalized.



(a) Solids Distribution in Actual Waste Sample (b) Solids Distribution in Waste Simulant

Figure 9. Insoluble Solids Distribution

Specifics about the simulant can be found in Appendix E: Analytical Data, but some general properties at 25°C were:

Slurry Density: ~1.23 g/mL at 0.5 wt% insoluble solids and 30 wt% total solids
Slurry Density: ~1.28 g/mL at 8 wt% insoluble solids and 36 wt% total solids
Slurry Viscosity: ~3 cP at 0.5 wt% insoluble solids and 30 wt% total solids
Slurry Viscosity (washed): ~2 cP at 12 wt% insoluble solids and 14 wt% total solids

Slurry Rheology	~Newtonian (at high insoluble solids loadings Bingham plastic characteristics are present, i.e., yield stress. See Figs, E2 and E3)
Supernate Density:	~1.21 g/mL at 36 wt% soluble solids
Supernate Viscosity:	~1.8 cP at 36 wt% soluble solids
Sodium [Na^+] Conc:	~5 M

Test Procedure/Matrix

Details of the test matrix and test execution can be found in the Test Procedure (16) and the accompanying Operational Instructions (17), which are also listed in the task notebook (4). However, to facilitate understanding of the test's general operation, the procedural steps are summarized below:

Daily pre-test activities –

1. Equipment is turned on to warm up if not already on.
2. The equipment was checked for functionality and after each of the four liquid-filled pressure sensing lines (see Fig. F2; Appendix F) were purged with 5 ml of distilled and filtered water, the transducers were checked at their zeroes for drift. The zeroes are recorded for 2 to 3 minutes by the DAS. Those data are included in each day's data sheets.

Daily testing activities for constant solids runs (low and high concentrations) –

3. Begin circulating the slurry in the recirculation loop until the temperature reached 25°C.
4. Turn on the reservoir cooling coil.
5. Allow the slurry to flow through the cross-flow filter.
6. Set the appropriate flow conditions as per the test procedure by iterating between valves V3 and V1.
7. When the slurry and filtrate loops establish steady flows adjust the backpulse piston pressure to at least 30 psi over the slurry pressure in the filter.
8. Set the DAS to read every minute.
9. Backpulse the filter, hold the piston down for 10 seconds, then allow the filtrate flow to return. (At times this step had to be repeated so that the flow parameters could be set correctly. Also, because the filtrate had to refill the backpulse piston plenum, the filtrate-flow return-time was a function of the filtrate flux. As mentioned in "backpulse loop" description of the *Test Rig* section, the volume of the plenum was 0.036 gallon/ft^2, therefore the recovery time at 0.5 gpm/ft^2 was approximately 0.036 / 0.53 x 60 = 4 seconds. A flux of 0.53 gpm/ft^2 was taken because that was close to the filtrate flux right after a backpulse, Fig. 10.)

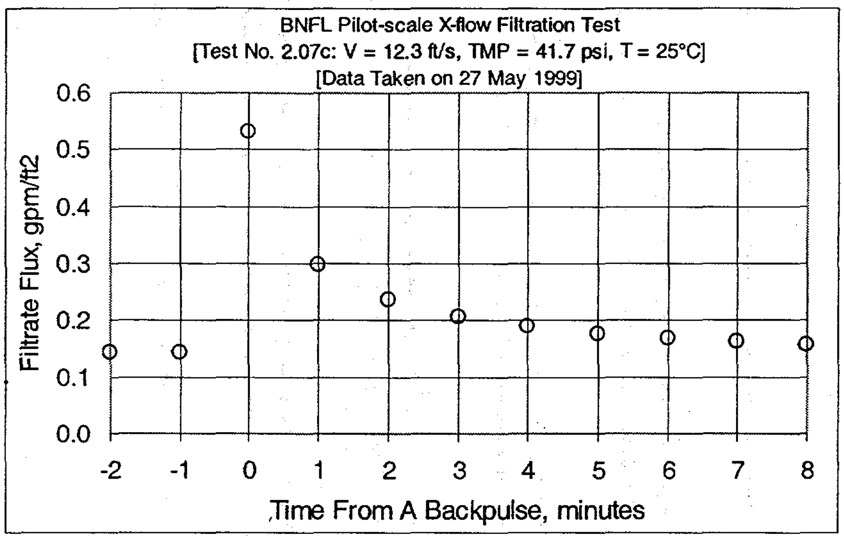


Figure 10. Filtrate flux immediately following a backpulse

10. Allow the test rig to run for approximately 2 hours.
11. Backpulse the filter once again.
12. Repeat from Step 6 for next set of flow conditions or shut down the test rig, if near the end of the work day.
13. End the test run.

Daily testing activities for wash test runs –
[Do Steps 3 to 9 from above, but just before Step 6 pour in a volume of distilled and filtered water equal to the volume of slurry in the test rig (~50 liters).]

10. Switch valve V13 to the open-loop position so that the filtrate is not returned to the slurry loop, but is collected outside the test rig.
11. Allow the test rig to run until a volume of filtrate is removed that is equal to the volume of water that was put in.(Slightly more mass is taken out than was put in because of the filtrate's higher density.)
12. Switch valve V13 to the close-loop position.
13. Backpulse the filter once again.
14. Repeat from Step 6 for each wash run until finished with all wash runs.
15. End the test run.

Daily testing activities for post-wash dewatering/plugging test run –
[Do Steps 3 to 9 from above.]

10. Switch valve V13 to the open-loop position so that the filtrate is not returned to the slurry loop, but is collected outside the test rig.
11. Continue run until either the filter or pumps do not allow further operation.
12. End the test run.

Shakedown

Before beginning test runs with water to evaluate the filter's hydraulic characteristics, the test rig (TR) was cleaned to remove any foreign contamination that may have been left inside the system from past testing or that could have been introduced when modifications were made. In March of 1999, before the new seven-tube filter unit was installed, the entire TR was cleaned with 1 wt% solution of Alconox in distilled and filtered (0.2 micron) water (referred to as DIF water). Fifty liters of this phosphate based solution was circulated in the TR for several hours at 35°C. This was followed with several DIF water rinses, until the water returned crystal clear. During the cleaning and rinsing the filter tubes were soaked in water for 4 days. With the TR clean and the filter installed, the slurry reservoir was filled with 75 liters of DIF water. Several runs were done with water to characterize the Mott filter.

A cross-flow filter (XF) is significantly different from a dead-end filter in that the main slurry flow is not forced through the filter medium. Instead, the slurry flows parallel to the filter substrate while allowing the filtrate to be removed perpendicularly, as a result of the transmembrane pressure (TMP). In this way the XF is basically self cleaning as the turbulent slurry flow tend to shear solids away from the filter wall as they try to adhere. However, because of this cross flowing stream, there is an added degree of freedom. For instance, an increase in slurry velocity may, but not necessarily, lead to an increase in filtrate flux. This is because the slurry system pressure can be made to decrease. That is, the slurry system pressure can be controlled independently from the slurry axial velocity and both of these quantities will affect the rate of filtrate flow. With this in mind, the following figures are shown to illustrate the character of the XF with DIF water, which contains no solids.

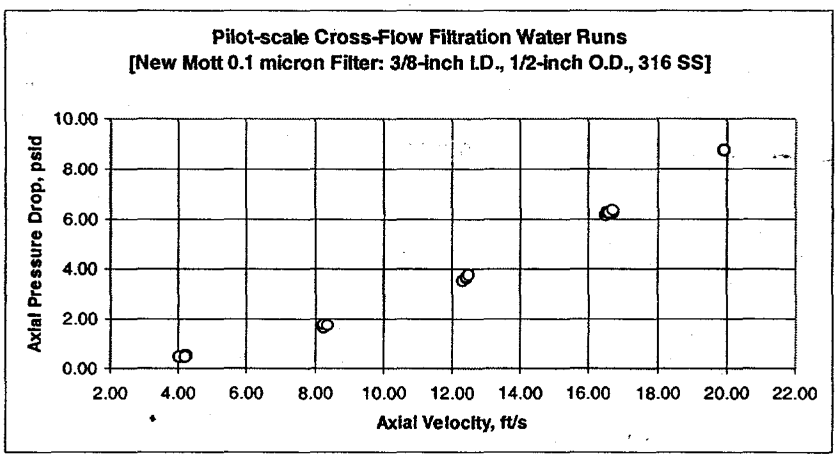


Figure 11. Axial pressure drop vs. axial velocity of water in the cross-flow filter

Figure 11 is the axial pressure drop versus the axial velocity. Those velocities came from the TR flow settings of 10, 20, 30, 40, and 50 gpm. These obtained results were expected because a pre-test calculation indicated that the pressure drop at 12.6 ft/s should be close to 4 psid, and it is. The calculation was not straight forward because to determine an accurate pressure drop involves knowing the several contributions to that drop. Figures 1 and 5 show that the pressure taps were located in a diverging/converging plenum region on either side of the filter housing. Therefore the pressure drop is not only the drop along the porous filter tube, but it also includes the effects of the tube sheet inserts, expansion and contraction into the plenums, and the diverging and converging plenums themselves (where the pressure taps are located). A rough calculation determined that the actual axial pressure drop along just the porous section of tube is between 60% and 70% of the measured drop. Another aspect of Fig. 11 is the several data points shown for each combination of pressure drop and velocity. The system pressure at the filter was increased three fold from approximately 5 to 15 psig which resulted in filtrate fluxes from approximately 0.1 gpm/ft^2 to 0.5 gpm/ft^2. The increased pressure had a insignificant effect on the axial pressure drop as can be seen from the grouping of point in Fig. 11.

The effect of system pressure on filtrate flux at a fixed axial velocity is apparent in Fig. 12. The lines on the graph are isobars, or better, lines of constant transmembrane pressure (TMP). These data were obtained by adjusting the valves on the test rig to maintain a constant axial velocity while changing the system pressure. The highest TMP measured was at 4.4 psid due to the limitation of measuring filtrate flux to a maximum of 0.53 gpm/ft^2. This limitation existed because the expected filtrate flowrate of slurry was to be between 0.02 and 0.2 gpm/ft^2. Therefore, a flowmeter was calibrated to accurately measure that target range. However, it did limit measurement with water. Near the end of the experiment another meter was installed to measure up to 2.2 gpm/ft^2, so the final water run (2.22) has higher TMPs.

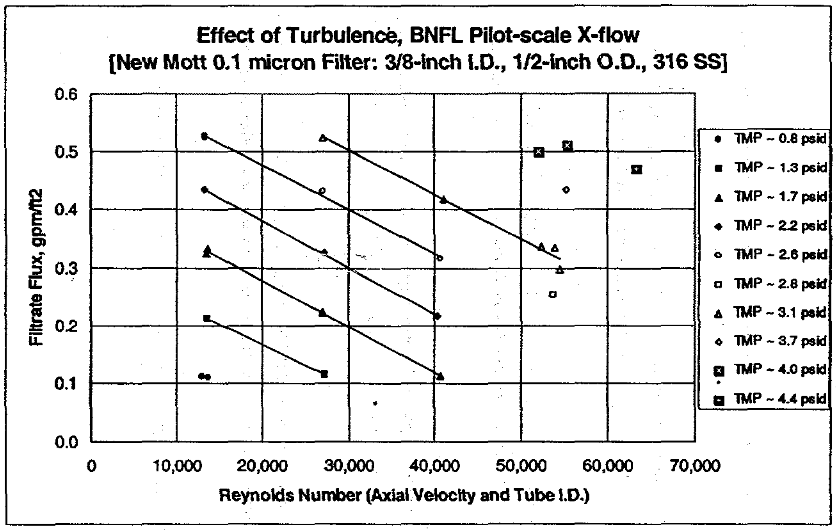


Figure 12. Filtrate flux vs. axial velocity of water in the cross-flow filter

What is interesting in Fig. 12 is that for a constant TMP, the filtrate flux decreases as the velocity increases. A cross-flow filter is really only useful when there is something to filter. Without solids only the fluid dynamics affect the flow. As can be seen in Fig. 13 the increase axial velocity leads to an increase in the Reynolds number.

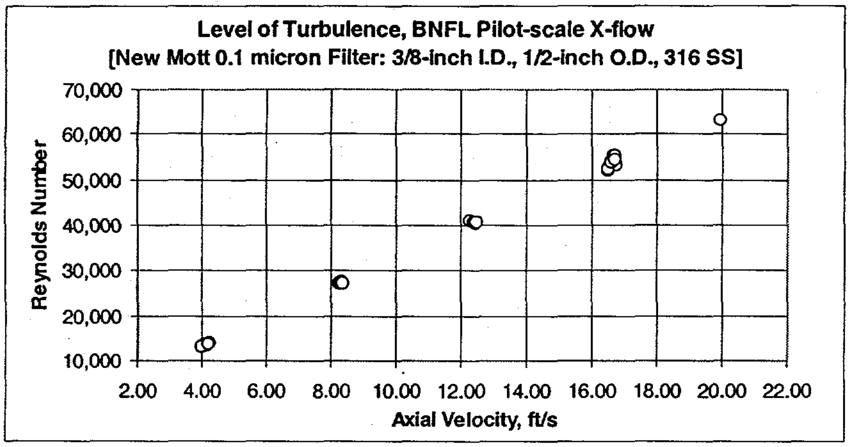


Figure 13. Reynolds vs. axial velocity of water in the cross-flow filter

This is not surprising since the Reynolds number is directly proportional to the velocity, along with the diameter of the flow stream, and inversely proportional to the kinematic viscosity. The purpose of Fig. 13 is to show the intensity of turbulence. As turbulence increases, the laminar sublayer decreases, an inertial sublayer is created and increases, and the scale of energy dissipating eddies become increasingly smaller (18). What this means is that increasing the shear environment at the tube wall forces the water to enter into the main stream more than forcing the water through the thin laminar sublayer which coats the porous-tube wall.

Finally, due to the added degree of freedom, the filtrate flux cannot be simply determined from just the axial flow velocity; the TMP must also be specified, leading to the family of curves in Fig. 12. However, an attempt was made to collapse those curves into a single curve to be more useful. Figure 14 show the results of that attempt.

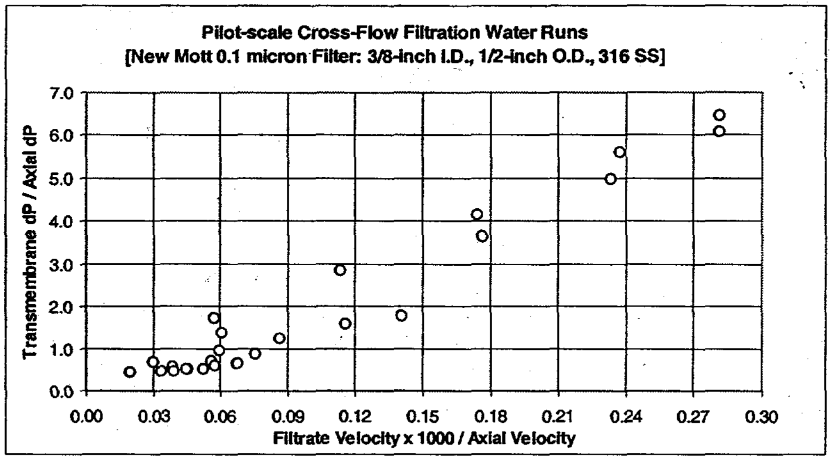


Figure 14. Normalized TMP vs. filtrate velocity in the cross-flow filter

RESULTS AND DISCUSSION

General

The different phases of the test matrix that we will discuss are: initial water baseline, low solids concentration, high solids concentration, slurry wash, plugging, cleaning, and final water baseline. After a discussion on some of the analytical and washing results, a discussion of the hydraulic results will follow the chronological order with the exception of the water and cleaning runs. Those runs will be given together in order to see any lasting effect of the slurry on the filter medium and thereby have a clear perspective of these test runs. The test matrix (3) was:

Run	Test Duration minutes	Slurry Velocity ft/s	TMP psid	Condition
2.00	120	12.2	40	Water
2.01	120	6.6	30	Low Solids Concentration
2.02	120	6.6	40	Low Solids Concentration
2.03	120	3.3	30	Low Solids Concentration
2.04	120	6.6	15	Low Solids Concentration
2.05	120	6.6	30	Low Solids Concentration
2.06	120	9.1	20	Low Solids Concentration
2.07	120	12.2	40	Low Solids Concentration
2.08	120	12.2	55	Low Solids Concentration
2.09	120	12.2	70	Low Solids Concentration
2.10	120	9.1	Best	Low Solids Concentration
2.11	120	15.2	Best	Low Solids Concentration
2.12	120	12.2	55	Low Solids Concentration
2.13	120	6.6	30	Low Solids Concentration
2.14	120	Best	Best	High Solids Concentration
2.15	N/A	12.2	40	Wash*
2.16	N/A	12.2	55	Wash*
2.17	N/A	12.2	70	Wash*
2.18	N/A	9.1	Best	Wash*
2.19	N/A	15.2	Best	Wash*
2.20	N/A	Best	Best	Plugging
2.21	N/A	N/A	N/A	Cleaning 1 M NaOH
2.22	N/A	N/A	N/A	Water

*These were to be pre-wash runs but were done as wash runs

Figure 15. Test matrix as stated in the test specification (3)

Test Run Sequence

As will be explained in the following sections, there were some deviations from the Test Matrix shown in Fig. 15. For example run, 2.10 was done three times and referred to as 2.10, 2.10b, and 2.10c. It was repeated for the Best Permeability and the Best Filtrate Flux flow conditions, since they were different. After run 2.13, run 2.07 (chosen for the its flow settings since it had the best filtrate flux results) was repeated too, i.e., 2.07b and 2.07c. At the suggestion of the task leader, and with the concurrence of the customer, 2.07b was a 7+ hour run without backpulsing to see if an asymptotic value for the filtrate flux could be reached. Run 2.07c was another all-day run but this time there were a series of different backpulsing frequencies, i.e., 30, 15, and 5 minutes. After run 2.07c the test rig had an unplanned pluggage while attempting to raise the solids concentration in the slurry for run 2.14. This plugging caused some down time to clean the test rig and make more simulant. In attempting to unplug the test rig the simulant became slightly more dilute than required for the test. Therefore, run 2.14 was done as if it already went through one washing cycle. That is, run 2.17 was left out of the matrix when doing washing runs 2.15 to 2.19 because of the more dilute starting point. However, time allowed a repeat of runs 2.14 to 2.19 with a new batch of simulant, therefore those runs were referred to as 2.14b to 2.19b. Runs 2.20b, 2.21b, 2.22b are not repeat runs but have a "b" included because they were done after run 2.19b. Finally, runs 2.21b and 2.22b are broken down further as 2.21b1 and b2 and 2.22 b1 and b2 to illustrate different aspects of the same run.

Analytical Test Results
[See Appendix E for the entire set of data sheets.]

Filter Effectiveness

First and foremost, the task objective was to determine if the nominal rated 0.1-micron Mott filter could remove all the insoluble solids from the simulant. As already mentioned in the preceding experimental section of this report, the insoluble solids were made of 7 compounds: 6 metals (Al, Ca, Cr, Fe, Mn, and Ni) with Chromium being the largest quantity by mass, and Sodium Oxalate, which was the largest single quantity by mass (Fig. 8). Based on a real-sample analysis (Fig. 9a), the particle sizes purchased for the solids ranged from 0.5 to 5 microns. Fig. 9b indicates the sizes of solids used were close to the target values. From Tbl. 1 it is apparent that the filter removed all the solids. Note, the table shows that the analytical results only indicated the solids present in the filtrate were less than values shown (see Appendix E).

Run No.	Insoluble Solids in Slurry, wt%	Insoluble Solids in Filtrate, wt%
Target (LS)	0.5	0
2.01	0.45	<0.003
2.13	0.29	<0.003
2.14b	8.2	<0.01*
2.16b	5.5	<0.01
2.20b start	5	<0.01
2.20b end	16.2**	<0.004
Target (HS)	20	0

*From run 2.15b because a measurement for 2.14b was not made
**Estimated from remaining slurry volume
LS = Low insoluble solids concentration
HS = High insoluble solids concentration

Table 1. Insoluble solids in the slurry and the filtrate throughout the test

The filter was very effective in removing all the insoluble solids. Furthermore, the basic sizes of the solid particles did not change during the course of the experiment. Particles smaller than 0.1 micron could have compromised the filter. Figure 16 shows that the particle diameter (by a volume distribution analysis) started at approximately 2.5 microns and remained that size. The standard deviations were on the same order of magnitude as the particle diameters. This was expected since the purchased solids were requested to be between 0.5 and 5 microns. However, the largest number of particles was closer to 1 micron. When analyzing the particles by a number distribution, Fig. 17, the mean particle size is very close to 1 micron with one standard deviation being 0.4 micron. As seen in Figs. 16 and 17, one measurement from each had a bimodal distribution. These bimodal distributions could have been caused by the clumping of particles while samples awaited analysis, or by agglomerated solids that were not fully broken down when the samples were mixed before measurements were taken. In general, the particle sizes did conform to the required sizes and the particle sizes remained basically intact throughout the experiment. See Appendix E for details on the particle size analyses.

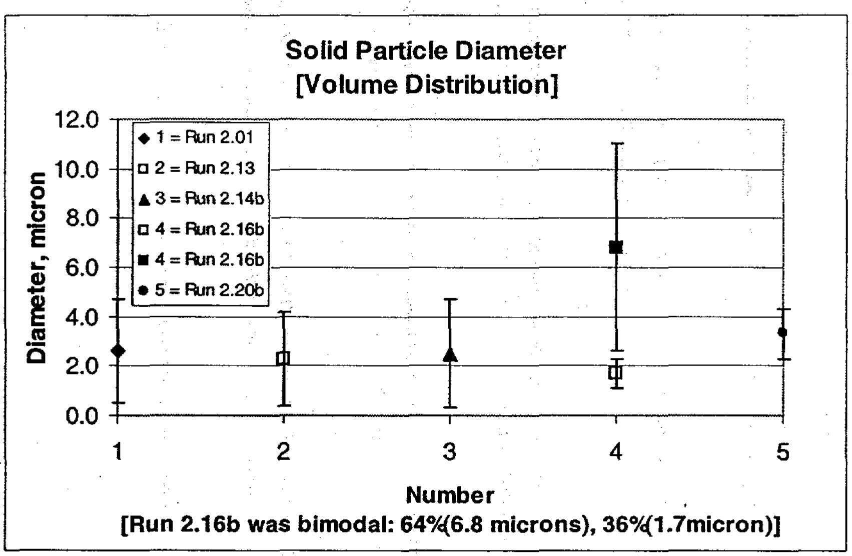


Figure 16. Particle size based on a volume distribution

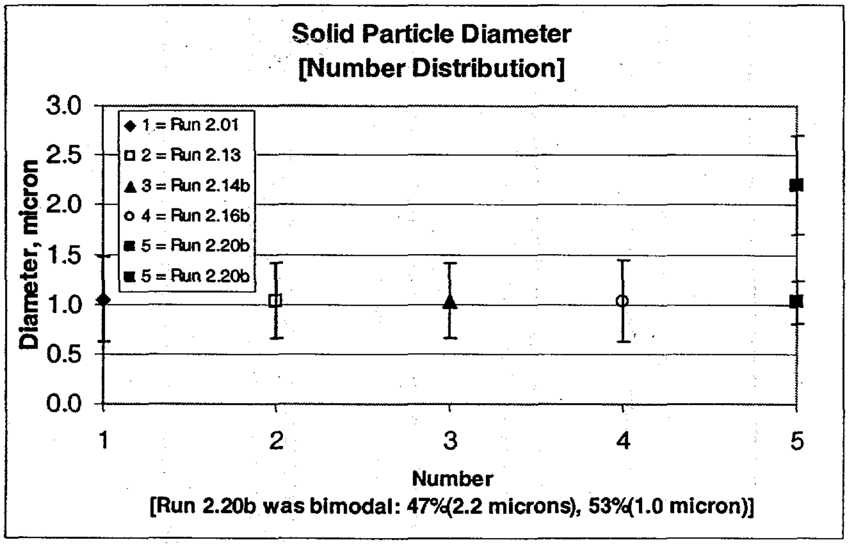


Figure 17. Particle size based on a number distribution

Washed Slurry

As already mentioned, there were two sets of washing runs: 2.15 to 2.19 and 2.15b to 2.19b. During the first set, run 2.17 was not done because during the concentrating run 2.14 the test rig plugged and in the process of unplugging the rig the slurry was diluted. The slurry for run 2.14 received enough water that it made the slurry equivalent to an initial wash run. Therefore, to keep the number of wash runs the same, run 2.17 was omitted. Further, because of the dilution it was thought best to make another batch of slurry to redo 2.14, which became 2.14b, which thereby allowed the wash runs to be repeated. While there are some differences between the two set of test runs, the data are similar and only those for test runs 2.15b to 2.19b are discussed here (see Appendix E for all the data).

* Sodium *

One of the major reasons for washing is to reduce sodium content. Figure 18 shows the Na^+ reduction.

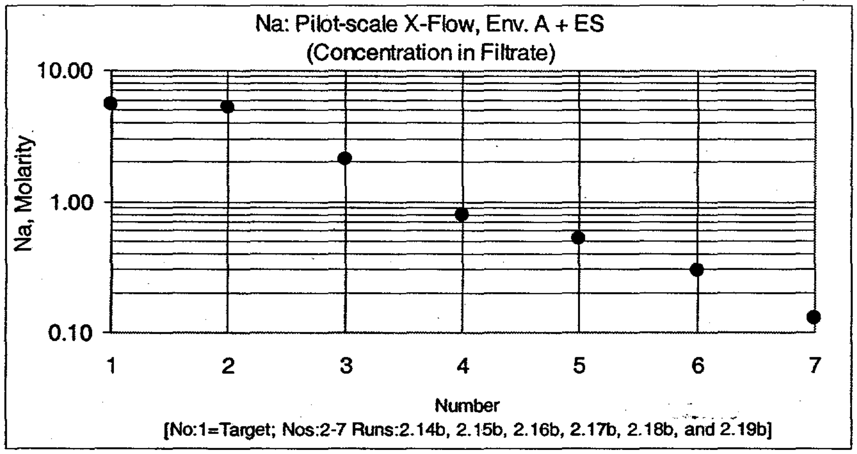


Figure 18. Reduction of sodium with successive washings

Point number 1 was the target sodium concentration of 5.5 M. Point number 2 shows the actual sodium concentration for run 2.14b was 5.2 M. Numbers 3 to 7 show the sodium level after each batch of 50 liters of water was added to the slurry reservoir that held approximately 50 liters of slurry. The line of points in Fig. 18 from number 2 to 7 is fairly straight on the semi-log scale, which was not unexpected. Figs. 19 and 20 show how the filtrate density and viscosity changed as the sodium level decreased from approximately 5 M to 0.1 M.

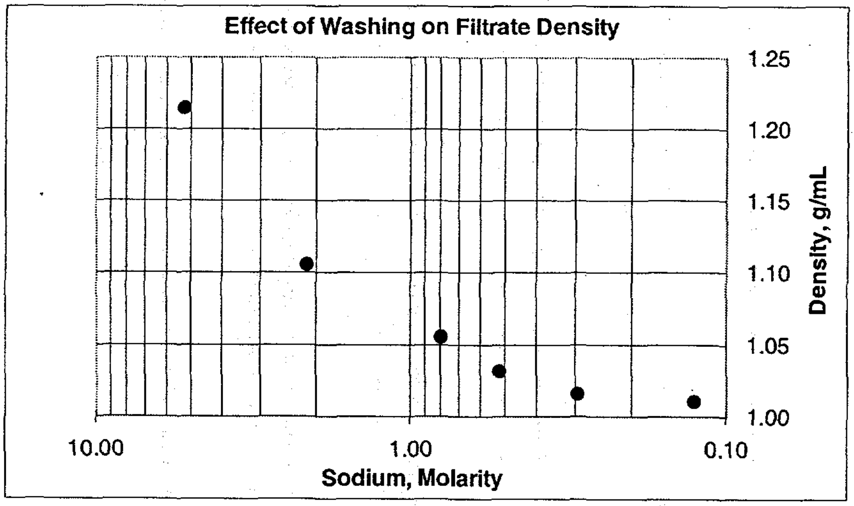


Figure 19. Filtrate density vs. sodium during washing

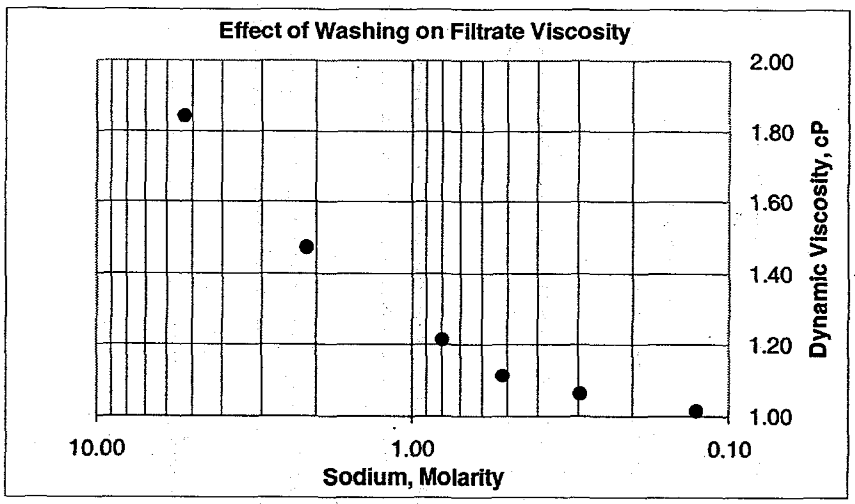


Figure 20. Filtrate viscosity vs. sodium during washing

* Oxalate *
A chemical that may have had an impact on the changes in solids loading was the chemical compound of oxalate. As seen in Fig. 8, approximately 50% of the "insoluble" solids that were added to the slurry was comprised of sodium oxalate. Of all the solids this one was expected to give the largest problem because of it being more readily dissolved in the simulant than any of the others. However, the simulant was designed such that the oxalates added as insoluble solids should have stayed undissolved. The liquid portion of the simulant, the supernate, was to be saturated with sodium oxalate before adding the solids.

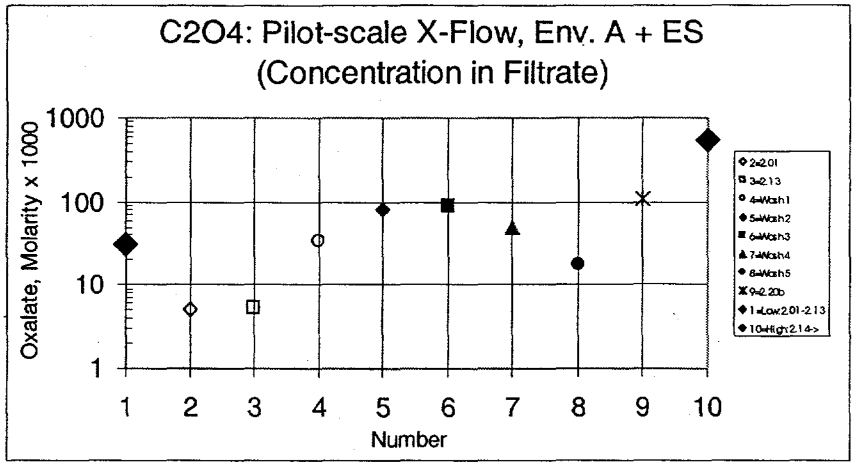


Figure 21. Oxalate changes in the filtrate during the test
[Note: Except for nos. 1 and 10 all oxalate values are from the filtrate]

Figure 21 implies that most of the oxalates in solid form remained that way. The oxalate concentration in the filtrate, nos 2 and 3, for the low concentration runs of 2.01 and 2.13, was approximately 0.005 M. Number 1 is the value of the oxalate concentration from all its sources in the slurry, 0.03 M, and of this amount 0.004 was already included in the supernate. This indicates that after the solids were introduced, the liquid picked up about another 10 % in oxalates, i.e., 0.001 M + 0.004 M = 0.005 M. It is assumed that the supernate was fully saturated with oxalate at 0.005 M. The value of number 10, i.e., 0.55 M, is the amount of oxalates in the slurry for all test runs starting with run 2.14. The oxalate values for numbers 4 through 9 are from the filtrate samples that came from the slurry with this higher oxalate concentration. However, the supernate of the slurry before washing should have still been saturated at the 0.005-M level. Therefore, the oxalate concentration could only increase as the saturation level increased during the wash runs. Looking at the results from all the wash runs 2.15b to 2.19b (numbers 4 to 8) the oxalate in the supernate does increase as more and more water is added but it showed a maximum of 0.089 M on the third wash. Afterwards, the concentration decreased on the fourth and fifth wash runs. Note that all 5 wash runs were done in succession, and all on the same day. The time frame was short between water additions and the oxalate values, i.e., 4 to 8, may not be from a mixture at equilibrium. The oxalate value in the filtrate at the beginning of run 2.20b is 0.11 M, shown as No. 9 in Fig. 21. This filtrate sample was taken from the same dilute slurry that gave the result for run 2.19b, no. 8. The only difference is that run 2.19b was finished at 8 p.m. on one night and the sample for the beginning of run 2.20b was taken at 11 a.m. on the following day. That is, the slurry sat for 15 hours. This may indicate that the slurry was not at equilibrium on the preceding day, but then it was allowed to reach its full saturation level, which may be 0.11 M of oxalate. In any case, this still left 0.55 M - 0.11 M = 0.44 M of oxalate in the slurry which probably stayed in the solid forms of sodium oxalate and calcium oxalate.

Therefore, there seems to be some loss of the sodium oxalate solids into the supernate but not all. Figure 8 shows that sodium oxalate comprised approximate 50% of the mass of the solids. The data indicate that only 10 to 30% of the oxalate solids was incorporated into the supernate.

For further information on the concentration of the many species in the simulant slurry, see Appendix E. All the analytical data taken and graphical results for many of the chemical concentrations can be found behind Table E1 in that appendix.

Hydraulic Test Results

Water Test Runs 2.00 and 2.22b and the Cleaning Run 2.21b
[See Appendix A for the entire set of data sheets.]

Permission to start the test was received on 5/12/99 and testing began on 5/14/99 with the first required test: water. As explained in the shakedown section, the filtrate flowmeter could only measure a maximum of 0.53 gpm/ft^2. As can be seen from Fig. 22, for run 2.00, at 0.43 gpm/ft^2, the TMP was only 3 psid and therefore the 40 psid requested by the test specification was not possible. The intention was to repeat the final water run, 2.22, with the same TMP so a comparison could be made. Figure 22 shows the results.

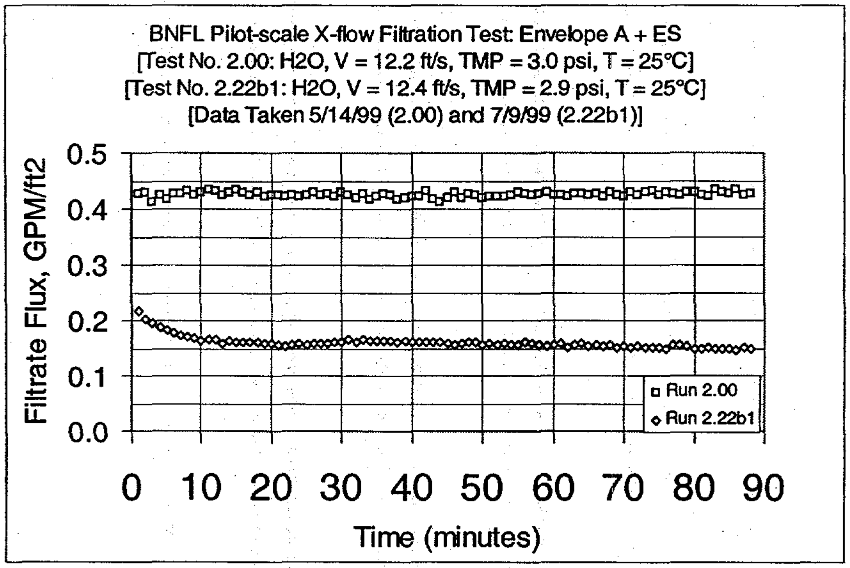


Figure 22. Water runs before and after the Env. A test

It is clear from the figure that the more than 60 hours of filter operation with slurry took its toll. The new-filter filtrate flux of approximately 0.43 gpm/ft^2 was reduced to 0.16 gpm/ft^2. However, there are at least two reasons, which mitigate this significant difference: 1. new filter and 2. low TMP.

1. New filter – Since this test started with a brand new filter it is not surprising the filter would have a reduced filtrate flux after many hours of slurry filtration. The filter was cleaned for more than 36 hours, as per the test specification, with a 1 M NaOH solution. Figure 23 shows results of two portions of the cleaning run. Since the flow parameters were changed several times during the run only two were chosen for this figure. The different run numbers, 2.21b1 and 2.21b2 only indicate that different TMPs were used. The slope of those curves in Fig. 23 decrease very slowly with time indicating that while the filter may be clean some residue remains. There was enough time to clean the filter twice, so another 20 hours of cleaning was done. The data in Figure 23 were taken during the second cleaning cycle. It appears that further cleaning would not return the filter to its original state.

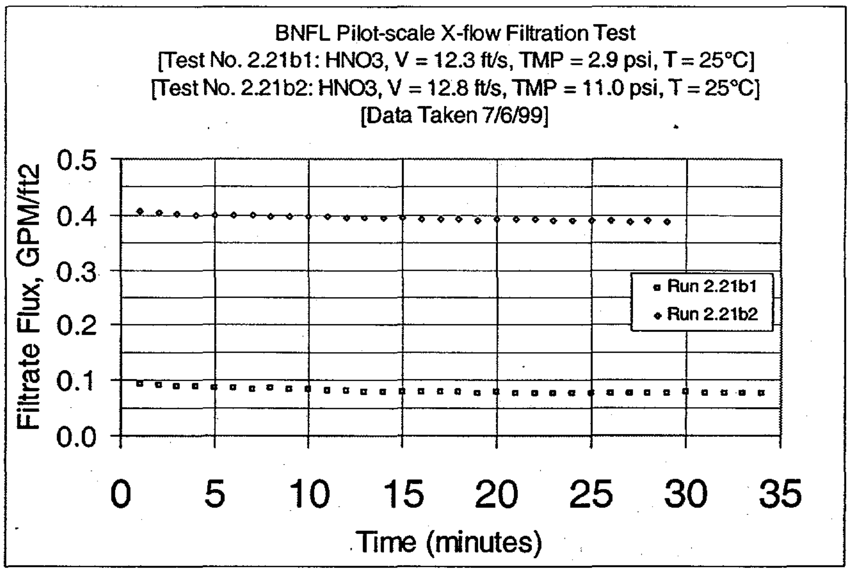


Figure 23. Cleaning run

2. Low TMP – A TMP of 3 psid was not easy to maintain for run 2.22b. Backpulsing was not effective because the filtrate flowrate would not return after a backpulse. To obtain data the TMP had to be increased until the filtrate flow was established, then the TMP could be reduced to 3 psid. (This was not the case for the new filter.) The difficulty to reestablish flow clearly indicated that the filter was not returned to the same level of cleanliness as when it was new. This dynamic stability could only be maintained as long as a backpulse was not done at this low TMP. Some of the smallest solid particles from the slurry must have lodged within the filtrate wall makings its removal more difficult. However, the intention is to operate the filter with a TMP of more than 10 times this low-pressure difference, therefore this effect at the higher operational TMP will be insignificant.

On 7/13/99 another filtrate flowmeter, Q3, with a larger flow range, was installed on the test rig, in series with the original flowmeter, Q2, see Fig. 1. This allowed higher filtrate fluxes to be measured in run 2.22b. Figure 24 show those results.

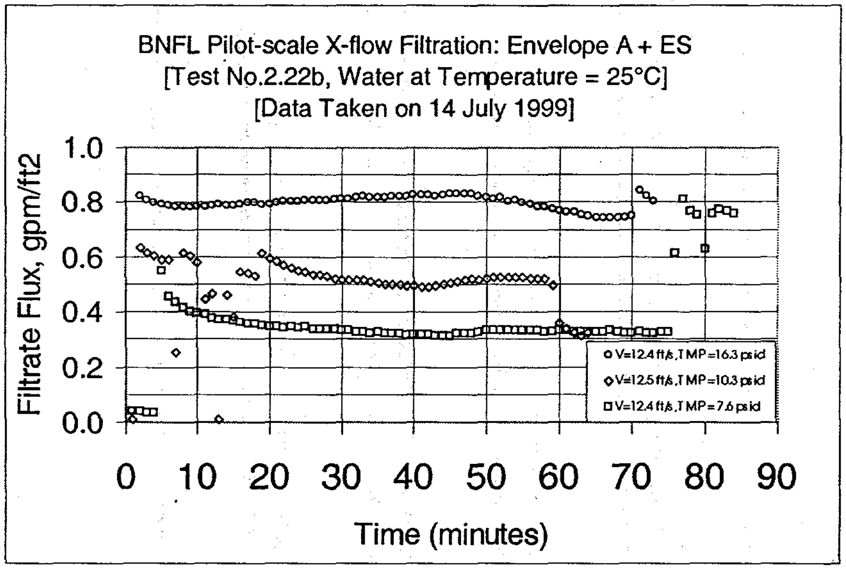


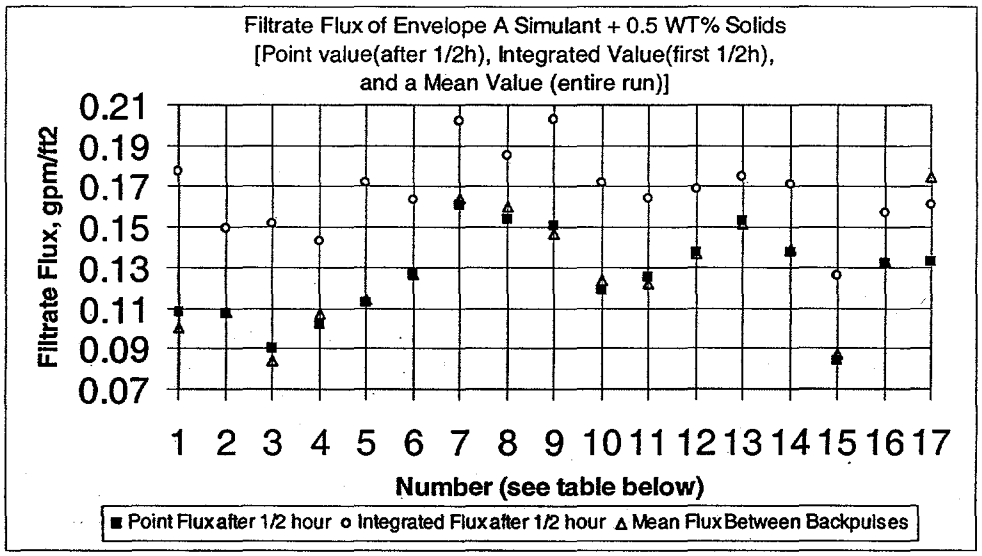
Figure 24. Water run at higher TMP using flowmeter Q3

<u>Low Solids Concentration Test Runs 2.01 to 2.13</u>
[See Appendix B for the entire set of data sheets.]

Included in this series of test runs are 13 planned runs and 4 unplanned runs (2.07b, 2.07c, 2.10b, and 2.10c). By far, this series of runs comprised the largest amount of data taken.

* Overall comparison *
Figure 25 is an attempt to compare all the low solids concentration test runs together. Unfortunately, a direct comparison among all the runs is not straight forward because run times differed for many reasons. Therefore several methods of comparison were chosen. Figure 25 show three different filtrate flux values: The mean value over the entire time of the test between backpulses, the value at ½ hour after a backpulse, and an integrated value for the first ½ hour of filtering. (Note that the numbers on the abscissa of the graph correspond to the numbers in the table below the graph.)

In general, it appears the integrated value is always larger than the mean or point value. This makes sense because the integrated value is only for the first ½ hour, which includes the high filtrate flux just after a backpulse. (The period of ½ hour was chosen because there are only approximately 22 minutes of data for run 2.03 and the largest interval between backpulses for run 2.07c is ½ hour.) Now, the mean value also includes the data near the backpulse, but the mean is taken over the entire time of the test run which reduces the weighing of those points. (Run 2.07b is the exception because it lasted 7.5 hours. For that run, the mean value was obtained for the first 2 hours after the backpulse so that it could be compared to the other runs.) Coincidentally, the point value of ½ hour is generally equal to the mean value, based on approximately 2 hours of data. While this is an interesting fact, and maybe useful to know, it is only a coincidence. Some other exceptions are: For number 3 (run 2.03) because of having only 22 minutes of run time an extrapolation of the data to 30 minutes was done to obtain the ½-hour value and the integrated value at ½ hour of the filtrate fluxes. Number 17 (run 2.07c) had backpulsing every 30 minutes (for 3 hours), 15 minutes (for 2 hours), and 5 minutes (for 1.5 hours), therefore there is no one-hour value. Therefore, the mean filtrate flux is based on the first 30 minutes, which give a high values and is closer to the integrated value than the point value at ½ hour.



No	Run	Time Between Backpulses minutes	Mean Slurry Velocity ft/s	Mean TMP psid	Mean* Filtrate Flux gpm/ft2	After 1/2-hr Filtrate Flux gpm/ft2	Integrated Values Filtrate Flux(1/2hr) gpm/ft2
1	2.01	119	6.5	32.7	0.100	0.108	0.177
2	2.02	120	6.3	44.2	0.108	0.107	0.149
3	2.03**	22	3.4	33.5	0.084	0.090	0.152
4	2.04	93	6.6	16.4	0.107	0.102	0.143
5	2.05	91	6.3	31.7	0.114	0.113	0.172
6	2.06	129	9.1	20.9	0.127	0.127	0.163
7	2.07	100	12.3	41.6	0.164	0.161	0.202
8	2.08	83	12.2	56.9	0.160	0.154	0.185
9	2.09	165	12.3	70	0.147	0.151	0.203
10	2.10	114	8.8	71.5	0.124	0.119	0.172
11	2.10b	144	12.4	23.5	0.122	0.125	0.164
12	2.10c	134	12	42.3	0.137	0.138	0.169
13	2.11	106	15.2	39.9	0.152	0.153	0.175
14	2.12	132	12	55.6	0.139	0.138	0.171
15	2.13	124	6.5	30	0.087	0.084	0.126
16	2.07b	446	12.3	41.5	0.133	0.132	0.157
17	2.07c***	30/15/5	12.3	41.7	0.175	0.133	0.161

*Mean Flux is based on time between backpulses, except 2.07b. (For 2.07b the data were averaged over 120 minutes to compare with the other test runs. The value for the 446 minutes is 0.117 gpm/ft2.)

**The filtrate fluxes are extrapolated values from the 22 minutes.

***For 2.07c: the Mean, 1/2-hour, and Integrated fluxes were all based on the first backpulse interval of 30-minutes.

Figure 25. Composite of all 17 low solids concentration test runs

From Fig. 25 it would appear that the flow conditions of either number 7 (run 2.07), 9 (run 2.09), or 13 (run 2.11) could produce the best filtrate flux. Of interest is that for runs 2.07 and 2.09 the axial slurry velocity is the same, 12 ft/s, but the TMP differs by 30 psid. It would appear that the added TMP is not very effective in increasing filtrate flow. Run 2.11 has the same TMP as run 2.07 but the slurry velocity is higher by 3 ft/s. When comparing 2.07 with 2.11 it would not appear that the added velocity helps. However, what needs to be considered is the fact that with time the filter flow is affected by how the filter becomes dirty and by the size of the solids particles. A look at Fig. 26 shows the reduction of filtrate flux for similar slurry velocity and TMP conditions.

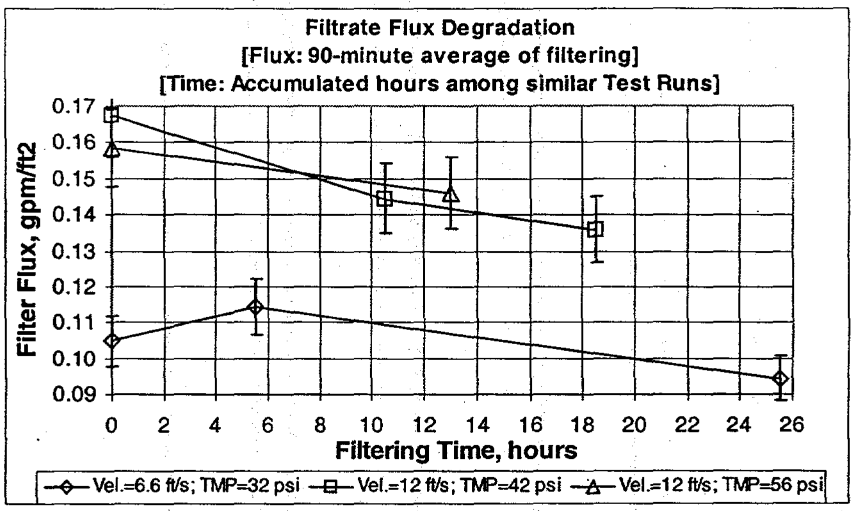


Figure 26. Effect of time on filtrate flow
[Filtrate Flux = 90-minute average of filtering]
[Filtering Time = accumulated filtering hours among Runs with the same flow conditions]

The error bars included in Fig. 26 are from the calculated measurement uncertainty of 6.72% for filtrate flux that can be found in Appendix F. Note that time shown is based on the number of accumulated filtering hours among tests with the same flow conditions, and not the number of hours of the entire test program. For example, the zero time for the three tests that had the flow conditions: slurry velocity = 6.6 ft/s, TMP = 32 psid, is the time that the first of those three tests began, etc. As stated, this filtrate flux reduction is due to the slurry becoming more difficult to filter (smaller particles) or the filter becoming filled with solids that do not dislodge with a backpulse. While the former effect did exist, it was insignificant. From the analytical measurements in Appendix E the measurement of the particle sizes can be found before and after the low solids concentration runs. Those results are repeated here:

Test Run	Insoluble Solids Loading	Avg Particle Diam. (by Volume)	Avg. Particle Diam.(by Number)
2.01	0.5 wt%	2.59 microns	1.031 microns
2.13	0.3 wt%	2.32 microns	1.027 microns

A portion of the "insoluble" particles seems to have been lost or dissolved into the slurry liquid since a measurement of the solids loading indicate a decrease of 40%. Because of the small quantities of insoluble solids the measurement uncertainty may make this difference insignificant. However, there did seem to be a 10% decrease in particle size (by Volume). If particle reduction occurred, some of that reduced mass could have been lodged within the walls of the porous filters. Still, this possible depth fouling was small compared to the surface fouling since a backpulse would increase the flux by about four fold (for example, see the right hand side of Fig. 29 after the final backpulse was made).

Even with filtrate flux degradation occurring, comparisons can be made among the many test runs to determine an appropriate set of flow conditions to operate the cross-flow filter. During the first 16 runs only the TMP and the Axial slurry velocity were changed. (For number 17, run 2.07c, the backpulse frequency was varied.) Therefore, a closer look at that those changes should elicit the information necessary.

* Filtrate Flux as a function of TMP *
Figures 27a, b, c, and d show a composite of four graphs; each for a constant axial slurry velocity. Figure 27a is for slurry velocity of 6.5 ft/s and a TMP from 16 to 44 psid.

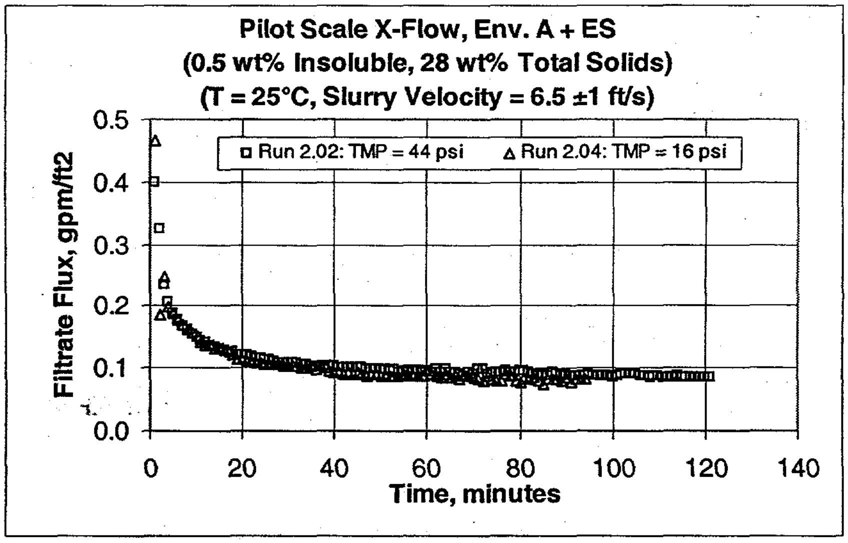


Figure 27a. Effect of TMP at a slurry velocity of 6.5 ft/s

For all intents and purposes both data curves in Fig. 27a are the same. This indicates that the filtrate flux is at best a weak function of TMP. In fact, that pattern repeats itself in Fig. 27b. In Fig. 27b the two curves are practically on top of each other; it appears that the large TMP increase from 20 psid to 70 psid is just wasted energy.

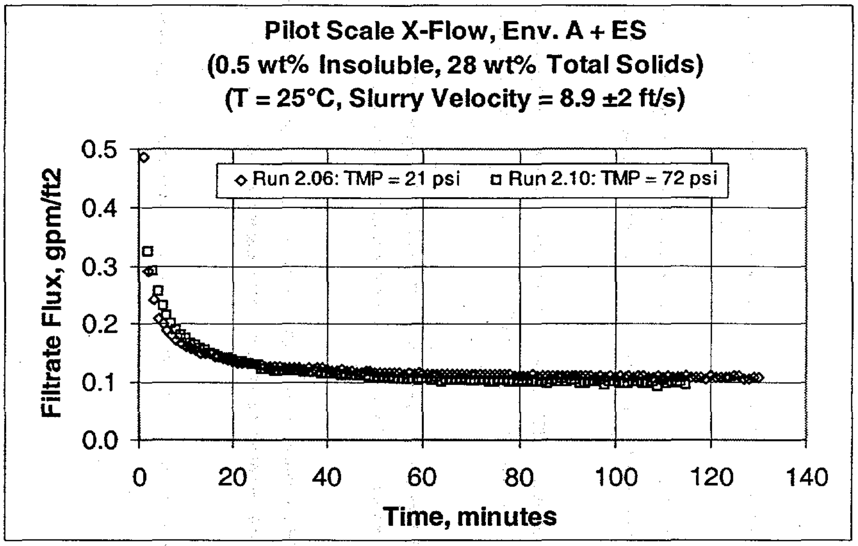


Figure 27b. Effect of TMP at a slurry velocity of 9 ft/s

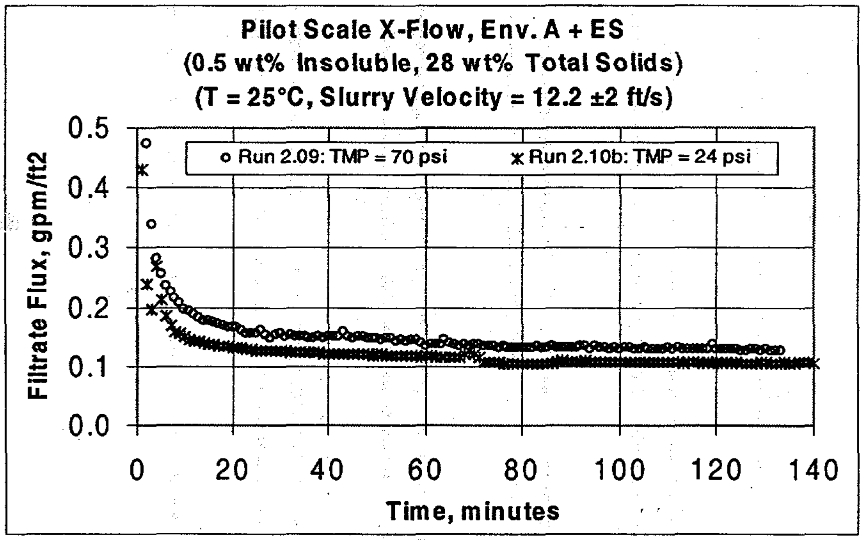


Figure 27c. Effect of TMP at a slurry velocity of 12 ft/s

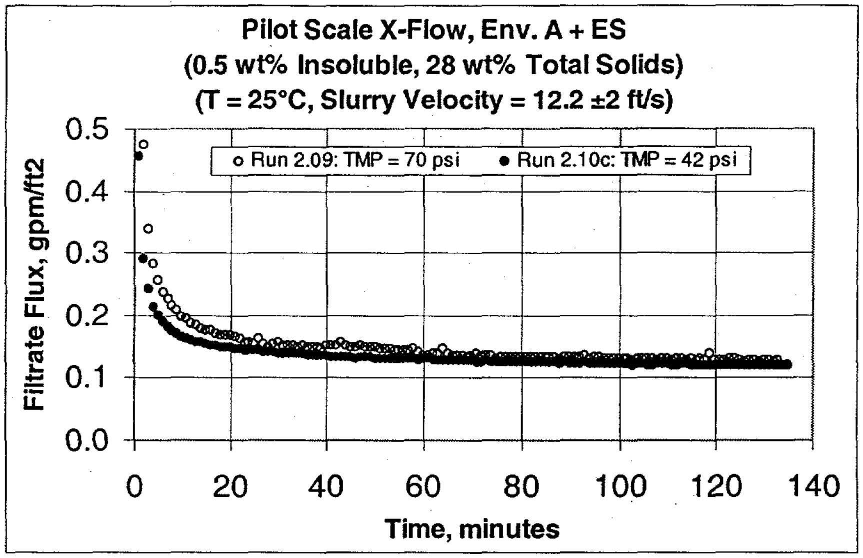


Figure 27d. Effect of TMP at a slurry velocity of 12 ft/s

From Fig. 27c, the higher TMP does seem to play a role when the slurry velocity increases. At a slurry velocity of 12 ft/s there is an approximate 20% increase in filtrate flux when the TMP is increased from 24 psid to 70 psid. Since the measurement uncertainty of the filtrate flux is ±7% this increase is significant. However, a TMP increase to 70 psid may not be necessary. Figure 27d shows that by increasing the pressure from 24 psid to 42 psid, the filtrate flux is within 7% of the 70-psid curve, which is a statistically insignificant difference.

* Filtrate Flux as a function of Axial Slurry Velocity *
Figures 28a, b, and c show a composite of three graphs; each for a constant TMP. Figure 28a is for a constant TMP of 20 psid. At that pressure only two runs were done at slurry velocities of 9 and 12 ft/s. The two curves are almost exactly the same, which could mean that velocity has no effect on filtrate flux but since the TMP is very low and the velocities are close, more data are needed. Figure 28b doubles the TMP to 42 psid. Here there is a significant difference between the curve for a slurry velocity of 6 ft/s and 15 ft/s.

Specifically, the filtrate flux is approximately 60% higher at 15 ft/s than at 6 ft/s. Moreover, it must be noted that there was approximately 20 hours of filtering between these two runs, 2.02 and 2.11, see Fig. 15. During that time period Fig. 26 indicates that under similar conditions the filtrate flux decreased by about 20%. Therefore, the top curve (run 2.11) in Fig. 28b could have been 20% higher if data were taken at the same time as the bottom curve (run 2.02). This means the filtrate flux could have conceivably been 80% higher at 15 ft/s than at 6 ft/s! Even between the top two curves (runs 2.10c and 2.11) there is a 12% increase in the filtrate flux. These two runs were done consecutively on the same day so there should have been no effect of time. However, this 12% difference is just barely significant.

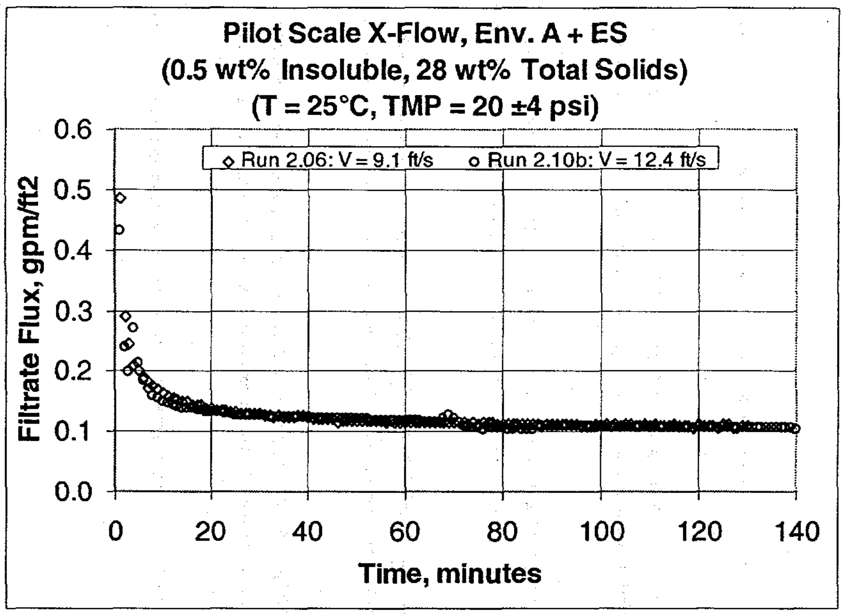


Figure 28a. Effect of axial slurry velocity at a TMP of 20 psid

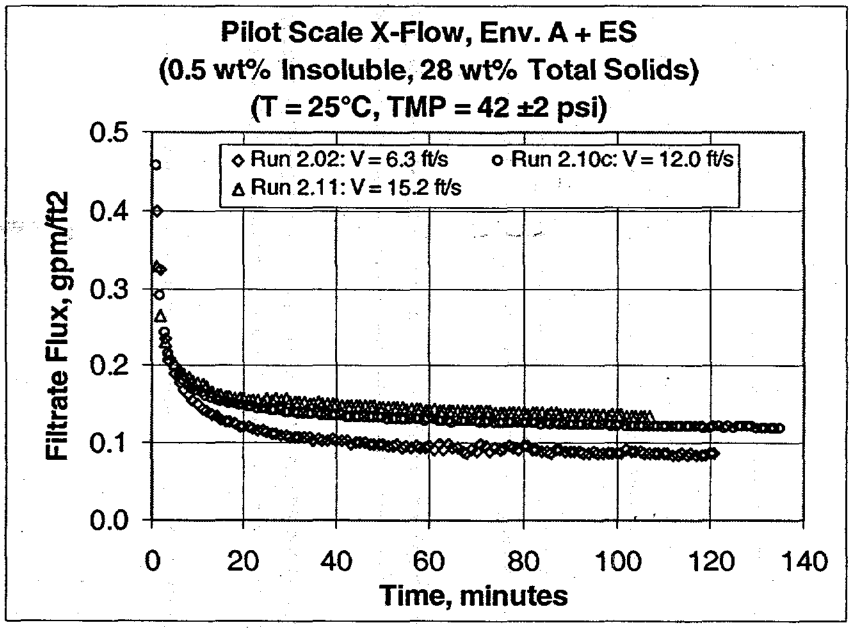


Figure 28b. Effect of axial slurry velocity at a TMP of 42 psid

Fig. 28c clearly shows a significant improvement in the filtrate flux (30%) when the slurry velocity of 9 ft/s is increased to 12 ft/s at a constant TMP of 71 psid. Once again, these two runs (2.09 and 2.10) were done consecutively so the slurry filter and slurry characteristics should have been the same. Except for the lowest TMP, 20 psid, the relationship between filtrate flux and axial slurry velocity appears to be linear. That is, for a 10% increase in velocity there is approximately a corresponding 10% increase in filtrate flux.

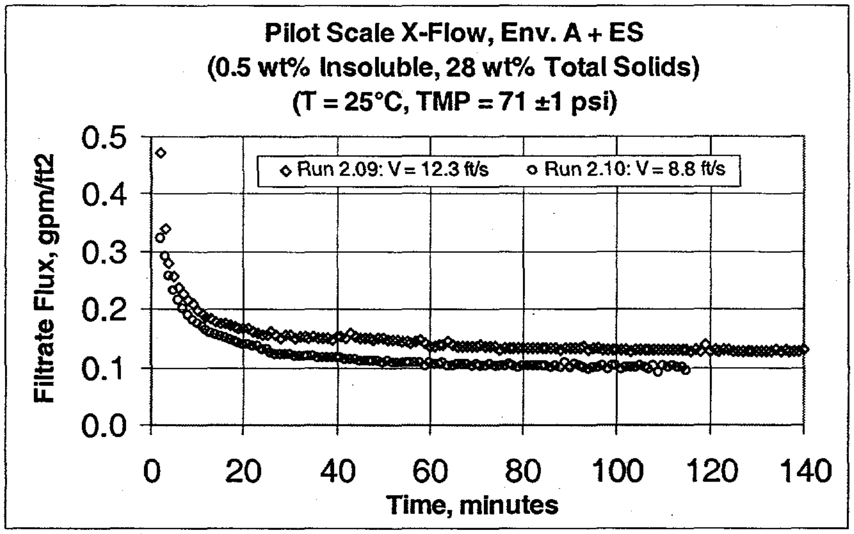


Figure 28c. Effect of axial slurry velocity at a TMP of 71 psid

Finally, backpulsing clearly improved throughput of filtrate but that improvement must be balanced against the downtime caused by the increased frequency of cleaning. That is, excessive backpulsing can be detrimental to long-term performance, depending on the type filter used. For this task, the filter manufacturer recommends that the backpulse frequency be no greater than once an hour; the longer the time between backpulses the better. Even though the filter elements used had a thick wall (0.0625 inch as opposed to a thin membrane filter), it is made to function as a surface, and not a depth, filter. The solids to be removed from the slurry are to remain on the surface of the filter and not lodged within the filter wall. As the filter cake builds, it itself becomes a filter removing smaller particles than the fixed filter on which it lies. When a backpulse occurs, most, or all of the filter cake is knocked off the fixed filter surface, which allows a higher filtrate flux, but also exposes the filter substrate to smaller solid particles. Over time these smaller particles will cause depth fouling and a reduced performance that cannot be improved though backpulsing. Fortunately, the long-term performance, without backpulsing, still gave an adequate filtrate flux. Figure 29 show the results of a test done over more than seven hours between backpulses. At the end of the test, the filtrate flux was still above 0.10 gpm/ft^2 and by the asymptotic behavior, the flux appears fairly constant after 7 hours and possibly could have been maintained for many more hours without a backpulse. (Note, the sudden drop at the end of the run was caused by taking a filtrate sample which involves opening the filtrate flow system, thus causing a reduction in system pressure.) The mean filtrate flux over the 446 minutes of the test was 0.118 gpm/ft^2 (see Fig. B16 and the accompanying data in Appendix B).

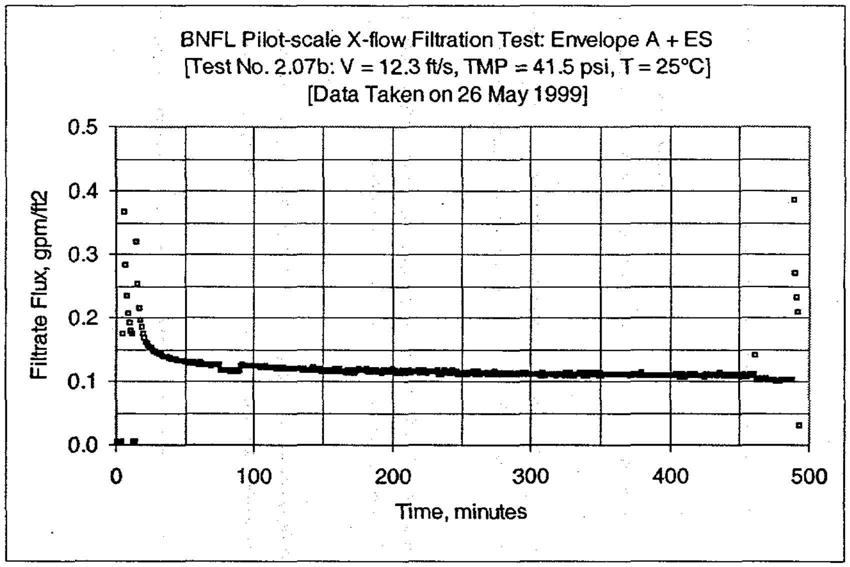


Figure 29. Long term filter operation between backpulses

Even though there are reasons to minimize backpulsing, there was interest in knowing how increasing the backpulse frequency increases the filtrate flux. Figure 30 compares the results from 3 runs that had similar flow conditions (see Fig. 25 for the conditions and actual times): 2.07b (with ~ 7.5 hours between backpulses), 2.10c (with ~ 2 hours between backpulses), and 2.07c (with 30, 15, and 5 minutes between backpulses; see Figs B17a and B17b in Appendix B); the increase is significant. That is, by increasing the backpulse frequency by a factor of 90, [(7.5 hrs / (5 min/60) = 90], the filtrate flux increased, but only 2 fold, [from 0.12 to 0.25 gpm/ft^2]. Many studies (19, 20, 21, 22) clearly show the advantage of increasing the backpulse frequency, even to frequencies of 10 to 20 Hz. However, filters that work well at those frequencies are very thin membranes where depth fouling is generally not a factor, i.e., a particle that manages to enter a filter pore just goes right through because of the thin membrane. For the robust sintered-metal filter, used in this task, depth fouling cannot be ruled out. Therefore, it must be reiterated that an increase in filtrate flux may come at the expense of an increased rate of depth fouling. Figure 26 implies that for runs with approximately a 2-hour backpulse frequency, the filtrate flux is reduced by 10 to 15% over a 24-hour period of continuous filtering. Time did not allow evaluation of the long-term consequences on filtrate flux for other backpulse frequencies, but it seems logical that the steady-state flux would decrease faster as the frequency increased. Since high frequency backpulsing means the fixed filter surface remains freer of a filter cake, the smallest solids particles in the slurry would have more time to challenge the filter wall.

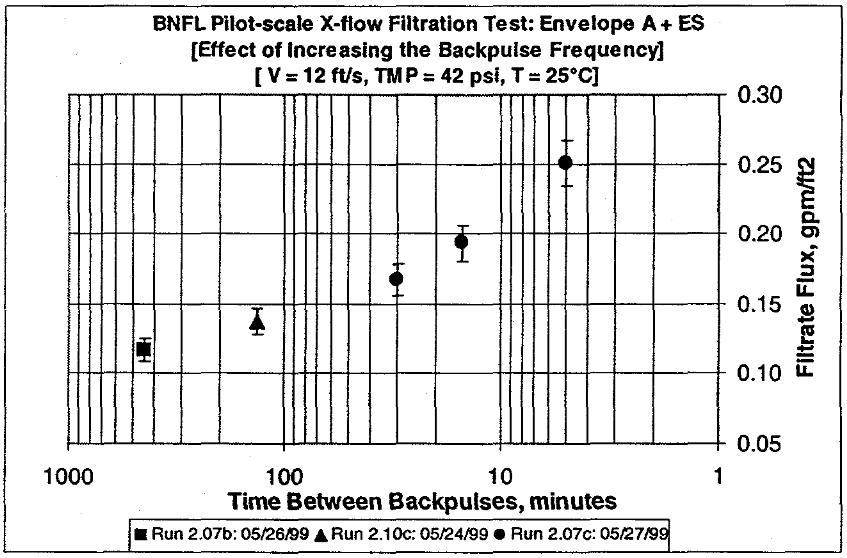


Figure 30. Filter operation with an increasing backpulse frequency

High Solids Concentration Test Runs 2.14, 2.14a (Pre-wash)
[See Appendix C for the entire set of data sheets.]

Two test runs were done before washing occurred. Originally, there was to be only one run, 2.14, before washing, but in concentrating the slurry the test rig became plugged. In an attempt to free the plug from the test rig the slurry became diluted with water. Subsequently, the washing runs, 2.15 to 2.19 were done, with 2.14 assumed to be the first wash run because of the added water. However, time allowed the mixing of another batch of similant, thus a new set of runs was done starting with 2.14b. While there were two pre-wash runs, the solids loading was never brought above the required 20 wt% because of plugging concerns. Furthermore, instead of straight dewatering, the slurry was concentrated by adding solids directly to the slurry after a fixed amount of filtrate was removed. This method was used to allow for a much smaller starting volume of slurry. Theoretically, this method was possible because the two quantities, i.e., supernate and insoluble solids, were thought not to interact with each other except for physical space. Unfortunately, after removing 37 liters of filtrate from the 75 liters of slurry, problems occurred on adding the solids to the supernate. When the insoluble solids loading was between 10 wt% and 15 wt% the test rig became plugged. In an attempt to prevent a long shut down and free up the test rig immediately, the 37 liters of filtrate was returned to the slurry. The added filtrate did not relieve the plug so three separate additions of DIF water were added, for a total of 38 liters. Despite the water addition, the test rig remained plugged and had to be shut down. The majority of the dilute slurry was drained from the test rig, which was then dismantled to remove the pluggage. [Note: When the test rig was disassembled the plug was found in the test-rig piping and not the filter. The pluggage occurred because of the way the solids were incorporated into the slurry. In pouring the solids directly into the slurry reservoir of the test rig some of the solids did not have time to become well mixed in the slurry; isolated clumps of solids were found in the pipes. Those clumps contained dry solids that did not did not mix with the liquid and when a clump met a bend in a pipe it stuck, which prevented further flow. The second batch of simulant was made in a separate tank to make sure the slurry was well mixed before introducing it into the test rig.]

After the test rig was cleaned, the experiment continued. Run 2.14 was done with the remaining slurry, which had a calculated insoluble solids content of 9 wt%. A subsequent measurement showed the solids loading to be closer to 7 wt%. This difference may have come from some of the solid sodium oxalate dissolving in the more dilute slurry.

Based on the low-solids concentration runs, the best combination of axial slurry velocity and TMP was chosen to be 12 ft/s and 40 psid, respectively. Figure 31 shows that a relatively high filtrate flux was obtained despite the 7 wt% insoluble solids loading. However, since the slurry was diluted with water and the sodium level is estimated to have been close to 3 M, instead of the original 5 M. [Note, that there are two curves in Fig. 31 because the run was restarted to adjust the TMP, which drifted high.] As already stated above, since time allowed, the slurry was adjusted to raise the sodium level back to over 5 M to redo the run, which was called run 2.14b.

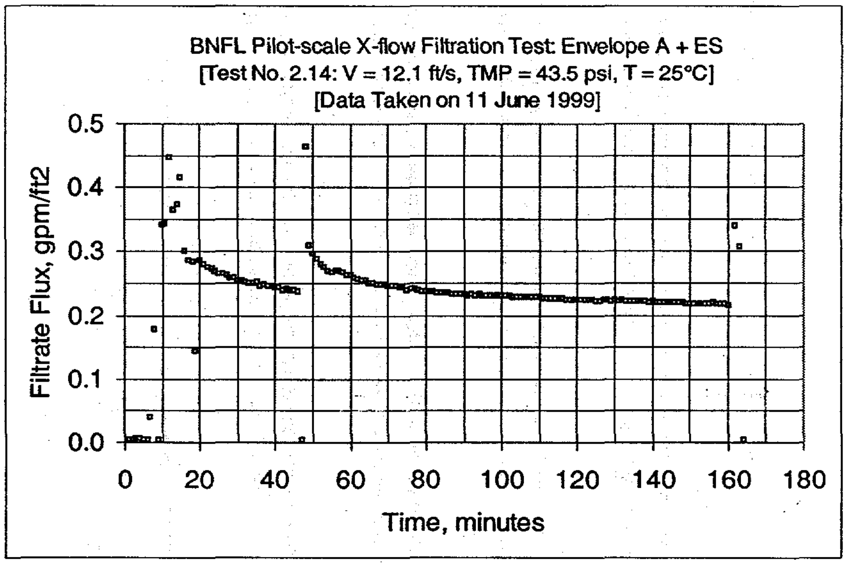


Figure 31. Run 2.14: 7 wt% insoluble solids; 26 wt% total solids

Figure 32 shows the results of the new run with the sodium level back over 5 M. The insoluble solids loading was calculated at 11 wt% but a subsequent sample analysis indicated a value closer to 8 wt%. The filtrate flux over the entire run stayed above 0.1 gpm/ft^2 and in fact was very similar to the last low-concentration continuous run, 2.07b which had very similar flow conditions (see Fig. B16 in Appendix B). This indicates the added insoluble solids had an insignificant effect on filter operation. From this experience higher pre-wash slurry concentrations are possible and maybe even reaching and surpassing the target 20 wt%. However, because of the aforementioned circumstances there are no quantitative data to make a more definitive statement.

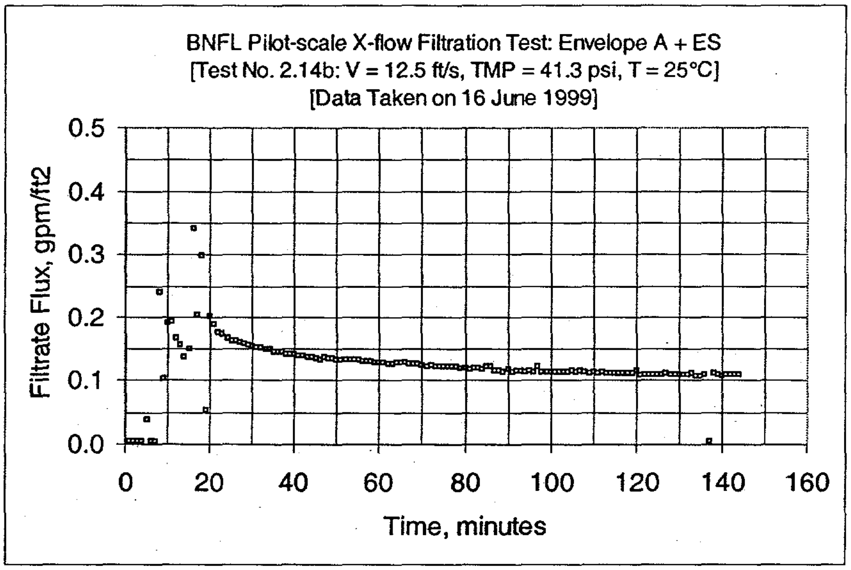


Figure 32. Run 2.14b: 8 wt% insoluble solids; 36 wt% total solids

Wash Test Runs 2.15-2.19 and 2.15b-2.19b
[See Appendix D for the entire set of data sheets.]

There were nine different wash test runs. Test runs 2.15-2.19 were repeated when a new batch of slurry was made to repeat run 2.14. The new tests are referred to as 2.14b-2.19b, with the first wash run beginning with 2.15b. From all these runs the hydraulic aspects are best illustrated by run 2.15, Fig. 33.

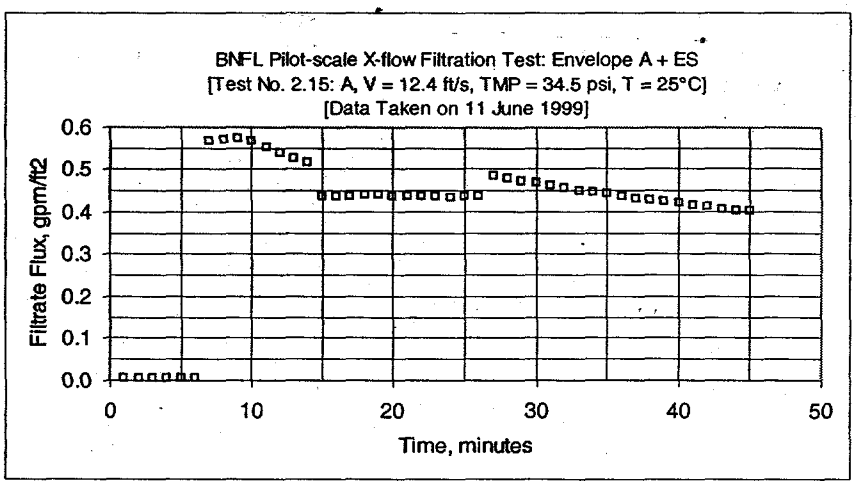


Figure 33. Typical wash test run

Figure 33 shows two different characteristics: 1. A descending curve, typical of a cross-flow filter curve for slurry after a backpulse, and 2. a relatively flat curve that lasted approximately twelve minutes. This flat curve occurred when the filtrate system was opened to remove 45 liters of filtrate. (These numbers match the data in Fig. 33, because 45 L / 3.785 L/gal / 12 min. / 2.29 ft^2 = 0.43 gpm/ft^2, which is close to graphical result shown.) That is, to dewater the slurry, so that the next charge of washing water could be introduced into the test rig, the filtrate system was opened using valve V13 in Fig. 1; the filtrate was collected and sampled. While the filtrate was collected, the open valve allowed the pressure in the filtrate loop to drop since it was not forced back to the slurry loop. This reduced pressure caused the flow parameters, i.e., slurry velocity and TMP, to change. Therefore, the initial flow conditions were set so that when the filtrate valve was opened the flow conditions came close to the test specification requirements. It was not always easy to set the correct flow and therefore many of the data sheets for the washing runs show quite a bit of adjustment before the filtrate was actually drawn from the test rig.

During the washing runs there was a concern about the filtrate flux increasing above the measurable limit of 0.53 gpm/ft^2. Because of the water additions, the filtrate flux was expected to increase as the slurry became successively more dilute. As mentioned, run 2.15 was considered the second wash run since the slurry for run 2.14 was already diluted with water because of the test rig pluggage. In Fig. 33, the first couple of points after the backpulse are above the calibrated range of the filtrate flowmeter and are therefore meaningless. As a backup measurement, a bucket and stopwatch technique was used to verify the filtrate flux when filtrate was drawn. Fortunately, the portion of the curve when the filtrate was being drawn was always below the threshold of the filtrate flowmeter for all test runs.

Dewatering/Plugging Test Run 2.20b
[See Appendix C for the entire set of data sheets.]

Figure 34 shows the result of this relatively short test of 50 minutes from the backpulse. The goal was to dewater/concentrate the post-washed slurry to the point that filtration was no longer possible, due to either the filter plugging or for some other operational reason. Starting with approximately 80 liters of slurry in the test rig, the slurry was dewatered by removing filtrate in batches of approximately 7.3 liters. After each batch removal, the density of the slurry was measured and samples were taken three times to have information on the slurry as it approached possible plugging. A total of 6 full batches of filtrate were removed before stopping during a 7^{th} batch, which reduce the slurry volume to less than 35 liters. (The actual final volume was closer to 30 liters.) The filtering never stopped and while the filtrate flux decreased throughout the test, at the end it still was filtering at 0.25 gpm/ft^2 when the insoluble solids loading was estimated at approximately 16 wt% [see Table 1 (page 26), run 2.20b end].

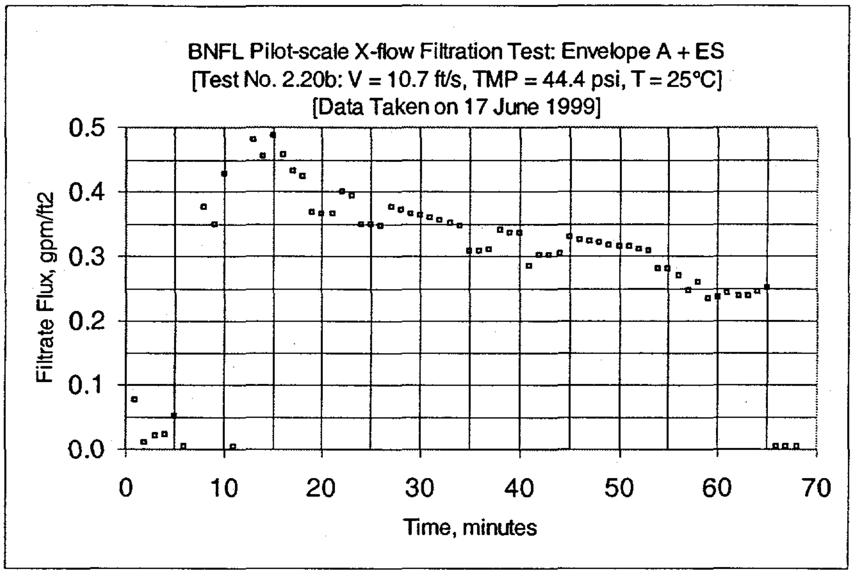


Figure 34. Dewatering/Plugging test run

Figure 35 shows how the density of the post-washed slurry increased after each of the 6 batches of filtrate was removed. Included in Fig. 35 are three measurements of solids loading that were made. The middle set of numbers (at 65 liters of slurry remaining) has no reading for insoluble solids because the analytical measurement was in error and had to be discarded. Finally, in attempting the 7th batch the test rig was stopped when flow could not be maintained. The test rig needed 26 liters to keep it liquid solid and the extra 4 liters of the remaining 30 liters of thickened slurry were not sufficient to maintain the pump suction pipe full. The slurry was spread around the tank such that a good sample could not be taken, therefore a final density was not obtained

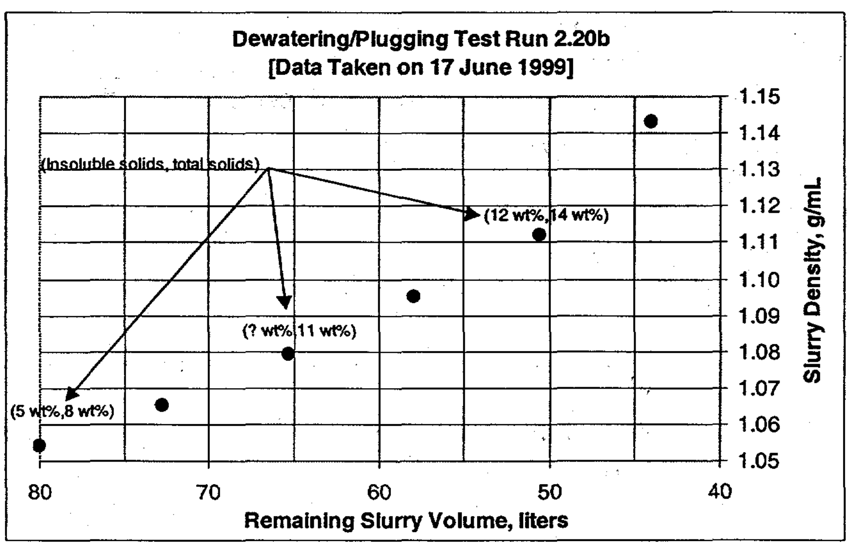


Figure 35. Dewatering/Plugging test run with post-washed slurry

CONCLUSIONS

The following conclusions are for the nominal rated 0.1 micron Mott cross-flow filter which was used under the conditions stated herein at a slurry temperature of 25°C.

Filter Effectiveness

1. There was no measurable quantity of insoluble solids in the filtrate under any circumstance from the filtered slurry that had a solids loading from 0.5 wt% to greater than 16 wt% and for particle sizes measured as small as 0.76 micron.

Slurry Wash

2. Using 4 equal quantities of distilled and filtered water (each quantity equaling the volume of the slurry to be washed), the sodium molarity of the filtrate decreased from 5.2 M to 0.29 M, while the dynamic viscosity decreased from 1.8 cP to 1.1 cP and the density decreased from 1.214 g/mL to 1.015 g/mL. For a fifth wash those numbers decreased to 0.13 M, 1.01 cP, and 1.0095, respectively.

Hydraulic Characteristics

3. Water flux through a used cleaned filter may be as low as a third that of a new filter.
4. Surface fouling of the filter is the dominant mechanism of fouling.
5. Higher slurry velocities and higher transmembrane pressures lead to higher filtrate fluxes. However, the increase in filtrate flux is strongly affected by the slurry velocity but only weakly by TMP.
6. Slurry velocities for steady-state operation should be 12 ft/s or higher.
7. A TMP of 40 psid or 55 psid, with the velocity in conclusion 6, will give close to the best filter flux performance. Increasing the TMP to 70 psid will increase the filtrate flux slightly but that small increase may not justify the larger energy expenditure for the higher pressure. Also, the lower TMP will increase the life of the cross-flow filter due to a lower cleaning frequency.
8. For a low concentrations of insoluble solids (0.5 wt%), based on conclusion 7, run 2.07, shown in Fig. 25, gave the best overall filtrate flux of 0.20 gpm/ft^2 at the conditions of a slurry velocity of 12.3 ft/s and a TMP of 42 psid. This flux is based on an integrated value of the measured flux for the first one half hour of operation. Even for the run that lasted more than 7 hours without backpulsing (Fig. 29), the mean filtrate flux was still 0.12 gpm/ft^2, and it appeared that this flux could be easily sustained for many more hours.
9. For high concentrations of insoluble solids (8 wt%) the filtrate flux remains above 0.10 gpm/ft^2 for at least 2 hours after a backpulse.
10. The cross-flow filter still functions satisfactorily for an insoluble solids loading of 16 wt%; the post-washed slurry had filtrate fluxes better than 0.2 gpm/ft^2.
11. An average filtrate flux of 0.12 gpm/ft^2 can be maintained for at least 7 hours without backpulsing. It can be increased to 0.16 gpm/ft^2 with a backpulse interval of 30 minutes.

12. In all the test runs the filtrate flux was never lower than the River Protection Project waste treatment plant design basis of 0.037 gpm/ft^2, and typically it was above three times that value.
13. A backpulse filtrate volume of 0.036 gal/ft^2 with a filter overpressure of 30 psi was found to be sufficient to knock the filter cake off the filter element. A backpulse frequency of 30 minutes leads to a filtrate flux loss of 0.0012 gpm/ft^2 rate, which is only a few percent of the lowest steady-state filtrate flux measured of 0.05 gpm/ft^2.

RECOMMENDATIONS

The following recommendations are for the nominal rated 0.1 micron Mott cross-flow filter when used for an Envelope A slurry at a temperature of 25°C.

1. Use a slurry axial velocity of at least 12 ft/s. Lower velocities significantly reduce filtrate flux.
2. Use a transmembrane pressure of 40 to 55 psid. Lower pressures significantly reduce filtrate flux and higher pressures do not increase the filtrate flux significantly.
3. Backpulse the filter twice to three times in a 24-hour period of continuous use to maintain an average filtrate flux of 0.1 gpm/ft^2 and to minimize filter cleaning.
4. Backpulse the filter every 30 minutes during continuous use to increase the average filtrate flux to 0.16 gpm/ft^2.
5. Use a backpulse of 0.036 gal/ft^2 to minimize the loss of filtrate flux.

APPROVALS

H. N. Guerrero
H. N. Guerrero, Technical Reviewer, WSRC/SRTC — 2/29/00 Date

D. B. Burns, Experimental Thermal Fluids Group Manager, WSRC/SRTC — 4/19/2000 Date

M. A. Ebra
M. A. Ebra, Level 3 Manager, WSRC/SRTC — 4/23/2000 Date

S T Wach
S. T. Wach, Waste Processing Technology Manager, WSRC/SRTC — 4/19/00 Date

Not Required as per BNF-003-98-0239, April 24, 2000
P. S. Townson, Ultrafiltration Development Manager, BNFL — 4/24/2000 mRO Date

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APPENDIX A

EXPERIMENTAL DATA: WATER AND CLEANING

Appendix Contents

1. Nomeclature sheet for data tables
2. Experimental data:

Fig.	Run	Solution	Done on
A1	2.00,	Water	5/14/99
A3	2.22b1	Water	7/9/99
A3	2.22b2	Water	7/14/99 (added filtrate flowmeter, Q3)
A4	2.21b,	1 M NaOH Cleaning	7/6/99

General Note: For measurement uncertainties see Appendix F

Special Notes:

a. The data for every test run are highlighted with two graphs: Filtrate Flux vs. Time and Permeability vs. Time. Those graphs include all the data taken during the run period.
b. The beginning and end of the data for most graphs show large deviations from the overall series of points. Those deviations were caused by backpulsing the filter that temporarily stopped the flow of filtrate.
c. All columns of data, in all the tables, are ended with several statistical values of that column, i.e., Average, Maximum, Median, Minimum, Standard Deviation, and Number of Points used (in calculating the 5 statistical quantities.
d. To calculate those quantities mentioned in item c, only those data points that start from the end of a backpulse to just before the ending backpulse were included. This is the reason why the quantity of Number of Points Used was given.
e. The data for the graphs, and all the data taken for the individual test run that the graphs represent, immediately follow the specific figure.

Nomenclature For Data Sheets
(See Figure 1: Main Test Rig - Pilot Scale Cross Flow for the Instrument Location)

Column	Heading *		Full Heading	Explanation
A =	DATE	=	DATE	Day the test was done
B =	TIME	=	TIME	Time data entry was made
C =	SOLENOID	=	SOLENOID	1=yes, 0=no: for the pressure to the backpulse piston
D =	FLTRT (deg	=	FLTRT (deg C) T2	Filtrate Temperature in Filter at exit of the Filter Housing
E =	CL LOOP (d	=	CL LOOP (deg C) T3	Temperature of Liquid in the Cleaning Loop
F =	SL LOOP (d	=	SL LOOP (deg C) T1	Temperature of Liquid in the Slurry Loop at the Reservoir Tank
G =	UP AMB (de	=	UP AMB (deg C) T4	Ambient Temperature at the top of the Test Rig - 3rd level
H =	BOT AMB (	=	BOT AMB (deg C) T5	Ambient Temperature at the bottom of the Test Rig - 1st level
I =	T6 (deg C) S	=	T6 (deg C) SPARE	Spare Thermocouple - Currently Not Being Used
J =	BOT DP (ps	=	BOT DP (psid) dP2	Differential Pressure between the Filter Slurry Entrance and the bottom Filtrate Exit
K =	FLTR (psig)	=	FLTR (psig) P1	Gauge Pressure at the Filter Slurry Entrance
L =	FLTR DP (p	=	FLTR DP (psid) dP1	Differential Pressure between the Filter Slurry Entrance and Exit
M =	TOP DP (ps	=	TOP DP (psig) dP3	Differential Pressure between the Filter Slurry Exit and the Top Filtrate Exit
N =	FLTRATE (p	=	FLTRATE (psig) P2	Gauge Pressure at the Filter Filtrate Exit
O =	PISTON (ps	=	PISTON (psig) P3	Air Gauge Pressure Applied to Backpulse Piston
P =	SL FLOW (g	=	SL FLOW (gpm) Q1	Flow Rate of the Slurry Flow
Q =	FLTR FLOV	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow
R =	V9	=		Spare Channel Not Used

The following columns are calculated results based on the appropriate columns

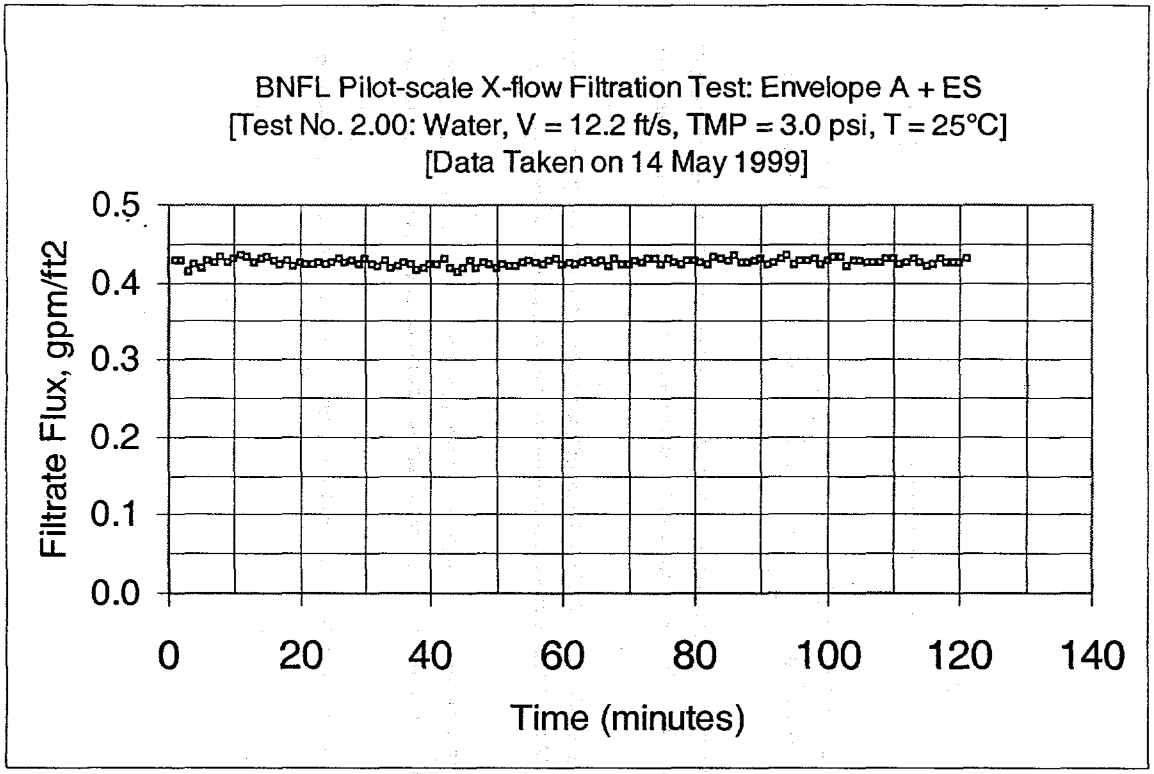
Column	Heading		Full Heading	Explanation
S =	Number	=	Number	Data number which is equivalent to 1 minute since this was the acquisition frequency
T =	Vel, ft/s	=	Vel, ft/s	Axial slurry velocity = [Column P] / 7.48 gal/ft2 / 60 sec/min / flow area (=0.005369 ft2*)
U =	TMP, PSI	=	TMP, PSI	Transmembrane Pressure = ([Column J] + [Column M])/2
V =	TMP, bar	=	TMP, bar	[Column U] / 14.504 bar/psi
W =	GPM/FT2	=	GPM/FT2	[Column Q] / inside diameter filter surface area (= 2.29 ft2**)
X =	GPM/FT2	=	GPM/FT2 at 25°C	Test Spec. correction factor: [Column W] x exp(2500 x ((1/(273+[Column T]))-(1/298)))
Y =	PERMIABILITY	=	PERMIABILITY (gpm/ft2/psi)	[Column X] / [Column U]
Z =	x 1000	=	PERMIABILITY x 1000	[Column Z] x 1000
AA =	PERMIABILITY	=	PERMIABILITY (m/day/bar)	[Column Y] x conversion factor (= 851.0145 m/day/bar / gpm/ft2/bar)

*Axial slurry flow area is based on 7 porous tubes with an inside diameter of 3/8 inch: 7 x pi / 4 * (0.375 inch / 12 inches/ft)^2 = 0.005369 ft2
**Inside diameter filter surface area for 7 tubes with an inside diameter of 3/8 inch, 40-inches long: 7 x pi x (0.375 inch) x 40 inches / 144 in^2/ft^2 = 2.29 ft2

Exceptions:
1. For Run 2.21b (Cleaning); This run was carried out over a three different periods on three days therefore there are two NUMBER COLUMNS: S & T. Column S is continuous and Column T is continuous but starts over for each period. All the columns to the right of Column S are shifted by one.
2. For Run 2.22b (Water); After July 10, 1999 a second filtrate flow meter was added to measure flow rates from 1.2 to 5 gpm. The final water test run (Run 2.22b) has an extra filtrate flow rate column. Column R, the spare column, was made the new flow rate:

Column	Heading		Full Heading	Explanation
R =	Q3, FLTR F	=	Q3, FLTR FLOW (gpm)	Flow Rate of the Filtrate Flow (above 1.2 gpm), Installed after 7/10/99

also Run 2.22b has two NUMBER columns (like Run 2.21b) so Exception 1 also applies.



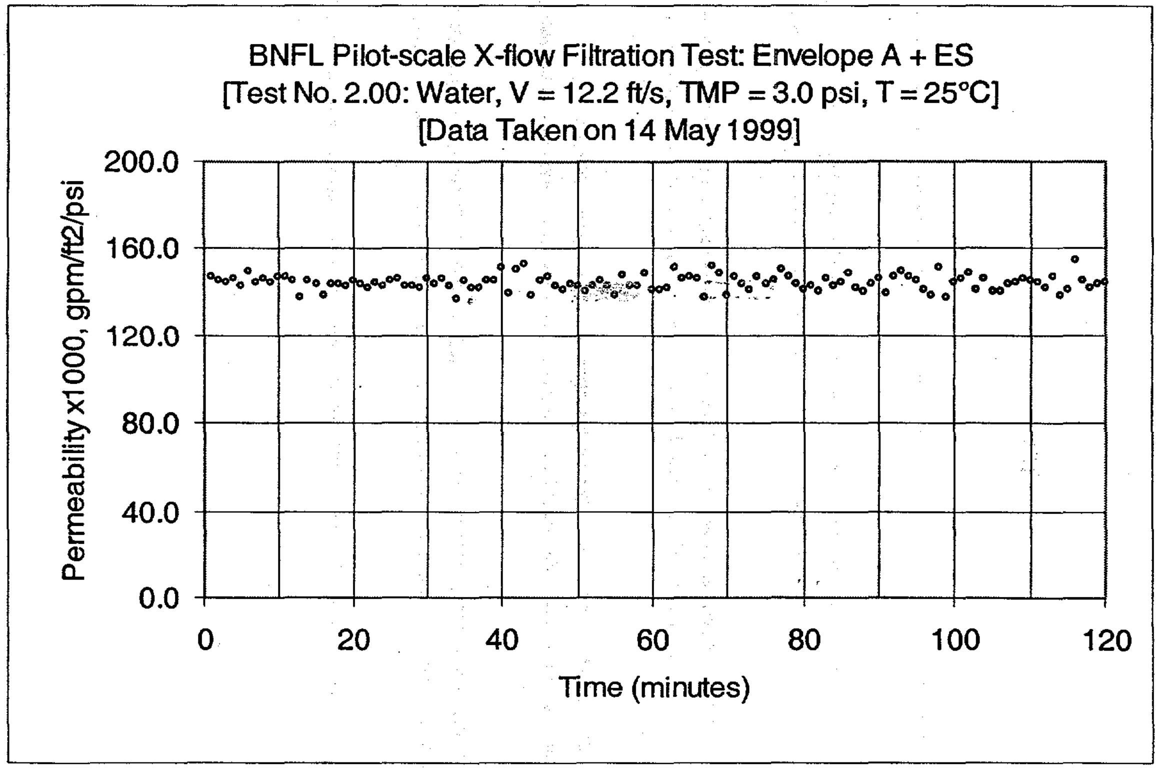


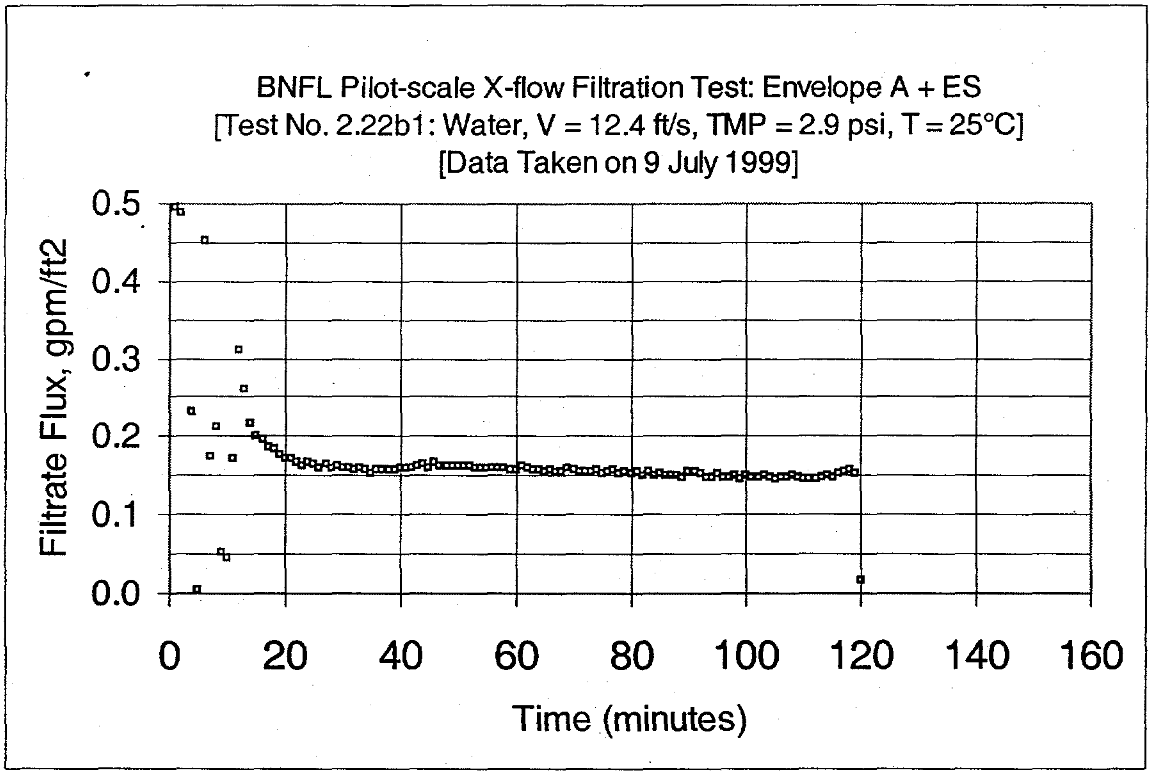
Figure A1: Test Run 2.00, Deionized and Filtered (0.2 micron) Water

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.00

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig	PISTON (psig	SL FLOW	FLTR FLO	V9		Filter Surface Area =		2.29	FT2				
2	Zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	5/14/1999	8:08:59 AM	0	21.624	21.207	20.491	21.595	21.406	31.026	0.124	-0.041	-0.032	0.084	-0.15	-0.274	-0.095	0.011	0									
4	5/14/1999	8:14:53 AM	0	21.714	21.298	20.582	21.685	21.657	30.797	0.124	-0.072	-0.032	0.05	-0.119	-0.274	-0.08	0.011	0									
5	5/14/1999	8:15:54 AM	0	21.588	21.253	20.536	21.64	21.531	30.674	0.093	-0.041	-0.032	0.05	-0.119	-0.274	-0.08	0.011	0									
6	5/14/1999	8:16:54 AM	0	21.669	21.253	20.536	21.64	21.531	30.912	0.124	-0.041	-0.032	0.05	-0.15	-0.274	-0.08	0.011	0						at 25C	PERMEABILITY	X1000	PERMEABILITY
7	Data																		Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/14/1999	8:38:26 AM	0	24.742	21.272	24.576	21.901	22.034	30.534	4.68	10.783	3.535	1.132	6.106	-0.274	29.472	0.967	0	1	12.2	2.9	0.200	0.422	0.427	0.147	147.0	125.1
9	5/14/1999	8:42:53 AM	0	25.383	21.352	25.297	21.82	21.309	31.249	4.649	10.935	3.511	1.267	6.26	-0.228	29.533	0.99	0	2	12.3	3.0	0.204	0.432	0.429	0.145	144.9	123.3
10	5/14/1999	8:43:54 AM	0	25.543	21.352	25.457	21.74	21.229	31.249	4.587	10.874	3.231	1.132	6.291	-0.274	29.411	0.959	0	3	12.2	2.9	0.197	0.419	0.413	0.145	144.5	123.0
11	5/14/1999	8:44:53 AM	0	25.579	21.307	25.412	21.695	21.103	31.204	4.711	10.966	3.511	1.098	6.229	-0.274	29.702	0.962	0	4	12.3	2.9	0.200	0.429	0.424	0.146	145.9	124.2
12	5/14/1999	8:45:54 AM	0	25.659	21.307	25.332	21.695	21.022	31.363	4.742	11.057	3.587	1.132	6.199	-0.228	29.533	0.967	0	5	12.3	2.9	0.202	0.422	0.418	0.142	142.4	121.2
13	5/14/1999	8:46:54 AM	0	25.534	21.343	25.207	21.569	20.896	31.239	4.68	10.844	3.503	1.031	6.137	-0.274	29.672	0.964	0	6	12.3	2.9	0.197	0.430	0.427	0.150	149.6	127.3
14	5/14/1999	8:47:55 AM	0	25.534	21.343	25.127	21.569	20.735	31.318	4.556	10.844	3.375	1.335	6.229	-0.274	29.641	0.979	0	7	12.3	2.9	0.203	0.427	0.426	0.145	144.6	123.0
15	5/14/1999	8:48:53 AM	0	25.489	21.298	25.082	21.524	20.69	31.353	4.649	10.935	3.351	1.267	6.291	-0.274	29.272	0.992	0	8	12.1	3.0	0.204	0.433	0.432	0.146	146.1	124.3
16	5/14/1999	8:49:55 AM	0	25.409	21.298	25.002	21.524	20.771	31.274	4.556	10.844	3.495	1.335	6.291	-0.228	29.411	0.975	0	9	12.2	2.9	0.203	0.426	0.426	0.144	144.5	123.0
17	5/14/1999	8:50:53 AM	0	25.329	21.378	24.922	21.524	20.851	31.115	4.68	10.935	3.447	1.166	6.229	-0.274	29.38	0.961	0	10	12.2	2.9	0.202	0.428	0.429	0.147	146.8	125.0
18	5/14/1999	8:51:55 AM	0	25.204	21.333	24.797	21.479	20.867	31.15	4.804	11.087	3.495	1.098	6.229	-0.274	29.564	0.969	0	11	12.3	3.0	0.203	0.432	0.434	0.147	147.1	125.2
19	5/14/1999	8:52:54 AM	0	25.204	21.333	24.797	21.479	20.867	30.912	4.804	11.057	3.646	1.132	6.199	-0.274	29.549	0.984	0	12	12.3	3.0	0.205	0.430	0.432	0.146	145.6	123.9
20	5/14/1999	8:53:53 AM	0	25.159	21.288	24.752	21.434	20.922	30.947	4.897	11.179	3.598	1.301	6.229	-0.228	29.503	0.968	0	13	12.2	3.1	0.214	0.423	0.426	0.137	137.3	116.9
21	5/14/1999	8:54:54 AM	0	25.114	21.324	24.707	21.389	20.958	31.141	4.742	10.844	3.574	1.166	6.075	-0.228	29.626	0.976	0	14	12.3	3.0	0.204	0.426	0.430	0.145	145.4	123.8
22	5/14/1999	8:55:53 AM	0	25.034	21.324	24.788	21.469	21.038	30.982	4.742	11.027	3.423	1.301	6.229	-0.274	29.334	0.988	0	15	12.2	3.0	0.208	0.431	0.434	0.144	143.6	122.2
23	5/14/1999	8:56:54 AM	0	25.114	21.324	24.868	21.469	21.119	30.744	4.897	11.179	3.678	1.301	6.229	-0.228	29.334	0.978	0	16	12.2	3.1	0.214	0.427	0.429	0.138	138.3	117.7
24	5/14/1999	8:57:53 AM	0	25.069	21.278	24.903	21.505	21.074	30.82	4.711	10.966	3.455	1.2	6.26	-0.274	29.334	0.969	0	17	12.2	3.0	0.204	0.423	0.424	0.144	143.5	122.1
25	5/14/1999	8:58:54 AM	0	25.149	21.278	24.983	21.505	21.154	30.381	4.711	10.996	3.519	1.267	6.168	-0.228	29.38	0.981	0	18	12.2	3.0	0.206	0.428	0.428	0.143	143.3	122.0
26	5/14/1999	8:59:53 AM	0	25.185	21.314	24.938	21.54	21.19	30.655	4.835	11.148	3.479	1.064	6.229	-0.228	29.733	0.964	0	19	12.3	2.9	0.203	0.421	0.422	0.143	142.9	121.6
27	5/14/1999	9:00:54 AM	0	25.265	21.314	25.099	21.621	21.271	30.655	4.556	10.874	3.415	1.301	6.322	-0.228	29.411	0.976	0	20	12.2	2.9	0.202	0.426	0.425	0.145	145.1	123.5
28	5/14/1999	9:01:53 AM	0	25.265	21.314	25.099	21.621	21.512	30.418	4.773	11.027	3.559	1.132	6.229	-0.274	29.518	0.973	0	21	12.3	3.0	0.204	0.425	0.424	0.143	143.5	122.1
29	5/14/1999	9:02:55 AM	0	25.3	21.35	25.054	21.817	21.709	30.[illegible]92	4.68	10.996	3.343	1.267	6.26	-0.274	29.441	0.97	0	22	12.2	3.0	0.205	0.423	0.423	0.142	142.2	121.0
30	5/14/1999	9:03:54 AM	0	25.38	21.35	25.134	22.059	21.95	29.974	4.742	11.057	3.543	1.132	6.229	-0.228	29.272	0.977	0	23	12.1	2.9	0.202	0.426	0.425	0.145	144.7	123.1
31	5/14/1999	9:04:53 AM	0	25.38	21.269	25.214	22.22	22.111	30.054	4.773	11.087	3.559	1.166	6.229	-0.274	29.288	0.974	0	24	12.2	3.0	0.205	0.425	0.423	0.142	142.3	121.1
32	5/14/1999	9:05:53 AM	0	25.38	21.35	25.214	22.461	22.272	[illegible]9.974	4.804	11.057	3.614	1.064	6.229	-0.274	29.795	0.98	0	25	12.4	2.9	0.202	0.428	0.425	0.145	144.9	123.3
33	5/14/1999	9:06:53 AM	0	25.425	21.395	25.179	22.667	22.478	29.86	4.711	11.057	3.455	1.166	6.291	-0.274	29.426	0.99	0	26	12.2	2.9	0.203	0.432	0.430	0.146	146.3	124.5
34	5/14/1999	9:07:54 AM	0	25.505	21.314	25.339	22.908	22.639	30.098	4.742	11.027	3.622	1.233	6.291	-0.274	29.564	0.983	0	27	12.3	3.0	0.206	0.429	0.425	0.142	142.3	121.1
35	5/14/1999	9:08:53 AM	0	25.505	21.314	25.259	22.908	22.639	30.098	4.773	11.087	3.622	1.2	6.291	-0.274	29.395	0.985	0	28	12.2	3.0	0.206	0.430	0.427	0.143	142.9	121.6
36	5/14/1999	9:09:54 AM	0	25.55	21.359	25.303	23.114	22.684	29.984	4.773	11.087	3.423	1.2	6.291	-0.228	29.564	0.976	0	29	12.3	3.0	0.206	0.426	0.422	0.141	141.5	120.4
37	5/14/1999	9:10:53 AM	0	25.595	21.404	25.348	23.32	22.729	30.028	4.804	11.179	3.59	1.098	6.322	-0.228	29.38	0.995	0	30	12.2	3.0	0.203	0.434	0.430	0.146	145.8	124.0
38	5/14/1999	9:11:56 AM	0	25.639	21.369	25.393	23.445	22.854	29.993	4.773	11.087	3.614	1.132	6.291	-0.274	29.349	0.981	0	31	12.2	3.0	0.204	0.428	0.424	0.143	143.5	122.1
39	5/14/1999	9:12:53 AM	0	25.72	21.369	25.473	23.525	22.854	29.993	4.618	10.996	3.431	1.132	6.291	-0.274	29.825	0.976	0	32	12.4	2.9	0.198	0.426	0.420	0.146	146.2	124.5
40	5/14/1999	9:13:55 AM	0	25.684	21.414	25.518	23.651	22.98	30.117	4.928	11.27	3.567	1.064	6.26	-0.228	29.733	0.993	0	33	12.3	3.0	0.207	0.433	0.427	0.143	142.6	121.4
41	5/14/1999	9:14:54 AM	0	25.729	21.459	25.483	23.776	22.944	30.241	4.866	11.148	3.614	1.233	6.26	-0.274	29.426	0.971	0	34	12.2	3.0	0.210	0.424	0.418	0.137	137.1	116.7
42	5/14/1999	9:15:53 AM	0	25.729	21.459	25.483	23.776	22.784	30.4	4.742	11.087	3.519	1.064	6.291	-0.228	29.58	0.978	0	35	12.3	2.9	0.200	0.427	0.421	0.145	145.1	123.5
43	5/14/1999	9:16:54 AM	0	25.774	21.423	25.528	23.741	22.587	30.604	4.804	11.179	3.511	1.2	6.291	-0.228	29.687	0.991	0	36	12.3	3.0	0.207	0.433	0.426	0.142	142.0	120.8
44	5/14/1999	9:17:52 AM	0	25.774	21.343	25.528	23.5	22.507	30.842	4.711	11.148	3.455	1.267	6.353	-0.274	29.472	0.986	0	37	12.2	3.0	0.206	0.430	0.424	0.142	141.9	120.7
45	5/14/1999	9:18:54 AM	0	25.819	21.388	25.572	23.464	22.391	30.966	4.618	10.935	3.487	1.132	6.291	-0.228	29.718	0.969	0	38	12.3	2.9	0.198	0.423	0.416	0.145	144.8	123.2
46	5/14/1999	9:19:53 AM	0	25.784	21.433	25.537	23.349	22.356	30.931	4.742	10.996	3.574	1.031	6.26	-0.274	29.564	0.974	0	39	12.3	2.9	0.199	0.425	0.419	0.145	145.1	123.5
47	5/14/1999	9:20:54 AM	0	25.784	21.433	25.537	23.188	22.195	31.01	4.494	10.844	3.423	1.098	6.26	-0.274	29.641	0.984	0	40	12.3	2.8	0.193	0.430	0.423	0.151	151.3	128.8
48	5/14/1999	9:21:53 AM	0	25.828	21.478	25.662	23.233	21.999	31.055	4.804	11.148	3.574	1.267	6.229	-0.274	29.595	0.987	0	41	12.3	3.0	0.209	0.431	0.423	0.139	139.3	118.6
49	5/14/1999	9:22:52 AM	0	25.828	21.478	25.582	23.153	21.918	30.975	4.649	10.935	3.391	1.098	6.291	-0.228	29.533	1.003	0	42	12.3	2.9	0.198	0.438	0.431	0.150	149.9	127.6
50	5/14/1999	9:23:54 AM	0	25.873	21.443	25.707	23.037	21.883	31.098	4.649	10.813	3.606	0.828	6.168	-0.228	29.917	0.977	0	43	12.4	2.7	0.189	0.426	0.418	0.153	152.7	129.9
51	5/14/1999	9:24:52 AM	0	25.873	21.523	25.707	23.037	21.983	31.179	4.68	10.966	3.471	1.267	6.229	-0.274	29.349	0.964	0	44	12.2	3.0	0.205	0.421	0.413	0.139	138.7	118.1
52	5/14/1999	9:25:54 AM	0	25.953	21.443	25.627	22.957	22.044	31.179	4.587	10.874	3.399	1.2	6.353	-0.228	29.303	0.977	0	45	12.2	2.9	0.199	0.426	0.419	0.145	144.8	123.2
53	5/14/1999	9:26:53 AM	0	25.953	21.443	25.627	22.957	22.044	31.258	4.742	11.087	3.614	1.098	6.322	-0.228	29.733	0.999	0	46	12.3	2.9	0.201	0.436	0.428	0.147	146.7	124.9
54	5/14/1999	9:27:54 AM	0	25.953	21.443	25.707	22.957	22.124	31.179	4.618	10.905	3.527	1.267	6.26	-0.228	29.649	0.98	0	47	12.3	2.9	0.203	0.428	0.419	0.143	142.5	121.3
55	5/14/1999	9:28:53 AM	0	25.998	21.488	25.672	23.002	22.25	31.144	4.897	11.209	3.614	1.132	6.26	-0.274	29.779	0.994	0	48	12.4	3.0	0.208	0.434	0.426	0.141	141.3	120.2
56	5/14/1999	9:29:55 AM	0	25.918	21.488	25.672	23.002	22.411	31.065	4.742	11.057	3.622	1.166	6.291	-0.274	29.779	0.969	0	49	12.4	3.0	0.204	0.432	0.424	0.143	143.4	122.1
57	5/14/1999	9:30:56 AM	0	25.963	21.533	25.637	23.047	22.375	31.03	4.711	11.057	3.399	1.166	6.291	-0.228	29.595	0.978	0	50	12.3	2.9	0.203	0.427	0.419	0.143	142.7	121.5
58	5/14/1999	9:31:53 AM	0	25.883	21.533	25.557	23.047	22.456	31.109	4.773	11.087	3.487	1.267	6.229	-0.274	29.626	0.982	0	51	12.3	3.0	0.208	0.429	0.422	0.140	139.7	118.9
59	5/14/1999	9:32:54 AM	0	25.928	21.498	25.522	23.092	22.501	31.154	4.773	11.087	3.503	1.132	6.229	-0.274	29.349	0.979	0	52	12.2	3.0	0.204	0.427	0.421	0.143	142.6	121.4
60	5/14/1999	9:33:52 AM	0	25.848	21.498	25.442	23.011	22.501	31.154	4.68	10.905	3.439	1.132	6.199	-0.228	29.795	0.977	0	53	12.4	2.9	0.200	0.426	0.421	0.145	145.0	123.4
61	5/14/1999	9:34:53 AM	0	25.768	21.498	25.442	23.011	22.581	31.233	4.68	10.935	3.351	1.267	6.199	-0.274	29.457	0.986	0	54	12.2	3.0	0.205	0.430	0.425	0.143	143.0	121.7
62	5/14/1999	9:35:53 AM	0	25.688	21.498	25.362	23.011	22.581	31.233	4.835	11.179	3.622	1.335	6.26	-0.274	29.457	0.991	0	55	12.2	3.1	0.213	0.433	0.428	0.139	138.8	118.1
63	5/14/1999	9:36:54 AM	0	25.688	21.498	25.282	22.931	22.501	31.233	4.711	10.996	3.511	1.064	6.199	-0.228	29.487	0.983	0	56	12.2	2.9	0.199	0.429	0.426	0.147	147.4	125.5
64	5/14/1999	9:37:53 AM	0	25.653	21.543	25.327	22.896	22.466	31.278	4.711	10.996	3.415	1.233	6.229	-0.228	29.687	0.979	0	57	12.3	3.0	0.205	0.427	0.423	0.142	142.5	121.3
65	5/14/1999	9:38:53 AM	0	25.618	21.508	25.291	22.941	22.611	31.322	4.742	11.118	3.455	1.267	6.291	-0.228	29.825	0.987	0	58	12.4	3.0	0.207	0.431	0.427	0.142	142.2	121.0
66	5/14/1999	9:39:54 AM	0	25.618	21.508	25.291	22.941	22.591	31.322	4.649	10.966	3.519	1.132	6.229	-0.228	29.441	0.993	0	59	12.2	2.9	0.199	0.433	0.430	0.149	148.7	126.6
67	5/14/1999	9:40:52 AM	0	25.538	21.508	25.211	23.021	22.511	31.243	4.866	11.087	3.551	1.166	6.168	-0.228	29.242	0.977	0	60	12.1	3.0	0.208	0.426	0.424	0.141	140.6	119.6
68	5/14/1999	9:41:54 AM	0	25.502	21.553	25.256	22.986	22.476	31.367	4.835	11.057	3.551	1.2	6.168	-0.228	29.395	0.979	0	61	12.2	3.0	0.208	0.427	0.424	0.141	140.6	119.7
69	5/14/1999	9:42:52 AM	0	25.502	21.553	25.176	22.906	22.476	31.367	4.68	10.996	3.519	1.267	6.229	-0.228	29.365	0.973	0	62	12.2	3.0	0.205	0.425	0.423	0.142	142.1	121.0
70	5/14/1999	9:43:54 AM	0	25.467	21.598	25.141	22.951	22.621	31.332	4.432	10.63	3.192	1.2	6.199	-0.228	29.626	0.979	0	63	12.3	2.8	0.194	0.427	0.426	0.151	151.2	128.6
71	5/14/1999	9:44:53 AM	0	25.467	21.598	25.141	22.951	22.621	31.412	4.649	10.966	3.431	1.2	6.26	-0.274	29.564	0.982	0	64	12.3	2.9	0.202	0.429	0.427	0.146	146.0	124.3
72	5/14/1999	9:45:54 AM	0	25.467	21.518	25.061	22.951	22.441	31.412	4.618	10.905	3.335	1.166	6.26	-0.228	29.61	0.976	0	65	12.3	2.9	0.199	0.426	0.425	0.147	147.1	125.2
73	5/14/1999	9:46:53 AM	0	25.432	21.563	25.106	22.918	22.488	31.456	4.773	10.996	3.511	1.098	6.168	-0.228	29.472	0.983	0.003	66	12.2	2.9	0.202	0.429	0.428	0.146	145.7	124.0
74	5/14/1999	9:47:54 AM	0	25.352	21.563	25.106	22.916	22.486	31.536	4.897	11.118	3.638	1.233	6.168	-0.228	29.518	0.968	0	67	12.2	3.1	0.211	0.423	0.421	0.137	137.5	117.0
75	5/14/1999	9:48:53 AM	0	25.397	21.608	25.071	22.961	22.611	31.501	4.587	10.813	3.519	1.064	6.199	-0.228	29.395	0.986	0	68	12.2	2.8	0.195	0.430	0.430	0.152	152.0	129.4
76	5/14/1999	9:49:52 AM	0	25.352	21.563	25.026	22.835	22.566	31.456	4.587	10.752	3.296	1.132	6.168	-0.228	29.749	0.972	0	69	12.2	2.9	0.197	0.424	0.424	0.148	148.3	126.2
77	5/14/1999	9:50:53 AM	0	25.362	21.573	25.036	22.926	22.576	31.704	4.897	11.148	3.643	1.2	6.137	-0.228	26.985	0.968	0	70	12.0	3.0	0.210	0.423	0.422	0.138	138.5	117.8
78	5/14/1999	9:51:53 AM	0	25.317	21.608	24.991	22.8	22.531	31.501	4.68	10.905	3.335	1.166	6.199	-0.274	29.211	0.982	0	71	12.1	2.9	0.202	0.429	0.429	0.147	146.7	124.8
79	5/14/1999	9:52:54 AM	0	25.282	21.573	25.036	22.826	22.576	31.625	4.742	10.935	3.614	1.2	6.168	-0.228	29.426	0.975	0	72	12.2	3.0	0.205	0.426	0.425	0.143	143.1	121.8
80	5/14/1999	9:53:52 AM	0	25.262	21.654	24.956	22.846	22.576	31.545	4.773	11.027	3.439	1.335	6.199	-0.228	29.38	0.982	0	73	12.2	3.1	0.211	0.429	0.429	0.141	140.5	119.6
81	5/14/1999	9:54:54 AM	0	25.202	21.573	24.956	22.848	22.576	31.545	4.494	10.783	3.207	1.369	6.229	-0.228	29.533	0.985	0	74	12.3	2.9	0.202	0.430	0.431	0.147	146.9	125.0

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.00

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	8/14/1999	9:55:53 AM	0	25.282	21.573	24.956	22.846	22.576	31.545	4.68	10.935	3.399	1.233	6.229	-0.228	29.318	0.97	0	75	12.2	3.0	0.204	0.423	0.424	0.143	143.4	122.0
83	8/14/1999	9:56:54 AM	0	25.282	21.573	24.956	22.846	22.496	31.625	4.68	10.935	3.551	1.233	6.229	-0.228	29.257	0.983	0	76	12.1	3.0	0.204	0.429	0.430	0.145	145.3	123.7
84	8/14/1999	9:57:53 AM	0	25.202	21.573	24.956	22.846	22.496	31.704	4.494	10.722	3.407	1.166	6.229	-0.228	29.365	0.974	0	77	12.2	2.8	0.195	0.425	0.426	0.150	150.4	128.0
85	8/14/1999	9:58:54 AM	0	-25.327	21.619	24.921	22.891	22.461	31.67	4.587	10.813	3.471	1.2	6.199	-0.228	29.533	0.969	0	78	12.3	2.9	0.199	0.423	0.424	0.147	146.5	124.7
86	8/14/1999	9:59:53 AM	0	25.247	21.699	24.921	22.891	22.38	31.67	4.866	11.209	3.431	1.098	6.26	-0.228	29.257	0.979	0	79	12.1	3.0	0.206	0.427	0.428	0.144	143.6	122.2
87	8/14/1999	10:00:54 AM	0	25.167	21.619	24.921	22.891	22.3	31.59	4.804	11.027	3.535	1.267	6.168	-0.228	29.242	0.979	0	80	12.1	3.0	0.209	0.427	0.428	0.141	141.1	120.1
88	8/14/1999	10:01:53 AM	0	25.167	21.699	24.921	22.891	22.3	31.59	4.711	10.966	3.543	1.233	6.229	-0.228	29.457	0.971	0	81	12.2	3.0	0.205	0.424	0.425	0.143	142.9	121.6
89	8/14/1999	10:02:53 AM	0	25.212	21.664	24.886	22.936	22.265	31.714	4.897	10.996	3.479	1.132	6.014	-0.228	29.503	0.965	0	82	12.2	3.0	0.208	0.421	0.423	0.140	140.2	119.3
90	8/14/1999	10:03:54 AM	0	25.212	21.664	24.886	22.936	22.426	31.635	4.711	10.966	3.511	1.233	6.199	-0.228	29.564	0.99	0	83	12.3	3.0	0.205	0.432	0.434	0.146	145.9	124.1
91	8/14/1999	10:04:52 AM	0	25.212	21.664	24.886	22.936	22.345	31.794	4.711	10.996	3.519	1.301	6.229	-0.228	29.518	0.981	0	84	12.3	3.0	0.207	0.428	0.430	0.143	142.9	121.6
92	8/14/1999	10:05:54 AM	0	25.212	21.664	24.886	22.936	22.426	31.873	4.711	10.996	3.447	1.2	6.229	-0.228	29.81	0.975	0	85	12.4	3.0	0.204	0.426	0.427	0.144	144.5	122.9
93	8/14/1999	10:06:53 AM	0	25.132	21.664	24.886	22.936	22.426	31.794	4.649	10.905	3.455	1.2	6.199	-0.228	29.211	0.991	0	86	12.1	2.9	0.202	0.433	0.434	0.148	148.4	126.3
94	8/14/1999	10:07:54 AM	0	25.177	21.709	24.931	22.981	22.471	31.838	4.773	11.057	3.559	1.233	6.199	-0.228	29.518	0.972	0	87	12.3	3.0	0.207	0.424	0.425	0.142	141.6	120.5
95	8/14/1999	10:08:53 AM	0	25.177	21.709	24.851	22.981	22.551	31.838	4.897	11.179	3.63	1.2	6.199	-0.228	29.441	0.972	0	88	12.2	3.0	0.210	0.424	0.426	0.140	139.8	118.9
96	8/14/1999	10:09:54 AM	0	25.177	21.629	24.851	22.981	22.551	31.759	4.618	10.905	3.303	1.335	6.199	-0.228	29.472	0.974	0	89	12.2	3.0	0.205	0.425	0.427	0.143	143.4	122.1
97	8/14/1999	10:10:53 AM	0	25.177	21.709	24.851	22.981	22.551	31.759	4.804	11.027	3.614	1.098	6.137	-0.274	29.395	0.981	0	90	12.2	3.0	0.203	0.428	0.430	0.146	145.7	124.0
98	8/14/1999	10:11:54 AM	0	25.177	21.629	24.851	22.981	22.632	31.759	4.804	10.905	3.598	1.267	6.075	-0.228	29.242	0.965	0	91	12.1	3.0	0.209	0.421	0.423	0.139	139.4	118.6
99	8/14/1999	10:12:53 AM	0	25.142	21.755	24.897	23.027	22.677	31.883	4.649	10.844	3.495	1.166	6.137	-0.228	29.457	0.974	0	92	12.2	2.9	0.200	0.425	0.426	0.147	146.7	124.8
100	8/14/1999	10:13:54 AM	0	25.222	21.674	24.897	23.027	22.597	31.962	4.68	10.935	3.487	1.098	6.168	-0.228	29.702	0.983	0	93	12.3	2.9	0.199	0.429	0.430	0.149	149.0	126.8
101	8/14/1999	10:14:53 AM	0	25.222	21.674	24.897	23.027	22.597	31.962	4.649	10.874	3.375	1.267	6.168	-0.228	29.533	0.994	0	94	12.3	3.0	0.204	0.434	0.435	0.147	147.1	125.2
102	8/14/1999	10:15:52 AM	0	25.142	21.674	24.897	22.946	22.516	31.883	4.742	10.935	3.614	1.098	6.199	-0.228	29.487	0.987	0	95	12.2	2.9	0.201	0.422	0.423	0.145	145.0	123.4
103	8/14/1999	10:16:54 AM	0	25.142	21.755	24.816	23.027	22.597	31.883	4.897	11.24	3.511	1.166	6.26	-0.228	29.61	0.976	0	96	12.3	3.0	0.209	0.426	0.428	0.141	141.3	120.2
104	8/14/1999	10:17:53 AM	0	25.222	21.755	24.816	23.027	22.597	31.883	4.804	11.057	3.519	1.403	6.229	-0.228	29.58	0.977	0	97	12.3	3.1	0.214	0.426	0.429	0.138	138.1	117.6
105	8/14/1999	10:18:54 AM	0	25.188	21.8	24.942	23.072	22.723	31.928	4.618	10.874	3.303	1.064	6.137	-0.228	29.211	0.982	0	98	12.1	2.8	0.196	0.429	0.429	0.151	151.1	128.6
106	8/14/1999	10:19:53 AM	0	25.188	21.8	24.942	23.072	22.803	32.007	4.742	11.027	3.543	1.403	6.168	-0.228	29.641	0.966	0	99	12.3	3.1	0.212	0.422	0.422	0.137	137.5	117.0
107	8/14/1999	10:20:53 AM	0	25.188	21.72	24.942	22.992	22.803	32.007	4.742	11.027	3.543	1.2	6.199	-0.228	29.487	0.979	0	100	12.2	3.0	0.205	0.427	0.428	0.144	144.1	122.6
108	8/14/1999	10:21:53 AM	0	25.188	21.72	24.862	23.072	22.803	32.007	4.68	10.905	3.495	1.233	6.199	-0.228	29.288	0.966	0	101	12.2	3.0	0.204	0.430	0.432	0.146	146.2	124.4
109	8/14/1999	10:22:54 AM	0	25.188	21.72	24.942	23.072	22.803	32.007	4.68	10.996	3.503	1.166	6.229	-0.228	29.533	0.991	0	102	12.3	2.9	0.202	0.433	0.433	0.148	148.2	126.2
110	8/14/1999	10:23:53 AM	0	25.233	21.765	24.987	23.117	22.848	32.052	4.773	11.027	3.511	1.2	6.199	-0.228	29.626	0.963	0	103	12.3	3.0	0.206	0.420	0.421	0.141	140.8	119.8
111	8/14/1999	10:24:52 AM	0	25.233	21.765	24.987	23.117	22.848	31.972	4.494	10.813	3.351	1.369	6.229	-0.228	29.242	0.978	0	104	12.1	2.9	0.202	0.427	0.427	0.146	145.7	124.0
112	8/14/1999	10:25:53 AM	0	25.233	21.765	24.907	23.117	22.848	31.972	4.835	11.118	3.511	1.267	6.26	-0.228	29.58	0.977	0	105	12.3	3.1	0.210	0.426	0.428	0.140	140.2	119.3
113	8/14/1999	10:26:52 AM	0	25.278	21.811	24.952	23.163	22.894	32.017	4.866	11.209	3.479	1.233	6.168	-0.228	29.149	0.976	0	106	12.1	3.0	0.210	0.426	0.427	0.140	139.9	119.1
114	8/14/1999	10:27:53 AM	0	25.278	21.811	24.952	23.163	22.894	31.859	4.711	11.027	3.543	1.233	6.229	-0.228	29.533	0.973	0	107	12.3	3.0	0.205	0.425	0.425	0.143	143.1	121.8
115	8/14/1999	10:28:52 AM	0	25.233	21.765	24.987	23.117	22.768	31.655	4.742	10.935	3.503	1.166	6.199	-0.228	29.257	0.975	0	108	12.1	3.0	0.204	0.426	0.426	0.144	144.1	122.7
116	8/14/1999	10:29:54 AM	0	25.278	21.73	24.952	23.163	22.672	32.255	4.68	10.966	3.399	1.2	6.229	-0.228	29.58	0.963	0	109	12.3	2.9	0.203	0.429	0.430	0.146	146.2	124.4
117	8/14/1999	10:30:53 AM	0	25.278	21.811	24.952	23.062	22.17	32.651	4.68	10.905	3.479	1.233	6.199	-0.228	29.441	0.963	0	110	12.2	3.0	0.204	0.429	0.430	0.145	145.3	123.7
118	8/14/1999	10:31:54 AM	0	25.278	21.811	25.032	23.062	21.848	32.968	4.711	10.844	3.63	1.166	6.168	-0.228	29.211	0.971	0	111	12.1	2.9	0.203	0.424	0.423	0.144	144.1	122.6
119	8/14/1999	10:32:53 AM	0	25.358	21.811	25.032	23.062	21.887	33.206	4.866	11.148	3.606	1.166	6.168	-0.228	29.38	0.978	0	112	12.2	3.0	0.208	0.427	0.427	0.141	141.4	120.4
120	8/14/1999	10:33:54 AM	0	25.313	21.846	24.987	22.957	21.4	33.319	4.618	10.935	3.383	1.233	6.199	-0.228	29.334	0.965	0	113	12.2	2.9	0.202	0.430	0.430	0.147	147.0	125.1
121	8/14/1999	10:34:52 AM	0	25.268	21.8	25.022	22.911	21.274	33.591	4.866	11.179	3.567	1.267	6.229	-0.228	29.487	0.974	0	114	12.2	3.1	0.211	0.425	0.425	0.139	138.6	117.9
122	8/14/1999	10:35:53 AM	0	25.348	21.881	25.102	22.911	21.274	33.67	4.711	10.935	3.535	1.233	6.168	-0.228	29.61	0.964	0	115	12.3	3.0	0.205	0.421	0.420	0.141	141.2	120.2
123	8/14/1999	10:36:53 AM	0	25.383	21.835	25.057	22.866	21.067	33.784	4.463	10.6	3.359	1.031	6.137	-0.228	29.288	0.971	0	116	12.2	2.7	0.189	0.424	0.423	0.154	154.1	131.1
124	8/14/1999	10:37:52 AM	0	25.418	21.951	25.092	22.821	21.022	33.739	4.649	10.874	3.415	1.267	6.199	-0.228	29.365	0.967	0	117	12.2	3.0	0.204	0.431	0.430	0.145	145.3	123.6
125	8/14/1999	10:38:53 AM	0	25.407	21.86	25.001	22.65	20.931	33.413	4.835	11.179	3.463	1.166	6.26	-0.228	29.672	0.972	0	118	12.3	3.0	0.207	0.424	0.424	0.141	141.4	120.3
126	8/14/1999	10:39:52 AM	0	25.362	21.815	25.036	22.604	20.966	33.21	4.742	11.027	3.479	1.2	6.199	-0.228	29.518	0.975	0	119	12.3	3.0	0.205	0.426	0.425	0.143	143.1	121.8
127	8/14/1999	10:40:54 AM	0	25.272	21.805	25.026	22.594	20.966	32.804	4.649	10.844	3.471	1.233	6.168	-0.228	29.626	0.973	0	120	12.3	2.9	0.203	0.425	0.424	0.144	144.3	122.8
128	8/14/1999	10:41:52 AM	0	25.387	21.84	25.061	22.549	20.991	32.442	4.649	10.905	3.415	1.166	6.199	-0.228	29.518	0.966	0	121	12.3	2.9	0.200	0.430	0.430	0.148	147.8	125.8
129																											
130		Averages		25.4	21.5	25.1	22.7	22.1	31.4	4.7	11.0	3.5	1.2	6.2	-0.2	29.5	0.979	0.0		12.2	3.0	0.204	0.427	0.426	0.144	144.1	122.6
131		Maximum		26.0	22.0	25.7	23.8	23.0	33.8	4.9	11.3	3.7	1.4	6.4	-0.2	29.9	1.003	0.0		12.4	3.1	0.214	0.438	0.435	0.154	154.1	131.1
132		Median		25.4	21.5	25.0	22.9	22.5	31.4	4.7	11.0	3.5	1.2	6.2	-0.2	29.5	0.978	0.0		12.2	3.0	0.204	0.427	0.426	0.144	144.1	122.6
133		Minimum		24.7	21.3	24.6	21.4	20.7	29.9	4.4	10.6	3.2	0.8	6.0	-0.3	29.0	0.959	0.0		12.0	2.7	0.189	0.419	0.413	0.137	137.1	116.7
134		Std. Deviation		0.3	0.2	0.3	0.8	0.7	0.8	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.008	0.0		0.1	0.1	0.005	0.004	0.004	0.003	3.4	2.9
135		Number of Points Used		121	121	121	121	121	121	121	121	121	121	121	121	121	121	121		121	121	121	121	121	121	121	121



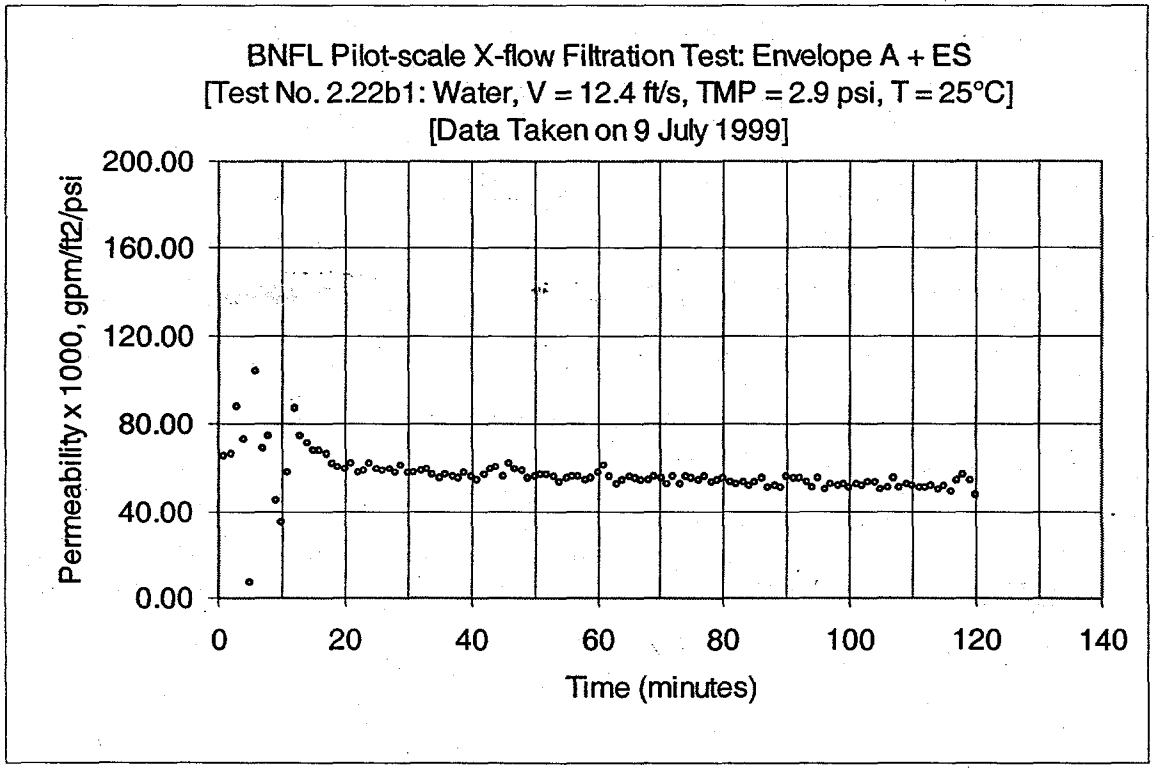


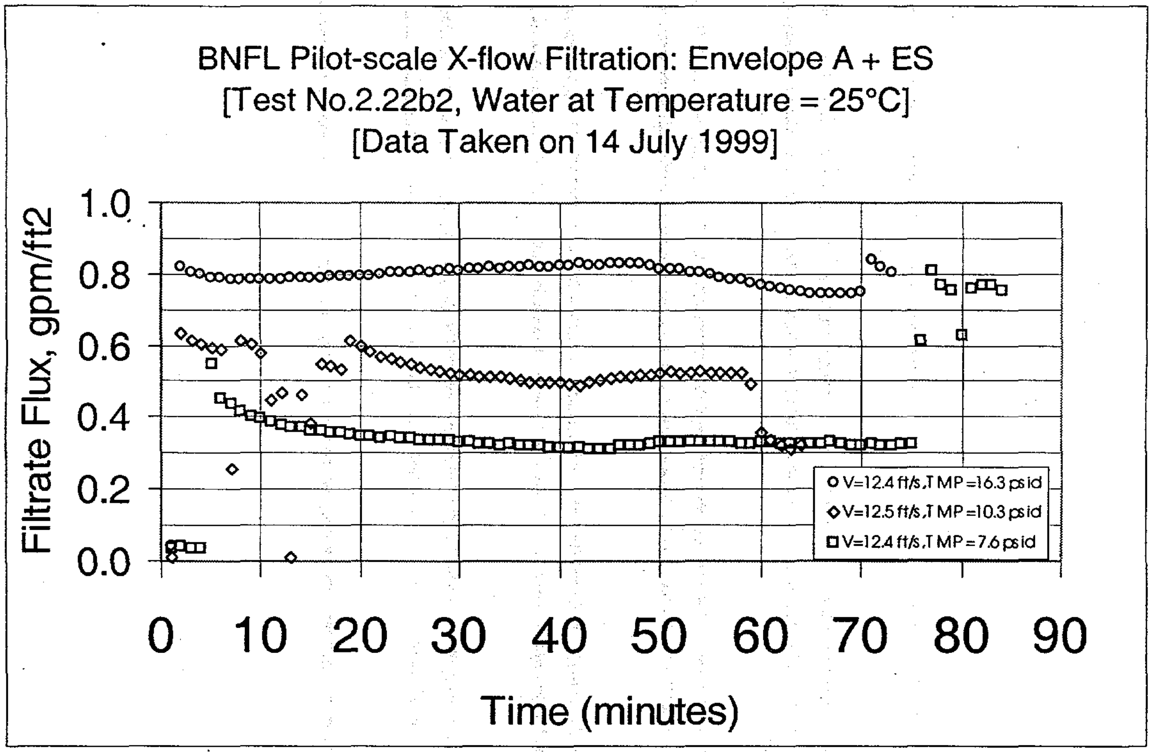
Figure A2: Test Run 2.22b1, Deionized and Filtered (0.2 micron) Water

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.22b1

DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig) (	SL FLOW	FLTR FLO	V9		Filter Surface Area =		2.29	FT2				
Zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
7/9/1999	8:44:18 AM	0	24.857	21.536	25.005	22.792	20.883	31.249	-0.061	0.055	-0.023	-0.011	-0.025	0.018	13.883	0.915	0.001									
7/9/1999	8:45:19 AM	0	25.096	21.536	25.248	22.712	20.803	31.169	-0.061	0.055	-0.023	-0.011	-0.025	0.018	13.36	1.027	0.001									
7/9/1999	8:46:19 AM	0	25.258	21.536	25.486	22.792	20.883	31.249	-0.061	0.116	-0.015	-0.011	0.006	-0.028	14.497	0.911	0.001									
7/9/1999	8:47:20 AM	0	25.578	21.536	25.726	22.792	20.803	31.169	-0.061	0.116	-0.031	-0.011	0.006	-0.028	14.804	0.999	0.001						at 25C	PERMIABILITY	x 1000	PERMIABILITY
Data																		Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
7/9/1999	9:54:56 AM	0	24.646	21.888	24.874	24.428	22.362	30.721	9.423	17.434	3.822	5.736	7.618	0.018	30.333	1.13	0.001	1	12.6	7.6	0.5	0.49	0.50	0.065	65.31	55.6
7/9/1999	9:55:57 AM	0	25.011	22.013	24.999	24.392	22.246	30.766	9.423	17.251	3.735	5.5	7.587	0.018	30.287	1.118	0.001	2	12.6	7.5	0.5	0.49	0.49	0.065	65.41	55.7
7/9/1999	9:56:57 AM	0	25.091	21.933	24.999	24.392	22.246	30.845	7.749	17.312	3.551	4.35	9.19	0.018	30.517	1.218	0.001	3	12.7	6.0	0.4	0.53	0.53	0.088	87.89	74.8
7/9/1999	9:57:57 AM	0	25.136	21.978	24.724	24.437	22.372	30.651	4.774	8.714	3.503	1.612	3.643	0.018	30.394	0.528	0.001	4	12.6	3.2	0.2	0.23	0.23	0.073	72.75	61.9
7/9/1999	9:58:58 AM	0	24.976	21.978	24.483	24.437	22.372	30.89	2.418	8.348	3.424	-0.789	5.677	0.018	29.488	0.012	0.001	5	12.2	0.8	0.1	0.01	0.01	0.007	6.53	5.6
7/9/1999	9:59:58 AM	0	24.816	21.978	24.162	24.437	22.291	30.89	5.704	12.861	2.761	2.998	6.878	0.018	26.14	1.014	0.001	6	10.8	4.4	0.3	0.44	0.45	0.104	104.17	88.7
7/9/1999	10:00:58 AM	0	24.736	21.978	23.922	24.437	22.291	30.969	4.216	8.47	3.575	0.868	3.951	0.018	31.255	0.388	0.001	7	13.0	2.5	0.2	0.17	0.17	0.069	68.69	58.5
7/9/1999	10:01:59 AM	0	24.54	22.023	23.726	24.402	22.256	30.934	4.588	10.239	3.575	1.139	5.43	0.018	29.934	0.469	0.001	8	12.4	2.9	0.2	0.20	0.21	0.074	74.12	63.1
7/9/1999	10:02:59 AM	0	24.299	22.023	23.485	24.402	22.256	30.934	3.1	10.666	3.615	-0.687	7.217	0.018	29.719	0.118	0.001	9	12.3	1.2	0.1	0.05	0.05	0.045	44.57	37.9
7/9/1999	10:03:59 AM	0	24.219	22.023	23.325	24.322	22.256	31.014	3.1	10.483	3.607	-0.484	7.125	0.018	29.841	0.1	0.001	10	12.4	1.3	0.1	0.04	0.05	0.035	35.00	29.8
7/9/1999	10:05:00 AM	0	23.898	22.023	23.405	24.402	22.176	31.014	4.65	16.459	2.426	1.308	11.778	0.018	24.466	0.376	0.001	11	10.2	3.0	0.2	0.16	0.17	0.058	57.64	49.1
7/9/1999	10:06:00 AM	0	23.702	22.068	23.53	24.447	22.221	30.979	5.206	10.117	3.471	1.984	4.66	0.018	29.918	0.686	0.001	12	12.4	3.6	0.2	0.30	0.31	0.087	86.81	73.9
7/9/1999	10:07:00 AM	0	23.702	22.068	23.611	24.527	22.301	31.058	5.332	9.629	3.679	1.646	4.043	0.018	30.717	0.573	0.001	13	12.7	3.5	0.2	0.25	0.26	0.075	74.57	63.5
7/9/1999	10:08:01 AM	0	23.782	22.068	23.691	24.367	22.301	31.058	4.65	9.019	3.479	1.443	3.982	0.018	30.01	0.478	0.001	14	12.5	3.0	0.2	0.21	0.22	0.071	71.08	60.5
7/9/1999	10:09:01 AM	0	23.828	22.113	23.816	24.492	22.266	31.262	4.65	9.08	3.551	1.308	4.074	0.018	30.01	0.448	0.001	15	12.5	3.0	0.2	0.19	0.20	0.068	67.58	57.5
7/9/1999	10:10:01 AM	0	23.908	22.113	23.977	24.492	22.186	31.023	4.526	8.958	3.4	1.274	4.136	0.018	29.934	0.434	0.001	16	12.4	2.9	0.2	0.19	0.20	0.067	67.25	57.2
7/9/1999	10:11:02 AM	0	23.988	22.113	24.137	24.492	22.186	31.262	4.464	8.958	3.352	1.24	4.167	0.018	29.765	0.418	0.001	17	12.4	2.9	0.2	0.18	0.19	0.066	65.56	55.8
7/9/1999	10:12:02 AM	0	24.068	22.113	24.217	24.492	22.186	31.262	4.712	9.263	3.503	1.206	4.228	0.018	29.78	0.411	0.001	18	12.4	3.0	0.2	0.18	0.18	0.062	61.99	52.8
7/9/1999	10:13:02 AM	0	24.149	22.033	24.378	24.412	22.266	31.023	4.588	9.202	3.479	1.308	4.321	0.018	29.888	0.4	0.001	19	12.4	2.9	0.2	0.17	0.18	0.060	60.28	51.3
7/9/1999	10:14:03 AM	0	24.309	22.113	24.458	24.572	22.266	31.103	4.588	9.202	3.559	1.24	4.29	0.018	29.903	0.389	0.001	20	12.4	2.9	0.2	0.17	0.17	0.059	59.17	50.4
7/9/1999	10:15:03 AM	0	24.47	22.113	24.698	24.572	22.186	31.341	4.464	9.08	3.424	1.139	4.29	0.018	29.903	0.39	0.001	21	12.4	2.8	0.2	0.17	0.17	0.061	61.29	52.2
7/9/1999	10:16:03 AM	0	24.675	22.159	24.743	24.537	22.15	31.306	4.712	9.385	3.607	1.139	4.321	0.018	29.857	0.382	0.001	22	12.4	2.9	0.2	0.17	0.17	0.057	57.42	48.9
7/9/1999	10:17:04 AM	0	24.755	22.159	24.964	24.537	22.231	31.227	4.464	9.141	3.463	1.172	4.321	0.018	29.934	0.375	0.001	23	12.4	2.8	0.2	0.16	0.16	0.058	58.12	49.5
7/9/1999	10:18:04 AM	0	24.835	22.159	25.064	24.537	22.15	31.227	4.464	9.202	3.519	0.97	4.382	0.018	29.826	0.382	0.001	24	12.4	2.7	0.2	0.17	0.17	0.061	61.27	52.1
7/9/1999	10:19:04 AM	0	25.121	22.204	25.269	24.582	22.195	31.351	4.402	9.08	3.439	1.172	4.382	0.018	29.734	0.381	0.003	25	12.3	2.8	0.2	0.17	0.17	0.059	59.23	50.4
7/9/1999	10:20:05 AM	0	25.156	22.078	25.304	24.537	22.07	31.544	4.278	9.019	3.376	1.206	4.382	0.018	29.98	0.369	0.001	26	12.4	2.7	0.2	0.16	0.16	0.058	58.25	49.6
7/9/1999	10:21:05 AM	0	25.281	22.123	25.509	24.582	22.035	31.668	4.464	9.141	3.503	1.071	4.351	0.018	29.888	0.382	0.001	27	12.4	2.8	0.2	0.17	0.16	0.059	59.40	50.6
7/9/1999	10:22:05 AM	0	25.441	22.204	25.589	24.582	21.954	31.965	4.464	9.141	3.447	1.139	4.29	0.018	29.949	0.373	0.001	28	12.4	2.8	0.2	0.16	0.16	0.057	57.17	48.7
7/9/1999	10:23:06 AM	0	25.521	22.204	25.749	24.662	21.954	32.065	4.402	9.019	3.535	0.936	4.321	0.018	29.857	0.378	0.001	29	12.4	2.7	0.2	0.17	0.16	0.061	60.54	51.5
7/9/1999	10:24:06 AM	0	25.762	22.204	25.829	24.422	21.712	32.223	4.402	9.08	3.455	1.206	4.382	0.018	29.841	0.376	0.001	30	12.4	2.8	0.2	0.16	0.16	0.057	57.19	48.7
7/9/1999	10:25:06 AM	0	25.717	22.159	25.864	24.457	21.587	32.337	4.402	8.958	3.455	1.206	4.321	0.018	29.918	0.377	0.001	31	12.4	2.8	0.2	0.16	0.16	0.057	57.29	48.8
7/9/1999	10:26:07 AM	0	25.842	22.284	26.069	24.502	21.632	32.382	4.278	8.897	3.424	1.172	4.321	0.018	29.964	0.375	0.001	32	12.4	2.7	0.2	0.16	0.16	0.058	58.30	49.6
7/9/1999	10:27:07 AM	0	26.037	22.239	26.104	24.457	21.426	32.02	4.278	8.897	3.352	1.139	4.321	0.018	29.949	0.376	0.001	33	12.4	2.7	0.2	0.16	0.16	0.059	58.75	50.0
7/9/1999	10:28:07 AM	0	25.912	22.274	26.139	24.492	21.461	32.134	4.154	8.775	3.32	1.375	4.351	0.018	29.872	0.371	0.001	34	12.4	2.8	0.2	0.16	0.16	0.057	56.74	48.3
7/9/1999	10:29:08 AM	0	26.197	22.319	26.264	24.457	21.426	32.02	4.526	9.08	3.511	1.105	4.351	0.018	29.934	0.365	0.003	35	12.4	2.8	0.2	0.16	0.15	0.055	54.62	46.5
7/9/1999	10:30:08 AM	0	26.152	22.274	26.139	24.412	21.461	32.214	4.526	9.202	3.447	1.037	4.351	0.018	29.903	0.371	0.003	36	12.4	2.8	0.2	0.16	0.16	0.056	56.40	48.0
7/9/1999	10:31:08 AM	0	26.152	22.274	25.899	24.412	21.461	31.898	4.464	9.141	3.408	1.206	4.29	0.018	29.688	0.373	0.001	37	12.3	2.8	0.2	0.16	0.16	0.056	56.00	47.7
7/9/1999	10:32:09 AM	0	26.072	22.274	25.659	24.251	21.541	31.579	4.588	9.202	3.519	1.139	4.29	0.018	29.765	0.367	0.001	38	12.4	2.9	0.2	0.16	0.16	0.055	54.92	46.7
7/9/1999	10:33:09 AM	0	25.947	22.31	25.454	24.367	21.738	31.535	4.402	9.08	3.416	1.172	4.321	0.018	29.98	0.369	0.001	39	12.4	2.8	0.2	0.16	0.16	0.057	57.07	48.6
7/9/1999	10:34:09 AM	0	25.707	22.229	25.214	24.447	21.738	31.614	4.588	9.141	3.519	1.172	4.259	0.018	29.888	0.367	0.001	40	12.4	2.9	0.2	0.16	0.16	0.055	55.29	47.1
7/9/1999	10:35:10 AM	0	25.627	22.31	25.054	24.527	21.818	31.455	4.712	9.263	3.567	1.206	4.259	0.018	29.964	0.366	0.001	41	12.4	3.0	0.2	0.16	0.16	0.054	53.91	45.9
7/9/1999	10:36:10 AM	0	25.547	22.31	24.814	24.527	21.899	31.138	4.588	9.141	3.535	1.071	4.29	0.018	29.841	0.366	0.001	42	12.4	2.8	0.2	0.16	0.16	0.057	56.76	48.3
7/9/1999	10:37:10 AM	0	25.306	22.31	24.653	24.527	21.899	31.217	4.34	8.958	3.479	1.172	4.321	0.018	29.872	0.367	0.001	43	12.4	2.8	0.2	0.16	0.16	0.059	58.70	50.0
7/9/1999	10:38:11 AM	0	25.101	22.264	24.448	24.643	22.015	31.093	4.402	8.958	3.447	1.139	4.259	0.018	29.934	0.373	0.001	44	12.4	2.8	0.2	0.16	0.17	0.060	59.69	50.8
7/9/1999	10:39:11 AM	0	25.066	22.31	24.333	24.688	21.979	31.376	4.526	9.08	3.479	1.274	4.259	0.064	30.01	0.383	0.001	45	12.5	2.9	0.2	0.16	0.16	0.056	55.68	47.4
7/9/1999	10:40:11 AM	0	24.906	22.31	24.092	24.688	22.06	31.217	4.402	8.958	3.559	1.037	4.228	0.018	29.857	0.372	0.001	46	12.4	2.7	0.2	0.16	0.17	0.061	61.27	52.1
7/9/1999	10:41:12 AM	0	24.7	22.345	23.967	24.562	22.015	31.252	4.526	9.141	3.551	1.037	4.259	0.018	29.78	0.364	0.001	47	12.4	2.8	0.2	0.16	0.16	0.059	58.82	50.1
7/9/1999	10:42:12 AM	0	24.54	22.264	23.806	24.643	22.015	31.172	4.464	9.019	3.559	1.139	4.228	0.018	29.918	0.36	0.001	48	12.4	2.8	0.2	0.16	0.16	0.058	58.02	49.4
7/9/1999	10:43:12 AM	0	24.344	22.31	23.691	24.367	22.06	31.138	4.712	9.263	3.647	1.206	4.228	0.018	29.872	0.36	0.001	49	12.4	3.0	0.2	0.16	0.16	0.055	55.11	46.9
7/9/1999	10:44:13 AM	0	24.264	22.39	23.53	24.607	22.14	31.058	4.712	9.263	3.607	1.172	4.228	0.018	28.672	0.36	0.001	50	12.3	2.9	0.2	0.16	0.16	0.056	55.69	47.4
7/9/1999	10:45:13 AM	0	24.184	22.31	23.611	24.527	22.14	31.217	4.526	9.141	3.439	1.24	4.228	0.018	29.857	0.357	0.001	51	12.4	2.9	0.2	0.16	0.16	0.056	56.22	47.8
7/9/1999	10:46:13 AM	0	24.023	22.39	23.691	24.688	22.221	31.138	4.402	8.958	3.336	1.375	4.228	0.064	29.78	0.36	0.001	52	12.4	2.9	0.2	0.16	0.16	0.056	56.46	48.0
7/9/1999	10:47:14 AM	0	24.023	22.39	23.771	24.688	22.14	31.138	4.464	8.958	3.439	1.308	4.197	0.064	29.749	0.354	0.001	53	12.3	2.9	0.2	0.15	0.16	0.055	55.44	47.2
7/9/1999	10:48:14 AM	0	24.023	22.39	23.851	24.688	22.14	31.217	4.774	9.324	3.535	1.308	4.197	0.018	29.841	0.356	0.003	54	12.4	3.0	0.2	0.16	0.16	0.053	52.79	44.9
7/9/1999	10:49:14 AM	0	23.943	22.31	23.932	24.688	22.221	31.138	4.588	9.202	3.543	1.24	4.259	0.018	29.872	0.357	0.001	55	12.4	2.9	0.2	0.16	0.16	0.055	55.12	46.9
7/9/1999	10:50:15 AM	0	24.023	22.31	24.012	24.527	22.06	31.058	4.588	9.141	3.416	1.139	4.228	0.018	29.903	0.357	0.001	56	12.4	2.9	0.2	0.16	0.16	0.056	55.96	47.6
7/9/1999	10:51:15 AM	0	24.068	22.355	24.137	24.733	22.266	31.103	4.65	9.202	3.519	1.071	4.228	0.018	29.826	0.358	0.001	57	12.4	2.9	0.2	0.16	0.16	0.056	55.98	47.6
7/9/1999	10:52:15 AM	0	24.149	22.435	24.137	24.652	22.266	31.0[illegible]	4.774	9.324	3.575	1.139	4.197	0.018	29.841	0.357	0.001	58	12.4	3.0	0.2	0.16	0.16	0.054	54.01	46.0
7/9/1999	10:53:16 AM	0	24.229	22.435	24.297	24.733	22.186	31.0[illegible]	4.588	9.08	3.439	1.139	4.228	0.064	29.857	0.352	0.001	59	12.4	2.9	0.2	0.15	0.16	0.055	54.74	46.6
7/9/1999	10:54:16 AM	0	24.309	22.435	24.378	24.733	22.346	31.023	4.464	9.08	3.535	1.071	4.29	0.018	29.811	0.356	0.001	60	12.4	2.8	0.2	0.16	0.16	0.057	57.15	48.6
7/9/1999	10:55:16 AM	0	24.389	22.435	24.378	24.652	22.266	31.023	4.34	8.958	3.455	1.003	4.259	0.018	29.811	0.365	0.001	61	12.4	2.7	0.2	0.16	0.16	0.061	60.70	51.7
7/9/1999	10:56:17 AM	0	24.47	22.435	24.458	24.733	22.266	31.103	4.526	9.08	3.424	1.274	4.259	0.064	29.795	0.363	0.001	62	12.4	2.9	0.2	0.16	0.16	0.055	55.48	47.2
7/9/1999	10:57:17 AM	0	24.595	22.4	24.583	24.858	22.392	31.068	4.65	9.141	3.447	1.341	4.228	0.018	29.826	0.356	0.001	63	12.4	3.0	0.2	0.16	0.16	0.052	52.49	44.7
7/9/1999	10:58:18 AM	0	24.595	22.48	24.583	24.938	22.392	31.068	4.588	9.202	3.511	1.274	4.228	0.018	29.903	0.36	0.001	64	12.4	2.9	0.2	0.16	0.16	0.054	54.25	46.2
7/9/1999	10:59:18 AM	0	24.755	22.4	24.743	25.018	22.392	31.227	4.402	8.958	3.455	1.24	4.228	0.064	29.811	0.356	0.003	65	12.4	2.8	0.2	0.16	0.16	0.055	55.49	47.2
7/9/1999	11:00:18 AM	0	24.675	22.48	24.823	25.018	22.392	30.909	4.34	8.897	3.368	1.409	4.259	0.018	29.719	0.36	0.001	66	12.3	2.9	0.2	0.16	0.16	0.055	54.95	46.8
7/9/1999	11:01:18 AM	0	24.835	22.48	24.823	25.018	22.392	31.227	4.464	9.08	3.439	1.375	4.228	0.018	29.826	0.357	0.001	67	12.4	2.9	0.2	0.16	0.16	0.054	53.65	45.7
7/9/1999	11:02:19 AM	0	24.835	22.48	24.904	25.098	22.311	31.624	4.65	9.141	3.551	1.071	4.259	0.064	29.888	0.354	0.001	68	12.4	2.9	0.2	0.15	0.15	0.054	54.17	46.1
7/9/1999	11:03:19 AM	0	24.961	22.526	25.029	25.063	22.195	31.748	4.588	9.202	3.551	1.206	4.29	0.018	29.765	0.369	0.001	69	12.4	2.9	0.2	0.16	0.16	0.056	55.56	47.3
7/9/1999	11:04:19 AM	0	25.121	22.526	25.029	25.143	22.115	31.906	4.464	9.08	3.432	1.274	4.228	0.018	29.872	0.363	0.001	70	12.4	2.9	0.2	0.16	0.16	0.055	55.19	47.0
7/9/1999	11:05:20 AM	0	25.121	22.445	25.109	24.983	21.954	32.065	4.588	9.019	3.408	1.409	4.29	0.064	29.78	0.36	0.001	71	12.4	3.0	0.2	0.16	0.16	0.052	52.25	44.5
7/9/1999	11:06:20 AM	0	25.201	22.526	25.189	24.903	21.793	32.144	4.402	8.958	3.463	1.139	4.29	0.018	29.811	0.356	0.001	72	12.4	2.8	0.2	0.16	0.15	0.056	55.80	47.5
7/9/1999	11:07:20 AM	0	25.156	22.48	25.224	24.858	21.748	32.1	4.65	9.263	3.503	1.274	4.29	0.064	30.01	0.36	0.001	73	12.5	3.0	0.2	0.16	0.16	0.053	52.72	44.9
7/9/1999	11:08:21 AM	0	25.316	22.48	25.304	24.858	21.587	32.02	4.464	9.08	3.487	1.206	4.29	0.064	29.811	0.364	0.001	74	12.4	2.8	0.2	0.16	0.16	0.056	55.57	47.3
7/9/1999	11:09:21 AM	0	25.396	22.48	25.304	24.858	21.667	32.02	4.402	9.019	3.463	1.139	4.259	0.018	29.903	0.351	0.001	75	12.4	2.8	0.2	0.15	0.15	0.055	54.84	46.7

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.22b1

7/9/1999	11:10:22 AM	0	25.396	22.561	25.384	24.858	21.748	32.179	4.464	9.08	3.535	1.308	4.29	0.064	29.98	0.362	0.001	76	12.4	2.9	0.2	0.16	0.16	0.054	54.17	46.1
7/9/1999	11:11:22 AM	0	25.351	22.516	25.499	24.652	21.38	32.134	4.588	9.202	3.575	1.105	4.29	0.018	29.918	0.366	0.001	77	12.4	2.8	0.2	0.16	0.16	0.055	55.35	47.1
7/9/1999	11:12:22 AM	0	25.511	22.516	25.499	24.733	21.541	32.134	4.712	9.324	3.559	1.105	4.321	0.018	29.841	0.357	0.001	78	12.4	2.9	0.2	0.16	0.15	0.053	52.84	45.0
7/9/1999	11:13:23 AM	0	25.592	22.516	25.579	24.652	21.461	32.055	4.526	9.08	3.416	1.206	4.29	0.018	29.964	0.363	0.001	79	12.4	2.9	0.2	0.16	0.16	0.054	54.40	46.3
7/9/1999	11:14:23 AM	0	25.672	22.516	25.659	24.733	21.461	31.738	4.464	9.08	3.439	1.172	4.321	0.064	29.872	0.359	0.001	80	12.4	2.8	0.2	0.16	0.15	0.055	54.59	46.5
7/9/1999	11:15:23 AM	0	25.752	22.516	25.739	24.893	21.622	31.658	4.65	9.263	3.575	1.24	4.321	0.018	29.918	0.364	0.001	81	12.4	2.9	0.2	0.16	0.16	0.053	52.85	45.0
7/9/1999	11:16:24 AM	0	25.752	22.516	25.819	24.733	21.622	31.42	4.526	9.08	3.4	1.206	4.259	0.018	29.811	0.352	0.001	82	12.4	2.9	0.2	0.15	0.15	0.052	52.40	44.6
7/9/1999	11:17:24 AM	0	25.832	22.596	25.899	24.813	21.783	[illegible]	4.526	9.141	3.4	1.274	4.259	0.018	29.795	0.363	0.001	83	12.4	2.9	0.2	0.16	0.15	0.053	53.28	45.3
7/9/1999	11:18:24 AM	0	25.867	22.551	25.854	24.848	21.818	31.296	4.712	9.202	3.447	1.206	4.228	0.018	29.765	0.355	0.001	84	12.4	3.0	0.2	0.15	0.15	0.051	51.13	43.5
7/9/1999	11:19:25 AM	0	25.912	22.596	25.979	24.733	21.864	31.341	4.712	9.263	3.543	1.105	4.29	0.018	29.903	0.362	0.001	85	12.4	2.9	0.2	0.16	0.15	0.053	52.86	45.0
7/9/1999	11:20:25 AM	0	25.947	22.551	26.014	24.848	21.818	31.296	4.34	8.897	3.424	1.172	4.259	0.018	29.964	0.358	0.001	86	12.4	2.8	0.2	0.16	0.15	0.055	55.12	46.9
7/9/1999	11:21:25 AM	0	25.947	22.551	26.094	24.768	21.899	31.138	4.774	9.324	3.519	1.172	4.29	0.064	29.872	0.356	0.001	87	12.4	3.0	0.2	0.16	0.15	0.051	50.69	43.1
7/9/1999	11:22:26 AM	0	26.107	22.631	26.094	24.768	21.899	31.217	4.65	9.202	3.487	1.172	4.259	0.018	29.841	0.356	0.001	88	12.4	2.9	0.2	0.16	0.15	0.052	51.77	44.1
7/9/1999	11:23:26 AM	0	26.107	22.551	26.094	24.768	21.979	31.217	4.65	9.324	3.535	1.274	4.321	0.018	29.811	0.353	0.001	89	12.4	3.0	0.2	0.15	0.15	0.050	50.45	42.9
7/9/1999	11:24:26 AM	0	26.187	22.551	26.174	24.688	21.979	31.138	4.216	8.897	3.439	1.375	4.321	0.064	30.026	0.367	0.001	90	12.5	2.8	0.2	0.16	0.16	0.055	55.45	47.2
7/9/1999	11:25:27 AM	0	26.187	22.551	26.254	24.768	22.06	30.979	4.464	9.141	3.519	1.172	4.321	0.018	29.949	0.368	0.001	91	12.4	2.8	0.2	0.16	0.16	0.055	55.04	46.8
7/9/1999	11:26:27 AM	0	26.312	22.596	26.379	24.893	22.186	31.182	4.464	9.08	3.432	1.105	4.29	0.018	29.826	0.363	0.001	92	12.4	2.8	0.2	0.16	0.15	0.055	54.75	46.6
7/9/1999	11:27:27 AM	0	26.312	22.596	26.379	24.813	22.105	31.103	4.278	8.836	3.352	1.341	4.29	0.018	29.98	0.356	0.001	93	12.4	2.8	0.2	0.16	0.15	0.053	53.22	45.3
7/9/1999	11:28:28 AM	0	26.392	22.596	26.379	24.893	22.186	31.103	4.588	9.202	3.471	1.274	4.29	0.064	29.934	0.355	0.001	94	12.4	2.9	0.2	0.15	0.15	0.051	50.87	43.3
7/9/1999	11:29:28 AM	0	26.392	22.596	26.459	24.973	22.186	31.023	4.278	8.897	3.447	1.24	4.29	0.018	29.949	0.363	0.001	95	12.4	2.8	0.2	0.16	0.15	0.055	55.13	46.9
7/9/1999	11:30:28 AM	0	26.472	22.596	26.539	25.053	22.266	31.103	4.526	9.141	3.447	1.477	4.29	0.018	29.98	0.357	0.001	96	12.4	3.0	0.2	0.16	0.15	0.050	49.73	42.3
7/9/1999	11:31:29 AM	0	26.472	22.596	26.539	25.053	22.266	30.865	4.526	9.08	3.519	1.139	4.259	0.018	29.857	0.355	0.001	97	12.4	2.8	0.2	0.15	0.15	0.052	52.40	44.6
7/9/1999	11:32:29 AM	0	26.597	22.641	26.664	25.098	22.231	30.909	4.588	9.202	3.503	1.24	4.29	0.064	29.841	0.359	0.001	98	12.4	2.9	0.2	0.16	0.15	0.051	51.33	43.7
7/9/1999	11:33:29 AM	0	26.597	22.641	26.664	25.098	22.392	31.068	4.526	9.202	3.559	1.071	4.259	0.018	29.841	0.35	0.001	99	12.4	2.8	0.2	0.15	0.15	0.052	52.11	44.3
7/9/1999	11:34:30 AM	0	26.677	22.641	26.664	25.259	22.392	31.068	4.65	9.324	3.439	1.375	4.321	0.018	29.857	0.364	0.001	100	12.4	3.0	0.2	0.16	0.15	0.050	50.35	42.8
7/9/1999	11:35:30 AM	0	26.801	22.687	26.789	25.223	22.276	31.51	4.34	8.958	3.32	1.341	4.29	0.018	29.903	0.357	0.001	101	12.4	2.8	0.2	0.16	0.15	0.052	52.19	44.4
7/9/1999	11:36:31 AM	0	26.836	22.641	26.824	25.178	22.15	31.703	4.402	8.958	3.392	1.308	4.228	0.064	29.811	0.357	0.001	102	12.4	2.9	0.2	0.16	0.15	0.052	51.87	44.1
7/9/1999	11:37:31 AM	0	26.836	22.641	26.824	24.938	21.989	31.544	4.34	8.958	3.36	1.274	4.259	0.064	29.857	0.361	0.001	103	12.4	2.8	0.2	0.16	0.15	0.053	53.35	45.4
7/9/1999	11:38:32 AM	0	26.881	22.606	26.948	25.143	21.954	31.985	4.526	9.141	3.535	1.071	4.29	0.018	29.872	0.358	0.001	104	12.4	2.8	0.2	0.16	0.15	0.053	52.88	45.0
7/9/1999	11:39:32 AM	0	26.916	22.561	26.963	25.098	21.828	31.941	4.588	9.202	3.519	1.274	4.29	0.064	29.949	0.354	0.001	105	12.4	2.9	0.2	0.15	0.15	0.050	49.88	42.4
7/9/1999	11:40:32 AM	0	26.996	22.641	26.963	25.098	21.748	31.862	4.588	9.141	3.439	1.274	4.29	0.018	29.888	0.36	0.001	106	12.4	2.9	0.2	0.16	0.15	0.051	50.73	43.2
7/9/1999	11:41:33 AM	0	26.916	22.641	27.063	25.178	21.748	32.1	4.154	8.775	3.32	1.24	4.29	0.064	29.98	0.359	0.001	107	12.4	2.7	0.2	0.16	0.15	0.055	54.85	46.7
7/9/1999	11:42:33 AM	0	27.076	22.722	27.063	25.178	21.587	32.02	4.774	9.385	3.551	1.172	4.321	0.018	30.026	0.363	0.001	108	12.5	3.0	0.2	0.16	0.15	0.050	50.31	42.8
7/9/1999	11:43:33 AM	0	27.076	22.641	27.063	25.178	21.587	32.179	4.526	9.08	3.352	1.139	4.259	0.064	29.811	0.359	0.001	109	12.4	2.8	0.2	0.16	0.15	0.052	52.23	44.4
7/9/1999	11:44:34 AM	0	27.111	22.677	27.098	25.214	21.622	32.214	4.402	9.08	3.503	1.274	4.321	0.018	29.98	0.356	0.001	110	12.4	2.8	0.2	0.16	0.15	0.052	51.64	43.9
7/9/1999	11:45:34 AM	0	27.236	22.641	27.223	25.339	21.506	31.862	4.34	8.958	3.392	1.443	4.351	0.064	29.903	0.357	0.001	111	12.4	2.9	0.2	0.15	0.15	0.051	50.65	43.1
7/9/1999	11:46:34 AM	0	27.191	22.677	27.018	25.214	21.541	31.976	4.588	9.202	3.447	1.172	4.259	0.064	29.918	0.354	0.001	112	12.4	2.9	0.2	0.16	0.15	0.051	50.71	43.2
7/9/1999	11:47:35 AM	0	27.111	22.677	26.819	25.294	21.622	32.055	4.65	9.263	3.607	1.139	4.29	0.064	29.934	0.356	0.001	113	12.4	2.9	0.2	0.16	0.15	0.051	51.31	43.7
7/9/1999	11:48:35 AM	0	26.951	22.757	26.299	25.294	21.641	32.134	4.588	9.141	3.416	1.477	4.259	0.064	29.918	0.357	0.001	114	12.4	3.0	0.2	0.15	0.15	0.050	49.55	42.2
7/9/1999	11:49:35 AM	0	26.747	22.631	26.014	25.249	21.577	31.773	4.464	9.08	3.392	1.308	4.259	0.018	29.841	0.349	0.001	115	12.4	2.9	0.2	0.16	0.15	0.051	51.31	43.7
7/9/1999	11:50:36 AM	0	26.552	22.757	25.739	24.973	21.622	31.579	4.836	9.385	3.551	1.409	4.259	0.064	29.826	0.358	0.001	116	12.4	3.1	0.2	0.16	0.15	0.049	49.02	41.7
7/9/1999	11:51:36 AM	0	26.427	22.712	25.454	25.008	21.738	31.376	4.588	9.202	3.479	1.139	4.228	0.064	29.78	0.36	0.001	117	12.4	2.9	0.2	0.16	0.16	0.054	54.19	46.1
7/9/1999	11:52:36 AM	0	26.107	22.712	25.214	24.848	21.738	31.296	4.34	8.836	3.439	1.274	4.228	0.018	29.734	0.364	0.001	118	12.3	2.8	0.2	0.16	0.16	0.056	56.27	47.9
7/9/1999	11:53:37 AM	0	25.867	22.712	24.974	25.008	21.899	31.217	4.402	9.019	3.503	1.274	4.29	0.064	29.888	0.352	0.001	119	12.4	2.8	0.2	0.15	0.15	0.054	54.18	46.1
7/9/1999	11:54:37 AM	0	25.787	22.792	24.814	24.928	22.06	31.058	0.125	-1.164	-0.207	0.598	-1.72	0.064	-0.079	0.039	0.001	120	0.0	0.4	0.0	0.02	0.02	0.047	47.34	40.3
	Averages		25.5	22.4	25.4	24.8	22.0	31.5	4.5	9.1	3.5	1.2	4.3	0.0	29.9	0.367	0.0		12.4	2.9	0.2	0.160	0.158	0.055	55.4	47.1
	Maximum		23.8	22.0	23.5	24.3	21.4	30.9	4.2	8.8	3.3	0.9	4.0	0.0	29.7	0.349	0.0		12.3	2.7	0.2	0.152	0.146	0.049	49.0	41.7
	Median		25.6	22.5	25.6	24.7	22.0	31.3	4.5	9.1	3.5	1.2	4.3	0.0	29.9	0.361	0.0		12.4	2.9	0.2	0.157	0.157	0.055	55.1	46.9
	Minimum		27.2	22.8	27.2	25.3	22.4	32.4	4.8	9.4	3.6	1.5	4.4	0.1	30.0	0.478	0.0		12.5	3.1	0.2	0.209	0.217	0.071	71.1	60.5
	Std Dev		1.0	0.2	1.0	0.3	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.019	0.0		0.0	0.1	0.0	0.008	0.011	0.004	3.9	3.3
	Number of Points Used		106	106	106	106	106	106	106	106	106	106	106	106	106	106	106		106	106	106	106	106	106	106	106



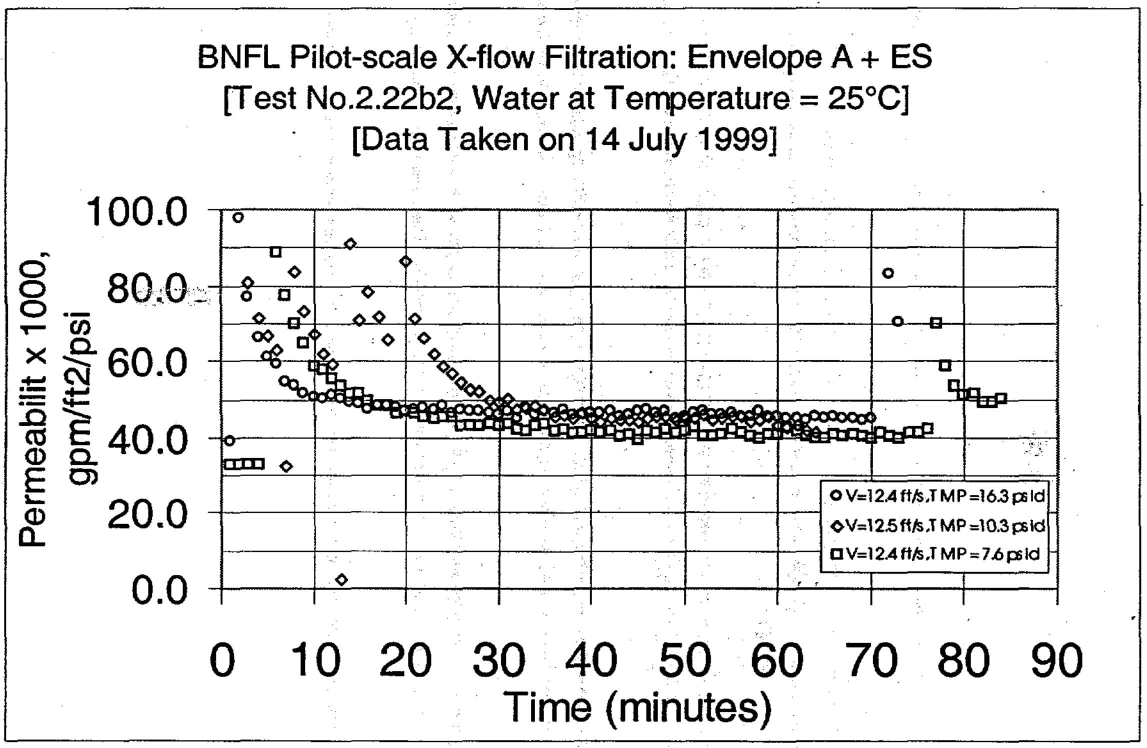


Figure A3: Test Run 2.22b, Deionized and Filtered (0.2 micron) Water

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.22b2

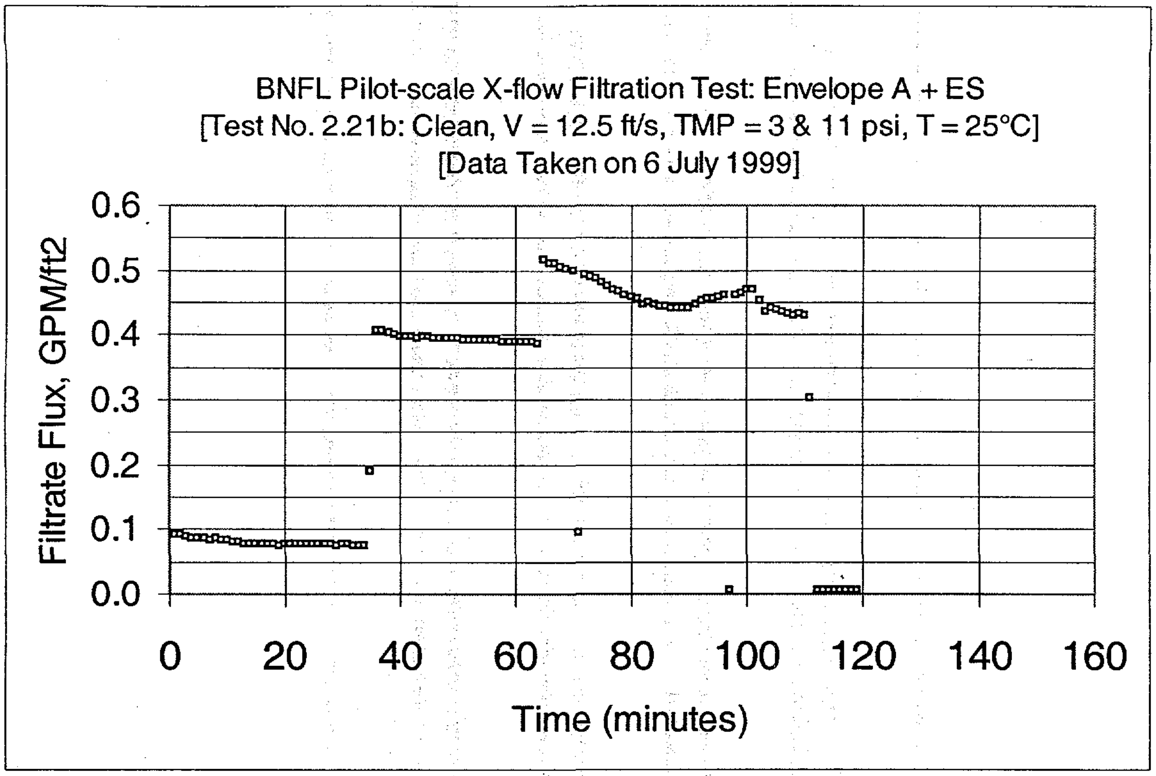
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) P	PISTON (psig) F	SL FLOW (	Q2,FLTR F	Q3,FLTR FLOW (gpm)			Filter Surface Area =		2.29	FT2				
2	Zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM	GPM			Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	7/14/1999	12:34:47 PM	0	22.49	21.994	22.325	22.622	20.984	31.087	-0.062	-0.011	-0.024	-0.017	-0.068	-0.042	-0.08	0.011	-0.018										
4	7/14/1999	12:36:03 PM	0	22.49	21.994	22.325	22.622	20.984	31.087	-0.062	-0.011	-0.024	-0.017	-0.068	-0.042	-0.08	0.011	-0.018										
5	7/14/1999	12:37:03 PM	0	22.526	21.869	22.26	22.577	20.858	30.963	-0.062	0.111	-0.024	-0.017	-0.057	-0.042	-0.08	0.013	-0.018										
6	7/14/1999	12:38:03 PM	0	22.526	21.949	22.36	22.658	20.777	30.963	0	0.05	-0.024	-0.017	-0.057	-0.069	-0.08	0.011	-0.015							at 25C	PERMIABILITY	x 1000	PERMIABILITY
7	Data																		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	7/14/1999	12:39:44 PM	0	22.481	21.904	22.315	22.532	20.694	30.681	-0.124	-1.23	-0.08	-0.061	-1.228	-0.042	-0.08	0.012	0.018	1	1	0.0	-0.1	0.0	0.008	0.008	-0.097	-96.92	-82.5
9	7/14/1999	12:40:44 PM	0	22.561	21.904	22.396	22.532	21.065	30.442	6.365	20.417	1.141	5.189	13.718	-0.042	16.77	0.955	1.349	2	2	7.0	5.8	0.4	0.589	0.634	0.110	109.57	93.2
10	7/14/1999	12:41:45 PM	0	22.722	21.904	22.476	22.613	21.216	30.363	9.546	21.027	4.005	5.662	11.314	-0.042	32.037	1.218	1.312	3	3	13.3	7.6	0.5	0.573	0.615	0.081	80.92	68.9
11	7/14/1999	12:42:45 PM	0	22.803	21.904	22.717	22.532	21.297	30.204	10.166	21.271	3.874	6.677	10.883	-0.042	30.194	1.218	1.294	4	4	12.5	8.4	0.6	0.565	0.603	0.072	71.56	60.9
12	7/14/1999	12:43:45 PM	0	22.926	22.03	22.843	22.658	21.503	30.009	10.848	21.332	3.742	6.879	10.236	-0.042	30.133	1.218	1.273	5	5	12.5	8.9	0.6	0.556	0.591	0.067	66.65	56.7
13	7/14/1999	12:44:45 PM	0	23.069	21.949	22.923	22.738	21.664	30.089	11.034	21.454	3.479	7.657	10.112	-0.042	29.81	1.218	1.273	6	6	12.4	9.3	0.6	0.556	0.589	0.063	63.07	53.7
14	7/14/1999	12:45:46 PM	0	23.169	21.949	23.084	22.738	21.664	30.009	11.22	22.856	2.793	4.479	10.605	-0.042	13.728	0.574	0.551	7	7	5.7	7.8	0.5	0.241	0.254	0.032	32.35	27.5
15	7/14/1999	12:46:46 PM	0	23.375	21.994	23.269	22.844	21.789	30.054	9.112	21.698	3.654	5.595	12.3	-0.069	30.47	1.218	1.34	8	8	12.6	7.4	0.5	0.585	0.614	0.083	83.50	71.1
16	7/14/1999	12:47:47 PM	0	23.535	21.994	23.37	23.024	21.87	30.054	10.29	21.942	3.782	6.136	11.407	-0.042	30.455	1.218	1.319	9	9	12.6	8.2	0.6	0.576	0.603	0.073	73.42	62.5
17	7/14/1999	12:48:47 PM	0	23.616	21.994	23.53	23.024	22.031	29.974	10.166	20.6	3.351	7.048	10.174	-0.042	28.658	1.218	1.27	10	10	11.9	8.6	0.6	0.554	0.578	0.067	67.15	57.1
18	7/14/1999	12:49:47 PM	0	23.821	22.039	23.655	23.15	22.156	29.86	8.926	18.905	3.295	5.493	8.661	-0.042	28.766	1.032	0.984	11	11	11.9	7.2	0.5	0.430	0.446	0.062	61.89	52.7
19	7/14/1999	12:50:47 PM	0	23.901	21.959	23.816	23.15	22.237	29.86	9.546	17.165	3.646	6.203	7.4	-0.042	30.24	1.069	1.032	12	12	12.5	7.9	0.5	0.451	0.466	0.059	59.16	50.3
20	7/14/1999	12:51:48 PM	0	23.901	21.959	23.976	23.15	22.156	29.701	8.145	17.856	3.71	1.335	12.3	-0.042	30.025	0.046	0.018	13	13	12.5	3.2	0.2	0.008	0.008	0.002	2.50	2.1
21	7/14/1999	12:52:48 PM	0	24.107	21.923	24.101	23.114	22.201	30.063	7.067	17.673	3.67	3.059	10.297	-0.042	30.056	1.069	1.029	14	14	12.5	5.1	0.3	0.449	0.461	0.091	91.00	77.4
22	7/14/1999	12:53:48 PM	0	24.187	22.004	24.182	23.195	22.04	30.222	8.058	17.917	5.346	2.721	9.712	-0.042	36.399	0.894	0.853	15	15	15.1	5.4	0.4	0.372	0.381	0.071	70.71	60.2
23	7/14/1999	12:54:49 PM	0	24.392	22.049	24.367	23.239	22.005	30.348	8.74	21.698	3.562	5.189	12.793	-0.042	29.902	1.218	1.23	16	16	12.4	7.0	0.5	0.537	0.546	0.078	78.44	66.8
24	7/14/1999	12:55:49 PM	0	24.473	21.968	24.467	23.239	21.924	30.505	9.36	22.166	3.399	5.696	12.393	-0.042	29.626	1.218	1.221	17	17	12.3	7.5	0.5	0.533	0.541	0.072	71.88	61.2
25	7/14/1999	12:56:49 PM	0	24.678	22.013	24.592	23.284	21.808	30.47	10.104	22.247	3.495	6.102	12.023	-0.042	29.656	1.218	1.203	18	18	12.3	8.1	0.6	0.525	0.531	0.066	65.56	55.8
26	7/14/1999	12:57:50 PM	0	24.758	22.013	24.752	23.124	21.808	30.55	7.872	21.82	3.543	4.04	13.749	-0.042	29.795	1.218	1.395	19	19	12.4	6.0	0.4	0.609	0.613	0.103	102.96	87.6
27	7/14/1999	12:58:50 PM	0	24.874	21.968	24.788	23.079	21.683	30.664	8.554	21.576	3.527	5.29	12.763	-0.042	29.702	1.218	1.358	20	20	12.3	6.9	0.5	0.593	0.596	0.086	86.16	73.3
28	7/14/1999	12:59:50 PM	0	25.079	22.013	24.913	23.124	21.728	30.768	9.98	22.369	3.59	6.372	12.146	-0.042	29.81	1.218	1.334	21	21	12.4	8.2	0.6	0.582	0.584	0.071	71.40	60.8
29	7/14/1999	1:00:51 PM	0	25.159	22.013	25.073	22.963	21.667	30.867	10.29	21.942	3.479	6.879	11.345	-0.042	29.441	1.218	1.303	22	22	12.2	8.6	0.6	0.569	0.568	0.066	66.12	56.3
30	7/14/1999	1:01:51 PM	0	25.239	22.013	25.233	23.043	21.406	31.026	10.662	21.698	3.495	7.454	10.883	-0.042	29.779	1.218	1.294	23	23	12.4	9.1	0.6	0.565	0.561	0.062	61.96	52.7
31	7/14/1999	1:02:51 PM	0	25.524	22.058	25.358	23.169	21.531	31.071	10.786	21.454	3.343	8.029	10.513	-0.042	29.917	1.218	1.276	24	24	12.4	9.4	0.6	0.557	0.551	0.059	58.62	49.9
32	7/14/1999	1:03:52 PM	0	25.559	22.094	25.473	23.043	21.325	31.185	11.344	21.759	3.471	7.926	10.174	-0.042	29.733	1.218	1.267	25	25	12.3	9.6	0.7	0.553	0.546	0.057	56.64	48.2
33	7/14/1999	1:04:52 PM	0	25.639	22.094	25.633	23.124	21.325	31.185	11.592	21.942	3.471	8.164	10.051	-0.042	29.887	1.218	1.252	26	26	12.4	9.9	0.7	0.547	0.537	0.054	54.35	46.3
34	7/14/1999	1:05:52 PM	0	25.8	22.094	25.713	23.043	21.325	31.026	11.964	22.003	3.447	8.333	9.712	-0.042	29.564	1.218	1.245	27	27	12.3	10.1	0.7	0.543	0.533	0.052	52.49	44.7
35	7/14/1999	1:06:53 PM	0	25.88	22.094	25.873	23.124	21.164	31.106	11.53	21.637	3.431	8.705	9.773	-0.042	29.871	1.218	1.242	28	28	12.4	10.1	0.7	0.542	0.529	0.052	52.29	44.5
36	7/14/1999	1:07:54 PM	0	26.04	22.094	25.953	23.043	21.325	31.185	12.15	21.698	3.391	8.773	9.342	-0.042	30.194	1.218	1.224	29	29	12.5	10.5	0.7	0.534	0.520	0.050	49.73	42.3
37	7/14/1999	1:08:54 PM	0	26.12	22.094	26.113	22.963	21.406	31.185	12.212	21.637	3.574	8.773	9.188	-0.042	30.179	1.218	1.221	30	30	12.5	10.5	0.7	0.533	0.517	0.049	49.24	41.9
38	7/14/1999	1:09:54 PM	0	26.28	22.174	26.193	22.963	21.325	31.185	11.902	21.271	3.439	8.637	9.126	-0.042	30.225	1.218	1.221	31	31	12.6	10.3	0.7	0.533	0.515	0.050	50.20	42.7
39	7/14/1999	1:10:54 PM	0	26.315	22.049	26.228	22.918	21.361	31.141	12.274	21.637	3.598	9.415	9.095	-0.042	30.24	1.218	1.218	32	32	12.5	10.8	0.7	0.532	0.514	0.047	47.37	40.3
40	7/14/1999	1:11:54 PM	0	26.52	22.094	26.353	23.043	21.486	31.344	12.15	21.393	3.543	9.212	9.034	-0.042	30.24	1.218	1.221	33	33	12.5	10.7	0.7	0.533	0.513	0.048	48.05	40.9
41	7/14/1999	1:12:55 PM	0	26.555	22.129	26.468	22.998	21.28	31.22	12.212	21.271	3.407	8.908	9.003	-0.042	30.209	1.218	1.218	34	34	12.5	10.6	0.7	0.532	0.510	0.048	48.32	41.1
42	7/14/1999	1:13:55 PM	0	26.715	22.129	26.628	22.998	21.28	31.22	12.274	21.515	3.535	9.009	8.91	-0.042	30.24	1.218	1.212	35	35	12.5	10.6	0.7	0.529	0.506	0.048	47.50	40.4
43	7/14/1999	1:14:56 PM	0	26.875	22.129	26.788	23.079	21.28	31.22	13.266	22.308	3.726	8.807	8.88	-0.042	30.301	1.218	1.206	36	36	12.6	11.0	0.8	0.526	0.501	0.045	45.37	38.6
44	7/14/1999	1:15:56 PM	0	26.955	22.129	26.868	23.079	21.2	31.22	12.584	21.637	3.574	9.077	8.818	-0.042	30.133	1.218	1.203	37	37	12.5	10.8	0.7	0.525	0.498	0.046	46.02	39.2
45	7/14/1999	1:16:57 PM	0	27.034	22.129	26.948	23.079	21.441	31.22	13.08	22.188	3.646	8.976	8.849	-0.042	30.24	1.218	1.206	38	38	12.5	11.0	0.8	0.526	0.499	0.045	45.21	38.5
46	7/14/1999	1:17:56 PM	0	27.194	22.129	27.107	23.159	21.441	31.22	12.212	21.068	3.455	9.145	8.726	-0.042	30.102	1.218	1.203	39	39	12.5	10.7	0.7	0.525	0.495	0.046	46.37	39.5
47	7/14/1999	1:18:57 PM	0	27.229	22.084	27.143	23.034	21.396	31.017	12.77	21.942	3.718	9.246	8.726	-0.042	30.255	1.218	1.206	40	40	12.6	11.0	0.8	0.526	0.496	0.045	45.05	38.3
48	7/14/1999	1:19:58 PM	0	27.434	22.21	27.347	23.159	21.522	31.22	12.522	21.637	3.535	9.618	8.756	-0.042	30.225	1.218	1.2	41	41	12.5	11.1	0.8	0.524	0.491	0.044	44.32	37.7
49	7/14/1999	1:20:58 PM	0	27.469	22.165	27.462	23.114	21.318	31.176	12.584	21.515	3.535	9.212	8.818	-0.042	30.271	1.218	1.2	42	42	12.6	10.9	0.8	0.524	0.489	0.045	44.87	38.2
50	7/14/1999	1:21:58 PM	0	27.469	22.084	26.963	23.114	21.318	31.096	12.956	21.759	3.662	9.28	8.602	-0.042	30.179	1.218	1.203	43	43	12.5	11.1	0.8	0.525	0.497	0.045	44.69	38.0
51	7/14/1999	1:22:59 PM	0	27.229	22.165	26.423	23.195	21.316	30.937	13.018	21.881	3.543	9.347	8.641	-0.042	30.225	1.218	1.194	44	44	12.5	11.2	0.8	0.521	0.501	0.045	44.79	38.1
52	7/14/1999	1:23:59 PM	0	26.75	22.165	25.944	23.275	21.235	30.937	13.018	21.881	3.662	9.868	8.479	-0.042	30.163	1.218	1.191	45	45	12.5	11.5	0.8	0.520	0.506	0.044	44.21	37.6
53	7/14/1999	1:24:59 PM	0	26.385	22.12	25.579	23.23	21.271	30.893	13.018	21.759	3.726	9.719	8.356	-0.042	30.179	1.218	1.188	46	46	12.5	11.4	0.8	0.519	0.510	0.045	44.88	38.2
54	7/14/1999	1:26:00 PM	0	25.965	22.12	25.099	23.31	21.19	30.893	13.08	21.816	3.611	9.516	8.171	-0.042	30.071	1.218	1.182	47	47	12.5	11.3	0.8	0.516	0.515	0.046	45.54	38.8
55	7/14/1999	1:27:00 PM	0	25.585	22.2	24.778	23.23	21.271	30.893	12.956	21.393	3.471	9.888	8.202	-0.042	30.071	1.218	1.182	48	48	12.5	11.4	0.8	0.516	0.519	0.045	45.46	38.7
56	7/14/1999	1:28:00 PM	0	25.165	22.2	24.618	23.31	21.19	30.693	13.369	21.637	3.551	9.787	8.14	-0.042	30.071	1.218	1.172	49	49	12.5	11.6	0.8	0.512	0.517	0.045	44.63	38.0
57	7/14/1999	1:29:01 PM	0	25.024	22.2	24.457	23.23	21.271	30.814	13.328	21.759	3.606	9.787	8.109	-0.042	30.01	1.218	1.178	50	50	12.5	11.6	0.8	0.514	0.522	0.045	45.18	38.4
58	7/14/1999	1:30:01 PM	0	24.864	22.2	24.377	23.31	21.19	30.893	13.142	21.454	3.463	10.193	8.078	-0.042	30.01	1.218	1.182	51	51	12.5	11.7	0.8	0.516	0.525	0.045	45.01	38.3
59	7/14/1999	1:31:01 PM	0	24.704	22.2	24.217	23.31	21.19	30.893	13.018	21.21	3.567	9.888	7.924	-0.042	30.025	1.218	1.175	52	52	12.5	11.5	0.8	0.513	0.524	0.046	45.79	39.0
60	7/14/1999	1:32:02 PM	0	24.579	22.155	24.092	23.265	21.226	30.928	13.699	22.003	3.567	9.855	7.986	-0.042	30.025	1.218	1.172	53	53	12.5	11.8	0.8	0.512	0.525	0.045	44.57	37.9
61	7/14/1999	1:33:02 PM	0	24.418	22.155	24.092	23.346	21.145	30.849	13.637	21.881	3.718	9.753	7.986	-0.042	30.102	1.218	1.175	54	54	12.5	11.7	0.8	0.513	0.526	0.045	45.00	38.3
62	7/14/1999	1:34:02 PM	0	24.418	22.155	24.172	23.265	21.145	30.769	13.389	21.576	3.654	9.618	7.924	-0.042	30.04	1.218	1.169	55	55	12.5	11.5	0.8	0.510	0.522	0.045	45.41	38.6
63	7/14/1999	1:35:03 PM	0	24.499	22.155	24.252	23.346	21.387	30.769	12.956	21.21	3.439	9.922	7.986	-0.042	30.04	1.218	1.169	56	56	12.5	11.4	0.8	0.510	0.521	0.046	45.56	38.8
64	7/14/1999	1:36:03 PM	0	24.499	22.236	24.332	23.265	21.367	30.69	13.451	21.698	3.447	10.057	7.986	-0.042	29.964	1.218	1.172	57	57	12.4	11.8	0.8	0.512	0.521	0.044	44.36	37.7
65	7/14/1999	1:37:03 PM	0	24.534	22.191	24.368	23.221	21.422	30.725	13.018	21.21	3.463	10.284	8.017	-0.042	30.025	1.218	1.172	58	58	12.5	11.7	0.8	0.512	0.521	0.045	44.68	38.0
66	7/14/1999	1:38:04 PM	0	24.694	22.11	24.448	23.221	21.503	30.604	12.646	19.868	3.407	8.942	7	-0.042	28.456	1.192	1.111	59	59	11.6	10.6	0.7	0.485	0.493	0.046	45.64	38.8
67	7/14/1999	1:39:04 PM	0	24.694	22.11	24.528	23.221	21.503	30.725	9.98	14.807	3.606	6.474	4.658	-0.042	29.795	0.865	0.807	60	60	12.4	8.2	0.6	0.352	0.357	0.043	43.39	36.9
68	7/14/1999	1:40:04 PM	0	24.775	22.191	24.608	23.221	21.583	30.407	9.794	14.258	3.543	6.034	4.165	-0.042	29.365	0.808	0.767	61	61	12.2	7.9	0.5	0.335	0.339	0.043	42.78	36.4
69	7/14/1999	1:41:05 PM	0	24.855	22.191	24.689	23.14	21.744	30.248	9.112	13.1	3.431	5.796	3.795	-0.042	29.18	0.775	0.728	62	62	12.1	7.5	0.5	0.318	0.321	0.043	43.00	36.6
70	7/14/1999	1:42:05 PM	0	24.855	22.191	24.769	23.221	21.825	30.089	8.988	12.978	3.415	5.967	3.826	-0.042	29.288	0.76	0.709	63	63	12.2	7.5	0.5	0.310	0.312	0.042	41.66	35.5
71	7/14/1999	1:43:05 PM	0	24.98	22.236	24.894	23.346	21.95	29.974	9.608	14.014	3.734	6.102	4.195	-0.042	30.179	0.789	0.74	64	64	12.5	7.9	0.5	0.323	0.324	0.041	41.25	35.1
72	7/14/1999	1:44:06 PM	0	25.06	22.236	24.894	23.346	22.111	29.815	2.789	14.136	3.574	-0.525	11.006	-0.042	29.81	0.115	0.085	65	1	12.4	1.1	0.1	0.037	0.037	0.033	32.88	28.0
73	7/14/1999	1:45:06 PM	0	25.06	22.236	24.974	23.426	22.192	29.736	3.037	14.258	3.654	-0.694	10.975	-0.042	29.81	0.118	0.088	66	2	12.4	1.2	0.1	0.038	0.038	0.033	32.82	27.9
74	7/14/1999	1:46:06 PM	0	25.105	22.2	25.099	23.551	22.237	29.701	2.913	14.197	3.694	-0.727	11.037	-0.042	29.841	0.107	0.082	67	3	12.4	1.1	0.1	0.036	0.036	0.033	32.66	27.8
75	7/14/1999	1:47:06 PM	0	25.185	22.2	25.179	23.551	22.237	29.701	2.665	14.075	3.551	-0.491	11.129	-0.089	29.749	0.11	0.082	68	4	12.3	1.1	0.1	0.036	0.036	0.033	32.77	27.9
76	7/14/1999	1:48:07 PM	0	25.31	22.245	25.223	23.677	22.362	29.665	6.695	16.88	2.888	3.397	10.112	-0.042	27.199	1.218	1.261	69	5	11.3	5.0	0.3	0.550	0.547	0.108	108.41	92.3
77	7/14/1999	1:49:07 PM	0	25.39	22.245	25.223	23.598	22.443	29.586	6.619	14.258	3.567	3.431	7.123	0.004	29.917	1.116	1.048	70	6	12.4	5.1	0.4	0.457	0.455	0.089	88.71	75.5
78	7/14/1999	1:50:08 PM	0	25.434	22.21	25.348	23.802	22.568	29.869	7.253	14.197	3.635	3.972	6.764	-0.042	29.964	1.052	1.006	71	7	12.4	5.6	0.4	0.440	0.436	0.078	77.64	66.1
79	7/14/1999	1:51:08 PM	0	25.515	22.21	25.348	23.721	22.488	30.108	7.686	14.258	3.527	4.209	6.383	0.004	29.933	1.014	0.965	72	8	12.4	5.9	0.4	0.421	0.417	0.070	70.14	59.7
80	7/14/1999	1:52:08 PM	0	25.559	22.255	25.473	23.766	22.291	30.311	7.934	14.197	3.519	4.478	6.044	-0.042	29.871	0.963	0.935	73	9	12.4	6.2	0.4	0.408	0.403	0.065	64.90	55.2
81	7/14/1999	1:53:09 PM	0	25.684	22.219	25.516	23.811	22.256	30.594	8.554	14.746	3.565	4.952	5.921	-0.042	29.871	0.963	0.92	74	10	12.4	6.8	0.5	0.402	0.396	0.059	58.61	49.9
82	7/14/1999	1:54:09 PM	0	25.684	22.3	25.596	23.811	22.016	30.435	8.554	14.441	3.63	4.952	5.706	-0.042	29.917	0.958	0.907	75	11	12.4	6.8	0.5	0.396	0.389	0.058	57.66	49.1
83	7/14/1999	1:55:09 PM	0	25.764	22.219	25.596	23.811	21.934	30.584	8.616	14.319	3.503	5.02	5.49	-0.042	29.979	0.935	0.88	76	12	12.4	6.8	0.5	0.384	0.378	0.055	55.41	47.2
84	7/14/1999	1:56:09 PM	0	25.764	22.219	25.678	23.731	21.854	30.67	8.616	14.197	3.503	5.29	5.366	0.004	29.867	0.923	0.871	77	13	12.4	7.0	0.5	0.380	0.373	0.054	53.65	45.7
85	7/14/1999	1:57:10 PM	0	25.844	22.3	25.678	23.651	21.692	30.753	9.174	14.563	3.662	5.223	5.305	-0.042	29.825	0.914	0.871	78	14	12.4	7.2	0.5	0.380	0.373	0.052	51.82	44.1

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.22b2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
86	7/14/1999	1:58:10 PM	0	25.924	22.219	25.678	23.57	21.773	30.912	8.802	14.137	3.511	5.358	5.12	-0.042	29.841	0.909	0.85	79	15	12.4	7.1	0.5	0.371	0.364	0.051	51.42	43.8
87	7/14/1999	1:59:10 PM	0	25.969	22.264	25.803	23.696	21.657	30.877	8.802	14.075	3.471	5.662	5.12	-0.042	29.795	0.892	0.846	80	16	12.4	7.2	0.5	0.369	0.361	0.050	49.93	42.5
88	7/14/1999	2:00:11 PM	0	26.049	22.264	25.883	23.615	21.657	31.036	9.174	14.38	3.543	5.527	5.058	-0.042	29.733	0.894	0.834	81	17	12.3	7.4	0.5	0.364	0.355	0.048	48.32	41.1
89	7/14/1999	2:01:11 PM	0	26.129	22.264	25.963	23.615	21.657	30.956	9.236	14.38	3.63	5.46	4.935	-0.042	29.795	0.884	0.837	82	18	12.4	7.3	0.5	0.365	0.356	0.048	48.40	41.2
90	7/14/1999	2:02:11 PM	0	26.129	22.264	26.043	23.535	21.576	31.036	9.05	14.197	3.487	6.102	5.058	-0.042	29.779	0.886	0.831	83	19	12.4	7.6	0.5	0.363	0.352	0.047	46.50	39.6
91	7/14/1999	2:03:12 PM	0	26.209	22.345	26.123	23.535	21.576	31.115	9.298	14.38	3.574	5.596	4.904	-0.042	29.964	0.878	0.825	84	20	12.4	7.4	0.5	0.360	0.349	0.047	46.86	39.9
92	7/14/1999	2:04:12 PM	0	26.289	22.264	26.123	23.535	21.496	31.036	9.298	14.38	3.551	5.696	4.612	-0.042	29.825	0.871	0.825	85	21	12.4	7.5	0.5	0.360	0.349	0.047	46.55	39.6
93	7/14/1999	2:05:12 PM	0	26.369	22.264	26.123	23.455	21.576	31.115	9.298	14.319	3.479	5.796	4.781	-0.042	29.779	0.871	0.813	86	22	12.4	7.5	0.5	0.355	0.344	0.046	45.56	38.8
94	7/14/1999	2:06:13 PM	0	26.369	22.264	26.203	23.455	21.415	31.115	9.36	14.319	3.447	5.967	4.812	-0.042	29.871	0.864	0.816	87	23	12.4	7.7	0.5	0.356	0.344	0.045	44.94	38.2
95	7/14/1999	2:07:13 PM	0	26.369	22.264	26.283	23.455	21.496	31.274	9.174	14.136	3.431	5.865	4.75	-0.042	29.887	0.864	0.813	88	24	12.4	7.5	0.5	0.355	0.342	0.046	45.53	38.7
96	7/14/1999	2:08:13 PM	0	26.449	22.345	26.363	23.455	21.496	31.274	8.988	13.893	3.303	6.102	4.781	-0.042	29.841	0.854	0.819	89	25	12.3	7.5	0.5	0.358	0.344	0.046	45.61	38.8
97	7/14/1999	2:09:14 PM	0	26.529	22.264	26.363	23.455	21.496	31.195	9.856	14.746	3.654	5.865	4.688	-0.042	29.841	0.854	0.807	90	26	12.4	7.9	0.5	0.352	0.339	0.043	43.14	36.7
98	7/14/1999	2:10:14 PM	0	26.609	22.345	26.443	23.455	21.496	31.195	9.484	14.441	3.543	6.203	4.719	0.004	29.902	0.853	0.807	91	27	12.4	7.8	0.5	0.352	0.338	0.043	43.13	36.7
99	7/14/1999	2:11:14 PM	0	26.689	22.345	26.523	23.455	21.415	31.195	9.608	14.441	3.551	5.967	4.719	-0.042	29.887	0.853	0.804	92	28	12.4	7.8	0.5	0.351	0.336	0.043	43.19	36.8
100	7/14/1999	2:12:15 PM	0	26.769	22.345	26.682	23.455	21.496	31.353	9.422	14.38	3.479	6.034	4.688	-0.042	29.825	0.856	0.807	93	29	12.4	7.7	0.5	0.352	0.336	0.043	43.49	37.0
101	7/14/1999	2:13:15 PM	0	26.769	22.345	26.762	23.374	21.415	31.274	9.606	14.685	3.622	5.933	4.75	-0.042	29.672	0.852	0.804	94	30	12.3	7.8	0.5	0.351	0.334	0.043	42.99	36.6
102	7/14/1999	2:14:15 PM	0	26.964	22.3	26.877	23.41	21.451	31.309	9.36	14.258	3.574	5.865	4.627	-0.042	30.01	0.846	0.801	95	31	12.5	7.6	0.5	0.350	0.332	0.044	43.58	37.1
103	7/14/1999	2:15:16 PM	0	27.124	22.3	27.037	23.41	21.531	31.309	9.36	14.136	3.479	6.102	4.658	-0.042	29.81	0.843	0.789	96	32	12.4	7.7	0.5	0.344	0.325	0.042	42.09	35.8
104	7/14/1999	2:16:16 PM	0	27.124	22.3	27.117	23.49	21.37	31.221	9.608	14.38	3.654	6.034	4.627	-0.042	29.825	0.843	0.792	97	33	12.4	7.8	0.5	0.346	0.326	0.042	41.67	35.5
105	7/14/1999	2:17:16 PM	0	27.204	22.3	27.197	23.41	21.451	31.071	9.236	13.953	3.551	5.696	4.565	-0.042	29.795	0.843	0.789	98	34	12.4	7.5	0.5	0.344	0.324	0.043	43.39	36.9
106	7/14/1999	2:18:17 PM	0	27.363	22.3	27.358	23.41	21.451	31.15	9.05	13.771	3.471	5.899	4.596	-0.042	29.702	0.844	0.798	99	35	12.3	7.5	0.5	0.348	0.326	0.044	43.64	37.1
107	7/14/1999	2:19:18 PM	0	27.523	22.3	27.516	23.329	21.451	31.15	9.732	14.502	3.63	5.831	4.596	-0.042	29.856	0.844	0.795	100	36	12.4	7.6	0.5	0.347	0.324	0.042	41.57	35.4
108	7/14/1999	2:20:18 PM	0	27.683	22.3	27.596	23.41	21.612	31.15	9.298	14.075	3.447	5.865	4.596	-0.042	29.871	0.839	0.789	101	37	12.4	7.6	0.5	0.344	0.320	0.042	42.26	36.0
109	7/14/1999	2:21:18 PM	0	27.763	22.38	27.755	23.329	21.531	31.07	9.608	14.319	3.582	5.831	4.596	-0.042	29.887	0.836	0.792	102	38	12.4	7.7	0.5	0.346	0.320	0.041	41.47	35.3
110	7/14/1999	2:22:19 PM	0	27.798	22.335	27.711	23.365	21.486	31.026	9.484	14.258	3.503	6	4.565	-0.042	29.856	0.846	0.788	103	39	12.4	7.7	0.5	0.343	0.318	0.041	41.09	35.0
111	7/14/1999	2:23:19 PM	0	28.002	22.38	27.915	23.41	21.612	31.071	9.422	14.258	3.431	5.899	4.565	-0.042	29.871	0.838	0.792	104	40	12.4	7.7	0.5	0.346	0.319	0.042	41.61	35.4
112	7/14/1999	2:24:19 PM	0	28.082	22.38	27.995	23.41	21.531	31.071	9.546	14.319	3.479	5.831	4.596	-0.042	29.825	0.841	0.789	105	41	12.4	7.7	0.5	0.344	0.317	0.041	41.21	35.1
113	7/14/1999	2:25:20 PM	0	28.241	22.38	28.154	23.41	21.612	31.309	9.112	13.893	3.335	6.034	4.565	-0.042	29.871	0.835	0.789	106	42	12.4	7.6	0.5	0.344	0.315	0.042	41.66	35.4
114	7/14/1999	2:26:20 PM	0	28.197	22.416	28.269	23.365	21.406	31.106	9.484	14.319	3.455	6.068	4.627	-0.042	30.01	0.841	0.786	107	43	12.5	7.8	0.5	0.343	0.313	0.040	40.29	34.3
115	7/14/1999	2:27:20 PM	0	28.436	22.416	28.349	23.284	21.325	31.185	9.298	14.014	3.559	5.899	4.565	-0.042	29.81	0.837	0.783	108	44	12.4	7.6	0.5	0.342	0.311	0.041	40.98	34.9
116	7/14/1999	2:28:21 PM	0	28.436	22.416	27.95	23.365	21.486	31.106	9.546	14.258	3.455	6.271	4.596	-0.042	29.964	0.826	0.779	109	45	12.4	7.9	0.5	0.340	0.313	0.040	39.61	33.7
117	7/14/1999	2:29:21 PM	0	28.152	22.29	27.427	23.4	21.361	30.982	9.422	14.197	3.535	5.899	4.565	-0.042	29.841	0.842	0.789	110	46	12.4	7.7	0.5	0.344	0.322	0.042	42.02	35.8
118	7/14/1999	2:30:21 PM	0	27.957	22.418	27.072	23.445	21.486	30.947	9.67	14.319	3.567	6.034	4.534	-0.042	29.841	0.832	0.783	111	47	12.4	7.9	0.5	0.342	0.323	0.041	41.08	35.0
119	7/14/1999	2:31:22 PM	0	27.558	22.416	26.673	23.525	21.567	30.947	9.298	13.953	3.383	6.034	4.442	-0.042	29.841	0.828	0.776	112	48	12.4	7.7	0.5	0.339	0.323	0.042	42.17	35.9
120	7/14/1999	2:32:22 PM	0	27.239	22.416	26.273	23.606	21.567	30.947	9.732	14.319	3.622	5.899	4.38	-0.042	29.825	0.82	0.77	113	49	12.4	7.8	0.5	0.336	0.324	0.042	41.50	35.3
121	7/14/1999	2:33:22 PM	0	26.919	22.416	25.953	23.606	21.567	30.947	9.608	14.197	3.503	6.169	4.411	-0.042	29.871	0.819	0.776	114	50	12.4	7.9	0.5	0.339	0.330	0.042	41.81	35.6
122	7/14/1999	2:34:23 PM	0	26.555	22.371	25.588	23.561	21.441	30.982	9.236	13.832	3.335	6.305	4.38	-0.042	29.779	0.814	0.77	115	51	12.4	7.8	0.5	0.336	0.331	0.043	42.55	36.2
123	7/14/1999	2:35:23 PM	0	26.155	22.371	25.268	23.561	21.441	31.141	10.414	14.99	3.75	6.102	4.38	-0.042	29.825	0.806	0.77	116	52	12.4	8.3	0.6	0.336	0.334	0.040	40.40	34.4
124	7/14/1999	2:36:23 PM	0	25.835	22.371	24.948	23.561	21.361	31.141	10.166	14.746	3.638	6.305	4.319	-0.042	29.749	0.807	0.758	117	53	12.3	8.2	0.6	0.331	0.331	0.040	40.24	34.2
125	7/14/1999	2:37:24 PM	0	25.515	22.371	24.627	23.561	21.522	30.982	9.98	14.563	3.638	6.169	4.38	-0.042	29.656	0.806	0.749	118	54	12.3	8.1	0.6	0.327	0.330	0.041	40.92	34.8
126	7/14/1999	2:38:24 PM	0	25.274	22.451	24.387	23.561	21.522	30.902	9.236	13.771	3.351	6.508	4.35	-0.042	29.564	0.805	0.752	119	55	12.3	7.9	0.5	0.328	0.334	0.042	42.43	36.1
127	7/14/1999	2:39:24 PM	0	25.034	22.451	24.387	23.561	21.822	30.744	9.732	14.258	3.559	6.508	4.35	-0.042	29.625	0.8	0.752	120	56	12.4	8.1	0.6	0.328	0.334	0.041	41.13	35.0
128	7/14/1999	2:40:25 PM	0	24.874	22.371	24.387	23.481	21.602	30.902	9.98	14.563	3.598	6.575	4.38	-0.042	29.672	0.798	0.749	121	57	12.3	8.3	0.6	0.327	0.333	0.040	40.19	34.2
129	7/14/1999	2:41:25 PM	0	24.838	22.496	24.432	23.525	21.486	31.026	10.228	14.746	3.71	6.305	4.35	-0.042	29.764	0.796	0.74	122	58	12.4	8.3	0.6	0.323	0.328	0.040	39.71	33.8
130	7/14/1999	2:42:26 PM	0	24.793	22.451	24.467	23.561	21.522	30.982	9.856	14.502	3.606	6.271	4.319	-0.042	29.733	0.795	0.74	123	59	12.3	8.1	0.6	0.323	0.328	0.041	40.67	34.6
131	7/14/1999	2:43:26 PM	0	24.793	22.451	24.547	23.561	21.522	30.902	9.918	14.441	3.662	6.372	4.38	-0.042	29.825	0.794	0.749	124	60	12.4	8.1	0.6	0.327	0.331	0.041	40.66	34.6
132	7/14/1999	2:44:26 PM	0	24.793	22.451	24.547	23.481	21.441	31.061	9.606	14.258	3.535	5.967	4.35	-0.042	29.733	0.795	0.752	125	61	12.3	7.8	0.6	0.326	0.332	0.043	42.70	36.3
133	7/14/1999	2:45:26 PM	0	24.793	22.451	24.547	23.561	21.28	31.22	9.67	14.258	3.654	6.102	4.38	-0.042	29.672	0.797	0.743	126	62	12.3	7.9	0.5	0.324	0.329	0.042	41.66	35.5
134	7/14/1999	2:46:27 PM	0	24.793	22.451	24.547	23.561	21.441	31.061	9.918	14.502	3.543	6.068	4.38	-0.042	29.672	0.791	0.734	127	63	12.3	8.0	0.6	0.320	0.325	0.041	40.60	34.6
135	7/14/1999	2:47:27 PM	0	24.874	22.451	24.547	23.561	21.441	30.982	9.732	14.319	3.527	6.541	4.411	-0.042	29.764	0.79	0.737	128	64	12.4	8.1	0.6	0.322	0.326	0.040	40.05	34.1
136	7/14/1999	2:48:26 PM	0	24.874	22.451	24.547	23.481	21.522	30.982	9.732	14.38	3.431	6.44	4.38	-0.042	29.718	0.784	0.734	129	65	12.3	8.1	0.6	0.320	0.325	0.040	40.14	34.2
137	7/14/1999	2:49:26 PM	0	24.874	22.451	24.547	23.481	21.441	30.982	9.67	14.258	3.543	6.372	4.411	-0.042	29.733	0.788	0.737	130	66	12.3	8.0	0.6	0.322	0.326	0.041	40.63	34.6
138	7/14/1999	2:50:29 PM	0	24.874	22.451	24.547	23.481	21.441	30.902	9.67	14.319	3.487	6.643	4.442	-0.042	29.841	0.788	0.746	131	67	12.3	8.2	0.6	0.326	0.330	0.040	40.44	34.4
139	7/14/1999	2:51:26 PM	0	24.874	22.451	24.547	23.481	21.602	30.902	9.606	14.258	3.463	6.339	4.38	0.004	29.687	0.784	0.737	132	68	12.3	8.0	0.5	0.322	0.326	0.041	40.87	34.8
140	7/14/1999	2:52:29 PM	0	24.874	22.532	24.627	23.481	21.441	31.141	9.732	14.38	3.622	6.237	4.442	-0.042	29.841	0.786	0.734	133	69	12.4	8.0	0.6	0.320	0.324	0.041	40.55	34.5
141	7/14/1999	2:53:30 PM	0	24.874	22.451	24.627	23.481	21.522	31.061	10.104	14.807	3.742	6.102	4.411	-0.042	29.81	0.789	0.731	134	70	12.4	8.1	0.6	0.319	0.322	0.040	39.80	33.9
142	7/14/1999	2:54:30 PM	0	24.829	22.487	24.502	23.436	21.396	30.858	9.606	14.197	3.535	6.203	4.411	-0.042	29.733	0.787	0.734	135	71	12.3	7.9	0.5	0.320	0.325	0.041	41.10	35.0
143	7/14/1999	2:55:30 PM	0	24.874	22.532	24.627	23.481	21.602	30.982	9.98	14.624	3.71	5.967	4.411	-0.042	29.702	0.788	0.734	136	72	12.3	8.0	0.5	0.320	0.324	0.041	40.81	34.6
144	7/14/1999	2:56:30 PM	0	24.829	22.487	24.582	23.516	21.396	30.858	9.856	14.563	3.479	6.305	4.38	-0.042	29.656	0.782	0.731	137	73	12.3	8.1	0.6	0.319	0.323	0.040	39.96	34.0
145	7/14/1999	2:57:31 PM	0	24.829	22.487	24.582	23.436	21.396	31.017	9.422	14.014	3.367	6.406	4.38	-0.042	29.702	0.781	0.737	138	74	12.3	7.9	0.5	0.322	0.326	0.041	41.14	35.0
146	7/14/1999	2:58:31 PM	0	24.829	22.487	24.582	23.516	21.477	30.779	9.546	14.197	3.543	6.271	4.411	-0.042	29.656	0.788	0.737	139	75	12.4	7.9	0.5	0.322	0.326	0.041	41.16	35.0
147	7/14/1999	2:59:32 PM	0	24.829	22.487	24.663	23.436	21.557	30.699	17.853	32.003	6.75	11.275	13.841	-0.042	41.99	1.218	1.392	140	76	17.4	14.6	1.0	0.606	0.613	0.042	42.12	35.8
148	7/14/1999	3:00:32 PM	0	24.969	22.406	24.823	23.516	21.718	30.699	13.451	42.736	3.192	9.753	29.25	-0.042	29.779	1.218	1.849	141	77	12.4	11.6	0.8	0.807	0.811	0.070	69.92	59.5
149	7/14/1999	3:01:32 PM	0	25.149	22.406	24.903	23.516	21.718	30.699	14.567	40.286	3.383	11.613	25.305	-0.042	29.603	1.218	1.754	142	78	12.2	13.1	0.9	0.766	0.768	0.059	58.65	49.9
150	7/14/1999	3:02:33 PM	0	25.39	22.487	25.143	23.436	21.799	30.54	15.869	41.089	3.511	12.323	24.906	-0.042	30.179	1.218	1.733	143	79	12.5	14.1	1.0	0.757	0.753	0.053	53.45	45.5
151	7/14/1999	3:03:33 PM	0	25.515	22.532	25.268	23.481	21.763	30.664	14.505	30.357	3.666	10.159	15.505	-0.042	30.394	1.218	1.45	144	80	12.6	12.3	0.9	0.633	0.628	0.051	50.94	43.4
152	7/14/1999	3:04:33 PM	0	25.63	22.487	25.384	23.436	21.799	30.779	15.931	41.621	3.064	13.337	25.614	-0.042	28.105	1.218	1.757	145	81	11.7	14.6	1.0	0.767	0.759	0.052	51.85	44.1
153	7/14/1999	3:05:34 PM	0	25.79	22.487	25.544	23.516	21.718	30.937	16.923	44.504	3.567	14.182	27.124	-0.042	30.24	1.218	1.791	146	82	12.5	15.6	1.1	0.782	0.770	0.050	49.51	42.1
154	7/14/1999	3:06:34 PM	0	25.915	22.532	25.668	23.561	21.763	30.982	17.109	44.565	3.503	14.061	26.939	-0.042	30.255	1.218	1.794	147	83	12.6	15.6	1.1	0.783	0.769	0.049	49.28	41.9
155	7/14/1999	3:07:34 PM	0	26.075	22.532	25.828	23.641	21.683	30.902	16.861	43.467	3.487	13.202	26.045	-0.042	30.04	1.218	1.772	148	84	12.5	15.0	1.0	0.774	0.756	0.050	50.28	42.8
156	7/14/1999	3:08:35 PM	1	26.03	22.487	25.944	23.677	21.477	31.096	2.603	44.504	3.487	-0.556	41.361	74.835	28.75	0.14	0.094	149	1	11.9	1.0	0.1	0.041	0.040	0.039	39.08	33.3
157	7/14/1999	3:09:35 PM	0	26.27	22.567	25.944	23.677	21.557	30.858	10.166	43.833	3.407	6.643	33.133	-0.042	30.225	1.218	1.931	150	2	12.5	8.4	0.6	0.843	0.821	0.098	97.68	83.1
158	7/14/1999	3:10:35 PM	0	26.27	22.487	25.784	23.596	21.557	30.858	12.536	43.894	3.519	8.637	31.13	-0.042	30.133	1.218	1.885	151	3	12.5	10.5	0.7	0.823	0.805	0.077	76.76	65.3
159	7/14/1999	3:11:36 PM	0	26.11	22.487	25.624	23.677	21.636	30.858	13.699	43.833	3.463	10.396	29.62	-0.042	30.102	1.218	1.861	152	4	12.5	12.0	0.8	0.812	0.796	0.066	66.26	56.4
160	7/14/1999	3:12:36 PM	0	25.95	22.487	25.464	23.677	21.636	30.858	14.691	43.711	3.487	11.139	28.726	-0.042	30.04	1.218	1.833	153	5	12.5	12.9	0.9	0.800	0.790	0.061	61.15	52.0
161	7/14/1999	3:13:36 PM	0	25.755	22.532	25.268	23.721	21.522	30.982	14.629	43.101	3.455	11.917	28.017	-0.042	30.01	1.218	1.818	154	6	12.5	13.3	0.9	0.794	0.788	0.059	59.34	50.5
162	7/14/1999	3:14:37 PM	0	25.55	22.567	25.063	23.757	21.477	30.699	16.055	44.199	3.495	12.627	27.586	-0.042	29.825	1.218	1.797	155	7	12.4	14.3	1.0	0.784	0.783	0.055	54.60	46.5
163	7/14/1999	3:15:37 PM	0	25.434	22.532	24.948	23.802	21.683	30.823	16.117	43.467	3.415	13.269	27.278	-0.042	30.04	1.218	1.791	156	8	12.5	14.7	1.0	0.782	0.783	0.053	53.29	45.4
164	7/14/1999	3:16:37 PM	0	25.274	22.612	24.788	23.802	21.683	30.823	16.923	44.26	3.59	13.438	26.939	-0.042	29.856	1.218	1.785	157	9	12.4	15.2	1.0	0.779	0.784	0.052	51.64	43.9
165	7/14/1999	3:17:38 PM	0	25.069	22.567	24.582	23.757	21.557	30.858	17.295	44.321	3.431	13.607	26.536	-0.042	30.04	1.218	1.772	158	10	12.5	15.5	1.1	0.774	0.783	0.051	50.66	43.1
166	7/14/1999	3:18:38 PM	0	24.954	22.532	24.467	23.802	21.522	30.982	17.419	44.138	3.535	13.709	26.199	-0.042	30.025	1.218	1.769	159	11	12.5	15.6	1.1	0.772	0.784	0.050	50.37	42.9
167	7/14/1999	3:19:38 PM	0	24.749	22.487	24.262	23.757	21.316	30.937	17.109	43.345	3.423	13.875	25.891	-0.042	29.825	1.218	1.763	160	12	12.4	15.4	1.1	0.770	0.786	0.051	51.05	43.4
168	7/14/1999	3:20:39 PM	0	24.633	22.532	24.066	23.802	21.602	30.902	17.729	43.894	3.495	13.81	25.86	-0.042	29.979	1.218	1.763	161	13	12.4	15.8	1.1	0.770	0.790	0.050	50.11	42.6
169	7/14/1999	3:21:39 PM	0	24.473	22.612	23.986	23.882	21.522	30.823	18.101	44.26	3.383	14.047	25.706	-0.042	29.687	1.218	1.757	162	14	12.3	16.1	1.1	0.767	0.789	0.049	49.10	41.8
170	7/14/1999	3:22:39 PM	0	24.312	22.612	23.906	23.962	21.602	30.902	17.481	43.487	3.551	14.892	25.521	-0.042	29.887	1.218	1.751	163	15	12.4	16.2	1.1	0.764	0.788	0.049	48.71	41.4

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.22b2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
171	7/14/1999	3:23:40 PM	0	24.232	22.612	23.745	23.962	21.602	30.902	18.411	44.26	3.399	15.061	25.614	-0.042	29.487	1.218	1.748	164	16	12.2	16.7	1.2	0.763	0.791	0.047	47.24	40.2
172	7/14/1999	3:24:40 PM	0	24.027	22.567	23.54	23.917	21.718	30.62	18.039	43.894	3.407	14.824	25.459	-0.042	29.733	1.218	1.748	165	17	12.3	16.4	1.1	0.763	0.795	0.048	48.40	41.2
173	7/14/1999	3:25:40 PM	0	23.991	22.612	23.424	23.962	21.683	30.744	17.977	43.65	3.463	15.061	25.305	-0.042	29.764	1.218	1.742	166	18	12.4	16.5	1.1	0.760	0.795	0.048	48.13	41.0
174	7/14/1999	3:26:40 PM	0	23.911	22.612	23.344	23.962	21.522	30.823	18.225	43.65	3.463	14.993	25.09	-0.042	29.825	1.218	1.733	167	19	12.4	16.6	1.1	0.757	0.793	0.048	47.74	40.6
175	7/14/1999	3:27:41 PM	0	23.75	22.612	23.263	23.882	21.602	30.902	18.659	43.833	3.423	15.061	24.966	-0.042	29.917	1.218	1.73	168	20	12.4	16.9	1.2	0.755	0.793	0.047	47.05	40.0
176	7/14/1999	3:28:41 PM	0	23.67	22.612	23.183	23.882	21.602	30.744	18.225	43.589	3.335	15.365	24.936	-0.042	29.733	1.218	1.733	169	21	12.3	16.8	1.2	0.757	0.796	0.047	47.42	40.4
177	7/14/1999	3:29:41 PM	0	23.509	22.612	23.022	23.882	21.602	30.744	18.473	43.65	3.431	15.061	24.72	-0.042	29.779	1.218	1.733	170	22	12.4	16.8	1.2	0.757	0.800	0.048	47.72	40.6
178	7/14/1999	3:30:42 PM	0	23.429	22.612	22.942	23.882	21.602	30.902	18.349	43.528	3.359	15.433	24.843	-0.042	29.641	1.218	1.733	171	23	12.3	16.9	1.2	0.757	0.802	0.047	47.48	40.4
179	7/14/1999	3:31:42 PM	0	23.349	22.612	22.862	23.962	21.602	30.744	18.287	43.223	3.367	14.824	24.72	-0.042	29.626	1.218	1.73	172	24	12.3	16.6	1.1	0.755	0.802	0.048	48.47	41.2
180	7/14/1999	3:32:42 PM	0	23.268	22.612	22.701	23.882	21.683	30.823	19.093	44.382	3.431	15.365	24.689	0.004	29.858	1.218	1.727	173	25	12.4	17.2	1.2	0.754	0.805	0.047	46.71	39.7
181	7/14/1999	3:33:43 PM	0	23.108	22.612	22.62	23.962	21.602	30.823	18.721	43.711	3.447	15.433	24.812	-0.042	29.518	1.218	1.727	174	26	12.3	17.1	1.2	0.754	0.807	0.047	47.23	40.2
182	7/14/1999	3:34:43 PM	0	23.027	22.612	22.54	23.962	21.602	30.823	18.721	43.467	3.447	15.602	24.658	-0.042	29.687	1.218	1.721	175	27	12.3	17.2	1.2	0.751	0.806	0.047	46.94	39.9
183	7/14/1999	3:35:43 PM	0	22.962	22.657	22.505	24.007	21.567	30.947	18.783	43.833	3.447	15.534	24.535	-0.042	29.672	1.218	1.724	176	28	12.3	17.2	1.2	0.753	0.808	0.047	47.08	40.1
184	7/14/1999	3:36:44 PM	0	22.866	22.612	22.299	23.882	21.683	30.823	19.155	44.199	3.479	15.67	24.72	-0.042	29.626	1.218	1.724	177	29	12.3	17.4	1.2	0.753	0.813	0.047	46.67	39.7
185	7/14/1999	3:37:44 PM	0	22.706	22.612	22.218	23.882	21.602	30.902	19.34	44.138	3.511	15.872	24.258	-0.042	29.641	1.218	1.715	178	30	12.3	17.6	1.2	0.749	0.810	0.046	46.02	39.2
186	7/14/1999	3:38:44 PM	0	22.706	22.612	22.138	23.882	21.522	30.744	18.845	43.467	3.431	15.67	24.288	-0.042	29.626	1.218	1.715	179	31	12.3	17.3	1.2	0.749	0.812	0.047	47.06	40.0
187	7/14/1999	3:39:45 PM	0	22.545	22.612	22.138	23.882	21.683	30.744	19.836	44.687	3.622	16.515	24.319	-0.042	29.61	1.218	1.721	180	32	12.3	18.2	1.3	0.751	0.815	0.045	44.84	38.2
188	7/14/1999	3:40:45 PM	0	22.545	22.612	21.977	23.962	21.683	30.744	18.659	43.528	3.439	15.703	24.35	-0.042	29.58	1.218	1.724	181	33	12.3	17.2	1.2	0.753	0.820	0.048	47.74	40.6
189	7/14/1999	3:41:45 PM	0	22.464	22.612	21.977	23.882	21.763	30.744	19.217	44.077	3.407	16.346	24.504	0.004	29.656	1.218	1.715	182	34	12.3	17.6	1.2	0.749	0.816	0.046	45.88	39.0
190	7/14/1999	3:42:46 PM	0	22.429	22.737	21.941	23.927	21.728	30.629	19.031	43.65	3.447	15.639	24.165	-0.042	29.764	1.218	1.718	183	35	12.4	17.4	1.2	0.750	0.818	0.047	46.93	39.9
191	7/14/1999	3:43:46 PM	0	22.268	22.657	21.861	23.927	21.889	30.629	19.217	43.711	3.455	15.906	24.258	-0.042	29.702	1.218	1.715	184	36	12.3	17.6	1.2	0.749	0.819	0.047	46.61	39.7
192	7/14/1999	3:44:46 PM	0	22.268	22.657	21.7	23.927	21.808	30.709	18.969	43.528	3.447	15.771	24.103	-0.042	29.672	1.218	1.718	185	37	12.3	17.4	1.2	0.750	0.824	0.047	47.43	40.4
193	7/14/1999	3:45:47 PM	0	22.187	22.657	21.7	23.847	21.808	30.788	19.712	44.321	3.479	16.109	24.227	-0.042	29.764	1.218	1.711	186	38	12.4	17.9	1.2	0.747	0.820	0.046	45.81	39.0
194	7/14/1999	3:46:47 PM	0	22.107	22.657	21.619	23.927	21.728	30.709	19.65	44.138	3.439	15.94	24.165	-0.042	29.672	1.218	1.708	187	39	12.3	17.8	1.2	0.746	0.821	0.046	46.13	39.3
195	7/14/1999	3:47:47 PM	0	22.026	22.657	21.539	23.847	21.647	30.788	19.217	43.772	3.423	16.177	24.134	-0.042	29.718	1.218	1.711	188	40	12.3	17.7	1.2	0.747	0.824	0.047	46.58	39.6
196	7/14/1999	3:48:48 PM	0	21.946	22.657	21.539	23.847	21.647	30.788	19.65	44.199	3.463	15.974	24.258	-0.042	29.718	1.218	1.711	189	41	12.3	17.8	1.2	0.747	0.824	0.046	46.28	39.4
197	7/14/1999	3:49:48 PM	0	21.946	22.657	21.458	23.927	21.728	30.947	19.031	43.467	3.447	16.346	24.134	-0.042	29.733	1.218	1.715	190	42	12.3	17.7	1.2	0.749	0.828	0.047	46.82	39.8
198	7/14/1999	3:50:48 PM	0	21.91	22.702	21.423	23.892	21.773	30.832	19.712	44.26	3.495	16.346	24.042	0.004	29.61	1.218	1.705	191	43	12.3	18.0	1.2	0.744	0.824	0.046	45.71	38.9
199	7/14/1999	3:51:49 PM	0	21.785	22.657	21.378	23.927	21.647	30.867	19.836	44.016	3.543	16.177	23.949	-0.042	29.564	1.218	1.705	192	44	12.3	18.0	1.2	0.744	0.825	0.046	45.83	39.0
200	7/14/1999	3:52:49 PM	0	21.704	22.657	21.297	23.847	21.647	30.788	19.588	43.894	3.479	15.771	23.795	-0.042	29.81	1.218	1.711	193	45	12.4	17.7	1.2	0.747	0.830	0.047	46.95	40.0
201	7/14/1999	3:53:49 PM	0	21.669	22.702	21.262	23.892	21.773	30.753	18.907	42.919	3.343	16.143	24.011	-0.042	29.687	1.218	1.711	194	46	12.3	17.5	1.2	0.747	0.831	0.047	47.41	40.3
202	7/14/1999	3:54:50 PM	0	21.669	22.702	21.181	23.811	21.773	30.753	19.712	44.138	3.479	15.906	23.857	-0.042	29.426	1.218	1.708	195	47	12.2	17.8	1.2	0.746	0.831	0.047	46.68	39.7
203	7/14/1999	3:55:50 PM	0	21.588	22.702	21.181	23.892	21.692	30.991	19.402	43.65	3.535	16.008	23.826	-0.042	29.81	1.218	1.708	196	48	12.3	17.7	1.2	0.746	0.831	0.047	46.96	40.0
204	7/14/1999	3:56:50 PM	0	21.669	22.702	21.504	23.811	21.692	30.991	19.898	44.443	3.335	16.447	24.134	-0.042	29.549	1.218	1.705	197	49	12.3	18.2	1.3	0.744	0.822	0.045	45.25	38.5
205	7/14/1999	3:57:51 PM	0	21.91	22.702	21.745	23.892	21.692	30.832	19.402	44.077	3.519	16.38	24.227	-0.042	29.795	1.218	1.702	198	50	12.4	17.9	1.2	0.743	0.815	0.046	45.56	38.8
206	7/14/1999	3:58:51 PM	0	22.152	22.702	21.906	23.811	21.692	30.912	19.34	43.833	3.479	15.839	24.011	-0.042	29.871	1.218	1.708	199	51	12.4	17.6	1.2	0.746	0.814	0.046	46.29	39.4
207	7/14/1999	3:59:52 PM	0	22.348	22.657	22.102	23.847	21.567	30.947	19.217	43.833	3.511	15.636	24.258	0.004	29.733	1.218	1.718	200	52	12.3	17.4	1.2	0.750	0.814	0.047	46.73	39.8
208	7/14/1999	4:00:52 PM	0	22.635	22.702	22.389	23.892	21.612	30.991	19.279	43.894	3.535	15.534	24.134	-0.042	29.871	1.218	1.711	201	53	12.4	17.4	1.2	0.747	0.804	0.046	46.21	39.3
209	7/14/1999	4:01:53 PM	0	22.751	22.657	22.505	23.847	21.486	31.026	18.783	43.345	3.503	16.041	24.196	-0.042	29.687	1.218	1.718	202	54	12.3	17.4	1.2	0.750	0.805	0.046	46.23	39.3
210	7/14/1999	4:02:53 PM	0	22.992	22.737	22.826	23.847	21.647	30.947	18.783	43.345	3.455	15.501	24.319	-0.042	29.702	1.218	1.718	203	55	12.3	17.1	1.2	0.750	0.798	0.047	46.53	39.6
211	7/14/1999	4:03:53 PM	0	23.233	22.657	23.148	23.847	21.647	30.867	19.031	43.894	3.559	15.805	24.504	-0.042	29.764	1.218	1.718	204	56	12.4	17.4	1.2	0.750	0.790	0.045	45.38	38.6
212	7/14/1999	4:04:54 PM	0	23.554	22.657	23.469	23.766	21.647	31.026	19.031	44.016	3.447	15.467	24.535	-0.042	29.917	1.218	1.718	205	57	12.4	17.2	1.2	0.750	0.783	0.045	45.40	38.6
213	7/14/1999	4:05:54 PM	0	23.876	22.657	23.71	23.766	21.647	31.106	17.915	42.656	3.343	15.534	24.781	-0.042	29.733	1.218	1.73	206	58	12.3	16.7	1.2	0.755	0.763	0.047	46.83	39.9
214	7/14/1999	4:06:54 PM	0	24.116	22.657	24.031	23.766	21.647	31.185	18.597	43.65	3.295	15.365	24.689	0.004	29.841	1.218	1.724	207	59	12.4	17.0	1.2	0.753	0.773	0.046	45.55	38.8
215	7/14/1999	4:07:55 PM	0	24.437	22.737	24.271	23.766	21.647	30.947	18.287	43.406	3.479	15.365	24.627	-0.042	29.841	1.218	1.727	208	60	12.4	16.8	1.2	0.754	0.770	0.046	45.74	38.9
216	7/14/1999	4:08:55 PM	0	24.678	22.657	24.592	23.686	21.486	31.105	18.845	44.077	3.383	15.095	24.874	-0.042	29.871	1.218	1.727	209	61	12.4	17.0	1.2	0.754	0.763	0.045	44.94	38.2
217	7/14/1999	4:09:55 PM	0	24.999	22.657	24.832	23.606	21.486	31.026	18.845	44.016	3.303	14.993	25.08	-0.042	29.917	1.218	1.733	210	62	12.4	16.9	1.2	0.757	0.760	0.045	44.93	38.2
218	7/14/1999	4:10:56 PM	0	25.239	22.657	25.153	23.686	21.486	31.106	18.721	44.016	3.559	14.98	24.781	-0.042	30.04	1.218	1.73	211	63	12.5	16.8	1.2	0.755	0.752	0.045	44.65	38.0
219	7/14/1999	4:11:56 PM	0	25.559	22.737	25.393	23.686	21.325	31.185	18.101	43.284	3.439	14.858	24.874	-0.042	29.887	1.218	1.736	212	64	12.4	16.5	1.1	0.758	0.750	0.045	45.48	38.7
220	7/14/1999	4:12:56 PM	0	25.8	22.737	25.633	23.606	21.406	31.185	17.667	43.345	3.543	15.332	25.059	-0.042	29.979	1.218	1.736	213	65	12.4	16.5	1.1	0.756	0.744	0.045	45.12	38.4
221	7/14/1999	4:13:57 PM	0	25.96	22.657	25.713	23.686	21.406	31.106	17.853	43.162	3.463	14.723	24.966	-0.042	29.933	1.218	1.736	214	66	12.4	16.3	1.1	0.758	0.743	0.046	45.60	38.8
222	7/14/1999	4:14:57 PM	0	25.995	22.692	25.668	23.641	21.361	31.061	18.163	43.711	3.535	14.757	25.09	-0.042	29.856	1.218	1.736	215	67	12.4	16.5	1.1	0.758	0.744	0.045	45.19	38.5
223	7/14/1999	4:15:57 PM	0	25.915	22.692	25.668	23.561	21.522	30.982	18.349	43.894	3.527	14.781	25.151	-0.042	30.056	1.218	1.736	216	68	12.5	16.6	1.1	0.756	0.744	0.045	44.69	38.2
224	7/14/1999	4:16:58 PM	0	25.995	22.692	25.588	23.641	21.522	30.982	18.411	44.016	3.439	14.993	25.151	-0.042	29.795	1.218	1.733	217	69	12.4	16.7	1.2	0.757	0.744	0.045	44.55	37.9
225	7/14/1999	4:17:58 PM	0	25.915	22.692	26.506	23.641	21.522	30.982	18.287	43.694	3.447	14.892	25.028	-0.042	29.948	1.218	1.738	218	70	12.4	16.6	1.1	0.758	0.747	0.045	45.03	38.3
226	7/14/1999	4:18:58 PM	0	25.915	22.773	25.508	23.902	21.441	30.902	9.298	43.589	3.439	8.833	33.718	-0.042	30.317	1.218	1.952	219	71	12.6	7.6	0.5	0.852	0.840	0.110	110.31	93.9
227	7/14/1999	4:19:59 PM	0	25.915	22.773	25.508	23.682	21.522	30.982	11.654	43.772	3.543	8.063	31.808	-0.042	30.025	1.218	1.909	220	72	12.5	9.9	0.7	0.833	0.822	0.083	83.33	70.9
228	7/14/1999	4:20:59 PM	0	25.835	22.692	25.508	23.802	21.441	31.061	12.956	43.101	3.487	9.787	29.959	-0.042	30.117	1.218	1.867	221	73	12.5	11.4	0.8	0.815	0.803	0.071	70.66	60.1
229																												
230		Averages		25.8	22.1	25.5	23.1	21.4	31.0	12.0	21.7	3.5	8.8	8.4	0.0	30.0	1.218	1.220			12.5	10.3	0.7	0.533	0.525	0.052	52.5	44.7
231		Maximum		27.5	22.2	27.5	23.3	22.0	31.3	13.7	22.4	3.7	10.3	13.7	0.0	30.3	1.218	1.395			12.8	11.8	0.8	0.809	0.613	0.103	103.0	87.6
232		Median		25.6	22.1	25.6	23.1	21.3	30.9	12.6	21.7	3.5	9.1	8.8	0.0	30.1	1.218	1.206			12.5	10.8	0.7	0.526	0.521	0.046	46.0	39.2
233		Minimum		24.4	22.0	24.1	22.9	21.1	30.3	7.9	21.1	3.3	4.0	7.9	0.0	29.4	1.218	1.169			12.2	6.0	0.4	0.510	0.489	0.044	44.2	37.6
234		Std Dev		1.0	0.1	1.0	0.1	0.2	0.2	1.4	0.3	0.1	1.5	1.5	0.0	0.2	0.000	0.051			0.1	1.5	0.1	0.022	0.027	0.013	12.7	10.8
235		Number of Points Used		43	43	43	43	43	43	43	43	43	43	43	43	43	43	43			43	43	43	43	43	43	43	43
236																												
237		Averages		26.2	22.4	25.9	23.5	21.6	30.9	9.3	14.3	3.5	5.8	4.8	0.0	29.8	0.853	0.805			12.4	7.6	0.5	0.351	0.343	0.046	46.2	39.3
238		Maximum		28.4	22.5	28.3	23.8	22.6	31.4	10.4	16.9	3.8	6.6	10.1	0.0	30.0	1.218	1.261			12.5	8.3	0.6	0.550	0.547	0.108	108.4	92.3
239		Median		26.0	22.4	25.7	23.5	21.6	31.0	9.5	14.3	3.5	6.0	4.6	0.0	29.8	0.841	0.789			12.4	7.6	0.5	0.344	0.330	0.042	42.0	35.8
240		Minimum		24.8	22.2	24.4	23.3	21.3	29.6	6.7	13.8	2.9	3.4	4.3	0.0	27.2	0.781	0.731			11.3	5.0	0.3	0.319	0.311	0.040	39.6	33.7
241		Std Dev		1.1	0.1	1.2	0.1	0.3	0.3	0.7	0.4	0.1	0.7	0.8	0.0	0.3	0.078	0.084			0.1	0.7	0.0	0.037	0.037	0.011	11.4	9.7
242		Number of Points Used		71	71	71	71	(71	71	71	71	71	71	71	71	71	71	71			71	71	71	71	71	71	71	71
243																												
244		Averages		23.7	22.6	23.3	23.8	21.6	30.9	18.2	43.8	3.5	14.9	25.2	0.0	29.8	1.218	1.739			12.4	16.6	1.1	0.759	0.797	0.049	48.9	41.6
245		Maximum		26.3	22.7	25.9	24.0	21.9	31.2	19.9	44.7	3.6	16.6	33.1	0.0	30.2	1.218	1.931			12.5	18.2	1.3	0.843	0.831	0.098	97.7	83.1
246		Median		23.5	22.7	23.1	23.8	21.6	30.9	18.7	43.8	3.5	15.4	24.7	0.0	29.8	1.218	1.727			12.4	17.0	1.2	0.754	0.800	0.047	46.8	39.8
247		Minimum		21.6	22.5	21.2	23.6	21.3	30.6	10.2	42.9	3.3	6.6	23.8	0.0	29.4	1.218	1.702			12.2	8.4	0.6	0.743	0.743	0.045	44.6	37.9
248		Std Dev		1.5	0.1	1.5	0.1	0.1	0.1	1.7	0.4	0.1	1.7	1.7	0.0	0.2	0.000	0.042			0.1	1.7	0.1	0.018	0.025	0.008	7.8	6.6
249		Number of Points Used		69	69	69	69	69	69	69	69	69	69	69	69	69	69	69			69	69	69	69	69	69	69	69



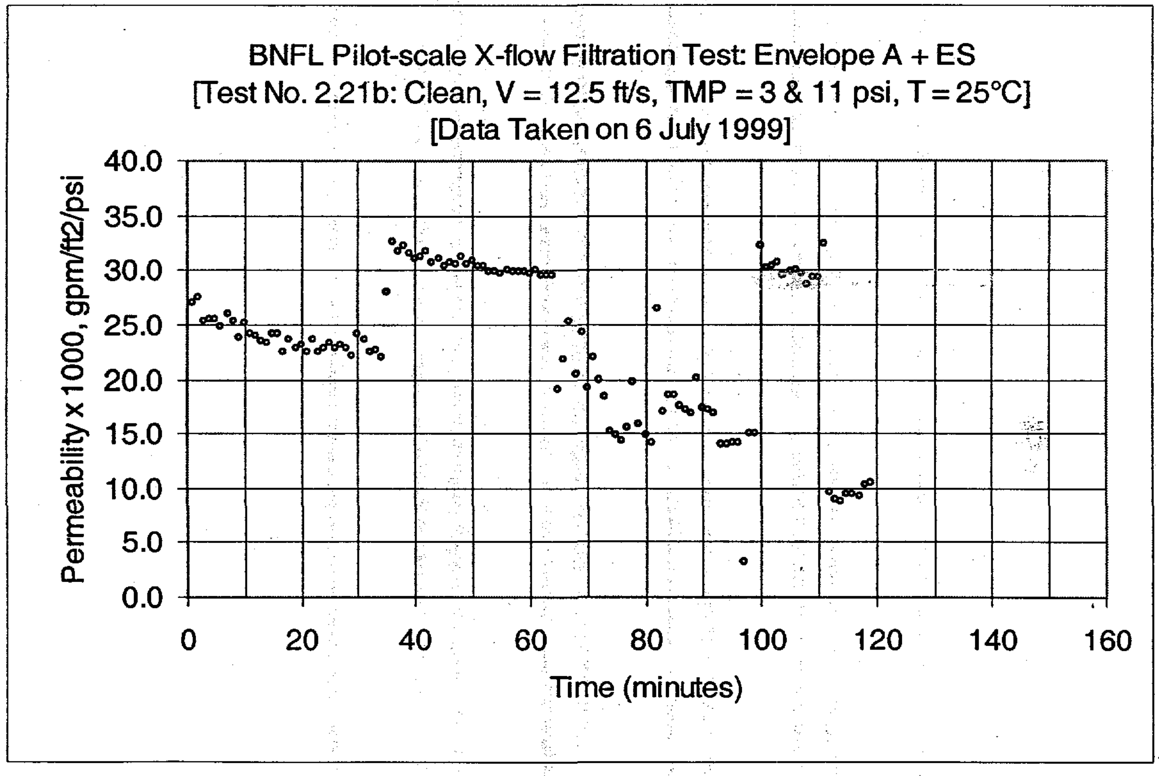


Figure A4: Test Run 2.21b, 1 M NaOH Cleaning

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.21b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	FLTR FLO	V9		Filter Surface Area =		2.29	FT2					
2	Zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg					
3	7/6/1999	8:20:12 AM	0	22.829	21.85	21.295	22.478	21.001	30.071	-0.155	-1.596	0.032	-0.119	-1.596	-0.042	-0.095	0.011	0										
4	7/6/1999	8:43:21 AM	0	22.829	21.85	21.295	22.478	21.001	30.071	-0.155	-1.596	0.032	-0.119	-1.596	-0.042	-0.095	0.011	0										
5	7/6/1999	8:44:21 AM	0	22.812	21.833	21.359	23.185	20.58	31.722	-0.062	-0.072	-0.032	-0.017	-0.15	-0.042	-0.08	0.011	0										
6	7/6/1999	8:45:21 AM	0	22.973	21.914	21.359	23.185	20.535	31.836	-0.062	-0.041	-0.024	0.016	-0.15	-0.042	-0.08	0.011	0.003							at 25C	PERMIABILITY	x 1000	PERMIABILITY
7	Data																		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	7/6/1999	8:56:32 AM	0	23.481	21.94	23.592	23.247	20.562	30.969	4.556	12.642	4.149	1.301	7.031	-0.042	29.533	0.205	0	1	1	12.3	2.9	0.2	0.09	0.09	0.032	31.80	27.1
9	7/6/1999	8:57:32 AM	0	23.597	21.895	23.752	23.247	20.642	30.671	4.494	12.673	4.189	1.166	7.123	-0.042	29.533	0.202	0	2	2	12.3	2.8	0.2	0.09	0.09	0.032	32.28	27.5
10	7/6/1999	8:58:32 AM	0	23.758	21.895	23.993	23.327	20.723	30.83	4.68	12.856	4.189	1.335	7.123	-0.042	29.702	0.199	0	3	3	12.3	3.0	0.2	0.09	0.09	0.030	29.72	25.3
11	7/6/1999	8:59:32 AM	0	23.918	21.895	24.234	23.247	20.723	30.83	4.463	12.642	4.037	1.403	7.123	-0.042	29.595	0.197	0.003	4	4	12.3	2.9	0.2	0.09	0.09	0.030	29.96	25.5
12	7/6/1999	9:00:32 AM	0	24.159	21.895	24.394	23.327	20.804	30.627	4.401	12.812	4.029	1.369	7.092	-0.042	29.656	0.195	0	5	5	12.3	2.9	0.2	0.09	0.09	0.030	30.01	25.5
13	7/6/1999	9:01:32 AM	0	24.275	21.85	24.554	23.327	20.884	30.389	4.68	12.856	4.229	1.267	7.092	-0.042	29.595	0.196	0	6	6	12.3	3.0	0.2	0.09	0.09	0.029	29.14	24.8
14	7/6/1999	9:02:33 AM	0	24.48	21.895	24.715	23.407	20.965	30.274	4.339	12.48	4.085	1.2	7.031	-0.042	29.61	0.192	0	7	7	12.3	2.8	0.2	0.08	0.08	0.031	30.51	26.0
15	7/6/1999	9:03:33 AM	0	24.721	21.814	24.875	23.488	21.126	30.115	4.556	12.734	4.245	1.2	7.092	-0.042	29.687	0.196	0	8	8	12.3	2.9	0.2	0.09	0.09	0.030	29.83	25.4
16	7/6/1999	9:04:33 AM	0	24.721	21.895	25.16	23.488	21.207	30.035	4.525	12.673	4.093	1.369	7.092	-0.042	29.672	0.19	0	9	9	12.3	2.9	0.2	0.08	0.08	0.028	28.02	23.8
17	7/6/1999	9:05:33 AM	0	25.006	21.895	25.275	23.613	21.287	29.956	4.37	12.52	4.065	1.233	7.061	-0.042	29.641	0.191	0	10	10	12.3	2.8	0.2	0.08	0.08	0.030	29.53	25.1
18	7/6/1999	9:06:33 AM	0	25.166	21.859	25.435	23.568	21.493	29.876	4.525	12.673	4.133	1.267	7.061	-0.042	29.626	0.19	0	11	11	12.3	2.9	0.2	0.08	0.08	0.028	28.29	24.1
19	7/6/1999	9:07:33 AM	0	25.326	21.859	25.64	23.613	21.654	29.762	4.37	12.52	4.077	1.369	7.031	-0.042	29.672	0.188	0	12	12	12.3	2.9	0.2	0.08	0.08	0.028	28.09	23.9
20	7/6/1999	9:08:33 AM	0	25.406	21.859	25.72	23.654	21.896	29.602	4.308	12.581	3.949	1.403	7.216	-0.042	29.441	0.184	0	13	13	12.2	2.9	0.2	0.08	0.08	0.028	27.57	23.5
21	7/6/1999	9:09:33 AM	0	25.691	21.904	25.925	24.139	22.102	29.328	4.37	12.612	4.065	1.335	7.185	-0.042	29.672	0.184	0	14	14	12.3	2.9	0.2	0.08	0.08	0.027	27.44	23.3
22	7/6/1999	9:10:33 AM	0	25.816	21.869	26.05	24.38	22.182	29.249	4.215	12.429	3.997	1.301	7.123	-0.042	29.702	0.184	0	15	15	12.3	2.8	0.2	0.08	0.08	0.028	28.28	24.1
23	7/6/1999	9:11:33 AM	0	25.976	21.869	26.05	24.666	22.388	29.293	4.246	12.46	4.021	1.267	7.154	-0.042	29.749	0.165	0	16	16	12.3	2.8	0.2	0.08	0.08	0.028	28.45	24.2
24	7/6/1999	9:12:34 AM	0	26.021	21.833	26.174	24.71	22.353	29.373	4.463	12.642	3.997	1.403	7.123	-0.042	29.672	0.183	0	17	17	12.3	2.9	0.2	0.08	0.08	0.026	26.36	22.4
25	7/6/1999	9:13:34 AM	0	26.181	21.959	26.094	24.835	22.433	29.462	4.432	12.673	4.093	1.2	7.185	-0.042	29.641	0.185	0	18	18	12.3	2.8	0.2	0.08	0.08	0.028	27.81	23.7
26	7/6/1999	9:14:34 AM	0	26.226	21.878	26.219	24.835	22.317	29.701	4.463	12.673	4.141	1.233	7.092	-0.042	29.61	0.181	0	19	19	12.3	2.8	0.2	0.08	0.08	0.027	26.81	22.8
27	7/6/1999	9:15:34 AM	0	26.27	21.878	26.184	24.88	22.398	29.745	4.401	12.812	4.069	1.301	7.123	-0.042	29.749	0.184	0	20	20	12.3	2.9	0.2	0.08	0.08	0.027	27.25	23.2
28	7/6/1999	9:16:34 AM	0	26.315	21.923	26.104	24.8	22.443	29.984	4.494	12.764	4.197	1.335	7.154	-0.042	29.626	0.182	0	21	21	12.3	2.9	0.2	0.08	0.08	0.026	26.43	22.5
29	7/6/1999	9:17:34 AM	0	26.315	21.888	26.228	24.684	22.407	30.106	4.277	12.49	4.061	1.267	7.123	-0.042	29.702	0.182	0.003	22	22	12.3	2.8	0.2	0.08	0.08	0.028	27.69	23.6
30	7/6/1999	9:18:34 AM	0	26.315	21.933	26.113	24.649	22.246	30.232	4.494	12.673	4.101	1.335	7.123	-0.042	29.641	0.182	0	23	23	12.3	2.9	0.2	0.08	0.08	0.026	26.42	22.5
31	7/6/1999	9:19:34 AM	0	26.28	21.933	26.113	24.569	22.13	30.47	4.339	12.52	3.942	1.369	7.123	-0.042	29.564	0.181	0.003	24	24	12.3	2.9	0.2	0.08	0.08	0.027	26.83	22.8
32	7/6/1999	9:20:34 AM	0	26.324	21.978	26.113	24.614	22.095	30.753	4.308	12.52	4.069	1.335	7.123	0.004	29.672	0.182	0.003	25	25	12.3	2.8	0.2	0.08	0.08	0.027	27.29	23.2
33	7/6/1999	9:21:34 AM	0	26.324	21.978	26.158	24.533	22.014	31.15	4.37	12.612	4.029	1.335	7.092	-0.042	29.626	0.181	0	26	26	12.3	2.9	0.2	0.08	0.08	0.027	26.81	22.8
34	7/6/1999	9:22:35 AM	0	26.244	21.897	26.078	24.496	21.692	31.036	4.525	12.795	4.348	1.132	7.123	-0.042	29.564	0.182	0	27	27	12.3	2.8	0.2	0.08	0.08	0.027	27.25	23.2
35	7/6/1999	9:23:35 AM	0	26.324	21.978	26.078	24.496	21.738	31.229	4.339	12.551	3.981	1.403	7.092	-0.042	29.549	0.182	0	28	28	12.3	2.9	0.2	0.08	0.08	0.027	26.85	22.8
36	7/6/1999	9:24:35 AM	0	26.369	21.897	26.123	24.453	21.496	31.274	4.463	12.642	4.021	1.369	7.061	-0.042	29.656	0.179	0	29	29	12.3	2.9	0.2	0.08	0.08	0.026	25.97	22.1
37	7/6/1999	9:25:35 AM	0	26.289	22.023	25.998	24.418	21.496	31.468	4.339	12.581	4.197	1.166	7.154	-0.042	29.472	0.184	0	30	30	12.2	2.8	0.2	0.08	0.08	0.028	28.38	24.1
38	7/6/1999	9:26:35 AM	0	26.289	21.942	26.043	24.418	21.496	31.671	4.215	12.399	3.902	1.301	7.061	-0.042	29.61	0.181	0	31	31	12.3	2.8	0.2	0.08	0.08	0.028	27.82	23.7
39	7/6/1999	9:27:35 AM	0	26.289	22.023	26.043	24.338	21.254	31.671	4.37	12.551	3.957	1.403	7.092	-0.042	29.764	0.18	0	32	32	12.4	2.9	0.2	0.08	0.08	0.026	26.44	22.5
40	7/6/1999	9:28:35 AM	0	26.289	22.023	26.043	24.213	21.335	31.433	4.432	12.581	4.037	1.267	7.061	-0.042	29.61	0.178	0	33	33	12.3	2.8	0.2	0.08	0.08	0.026	26.48	22.5
41	7/6/1999	9:29:35 AM	0	26.244	22.023	26.043	24.338	21.254	31.353	4.401	12.612	3.942	1.504	7.092	-0.042	29.487	0.18	0	34	34	12.2	3.0	0.2	0.08	0.08	0.026	25.85	22.0
42	7/6/1999	9:30:35 AM	0	26.369	22.103	26.043	24.258	21.209	31.671	7.222	17.248	3.742	4.411	9.065	-0.042	28.858	0.452	0.003	35		11.9	5.8	0.4	0.20	0.19	0.033	32.95	28.0
43	7/6/1999	9:31:36 AM	0	26.289	22.058	25.998	24.293	21.209	31.626	12.336	21.149	4.221	9.009	7.647	-0.042	30.747	0.96	0	36	1	12.8	10.7	0.7	0.42	0.41	0.038	38.18	32.5
44	7/6/1999	9:32:36 AM	0	26.244	21.978	25.998	24.132	21.048	31.706	12.48	21.18	4.125	9.314	7.585	-0.042	30.901	0.955	0.003	37	2	12.8	10.9	0.8	0.42	0.41	0.037	37.24	31.7
45	7/6/1999	9:33:36 AM	0	26.244	22.013	25.998	24.373	21.083	31.626	12.119	20.661	4.253	9.111	7.462	-0.042	30.885	0.949	0	38	3	12.8	10.6	0.7	0.41	0.40	0.038	37.95	32.3
46	7/6/1999	9:34:36 AM	0	26.2	22.058	25.918	24.293	21.083	31.582	12.336	20.905	4.005	9.28	7.431	-0.042	30.885	0.94	0	39	4	12.8	10.8	0.7	0.41	0.40	0.037	37.00	31.5
47	7/6/1999	9:35:36 AM	0	26.2	22.058	25.953	24.248	21.003	31.741	12.119	20.661	3.822	9.719	7.431	0.004	30.931	0.939	0	40	5	12.8	10.9	0.8	0.41	0.40	0.037	36.55	31.1
48	7/6/1999	9:36:36 AM	0	26.2	22.013	25.953	24.328	21.083	31.82	12.243	20.722	3.878	9.449	7.339	-0.042	30.977	0.938	0.003	41	6	12.9	10.8	0.7	0.41	0.40	0.037	36.76	31.3
49	7/6/1999	9:37:36 AM	0	26.155	22.094	25.908	24.364	20.958	31.344	12.119	20.57	3.973	9.246	7.339	-0.042	30.916	0.937	0.003	42	7	12.8	10.7	0.7	0.41	0.40	0.037	37.33	31.8
50	7/6/1999	9:38:36 AM	0	26.235	21.988	25.908	24.283	21.28	31.299	12.367	20.844	4.053	9.55	7.339	-0.042	30.854	0.932	0	43	8	12.8	11.0	0.8	0.41	0.40	0.036	36.19	30.8
51	7/6/1999	9:39:36 AM	0	26.235	22.049	25.908	24.364	21.441	30.823	12.48	20.905	4.165	9.28	7.277	0.004	30.839	0.934	0	44	9	12.8	10.9	0.7	0.41	0.40	0.037	36.57	31.1
52	7/6/1999	9:40:36 AM	0	26.235	22.049	25.828	24.444	21.763	30.505	12.615	21.027	4.029	9.652	7.308	-0.042	30.901	0.932	0.003	45	10	12.8	11.1	0.8	0.41	0.40	0.036	35.70	30.4
53	7/6/1999	9:41:36 AM	0	26.235	22.049	25.908	24.604	21.924	30.346	12.491	20.905	4.065	9.516	7.308	-0.042	30.854	0.932	0	46	11	12.8	11.0	0.8	0.41	0.40	0.036	36.04	30.7
54	7/6/1999	9:42:37 AM	0	26.155	22.049	25.908	24.604	21.924	30.267	12.553	20.875	3.918	9.449	7.216	-0.042	30.87	0.928	0	47	12	12.8	11.0	0.8	0.41	0.39	0.036	35.90	30.5
55	7/6/1999	9:43:37 AM	0	26.28	22.013	25.873	24.684	22.005	30.187	12.305	20.631	4.053	9.212	7.185	-0.042	30.793	0.927	0.003	48	13	12.8	10.8	0.7	0.40	0.39	0.037	36.70	31.2
56	7/6/1999	9:44:37 AM	0	26.2	22.013	25.873	24.89	22.05	30.232	12.615	20.966	4.133	9.381	7.216	-0.042	30.901	0.925	0	49	14	12.8	11.0	0.8	0.40	0.39	0.036	35.83	30.5
57	7/6/1999	9:45:37 AM	0	26.12	22.013	25.873	24.89	22.13	30.073	12.522	20.814	4.141	9.28	7.216	-0.042	30.916	0.928	0	50	15	12.8	10.9	0.8	0.41	0.40	0.036	36.26	30.9
58	7/6/1999	9:46:37 AM	0	26.244	21.978	25.918	24.934	22.291	29.993	12.615	20.936	4.181	9.381	7.185	0.004	30.885	0.923	0	51	16	12.8	11.0	0.8	0.40	0.39	0.036	35.70	30.4
59	7/6/1999	9:47:37 AM	0	26.244	22.058	25.918	24.934	22.417	30.117	12.305	20.631	3.918	9.618	7.185	-0.042	30.901	0.922	0	52	17	12.8	11.0	0.8	0.40	0.39	0.036	35.78	30.5
60	7/6/1999	9:48:37 AM	0	26.209	22.103	25.963	24.934	22.623	29.923	12.801	21.119	4.117	9.584	7.216	-0.042	30.916	0.923	0	53	18	12.8	11.2	0.8	0.40	0.39	0.035	35.04	29.8
61	7/6/1999	9:49:37 AM	0	26.209	22.068	25.963	24.979	22.748	30.062	12.615	20.936	4.069	9.618	7.154	-0.042	30.762	0.92	0	54	19	12.8	11.1	0.8	0.40	0.39	0.035	35.16	29.9
62	7/6/1999	9:50:37 AM	0	26.254	22.068	25.928	25.024	22.748	30.047	12.601	21.068	4.013	9.719	7.185	-0.042	30.831	0.923	0	55	20	12.8	11.3	0.8	0.40	0.39	0.035	34.86	29.7
63	7/6/1999	9:51:37 AM	0	26.219	22.032	25.928	25.069	22.874	29.888	12.584	20.905	3.918	9.652	7.185	-0.042	30.854	0.923	0	56	21	12.8	11.1	0.8	0.40	0.39	0.035	35.31	30.0
64	7/6/1999	9:52:38 AM	0	26.264	22.113	25.892	25.149	22.874	29.933	12.708	20.997	4.005	9.652	7.154	-0.042	30.916	0.922	0	57	22	12.8	11.2	0.8	0.40	0.39	0.035	35.11	29.9
65	7/6/1999	9:53:38 AM	0	26.184	22.078	26.017	25.194	23.044	29.818	12.677	21.058	4.125	9.584	7.123	-0.042	30.87	0.921	0	58	23	12.8	11.1	0.8	0.40	0.39	0.035	35.11	29.9
66	7/6/1999	9:54:38 AM	0	26.228	22.123	25.982	25.239	23.124	29.942	12.491	20.753	3.934	9.753	7.123	-0.042	30.885	0.917	0	59	24	12.8	11.1	0.8	0.40	0.39	0.035	35.01	29.8
67	7/6/1999	9:55:38 AM	0	26.228	22.087	26.027	25.364	23.189	29.987	12.801	21.119	4.269	9.516	7.123	-0.042	30.885	0.92	0	60	25	12.8	11.2	0.8	0.40	0.39	0.035	34.97	29.8
68	7/6/1999	9:56:38 AM	0	26.238	22.132	26.072	25.329	23.089	29.748	12.367	20.539	3.79	9.652	7.123	-0.042	30.762	0.919	0	61	26	12.8	11.0	0.8	0.40	0.39	0.035	35.36	30.1
69	7/6/1999	9:57:38 AM	0	26.283	22.132	26.117	25.454	23.134	29.917	12.739	21.027	4.013	9.652	7.092	-0.042	30.87	0.918	0.003	62	27	12.8	11.2	0.8	0.40	0.39	0.035	34.69	29.5
70	7/6/1999	9:58:39 AM	0	26.283	22.142	26.037	25.374	23.179	29.917	12.615	20.905	3.902	9.621	7.154	-0.042	30.854	0.918	0	63	28	12.8	11.2	0.8	0.40	0.39	0.035	34.70	29.5
71	7/6/1999	9:59:39 AM	0	26.328	22.142	26.127	25.464	23.224	29.882	12.615	20.844	3.969	9.719	7.092	0.004	30.839	0.915	0.003	64	29	12.8	11.2	0.8	0.40	0.39	0.035	34.66	29.5
72	7/6/1999	10:00:39 AM	0	26.373	22.187	26.047	25.589	23.43	29.827	23.37	56.12	1.632	22.566	31.623	0.004	18.06	1.218	0	65		7.5	23.0	1.6	0.53	0.52	0.022	22.46	19.1
73	7/6/1999	10:01:39 AM	0	26.498	22.152	26.411	25.634	23.636	29.857	24.951	38.01	10.635	15.129	11.836	0.004	50.348	1.218	0	66	1	20.9	20.0	1.4	0.53	0.51	0.026	25.50	21.7
74	7/6/1999	10:02:39 AM	0	26.783	22.197	26.536	25.714	23.681	29.857	18.039	32.613	2.904	16.109	13.471	0.004	26.2	1.218	0	67	2	10.9	17.1	1.2	0.53	0.51	0.030	29.83	25.4
75	7/6/1999	10:03:39 AM	0	26.987	22.243	26.821	25.639	23.771	29.902	22.874	44.626	3.81	19.321	21.022	0.004	32.068	1.218	0	68	3	13.3	21.1	1.5	0.53	0.51	0.024	23.95	20.4
76	7/6/1999	10:04:39 AM	0	27.192	22.207	27.151	25.929	23.852	29.991	18.568	36.973	2.481	16.413	17.478	0.004	26.369	1.218	0	69	4	10.9	17.5	1.2	0.53	0.50	0.029	28.63	24.4
77	7/6/1999	10:05:40 AM	0	27.442	22.218	27.23	25.974	23.977	29.957	23.558	50.206	3.774	20.673	25.706	0.004	29.749	1.218	0	70	5	12.3	22.1	1.5	0.53	0.50	0.023	22.59	19.2
78	7/6/1999	10:06:40 AM	0	27.407	22.343	27.46	25.974	24.068	30.036	4.835	15.447	3.271	2.586	9.373	0.004	24.972	0.234	0	71	6	10.4	3.7	0.3	0.10	0.10	0.026	25.69	21.9
79	7/6/1999	10:07:40 AM	0	28.011	22.263	27.684	26.064	24.113	30.061	22.761	48.925	3.862	19.355	25.162	0.004	29.057	1.218	0	72	7	12.1	21.1	1.5	0.53	0.49	0.023	23.42	19.9
80	7/6/1999	10:08:40 AM	0	28.135	22.354	27.889	26.189	24.238	30.171	22.688	58.529	0.646	22.905	34.951	0.004	11.163	1.218	0	73	8	4.6	22.8	1.6	0.53	0.49	0.022	21.52	18.3
81	7/6/1999	10:09:40 AM	0	28.34	22.318	28.218	26.154	24.248	30.215	27.988	79.597	2.561	26.232	50.699	0.004	25.294	1.218	0	74	9	10.5	27.1	1.9	0.53	0.49	0.018	17.92	15.3
82	7/6/1999	10:10:40 AM	0	28.783	22.364	28.617	26.199	24.374	30.26	28.081	82.096	1.708	27.063	53.041	-0.042	19.949	1.218	0	75	10	8.3	27.6	1.9	0.53	0.48	0.017	17.44	14.8
83	7/6/1999	10:11:40 AM	0	29.227	22.329	28.98	26.245	24.419	30.27	28.484	87.555	1.061	27.739	57.941	0.004	16.508	1.218	0	76	11	6.9	28.1	1.9	0.53	0.48	0.017	16.93	14.4
84	7/6/1999	10:12:41 AM	0	29.555	22.339	29.389	26.255	24.465	30.315	26.563	73.987	3.08	24.865	46.662	-0.042	27.982	1.218	0	77	12	11.6	25.7	1.8	0.53	0.47	0.018	18.30	15.6
85	7/6/1999	10:13:41 AM	0	29.839	22.385	29.752	26.3	24.51	30.385	22.533	49.26	6.088	17.495	25.829	0.004	39.41	1.218	0	78	13	16.4	20.0	1.4	0.53	0.47	0.023	23.29	19.8

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.21b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
86	7/8/1999	10:14:41 AM	0	30.202	22.43	30.115	26.345	24.556	30.485	26.965	65.358	6.702	22.296	27.709	0.004	44.709	1.218	0	79	14	18.6	24.6	1.7	0.53	0.46	0.019	18.74	15.9
87	7/8/1999	10:15:41 AM	0	30.645	22.521	30.396	26.391	24.646	30.53	27.864	79.719	3.654	24.696	51.038	-0.042	30.301	1.218	0	80	15	12.6	26.2	1.8	0.53	0.46	0.017	17.46	14.9
88	7/8/1999	10:16:41 AM	0	30.928	22.486	30.681	26.401	24.646	30.654	27.182	91.458	0.247	27.57	63.642	0.004	7.707	1.218	0	81	16	3.2	27.4	1.9	0.53	0.45	0.017	16.60	14.1
89	7/8/1999	10:17:41 AM	0	31.335	22.532	31.168	26.446	24.737	30.665	16.365	30.052	4.492	12.424	12.3	-0.042	31.853	1.218	0	82	17	13.2	14.4	1.0	0.53	0.45	0.031	31.16	26.5
90	7/8/1999	10:18:41 AM	0	31.696	22.497	31.054	26.492	24.782	30.71	22.265	61.395	0.335	22.6	38.31	-0.042	8.153	1.218	0	83	18	3.4	22.4	1.5	0.53	0.45	0.020	20.05	17.1
91	7/8/1999	10:19:42 AM	0	31.584	22.542	31.338	26.457	24.747	30.755	21.862	48.376	3.902	18.881	25.459	0.004	31.177	1.218	0	84	19	12.9	20.4	1.4	0.53	0.45	0.022	21.91	18.6
92	7/8/1999	10:20:42 AM	0	31.753	22.553	31.462	26.502	24.838	30.879	21.82	48.102	3.71	18.915	25.429	0.004	31.069	1.218	0	85	20	12.9	20.4	1.4	0.53	0.44	0.022	21.85	18.6
93	7/8/1999	10:21:42 AM	0	31.878	22.653	31.552	26.628	24.884	30.89	21.851	56.059	1.684	21.18	33.102	-0.042	20.026	1.218	0.003	86	21	8.3	21.5	1.5	0.53	0.44	0.021	20.63	17.6
94	7/8/1999	10:22:42 AM	0	31.923	22.644	31.676	26.559	24.929	30.935	22.471	56.944	1.668	21.383	33.349	0.004	19.857	1.218	0.003	87	22	8.2	21.9	1.5	0.53	0.44	0.020	20.18	17.2
95	7/8/1999	10:23:42 AM	0	32.013	22.61	31.721	26.684	24.975	31.139	23.06	57.462	1.62	21.586	33.503	0.004	19.795	1.218	0	88	23	8.2	22.3	1.5	0.53	0.44	0.020	19.80	16.8
96	7/8/1999	10:24:42 AM	0	32.092	22.655	31.846	26.729	25.02	31.105	18.743	41.069	2.761	17.664	20.251	0.004	25.939	1.218	0	89	24	10.8	18.7	1.3	0.53	0.44	0.024	23.55	20.0
97	7/8/1999	10:25:42 AM	0	32.216	22.621	31.732	26.775	25.066	31.195	22.378	55.48	1.532	20.978	32.116	-0.042	19.273	1.218	0	90	25	8.0	21.7	1.5	0.53	0.44	0.020	20.38	17.3
98	7/8/1999	10:26:42 AM	0	31.969	22.712	31.301	26.866	25.157	31.24	22.265	57.066	1.484	21.789	33.718	0.004	19.335	1.218	0	91	26	8.0	22.0	1.5	0.53	0.45	0.020	20.26	17.3
99	7/8/1999	10:27:43 AM	0	31.638	22.678	30.836	26.911	25.203	31.365	23.587	58.255	1.516	22.127	33.78	0.004	19.227	1.218	0	92	27	8.0	22.9	1.8	0.53	0.45	0.020	19.80	16.9
100	7/8/1999	10:28:43 AM	0	31.266	22.723	30.564	26.877	25.168	31.645	26.656	64.14	2.146	26.86	54.366	0.004	23.236	1.218	0.003	93	28	9.6	27.9	1.9	0.53	0.46	0.016	16.37	13.9
101	7/8/1999	10:29:43 AM	0	31.093	22.769	30.53	27.062	25.064	32.01	29.724	81.274	3.627	25.961	50.668	0.004	30.578	1.218	0	94	29	12.7	27.9	1.9	0.53	0.46	0.016	16.38	13.9
102	7/8/1999	10:30:43 AM	0	30.9	22.815	30.337	26.968	24.939	32.531	29.042	80.969	3.279	26.265	51.038	0.004	29.242	1.218	0	95	30	12.1	27.7	1.9	0.53	0.46	0.017	16.58	14.1
103	7/8/1999	10:31:43 AM	0	30.787	22.861	30.223	26.808	24.664	32.81	28.949	80.726	3.351	26.421	50.452	0.004	29.61	1.218	0	96	31	12.3	27.7	1.9	0.53	0.46	0.017	16.62	14.1
104	7/8/1999	10:32:43 AM	1	30.628	22.826	30.064	26.819	24.469	33.097	2.665	81.305	3.263	-0.186	76.166	44.066	27.291	0.012	0	97	32	11.3	1.2	0.1	0.01	0.00	0.004	3.67	3.1
105	7/8/1999	10:33:43 AM	0	30.514	22.826	30.03	26.819	24.229	33.176	27.895	81.183	3.367	24.561	52.116	0.05	29.564	1.218	0	98	33	12.3	26.2	1.8	0.53	0.46	0.018	17.64	15.0
106	7/8/1999	10:34:43 AM	0	30.355	22.872	29.791	26.785	24.194	33.379	27.492	80.39	3.255	26.373	51.777	0.004	29.365	1.218	0	99	34	12.2	26.4	1.8	0.53	0.47	0.018	17.82	15.0
107	7/8/1999	10:35:44 AM	1	30.242	22.918	29.519	26.705	24.114	33.379	13.73	81.854	3.032	11.072	67.032	58.767	27.091	1.218	0	100	35	11.2	12.4	0.9	0.53	0.47	0.036	37.83	32.2
108	7/8/1999	10:36:44 AM	1	30.083	22.872	29.439	26.765	23.919	33.696	14.567	81.664	3.06	11.965	66.416	60.341	27.245	1.218	0	101	36	11.3	13.3	0.9	0.53	0.47	0.035	35.41	30.1
109	7/8/1999	10:37:44 AM	1	29.923	22.918	29.325	26.751	23.678	33.82	14.071	81.793	3.223	11.275	66.477	60.387	27.767	1.168	0	102	37	11.5	12.7	0.9	0.51	0.45	0.036	35.68	30.4
110	7/8/1999	10:38:44 AM	1	29.844	22.986	29.246	26.671	23.598	33.654	13.637	81.701	3.184	10.497	67.125	60.341	27.782	1.123	0	103	38	11.5	12.1	0.8	0.49	0.44	0.036	36.11	30.7
111	7/8/1999	10:39:44 AM	1	29.665	22.986	29.066	26.671	23.518	33.978	14.268	81.762	3.192	11.241	66.447	60.341	27.798	1.135	0	104	39	11.5	12.8	0.9	0.50	0.44	0.035	34.65	29.5
112	7/8/1999	10:40:44 AM	1	29.651	22.998	29.007	26.511	23.311	33.978	13.698	81.183	3.192	11.207	66.108	60.387	27.767	1.121	0	105	40	11.5	12.5	0.9	0.49	0.44	0.035	35.16	29.9
113	7/8/1999	10:41:44 AM	1	29.571	22.953	29.007	26.591	23.357	34.136	13.865	81.396	3.207	10.767	66.447	60.387	27.813	1.114	0.003	106	41	11.5	12.3	0.8	0.49	0.44	0.035	35.30	30.0
114	7/8/1999	10:42:44 AM	1	29.446	22.998	28.848	26.465	23.231	33.933	13.369	80.969	3.168	11.477	66.755	60.387	27.905	1.106	0	107	42	11.6	12.4	0.9	0.48	0.43	0.035	34.89	29.7
115	7/8/1999	10:43:44 AM	1	29.412	23.033	28.802	26.545	23.277	34.012	14.164	82.28	3.255	11.477	67.094	60.434	27.798	1.098	0.003	108	43	11.5	12.8	0.9	0.48	0.43	0.034	33.64	28.6
116	7/8/1999	10:44:44 AM	1	29.287	23.033	28.643	26.545	23.151	34.012	13.761	81.152	3.104	11.376	66.539	60.434	27.69	1.1	0	109	44	11.5	12.6	0.9	0.48	0.43	0.035	34.52	29.4
117	7/8/1999	10:45:44 AM	1	29.207	23.033	28.643	26.545	23.231	33.933	14.04	81.61	3.16	10.903	66.662	60.434	27.598	1.093	0	110	45	11.5	12.5	0.9	0.48	0.43	0.035	34.57	29.4
118	7/8/1999	10:46:45 AM	1	29.207	23.113	28.438	26.545	23.231	33.933	9.019	68.635	2.697	6.879	59.02	60.202	25.555	0.763	0	111	46	10.6	7.9	0.5	0.33	0.30	0.036	38.08	32.4
119	7/8/1999	10:47:45 AM	1	29.162	23.113	28.356	26.579	23.185	34.046	0.279	-1.901	-0.383	0.49	-2.215	60.202	-0.06	0.011	0	112	47	0.0	0.4	0.0	0.00	0.00	0.011	11.37	9.7
120	7/8/1999	10:48:45 AM	1	29.162	23.068	28.356	26.499	23.024	34.125	0.341	-1.901	-0.399	0.49	-2.215	60.248	-0.065	0.011	0	113	48	0.0	0.4	0.0	0.00	0.00	0.011	10.53	9.0
121	7/8/1999	10:49:45 AM	1	29.162	23.148	27.994	26.454	22.978	34.317	0.341	-1.932	-0.391	0.523	-2.245	60.295	-0.08	0.011	0	114	49	0.0	0.4	0.0	0.00	0.00	0.010	10.23	8.7
122	7/8/1999	10:50:45 AM	1	29.116	23.102	27.516	26.534	22.818	34.159	0.31	-1.932	-0.391	0.49	-2.245	59.508	-0.08	0.011	0	115	50	0.0	0.4	0.0	0.00	0.00	0.011	11.19	9.5
123	7/8/1999	10:51:45 AM	0	29.071	23.102	26.557	26.614	22.772	34.193	0.341	-1.901	-0.399	0.49	-2.245	0.096	-0.08	0.011	0	116	51	0.0	0.4	0.0	0.00	0.00	0.011	11.06	9.4
124	7/8/1999	10:52:45 AM	0	29.025	23.137	25.471	26.488	22.772	34.43	0.341	-1.932	-0.415	0.523	-2.245	0.05	-0.095	0.011	0	117	52	0.0	0.4	0.0	0.00	0.00	0.011	10.97	9.3
125	7/8/1999	10:53:45 AM	0	29.105	23.091	24.831	26.523	22.726	34.385	0.341	-1.932	-0.407	0.456	-2.245	0.05	-0.08	0.011	0	118	53	0.0	0.4	0.0	0.00	0.00	0.012	12.11	10.3
126	7/8/1999	10:54:45 AM	0	28.96	23.125	24.339	26.523	22.646	34.464	0.31	-1.932	-0.407	0.49	-2.245	0.05	-0.08	0.011	0	119	54	0.0	0.4	0.0	0.00	0.00	0.012	12.23	10.4
127																												
128		Averages		26.2	22.1	26.0	24.8	22.2	30.5	12.5	20.9	4.0	9.5	7.3	0.0	30.9	0.9	0.0			12.8	11.0	0.8	0.406	0.395	0.036	35.9	30.6
129		Maximum		26.3	22.1	26.1	25.5	23.2	31.8	12.8	21.2	4.3	9.8	7.6	0.0	31.0	1.0	0.0			12.9	11.3	0.8	0.419	0.408	0.038	36.2	32.5
130		Median		26.2	22.1	25.9	24.9	22.1	30.1	12.5	20.9	4.0	9.6	7.2	0.0	30.9	0.9	0.0			12.8	11.0	0.8	0.404	0.394	0.036	35.8	30.5
131		Minimum		26.1	22.0	25.6	24.1	21.0	29.7	12.1	20.5	3.8	9.0	7.1	0.0	30.7	0.9	0.0			12.8	10.6	0.7	0.399	0.387	0.035	34.7	29.5
132		Std Dev		0.04	0.05	0.07	0.42	0.80	0.71	0.20	0.18	0.12	0.21	0.14	0.02	0.05	0.01	0.00			0.02	0.17	0.01	0.005	0.005	0.001	0.97	0.63
133		Number of Points Used		29	29	29	29	29	29	29	29	29	29	29	29	29	29	29			29	29	29	29	29	29	29	29

APPENDIX B

EXPERIMENTAL DATA: LOW SOLIDS CONCENTRATION

Appendix Contents
1. Nomeclature sheet for data tables
2. Experimental data:

Fig.	Run	Solution	Done on
B1	2.01	0.5 wt% Solids	5/17/99
B2	2.02	0.5 wt% Solids	5/18/99
B3	2.03	0.5 wt% Solids	5/18/99
B4	2.04	0.5 wt% Solids	5/18/99
B5	2.05	0.5 wt% Solids	5/19/99
B6	2.06	0.5 wt% Solids	5/19/99
B7	2.07	0.5 wt% Solids	5/19/99
B8	2.08	0.5 wt% Solids	5/19/99
B9	2.09	0.5 wt% Solids	5/20/99
B10	2.10	0.5 wt% Solids	5/20/99
B11	2.10b	0.5 wt% Solids	5/24/99
B12	2.10c	0.5 wt% Solids	5/24/99
B13	2.11	0.5 wt% Solids	5/24/99
B14	2.12	0.5 wt% Solids	5/25/99
B15	2.13	0.5 wt% Solids	5/25/99
B16	2.07b	0.5 wt% Solids	5/26/99
B17	2.07c	0.5 wt% Solids	5/27/99

General Note: For measurement uncertainties see Appendix F

Special Notes:

a. The data for every test run are highlighted with two graphs: Filtrate Flux vs. Time and Permeability vs. Time. Those graphs include all the data taken during the run period.
b. The beginning and end of the data for most graphs show large deviations from the overall series of points. Those deviations were caused by backpulsing the filter that temporarily stopped the flow of filtrate.
c. All columns of data, in all the tables, are ended with several statistical values of that column, i.e., Average, Maximum, Median, Minimum, Standard Deviation, and Number of Points used (in calculating the 5 statistical quantities). Most of the data with time were maintain constant, and therefore the statistics are meaningful for normally distributed data, however Filtrate Flux and Permeability decrease with time and therefore are not normally distributed.
d. To calculate those quantities mentioned in item c, only those data points that start from the end of a backpulse to just before the ending backpulse were included. This is the reason why the quantity of Number of Points Used was given.
e. The data for the graphs, and all the data taken for the individual test run that the graphs represent, immediately follow the specific figure.

f. Run 2.03 only has about 35 minutes of data. The run was made for the full two hours required, but the data acquisition system was accidentally stopped in the middle, and was not noticed until the run was complete.
g. Run 2.10 was redone twice, Runs 2.10b and 2.10c, because the meaning of "best" run by filtrate flux and permeability were also evaluated.
h. Run 2.07 was redone, Runs 2.07b and 2.07c, after Run 2.13 to investigate the filter operation over a longer period than just two hours. Run 2.07b was one continuous run without interruption from a backpulse and Run 2.07c was done with varying backpulse frequencies.

Nomenclature For Data Sheets

(See Figure 1: Main Test Rig - Pilot Scale Cross Flow for the Instrument Location)

Column	Heading		Full Heading	Explanation
A =	DATE	=	DATE	Day the test was done
B =	TIME	=	TIME	Time data entry was made
C =	SOLENOID	=	SOLENOID	1=yes, 0=no: for the pressure to the backpulse piston
D =	FLTRT (deg	=	FLTRT (deg C) T2	Filtrate Temperature in Filter at exit of the Filter Housing
E =	CL LOOP (d	=	CL LOOP (deg C) T3	Temperature of Liquid in the Cleaning Loop
F =	SL LOOP (d	=	SL LOOP (deg C) T1	Temperature of Liquid in the Slurry Loop at the Reservoir Tank
G =	UP AMB (de	=	UP AMB (deg C) T4	Ambient Temperature at the top of the Test Rig - 3rd level
H =	BOT AMB (	=	BOT AMB (deg C) T5	Ambient Temperature at the bottom of the Test Rig - 1st level
I =	T6 (deg C) S	=	T6 (deg C) SPARE	Spare Thermocouple - Currently Not Being Used
J =	BOT DP (ps	=	BOT DP (psid) dP2	Differential Pressure between the Filter Slurry Entrance and the bottom Filtrate Exit
K =	FLTR (psig)	=	FLTR (psig) P1	Gauge Pressure at the Filter Slurry Entrance
L =	FLTR DP (p	=	FLTR DP (psid) dP1	Differential Pressure between the Filter Slurry Entrance and Exit
M =	TOP DP (ps	=	TOP DP (psig) dP3	Differential Pressure between the Filter Slurry Exit and the Top Filtrate Exit
N =	FLTRATE (p	=	FLTRATE (psig) P2	Gauge Pressure at the Filter Filtrate Exit
O =	PISTON (ps	=	PISTON (psig) P3	Air Gauge Pressure Applied to Backpulse Piston
P =	SL FLOW (g	=	SL FLOW (gpm) Q1	Flow Rate of the Slurry Flow
Q =	FLTR FLOV	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow
R =	V9	=		Spare Channel Not Used

The following columns are calculated results based on the appropriate columns

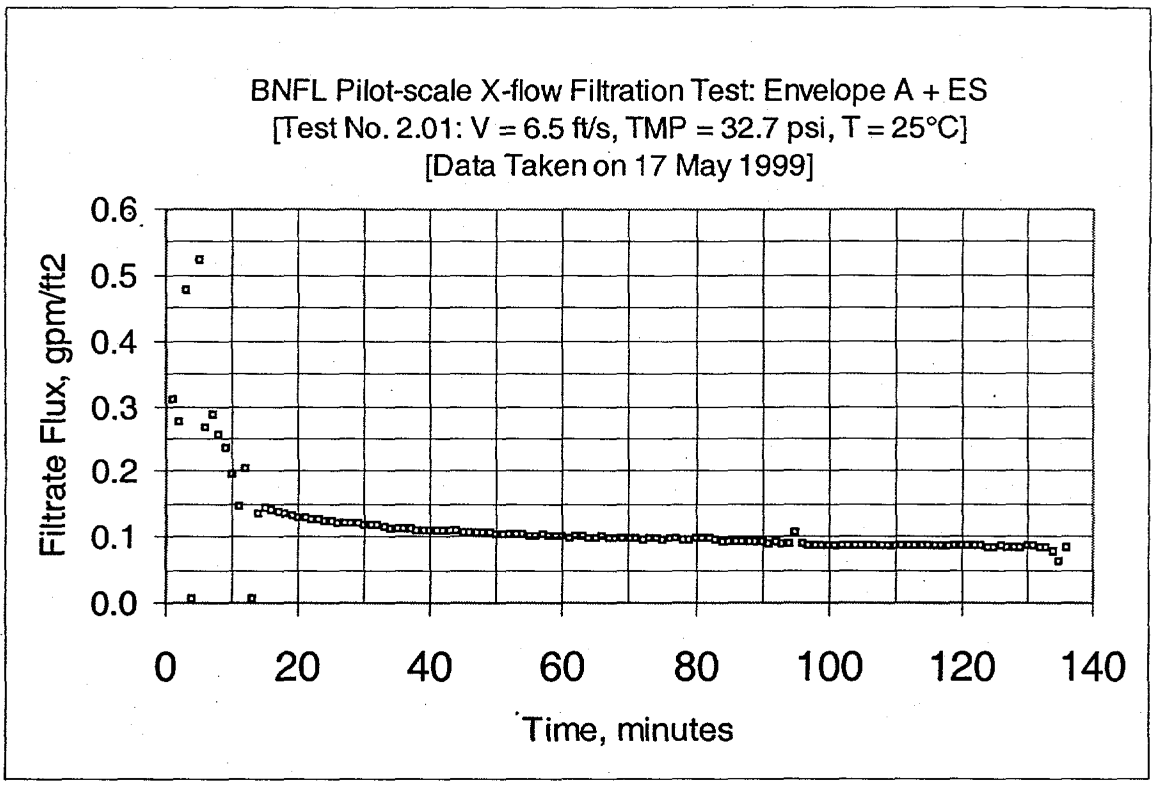
Column	Heading		Full Heading	Explanation
S =	Number	=	Number	Data number which is equivalent to 1 minute since this was the acquisition frequency
T =	Vel, ft/s	=	Vel, ft/s	Axial slurry velocity = [Column P] / 7.48 gal/ft2 / 60 sec/min / flow area (=0.005369 ft2*)
U =	TMP, PSI	=	TMP, PSI	Transmembrane Pressure = ([Column J] + [Column M])/2
V =	TMP, bar	=	TMP, bar	[Column U] / 14.504 bar/psi
W =	GPM/FT2	=	GPM/FT2	[Column Q] / inside diameter filter surface area (= 2.29 ft2**)
X =	GPM/FT2	=	GPM/FT2 at 25°C	Test Spec. correction factor: [Column W] x exp(2500 x ((1/(273+[Column T]))-(1/298)))
Y =	PERMIABILITY	=	PERMIABILITY (gpm/ft2/psi)	[Column X] / [Column U]
Z =	x 1000	=	PERMIABILITY x 1000	[Column Z] x 1000
AA =	PERMIABILITY	=	PERMIABILITY (m/day/bar)	[Column Y] x conversion factor (= 351.0145 m/day/bar / gpm/ft2/bar)

*Axial slurry flow area is based on 7 porous tubes with an inside diameter of 3/8 inch: 7 x pi / 4 * (0.375 inch / 12 inches/ft)^2 = 0.005369 ft2
**Inside diameter filter surface area for 7 tubes with an inside diameter of 3/8 inch, 40-inches long: 7 x pi x (0.375 inch) x 40 inches / 144 in^2/ft^2 = 2.29 ft2

Exceptions:
1. For Run 2.21b (Cleaning); This run was carried out over a three different periods on three days therefore there are two NUMBER COLUMNS: S & T. Column S is continuous and Column T is continuous but starts over for each period. All the columns to the right of Column S are shifted by one.
2. For Run 2.22b (Water); After July 10, 1999 a second filtrate flow meter was added to measure flow rates from 1.2 to 5 gpm. The final water test run (Run 2.22b) has an extra filtrate flow rate column. Column R, the spare column, was made the new flow rate:

Column	Heading		Full Heading	Explanation
R =	Q3, FLTR F	=	Q3, FLTR FLOW (gpm)	Flow Rate of the Filtrate Flow (above 1.2 gpm), Installed after 7/10/99

also Run 2.22b has two NUMBER columns (like Run 2.21b) so Exception 1 also applies.



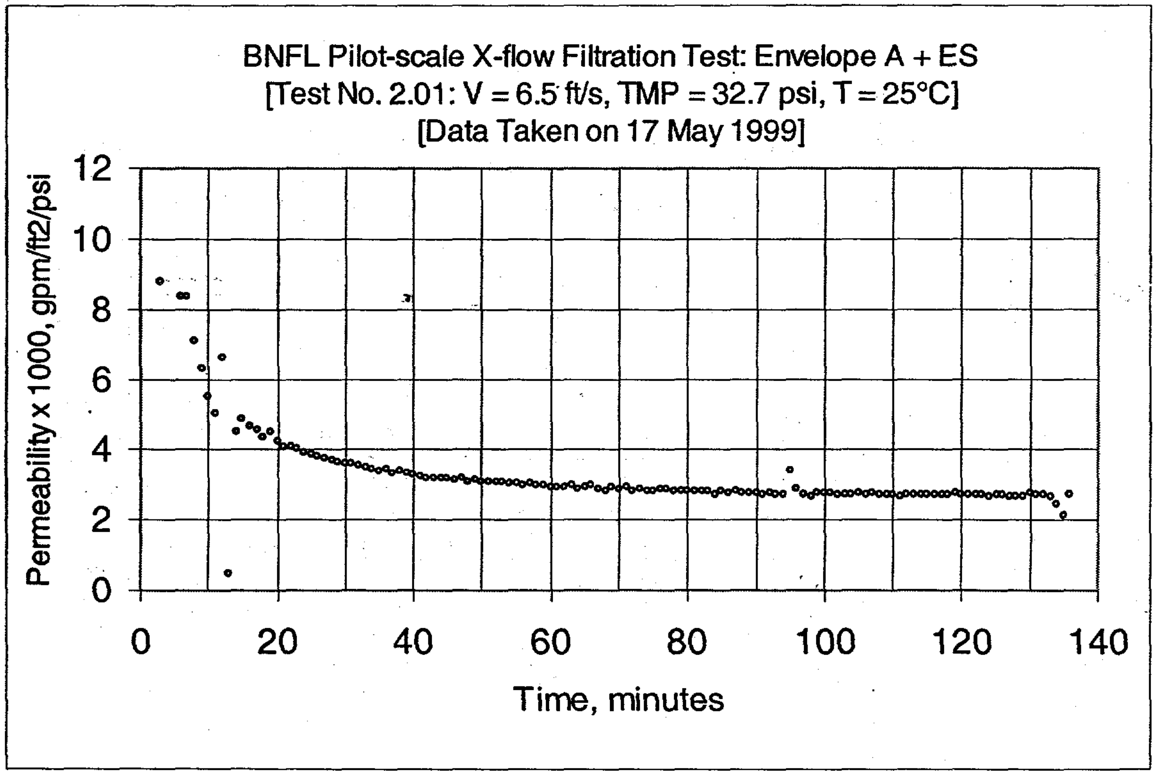


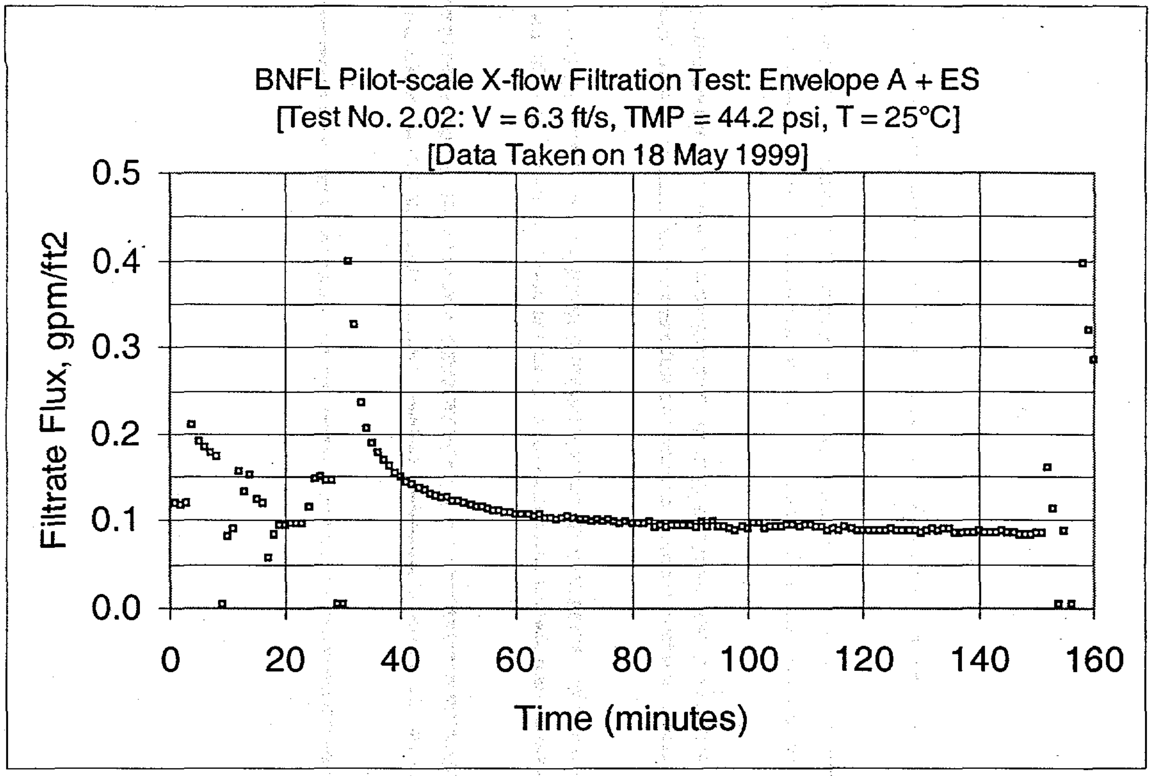
Figure B1: Test Run 2.01, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.01

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) P	PISTON (psig) F	SL FLOW (	FLTR FLO	V9									
2				°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/17/1999	9:49:10 AM	0	22.168	20.947	20.311	23.024	21.95	30.451	0.124	-0.072	-0.032	0.016	-0.181	-0.135	-0.08	0.012	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/17/1999	9:50:17 AM	0	22.168	20.866	20.391	22.944	22.031	30.531	0.093	-0.041	-0.024	0.016	-0.181	-0.135	-0.08	0.011	0									
5	5/17/1999	9:51:16 AM	0	22.088	20.866	20.391	22.944	21.95	30.61	0.124	-0.072	-0.024	0.05	-0.181	-0.135	-0.08	0.012	0									
6																											
7																								at 25C	PERMIABILITY	X1000	PERMIABILITY
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) P	PISTON (psig) F	SL FLOW (	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	5/17/1999	12:18:51 PM	0	24.182	22.401	23.295	25.836	23.965	34.023	1.085	1.239	-1.899	2.924	0.651	-0.042	-0.065	0.011	0		0.0	2.0	0.1	0.005	0.005	0.0025	2.51	2.1
10	5/17/1999	12:20:16 PM	0	24.228	22.447	23.582	25.962	24.252	34.226	1.023	1.209	-1.899	2.89	0.651	0.004	-0.08	0.011	0		0.0	2.0	0.1	0.005	0.005	0.0026	2.55	2.2
11	5/17/1999	12:21:16 PM	0	24.228	22.447	23.823	25.962	24.171	34.305	1.054	1.239	-1.899	2.992	0.651	-0.042	-0.08	0.011	0.003		0.0	2.0	0.1	0.005	0.005	0.0025	2.45	2.1
12	5/17/1999	12:22:16 PM	0	24.148	22.447	24.063	25.962	24.171	34.305	1.054	1.209	-1.899	2.958	0.651	0.004	-0.08	0.011	0		0.0	2.0	0.1	0.005	0.005	0.0025	2.46	2.1
13	5/17/1999	12:23:16 PM	0	24.228	22.447	24.143	25.962	24.171	34.384	4.556	7.551	0.567	3.127	3.702	0.004	13.083	0.011	0		5.4	3.8	0.3	0.005	0.005	0.0013	1.28	1.1
14	5/17/1999	12:24:15 PM	0	24.113	22.493	24.35	26.008	24.297	34.43	1.828	3.435	2.904	-1.775	2.192	0.004	23.021	0.011	0		9.6	0.0	0.0	0.005	0.005	0.1846	184.56	157.1
15	5/17/1999	12:25:16 PM	0	24.113	22.493	24.51	26.008	24.297	34.43	22.75	30.143	1.859	20.301	7.883	-0.042	19.089	0.011	0		7.9	21.5	1.5	0.005	0.005	0.0002	0.23	0.2
16	5/17/1999	12:26:16 PM	0	24.113	22.493	24.67	26.008	24.297	34.588	20.239	28.436	2.793	17.36	8.541	-0.042	18.751	0.701	0	1	7.8	18.8	1.3	0.306	0.309	0.0164	16.43	14.0
17	5/17/1999	12:27:15 PM	0	24.915	22.493	24.831	26.008	24.217	34.509	22.781	29.839	1.093	21.349	7.4	0.004	9.474	0.63	0	2	3.9	22.1	1.5	0.275	0.276	0.0125	12.52	10.7
18	5/17/1999	12:28:15 PM	0	24.996	22.493	24.911	25.928	24.297	34.509	56.286	64.749	3.343	52.419	8.541	-0.042	19.442	1.089	0	3	8.1	54.4	3.7	0.475	0.477	0.0088	8.77	7.5
19	5/17/1999	12:29:15 PM	0	25.282	22.619	25.357	25.974	24.343	34.554	-0.83	2.916	1.436	-2.756	3.918	0.004	12.884	0.011	0	4	5.3	-1.8	-0.1	0.005	0.005	-0.0026	-2.58	-2.2
20	5/17/1999	12:30:16 PM	0	25.842	22.539	25.677	26.054	24.343	34.554	34.9	46.272	2.561	32.033	11.53	-0.042	15.833	1.218	0	5	6.6	33.5	2.3	0.532	0.522	0.0156	15.59	13.3
21	5/17/1999	12:31:17 PM	0	26.003	22.539	25.997	25.974	24.424	34.554	33.598	41.425	2.984	30.579	8.048	-0.042	17.445	0.63	0.003	6	7.2	32.1	2.2	0.275	0.267	0.0083	8.33	7.1
22	5/17/1999	12:32:15 PM	0	26.483	22.539	26.237	26.054	24.424	34.475	35.892	44.199	2.809	33.284	8.51	-0.042	16.585	0.683	0	7	6.9	34.6	2.4	0.298	0.288	0.0083	8.33	7.1
23	5/17/1999	12:33:15 PM	0	26.688	22.585	26.683	26.1	24.389	34.362	37.782	44.626	2.801	34.467	7.061	0.004	16.432	0.614	0	8	6.8	36.1	2.5	0.268	0.256	0.0071	7.08	6.0
24	5/17/1999	12:34:16 PM	0	26.882	22.539	26.877	26.054	24.424	34.554	38.805	44.931	2.801	35.684	6.26	0.004	16.339	0.568	0.003	9	6.8	37.2	2.6	0.248	0.235	0.0063	6.32	5.4
25	5/17/1999	12:35:16 PM	0	27.008	22.585	27.082	26.1	24.469	34.441	36.884	43.162	2.593	34.095	6.445	0.004	15.234	0.472	0	10	6.3	35.5	2.4	0.206	0.194	0.0055	5.48	4.7
26	5/17/1999	12:36:16 PM	0	27.168	22.585	27.322	26.1	24.469	34.362	30.84	36.912	3.072	27.266	6.353	0.004	16.923	0.358	0	11	7.0	29.1	2.0	0.156	0.146	0.0050	5.04	4.3
27	5/17/1999	12:37:15 PM	0	27.407	22.585	27.401	26.1	24.469	34.599	32.079	37.613	3.064	29.599	5.182	-0.042	16.77	0.501	0	12	7.0	30.8	2.1	0.219	0.205	0.0066	6.63	5.6
28	5/17/1999	12:38:15 PM	1	27.567	22.665	27.561	26.18	24.309	34.362	10.6	38.559	3.104	8.299	27.216	67.982	16.539	0.011	0	13	6.9	9.4	0.7	0.005	0.004	0.0005	0.47	0.4
29	5/17/1999	12:39:16 PM	0	27.692	22.631	27.766	26.145	24.435	34.407	31.304	37.857	3.032	28.99	6.075	0.004	16.631	0.337	0	14	6.9	30.1	2.1	0.147	0.136	0.0045	4.52	3.8
30	5/17/1999	12:40:17 PM	0	27.932	22.631	27.926	26.145	24.355	34.407	31.242	38.467	2.976	28.584	6.661	0.004	16.554	0.36	0	15	6.9	29.9	2.1	0.157	0.145	0.0048	4.84	4.1
31	5/17/1999	12:41:15 PM	0	28.091	22.711	28.065	26.145	24.435	34.328	31.335	38.406	2.944	28.99	6.568	0.004	16.508	0.352	0	16	6.9	30.2	2.1	0.154	0.141	0.0047	4.67	4.0
32	5/17/1999	12:42:16 PM	0	28.171	22.631	28.165	26.145	24.355	34.249	31.614	38.619	2.968	29.294	6.507	-0.042	16.493	0.347	0	17	6.8	30.5	2.1	0.151	0.139	0.0046	4.55	3.9
33	5/17/1999	12:43:16 PM	0	28.376	22.758	28.37	26.271	24.481	34.295	32.42	39.351	3.056	30.072	6.414	-0.042	16.432	0.342	0	18	6.8	31.2	2.2	0.149	0.136	0.0044	4.35	3.7
34	5/17/1999	12:44:17 PM	0	28.536	22.677	28.45	26.271	24.561	34.295	30.995	37.796	3.08	28.212	6.199	0.004	16.754	0.334	0	19	7.0	29.6	2.0	0.146	0.132	0.0045	4.47	3.8
35	5/17/1999	12:45:14 PM	0	28.775	22.758	28.609	26.271	24.561	34.374	32.234	39.077	2.904	29.768	6.291	0.004	16.447	0.33	0	20	6.8	31.0	2.1	0.144	0.130	0.0042	4.20	3.6
36	5/17/1999	12:46:16 PM	0	28.695	22.677	28.689	26.271	24.642	34.374	32.451	39.29	2.944	30.275	6.291	0.004	16.386	0.326	0	21	6.8	31.4	2.2	0.142	0.128	0.0041	4.10	3.5
37	5/17/1999	12:47:16 PM	0	28.775	22.677	28.768	26.271	24.561	34.453	32.451	39.138	2.912	30.106	6.168	0.004	16.37	0.323	0	22	6.8	31.3	2.2	0.141	0.127	0.0041	4.06	3.5
38	5/17/1999	12:48:17 PM	0	29.014	22.758	28.848	26.271	24.561	34.532	32.575	39.199	2.832	30.207	6.137	0.004	16.293	0.321	0	23	6.8	31.4	2.2	0.140	0.126	0.0040	4.01	3.4
39	5/17/1999	12:49:15 PM	0	29.06	22.804	28.973	26.397	24.687	34.577	32.978	39.626	3	30.038	6.075	-0.042	16.355	0.315	0	24	6.8	31.5	2.2	0.138	0.123	0.0039	3.91	3.3
40	5/17/1999	12:50:15 PM	0	29.378	22.804	29.053	26.397	24.687	34.577	33.009	39.626	2.856	30.951	6.137	0.004	16.293	0.315	0	25	6.8	32.0	2.2	0.138	0.123	0.0038	3.84	3.3
41	5/17/1999	12:51:16 PM	0	29.219	22.804	29.133	26.397	24.687	34.419	33.009	39.626	2.928	30.613	6.106	0.004	16.232	0.312	0	26	6.7	31.8	2.2	0.136	0.121	0.0038	3.82	3.2
42	5/17/1999	12:52:16 PM	0	29.424	22.85	29.258	26.523	24.733	34.622	33.226	39.931	2.801	30.883	6.168	-0.042	16.109	0.311	0	27	6.7	32.1	2.2	0.136	0.121	0.0038	3.76	3.2
43	5/17/1999	12:53:14 PM	0	29.458	22.804	29.212	26.397	24.768	34.577	34.094	40.815	2.809	31.492	6.322	0.004	15.986	0.313	0	28	6.6	32.8	2.3	0.137	0.122	0.0037	3.71	3.2
44	5/17/1999	12:54:14 PM	0	29.583	22.85	29.338	26.523	24.733	34.464	34.187	40.937	2.856	31.83	6.168	0.004	16.048	0.31	0	29	6.7	33.0	2.3	0.135	0.120	0.0036	3.63	3.1
45	5/17/1999	12:55:15 PM	0	29.537	22.804	29.371	26.557	24.687	34.419	34.094	40.815	2.753	31.695	6.168	0.004	16.002	0.305	0	30	6.6	32.9	2.3	0.133	0.118	0.0036	3.59	3.1
46	5/17/1999	12:56:16 PM	0	29.742	22.85	29.497	26.523	24.733	34.385	33.846	40.449	2.721	31.83	6.137	0.004	15.986	0.306	0	31	6.6	32.8	2.3	0.134	0.118	0.0036	3.59	3.1
47	5/17/1999	12:57:16 PM	0	29.742	22.85	29.497	26.603	24.814	34.464	34.249	40.876	2.793	31.762	6.075	0.004	15.986	0.302	0	32	6.6	33.0	2.3	0.132	0.116	0.0035	3.53	3.0
48	5/17/1999	12:58:16 PM	0	29.867	22.896	29.622	26.649	24.86	34.509	33.877	40.449	2.737	31.593	6.075	0.004	15.971	0.299	0	33	6.6	32.7	2.3	0.131	0.115	0.0035	3.51	3.0
49	5/17/1999	12:59:15 PM	0	29.901	22.85	29.656	26.603	24.814	34.306	33.784	40.449	2.753	31.323	6.075	0.004	15.986	0.293	0	34	6.6	32.6	2.2	0.128	0.112	0.0035	3.45	2.9
50	5/17/1999	1:00:15 PM	0	30.106	22.896	29.701	26.649	24.86	34.431	33.939	40.784	2.825	31.898	6.137	0.004	15.971	0.292	0	35	6.6	32.9	2.3	0.127	0.112	0.0034	3.40	2.9
51	5/17/1999	1:01:16 PM	0	30.027	22.896	29.701	26.649	24.779	34.588	33.846	40.601	2.809	31.864	6.199	0.004	15.879	0.293	0	36	6.6	32.9	2.3	0.128	0.112	0.0034	3.42	2.9
52	5/17/1999	1:02:14 PM	0	30.106	22.896	29.781	26.649	24.779	34.667	34.59	41.364	2.888	32.303	6.199	0.004	15.909	0.292	0.003	37	6.6	33.4	2.3	0.127	0.112	0.0033	3.34	2.8
53	5/17/1999	1:03:15 PM	0	30.186	22.896	29.781	26.649	24.86	34.746	33.846	40.571	2.641	31.864	6.199	0.004	15.848	0.289	0	38	6.6	32.9	2.3	0.126	0.111	0.0034	3.36	2.9
54	5/17/1999	1:04:15 PM	0	30.186	22.896	29.86	26.649	24.779	34.51	34.125	40.815	2.705	31.796	6.137	0.004	15.786	0.287	0	39	6.6	33.0	2.3	0.125	0.110	0.0033	3.32	2.8
55	5/17/1999	1:05:16 PM	0	30.231	22.942	29.906	26.695	24.906	34.476	34.404	41.211	2.848	32.439	6.199	0.004	15.725	0.287	0	40	6.5	33.4	2.3	0.125	0.109	0.0033	3.27	2.8
56	5/17/1999	1:06:14 PM	0	30.231	23.022	29.906	26.695	24.906	34.792	34.714	41.486	2.769	32.439	6.229	0.004	15.664	0.286	0	41	6.5	33.6	2.3	0.125	0.109	0.0032	3.25	2.8
57	5/17/1999	1:07:16 PM	0	30.356	22.988	30.031	26.82	25.032	34.758	35.055	41.851	2.609	32.641	6.199	0.004	15.648	0.285	0	42	6.5	33.8	2.3	0.124	0.108	0.0032	3.20	2.7
58	5/17/1999	1:08:15 PM	0	30.277	22.988	29.952	26.74	25.032	34.442	35.241	41.882	2.689	32.81	6.168	0.004	15.679	0.283	0	43	6.5	34.0	2.3	0.124	0.108	0.0032	3.17	2.7
59	5/17/1999	1:09:15 PM	0	30.277	22.988	29.952	26.82	25.112	34.6	35.21	41.912	2.729	32.81	6.168	0.004	15.648	0.283	0	44	6.5	34.0	2.3	0.124	0.108	0.0032	3.17	2.7
60	5/17/1999	1:10:16 PM	0	30.356	22.988	29.952	26.74	25.112	34.442	34.652	41.242	2.673	32.946	6.106	0.004	15.633	0.281	0	45	6.5	33.8	2.3	0.123	0.107	0.0032	3.16	2.7
61	5/17/1999	1:11:15 PM	0	30.356	23.069	29.952	26.74	25.032	34.363	35.334	42.065	2.753	32.878	6.106	0.004	15.571	0.279	0	46	6.5	34.1	2.4	0.122	0.106	0.0031	3.11	2.6
62	5/17/1999	1:12:18 PM	0	30.323	23.034	29.918	26.706	25.158	34.604	34.714	41.272	2.713	32.81	6.075	0.004	15.648	0.279	0	47	6.5	33.8	2.3	0.122	0.106	0.0031	3.15	2.7
63	5/17/1999	1:13:16 PM	0	30.402	23.034	29.996	26.706	25.078	34.567	35.551	42.248	2.872	32.946	6.044	0.004	15.633	0.278	0.003	48	6.5	34.2	2.4	0.120	0.105	0.0031	3.06	2.6
64	5/17/1999	1:14:14 PM	0	30.368	23.161	29.964	26.832	25.204	34.928	34.869	41.607	2.689	32.844	6.075	0.004	15.602	0.278	0.003	49	6.5	33.9	2.3	0.121	0.106	0.0031	3.12	2.7
65	5/17/1999	1:15:14 PM	0	30.289	23.161	29.964	26.752	25.204	34.454	35.117	41.607	2.577	32.574	6.075	0.004	15.602	0.272	0	50	6.5	33.8	2.3	0.119	0.103	0.0031	3.06	2.6
66	5/17/1999	1:16:14 PM	0	30.289	23.241	29.964	26.752	25.204	34.375	34.962	41.699	2.745	32.54	6.075	0.004	15.618	0.273	0	51	6.5	33.8	2.3	0.119	0.104	0.0031	3.08	2.6
67	5/17/1999	1:17:15 PM	0	30.334	23.288	29.93	26.798	25.17	34.815	34.807	41.546	2.681	32.946	6.106	0.004	15.618	0.271	0	52	6.5	33.9	2.3	0.118	0.103	0.0030	3.05	2.6
68	5/17/1999	1:18:14 PM	0	30.334	23.207	29.93	26.798	25.25	34.657	35.241	41.851	2.745	32.641	6.137	0.004	15.602	0.271	0	53	6.5	33.9	2.3	0.118	0.103	0.0030	3.04	2.6
69	5/17/1999	1:19:14 PM	0	30.334	23.288	29.93	26.718	25.17	34.657	34.993	41.668	2.633	32.946	6.137	0.004	15.541	0.27	0	54	6.4	34.0	2.3	0.118	0.103	0.0030	3.03	2.6
70	5/17/1999	1:20:14 PM	0	30.334	23.207	29.85	26.718	25.25	34.815	35.055	41.821	2.681	32.641	6.137	0.004	15.618	0.267	0	55	6.5	33.8	2.3	0.117	0.102	0.0030	3.01	2.6
71	5/17/1999	1:21:14 PM	0	30.301	23.334	29.896	26.844	25.296	34.703	35.52	42.248	2.785	32.709	6.168	0.004	15.587	0.265	0	56	6.5	34.1	2.4	0.116	0.101	0.0030	2.96	2.5
72	5/17/1999	1:22:14 PM	0	30.301	23.414	29.896	26.764	25.296	34.782	34.807	41.486	2.625	32.743	6.106	0.004	15.618	0.268	0	57	6.5	33.8	2.3	0.117	0.102	0.0030	3.02	2.6
73	5/17/1999	1:23:14 PM	0	30.426	23.38	29.942	26.81	25.342	34.59	35.241	41.79	2.729	32.506	6.106	0.004	15.602	0.264	0	58	6.5	33.9	2.3	0.115	0.101	0.0030	2.97	2.5
74	5/17/1999	1:24:14 PM	0	30.346	23.46	29.942	26.81	25.262	34.353	34.993	41.76	2.665	32.912	6.137	0.004	15.587	0.265	0.003	59	6.5	34.0	2.3	0.116	0.101	0.0030	2.97	2.5
75	5/17/1999	1:25:15 PM	0	30.346	23.541	29.862	26.81	25.262	34.116	35.396	42.065	2.705	32.81	6.106	0.004	15.571	0.262	0	60	6.5	34.1	2.4	0.114	0.100	0.0029	2.93	2.5
76	5/17/1999	1:26:14 PM	0	30.392	23.507	29.908	26.777	25.388	34.557	35.086	41.76	2.681	33.148	6.106	0.004	15.602	0.259	0	61	6.5	34.1	2.4	0.113	0.099	0.0029	2.89	2.5
77	5/17/1999	1:27:14 PM	0	30.313	23.587	29.829	26.856	25.388	34.873	35.21	41.821	2.665	32.844	6.106	0.004	15.602	0.261	0	62	6.5	34.0	2.3	0.114	0.100	0.0029	2.93	2.5
78	5/17/1999	1:28:15 PM	0	30.359	23.633	29.875	26.903	25.435	35.076	34.559	41.181	2.529	33.013	6.137	0.004	15.495	0.261	0	63	6.4	33.8	2.3	0.114	0.100	0.0029	2.95	2.5
79	5/17/1999	1:29:14 PM	0	30.438	23.633	29.954	26.902	25.515	34.681	35.117	41.76	2.633	33.081	6.137	0.004	15.602	0.258	0	64	6.5	34.1	2.4	0.113	0.098	0.0029	2.88	2.5
80	5/17/1999	1:30:14 PM	0	30.484	23.76	29.921	26.949	25.561	34.569	35.272	41.912	2.697	33.013	6.106	0.004	15.541	0.26	0.003	65	6.4	34.1	2.4	0.114	0.099	0.0029	2.90	2.5
81	5/17/1999	1:31:14 PM	0	30.359	23.714	29.795	26.903	25.515	34.918	35.21	41.912	2.753	32.946	6.106	0.004	15.525	0.262	0	66	6.4	34.1	2.3	0.114	0.100	0.0029	2.94	2.5
82	5/17/1999	1:32:14 PM	0	30.404	23.76	29.841	26.869	25.481	35.043	35.52	42.187	2.697	33.284	6.075	0.004	15.556	0.259	0	67	6.5	34.4	2.4	0.113	0.099	0.0029	2.87	2.4
83	5/17/1999	1:33:14 PM	0	30.484	23.76	29.841	26.869	25.401	35.043	35.613	42.37	2.777	33.318	6.106	0.004	15.541	0.255	0	68	6.4	34.5	2.4	0.111	0.097	0.0028	2.82	2.4
84	5/17/1999	1:34:14 PM	0	30.45	23.806	29.966	26.995	25.527	35.483	35.117	41.668	2.561	32.81	6.106	0.004	15.541	0.258	0.003	69	6.4	34.0	2.3	0.113	0.098	0.0029	2.89	2.5
85	5/17/1999	1:35:14 PM	0	30.45	23.887	29.887	26.995	25.527	35.088	35.303	42.034	2.649	32.979	6.137	0.004	15.587	0.256	0	70	6.5	34.1	2.4	0.112	0.098	0.0029	2.86	2.4

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.01

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
86	5/17/1999	1:36:14 PM	0	30.496	23.853	29.933	26.961	25.653	34.739	34.893	41.607	2.529	32.54	6.106	0.004	15.525	0.256	0	71	6.4	33.8	2.3	0.112	0.097	0.0029	2.89	2.5
87	5/17/1999	1:37:14 PM	0	30.45	23.887	29.887	26.995	25.527	35.246	35.706	42.37	2.793	33.351	6.106	0.004	15.541	0.252	0	72	6.4	34.5	2.4	0.110	0.096	0.0028	2.78	2.4
88	5/17/1999	1:38:14 PM	0	30.496	23.933	29.933	26.961	25.573	35.45	35.706	42.461	2.793	33.148	6.106	0.004	15.51	0.256	0	73	6.4	34.4	2.4	0.112	0.097	0.0028	2.83	2.4
89	5/17/1999	1:39:14 PM	0	30.496	23.933	29.933	26.961	25.573	35.371	35.365	42.034	2.601	33.318	6.137	0.05	15.525	0.254	0	74	6.4	34.3	2.4	0.111	0.097	0.0028	2.82	2.4
90	5/17/1999	1:40:14 PM	0	30.542	24.059	29.979	27.087	25.619	35.258	35.303	42.004	2.569	33.148	6.137	0.004	15.464	0.252	0	75	6.4	34.2	2.4	0.110	0.096	0.0028	2.80	2.4
91	5/17/1999	1:41:15 PM	0	30.542	23.979	29.979	27.007	25.619	35.258	35.396	41.973	2.657	33.013	6.137	0.004	15.525	0.256	0	76	6.4	34.2	2.4	0.112	0.097	0.0028	2.85	2.4
92	5/17/1999	1:42:14 PM	0	30.463	24.059	29.899	27.087	25.619	35.258	35.427	42.004	2.705	33.013	6.106	0.004	15.541	0.255	0	77	6.4	34.2	2.4	0.111	0.097	0.0028	2.84	2.4
93	5/17/1999	1:43:14 PM	0	30.508	24.106	30.025	27.053	25.666	35.225	35.179	42.004	2.737	32.979	6.075	0.004	15.51	0.252	0	78	6.4	34.1	2.3	0.110	0.096	0.0028	2.81	2.4
94	5/17/1999	1:44:13 PM	0	30.634	24.072	30.071	27.179	25.632	35.192	35.427	42.156	2.665	32.979	6.106	0.05	15.541	0.252	0	79	6.4	34.2	2.4	0.110	0.096	0.0028	2.80	2.4
95	5/17/1999	1:45:14 PM	0	30.554	24.152	29.991	27.099	25.632	35.665	35.303	41.973	2.649	32.844	6.106	0.05	15.479	0.253	0	80	6.4	34.1	2.3	0.110	0.096	0.0028	2.82	2.4
96	5/17/1999	1:46:14 PM	0	30.554	24.152	30.071	27.099	25.632	35.586	35.582	42.339	2.745	33.318	6.137	0.004	15.541	0.255	0	81	6.4	34.5	2.4	0.111	0.097	0.0028	2.81	2.4
97	5/17/1999	1:47:13 PM	0	30.68	24.199	30.037	27.146	25.758	35.632	35.396	42.095	2.673	33.013	6.106	0.004	15.495	0.254	0	82	6.4	34.2	2.4	0.111	0.096	0.0028	2.82	2.4
98	5/17/1999	1:48:14 PM	0	30.6	24.199	30.037	27.066	25.838	35.474	35.148	42.065	2.697	33.216	6.137	0.004	15.418	0.252	0	83	6.4	34.2	2.4	0.110	0.096	0.0028	2.80	2.4
99	5/17/1999	1:49:14 PM	0	30.6	24.199	30.117	27.066	25.678	35.553	35.706	42.065	2.641	33.723	5.89	0.004	15.464	0.246	0	84	6.4	34.7	2.4	0.107	0.093	0.0027	2.68	2.4
100	5/17/1999	1:50:15 PM	0	30.6	24.199	30.037	27.066	25.678	35.237	34.032	41.79	2.657	32.134	7.277	0.004	15.449	0.242	0	85	6.4	33.1	2.3	0.106	0.092	0.0028	2.78	2.4
101	5/17/1999	1:51:13 PM	0	30.6	24.279	30.037	27.066	25.678	35.632	34.342	42.156	2.697	32.303	7.277	0.004	15.418	0.241	0	86	6.4	33.3	2.3	0.105	0.092	0.0027	2.75	2.3
102	5/17/1999	1:52:14 PM	0	30.646	24.325	30.083	27.112	25.725	36.072	34.063	41.79	2.649	31.796	7.246	0.05	15.433	0.242	0	87	6.4	32.9	2.3	0.106	0.092	0.0028	2.79	2.4
103	5/17/1999	1:53:14 PM	0	30.646	24.325	30.163	27.112	25.805	35.677	34.435	42.126	2.697	31.999	7.246	0.004	15.433	0.24	0	88	6.4	33.2	2.3	0.105	0.091	0.0027	2.73	2.3
104	5/17/1999	1:54:14 PM	0	30.646	24.325	30.083	27.112	25.805	35.046	33.906	41.607	2.577	32.1	7.216	0.05	15.464	0.24	0	89	6.4	33.0	2.3	0.105	0.091	0.0028	2.76	2.3
105	5/17/1999	1:55:14 PM	0	30.646	24.325	30.083	27.032	25.725	35.52	34.466	42.095	2.569	32.134	7.216	0.05	15.449	0.24	0	90	6.4	33.3	2.3	0.105	0.091	0.0027	2.73	2.3
106	5/17/1999	1:56:13 PM	0	30.646	24.325	30.163	27.112	25.725	35.441	34.373	42.156	2.601	32.236	7.216	0.004	15.418	0.238	0	91	6.4	33.3	2.3	0.104	0.090	0.0027	2.70	2.3
107	5/17/1999	1:57:14 PM	0	30.692	24.372	30.129	27.158	25.771	35.723	34.59	42.339	2.713	32.033	7.185	0.004	15.449	0.24	0	92	6.4	33.3	2.3	0.105	0.091	0.0027	2.73	2.3
108	5/17/1999	1:58:14 PM	0	30.692	24.452	30.209	27.078	25.771	35.602	34.807	42.705	2.777	32.134	7.185	0.05	15.433	0.237	0	93	6.4	33.5	2.3	0.103	0.090	0.0027	2.68	2.3
109	5/17/1999	1:59:14 PM	0	30.692	24.372	30.209	27.078	25.771	35.96	34.342	42.034	2.593	32.134	7.185	0.004	15.418	0.237	0	94	6.4	33.2	2.3	0.103	0.090	0.0027	2.69	2.3
110	5/17/1999	2:00:13 PM	0	30.659	24.496	30.175	27.125	25.817	36.084	32.637	42.675	2.697	29.531	9.65	0.004	15.418	0.277	0	95	6.4	31.1	2.1	0.121	0.105	0.0034	3.37	2.9
111	5/17/1999	2:01:13 PM	0	30.738	24.496	30.255	27.204	25.817	35.927	32.792	42.705	2.737	29.801	9.342	0.004	15.464	0.235	0	96	6.4	31.3	2.2	0.103	0.089	0.0028	2.83	2.4
112	5/17/1999	2:02:14 PM	0	30.738	24.418	30.255	27.204	25.897	35.611	32.73	42.339	2.721	30.309	9.157	0.004	15.449	0.225	0	97	6.4	31.5	2.2	0.096	0.085	0.0027	2.69	2.3
113	5/17/1999	2:03:14 PM	0	30.738	24.418	30.255	27.204	25.817	35.453	32.885	42.4	2.713	30.748	9.126	0.004	15.464	0.225	0	98	6.4	31.8	2.2	0.098	0.085	0.0027	2.67	2.3
114	5/17/1999	2:04:13 PM	0	30.738	24.338	30.255	27.204	25.817	35.532	32.637	42.217	2.593	30.275	9.126	0.004	15.464	0.227	0	99	6.4	31.5	2.2	0.099	0.086	0.0027	2.72	2.3
115	5/17/1999	2:05:13 PM	0	30.738	24.418	30.255	27.125	25.897	35.69	32.544	42.095	2.657	30.342	9.095	0.05	15.479	0.227	0	100	6.4	31.4	2.2	0.099	0.086	0.0027	2.73	2.3
116	5/17/1999	2:06:15 PM	0	30.784	24.545	30.301	27.171	25.864	35.499	32.389	41.79	2.585	30.376	9.095	0.05	15.479	0.228	0	101	6.4	31.4	2.2	0.100	0.086	0.0027	2.74	2.3
117	5/17/1999	2:07:15 PM	0	30.818	24.498	30.255	27.125	25.817	35.769	32.823	42.4	2.721	30.579	9.095	0.004	15.541	0.228	0	102	6.4	31.7	2.2	0.100	0.086	0.0027	2.71	2.3
118	5/17/1999	2:08:13 PM	0	30.831	24.511	30.347	27.217	25.99	35.545	32.792	42.278	2.553	30.478	9.095	0.05	15.479	0.227	0	103	6.4	31.6	2.2	0.099	0.085	0.0027	2.70	2.3
119	5/17/1999	2:09:20 PM	0	30.91	24.511	30.347	27.217	25.91	35.703	32.606	42.065	2.529	30.782	9.065	0.004	15.525	0.226	0	104	6.4	31.7	2.2	0.099	0.085	0.0027	2.68	2.3
120	5/17/1999	2:10:15 PM	0	30.864	24.625	30.301	27.091	25.864	34.947	32.327	41.699	2.553	30.241	9.095	0.05	15.495	0.227	0	105	6.4	31.3	2.2	0.099	0.086	0.0027	2.74	2.3
121	5/17/1999	2:11:14 PM	0	30.91	24.591	30.426	27.137	25.99	35.86	32.606	42.126	2.641	30.444	9.065	0.004	15.525	0.227	0	106	6.4	31.5	2.2	0.099	0.085	0.0027	2.71	2.3
122	5/17/1999	2:12:13 PM	0	30.91	24.672	30.426	27.217	25.91	36.254	32.606	42.065	2.673	30.309	9.095	0.004	15.51	0.228	0	107	6.4	31.5	2.2	0.100	0.086	0.0027	2.72	2.3
123	5/17/1999	2:13:13 PM	0	30.91	24.672	30.426	27.217	25.99	36.097	32.792	42.248	2.689	30.444	9.065	0.05	15.51	0.227	0	108	6.4	31.6	2.2	0.099	0.085	0.0027	2.70	2.3
124	5/17/1999	2:14:13 PM	0	30.91	24.672	30.426	27.217	25.99	36.018	33.009	42.461	2.601	30.478	9.065	0.004	15.479	0.228	0	109	6.4	31.7	2.2	0.100	0.086	0.0027	2.70	2.3
125	5/17/1999	2:15:14 PM	0	30.91	24.672	30.426	27.217	25.99	36.018	32.854	42.339	2.649	30.511	9.065	0.05	15.541	0.228	0	110	6.4	31.7	2.2	0.100	0.086	0.0027	2.70	2.3
126	5/17/1999	2:16:14 PM	0	30.956	24.718	30.552	27.264	25.956	36.221	33.195	42.766	2.632	30.883	9.065	0.05	15.525	0.227	0	111	6.4	32.0	2.2	0.099	0.085	0.0027	2.65	2.3
127	5/17/1999	2:17:14 PM	0	30.956	24.638	30.473	27.264	26.036	36.221	32.668	42.187	2.745	30.545	9.065	0.05	15.525	0.227	0	112	6.4	31.6	2.2	0.099	0.085	0.0027	2.70	2.3
128	5/17/1999	2:18:13 PM	0	30.956	24.718	30.473	27.263	26.036	35.827	32.761	42.37	2.633	30.41	9.065	0.05	15.495	0.228	0	113	6.4	31.6	2.2	0.100	0.086	0.0027	2.71	2.3
129	5/17/1999	2:19:14 PM	0	31.002	24.765	30.519	27.23	26.083	35.794	32.637	42.156	2.513	30.511	9.065	0.05	15.51	0.227	0	114	6.4	31.6	2.2	0.099	0.085	0.0027	2.69	2.3
130	5/17/1999	2:20:14 PM	0	31.002	24.765	30.519	27.31	25.923	36.109	32.73	42.248	2.657	30.376	9.034	0.05	15.525	0.229	0	115	6.4	31.6	2.2	0.100	0.086	0.0027	2.72	2.3
131	5/17/1999	2:21:13 PM	0	31.002	24.845	30.519	27.23	26.003	36.109	32.482	41.912	2.497	30.309	9.034	0.05	15.51	0.226	0	116	6.4	31.4	2.2	0.099	0.085	0.0027	2.70	2.3
132	5/17/1999	2:22:13 PM	0	31.048	24.891	30.485	27.276	26.049	36.076	32.916	42.4	2.721	30.376	9.034	0.05	15.51	0.227	0	117	6.4	31.6	2.2	0.099	0.085	0.0027	2.69	2.3
133	5/17/1999	2:23:14 PM	0	31.048	24.891	30.485	27.276	26.049	36.392	32.978	42.431	2.553	30.444	9.034	0.004	15.51	0.226	0	118	6.4	31.7	2.2	0.099	0.085	0.0027	2.67	2.3
134	5/17/1999	2:24:14 PM	0	31.128	24.891	30.565	27.276	26.129	35.919	32.544	42.004	2.641	30.579	9.034	0.004	15.571	0.23	0	119	6.5	31.6	2.2	0.100	0.086	0.0027	2.73	2.3
135	5/17/1999	2:25:13 PM	0	31.048	24.891	30.565	27.276	26.129	35.603	33.133	42.797	2.729	30.478	9.034	0.05	15.541	0.227	0.003	120	6.4	31.8	2.2	0.099	0.085	0.0027	2.67	2.3
136	5/17/1999	2:26:13 PM	0	31.048	24.972	30.485	27.276	26.129	35.84	33.133	42.644	2.721	30.545	9.034	0.004	15.51	0.228	0	121	6.4	31.8	2.2	0.100	0.086	0.0027	2.69	2.3
137	5/17/1999	2:27:14 PM	0	31.048	24.891	30.485	27.276	26.129	36.076	32.792	42.187	2.569	30.478	9.034	0.004	15.541	0.226	0	122	6.4	31.6	2.2	0.099	0.085	0.0027	2.68	2.3
138	5/17/1999	2:28:14 PM	0	31.094	24.938	30.532	27.323	26.176	36.437	32.792	42.4	2.609	30.478	9.034	0.004	15.51	0.228	0	123	6.4	31.6	2.2	0.100	0.085	0.0027	2.70	2.3
139	5/17/1999	2:29:13 PM	0	31.094	24.938	30.611	27.403	26.176	36.201	32.916	42.492	2.673	30.748	9.034	0.004	15.541	0.226	0.003	124	6.4	31.8	2.2	0.099	0.084	0.0027	2.65	2.3
140	5/17/1999	2:30:13 PM	0	31.094	25.018	30.611	27.403	26.176	35.965	32.885	42.4	2.529	30.376	9.034	0.05	15.571	0.226	0	125	6.5	31.6	2.2	0.099	0.084	0.0027	2.67	2.3
141	5/17/1999	2:31:14 PM	0	31.094	25.018	30.611	27.403	26.176	36.28	32.854	42.248	2.633	30.41	9.034	0.004	15.556	0.227	0	126	6.5	31.6	2.2	0.099	0.085	0.0027	2.66	2.3
142	5/17/1999	2:32:15 PM	0	31.094	25.018	-30.611	27.403	26.176	35.965	32.699	42.187	2.721	30.478	9.034	0.004	15.525	0.224	0	127	6.4	31.6	2.2	0.098	0.084	0.0027	2.65	2.3
143	5/17/1999	2:33:13 PM	0	31.141	24.985	30.657	27.369	26.142	36.168	32.792	42.309	2.721	30.478	9.034	0.05	15.556	0.223	0	128	6.5	31.6	2.2	0.097	0.083	0.0026	2.63	2.2
144	5/17/1999	2:34:13 PM	0	31.141	25.065	30.657	27.449	26.302	36.01	32.854	42.217	2.673	30.511	9.034	0.05	15.525	0.226	0	129	6.4	31.7	2.2	0.099	0.084	0.0027	2.66	2.3
145	5/17/1999	2:35:13 PM	0	31.187	25.031	30.624	27.495	26.269	35.977	32.575	42.065	2.625	30.275	9.034	0.05	15.525	0.232	0	130	6.4	31.4	2.2	0.101	0.087	0.0028	2.76	2.3
146	5/17/1999	2:36:14 PM	0	31.187	25.031	30.703	27.495	26.269	36.293	32.823	42.4	2.601	30.038	9.034	0.004	15.525	0.228	0	131	6.4	31.4	2.2	0.100	0.085	0.0027	2.71	2.3
147	5/17/1999	2:37:15 PM	0	31.187	25.111	30.703	27.496	26.269	36.293	32.761	42.248	2.633	30.342	9.003	0.004	15.556	0.226	0	132	6.5	31.6	2.2	0.099	0.084	0.0027	2.67	2.3
148	5/17/1999	2:38:13 PM	0	31.187	25.191	30.624	27.416	26.269	36.214	32.451	42.004	2.569	30.342	9.034	0.05	15.602	0.223	0	133	6.5	31.4	2.2	0.097	0.083	0.0027	2.65	2.3
149	5/17/1999	2:39:13 PM	0	31.233	25.158	30.67	27.462	26.235	36.338	32.699	42.126	2.625	30.511	9.034	0.05	15.587	0.207	0	134	6.5	31.6	2.2	0.090	0.077	0.0024	2.44	2.1
150	5/17/1999	2:40:15 PM	0	31.154	25.158	30.67	27.542	26.235	36.26	31.057	42.095	2.601	28.956	10.421	0.05	15.51	0.168	0	135	6.4	30.0	2.1	0.073	0.063	0.0021	2.09	1.8
151	5/17/1999	2:41:14 PM	0	31.233	25.078	30.75	27.542	26.315	36.023	31.707	42.461	2.657	29.396	10.082	0.05	15.571	0.22	0	136	6.5	30.6	2.1	0.096	0.082	0.0027	2.68	2.3
152																											
153		Averages		30.4	23.9	29.9	26.9	25.5	35.2	33.9	41.6	2.7	31.6	7.2	0.0	15.7	0.262	0.0		6.5	32.7	2.255	0.114	0.100	0.003	3.06	2.6
154		Maximum		31.2	25.2	30.7	27.5	26.3	36.4	35.7	42.8	3.1	33.7	9.7	0.1	16.8	0.360	0.0		7.0	34.7	2.4	0.157	0.145	0.005	4.8	4.1
155		Median		30.5	23.9	30.0	27.0	25.6	35.2	34.0	42.0	2.7	31.8	6.2	0.0	15.5	0.256	0.0		6.4	32.9	2.3	0.112	0.097	0.003	2.8	2.4
156		Minimum		27.7	22.6	27.8	26.1	24.4	34.1	31.0	37.8	2.5	28.2	5.9	0.0	15.4	0.223	0.0		6.4	29.6	2.0	0.097	0.083	0.003	2.6	2.2
157		Std Deviation		0.7	0.8	0.6	0.3	0.5	0.7	1.2	1.1	0.1	1.3	1.4	0.0	0.3	0.035	0.0		0.1	1.3	0.1	0.015	0.015	0.001	0.5	0.4
158		Number of Points Used		120	120	120	120	120	120	120	120	120	120	120	120	120	120	120		120	120	120	120	120	120	120	120



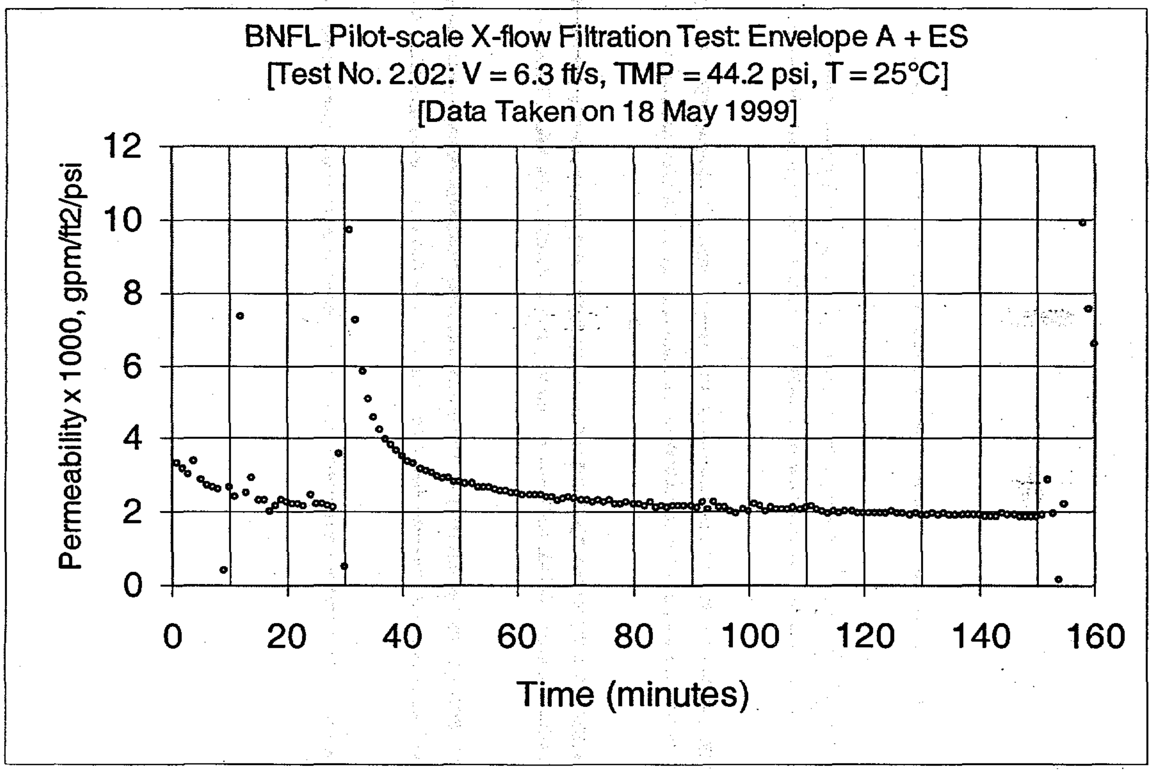


Figure B2: Test Run 2.02, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.02

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) P	PISTON (psig) F	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/18/1999	8:10:07 AM	0	21.434	21.098	20.705	21.566	21.536	29.606	0.124	-0.041	-0.024	0.05	-0.057	-0.135	-0.095	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/18/1999	8:12:04 AM	0	21.434	21.098	20.705	21.647	21.536	29.886	0.124	-0.041	-0.016	0.05	-0.057	-0.135	-0.08	0.011	0									
5	5/18/1999	8:13:04 AM	0	21.434	21.098	20.624	21.647	21.536	30.045	0.124	-0.041	-0.024	0.05	-0.057	-0.135	-0.095	0.011	0									
6	5/18/1999	8:14:05 AM	0	21.479	21.063	20.75	21.772	21.563	29.85	0.124	-0.011	-0.024	0.016	-0.057	-0.135	-0.08	0.011	0									
7	5/18/1999	8:15:03 AM	0	21.479	21.143	20.669	21.772	21.563	30.069	0.124	-0.011	-0.024	0.05	-0.057	-0.135	-0.08	0.011	0									
8	data																							at 25C	PERMIABILITY	x1000	PERMIABILITY
9	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) P	PISTON (psig) F	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
10	5/18/1999	9:23:33 AM	0	26.903	21.514	25.937	23.831	22.919	29.818	37.689	45.46	2.593	35.109	7.37	-0.135	14.957	0.285	0	1	6.2	36.4	2.5	0.124	0.121	0.0033	3.33	2.8
11	5/18/1999	9:25:06 AM	0	26.788	21.559	25.822	23.956	23.124	29.704	37.968	45.754	2.681	35.752	7.277	-0.089	14.773	0.275	0	2	6.1	36.9	2.5	0.120	0.117	0.0032	3.18	2.7
12	5/18/1999	9:26:03 AM	0	26.628	21.559	25.742	23.956	23.205	29.624	41.161	49.596	2.832	39.234	7.801	-0.089	15.571	0.283	0	3	6.5	40.2	2.8	0.124	0.121	0.0030	3.01	2.6
13	5/18/1999	9:27:03 AM	0	26.673	21.523	25.627	24.161	23.25	29.669	62.051	69.2	1.021	62.562	6.784	-0.135	6.156	0.492	0	4	2.6	62.3	4.3	0.215	0.211	0.0034	3.39	2.9
14	5/18/1999	9:28:05 AM	0	26.558	21.569	25.192	24.206	23.375	29.634	67.165	73.56	0.806	66.622	5.796	-0.135	3.606	0.439	0	5	1.5	67.0	4.6	0.192	0.191	0.0028	2.85	2.4
15	5/18/1999	9:29:06 AM	0	26.718	21.569	24.631	24.287	23.295	29.634	67.32	73.652	0.854	67.126	5.829	-0.135	3.775	0.416	0	6	1.6	67.2	4.6	0.182	0.183	0.0027	2.73	2.3
16	5/18/1999	9:30:03 AM	0	26.798	21.569	24.791	24.287	23.295	29.634	67.165	73.499	0.806	66.078	5.86	-0.089	3.775	0.406	0	7	1.6	66.6	4.6	0.177	0.178	0.0027	2.68	2.3
17	5/18/1999	9:31:04 AM	0	26.808	21.659	24.801	24.377	23.465	29.803	66.606	72.89	0.822	66.112	5.86	-0.089	3.729	0.396	0	8	1.5	66.4	4.6	0.173	0.174	0.0026	2.62	2.2
18	5/18/1999	9:32:04 AM	0	26.683	21.614	25.237	24.332	23.34	29.917	14.257	28.515	5.298	9.248	11.776	-0.135	23.405	0.011	0	9	9.7	11.8	0.8	0.005	0.005	0.0004	0.41	0.3
19	5/18/1999	9:33:05 AM	0	26.533	21.704	25.166	24.502	23.109	30.324	32.73	44.504	3.63	29.024	11.099	-0.135	17.768	0.189	0	10	7.4	30.9	2.1	0.083	0.082	0.0027	2.66	2.3
20	5/18/1999	9:34:03 AM	0	26.373	21.624	25.086	24.342	23.029	30.563	38.774	49.779	2.848	36.191	10.513	-0.089	15.602	0.207	0	11	6.5	37.5	2.6	0.090	0.090	0.0024	2.40	2.0
21	5/18/1999	9:35:05 AM	1	26.213	21.704	24.926	24.342	22.948	30.842	22.192	53.346	2.873	20.504	30.39	60.017	14.281	0.357	0	12	5.9	21.3	1.5	0.156	0.156	0.0073	7.32	6.2
22	5/18/1999	9:36:04 AM	0	26.098	21.75	24.891	24.306	22.913	30.846	53.528	60.298	1.915	51.811	6.291	-0.089	11.148	0.302	0	13	4.6	52.7	3.6	0.132	0.132	0.0025	2.51	2.1
23	5/18/1999	9:37:05 AM	0	26.098	21.669	24.731	24.306	22.833	31.005	53.435	60.206	1.931	51.844	6.322	-0.089	11.209	0.347	0	14	4.7	52.6	3.6	0.151	0.153	0.0029	2.90	2.5
24	5/18/1999	9:38:04 AM	0	25.938	21.669	24.731	24.226	22.672	31.084	54.489	60.237	1.939	53.163	5.182	-0.089	10.979	0.265	0	15	4.6	53.8	3.7	0.124	0.125	0.0023	2.33	2.0
25	5/18/1999	9:39:04 AM	0	25.823	21.714	24.696	24.191	22.556	31.208	52.412	60.237	1.963	51.304	7.216	-0.089	11.117	0.273	0	16	4.6	51.9	3.6	0.119	0.120	0.0023	2.32	2.0
26	5/18/1999	9:40:04 AM	0	25.698	21.669	24.651	24.146	22.511	31.164	30.778	37.187	4.46	28.421	5.921	-0.089	20.179	0.13	0	17	8.4	28.6	2.0	0.057	0.057	0.0020	2.00	1.7
27	5/18/1999	9:41:05 AM	0	25.618	21.75	24.57	24.146	22.431	31.243	39.611	48.348	3.2	36.968	8.263	-0.089	16.432	0.168	0	18	6.8	38.3	2.6	0.082	0.083	0.0022	2.17	1.8
28	5/18/1999	9:42:03 AM	0	25.538	21.669	24.57	24.066	22.431	31.243	41.812	50.785	2.569	39.707	8.541	-0.089	13.867	0.214	0	19	5.8	40.8	2.8	0.093	0.095	0.0023	2.32	2.0
29	5/18/1999	9:43:04 AM	0	25.457	21.669	24.49	24.066	22.35	31.402	43.268	52.187	3.032	40.755	8.448	-0.089	15.955	0.214	0	20	6.6	42.0	2.9	0.093	0.095	0.0023	2.26	1.9
30	5/18/1999	9:44:04 AM	0	25.377	21.75	24.49	24.066	22.189	31.322	44.418	53.559	3.056	41.803	8.51	-0.089	15.464	0.216	0	21	6.4	43.1	3.0	0.094	0.096	0.0022	2.22	1.9
31	5/18/1999	9:45:04 AM	0	25.377	21.75	24.33	24.066	22.189	31.481	45.097	54.23	2.964	42.581	8.571	-0.089	15.218	0.216	0	22	6.3	43.8	3.0	0.094	0.096	0.0022	2.19	1.9
32	5/18/1999	9:46:03 AM	0	25.252	21.704	24.285	24.021	22.224	31.278	45.407	54.444	2.832	42.75	8.571	-0.089	15.003	0.216	0	23	6.2	44.1	3.0	0.094	0.096	0.0022	2.18	1.9
33	5/18/1999	9:47:04 AM	0	25.252	21.785	24.205	24.021	22.224	31.436	47.887	57.432	2.537	45.726	8.941	-0.042	13.575	0.259	0	24	5.6	46.8	3.2	0.113	0.116	0.0025	2.47	2.1
34	5/18/1999	9:48:07 AM	0	25.172	21.704	23.643	23.94	22.144	31.357	65.926	72.006	0.79	66.348	5.829	-0.089	4.374	0.325	0	25	1.8	66.1	4.6	0.142	0.147	0.0022	2.23	1.9
35	5/18/1999	9:49:05 AM	0	25.287	21.82	23.437	23.895	22.099	31.392	68.033	74.628	0.798	68.174	5.921	-0.089	2.731	0.331	0	26	1.1	68.1	4.7	0.144	0.151	0.0022	2.22	1.9
36	5/18/1999	9:50:05 AM	0	25.608	21.74	23.116	23.975	22.26	31.392	68.591	74.993	0.766	68.072	5.921	-0.042	2.746	0.319	0	27	1.1	68.3	4.7	0.139	0.147	0.0021	2.15	1.8
37	5/18/1999	9:51:03 AM	0	25.643	21.775	23.312	23.85	22.134	31.189	67.94	74.536	0.854	68.782	5.983	-0.089	2.715	0.318	0	28	1.1	68.4	4.7	0.139	0.146	0.0021	2.13	1.8
38	5/18/1999	9:52:04 AM	0	25.643	21.775	24.034	23.93	22.214	30.791	4.928	9.715	7.197	-2.147	4.504	-0.089	30.778	0.011	0	29	12.8	1.4	0.1	0.005	0.005	0.0035	3.55	3.0
39	5/18/1999	9:53:04 AM	0	25.643	21.775	24.115	23.93	22.375	30.633	12.739	22.094	5.689	7.826	9.003	-0.089	28.876	0.011	0	30	11.2	10.3	0.7	0.005	0.005	0.0005	0.48	0.4
40	5/18/1999	9:54:05 AM	0	25.002	21.775	24.034	24.011	22.536	30.474	42.556	53.925	2.434	40.045	10.729	-0.089	15.648	0.891	0	31	6.5	41.3	2.8	0.389	0.400	0.0097	9.68	8.2
41	5/18/1999	9:55:02 AM	0	24.842	21.855	24.034	24.011	22.697	30.315	46.244	53.468	2.537	43.73	6.63	-0.089	15.694	0.725	0	32	6.5	45.0	3.1	0.316	0.325	0.0072	7.23	6.2
42	5/18/1999	9:56:03 AM	0	24.762	21.855	23.874	24.091	22.778	30.235	41.995	47.675	2.984	38.997	5.274	-0.089	17.215	0.522	0	33	7.1	40.5	2.8	0.228	0.235	0.0058	5.81	4.9
43	5/18/1999	9:57:04 AM	0	24.762	21.775	23.874	24.171	22.938	30.076	42.37	49.26	2.96	38.964	8.414	-0.089	16.647	0.456	0	34	6.9	40.7	2.8	0.199	0.205	0.0051	5.05	4.3
44	5/18/1999	9:58:03 AM	0	24.726	21.82	23.839	24.377	23.064	30.041	42.494	48.833	2.848	39.64	5.921	-0.089	16.677	0.418	0	35	6.9	41.1	2.8	0.182	0.189	0.0046	4.59	3.9
45	5/18/1999	9:59:03 AM	0	24.601	21.775	23.794	24.332	23.179	29.838	43.175	49.718	2.912	40.891	6.044	-0.089	16.339	0.394	0	36	6.8	42.0	2.9	0.172	0.178	0.0042	4.23	3.6
46	5/18/1999	10:00:04 AM	0	24.566	21.901	23.758	24.457	23.305	29.803	43.392	49.901	2.789	41.229	6.014	-0.089	16.14	0.373	0	37	6.7	42.3	2.9	0.163	0.169	0.0040	3.99	3.4
47	5/18/1999	10:01:05 AM	0	24.566	21.82	23.758	24.457	23.305	29.882	43.547	49.901	2.809	41.398	6.075	-0.089	16.032	0.359	0	38	6.7	42.5	2.9	0.157	0.162	0.0038	3.82	3.3
48	5/18/1999	10:02:04 AM	0	24.486	21.82	23.678	24.537	23.305	29.803	43.609	50.114	2.745	41.229	6.044	-0.089	16.032	0.343	0	39	6.7	42.4	2.9	0.150	0.155	0.0037	3.66	3.1
49	5/18/1999	10:03:04 AM	0	24.451	21.865	23.643	24.662	23.35	29.847	43.764	50.297	2.729	41.803	6.106	-0.089	15.879	0.331	0	40	6.6	42.8	2.9	0.144	0.150	0.0035	3.51	3.0
50	5/18/1999	10:04:04 AM	0	24.496	21.911	23.608	24.788	23.395	29.892	44.074	50.632	2.872	41.702	6.106	-0.042	15.94	0.319	0	41	6.6	42.9	3.0	0.139	0.145	0.0034	3.38	2.9
51	5/18/1999	10:05:04 AM	0	24.415	21.911	23.608	24.707	23.234	30.131	44.26	50.937	2.888	41.499	6.106	-0.042	15.955	0.311	0	42	6.6	42.9	3.0	0.136	0.141	0.0033	3.29	2.8
52	5/18/1999	10:06:05 AM	0	24.3	21.956	23.573	24.672	23.119	30.573	44.105	50.724	2.769	41.939	6.106	-0.089	15.617	0.3	0	43	6.6	43.0	3.0	0.131	0.136	0.0032	3.17	2.7
53	5/18/1999	10:07:03 AM	0	24.3	21.956	23.492	24.672	22.958	30.573	44.074	50.815	2.825	41.837	6.137	-0.089	15.786	0.295	0	44	6.6	43.0	3.0	0.129	0.134	0.0031	3.13	2.7
54	5/18/1999	10:08:04 AM	0	24.22	21.956	23.492	24.592	22.787	30.811	44.353	50.996	2.84	41.634	6.137	-0.089	15.756	0.288	0	45	6.5	43.0	3.0	0.126	0.131	0.0031	3.05	2.6
55	5/18/1999	10:09:06 AM	0	24.345	21.921	23.538	24.717	22.682	31.015	44.57	51.242	2.825	42.311	6.137	-0.089	15.664	0.281	0	46	6.5	43.4	3.0	0.123	0.128	0.0029	2.94	2.5
56	5/18/1999	10:10:05 AM	0	24.265	22.001	23.457	24.557	22.521	31.094	44.601	51.212	2.832	41.837	6.168	-0.089	15.664	0.278	0	47	6.5	43.2	3.0	0.121	0.127	0.0029	2.93	2.5
57	5/18/1999	10:11:04 AM	0	24.265	22.001	23.457	24.557	22.441	31.173	44.229	50.876	2.809	42.209	6.137	-0.089	15.694	0.277	0	48	6.5	43.2	3.0	0.121	0.126	0.0029	2.92	2.5
58	5/18/1999	10:12:04 AM	0	24.185	22.001	23.457	24.477	22.441	31.173	44.756	51.395	2.856	41.702	6.137	-0.089	15.756	0.267	0	49	6.5	43.2	3.0	0.117	0.122	0.0028	2.82	2.4
59	5/18/1999	10:13:04 AM	0	24.185	22.001	23.377	24.397	22.36	31.173	44.229	50.846	2.721	42.04	6.168	-0.089	15.694	0.266	0	50	6.5	43.1	3.0	0.116	0.122	0.0028	2.82	2.4
60	5/18/1999	10:14:04 AM	0	24.185	22.001	23.377	24.397	22.36	31.173	44.632	51.242	2.904	42.074	6.199	-0.089	15.679	0.263	0	51	6.5	43.4	3.0	0.115	0.120	0.0028	2.77	2.4
61	5/18/1999	10:15:03 AM	0	24.185	22.001	23.377	24.397	22.441	31.015	44.384	51.181	2.84	42.006	6.168	-0.089	15.633	0.259	0	52	6.5	43.2	3.0	0.113	0.118	0.0027	2.74	2.3
62	5/18/1999	10:16:07 AM	0	24.185	22.001	23.457	24.316	22.441	31.253	44.353	51.059	2.944	41.77	6.199	-0.089	15.633	0.253	0	53	6.5	43.1	3.0	0.110	0.115	0.0027	2.68	2.3
63	5/18/1999	10:17:04 AM	0	*24.104	22.082	23.297	24.316	22.36	31.253	44.601	51.273	2.864	42.561	6.199	-0.089	15.648	-0.252	0	54	6.5	43.6	3.0	0.110	0.115	0.0026	2.65	2.3
64	5/18/1999	10:18:05 AM	0	24.059	22.036	23.332	24.191	22.395	31.367	44.353	50.996	2.817	42.04	6.168	-0.089	15.602	0.249	0	55	6.5	43.2	3.0	0.109	0.114	0.0026	2.64	2.2
65	5/18/1999	10:19:03 AM	0	24.059	22.036	23.332	24.271	22.315	31.208	44.601	51.242	2.88	42.243	6.168	-0.089	15.618	0.246	0	56	6.5	43.4	3.0	0.107	0.113	0.0026	2.59	2.2
66	5/18/1999	10:20:04 AM	0	24.059	22.036	23.332	24.271	22.315	31.288	44.911	51.639	2.92	42.378	6.168	-0.089	15.664	0.242	0	57	6.5	43.6	3.0	0.106	0.111	0.0025	2.54	2.2
67	5/18/1999	10:21:04 AM	0	24.059	22.036	23.332	24.271	22.234	31.446	44.229	50.876	2.832	41.499	6.168	-0.089	15.694	0.239	0	58	6.5	42.9	3.0	0.104	0.109	0.0026	2.55	2.2
68	5/18/1999	10:22:05 AM	0	24.059	22.117	23.332	24.191	22.315	31.129	44.601	51.242	2.944	41.972	6.168	-0.089	15.648	0.237	0	59	6.5	43.3	3.0	0.103	0.108	0.0025	2.51	2.1
69	5/18/1999	10:23:03 AM	0	24.014	21.991	23.287	24.226	22.109	31.322	44.663	51.364	2.896	41.736	6.199	-0.089	15.664	0.236	0	60	6.5	43.2	3.0	0.103	0.108	0.0025	2.50	2.1
70	5/18/1999	10:24:04 AM	0	24.014	22.072	23.367	24.226	22.189	31.243	44.57	51.364	2.912	42.006	6.229	-0.089	15.602	0.234	0	61	6.5	43.3	3.0	0.102	0.107	0.0025	2.47	2.1
71	5/18/1999	10:25:04 AM	0	24.014	22.152	23.287	24.306	22.109	31.322	44.384	50.996	2.889	42.849	6.229	-0.089	15.602	0.234	0	62	6.5	43.5	3.0	0.102	0.107	0.0025	2.46	2.1
72	5/18/1999	10:26:04 AM	0	24.049	22.107	23.322	24.342	22.144	31.039	44.663	51.334	2.793	42.277	6.199	-0.089	15.541	0.232	0	63	6.4	43.5	3.0	0.101	0.106	0.0024	2.44	2.1
73	5/18/1999	10:27:03 AM	0	24.049	22.026	23.322	24.261	22.224	30.722	45.035	51.852	2.952	41.905	6.168	-0.089	15.587	0.233	0	64	6.5	43.5	3.0	0.102	0.107	0.0025	2.45	2.1
74	5/18/1999	10:28:03 AM	0	24.049	22.107	23.402	24.261	22.466	30.563	44.506	51.181	2.817	42.209	6.199	-0.089	15.541	0.227	0	65	6.4	43.4	3.0	0.099	0.104	0.0024	2.39	2.0
75	5/18/1999	10:29:04 AM	0	24.049	22.107	23.482	24.261	22.627	30.483	44.446	51.181	2.84	42.311	6.26	-0.089	15.495	0.228	0	66	6.4	43.4	3.0	0.100	0.104	0.0024	2.40	2.0
76	5/18/1999	10:30:05 AM	0	24.13	22.107	23.482	24.422	22.707	30.324	44.942	51.639	2.848	42.75	6.199	-0.089	15.479	0.223	0	67	6.4	43.8	3.0	0.097	0.102	0.0023	2.32	2.0
77	5/18/1999	10:31:03 AM	0	24.13	22.107	23.482	24.342	22.868	30.086	45.004	51.669	2.817	42.784	6.199	-0.089	15.495	0.225	0	68	6.4	43.9	3.0	0.098	0.103	0.0023	2.34	2.0
78	5/18/1999	10:32:04 AM	0	24.049	22.107	23.563	24.582	22.948	30.086	44.663	51.395	2.88	42.412	6.199	-0.089	15.433	0.229	0	69	6.4	43.5	3.0	0.100	0.104	0.0024	2.39	2.0
79	5/18/1999	10:33:04 AM	0	24.13	22.107	23.563	24.582	23.109	29.927	44.818	51.486	2.848	42.311	6.199	-0.089	15.464	0.226	0	70	6.4	43.6	3.0	0.099	0.103	0.0024	2.36	2.0
80	5/18/1999	10:34:04 AM	0	24.175	22.152	23.608	24.707	23.154	29.692	44.756	51.456	2.896	42.615	6.199	-0.089	15.495	0.224	0	71	6.4	43.7	3.0	0.098	0.102	0.0023	2.33	2.0
81	5/18/1999	10:35:03 AM	0	24.255	22.152	23.608	24.707	23.315	29.972	45.097	51.699	2.952	42.615	6.199	-0.089	15.403	0.224	0	72	6.4	43.9	3.0	0.096	0.102	0.0023	2.32	2.0
82	5/18/1999	10:36:03 AM	0	24.22	22.197	23.653	24.833	23.44	29.937	44.787	51.517	2.872	42.851	6.199	-0.042	15.433	0.219	0	73	6.4	43.8	3.0	0.096	0.099	0.0023	2.27	1.9
83	5/18/1999	10:37:04 AM	0	24.265	22.243	23.698	24.798	23.566	29.902	44.849	51.517	2.84	42.209	6.168	-0.089	15.387	0.221	0	74	6.4	43.5	3.0	0.096	0.100	0.0023	2.30	2.0
84	5/18/1999	10:38:06 AM	0	24.265	22.162	23.698	24.958	23.566	29.961	44.694	51.273	2.769	42.75	6.199	-0.089	15.403	0.22	0	75	6.4	43.7	3.0	0.096	0.100	0.0023	2.28	1.9
85	5/18/1999	10:39:03 AM	0	24.31	22.207	23.824	25.003	23.531	30.185	45.128	51.821	2.872	42.547	6.168	-0.089	15.387	0.222	0	76	6.4	43.8	3.0	0.097	0.100	0.0023	2.29	1.9

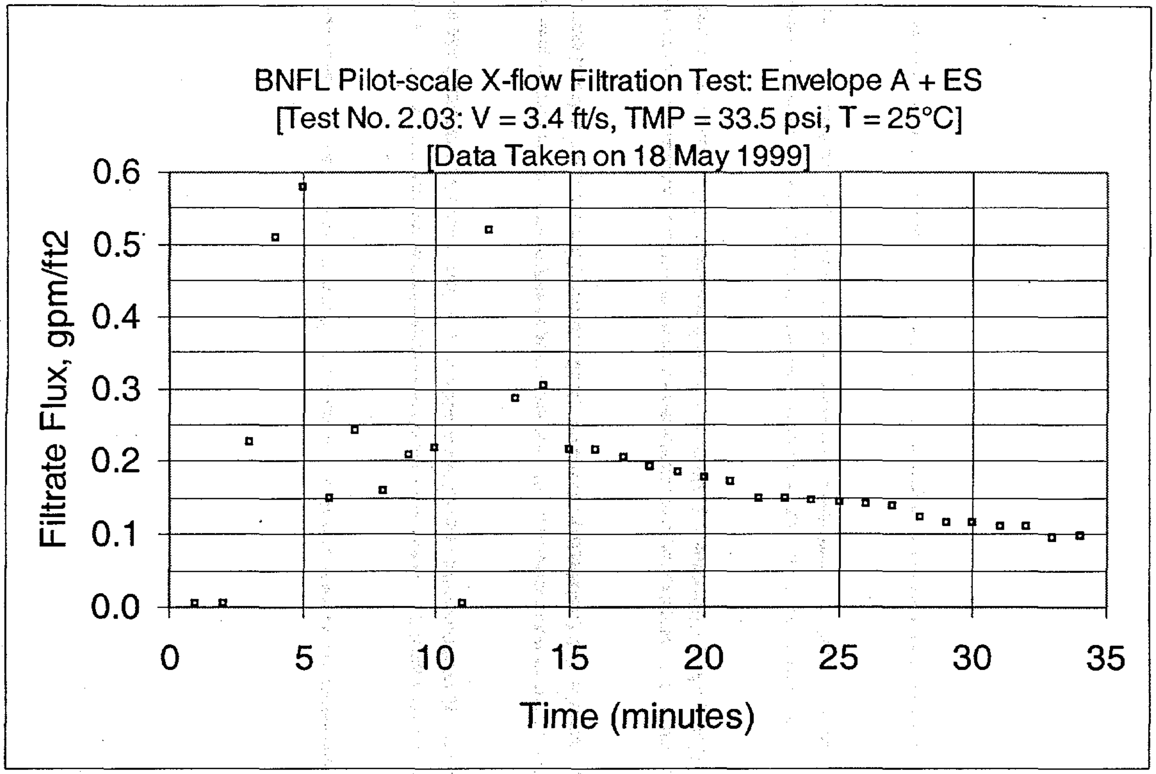
Pilot Scale X-Flow Filtration Test: Env. A, Run 2.02

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
86	5/18/1999	10:40:05 AM	0	24.355	22.172	23.788	24.968	23.335	30.468	44.973	51.578	2.856	42.919	6.168	-0.089	15.326	0.217	0	77	6.4	43.9	3.0	0.095	0.098	0.0022	2.23	1.9
87	5/18/1999	10:41:04 AM	0	24.355	22.172	23.788	24.968	23.174	30.627	45.159	51.882	2.832	42.784	6.199	-0.089	15.418	0.216	0	78	6.4	44.0	3.0	0.094	0.098	0.0022	2.22	1.9
88	5/18/1999	10:42:10 AM	0	24.4	22.218	23.914	24.933	23.139	30.831	44.632	51.395	2.864	42.378	6.199	-0.089	15.356	0.219	0	79	6.4	43.5	3.0	0.096	0.099	0.0023	2.27	1.9
89	5/18/1999	10:43:03 AM	0	24.355	22.172	23.788	24.968	23.013	30.866	45.252	51.913	2.84	42.615	6.199	-0.042	15.341	0.216	0	80	6.4	43.9	3.0	0.094	0.098	0.0022	2.22	1.9
90	5/18/1999	10:44:04 AM	0	24.4	22.218	23.914	24.853	22.978	31.069	44.477	51.212	2.817	42.75	6.199	-0.089	15.372	0.215	0	81	6.4	43.6	3.0	0.094	0.097	0.0022	2.22	1.9
91	5/18/1999	10:45:03 AM	0	24.481	22.218	23.914	24.773	22.898	31.069	45.19	51.943	2.936	42.682	6.168	-0.089	15.387	0.213	0	82	6.4	43.9	3.0	0.093	0.096	0.0022	2.18	1.9
92	5/18/1999	10:46:04 AM	0	24.481	22.218	23.914	24.692	22.898	31.069	44.849	51.456	2.832	42.48	6.199	-0.042	15.326	0.218	0	83	6.4	43.7	3.0	0.095	0.098	0.0022	2.25	1.9
93	5/18/1999	10:47:04 AM	0	24.481	22.218	23.914	24.773	22.818	31.069	44.725	51.395	2.856	42.615	6.168	-0.089	15.341	0.207	0	84	6.4	43.7	3.0	0.090	0.093	0.0021	2.13	1.8
94	5/18/1999	10:48:03 AM	0	24.561	22.298	23.994	24.692	22.818	31.307	45.004	51.669	2.848	42.953	6.199	-0.042	15.356	0.212	0	85	6.4	44.0	3.0	0.093	0.095	0.0022	2.17	1.8
95	5/18/1999	10:49:04 AM	0	24.561	22.298	23.994	24.692	22.657	31.387	45.283	51.974	2.976	42.412	6.199	-0.042	15.356	0.206	0	86	6.4	43.8	3.0	0.090	0.093	0.0021	2.11	1.8
96	5/18/1999	10:50:04 AM	0	24.561	22.218	24.074	24.612	22.657	31.387	45.19	51.76	2.785	42.513	6.168	-0.089	15.341	0.212	0	87	6.4	43.9	3.0	0.093	0.095	0.0022	2.17	1.8
97	5/18/1999	10:51:03 AM	0	24.641	22.298	23.994	24.692	22.576	31.228	45.19	52.096	2.904	42.75	6.168	-0.042	15.28	0.21	0	88	6.3	44.0	3.0	0.092	0.094	0.0021	2.15	1.8
98	5/18/1999	10:52:03 AM	0	24.641	22.298	23.994	24.612	22.576	31.307	44.942	51.425	2.793	42.682	6.137	-0.042	15.372	0.209	0	89	6.4	43.8	3.0	0.091	0.094	0.0021	2.14	1.8
99	5/18/1999	10:53:04 AM	0	24.641	22.298	23.914	24.612	22.576	31.307	45.066	51.699	2.801	42.851	6.199	-0.089	15.187	0.212	0	90	6.3	44.0	3.0	0.093	0.095	0.0022	2.17	1.8
100	5/18/1999	10:54:04 AM	0	24.641	22.298	23.914	24.612	22.496	31.307	45.376	52.157	2.825	43.054	6.168	-0.089	15.249	0.205	0	91	6.3	44.2	3.0	0.089	0.092	0.0021	2.09	1.8
101	5/18/1999	10:55:05 AM	0	24.596	22.253	23.869	24.567	22.37	31.342	45.314	52.035	2.888	42.919	6.199	-0.042	15.234	0.219	0	92	6.3	44.1	3.0	0.096	0.099	0.0022	2.24	1.9
102	5/18/1999	10:56:03 AM	0	24.596	22.253	23.869	24.567	22.451	31.342	45.221	51.791	2.769	43.223	6.168	-0.089	15.234	0.203	0	93	6.3	44.2	3.0	0.089	0.091	0.0021	2.07	1.8
103	5/18/1999	10:57:03 AM	0	24.596	22.253	23.869	24.567	22.29	31.501	45.407	52.004	2.729	43.054	6.168	-0.089	15.126	0.22	0	94	6.3	44.2	3.0	0.096	0.099	0.0022	2.24	1.9
104	5/18/1999	10:58:04 AM	0	24.596	22.333	23.788	24.567	22.37	31.421	45.345	51.913	2.753	42.987	6.168	-0.042	15.126	0.205	0	95	6.3	44.2	3.0	0.089	0.093	0.0021	2.10	1.8
105	5/18/1999	10:59:05 AM	0	24.596	22.333	23.869	24.647	22.29	31.421	45.81	52.37	2.785	43.325	6.168	-0.042	15.141	0.207	0	96	6.3	44.6	3.1	0.090	0.093	0.0021	2.09	1.8
106	5/18/1999	11:00:02 AM	0	24.551	22.288	23.743	24.602	22.325	31.218	45.872	52.584	2.856	43.359	6.199	-0.042	15.049	0.199	0	97	6.2	44.6	3.1	0.087	0.090	0.0020	2.02	1.7
107	5/18/1999	11:01:03 AM	0	24.471	22.288	23.743	24.522	22.325	31.377	45.81	52.553	2.856	42.851	6.137	-0.089	15.187	0.194	0	98	6.3	44.3	3.1	0.085	0.088	0.0020	1.98	1.7
108	5/18/1999	11:02:04 AM	0	24.551	22.288	23.743	24.602	22.405	31.218	45.376	51.943	2.84	43.325	6.137	-0.042	15.141	0.203	0	99	6.3	44.4	3.1	0.089	0.092	0.0021	2.07	1.8
109	5/18/1999	11:03:05 AM	0	24.506	22.323	23.698	24.477	22.36	31.173	45.717	52.431	2.84	43.528	6.168	-0.042	15.111	0.199	0	100	6.3	44.6	3.1	0.087	0.090	0.0020	2.02	1.7
110	5/18/1999	11:04:04 AM	0	24.506	22.323	23.698	24.557	22.44	31.173	45.531	52.157	2.761	43.426	6.168	-0.042	15.049	0.215	0	101	6.2	44.5	3.1	0.094	0.097	0.0022	2.19	1.9
111	5/18/1999	11:05:04 AM	0	24.425	22.323	23.698	24.557	22.441	31.173	45.655	52.248	2.753	43.426	6.168	-0.042	15.003	0.214	0	102	6.2	44.5	3.1	0.093	0.097	0.0022	2.18	1.9
112	5/18/1999	11:06:04 AM	0	24.506	22.323	23.698	24.717	22.441	31.094	45.5	52.096	2.737	43.494	6.168	-0.042	15.065	0.199	0	103	6.3	44.5	3.1	0.087	0.090	0.0020	2.03	1.7
113	5/18/1999	11:07:04 AM	0	24.506	22.323	23.698	24.637	22.441	31.094	45.841	52.492	2.832	43.494	6.168	-0.089	15.003	0.206	0	104	6.2	44.7	3.1	0.090	0.093	0.0021	2.09	1.8
114	5/18/1999	11:08:03 AM	0	24.38	22.358	23.653	24.592	22.395	30.97	45.531	52.187	2.809	43.697	6.137	-0.089	15.065	0.202	0	105	6.3	44.6	3.1	0.088	0.092	0.0021	2.05	1.7
115	5/18/1999	11:09:03 AM	0	24.38	22.358	23.653	24.512	22.476	31.129	45.998	52.858	2.761	43.9	6.168	-0.042	15.08	0.204	0	106	6.3	44.9	3.1	0.089	0.093	0.0021	2.06	1.8
116	5/18/1999	11:10:03 AM	0	24.461	22.439	23.653	24.592	22.476	30.811	47.05	53.712	2.617	44.812	6.26	-0.089	14.45	0.21	0	107	6.0	45.9	3.2	0.092	0.095	0.0021	2.07	1.8
117	5/18/1999	11:11:03 AM	0	24.38	22.358	23.573	24.512	22.637	30.652	45.841	52.553	2.777	43.359	6.199	-0.042	15.003	0.206	0	108	6.2	44.6	3.1	0.090	0.094	0.0021	2.10	1.8
118	5/18/1999	11:12:05 AM	0	24.38	22.439	23.573	24.592	22.797	30.493	46.069	52.767	2.809	43.832	6.168	-0.089	14.988	0.203	0	109	6.2	45.0	3.1	0.089	0.092	0.0021	2.05	1.7
119	5/18/1999	11:13:03 AM	0	24.38	22.358	23.573	24.592	22.878	30.414	45.81	52.462	2.769	43.629	6.137	-0.042	14.988	0.209	0	110	6.2	44.7	3.1	0.091	0.095	0.0021	2.12	1.8
120	5/18/1999	11:14:03 AM	0	24.38	22.439	23.573	24.752	23.039	30.334	45.686	52.218	2.721	43.528	6.168	-0.042	14.972	0.21	0	111	6.2	44.6	3.1	0.092	0.095	0.0021	2.14	1.8
121	5/18/1999	11:15:04 AM	0	24.3	22.439	23.573	24.752	23.119	30.255	45.872	52.37	2.817	43.832	6.168	-0.089	14.972	0.203	0	112	6.2	44.9	3.1	0.089	0.092	0.0021	2.06	1.8
122	5/18/1999	11:16:05 AM	0	24.3	22.358	23.573	24.913	23.28	30.016	46.43	53.072	2.609	44.339	6.168	-0.042	14.942	0.201	0	113	6.2	45.4	3.1	0.088	0.091	0.0020	2.01	1.7
123	5/18/1999	11:17:03 AM	0	24.265	22.404	23.538	24.958	23.485	30.061	45.965	52.523	2.753	43.73	6.168	-0.042	14.988	0.195	0	114	6.2	44.8	3.1	0.085	0.089	0.0020	1.98	1.7
124	5/18/1999	11:18:03 AM	0	24.345	22.404	23.538	25.038	23.566	30.061	45.965	52.645	2.785	43.528	6.168	-0.042	14.957	0.197	0	115	6.2	44.7	3.1	0.086	0.090	0.0020	2.00	1.7
125	5/18/1999	11:19:06 AM	0	24.265	22.404	23.457	25.118	23.566	30.14	45.934	52.523	2.809	43.866	6.168	-0.089	14.972	0.191	0	116	6.2	44.9	3.1	0.083	0.087	0.0019	1.94	1.7
126	5/18/1999	11:20:04 AM	0	24.23	22.368	23.502	25.163	23.691	29.947	47.205	54.078	2.697	44.812	6.322	-0.089	14.466	0.201	0	117	6.0	46.0	3.2	0.088	0.092	0.0020	1.99	1.7
127	5/18/1999	11:21:02 AM	0	24.275	22.494	23.467	25.208	23.736	30.15	46.337	53.011	2.825	44.305	6.199	-0.042	14.803	0.196	0	118	6.1	45.3	3.1	0.086	0.090	0.0020	1.99	1.7
128	5/18/1999	11:22:03 AM	0	24.24	22.459	23.513	25.253	23.621	30.434	46.027	52.736	2.721	44.44	6.199	-0.089	14.788	0.195	0	119	6.1	45.2	3.1	0.085	0.089	0.0020	1.96	1.7
129	5/18/1999	11:23:04 AM	0	24.24	22.459	23.432	25.334	23.46	30.593	46.554	53.132	2.601	44.001	6.168	-0.042	14.926	0.195	0	120	6.2	45.3	3.1	0.085	0.089	0.0020	1.97	1.7
130	5/18/1999	11:24:03 AM	0	24.285	22.504	23.558	25.218	23.345	30.876	45.934	52.645	2.864	43.73	6.199	-0.042	14.942	0.194	0	121	6.2	44.8	3.1	0.085	0.088	0.0020	1.97	1.7
131	5/18/1999	11:25:03 AM	0	24.205	22.504	23.478	25.218	23.184	30.796	46.182	52.98	2.617	43.494	6.199	-0.089	14.911	0.194	0	122	6.2	44.8	3.1	0.085	0.088	0.0020	1.97	1.7
132	5/18/1999	11:26:04 AM	0	24.25	22.55	23.523	25.103	23.069	31.159	46.278	53.011	2.769	43.9	6.199	-0.089	14.911	0.192	0	123	6.2	45.1	3.1	0.084	0.087	0.0019	1.94	1.6
133	5/18/1999	11:27:04 AM	0	24.25	22.469	23.523	25.103	22.969	31.159	46.151	52.828	2.745	43.933	6.199	-0.089	14.865	0.192	0	124	6.2	45.0	3.1	0.084	0.087	0.0019	1.94	1.7
134	5/18/1999	11:28:03 AM	0	24.17	22.469	23.442	25.023	22.828	31.238	45.903	52.492	2.809	43.832	6.199	-0.042	14.865	0.196	0	125	6.2	44.9	3.1	0.086	0.089	0.0020	1.99	1.7
135	5/18/1999	11:29:05 AM	0	24.17	22.469	23.442	25.023	22.747	31.317	46.182	52.889	2.745	43.9	6.229	-0.042	14.834	0.191	0	126	6.2	45.0	3.1	0.083	0.087	0.0019	1.93	1.6
136	5/18/1999	11:30:03 AM	0	24.215	22.514	23.488	24.908	22.873	31.283	46.213	52.736	2.713	44.001	6.229	-0.042	14.834	0.192	0	127	6.2	45.1	3.1	0.084	0.087	0.0019	1.94	1.7
137	5/18/1999	11:31:02 AM	0	24.215	22.595	23.407	24.908	22.793	31.362	46.771	53.496	2.809	44.069	6.199	-0.042	14.803	0.192	0	128	6.1	45.4	3.1	0.084	0.088	0.0019	1.93	1.6
138	5/18/1999	11:32:03 AM	0	24.135	22.514	23.407	24.908	22.793	31.442	46.058	52.736	2.689	43.866	6.199	-0.089	14.803	0.192	0	129	6.1	45.0	3.1	0.084	0.088	0.0020	1.95	1.7
139	5/18/1999	11:33:04 AM	0	24.135	22.595	23.407	24.908	22.632	31.283	46.151	52.919	2.785	43.9	6.199	-0.042	14.803	0.188	0	130	6.1	45.0	3.1	0.082	0.086	0.0019	1.91	1.6
140	5/18/1999	11:34:02 AM	0	24.26	22.56	23.533	24.873	22.677	31.407	46.709	53.496	2.689	45.117	6.322	-0.042	14.466	0.193	0	131	6.0	45.9	3.2	0.084	0.088	0.0019	1.91	1.6
141	5/18/1999	11:35:03 AM	0	24.17	22.55	23.282	24.863	22.667	31.317	47.608	54.352	2.529	45.691	6.383	-0.042	14.204	0.199	0	132	5.9	46.6	3.2	0.087	0.091	0.0020	1.96	1.7
142	5/18/1999	11:36:02 AM	0	24.215	22.595	23.407	24.828	22.793	31.362	47.856	54.636	2.529	45.928	6.353	-0.042	14.112	0.195	0	133	5.9	46.9	3.2	0.085	0.089	0.0019	1.90	1.6
143	5/18/1999	11:37:04 AM	0	24.17	22.55	23.362	24.863	22.667	31.317	46.926	53.681	2.617	45.184	6.291	-0.042	14.312	0.195	0	134	5.9	46.1	3.2	0.085	0.088	0.0019	1.94	1.6
144	5/18/1999	11:38:02 AM	0	24.09	22.55	23.362	24.783	22.667	31.317	47.949	54.809	2.473	45.827	6.353	-0.042	14.02	0.195	0	135	5.8	46.9	3.2	0.085	0.089	0.0019	1.90	1.6
145	5/18/1999	11:39:03 AM	0	24.17	22.55	23.362	24.863	22.667	31.317	46.244	52.858	2.601	43.868	6.137	-0.042	14.742	0.19	0	136	6.1	45.1	3.1	0.083	0.087	0.0019	1.93	1.6
146	5/18/1999	11:40:03 AM	0	24.17	22.63	23.362	24.783	22.747	31.397	46.244	52.889	2.689	44.373	6.137	-0.042	14.742	0.189	0	137	6.1	45.3	3.1	0.083	0.086	0.0019	1.91	1.6
147	5/18/1999	11:41:04 AM	0	24.09	22.63	23.362	24.863	22.667	31.476	46.623	53.163	2.729	44.102	6.137	-0.042	14.803	0.188	0	138	6.1	45.3	3.1	0.082	0.086	0.0019	1.90	1.6
148	5/18/1999	11:42:02 AM	0	24.17	22.63	23.282	24.783	22.587	31.397	46.802	53.496	2.657	44.711	6.137	-0.042	14.573	0.189	0	139	6.0	45.8	3.2	0.083	0.087	0.0019	1.89	1.6
149	5/18/1999	11:43:02 AM	0	24.125	22.585	23.317	24.818	22.641	31.273	47.329	54.139	2.721	44.812	6.26	-0.042	14.527	0.191	0	140	6.0	46.1	3.2	0.083	0.087	0.0019	1.90	1.6
150	5/18/1999	11:44:03 AM	0	24.044	22.665	23.317	24.818	22.541	31.273	46.695	53.559	2.801	44.474	6.137	-0.042	14.773	0.187	0.003	141	6.1	45.7	3.1	0.082	0.086	0.0019	1.87	1.6
151	5/18/1999	11:45:04 AM	0	24.125	22.585	23.397	24.818	22.461	31.352	46.399	53.072	2.697	44.271	6.137	-0.042	14.727	0.186	0	142	6.1	45.3	3.1	0.081	0.085	0.0019	1.87	1.6
152	5/18/1999	11:46:02 AM	0	24.044	22.585	23.317	24.818	22.702	31.352	46.647	53.346	2.713	44.339	6.137	-0.042	14.696	0.186	0	143	6.1	45.5	3.1	0.081	0.085	0.0019	1.87	1.6
153	5/18/1999	11:47:03 AM	0	24.079	22.62	23.272	24.853	22.657	31.545	46.027	52.797	2.745	44.001	6.199	-0.042	14.65	0.19	0	144	6.1	45.0	3.1	0.083	0.087	0.0019	1.93	1.6
154	5/18/1999	11:48:03 AM	0	24.079	22.62	23.272	24.853	22.657	31.307	46.058	52.614	2.633	44.102	6.137	-0.042	14.696	0.186	0	145	6.1	45.1	3.1	0.081	0.085	0.0019	1.89	1.6
155	5/18/1999	11:49:04 AM	0	24.079	22.62	23.272	24.773	22.737	31.466	46.709	53.315	2.809	44.339	6.137	-0.042	14.711	0.186	0	146	6.1	45.5	3.1	0.082	0.086	0.0019	1.89	1.6
156	5/18/1999	11:50:02 AM	0	24.079	22.62	23.352	24.773	22.737	31.228	46.43	53.224	2.625	44.17	6.137	-0.042	14.711	0.185	0	147	6.1	45.3	3.1	0.081	0.085	0.0019	1.87	1.6
157	5/18/1999	11:51:03 AM	0	24.079	22.7	23.352	24.773	22.657	31.387	46.771	53.407	2.785	44.407	6.137	-0.042	14.727	0.185	0	148	6.1	45.6	3.1	0.081	0.085	0.0019	1.86	1.6
158	5/18/1999	11:52:03 AM	0	24.034	22.575	23.307	24.727	22.531	31.342	46.461	52.96	2.745	44.677	6.137	-0.042	14.696	0.184	0	149	6.1	45.6	3.1	0.080	0.084	0.0018	1.85	1.6
159	5/18/1999	11:53:03 AM	0	24.115	22.655	23.307	24.727	22.531	31.421	46.633	53.59	2.729	44.17	6.106	-0.042	14.681	0.187	0.003	150	6.1	45.5	3.1	0.082	0.086	0.0019	1.88	1.6
160	5/18/1999	11:54:03 AM	0	23.989	22.61	23.262	24.682	22.486	31.218	46.957	53.773	2.685	44.001	6.137	-0.089	14.588	0.187	0	151	6.1	45.5	3.1	0.082	0.086	0.0019	1.89	1.6
161	5/18/1999	11:55:03 AM	0	24.069	22.61	23.101	24.602	22.647	30.98	56.658	65.45	1.5	55.634	8.232	-0.042	8.675	0.348	0	152	3.6	56.2	3.9	0.152	0.160	0.0029	2.85	2.4
162	5/18/1999	11:56:04 AM	0	24.069	22.69	23.101	24.762	22.607	30.662	57.929	64.597	1.596	57.355	6.075	-0.042	9.044	0.245	0	153	3.8	57.6	4.0	0.107	0.113	0.0020	1.96	1.7
163	5/18/1999	11:57:03 AM	0	24.069	22.69	23.262	24.843	22.888	30.503	32.792	43.925	3.686	29.7	10.513	-0.042	18.396	0.011	0.003	154	7.6	31.2	2.2	0.005	0.005	0.0002	0.16	0.1
164	5/18/1999	11:58:02 AM	0	24.069	22.69	23.262	24.843	23.129	30.424	41.316	51.09	3.018	38.93	9.065	-0.042	15.74	0.192	0	155	6.5	40.1	2.8	0.084	0.088	0.0022	2.19	1.9
165	5/18/1999	11:59:02 AM	0	24.069	22.61	23.342	24.923	23.209	30.265	3.285	7.625	5.936	-2.485	4.195	-0.042	29.318	0.011	0	156	12.2	0.4	0.0	0.005	0.005	0.0126	12.58	10.7
166	5/18/1999	12:00:04 PM	0	23.989	22.69	23.262	25.003	23.37	30.106	36.109	47.187	2.601	34.23	10.421	-0.042	17.338	1.123	0	157	7.2	35.2	2.4	0.490	0.515	0.0146	14.64	12.5
167	5/18/1999	12:01:03 PM	0	23.954	22.736	23.307	25.128	23.496	30.071	41.192	48.742	2.593	38.896	7.123	-0.042	16.539	0.866	0	158	6.9	40.0	2.8	0.378	0.397	0.0099	9.90	8.4
168	5/18/1999	12:02:02 PM	0	23.954	22.655	23.226	25.206	23.576	29.991	43.547	50.145	2.497	41.33	6.106	-0.042	16.032	0.696	0	159	6.7	42.4	2.9	0.305	0.320	0.0075	7.55	6.4
169	5/18/1999	12:03:03 PM	0	23.999	22.7	23.272	25.173	23.701	29.957	44.322	50.632	2.545	42.141	5.88	-0.042	15.894	0.622	0	160	6.8	43.2	3.0	0.272	0.285	0.0066	6.60	5.6
170																											

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.02

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
171		Averages		24.3	22.3	23.6	24.7	22.8	30.9	45.4	52.1	2.8	43.0	6.2
172		Maximum		25.0	22.7	24.1	25.3	23.7	31.5	47.9	54.8	3.0	45.9	10.7
173		Median		24.3	22.3	23.5	24.7	22.7	31.1	45.3	52.0	2.8	43.0	6.2
174		Minimum		24.0	21.8	23.3	24.0	22.1	29.8	42.0	47.7	2.4	39.0	5.3
175		Std Deviation		0.2	0.2	0.2	0.3	0.4	0.5	1.1	1.2	0.1	1.3	0.4
176		Number of Points Used		121	121	121	121	121	121	121	121	121	121	121

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
171	-0.1	15.2	0.238	0.0		6.3	44.2	3.047	0.104	0.108	0.002	2.46	2.1
172	0.0	17.2	0.891	0.0		7.1	46.9	3.2	0.389	0.400	0.010	9.7	8.2
173	-0.1	15.2	0.210	0.0		6.3	44.2	3.0	0.092	0.095	0.002	2.1	1.8
174	-0.1	14.0	0.184	0.0		5.8	40.5	2.8	0.080	0.084	0.002	1.6	1.6
175	0.0	0.5	0.094	0.0		0.2	1.2	0.1	0.041	0.042	0.001	1.0	0.9
176	121	121	121	121		121	121	121	121	121	121	121	121



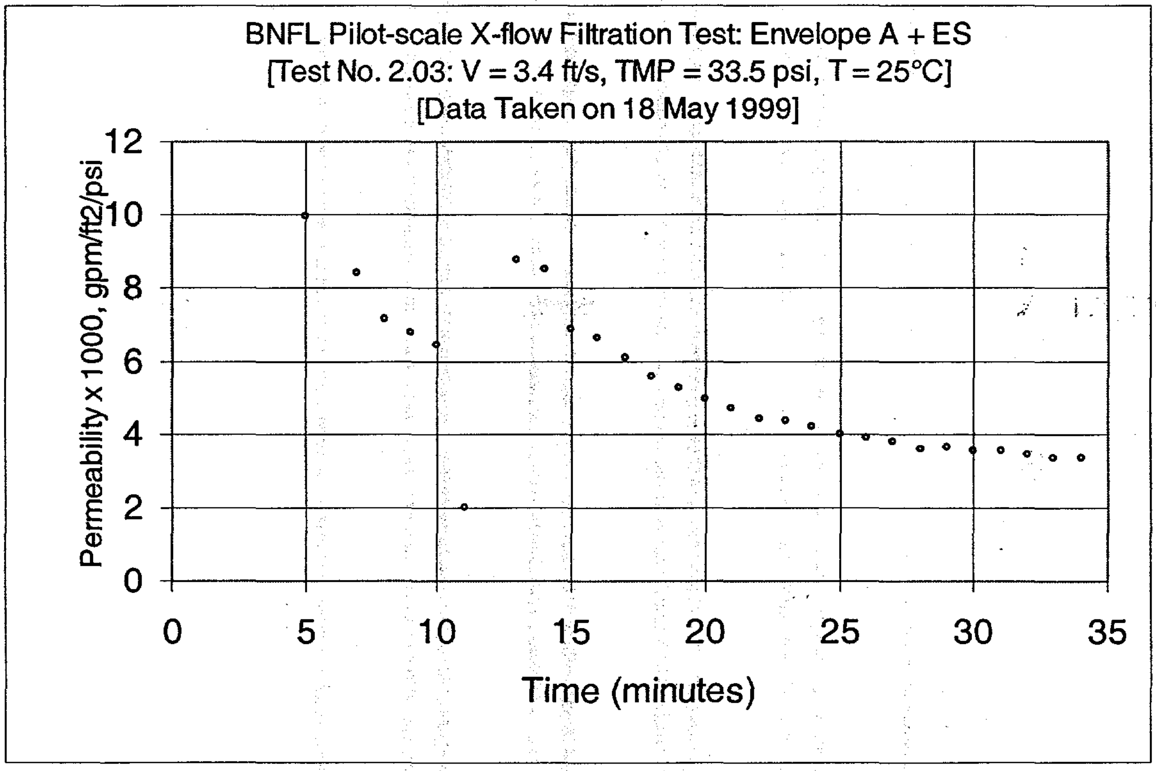
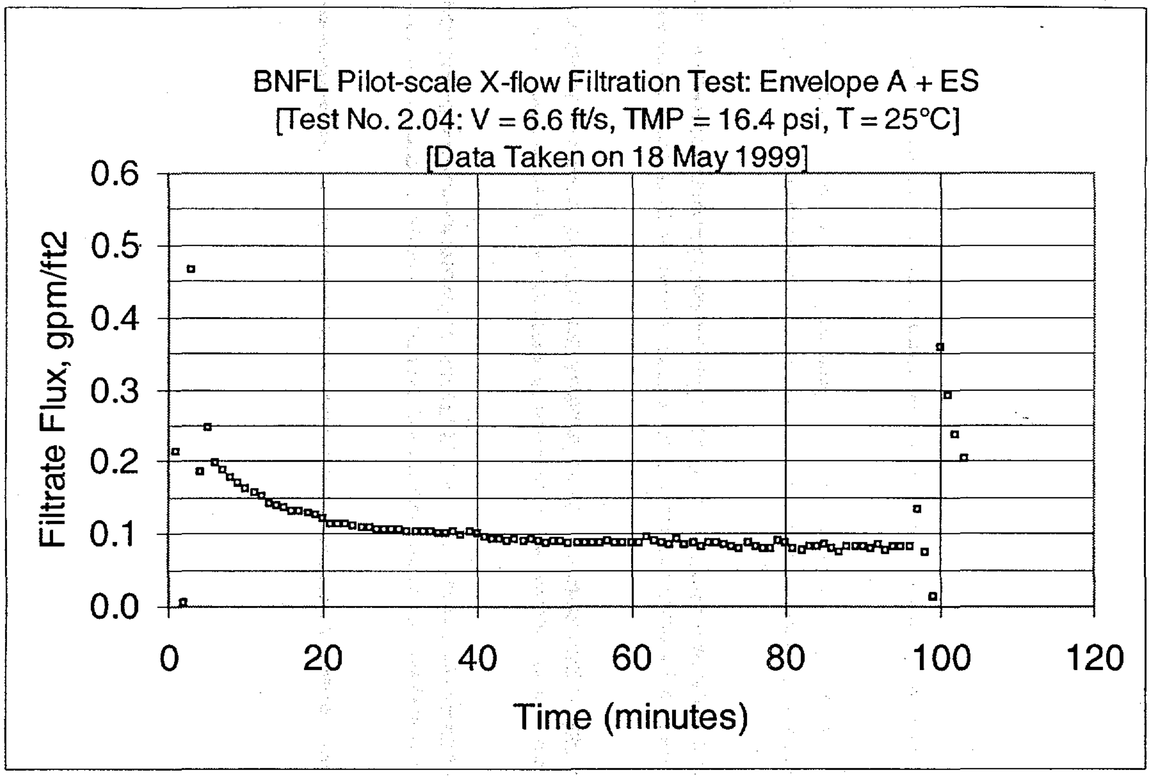


Figure B3: Test Run 2.03, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.03

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (de	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi(	FLTR DP (	TOP DP (p	FLTRATE
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG
3	5/18/1999	8:10:07 AM	0	21.434	21.098	20.705	21.566	21.538	29.806	0.124	-0.041	-0.024	0.05	-0.057
4	5/18/1999	8:12:04 AM	0	21.434	21.098	20.705	21.647	21.538	29.886	0.124	-0.041	-0.016	0.05	-0.057
5	5/18/1999	8:13:04 AM	0	21.434	21.098	20.624	21.647	21.538	30.045	0.124	-0.041	-0.024	0.05	-0.057
6	5/18/1999	8:14:05 AM	0	21.479	21.063	20.75	21.772	21.583	29.85	0.124	-0.011	-0.024	0.016	-0.057
7	5/18/1999	8:15:03 AM	0	21.479	21.143	20.669	21.772	21.583	30.069	0.124	-0.011	-0.024	0.05	-0.057
8	data													
9	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (de	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi(	FLTR DP (	TOP DP (p	FLTRATE
10	5/18/1999	1:03:28 PM	0	24.275	22.816	23.387	24.806	22.129	31.421	0.713	-0.59	0.614	0.084	-1.444
11	5/18/1999	1:05:01 PM	0	24.275	22.896	23.467	24.808	22.451	31.342	0.713	-0.56	0.614	0.084	-1.444
12	5/18/1999	1:06:03 PM	0	23.713	22.898	22.503	24.888	22.611	31.183	16.861	23.375	7.707	9.314	5.952
13	5/18/1999	1:07:04 PM	0	23.713	22.896	22.262	25.048	22.853	31.025	21.479	31.729	1.859	20.098	9.65
14	5/18/1999	1:08:01 PM	0	23.231	22.896	22.02	25.128	22.933	30.866	56.363	76.609	0.742	57.996	17.509
15	5/18/1999	1:09:02 PM	0	23.231	22.896	22.342	25.128	22.933	30.945	9.061	14.96	2.051	7.15	5.397
16	5/18/1999	1:10:02 PM	0	23.392	22.896	22.181	25.128	23.013	30.945	29.228	35.753	1.42	28.483	5.89
17	5/18/1999	1:11:03 PM	0	23.266	22.851	22.136	25.243	22.968	30.9	23.029	29.656	1.157	22.127	6.137
18	5/18/1999	1:12:02 PM	0	23.311	22.977	22.101	25.208	23.013	30.866	31.428	40.388	1.157	30.613	8.51
19	5/18/1999	1:13:02 PM	0	23.266	22.851	22.217	25.243	22.968	31.059	34.466	40.937	1.293	33.656	5.829
20	5/18/1999	1:14:03 PM	0	23.266	22.932	22.297	25.083	22.888	31.059	4.153	4.349	1.811	1.876	-0.119
21	5/18/1999	1:15:03 PM	0	23.392	22.977	22.262	25.128	22.933	31.025	34.156	43.132	1.133	33.588	8.232
22	5/18/1999	1:16:01 PM	0	23.427	22.932	22.377	25.163	22.888	30.98	32.947	40.113	1.149	32.574	6.722
23	5/18/1999	1:17:02 PM	0	23.427	22.851	22.779	25.163	22.888	31.059	36.047	43.681	1.205	35.346	7.061
24	5/18/1999	1:18:02 PM	0	23.748	22.932	23.181	25.163	22.888	31.139	31.893	37.949	1.285	31.357	5.582
25	5/18/1999	1:19:03 PM	0	24.069	22.932	23.502	25.163	22.647	31.218	32.947	40.113	1.309	32.439	6.661
26	5/18/1999	1:20:01 PM	0	24.23	22.932	23.743	25.243	22.647	31.218	33.784	40.54	1.205	33.588	6.26
27	5/18/1999	1:21:02 PM	0	24.471	22.932	24.144	25.083	22.566	31.218	34.931	41.638	1.221	33.994	6.106
28	5/18/1999	1:22:02 PM	0	24.551	22.932	24.385	25.083	22.566	31.297	35.52	42.126	1.173	34.67	6.168
29	5/18/1999	1:23:03 PM	0	24.952	22.932	24.626	25.003	22.647	31.218	36.047	42.797	1.237	35.211	6.199
30	5/18/1999	1:24:02 PM	0	25.192	22.932	24.706	25.003	22.727	31.139	36.605	43.284	1.237	35.819	6.168
31	5/18/1999	1:25:02 PM	0	25.192	22.932	24.786	25.083	22.807	31.218	34.032	40.601	1.229	33.419	6.044
32	5/18/1999	1:26:01 PM	0	25.467	22.888	24.821	25.038	22.762	31.015	34.28	41.089	1.165	33.622	6.291
33	5/18/1999	1:27:02 PM	0	25.593	22.932	24.946	25.163	22.888	31.139	35.365	42.126	1.229	34.67	6.291
34	5/18/1999	1:28:01 PM	0	25.753	23.012	25.026	25.163	22.888	30.98	35.965	42.675	1.309	35.076	6.199
35	5/18/1999	1:29:02 PM	0	25.753	23.012	25.026	25.243	22.968	31.218	36.388	43.101	1.333	35.481	6.106
36	5/18/1999	1:30:02 PM	0	25.993	23.012	25.106	25.243	22.888	31.059	36.512	43.223	1.293	35.786	6.168
37	5/18/1999	1:31:02 PM	0	25.993	23.012	25.266	25.323	22.888	31.218	34.466	41.059	1.356	33.96	6.044
38	5/18/1999	1:32:02 PM	0	25.993	23.012	25.266	25.243	22.888	31.218	31.862	38.65	1.221	31.492	6.291
39	5/18/1999	1:33:01 PM	0	26.073	23.012	25.347	25.243	22.888	31.139	32.575	39.473	1.237	32.168	6.353
40	5/18/1999	1:34:02 PM	0	26.188	22.967	25.382	25.278	22.843	30.935	31.583	38.071	1.197	30.883	6.044
41	5/18/1999	1:35:03 PM	0	26.188	22.967	25.381	25.278	22.843	30.935	31.862	38.528	1.269	31.019	6.137
42	5/18/1999	1:36:03 PM	0	26.268	22.967	25.622	25.198	22.762	31.094	29.042	35.296	1.237	28.179	5.86
43	5/18/1999	1:37:01 PM	0	26.348	22.967	25.622	25.118	22.843	31.094	29.476	36.485	1.428	28.314	6.383
44														
45		Averages		25.1	23.0	24.5	25.2	22.8	31.1	33.8	40.7	1.2	33.2	6.3
46		Maximum		26.3	23.0	25.6	25.3	23.0	31.3	36.6	43.7	1.4	35.8	8.2
47		Median		25.5	22.9	24.8	25.2	22.8	31.1	34.2	41.1	1.2	33.6	6.2
48		Minimum		23.4	22.9	22.3	25.0	22.6	30.9	29.0	35.3	1.1	28.2	5.6
49		Std Dev		1.0	0.0	1.0	0.1	0.1	0.1	2.1	2.3	0.1	2.1	0.5
50		Number of Points Used		23	23	23	23	23	23	23	23	23	23	23

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	PISTON (	SL FLOW	FLTR FLO	V9									
2	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	-0.135	-0.095	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	-0.135	-0.08	0.011	0									
5	-0.135	-0.095	0.011	0									
6	-0.135	-0.08	0.011	0									
7	-0.135	-0.08	0.011	0									
8										at 25C	PERMABILITY	x 1000	PERMABILITY
9	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
10	-0.042	-0.08	0.011	0	1	0.0	0.4	0.0	0.005	0.005	0.0126	12.61	10.7
11	-0.042	-0.095	0.011	0	2	0.0	0.4	0.0	0.005	0.005	0.0126	12.58	10.7
12	-0.042	33.189	0.481	0	3	13.8	13.1	0.9	0.210	0.225	0.0172	17.22	14.7
13	-0.042	12.622	1.081	0	4	5.2	20.8	1.4	0.472	0.510	0.0245	24.54	20.9
14	-0.042	2.285	1.218	0	5	0.9	58.2	4.0	0.532	0.579	0.0099	9.95	8.5
15	-0.089	12.407	0.318	0	6	5.1	8.1	0.6	0.139	0.150	0.0184	18.45	15.7
16	-0.042	9.351	0.511	0	7	3.9	28.9	2.0	0.223	0.242	0.0084	8.38	7.1
17	-0.042	7.922	0.339	0.003	8	3.3	22.6	1.6	0.148	0.161	0.0071	7.11	6.1
18	-0.042	8.337	0.442	0	9	3.5	31.0	2.1	0.193	0.210	0.0068	6.75	5.7
19	-0.042	8.26	0.465	0	10	3.4	34.1	2.3	0.203	0.220	0.0065	6.45	5.5
20	-0.042	12.284	0.013	0	11	5.1	3.0	0.2	0.006	0.006	0.0020	2.03	1.7
21	-0.042	7.999	1.102	0.003	12	3.3	33.9	2.3	0.481	0.520	0.0154	15.35	13.1
22	-0.042	8.291	0.61	0	13	3.4	32.8	2.3	0.266	0.287	0.0088	8.76	7.5
23	-0.042	7.907	0.652	0	14	3.3	35.7	2.5	0.285	0.303	0.0085	8.49	7.2
24	-0.042	8.613	0.472	0.003	15	3.6	31.6	2.2	0.206	0.217	0.0069	6.86	5.8
25	-0.042	8.322	0.477	0	16	3.5	32.7	2.3	0.208	0.217	0.0066	6.64	5.7
26	-0.042	8.276	0.454	0	17	3.4	33.7	2.3	0.198	0.205	0.0061	6.10	5.2
27	-0.042	8.183	0.431	0.003	18	3.4	34.5	2.4	0.188	0.193	0.0056	5.59	4.8
28	-0.042	8.078	0.417	0	19	3.4	35.1	2.4	0.182	0.185	0.0053	5.28	4.5
29	-0.042	7.999	0.402	0	20	3.3	35.6	2.5	0.175	0.177	0.0050	4.98	4.2
30	-0.042	7.907	0.39	0.003	21	3.3	36.2	2.5	0.170	0.172	0.0047	4.74	4.0
31	-0.042	8.26	0.338	0	22	3.4	33.7	2.3	0.148	0.148	0.0044	4.40	3.7
32	-0.042	8.168	0.339	0	23	3.4	34.0	2.3	0.148	0.149	0.0044	4.38	3.7
33	-0.042	8.061	0.337	0	24	3.3	35.0	2.4	0.147	0.147	0.0042	4.21	3.6
34	-0.042	8.045	0.329	0	25	3.3	35.5	2.4	0.144	0.144	0.0040	4.04	3.4
35	-0.042	7.968	0.323	0	26	3.3	35.9	2.5	0.141	0.141	0.0039	3.92	3.3
36	-0.089	7.953	0.317	0	27	3.3	36.1	2.5	0.138	0.138	0.0038	3.82	3.2
37	-0.042	8.245	0.284	0	28	3.4	34.2	2.4	0.124	0.123	0.0036	3.60	3.1
38	-0.042	7.907	0.268	0	29	3.3	31.7	2.2	0.117	0.116	0.0037	3.67	3.1
39	-0.042	7.83	0.268	0	30	3.2	32.4	2.2	0.117	0.116	0.0036	3.58	3.0
40	-0.042	7.999	0.256	0	31	3.3	31.2	2.2	0.112	0.111	0.0035	3.54	3.0
41	-0.089	7.953	0.254	0	32	3.3	31.4	2.2	0.111	0.110	0.0035	3.49	3.0
42	-0.042	8.276	0.224	0	33	3.4	28.6	2.0	0.098	0.096	0.0034	3.36	2.9
43	-0.042	8.199	0.228	0	34	3.4	28.9	2.0	0.100	0.098	0.0034	3.38	2.9
44													
45	0.0	8.1	0.399	0.0		3.4	33.5	2.310	0.174	0.179	0.005	5.3	4.5
46	0.0	8.6	1.102	0.0		3.6	36.2	2.5	0.481	0.520	0.015	15.4	13.1
47	0.0	8.1	0.338	0.0		3.3	33.9	2.3	0.148	0.148	0.004	4.4	3.7
48	-0.1	7.8	0.224	0.0		3.2	28.6	2.0	0.098	0.096	0.003	3.4	2.9
49	0.0	0.2	0.2	0.0		0.1	2.1	0.147	0.081	0.091	0.003	2.6	2.2
50	23	23	23	23		23	23	23	23	23	23	23	23



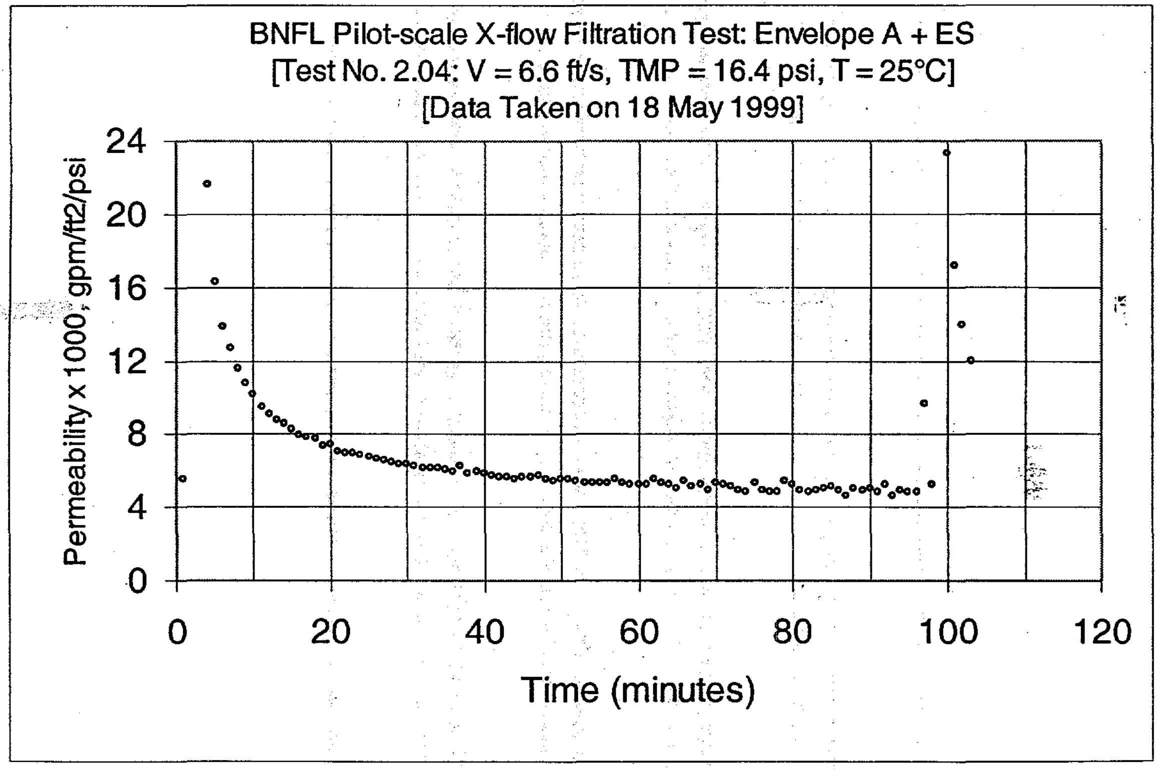


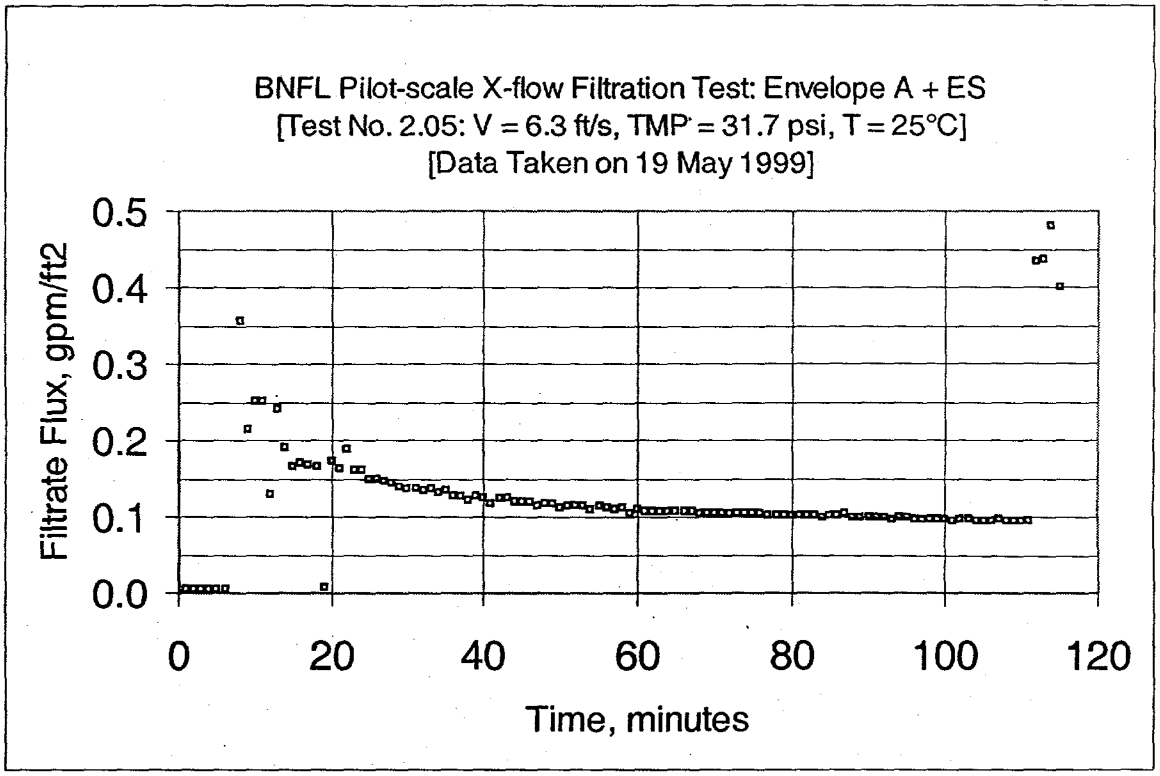
Figure B4: Test Run 2.04, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.04

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (g	FLTR (psig	FLTR DP (	TOP DP (g	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/18/1999	8:10:07 AM	0	21.434	21.096	20.705	21.566	21.538	29.606	0.124	-0.041	-0.024	0.05	-0.057	-0.135	-0.095	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/18/1999	8:12:04 AM	0	21.434	21.096	20.705	21.647	21.538	29.686	0.124	-0.041	-0.016	0.05	-0.057	-0.135	-0.08	0.011	0									
5	5/18/1999	8:13:04 AM	0	21.434	21.096	20.624	21.647	21.538	30.145	0.124	-0.041	-0.024	0.05	-0.057	-0.135	-0.095	0.011	0									
6	5/18/1999	8:14:05 AM	0	21.479	21.063	20.75	21.772	21.563	29.85	0.124	-0.011	-0.024	0.016	-0.057	-0.135	-0.08	0.011	0									
7	5/18/1999	8:15:03 AM	0	21.479	21.143	20.669	21.772	21.563	30.069	0.124	-0.011	-0.024	0.05	-0.057	-0.135	-0.08	0.011	0									
8	data																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
9	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (g	FLTR (psig	FLTR DP (	TOP DP (g	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
10	5/18/1999	2:49:10 PM	0	25.498	23.238	24.531	25.629	22.712	31.759	39.27	46.059	1.181	38.423	6.168	-0.042	8.014	0.461	0	1	3.3	38.8	2.7	0.210	0.213	0.0055	5.46	4.7
11	5/18/1999	2:51:03 PM	0	25.578	23.238	24.691	25.629	22.673	31.838	0.496	-0.59	1.293	-0.727	-1.321	-0.042	9.351	0.011	0	2	3.9	-0.1	0.0	0.005	0.005	-0.0419	-41.94	-35.7
12	5/18/1999	2:52:02 PM	0	25.578	23.319	24.691	25.549	22.793	31.68	18.721	27.657	3.048	18.143	8.633	-0.042	19.15	1.059	0	3	7.9	17.4	1.2	0.462	0.466	0.0268	26.75	22.8
13	5/18/1999	2:53:02 PM	0	25.337	23.238	24.451	25.549	23.034	31.521	9.577	14.836	2.41	7.556	4.843	-0.042	16.109	0.417	0	4	6.7	8.6	0.6	0.182	0.185	0.0216	21.58	18.4
14	5/18/1999	2:54:01 PM	0	25.132	23.273	24.245	25.504	22.906	31.476	15.636	25.997	1.955	14.554	9.588	-0.042	13.882	0.554	0	5	5.8	15.2	1.0	0.242	0.247	0.0163	16.26	13.8
15	5/18/1999	2:55:01 PM	0	25.067	23.308	24.12	25.459	22.782	31.511	15.342	23.649	2.45	13.337	7.77	-0.042	16.293	0.444	0	6	6.8	14.3	1.0	0.194	0.199	0.0139	13.86	11.8
16	5/18/1999	2:56:01 PM	0	24.927	23.228	24.2	25.459	22.782	31.352	16.148	23.965	2.465	13.743	7.339	-0.042	16.124	0.422	0	7	6.7	14.9	1.0	0.184	0.188	0.0126	12.61	10.7
17	5/18/1999	2:57:04 PM	0	24.846	23.228	24.44	25.379	22.863	31.431	16.52	24.015	2.434	14.25	7.031	-0.042	15.986	0.4	0	8	6.6	15.4	1.1	0.175	0.177	0.0115	11.53	9.8
18	5/18/1999	2:58:02 PM	0	25.087	23.308	24.601	25.459	22.782	31.511	16.799	24.167	2.45	14.624	6.818	-0.042	15.863	0.385	0	9	6.6	15.8	1.1	0.168	0.170	0.0107	10.75	9.1
19	5/18/1999	2:59:01 PM	0	24.882	23.263	24.716	25.334	22.818	31.466	17.14	24.289	2.338	14.926	6.63	-0.042	15.802	0.369	0	10	6.6	16.0	1.1	0.161	0.162	0.0101	10.13	8.6
20	5/18/1999	3:00:01 PM	0	25.042	23.263	24.956	25.414	22.737	31.466	17.729	24.686	2.37	15.399	6.476	-0.042	15.679	0.358	0	11	6.5	16.6	1.1	0.156	0.156	0.0094	9.45	8.0
21	5/18/1999	3:01:01 PM	0	25.237	23.298	24.991	25.369	22.772	31.421	17.791	24.625	2.346	15.602	6.353	-0.042	15.525	0.347	0	12	6.4	16.7	1.2	0.151	0.152	0.0091	9.07	7.7
22	5/18/1999	3:02:03 PM	0	25.442	23.263	25.196	25.494	22.898	31.149	17.264	23.71	2.45	15.162	6.014	-0.042	16.17	0.325	0	13	6.7	16.2	1.1	0.142	0.141	0.0087	8.70	7.4
23	5/18/1999	3:03:01 PM	0	25.603	23.344	25.357	25.494	23.059	30.831	17.14	23.588	2.386	15.264	5.963	-0.042	16.124	0.319	0.003	14	6.7	16.2	1.1	0.139	0.138	0.0085	8.51	7.2
24	5/18/1999	3:04:00 PM	0	25.683	23.344	25.277	25.574	23.059	30.672	17.636	24.046	2.569	15.365	5.921	-0.042	16.017	0.313	0	15	6.6	16.5	1.1	0.137	0.136	0.0082	8.22	7.0
25	5/18/1999	3:05:02 PM	0	25.558	23.298	25.071	25.529	23.174	30.389	17.898	23.985	2.434	15.602	5.767	-0.042	16.063	0.302	0	16	6.7	16.7	1.1	0.132	0.132	0.0079	7.90	6.7
26	5/18/1999	3:06:01 PM	0	25.522	23.263	24.956	25.494	23.38	30.354	17.636	23.954	2.481	15.94	5.705	-0.042	15.955	0.3	0	17	6.6	16.8	1.2	0.131	0.131	0.0078	7.81	6.6
27	5/18/1999	3:07:01 PM	0	25.442	23.263	24.876	25.574	23.541	30.195	17.791	23.985	2.41	15.839	5.675	-0.042	15.771	0.295	0	18	6.5	16.8	1.2	0.129	0.129	0.0077	7.69	6.5
28	5/18/1999	3:08:06 PM	0	25.407	23.389	24.761	25.699	23.747	30.16	18.287	24.411	2.45	18.312	5.644	-0.042	15.602	0.289	0	19	6.5	17.3	1.2	0.126	0.127	0.0073	7.34	6.2
29	5/18/1999	3:09:02 PM	0	25.327	23.308	24.601	25.779	23.907	30.16	17.419	23.222	2.553	15.433	5.336	-0.042	16.401	0.277	0	20	6.8	16.4	1.1	0.121	0.122	0.0074	7.44	6.3
30	5/18/1999	3:10:00 PM	0	25.167	23.228	24.52	25.859	23.987	30.001	17.357	23.283	2.665	15.196	5.459	-0.042	16.57	0.257	0	21	6.9	16.3	1.1	0.112	0.114	0.0070	6.99	5.9
31	5/18/1999	3:11:01 PM	0	25.132	23.273	24.325	25.904	24.033	30.046	17.326	23.558	2.641	15.027	5.705	-0.042	16.462	0.253	0	22	6.8	16.2	1.1	0.110	0.113	0.0070	6.96	5.9
32	5/18/1999	3:12:01 PM	0	25.097	23.319	24.21	26.029	23.917	30.33	17.388	23.649	2.585	15.162	5.736	-0.042	16.339	0.251	0	23	6.8	16.3	1.1	0.110	0.112	0.0069	6.88	5.9
33	5/18/1999	3:13:02 PM	0	24.937	23.319	24.29	26.029	23.676	30.409	17.233	23.558	2.473	15.399	5.767	-0.089	16.17	0.249	0	24	6.7	16.3	1.1	0.109	0.111	0.0068	6.80	5.8
34	5/18/1999	3:14:02 PM	0	24.902	23.364	24.496	26.074	23.481	30.772	17.295	23.466	2.569	15.196	5.705	-0.042	16.355	0.246	0	25	6.8	16.2	1.1	0.107	0.109	0.0067	6.70	5.7
35	5/18/1999	3:15:01 PM	0	24.947	23.329	24.541	25.959	23.446	30.817	17.388	23.619	2.537	15.332	5.736	-0.042	16.309	0.244	0	26	6.8	16.4	1.1	0.107	0.108	0.0066	6.60	5.6
36	5/18/1999	3:16:01 PM	0	25.027	23.329	24.621	26.039	23.446	31.055	17.574	23.893	2.617	14.993	5.736	-0.042	16.201	0.242	0	27	6.7	16.3	1.1	0.106	0.107	0.0066	6.56	5.6
37	5/18/1999	3:17:02 PM	0	24.992	23.374	24.827	26.005	23.411	31.02	17.636	23.832	2.513	15.365	5.736	-0.042	16.186	0.242	0	28	6.7	16.5	1.1	0.106	0.106	0.0064	6.43	5.5
38	5/18/1999	3:18:02 PM	0	25.118	23.42	24.862	26.13	23.376	31.144	17.76	24.015	2.609	15.399	5.736	-0.042	16.078	0.241	0	29	6.7	16.6	1.1	0.105	0.105	0.0064	6.35	5.4
39	5/18/1999	3:19:00 PM	0	25.198	23.42	25.032	26.21	23.215	31.303	17.636	23.954	2.434	15.636	5.798	-0.042	15.863	0.241	0	30	6.6	16.6	1.1	0.105	0.105	0.0063	6.32	5.4
40	5/18/1999	3:20:00 PM	0	25.278	23.42	25.112	26.05	23.215	31.224	17.605	23.802	2.442	15.636	5.736	-0.042	15.955	0.239	0	31	6.6	16.6	1.1	0.104	0.104	0.0063	6.26	5.3
41	5/18/1999	3:21:02 PM	0	25.438	23.339	25.192	26.13	23.215	31.621	17.884	24.046	2.465	15.839	5.736	-0.042	15.971	0.239	0	32	6.6	16.9	1.2	0.104	0.104	0.0062	6.15	5.2
42	5/18/1999	3:22:02 PM	0	25.518	23.339	25.352	25.97	22.894	32.017	17.636	23.771	2.402	15.737	5.705	-0.042	15.925	0.237	0	33	6.6	16.7	1.2	0.103	0.102	0.0061	6.14	5.2
43	5/18/1999	3:23:00 PM	0	25.724	23.385	25.558	26.015	22.859	32.3	17.822	24.046	2.529	15.839	5.736	-0.042	15.863	0.238	0	34	6.6	16.8	1.2	0.104	0.102	0.0061	6.08	5.2
44	5/18/1999	3:24:01 PM	0	25.678	23.339	25.673	25.97	22.672	32.414	17.698	23.924	2.442	15.974	5.736	-0.042	15.833	0.236	0	35	6.6	16.8	1.2	0.103	0.101	0.0060	6.00	5.1
45	5/18/1999	3:25:01 PM	0	25.838	23.42	25.833	25.89	22.492	32.414	17.853	24.046	2.45	15.839	5.767	-0.042	15.756	0.235	0	36	6.5	16.8	1.2	0.103	0.100	0.0059	5.95	5.1
46	5/18/1999	3:26:02 PM	0	26.079	23.42	25.913	25.89	22.331	32.572	17.915	24.167	2.489	15.703	5.675	-0.042	15.817	0.245	0	37	6.6	16.8	1.2	0.107	0.104	0.0062	6.20	5.3
47	5/18/1999	3:27:02 PM	0	26.079	23.42	25.673	25.73	22.17	32.493	17.915	24.076	2.465	15.805	5.675	-0.042	15.802	0.231	0	38	6.6	16.9	1.2	0.101	0.099	0.0059	5.87	5.0
48	5/18/1999	3:28:00 PM	0	26.033	23.374	25.307	25.604	22.124	32.607	18.256	24.503	2.481	16.211	5.705	-0.042	15.571	0.237	0	39	6.5	17.2	1.2	0.103	0.103	0.0060	5.95	5.1
49	5/18/1999	3:29:00 PM	0	25.908	23.329	25.182	25.639	22.24	32.086	18.194	24.259	2.465	15.974	5.582	-0.042	15.756	0.23	0	40	6.5	17.1	1.2	0.100	0.100	0.0058	5.85	5.0
50	5/18/1999	3:30:02 PM	0	25.748	23.409	24.942	25.639	22.401	31.848	17.853	23.71	2.649	15.534	5.428	-0.042	16.309	0.217	0.003	41	6.8	16.7	1.2	0.095	0.095	0.0057	5.68	4.8
51	5/18/1999	3:31:02 PM	0	25.623	23.364	24.736	25.594	22.516	31.724	17.698	23.893	2.577	15.602	5.675	-0.089	16.278	0.213	0	42	6.8	16.7	1.1	0.093	0.094	0.0056	5.63	4.8
52	5/18/1999	3:32:00 PM	0	25.543	23.444	24.656	25.674	22.516	31.486	17.512	23.68	2.553	15.264	5.736	-0.042	16.201	0.21	0	43	6.7	16.4	1.1	0.092	0.093	0.0056	5.65	4.8
53	5/18/1999	3:33:01 PM	0	25.463	23.444	24.576	25.834	22.677	31.486	17.481	23.802	2.673	15.399	5.736	-0.042	16.232	0.206	0	44	6.7	16.4	1.1	0.090	0.091	0.0055	5.54	4.7
54	5/18/1999	3:34:02 PM	0	25.418	23.399	24.611	25.789	22.632	31.442	17.728	24.015	2.625	15.23	5.798	-0.042	16.14	0.21	0	45	6.7	16.5	1.1	0.092	0.093	0.0056	5.62	4.8
55	5/18/1999	3:35:01 PM	0	25.337	23.399	24.771	25.949	22.551	31.442	17.202	23.436	2.45	15.23	5.798	-0.042	16.155	0.207	0	46	6.7	16.2	1.1	0.090	0.091	0.0056	5.61	4.8
56	5/18/1999	3:36:00 PM	0	25.257	23.399	24.771	25.949	22.551	31.442	17.047	23.314	2.434	15.433	5.829	-0.042	16.063	0.21	0	47	6.7	16.2	1.1	0.092	0.092	0.0057	5.68	4.8
57	5/18/1999	3:37:01 PM	0	25.292	23.354	24.886	25.984	22.587	31.238	17.419	23.832	2.649	15.365	5.86	-0.042	16.002	0.207	0	48	6.6	16.4	1.1	0.090	0.091	0.0055	5.53	4.7
58	5/18/1999	3:38:01 PM	0	25.292	23.434	24.966	26.064	22.587	31.238	17.264	23.649	2.489	15.568	5.86	-0.042	16.109	0.203	0.003	49	6.7	16.4	1.1	0.089	0.089	0.0054	5.40	4.6
59	5/18/1999	3:39:02 PM	0	25.372	23.434	25.046	25.904	22.587	31.238	17.388	23.71	2.545	15.129	5.86	-0.042	16.078	0.208	0	50	6.7	16.3	1.1	0.090	0.090	0.0055	5.52	4.7
60	5/18/1999	3:40:00 PM	0	25.453	23.434	25.127	25.904	22.667	31.317	17.171	23.527	2.521	15.23	5.86	-0.042	16.078	0.205	0	51	6.7	16.2	1.1	0.089	0.089	0.0055	5.50	4.7
61	5/18/1999	3:41:02 PM	0	25.407	23.389	25.161	25.779	22.622	31.273	17.295	23.619	2.569	15.365	5.86	-0.042	16.186	0.202	0	52	6.7	16.3	1.1	0.088	0.088	0.0054	5.38	4.6
62	5/18/1999	3:42:01 PM	0	25.488	23.389	25.322	25.779	22.622	31.352	17.805	23.985	2.609	15.433	5.829	-0.042	16.124	0.205	0	53	6.7	16.5	1.1	0.089	0.089	0.0054	5.37	4.6
63	5/18/1999	3:43:02 PM	0	25.568	23.469	25.322	25.859	22.702	31.193	17.636	23.954	2.537	15.501	5.89	-0.042	16.048	0.203	0.003	54	6.7	16.6	1.1	0.089	0.088	0.0053	5.30	4.5
64	5/18/1999	3:44:01 PM	0	25.728	23.469	25.482	25.779	22.702	31.352	17.543	23.863	2.553	15.365	5.798	-0.042	16.155	0.202	0	55	6.7	16.5	1.1	0.088	0.087	0.0053	5.29	4.5
65	5/18/1999	3:45:01 PM	0	25.683	23.424	25.617	25.734	22.737	31.307	17.605	23.924	2.545	15.23	5.86	-0.042	16.078	0.204	0	56	6.7	16.4	1.1	0.089	0.088	0.0053	5.35	4.5
66	5/18/1999	3:46:02 PM	0	25.808	23.469	25.562	25.699	22.702	31.193	17.419	23.771	2.585	15.332	5.86	-0.042	16.124	0.209	0	57	6.7	16.4	1.1	0.091	0.090	0.0055	5.48	4.7
67	5/18/1999	3:47:02 PM	0	25.888	23.469	25.562	25.779	22.622	31.352	17.853	24.228	2.577	15.332	5.921	-0.042	15.955	0.205	0	58	6.6	16.6	1.1	0.089	0.088	0.0053	5.31	4.5
68	5/18/1999	3:48:00 PM	0	25.843	23.424	25.277	25.734	22.818	30.99	17.791	24.259	2.577	15.602	5.952	-0.042	15.786	0.203	0	59	6.6	16.7	1.2	0.089	0.088	0.0053	5.27	4.5
69	5/18/1999	3:49:01 PM	0	25.763	23.424	25.036	25.734	122.818	31.149	17.915	24.381	2.545	15.839	5.921	-0.042	15.771	0.203	0	60	6.5	16.9	1.2	0.089	0.089	0.0052	5.25	4.5
70	5/18/1999	3:50:02 PM	0	25.683	23.424	24.876	25.814	22.898	30.99	18.039	24.442	2.521	15.737	5.89	-0.042	15.648	0.201	0	61	6.5	16.9	1.2	0.088	0.088	0.0052	5.21	4.4
71	5/18/1999	3:51:01 PM	0	25.603	23.424	24.716	25.814	22.978	30.99	18.132	24.503	2.41	15.703	5.86	-0.042	15.618	0.214	0	62	6.5	16.9	1.2	0.093	0.094	0.0056	5.57	4.7
72	5/18/1999	3:52:00 PM	0	25.523	23.424	24.636	25.814	22.737	30.99	17.822	23.985	2.593	15.67	5.675	-0.042	16.032	0.202	0	63	6.7	16.7	1.2	0.088	0.089	0.0053	5.32	4.5
73	5/18/1999	3:53:00 PM	0	25.362	23.424	24.475	25.734	22.737	30.99	17.667	23.863	2.473	15.534	5.705	-0.042	15.925	0.196	0	64	6.6	16.6	1.1	0.086	0.087	0.0052	5.23	4.5
74	5/18/1999	3:54:00 PM	0	25.362	23.424	24.395	25.814	22.737	31.069	17.605	23.802	2.521	15.737	5.736	-0.042	15.894	0.19	0	65	6.6	16.7	1.1	0.083	0.084	0.0051	5.06	4.3
75	5/18/1999	3:55:01 PM	0	25.282	23.424	24.395	25.734	22.737	30.99	18.039	24.228	2.537	15.636	5.705	-0.042	15.848	0.208	0	66	6.6	16.8	1.2	0.090	0.091	0.0054	5.43	4.6
76	5/18/1999	3:56:00 PM	0	25.202	23.504	24.315	25.814	22.737	31.228	17.76	23.954	2.521	15.703	5.705	-0.042	15.94	0.191	0	67	6.6	16.7	1.2	0.083	0.085	0.0051	5.08	4.3
77	5/18/1999	3:57:00 PM	0	25.122	23.424	24.235	25.734	22.737	31.228	17.853	23.985	2.545	15.771	5.705	-0.042	15.894	0.197	0	68	6.6	16.8	1.2	0.086	0.088	0.0052	5.23	4.4
78	5/18/1999	3:58:01 PM	0	25.042	23.424	24.155	25.734	22.737	31.149	17.822	23.985	2.665	15.501	5.613	-0.042	16.063	0.185	0	69	6.7	16.7	1.1	0.081	0.083	0.0050	4.96	4.2
79	5/18/1999	3:59:01 PM	0	24.962	23.504	24.074	25.654	22.737	30.99	17.946	24.046	2.617	15.501	5.675	-0.042	15.94	0.197	0	70	6.6	16.7	1.2	0.086	0.088	0.0053	5.28	4.5
80	5/18/1999	4:00:00 PM	0	24.962	23.504	24.074	25.734	22.818	31.069	17.791	24.015	2.617	15.703	5.675	-0.042	15.925	0.195	0	71	6.6	16.7	1.2	0.085	0.087	0.0052	5.22	4.4
81	5/18/1999	4:01:00 PM	0	24.801	23.424	24.155	25.734	22.818	30.91	17.76	24.015	2.649	15.67	5.736	-0.042	15.955	0.192	0	72	6.6	16.7	1.2	0.084	0.086	0.0051	5.14	4.4

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.04

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/18/1999	4:02:01 PM	0	24.801	23.424	24.235	25.814	22.737	31.069	17.834	24.107	2.585	15.568	5.767	-0.042	15.94	0.184	0	73	6.6	16.7	1.2	0.080	0.082	0.0049	4.91	4.2
83	5/18/1999	4:03:02 PM	0	24.676	23.459	24.35	25.769	22.531	30.945	17.76	24.015	2.657	15.703	5.767	-0.042	16.017	0.182	0	74	6.6	16.7	1.2	0.079	0.081	0.0048	4.84	4.1
84	5/18/1999	4:04:00 PM	0	24.801	23.504	24.475	25.734	22.657	31.069	17.326	23.558	2.458	15.534	5.798	-0.042	15.966	0.197	0	75	6.6	16.4	1.1	0.086	0.087	0.0053	5.31	4.5
85	5/18/1999	4:05:00 PM	0	24.756	23.459	24.51	25.689	22.692	31.183	17.822	24.076	2.521	15.568	5.767	-0.042	16.032	0.187	0	76	6.7	16.7	1.2	0.082	0.083	0.0050	4.96	4.2
86	5/18/1999	4:06:01 PM	0	24.836	23.459	24.591	25.529	22.692	31.025	17.388	23.68	2.489	15.467	5.829	-0.042	15.986	0.181	0	77	6.6	16.4	1.1	0.079	0.080	0.0049	4.87	4.1
87	5/18/1999	4:07:01 PM	0	24.836	23.459	24.591	25.529	22.611	31.263	17.481	23.863	2.625	15.433	5.829	-0.042	15.986	0.181	0	78	6.6	16.5	1.1	0.079	0.080	0.0049	4.86	4.1
88	5/18/1999	4:08:00 PM	0	24.997	23.459	24.751	25.449	22.531	31.183	17.481	23.832	2.553	15.501	5.86	-0.042	15.955	0.205	0	79	6.6	16.5	1.1	0.089	0.090	0.0055	5.46	4.7
89	5/18/1999	4:09:00 PM	0	24.997	23.459	24.831	25.449	22.611	31.263	17.915	24.259	2.609	15.332	5.86	-0.042	15.909	0.198	0	80	6.6	16.6	1.1	0.086	0.087	-0.0052	5.22	4.4
90	5/18/1999	4:10:01 PM	0	25.077	23.459	24.911	25.529	22.611	31.263	17.636	24.015	2.641	15.399	5.86	-0.042	15.909	0.184	0	81	6.6	16.5	1.1	0.080	0.081	0.0049	4.88	4.1
91	5/18/1999	4:11:01 PM	0	25.237	23.459	24.991	25.529	22.611	31.263	17.295	23.71	2.481	15.433	5.89	-0.042	15.971	0.179	0	82	6.6	16.4	1.1	0.078	0.078	0.0048	4.78	4.1
92	5/18/1999	4:11:59 PM	0	25.237	23.459	25.071	25.609	22.692	31.263	17.76	24.228	2.585	15.332	5.89	-0.042	15.94	0.187	0.003	83	6.6	16.5	1.1	0.082	0.081	0.0049	4.92	4.2
93	5/18/1999	4:13:00 PM	0	25.317	23.459	25.151	25.609	22.692	31.104	17.326	23.71	2.505	15.433	5.89	-0.042	15.955	0.189	0	84	6.6	16.4	1.1	0.083	0.082	0.0050	5.02	4.3
94	5/18/1999	4:14:01 PM	0	25.352	23.414	25.186	25.564	22.647	31.139	17.574	23.985	2.545	15.501	5.921	-0.042	15.971	0.195	0	85	6.6	16.5	1.1	0.085	0.085	0.0051	5.12	4.4
95	5/18/1999	4:15:01 PM	0	25.477	23.459	25.312	25.609	22.611	31.025	17.45	23.893	2.537	15.602	5.921	-0.042	15.909	0.186	0	86	6.6	16.5	1.1	0.081	0.080	0.0049	4.87	4.1
96	5/18/1999	4:15:59 PM	0	25.558	23.459	25.392	25.529	22.611	31.183	17.357	23.68	2.426	15.298	5.921	-0.042	15.955	0.174	0	87	6.6	16.3	1.1	0.076	0.075	0.0046	4.60	3.9
97	5/18/1999	4:16:59 PM	0	25.593	23.494	25.587	25.564	22.486	31.139	17.512	23.924	2.585	15.636	5.952	-0.042	15.894	0.194	0	88	6.6	16.6	1.1	0.085	0.083	0.0050	5.03	4.3
98	5/18/1999	4:18:00 PM	0	25.673	23.494	25.587	25.484	22.566	31.139	17.729	24.167	2.801	15.467	5.952	-0.042	15.863	0.192	0	89	6.6	16.8	1.1	0.084	0.082	0.0050	4.97	4.2
99	5/18/1999	4:19:02 PM	0	25.833	23.494	25.587	25.564	22.566	31.139	17.729	24.137	2.553	15.568	5.983	-0.042	15.894	0.193	0	90	6.6	16.6	1.1	0.084	0.083	0.0050	4.98	4.2
100	5/18/1999	4:20:01 PM	0	25.833	23.414	25.587	25.484	22.727	30.742	17.481	23.832	2.465	15.467	5.921	-0.042	15.925	0.184	0	91	6.6	16.5	1.1	0.080	0.079	0.0048	4.80	4.1
101	5/18/1999	4:21:00 PM	0	25.913	23.494	25.347	25.564	23.049	30.503	17.512	23.893	2.585	15.602	5.89	-0.042	15.909	0.199	0	92	6.6	16.6	1.1	0.087	0.086	0.0052	5.20	4.4
102	5/18/1999	4:22:00 PM	0	25.753	23.414	25.106	25.564	23.37	30.344	17.791	24.228	2.545	15.67	5.921	-0.042	15.786	0.179	0	93	6.6	16.7	1.2	0.078	0.078	0.0047	4.66	4.0
103	5/18/1999	4:23:01 PM	0	25.673	23.494	24.866	25.564	23.611	30.106	17.636	24.015	2.458	15.703	5.89	-0.042	15.786	0.187	0	94	6.6	16.7	1.1	0.082	0.082	0.0049	4.92	4.2
104	5/18/1999	4:24:01 PM	0	25.558	23.539	24.751	25.789	23.736	30.071	17.946	24.381	2.617	15.872	5.86	-0.042	15.786	0.185	0	95	6.6	16.9	1.2	0.081	0.081	0.0048	4.81	4.1
105	5/18/1999	4:25:00 PM	0	25.477	23.459	24.51	25.769	23.817	29.912	17.977	24.381	2.601	15.94	5.86	-0.042	15.74	0.185	0	96	6.5	17.0	1.2	0.081	0.082	0.0048	4.83	4.1
106	5/18/1999	4:26:00 PM	0	25.362	23.424	24.395	25.894	23.942	29.957	14.908	24.259	2.569	13.033	8.756	-0.089	15.694	0.303	0	97	6.5	14.0	1.0	0.132	0.135	0.0096	9.63	8.2
107	5/18/1999	4:27:01 PM	0	25.362	23.424	24.155	25.974	24.103	29.957	15.466	24.381	2.513	13.235	8.325	-0.042	15.771	0.167	0	98	6.5	14.4	1.0	0.073	0.075	0.0052	5.20	4.4
108	5/18/1999	4:28:01 PM	0	25.327	23.469	24.039	26.019	24.068	29.922	2.727	6.118	5.505	-2.316	2.932	-0.042	28.166	0.031	0	99	11.7	0.2	0.0	0.014	0.014	0.0677	67.66	57.6
109	5/18/1999	4:29:01 PM	0	25.212	23.514	23.924	26.064	24.032	30.046	16.272	27.826	1.7	14.52	11.006	-0.042	12.438	0.798	0	100	5.2	15.4	1.1	0.348	0.359	0.0233	23.32	19.8
110	5/18/1999	4:30:00 PM	0	24.616	23.479	23.809	26.109	23.917	30.568	18.07	24.167	2.402	16.008	5.613	-0.042	15.833	0.647	0	101	6.6	17.0	1.2	0.282	0.292	0.0171	17.14	14.6
111	5/18/1999	4:31:01 PM	0	24.581	23.525	23.854	26.154	23.882	30.613	18.101	24.107	2.33	15.737	5.521	-0.042	15.879	0.523	0	102	6.6	16.9	1.2	0.228	0.236	0.0139	13.94	11.9
112	5/18/1999	4:32:01 PM	0	24.501	23.525	23.934	26.154	23.722	30.851	18.039	24.167	2.378	16.177	5.644	-0.042	15.848	0.455	0	103	6.6	17.1	1.2	0.199	0.205	0.0120	11.97	10.2
113																											
114		Averages		25.4	23.4	24.9	25.7	22.9	31.2	17.5	23.9	2.5	15.4	5.9	0.0	16.0	0.245	0.0		6.6	16.4	1.133	0.107	0.107	0.007	6.6	5.6
115		Maximum		26.1	23.5	25.9	26.2	24.0	32.6	18.7	27.9	3.0	16.3	9.6	0.0	19.2	1.059	0.0		7.9	17.4	1.2	0.462	0.466	0.027	26.8	22.8
116		Median		25.4	23.4	24.9	25.7	22.7	31.2	17.6	24.0	2.5	15.5	5.8	0.0	16.0	0.207	0.0		6.6	16.6	1.1	0.090	0.091	0.006	5.5	4.7
117		Minimum		24.7	23.2	24.1	25.3	22.1	29.9	9.6	14.8	2.0	7.6	4.8	-0.1	13.9	0.174	0.0		5.8	8.6	0.6	0.076	0.075	0.005	4.6	3.9
118		Std Dev		0.3	0.1	0.5	0.2	0.4	0.6	0.9	1.1	0.1	0.9	0.6	0.0	0.4	0.109	0.0		0.2	0.9	0.063	0.047	0.048	0.003	3.3	2.8
119		Number of Points Used		94	94	94	94	94	94	94	94	94	94	94	94	94	94	94		94	94	94	94	94	94	94	94



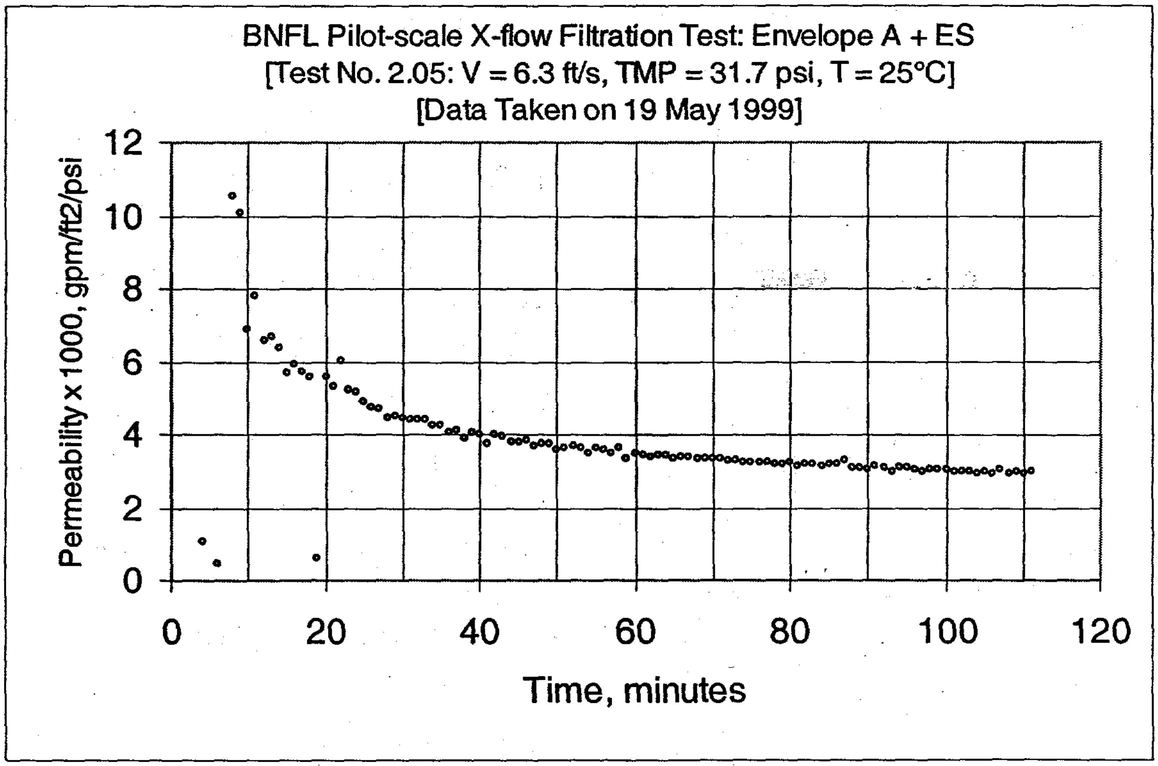


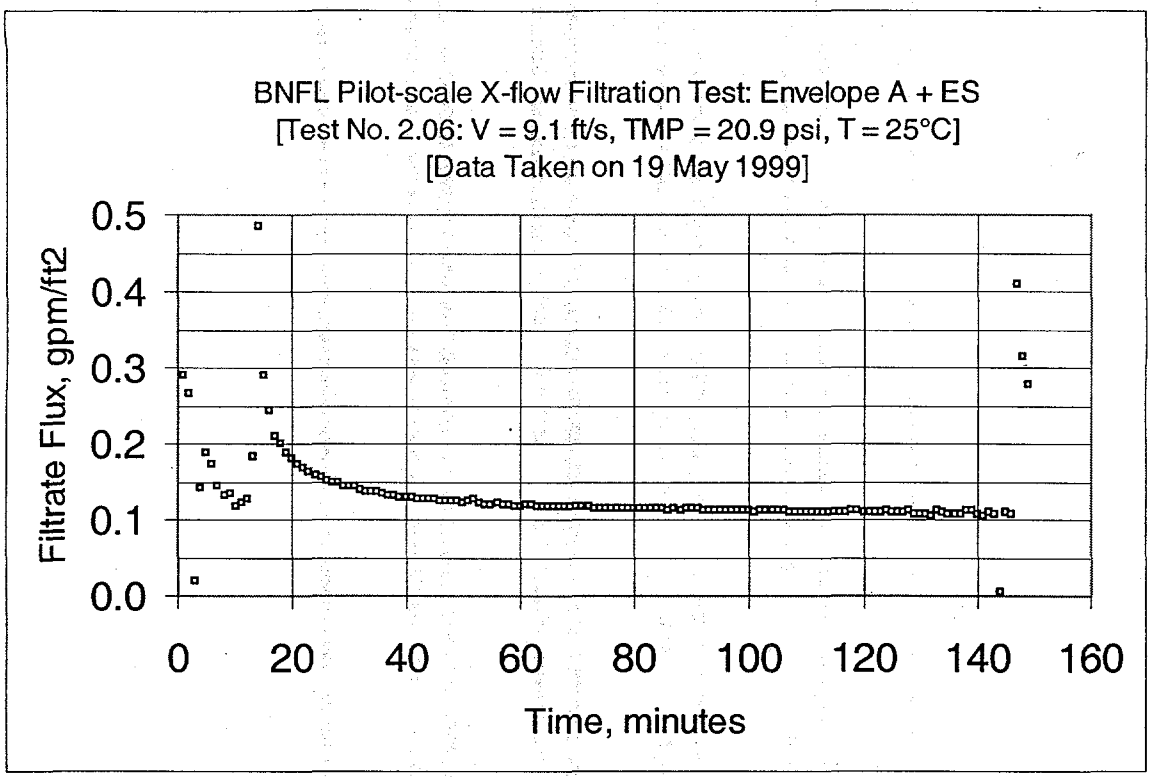
Figure B5: Test Run 2.05, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.05

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/19/1999	7:06:35 AM	0	22.046	21.469	20.833	21.211	21.022	30.886	0.093	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/19/1999	7:10:24 AM	0	22.046	21.469	20.914	21.292	21.022	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.08	0.012	0									
5	5/19/1999	7:11:25 AM	0	22.046	21.469	20.833	21.372	21.183	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0									
6	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
7	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP (	UP AMB (	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/19/1999	7:27:31 AM	0	21.894	21.478	20.924	22.187	22.079	30.578	0.155	2.276	0.638	0.118	1.391	-0.181	-0.08	0.012	0	1	0.0	0.1	0.0	0.005	0.006	0.0431	43.11	36.7
9	5/19/1999	8:31:38 AM	0	21.995	21.498	21.024	23.574	22.34	30.915	0.124	2.276	0.638	0.118	1.422	-0.181	-0.08	0.012	0	2	0.0	0.1	0.0	0.005	0.006	0.0485	48.49	41.3
10	5/19/1999	8:32:40 AM	0	21.995	21.417	21.024	23.494	22.26	31.074	0.124	2.276	0.638	0.118	1.391	-0.181	-0.08	0.012	0	3	0.0	0.1	0.0	0.005	0.006	0.0485	48.49	41.3
11	5/19/1999	8:33:34 AM	0	22.04	21.463	21.391	23.458	22.305	31.278	5.796	8.404	1.604	4.141	1.668	-0.181	3.145	0.011	0	4	1.3	5.0	0.3	0.005	0.005	0.0011	1.07	0.9
12	5/19/1999	8:34:40 AM	0	22.04	21.463	22.196	23.378	22.144	31.516	0.837	1.483	2.737	-1.235	-0.119	9.497	17.015	0.011	0	5	7.1	-0.2	0.0	0.005	0.005	-0.0261	-26.13	-22.2
13	5/19/1999	8:35:34 AM	0	22.04	21.463	22.438	23.137	21.983	31.674	10.29	17.063	2.122	9.28	6.044	-0.181	15.034	0.01	0	6	6.2	9.8	0.7	0.004	0.005	0.0005	0.48	0.4
14	5/19/1999	8:36:42 AM	0	22.442	21.463	22.84	23.137	21.822	31.754	36.915	50.238	2.465	35.786	12.639	-0.181	17.015	1.218	0	7	7.1	36.4	2.5	0.532	0.565	0.0156	15.55	13.2
15	5/19/1999	8:37:41 AM	0	23.327	21.463	23.161	22.976	21.822	31.754	35.024	41.12	3.399	32.472	5.12	-0.181	19.872	0.773	0	8	8.2	33.7	2.3	0.337	0.355	0.0105	10.53	9.0
16	5/19/1999	8:38:40 AM	0	23.327	21.543	23.482	23.057	21.822	31.833	20.549	26.637	2.162	22.228	5.582	-0.181	16.447	0.473	0	9	6.8	21.4	1.5	0.206	0.216	0.0101	10.08	8.6
17	5/19/1999	8:39:39 AM	0	23.648	21.463	23.723	22.896	21.661	31.633	37.596	49.779	1.739	35.076	11.314	-0.181	11.824	0.553	0	10	4.9	36.3	2.5	0.241	0.250	0.0069	6.89	5.9
18	5/19/1999	8:40:36 AM	0	24.165	21.498	24.16	22.851	21.535	31.789	33.722	39.626	3.559	30.714	5.151	-0.181	20.64	0.563	0	11	8.6	32.2	2.2	0.246	0.252	0.0078	7.81	6.6
19	5/19/1999	8:41:43 AM	0	24.245	21.498	24.4	22.851	21.616	31.868	20.394	29.839	2.154	19.017	8.602	-0.181	13.544	0.293	0.003	12	5.6	19.7	1.4	0.128	0.130	0.0066	6.60	5.6
20	5/19/1999	8:42:36 AM	0	24.325	21.498	24.801	22.77	21.777	31.789	37.286	46.669	2.378	35.346	8.51	-0.181	15.249	0.551	0	13	6.3	36.3	2.5	0.241	0.242	0.0067	6.66	5.7
21	5/19/1999	8:43:35 AM	0	25.047	21.578	25.041	22.77	21.777	31.471	30.685	36.79	2.809	28.753	5.397	-0.181	17.998	0.434	0	14	7.5	29.7	2.0	0.189	0.189	0.0064	6.37	5.4
22	5/19/1999	8:44:36 AM	0	25.287	21.498	25.362	22.69	21.938	31.312	29.786	37.583	2.505	28.246	7	-0.181	15.618	0.382	0	15	6.5	29.0	2.0	0.167	0.165	0.0057	5.69	4.8
23	5/19/1999	8:45:39 AM	0	25.448	21.498	25.682	22.69	22.099	31.233	29.6	37.613	2.274	28.01	7.246	-0.181	15.541	0.399	0	16	6.4	28.8	2.0	0.174	0.171	0.0059	5.93	5.0
24	5/19/1999	8:46:38 AM	0	25.768	21.578	25.522	22.69	22.099	31.154	29.817	37.644	2.41	28.72	7	-0.181	15.571	0.389	0	17	6.5	29.3	2.0	0.170	0.167	0.0057	5.72	4.9
25	5/19/1999	8:47:35 AM	0	25.848	21.578	25.362	22.851	22.099	30.995	30.251	37.766	2.386	28.618	6.784	-0.181	15.464	0.381	0	18	6.4	29.4	2.0	0.166	0.165	0.0056	5.59	4.8
26	5/19/1999	8:48:42 AM	0	25.768	21.578	25.121	23.011	22.26	30.915	12.854	39.077	2.402	12.221	25.367	50.524	15.187	0.017	0	19	6.3	12.6	0.9	0.007	0.007	0.0006	0.59	0.5
27	5/19/1999	8:49:37 AM	0	25.608	21.578	25.121	23.092	22.34	30.836	31.893	38.284	2.465	30.14	5.551	-0.135	15.479	0.396	0	20	6.4	31.0	2.1	0.173	0.172	0.0056	5.55	4.7
28	5/19/1999	8:50:36 AM	0	25.608	21.498	24.881	23.253	22.26	30.757	31.583	37.949	2.362	30.275	5.582	-0.135	15.433	0.374	0	21	6.4	30.9	2.1	0.163	0.164	0.0053	5.30	4.5
29	5/19/1999	8:51:35 AM	0	25.573	21.543	24.848	23.298	22.385	30.722	31.769	37.888	2.29	30.207	5.336	-0.135	15.403	0.427	0	22	6.4	31.0	2.1	0.186	0.187	0.0060	6.04	5.1
30	5/19/1999	8:52:36 AM	0	25.492	21.543	24.686	23.378	22.466	30.642	31.459	38.01	2.298	30.207	5.705	-0.181	15.356	0.365	0	23	6.4	30.8	2.1	0.159	0.161	0.0052	5.21	4.4
31	5/19/1999	8:53:37 AM	0	25.412	21.543	24.686	23.458	22.466	30.642	31.986	38.467	2.33	30.579	5.675	-0.181	15.403	0.367	0	24	6.4	31.3	2.2	0.160	0.162	0.0052	5.17	4.4
32	5/19/1999	8:54:36 AM	0	25.412	21.543	24.525	23.539	22.627	30.563	31.273	37.583	2.282	30.072	5.582	-0.181	15.403	0.339	0	25	6.4	30.7	2.1	0.148	0.150	0.0049	4.89	4.2
33	5/19/1999	8:55:35 AM	0	25.297	21.588	24.49	23.584	22.672	30.608	32.079	38.559	2.45	30.444	5.644	-0.181	15.341	0.337	0	26	6.4	31.3	2.2	0.147	0.149	0.0048	4.77	4.1
34	5/19/1999	8:56:34 AM	0	25.217	21.588	24.41	23.584	22.672	30.687	31.769	38.254	2.418	30.511	5.675	-0.135	15.326	0.332	0	27	6.4	31.1	2.1	0.145	0.147	0.0047	4.73	4.0
35	5/19/1999	8:57:35 AM	0	25.262	21.634	24.455	23.629	22.637	30.652	32.823	39.443	2.418	31.188	5.767	-0.181	15.187	0.322	0	28	6.3	32.0	2.2	0.141	0.143	0.0045	4.46	3.8
36	5/19/1999	8:58:34 AM	0	25.182	21.553	24.455	23.709	22.637	30.732	31.521	37.888	2.45	30.511	5.644	-0.181	15.387	0.315	0	29	6.4	31.0	2.1	0.138	0.140	0.0045	4.50	3.8
37	5/19/1999	8:59:36 AM	0	25.227	21.598	24.5	23.754	22.682	30.617	31.738	38.254	2.434	29.971	5.675	-0.135	15.356	0.31	0	30	6.4	30.9	2.1	0.135	0.137	0.0044	4.45	3.8
38	5/19/1999	9:00:37 AM	0	25.147	21.598	24.5	23.835	22.682	30.538	31.521	37.979	2.378	30.14	5.736	-0.135	15.31	0.308	0	31	6.4	30.8	2.1	0.134	0.136	0.0044	4.42	3.8
39	5/19/1999	9:01:42 AM	0	25.192	21.644	24.545	23.719	22.807	30.583	31.738	38.101	2.346	29.734	5.736	-0.135	15.356	0.305	0	32	6.4	30.7	2.1	0.133	0.135	0.0044	4.39	3.7
40	5/19/1999	9:02:39 AM	0	25.112	21.644	24.545	23.88	22.807	30.662	31.583	38.071	2.338	30.106	5.736	-0.181	15.326	0.307	0	33	6.4	30.8	2.1	0.134	0.136	0.0044	4.40	3.7
41	5/19/1999	9:03:40 AM	0	25.157	21.608	24.51	23.925	22.772	30.945	31.8	38.406	2.489	30.14	5.767	-0.181	15.356	0.298	0	34	6.4	31.0	2.1	0.130	0.132	0.0043	4.26	3.6
42	5/19/1999	9:04:37 AM	0	25.157	21.608	24.59	24.005	22.531	31.263	32.234	38.985	2.442	30.376	5.767	-0.135	15.295	0.302	0	35	6.3	31.3	2.2	0.132	0.133	0.0043	4.26	3.6
43	5/19/1999	9:05:40 AM	0	25.157	21.608	24.59	23.845	22.37	31.421	31.924	38.467	2.481	30.41	5.767	-0.181	15.341	0.285	0.003	36	6.4	31.2	2.1	0.124	0.126	0.0040	4.04	3.4
44	5/19/1999	9:06:39 AM	0	25.202	21.654	24.716	24.051	22.255	31.545	31.645	38.223	2.426	30.241	5.705	-0.135	15.341	0.288	0	37	6.4	30.9	2.1	0.126	0.127	0.0041	4.10	3.5
45	5/19/1999	9:07:36 AM	0	25.237	21.608	24.59	23.845	22.692	31.58	31.862	38.528	2.529	30.342	5.736	-0.181	15.326	0.275	0	38	6.4	31.1	2.1	0.120	0.121	0.0039	3.90	3.3
46	5/19/1999	9:08:35 AM	0	25.282	21.654	24.636	23.81	22.415	31.763	31.769	38.315	2.386	30.207	5.736	-0.135	15.28	0.285	0	39	6.3	31.0	2.1	0.124	0.126	0.0041	4.06	3.5
47	5/19/1999	9:09:36 AM	0	25.237	21.608	24.671	23.764	22.129	31.739	31.986	38.559	2.45	30.342	5.798	-0.135	15.264	0.283	0.003	40	6.3	31.2	2.1	0.124	0.125	0.0040	4.00	3.4
48	5/19/1999	9:10:37 AM	0	25.282	21.654	24.636	23.729	22.094	31.942	31.986	38.498	2.497	30.478	5.767	-0.181	15.264	0.267	0	41	6.3	31.2	2.2	0.117	0.118	0.0038	3.77	3.2
49	5/19/1999	9:11:34 AM	0	25.282	21.654	24.716	23.729	21.933	31.942	31.707	38.254	2.37	30.207	5.767	-0.181	15.234	0.28	0	42	6.3	31.0	2.1	0.122	0.123	0.0040	3.96	3.4
50	5/19/1999	9:12:35 AM	0	25.282	21.654	24.716	23.729	21.852	32.021	32.017	38.65	2.465	30.917	5.86	-0.135	15.203	0.284	0	43	6.3	31.5	2.2	0.124	0.125	0.0040	3.97	3.4
51	5/19/1999	9:13:36 AM	0	25.317	21.689	24.751	23.684	21.726	31.977	32.079	38.602	2.41	30.68	5.86	-0.135	15.172	0.272	0	44	6.3	31.4	2.2	0.119	0.120	0.0038	3.81	3.2
52	5/19/1999	9:14:35 AM	0	25.317	21.608	24.751	23.604	21.807	31.897	32.389	39.016	2.458	30.038	5.736	-0.135	15.234	0.271	0	45	6.3	31.2	2.2	0.118	0.119	0.0038	3.82	3.2
53	5/19/1999	9:15:38 AM	0	25.272	21.644	24.706	23.639	21.761	31.832	32.389	38.955	2.458	30.14	5.767	-0.135	15.295	0.273	0	46	6.3	31.3	2.2	0.119	0.120	0.0038	3.84	3.3
54	5/19/1999	9:16:39 AM	0	25.352	21.644	24.706	23.639	21.681	32.011	32.172	38.863	2.473	30.309	5.767	-0.135	15.218	0.261	0	47	6.3	31.2	2.2	0.114	0.115	0.0037	3.68	3.1
55	5/19/1999	9:17:34 AM	0	25.352	21.724	24.786	23.639	21.6	32.011	32.265	39.016	2.473	30.511	5.767	-0.135	15.264	0.268	0	48	6.3	31.4	2.2	0.117	0.118	0.0037	3.75	3.2
56	5/19/1999	9:18:37 AM	0	25.352	21.724	24.786	23.559	21.681	32.011	31.769	38.345	2.386	30.14	5.767	-0.135	15.249	0.265	0	49	6.3	31.1	2.1	0.116	0.116	0.0037	3.75	3.2
57	5/19/1999	9:19:38 AM	0	25.352	21.724	24.786	23.559	21.681	31.932	32.172	38.772	2.45	30.748	5.798	-0.135	15.264	0.258	0	50	6.3	31.5	2.2	0.113	0.113	0.0036	3.60	3.1
58	5/19/1999	9:20:37 AM	0	25.387	21.679	24.741	23.594	21.716	31.57	32.017	38.559	2.386	30.275	5.798	-0.135	15.218	0.259	0	51	6.3	31.1	2.1	0.114	0.114	0.0037	3.66	3.1
59	5/19/1999	9:21:34 AM	0	25.387	21.679	24.741	23.674	21.677	31.411	31.8	38.254	2.346	30.41	5.798	-0.135	15.264	0.262	0	52	6.3	31.1	2.1	0.114	0.115	0.0037	3.70	3.2
60	5/19/1999	9:22:42 AM	0	25.387	21.679	24.741	23.594	22.038	31.253	32.699	39.382	2.521	30.41	5.798	-0.135	15.218	0.263	0	53	6.3	31.6	2.2	0.115	0.116	0.0037	3.67	3.1
61	5/19/1999	9:23:34 AM	0	25.387	21.679	24.821	23.674	22.119	31.173	32.451	39.077	2.545	30.511	5.767	-0.135	15.234	0.251	0	54	6.3	31.5	2.2	0.110	0.110	0.0035	3.50	3.0
62	5/19/1999	9:24:38 AM	0	25.387	21.679	24.821	23.674	22.199	31.094	32.11	38.68	2.497	30.41	5.736	-0.135	15.234	0.261	0	55	6.3	31.3	2.2	0.114	0.115	0.0037	3.66	3.1
63	5/19/1999	9:25:37 AM	0	25.387	21.679	24.741	23.754	22.28	31.015	31.924	38.559	2.458	30.883	5.767	-0.135	15.264	0.256	0	56	6.3	31.4	2.2	0.112	0.113	0.0036	3.58	3.1
64	5/19/1999	9:26:36 AM	0	25.432	21.724	24.866	23.8	22.405	30.96	32.451	39.199	2.553	30.478	5.798	-0.135	15.234	0.25	0	57	6.3	31.5	2.2	0.109	0.110	0.0035	3.48	3.0
65	5/19/1999	9:27:35 AM	0	25.387	21.679	24.901	23.915	22.44	30.935	31.676	38.193	2.386	30.376	5.829	-0.135	15.187	0.259	0	58	6.3	31.0	2.1	0.113	0.113	0.0037	3.65	3.1
66	5/19/1999	9:28:36 AM	0	25.512	21.724	24.866	23.88	22.566	30.821	32.327	39.046	2.561	30.275	5.829	-0.135	15.203	0.24	0	59	6.3	31.3	2.2	0.105	0.105	0.0034	3.36	2.9
67	5/19/1999	9:29:39 AM	0	25.432	21.724	24.866	24.04	22.647	30.742	32.327	39.016	2.545	30.41	5.829	-0.135	15.264	0.249	0	60	6.3	31.4	2.2	0.109	0.109	0.0035	3.48	3.0
68	5/19/1999	9:30:36 AM	0	25.512	21.724	24.866	23.96	22.727	30.821	31.986	38.62	2.521	30.478	5.829	-0.135	15.218	0.245	0	61	6.3	31.2	2.2	0.107	0.107	0.0034	3.44	2.9
69	5/19/1999	9:31:35 AM	0	25.557	21.77	24.911	24.166	122.853	30.786	31.738	38.315	2.386	30.579	5.829	-0.135	15.249	0.243	0	62	6.3	31.2	2.1	0.106	0.106	0.0034	3.41	2.9
70	5/19/1999	9:32:40 AM	0	25.477	21.77	24.911	24.166	22.853	30.786	32.11	38.68	2.378	30.478	5.798	-0.135	15.234	0.247	0	63	6.3	31.3	2.2	0.108	0.108	0.0035	3.45	2.9
71	5/19/1999	9:33:35 AM	0	25.522	21.815	24.956	24.211	22.898	30.752	31.986	38.772	2.354	30.917	5.921	-0.135	15.126	0.246	0	64	6.3	31.5	2.2	0.107	0.108	0.0034	3.42	2.9
72	5/19/1999	9:34:40 AM	0	25.522	21.815	25.036	24.211	22.978	30.831	33.536	40.327	2.418	31.39	6.044	-0.135	14.972	0.247	0	65	6.2	32.5	2.2	0.108	0.108	0.0033	3.32	2.8
73	5/19/1999	9:35:35 AM	0	25.522	21.734	24.956	24.131	22.898	30.752	32.141	38.833	2.45	30.782	5.86	-0.135	15.065	0.245	0	66	6.3	31.5	2.2	0.107	0.107	0.0034	3.40	2.9
74	5/19/1999	9:36:34 AM	0	25.568	21.78	25.001	24.256	22.863	31.193	32.513	39.229	2.442	30.613	5.86	-0.135	15.08	0.244	0	67	6.3	31.6	2.2	0.107	0.107	0.0034	3.37	2.9
75	5/19/1999	9:37:37 AM	0	25.613	21.825	24.966	24.301	22.667	31.476	32.327	39.016	2.37	30.917	5.86	-0.135	15.111	0.242	0	68	6.3	31.6	2.2	0.106	0.106	0.0033	3.34	2.8
76	5/19/1999	9:38:36 AM	0	25.613	21.825	24.966	24.301	22.586	31.556	32.203	38.833	2.346	30.748	5.86	-0.135	15.095	0.241	0	69	6.3	31.5	2.2	0.105	0.105	0.0033	3.35	2.8
77	5/19/1999	9:39:35 AM	0	25.613	21.825	25.046	24.301	22.345	31.794	32.668	39.29	2.418	30.68	5.829	-0.135	15.095	0.242	0	70	6.3	31.7	2.2	0.106	0.106	0.0033	3.33	2.8
78	5/19/1999	9:40:36 AM	0	25.693	21.825	24.966	24.221	22.265	31.794	32.358	38.894	2.394	30.985	5.86	-0.135	15.126	0.242	0	71	6.3	31.7	2.2	0.106	0.106	0.0033	3.34	2.8
79	5/19/1999	9:41:35 AM	0	25.613	21.825	25.046	24.221	22.265	31.873	33.04	39.87	2.458	30.951	5.89	-0.135	15.034	0.241	0	72	6.2	32.0	2.2	0.105	0.105	0.0033	3.28	2.8
80	5/19/1999	9:42:36 AM	0	25.568	21.78	25.001	24.096	22.058	31.907	32.389	39.107	2.41	31.154	5.89	-0.135	15.049	0.24	0	73	6.2	31.8	2.2	0.105	0.105	0.0033	3.30	2.8
81	5/19/1999	9:43:39 AM	0	25.693	21.825	25.046	24.141	22.104	31.952	32.947	39.656	2.41	31.323	5.921	-0.135	15.065	0.24	0	74	6.3	32.1	2.2	0.105	0.105	0.0033	3.26	2.8

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.05

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/19/1999	9:44:36 AM	0	25.693	21.906	25.127	24.061	22.023	32.111	32.916	39.595	2.465	31.424	5.89	-0.135	14.957	0.24	0	75	6.2	32.2	2.2	0.105	0.104	0.0032	3.25	2.8
83	5/19/1999	9:45:35 AM	0	25.728	21.86	25.061	23.935	21.978	31.987	32.575	39.229	2.426	31.864	5.89	-0.135	15.003	0.24	0	76	6.2	32.2	2.2	0.105	0.105	0.0032	3.24	2.8
84	5/19/1999	9:46:41 AM	0	25.773	21.906	25.127	23.98	22.023	31.952	32.668	39.351	2.41	31.357	5.89	-0.135	14.988	0.238	0	77	6.2	32.0	2.2	0.104	0.104	0.0032	3.23	2.8
85	5/19/1999	9:47:35 AM	0	25.648	21.86	25.061	23.935	21.978	32.066	33.071	39.717	2.434	31.255	5.86	-0.135	14.988	0.237	0	78	6.2	32.2	2.2	0.103	0.103	0.0032	3.21	2.7
86	5/19/1999	9:48:37 AM	0	25.773	21.906	25.127	23.98	22.023	32.19	33.133	39.809	2.458	31.424	5.86	-0.135	15.003	0.237	0	79	6.2	32.3	2.2	0.103	0.103	0.0032	3.19	2.7
87	5/19/1999	9:49:36 AM	0	25.728	21.941	25.161	23.935	21.978	32.145	32.823	39.473	2.378	31.289	5.86	-0.135	14.957	0.238	0	80	6.2	32.1	2.2	0.104	0.103	0.0032	3.23	2.7
88	5/19/1999	9:50:35 AM	0	25.763	21.815	25.116	23.89	21.852	32.101	32.978	39.595	2.386	31.424	5.86	-0.135	14.988	0.234	0	81	6.2	32.2	2.2	0.102	0.102	0.0032	3.16	2.7
89	5/19/1999	9:51:40 AM	0	25.683	21.815	25.116	23.729	21.852	31.942	33.474	40.296	2.577	31.39	5.829	-0.135	14.988	0.237	0	82	6.2	32.4	2.2	0.103	0.103	0.0032	3.18	2.7
90	5/19/1999	9:52:37 AM	0	25.763	21.895	25.196	23.81	21.933	31.625	33.04	39.717	2.434	31.154	5.86	-0.135	14.972	0.234	0	83	6.2	32.1	2.2	0.102	0.102	0.0032	3.17	2.7
91	5/19/1999	9:53:38 AM	0	25.763	21.895	25.116	23.81	22.094	31.466	32.823	39.382	2.314	31.357	5.86	-0.135	14.972	0.232	0	84	6.2	32.1	2.2	0.101	0.101	0.0031	3.15	2.7
92	5/19/1999	9:54:41 AM	0	25.763	21.895	25.116	23.89	22.174	31.387	32.947	39.534	2.394	31.289	5.86	-0.135	14.988	0.235	0	85	6.2	32.1	2.2	0.103	0.102	0.0032	3.18	2.7
93	5/19/1999	9:55:40 AM	0	25.763	21.895	25.116	23.81	22.335	31.307	32.978	39.595	2.394	31.323	5.86	-0.089	14.972	0.234	0	86	6.2	32.2	2.2	0.102	0.102	0.0032	3.17	2.7
94	5/19/1999	9:56:35 AM	0	25.763	21.895	25.116	23.89	22.416	31.149	32.978	39.565	2.434	31.221	5.86	-0.135	14.972	0.242	0	87	6.2	32.1	2.2	0.106	0.105	0.0033	3.28	2.8
95	5/19/1999	9:57:36 AM	0	25.763	21.976	25.196	23.97	22.496	31.069	33.443	39.961	2.458	31.323	5.798	-0.135	14.942	0.231	0	88	6.2	32.4	2.2	0.101	0.100	0.0031	3.10	2.6
96	5/19/1999	9:58:37 AM	0	25.843	21.895	25.196	24.051	22.576	31.069	32.916	39.443	2.33	31.526	5.829	-0.135	15.003	0.231	0	89	6.2	32.2	2.2	0.101	0.100	0.0031	3.11	2.6
97	5/19/1999	9:59:36 AM	0	25.763	21.895	25.196	24.051	22.576	30.99	33.257	40.022	2.585	31.526	5.798	-0.135	15.019	0.228	0	90	6.2	32.4	2.2	0.100	0.099	0.0031	3.06	2.6
98	5/19/1999	10:00:35 AM	0	25.763	21.895	25.196	24.131	22.737	30.91	32.885	39.656	2.378	31.154	5.86	-0.135	14.957	0.231	0	91	6.2	32.0	2.2	0.101	0.100	0.0031	3.13	2.7
99	5/19/1999	10:01:36 AM	0	25.763	21.895	25.196	24.211	22.737	30.91	33.071	39.778	2.354	31.188	5.829	-0.135	14.957	0.229	0	92	6.2	32.1	2.2	0.100	0.099	0.0031	3.09	2.6
100	5/19/1999	10:02:35 AM	0	25.808	21.941	25.242	24.176	22.863	30.796	33.226	40.053	2.481	31.83	5.86	-0.089	14.988	0.226	0	93	6.2	32.5	2.2	0.099	0.098	0.0030	3.01	2.6
101	5/19/1999	10:03:38 AM	0	25.808	21.941	25.161	24.256	22.943	30.876	32.916	39.595	2.473	31.593	5.86	-0.135	14.988	0.229	0	94	6.2	32.3	2.2	0.100	0.100	0.0031	3.09	2.6
102	5/19/1999	10:04:35 AM	0	25.888	21.941	25.242	24.336	23.024	30.637	32.885	39.565	2.45	31.323	5.86	-0.135	14.972	0.228	0	95	6.2	32.1	2.2	0.100	0.099	0.0031	3.08	2.6
103	5/19/1999	10:05:34 AM	0	25.853	21.966	25.287	24.382	23.069	30.603	33.35	40.113	2.513	31.255	5.86	-0.135	14.972	0.225	0	96	6.2	32.3	2.2	0.098	0.097	0.0030	3.02	2.6
104	5/19/1999	10:06:35 AM	0	25.898	21.951	25.252	24.427	23.194	30.727	33.319	39.992	2.45	31.458	5.86	-0.135	14.988	0.225	0	97	6.2	32.4	2.2	0.098	0.098	0.0030	3.01	2.6
105	5/19/1999	10:07:38 AM	0	25.853	21.906	25.207	24.382	22.908	31.238	32.823	39.504	2.442	31.424	5.86	-0.135	14.957	0.225	0.003	98	6.2	32.1	2.2	0.098	0.098	0.0030	3.04	2.6
106	5/19/1999	10:08:42 AM	0	25.898	21.951	25.252	24.427	22.712	31.442	32.668	39.26	2.362	31.255	5.86	-0.089	14.988	0.224	0	99	6.2	32.0	2.2	0.098	0.097	0.0030	3.04	2.6
107	5/19/1999	10:09:39 AM	0	25.943	21.996	25.297	24.472	22.597	31.645	33.071	39.809	2.513	31.188	5.86	-0.135	14.972	0.224	0	100	6.2	32.1	2.2	0.098	0.097	0.0030	3.02	2.6
108	5/19/1999	10:10:38 AM	0	25.943	21.996	25.377	24.392	22.677	31.883	32.823	39.595	2.362	31.221	5.89	-0.135	14.972	0.222	0	101	6.2	32.0	2.2	0.097	0.096	0.0030	2.99	2.5
109	5/19/1999	10:11:37 AM	0	25.943	21.996	25.297	24.392	22.436	31.883	33.071	39.717	2.394	31.39	5.89	-0.135	14.972	0.224	0	102	6.2	32.2	2.2	0.098	0.097	0.0030	3.01	2.6
110	5/19/1999	10:12:36 AM	0	25.943	21.996	25.297	24.231	22.355	32.042	33.133	39.87	2.505	31.39	5.89	-0.135	14.972	0.223	0	103	6.2	32.3	2.2	0.097	0.097	0.0030	2.99	2.5
111	5/19/1999	10:13:37 AM	0	25.943	21.996	25.297	24.312	22.275	31.962	33.319	40.022	2.489	31.627	5.89	-0.135	14.988	0.222	0	104	6.2	32.5	2.2	0.097	0.096	0.0030	2.96	2.5
112	5/19/1999	10:14:38 AM	0	25.943	22.077	25.297	24.312	22.195	32.042	32.823	39.626	2.402	31.526	5.89	-0.135	14.972	0.222	0	105	6.2	32.2	2.2	0.097	0.096	0.0030	2.99	2.5
113	5/19/1999	10:15:39 AM	0	25.943	22.077	25.297	24.392	22.114	32.042	33.195	39.839	2.394	31.357	5.89	-0.089	14.988	0.219	0	106	6.2	32.3	2.2	0.096	0.095	0.0029	2.94	2.5
114	5/19/1999	10:16:36 AM	0	25.943	22.077	25.297	24.312	22.195	31.962	32.761	39.321	2.33	31.323	5.921	-0.089	14.972	0.223	0	107	6.2	32.0	2.2	0.097	0.097	0.0030	3.01	2.6
115	5/19/1999	10:17:37 AM	0	25.943	22.077	25.377	24.312	22.275	32.042	33.195	39.992	2.505	31.559	5.89	-0.089	14.957	0.22	0	108	6.2	32.4	2.2	0.096	0.095	0.0029	2.93	2.5
116	5/19/1999	10:18:38 AM	0	25.978	22.032	25.332	24.186	22.471	31.997	33.071	39.809	2.426	31.154	5.89	-0.135	14.911	0.221	0	109	6.2	32.1	2.2	0.096	0.096	0.0030	2.98	2.5
117	5/19/1999	10:19:35 AM	0	25.978	22.032	25.332	24.186	22.23	32.076	32.978	39.778	2.497	31.39	5.86	-0.135	14.957	0.22	0	110	6.2	32.2	2.2	0.096	0.095	0.0030	2.96	2.5
118	5/19/1999	10:20:38 AM	0	25.978	22.032	25.332	24.106	22.471	31.918	32.978	39.656	2.41	31.221	5.86	-0.135	14.957	0.22	0	111	6.2	32.1	2.2	0.096	0.095	0.0030	2.98	2.5
119	5/19/1999	10:21:37 AM	0	26.013	22.067	25.287	24.061	22.506	32.031	21.572	34.107	2.258	20.504	11.869	-0.135	16.278	1.005	0	112	6.8	21.0	1.5	0.439	0.435	0.0207	20.69	17.6
120	5/19/1999	10:22:38 AM	0	26.058	22.112	25.332	24.026	23.034	32.155	29.569	38.924	2.098	27.942	8.448	-0.135	15.187	1.007	0	113	6.3	28.8	2.0	0.440	0.436	0.0151	15.15	12.9
121	5/19/1999	10:23:35 AM	0	26.013	22.147	25.367	24.061	22.667	32.031	29.631	38.68	2.106	27.908	8.263	-0.089	15.218	1.11	0	114	6.3	28.8	2.0	0.485	0.480	0.0167	16.87	14.2
122	5/19/1999	10:24:40 AM	0	26.093	22.067	25.287	23.98	22.747	32.19	33.04	39.077	2.098	31.424	5.274	-0.135	15.111	0.922	0	115	6.3	32.2	2.2	0.402	0.399	0.0124	12.39	10.5
123																											
124		Averages		25.6	21.8	24.9	23.9	22.4	31.4	32.5	39.1	2.4	30.8	5.8	-0.1	15.1	0.260	0.0		6.3	31.7	2.182	0.114	0.114	0.004	3.6	3.1
125		Maximum		26.0	22.1	25.4	24.5	23.2	32.2	33.5	40.3	2.6	31.9	6.0	-0.1	15.5	0.427	0.0		6.4	32.5	2.2	0.186	0.187	0.006	6.0	5.1
126		Median		25.6	21.8	25.0	23.9	22.4	31.4	32.4	39.1	2.4	30.9	5.8	-0.1	15.1	0.244	0.0		6.3	31.6	2.2	0.106	0.106	0.003	3.4	2.9
127		Minimum		25.1	21.5	24.4	23.1	21.6	30.5	31.3	37.6	2.3	29.7	5.3	-0.2	14.9	0.219	0.0		6.2	30.7	2.1	0.096	0.095	0.003	2.9	2.5
128		Std Dev		0.3	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.1	0.5	0.1	0.0	0.2	0.042	0.0		0.1	0.5	0.036	0.018	0.019	0.001	0.7	0.6
129		Number of Points Used		92	92	92	92	92	92	92	92	92	92	92	92	92	92	92		92	92	92	92	92	92	92	92



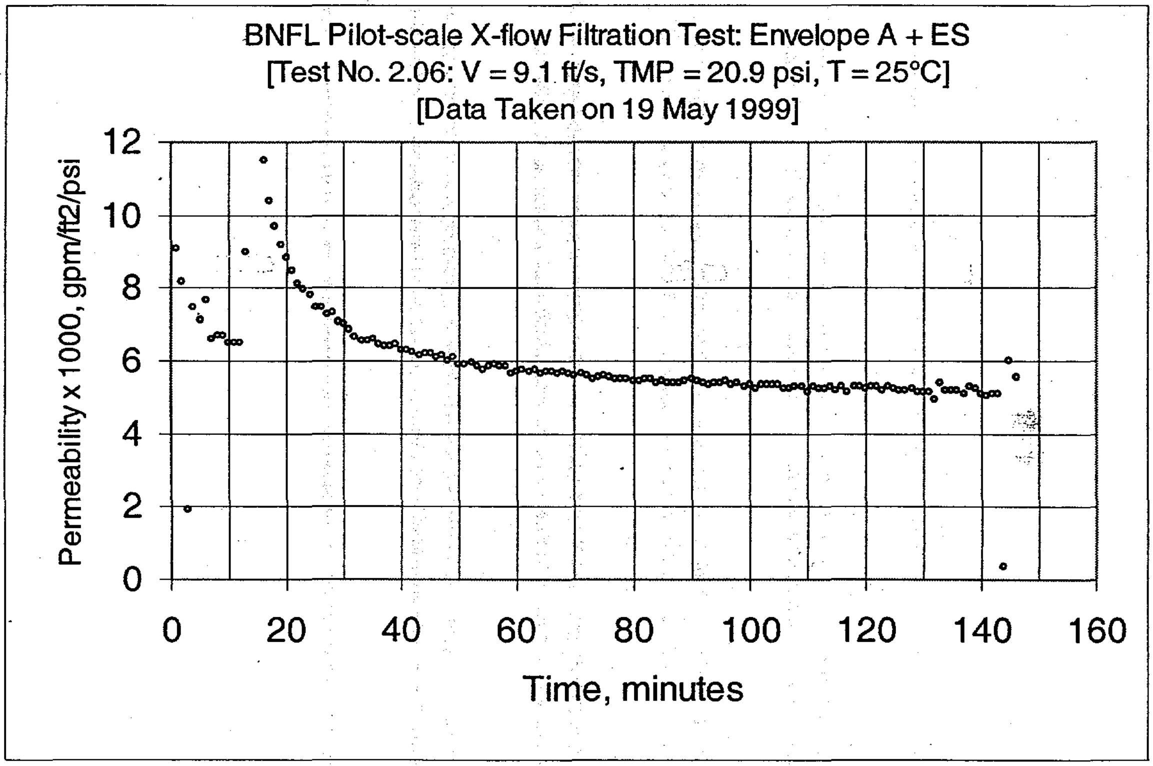


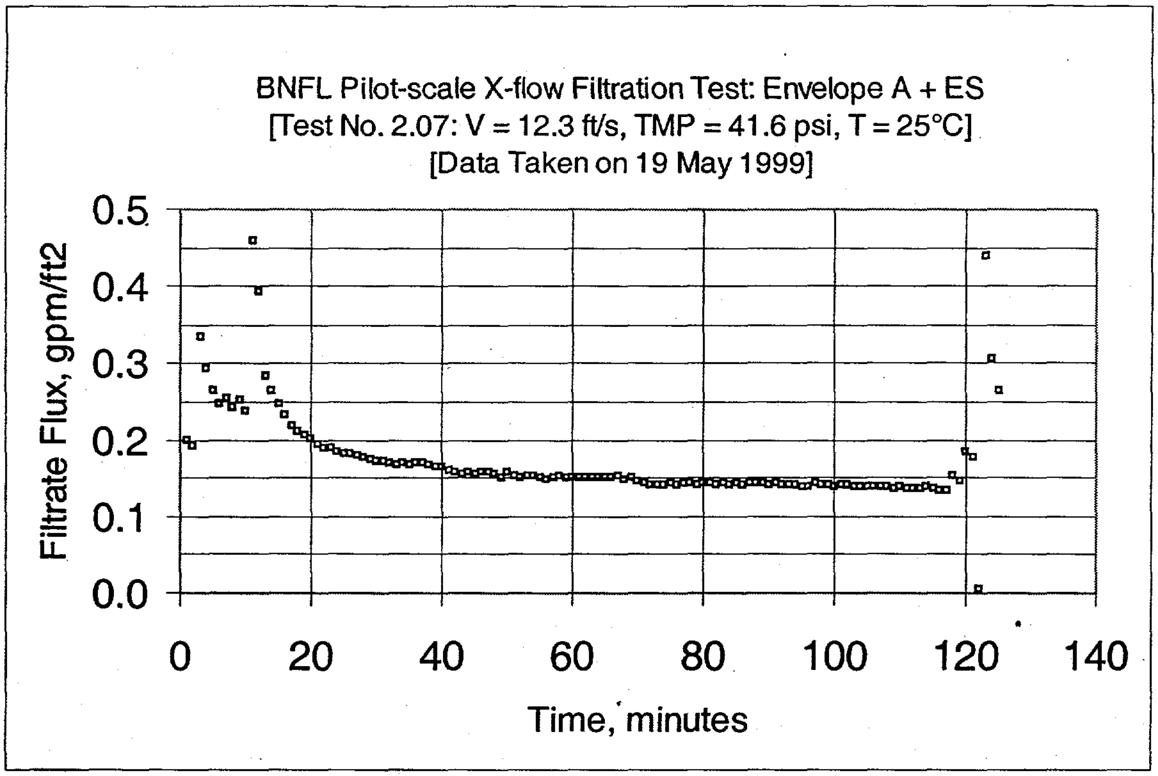
Figure B6: Test Run 2.06, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.06

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB (	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) P	PISTON (psig) P	SL FLOW (	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/19/1999	7:06:35 AM	0	22.046	21.469	20.833	21.211	21.022	30.886	0.093	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/19/1999	7:10:24 AM	0	22.046	21.469	20.914	21.292	21.022	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.06	0.012	0									
5	5/19/1999	7:11:25 AM	0	22.046	21.469	20.833	21.372	21.183	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0									
6	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
7	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB (	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) P	PISTON (psig) P	SL FLOW (	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/19/1999	10:26:33 AM	0	26.093	22.067	25.367	23.96	22.986	31.794	32.73	39.626	2.122	31.255	6.044	-0.135	14.926	0.673	0	1	6.2	32.0	2.2	0.294	0.291	0.0091	9.09	7.7
9	5/19/1999	10:27:40 AM	0	26.013	22.147	25.447	23.96	23.39	31.397	33.226	39.746	2.106	32.1	5.767	-0.089	14.865	0.618	0	2	6.2	32.7	2.3	0.270	0.266	0.0082	8.16	6.9
10	5/19/1999	10:28:37 AM	0	26.048	22.102	25.322	23.935	23.024	31.273	11.716	19.411	3.144	9.381	6.938	-0.135	19.473	0.047	0	3	8.1	10.5	0.7	0.021	0.020	0.0019	1.93	1.6
11	5/19/1999	10:29:40 AM	0	26.048	22.102	25.402	24.015	22.943	31.114	19.836	30.174	2.713	17.833	9.65	-0.089	17.364	0.326	0	4	7.2	18.8	1.3	0.142	0.141	0.0075	7.47	6.4
12	5/19/1999	10:30:35 AM	0	26.093	22.147	25.447	24.141	22.986	31.159	27.895	36.559	3.279	25.339	10.02	-0.135	19.642	0.438	0	5	8.2	26.6	1.8	0.191	0.189	0.0071	7.09	6.0
13	5/19/1999	10:31:36 AM	0	26.013	22.147	25.447	24.141	23.069	31	24.114	33.314	3.562	21.214	8.417	-0.089	21.04	0.402	0.003	6	8.7	22.7	1.6	0.175	0.173	0.0076	7.65	6.5
14	5/19/1999	10:32:37 AM	0	26.013	22.147	25.447	24.221	23.069	30.92	23.277	29.839	4.141	19.963	5.736	-0.135	22.499	0.332	0	7	9.3	21.6	1.5	0.145	0.143	0.0066	6.62	5.6
15	5/19/1999	10:33:36 AM	0	25.933	22.147	25.447	24.301	23.149	30.682	21.386	28.04	4.117	18.104	5.921	-0.135	22.821	0.308	0	8	9.5	19.7	1.4	0.134	0.133	0.0067	6.72	5.7
16	5/19/1999	10:34:35 AM	0	26.013	22.147	25.447	24.382	23.31	30.841	21.851	28.71	4.189	18.205	6.108	-0.135	23.297	0.311	0	9	9.7	20.0	1.4	0.136	0.134	0.0067	6.69	5.7
17	5/19/1999	10:35:34 AM	0	26.058	22.193	25.492	24.507	23.435	30.647	19.836	26.18	4.348	16.244	5.675	-0.089	22.944	0.272	0.003	10	9.5	18.0	1.2	0.119	0.117	0.0065	6.49	5.5
18	5/19/1999	10:36:39 AM	0	26.023	22.157	25.457	24.713	23.481	30.692	20.704	26.07	4.061	16.653	6.538	-0.089	22.36	0.284	0	11	9.3	18.8	1.3	0.124	0.122	0.0065	6.52	5.5
19	5/19/1999	10:37:38 AM	0	26.023	22.238	25.537	24.713	23.641	30.533	21.324	26.893	4.005	17.901	6.815	-0.135	22.192	0.296	0	12	9.2	19.6	1.4	0.129	0.127	0.0065	6.49	5.5
20	5/19/1999	10:38:35 AM	0	26.023	22.157	25.457	24.793	23.641	30.851	21.944	28.68	3.989	18.645	5.829	-0.135	22.284	0.422	0	13	9.2	20.3	1.4	0.184	0.182	0.0090	8.96	7.6
21	5/19/1999	10:39:38 AM	0	26.068	22.203	25.582	24.838	23.446	31.293	28.763	38.04	2.978	26.522	8.541	-0.135	19.411	1.133	0	14	8.1	27.6	1.9	0.495	0.487	0.0176	17.60	15.0
22	5/19/1999	10:40:37 AM	0	26.068	22.203	25.502	24.838	23.446	31.293	23.604	31.056	3.596	21.147	6.476	-0.089	21.546	0.674	0	15	8.9	22.5	1.5	0.294	0.290	0.0129	12.91	11.0
23	5/19/1999	10:41:39 AM	0	26.113	22.248	25.547	24.803	23.33	31.496	22.502	29.259	3.535	19.896	5.952	-0.089	21.823	0.566	0	16	9.1	21.2	1.5	0.247	0.243	0.0115	11.46	9.8
24	5/19/1999	10:42:38 AM	0	26.113	22.329	25.547	24.803	23.25	31.576	21.572	28.253	3.734	18.746	5.86	-0.135	22.176	0.487	0	17	9.2	20.2	1.4	0.213	0.209	0.0104	10.39	8.8
25	5/19/1999	10:43:37 AM	0	26.033	22.248	25.467	24.723	23.25	31.356	22.223	28.632	3.806	19.152	5.796	-0.089	22.161	0.466	0	18	9.2	20.7	1.4	0.203	0.201	0.0097	9.71	8.3
26	5/19/1999	10:44:44 AM	0	26.033	22.248	25.467	24.723	22.929	31.735	21.975	28.627	3.846	19.152	5.796	-0.089	22.222	0.438	0	19	9.2	20.6	1.4	0.191	0.189	0.0092	9.16	7.8
27	5/19/1999	10:45:35 AM	0	26.033	22.248	25.547	24.723	22.848	31.655	22.068	28.68	3.87	18.78	5.767	-0.089	22.207	0.42	0	20	9.2	20.4	1.4	0.183	0.181	0.0088	8.84	7.5
28	5/19/1999	10:46:36 AM	0	26.079	22.294	25.593	24.688	22.733	31.859	22.006	28.741	3.75	19.064	5.829	-0.089	22.192	0.405	0	21	9.2	20.5	1.4	0.177	0.174	0.0085	8.46	7.2
29	5/19/1999	10:47:35 AM	0	26.159	22.374	25.593	24.528	22.733	31.938	22.347	29.076	3.942	19.084	5.829	-0.089	22.145	0.392	0	22	9.2	20.7	1.4	0.171	0.168	0.0081	8.12	6.9
30	5/19/1999	10:48:40 AM	0	26.033	22.248	25.467	24.482	22.688	31.735	22.223	28.924	3.814	18.645	5.796	-0.089	22.13	0.378	0	23	9.2	20.4	1.4	0.165	0.163	0.0080	7.97	6.8
31	5/19/1999	10:49:41 AM	0	26.113	22.329	25.547	24.482	22.688	31.814	21.851	28.497	3.862	18.983	5.86	-0.089	22.13	0.37	0	24	9.2	20.4	1.4	0.162	0.159	0.0078	7.79	6.6
32	5/19/1999	10:50:38 AM	0	26.033	22.329	25.387	24.563	22.688	31.814	22.285	29.076	4.013	19.369	5.86	-0.089	22.038	0.36	0	25	9.1	20.8	1.4	0.157	0.155	0.0075	7.46	6.3
33	5/19/1999	10:51:37 AM	0	25.999	22.374	25.433	24.528	22.733	32.017	21.913	28.558	3.87	18.746	5.86	-0.089	22.069	0.352	0	26	9.2	20.3	1.4	0.154	0.152	0.0075	7.47	6.4
34	5/19/1999	10:52:36 AM	0	26.079	22.374	25.352	24.528	22.572	32.017	21.882	28.71	3.981	19.219	5.86	-0.135	22.069	0.346	0	27	9.2	20.6	1.4	0.151	0.150	0.0073	7.28	6.2
35	5/19/1999	10:53:35 AM	0	25.873	22.329	25.227	24.402	22.527	31.972	21.82	28.375	3.79	19.118	5.675	-0.089	22.084	0.345	0	28	9.2	20.5	1.4	0.151	0.150	0.0073	7.31	6.2
36	5/19/1999	10:54:36 AM	0	25.873	22.329	25.147	24.482	22.527	32.052	22.099	28.924	3.87	18.78	5.829	-0.089	22.115	0.333	0	29	9.2	20.4	1.4	0.145	0.145	0.0071	7.06	6.0
37	5/19/1999	10:55:35 AM	0	25.838	22.374	25.112	24.528	22.572	32.017	22.192	28.954	3.646	19.084	6.014	-0.089	21.976	0.333	0	30	9.1	20.6	1.4	0.145	0.145	0.0070	7.02	6.0
38	5/19/1999	10:56:38 AM	0	25.838	22.374	25.112	24.528	22.492	32.176	22.502	29.29	3.782	19.287	5.952	-0.089	21.93	0.33	0	31	9.1	20.9	1.4	0.144	0.144	0.0069	6.87	5.8
39	5/19/1999	10:57:35 AM	0	25.838	22.374	25.112	24.528	22.411	32.176	22.502	29.137	3.91	19.05	5.829	-0.089	22.023	0.318	0	32	9.1	20.8	1.4	0.139	0.138	0.0067	6.66	5.7
40	5/19/1999	10:58:40 AM	0	25.713	22.329	25.067	24.563	22.366	32.052	22.533	29.29	3.846	19.355	5.921	-0.089	22.053	0.316	0	33	9.2	20.9	1.4	0.138	0.138	0.0066	6.57	5.6
41	5/19/1999	10:59:37 AM	0	25.713	22.329	24.987	24.482	22.446	32.131	22.223	28.863	3.796	19.05	5.921	-0.135	21.946	0.31	0	34	9.1	20.6	1.4	0.135	0.135	0.0066	6.56	5.6
42	5/19/1999	11:00:34 AM	0	25.713	22.329	24.987	24.563	22.366	32.052	22.161	28.924	3.854	18.915	5.952	-0.089	22.007	0.31	0	35	9.1	20.5	1.4	0.135	0.135	0.0066	6.59	5.6
43	5/19/1999	11:01:39 AM	0	25.633	22.409	24.907	24.563	22.446	32.052	22.378	29.188	3.894	19.186	5.952	-0.135	22.053	0.306	0	36	9.2	20.8	1.4	0.134	0.134	0.0064	6.44	5.5
44	5/19/1999	11:02:41 AM	0	25.588	22.364	24.862	24.437	22.401	31.848	22.13	28.863	4.005	19.287	5.921	-0.089	22.023	0.303	0	37	9.1	20.7	1.4	0.132	0.133	0.0064	6.41	5.5
45	5/19/1999	11:03:37 AM	0	25.508	22.364	24.781	24.517	22.401	31.928	21.851	28.619	3.878	19.118	5.952	-0.135	22.023	0.299	0	38	9.1	20.5	1.4	0.131	0.131	0.0064	6.41	5.5
46	5/19/1999	11:04:36 AM	0	25.508	22.364	24.781	24.437	22.32	32.007	21.603	28.375	3.71	18.881	5.952	-0.135	22.069	0.297	0	39	9.2	20.2	1.4	0.130	0.130	0.0064	6.44	5.5
47	5/19/1999	11:05:40 AM	0	25.463	22.318	24.736	24.472	22.275	31.962	21.944	28.71	3.75	18.746	5.952	-0.089	21.976	0.292	0	40	9.1	20.3	1.4	0.127	0.128	0.0063	6.31	5.4
48	5/19/1999	11:06:39 AM	0	25.428	22.444	24.701	24.437	22.401	31.769	21.913	28.741	3.878	18.983	6.014	-0.089	22.053	0.292	0	41	9.2	20.4	1.4	0.127	0.129	0.0063	6.29	5.3
49	5/19/1999	11:07:42 AM	0	25.383	22.399	24.736	24.392	22.436	31.486	22.099	28.954	3.926	18.846	5.983	-0.089	22.053	0.291	0	42	9.2	20.5	1.4	0.127	0.128	0.0063	6.25	5.3
50	5/19/1999	11:08:37 AM	0	25.383	22.399	24.656	24.472	22.597	31.326	22.533	29.32	4.045	18.983	5.983	-0.089	22.023	0.29	0	43	9.1	20.8	1.4	0.127	0.128	0.0062	6.16	5.2
51	5/19/1999	11:09:36 AM	0	25.303	22.399	24.656	24.392	22.677	31.169	22.037	28.771	3.774	18.679	5.983	-0.089	22.038	0.287	0	44	9.1	20.4	1.4	0.125	0.127	0.0062	6.21	5.3
52	5/19/1999	11:10:37 AM	0	25.303	22.399	24.656	24.472	22.838	31.069	22.006	28.71	3.678	18.949	5.983	-0.089	22.007	0.287	0	45	9.1	20.5	1.4	0.125	0.127	0.0062	6.18	5.3
53	5/19/1999	11:11:38 AM	0	25.222	22.399	24.656	24.552	22.999	31.01	21.851	28.71	3.782	18.915	6.014	-0.089	22.053	0.283	0	46	9.2	20.4	1.4	0.124	0.125	0.0061	6.12	5.2
54	5/19/1999	11:12:35 AM	0	25.303	22.399	24.576	24.632	23.079	30.851	21.975	28.741	3.806	18.814	5.983	-0.089	22.023	0.283	0	47	9.1	20.4	1.4	0.124	0.125	0.0061	6.13	5.2
55	5/19/1999	11:13:36 AM	0	25.222	22.399	24.576	24.632	23.159	30.651	22.316	29.107	3.965	19.017	5.983	-0.089	22.053	0.281	0	48	9.2	20.7	1.4	0.123	0.124	0.0060	6.01	5.1
56	5/19/1999	11:14:37 AM	0	25.268	22.444	24.621	24.758	23.285	30.617	22.006	28.741	3.654	18.814	5.983	-0.089	22.007	0.282	0	49	9.1	20.4	1.4	0.123	0.124	0.0061	6.10	5.2
57	5/19/1999	11:15:42 AM	0	25.187	22.444	24.621	24.838	23.446	30.817	22.595	29.442	4.037	18.983	5.983	-0.089	22.023	0.277	0.003	50	9.1	20.8	1.4	0.121	0.122	0.0059	5.88	5.0
58	5/19/1999	11:16:37 AM	0	25.187	22.444	24.641	24.998	23.446	30.578	22.626	29.564	3.902	19.727	6.168	-0.089	21.823	0.263	0	51	9.1	21.2	1.5	0.124	0.125	0.0059	5.91	5.0
59	5/19/1999	11:17:36 AM	0	25.233	22.409	24.586	25.044	23.571	30.782	22.595	29.595	3.878	19.693	6.137	-0.089	21.823	0.265	0	52	9.1	21.1	1.5	0.124	0.126	0.0060	5.95	5.1
60	5/19/1999	11:18:35 AM	0	25.153	22.49	24.586	25.044	23.411	30.941	22.564	29.564	3.734	19.49	6.137	-0.089	21.838	0.278	0.003	53	9.1	21.0	1.4	0.121	0.123	0.0058	5.84	5.0
61	5/19/1999	11:19:36 AM	0	25.153	22.409	24.506	24.963	23.25	31.179	22.409	29.259	3.926	19.186	5.952	-0.089	21.992	0.27	0	54	9.1	20.8	1.4	0.118	0.120	0.0057	5.75	4.9
62	5/19/1999	11:20:35 AM	0	25.198	22.455	24.551	25.009	23.054	31.541	22.161	28.954	3.798	18.78	5.952	-0.089	22.007	0.271	0	55	9.1	20.5	1.4	0.118	0.120	0.0059	5.65	5.0
63	5/19/1999	11:21:40 AM	0	25.198	22.455	24.551	25.009	22.974	31.7	22.161	28.832	3.934	19.084	5.952	-0.089	21.961	0.275	0	56	9.1	20.6	1.4	0.120	0.122	0.0059	5.90	5.0
64	5/19/1999	11:22:35 AM	0	25.118	22.455	24.551	24.929	22.813	31.938	22.378	29.076	3.934	18.949	5.983	-0.089	22.023	0.273	0	57	9.1	20.7	1.4	0.119	0.121	0.0058	5.84	5.0
65	5/19/1999	11:23:34 AM	0	25.118	22.455	24.551	24.768	22.813	31.659	22.13	28.832	3.798	18.983	5.983	-0.089	21.976	0.272	0	58	9.1	20.8	1.4	0.119	0.120	0.0058	5.65	5.0
66	5/19/1999	11:24:35 AM	0	25.163	22.5	24.516	24.813	22.698	31.624	22.347	29.137	3.878	18.78	5.983	-0.089	21.961	0.262	0	59	9.1	20.6	1.4	0.114	0.116	0.0056	5.64	4.8
67	5/19/1999	11:25:36 AM	0	25.163	22.5	24.516	24.733	22.659	31.903	22.192	29.076	3.973	19.186	5.983	-0.089	22.023	0.266	0	60	9.1	20.7	1.4	0.116	0.118	0.0057	5.69	4.8
68	5/19/1999	11:26:37 AM	0	25.118	22.455	24.471	24.688	22.572	32.017	22.223	29.107	3.989	19.017	6.014	-0.089	22.023	0.268	0	61	9.1	20.6	1.4	0.117	0.119	0.0058	5.76	4.9
69	5/19/1999	11:27:36 AM	0	25.083	22.5	24.436	24.813	22.698	31.983	22.626	29.564	4.037	19.186	6.014	-0.089	22.023	0.268	0	62	9.1	20.9	1.4	0.117	0.119	0.0057	5.69	4.8
70	5/19/1999	11:28:37 AM	0	25.083	22.581	24.516	24.813	22.618	32.141	22.068	28.985	3.854	19.084	6.014	-0.089	21.992	0.267	0	63	9.1	20.6	1.4	0.117	0.118	0.0057	5.74	4.9
71	5/19/1999	11:29:34 AM	0	25.083	22.5	24.356	24.653	22.537	31.983	22.223	29.046	3.862	19.186	6.014	-0.089	22.038	0.263	0	64	9.1	20.7	1.4	0.115	0.117	0.0056	5.65	4.8
72	5/19/1999	11:30:36 AM	0	25.038	22.535	24.471	24.608	22.492	32.096	21.913	28.832	3.902	18.983	6.014	-0.089	21.976	0.264	0	65	9.1	20.4	1.4	0.115	0.117	0.0057	5.72	4.9
73	5/19/1999	11:31:37 AM	0	25.038	22.455	24.391	24.608	22.492	32.096	22.502	29.381	3.981	18.577	6.044	-0.089	21.946	0.264	0	66	9.1	20.5	1.4	0.115	0.117	0.0057	5.71	4.9
74	5/19/1999	11:32:36 AM	0	25.038	22.535	24.391	24.688	22.492	32.096	22.316	29.198	4.029	19.084	6.044	-0.089	22.023	0.263	0	67	9.1	20.7	1.4	0.115	0.117	0.0056	5.64	4.8
75	5/19/1999	11:33:37 AM	0	25.038	22.535	24.391	24.688	22.492	32.096	21.975	28.832	3.91	19.017	6.044	-0.089	21.976	0.262	0	68	9.1	20.5	1.4	0.114	0.116	0.0057	5.68	4.8
76	5/19/1999	11:34:36 AM	0	25.038	22.535	24.391	24.688	22.492	32.017	21.944	28.741	3.854	19.152	6.014	-0.089	22.007	0.261	0	69	9.1	20.5	1.4	0.114	0.116	0.0056	5.64	4.8
77	5/19/1999	11:35:37 AM	0	25.038	22.535	24.391	24.688	22.572	32.017	22.44	29.32	4.029	19.152	6.014	-0.089	21.961	0.262	0	70	9.1	20.8	1.4	0.114	0.116	0.0056	5.60	4.8
78	5/19/1999	11:36:40 AM	0	25.038	22.616	24.391	24.608	22.492	32.176	21.789	28.741	3.846	19.389	6.044	-0.089	22.023	0.261	0	71	9.1	20.6	1.4	0.114	0.116	0.0056	5.63	4.8
79	5/19/1999	11:37:35 AM	0	24.992	22.49	24.346	24.643	22.366	32.21	22.265	29.107	3.942	19.152	6.108	-0.089	21.915	0.261	0	72	9.1	20.7	1.4	0.114	0.116	0.0056	5.60	4.8
80	5/19/1999	11:38:36 AM	0	24.992	22.57	24.346	24.563	22.366	32.052	22.471	29.32	4.077	19.118	6.014	-0.089	21.946	0.258	0	73	9.1	20.8	1.4	0.113	0.115	0.0055	5.52	4.7
81	5/19/1999	11:39:39 AM	0	24.992	22.57	24.346	24.563	22.366	31.972	22.192	29.046	3.902	19.084	6.014	-0.089	21.992	0.258	0	74	9.1	20.6	1.4	0.113	0.115	0.0056	5.56	4.7
82	5/19/1999	11:40:38 AM	0	24.992	22.651	24.346	24.563	22.366	32.131	21.975	28.71	3.758	18.915	6.044	-0.135	21.946	0.258	0	75	9.1	20.4	1.4	0.113	0.115	0.0056	5.61	4.8
83	5/19/1999	11:41:37 AM	0	24.947	22.525	24.3	24.437	22.24	32.086	22.223	29.198	3.814	19.287	6.137	-0.089	21.946	0.259	0	76	9.1	20.8	1.4	0.113	0.115	0.0056	5.56	4.7

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.06

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
84	5/19/1999	11:42:36 AM	0	24.947	22.605	24.3	24.437	22.32	32.007	22.533	29.686	4.013	19.558	6.106	-0.089	21.9	0.259	0	77	9.1	21.0	1.5	0.113	0.115	0.0055	5.48	4.7
85	5/19/1999	11:43:35 AM	0	24.947	22.605	24.3	24.437	22.401	32.007	22.471	29.442	3.91	19.456	6.106	-0.089	21.869	0.258	0	78	9.1	21.0	1.4	0.113	0.115	0.0055	5.48	4.7
86	5/19/1999	11:44:36 AM	0	24.947	22.605	24.3	24.517	22.401	32.007	22.533	29.442	3.846	19.389	6.106	-0.089	21.9	0.258	0	79	9.1	21.0	1.4	0.113	0.115	0.0055	5.48	4.7
87	5/19/1999	11:45:37 AM	0	24.947	22.605	24.3	24.517	22.401	32.007	22.843	29.839	4.005	19.49	6.106	-0.089	21.869	0.259	0	80	9.1	21.2	1.5	0.113	0.115	0.0054	5.45	4.6
88	5/19/1999	11:46:34 AM	0	24.822	22.64	24.255	24.552	22.355	31.962	22.933	29.96	4.045	19.591	6.106	-0.089	21.854	0.259	0	81	9.1	21.3	1.5	0.113	0.115	0.0054	5.43	4.6
89	5/19/1999	11:47:39 AM	0	24.902	22.56	24.335	24.552	22.355	31.962	22.75	29.717	3.918	19.49	6.106	-0.089	21.946	0.26	0	82	9.1	21.1	1.5	0.114	0.116	0.0055	5.48	4.7
90	5/19/1999	11:48:40 AM	0	24.902	22.64	24.416	24.552	22.275	32.121	22.378	29.259	3.902	19.219	6.137	-0.089	21.884	0.258	0	83	9.1	20.8	1.4	0.113	0.114	0.0055	5.51	4.7
91	5/19/1999	11:49:35 AM	0	24.937	22.595	24.451	24.587	22.31	31.6	22.68	29.778	3.942	19.558	6.137	-0.089	21.9	0.258	0	84	9.1	21.1	1.5	0.113	0.114	0.0054	5.42	4.6
92	5/19/1999	11:50:36 AM	0	24.937	22.595	24.531	24.667	22.551	31.283	22.719	29.778	3.894	19.219	6.137	-0.089	21.9	0.259	0	85	9.1	21.0	1.4	0.113	0.115	0.0055	5.46	4.6
93	5/19/1999	11:51:37 AM	0	25.017	22.595	24.531	24.667	22.712	31.124	22.688	29.564	3.902	19.253	6.137	-0.089	21.884	0.256	0	86	9.1	21.0	1.4	0.112	0.113	0.0054	5.40	4.6
94	5/19/1999	11:52:36 AM	0	25.097	22.595	24.691	24.667	22.873	30.965	22.564	29.686	3.894	19.794	6.199	-0.089	21.823	0.259	0	87	9.1	21.2	1.5	0.113	0.114	0.0054	5.39	4.6
95	5/19/1999	11:53:37 AM	0	25.177	22.595	24.771	24.748	23.034	30.806	22.874	29.869	3.934	19.321	6.168	-0.089	21.9	0.258	0	88	9.1	21.1	1.5	0.113	0.113	0.0054	5.37	4.6
96	5/19/1999	11:54:41 AM	0	25.177	22.595	24.851	24.828	23.194	30.647	22.316	29.229	3.71	19.287	6.168	-0.089	21.884	0.259	0	89	9.1	20.8	1.4	0.113	0.114	0.0055	5.46	4.6
97	5/19/1999	11:55:35 AM	0	25.257	22.675	24.851	24.988	23.275	30.568	22.285	29.198	3.886	19.152	6.168	-0.089	21.854	0.259	0.003	90	9.1	20.7	1.4	0.113	0.114	0.0055	5.48	4.7
98	5/19/1999	11:56:43 AM	0	25.383	22.64	24.977	24.953	23.4	30.533	22.44	29.473	3.782	19.186	6.168	-0.089	21.93	0.26	0	91	9.1	20.8	1.4	0.114	0.114	0.0055	5.46	4.6
99	5/19/1999	11:57:36 AM	0	25.383	22.64	24.977	25.033	23.561	30.533	21.975	29.046	3.79	19.321	6.168	-0.089	21.838	0.256	0	92	9.1	20.6	1.4	0.112	0.112	0.0054	5.42	4.6
100	5/19/1999	11:58:35 AM	0	25.463	22.64	25.057	25.033	23.561	30.533	22.874	29.96	3.902	19.219	6.168	-0.089	21.915	0.257	0	93	9.1	21.0	1.5	0.112	0.112	0.0053	5.32	4.5
101	5/19/1999	11:59:38 AM	0	25.508	22.605	25.182	25.159	23.606	30.817	22.595	29.534	3.91	19.253	6.168	-0.089	21.946	0.259	0	94	9.1	20.9	1.4	0.113	0.112	0.0054	5.38	4.6
102	5/19/1999	12:00:35 PM	0	25.553	22.651	25.227	25.204	23.491	31.1	22.192	29.259	3.902	19.355	6.137	-0.089	21.884	0.259	0	95	9.1	20.8	1.4	0.113	0.112	0.0054	5.41	4.6
103	5/19/1999	12:01:38 PM	0	25.713	22.731	25.227	25.204	23.33	31.338	22.471	29.503	3.926	19.287	6.199	-0.042	21.9	0.261	0	96	9.1	20.9	1.4	0.114	0.113	0.0054	5.42	4.6
104	5/19/1999	12:02:35 PM	0	25.633	22.651	25.227	25.044	23.17	31.496	22.719	29.839	3.942	19.49	6.168	-0.089	21.854	0.259	0	97	9.1	21.1	1.5	0.113	0.112	0.0053	5.32	4.5
105	5/19/1999	12:03:36 PM	0	25.713	22.651	25.307	25.044	23.009	31.576	22.409	29.381	3.838	19.05	6.168	-0.089	21.915	0.258	0	98	9.1	20.7	1.4	0.113	0.112	0.0054	5.39	4.6
106	5/19/1999	12:04:35 PM	0	25.713	22.651	25.387	25.044	22.929	31.735	22.781	29.991	3.75	19.659	6.291	-0.089	21.823	0.261	0	99	9.1	21.2	1.5	0.114	0.113	0.0053	5.31	4.5
107	5/19/1999	12:05:36 PM	0	25.838	22.696	25.433	25.009	22.894	31.7	22.471	29.473	3.91	19.321	6.199	-0.089	21.976	0.259	0	100	9.1	20.9	1.4	0.113	0.112	0.0053	5.35	4.5
108	5/19/1999	12:06:35 PM	0	25.918	22.696	25.433	24.848	22.894	31.859	22.533	29.442	3.902	19.389	6.168	-0.089	21.93	0.256	0	101	9.1	21.0	1.4	0.112	0.110	0.0053	5.27	4.5
109	5/19/1999	12:07:36 PM	0	25.918	22.696	25.433	24.848	22.733	31.859	22.254	29.229	3.782	19.287	6.168	-0.089	21.869	0.258	0	102	9.1	20.8	1.4	0.113	0.111	0.0054	5.36	4.6
110	5/19/1999	12:08:37 PM	0	25.918	22.696	25.433	24.848	22.733	32.017	22.471	29.442	3.902	19.355	6.168	-0.089	21.915	0.258	0	103	9.1	20.9	1.4	0.113	0.111	0.0053	5.32	4.5
111	5/19/1999	12:09:36 PM	0	25.918	22.696	25.352	24.848	22.572	32.017	22.471	29.503	3.774	19.219	6.137	-0.089	21.93	0.258	0	104	9.1	20.8	1.4	0.113	0.112	0.0053	5.35	4.6
112	5/19/1999	12:10:39 PM	0	25.873	22.651	25.307	24.803	22.607	31.972	22.502	29.381	3.854	19.287	6.137	-0.089	21.93	0.258	0	105	9.1	20.9	1.4	0.113	0.112	0.0053	5.34	4.5
113	5/19/1999	12:11:36 PM	0	25.918	22.696	25.352	24.768	22.572	31.938	22.75	29.808	3.902	19.625	6.168	-0.089	21.93	0.257	0	106	9.1	21.2	1.5	0.112	0.111	0.0052	5.24	4.5
114	5/19/1999	12:12:37 PM	0	25.838	22.696	25.352	24.848	22.652	32.176	22.378	29.259	3.838	19.693	6.137	-0.089	21.961	0.256	0	107	9.1	21.0	1.5	0.112	0.111	0.0053	5.26	4.5
115	5/19/1999	12:13:36 PM	0	25.838	22.776	25.352	24.768	22.652	32.017	22.564	29.625	3.957	19.369	6.137	-0.042	21.915	0.256	0	108	9.1	21.0	1.4	0.112	0.111	0.0053	5.28	4.5
116	5/19/1999	12:14:35 PM	0	25.838	22.696	25.272	24.688	22.652	31.938	22.347	29.29	3.806	19.369	6.106	-0.089	21.9	0.254	0	109	9.1	20.9	1.4	0.111	0.110	0.0053	5.27	4.5
117	5/19/1999	12:15:36 PM	0	25.838	22.776	25.272	24.768	22.572	32.017	22.998	29.98	4.061	19.76	6.137	-0.089	21.869	0.255	0	110	9.1	21.4	1.5	0.111	0.110	0.0052	5.17	4.4
118	5/19/1999	12:16:37 PM	0	25.838	22.776	25.272	24.688	22.652	32.017	22.285	29.381	3.846	19.287	6.106	-0.089	21.9	0.254	0	111	9.1	20.8	1.4	0.111	0.110	0.0053	5.29	4.5
119	5/19/1999	12:17:34 PM	0	25.793	22.651	25.147	24.723	22.607	31.893	22.812	29.869	3.981	19.355	6.106	-0.042	21.93	0.255	0	112	9.1	21.1	1.5	0.111	0.111	0.0053	5.26	4.5
120	5/19/1999	12:18:42 PM	0	25.793	22.731	25.147	24.723	22.688	31.814	22.564	29.473	3.862	19.422	6.106	-0.089	21.915	0.253	0	113	9.1	21.0	1.4	0.110	0.110	0.0052	5.24	4.5
121	5/19/1999	12:19:34 PM	0	25.793	22.731	25.067	24.803	22.768	31.814	22.254	29.229	3.734	19.369	6.106	-0.089	21.93	0.254	0	114	9.1	20.8	1.4	0.111	0.111	0.0053	5.32	4.5
122	5/19/1999	12:20:40 PM	0	25.793	22.811	25.147	24.723	22.688	31.814	22.626	29.564	4.013	19.591	6.075	-0.089	21.93	0.252	0	115	9.1	21.1	1.5	0.110	0.110	0.0052	5.19	4.4
123	5/19/1999	12:21:34 PM	0	25.793	22.731	25.147	24.803	22.607	31.972	22.502	29.381	3.766	19.355	6.075	-0.089	21.869	0.255	0	116	9.1	20.9	1.4	0.111	0.111	0.0053	5.30	4.5
124	5/19/1999	12:22:40 PM	0	25.748	22.686	25.022	24.678	22.562	32.086	22.719	29.534	3.894	19.422	6.075	-0.089	21.869	0.249	0	117	9.1	21.1	1.5	0.109	0.109	0.0052	5.16	4.4
125	5/19/1999	12:23:43 PM	0	25.748	22.766	25.022	24.758	22.481	31.848	22.564	29.534	3.965	19.287	6.075	-0.089	21.9	0.255	0	118	9.1	20.9	1.4	0.111	0.111	0.0053	5.32	4.5
126	5/19/1999	12:24:38 PM	0	25.748	22.766	25.022	24.678	22.481	31.928	22.75	29.686	3.902	19.422	6.075	-0.089	21.884	0.255	0	119	9.1	21.1	1.5	0.111	0.111	0.0053	5.28	4.5
127	5/19/1999	12:25:37 PM	0	25.668	22.766	25.022	24.758	22.481	31.928	22.564	29.534	3.862	19.186	6.075	-0.089	21.915	0.25	0	120	9.1	20.9	1.4	0.109	0.109	0.0052	5.22	4.4
128	5/19/1999	12:26:38 PM	0	25.623	22.721	24.977	24.713	22.436	32.042	21.944	28.832	3.734	19.219	6.044	-0.089	21.884	0.25	0	121	9.1	20.6	1.4	0.109	0.109	0.0053	5.31	4.5
129	5/19/1999	12:27:39 PM	0	25.668	22.766	25.022	24.758	22.481	32.007	22.099	29.048	3.774	19.625	6.075	-0.042	21.915	0.254	0	122	9.1	20.9	1.4	0.111	0.111	0.0053	5.31	4.5
130	5/19/1999	12:28:36 PM	0	25.623	22.801	24.977	24.632	22.436	32.042	22.936	29.869	3.965	19.389	6.075	-0.089	21.915	0.252	0	123	9.1	21.2	1.5	0.110	0.110	0.0052	5.20	4.4
131	5/19/1999	12:29:35 PM	0	25.543	22.721	24.896	24.632	22.436	31.566	22.595	29.564	3.862	19.389	6.044	-0.089	21.854	0.254	0	124	9.1	21.0	1.4	0.111	0.111	0.0053	5.30	4.5
132	5/19/1999	12:30:42 PM	0	25.623	22.721	24.896	24.632	22.597	31.328	22.347	29.168	3.846	19.422	6.075	-0.089	21.915	0.25	0	125	9.1	20.9	1.4	0.109	0.109	0.0052	5.24	4.5
133	5/19/1999	12:31:35 PM	0	25.543	22.801	24.896	24.713	22.758	31.089	22.781	29.778	3.934	19.558	6.075	-0.042	21.915	0.251	0	126	9.1	21.2	1.5	0.110	0.110	0.0052	5.19	4.4
134	5/19/1999	12:32:36 PM	0	25.543	22.801	24.977	24.713	22.918	3..931	22.874	29.839	3.91	19.591	6.075	-0.089	21.961	0.252	0	127	9.1	21.2	1.5	0.110	0.110	0.0052	5.18	4.4
135	5/19/1999	12:33:43 PM	0	25.543	22.801	24.896	24.873	23.079	30.692	22.75	29.595	4.053	19.625	6.044	-0.089	21.838	0.254	0	128	9.1	21.2	1.5	0.111	0.111	0.0052	5.25	4.5
136	5/19/1999	12:34:34 PM	0	25.588	22.766	24.862	24.918	23.285	30.737	22.502	29.351	3.814	19.524	6.075	-0.089	21.946	0.247	0	129	9.1	21.0	1.4	0.108	0.108	0.0052	5.15	4.4
137	5/19/1999	12:35:35 PM	0	25.508	22.847	24.942	24.998	23.446	30.737	22.471	29.473	3.926	19.558	6.044	-0.089	21.93	0.247	0	130	9.1	21.0	1.4	0.108	0.108	0.0051	5.14	4.4
138	5/19/1999	12:36:36 PM	0	25.508	22.847	24.862	25.079	23.526	30.658	22.378	29.259	3.862	19.524	6.044	-0.089	21.93	0.246	0	131	9.1	21.0	1.4	0.107	0.108	0.0051	5.15	4.4
139	5/19/1999	12:37:35 PM	0	25.553	22.811	24.827	25.204	23.652	30.464	22.812	29.747	4.029	19.862	6.044	-0.089	21.93	0.24	0	132	9.1	21.3	1.5	0.105	0.105	0.0049	4.93	4.2
140	5/19/1999	12:38:38 PM	0	25.428	22.766	24.761	25.239	23.687	30.578	22.409	29.381	3.806	19.389	6.044	-0.042	21.9	0.257	0	133	9.1	20.9	1.4	0.112	0.113	0.0054	5.40	4.6
141	5/19/1999	12:39:35 PM	0	25.518	22.776	24.672	25.469	23.617	30.986	22.533	29.473	3.902	19.456	6.075	-0.089	21.93	0.248	0	134	9.1	21.0	1.4	0.108	0.109	0.0052	5.18	4.4
142	5/19/1999	12:40:36 PM	0	25.438	22.857	24.672	25.409	23.536	31.065	22.378	29.259	3.718	19.118	6.044	-0.089	21.9	0.247	0	135	9.1	20.7	1.4	0.108	0.108	0.0052	5.22	4.4
143	5/19/1999	12:41:37 PM	0	25.438	22.857	24.792	25.329	23.376	31.303	22.471	29.32	3.902	19.422	6.044	-0.089	21.93	0.247	0	136	9.1	20.9	1.4	0.108	0.108	0.0052	5.18	4.4
144	5/19/1999	12:42:34 PM	0	25.438	22.776	24.792	25.329	23.295	31.383	22.781	29.717	3.774	19.321	6.075	-0.089	21.93	0.245	0	137	9.1	21.1	1.5	0.107	0.108	0.0051	5.11	4.3
145	5/19/1999	12:43:38 PM	0	25.403	22.822	24.757	25.374	23.261	31.269	22.44	29.229	3.806	19.591	6.075	-0.042	21.93	0.254	0	138	9.1	21.0	1.4	0.111	0.112	0.0053	5.31	4.5
146	5/19/1999	12:44:34 PM	0	25.403	22.822	24.757	25.374	23.18	31.507	22.905	29.778	3.918	19.727	6.106	-0.089	21.808	0.254	0	139	9.1	21.3	1.5	0.111	0.112	0.0052	5.24	4.5
147	5/19/1999	12:45:40 PM	0	25.368	22.867	24.602	25.34	23.065	31.631	22.502	29.534	3.766	19.524	6.044	-0.042	21.915	0.244	0	140	9.1	21.0	1.4	0.107	0.107	0.0051	5.10	4.3
148	5/19/1999	12:46:35 PM	0	25.368	22.867	24.722	25.34	22.985	31.631	22.533	29.473	3.87	19.422	6.044	-0.089	21.946	0.24	0	141	9.1	21.0	1.4	0.105	0.106	0.0050	5.03	4.3
149	5/19/1999	12:47:42 PM	0	25.414	22.832	24.767	25.305	23.03	31.834	22.874	29.869	3.957	19.794	6.075	-0.089	21.9	0.248	0	142	9.1	21.3	1.5	0.108	0.109	0.0051	5.11	4.3
150	5/19/1999	12:48:39 PM	0	25.368	22.867	24.722	25.259	22.985	31.79	22.688	29.625	3.942	19.625	6.075	-0.089	21.9	0.246	0	143	9.1	21.2	1.5	0.107	0.108	0.0051	5.12	4.4
151	5/19/1999	12:49:40 PM	1	25.414	22.913	24.767	25.225	23.03	31.834	15.249	29.747	3.886	12.187	13.163	-0.089	21.838	0.011	0	144	9.1	13.7	0.9	0.005	0.005	0.0004	0.35	0.3
152	5/19/1999	12:50:35 PM	0	25.334	22.913	24.767	25.145	23.11	31.914	19.929	29.9	3.981	16.38	9.219	-0.089	21.761	0.248	0	145	9.0	18.2	1.3	0.108	0.109	0.0060	6.00	5.1
153	5/19/1999	12:51:38 PM	0	25.334	22.913	24.687	25.225	23.191	31.755	20.704	30.997	3.926	17.63	9.496	-0.089	21.516	0.241	0	146	8.9	19.2	1.3	0.105	0.106	0.0055	5.54	4.7
154	5/19/1999	12:52:41 PM	0	25.334	22.913	24.767	25.145	23.03	31.914	21.169	29.32	3.596	18.307	7.37	-0.089	21.946	0.934	0	147	9.1	19.7	1.4	0.408	0.410	0.0208	20.79	17.7
155	5/19/1999	12:53:38 PM	0	25.334	22.913	24.767	25.145	23.11	31.914	22.75	29.808	3.686	19.696	6.168	-0.089	21.854	0.716	0	148	9.1	21.3	1.5	0.313	0.315	0.0148	14.75	12.6
156	5/19/1999	12:54:35 PM	0	25.334	22.913	24.767	25.145	23.11	31.834	23.091	29.869	3.718	20.132	5.983	-0.089	21.792	0.631	0	149	9.0	21.8	1.5	0.275	0.277	0.0128	12.83	10.9
157																											
158		Averages		25.5	22.8	24.9	24.8	22.8	31.6	22.4	29.3	3.9	19.3	6.1	-0.1	21.9	0.290	0.0		9.1	20.9	1.440	0.127	0.127	0.006	6.0	5.1
159		Maximum		26.2	22.9	25.6	25.5	23.7	32.2	28.8	38.0	4.1	26.5	8.5	0.0	22.2	1.133	0.0		9.2	27.6	1.9	0.495	0.487	0.018	17.6	15.0
160		Median		25.5	22.8	24.9	24.7	22.7	31.8	22.4	29.3	3.9	19.3	6.0	-0.1	21.9	0.259	0.0		9.1	20.8	1.4	0.113	0.115	0.005	5.5	4.7
161		Minimum		24.8	22.2	24.3	24.4	22.2	30.5	21.6	28.3	3.0	18.6	5.7	-0.1	19.4	0.240	0.0		8.1	20.2	1.4	0.105	0.105	0.005	4.9	4.2
162		Std Dev		0.4	0.2	0.4	0.3	0.4	0.5	0.6	0.8	0.1	0.7	0.2	0.0	0.2	0.098	0.0		0.1	0.7	0.048	0.042	0.041	0.002	1.6	1.4
163		Number of Points Used		130	130	130	130	130	130	130	130	130	130	130	130	130	130	130		130	130	130	130	130	130	130	130



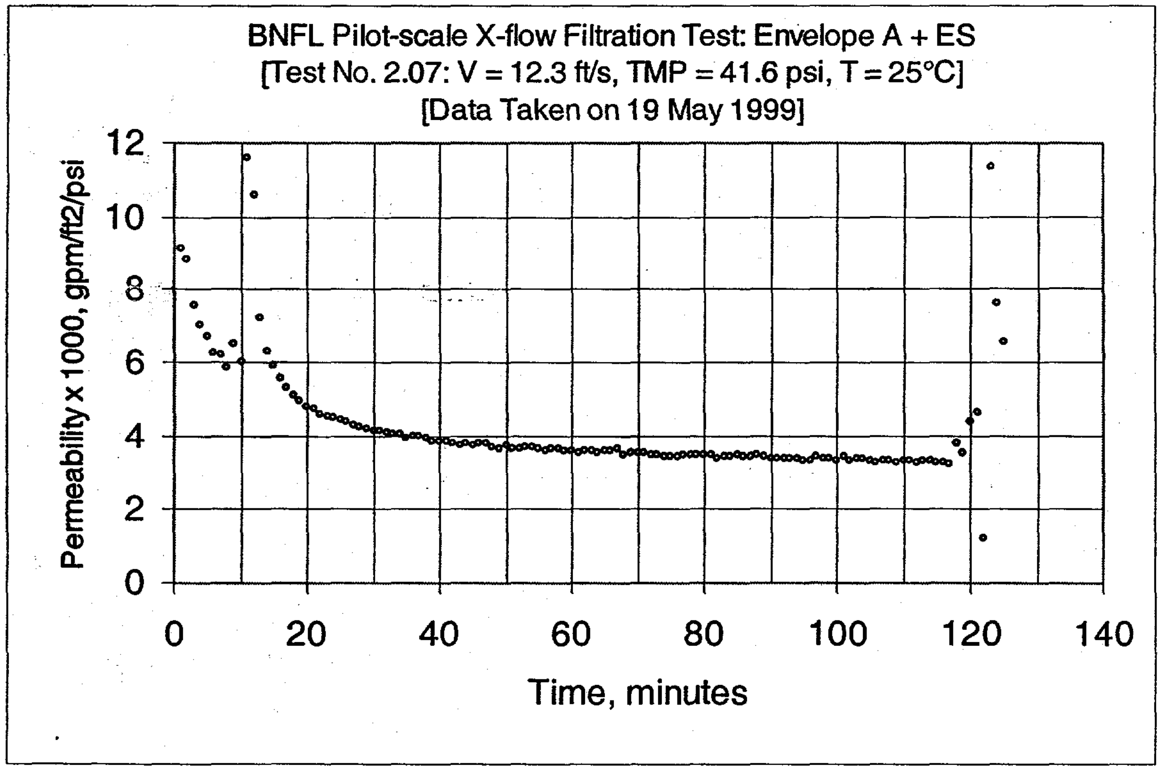


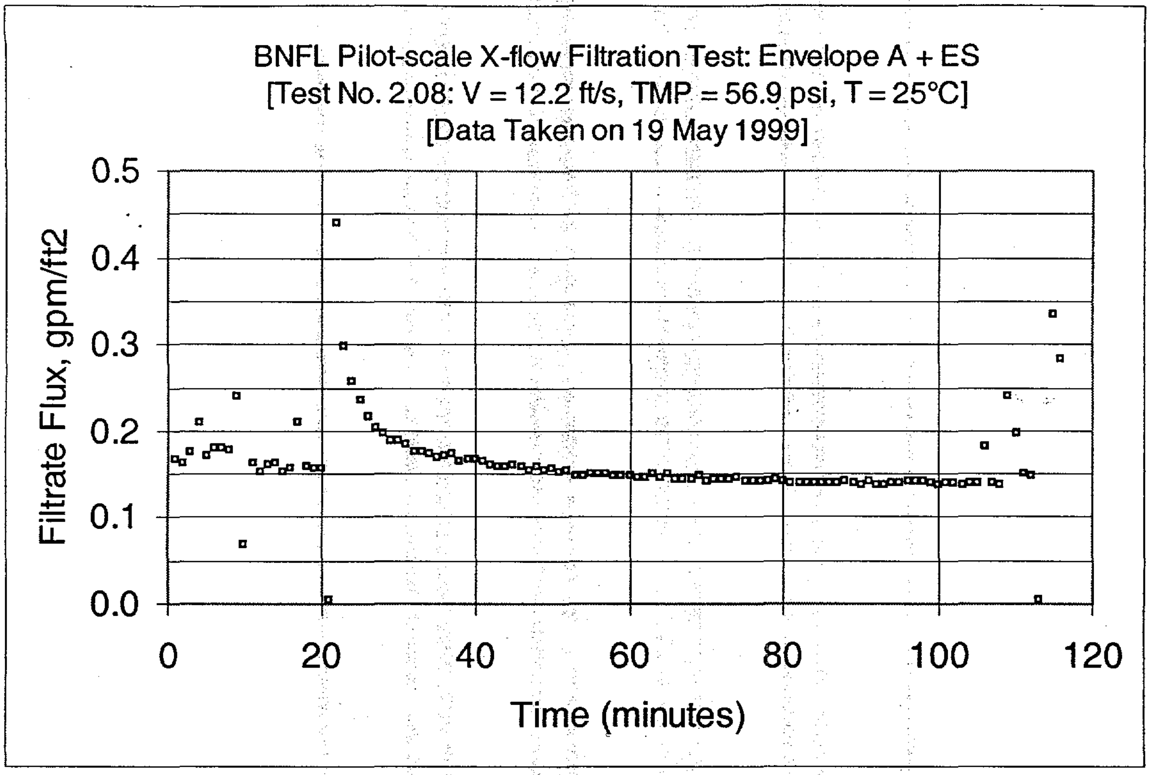
Figure B7: Test Run 2.07, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/19/1999	7:08:35 AM	0	22.046	21.469	20.833	21.211	21.022	30.886	0.093	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/19/1999	7:10:24 AM	0	22.046	21.469	20.914	21.292	21.022	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.08	0.012	0									
5	5/19/1999	7:11:25 AM	0	22.046	21.469	20.833	21.372	21.183	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0									
6	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
7	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/19/1999	12:58:36 PM	0	25.253	22.913	24.607	25.064	23.191	31.993	23.463	30.326	3.734	20.403	6.075	-0.089	21.685	0.453	0	1	9.0	21.9	1.5	0.198	0.200	0.0091	9.12	7.8
9	5/19/1999	12:59:39 PM	0	25.288	22.867	24.562	25.019	23.145	31.948	23.277	30.296	3.694	20.098	6.075	-0.042	21.746	0.432	0	2	9.0	21.7	1.5	0.189	0.191	0.0088	8.80	7.5
10	5/19/1999	1:00:42 PM	0	25.334	22.993	24.687	25.145	23.191	32.152	46.678	56.486	6.072	41.77	8.941	-0.042	29.702	0.76	0	3	12.3	44.2	3.0	0.332	0.335	0.0076	7.57	6.4
11	5/19/1999	1:01:35 PM	0	25.253	22.993	24.687	25.145	23.191	31.914	44.942	54.23	6.574	38.93	8.387	-0.089	30.993	0.669	0	4	12.9	41.9	2.9	0.292	0.295	0.0070	7.03	6.0
12	5/19/1999	1:02:36 PM	0	25.128	22.948	24.642	25.099	23.145	32.028	43.547	50.358	8.824	35.278	6.014	-0.089	36.66	0.598	0	5	15.2	39.4	2.7	0.261	0.264	0.0067	6.69	5.7
13	5/19/1999	1:03:37 PM	0	25.128	22.948	24.722	25.099	23.065	31.869	42.99	50.48	7.205	36.225	6.63	-0.089	32.928	0.562	0	6	13.7	39.6	2.7	0.245	0.247	0.0062	6.24	5.3
14	5/19/1999	1:04:36 PM	0	25.208	23.028	24.642	25.179	23.065	32.107	43.64	51.303	6.423	38.254	6.784	-0.089	30.056	0.576	0	7	12.5	40.9	2.8	0.251	0.254	0.0062	6.20	5.3
15	5/19/1999	1:05:35 PM	0	25.208	23.028	24.642	25.099	23.145	31.948	44.291	51.639	6.455	38.659	6.291	-0.089	29.979	0.548	0	8	12.4	41.5	2.9	0.239	0.242	0.0058	5.83	5.0
16	5/19/1999	1:06:36 PM	0	25.208	22.948	24.642	25.099	23.145	32.028	41.471	50.602	6.279	36.225	8.294	-0.089	29.917	0.575	0	9	12.4	38.8	2.7	0.251	0.254	0.0065	6.53	5.6
17	5/19/1999	1:07:37 PM	0	25.208	23.028	24.642	25.099	22.985	31.869	41.643	50.419	6.295	37.307	7.832	-0.089	29.856	0.538	0	10	12.4	39.6	2.7	0.235	0.237	0.0060	5.99	5.1
18	5/19/1999	1:08:34 PM	0	25.208	22.948	24.642	25.099	23.065	32.107	42.153	50.815	6.303	36.834	7.77	-0.089	30.24	1.039	0	11	12.5	39.5	2.7	0.454	0.458	0.0116	11.80	9.9
19	5/19/1999	1:09:37 PM	0	25.083	22.983	24.597	25.054	23.019	31.903	39.549	50.815	5.936	34.535	10.482	-0.089	29.749	0.889	0	12	12.3	37.0	2.6	0.388	0.393	0.0106	10.60	9.0
20	5/19/1999	1:10:41 PM	0	25.208	23.028	24.722	25.099	22.985	32.028	42.029	50.968	6.215	37.003	8.017	-0.042	29.948	0.648	0	13	12.4	39.5	2.7	0.283	0.285	0.0072	7.21	6.1
21	5/19/1999	1:11:37 PM	0	25.128	23.028	24.642	25.019	22.985	32.028	44.632	51.395	6.215	39.065	5.952	-0.089	29.718	0.6	0	14	12.3	41.8	2.9	0.262	0.265	0.0063	6.32	5.4
22	5/19/1999	1:12:34 PM	0	25.163	22.983	24.677	24.974	22.698	32.221	44.787	51.639	6.088	39.504	5.767	-0.042	29.595	0.564	0	15	12.3	42.1	2.9	0.246	0.248	0.0059	5.90	5.0
23	5/19/1999	1:13:40 PM	0	25.243	22.983	24.677	24.974	22.698	32.062	44.477	51.059	5.952	39.606	5.675	-0.089	29.318	0.528	0	16	12.2	42.0	2.9	0.230	0.233	0.0055	5.53	4.7
24	5/19/1999	1:14:34 PM	0	25.163	22.983	24.757	24.974	22.618	32.141	44.136	50.48	6.471	38.423	5.644	-0.089	30.194	0.496	0	17	12.5	41.3	2.8	0.217	0.218	0.0053	5.28	4.5
25	5/19/1999	1:15:36 PM	0	25.243	23.063	24.837	25.054	22.537	32.062	44.364	51.181	6.311	38.693	5.736	-0.089	30.04	0.482	0	18	12.5	41.5	2.9	0.210	0.211	0.0051	5.09	4.3
26	5/19/1999	1:16:35 PM	0	25.243	22.983	24.837	25.054	22.537	31.983	44.136	50.907	6.191	39.065	5.767	-0.042	29.879	0.469	0	19	12.4	41.6	2.9	0.205	0.206	0.0049	4.94	4.2
27	5/19/1999	1:17:36 PM	0	25.243	22.983	24.837	25.054	22.698	31.903	44.849	51.547	6.335	38.558	5.767	-0.042	29.856	0.457	0	20	12.4	41.7	2.9	0.199	0.200	0.0048	4.81	4.1
28	5/19/1999	1:18:37 PM	0	25.243	23.063	24.917	25.054	22.618	32.062	43.981	50.663	6.351	38.186	5.767	-0.042	30.102	0.444	0	21	12.5	41.1	2.8	0.194	0.194	0.0047	4.73	4.0
29	5/19/1999	1:19:36 PM	0	25.323	23.063	24.997	25.054	22.698	31.824	44.353	50.968	6.295	38.355	5.829	-0.042	29.994	0.436	0	22	12.4	41.4	2.9	0.190	0.190	0.0046	4.60	3.9
30	5/19/1999	1:20:35 PM	0	25.323	23.063	24.997	25.054	22.698	31.983	43.919	50.663	6.503	38.592	5.86	-0.042	29.948	0.431	0	23	12.4	41.3	2.8	0.188	0.188	0.0046	4.56	3.9
31	5/19/1999	1:21:36 PM	0	25.403	23.063	24.997	25.054	22.698	31.745	44.291	51.059	6.391	38.625	5.86	-0.089	30.025	0.424	0	24	12.5	41.5	2.9	0.185	0.185	0.0045	4.46	3.8
32	5/19/1999	1:22:39 PM	0	25.403	22.983	25.077	25.134	22.698	32.062	43.671	50.388	6.343	38.423	5.89	-0.089	29.994	0.418	0	25	12.4	41.0	2.8	0.182	0.182	0.0044	4.44	3.8
33	5/19/1999	1:23:36 PM	0	25.358	23.018	25.032	25.089	22.572	31.859	44.074	50.724	6.199	39.133	5.86	-0.089	29.872	0.418	0	26	12.3	41.6	2.9	0.182	0.182	0.0044	4.38	3.7
34	5/19/1999	1:24:35 PM	0	25.483	23.063	25.157	25.134	22.698	32.062	44.415	51.12	6.175	39.099	5.921	-0.042	29.595	0.414	0	27	12.3	41.8	2.9	0.181	0.180	0.0043	4.31	3.7
35	5/19/1999	1:25:40 PM	0	25.483	23.063	25.157	25.214	22.778	31.824	44.167	50.937	6.519	38.693	5.89	-0.042	29.841	0.405	0	28	12.4	41.4	2.9	0.177	0.176	0.0042	4.25	3.6
36	5/19/1999	1:26:37 PM	0	25.518	23.018	25.112	25.089	22.733	31.859	44.26	51.059	6.455	39.099	5.89	-0.042	29.81	0.4	0	29	12.4	41.7	2.9	0.175	0.174	0.0042	4.18	3.6
37	5/19/1999	1:27:34 PM	0	25.643	23.063	25.238	25.134	22.859	31.824	44.57	51.273	6.367	38.524	5.921	-0.089	29.718	0.398	0	30	12.3	41.5	2.9	0.174	0.173	0.0042	4.15	3.5
38	5/19/1999	1:28:35 PM	0	25.598	23.018	25.272	25.089	22.894	31.859	44.353	51.12	6.239	38.456	5.952	-0.042	29.887	0.395	0	31	12.4	41.4	2.9	0.172	0.171	0.0041	4.13	3.5
39	5/19/1999	1:29:40 PM	0	25.598	23.018	25.272	26.089	22.894	31.859	44.167	50.907	6.479	38.93	5.921	-0.042	29.81	0.392	0	32	12.4	41.5	2.9	0.171	0.170	0.0041	4.09	3.5
40	5/19/1999	1:30:35 PM	0	25.598	23.018	25.352	25.169	22.733	31.859	44.632	51.364	6.383	38.727	5.921	-0.042	29.887	0.389	0	33	12.4	41.7	2.9	0.170	0.168	0.0040	4.03	3.4
41	5/19/1999	1:31:34 PM	0	25.678	23.098	25.272	25.169	22.733	31.779	44.601	51.395	6.024	39.606	6.044	-0.089	29.365	0.393	0	34	12.2	42.1	2.9	0.172	0.170	0.0040	4.04	3.4
42	5/19/1999	1:32:37 PM	0	25.758	23.098	25.352	25.249	22.733	31.779	45.872	52.628	6.128	39.64	6.044	-0.089	28.95	0.388	0	35	12.0	42.8	2.9	0.169	0.168	0.0039	3.92	3.3
43	5/19/1999	1:33:34 PM	0	25.758	23.018	25.352	25.249	22.733	31.779	45.19	52.187	6.175	39.843	6.044	-0.089	28.996	0.391	0	36	12.0	42.5	2.9	0.171	0.169	0.0040	3.98	3.4
44	5/19/1999	1:34:37 PM	0	25.758	23.098	25.352	25.249	22.813	31.859	45.128	51.943	6.128	40.181	5.921	-0.042	28.888	0.394	0	37	12.0	42.7	2.9	0.172	0.170	0.0040	3.99	3.4
45	5/19/1999	1:35:34 PM	0	25.793	23.053	25.387	25.204	22.768	31.576	45.314	52.34	6.08	39.944	5.983	-0.042	28.842	0.386	0	38	12.0	42.6	2.9	0.169	0.167	0.0039	3.91	3.3
46	5/19/1999	1:36:36 PM	0	25.838	23.098	25.433	25.249	22.813	31.779	45.655	52.797	6.032	40.248	5.983	-0.042	28.812	0.384	0	39	11.9	43.0	3.0	0.168	0.166	0.0039	3.86	3.3
47	5/19/1999	1:37:34 PM	0	25.838	23.018	25.433	25.329	22.813	31.621	45.376	52.096	6	40.688	5.983	-0.089	28.627	0.382	0	40	11.9	43.0	3.0	0.167	0.165	0.0038	3.83	3.3
48	5/19/1999	1:38:36 PM	0	25.793	22.972	25.467	25.204	22.848	31.576	44.384	51.029	6.383	38.997	5.736	-0.042	29.795	0.373	0	41	12.4	41.7	2.9	0.163	0.161	0.0039	3.85	3.3
49	5/19/1999	1:39:39 PM	0	25.918	23.098	25.433	25.249	22.894	31.621	44.601	51.303	6.423	38.964	5.86	-0.089	29.81	0.367	0	42	12.4	41.8	2.9	0.160	0.158	0.0038	3.79	3.2
50	5/19/1999	1:40:36 PM	0	25.918	23.098	25.513	25.249	22.813	31.7	44.539	51.364	6.487	38.93	5.952	-0.089	29.81	0.363	0	43	12.4	41.7	2.9	0.158	0.156	0.0037	3.74	3.2
51	5/19/1999	1:41:35 PM	0	25.873	23.053	25.467	25.284	22.768	31.576	44.074	50.815	6.343	39.031	5.952	-0.042	29.702	0.366	0	44	12.3	41.6	2.9	0.160	0.158	0.0038	3.79	3.2
52	5/19/1999	1:42:38 PM	0	25.873	23.053	25.547	25.364	22.688	31.735	44.105	50.907	6.303	38.93	5.983	-0.042	29.641	0.361	0	45	12.3	41.5	2.9	0.158	0.155	0.0037	3.74	3.2
53	5/19/1999	1:43:37 PM	0	25.873	23.053	25.467	25.284	22.688	31.576	44.105	50.998	6.175	38.997	6.014	-0.089	29.779	0.365	0	46	12.4	41.6	2.9	0.159	0.157	0.0038	3.78	3.2
54	5/19/1999	1:44:36 PM	0	25.873	23.053	25.547	25.364	22.688	31.814	44.973	51.913	6.271	39.065	6.014	-0.089	29.349	0.368	0	47	12.2	42.0	2.9	0.161	0.158	0.0038	3.76	3.2
55	5/19/1999	1:45:37 PM	0	25.873	23.053	25.547	25.284	22.688	31.735	44.756	51.578	6.287	39.504	6.014	-0.089	29.441	0.36	0	48	12.2	42.1	2.9	0.157	0.155	0.0037	3.67	3.1
56	5/19/1999	1:46:36 PM	0	25.999	23.098	25.673	25.329	22.733	31.779	44.136	50.937	6.199	39.166	6.044	-0.089	29.487	0.354	0	49	12.2	41.7	2.9	0.155	0.152	0.0036	3.64	3.1
57	5/19/1999	1:47:35 PM	0	25.999	23.098	25.593	25.409	22.652	31.7	44.508	51.303	6.16	39.335	6.014	-0.089	29.487	0.366	0	50	12.2	41.9	2.9	0.160	0.157	0.0037	3.75	3.2
58	5/19/1999	1:48:36 PM	0	25.953	23.053	25.627	25.364	22.768	31.735	44.694	51.488	6.343	39.166	6.014	-0.042	29.457	0.357	0	51	12.2	41.9	2.9	0.156	0.153	0.0037	3.65	3.1
59	5/19/1999	1:49:39 PM	0	26.079	23.098	25.593	25.409	22.813	31.7	44.477	51.242	6.12	39.302	6.014	-0.042	29.472	0.353	0.003	52	12.2	41.9	2.9	0.154	0.152	0.0036	3.62	3.1
60	5/19/1999	1:50:38 PM	0	26.079	23.098	25.673	25.409	22.813	31.7	44.663	51.488	6.287	39.268	6.014	-0.042	29.441	0.359	0	53	12.2	42.0	2.9	0.157	0.154	0.0037	3.66	3.1
61	5/19/1999	1:51:35 PM	0	26.033	23.053	25.707	25.364	22.768	31.576	44.601	51.364	6.12	39.369	6.014	-0.089	29.349	0.36	0	54	12.2	42.0	2.9	0.157	0.154	0.0037	3.67	3.1
62	5/19/1999	1:52:34 PM	0	26.079	23.098	25.753	25.409	22.894	31.541	44.694	51.608	6.16	38.794	6.014	-0.089	29.38	0.353	0	55	12.2	41.7	2.9	0.154	0.151	0.0036	3.61	3.1
63	5/19/1999	1:53:37 PM	0	26.079	23.098	25.673	25.409	22.733	31.621	44.198	51.029	6.112	39.234	5.983	-0.089	29.411	0.347	0	56	12.2	41.7	2.9	0.151	0.149	0.0036	3.56	3.0
64	5/19/1999	1:54:36 PM	0	26.079	23.098	25.513	25.409	22.813	31.621	44.539	51.456	6.311	39.099	5.983	-0.042	29.472	0.351	0	57	12.2	41.8	2.9	0.153	0.151	0.0036	3.61	3.1
65	5/19/1999	1:55:38 PM	0	25.999	23.098	25.433	25.409	22.974	31.462	44.818	51.821	6.447	39.572	5.952	-0.089	29.426	0.353	0	58	12.2	42.2	2.9	0.154	0.152	0.0036	3.61	3.1
66	5/19/1999	1:56:34 PM	0	25.999	23.098	25.433	25.489	22.894	31.541	44.911	51.852	6.271	39.302	5.952	-0.042	29.411	0.348	0	59	12.2	42.1	2.9	0.152	0.150	0.0036	3.56	3.0
67	5/19/1999	1:57:36 PM	0	25.918	23.098	25.272	25.409	22.894	31.462	44.818	51.73	6.263	39.133	5.983	-0.089	29.119	0.349	0	60	12.1	42.0	2.9	0.152	0.151	0.0036	3.60	3.1
68	5/19/1999	1:58:37 PM	0	25.838	23.178	25.192	25.409	22.894	31.621	45.376	52.248	6.295	39.876	5.983	-0.089	29.226	0.345	0	61	12.1	42.6	2.9	0.151	0.150	0.0035	3.51	3.0
69	5/19/1999	1:59:38 PM	0	25.838	23.098	25.112	25.409	22.813	31.621	44.942	51.669	6.207	39.572	5.983	-0.089	29.257	0.347	0	62	12.1	42.3	2.9	0.151	0.151	0.0036	3.57	3.0
70	5/19/1999	2:00:41 PM	0	25.758	23.098	25.032	25.409	22.733	31.7	45.128	52.065	6.16	39.133	5.983	-0.089	29.165	0.347	0	63	12.1	42.1	2.9	0.151	0.151	0.0036	3.59	3.1
71	5/19/1999	2:01:40 PM	0	25.678	23.098	24.952	25.329	22.894	31.641	45.128	52.065	6.152	39.707	5.983	-0.089	29.057	0.344	0	64	12.1	42.4	2.9	0.150	0.150	0.0035	3.55	3.0
72	5/19/1999	2:02:35 PM	0	25.598	23.098	24.952	25.329	22.894	31.7	45.097	52.065	6.056	39.471	5.983	-0.042	29.011	0.344	0	65	12.0	42.3	2.9	0.150	0.150	0.0036	3.56	3.0
73	5/19/1999	2:03:38 PM	0	25.598	23.098	24.872	25.329	22.813	31.859	44.911	51.7	6.247	39.643	5.983	-0.042	28.996	0.344	0	66	12.0	42.4	2.9	0.150	0.151	0.0036	3.56	3.0
74	5/19/1999	2:04:39 PM	0	25.518	23.098	24.792	25.409	22.733	31.779	44.601	51.242	6.144	39.471	5.983	-0.042	28.934	0.349	0	67	12.0	42.0	2.9	0.152	0.153	0.0036	3.65	3.1
75	5/19/1999	2:05:36 PM	0	25.438	23.178	24.712	25.249	22.733	31.779	45.252	52.126	6.104	39.606	5.983	-0.089	28.996	0.336	0	68	12.0	42.4	2.9	0.147	0.148	0.0035	3.49	3.0
76	5/19/1999	2:06:33 PM	0	25.438	23.098	24.712	25.249	22.652	31.779	44.911	51.791	6.128	39.64	5.983	-0.042	28.965	0.34	0.003	69	12.0	42.3	2.9	0.148	0.150	0.0035	3.54	3.0
77	5/19/1999	2:07:38 PM	0	25.403	23.143	24.677	25.294	22.859	31.824	44.229	51.181	6.199	38.93	5.921	-0.042	29.564	0.332	0	70	12.3	41.6	2.9	0.145	0.146	0.0035	3.52	3.0
78	5/19/1999	2:08:33 PM	0	25.278	23.098	24.551	25.329	22.733	31.859	43.64	50.358	6.726	37.963	5.829	-0.042	30.532	0.325	0	71	12.7	40.8	2.8	0.142	0.144	0.0035	3.52	3.0
79	5/19/1999	2:09:34 PM	0	25.278	23.098	24.551	25.249	22.813	31.779	43.733	50.602	6.862	37.882	5.983	-0.042	30.639	0.32	0	72	12.7	40.8	2.8	0.140	0.141	0.0035	3.47	3.0
80	5/19/1999	2:10:35 PM	0	25.198	23.178	24.471	25.329	22.894	31.621	43.423	50.327	6.59	37.949	6.075	-0.042	30.486	0.32	0	73	12.7	40.7	2.8	0.140	0.142	0.0035	3.49	3.0
81	5/19/1999	2:11:34 PM	0	25.198	23.098	24.471	25.249	22.894	31.779	43.764	50.907	6.782	37.442	6.106	-0.042	30.455	0.316	0.003	74	12.6	40.6	2.8	0.138	0.140	0.0034	3.45	2.9

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/19/1999	2:12:33 PM	0	25.118	23.178	24.391	25.249	22.974	31.779	43.919	50.846	6.455	38.389	6.137	-0.089	30.148	0.32	0	75	12.5	41.2	2.8	0.140	0.142	0.0035	3.45	2.9
83	5/19/1999	2:13:36 PM	0	25.038	23.098	24.391	25.329	23.054	31.859	43.578	50.602	6.463	38.22	6.137	-0.089	29.917	0.318	0	76	12.4	40.9	2.8	0.139	0.141	0.0035	3.45	2.9
84	5/19/1999	2:14:35 PM	0	25.038	23.178	24.311	25.329	23.054	31.859	43.64	50.663	6.503	38.186	6.137	-0.089	29.825	0.321	0	77	12.4	40.9	2.8	0.140	0.143	0.0035	3.49	3.0
85	5/19/1999	2:15:33 PM	0	24.957	23.178	24.311	25.489	23.054	31.7	43.795	50.693	6.511	38.355	6.137	-0.089	29.887	0.323	0.003	78	12.4	41.1	2.8	0.141	0.144	0.0035	3.50	3.0
86	5/19/1999	2:16:37 PM	0	24.877	23.178	24.231	25.409	23.054	31.621	43.888	50.876	6.279	38.118	6.168	-0.089	29.856	0.318	0	79	12.4	41.0	2.8	0.139	0.142	0.0035	3.46	2.9
87	5/19/1999	2:17:36 PM	0	24.797	23.178	24.231	25.329	23.054	31.621	43.95	51.12	6.558	38.456	6.137	-0.089	29.825	0.321	0	80	12.4	41.2	2.8	0.140	0.143	0.0035	3.48	3.0
88	5/19/1999	2:18:35 PM	0	24.797	23.178	24.15	25.329	23.054	31.541	43.764	50.693	6.343	38.456	6.168	-0.042	29.841	0.318	0	81	12.4	41.1	2.8	0.139	0.142	0.0035	3.46	2.9
89	5/19/1999	2:19:36 PM	0	24.797	23.178	24.15	25.409	22.974	31.7	44.57	51.578	6.503	38.862	6.137	-0.089	29.733	0.317	0	82	12.3	41.7	2.9	0.138	0.142	0.0034	3.40	2.9
90	5/19/1999	2:20:38 PM	0	24.717	23.178	24.07	25.329	23.054	31.621	44.477	51.486	6.247	38.592	6.137	-0.089	29.779	0.319	0	83	12.4	41.5	2.9	0.139	0.143	0.0034	3.44	2.9
91	5/19/1999	2:21:36 PM	0	24.717	23.178	23.99	25.409	22.974	31.779	44.136	51.09	6.391	38.727	6.137	-0.042	29.61	0.314	0	84	12.3	41.4	2.9	0.137	0.141	0.0034	3.40	2.9
92	5/19/1999	2:22:40 PM	0	24.637	23.178	24.07	25.329	22.974	31.7	44.322	51.242	6.287	38.898	6.137	-0.042	29.641	0.321	0	85	12.3	41.6	2.9	0.140	0.144	0.0035	3.46	2.9
93	5/19/1999	2:23:36 PM	0	24.637	23.178	23.99	25.329	22.974	31.7	44.353	51.303	6.423	38.558	6.168	-0.042	29.457	0.315	0	86	12.2	41.5	2.9	0.138	0.141	0.0034	3.41	2.9
94	5/19/1999	2:24:36 PM	0	24.556	23.178	23.91	25.249	22.974	31.541	43.981	50.998	6.439	39.335	6.137	-0.042	29.518	0.319	0.003	87	12.3	41.7	2.9	0.139	0.144	0.0034	3.45	2.9
95	5/19/1999	2:25:37 PM	0	24.602	23.224	23.955	25.294	22.939	31.903	44.012	50.998	6.287	38.761	6.137	-0.042	29.457	0.318	0	88	12.2	41.4	2.9	0.139	0.143	0.0035	3.45	2.9
96	5/19/1999	2:26:36 PM	0	24.478	23.259	23.91	25.249	22.894	31.7	44.136	51.12	6.231	38.727	6.137	-0.089	29.487	0.317	0	89	12.2	41.4	2.9	0.138	0.143	0.0034	3.44	2.9
97	5/19/1999	2:27:37 PM	0	24.478	23.178	23.83	25.249	22.813	31.7	44.353	51.364	6.383	38.592	6.106	-0.042	29.595	0.31	0	90	12.3	41.5	2.9	0.135	0.140	0.0034	3.37	2.9
98	5/19/1999	2:28:37 PM	0	24.398	23.178	23.749	25.169	22.813	31.621	44.530	51.639	6.495	38.997	6.106	-0.089	29.549	0.314	0	91	12.3	41.8	2.9	0.137	0.142	0.0034	3.40	2.9
99	5/19/1999	2:29:37 PM	0	24.398	23.178	23.749	25.249	22.894	31.7	44.103	50.968	6.175	39.504	6.075	-0.089	29.457	0.312	0	92	12.2	41.8	2.9	0.136	0.141	0.0034	3.38	2.9
100	5/19/1999	2:30:35 PM	0	24.396	23.098	23.749	25.249	22.813	31.938	44.105	51.12	6.335	38.93	6.075	-0.089	29.503	0.312	0	93	12.2	41.5	2.9	0.136	0.141	0.0034	3.40	2.9
101	5/19/1999	2:31:36 PM	0	24.316	23.178	23.749	25.329	22.813	31.779	44.539	51.486	6.351	38.828	6.075	-0.042	29.626	0.311	0	94	12.3	41.7	2.9	0.136	0.141	0.0034	3.37	2.9
102	5/19/1999	2:32:37 PM	0	24.316	23.178	23.749	25.329	22.733	31.859	44.229	51.029	6.431	38.828	6.044	-0.089	29.58	0.306	0	95	12.3	41.5	2.9	0.134	0.138	0.0033	3.33	2.8
103	5/19/1999	2:33:36 PM	0	24.361	23.224	23.795	25.374	22.859	31.824	44.57	51.608	6.303	38.49	6.106	-0.042	29.533	0.308	0.003	96	12.3	41.5	2.9	0.134	0.139	0.0033	3.35	2.9
104	5/19/1999	2:34:37 PM	0	24.361	23.224	23.875	25.374	22.778	31.903	44.446	51.395	6.399	39.065	6.075	-0.089	29.487	0.317	0	97	12.2	41.8	2.9	0.138	0.143	0.0034	3.42	2.9
105	5/19/1999	2:35:36 PM	0	24.396	23.178	23.91	25.249	22.733	31.7	43.826	50.724	6.215	38.93	6.075	-0.042	29.58	0.312	0	98	12.3	41.4	2.9	0.136	0.140	0.0034	3.39	2.9
106	5/19/1999	2:36:37 PM	0	24.396	23.178	23.91	25.329	22.733	31.779	44.136	51.151	6.511	38.727	6.075	-0.042	29.58	0.311	0	99	12.3	41.4	2.9	0.136	0.140	0.0034	3.38	2.9
107	5/19/1999	2:37:36 PM	0	24.396	23.178	23.99	25.329	22.733	31.621	44.539	51.486	6.383	38.862	6.106	-0.089	29.503	0.309	0	100	12.2	41.7	2.9	0.135	0.139	0.0033	3.33	2.8
108	5/19/1999	2:38:37 PM	0	24.441	23.224	24.116	25.374	22.859	31.903	43.857	50.785	6.327	38.659	6.106	-0.089	29.61	0.314	0	101	12.3	41.3	2.8	0.137	0.141	0.0034	3.41	2.9
109	5/19/1999	2:39:36 PM	0	24.396	23.178	24.07	25.329	22.733	31.779	44.384	51.242	6.12	39.099	6.106	-0.042	29.641	0.312	0	102	12.3	41.7	2.9	0.136	0.140	0.0033	3.35	2.9
110	5/19/1999	2:40:38 PM	0	24.522	23.224	24.196	25.455	22.698	31.903	44.508	51.608	6.487	38.592	6.106	-0.042	29.687	0.312	0.003	103	12.3	41.6	2.9	0.136	0.139	0.0034	3.35	2.9
111	5/19/1999	2:41:34 PM	0	24.556	23.178	24.231	25.329	22.733	31.779	44.105	51.12	6.263	38.321	6.075	-0.089	29.626	0.31	0	104	12.3	41.2	2.8	0.135	0.138	0.0034	3.36	2.9
112	5/19/1999	2:42:38 PM	0	24.637	23.259	24.311	25.409	22.652	31.859	44.477	51.486	6.367	38.693	6.075	-0.042	29.656	0.312	0	105	12.3	41.6	2.9	0.136	0.139	0.0033	3.34	2.8
113	5/19/1999	2:43:39 PM	0	24.637	23.178	24.231	25.329	22.652	31.859	44.384	51.364	6.487	38.898	6.106	-0.042	29.641	0.308	0	106	12.3	41.6	2.9	0.134	0.137	0.0033	3.30	2.8
114	5/19/1999	2:44:36 PM	0	24.717	23.178	24.311	25.409	22.652	32.017	44.477	51.517	6.335	38.659	6.106	-0.042	29.641	0.313	0	107	12.3	41.6	2.9	0.137	0.139	0.0034	3.35	2.9
115	5/19/1999	2:45:37 PM	0	24.717	23.178	24.391	25.249	22.572	31.859	44.539	51.395	6.391	38.625	6.137	-0.042	29.61	0.311	0	108	12.3	41.6	2.9	0.136	0.138	0.0033	3.32	2.8
116	5/19/1999	2:46:36 PM	0	24.797	23.259	24.391	25.329	22.652	32.017	44.477	51.486	6.295	38.389	6.075	-0.042	29.764	0.308	0	109	12.4	41.4	2.9	0.134	0.137	0.0033	3.30	2.8
117	5/19/1999	2:47:37 PM	0	24.797	23.259	24.391	25.329	22.733	31.779	44.229	51.242	6.423	39.2	6.106	-0.042	29.779	0.313	0.003	110	12.4	41.7	2.9	0.137	0.139	0.0033	3.33	2.8
118	5/19/1999	2:48:38 PM	0	24.877	23.259	24.551	25.329	22.813	31.859	44.167	51.242	6.471	38.524	6.106	-0.042	29.795	0.31	0	111	12.4	41.3	2.9	0.135	0.137	0.0033	3.31	2.8
119	5/19/1999	2:49:37 PM	0	24.877	23.259	24.471	25.249	22.813	31.779	44.57	51.578	6.399	38.659	6.106	-0.042	29.764	0.308	0	112	12.4	41.6	2.9	0.134	0.136	0.0033	3.28	2.8
120	5/19/1999	2:50:36 PM	0	24.877	23.259	24.551	25.249	22.813	31.938	44.136	51.151	6.447	38.355	6.106	-0.042	29.795	0.309	0	113	12.4	41.2	2.8	0.135	0.137	0.0033	3.31	2.8
121	5/19/1999	2:51:37 PM	0	24.957	23.259	24.632	25.169	22.813	32.017	44.353	51.395	6.327	38.761	6.106	-0.042	29.795	0.313	0	114	12.4	41.6	2.9	0.137	0.138	0.0033	3.32	2.8
122	5/19/1999	2:52:36 PM	0	24.957	23.259	24.632	25.169	22.733	31.938	43.578	50.419	6.247	38.49	6.106	-0.042	29.825	0.307	0	115	12.4	41.0	2.8	0.134	0.135	0.0033	3.30	2.8
123	5/19/1999	2:53:35 PM	0	24.957	23.259	24.632	25.169	22.733	31.938	43.857	50.846	6.471	38.592	6.137	-0.089	29.779	0.304	0	116	12.4	41.2	2.8	0.133	0.134	0.0033	3.25	2.8
124	5/19/1999	2:54:34 PM	0	25.038	23.259	24.712	25.169	22.813	32.017	44.26	51.303	6.367	38.524	6.106	-0.042	29.841	0.304	0	117	12.4	41.4	2.9	0.133	0.134	0.0032	3.23	2.8
125	5/19/1999	2:55:39 PM	0	25.118	23.259	24.712	25.169	22.813	31.938	43.485	50.907	6.295	38.524	6.63	-0.042	29.365	0.35	0	118	12.2	41.0	2.8	0.153	0.154	0.0038	3.76	3.2
126	5/19/1999	2:56:40 PM	0	25.118	23.259	24.792	25.169	22.894	31.938	43.671	51.059	6.247	38.558	6.414	-0.042	29.61	0.329	0.003	119	12.3	41.1	2.8	0.144	0.144	0.0035	3.51	3.0
127	5/19/1999	2:57:36 PM	0	25.118	23.259	24.712	25.169	22.894	31.859	44.57	51.181	6.263	39.369	5.798	-0.042	29.518	0.417	0	120	12.3	42.0	2.9	0.182	0.184	0.0044	4.37	3.7
128	5/19/1999	2:58:36 PM	0	25.198	23.259	24.872	25.249	22.894	31.938	40.634	49.474	6.686	35.549	8.017	-0.042	30.901	0.405	0	121	12.8	38.1	2.6	0.177	0.177	0.0047	4.66	4.0
129	5/19/1999	2:59:42 PM	1	25.198	23.259	24.872	25.169	22.894	31.779	11.406	23.88	15.798	-3.601	11.407	70.899	50.346	0.011	0	122	20.9	3.9	0.3	0.005	0.005	0.0012	1.23	1.1
130	5/19/1999	3:00:34 PM	0	25.198	23.259	24.952	25.249	22.894	31.779	41.626	49.443	6.654	35.853	6.907	-0.042	31.776	1.004	0	123	13.2	38.7	2.7	0.438	0.439	0.0113	11.33	9.6
131	5/19/1999	3:01:37 PM	0	25.313	23.213	24.907	25.204	22.929	31.655	42.711	49.809	6.782	37.476	6.075	-0.089	31.1	0.697	0	124	12.9	40.1	2.8	0.304	0.305	0.0076	7.61	6.5
132	5/19/1999	3:02:38 PM	0	25.358	23.339	25.032	25.409	23.054	31.7	43.237	49.809	6.606	37.51	5.675	-0.042	31.162	0.605	0	125	12.9	40.4	2.8	0.264	0.264	0.0065	6.54	5.6
133																											
134		Averages		25.3	23.1	24.8	25.3	22.8	31.8	44.3	51.3	6.3	38.9	6.1	-0.1	29.6	0.374	0.0		12.3	41.6	2.9	0.163	0.164	0.004	4.0	3.4
135		Maximum		26.1	23.3	25.8	25.5	23.1	32.2	45.9	52.8	6.9	40.7	10.5	0.0	30.6	1.039	0.0		12.7	43.0	3.0	0.454	0.458	0.012	11.6	9.9
136		Median		25.3	23.1	24.8	25.3	22.8	31.8	44.4	51.2	6.3	38.9	6.0	0.0	29.6	0.347	0.0		12.3	41.6	2.9	0.151	0.151	0.004	3.6	3.0
137		Minimum		24.3	22.9	23.7	25.0	22.6	31.5	39.6	50.3	5.9	34.5	5.6	-0.1	28.6	0.306	0.0		11.9	37.0	2.6	0.134	0.137	0.003	3.3	2.8
138		Std Dev		0.6	0.1	0.6	0.1	0.1	0.2	0.7	0.6	0.2	0.7	0.5	0.0	0.4	0.105	0.0		0.2	0.7	0.0	0.046	0.046	0.001	1.2	1.0
139		Number of Points Used		101	101	101	101	101	101	101	101	101	101	101	101	101	101	101		101	101	101	101	101	101	101	101



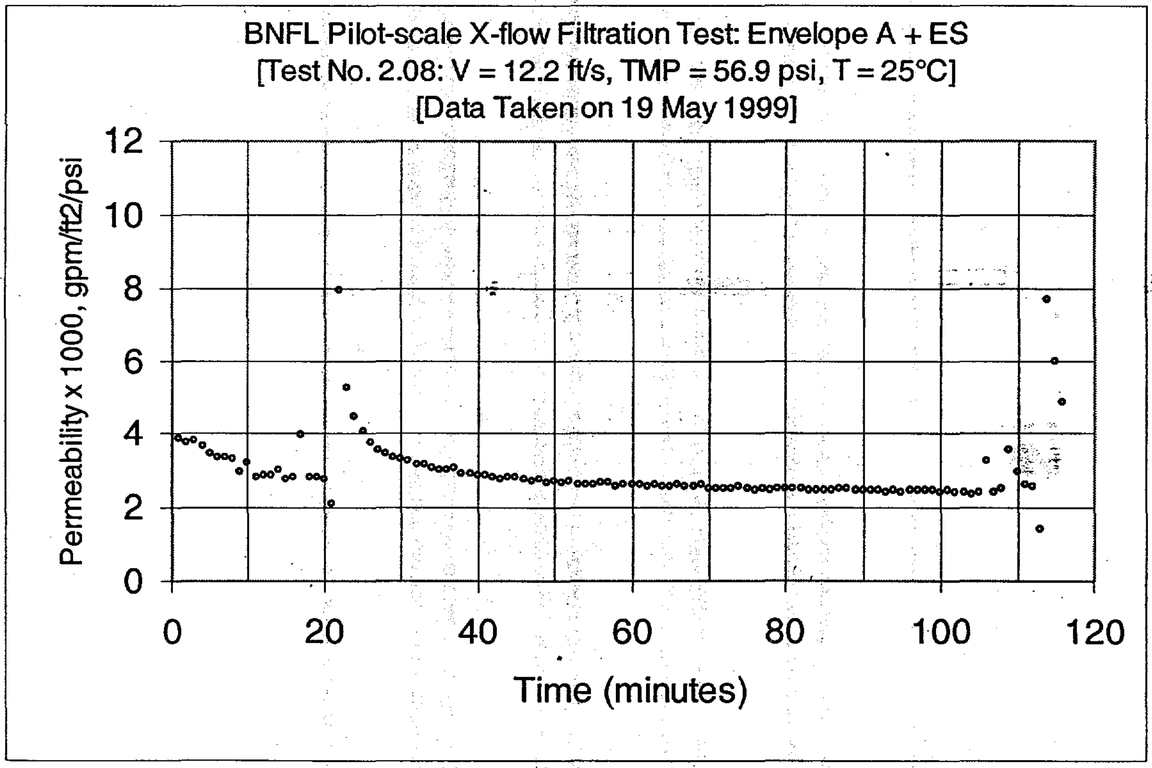


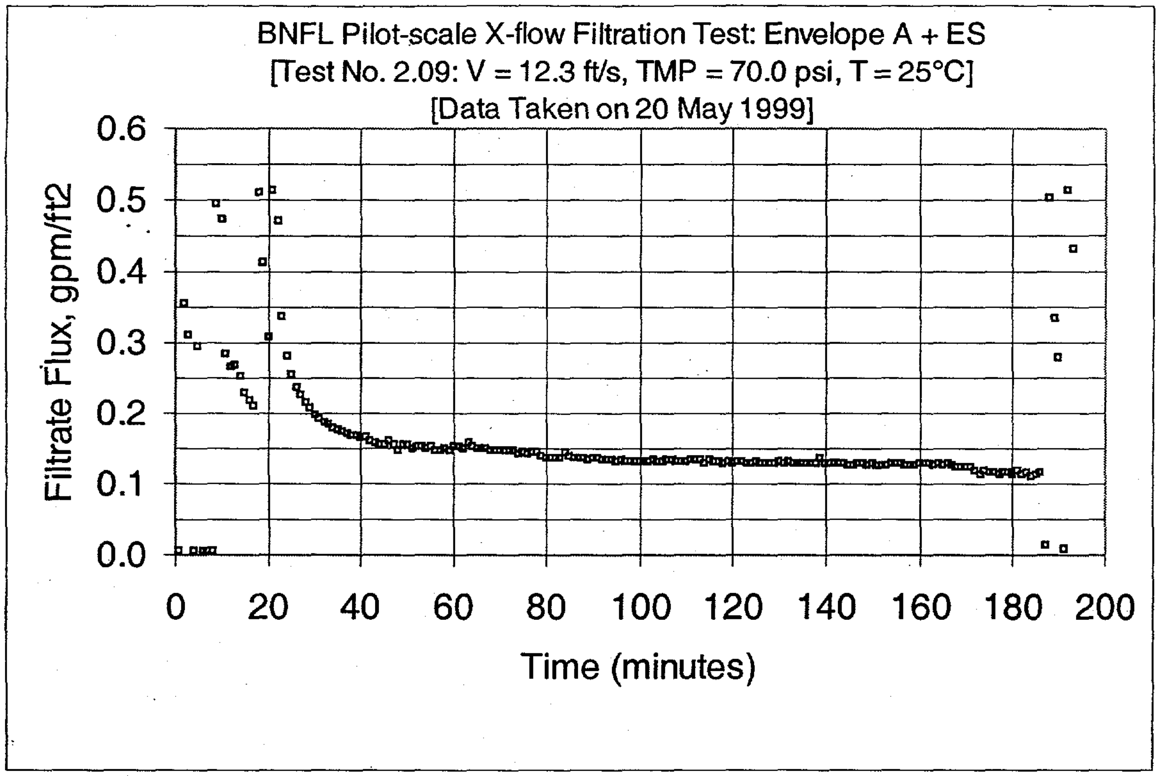
Figure B8: Test Run 2.08, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.08

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/19/1999	7:08:35 AM	0	22.046	21.469	20.833	21.211	21.022	30.886	0.093	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/19/1999	7:10:24 AM	0	22.046	21.469	20.914	21.292	21.022	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.08	0.012	0									
5	5/19/1999	7:11:25 AM	0	22.046	21.469	20.833	21.372	21.183	30.807	0.124	0.02	-0.024	0.05	-0.15	-0.181	-0.095	0.012	0									
6	data																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
7	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/19/1999	3:15:40 PM	0	25.596	23.259	25.272	25.589	22.894	31.779	45.996	52.814	5.816	40.823	5.89	-0.042	28.243	0.387	0	1	11.7	43.4	3.0	0.169	0.168	0.0039	3.86	3.3
9	5/19/1999	3:16:42 PM	0	25.596	23.259	25.272	25.65	22.813	31.779	45.655	52.462	5.872	40.823	5.86	-0.042	28.213	0.378	0	2	11.7	43.2	3.0	0.165	0.164	0.0038	3.79	3.2
10	5/19/1999	3:17:37 PM	0	25.724	23.385	25.238	25.615	22.859	31.745	48.693	56.09	4.971	44.238	6.291	-0.089	25.125	0.407	0	3	10.4	46.5	3.2	0.178	0.176	0.0038	3.80	3.2
11	5/19/1999	3:18:40 PM	0	25.804	23.304	25.318	25.695	22.939	31.824	58.239	67.219	1.835	57.423	6.017	-0.042	12.622	0.488	0	4	5.2	57.8	4.0	0.213	0.211	0.0037	3.65	3.1
12	5/19/1999	3:19:37 PM	0	25.804	23.385	25.318	25.615	23.019	31.586	52.35	59.413	6.455	48.739	6.199	-0.042	29.964	0.396	0	5	12.4	49.5	3.4	0.173	0.171	0.0035	3.46	2.9
13	5/19/1999	3:20:38 PM	0	25.724	23.304	25.318	25.615	23.019	31.665	55.077	62.737	4.316	51.811	6.599	-0.042	23.082	0.417	0	6	9.6	53.4	3.7	0.182	0.180	0.0034	3.38	2.9
14	5/19/1999	3:21:39 PM	0	25.804	23.304	25.318	25.695	23.281	31.427	55.759	63.468	4.324	51.844	6.661	-0.042	22.944	0.417	0	7	9.5	53.8	3.7	0.182	0.180	0.0034	3.35	2.9
15	5/19/1999	3:22:36 PM	0	25.724	23.304	25.316	25.775	23.1	31.745	55.635	63.225	4.221	52.588	6.414	-0.089	22.529	0.412	0	8	9.3	54.1	3.7	0.180	0.178	0.0033	3.29	2.8
16	5/19/1999	3:23:41 PM	0	25.804	23.304	25.478	25.695	23.1	31.507	83.562	93.562	7.037	77.437	9.003	-0.042	31.377	0.557	0	9	13.0	80.5	5.6	0.243	0.240	0.0030	2.98	2.5
17	5/19/1999	3:24:36 PM	0	25.929	23.269	25.763	25.82	23.226	31.79	25.322	35.936	8.792	16.853	9.881	-0.042	36.092	0.159	0	10	15.0	21.1	1.5	0.069	0.068	0.0032	3.22	2.7
18	5/19/1999	3:25:35 PM	0	26.044	23.224	25.796	25.615	23.1	31.665	61.276	68.774	6.106	56.172	6.445	-0.089	25.632	0.384	0	11	10.7	58.7	4.0	0.168	0.164	0.0028	2.79	2.4
19	5/19/1999	3:26:36 PM	0	26.249	23.35	26.083	25.66	23.145	31.631	55.914	63.072	6.503	50.053	6.168	-0.089	29.81	0.36	0	12	12.4	53.0	3.7	0.157	0.152	0.0029	2.88	2.4
20	5/19/1999	3:27:37 PM	0	26.329	23.269	26.243	25.66	23.226	31.631	58.456	65.616	5.664	53.704	6.722	-0.042	26.426	0.381	0	13	11.8	56.1	3.9	0.166	0.161	0.0029	2.86	2.4
21	5/19/1999	3:28:34 PM	0	26.649	23.269	26.403	25.66	23.226	31.71	56.875	64.81	6.838	51.337	6.938	-0.089	29.825	0.389	0	14	12.4	54.1	3.7	0.170	0.163	0.0030	3.02	2.6
22	5/19/1999	3:29:37 PM	0	26.534	23.315	26.606	25.825	23.191	31.755	57.681	65.054	6.542	51.54	6.414	-0.042	30.148	0.363	0	15	12.5	54.6	3.8	0.158	0.151	0.0028	2.77	2.4
23	5/19/1999	3:30:39 PM	0	26.934	23.315	26.688	25.705	23.11	31.914	58.394	66.152	6.447	52.723	6.753	-0.042	29.887	0.377	0.003	16	12.3	55.6	3.8	0.165	0.157	0.0028	2.83	2.4
24	5/19/1999	3:31:40 PM	0	27.014	23.315	26.848	25.625	23.03	31.755	55.635	65.542	6.391	50.323	9.034	-0.042	29.825	0.509	0	17	12.4	53.0	3.7	0.222	0.211	0.0040	3.98	3.4
25	5/19/1999	3:32:41 PM	0	27.094	23.395	27.007	25.705	22.95	31.914	59.169	66.213	6.335	54.312	6.168	-0.042	29.503	0.387	0	18	12.2	56.7	3.9	0.169	0.160	0.0028	2.81	2.4
26	5/19/1999	3:33:35 PM	0	27.139	23.36	27.212	25.67	22.995	31.879	58.084	65.176	6.614	53.4	6.106	-0.042	29.887	0.382	0	19	12.4	55.7	3.8	0.167	0.157	0.0028	2.81	2.4
27	5/19/1999	3:34:37 PM	0	27.413	23.315	27.087	25.705	22.95	31.834	59.138	66.243	6.582	53.163	6.137	-0.042	29.979	0.379	0	20	12.4	56.2	3.9	0.165	0.156	0.0028	2.78	2.4
28	5/19/1999	3:35:38 PM	1	27.458	23.36	27.053	25.67	23.156	31.841	5.207	66.822	6.271	-0.93	60.591	70.899	29.672	0.011	0	21	12.3	2.1	0.1	0.005	0.005	0.0021	2.12	1.8
29	5/19/1999	3:36:34 PM	0	27.344	23.325	27.098	25.716	23.262	31.686	58.053	66.03	6.096	53.129	6.969	-0.042	29.826	1.07	0	22	12.4	55.6	3.8	0.467	0.440	0.0079	7.92	6.7
30	5/19/1999	3:37:38 PM	0	27.378	23.36	27.053	25.831	23.236	31.641	58.952	66.365	6	54.414	6.353	-0.042	29.396	0.722	0	23	12.2	56.7	3.9	0.315	0.296	0.0053	5.25	4.5
31	5/19/1999	3:38:37 PM	0	27.503	23.406	27.098	25.876	23.121	31.924	60.192	67.158	6.231	55.022	5.963	-0.042	29.411	0.625	0.003	24	12.2	57.6	4.0	0.273	0.257	0.0045	4.47	3.8
32	5/19/1999	3:39:44 PM	0	27.503	23.406	27.018	25.716	23.121	32.003	60.75	67.585	6.271	55.022	5.829	-0.089	29.365	0.57	0	25	12.2	57.9	4.0	0.249	0.235	0.0041	4.06	3.5
33	5/19/1999	3:40:37 PM	0	27.583	23.325	27.098	25.796	23.121	31.845	59.665	66.426	6.239	55.022	5.829	-0.042	29.472	0.528	0	26	12.2	57.3	4.0	0.230	0.217	0.0038	3.79	3.2
34	5/19/1999	3:41:38 PM	0	27.503	23.325	27.018	25.716	23.121	31.924	60.068	67.127	6.343	54.448	5.921	-0.042	29.472	0.495	0	27	12.2	57.3	3.9	0.216	0.204	0.0036	3.57	3.0
35	5/19/1999	3:42:35 PM	0	27.583	23.325	26.938	25.876	23.201	31.686	59.789	66.548	6.351	54.718	5.952	-0.042	29.457	0.48	0	28	12.2	57.3	3.9	0.210	0.198	0.0035	3.47	3.0
36	5/19/1999	3:43:44 PM	0	27.503	23.325	26.938	25.796	23.201	31.766	58.642	65.42	6.375	53.197	5.983	-0.042	30.578	0.457	0	29	12.7	55.9	3.9	0.199	0.189	0.0034	3.38	2.9
37	5/19/1999	3:44:37 PM	0	27.423	23.406	26.858	25.716	23.201	31.766	59.851	67.127	6.431	54.076	6.137	-0.042	29.641	0.454	0	30	12.3	57.0	3.9	0.198	0.188	0.0033	3.30	2.8
38	5/19/1999	3:45:36 PM	0	27.549	23.371	26.983	25.681	23.327	31.81	59.138	66.121	6.255	53.873	6.075	-0.042	29.595	0.445	0	31	12.3	56.5	3.9	0.194	0.184	0.0033	3.25	2.8
39	5/19/1999	3:46:37 PM	0	27.503	23.406	26.858	25.716	23.201	31.924	58.611	65.511	6.471	52.859	5.983	-0.042	29.979	0.426	0.003	32	12.4	55.7	3.8	0.186	0.177	0.0032	3.17	2.7
40	5/19/1999	3:47:44 PM	0	27.503	23.325	26.938	25.636	23.121	31.924	58.394	65.296	6.447	52.723	6.044	-0.089	29.994	0.425	0	33	12.4	55.6	3.8	0.186	0.176	0.0032	3.16	2.7
41	5/19/1999	3:48:39 PM	0	27.423	23.406	26.858	25.636	23.041	31.924	59.386	66.548	6.479	54.279	6.168	-0.042	29.672	0.418	0	34	12.3	56.8	3.9	0.182	0.173	0.0030	3.05	2.6
42	5/19/1999	3:49:36 PM	0	27.469	23.371	26.903	25.601	23.086	32.048	59.014	66.213	6.367	53.836	6.137	-0.089	29.702	0.409	0	35	12.3	56.3	3.9	0.179	0.169	0.0030	3.01	2.6
43	5/19/1999	3:50:37 PM	0	27.469	23.371	26.903	25.601	23.247	32.018	59.293	66.426	6.359	54.448	6.106	-0.042	29.672	0.413	0	36	12.3	56.9	3.9	0.180	0.171	0.0030	3.01	2.6
44	5/19/1999	3:51:40 PM	0	27.469	23.371	26.903	25.601	23.327	[illegible]	59.882	67.066	6.511	53.738	6.106	-0.089	29.641	0.419	0	37	12.3	56.8	3.9	0.183	0.173	0.0031	3.05	2.6
45	5/19/1999	3:52:39 PM	0	27.423	23.325	26.858	25.476	23.362	32.083	59.448	66.487	6.359	54.076	6.106	-0.042	29.61	0.398	0	38	12.3	56.8	3.9	0.174	0.165	0.0029	2.91	2.5
46	5/19/1999	3:53:38 PM	0	27.423	23.406	26.858	25.556	23.362	32.162	60.471	67.493	6.239	54.921	6.168	-0.042	29.365	0.405	0	39	12.2	57.7	4.0	0.177	0.168	0.0029	2.91	2.5
47	5/19/1999	3:54:37 PM	0	27.423	23.406	26.858	25.556	23.121	32.003	60.719	67.798	6.072	55.969	6.199	-0.089	28.812	0.402	0	40	12.0	58.3	4.0	0.175	0.167	0.0029	2.86	2.4
48	5/19/1999	3:55:36 PM	0	27.469	23.451	26.823	25.761	23.086	32.048	60.223	67.188	6.255	55.124	6.137	-0.042	29.226	0.397	0	41	12.1	57.7	4.0	0.173	0.165	0.0029	2.86	2.4
49	5/19/1999	3:56:37 PM	0	27.423	23.406	26.778	25.716	23.121	32.162	60.161	67.036	6.207	54.82	6.075	-0.042	29.134	0.388	0	42	12.1	57.5	4.0	0.169	0.161	0.0028	2.80	2.4
50	5/19/1999	3:57:36 PM	0	27.469	23.451	26.823	25.761	23.006	32.128	60.874	67.981	6.295	54.482	6.106	-0.042	29.211	0.384	0	43	12.1	57.7	4.0	0.168	0.159	0.0028	2.76	2.4
51	5/19/1999	3:58:37 PM	0	27.389	23.451	26.823	25.681	23.086	32.207	60.44	67.463	6.359	54.042	6.106	-0.042	29.165	0.385	0	44	12.1	57.2	3.9	0.168	0.160	0.0028	2.79	2.4
52	5/19/1999	3:59:38 PM	0	27.389	23.451	26.823	25.761	23.086	31.969	59.014	66.091	6.231	54.718	6.137	-0.042	29.211	0.388	0	45	12.1	56.9	3.9	0.169	0.161	0.0028	2.83	2.4
53	5/19/1999	4:00:37 PM	0	27.469	23.451	26.823	25.841	23.006	32.048	60.378	67.371	6.128	55.124	6.168	-0.042	29.119	0.384	0	46	12.1	57.8	4.0	0.168	0.159	0.0028	2.76	2.3
54	5/19/1999	4:01:36 PM	0	27.389	23.451	26.823	25.761	23.086	31.969	60.347	67.493	6.359	54.82	6.137	-0.042	29.073	0.375	0	47	12.1	57.6	4.0	0.164	0.156	0.0027	2.70	2.3
55	5/19/1999	4:02:37 PM	0	27.389	23.451	26.823	25.841	23.166	32.048	59.975	66.975	6.104	55.022	6.229	-0.042	29.057	0.384	0	48	12.1	57.5	4.0	0.168	0.159	0.0028	2.77	2.4
56	5/19/1999	4:03:34 PM	0	27.389	23.451	26.823	25.681	23.086	32.286	61.059	68.255	6.367	54.887	6.199	-0.042	28.95	0.371	0	49	12.0	58.0	4.0	0.162	0.154	0.0027	2.65	2.3
57	5/19/1999	4:04:37 PM	0	27.389	23.451	26.744	25.681	23.006	32.048	60.409	67.646	6.088	55.462	6.199	-0.089	28.934	0.378	0	50	12.0	57.9	4.0	0.165	0.157	0.0027	2.71	2.3
58	5/19/1999	4:05:36 PM	0	27.309	23.451	26.823	25.681	23.086	31.969	60.068	67.066	6.335	54.718	6.106	-0.089	29.242	0.367	0	51	12.1	57.4	4.0	0.160	0.152	0.0027	2.65	2.3
59	5/19/1999	4:06:37 PM	0	27.389	23.451	26.744	25.761	23.086	32.207	59.355	66.395	6.175	54.651	6.106	-0.042	29.272	0.371	0	52	12.1	57.0	3.9	0.162	0.154	0.0027	2.71	2.3
60	5/19/1999	4:07:34 PM	0	27.344	23.406	26.778	25.716	23.041	32.241	59.758	66.944	6.582	54.752	6.106	-0.089	29.426	0.357	0	53	12.2	57.3	3.9	0.156	0.148	0.0026	2.59	2.2
61	5/19/1999	4:08:44 PM	0	27.389	23.451	26.744	25.761	23.166	31.89	58.963	66.091	6.351	54.312	6.137	-0.042	29.38	0.357	0.003	54	12.2	56.6	3.9	0.156	0.148	0.0026	2.62	2.2
62	5/19/1999	4:09:36 PM	0	27.309	23.451	26.744	25.761	23.086	32.128	59.324	66.365	6.239	54.684	6.168	-0.089	29.441	0.359	0	55	12.2	57.0	3.9	0.157	0.149	0.0026	2.62	2.2
63	5/19/1999	4:10:38 PM	0	27.389	23.451	26.664	25.761	23.166	31.969	59.386	66.609	6.447	53.095	6.168	-0.042	29.349	0.361	0	56	12.2	56.2	3.9	0.158	0.150	0.0027	2.67	2.3
64	5/19/1999	4:11:34 PM	0	27.309	23.451	26.744	25.841	23.166	32.365	60.006	67.097	6.335	54.11	6.168	-0.042	29.411	0.363	0	57	12.2	57.1	3.9	0.158	0.151	0.0026	2.64	2.3
65	5/19/1999	4:12:36 PM	0	27.309	23.451	26.744	25.761	23.086	32.048	60.471	67.615	6.423	54.583	6.199	-0.042	29.472	0.356	0	58	12.2	57.5	4.0	0.155	0.148	0.0026	2.57	2.2
66	5/19/1999	4:13:34 PM	0	27.389	23.451	26.664	25.761	23.086	31.969	58.89	66.121	6.415	53.569	6.199	-0.042	29.487	0.354	0.003	59	12.2	56.2	3.9	0.155	0.148	0.0026	2.62	2.2
67	5/19/1999	4:14:36 PM	0	27.309	23.531	26.664	25.761	23.166	32.128	59.2	66.243	6.335	53.974	6.199	-0.042	29.518	0.357	0	60	12.3	56.6	3.9	0.156	0.149	0.0026	2.63	2.2
68	5/19/1999	4:15:43 PM	0	27.309	23.531	26.664	25.841	23.086	32.128	59.014	66.182	6.463	54.312	6.199	-0.089	29.503	0.352	0	61	12.2	56.7	3.9	0.154	0.147	0.0026	2.59	2.2
69	5/19/1999	4:16:36 PM	0	27.309	23.531	26.664	25.841	23.086	32.128	60.316	67.554	6.527	54.718	6.199	-0.042	29.411	0.351	0	62	12.2	57.5	4.0	0.153	0.146	0.0025	2.54	2.2
70	5/19/1999	4:17:37 PM	0	27.309	23.451	26.584	25.761	23.006	32.286	59.851	67.036	6.407	53.805	6.229	-0.089	29.288	0.358	0	63	12.2	56.8	3.9	0.156	0.150	0.0026	2.63	2.2
71	5/19/1999	4:18:36 PM	0	27.309	23.531	26.664	25.761	23.006	32.207	60.006	67.219	6.255	54.448	6.322	-0.042	29.165	0.349	0	64	12.1	57.2	3.9	0.152	0.145	0.0025	2.54	2.2
72	5/19/1999	4:19:37 PM	0	27.309	23.531	26.584	25.761	23.086	32.128	60.161	67.524	6.12	55.969	6.383	-0.089	28.858	0.359	0	65	12.0	58.1	4.0	0.157	0.150	0.0026	2.58	2.2
73	5/19/1999	4:20:36 PM	0	27.229	23.531	26.584	25.761	23.006	32.286	58.425	65.389	6.351	53.332	6.075	-0.042	29.825	0.346	0	66	12.4	55.9	3.9	0.151	0.144	0.0026	2.59	2.2
74	5/19/1999	4:21:39 PM	0	27.309	23.451	26.504	25.761	23.086	32.207	58.828	65.816	6.479	53.569	6.106	-0.089	29.841	0.342	0	67	12.4	56.2	3.9	0.149	0.143	0.0025	2.55	2.2
75	5/19/1999	4:22:38 PM	0	27.229	23.531	26.584	25.681	23.086	32.286	59.2	66.487	6.431	53.535	6.229	-0.042	29.395	0.346	0	68	12.2	56.4	3.9	0.151	0.144	0.0026	2.56	2.2
76	5/19/1999	4:23:37 PM	0	27.184	23.486	26.459	25.556	22.96	32.063	59.448	66.639	6.367	54.762	6.322	-0.089	29.211	0.353	0	69	12.1	57.1	3.9	0.154	0.148	0.0026	2.59	2.2
77	5/19/1999	4:24:36 PM	0	27.104	23.486	26.459	25.636	23.041	32.162	60.223	67.371	6.367	54.38	6.26	-0.042	29.272	0.34	0	70	12.1	57.3	4.0	0.148	0.142	0.0025	2.49	2.1
78	5/19/1999	4:25:41 PM	0	27.149	23.531	26.504	25.681	23.086	32.048	60.037	67.066	6.303	54.346	6.291	-0.042	29.272	0.345	0	71	12.1	57.2	3.9	0.151	0.144	0.0025	2.52	2.1
79	5/19/1999	4:26:36 PM	0	27.104	23.566	26.379	25.716	23.041	32.241	59.541	67.127	6.471	54.38	6.26	-0.042	29.272	0.342	0	72	12.1	57.0	3.9	0.149	0.144	0.0025	2.52	2.1
80	5/19/1999	4:27:35 PM	0	27.024	23.486	26.379	25.636	23.041	32.162	59.324	66.67	6.415	53.805	6.291	-0.089	29.349	0.34	0	73	12.2	56.6	3.9	0.148	0.143	0.0025	2.52	2.1
81	5/19/1999	4:28:36 PM	0	27.024	23.566	26.379	25.636	23.041	32.241	59.2	66.365	6.335	53.535	6.168	-0.042	29.518	0.345	0	74	12.3	56.4	3.9	0.151	0.145	0.0026	2.57	2.2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.08

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/19/1999	4:29:37 PM	0	27.024	23.566	26.379	25.636	22.96	32.241	59.169	66.243	6.363	54.11	6.229	-0.089	29.487	0.339	0	75	12.2	56.6	3.9	0.148	0.142	0.0025	2.51	2.1
83	5/19/1999	4:30:36 PM	0	27.024	23.566	26.379	25.636	22.96	32.083	60.099	67.249	6.343	54.11	6.229	-0.042	29.533	0.335	0	76	12.3	57.1	3.9	0.146	0.141	0.0025	2.46	2.1
84	5/19/1999	4:31:41 PM	0	26.944	23.566	26.379	25.636	23.041	32.083	59.448	66.67	6.399	53.197	6.199	-0.042	29.441	0.339	0	77	12.2	56.3	3.9	0.148	0.142	0.0025	2.53	2.2
85	5/19/1999	4:32:36 PM	0	26.944	23.566	26.299	25.716	23.121	31.924	60.037	67.249	6.295	54.211	6.229	-0.042	29.365	0.337	0	78	12.2	57.1	3.9	0.147	0.142	0.0025	2.48	2.1
86	5/19/1999	4:33:37 PM	0	26.944	23.566	26.299	25.716	22.96	32.162	59.862	67.005	6.423	53.873	6.229	-0.089	29.395	0.341	0	79	12.2	56.9	3.9	0.149	0.144	0.0025	2.52	2.1
87	5/19/1999	4:34:38 PM	0	26.944	23.486	26.219	25.636	22.96	32.083	58.487	65.603	6.423	53.366	6.168	-0.042	29.533	0.335	0	80	12.3	55.9	3.9	0.146	0.141	0.0025	2.53	2.2
88	5/19/1999	4:35:39 PM	0	26.944	23.566	26.219	25.636	22.96	32.162	58.828	65.755	6.463	53.569	6.168	-0.089	29.503	0.332	0	81	12.2	56.2	3.9	0.145	0.140	0.0025	2.49	2.1
89	5/19/1999	4:36:36 PM	0	26.944	23.566	26.219	25.636	22.88	32.083	59.448	66.517	6.407	53.569	6.168	-0.042	29.518	0.333	0	82	12.3	56.5	3.9	0.145	0.140	0.0025	2.49	2.1
90	5/19/1999	4:37:37 PM	0	26.819	23.521	26.174	25.59	22.995	31.959	59.231	66.487	6.439	53.873	6.229	-0.042	29.549	0.33	0	83	12.3	56.6	3.9	0.144	0.139	0.0025	2.46	2.1
91	5/19/1999	4:38:36 PM	0	26.864	23.566	26.219	25.716	22.96	32.162	59.262	66.365	6.558	54.38	6.229	-0.042	29.487	0.333	0	84	12.2	56.8	3.9	0.145	0.140	0.0025	2.47	2.1
92	5/19/1999	4:39:40 PM	0	26.819	23.521	26.094	25.67	22.995	32.038	59.366	66.395	6.447	53.772	6.229	-0.042	29.549	0.329	0	85	12.3	56.6	3.9	0.144	0.139	0.0025	2.46	2.1
93	5/19/1999	4:40:36 PM	0	26.864	23.566	26.219	25.716	23.041	32.321	59.366	66.426	6.407	53.974	6.199	-0.042	29.426	0.33	0	86	12.2	56.7	3.9	0.144	0.139	0.0025	2.46	2.1
94	5/19/1999	4:41:38 PM	0	26.739	23.521	26.174	25.59	22.995	32.117	58.673	65.938	6.479	53.535	6.291	-0.042	29.58	0.331	0	87	12.3	56.1	3.9	0.144	0.140	0.0025	2.49	2.1
95	5/19/1999	4:42:41 PM	0	26.739	23.521	26.094	25.75	23.075	32.196	58.828	66.152	6.542	53.298	6.26	-0.089	29.61	0.335	0	88	12.3	56.1	3.9	0.146	0.142	0.0025	2.53	2.2
96	5/19/1999	4:43:35 PM	0	26.739	23.521	26.094	25.75	23.075	31.959	59.727	67.005	6.431	52.994	6.229	-0.089	29.457	0.328	0	89	12.2	56.4	3.9	0.143	0.139	0.0025	2.46	2.1
97	5/19/1999	4:44:37 PM	0	26.784	23.566	26.139	25.796	23.041	32.241	58.828	66.182	6.423	53.366	6.229	-0.042	29.533	0.327	0	90	12.3	56.1	3.9	0.143	0.138	0.0025	2.46	2.1
98	5/19/1999	4:45:36 PM	0	26.784	23.566	26.139	25.796	23.121	32.003	59.366	66.395	6.199	55.124	6.353	-0.089	29.149	0.335	0	91	12.1	57.3	3.9	0.146	0.142	0.0025	2.47	2.1
99	5/19/1999	4:46:37 PM	0	26.739	23.521	26.094	25.75	23.075	31.959	59.076	66.395	6.527	53.129	6.229	-0.089	29.472	0.326	0	92	12.2	56.1	3.9	0.142	0.138	0.0025	2.46	2.1
100	5/19/1999	4:47:40 PM	0	26.739	23.521	26.014	25.75	23.075	31.879	59.665	66.944	6.415	54.515	6.353	-0.042	29.103	0.323	0	93	12.1	57.1	3.9	0.141	0.137	0.0024	2.40	2.0
101	5/19/1999	4:48:37 PM	0	26.659	23.521	26.014	25.831	23.236	31.8	59.634	67.097	6.295	53.839	6.383	-0.089	28.965	0.329	0	94	12.0	56.7	3.9	0.144	0.140	0.0025	2.46	2.1
102	5/19/1999	4:49:36 PM	0	26.659	23.521	26.014	25.831	23.236	31.8	60.781	68.225	6.239	54.651	6.383	-0.042	28.965	0.329	0	95	12.0	57.7	4.0	0.144	0.140	0.0024	2.42	2.1
103	5/19/1999	4:50:37 PM	0	26.739	23.601	26.014	25.831	23.156	32.038	59.82	66.914	6.136	54.921	6.353	-0.042	28.904	0.332	0	96	12.0	57.4	4.0	0.145	0.141	0.0025	2.46	2.1
104	5/19/1999	4:51:38 PM	0	26.659	23.521	26.014	25.831	23.075	32.038	59.2	66.456	6.295	54.955	6.353	-0.042	28.981	0.334	0	97	12.0	57.1	3.9	0.146	0.142	0.0025	2.48	2.1
105	5/19/1999	4:52:37 PM	0	26.704	23.566	26.059	25.876	23.121	31.924	59.51	66.944	6.287	54.549	6.383	-0.042	28.888	0.333	0	98	12.0	57.0	3.9	0.145	0.141	0.0025	2.47	2.1
106	5/19/1999	4:53:36 PM	0	26.624	23.566	25.979	25.796	23.121	32.241	59.634	66.761	6.239	54.11	6.353	-0.042	28.934	0.329	0	99	12.0	56.9	3.9	0.144	0.140	0.0025	2.46	2.1
107	5/19/1999	4:54:37 PM	0	26.659	23.521	25.934	25.75	23.075	31.959	60.192	67.524	6.295	54.346	6.322	-0.089	28.965	0.324	0	100	12.0	57.3	3.9	0.141	0.138	0.0024	2.41	2.0
108	5/19/1999	4:55:36 PM	0	26.579	23.601	25.934	25.59	23.075	32.117	60.409	67.676	6.279	54.076	6.353	-0.042	28.996	0.329	0.003	101	12.0	57.2	3.9	0.144	0.140	0.0024	2.44	2.1
109	5/19/1999	4:56:37 PM	0	26.579	23.601	25.934	25.59	22.995	32.038	60.502	67.889	6.16	55.158	6.353	-0.042	28.934	0.328	0	102	12.0	57.8	4.0	0.143	0.139	0.0024	2.41	2.1
110	5/19/1999	4:57:36 PM	0	26.579	23.601	25.934	25.59	22.995	32.117	59.851	67.005	6.215	55.09	6.322	-0.089	28.981	0.324	0	103	12.0	57.5	4.0	0.141	0.138	0.0024	2.40	2.0
111	5/19/1999	4:58:35 PM	0	26.579	23.601	25.854	25.59	22.995	31.879	60.904	68.133	6.199	55.327	6.322	-0.042	28.95	0.325	0	104	12.0	58.1	4.0	0.142	0.139	0.0024	2.38	2.0
112	5/19/1999	4:59:38 PM	0	26.579	23.601	25.854	25.59	22.834	32.196	59.417	66.609	6.048	54.853	6.291	-0.042	28.919	0.325	0	105	12.0	57.1	3.9	0.142	0.139	0.0024	2.42	2.1
113	5/19/1999	5:00:37 PM	0	26.579	23.601	25.934	25.59	22.915	32.038	58.673	67.005	6.144	53.501	7.678	-0.042	28.961	0.428	0	106	12.0	56.1	3.9	0.187	0.182	0.0032	3.25	2.8
114	5/19/1999	5:01:36 PM	0	26.579	23.601	25.934	25.43	22.834	32.196	60.935	68.743	6.311	54.549	6.599	-0.042	28.919	0.326	0	107	12.0	57.7	4.0	0.142	0.139	0.0024	2.40	2.0
115	5/19/1999	5:02:37 PM	0	26.579	23.601	25.934	25.51	22.915	32.276	57.526	67.249	6.175	52.453	6.88	-0.042	28.919	0.322	0	108	12.0	55.0	3.8	0.141	0.137	0.0025	2.49	2.1
116	5/19/1999	5:03:36 PM	0	26.579	23.601	25.934	25.51	22.915	32.276	69.707	78.835	4.604	65.469	8.202	-0.042	24.434	0.567	0	109	10.1	67.6	4.7	0.248	0.241	0.0036	3.57	3.0
117	5/19/1999	5:04:37 PM	0	26.579	23.601	25.934	25.51	22.995	32.196	68.033	74.323	5.098	64.049	5.428	-0.042	25.786	0.463	0	110	10.7	66.0	4.6	0.202	0.197	0.0030	2.98	2.5
118	5/19/1999	5:05:36 PM	0	26.579	23.681	25.934	25.51	22.915	31.879	60.099	67.097	6.351	54.279	6.075	-0.042	29.103	0.352	0	111	12.1	57.2	3.9	0.154	0.150	0.0026	2.62	2.2
119	5/19/1999	5:06:37 PM	0	26.579	23.601	25.934	25.67	22.915	32.117	61.023	38.266	6.351	55.191	6.168	-0.042	28.812	0.35	0	112	12.0	58.1	4.0	0.153	0.149	0.0026	2.56	2.2
120	5/19/1999	5:07:36 PM	0	26.579	23.601	25.934	25.59	22.995	31.959	9.298	18.862	12.606	-2.756	8.849	-0.042	46.736	0.011	0	113	19.4	3.3	0.2	0.005	0.005	0.0014	1.43	1.2
121	5/19/1999	5:08:37 PM	0	26.534	23.556	25.888	25.545	22.95	32.072	68.746	84.11	3.487	66.483	14.643	-0.042	21.592	1.218	0	114	9.0	67.6	4.7	0.532	0.519	0.0077	7.67	6.5
122	5/19/1999	5:09:36 PM	0	26.579	23.601	26.014	25.59	22.995	31.721	58.859	66.365	6.136	53.501	6.661	-0.042	29.656	0.789	0	115	12.3	56.2	3.9	0.344	0.335	0.0060	5.96	5.1
123	5/19/1999	5:10:40 PM	0	26.579	23.601	26.014	25.67	22.915	32.117	61.152	68.499	6.024	55.462	6.137	-0.042	29.042	0.666	0	116	12.1	58.3	4.0	0.291	0.283	0.0048	4.85	4.1
124																											
125		Averages		27.1	23.5	26.5	25.7	23.1	32.1	59.6	66.8	6.3	54.3	6.2	-0.1	29.4	0.382	0.0		12.2	56.9	3.9	0.167	0.160	0.003	2.8	2.4
126		Maximum		27.6	23.6	27.1	25.9	23.4	32.4	61.1	68.3	6.6	56.0	7.0	0.0	30.6	1.070	0.0		12.7	58.3	4.0	0.467	0.440	0.008	7.9	6.7
127		Median		27.3	23.5	26.6	25.7	23.1	32.0	59.6	66.7	6.4	54.3	6.2	0.0	29.4	0.353	0.0		12.2	57.0	3.9	0.154	0.147	0.003	2.6	2.2
128		Minimum		26.6	23.3	25.9	25.5	22.8	31.6	58.1	65.3	6.0	52.7	5.8	-0.1	28.8	0.323	0.0		12.0	55.6	3.8	0.141	0.137	0.002	2.4	2.0
129		Std Dev		0.3	0.1	0.4	0.1	0.1	0.2	0.7	0.7	0.1	0.7	0.1	0.0	0.3	0.101	0.0		0.1	0.6	0.0	0.044	0.041	0.001	0.7	0.6
130		Number of Points Used		84	84	84	84	84	84	84	84	84	84	84	84	84	84	84		84	84	84	84	84	84	84	84



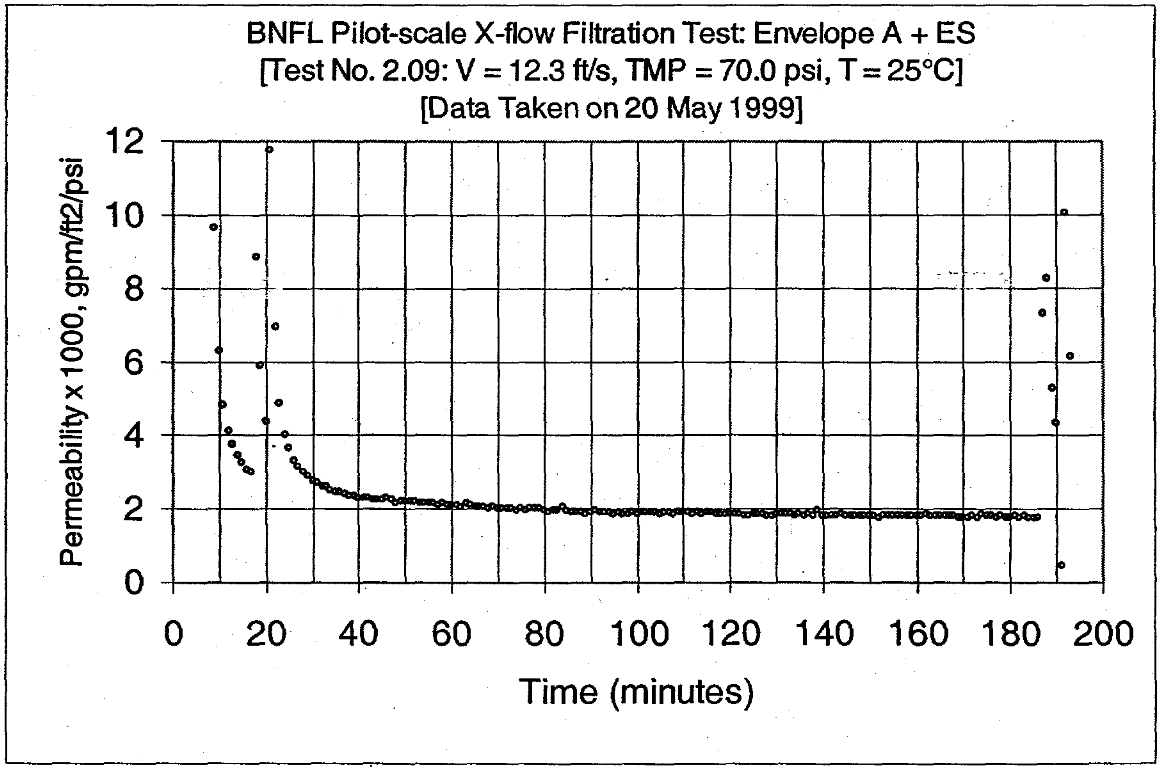


Figure B9: Test Run 2.09, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.09

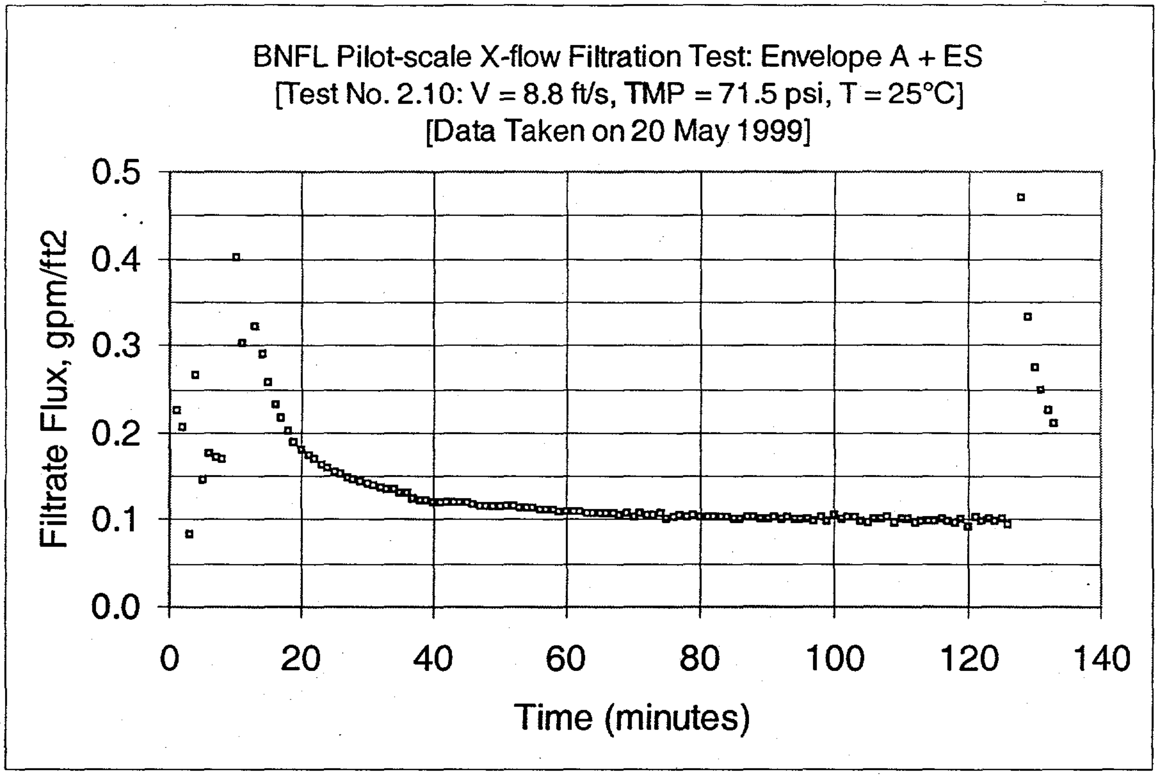
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/20/1999	10:22:08 AM	0	26.118	22.172	22.985	23.443	21.887	32.452	0.093	0.081	-0.016	0.05	0.004	-0.042	-0.095	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/20/1999	10:25:39 AM	0	26.073	22.207	22.94	23.398	22.244	31.139	0.093	0.081	-0.016	0.05	0.004	-0.042	-0.08	0.011	0									
5	5/20/1999	10:26:38 AM	0	25.993	22.207	22.94	23.478	22.566	31.059	0.093	0.081	-0.016	0.05	-0.027	-0.042	-0.08	0.011	0									
6	5/20/1999	10:27:34 AM	0	25.993	22.207	22.94	23.639	22.727	30.98	0.093	0.081	-0.016	0.05	0.004	-0.089	-0.065	0.011	0									
7	data																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	5/20/1999	11:02:22 AM	0	25.202	22.379	22.79	24.131	23.46	30.254	0.093	0.142	-0.024	0.05	0.004	-0.042	-0.08	0.011	0	1	0.0	0.1	0.0	0.005	0.005	0.0715	71.50	60.9
10	5/20/1999	11:04:34 AM	0	25.087	22.424	23.317	24.336	23.666	33.478	0.093	0.142	-0.016	0.05	0.004	-0.042	16.8	0.776	0	2	7.0	0.1	0.0	0.339	0.355	4.9690	4969.04	4228.7
11	5/20/1999	11:05:38 AM	0	25.007	22.343	23.799	24.577	23.586	30.24	0.062	0.142	-0.024	0.05	0.004	-0.042	50.346	0.685	0	3	20.9	0.1	0.0	0.299	0.309	5.5242	5524.19	4701.2
12	5/20/1999	11:06:37 AM	0	24.811	22.389	24.245	24.622	23.792	30.523	0.062	0.142	-0.016	0.05	0.035	-0.042	29.964	0.012	0	4	12.4	0.1	0.0	0.005	0.005	0.0956	95.56	81.3
13	5/20/1999	11:07:36 AM	0	24.811	22.389	24.566	24.542	23.471	31	0.093	0.142	-0.016	0.05	0.035	-0.042	16.017	0.665	0	5	6.6	0.1	0.0	0.290	0.294	4.1101	4110.10	3497.8
14	5/20/1999	11:08:37 AM	0	24.776	22.434	24.531	24.587	23.114	31.362	0.093	0.111	-0.024	0.05	0.035	-0.089	-0.08	0.011	0	6	0.0	0.1	0.0	0.005	0.005	0.0681	68.05	57.9
15	5/20/1999	11:09:36 AM	0	24.822	22.479	24.576	24.632	22.999	31.645	0.062	0.142	-0.016	0.05	0.035	-0.042	-0.08	0.011	0	7	0.0	0.1	0.0	0.005	0.005	0.0868	86.78	73.9
16	5/20/1999	11:10:35 AM	0	24.661	22.479	24.576	24.552	22.758	31.804	0.248	-1.779	0.527	0.152	-2.554	-0.042	-0.08	0.011	0	8	0.0	0.2	0.0	0.005	0.005	0.0243	24.30	20.7
17	5/20/1999	11:11:38 AM	0	24.902	22.399	24.816	24.472	22.758	31.883	52.908	64.688	4.524	49.343	10.821	-0.042	25.325	1.125	0	9	10.5	51.1	3.5	0.491	0.494	0.0097	9.66	8.2
18	5/20/1999	11:12:37 AM	0	25.062	22.399	25.377	24.392	22.677	32.042	77.425	86.488	5.904	72.839	8.232	-0.042	29.165	1.094	0	10	12.1	75.1	5.2	0.478	0.473	0.0063	6.29	5.4
19	5/20/1999	11:13:38 AM	0	25.863	22.399	25.937	24.312	22.516	32.121	62.33	69.749	6.716	56.24	6.476	-0.042	30.563	0.669	0	11	12.7	59.3	4.1	0.292	0.284	0.0048	4.80	4.1
20	5/20/1999	11:14:37 AM	0	26.148	22.444	26.542	24.357	22.401	32.245	68.002	75.573	6.981	61.074	6.722	-0.042	31.761	0.633	0	12	13.2	64.5	4.4	0.276	0.265	0.0041	4.10	3.5
21	5/20/1999	11:15:36 AM	0	26.663	22.479	26.497	24.231	22.275	32.279	72.961	80.268	5.84	68.309	6.445	-0.042	28.673	0.639	0	13	11.9	70.6	4.9	0.279	0.267	0.0038	3.79	3.2
22	5/20/1999	11:16:37 AM	0	26.423	22.479	26.417	24.231	22.275	32.279	75.224	82.189	6.12	70.304	6.075	-0.042	29.011	0.601	0	14	12.0	72.8	5.0	0.262	0.252	0.0035	3.47	2.9
23	5/20/1999	11:17:38 AM	0	26.823	22.479	26.417	24.231	22.195	32.279	73.065	79.567	6.519	67.667	5.798	-0.042	30.179	0.546	0	15	12.5	70.4	4.9	0.238	0.229	0.0033	3.25	2.8
24	5/20/1999	11:18:35 AM	0	26.823	22.479	26.417	24.231	22.275	32.121	74.048	80.878	6.63	68.174	6.014	-0.042	30.209	0.521	0	16	12.5	71.1	4.9	0.227	0.219	0.0031	3.07	2.6
25	5/20/1999	11:19:36 AM	0	26.903	22.479	26.337	24.231	22.195	32.2	73.488	80.146	6.479	68.005	5.952	-0.042	29.887	0.503	0	17	12.4	70.7	4.9	0.220	0.212	0.0030	2.99	2.5
26	5/20/1999	11:20:37 AM	0	26.823	22.56	26.417	24.312	22.275	32.2	60.719	78.866	6.287	55.191	17.139	-0.042	31.023	1.218	0	18	12.9	58.0	4.0	0.532	0.511	0.0088	8.82	7.5
27	5/20/1999	11:21:36 AM	0	26.823	22.56	26.337	24.231	22.275	32.279	73.209	79.506	6.399	67.43	5.397	-0.042	30.67	0.982	0	19	12.7	70.3	4.8	0.429	0.413	0.0059	5.87	5.0
28	5/20/1999	11:22:37 AM	0	26.823	22.479	26.337	24.231	22.275	32.279	73.581	80.969	6.335	67.701	6.63	-0.042	30.025	0.733	0	20	12.5	70.6	4.9	0.320	0.308	0.0044	4.36	3.7
29	5/20/1999	11:23:42 AM	0	26.903	22.56	26.337	24.231	22.355	32.279	46.368	79.872	6.08	40.789	32.424	-0.042	30.962	1.218	0	21	12.8	43.6	3.0	0.532	0.512	0.0118	11.75	10.0
30	5/20/1999	11:24:37 AM	0	26.903	22.56	26.337	24.231	22.275	32.2	71.226	80.116	6.223	65.435	8.109	-0.042	30.716	1.123	0	22	12.7	68.3	4.7	0.490	0.472	0.0069	6.91	5.9
31	5/20/1999	11:25:38 AM	0	26.903	22.56	26.337	24.231	22.278	32.2	72.342	80.573	6.168	66.754	7.37	-0.042	29.933	0.804	0	23	12.4	69.5	4.8	0.351	0.338	0.0049	4.86	4.1
32	5/20/1999	11:26:35 AM	0	26.858	22.514	26.212	24.106	22.31	32.155	72.868	80.299	6.303	66.889	6.599	-0.042	30.025	0.666	0	24	12.5	69.9	4.8	0.291	0.281	0.0040	4.02	3.4
33	5/20/1999	11:27:36 AM	0	26.858	22.514	26.372	24.186	22.391	32.155	72.714	79.658	6.311	67.734	6.26	-0.042	30.025	0.61	0	25	12.5	70.2	4.8	0.266	0.256	0.0036	3.65	3.1
34	5/20/1999	11:28:37 AM	0	26.858	22.514	26.372	24.186	22.391	32.155	74.573	81.518	6.191	68.647	6.106	-0.042	29.518	0.562	0	26	12.3	71.6	4.9	0.245	0.236	0.0033	3.30	2.8
35	5/20/1999	11:29:34 AM	0	26.813	22.469	26.247	24.141	22.104	31.952	74.573	81.701	6.247	68.546	6.106	-0.042	29.365	0.535	0	27	12.2	71.6	4.9	0.234	0.226	0.0032	3.15	2.7
36	5/20/1999	11:30:35 AM	0	26.858	22.514	26.292	24.266	22.31	31.442	74.077	81.152	6.287	68.613	6.137	-0.042	29.288	0.512	0	28	12.2	71.3	4.9	0.224	0.216	0.0030	3.02	2.6
37	5/20/1999	11:31:34 AM	0	26.813	22.469	26.247	24.301	22.506	31.079	74.48	81.427	6.319	68.951	6.137	0.004	29.257	0.494	0	29	12.1	71.7	4.9	0.216	0.208	0.0029	2.90	2.5
38	5/20/1999	11:32:44 AM	0	26.813	22.55	26.247	24.301	22.747	30.92	74.263	81.244	6.319	69.019	6.168	-0.042	29.257	0.467	0	30	12.1	71.6	4.9	0.204	0.197	0.0027	2.75	2.3
39	5/20/1999	11:33:36 AM	0	26.813	22.469	26.327	24.462	22.968	30.762	74.418	81.274	6.231	68.85	6.168	-0.042	29.103	0.459	0	31	12.1	71.6	4.9	0.200	0.193	0.0027	2.70	2.3
40	5/20/1999	11:34:35 AM	0	26.858	22.514	26.372	24.667	23.194	30.806	73.984	80.969	6.247	69.29	6.199	-0.042	29.149	0.445	0	32	12.1	71.6	4.9	0.194	0.187	0.0026	2.61	2.2
41	5/20/1999	11:35:34 AM	0	26.778	22.514	26.292	24.828	23.355	30.568	73.674	80.665	6.287	68.613	6.229	-0.042	29.134	0.437	0	33	12.1	71.1	4.9	0.191	0.184	0.0026	2.59	2.2
42	5/20/1999	11:36:37 AM	0	26.903	22.64	26.337	24.953	23.561	30.613	74.232	81.305	6.303	68.951	6.199	-0.042	29.103	0.425	0	34	12.1	71.6	4.9	0.186	0.179	0.0025	2.50	2.1
43	5/20/1999	11:37:36 AM	0	26.823	22.56	26.337	25.033	23.641	30.692	74.604	81.732	6.319	68.965	6.229	-0.042	29.149	0.419	0	35	12.1	71.8	4.9	0.183	0.176	0.0025	2.45	2.1
44	5/20/1999	11:38:37 AM	0	26.823	22.56	26.337	25.194	23.722	30.533	74.728	81.916	6.415	68.58	6.229	-0.042	29.103	0.415	0	36	12.1	71.7	4.9	0.181	0.175	0.0024	2.44	2.1
45	5/20/1999	11:39:39 AM	0	26.913	22.57	26.427	25.204	23.732	30.702	73.922	81.03	6.295	68.275	6.199	-0.042	29.149	0.408	0	37	12.1	71.1	4.9	0.178	0.171	0.0024	2.41	2.0
46	5/20/1999	11:40:38 AM	0	26.833	22.57	26.347	25.284	23.491	31.1	74.418	81.549	6.383	68.647	6.229	-0.042	29.134	0.401	0	38	12.1	71.5	4.9	0.175	0.169	0.0024	2.36	2.0
47	5/20/1999	11:41:37 AM	0	26.833	22.57	26.347	25.284	23.33	31.338	73.798	80.786	6.215	68.647	6.229	-0.042	28.981	0.398	0	39	12.0	71.2	4.9	0.174	0.167	0.0023	2.35	2.0
48	5/20/1999	11:42:38 AM	0	26.878	22.616	26.392	25.249	23.215	31.541	74.108	81.152	6.343	68.884	6.199	-0.042	29.027	0.397	0	40	12.0	71.5	4.9	0.173	0.167	0.0023	2.33	2.0
49	5/20/1999	11:43:34 AM	0	26.798	22.535	26.313	25.169	22.974	31.779	74.201	81.305	6.351	68.343	6.26	-0.042	28.981	0.393	0	41	12.0	71.3	4.9	0.172	0.165	0.0023	2.32	2.0
50	5/20/1999	11:44:38 AM	0	26.843	22.581	26.358	25.134	22.939	31.903	73.426	80.39	6.535	67.532	6.199	-0.042	29.672	0.385	0	42	12.3	70.5	4.9	0.168	0.162	0.0023	2.30	2.0
51	5/20/1999	11:45:37 AM	0	26.843	22.581	26.358	25.134	22.778	32.062	72.59	79.658	6.917	66.213	6.168	-0.042	30.332	0.374	0	43	12.6	69.4	4.8	0.163	0.157	0.0023	2.26	1.9
52	5/20/1999	11:46:40 AM	0	26.843	22.581	26.358	24.974	22.698	32.141	71.877	78.957	6.814	66.281	6.322	-0.042	30.378	0.371	0	44	12.6	69.1	4.8	0.162	0.156	0.0023	2.26	1.9
53	5/20/1999	11:47:41 AM	0	26.843	22.661	26.278	24.974	22.698	32.062	71.846	79.018	6.862	66.213	6.291	-0.042	30.44	0.367	0	45	12.6	69.0	4.8	0.160	0.155	0.0022	2.24	1.9
54	5/20/1999	11:48:36 AM	0	26.843	22.581	26.358	24.894	22.618	32.141	72.125	79.171	6.894	66.416	6.26	-0.042	30.486	0.384	0	46	12.7	69.3	4.8	0.168	0.161	0.0023	2.33	2.0
55	5/20/1999	11:49:37 AM	0	26.843	22.661	26.358	24.894	22.618	32.221	71.908	79.018	6.878	66.044	6.322	-0.042	30.424	0.367	0	47	12.6	69.0	4.8	0.160	0.154	0.0022	2.24	1.9
56	5/20/1999	11:50:40 AM	0	26.889	22.626	26.403	24.939	22.502	32.265	71.97	79.171	6.862	65.841	6.353	-0.042	30.424	0.354	0	48	12.6	68.9	4.8	0.155	0.149	0.0022	2.16	1.8
57	5/20/1999	11:51:37 AM	0	26.889	22.626	26.403	24.859	22.422	32.345	72.342	79.292	6.766	65.943	6.26	-0.042	30.332	0.367	0	49	12.6	69.1	4.8	0.160	0.154	0.0022	2.23	1.9
58	5/20/1999	11:52:38 AM	0	26.889	22.626	26.323	24.939	22.341	32.265	72.652	80.024	6.758	67.43	6.383	-0.042	30.01	0.37	0	50	12.5	70.0	4.8	0.162	0.156	0.0022	2.22	1.9
59	5/20/1999	11:53:37 AM	0	26.889	22.626	26.403	24.859	22.341	32.265	72.125	79.384	6.902	66.112	6.353	-0.042	30.501	0.36	0	51	12.7	69.1	4.8	0.157	0.151	0.0022	2.19	1.9
60	5/20/1999	11:54:40 AM	0	26.889	22.706	26.403	24.939	22.341	32.265	72.156	79.292	6.838	66.517	6.229	-0.042	30.486	0.362	0	52	12.7	69.3	4.8	0.158	0.152	0.0022	2.19	1.9
61	5/20/1999	11:55:37 AM	0	26.889	22.626	26.403	24.859	22.422	32.265	72.621	79.841	6.798	66.619	6.322	-0.042	30.501	0.361	0	53	12.7	69.6	4.8	0.158	0.152	0.0022	2.18	1.9
62	5/20/1999	11:56:38 AM	0	26.889	22.626	26.403	24.859	22.422	32.345	72.745	80.146	6.782	66.348	6.353	-0.042	30.24	0.357	0	54	12.5	69.5	4.8	0.156	0.150	0.0022	2.15	1.8
63	5/20/1999	11:57:37 AM	0	26.889	22.706	26.323	24.859	22.422	32.186	72.775	79.872	6.758	66.619	6.26	-0.042	30.194	0.361	0	55	12.5	69.7	4.8	0.158	0.152	0.0022	2.18	1.9
64	5/20/1999	11:58:36 AM	0	26.889	22.626	26.323	24.859	22.422	32.265	72.404	79.536	6.798	66.281	6.322	-0.042	30.271	0.353	0	56	12.6	69.3	4.8	0.154	0.148	0.0021	2.14	1.8
65	5/20/1999	11:59:35 AM	0	26.889	22.706	26.323	24.859	22.422	32.345	73.178	80.36	6.67	66.855	6.322	0.004	30.04	0.353	0	57	12.5	70.0	4.8	0.154	0.148	0.0021	2.12	1.8
66	5/20/1999	12:00:34 PM	0	26.889	22.706	26.323	24.779	22.502	32.186	72.404	79.475	6.694	66.281	6.322	-0.042	30.179	0.357	0	58	12.5	69.3	4.8	0.156	0.150	0.0022	2.17	1.8
67	5/20/1999	12:01:37 PM	0	26.843	22.661	26.278	24.813	22.376	32.221	72.93	80.207	6.798	66.551	6.291	-0.042	30.071	0.35	0	59	12.5	69.7	4.8	0.153	0.147	0.0021	2.11	1.8
68	5/20/1999	12:02:36 PM	0	26.763	22.661	26.278	24.813	22.376	32.221	74.356	81.762	6.024	69.828	6.599	-0.042	28.274	0.36	0.003	60	11.7	72.0	5.0	0.157	0.152	0.0021	2.11	1.8
69	5/20/1999	12:03:35 PM	0	26.843	22.661	26.278	24.813	22.457	32.3	74.976	82.311	5.928	69.526	6.568	-0.042	28.044	0.36	0	61	11.6	72.3	5.0	0.157	0.152	0.0021	2.10	1.8
70	5/20/1999	12:04:36 PM	0	26.843	22.661	26.278	24.733	22.457	32.221	75.255	82.618	6.024	70.067	6.445	-0.042	27.982	0.358	0	62	11.6	72.7	5.0	0.156	0.151	0.0021	2.08	1.8
71	5/20/1999	12:05:37 PM	0	26.843	22.741	26.198	24.733	22.457	32.3	75.534	82.707	5.984	70.067	6.414	-0.042	28.059	0.373	0	63	11.6	72.8	5.0	0.163	0.157	0.0022	2.16	1.8
72	5/20/1999	12:06:40 PM	0	26.843	22.741	26.278	24.733	22.376	32.3	75.565	82.799	5.984	69.729	6.445	0.004	28.12	0.36	0	64	11.7	72.6	5.0	0.157	0.152	0.0021	2.09	1.8
73	5/20/1999	12:07:37 PM	0	26.843	22.661	26.278	24.733	22.376	32.3	75.193	82.311	5.896	70	6.414	-0.042	28.059	0.354	0	65	11.6	72.6	5.0	0.155	0.149	0.0021	2.05	1.7
74	5/20/1999	12:08:36 PM	0	26.923	22.741	26.278	24.813	22.376	32.3	75.224	82.463	6.024	70.033	6.414	-0.042	28.044	0.356	0	66	11.6	72.6	5.0	0.155	0.150	0.0021	2.06	1.8
75	5/20/1999	12:09:37 PM	0	26.798	22.696	26.233	24.768	22.331	32.176	75.844	83.043	6.024	70.676	6.291	0.004	28.105	0.357	0	67	11.7	73.3	5.1	0.156	0.151	0.0021	2.05	1.7
76	5/20/1999	12:10:36 PM	0	26.798	22.696	26.233	24.768	22.331	32.096	75.906	83.104	6.032	70.473	6.353	0.004	27.982	0.351	0	68	11.6	73.2	5.0	0.153	0.148	0.0020	2.02	1.7
77	5/20/1999	12:11:37 PM	0	26.843	22.741	26.278	24.813	22.618	31.586	75.441	82.738	6.024	70.507	6.322	-0.042	28.059	0.353	0	69	11.6	73.0	5.0	0.154	0.149	0.0021	2.04	1.7
78	5/20/1999	12:12:36 PM	0	26.798	22.696	26.233	24.768	22.733	31.224	75.689	82.707	5.984	70.405	6.322	-0.042	27.982	0.352	0.003	70	11.6	73.0	5.0	0.154	0.148	0.0020	2.03	1.7
79	5/20/1999	12:13:35 PM	0	26.798	22.696	26.233	24.848	23.054	31.065	75.937	83.104	6.056	70.473	6.26	-0.042	27.905	0.347	0	71	11.6	73.2	5.0	0.151	0.146	0.0020	2.00	1.7
80	5/20/1999	12:14:34 PM	0	26.798	22.696	26.233	24.929	23.295	31.065	75.41	82.463	5.904	70.473	6.229	-0.042	28.074	0.349	0	72	11.7	72.9	5.0	0.152	0.147	0.0020	2.02	1.7
81	5/20/1999	12:15:38 PM	0	26.798	22.696	26.153	25.089	23.456	30.906	75.627	82.646	5.793	70.777	6.26	0.004	27.721	0.348	0	73	11.5	73.2	5.0	0.152	0.147	0.0020	2.01	1.7

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.09

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/20/1999	12:16:41 PM	0	26.763	22.741	26.198	25.294	23.662	30.951	76.247	83.5	5.904	70.96	6.291	-0.042	27.644	0.339	0	74	11.5	73.6	5.1	0.148	0.143	0.0019	1.94	1.7
83	5/20/1999	12:17:40 PM	0	26.809	22.706	26.243	25.42	23.788	30.758	75.1	82.128	5.936	70.439	6.137	-0.042	27.951	0.343	0	75	11.6	72.8	5.0	0.150	0.145	0.0020	1.99	1.7
84	5/20/1999	12:18:41 PM	0	26.889	22.787	26.323	25.58	23.948	30.758	75.069	82.037	5.912	70.507	6.229	-0.042	27.982	0.339	0	76	11.6	72.8	5.0	0.148	0.143	0.0020	1.96	1.7
85	5/20/1999	12:19:38 PM	0	26.854	22.752	26.288	25.625	23.913	30.961	74.542	81.549	5.944	70.371	6.229	-0.042	27.982	0.343	0	77	11.6	72.5	5.0	0.150	0.144	0.0020	1.99	1.7
86	5/20/1999	12:20:39 PM	0	26.854	22.752	26.206	25.705	23.753	31.12	75.658	82.89	5.992	69.492	6.26	0.004	27.967	0.345	0	78	11.6	72.6	5.0	0.151	0.146	0.0020	2.01	1.7
87	5/20/1999	12:21:38 PM	0	26.774	22.752	26.288	25.625	23.592	31.358	73.209	80.268	6.566	66.991	6.199	-0.042	29.518	0.333	0	79	12.3	70.1	4.8	0.145	0.140	0.0020	2.00	1.7
88	5/20/1999	12:22:35 PM	0	26.819	22.797	26.254	25.67	23.638	31.641	72.899	79.841	6.67	66.991	6.106	-0.042	29.825	0.322	0	80	12.4	69.9	4.8	0.141	0.136	0.0019	1.94	1.7
89	5/20/1999	12:23:36 PM	0	26.864	22.762	26.299	25.556	23.442	31.845	74.17	81.427	6.606	67.836	6.322	0.004	29.441	0.325	0	81	12.2	71.0	4.9	0.142	0.137	0.0019	1.93	1.6
90	5/20/1999	12:24:35 PM	0	26.784	22.762	26.219	25.556	23.362	31.924	73.612	80.786	6.614	67.599	6.291	-0.042	29.503	0.326	0	82	12.2	70.6	4.9	0.142	0.138	0.0019	1.95	1.7
91	5/20/1999	12:25:44 PM	0	26.83	22.808	26.264	25.521	23.327	32.207	73.519	80.695	6.535	68.072	6.353	-0.042	29.472	0.326	0	83	12.2	70.8	4.9	0.142	0.137	0.0019	1.94	1.7
92	5/20/1999	12:26:35 PM	0	26.83	22.808	26.184	25.441	23.166	32.048	73.519	80.665	6.542	67.836	6.26	-0.042	29.441	0.344	0	84	12.2	70.7	4.9	0.150	0.145	0.0021	2.06	1.7
93	5/20/1999	12:27:36 PM	0	26.83	22.808	26.264	25.361	23.006	32.286	73.488	80.726	6.447	68.039	6.383	-0.042	29.226	0.331	0	85	12.1	70.8	4.9	0.144	0.139	0.0020	1.97	1.7
94	5/20/1999	12:28:35 PM	0	26.83	22.808	26.184	25.361	22.925	32.762	72.93	80.177	6.215	67.937	6.414	-0.042	28.965	0.322	0	86	12.0	70.4	4.9	0.141	0.136	0.0019	1.93	1.6
95	5/20/1999	12:29:38 PM	0	26.75	22.808	26.184	25.361	22.684	32.999	73.891	81	6.407	67.971	6.322	0.004	29.303	0.321	0	87	12.2	70.9	4.9	0.140	0.136	0.0019	1.91	1.6
96	5/20/1999	12:30:37 PM	0	26.83	22.808	26.184	25.2	22.523	33.237	74.139	81.396	6.471	68.106	6.383	-0.042	29.149	0.323	0	88	12.1	71.1	4.9	0.141	0.136	0.0019	1.92	1.6
97	5/20/1999	12:31:34 PM	0	26.83	22.808	26.184	25.2	22.362	33.395	74.48	81.762	6.471	68.208	6.353	-0.042	29.149	0.318	0	89	12.1	71.3	4.9	0.139	0.134	0.0019	1.88	1.6
98	5/20/1999	12:32:37 PM	0	26.83	22.808	26.184	25.2	22.282	33.474	74.108	81.457	6.423	68.411	6.383	0.004	29.134	0.322	0	90	12.1	71.3	4.9	0.141	0.136	0.0019	1.91	1.6
99	5/20/1999	12:33:34 PM	0	26.83	22.888	26.184	25.04	22.121	33.632	73.457	80.786	6.439	68.241	6.414	-0.042	29.119	0.325	0	91	12.1	70.8	4.9	0.142	0.137	0.0019	1.94	1.6
100	5/20/1999	12:34:35 PM	0	26.784	22.843	26.219	25.155	22.075	33.429	74.449	81.823	6.471	68.411	6.383	-0.042	29.042	0.319	0	92	12.1	71.4	4.9	0.139	0.135	0.0019	1.88	1.6
101	5/20/1999	12:35:34 PM	0	26.784	22.843	26.219	24.915	22.075	33.033	73.984	80.969	6.247	68.647	6.414	0.004	28.919	0.321	0	93	12.0	71.3	4.9	0.140	0.135	0.0019	1.90	1.6
102	5/20/1999	12:36:35 PM	0	26.739	22.797	26.174	24.949	22.11	32.91	73.984	81.213	6.391	68.681	6.383	0.004	29.027	0.32	0	94	12.0	71.3	4.9	0.140	0.135	0.0019	1.89	1.6
103	5/20/1999	12:37:34 PM	0	26.739	22.878	26.174	24.949	22.191	32.91	72.806	79.611	6.662	66.889	6.229	0.004	30.04	0.31	0	95	12.5	69.8	4.8	0.135	0.131	0.0019	1.87	1.6
104	5/20/1999	12:38:39 PM	0	26.694	22.832	26.128	24.824	22.226	32.706	73.829	80.939	6.463	67.903	6.322	0.004	29.411	0.317	0	96	12.2	70.9	4.9	0.138	0.134	0.0019	1.89	1.6
105	5/20/1999	12:39:36 PM	0	26.774	22.832	26.208	24.904	22.226	32.706	73.612	80.847	6.487	67.362	6.353	0.004	29.472	0.313	0	97	12.2	70.5	4.9	0.137	0.132	0.0019	1.87	1.6
106	5/20/1999	12:40:37 PM	0	26.729	22.867	26.063	24.859	22.261	32.345	73.333	80.482	6.535	68.14	6.322	-0.042	29.533	0.311	0	98	12.3	70.7	4.9	0.136	0.132	0.0019	1.86	1.6
107	5/20/1999	12:41:39 PM	0	26.729	22.867	26.063	24.779	22.261	32.345	72.961	80.055	6.686	66.855	6.291	-0.042	29.733	0.313	0	99	12.3	69.9	4.8	0.137	0.133	0.0019	1.90	1.6
108	5/20/1999	12:42:37 PM	0	26.729	22.867	26.163	24.859	22.341	32.107	73.457	80.573	6.582	67.532	6.291	0.004	29.672	0.312	0	100	12.3	70.5	4.9	0.136	0.132	0.0019	1.87	1.6
109	5/20/1999	12:43:39 PM	0	26.729	22.867	26.163	24.939	22.422	32.265	72.59	79.719	6.55	67.734	6.322	-0.042	29.81	0.314	0	101	12.3	70.2	4.8	0.137	0.133	0.0019	1.89	1.6
110	5/20/1999	12:44:38 PM	0	26.684	22.822	26.118	24.813	22.457	32.141	72.992	80.177	6.596	67.261	6.291	0.004	29.733	0.314	0	102	12.3	70.1	4.8	0.137	0.133	0.0019	1.89	1.6
111	5/20/1999	12:45:41 PM	0	26.684	22.902	26.038	24.894	22.537	31.824	73.891	81.091	6.702	67.565	6.353	0.004	29.564	0.315	0	103	12.3	70.7	4.9	0.138	0.134	0.0019	1.89	1.6
112	5/20/1999	12:46:36 PM	0	26.638	22.857	26.073	25.009	22.652	31.541	72.745	79.811	6.614	67.464	6.322	0.004	29.687	0.313	0	104	12.3	70.1	4.8	0.137	0.133	0.0019	1.89	1.6
113	5/20/1999	12:47:37 PM	0	26.718	22.857	26.073	25.009	22.894	31.303	73.116	80.299	6.55	67.329	6.383	-0.042	29.349	0.312	0	105	12.2	70.2	4.8	0.136	0.132	0.0019	1.88	1.6
114	5/20/1999	12:48:38 PM	0	26.684	22.902	26.038	25.134	23.18	31.189	73.364	80.573	6.662	66.991	6.229	-0.042	29.672	0.315	0	106	12.3	70.2	4.8	0.138	0.134	0.0019	1.90	1.6
115	5/20/1999	12:49:37 PM	0	26.638	22.857	26.073	25.249	23.295	30.747	73.798	81.061	6.574	66.483	6.322	0.004	29.518	0.314	0	107	12.3	70.1	4.8	0.137	0.133	0.0019	1.90	1.6
116	5/20/1999	12:50:38 PM	0	26.684	22.902	26.118	25.455	23.582	30.792	73.085	80.329	6.503	67.802	6.353	0.004	29.503	0.31	0	108	12.2	70.4	4.9	0.135	0.131	0.0019	1.86	1.6
117	5/20/1999	12:51:43 PM	0	26.684	22.902	26.118	25.455	23.823	[illegible]	73.302	80.573	6.67	66.585	6.322	0.004	29.702	0.312	0	109	12.3	69.9	4.8	0.136	0.132	0.0019	1.89	1.6
118	5/20/1999	12:52:38 PM	0	26.604	22.902	26.118	25.535	23.903	[illegible]	72.868	80.085	6.662	67.261	6.383	0.004	29.687	0.312	0	110	12.3	70.1	4.8	0.136	0.132	0.0019	1.88	1.6
119	5/20/1999	12:53:35 PM	0	26.649	22.867	26.083	25.58	24.109	[illegible]	73.922	81.305	6.686	67.024	6.291	0.004	29.687	0.314	0	111	12.3	70.5	4.9	0.137	0.133	0.0019	1.89	1.6
120	5/20/1999	12:54:38 PM	0	26.614	22.913	26.128	25.865	24.234	30.485	74.077	81.488	6.423	68.14	6.414	0.004	29.119	0.316	0	112	12.1	71.1	4.9	0.138	0.134	0.0019	1.88	1.6
121	5/20/1999	12:55:35 PM	0	26.614	22.913	26.048	25.945	24.074	30.723	73.271	80.421	6.598	67.329	6.322	-0.042	29.564	0.317	0	113	12.3	70.3	4.8	0.138	0.134	0.0019	1.91	1.6
122	5/20/1999	12:56:36 PM	0	26.659	22.958	26.094	26.071	23.969	31.006	72.961	80.116	6.503	67.802	6.353	0.004	29.564	0.305	0	114	12.3	70.4	4.9	0.133	0.129	0.0018	1.83	1.6
123	5/20/1999	12:57:39 PM	0	26.624	22.923	26.139	25.956	23.844	31.21	73.085	80.299	6.598	66.754	6.414	-0.042	29.81	0.315	0	115	12.3	69.9	4.8	0.138	0.133	0.0019	1.90	1.6
124	5/20/1999	12:58:38 PM	0	26.624	22.923	26.059	25.876	23.603	31.448	73.395	80.543	6.519	67.362	6.353	0.004	29.58	0.313	0	116	12.3	70.4	4.9	0.137	0.133	0.0019	1.88	1.6
125	5/20/1999	12:59:37 PM	0	26.59	22.969	26.104	25.921	23.488	31.493	72.775	79.963	6.511	67.295	6.353	0.004	29.81	0.31	0	117	12.3	70.0	4.8	0.135	0.131	0.0019	1.87	1.6
126	5/20/1999	1:00:36 PM	0	26.715	23.014	26.069	25.806	23.533	31.697	73.209	80.451	6.535	67.496	6.322	-0.042	29.595	0.305	0	118	12.3	70.4	4.9	0.133	0.129	0.0018	1.84	1.6
127	5/20/1999	1:01:35 PM	0	26.635	23.014	26.069	25.806	23.453	32.172	72.992	80.177	6.566	67.667	6.414	-0.042	29.518	0.309	0	119	12.3	70.3	4.8	0.135	0.131	0.0019	1.86	1.6
128	5/20/1999	1:02:40 PM	0	26.635	23.014	26.069	25.726	23.212	32.648	73.426	80.573	6.487	67.633	6.414	0.004	29.518	0.307	0	120	12.3	70.5	4.9	0.134	0.130	0.0018	1.84	1.6
129	5/20/1999	1:03:39 PM	0	26.635	22.934	26.069	25.646	22.89	32.965	72.992	80.177	6.519	67.126	6.383	0.004	29.472	0.308	0	121	12.2	70.1	4.8	0.134	0.130	0.0019	1.86	1.6
130	5/20/1999	1:04:36 PM	0	26.635	22.934	26.069	25.726	22.81	33.123	72.806	80.024	6.511	67.496	6.353	0.004	29.518	0.309	0	122	12.3	70.2	4.8	0.135	0.131	0.0019	1.87	1.6
131	5/20/1999	1:05:35 PM	0	26.68	23.06	26.035	25.611	22.695	33.247	73.209	80.543	6.55	67.667	6.353	0.004	29.472	0.302	0	123	12.2	70.4	4.9	0.132	0.128	0.0018	1.82	1.5
132	5/20/1999	1:06:34 PM	0	26.635	23.014	25.989	25.646	22.406	33.598	73.86	81.091	6.606	67.802	6.322	0.004	29.365	0.305	0	124	12.2	70.8	4.9	0.133	0.130	0.0018	1.83	1.6
133	5/20/1999	1:07:37 PM	0	26.635	23.014	26.069	25.486	22.247	33.598	73.178	80.329	6.503	67.734	6.353	0.004	29.472	0.31	0	125	12.2	70.5	4.9	0.135	0.131	0.0019	1.86	1.6
134	5/20/1999	1:08:34 PM	0	26.635	23.014	25.989	25.486	22.066	33.677	73.581	80.786	6.558	67.464	6.353	0.004	29.426	0.306	0	126	12.2	70.5	4.9	0.134	0.130	0.0018	1.84	1.6
135	5/20/1999	1:09:37 PM	0	26.59	22.969	26.024	25.521	22.04	33.711	73.519	80.756	6.55	67.532	6.383	0.004	29.441	0.306	0	127	12.2	70.5	4.9	0.134	0.130	0.0018	1.84	1.6
136	5/20/1999	1:10:34 PM	0	26.59	23.049	26.024	25.441	21.96	33.632	74.046	81.305	6.622	67.667	6.383	0.004	29.318	0.304	0	128	12.2	70.9	4.9	0.133	0.129	0.0018	1.82	1.5
137	5/20/1999	1:11:39 PM	0	26.59	23.049	26.024	25.521	22.04	33.078	73.922	81.152	6.479	67.802	6.322	-0.042	29.503	0.306	0	129	12.2	70.9	4.9	0.134	0.130	0.0018	1.83	1.6
138	5/20/1999	1:12:34 PM	0	26.545	23.004	25.979	25.315	22.156	32.954	72.837	79.872	6.503	67.532	6.353	0.004	29.441	0.307	0	130	12.2	70.2	4.8	0.134	0.130	0.0019	1.86	1.6
139	5/20/1999	1:13:37 PM	0	26.579	23.039	26.014	25.27	22.11	32.83	72.992	80.36	6.455	67.667	6.414	0.004	29.564	0.304	0	131	12.3	70.3	4.8	0.133	0.129	0.0018	1.83	1.6
140	5/20/1999	1:14:39 PM	0	26.579	23.039	25.934	25.19	22.191	32.751	73.457	80.634	6.574	67.329	6.353	0.004	29.81	0.308	0	132	12.3	70.4	4.9	0.134	0.131	0.0019	1.86	1.6
141	5/20/1999	1:15:38 PM	0	26.614	22.993	25.968	25.225	22.226	32.389	73.333	80.573	6.542	67.362	6.353	0.004	29.626	0.305	0	133	12.3	70.3	4.9	0.133	0.130	0.0018	1.84	1.6
142	5/20/1999	1:16:34 PM	0	26.614	22.993	26.048	25.305	22.387	32.469	73.736	81.122	6.511	67.633	6.322	0.004	29.518	0.304	0	134	12.3	70.7	4.9	0.133	0.129	0.0018	1.82	1.6
143	5/20/1999	1:17:36 PM	0	26.489	23.028	25.923	25.34	22.502	32.107	73.24	80.512	6.535	67.464	6.353	0.004	29.411	0.305	0	135	12.2	70.4	4.9	0.133	0.130	0.0018	1.84	1.6
144	5/20/1999	1:18:41 PM	0	26.569	22.948	25.923	25.34	22.502	32.345	72.837	79.933	6.471	67.496	6.291	0.004	29.395	0.301	0	136	12.2	70.2	4.8	0.131	0.128	0.0018	1.82	1.6
145	5/20/1999	1:19:36 PM	0	26.569	23.028	25.923	25.259	22.502	32.107	72.961	80.207	6.622	67.261	6.322	-0.042	29.518	0.305	0	137	12.3	70.1	4.8	0.133	0.130	0.0019	1.85	1.6
146	5/20/1999	1:20:39 PM	0	26.569	23.109	26.003	25.42	22.583	32.265	73.612	80.634	6.566	67.496	6.383	0.004	29.487	0.301	0	138	12.2	70.6	4.9	0.131	0.128	0.0018	1.81	1.5
147	5/20/1999	1:21:38 PM	0	26.524	22.983	25.958	25.294	22.457	32.062	73.705	80.847	6.503	67.633	6.291	0.004	29.365	0.325	0	139	12.2	70.7	4.9	0.142	0.138	0.0020	1.95	1.7
148	5/20/1999	1:22:37 PM	0	26.604	23.063	26.038	25.374	22.537	32.141	72.992	80.116	6.558	67.565	6.353	0.004	29.533	0.303	0	140	12.3	70.3	4.8	0.132	0.128	0.0018	1.83	1.6
149	5/20/1999	1:23:36 PM	0	26.604	22.983	25.958	25.374	22.537	32.062	73.55	80.543	6.463	67.667	6.322	0.004	29.457	0.303	0	141	12.2	70.6	4.9	0.132	0.129	0.0018	1.82	1.6
150	5/20/1999	1:24:35 PM	0	26.524	22.983	25.958	25.535	22.698	31.586	73.395	80.573	6.574	67.565	6.322	0.004	29.426	0.301	0	142	12.2	70.5	4.9	0.131	0.128	0.0018	1.81	1.5
151	5/20/1999	1:25:36 PM	0	26.604	23.063	26.038	25.535	23.019	31.269	73.922	81.183	6.606	68.208	6.383	0.004	29.472	0.306	0.003	143	12.2	71.1	4.9	0.134	0.130	0.0018	1.83	1.6
152	5/20/1999	1:26:37 PM	0	26.524	23.063	25.958	25.535	23.18	31.03	73.457	80.573	6.527	67.903	6.291	0.004	29.503	0.305	0	144	12.2	70.7	4.9	0.133	0.130	0.0018	1.83	1.6
153	5/20/1999	1:27:44 PM	0	26.604	22.983	26.038	25.695	23.502	30.713	73.705	81.03	6.527	67.599	6.383	0.004	29.487	0.301	0	145	12.2	70.7	4.9	0.131	0.128	0.0018	1.81	1.5
154	5/20/1999	1:28:37 PM	0	26.524	23.063	25.958	25.615	23.662	30.554	72.93	80.177	6.598	67.464	6.353	-0.042	29.426	0.296	0	146	12.2	70.2	4.8	0.129	0.126	0.0018	1.79	1.5
155	5/20/1999	1:29:36 PM	0	26.569	23.109	26.083	25.82	23.868	30.678	73.209	80.421	6.566	67.599	6.383	0.004	29.349	0.302	0	147	12.2	70.4	4.9	0.132	0.128	0.0018	1.82	1.5
156	5/20/1999	1:30:37 PM	0	26.569	23.028	26.003	25.9	24.109	30.519	73.488	80.634	6.487	67.464	6.322	0.004	29.318	0.302	0	148	12.2	70.5	4.9	0.132	0.128	0.0018	1.82	1.5
157	5/20/1999	1:31:36 PM	0	26.534	23.074	26.048	26.025	24.154	30.564	73.457	80.726	6.59	67.295	6.353	0.004	29.365	0.298	0	149	12.2	70.4	4.9	0.130	0.126	0.0018	1.79	1.5
158	5/20/1999	1:32:39 PM	0	26.579	23.119	26.094	26.071	24.119	30.847	73.302	80.421	6.542	67.464	6.291	0.004	29.349	0.303	0	150	12.2	70.4	4.9	0.132	0.128	0.0018	1.82	1.6
159	5/20/1999	1:33:40 PM	0	26.579	23.039	26.014	26.151	24.039	30.927	73.116	80.36	6.447	67.16	6.383	0.004	29.272	0.3	0	151	12.1	70.1	4.8	0.131	0.127	0.0018	1.81	1.5
160	5/20/1999	1:34:39 PM	0	26.624	23.084	26.059	26.116	23.924	31.21	73.55	80.756	6.471	67.87	6.353	0.004	29.472	0.297	0	152	12.2	70.7	4.9	0.130	0.126	0.0018	1.78	1.5
161	5/20/1999	1:35:34 PM	0	26.59	23.13	26.024	26.161	23.809	31.178	73.519	80.695	6.351	67.903	6.383	0.004	29.272	0.3	0	153	12.1	70.7	4.9	0.131	0.127	0.0018	1.80	1.5
162	5/20/1999	1:36:37 PM	0	26.51	23.13	26.024	26.081	23.729	31.572	73.457	80.604	6.447	67.768	6.383	0.004	29.226	0.305	0	154	12.1	70.6	4.9	0.133	0.129	0.0018	1.83	1.6

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.09

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163	5/20/1999	1:37:34 PM	0	26.635	23.175	26.069	26.126	23.694	31.538	73.984	81.152	6.391	68.106	6.383	0.004	29.088	0.303	0.003	155	12.1	71.0	4.9	0.132	0.128	0.0018	1.81	1.5
164	5/20/1999	1:38:37 PM	0	26.635	23.095	26.069	26.126	23.533	32.172	73.705	80.969	6.479	67.498	6.353	0.004	29.211	0.304	0	156	12.1	70.6	4.9	0.133	0.129	0.0018	1.82	1.6
165	5/20/1999	1:39:34 PM	0	26.68	23.221	26.115	26.012	23.257	32.534	73.302	80.512	6.263	68.106	6.383	0.004	29.196	0.3	0	157	12.1	70.7	4.9	0.131	0.127	0.0018	1.80	1.5
166	5/20/1999	1:40:37 PM	0	26.68	23.14	26.115	25.932	23.097	32.693	72.961	80.116	6.495	67.565	6.353	0.004	29.318	0.301	0	158	12.2	70.3	4.8	0.131	0.127	0.0018	1.81	1.5
167	5/20/1999	1:41:34 PM	0	26.6	23.14	26.035	25.852	22.936	33.089	72.992	80.085	6.415	67.836	6.383	0.004	29.272	0.3	0	159	12.1	70.4	4.9	0.131	0.127	0.0018	1.81	1.5
168	5/20/1999	1:42:37 PM	0	26.68	23.14	26.035	25.772	22.695	33.247	74.015	81.213	6.495	68.377	6.322	0.004	29.226	0.307	0	160	12.1	71.2	4.9	0.134	0.130	0.0018	1.83	1.6
169	5/20/1999	1:43:34 PM	0	26.6	23.14	26.115	25.772	22.614	33.485	73.271	80.512	6.343	67.802	6.414	-0.042	29.196	0.302	0.003	161	12.1	70.5	4.9	0.132	0.128	0.0018	1.81	1.5
170	5/20/1999	1:44:38 PM	0	26.635	23.175	25.989	25.726	22.408	33.202	73.488	80.756	6.535	67.532	6.353	0.004	29.226	0.305	0	162	12.1	70.5	4.9	0.133	0.130	0.0018	1.84	1.6
171	5/20/1999	1:45:34 PM	0	26.635	23.095	25.969	25.806	22.327	33.44	73.395	80.573	6.431	67.87	6.353	0.004	29.272	0.3	0	163	12.1	70.6	4.9	0.131	0.127	0.0018	1.80	1.5
172	5/20/1999	1:46:38 PM	0	26.635	23.175	26.069	25.486	22.247	33.598	73.054	80.238	6.351	67.768	6.353	0.004	29.272	0.303	0	164	12.1	70.4	4.9	0.132	0.128	0.0018	1.82	1.6
173	5/20/1999	1:47:39 PM	0	26.635	23.175	25.969	25.566	22.327	33.361	73.24	80.421	6.519	67.362	6.322	0.004	29.503	0.3	0	165	12.2	70.3	4.8	0.131	0.127	0.0018	1.81	1.5
174	5/20/1999	1:48:38 PM	0	26.59	23.21	26.024	25.441	22.282	33.078	72.837	79.872	6.463	67.565	6.353	0.004	29.457	0.301	0	166	12.2	70.2	4.8	0.131	0.128	0.0018	1.82	1.5
175	5/20/1999	1:49:41 PM	0	26.67	23.21	26.024	25.521	22.362	32.682	73.457	80.604	6.527	68.072	6.291	0.004	29.395	0.3	0	167	12.2	70.8	4.9	0.131	0.127	0.0018	1.80	1.5
176	5/20/1999	1:50:36 PM	0	26.67	23.13	26.104	25.521	22.443	32.682	72.621	79.841	6.614	66.855	6.26	0.004	29.994	0.294	0	168	12.4	69.7	4.8	0.128	0.124	0.0018	1.78	1.5
177	5/20/1999	1:51:41 PM	0	26.545	23.164	26.059	25.395	22.478	32.479	72.28	79.292	6.726	66.72	6.229	0.004	29.933	0.291	0	169	12.4	69.5	4.8	0.127	0.123	0.0018	1.77	1.5
178	5/20/1999	1:52:38 PM	0	26.624	23.164	26.059	25.556	22.558	32.4	72.311	79.445	6.654	66.585	6.322	-0.042	29.779	0.29	0	170	12.4	69.4	4.8	0.127	0.123	0.0018	1.77	1.5
179	5/20/1999	1:53:37 PM	0	26.624	23.245	26.059	25.475	22.639	32.321	72.435	79.475	6.758	66.213	6.26	0.004	29.917	0.29	0	171	12.4	69.3	4.8	0.127	0.123	0.0018	1.77	1.5
180	5/20/1999	1:54:40 PM	0	26.579	23.119	26.014	25.59	22.754	32.117	69.025	75.725	7.803	61.716	5.952	0.004	32.913	0.277	0	172	13.7	65.4	4.5	0.121	0.118	0.0018	1.80	1.5
181	5/20/1999	1:55:37 PM	0	26.579	23.199	26.094	25.59	22.915	32.196	68.839	75.695	7.859	62.359	6.106	0.004	32.974	0.269	0	173	13.7	65.6	4.5	0.117	0.114	0.0017	1.74	1.5
182	5/20/1999	1:56:40 PM	0	26.659	23.199	26.014	25.59	22.834	32.117	67.754	74.78	8.138	60.77	6.106	0.004	33.619	0.278	0	174	14.0	64.3	4.4	0.121	0.118	0.0018	1.84	1.6
183	5/20/1999	1:57:35 PM	0	26.659	23.199	26.094	25.59	22.834	32.196	67.878	74.963	8.25	60.229	6.199	0.004	33.635	0.273	0	175	14.0	64.1	4.4	0.119	0.116	0.0018	1.80	1.5
184	5/20/1999	1:58:38 PM	0	26.534	23.154	25.968	25.545	22.789	32.072	67.63	74.719	8.234	60.567	6.322	0.004	33.619	0.274	0	176	14.0	64.1	4.4	0.120	0.116	0.0018	1.82	1.5
185	5/20/1999	1:59:37 PM	0	26.534	23.154	26.048	25.625	22.789	32.31	67.444	74.597	8.218	60.702	6.291	0.004	33.727	0.265	0	177	14.0	64.1	4.4	0.116	0.112	0.0018	1.75	1.5
186	5/20/1999	2:00:44 PM	0	26.614	23.154	26.048	25.545	22.708	31.993	68.064	75.146	8.154	60.499	6.26	0.004	33.696	0.273	0	178	14.0	64.3	4.4	0.119	0.116	0.0018	1.80	1.5
187	5/20/1999	2:01:41 PM	0	26.614	23.234	26.048	25.705	22.789	32.072	68.498	75.756	7.891	60.939	6.414	-0.042	33.235	0.272	0	179	13.8	64.7	4.5	0.119	0.115	0.0018	1.78	1.5
188	5/20/1999	2:02:34 PM	0	26.614	23.234	26.048	25.705	22.789	31.993	68.498	75.756	8.05	60.601	6.414	0.004	33.312	0.269	0	180	13.8	64.5	4.5	0.117	0.114	0.0018	1.77	1.5
189	5/20/1999	2:03:35 PM	0	26.614	23.234	26.048	25.785	22.869	31.993	68.095	75.512	8.082	61.074	6.383	0.004	33.312	0.279	0	181	13.8	64.6	4.5	0.122	0.118	0.0018	1.83	1.6
190	5/20/1999	2:04:36 PM	0	26.649	23.189	26.083	25.66	22.904	31.869	68.188	75.359	8.062	60.736	6.414	0.004	33.204	0.27	0	182	13.8	64.5	4.4	0.118	0.114	0.0018	1.77	1.5
191	5/20/1999	2:05:37 PM	0	26.569	23.189	26.083	25.66	22.904	31.869	68.126	75.329	8.019	60.905	6.414	0.004	33.204	0.276	0	183	13.8	64.5	4.4	0.120	0.117	0.0018	1.81	1.5
192	5/20/1999	2:06:36 PM	0	26.569	23.189	26.083	25.74	22.904	31.869	67.878	75.146	8.026	60.702	6.445	0.004	33.22	0.264	0	184	13.8	64.3	4.4	0.115	0.112	0.0017	1.74	1.5
193	5/20/1999	2:07:39 PM	0	26.614	23.234	26.048	25.785	23.03	31.755	68.808	76.183	7.819	61.615	6.507	0.004	32.759	0.268	0	185	13.6	65.2	4.5	0.117	0.114	0.0017	1.74	1.5
194	5/20/1999	2:08:38 PM	0	26.694	23.234	26.128	25.945	23.03	31.834	68.591	75.817	7.707	61.818	6.476	0.004	32.836	0.272	0	186	13.6	65.2	4.5	0.119	0.115	0.0018	1.76	1.5
195	5/20/1999	2:09:46 PM	0	26.649	23.189	26.083	25.74	22.965	31.71	4.868	76	7.101	-1.606	69.929	98.775	32.774	0.028	0	187	13.6	1.6	0.1	0.012	0.012	0.0073	7.27	6.2
196	5/20/1999	2:10:34 PM	0	26.649	23.189	26.083	25.9	22.965	31.71	64.376	74.78	7.284	57.964	9.712	0.004	33.681	1.188	0	188	14.0	61.2	4.2	0.519	0.503	0.0082	8.22	7.0
197	5/20/1999	2:11:35 PM	0	26.649	23.189	26.083	25.66	22.965	31.79	66.948	75.329	7.404	60.297	7.678	0.004	33.281	0.79	0	189	13.8	63.6	4.4	0.345	0.335	0.0053	5.26	4.5
198	5/20/1999	2:12:39 PM	0	26.694	23.234	26.048	25.785	23.03	31.834	68.312	75.42	7.396	61.345	6.476	0.004	33.235	0.661	0	190	13.8	64.8	4.5	0.289	0.280	0.0043	4.32	3.7
199	5/20/1999	2:13:42 PM	0	26.694	23.234	26.128	25.705	23.11	31.914	23.494	33.131	19.013	5.054	8.787	0.004	50.346	0.016	0	191	20.9	14.3	1.0	0.007	0.007	0.0005	0.47	0.4
200	5/20/1999	2:14:37 PM	0	26.694	23.234	26.208	25.705	23.11	31.676	54.489	75.634	7.029	47.72	20.19	0.004	33.22	1.218	0	192	13.8	51.1	3.5	0.532	0.514	0.0101	10.06	8.6
201	5/20/1999	2:15:38 PM	0	26.694	23.234	26.128	25.625	23.11	31.755	72.621	80.146	5.976	68.14	6.599	0.004	29.58	1.02	0	193	12.3	70.4	4.9	0.445	0.431	0.0061	6.13	5.2
202																											
203		Averages		26.7	22.9	26.2	25.3	22.9	32.0	72.9	80.3	6.6	67.1	6.5	0.0	29.7	0.347	0.0		12.3	70.0	4.8	0.152	0.147	0.002	2.1	1.8
204		Maximum		26.9	23.2	26.4	26.2	24.2	33.7	76.2	83.5	8.3	71.0	32.4	0.0	33.7	1.218	0.0		14.0	73.6	5.1	0.532	0.512	0.012	11.8	10.0
205		Median		26.7	22.9	26.1	25.4	22.7	32.1	73.4	80.6	6.5	67.6	6.3	0.0	29.5	0.314	0.0		12.2	70.4	4.9	0.137	0.133	0.002	1.9	1.6
206		Minimum		26.5	22.5	25.9	24.1	22.0	30.5	46.4	74.6	5.8	40.8	6.0	0.0	27.6	0.264	0.0		11.5	43.6	3.0	0.115	0.112	0.002	1.7	1.5
207		Std Dev		0.1	0.2	0.1	0.5	0.6	0.8	2.7	1.8	0.5	3.0	2.0	0.0	1.3	0.115	0.0		0.5	2.9	0.2	0.050	0.048	0.001	0.9	0.8
208		Number of Points Used		166	166	166	166	166	166	166	166	166	166	166	166	166	166	166		166	166	166	166	166	166	166	166



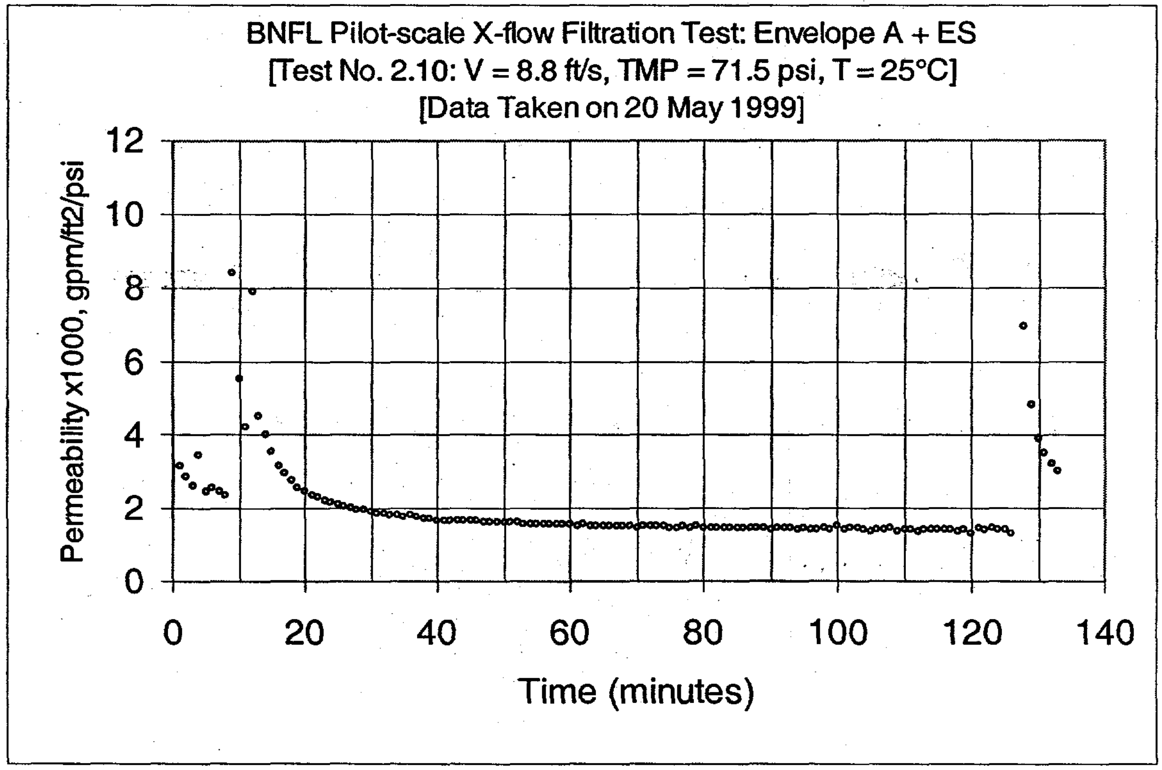


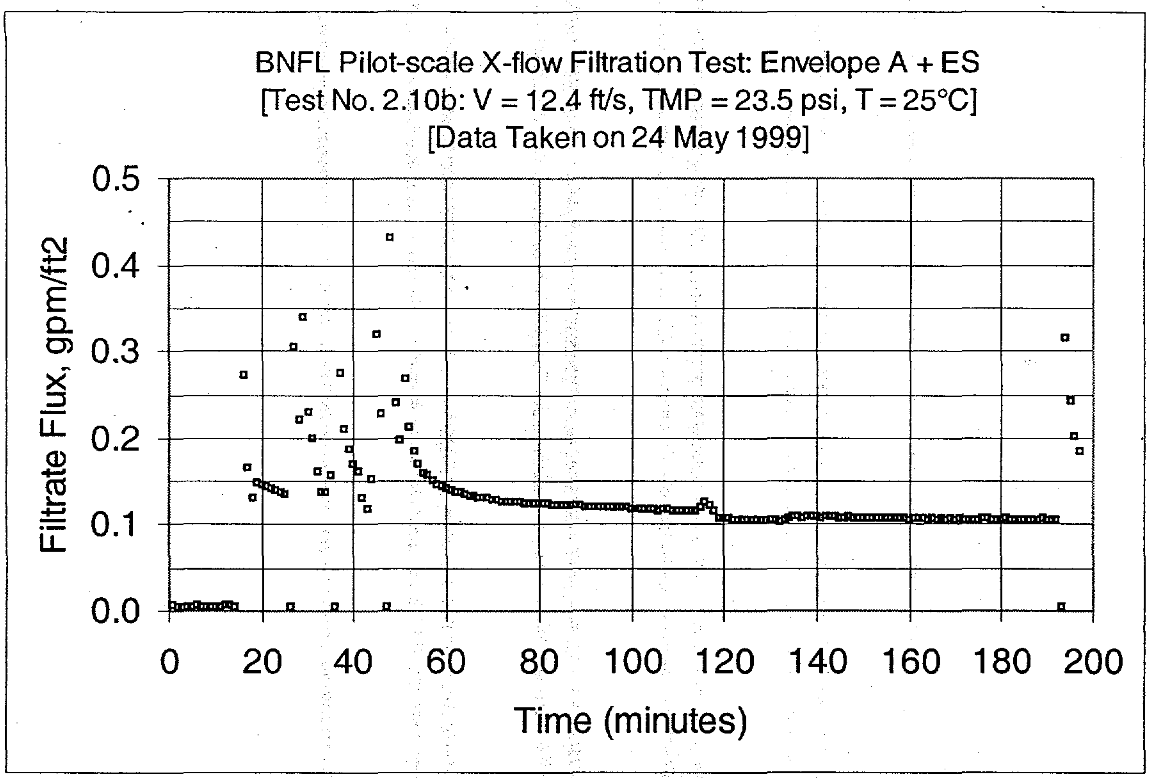
Figure B10: Test Run 2.10, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/20/1999	10:22:08 AM	0	26.118	22.172	22.965	23.443	21.887	32.152	0.093	0.081	-0.016	0.05	0.004	-0.042	-0.095	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/20/1999	10:25:39 AM	0	26.073	22.207	22.94	23.398	22.244	31.139	0.093	0.081	-0.016	0.05	0.004	-0.042	-0.08	0.011	0									
5	5/20/1999	10:26:38 AM	0	25.993	22.207	22.94	23.478	22.566	31.059	0.093	0.081	-0.016	0.05	-0.027	-0.042	-0.08	0.011	0									
6	5/20/1999	10:27:34 AM	0	25.993	22.207	22.94	23.639	22.727	30.98	0.093	0.081	-0.016	0.05	0.004	-0.089	-0.065	0.011	0									
7	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	5/20/1999	2:20:01 PM	0	26.694	23.234	26.048	25.545	23.11	31.634	74.604	81.488	6.064	69.391	6.106	0.004	28.873	0.534	0	1	12.0	72.0	5.0	0.233	0.226	0.0031	3.14	2.7
10	5/20/1999	2:21:39 PM	0	26.739	23.28	26.174	25.51	23.075	32.038	74.356	81.274	6.08	69.154	6.106	0.004	28.766	0.486	0	2	11.9	71.8	4.9	0.212	0.205	0.0029	2.86	2.4
11	5/20/1999	2:22:40 PM	0	26.739	23.28	26.094	25.51	23.156	31.959	33.226	40.906	3.287	30.748	6.907	0.004	19.273	0.198	0	3	8.0	32.0	2.2	0.086	0.084	0.0026	2.62	2.2
12	5/20/1999	2:23:39 PM	0	26.739	23.28	26.094	25.43	22.995	31.959	78.51	86.519	4.061	74.969	7.061	0.004	22.069	0.629	0	4	9.2	76.7	5.3	0.275	0.266	0.0035	3.47	3.0
13	5/20/1999	2:24:40 PM	0	26.819	23.28	26.094	25.51	23.075	32.198	60.874	67.646	4.356	57.727	6.137	0.004	23.436	0.346	0	5	9.7	59.3	4.1	0.151	0.146	0.0025	2.47	2.1
14	5/20/1999	2:25:39 PM	0	26.739	23.28	26.014	25.59	22.995	31.959	70.141	78.866	3.375	68.275	7.924	0.004	19.673	0.414	0	6	8.2	69.2	4.8	0.181	0.176	0.0025	2.54	2.2
15	5/20/1999	2:26:40 PM	0	26.739	23.28	26.174	25.59	23.075	31.879	71.939	80.421	3.83	68.965	7.565	0.004	21.208	0.408	0	7	8.8	70.5	4.9	0.178	0.172	0.0024	2.45	2.1
16	5/20/1999	2:27:39 PM	0	26.819	23.28	26.094	25.59	23.075	31.959	72.663	80.969	3.83	69.12	7.4	0.004	21.086	0.399	0	8	8.8	70.9	4.9	0.174	0.169	0.0024	2.38	2.0
17	5/20/1999	2:28:36 PM	0	26.864	23.245	26.219	25.716	23.041	31.924	62.702	79.353	3.479	59.722	15.906	0.004	21.608	1.218	0	9	9.0	61.2	4.2	0.532	0.514	0.0084	8.39	7.1
18	5/20/1999	2:29:37 PM	0	26.819	23.28	26.094	25.67	23.075	31.959	74.015	80.055	3.567	71.555	5.161	0.004	21.239	0.949	0	10	8.8	72.8	5.0	0.414	0.402	0.0055	5.52	4.7
19	5/20/1999	2:30:34 PM	0	26.864	23.325	26.139	25.716	23.121	31.924	73.271	80.847	3.606	70.507	6.63	0.004	21.055	0.714	0	11	8.7	71.9	5.0	0.312	0.302	0.0042	4.20	3.6
20	5/20/1999	2:31:39 PM	0	26.864	23.325	26.219	25.716	23.121	31.924	66.236	79.171	3.383	64.151	12.27	0.004	21.393	1.218	0	12	8.9	65.2	4.5	0.532	0.514	0.0079	7.88	6.7
21	5/20/1999	2:32:36 PM	0	26.944	23.325	26.219	25.636	23.121	31.845	73.395	81.122	3.59	69.83	6.846	0.004	21.208	0.765	0	13	8.8	71.6	4.9	0.334	0.323	0.0045	4.51	3.8
22	5/20/1999	2:33:39 PM	0	26.944	23.325	26.219	25.716	23.201	31.845	73.178	80.573	3.606	70.879	6.476	0.004	20.932	0.687	0	14	8.7	72.0	5.0	0.300	0.290	0.0040	4.02	3.4
23	5/20/1999	2:34:36 PM	0	26.864	23.325	26.219	25.716	23.121	32.003	73.705	80.634	3.63	71.352	6.044	0.004	20.871	0.612	0	15	8.7	72.5	5.0	0.267	0.258	0.0036	3.56	3.0
24	5/20/1999	2:35:37 PM	0	26.864	23.325	26.139	25.796	23.121	31.924	74.511	81.64	3.71	71.521	6.137	0.004	20.717	0.548	0	16	8.6	73.0	5.0	0.239	0.232	0.0032	3.17	2.7
25	5/20/1999	2:36:36 PM	0	26.864	23.325	26.219	25.796	23.121	31.924	74.573	81.64	3.638	72.332	6.199	0.004	20.563	0.512	0	17	8.5	73.5	5.1	0.224	0.216	0.0029	2.94	2.5
26	5/20/1999	2:37:35 PM	0	26.91	23.371	26.264	25.841	23.166	31.89	75.162	82.341	3.63	72.265	6.199	0.004	20.456	0.479	0	18	8.5	73.7	5.1	0.209	0.202	0.0027	2.74	2.3
27	5/20/1999	2:38:40 PM	0	26.91	23.371	26.264	26.001	23.166	31.81	75.162	82.341	3.686	71.994	6.229	0.004	20.441	0.45	0	19	8.5	73.6	5.1	0.196	0.190	0.0026	2.58	2.2
28	5/20/1999	2:39:39 PM	0	26.91	23.29	26.264	25.921	23.086	31.89	75.441	82.555	3.63	72.873	6.26	0.004	20.379	0.43	0	20	8.5	74.2	5.1	0.188	0.181	0.0024	2.44	2.1
29	5/20/1999	2:40:36 PM	0	26.989	23.29	26.184	26.001	23.166	32.048	75.224	82.524	3.67	72.4	6.26	0.004	20.318	0.414	0	21	8.4	73.8	5.1	0.181	0.175	0.0024	2.37	2.0
30	5/20/1999	2:41:44 PM	0	26.91	23.29	26.184	25.921	23.086	31.89	74.821	81.976	3.67	72.129	6.291	0.004	20.379	0.399	0	22	8.5	73.5	5.1	0.174	0.168	0.0023	2.29	2.0
31	5/20/1999	2:42:36 PM	0	26.91	23.371	26.184	26.001	23.086	32.048	75.534	82.555	3.622	72.468	6.322	0.004	20.256	0.388	0	23	8.4	74.0	5.1	0.169	0.164	0.0022	2.21	1.9
32	5/20/1999	2:43:37 PM	0	26.91	23.371	26.264	25.921	23.086	31.969	75.472	82.677	3.734	72.501	6.291	0.004	20.225	0.377	0	24	8.4	74.0	5.1	0.165	0.159	0.0021	2.15	1.8
33	5/20/1999	2:44:36 PM	0	26.91	23.371	26.264	26.001	23.247	31.731	75.441	82.677	3.758	72.501	6.322	0.004	20.256	0.368	0	25	8.4	74.0	5.1	0.161	0.155	0.0021	2.10	1.8
34	5/20/1999	2:45:35 PM	0	26.955	23.336	26.229	26.126	23.212	31.855	74.945	82.189	3.726	72.468	6.322	0.004	20.256	0.36	0	26	8.4	73.7	5.1	0.157	0.152	0.0021	2.06	1.8
35	5/20/1999	2:46:36 PM	0	26.955	23.336	26.229	26.126	23.292	31.776	76.061	83.317	3.766	72.907	6.322	0.004	20.149	0.353	0	27	8.4	74.5	5.1	0.154	0.149	0.0020	2.00	1.7
36	5/20/1999	2:47:37 PM	0	26.955	23.336	26.229	26.126	23.292	31.776	75.782	83.012	3.75	72.4	6.322	0.004	20.225	0.348	0	28	8.4	74.1	5.1	0.151	0.146	0.0020	1.97	1.7
37	5/20/1999	2:48:38 PM	0	26.955	23.336	26.309	26.126	23.292	31.776	75.317	82.494	3.654	72.569	6.353	0.004	20.087	0.34	0	29	8.3	73.9	5.1	0.148	0.143	0.0019	1.93	1.6
38	5/20/1999	2:49:37 PM	0	27	23.381	26.275	26.092	23.418	31.742	75.038	82.067	3.686	72.535	6.353	0.004	20.103	0.335	0	30	8.3	73.8	5.1	0.146	0.141	0.0019	1.91	1.6
39	5/20/1999	2:50:39 PM	0	26.955	23.336	26.229	26.046	23.292	31.776	75.906	83.012	3.742	73.11	6.353	0.004	20.01	0.329	0	31	8.3	74.5	5.1	0.144	0.139	0.0019	1.86	1.6
40	5/20/1999	2:51:40 PM	0	27	23.381	26.195	26.172	23.418	31.821	76.092	83.439	3.718	73.448	6.353	0.004	19.995	0.326	0	32	8.3	74.8	5.2	0.142	0.138	0.0018	1.84	1.6
41	5/20/1999	2:52:36 PM	0	26.92	23.381	26.275	26.172	23.418	31.98	75.937	83.256	3.71	72.839	6.322	0.004	19.903	0.322	0	33	8.3	74.4	5.1	0.141	0.136	0.0018	1.82	1.6
42	5/20/1999	2:53:38 PM	0	27.045	23.427	26.32	26.137	23.544	31.945	76.557	83.927	3.766	72.806	6.353	0.004	19.964	0.319	0	34	8.3	74.7	5.1	0.139	0.134	0.0018	1.80	1.5
43	5/20/1999	2:54:43 PM	0	26.965	23.427	26.32	26.217	23.544	32.183	76.278	83.47	3.742	73.854	6.353	0.004	19.964	0.311	0	35	8.3	75.1	5.2	0.136	0.131	0.0017	1.74	1.5
44	5/20/1999	2:55:38 PM	0	26.965	23.427	26.24	26.137	23.544	32.104	74.759	82.067	4.069	70.879	6.322	0.004	20.517	0.309	0	36	8.5	72.8	5.0	0.135	0.130	0.0018	1.79	1.5
45	5/20/1999	2:56:37 PM	0	27.045	23.427	26.32	26.297	23.464	32.104	73.426	80.634	4.045	69.729	6.353	0.004	20.963	0.295	0	37	8.7	71.6	4.9	0.129	0.124	0.0017	1.73	1.5
46	5/20/1999	2:57:40 PM	0	27.045	23.347	26.32	26.297	23.464	32.104	72.992	80.146	4.069	69.864	6.383	0.004	21.147	0.292	0	38	8.8	71.4	4.9	0.127	0.123	0.0017	1.72	1.5
47	5/20/1999	2:58:39 PM	0	27.011	23.472	26.285	26.182	23.509	31.99	73.457	80.786	4.141	70.101	6.445	0.004	21.04	0.289	0	39	8.7	71.8	4.9	0.126	0.122	0.0017	1.70	1.4
48	5/20/1999	2:59:40 PM	0	27.091	23.472	26.445	26.182	23.589	32.069	73.984	81.274	4.125	70.371	6.445	0.004	21.024	0.287	0	40	8.7	72.2	5.0	0.125	0.120	0.0017	1.67	1.4
49	5/20/1999	3:00:39 PM	0	27.011	23.392	26.285	26.102	23.509	31.99	73.364	80.726	4.093	70.473	6.445	0.004	21.04	0.287	0	41	8.7	71.9	5.0	0.125	0.121	0.0017	1.68	1.4
50	5/20/1999	3:01:40 PM	0	27.011	23.472	26.365	26.262	23.589	32.149	74.108	31.427	4.085	70.067	6.445	0.004	21.009	0.284	0	42	8.7	72.1	5.0	0.124	0.119	0.0017	1.66	1.4
51	5/20/1999	3:02:37 PM	0	27.011	23.392	26.285	26.182	23.589	32.149	74.356	81.579	4.037	70.709	6.445	0.004	20.901	0.284	0	43	8.7	72.5	5.0	0.124	0.120	0.0016	1.65	1.4
52	5/20/1999	3:03:40 PM	0	27.011	23.392	26.285	26.262	23.429	32.783	73.86	81.93	4.077	70.642	6.414	0.004	20.825	0.283	0	44	8.6	72.3	5.0	0.124	0.119	0.0016	1.65	1.4
53	5/20/1999	3:04:41 PM	0	27.056	23.438	26.331	26.308	23.314	33.144	73.643	80.817	3.997	70.439	6.414	0.004	20.825	0.284	0	45	8.6	72.0	5.0	0.124	0.119	0.0017	1.66	1.4
54	5/20/1999	3:05:38 PM	0	27.056	23.518	26.411	26.308	23.153	33.144	73.519	80.786	4.037	70.135	6.414	0.004	20.84	0.282	0	46	8.6	71.8	5.0	0.123	0.118	0.0016	1.65	1.4
55	5/20/1999	3:06:37 PM	0	27.011	23.392	26.285	26.262	23.107	33.258	74.077	81.366	4.077	70.777	6.414	0.004	20.809	0.277	0	47	8.6	72.4	5.0	0.121	0.117	0.0016	1.61	1.4
56	5/20/1999	3:07:40 PM	0	27.011	23.472	26.285	26.182	22.866	33.099	73.891	81	3.989	70.845	6.383	0.004	20.886	0.277	0	48	8.7	72.4	5.0	0.121	0.117	0.0016	1.61	1.4
57	5/20/1999	3:08:37 PM	0	27.011	23.392	26.285	26.182	22.786	33.099	73.561	80.665	3.981	70.507	6.383	0.004	20.825	0.276	0	49	8.6	72.0	5.0	0.120	0.116	0.0016	1.61	1.4
58	5/20/1999	3:09:40 PM	0	27.056	23.518	26.331	26.228	22.671	33.619	74.139	81.457	4.085	70	6.383	0.004	20.809	0.275	0	50	8.6	72.1	5.0	0.120	0.116	0.0016	1.60	1.4
59	5/20/1999	3:10:39 PM	0	27.091	23.472	26.285	26.102	22.545	33.574	73.395	80.451	3.997	69.966	6.383	0.004	20.794	0.275	0	51	8.6	71.7	4.9	0.120	0.116	0.0016	1.62	1.4
60	5/20/1999	3:11:38 PM	0	27.045	23.427	26.24	26.057	22.58	33.371	73.86	81.122	4.045	70.709	6.383	0.004	20.825	0.273	0	52	8.6	72.3	5.0	0.119	0.115	0.0016	1.59	1.4
61	5/20/1999	3:12:35 PM	0	27.011	23.472	26.365	26.102	22.545	33.02	73.922	81.152	4.053	70.811	6.383	0.004	20.855	0.27	0	53	8.7	72.4	5.0	0.118	0.113	0.0016	1.57	1.3
62	5/20/1999	3:13:40 PM	0	27.045	23.507	26.32	26.137	22.58	32.817	73.519	80.786	4.157	70.169	6.353	0.05	21.07	0.268	0	54	8.7	71.8	5.0	0.117	0.113	0.0016	1.57	1.3
63	5/20/1999	3:14:37 PM	0	27.045	23.507	26.32	26.057	22.74	32.659	73.829	81.03	4.125	70.101	6.353	0.004	21.07	0.27	0	55	8.7	72.0	5.0	0.118	0.114	0.0016	1.58	1.3
64	5/20/1999	3:15:40 PM	0	27.08	23.462	26.355	26.092	22.856	32.772	73.519	80.847	4.141	70.405	6.383	0.004	21.055	0.265	0	56	8.7	72.0	5.0	0.116	0.111	0.0015	1.55	1.3
65	5/20/1999	3:16:39 PM	0	27.08	23.462	26.275	26.092	22.856	32.376	73.023	80.268	4.085	69.966	6.383	0.004	21.009	0.264	0	57	8.7	71.5	4.9	0.115	0.111	0.0016	1.56	1.3
66	5/20/1999	3:17:40 PM	0	27	23.462	26.275	26.172	23.016	32.297	73.333	80.512	4.133	70.067	6.414	0.004	21.055	0.264	0	58	8.7	71.7	4.9	0.115	0.111	0.0016	1.55	1.3
67	5/20/1999	3:18:37 PM	0	27.08	23.542	26.275	26.252	23.016	32.297	72.93	80.085	4.077	70.676	6.445	0.004	21.04	0.262	0	59	8.7	71.8	5.0	0.114	0.110	0.0015	1.54	1.3
68	5/20/1999	3:19:40 PM	0	27.08	23.462	26.275	26.092	23.016	32.614	72.806	79.994	4.061	70.439	6.445	0.004	20.917	0.261	0	60	8.7	71.6	4.9	0.114	0.110	0.0015	1.53	1.3
69	5/20/1999	3:20:39 PM	0	27.035	23.497	26.309	26.206	22.971	32.569	73.054	80.299	4.261	69.594	6.353	0.004	21.362	0.258	0	61	8.9	71.3	4.9	0.113	0.109	0.0015	1.52	1.3
70	5/20/1999	3:21:38 PM	0	27.035	23.497	26.309	26.126	22.971	32.252	73.116	80.36	4.197	69.898	6.383	0.004	21.316	0.261	0	62	8.8	71.5	4.9	0.114	0.110	0.0015	1.54	1.3
71	5/20/1999	3:22:41 PM	0	27.035	23.497	26.309	26.206	23.051	32.093	72.837	80.055	4.149	69.898	6.414	0.004	21.27	0.256	0	63	8.8	71.4	4.9	0.112	0.108	0.0015	1.51	1.3
72	5/20/1999	3:23:38 PM	0	27.035	23.497	26.309	26.126	23.051	32.014	72.899	80.207	4.388	69.019	6.353	0.004	21.639	0.257	0	64	9.0	71.0	4.9	0.112	0.108	0.0015	1.52	1.3
73	5/20/1999	3:24:37 PM	0	27.035	23.497	26.229	26.206	23.132	31.855	72.156	79.201	4.253	68.548	6.353	0.05	21.623	0.254	0	65	9.0	70.4	4.9	0.111	0.107	0.0015	1.52	1.3
74	5/20/1999	3:25:38 PM	0	27.035	23.497	26.229	26.206	23.292	31.935	72.28	79.536	4.316	68.174	6.383	0.004	21.608	0.254	0	66	9.0	70.2	4.8	0.111	0.107	0.0015	1.53	1.3
75	5/20/1999	3:26:37 PM	0	26.969	23.451	26.264	26.161	23.166	31.89	72.094	79.262	4.309	68.58	6.414	0.004	21.577	0.253	0	67	9.0	70.3	4.8	0.110	0.107	0.0015	1.52	1.3
76	5/20/1999	3:27:38 PM	0	27.035	23.497	26.309	26.286	23.292	32.172	72.311	79.567	4.301	68.58	6.414	0.004	21.608	0.252	0	68	9.0	70.4	4.9	0.110	0.106	0.0015	1.51	1.3
77	5/20/1999	3:28:41 PM	0	27.035	23.497	26.229	26.286	23.212	32.172	72.528	79.78	4.324	68.377	6.414	0.004	21.592	0.252	0	69	9.0	70.5	4.9	0.110	0.106	0.0015	1.51	1.3
78	5/20/1999	3:29:36 PM	0	27.035	23.577	26.309	26.366	23.212	32.014	72.094	79.171	4.261	68.918	6.414	0.004	21.639	0.245	0	70	9.0	70.5	4.9	0.107	0.103	0.0015	1.46	1.2
79	5/20/1999	3:30:39 PM	0	27.035	23.497	26.309	26.286	23.212	32.014	72.404	79.841	4.372	68.613	6.445	0.004	21.592	0.254	0	71	9.0	70.5	4.9	0.111	0.107	0.0015	1.52	1.3
80	5/20/1999	3:31:38 PM	0	26.955	23.497	26.309	26.286	23.212	32.014	72.373	79.628	4.301	68.884	6.414	0.004	21.592	0.251	0	72	9.0	70.6	4.9	0.110	0.106	0.0015	1.50	1.3
81	5/20/1999	3:32:39 PM	0	27	23.542	26.355	26.332	23.418	32.138	71.97	79.232	4.356	68.411	6.414	0.004	21.623	0.248	0	73	9.0	70.2	4.8	0.108	0.104	0.0015	1.48	1.3

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/20/1999	3:33:38 PM	0	27.08	23.542	26.355	26.252	23.257	32.059	72.435	79.78	4.388	68.444	6.414	0.004	21.623	0.256	0	74	9.0	70.4	4.9	0.112	0.108	0.0015	1.53	1.3
83	5/20/1999	3:34:39 PM	0	27	23.542	26.355	26.332	23.338	32.059	71.319	78.561	4.261	68.411	6.445	0.004	21.577	0.242	0	75	9.0	69.9	4.8	0.106	0.102	0.0015	1.46	1.2
84	5/20/1999	3:35:36 PM	0	27	23.542	26.355	26.252	23.338	32.138	71.784	79.079	4.269	68.85	6.445	0.004	21.592	0.244	0	76	9.0	70.3	4.8	0.107	0.103	0.0015	1.46	1.2
85	5/20/1999	3:36:35 PM	0	27	23.542	26.355	26.252	23.257	32.138	72.001	79.323	4.324	68.613	6.445	0.004	21.562	0.248	0	77	8.9	70.3	4.8	0.108	0.104	0.0015	1.48	1.3
86	5/20/1999	3:37:36 PM	0	27	23.462	26.275	26.092	23.257	32.138	72.612	79.841	4.34	68.613	6.445	0.004	21.623	0.245	0	78	9.0	70.6	4.9	0.107	0.103	0.0015	1.46	1.2
87	5/20/1999	3:38:37 PM	0	27	23.542	26.275	26.172	23.257	32.217	72.28	79.628	4.332	68.816	6.445	0.004	21.654	0.251	0	79	9.0	70.5	4.9	0.110	0.106	0.0015	1.50	1.3
88	5/20/1999	3:39:41 PM	0	27	23.542	26.275	26.092	23.177	32.217	71.908	79.11	4.348	68.478	6.414	0.004	21.608	0.243	0	80	9.0	70.2	4.8	0.106	0.102	0.0015	1.46	1.2
89	5/20/1999	3:40:40 PM	0	27	23.542	26.275	26.092	23.177	32.217	72.125	79.414	4.364	68.715	6.445	0.004	21.623	0.247	0	81	9.0	70.4	4.9	0.108	0.104	0.0015	1.48	1.3
90	5/20/1999	3:41:36 PM	0	27	23.462	26.275	26.172	23.177	32.455	72.156	79.475	4.324	69.391	6.445	0.004	21.639	0.244	0	82	9.0	70.8	4.9	0.107	0.103	0.0015	1.45	1.2
91	5/20/1999	3:42:38 PM	0	27	23.542	26.275	26.092	23.097	32.297	72.218	79.536	4.348	68.782	6.445	0.004	21.562	0.243	0	83	8.9	70.5	4.9	0.106	0.102	0.0015	1.45	1.2
92	5/20/1999	3:43:37 PM	0	27.045	23.588	26.24	26.137	23.223	32.342	72.063	79.323	4.34	68.512	6.445	0.004	21.654	0.246	0	84	9.0	70.3	4.8	0.107	0.104	0.0015	1.48	1.3
93	5/20/1999	3:44:38 PM	0	27.045	23.588	26.32	26.137	23.223	32.342	71.908	79.171	4.301	68.816	6.445	0.05	21.608	0.242	0	85	9.0	70.4	4.9	0.106	0.102	0.0014	1.45	1.2
94	5/20/1999	3:45:37 PM	0	27.045	23.588	26.32	26.217	23.142	32.183	71.939	79.079	4.301	68.512	6.445	0.004	21.623	0.241	0	86	9.0	70.2	4.8	0.105	0.101	0.0014	1.44	1.2
95	5/20/1999	3:46:38 PM	0	26.965	23.588	26.32	26.217	23.223	32.342	72.868	80.329	4.324	69.019	6.476	0.004	21.377	0.244	0	87	8.9	70.9	4.9	0.107	0.103	0.0014	1.45	1.2
96	5/20/1999	3:47:37 PM	0	26.965	23.588	26.32	26.217	23.142	32.183	72.125	79.292	4.237	68.965	6.476	0.004	21.516	0.247	0	88	8.9	70.8	4.9	0.108	0.104	0.0015	1.47	1.3
97	5/20/1999	3:48:40 PM	0	27.045	23.507	26.32	26.377	23.223	32.262	72.59	79.872	4.316	69.12	6.445	0.004	21.5	0.242	0	89	8.9	70.9	4.9	0.106	0.102	0.0014	1.44	1.2
98	5/20/1999	3:49:35 PM	0	26.965	23.507	26.24	26.137	23.223	32.262	72.249	79.597	4.261	68.884	6.476	0.004	21.439	0.237	0	90	8.9	70.6	4.9	0.103	0.100	0.0014	1.42	1.2
99	5/20/1999	3:50:40 PM	0	26.965	23.588	26.24	26.297	23.223	32.262	72.59	79.902	4.293	68.715	6.445	0.004	21.424	0.242	0	91	8.9	70.7	4.9	0.106	0.102	0.0014	1.44	1.2
100	5/20/1999	3:51:37 PM	0	27.011	23.633	26.365	26.342	23.268	32.228	72.218	79.414	4.221	69.087	6.445	0.004	21.439	0.242	0	92	8.9	70.7	4.9	0.106	0.102	0.0014	1.44	1.2
101	5/20/1999	3:52:40 PM	0	26.965	23.588	26.24	26.297	23.062	32.817	72.435	79.75	4.316	69.087	6.476	0.004	21.424	0.243	0	93	8.9	70.8	4.9	0.106	0.102	0.0014	1.45	1.2
102	5/20/1999	3:53:37 PM	0	26.965	23.588	26.24	26.297	23.062	33.054	72.868	80.238	4.316	69.425	6.476	0.004	21.454	0.241	0	94	8.9	71.1	4.9	0.105	0.102	0.0014	1.43	1.2
103	5/20/1999	3:54:42 PM	0	27.011	23.633	26.285	26.342	22.866	33.099	72.528	79.78	4.261	69.053	6.445	0.004	21.408	0.242	0.003	95	8.9	70.8	4.9	0.106	0.102	0.0014	1.44	1.2
104	5/20/1999	3:55:37 PM	0	26.965	23.588	26.24	26.457	22.821	33.45	72.992	80.268	4.229	69.29	6.476	0.004	21.285	0.241	0	96	8.8	71.1	4.9	0.105	0.102	0.0014	1.43	1.2
105	5/20/1999	3:56:42 PM	0	26.965	23.588	26.24	26.297	22.66	33.371	72.806	80.116	4.213	69.695	6.507	0.004	21.239	0.235	0	97	8.8	71.3	4.9	0.103	0.099	0.0014	1.39	1.2
106	5/20/1999	3:57:37 PM	0	26.965	23.588	26.24	26.377	22.58	33.529	72.93	80.268	4.213	69.425	6.507	0.004	21.239	0.244	0	98	8.8	71.2	4.9	0.107	0.103	0.0014	1.45	1.2
107	5/20/1999	3:58:40 PM	0	26.965	23.588	26.32	26.297	22.419	33.688	72.683	80.024	4.293	69.357	6.414	0.004	21.47	0.236	0	99	8.9	71.0	4.9	0.103	0.099	0.0014	1.40	1.2
108	5/20/1999	3:59:37 PM	0	27.045	23.668	26.32	26.297	22.338	33.688	72.652	79.902	4.269	69.087	6.445	0.004	21.454	0.252	0	100	8.9	70.9	4.9	0.110	0.106	0.0015	1.50	1.3
109	5/20/1999	4:00:40 PM	0	27	23.622	26.275	26.252	22.373	33.326	72.621	79.841	4.269	68.951	6.445	0.004	21.485	0.237	0	101	8.9	70.8	4.9	0.103	0.100	0.0014	1.41	1.2
110	5/20/1999	4:01:41 PM	0	27	23.622	26.275	26.252	22.454	33.089	72.528	79.811	4.301	69.053	6.414	0.004	21.47	0.246	0	102	8.9	70.8	4.9	0.107	0.104	0.0015	1.46	1.2
111	5/20/1999	4:02:40 PM	0	27	23.703	26.275	26.252	22.534	32.93	72.714	80.116	4.364	69.019	6.414	0.05	21.424	0.243	0	103	8.9	70.9	4.9	0.106	0.102	0.0014	1.44	1.2
112	5/20/1999	4:03:37 PM	0	27.035	23.657	26.229	26.046	22.569	32.648	72.373	79.475	4.245	68.884	6.414	0.004	21.439	0.233	0	104	8.9	70.6	4.9	0.102	0.098	0.0014	1.39	1.2
113	5/20/1999	4:04:40 PM	0	27.035	23.657	26.229	26.126	22.73	32.369	72.466	79.75	4.34	68.985	6.414	0.004	21.439	0.231	0	105	8.9	70.7	4.9	0.101	0.097	0.0014	1.38	1.2
114	5/20/1999	4:05:39 PM	0	27.035	23.657	26.309	26.126	22.81	32.49	72.652	79.872	4.316	68.918	6.414	0.004	21.47	0.238	0	106	8.9	70.8	4.9	0.104	0.100	0.0014	1.41	1.2
115	5/20/1999	4:06:44 PM	0	26.989	23.612	26.264	26.161	22.925	32.207	72.249	79.475	4.309	68.951	6.414	0.004	21.424	0.237	0	107	8.9	70.6	4.9	0.103	0.100	0.0014	1.41	1.2
116	5/20/1999	4:07:37 PM	0	26.989	23.612	26.264	26.161	23.006	32.445	72.559	79.963	4.372	69.256	6.414	0.004	21.47	0.244	0	108	8.9	70.9	4.9	0.107	0.103	0.0014	1.45	1.2
117	5/20/1999	4:08:38 PM	0	26.944	23.647	26.219	26.036	22.88	32.321	71.846	79.079	4.253	68.951	6.414	0.004	21.485	0.228	0	109	8.9	70.4	4.9	0.100	0.096	0.0014	1.37	1.2
118	5/20/1999	4:09:39 PM	0	26.989	23.692	26.264	26.321	23.006	32.207	72.342	79.597	4.277	68.985	6.414	0.004	21.47	0.239	0	110	8.9	70.7	4.9	0.104	0.101	0.0014	1.43	1.2
119	5/20/1999	4:10:40 PM	0	26.944	23.647	26.219	26.196	22.96	32.083	72.497	79.902	4.332	69.323	6.414	0.004	21.5	0.239	0	111	8.9	70.9	4.9	0.104	0.101	0.0014	1.42	1.2
120	5/20/1999	4:11:39 PM	0	26.944	23.566	26.219	26.196	23.041	32.083	72.683	79.994	4.348	68.749	6.414	0.004	21.454	0.231	0	112	8.9	70.7	4.9	0.101	0.097	0.0014	1.38	1.2
121	5/20/1999	4:12:38 PM	0	26.944	23.566	26.219	26.276	23.121	32.003	72.466	79.78	4.316	68.782	6.414	0.004	21.516	0.233	0	113	8.9	70.6	4.9	0.102	0.098	0.0014	1.39	1.2
122	5/20/1999	4:13:39 PM	0	26.944	23.647	26.219	26.196	23.121	32.003	72.094	79.384	4.293	69.188	6.414	0.004	21.47	0.235	0.003	114	8.9	70.6	4.9	0.103	0.099	0.0014	1.40	1.2
123	5/20/1999	4:14:38 PM	0	26.989	23.692	26.344	26.321	23.166	32.207	72.28	79.536	4.285	68.884	6.414	0.05	21.47	0.237	0	115	8.9	70.6	4.9	0.103	0.100	0.0014	1.41	1.2
124	5/20/1999	4:15:37 PM	0	26.944	23.647	26.219	26.116	23.121	31.845	72.59	79.811	4.332	68.613	6.414	0.004	21.439	0.238	0	116	8.9	70.6	4.9	0.104	0.100	0.0014	1.42	1.2
125	5/20/1999	4:16:38 PM	0	26.944	23.647	26.219	26.276	23.201	32.162	72.559	79.75	4.277	69.492	6.414	0.004	21.5	0.233	0	117	8.9	71.0	4.9	0.102	0.098	0.0014	1.38	1.2
126	5/20/1999	4:17:37 PM	0	26.944	23.647	26.219	26.196	23.121	32.162	72.373	79.658	4.309	69.222	6.414	0.004	21.5	0.231	0	118	8.9	70.8	4.9	0.101	0.097	0.0014	1.38	1.2
127	5/20/1999	4:18:43 PM	0	26.91	23.692	26.264	26.321	23.086	32.128	72.652	79.933	4.332	69.154	6.414	0.004	21.485	0.239	0	119	8.9	70.9	4.9	0.104	0.101	0.0014	1.42	1.2
128	5/20/1999	4:19:39 PM	0	26.864	23.566	26.219	26.276	23.121	32.241	72.528	79.78	4.309	68.816	6.414	0.004	21.485	0.217	0	120	8.9	70.7	4.9	0.095	0.092	0.0013	1.30	1.1
129	5/20/1999	4:20:38 PM	0	26.989	23.692	26.264	26.321	23.166	32.048	72.218	79.475	4.316	68.647	6.414	0.004	21.516	0.242	0	121	8.9	70.4	4.9	0.106	0.102	0.0014	1.45	1.2
130	5/20/1999	4:21:40 PM	0	26.91	23.692	26.264	26.401	23.166	32.286	72.373	79.567	4.277	68.884	6.414	0.004	21.47	0.233	0	122	8.9	70.6	4.9	0.102	0.098	0.0014	1.39	1.2
131	5/20/1999	4:22:36 PM	0	26.989	23.692	26.264	26.241	23.086	32.128	72.342	79.506	4.285	68.918	6.414	0.004	21.5	0.24	0	123	8.9	70.6	4.9	0.105	0.101	0.0014	1.43	1.2
132	5/20/1999	4:23:37 PM	0	26.91	23.612	26.264	26.401	23.166	31.969	72.28	79.567	4.309	69.12	6.414	0.004	21.546	0.234	0	124	8.9	70.7	4.9	0.102	0.099	0.0014	1.39	1.2
133	5/20/1999	4:24:39 PM	0	27.035	23.737	26.309	26.366	23.292	32.093	72.992	80.299	4.34	69.154	6.414	0.004	21.485	0.238	0	125	8.9	71.1	4.9	0.104	0.100	0.0014	1.41	1.2
134	5/20/1999	4:25:40 PM	0	26.955	23.737	26.309	26.366	23.292	32.172	72.156	79.414	4.261	69.323	6.414	0.004	21.531	0.223	0	126	8.9	70.7	4.9	0.097	0.094	0.0013	1.33	1.1
135	5/20/1999	4:26:39 PM	0	26.989	23.692	26.264	26.321	23.327	32.128	36.278	76.274	3.567	34.839	37.047	0.004	22.806	1.218	0	127	9.5	36.6	2.5	0.532	0.513	0.0140	14.04	11.9
136	5/20/1999	4:27:44 PM	0	27.035	23.657	26.229	26.366	23.373	32.014	69.49	78.378	3.734	66.112	7.863	0.004	22.176	1.115	0	128	9.2	67.8	4.7	0.487	0.470	0.0069	6.94	5.9
137	5/20/1999	4:28:39 PM	0	27.035	23.657	26.309	26.446	23.453	32.014	69.831	78.256	3.782	67.362	7.555	0.004	21.946	0.788	0	129	9.1	68.6	4.7	0.344	0.332	0.0048	4.83	4.1
138	5/20/1999	4:29:40 PM	0	27.035	23.657	26.309	26.366	23.453	31.935	71.97	79.262	3.806	68.275	6.445	0.004	21.854	0.655	0	130	9.1	70.1	4.8	0.286	0.276	0.0039	3.93	3.3
139	5/20/1999	4:30:39 PM	0	27.035	23.657	26.309	26.366	23.533	31.776	71.97	78.957	3.822	68.715	6.229	0.004	21.823	0.589	0	131	9.1	70.3	4.8	0.257	0.248	0.0035	3.52	3.0
140	5/20/1999	4:31:38 PM	0	27	23.703	26.275	26.412	23.579	31.9	71.939	78.957	3.918	68.918	6.291	0.004	21.761	0.534	0	132	9.0	70.4	4.9	0.233	0.225	0.0032	3.19	2.7
141	5/20/1999	4:32:35 PM	0	27	23.703	26.275	26.572	23.579	32.059	71.474	78.561	3.91	68.546	6.322	0.004	21.761	0.501	0	133	9.0	70.0	4.8	0.219	0.211	0.0030	3.01	2.8
142																											
143		Averages		27.0	23.5	26.3	26.2	23.1	32.3	73.2	80.5	4.1	69.9	6.5	0.0	21.1	0.295	0.0		8.8	71.5	4.9	0.129	0.124	0.002	1.7	1.5
144		Maximum		27.1	23.7	26.4	26.5	23.6	33.7	76.6	83.9	4.4	73.9	12.3	0.1	21.7	1.218	0.0		9.0	75.1	5.2	0.532	0.514	0.008	7.9	6.7
145		Median		27.0	23.5	26.3	26.2	23.1	32.2	72.8	80.1	4.3	69.3	6.4	0.0	21.4	0.253	0.0		8.9	71.0	4.9	0.110	0.107	0.002	1.5	1.3
146		Minimum		26.9	23.3	26.1	25.6	22.3	31.7	68.2	78.6	3.4	64.2	6.0	0.0	19.9	0.217	0.0		8.3	65.2	4.5	0.095	0.092	0.001	1.3	1.1
147		Std Dev		0.1	0.1	0.1	0.2	0.3	0.5	1.4	1.2	0.3	1.5	0.6	0.0	0.5	0.124	0.0		0.2	1.4	0.1	0.054	0.052	0.001	0.8	0.7
148		Number of Points Used		115	115	115	115	115	115	115	115	115	115	115	115	115	115	115		115	115	115	115	115	115	115	115



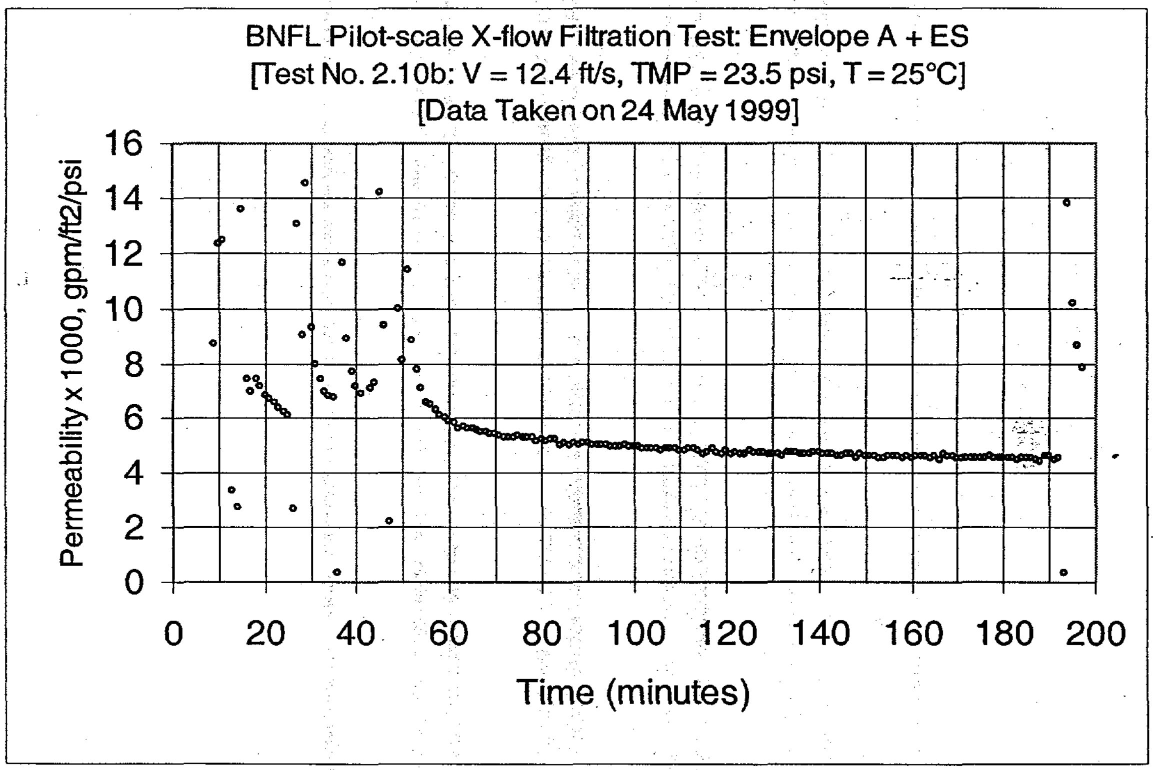


Figure B11: Test Run 2.10b, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP	TOP DP (p	FLTRATE	PISTON	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/24/1999	8:33:02 AM	0	22.749	22.172	21.88	22.237	21.243	32.452	-0.031	-0.011	-0.016	0.016	-0.057	-0.228	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/24/1999	8:39:41 AM	0	22.774	22.197	21.885	22.021	21.268	31.764	-0.031	-0.011	-0.016	0.05	-0.057	-0.228	-0.08	0.012	0									
5	5/24/1999	8:40:40 AM	0	22.819	22.182	21.849	22.066	21.394	31.808	-0.031	-0.011	-0.016	0.05	-0.068	-0.228	-0.08	0.011	0									
6	delta																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
7	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP	TOP DP (p	FLTRATE	PISTON	SL FLOW	FLTR FLO	V9	Number	Vel, ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/24/1999	9:01:13 AM	0	22.658	22.182	21.93	23.433	22.801	30.776	0.155	0.904	0.511	0.084	0.156	-0.228	-0.08	0.012	0	1	0.0	0.1	0.0	0.005	0.006	0.0478	47.84	40.7
9	5/24/1999	9:02:37 AM	0	22.658	22.162	21.849	23.635	22.662	30.776	0.155	0.904	0.519	0.05	0.189	-0.228	-0.08	0.011	0	2	0.0	0.1	0.0	0.005	0.005	0.0512	51.24	43.6
10	5/24/1999	9:03:36 AM	0	22.703	22.288	21.975	23.96	22.727	30.662	0.155	0.904	0.511	0.05	0.189	-0.228	-0.095	0.011	0	3	0.0	0.1	0.0	0.005	0.005	0.0511	51.06	43.5
11	5/24/1999	9:04:35 AM	0	22.703	22.127	21.895	24.04	22.888	30.662	0.155	0.904	0.511	0.05	0.189	-0.228	-0.08	0.011	0	4	0.0	0.1	0.0	0.005	0.005	0.0512	51.17	43.6
12	5/24/1999	9:05:36 AM	0	22.749	22.172	21.94	24.166	22.933	30.627	0.155	0.934	0.511	0.05	0.158	-0.228	-0.08	0.011	0	5	0.0	0.1	0.0	0.005	0.005	0.0511	51.11	43.5
13	5/24/1999	9:06:35 AM	0	22.794	22.218	21.965	24.291	22.978	30.672	0.155	0.904	0.611	0.05	0.158	-0.228	-0.08	0.012	0	6	0.0	0.1	0.0	0.005	0.006	0.0557	55.68	47.4
14	5/24/1999	9:07:41 AM	0	22.714	22.137	21.905	24.211	22.978	30.672	0.155	0.904	0.519	0.05	0.158	-0.228	-0.095	0.011	0	7	0.0	0.1	0.0	0.005	0.005	0.0512	51.18	43.5
15	5/24/1999	9:08:35 AM	1	22.759	22.182	21.95	24.256	23.024	30.837	0.124	0.904	0.511	0.05	0.189	50.941	-0.08	0.011	0	8	0.0	0.1	0.0	0.005	0.005	0.0602	60.20	51.2
16	5/24/1999	9:09:34 AM	1	22.759	22.182	22.031	24.176	23.265	30.717	1.118	31.942	1.572	0.084	30.113	51.172	11.931	0.011	0	9	5.0	0.6	0.0	0.005	0.005	0.0087	8.71	7.4
17	5/24/1999	9:10:35 AM	1	22.804	22.228	22.237	24.221	23.149	30.762	0.961	31.881	1.715	-0.119	30.144	51.219	12.315	0.011	0	10	5.1	0.4	0.0	0.005	0.005	0.0123	12.34	10.5
18	5/24/1999	9:11:36 AM	1	22.849	22.273	22.524	24.106	23.194	30.727	0.744	72.884	0.926	0.084	70.792	59.045	6.279	0.011	0	11	2.6	0.4	0.0	0.005	0.005	0.0124	12.44	10.6
19	5/24/1999	9:12:35 AM	1	22.849	22.193	22.845	24.026	23.194	30.727	1.646	84.048	3.686	-1.978	61.639	59.276	16.155	0.013	0	12	6.7	-0.2	0.0	0.006	0.006	-0.0281	-28.12	-23.9
20	5/24/1999	9:13:34 AM	1	22.814	22.238	23.372	24.151	23.159	31.01	4.587	60.694	6.391	-1.336	55.106	51.358	30.317	0.012	0	13	12.6	1.6	0.1	0.005	0.005	0.0034	3.37	2.9
21	5/24/1999	9:14:38 AM	1	22.94	22.283	23.819	24.036	23.205	30.896	4.625	60.633	6.247	-0.896	55.013	51.404	30.01	0.011	0	14	12.5	1.8	0.1	0.005	0.005	0.0027	2.74	2.3
22	5/24/1999	9:15:41 AM	0	23.744	22.203	24.14	24.036	23.124	30.896	42.618	60.145	6.16	37.476	16.707	-0.181	31.023	1.218	0	15	12.9	40.0	2.8	0.532	0.545	0.0136	13.60	11.6
23	5/24/1999	9:16:38 AM	0	24.19	22.248	24.586	24.161	23.089	31.258	42.773	51.547	12.774	30.647	7.955	-0.228	45.508	0.619	0	16	18.9	36.7	2.5	0.270	0.273	0.0074	7.45	6.3
24	5/24/1999	9:17:37 AM	0	24.19	22.248	24.967	24.001	23.009	31.496	27.368	37.857	8.336	19.929	9.743	-0.228	35.508	0.376	0	17	14.7	23.6	1.6	0.164	0.164	0.0069	6.94	5.9
25	5/24/1999	9:18:36 AM	0	24.556	22.294	25.433	23.966	22.894	31.7	21.014	30.733	7.165	14.047	8.86	-0.228	32.175	0.303	0	18	13.4	17.5	1.2	0.132	0.131	0.0075	7.45	6.3
26	5/24/1999	9:19:37 AM	0	25.118	22.213	25.753	23.966	22.733	31.938	23.556	33.65	6.375	17.867	9.342	-0.228	30.501	0.346	0	19	12.7	20.7	1.4	0.151	0.148	0.0071	7.14	6.1
27	5/24/1999	9:20:36 AM	0	25.323	22.339	25.958	23.931	22.778	32.062	24.021	34.138	6.303	18.476	9.342	-0.181	30.194	0.343	0	20	12.5	21.2	1.5	0.150	0.146	0.0069	6.86	5.8
28	5/24/1999	9:21:37 AM	0	25.804	22.259	25.718	23.931	22.537	32.062	24.393	34.26	6.231	18.577	9.188	-0.228	30.225	0.335	0	21	12.5	21.5	1.5	0.146	0.143	0.0067	6.67	5.7
29	5/24/1999	9:22:38 AM	0	25.804	22.339	25.478	24.011	22.537	32.221	24.083	34.016	6.136	18.848	9.219	-0.228	30.056	0.327	0	22	12.5	21.5	1.5	0.143	0.141	0.0066	6.56	5.6
30	5/24/1999	9:23:37 AM	0	25.643	22.259	25.238	23.931	22.537	32.379	25.199	35.083	6.391	19.017	9.126	-0.228	29.948	0.323	0	23	12.4	22.1	1.5	0.141	0.140	0.0063	6.34	5.4
31	5/24/1999	9:24:38 AM	0	25.563	22.259	25.077	24.092	22.376	32.379	24.889	34.686	6.096	19.456	9.126	-0.228	30.01	0.316	0	24	12.5	22.2	1.5	0.138	0.138	0.0062	6.21	5.3
32	5/24/1999	9:25:35 AM	0	25.483	22.339	24.837	23.931	22.296	32.379	25.075	34.808	6.431	18.983	9.003	-0.228	30.179	0.307	0	25	12.5	22.0	1.5	0.134	0.135	0.0061	6.11	5.2
33	5/24/1999	9:26:38 AM	0	25.483	22.339	24.757	24.011	22.215	32.458	4.88	34.595	6.12	-1.099	29.219	-0.228	30.04	0.011	0	26	12.5	1.8	0.1	0.005	0.005	0.0027	2.70	2.3
34	5/24/1999	9:27:35 AM	0	25.278	22.294	24.551	23.805	22.25	32.414	25.973	33.65	6.183	20.775	6.807	-0.228	30.378	0.69	0	27	12.6	23.4	1.6	0.301	0.305	0.0131	13.05	11.1
35	5/24/1999	9:28:40 AM	0	25.243	22.339	24.516	23.931	22.215	32.538	27.027	33.955	6.255	21.823	6.137	-0.181	30.255	0.499	0.003	28	12.6	24.4	1.7	0.218	0.221	0.0090	9.04	7.7
36	5/24/1999	9:29:37 AM	0	25.118	22.294	24.551	23.805	22.17	32.572	26.19	33.602	6.144	20.47	6.907	-0.228	30.363	0.768	0	29	12.6	23.3	1.6	0.335	0.340	0.0146	14.55	12.4
37	5/24/1999	9:30:42 AM	0	25.118	22.294	24.632	23.805	22.069	32.572	27.182	33.711	6.072	22.195	5.89	-0.228	30.225	0.52	0	30	12.5	24.7	1.7	0.227	0.229	0.0093	9.29	7.9
38	5/24/1999	9:31:39 AM	0	25.072	22.329	24.666	23.76	22.124	32.607	27.74	34.32	6.311	22.026	5.983	-0.228	30.255	0.451	0	31	12.6	24.9	1.7	0.197	0.199	0.0080	7.99	6.8
39	5/24/1999	9:32:38 AM	0	25.153	22.329	24.747	23.84	22.044	32.607	24.703	31.454	6.75	18.611	6.014	-0.228	31.377	0.367	0	32	13.0	21.7	1.5	0.160	0.161	0.0075	7.45	6.3
40	5/24/1999	9:33:37 AM	0	25.153	22.329	24.907	23.76	22.044	32.607	22.781	29.473	6.343	16.887	5.921	-0.228	30.194	0.314	0	33	12.5	19.8	1.4	0.137	0.137	0.0069	6.93	5.9
41	5/24/1999	9:34:36 AM	0	25.233	22.329	24.907	23.76	21.963	32.527	22.657	30.723	5.378	17.63	7.37	-0.181	27.583	0.315	0	34	11.4	20.1	1.4	0.138	0.138	0.0068	6.84	5.8
42	5/24/1999	9:35:35 AM	0	25.268	22.364	24.942	23.715	22.079	32.483	25.694	34.351	6.056	20.335	8.109	-0.181	29.472	0.356	0	35	12.2	23.0	1.6	0.155	0.156	0.0068	6.76	5.8
43	5/24/1999	9:36:44 AM	1	25.348	22.364	25.022	23.715	21.998	32.483	17.357	32.674	6.175	11.985	14.581	-0.181	30.424	0.011	0	36	12.6	14.7	1.0	0.005	0.005	0.0003	0.33	0.3
44	5/24/1999	9:37:35 AM	0	25.222	22.318	25.057	23.589	22.034	32.279	26.035	32.826	6.319	20.944	6.044	-0.181	30.317	0.628	0	37	12.6	23.5	1.6	0.274	0.274	0.0117	11.65	9.9
45	5/24/1999	9:38:38 AM	0	25.383	22.318	25.057	23.75	22.195	31.962	26.438	33.04	6.175	21.045	5.921	-0.181	30.209	0.484	0	38	12.5	23.7	1.6	0.211	0.211	0.0089	8.89	7.6
46	5/24/1999	9:39:41 AM	0	25.463	22.399	25.137	23.75	22.355	31.883	26.965	33.558	6.263	21.113	5.86	-0.228	30.086	0.427	0	39	12.5	24.0	1.7	0.186	0.186	0.0077	7.72	6.6
47	5/24/1999	9:40:40 AM	0	25.498	22.354	25.172	23.785	22.391	31.6	26.624	33.314	6.351	20.978	5.983	-0.181	30.24	0.391	0	40	12.5	23.8	1.6	0.171	0.170	0.0071	7.14	6.1
48	5/24/1999	9:41:39 AM	0	25.578	22.354	25.252	23.865	22.471	31.521	26.378	33.04	6.088	20.335	6.044	-0.228	30.179	0.372	0	41	12.5	23.4	1.6	0.162	0.161	0.0069	6.90	5.9
49	5/24/1999	9:42:40 AM	0	25.578	22.273	25.252	23.945	22.632	31.362	9.763	15.021	9.367	0.456	4.658	-0.228	36.092	0.3	0	42	15.0	5.1	0.4	0.131	0.130	0.0254	25.45	21.7
50	5/24/1999	9:43:39 AM	0	25.658	22.434	25.332	24.026	22.712	31.362	19.588	32.003	6.814	13.303	11.684	-0.228	30.962	0.271	0	43	12.8	16.4	1.1	0.118	0.117	0.0071	7.13	6.1
51	5/24/1999	9:44:44 AM	0	25.658	22.354	25.412	24.106	22.793	31.203	23.711	34.138	6.295	18.036	9.619	-0.228	29.795	0.353	0	44	12.4	20.9	1.4	0.154	0.152	0.0073	7.30	6.2
52	5/24/1999	9:45:35 AM	0	25.658	22.354	25.412	24.186	22.953	31.124	25.168	33.223	5.968	19.828	7.37	-0.228	30.025	0.741	0	45	12.5	22.5	1.6	0.323	0.320	0.0142	14.21	12.1
53	5/24/1999	9:46:36 AM	0	25.818	22.354	25.412	24.266	22.953	31.045	27.058	33.65	6.048	21.789	5.921	-0.228	29.917	0.529	0	46	12.4	24.4	1.7	0.231	0.228	0.0093	9.35	8.0
54	5/24/1999	9:47:41 AM	0	25.898	22.354	25.492	24.347	22.953	30.965	5.145	34.29	6.064	-0.863	28.325	-0.181	29.687	0.011	0	47	12.3	2.1	0.1	0.005	0.005	0.0022	2.21	1.9
55	5/24/1999	9:48:34 AM	0	25.738	22.354	25.492	24.347	23.034	30.886	26.779	33.162	6.016	21.552	5.676	-0.181	30.163	1	0	48	12.5	24.2	1.7	0.437	0.431	0.0178	17.82	15.2
56	5/24/1999	9:49:37 AM	0	25.943	22.399	25.617	24.472	23.079	30.851	26.748	33.528	6.072	21.316	6.044	-0.228	29.887	0.558	0.003	49	12.4	24.0	1.7	0.244	0.239	0.0100	9.96	8.5
57	5/24/1999	9:50:38 AM	0	25.943	22.399	25.617	24.472	23.24	30.772	27.058	33.955	6.231	21.485	6.199	-0.228	29.871	0.46	0	50	12.4	24.3	1.7	0.201	0.197	0.0081	8.13	6.9
58	5/24/1999	9:51:35 AM	0	26.068	22.364	25.662	24.517	23.285	30.737	26.438	33.497	6.008	20.91	6.383	-0.228	30.01	0.628	0	51	12.5	23.7	1.6	0.274	0.269	0.0114	11.37	9.7
59	5/24/1999	9:52:38 AM	0	26.068	22.364	25.662	24.517	23.285	30.737	26.686	33.68	6.08	21.113	6.26	-0.181	29.917	0.494	0	52	12.4	23.9	1.6	0.216	0.212	0.0089	8.86	7.5
60	5/24/1999	9:53:42 AM	0	26.148	22.364	25.662	24.598	23.365	30.737	26.655	33.467	6.016	20.944	6.26	-0.181	29.841	0.43	0.003	53	12.4	23.8	1.6	0.188	0.184	0.0077	7.74	6.6
61	5/24/1999	9:54:34 AM	0	26.113	22.409	25.627	24.563	23.33	30.782	26.562	33.497	6.048	21.248	6.291	-0.228	29.856	0.395	0	54	12.4	23.9	1.6	0.172	0.169	0.0071	7.09	6.0
62	5/24/1999	9:55:37 AM	0	26.079	22.455	25.513	24.768	23.456	30.747	26.841	33.802	6.263	21.552	6.322	-0.228	29.795	0.37	0	55	12.4	24.2	1.7	0.162	0.159	0.0066	6.58	5.6
63	5/24/1999	9:56:36 AM	0	25.999	22.455	25.352	24.768	23.456	30.906	27.027	33.965	5.92	21.18	6.353	-0.228	29.641	0.361	0	56	12.3	24.1	1.7	0.158	0.156	0.0065	6.47	5.5
64	5/24/1999	9:57:37 AM	0	25.918	22.374	25.192	24.848	23.536	30.747	26.438	33.375	6.335	21.214	6.26	-0.228	29.656	0.347	0	57	12.3	23.8	1.6	0.151	0.151	0.0063	6.32	5.4
65	5/24/1999	9:58:36 AM	0	25.884	22.5	25.157	24.813	23.582	30.872	26.562	33.589	6.183	21.214	6.322	-0.228	29.825	0.336	0	58	12.4	23.9	1.6	0.147	0.146	0.0061	6.11	5.2
66	5/24/1999	9:59:40 AM	0	25.849	22.465	25.123	24.939	23.547	31.155	26.407	33.467	6.008	21.349	6.353	-0.181	29.702	0.33	0	59	12.3	23.9	1.6	0.144	0.144	0.0060	6.01	5.1
67	5/24/1999	10:00:36 AM	0	25.769	22.465	24.962	24.859	23.547	31.393	26.748	33.833	6.207	21.011	6.353	-0.181	29.702	0.323	0	60	12.3	23.9	1.6	0.141	0.141	0.0059	5.91	5.0
68	5/24/1999	10:01:40 AM	0	25.609	22.465	24.882	24.939	23.306	31.552	26.469	33.558	6.12	21.147	6.353	-0.181	29.779	0.317	0	61	12.4	23.8	1.6	0.138	0.139	0.0058	5.83	5.0
69	5/24/1999	10:02:34 AM	0	25.654	22.43	24.848	24.824	23.191	31.834	26.841	34.016	6.399	21.687	6.353	-0.228	29.626	0.313	0	62	12.3	24.3	1.7	0.137	0.137	0.0057	5.66	4.8
70	5/24/1999	10:03:36 AM	0	25.494	22.43	24.687	24.744	23.03	31.755	26.965	34.016	6.247	21.113	6.383	-0.181	29.749	0.31	0	63	12.3	24.0	1.7	0.135	0.137	0.0057	5.68	4.8
71	5/24/1999	10:04:37 AM	0	25.539	22.556	24.733	24.709	22.915	32.117	26.655	33.833	6.175	21.248	6.353	-0.181	29.595	0.307	0	64	12.3	24.0	1.7	0.134	0.135	0.0056	5.64	4.8
72	5/24/1999	10:05:38 AM	0	25.379	22.556	24.652	24.709	22.754	32.355	26.407	33.436	6.064	21.011	6.353	-0.181	29.656	0.304	0	65	12.3	23.7	1.6	0.133	0.134	0.0057	5.65	4.8
73	5/24/1999	10:06:37 AM	0	25.334	22.511	24.607	24.583	22.708	32.389	26.438	33.436	6.215	21.282	6.353	-0.181	29.672	0.302	0	66	12.3	23.9	1.6	0.132	0.133	0.0056	5.59	4.8
74	5/24/1999	10:07:36 AM	0	25.299	22.476	24.652	24.629	22.674	32.276	26.934	33.965	6.255	20.91	6.383	-0.181	29.718	0.299	0	67	12.3	23.9	1.6	0.131	0.132	0.0055	5.51	4.7
75	5/24/1999	10:08:35 AM	0	25.219	22.556	24.733	24.549	22.593	32.276	26.376	33.436	6.112	21.147	6.383	-0.228	29.718	0.297	0	68	12.3	23.8	1.6	0.130	0.131	0.0055	5.50	4.7
76	5/24/1999	10:09:40 AM	0	25.219	22.556	24.572	24.468	22.674	32.434	26.903	34.077	6.239	21.316	6.383	-0.181	29.718	0.296	0	69	12.3	24.1	1.7	0.129	0.131	0.0054	5.42	4.6
77	5/24/1999	10:10:35 AM	0	25.173	22.511	24.607	24.423	22.487	32.389	26.407	33.558	6.128	21.147	6.414	-0.181	29.749	0.293	0	70	12.3	23.8	1.6	0.128	0.129	0.0054	5.44	4.6
78	5/24/1999	10:11:36 AM	0	25.173	22.511	24.607	24.343	22.387	32.469	26.903	34.199	6.295	21.214	6.383	-0.181	29.687	0.292	0	71	12.3	24.1	1.7	0.127	0.129	0.0054	5.36	4.6
79	5/24/1999	10:12:39 AM	0	25.219	22.556	24.733	24.388	22.432	32.513	27.058	34.229	6.319	21.113	6.383	-0.181	29.749	0.29	0	72	12.3	24.1	1.7	0.127	0.128	0.0053	5.30	4.5
80	5/24/1999	10:13:38 AM	0	25.253	22.591	24.687	24.343	22.387	32.627	26.81	33.863	6.152	21.147	6.383	-0.181	29.656	0.287	0	73	12.3	24.0	1.7	0.125	0.126	0.0053	5.27	4.5
81	5/24/1999	10:14:37 AM	0	25.208	22.546	24.642	24.297	22.18	32.582	26.593	33.772	6.239	21.316	6.383	-0.181	29.687	0.287	0	74	12.3	24.0	1.7	0.125	0.127	0.0053	5.28	4.5

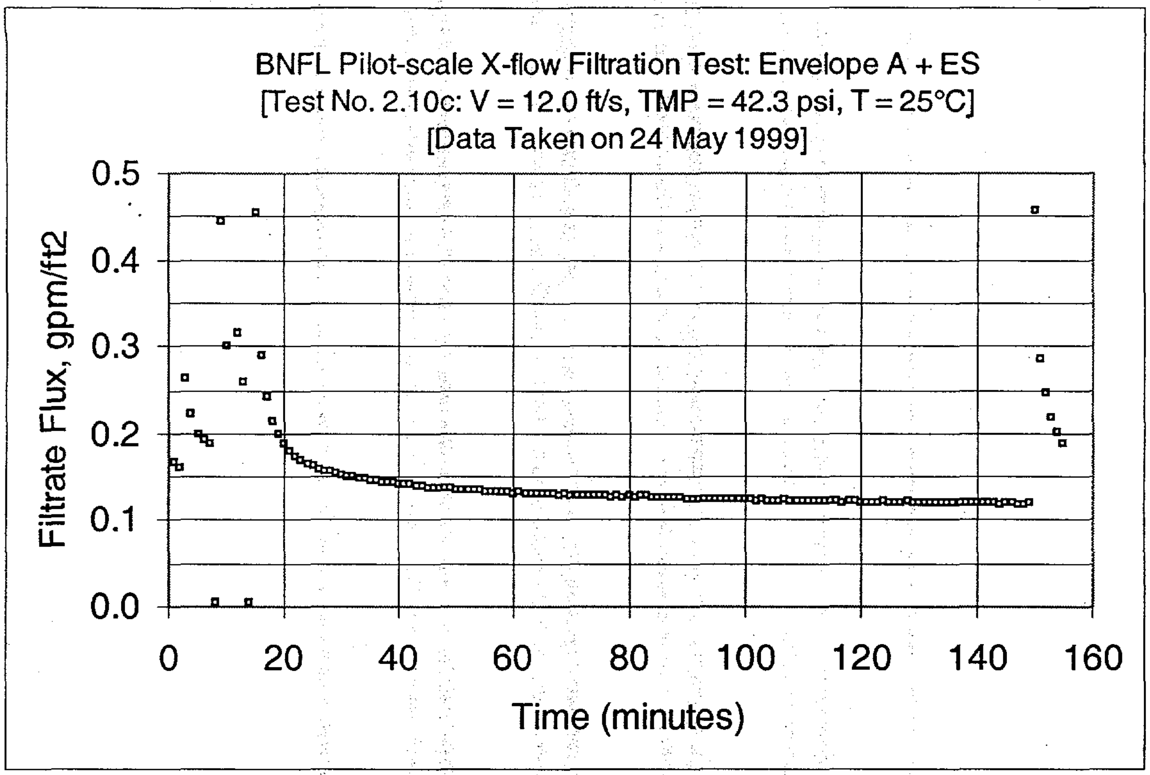
Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/24/1999	10:15:36 AM	0	25.208	22.546	24.642	24.297	22.261	[illegible]	26.562	33.65	6.168	20.876	6.383	-0.181	29.702	0.287	0	75	12.3	23.7	1.6	0.125	0.127	0.0053	5.34	4.5
83	5/24/1999	10:16:35 AM	0	25.208	22.546	24.722	24.297	22.261	[illegible]	26.655	33.68	6.12	21.113	6.414	-0.181	29.702	0.287	0	76	12.3	23.9	1.6	0.125	0.126	0.0053	5.29	4.5
84	5/24/1999	10:17:38 AM	0	25.163	22.581	24.677	24.332	22.215	32.617	26.655	33.602	6.255	20.944	6.383	-0.181	29.718	0.284	0	77	12.3	23.8	1.6	0.124	0.125	0.0053	5.26	4.5
85	5/24/1999	10:18:41 AM	0	25.163	22.581	24.677	24.252	22.135	32.538	26.283	33.375	6.16	21.011	6.383	-0.181	29.672	0.284	0	78	12.3	23.6	1.6	0.124	0.125	0.0053	5.29	4.5
86	5/24/1999	10:19:38 AM	0	25.243	22.581	24.757	24.092	22.215	32.458	26.717	33.894	6.335	21.282	6.383	-0.181	29.702	0.282	0	79	12.3	24.0	1.7	0.123	0.124	0.0052	5.16	4.4
87	5/24/1999	10:20:41 AM	0	25.198	22.535	24.632	24.126	22.17	32.414	26.593	33.711	6.096	21.248	6.383	-0.228	29.702	0.282	0	80	12.3	23.9	1.6	0.123	0.124	0.0052	5.20	4.4
88	5/24/1999	10:21:42 AM	0	25.198	22.616	24.712	24.126	22.17	32.572	26.841	33.924	6.271	21.282	6.414	-0.181	29.733	0.281	0	81	12.3	24.1	1.7	0.123	0.124	0.0051	5.14	4.4
89	5/24/1999	10:22:37 AM	0	25.233	22.57	24.666	24.161	22.205	32.29	26.779	33.833	6.271	20.741	6.383	-0.181	29.672	0.281	0	82	12.3	23.8	1.6	0.123	0.124	0.0052	5.21	4.4
90	5/24/1999	10:23:38 AM	0	25.153	22.57	24.747	24.161	22.205	32.448	26.407	33.589	6.048	21.011	6.414	-0.228	29.702	0.28	0	83	12.3	23.7	1.6	0.122	0.123	0.0052	5.19	4.4
91	5/24/1999	10:24:37 AM	0	25.187	22.525	24.701	24.116	21.998	32.72	27.151	34.26	6.455	21.755	6.414	-0.181	29.718	0.28	0	84	12.3	24.5	1.7	0.122	0.123	0.0050	5.04	4.3
92	5/24/1999	10:25:40 AM	0	25.187	22.605	24.701	24.196	22.159	32.562	27.089	34.138	6.319	21.282	6.414	-0.181	29.796	0.28	0	85	12.4	24.2	1.7	0.122	0.123	0.0051	5.10	4.3
93	5/24/1999	10:26:39 AM	0	25.222	22.56	24.656	24.071	22.034	32.279	26.996	34.077	6.335	21.383	6.414	-0.181	29.749	0.277	0	86	12.3	24.2	1.7	0.121	0.122	0.0050	5.05	4.3
94	5/24/1999	10:27:38 AM	0	25.222	22.56	24.736	24.151	22.275	31.804	26.81	33.985	6.279	21.451	6.414	-0.181	29.841	0.278	0	87	12.4	24.1	1.7	0.121	0.122	0.0051	5.07	4.3
95	5/24/1999	10:28:41 AM	0	25.222	22.56	24.736	24.071	22.436	31.566	27.151	34.32	6.407	21.654	6.383	-0.181	29.749	0.277	0	88	12.3	24.4	1.7	0.121	0.122	0.0050	4.99	4.2
96	5/24/1999	10:29:38 AM	0	25.177	22.514	24.691	24.106	22.471	31.442	27.151	34.229	6.144	20.876	6.383	-0.181	29.779	0.276	0	89	12.4	24.0	1.7	0.120	0.122	0.0051	5.06	4.3
97	5/24/1999	10:30:37 AM	0	25.222	22.64	24.736	24.392	22.758	31.328	26.5	33.619	6.255	21.282	6.383	-0.181	29.764	0.275	0	90	12.4	23.9	1.6	0.120	0.121	0.0051	5.06	4.3
98	5/24/1999	10:31:36 AM	0	25.222	22.64	24.736	24.392	22.918	31.248	26.779	33.985	6.319	21.586	6.383	-0.181	29.779	0.275	0	91	12.4	24.2	1.7	0.120	0.121	0.0050	5.00	4.3
99	5/24/1999	10:32:37 AM	0	25.222	22.64	24.736	24.472	22.918	31.169	26.748	33.772	6.199	21.18	6.383	-0.181	29.733	0.275	0	92	12.3	24.0	1.7	0.120	0.121	0.0050	5.05	4.3
100	5/24/1999	10:33:36 AM	0	25.222	22.64	24.736	24.472	22.999	31.069	26.717	33.741	6.215	21.485	6.383	-0.181	29.733	0.274	0	93	12.3	24.1	1.7	0.120	0.121	0.0050	5.00	4.3
101	5/24/1999	10:34:35 AM	0	25.222	22.64	24.736	24.632	23.079	31.01	26.469	33.68	6.136	21.18	6.383	-0.181	29.764	0.273	0	94	12.4	23.8	1.6	0.119	0.120	0.0050	5.04	4.3
102	5/24/1999	10:35:40 AM	0	25.222	22.64	24.736	24.713	23.24	30.851	27.12	34.199	6.255	21.248	6.383	-0.181	29.779	0.273	0	95	12.4	24.2	1.7	0.119	0.120	0.0050	4.96	4.2
103	5/24/1999	10:36:37 AM	0	25.268	22.686	24.781	24.838	23.285	30.896	26.748	33.894	6.351	21.518	6.414	-0.181	29.718	0.272	0	96	12.3	24.1	1.7	0.119	0.119	0.0050	4.95	4.2
104	5/24/1999	10:37:36 AM	0	25.268	22.605	24.701	24.838	23.285	30.896	27.306	34.442	6.375	21.113	6.383	-0.181	29.764	0.272	0	97	12.4	24.2	1.7	0.119	0.120	0.0049	4.95	4.2
105	5/24/1999	10:38:37 AM	0	25.187	22.686	24.701	24.758	23.365	30.817	26.717	33.833	6.351	21.147	6.383	-0.228	29.779	0.273	0	98	12.4	23.9	1.7	0.119	0.120	0.0050	5.02	4.3
106	5/24/1999	10:39:36 AM	0	25.187	22.686	24.701	24.838	23.446	30.737	26.841	33.802	6.032	21.045	6.383	-0.181	29.764	0.271	0	99	12.4	23.9	1.7	0.118	0.119	0.0050	4.98	4.2
107	5/24/1999	10:40:37 AM	0	25.233	22.651	24.747	24.963	23.491	30.782	26.436	33.375	5.936	21.282	6.383	-0.181	29.656	0.269	0	100	12.3	23.9	1.6	0.117	0.118	0.0050	4.96	4.2
108	5/24/1999	10:41:36 AM	0	25.233	22.651	24.747	25.044	23.652	30.702	26.717	33.833	6.311	21.417	6.383	-0.181	29.81	0.27	0	101	12.4	24.1	1.7	0.118	0.119	0.0049	4.93	4.2
109	5/24/1999	10:42:37 AM	0	25.278	22.696	24.792	25.089	23.617	30.668	27.12	34.29	6.247	21.316	6.383	-0.181	29.718	0.269	0.003	102	12.3	24.2	1.7	0.117	0.118	0.0049	4.88	4.2
110	5/24/1999	10:43:34 AM	0	25.198	22.616	24.712	25.089	23.697	30.747	27.089	34.046	6.247	21.316	6.383	-0.181	29.733	0.268	0	103	12.3	24.2	1.7	0.117	0.118	0.0049	4.87	4.1
111	5/24/1999	10:44:37 AM	0	25.243	22.741	24.757	25.134	23.742	30.713	27.058	34.168	6.207	21.383	6.383	-0.181	29.779	0.269	0	104	12.4	24.2	1.7	0.117	0.118	0.0049	4.88	4.2
112	5/24/1999	10:45:34 AM	0	25.243	22.661	24.757	25.214	23.742	30.792	26.593	33.802	6.12	21.349	6.383	-0.181	29.825	0.268	0	105	12.4	24.0	1.7	0.117	0.118	0.0049	4.91	4.2
113	5/24/1999	10:46:40 AM	0	25.288	22.706	24.802	25.179	23.788	30.996	27.12	34.168	6.287	21.383	6.383	-0.181	29.825	0.266	0	106	12.4	24.3	1.7	0.116	0.117	0.0048	4.81	4.1
114	5/24/1999	10:47:34 AM	0	25.208	22.626	24.802	25.259	23.707	31.393	26.686	33.711	6.032	21.214	6.383	-0.181	29.702	0.267	0	107	12.3	24.0	1.7	0.117	0.117	0.0049	4.89	4.2
115	5/24/1999	10:48:37 AM	0	25.334	22.752	24.848	25.305	23.512	31.517	26.934	33.985	6.271	21.248	6.383	-0.181	29.795	0.267	0	108	12.4	24.1	1.7	0.117	0.117	0.0049	4.86	4.1
116	5/24/1999	10:49:36 AM	0	25.299	22.797	24.813	25.27	23.397	31.8	26.717	33.924	6.207	21.18	6.383	-0.181	29.795	0.268	0	109	12.4	23.9	1.7	0.116	0.117	0.0049	4.87	4.1
117	5/24/1999	10:50:35 AM	0	25.299	22.797	24.813	25.27	23.236	31.721	27.151	34.229	6.263	21.18	6.383	-0.181	29.764	0.265	0	110	12.4	24.2	1.7	0.116	0.116	0.0048	4.81	4.1
118	5/24/1999	10:51:36 AM	0	25.344	22.762	24.858	25.155	23.282	31.924	26.779	33.924	6.183	21.147	6.383	-0.181	29.764	0.265	0	111	12.4	24.0	1.7	0.116	0.116	0.0048	4.85	4.1
119	5/24/1999	10:52:36 AM	0	25.299	22.717	24.813	25.03	23.076	31.879	26.345	33.467	6.04	21.113	6.383	-0.181	29.779	0.264	0	112	12.4	23.7	1.6	0.115	0.116	0.0049	4.88	4.2
120	5/24/1999	10:53:37 AM	0	25.344	22.762	24.858	24.995	23.041	32.321	26.717	33.833	6.191	20.944	6.383	-0.181	29.733	0.265	0	113	12.3	23.8	1.6	0.116	0.116	0.0049	4.87	4.1
121	5/24/1999	10:54:40 AM	0	25.344	22.762	24.858	25.075	22.96	32.241	26.748	33.772	6.399	21.451	6.383	-0.135	29.795	0.265	0	114	12.4	24.1	1.7	0.116	0.116	0.0048	4.82	4.1
122	5/24/1999	10:55:37 AM	0	25.264	22.762	24.858	25.075	22.88	32.321	28.422	35.906	5.832	22.972	6.784	-0.181	28.934	0.275	0	115	12.0	25.7	1.8	0.120	0.121	0.0047	4.69	4.0
123	5/24/1999	10:56:36 AM	0	25.344	22.762	24.858	24.915	22.88	32.4	29.6	37.43	5.664	24.054	7.061	-0.181	28.305	0.291	0	116	11.7	26.8	1.8	0.127	0.128	0.0048	4.75	4.0
124	5/24/1999	10:57:35 AM	0	25.264	22.843	24.858	24.834	22.719	32.479	27.771	35.357	6.08	22.397	6.753	-0.181	29.18	0.278	0	117	12.1	25.1	1.7	0.121	0.122	0.0049	4.86	4.1
125	5/24/1999	10:58:36 AM	0	25.344	22.843	24.858	24.754	22.639	33.033	27.306	34.473	6.327	21.282	6.353	-0.228	29.641	0.265	0	118	12.3	24.3	1.7	0.116	0.116	0.0048	4.78	4.1
126	5/24/1999	10:59:35 AM	0	25.299	22.797	24.813	24.789	22.432	33.147	26.004	32.826	6.455	19.828	6.014	-0.181	30.501	0.246	0	119	12.7	22.9	1.6	0.107	0.108	0.0047	4.71	4.0
127	5/24/1999	11:00:36 AM	0	25.379	22.878	24.813	24.709	22.271	33.305	24.951	31.82	6.439	19.693	6.106	-0.181	30.639	0.244	0	120	12.7	22.3	1.5	0.107	0.107	0.0048	4.80	4.1
128	5/24/1999	11:01:37 AM	0	25.299	22.797	24.893	24.709	22.191	33.543	25.663	32.613	6.662	19.456	6.137	-0.181	30.639	0.243	0	121	12.7	22.6	1.6	0.106	0.106	0.0047	4.72	4.0
129	5/24/1999	11:02:38 AM	0	25.379	22.878	24.813	24.709	22.03	33.305	25.446	32.491	6.67	19.422	6.229	-0.135	30.639	0.242	0	122	12.7	22.4	1.5	0.106	0.106	0.0047	4.73	4.0
130	5/24/1999	11:03:41 AM	0	25.334	22.832	24.848	24.423	22.145	32.944	25.26	32.43	6.527	19.524	6.291	-0.181	30.563	0.239	0	123	12.7	22.4	1.5	0.104	0.105	0.0047	4.68	4.0
131	5/24/1999	11:04:38 AM	0	25.368	22.867	24.802	24.538	22.1	32.662	25.229	32.247	6.471	19.693	6.322	-0.181	30.563	0.24	0	124	12.7	22.5	1.5	0.105	0.105	0.0047	4.69	4.0
132	5/24/1999	11:05:35 AM	0	25.243	22.822	24.837	24.493	21.974	32.934	24.951	32.003	6.391	19.017	6.322	-0.181	30.609	0.24	0	125	12.7	22.0	1.5	0.105	0.105	0.0048	4.79	4.1
133	5/24/1999	11:06:36 AM	0	25.323	22.822	24.837	24.493	21.974	32.775	25.137	32.217	6.487	19.456	6.383	-0.181	30.593	0.241	0	126	12.7	22.3	1.5	0.105	0.106	0.0047	4.74	4.0
134	5/24/1999	11:07:35 AM	0	25.278	22.776	24.792	24.447	22.009	32.414	25.168	32.278	6.479	19.321	6.383	-0.181	30.593	0.24	0	127	12.7	22.2	1.5	0.105	0.105	0.0047	4.74	4.0
135	5/24/1999	11:08:36 AM	0	25.358	22.776	24.792	24.447	22.089	32.176	25.044	32.156	6.55	19.152	6.353	-0.181	30.563	0.238	0	128	12.7	22.1	1.5	0.104	0.105	0.0047	4.73	4.0
136	5/24/1999	11:09:37 AM	0	25.313	22.811	24.827	24.482	22.124	32.29	25.013	32.095	6.527	19.389	6.383	-0.181	30.532	0.238	0	129	12.7	22.2	1.5	0.104	0.104	0.0047	4.70	4.0
137	5/24/1999	11:10:38 AM	0	25.313	22.811	24.827	24.482	22.124	32.369	25.57	32.674	6.598	19.422	6.383	-0.181	30.563	0.24	0	130	12.7	22.5	1.5	0.105	0.105	0.0047	4.68	4.0
138	5/24/1999	11:11:35 AM	0	25.268	22.766	24.781	24.437	22.159	32.324	25.168	32.4	6.511	19.355	6.383	-0.181	30.578	0.238	0	131	12.7	22.3	1.5	0.104	0.105	0.0047	4.70	4.0
139	5/24/1999	11:12:36 AM	0	25.348	22.847	24.862	24.517	22.24	31.928	25.416	32.552	6.806	19.49	6.383	-0.181	30.593	0.237	0	132	12.7	22.5	1.5	0.103	0.104	0.0046	4.63	3.9
140	5/24/1999	11:13:37 AM	0	25.268	22.847	24.781	24.517	22.401	31.69	24.962	31.942	6.503	19.084	6.414	-0.181	30.578	0.238	0	133	12.7	22.0	1.5	0.104	0.105	0.0047	4.74	4.0
141	5/24/1999	11:14:38 AM	0	25.303	22.801	24.736	24.472	22.597	31.407	25.539	32.857	6.08	19.76	6.722	-0.181	30.102	0.245	0	134	12.5	22.6	1.6	0.107	0.108	0.0048	4.76	4.0
142	5/24/1999	11:15:35 AM	0	25.303	22.801	24.736	24.552	22.758	31.248	25.911	33.314	6.271	19.963	6.692	-0.181	30.056	0.249	0	135	12.5	22.9	1.6	0.109	0.110	0.0048	4.77	4.1
143	5/24/1999	11:16:38 AM	0	25.303	22.801	24.816	24.713	22.838	31.248	25.88	33.284	6.367	20.437	6.753	-0.181	30.01	0.248	0	136	12.5	23.2	1.6	0.108	0.109	0.0047	4.70	4.0
144	5/24/1999	11:17:35 AM	0	25.303	22.801	24.896	24.793	23.079	31.089	25.942	33.284	6.247	20.268	6.722	-0.181	29.979	0.247	0	137	12.4	23.1	1.6	0.108	0.108	0.0047	4.68	4.0
145	5/24/1999	11:18:38 AM	0	25.348	22.847	24.862	24.918	23.124	30.975	25.818	33.162	6.263	20.301	6.692	-0.181	29.994	0.248	0	138	12.4	23.1	1.6	0.108	0.109	0.0047	4.71	4.0
146	5/24/1999	11:19:35 AM	0	25.348	22.847	24.862	24.998	23.285	30.975	25.756	33.253	6.391	20.2	6.63	-0.181	30.102	0.248	0	139	12.5	23.0	1.6	0.108	0.109	0.0047	4.73	4.0
147	5/24/1999	11:20:38 AM	0	25.348	22.847	24.862	24.998	23.365	30.499	26.004	33.406	6.479	20.132	6.661	-0.181	30.102	0.249	0	140	12.5	23.1	1.6	0.109	0.109	0.0047	4.73	4.0
148	5/24/1999	11:21:37 AM	0	25.268	22.847	24.862	25.079	23.526	30.34	26.035	33.406	6.439	20.335	6.661	-0.181	30.117	0.247	0	141	12.5	23.2	1.6	0.108	0.108	0.0047	4.67	4.0
149	5/24/1999	11:22:40 AM	0	25.268	22.847	24.862	25.159	23.526	30.34	25.756	33.375	6.303	20.301	6.661	-0.181	30.04	0.248	0	142	12.5	23.0	1.6	0.108	0.109	0.0047	4.72	4.0
150	5/24/1999	11:23:39 AM	0	25.313	22.892	24.827	25.284	23.652	30.305	25.88	33.284	6.279	20.301	6.661	-0.181	30.117	0.248	0	143	12.5	23.1	1.6	0.108	0.109	0.0047	4.71	4.0
151	5/24/1999	11:24:40 AM	0	25.313	22.811	24.827	25.364	23.812	30.226	26.19	33.497	6.335	20.606	6.661	-0.181	30.117	0.248	0	144	12.5	23.4	1.6	0.108	0.109	0.0046	4.65	4.0
152	5/24/1999	11:25:41 AM	0	25.358	22.857	24.872	25.409	23.858	30.191	26.314	33.65	6.383	20.403	6.63	-0.181	30.04	0.247	0	145	12.5	23.4	1.6	0.108	0.108	0.0046	4.63	3.9
153	5/24/1999	11:26:38 AM	0	25.323	22.902	24.917	25.455	23.903	30.156	25.57	32.796	6.183	20.2	6.681	-0.181	30.086	0.245	0	146	12.5	22.9	1.6	0.107	0.107	0.0047	4.68	4.0
154	5/24/1999	11:27:39 AM	0	25.323	22.902	24.917	25.455	23.983	30.395	25.818	33.284	6.319	20.335	6.661	-0.181	30.056	0.248	0	147	12.5	23.1	1.6	0.108	0.109	0.0047	4.70	4.0
155	5/24/1999	11:28:43 AM	0	25.323	22.822	24.917	25.535	23.983	30.554	26.314	33.741	6.495	20.437	6.63	-0.181	30.04	0.244	0	148	12.5	23.4	1.6	0.107	0.107	0.0046	4.57	3.9
156	5/24/1999	11:29:42 AM	0	25.414	22.993	24.928	25.625	23.913	31.041	25.632	32.948	6.303	20.335	6.599	-0.181	30.133	0.246	0	149	12.5	23.0	1.6	0.107	0.108	0.0047	4.68	4.0
157	5/24/1999	11:30:41 AM	0	25.334	22.913	24.928	25.625	23.633	31.2	25.88	33.314	6.431	20.437	6.63	-0.181	30.04	0.245	0	150	12.5	23.2	1.6	0.107	0.107	0.0046	4.63	3.9
158	5/24/1999	11:31:40 AM	0	25.379	22.958	24.973	25.59	23.718	31.463	26.314	33.65	6.303	20.268	6.568	-0.181	30.163	0.245	0	151	12.5	23.3	1.6	0.107	0.107	0.0046	4.60	3.9
159	5/24/1999	11:32:41 AM	0	25.379	22.958	24.893	25.59	23.477	31.562	25.818	33.131	6.303	20.2	6.63	-0.181	30.148	0.244	0	152	12.5	23.0	1.6	0.107	0.107	0.0046	4.64	4.0
160	5/24/1999	11:33:42 AM	0	25.424	22.923	24.938	25.556	23.442	31.766	26.283	33.619	6.343	20.504	6.599	-0.181	30.056	0.245	0	153	12.5	23.4	1.6	0.107	0.107	0.0046	4.58	3.9
161	5/24/1999	11:34:41 AM	0	25.344	22.923	24.938	25.556	23.362	31.686	26.066	33.406	6.399	20.47	6.599	-0.181	30.133	0.244	0	154	12.5	23.3	1.6	0.107	0.107	0.0046	4.59	3.9
162	5/24/1999	11:35:40 AM	0	25.389	22.969	24.903	25.441	23.407	31.81	25.942	33.375	6.327	20.606	6.599	-0.181	30.086	0.244	0	155	12.5	23.3	1.6	0.107	0.107	0.0046	4.59	3.9

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10b

	A	B	C	D	E	F	G	H	I	J	K	L
163	5/24/1999	11:36:41 AM	0	25.389	22.969	24.903	25.441	23.247	31.81	26.221	33.558	6.367
164	5/24/1999	11:37:40 AM	0	25.435	23.014	24.949	25.486	23.292	32.172	25.756	33.192	6.271
165	5/24/1999	11:38:41 AM	0	25.389	22.969	24.903	25.361	23.006	32.365	26.252	33.619	6.423
166	5/24/1999	11:39:42 AM	0	25.355	23.014	24.949	25.326	23.051	32.886	25.942	33.253	6.295
167	5/24/1999	11:40:41 AM	0	25.355	22.934	24.949	25.326	22.81	32.727	26.314	33.65	6.383
168	5/24/1999	11:41:40 AM	0	25.435	23.095	24.949	25.085	22.81	32.727	26.252	33.436	6.343
169	5/24/1999	11:42:41 AM	0	25.435	23.014	24.949	25.085	22.569	32.806	25.818	33.101	6.231
170	5/24/1999	11:43:42 AM	0	25.435	23.014	24.949	25.085	22.488	33.519	26.004	33.467	6.311
171	5/24/1999	11:44:39 AM	0	25.389	23.049	24.903	25.12	22.282	33.187	26.159	33.589	6.351
172	5/24/1999	11:45:42 AM	0	25.424	23.004	24.938	24.995	22.317	33.506	26.035	33.436	6.415
173	5/24/1999	11:46:41 AM	0	25.424	23.004	24.938	24.995	22.075	33.192	26.438	33.802	6.303
174	5/24/1999	11:47:42 AM	0	25.424	23.004	24.938	24.995	22.236	32.875	25.787	33.07	6.175
175	5/24/1999	11:48:45 AM	0	25.424	23.004	24.938	24.995	22.236	32.875	25.849	33.07	6.295
176	5/24/1999	11:49:42 AM	0	25.459	23.039	24.893	24.949	22.271	32.672	25.663	33.009	6.08
177	5/24/1999	11:50:41 AM	0	25.414	22.993	24.848	24.904	22.226	32.469	26.159	33.619	6.471
178	5/24/1999	11:51:40 AM	0	25.414	22.993	24.848	24.904	22.387	32.469	26.5	33.924	6.495
179	5/24/1999	11:52:41 AM	0	25.414	23.074	24.928	24.904	22.387	32.548	26.252	33.497	6.168
180	5/24/1999	11:53:40 AM	0	25.448	22.948	24.882	24.939	22.502	32.424	26.19	33.528	6.399
181	5/24/1999	11:54:41 AM	0	25.368	23.028	24.882	24.939	22.422	32.345	26.004	33.375	6.311
182	5/24/1999	11:55:42 AM	0	25.403	22.983	24.917	24.813	22.457	32.379	25.88	33.162	6.343
183	5/24/1999	11:56:39 AM	0	25.403	22.983	24.917	24.813	22.457	32.221	26.19	33.497	6.431
184	5/24/1999	11:57:40 AM	0	25.448	23.028	24.882	24.939	22.583	31.948	25.787	33.101	6.335
185	5/24/1999	11:58:41 AM	0	25.403	23.063	24.917	24.974	22.698	31.[illegible]86	25.942	33.192	6.343
186	5/24/1999	11:59:40 AM	0	25.403	22.983	24.917	24.974	22.859	31.665	25.663	32.826	6.223
187	5/24/1999	12:00:41 PM	0	25.323	23.063	24.917	25.054	22.939	31.427	26.066	33.314	6.263
188	5/24/1999	12:01:40 PM	0	25.403	23.063	24.917	25.134	23.1	31.348	26.562	33.894	6.311
189	5/24/1999	12:02:41 PM	0	25.403	23.063	24.917	25.214	23.261	[illegible].03	26.128	33.467	6.439
190	5/24/1999	12:03:38 PM	0	25.403	23.063	24.917	25.134	23.341	31.03	26.428	33.894	6.303
191	5/24/1999	12:04:41 PM	0	25.448	23.109	24.962	25.34	23.547	30.917	26.221	33.528	6.287
192	5/24/1999	12:05:40 PM	0	25.448	23.109	24.962	25.34	23.707	30.837	26.221	33.345	6.327
193	5/24/1999	12:06:44 PM	0	25.368	23.028	24.962	25.5	23.788	30.678	25.942	33.131	6.327
194	5/24/1999	12:07:40 PM	0	25.368	23.028	24.882	25.5	23.868	30.599	25.942	33.162	6.183
195	5/24/1999	12:08:42 PM	0	25.414	23.074	24.928	25.705	24.074	30.644	26.686	33.965	6.439
196	5/24/1999	12:09:41 PM	0	25.414	23.074	24.928	25.705	24.074	30.644	26.252	33.436	6.255
197	5/24/1999	12:10:42 PM	0	25.424	23.164	25.018	25.876	24.165	30.892	25.632	32.796	6.048
198	5/24/1999	12:11:41 PM	0	25.424	23.084	24.938	25.876	24.004	31.131	26.314	33.65	6.391
199	5/24/1999	12:12:44 PM	0	25.469	23.13	24.984	25.841	23.889	31.334	25.973	33.131	6.112
200	5/24/1999	12:13:45 PM	1	25.469	23.13	24.903	25.841	23.809	31.652	18.535	33.04	6.144
201	5/24/1999	12:14:35 PM	0	25.435	23.095	25.029	25.966	23.894	32.014	25.632	32.735	6.088
202	5/24/1999	12:15:39 PM	0	25.435	23.175	24.949	25.806	23.613	31.935	26.593	33.284	6.367
203	5/24/1999	12:16:42 PM	0	25.48	23.221	24.994	25.852	23.579	31.821	26.097	32.887	6.247
204	5/24/1999	12:17:37 PM	0	25.48	23.14	24.994	25.692	23.659	31.9	26.19	33.04	6.335
205												
206		Averages		25.4	22.8	24.9	24.9	22.9	31.7	26.4	33.5	6.3
207		Maximum		26.1	23.2	25.7	25.9	24.2	33.5	29.6	37.4	6.8
208		Median		25.3	22.8	24.9	24.9	23.0	31.8	26.4	33.6	6.3
209		Minimum		25.2	22.4	24.6	24.1	22.0	30.2	25.0	31.8	5.8
210		Std Dev		0.2	0.2	0.2	0.4	0.6	0.9	0.7	0.7	0.2
211		Number of Points Used		145	145	145	145	145	145	145	145	145

	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163	20.335	6.599	-0.181	30.148	0.244	0	156	12.5	23.3	1.6	0.107	0.107	0.0046	4.59	3.9
164	20.301	6.599	-0.181	30.04	0.243	0	157	12.5	23.0	1.6	0.106	0.106	0.0046	4.61	3.9
165	20.437	6.568	-0.181	30.025	0.244	0	158	12.5	23.3	1.6	0.107	0.107	0.0046	4.58	3.9
166	20.369	6.568	-0.181	30.025	0.244	0	159	12.5	23.2	1.6	0.107	0.107	0.0046	4.61	3.9
167	20.437	6.568	-0.181	30.117	0.242	0	160	12.5	23.4	1.6	0.106	0.106	0.0045	4.53	3.9
168	20.437	6.568	-0.181	30.086	0.245	0	161	12.5	23.3	1.6	0.107	0.107	0.0046	4.59	3.9
169	20.301	6.568	-0.181	30.071	0.243	0	162	12.5	23.1	1.6	0.106	0.106	0.0046	4.61	3.9
170	20.268	6.568	-0.181	30.04	0.244	0	163	12.5	23.1	1.6	0.107	0.107	0.0046	4.61	3.9
171	20.301	6.568	-0.181	30.04	0.242	0	164	12.5	23.2	1.6	0.106	0.106	0.0046	4.56	3.9
172	20.301	6.568	-0.181	30.04	0.243	0	165	12.5	23.2	1.6	0.106	0.106	0.0046	4.59	3.9
173	20.572	6.568	-0.181	30.056	0.24	0	166	12.5	23.5	1.6	0.105	0.105	0.0045	4.47	3.8
174	20.369	6.538	-0.181	30.04	0.246	0	167	12.5	23.1	1.6	0.107	0.108	0.0047	4.66	4.0
175	20.132	6.538	-0.181	30.056	0.242	0	168	12.5	23.0	1.6	0.106	0.108	0.0046	4.60	3.9
176	20.538	6.568	-0.181	30.04	0.243	0	169	12.5	23.1	1.6	0.106	0.106	0.0046	4.61	3.9
177	20.403	6.538	-0.135	30.04	0.241	0	170	12.5	23.3	1.6	0.105	0.106	0.0045	4.54	3.9
178	20.2	6.538	-0.181	30.04	0.243	0	171	12.5	23.4	1.6	0.106	0.107	0.0046	4.56	3.9
179	19.997	6.538	-0.181	30.04	0.241	0	172	12.5	23.1	1.6	0.105	0.105	0.0046	4.56	3.9
180	20.572	6.538	-0.135	30.04	0.242	0	173	12.5	23.4	1.6	0.106	0.106	0.0045	4.53	3.9
181	20.639	6.507	-0.181	30.04	0.241	0	174	12.5	23.3	1.6	0.105	0.106	0.0045	4.53	3.9
182	20.437	6.538	-0.181	30.025	0.242	0	175	12.5	23.2	1.6	0.106	0.106	0.0046	4.57	3.9
183	20.639	6.538	-0.181	30.04	0.243	0	176	12.5	23.4	1.6	0.106	0.106	0.0045	4.54	3.9
184	20.47	6.568	-0.181	30.025	0.244	0	177	12.5	23.1	1.6	0.107	0.107	0.0046	4.62	3.9
185	20.403	6.538	-0.181	30.04	0.241	0	178	12.5	23.2	1.6	0.105	0.105	0.0046	4.55	3.9
186	20.639	6.538	-0.181	30.133	0.242	0	179	12.5	23.2	1.6	0.106	0.106	0.0046	4.57	3.9
187	20.437	6.538	-0.181	30.04	0.241	0	180	12.5	23.3	1.6	0.105	0.105	0.0045	4.54	3.9
188	20.504	6.538	-0.181	30.117	0.244	0	181	12.5	23.5	1.6	0.107	0.107	0.0045	4.54	3.9
189	20.504	6.568	-0.181	30.04	0.241	0	182	12.5	23.3	1.6	0.105	0.105	0.0045	4.52	3.8
190	20.504	6.538	-0.181	30.071	0.242	0	183	12.5	23.5	1.6	0.106	0.106	0.0045	4.51	3.8
191	20.606	6.538	-0.181	30.04	0.243	0	184	12.5	23.4	1.6	0.106	0.106	0.0045	4.54	3.9
192	20.538	6.507	-0.181	30.04	0.243	0	185	12.5	23.4	1.6	0.106	0.106	0.0045	4.54	3.9
193	20.606	6.538	-0.181	30.04	0.243	0	186	12.5	23.3	1.6	0.106	0.106	0.0046	4.56	3.9
194	20.2	6.507	-0.181	29.917	0.238	0	187	12.4	23.1	1.6	0.104	0.104	0.0045	4.52	3.8
195	20.673	6.538	-0.135	30.086	0.24	0	188	12.5	23.7	1.6	0.105	0.105	0.0044	4.43	3.8
196	20.47	6.507	-0.135	30.071	0.245	0	189	12.5	23.4	1.6	0.107	0.107	0.0046	4.59	3.9
197	20.301	6.538	-0.135	30.04	0.242	0	190	12.5	23.0	1.6	0.106	0.106	0.0046	4.60	3.9
198	20.707	6.507	-0.181	30.04	0.242	0	191	12.5	23.5	1.6	0.106	0.106	0.0045	4.50	3.8
199	20.369	6.538	-0.181	30.071	0.24	0	192	12.5	23.2	1.6	0.105	0.105	0.0045	4.52	3.8
200	12.255	13.841	-0.181	30.563	0.011	0	193	12.7	15.4	1.1	0.005	0.005	0.0003	0.31	0.3
201	20.234	6.445	-0.135	30.378	0.724	0.003	194	12.6	22.9	1.6	0.316	0.316	0.0138	13.77	11.7
202	21.147	5.952	-0.135	30.288	0.554	0	195	12.6	23.9	1.6	0.242	0.242	0.0101	10.15	8.6
203	20.606	6.106	-0.181	30.255	0.461	0	196	12.6	23.4	1.6	0.201	0.201	0.0086	8.62	7.3
204	20.876	6.137	-0.181	30.163	0.421	0	197	12.5	23.5	1.6	0.184	0.184	0.0078	7.81	6.6
205															
206	20.7	6.5	-0.2	29.9	0.278	0.0		12.4	23.5	1.6	0.121	0.122	0.005	5.2	4.4
207	24.1	7.1	-0.1	30.8	1.000	0.0		12.7	26.8	1.8	0.437	0.431	0.018	17.8	15.2
208	20.7	6.4	-0.2	30.0	0.249	0.0		12.5	23.5	1.6	0.109	0.109	0.005	4.8	4.0
209	19.0	5.7	-0.2	28.3	0.237	0.0		11.7	22.0	1.5	0.103	0.104	0.004	4.4	3.8
210	0.7	0.2	0.0	0.3	0.082	0.0		0.1	0.7	0.0	0.036	0.035	0.001	1.4	1.2
211	145	145	145	145	145	145		145	145	145	145	145	145	145	145



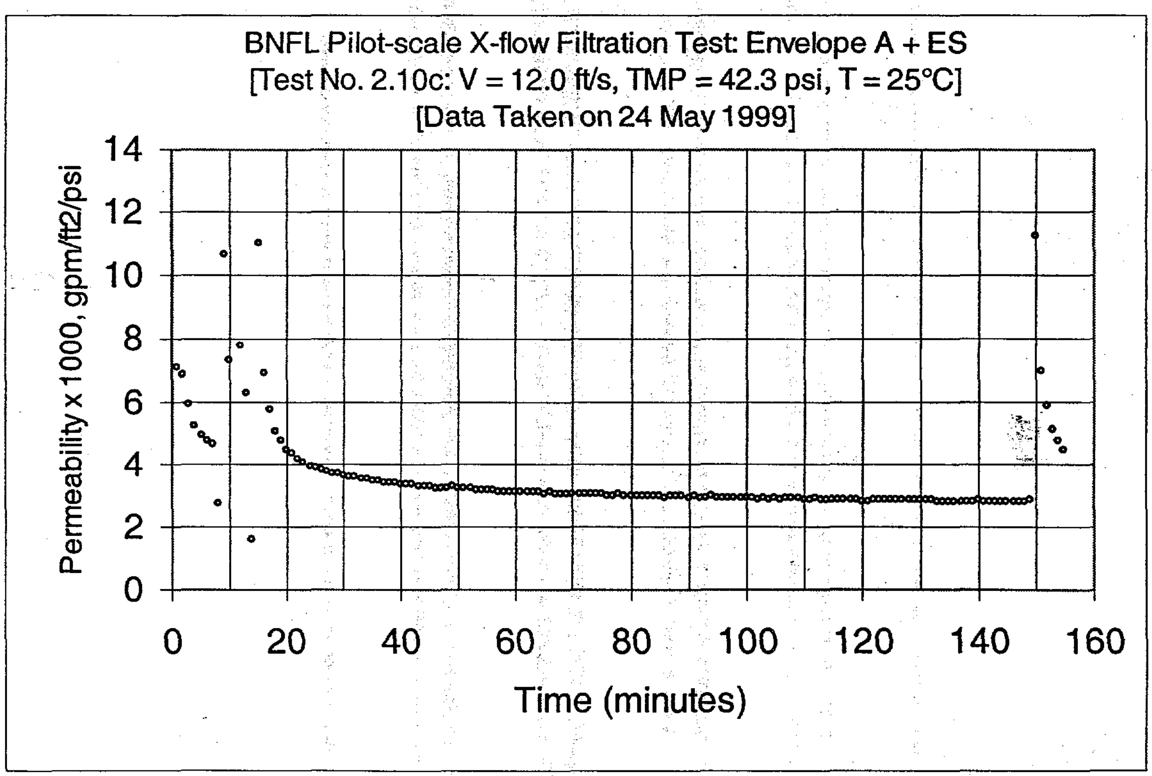


Figure B12: Test Run 2.10c, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10c

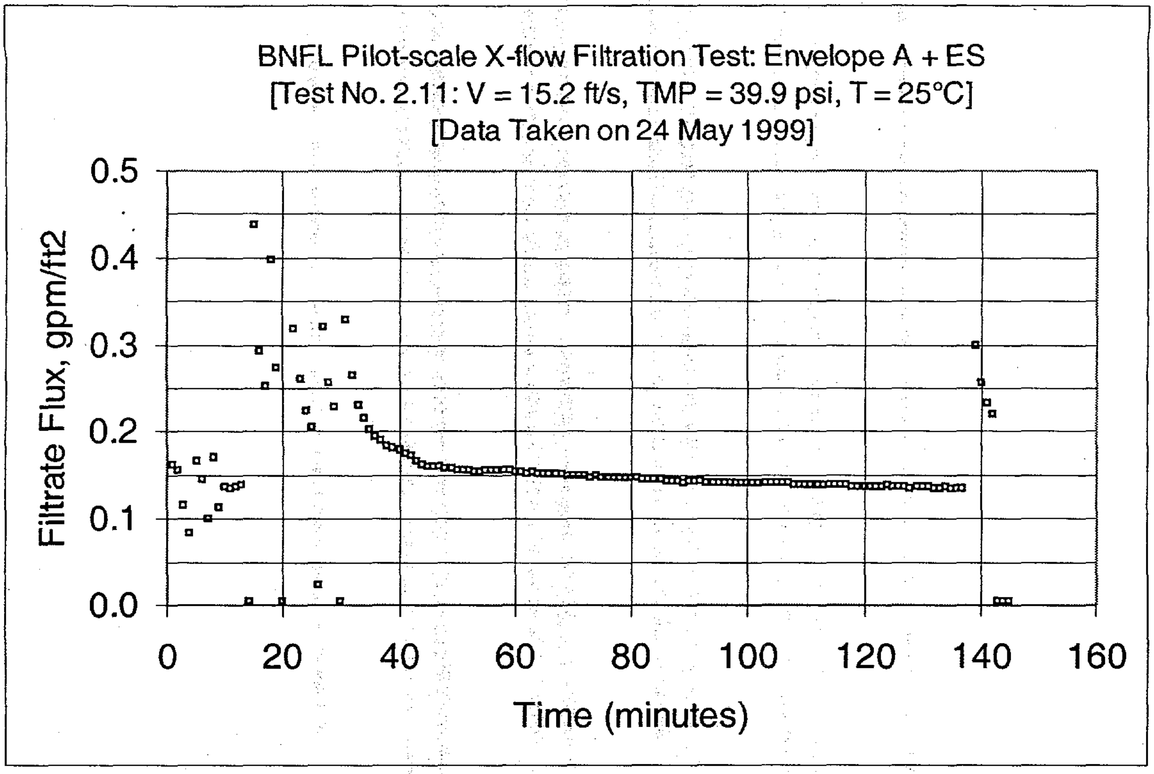
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/24/1999	8:33:02 AM	0	22.749	22.172	21.86	22.237	21.243	32.452	-0.031	-0.011	-0.016	0.016	-0.057	-0.228	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/24/1999	8:39:41 AM	0	22.774	22.197	21.885	22.021	21.268	31.764	-0.031	-0.011	-0.016	0.05	-0.057	-0.228	-0.08	0.012	0									
5	5/24/1999	8:40:40 AM	0	22.819	22.162	21.849	22.066	21.394	31.808	-0.031	-0.011	-0.016	0.05	-0.088	-0.228	-0.08	0.011	0									
6	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
7	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/24/1999	12:19:27 PM	0	25.48	23.14	24.994	25.611	23.496	32.376	26.656	33.528	6.415	20.47	6.199	-0.135	30.086	0.382	0	1	12.5	23.6	1.6	0.167	0.167	0.0071	7.08	6.0
9	5/24/1999	12:20:35 PM	0	25.525	23.186	25.04	25.657	23.303	32.579	26.438	33.436	6.343	20.775	6.229	-0.135	30.086	0.37	0	2	12.5	23.6	1.6	0.162	0.161	0.0068	6.83	5.8
10	5/24/1999	12:21:40 PM	0	25.48	23.14	24.914	25.611	23.097	32.772	47.112	56.7	5.657	42.513	8.91	-0.135	28.289	0.603	0	3	11.7	44.8	3.1	0.263	0.264	0.0059	5.89	5.0
11	5/24/1999	12:22:37 PM	0	25.48	23.14	24.914	25.451	22.936	32.772	46.213	55.267	7.061	39.978	8.263	-0.181	31.96	0.512	0	4	13.3	43.1	3.0	0.224	0.224	0.0052	5.20	4.4
12	5/24/1999	12:23:42 PM	0	25.48	23.14	24.994	25.611	23.097	32.772	43.206	51.364	6.415	37.341	7.37	-0.135	30.24	0.455	0	5	12.5	40.3	2.8	0.199	0.199	0.0049	4.93	4.2
13	5/24/1999	12:24:35 PM	0	25.48	23.221	24.994	25.531	22.856	33.247	43.702	51.7	6.407	37.746	7.216	-0.135	29.964	0.442	0	6	12.4	40.7	2.8	0.193	0.193	0.0047	4.74	4.0
14	5/24/1999	12:25:36 PM	0	25.515	23.175	24.949	25.486	22.649	33.123	43.888	51.76	6.383	37.814	7.031	-0.135	29.948	0.431	0	7	12.4	40.9	2.8	0.188	0.188	0.0046	4.61	3.9
15	5/24/1999	12:26:37 PM	0	25.515	23.175	24.949	25.486	22.408	33.44	4.556	51.882	6.056	-1.065	46.292	-0.135	29.641	0.011	0	8	12.3	1.7	0.1	0.005	0.005	0.0028	2.75	2.3
16	5/24/1999	12:27:38 PM	0	25.469	23.21	24.984	25.441	22.282	33.395	44.291	51.181	5.936	38.896	6.075	-0.181	30.317	1.017	0	9	12.6	41.6	2.9	0.444	0.444	0.0107	10.68	9.1
17	5/24/1999	12:28:37 PM	0	25.55	23.21	24.984	25.361	22.362	33.157	44.384	51.974	6.199	37.983	6.661	-0.135	29.687	0.688	0	10	12.3	41.2	2.8	0.300	0.300	0.0073	7.30	6.2
18	5/24/1999	12:29:40 PM	0	25.504	23.164	25.018	25.315	22.317	32.796	39.239	51.059	5.904	33.757	11.099	-0.135	30.102	1.218	0	11	12.5	36.5	2.5	0.532	0.531	0.0146	14.56	12.4
19	5/24/1999	12:30:37 PM	0	25.539	23.199	24.973	25.27	22.432	32.672	43.33	51.517	6.104	37.713	7.462	-0.135	29.825	0.721	0	12	12.4	40.5	2.8	0.315	0.315	0.0078	7.77	6.6
20	5/24/1999	12:31:36 PM	0	25.459	23.199	24.973	25.27	22.432	32.513	44.105	51.212	6.136	38.558	6.322	-0.135	29.856	0.594	0	13	12.4	41.3	2.8	0.259	0.260	0.0063	6.28	5.3
21	5/24/1999	12:32:39 PM	0	25.414	23.154	24.928	25.145	22.487	32.548	5.548	51.882	5.984	0.49	45.522	-0.135	29.61	0.011	0	14	12.3	3.0	0.2	0.005	0.005	0.0016	1.59	1.4
22	5/24/1999	12:33:34 PM	0	25.494	23.234	24.928	25.225	22.467	32.31	44.012	51.273	5.952	38.761	6.599	-0.135	29.964	1.042	0	15	12.4	41.4	2.9	0.455	0.456	0.0110	11.01	9.4
23	5/24/1999	12:34:39 PM	0	25.448	23.189	24.962	25.179	22.583	32.503	44.57	51.791	6.08	39.031	6.445	-0.181	29.626	0.663	0	16	12.3	41.8	2.9	0.289	0.290	0.0069	6.93	5.9
24	5/24/1999	12:35:34 PM	0	25.529	23.189	24.962	25.259	22.583	32.345	45.221	52.157	6.335	39.606	6.168	-0.135	29.656	0.555	0	17	12.3	42.4	2.9	0.242	0.243	0.0057	5.72	4.9
25	5/24/1999	12:36:39 PM	0	25.403	23.143	24.917	25.134	22.618	32.379	45.097	52.096	6.152	39.369	6.26	-0.135	29.472	0.488	0	18	12.2	42.2	2.9	0.213	0.214	0.0051	5.06	4.3
26	5/24/1999	12:37:38 PM	0	25.403	23.224	24.917	25.294	22.537	31.983	44.508	51.486	6.183	39.504	6.291	-0.181	29.487	0.454	0	19	12.2	42.0	2.9	0.198	0.199	0.0047	4.73	4.0
27	5/24/1999	12:38:35 PM	0	25.403	23.224	24.917	25.214	22.537	31.983	45.19	52.462	6.359	39.504	6.322	-0.181	29.38	0.43	0	20	12.2	42.3	2.9	0.188	0.188	0.0044	4.44	3.8
28	5/24/1999	12:39:34 PM	0	25.483	23.224	24.997	25.374	22.537	31.983	44.477	51.517	6.287	39.234	6.322	-0.181	29.411	0.413	0.003	21	12.2	41.9	2.9	0.180	0.180	0.0043	4.31	3.7
29	5/24/1999	12:40:37 PM	0	25.438	23.178	24.872	25.249	22.492	31.859	44.849	51.882	6.16	39.099	6.383	-0.135	29.518	0.398	0	22	12.3	42.0	2.9	0.174	0.174	0.0042	4.15	3.5
30	5/24/1999	12:41:34 PM	0	25.438	23.178	24.952	25.329	22.652	31.7	44.911	51.974	6.247	39.168	6.383	-0.135	29.503	0.388	0	23	12.2	42.0	2.9	0.169	0.170	0.0040	4.03	3.4
31	5/24/1999	12:42:35 PM	0	25.438	23.259	24.952	25.249	22.894	31.621	44.725	51.852	6.279	39.572	6.414	-0.135	29.411	0.379	0	24	12.2	42.1	2.9	0.165	0.166	0.0039	3.93	3.3
32	5/24/1999	12:43:36 PM	0	25.438	23.259	24.952	25.329	22.974	31.303	44.787	51.913	6.311	39.403	6.291	-0.135	29.334	0.374	0	25	12.2	42.1	2.9	0.163	0.163	0.0039	3.88	3.3
33	5/24/1999	12:44:38 PM	0	25.438	23.259	24.952	25.329	23.215	31.303	44.632	51.7	6.175	39.268	6.383	-0.135	29.303	0.365	0	26	12.2	42.0	2.9	0.159	0.160	0.0038	3.80	3.2
34	5/24/1999	12:45:39 PM	0	25.438	23.259	24.952	25.409	23.376	31.065	44.322	51.456	6.223	39.504	6.445	-0.135	29.272	0.36	0	27	12.1	41.9	2.9	0.157	0.157	0.0038	3.75	3.2
35	5/24/1999	12:46:40 PM	0	25.358	23.178	24.872	25.409	23.536	30.906	44.539	51.73	6.271	39.335	6.383	-0.181	29.318	0.356	0	28	12.2	41.9	2.9	0.155	0.156	0.0037	3.72	3.2
36	5/24/1999	12:47:37 PM	0	25.358	23.178	24.952	25.489	23.697	30.747	44.477	51.547	6.303	39.302	6.414	-0.135	29.334	0.352	0	29	12.2	41.9	2.9	0.154	0.154	0.0037	3.67	3.1
37	5/24/1999	12:48:40 PM	0	25.483	23.224	24.917	25.615	23.823	30.713	44.88	52.035	6.112	39.065	6.414	-0.181	29.196	0.349	0	30	12.1	42.0	2.9	0.152	0.153	0.0036	3.64	3.1
38	5/24/1999	12:49:35 PM	0	25.448	23.269	25.043	25.82	23.948	30.678	44.973	52.248	6.279	39.099	6.445	-0.135	29.242	0.345	0	31	12.1	42.0	2.9	0.151	0.150	0.0036	3.58	3.0
39	5/24/1999	12:50:36 PM	0	25.448	23.269	24.962	25.9	24.109	30.678	44.508	51.7	6.096	39.2	6.476	-0.135	28.996	0.343	0	32	12.0	41.9	2.9	0.150	0.150	0.0036	3.58	3.0
40	5/24/1999	12:51:37 PM	0	25.494	23.315	25.008	26.105	24.234	30.564	45.128	52.34	6.183	39.64	6.476	-0.135	29.073	0.34	0	33	12.1	42.4	2.9	0.148	0.148	0.0035	3.50	3.0
41	5/24/1999	12:52:38 PM	0	25.414	23.234	24.928	26.105	24.315	30.485	44.694	51.882	6.136	39.572	6.445	-0.135	29.042	0.339	0	34	12.1	42.1	2.9	0.148	0.148	0.0035	3.52	3.0
42	5/24/1999	12:53:41 PM	0	25.414	23.234	24.928	26.105	24.475	30.326	45.252	52.37	6.183	39.335	6.445	-0.135	29.027	0.336	0	35	12.0	42.3	2.9	0.147	0.147	0.0035	3.48	3.0
43	5/24/1999	12:54:38 PM	0	25.459	23.199	24.973	26.231	24.52	30.609	45.221	52.462	6.168	39.606	6.414	-0.135	28.996	0.333	0	36	12.0	42.4	2.9	0.145	0.145	0.0034	3.43	2.9
44	5/24/1999	12:55:41 PM	0	25.504	23.245	24.938	26.276	24.326	30.972	44.694	51.821	6.112	39.741	6.414	-0.135	29.134	0.33	0	37	12.1	42.2	2.9	0.144	0.144	0.0034	3.42	2.9
45	5/24/1999	12:56:36 PM	0	25.469	23.29	24.984	26.321	24.21	31.414	45.004	52.157	5.968	39.64	6.445	-0.135	28.904	0.328	0	38	12.0	42.3	2.9	0.143	0.143	0.0034	3.38	2.9
46	5/24/1999	12:57:37 PM	0	25.435	23.336	25.029	26.286	23.935	31.697	44.911	52.065	6.008	39.673	6.476	-0.135	28.781	0.33	0	39	11.9	42.3	2.9	0.144	0.144	0.0034	3.40	2.9
47	5/24/1999	12:58:36 PM	0	25.435	23.336	24.949	26.126	23.935	31.776	44.725	51.76	5.824	39.944	6.445	-0.181	28.796	0.326	0	40	12.0	42.3	2.9	0.142	0.143	0.0034	3.37	2.9
48	5/24/1999	12:59:39 PM	0	25.48	23.301	25.074	26.092	23.659	31.96	45.252	52.584	6.112	39.369	6.445	-0.135	28.812	0.325	0	41	12.0	42.3	2.9	0.142	0.142	0.0033	3.35	2.8
49	5/24/1999	1:00:38 PM	0	25.48	23.301	24.994	26.012	23.579	32.534	44.88	51.974	6.056	39.809	6.414	-0.135	28.827	0.323	0	42	12.0	42.3	2.9	0.141	0.141	0.0033	3.33	2.8
50	5/24/1999	1:01:35 PM	0	25.48	23.301	24.994	25.932	23.257	32.614	45.407	52.584	6.12	39.572	6.383	-0.135	28.95	0.321	0	43	12.0	42.5	2.9	0.140	0.140	0.0033	3.30	2.8
51	5/24/1999	1:02:38 PM	0	25.525	23.427	25.04	25.897	23.142	32.975	45.283	52.584	6.247	39.843	6.414	-0.135	28.965	0.319	0	44	12.0	42.6	2.9	0.139	0.139	0.0033	3.27	2.8
52	5/24/1999	1:03:37 PM	0	25.445	23.347	25.04	25.897	22.821	32.975	44.632	51.821	6.016	39.471	6.414	-0.135	28.873	0.317	0	45	12.0	42.1	2.9	0.138	0.138	0.0033	3.29	2.8
53	5/24/1999	1:04:38 PM	0	25.525	23.427	25.04	25.817	22.901	33.45	44.694	51.791	6.104	40.181	6.445	-0.135	28.965	0.316	0.003	46	12.0	42.4	2.9	0.138	0.138	0.0032	3.25	2.8
54	5/24/1999	1:05:37 PM	0	25.525	23.347	25.04	25.737	22.86	33.134	44.756	51.974	6.072	39.91	6.445	-0.181	28.981	0.315	0	47	12.0	42.3	2.9	0.138	0.137	0.0032	3.24	2.8
55	5/24/1999	1:06:34 PM	0	25.48	23.381	24.994	25.692	22.614	[illegible]	44.911	52.004	6.088	39.538	6.445	-0.135	28.919	0.314	0	48	12.0	42.2	2.9	0.137	0.137	0.0032	3.25	2.8
56	5/24/1999	1:07:35 PM	0	25.48	23.381	24.994	25.611	22.373	33.405	44.694	51.76	6.016	39.91	6.445	-0.135	28.858	0.315	0	49	12.0	42.3	2.9	0.138	0.138	0.0033	3.25	2.8
57	5/24/1999	1:08:34 PM	0	25.515	23.336	24.949	25.566	22.327	33.519	45.097	52.126	6.199	39.403	6.445	-0.181	28.95	0.311	0	50	12.0	42.3	2.9	0.136	0.136	0.0032	3.22	2.7
58	5/24/1999	1:09:37 PM	0	25.469	23.371	24.984	25.521	22.443	32.762	44.849	51.974	6.04	39.809	6.445	-0.135	28.996	0.31	0	51	12.0	42.3	2.9	0.135	0.135	0.0032	3.20	2.7
59	5/24/1999	1:10:38 PM	0	25.469	23.371	24.984	25.441	22.362	33.078	45.035	52.401	6.144	39.403	6.445	-0.181	28.981	0.31	0	52	12.0	42.2	2.9	0.135	0.135	0.0032	3.21	2.7
60	5/24/1999	1:11:37 PM	0	25.424	23.326	24.938	25.395	22.236	32.954	45.438	52.645	6.096	39.741	6.445	-0.181	28.965	0.309	0	53	12.0	42.6	2.9	0.135	0.135	0.0032	3.17	2.7
61	5/24/1999	1:12:34 PM	0	25.504	23.325	24.938	25.475	22.317	33.033	45.283	52.553	6.104	39.606	6.445	-0.135	28.904	0.308	0	54	12.0	42.4	2.9	0.134	0.135	0.0032	3.17	2.7
62	5/24/1999	1:13:37 PM	0	25.459	23.36	24.973	25.43	22.271	32.751	45.066	52.279	6.096	39.572	6.414	-0.135	28.996	0.307	0	55	12.0	42.3	2.9	0.134	0.134	0.0032	3.17	2.7
63	5/24/1999	1:14:40 PM	0	25.414	23.315	24.928	25.465	22.306	32.627	44.863	51.821	6.088	39.775	6.445	-0.135	28.996	0.305	0	56	12.0	42.2	2.9	0.133	0.133	0.0032	3.16	2.7
64	5/24/1999	1:15:35 PM	0	25.494	23.315	24.928	25.465	22.387	32.469	45.097	52.401	6.216	40.147	6.445	-0.135	28.919	0.304	0	57	12.0	42.6	2.9	0.133	0.133	0.0031	3.12	2.7
65	5/24/1999	1:16:38 PM	0	25.494	23.395	24.928	25.545	22.548	32.627	45.531	52.736	6.271	39.876	6.476	-0.181	28.888	0.303	0	58	12.0	42.7	2.9	0.132	0.133	0.0031	3.10	2.6
66	5/24/1999	1:17:42 PM	0	25.448	23.35	24.962	25.5	22.341	32.186	45.5	52.645	6.072	39.844	6.445	-0.135	28.904	0.303	0	59	12.0	42.5	2.9	0.132	0.132	0.0031	3.10	2.6
67	5/24/1999	1:18:41 PM	0	25.529	23.43	24.962	25.66	22.583	32.265	45.19	52.37	6.128	39.606	6.445	-0.135	28.842	0.301	0	60	12.0	42.4	2.9	0.131	0.132	0.0031	3.10	2.6
68	5/24/1999	1:19:37 PM	0	25.403	23.304	24.917	25.535	22.618	31.983	45.407	52.584	6.215	39.673	6.476	-0.135	28.812	0.303	0	61	12.0	42.5	2.9	0.132	0.133	0.0031	3.12	2.7
69	5/24/1999	1:20:39 PM	0	25.483	23.385	24.917	25.615	22.618	32.141	44.818	52.065	6.191	39.64	6.476	-0.181	28.934	0.301	0	62	12.0	42.2	2.9	0.131	0.132	0.0031	3.12	2.7
70	5/24/1999	1:21:40 PM	0	25.483	23.385	24.917	25.615	22.698	32.062	45.8	52.95	6.295	40.113	6.476	-0.181	28.827	0.301	0	63	12.0	42.8	3.0	0.131	0.132	0.0031	3.08	2.6
71	5/24/1999	1:22:39 PM	0	25.483	23.385	24.997	25.615	22.778	32.062	45.8	52.858	6.136	39.843	6.476	-0.135	28.812	0.301	0	64	12.0	42.7	2.9	0.131	0.131	0.0031	3.08	2.6
72	5/24/1999	1:23:38 PM	0	25.438	23.339	24.952	25.65	22.894	31.462	45.283	52.431	6.168	39.91	6.476	-0.135	28.842	0.299	0	65	12.0	42.6	2.9	0.131	0.131	0.0031	3.07	2.6
73	5/24/1999	1:24:37 PM	0	25.438	23.339	24.962	25.65	23.064	31.383	45.221	52.37	6.12	39.673	6.476	-0.135	28.919	0.299	0.003	66	12.0	42.4	2.9	0.131	0.131	0.0031	3.08	2.6
74	5/24/1999	1:25:38 PM	0	25.518	23.339	24.952	25.73	23.376	31.065	45.252	52.462	6.112	39.775	6.476	-0.135	28.812	0.298	0	67	12.0	42.5	2.9	0.130	0.130	0.0031	3.06	2.6
75	5/24/1999	1:26:43 PM	0	25.483	23.385	24.997	25.855	23.421	30.951	44.973	52.157	6.08	39.64	6.476	-0.135	28.827	0.297	0	68	12.0	42.3	2.9	0.130	0.130	0.0031	3.06	2.6
76	5/24/1999	1:27:38 PM	0	25.483	23.385	24.917	25.855	23.662	30.713	45.035	52.218	6.191	39.741	6.476	-0.135	28.873	0.297	0	69	12.0	42.4	2.9	0.130	0.130	0.0031	3.07	2.6
77	5/24/1999	1:28:41 PM	0	25.483	23.385	24.997	25.935	23.823	30.713	45.159	52.34	6.12	39.809	6.476	-0.135	28.858	0.297	0	70	12.0	42.5	2.9	0.130	0.130	0.0031	3.05	2.6
78	5/24/1999	1:29:40 PM	0	25.403	23.385	24.997	25.935	23.903	30.474	44.477	51.669	5.968	39.944	6.476	-0.181	28.888	0.296	0	71	12.0	42.2	2.9	0.129	0.129	0.0031	3.06	2.6
79	5/24/1999	1:30:37 PM	0	25.448	23.35	25.043	25.98	23.948	30.599	45.035	52.34	6.152	39.572	6.476	-0.181	28.95	0.296	0	72	12.0	42.3	2.9	0.129	0.129	0.0031	3.05	2.6
80	5/24/1999	1:31:36 PM	0	25.494	23.395	25.008	26.105	24.154	30.485	44.849	51.882	6.04	40.045	6.476	-0.135	28.95	0.295	0	73	12.0	42.4	2.9	0.129	0.129	0.0030	3.03	2.6
81	5/24/1999	1:32:39 PM	0	25.494	23.395	25.008	26.185	24.315	30.405	45.252	52.462	6.112	38.964	6.445	-0.135	28.919	0.296	0	74	12.0	42.1	2.9	0.129	0.129	0.0031	3.07	2.6

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/24/1999	1:33:34 PM	0	25.414	23.395	24.928	26.265	24.475	30.246	45.376	52.767	6	39.606	6.476	-0.135	28.934	0.295	0	75	12.0	42.5	2.9	0.129	0.129	0.0030	3.04	2.6
83	5/24/1999	1:34:33 PM	0	25.504	23.406	25.018	26.436	24.646	30.575	45.314	52.676	6.207	40.214	6.445	-0.135	28.842	0.293	0	76	12.0	42.8	2.9	0.128	0.128	0.0030	2.99	2.5
84	5/24/1999	1:35:34 PM	0	25.469	23.451	25.064	26.481	24.451	31.017	45.252	52.736	6.16	39.978	6.476	-0.135	28.934	0.293	0	77	12.0	42.6	2.9	0.128	0.128	0.0030	3.00	2.5
85	5/24/1999	1:36:35 PM	0	25.469	23.451	24.984	26.481	24.371	31.572	44.694	51.821	5.96	39.64	6.476	-0.135	28.766	0.293	0	78	11.9	42.2	2.9	0.128	0.128	0.0030	3.03	2.6
86	5/24/1999	1:37:33 PM	0	25.515	23.416	25.029	26.446	24.095	31.379	45.221	52.431	6.104	39.504	6.476	-0.135	28.888	0.29	0	79	12.0	42.4	2.9	0.127	0.126	0.0030	2.99	2.5
87	5/24/1999	1:38:32 PM	0	25.48	23.462	24.994	26.492	24.06	31.662	45.159	52.523	6.175	39.843	6.476	-0.181	28.888	0.293	0	80	12.0	42.5	2.9	0.128	0.128	0.0030	3.01	2.6
88	5/24/1999	1:39:35 PM	0	25.56	23.462	25.074	26.492	23.9	31.742	45.128	52.34	6.112	39.843	6.476	-0.135	28.934	0.291	0	81	12.0	42.5	2.9	0.127	0.127	0.0030	2.98	2.5
89	5/24/1999	1:40:36 PM	0	25.525	23.507	25.04	26.537	23.704	32.024	45.748	53.072	6.223	39.843	6.476	-0.135	28.888	0.293	0	82	12.0	42.8	3.0	0.128	0.128	0.0030	2.99	2.5
90	5/24/1999	1:41:40 PM	0	25.525	23.507	25.04	26.377	23.464	32.342	44.787	52.004	6.128	40.012	6.476	-0.135	28.873	0.293	0	83	12.0	42.4	2.9	0.128	0.128	0.0030	3.01	2.6
91	5/24/1999	1:42:36 PM	0	25.525	23.427	25.04	26.377	23.303	32.5	45.097	52.218	5.864	39.335	6.476	-0.135	28.827	0.291	0	84	12.0	42.2	2.9	0.127	0.127	0.0030	3.01	2.6
92	5/24/1999	1:43:35 PM	0	25.571	23.553	25.065	26.262	23.188	32.703	44.942	52.126	6.128	39.673	6.445	-0.135	28.919	0.29	0	85	12.0	42.3	2.9	0.127	0.126	0.0030	2.99	2.5
93	5/24/1999	1:44:34 PM	0	25.491	23.553	25.065	26.182	23.107	32.941	45.314	52.492	6.183	40.045	6.476	-0.135	28.827	0.289	0	86	12.0	42.7	2.9	0.126	0.126	0.0029	2.95	2.5
94	5/24/1999	1:45:36 PM	0	25.571	23.553	25.085	26.102	22.786	33.02	45.438	52.645	6.183	39.536	6.445	-0.135	28.95	0.291	0	87	12.0	42.5	2.9	0.127	0.127	0.0030	2.98	2.5
95	5/24/1999	1:46:37 PM	0	25.525	23.507	25.04	26.137	22.821	33.054	44.694	52.004	6.088	39.403	6.445	-0.135	28.904	0.288	0	88	12.0	42.0	2.9	0.126	0.126	0.0030	2.99	2.5
96	5/24/1999	1:47:38 PM	0	25.526	23.507	25.04	25.977	22.74	33.292	45.097	52.157	5.96	39.302	6.445	-0.135	28.965	0.288	0.003	89	12.0	42.2	2.9	0.126	0.126	0.0030	2.98	2.5
97	5/24/1999	1:48:34 PM	0	25.525	23.507	25.04	25.977	22.66	33.371	45.655	52.95	6.096	39.741	6.445	-0.135	28.996	0.286	0	90	12.0	42.7	2.9	0.125	0.125	0.0029	2.92	2.5
98	5/24/1999	1:49:36 PM	0	25.525	23.507	25.04	25.897	22.499	33.45	44.756	51.943	6.064	39.809	6.476	-0.181	28.919	0.287	0	91	12.0	42.3	2.9	0.125	0.125	0.0030	2.96	2.5
99	5/24/1999	1:50:35 PM	0	25.56	23.462	24.994	25.932	22.373	33.564	45.252	52.492	6.16	39.978	6.476	-0.135	28.858	0.287	0	92	12.0	42.6	2.9	0.125	0.125	0.0029	2.94	2.5
100	5/24/1999	1:51:38 PM	0	25.435	23.497	25.029	25.806	22.406	33.123	45.283	52.553	6.263	39.572	6.445	-0.135	28.965	0.286	0	93	12.0	42.4	2.9	0.125	0.125	0.0029	2.94	2.5
101	5/24/1999	1:52:35 PM	0	25.515	23.497	25.029	25.966	22.569	33.123	44.694	51.791	6.12	39.369	6.445	-0.135	29.027	0.286	0	94	12.0	42.0	2.9	0.125	0.125	0.0030	2.97	2.5
102	5/24/1999	1:53:36 PM	0	25.55	23.531	24.903	25.841	22.362	33.157	45.19	52.553	6.271	39.944	6.445	-0.135	28.95	0.286	0	95	12.0	42.6	2.9	0.125	0.125	0.0029	2.94	2.5
103	5/24/1999	1:54:37 PM	0	25.55	23.531	25.064	25.921	22.362	33.395	45.469	52.645	6.136	39.369	6.476	-0.181	28.965	0.286	0.003	96	12.0	42.4	2.9	0.125	0.125	0.0029	2.94	2.5
104	5/24/1999	1:55:38 PM	0	25.504	23.486	24.938	25.796	22.236	33.35	45.376	52.584	5.992	39.234	6.445	-0.135	28.934	0.286	0	97	12.0	42.3	2.9	0.125	0.125	0.0030	2.96	2.5
105	5/24/1999	1:56:37 PM	0	25.504	23.486	25.018	25.956	22.156	33.271	45.314	52.645	6.223	39.843	6.476	-0.135	28.919	0.285	0	98	12.0	42.6	2.9	0.124	0.124	0.0029	2.92	2.5
106	5/24/1999	1:57:42 PM	0	25.539	23.521	24.973	25.911	22.191	32.672	44.942	52.279	6.223	39.809	6.476	-0.135	29.027	0.285	0	99	12.0	42.4	2.9	0.124	0.125	0.0029	2.94	2.5
107	5/24/1999	1:58:37 PM	0	25.494	23.475	24.928	25.945	22.306	32.706	44.663	51.913	6.12	39.538	6.476	-0.135	28.965	0.284	0	100	12.0	42.1	2.9	0.124	0.124	0.0030	2.95	2.5
108	5/24/1999	1:59:42 PM	0	25.494	23.475	24.928	25.705	22.387	32.31	44.942	52.187	6.223	40.214	6.507	-0.181	28.996	0.285	0	101	12.0	42.6	2.9	0.124	0.125	0.0029	2.93	2.5
109	5/24/1999	2:00:35 PM	0	25.448	23.51	24.962	25.82	22.341	32.424	45.19	52.706	6.12	39.944	6.445	-0.135	28.904	0.282	0	102	12.0	42.6	2.9	0.123	0.123	0.0029	2.90	2.5
110	5/24/1999	2:01:36 PM	0	25.529	23.51	24.962	25.66	22.422	32.345	45.438	52.675	6.128	39.741	6.476	-0.135	28.95	0.284	0	103	12.0	42.6	2.9	0.124	0.124	0.0029	2.91	2.5
111	5/24/1999	2:02:37 PM	0	25.529	23.51	25.043	25.66	22.583	32.186	45.624	52.858	6.199	39.504	6.476	-0.135	28.904	0.282	0	104	12.0	42.6	2.9	0.123	0.123	0.0029	2.89	2.5
112	5/24/1999	2:03:38 PM	0	25.483	23.465	24.997	25.535	22.618	31.983	45.128	52.37	6.16	39.64	6.476	-0.135	29.011	0.282	0	105	12.0	42.4	2.9	0.123	0.123	0.0029	2.90	2.5
113	5/24/1999	2:04:37 PM	0	25.483	23.545	24.997	25.695	22.698	31.824	45.407	52.645	6.263	39.876	6.476	-0.135	28.934	0.282	0	106	12.0	42.6	2.9	0.123	0.123	0.0029	2.89	2.5
114	5/24/1999	2:05:38 PM	0	25.483	23.545	24.917	25.615	22.698	31.745	45.438	52.797	6.239	39.606	6.476	-0.135	28.965	0.283	0	107	12.0	42.5	2.9	0.124	0.124	0.0029	2.91	2.5
115	5/24/1999	2:06:37 PM	0	25.483	23.545	24.997	25.775	22.659	32.221	45.097	52.37	6.175	39.809	6.445	-0.135	28.996	0.282	0	108	12.0	42.5	2.9	0.123	0.123	0.0029	2.90	2.5
116	5/24/1999	2:07:38 PM	0	25.438	23.5	24.952	25.73	22.733	31.859	45.066	52.248	6.016	39.403	6.476	-0.135	28.981	0.282	0	109	12.0	42.2	2.9	0.123	0.123	0.0029	2.92	2.5
117	5/24/1999	2:08:37 PM	0	25.518	23.5	24.952	25.81	22.813	31.859	45.407	52.523	6.136	40.045	6.507	-0.135	28.965	0.282	0	110	12.0	42.7	2.9	0.123	0.123	0.0029	2.89	2.5
118	5/24/1999	2:09:40 PM	0	25.518	23.5	25.032	25.81	22.733	32.017	45.438	52.736	6.199	39.64	6.476	-0.135	28.981	0.281	0	111	12.0	42.5	2.9	0.123	0.123	0.0029	2.88	2.5
119	5/24/1999	2:10:37 PM	0	25.518	23.58	24.952	25.89	22.813	32.096	45.004	52.248	6.144	39.64	6.445	-0.135	28.965	0.281	0	112	12.0	42.3	2.9	0.123	0.123	0.0029	2.90	2.5
120	5/24/1999	2:11:36 PM	0	25.518	23.5	25.032	25.81	22.733	31.779	44.849	52.157	6.191	39.538	6.476	-0.135	28.981	0.278	0	113	12.0	42.2	2.9	0.121	0.121	0.0029	2.87	2.4
121	5/24/1999	2:12:35 PM	0	25.518	23.58	25.032	25.89	22.894	31.7	45.221	52.431	6.088	39.572	6.476	-0.135	28.934	0.278	0	114	12.0	42.4	2.9	0.121	0.121	0.0029	2.86	2.4
122	5/24/1999	2:13:34 PM	0	25.518	23.5	24.962	25.81	22.894	31.621	45.252	52.37	6.12	39.843	6.445	-0.135	28.934	0.28	0	115	12.0	42.5	2.9	0.122	0.122	0.0029	2.88	2.4
123	5/24/1999	2:14:37 PM	0	25.518	23.5	25.032	25.97	22.894	31.859	45.407	52.736	6.255	39.572	6.476	-0.135	28.919	0.28	0.003	116	12.0	42.5	2.9	0.122	0.122	0.0029	2.87	2.4
124	5/24/1999	2:15:34 PM	0	25.518	23.5	25.032	25.81	22.894	31.7	44.632	52.035	6.168	39.437	6.445	-0.135	28.996	0.277	0	117	12.0	42.0	2.9	0.121	0.121	0.0029	2.87	2.4
125	5/24/1999	2:16:41 PM	0	25.518	23.5	24.952	25.89	22.894	32.096	44.57	51.791	6.032	39.707	6.476	-0.135	28.904	0.279	0	118	12.0	42.1	2.9	0.122	0.122	0.0029	2.89	2.5
126	5/24/1999	2:17:36 PM	0	25.473	23.455	24.907	25.684	22.768	31.735	45.593	52.797	6.16	39.335	6.476	-0.135	29.027	0.279	0	119	12.0	42.5	2.9	0.122	0.122	0.0029	2.88	2.4
127	5/24/1999	2:18:35 PM	0	25.473	23.535	24.987	25.764	22.848	31.814	45.345	52.645	6.215	39.809	6.476	-0.135	28.965	0.276	0	120	12.0	42.6	2.9	0.120	0.121	0.0028	2.83	2.4
128	5/24/1999	2:19:36 PM	0	25.518	23.58	24.952	25.81	22.894	31.621	45.438	52.675	6.104	39.843	6.476	-0.135	29.057	0.276	0	121	12.1	42.8	2.9	0.120	0.121	0.0028	2.83	2.4
129	5/24/1999	2:20:37 PM	0	25.518	23.58	24.952	25.89	22.894	31.859	44.663	52.035	6.215	39.504	6.476	-0.135	28.888	0.277	0	122	12.0	42.1	2.9	0.121	0.121	0.0029	2.88	2.4
130	5/24/1999	2:21:36 PM	0	25.518	23.5	24.962	25.73	22.894	31.859	44.756	52.035	6.12	39.64	6.445	-0.135	28.981	0.277	0	123	12.0	42.2	2.9	0.121	0.121	0.0029	2.87	2.4
131	5/24/1999	2:22:37 PM	0	25.518	23.58	25.032	25.81	22.813	31.938	44.911	52.096	6.144	39.741	6.476	-0.135	28.934	0.278	0	124	12.0	42.3	2.9	0.121	0.121	0.0029	2.86	2.4
132	5/24/1999	2:23:36 PM	0	25.518	23.5	24.952	25.89	22.813	31.859	45.035	52.309	6.223	39.234	6.476	-0.135	28.934	0.276	0	125	12.0	42.1	2.9	0.120	0.121	0.0029	2.86	2.4
133	5/24/1999	2:24:37 PM	0	25.518	23.58	25.032	25.97	22.974	31.779	44.663	51.943	5.976	39.536	6.476	-0.135	28.95	0.276	0	126	12.0	42.1	2.9	0.120	0.120	0.0029	2.86	2.4
134	5/24/1999	2:25:36 PM	0	25.518	23.5	24.952	25.89	22.894	31.621	45.314	52.736	6.104	39.775	6.507	-0.135	28.781	0.277	0	127	11.9	42.5	2.9	0.121	0.121	0.0028	2.85	2.4
135	5/24/1999	2:26:37 PM	0	25.518	23.58	25.032	25.89	22.974	31.7	45.128	52.34	6.16	39.809	6.476	-0.135	28.934	0.279	0	128	12.0	42.5	2.9	0.122	0.122	0.0029	2.87	2.4
136	5/24/1999	2:27:41 PM	0	25.553	23.535	24.987	25.845	22.848	31.655	45.252	52.401	6.144	39.673	6.476	-0.135	28.981	0.277	0	129	12.0	42.5	2.9	0.121	0.121	0.0028	2.85	2.4
137	5/24/1999	2:28:35 PM	0	25.518	23.58	25.032	25.97	22.974	31.779	44.756	51.974	6.183	39.606	6.445	-0.135	28.996	0.277	0	130	12.0	42.2	2.9	0.121	0.121	0.0029	2.86	2.4
138	5/24/1999	2:29:34 PM	0	25.518	23.58	25.032	25.81	22.894	31.621	44.446	51.517	6.032	39.843	6.476	-0.135	28.919	0.276	0	131	12.0	42.1	2.9	0.120	0.120	0.0029	2.86	2.4
139	5/24/1999	2:30:42 PM	0	25.518	23.58	25.032	25.89	22.894	31.779	44.88	52.157	6.112	39.606	6.476	-0.135	28.996	0.276	0	132	12.0	42.2	2.9	0.120	0.120	0.0028	2.85	2.4
140	5/24/1999	2:31:34 PM	0	25.518	23.58	25.032	25.81	22.894	31.7	45.19	52.523	6.088	39.504	6.476	-0.135	28.981	0.274	0	133	12.0	42.3	2.9	0.120	0.120	0.0028	2.82	2.4
141	5/24/1999	2:32:38 PM	0	25.518	23.58	25.032	25.81	22.974	31.779	44.818	52.004	6.168	39.504	6.476	-0.181	28.965	0.274	0	134	12.0	42.2	2.9	0.120	0.120	0.0028	2.83	2.4
142	5/24/1999	2:33:37 PM	0	25.518	23.58	25.032	25.73	22.813	31.779	45.252	52.37	6.168	39.978	6.476	-0.181	29.011	0.275	0	135	12.0	42.6	2.9	0.120	0.120	0.0028	2.81	2.4
143	5/24/1999	2:34:38 PM	0	25.518	23.58	25.032	25.89	22.974	31.859	45.159	52.431	6.207	39.606	6.476	-0.181	28.934	0.276	0	136	12.0	42.4	2.9	0.120	0.120	0.0028	2.84	2.4
144	5/24/1999	2:35:37 PM	0	25.473	23.535	24.987	25.684	22.848	31.655	45.531	52.919	6.295	39.538	6.445	-0.181	28.919	0.273	0	137	12.0	42.5	2.9	0.119	0.119	0.0028	2.80	2.4
145	5/24/1999	2:36:36 PM	0	25.518	23.58	25.032	25.89	23.054	31.7	45.221	52.462	6.024	39.707	6.476	-0.135	28.965	0.275	0	138	12.0	42.5	2.9	0.120	0.120	0.0028	2.82	2.4
146	5/24/1999	2:37:37 PM	0	25.518	23.58	25.032	25.89	23.054	31.541	45.531	52.736	6.279	39.944	6.476	-0.135	28.919	0.274	0	139	12.0	42.7	2.9	0.120	0.120	0.0028	2.80	2.4
147	5/24/1999	2:38:38 PM	0	25.518	23.58	25.032	25.81	23.054	31.621	44.942	52.218	6.223	39.741	6.445	-0.135	28.873	0.276	0	140	12.0	42.3	2.9	0.120	0.120	0.0028	2.84	2.4
148	5/24/1999	2:39:37 PM	0	25.518	23.58	25.032	25.97	22.974	31.7	45.252	52.37	6.024	39.673	6.476	-0.135	29.042	0.275	0	141	12.1	42.5	2.9	0.120	0.120	0.0028	2.82	2.4
149	5/24/1999	2:40:38 PM	0	25.518	23.58	25.032	25.97	23.054	31.859	45.19	52.34	6.175	39.403	6.476	-0.181	29.011	0.275	0	142	12.0	42.3	2.9	0.120	0.120	0.0028	2.84	2.4
150	5/24/1999	2:41:39 PM	0	25.518	23.58	25.032	25.89	22.974	31.7	45.004	52.065	6.088	39.606	6.476	-0.135	28.95	0.275	0	143	12.0	42.3	2.9	0.120	0.120	0.0028	2.84	2.4
151	5/24/1999	2:42:38 PM	0	25.518	23.58	25.032	25.89	23.054	31.7	44.973	52.309	6.231	39.369	6.476	-0.135	28.919	0.272	0	144	12.0	42.2	2.9	0.119	0.119	0.0028	2.81	2.4
152	5/24/1999	2:43:35 PM	0	25.563	23.626	24.997	25.855	23.019	31.824	44.818	52.065	6.104	39.504	6.476	-0.135	28.919	0.273	0	145	12.0	42.2	2.9	0.119	0.119	0.0028	2.83	2.4
153	5/24/1999	2:44:40 PM	0	25.518	23.58	25.032	25.89	23.054	31.779	44.88	52.187	6.215	39.437	6.476	-0.135	28.965	0.274	0	146	12.0	42.2	2.9	0.120	0.120	0.0028	2.83	2.4
154	5/24/1999	2:45:41 PM	0	25.563	23.626	25.077	25.935	23.019	31.903	45.19	52.553	6.104	39.707	6.476	-0.135	29.011	0.273	0	147	12.0	42.4	2.9	0.119	0.119	0.0028	2.80	2.4
155	5/24/1999	2:46:38 PM	0	25.598	23.58	25.032	25.89	22.974	31.7	45.314	52.614	6.239	39.572	6.476	-0.135	29.011	0.273	0	148	12.0	42.4	2.9	0.119	0.119	0.0028	2.81	2.4
156	5/24/1999	2:47:37 PM	0	25.483	23.626	25.077	25.855	23.1	31.983	44.911	52.157	6.048	39.403	6.478	-0.135	28.934	0.275	0	149	12.0	42.2	2.9	0.120	0.120	0.0028	2.84	2.4
157	5/24/1999	2:48:38 PM	0	25.563	23.626	24.997	25.655	23.1	31.824	43.516	51.974	5.864	37.814	7.709	-0.135	29.518	1.049	0	150	12.3	40.7	2.8	0.458	0.458	0.0113	11.26	9.6
158	5/24/1999	2:49:37 PM	0	25.563	23.626	25.077	25.775	23.019	31.983	43.361	51.943	5.88	38.051	7.801	-0.135	29.257	0.654	0	151	12.1	40.7	2.8	0.285	0.285	0.0070	7.00	6.0
159	5/24/1999	2:50:38 PM	0	25.563	23.626	25.077	25.855	23.1	31.824	44.632	51.669	5.84	39.775	6.322	-0.135	29.226	0.565	0	152	12.1	42.2	2.9	0.247	0.246	0.0058	5.83	5.0
160	5/24/1999	2:51:37 PM	0	25.563	23.626	25.077	25.775	23.1	31.624	45.469	52.614	6.144	39.775	6.26	-0.135	29.211	0.501	0	153	12.1	42.6	2.9	0.219	0.218	0.0051	5.12	4.4
161	5/24/1999	2:52:38 PM	0	25.518	23.58	25.032	25.73	23.135	31.7	45.097	52.096	6.04	39.572	6.26	-0.135	29.149	0.481	0	154	12.1	42.3	2.9	0.201	0.201	0.0047	4.75	4.0
162	5/24/1999	2:53:37 PM	0	25.518	23.58	25.032	25.65	23.054	31.7	45.128	52.065	6.112	39.741	6.26	-0.135	29.196	0.432	0	155	12.1	42.4	2.9	0.189	0.188	0.0044	4.44	3.8

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.10c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163																											
164		Averages		25.5	23.4	25.0	25.8	23.0	32.0	45.0	52.3	6.1	39.6	6.5	-0.1	29.0	0.313	0.0		12.0	42.3	2.9	0.137	0.137	0.003	3.2	2.7
165		Maximum		25.6	23.6	25.1	26.5	24.6	33.6	45.7	53.1	6.4	40.2	6.8	-0.1	30.0	1.042	0.0		12.4	42.8	3.0	0.455	0.456	0.011	11.0	9.4
166		Median		25.5	23.5	25.0	25.8	22.9	31.9	45.1	52.3	6.1	39.6	6.5	-0.1	29.0	0.291	0.0		12.0	42.3	2.9	0.127	0.127	0.003	3.0	2.5
167		Minimum		25.4	23.1	24.9	25.1	22.2	30.2	44.0	51.3	5.8	38.8	6.2	-0.2	28.8	0.272	0.0		11.9	41.4	2.9	0.119	0.119	0.003	2.8	2.4
168		Std Dev		0.0	0.1	0.0	0.3	0.6	0.8	0.3	0.4	0.1	0.3	0.0	0.0	0.2	0.082	0.0		0.1	0.2	0.0	0.036	0.036	0.001	0.9	0.7
169		Number of Points Used		135	135	135	135	135	135	135	135	135	135	135	135	135	135	135		135	135	135	135	135	135	135	135



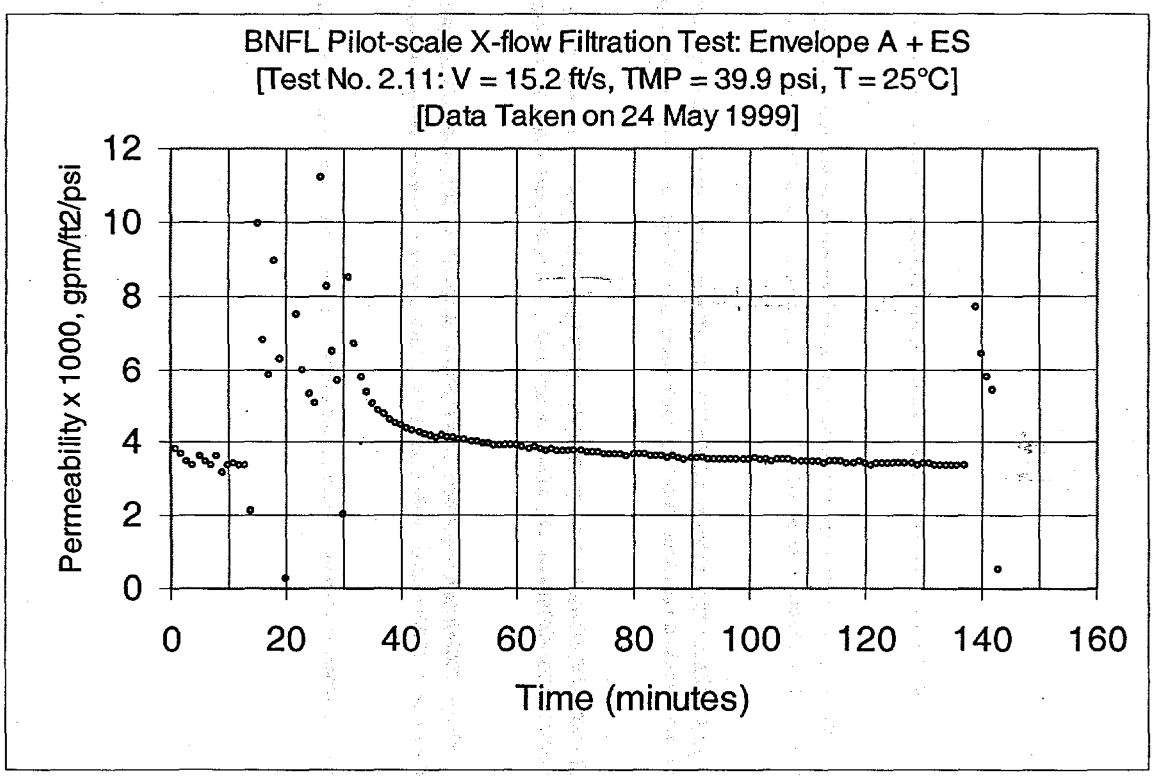


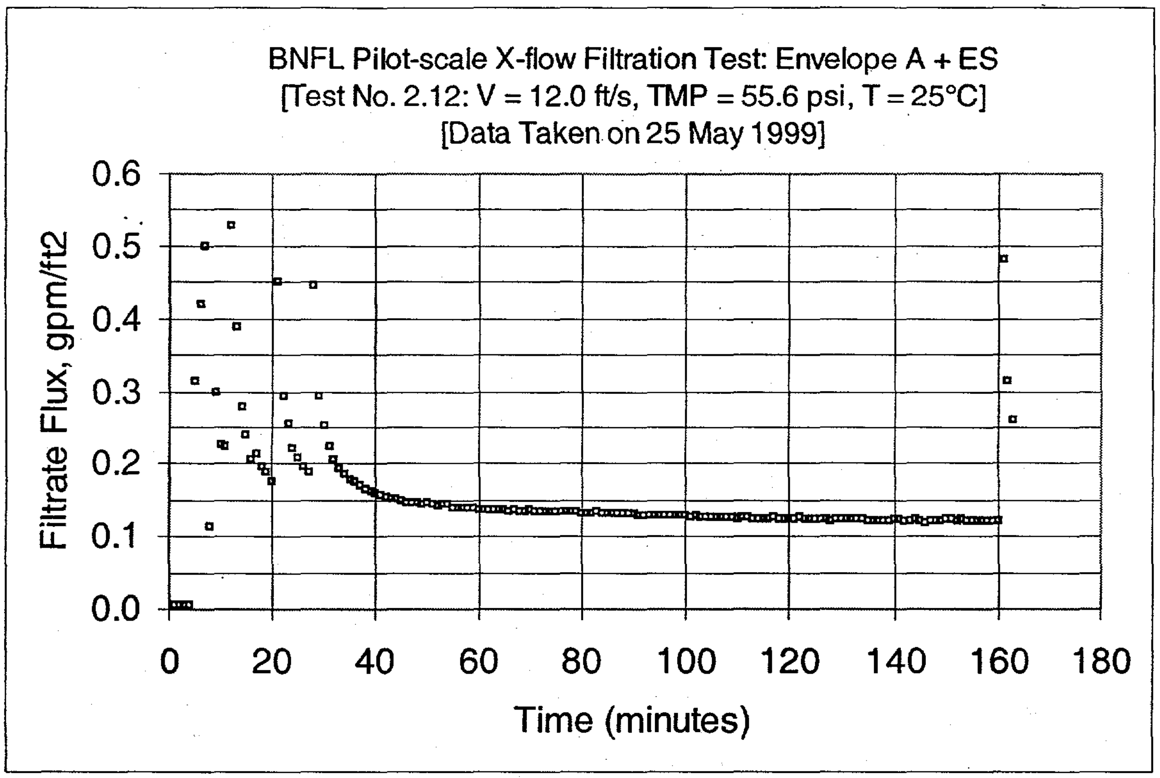
Figure B13: Test Run 2.11, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.11

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/24/1999	8:33:02 AM	0	22.749	22.172	21.86	22.237	21.243	32.452	-0.031	-0.011	-0.016	0.016	-0.057	-0.228	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/24/1999	8:39:41 AM	0	22.774	22.197	21.885	22.021	21.288	31.764	-0.031	-0.011	-0.016	0.05	-0.057	-0.228	-0.08	0.012	0									
5	5/24/1999	8:40:40 AM	0	22.819	22.162	21.849	22.066	21.394	31.806	-0.031	-0.011	-0.016	0.05	-0.068	-0.228	-0.08	0.011	0									
6	data																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
7	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/24/1999	2:58:23 PM	0	25.563	23.626	25.077	25.935	23.18	31.824	45.6	52.736	6.279	39.91	6.322	-0.135	29.073	0.373	0	1	12.1	42.7	2.9	0.163	0.162	0.0038	3.80	3.2
9	5/24/1999	3:00:37 PM	0	25.563	23.626	25.077	25.855	23.1	31.745	45.066	52.218	6.16	39.944	6.353	-0.135	28.904	0.359	0	2	12.0	42.5	2.9	0.157	0.156	0.0037	3.68	3.1
10	5/24/1999	3:01:36 PM	0	25.563	23.626	25.077	25.775	23.18	31.903	37.565	43.559	10.069	28.415	5.305	-0.181	38.534	0.264	0	3	16.0	33.0	2.3	0.115	0.115	0.0035	3.49	3.0
11	5/24/1999	3:02:37 PM	0	25.563	23.626	25.077	25.855	23.18	31.665	28.112	35.571	7.149	21.485	6.661	-0.181	32.068	0.191	0	4	13.3	24.8	1.7	0.083	0.083	0.0034	3.35	2.9
12	5/24/1999	3:03:40 PM	0	25.563	23.626	25.077	26.015	23.261	31.665	49.591	59.901	6.838	43.798	9.588	-0.135	30.993	0.385	0	5	12.9	46.7	3.2	0.168	0.168	0.0036	3.59	3.1
13	5/24/1999	3:04:35 PM	0	25.563	23.626	25.157	26.175	23.261	31.745	47.267	57.127	11.441	36.665	9.065	-0.135	41.284	0.336	0	6	17.1	42.0	2.9	0.147	0.146	0.0035	3.48	3.0
14	5/24/1999	3:05:38 PM	0	25.563	23.626	25.157	26.095	23.261	31.745	33.567	41.455	8.537	25.711	7.277	-0.135	35.032	0.23	0	7	14.5	29.6	2.0	0.100	0.100	0.0034	3.37	2.9
15	5/24/1999	3:06:35 PM	0	25.609	23.671	25.123	26.22	23.306	31.71	50.211	60.328	5.88	44.981	9.434	-0.135	27.844	0.395	0	8	11.6	47.6	3.3	0.172	0.172	0.0036	3.61	3.1
16	5/24/1999	3:07:42 PM	0	25.609	23.671	25.123	26.22	23.386	31.631	40.324	49.443	10.452	30.511	8.232	-0.181	39.118	0.259	0	9	16.2	35.4	2.4	0.113	0.113	0.0032	3.18	2.7
17	5/24/1999	3:08:35 PM	0	25.609	23.671	25.203	26.3	23.386	31.631	44.446	54.383	8.138	37.104	9.188	-0.135	34.31	0.317	0	10	14.2	40.8	2.8	0.138	0.138	0.0034	3.37	2.9
18	5/24/1999	3:09:42 PM	0	25.654	23.636	25.168	26.345	23.432	31.596	44.074	53.834	8.8	35.752	8.972	-0.181	36	0.312	0	11	14.9	39.9	2.8	0.136	0.136	0.0034	3.40	2.9
19	5/24/1999	3:10:37 PM	0	25.609	23.591	25.203	26.22	23.386	31.631	44.446	54.261	8.96	36.022	9.065	-0.135	36.2	0.313	0	12	15.0	40.2	2.8	0.137	0.136	0.0034	3.38	2.9
20	5/24/1999	3:11:44 PM	0	25.654	23.636	25.248	26.185	23.432	31.755	45.314	55.328	9.008	36.901	9.095	-0.135	36.476	0.318	0	13	15.1	41.1	2.8	0.139	0.138	0.0034	3.35	2.9
21	5/24/1999	3:12:35 PM	1	25.654	23.636	25.248	26.265	23.351	31.517	6.044	54.962	8.497	-1.573	47.967	65.461	36.338	0.011	0	14	15.1	2.2	0.2	0.005	0.005	0.0021	2.13	1.8
22	5/24/1999	3:13:36 PM	0	25.654	23.716	25.248	26.185	23.271	31.755	48.104	55.023	8.665	40.012	6.137	-0.135	37.09	1.011	0	15	15.4	44.1	3.0	0.441	0.438	0.0099	9.95	8.5
23	5/24/1999	3:14:41 PM	0	25.654	23.636	25.248	26.185	23.271	31.755	47.577	55.145	8.745	39.133	6.722	-0.135	36.814	0.677	0	16	15.3	43.4	3.0	0.296	0.293	0.0068	6.77	5.8
24	5/24/1999	3:15:38 PM	0	25.654	23.636	25.248	26.185	23.351	31.755	47.67	54.748	8.521	39.572	6.291	-0.135	36.768	0.584	0	17	15.3	43.6	3.0	0.255	0.253	0.0058	5.80	4.9
25	5/24/1999	3:16:37 PM	0	25.699	23.681	25.293	26.311	23.477	31.483	48.321	54.84	8.617	40.451	5.613	-0.135	36.922	0.917	0.003	18	15.3	44.4	3.1	0.400	0.397	0.0089	8.94	7.6
26	5/24/1999	3:17:40 PM	0	25.699	23.681	25.373	26.391	23.477	31.721	47.329	54.87	8.761	39.64	6.63	-0.135	36.706	0.631	0	19	15.2	43.5	3.0	0.275	0.273	0.0063	6.27	5.3
27	5/24/1999	3:18:41 PM	0	25.699	23.681	25.293	26.471	23.477	31.562	23.773	54.748	8.561	16.582	30.236	-0.135	36.323	0.012	0	20	15.1	20.2	1.4	0.005	0.005	0.0003	0.26	0.2
28	5/24/1999	3:19:42 PM	0	25.744	23.647	25.339	26.436	23.523	32.003	41.967	54.992	8.569	33.858	12.177	-0.135	37.014	1.218	0	21	15.4	37.9	2.6	0.532	0.527	0.0139	13.89	11.8
29	5/24/1999	3:20:37 PM	0	25.825	23.647	25.339	26.436	23.362	32.003	46.492	54.779	8.609	36.49	7.616	-0.135	36.553	0.736	0	22	15.2	42.5	2.9	0.321	0.318	0.0075	7.49	6.4
30	5/24/1999	3:21:38 PM	0	25.744	23.727	25.339	26.356	23.282	32.162	47.67	54.779	8.673	39.978	6.476	-0.135	36.384	0.605	0.003	23	15.1	43.8	3.0	0.264	0.262	0.0060	5.97	5.1
31	5/24/1999	3:22:35 PM	0	25.744	23.647	25.339	26.436	23.362	31.766	46.647	53.468	9.136	38.051	6.229	-0.135	37.72	0.521	0	24	15.7	42.3	2.9	0.227	0.225	0.0053	5.32	4.5
32	5/24/1999	3:23:36 PM	0	25.825	23.727	25.419	26.436	23.523	31.924	44.446	51.578	8.8	36.225	6.291	-0.135	36.845	0.473	0	25	15.3	40.3	2.8	0.206	0.204	0.0051	5.06	4.3
33	5/24/1999	3:24:35 PM	1	25.744	23.647	25.339	26.276	23.362	31.924	8.23	51.273	8.417	-1.978	44.196	68.63	36.507	0.055	0	26	15.2	2.1	0.1	0.024	0.024	0.0112	11.19	9.5
34	5/24/1999	3:25:36 PM	0	25.79	23.692	25.384	26.321	23.488	31.969	43.206	51.181	8.665	34.704	7.123	-0.181	36.906	0.743	0	27	15.3	39.0	2.7	0.324	0.321	0.0082	8.24	7.0
35	5/24/1999	3:26:37 PM	0	25.79	23.692	25.464	26.321	23.327	32.048	43.547	50.815	8.697	35.853	6.353	-0.135	36.968	0.595	0	28	15.3	39.7	2.7	0.260	0.256	0.0065	6.46	5.5
36	5/24/1999	3:27:36 PM	0	25.835	23.737	25.429	26.286	23.453	32.172	44.074	51.151	8.761	35.853	6.383	-0.135	36.768	0.528	0	29	15.3	40.0	2.8	0.230	0.228	0.0057	5.70	4.8
37	5/24/1999	3:28:35 PM	0	25.79	23.612	25.384	26.241	23.166	32.048	6.23	50.724	8.457	-1.471	43.734	-0.135	36.553	0.011	0	30	15.2	2.4	0.2	0.005	0.005	0.0020	2.00	1.7
38	5/24/1999	3:29:38 PM	0	25.835	23.737	25.429	26.286	23.373	32.172	42.618	50.419	8.665	35.008	7.123	-0.135	36.968	0.762	0	31	15.3	38.8	2.7	0.333	0.329	0.0085	8.47	7.2
39	5/24/1999	3:30:41 PM	0	25.835	23.657	25.429	26.206	23.373	30.962	43.95	51.029	8.649	35.616	6.414	-0.135	36.814	0.614	0	32	15.3	39.8	2.7	0.268	0.265	0.0067	6.66	5.7
40	5/24/1999	3:31:38 PM	0	25.835	23.737	25.429	26.286	23.613	31.655	43.826	50.937	8.625	36.022	6.353	-0.135	36.676	0.533	0	33	15.2	39.9	2.8	0.233	0.230	0.0058	5.76	4.9
41	5/24/1999	3:32:35 PM	0	25.835	23.737	25.429	26.206	23.373	32.014	43.95	51.09	8.8	36.225	6.353	-0.135	36.768	0.5	0	34	15.3	40.1	2.8	0.218	0.216	0.0054	5.38	4.6
42	5/24/1999	3:33:36 PM	0	25.835	23.657	25.429	26.206	23.453	31.835	44.105	51.273	8.545	35.955	6.414	-0.135	36.799	0.47	0.003	35	15.3	40.0	2.8	0.205	0.203	0.0051	5.06	4.3
43	5/24/1999	3:34:37 PM	0	25.915	23.737	25.429	26.126	23.453	[illegible]	43.961	51.212	8.768	35.819	6.383	-0.135	36.737	0.451	0	36	15.2	39.9	2.8	0.197	0.195	0.0049	4.88	4.1
44	5/24/1999	3:35:38 PM	0	25.835	23.737	25.429	26.206	23.373	32.172	44.043	51.181	8.753	35.887	6.414	-0.135	36.538	0.44	0	37	15.2	40.0	2.8	0.192	0.190	0.0047	4.75	4.0
45	5/24/1999	3:36:39 PM	0	25.915	23.657	25.429	26.286	23.212	32.252	43.702	50.876	8.481	36.056	6.414	-0.135	36.491	0.428	0	38	15.1	39.9	2.7	0.187	0.185	0.0046	4.63	3.9
46	5/24/1999	3:37:36 PM	0	25.835	23.737	25.429	26.366	23.051	31.044	43.857	50.996	8.657	36.09	6.414	-0.135	36.461	0.42	0	39	15.1	40.0	2.8	0.183	0.181	0.0045	4.53	3.9
47	5/24/1999	3:38:41 PM	0	25.915	23.737	25.429	26.366	22.89	[illegible]	43.888	51.12	8.577	36.191	6.414	-0.135	36.399	0.414	0	40	15.1	40.0	2.8	0.181	0.179	0.0045	4.46	3.8
48	5/24/1999	3:39:38 PM	0	25.915	23.737	25.429	26.446	22.971	32.648	44.229	51.425	8.689	36.259	6.414	-0.135	36.445	0.406	0	41	15.1	40.2	2.8	0.177	0.175	0.0044	4.35	3.7
49	5/24/1999	3:40:37 PM	0	25.915	23.737	25.509	26.366	22.81	33.202	43.795	50.754	8.633	36.09	6.383	-0.135	36.384	0.402	0	42	15.1	39.9	2.8	0.175	0.173	0.0043	4.33	3.7
50	5/24/1999	3:41:34 PM	0	25.915	23.737	25.509	26.366	22.81	32.806	43.609	50.51	9.319	34.197	6.168	-0.135	38.074	0.386	0	43	15.8	38.9	2.7	0.169	0.166	0.0043	4.27	3.6
51	5/24/1999	3:42:35 PM	0	25.995	23.818	25.509	26.206	22.649	33.202	43.052	50.297	9.327	34.095	6.383	-0.135	38.135	0.377	0	44	15.8	38.6	2.7	0.165	0.162	0.0042	4.21	3.6
52	5/24/1999	3:43:34 PM	0	25.95	23.692	25.464	26.321	22.684	32.841	43.237	50.541	9.55	34.298	6.445	-0.135	38.181	0.374	0	45	15.8	38.8	2.7	0.163	0.161	0.0042	4.16	3.5
53	5/24/1999	3:44:37 PM	0	25.905	23.727	25.419	26.116	22.558	33.033	43.113	50.388	9.423	34.399	6.445	-0.135	37.966	0.372	0	46	15.8	38.8	2.7	0.162	0.160	0.0041	4.14	3.5
54	5/24/1999	3:45:36 PM	0	25.905	23.807	25.499	26.196	22.478	33.033	42.618	49.901	9.626	34.264	6.414	-0.135	38.104	0.371	0	47	15.8	38.4	2.7	0.162	0.160	0.0042	4.15	3.5
55	5/24/1999	3:46:37 PM	0	25.859	23.762	25.534	26.071	22.271	33.068	42.742	50.023	9.279	34.264	6.445	-0.135	38.012	0.367	0	48	15.8	38.5	2.7	0.160	0.158	0.0041	4.10	3.5
56	5/24/1999	3:47:36 PM	0	25.939	23.762	25.453	26.071	22.432	32.751	42.618	49.687	9.367	34.095	6.414	-0.135	38.089	0.365	0	49	15.8	38.4	2.6	0.159	0.157	0.0041	4.10	3.5
57	5/24/1999	3:48:35 PM	0	25.894	23.716	25.488	26.105	22.387	32.548	43.113	50.236	9.271	34.129	6.445	-0.135	37.966	0.364	0	50	15.8	38.6	2.7	0.159	0.157	0.0041	4.06	3.5
58	5/24/1999	3:49:36 PM	0	25.974	23.716	25.568	26.185	22.548	32.152	42.618	49.87	9.463	34.095	6.478	-0.135	38.15	0.362	0	51	15.8	38.4	2.6	0.158	0.156	0.0041	4.05	3.5
59	5/24/1999	3:50:35 PM	0	25.894	23.716	25.488	26.105	22.628	32.231	43.082	50.236	9.558	34.197	6.476	-0.135	38.166	0.361	0	52	15.8	38.6	2.7	0.158	0.155	0.0040	4.02	3.4
60	5/24/1999	3:51:34 PM	0	25.929	23.751	25.443	26.14	22.663	32.265	42.618	49.748	9.231	34.061	6.445	-0.135	37.935	0.358	0	53	15.7	38.3	2.6	0.156	0.154	0.0040	4.03	3.4
61	5/24/1999	3:52:37 PM	0	25.929	23.751	25.523	26.06	22.743	31.948	42.68	49.87	9.311	34.129	6.445	-0.135	38.135	0.356	0	54	15.8	38.4	2.6	0.155	0.153	0.0040	3.99	3.4
62	5/24/1999	3:53:34 PM	0	25.929	23.751	25.523	26.14	22.904	31.869	43.64	51.12	9.016	35.177	6.63	-0.135	36.891	0.364	0	55	15.3	39.4	2.7	0.159	0.157	0.0040	3.97	3.4
63	5/24/1999	3:54:35 PM	0	26.009	23.751	25.523	26.22	23.065	32.107	43.516	50.815	8.888	35.346	6.599	-0.135	36.86	0.361	0.003	56	15.3	39.4	2.7	0.158	0.155	0.0039	3.94	3.4
64	5/24/1999	3:55:41 PM	0	25.929	23.832	25.523	26.14	22.904	31.869	43.299	50.785	8.681	36.157	6.63	-0.135	36.369	0.364	0	57	15.1	39.7	2.7	0.159	0.157	0.0039	3.94	3.4
65	5/24/1999	3:56:36 PM	0	25.964	23.706	25.478	26.095	22.939	31.745	43.919	51.456	8.761	36.056	6.63	-0.135	36.369	0.363	0	58	15.1	40.0	2.8	0.158	0.156	0.0039	3.91	3.3
66	5/24/1999	3:57:36 PM	0	25.964	23.706	25.478	26.095	22.939	31.983	43.702	51.242	8.545	35.955	6.599	-0.135	36.184	0.364	0	59	15.0	39.8	2.7	0.159	0.157	0.0039	3.94	3.3
67	5/24/1999	3:58:40 PM	0	25.964	23.786	25.478	26.015	23.019	31.824	43.547	50.846	8.808	35.245	6.507	-0.135	36.768	0.357	0	60	15.3	39.4	2.7	0.156	0.154	0.0039	3.90	3.3
68	5/24/1999	3:59:39 PM	0	25.964	23.706	25.478	26.175	22.939	31.665	43.733	51.161	8.888	35.245	6.476	-0.135	36.783	0.356	0	61	15.3	39.5	2.7	0.155	0.153	0.0039	3.88	3.3
69	5/24/1999	4:00:36 PM	0	25.964	23.706	25.478	26.175	23.1	31.745	44.012	51.273	8.856	35.65	6.476	-0.135	36.799	0.354	0	62	15.3	39.8	2.7	0.155	0.152	0.0038	3.83	3.3
70	5/24/1999	4:01:34 PM	0	25.964	23.786	25.478	26.175	23.1	31.507	43.671	51.059	8.681	35.853	6.507	-0.135	36.369	0.356	0	63	15.1	39.8	2.7	0.155	0.153	0.0039	3.86	3.3
71	5/24/1999	4:02:42 PM	0	25.964	23.706	25.558	26.255	23.1	31.745	43.64	50.876	8.633	35.65	6.507	-0.181	36.568	0.353	0	64	15.2	39.6	2.7	0.154	0.152	0.0038	3.83	3.3
72	5/24/1999	4:03:37 PM	0	25.884	23.706	25.478	26.175	22.939	31.665	43.857	51.12	9.032	36.191	6.476	-0.135	36.461	0.352	0	65	15.1	40.0	2.8	0.154	0.152	0.0038	3.79	3.2
73	5/24/1999	4:04:38 PM	0	25.964	23.786	25.478	26.335	23.18	31.745	43.95	51.151	8.768	36.056	6.476	-0.135	36.476	0.353	0	66	15.1	40.0	2.8	0.154	0.152	0.0038	3.80	3.2
74	5/24/1999	4:05:41 PM	0	26.009	23.751	25.523	26.3	23.145	31.71	44.384	51.791	8.721	36.124	6.476	-0.135	36.369	0.352	0	67	15.1	40.3	2.8	0.154	0.151	0.0038	3.76	3.2
75	5/24/1999	4:06:40 PM	0	26.009	23.832	25.603	26.38	23.226	31.869	43.826	50.907	8.617	35.718	6.476	-0.135	36.353	0.351	0	68	15.1	39.8	2.7	0.153	0.151	0.0038	3.79	3.2
76	5/24/1999	4:07:35 PM	0	26.009	23.832	25.523	26.38	23.145	31.71	44.074	51.334	8.657	35.955	6.414	-0.135	36.445	0.349	0	69	15.1	40.0	2.8	0.152	0.150	0.0038	3.75	3.2
77	5/24/1999	4:08:36 PM	0	26.009	23.751	25.523	26.38	23.226	31.71	44.074	51.303	8.888	35.921	6.414	-0.135	36.568	0.349	0	70	15.2	40.0	2.8	0.152	0.150	0.0038	3.75	3.2
78	5/24/1999	4:09:37 PM	0	26.009	23.751	25.523	26.3	23.145	31.71	43.454	50.785	8.673	35.786	6.414	-0.135	36.43	0.347	0	71	15.1	39.6	2.7	0.151	0.149	0.0038	3.77	3.2
79	5/24/1999	4:10:38 PM	0	26.009	23.751	25.523	26.3	23.145	31.869	43.919	51.151	8.784	35.819	6.414	-0.135	36.491	0.346	0	72	15.1	39.9	2.7	0.151	0.149	0.0037	3.73	3.2
80	5/24/1999	4:11:37 PM	0	25.929	23.751	25.523	26.14	23.145	31.869	44.043	51.273	8.84	35.786	6.383	-0.135	36.461	0.344	0	73	15.1	39.9	2.8	0.150	0.148	0.0037	3.71	3.2
81	5/24/1999	4:12:36 PM	0	26.054	23.797	25.568	26.165	23.191	32.152	44.167	51.486	8.792	35.65	6.414	-0.135	36.614	0.346	0	74	15.2	39.9	2.8	0.151	0.149	0.0037	3.72	3.2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.11

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/24/1999	4:13:35 PM	0	26.054	23.797	25.568	26.185	23.11	32.152	43.888	50.907	8.537	36.056	6.414	-0.135	36.461	0.343	0.003	75	15.1	40.0	2.8	0.150	0.147	0.0037	3.69	3.1
83	5/24/1999	4:14:40 PM	0	25.974	23.797	25.568	26.185	23.03	31.993	44.506	51.76	8.944	35.65	6.414	-0.135	36.323	0.344	0	76	15.1	40.1	2.8	0.150	0.148	0.0037	3.69	3.1
84	5/24/1999	4:15:35 PM	0	25.974	23.797	25.568	26.105	23.03	32.072	44.167	51.334	8.745	36.124	6.445	-0.135	36.353	0.344	0	77	15.1	40.1	2.8	0.150	0.148	0.0037	3.68	3.1
85	5/24/1999	4:16:40 PM	0	25.974	23.797	25.488	26.265	23.03	31.993	44.229	51.456	8.577	35.921	6.445	-0.135	36.2	0.342	0	78	15.0	40.1	2.8	0.149	0.147	0.0037	3.67	3.1
86	5/24/1999	4:17:39 PM	0	25.974	23.797	25.488	26.185	23.03	31.914	44.632	51.913	8.856	36.462	6.445	-0.135	36.169	0.341	0	79	15.0	40.5	2.8	0.149	0.147	0.0036	3.62	3.1
87	5/24/1999	4:18:38 PM	0	25.974	23.797	25.568	26.265	23.191	31.914	43.64	50.541	8.681	36.563	6.414	-0.135	36.292	0.341	0	80	15.1	40.1	2.8	0.149	0.147	0.0037	3.65	3.1
88	5/24/1999	4:19:35 PM	0	25.974	23.797	25.488	26.185	23.11	32.072	44.136	51.486	8.657	36.157	6.414	-0.135	36.246	0.34	0	81	15.0	40.1	2.8	0.148	0.146	0.0036	3.65	3.1
89	5/24/1999	4:20:38 PM	0	25.974	23.797	25.568	26.185	23.03	31.914	43.9[illegible]	51.273	8.784	36.056	6.445	-0.135	36.2	0.339	0	82	15.0	40.0	2.8	0.148	0.146	0.0036	3.64	3.1
90	5/24/1999	4:21:41 PM	0	25.974	23.797	25.488	26.185	23.11	32.152	44.4[illegible]7	51.76	8.768	36.428	6.414	-0.135	36.23	0.338	0	83	15.0	40.5	2.8	0.148	0.146	0.0036	3.60	3.1
91	5/24/1999	4:22:42 PM	0	25.974	23.797	25.488	26.345	23.11	31.755	44.167	51.395	8.657	36.056	6.445	-0.135	36.292	0.339	0	84	15.1	40.1	2.8	0.148	0.146	0.0036	3.64	3.1
92	5/24/1999	4:23:37 PM	0	25.974	23.797	25.568	26.345	23.11	31.834	43.981	51.181	8.784	35.955	6.414	-0.135	36.415	0.336	0	85	15.1	40.0	2.8	0.147	0.144	0.0036	3.61	3.1
93	5/24/1999	4:24:36 PM	0	26.019	23.842	25.614	26.311	23.156	31.8	44.012	51.212	8.673	36.09	6.414	-0.135	36.491	0.335	0	86	15.1	40.1	2.8	0.146	0.144	0.0036	3.59	3.1
94	5/24/1999	4:25:37 PM	0	26.019	23.842	25.614	26.311	23.316	31.959	43.826	51.059	8.745	35.684	6.383	-0.135	36.43	0.333	0	87	15.1	39.8	2.7	0.145	0.143	0.0036	3.59	3.1
95	5/24/1999	4:26:38 PM	0	26.019	23.842	25.534	26.391	23.316	31.721	43.795	50.998	8.816	35.921	6.383	-0.135	36.599	0.332	0	88	15.2	39.9	2.7	0.145	0.143	0.0036	3.58	3.0
96	5/24/1999	4:27:37 PM	0	26.019	23.842	25.534	26.391	23.316	31.879	44.26	51.395	8.808	36.056	6.414	-0.135	36.445	0.33	0	89	15.1	40.2	2.8	0.144	0.142	0.0035	3.53	3.0
97	5/24/1999	4:28:36 PM	0	26.019	23.762	25.534	26.391	23.236	31.879	43.961	51.12	8.713	36.124	6.414	-0.135	36.491	0.331	0	90	15.1	40.1	2.8	0.144	0.142	0.0036	3.55	3.0
98	5/24/1999	4:29:35 PM	0	25.939	23.762	25.534	26.391	23.316	31.879	43.95	51.151	8.816	36.259	6.414	-0.135	36.538	0.332	0	91	15.2	40.1	2.8	0.145	0.143	0.0036	3.56	3.0
99	5/24/1999	4:30:38 PM	0	26.065	23.807	25.579	26.436	23.362	31.924	44.291	51.395	8.721	35.988	6.414	-0.135	36.553	0.331	0	92	15.2	40.1	2.8	0.144	0.142	0.0035	3.54	3.0
100	5/24/1999	4:31:35 PM	0	26.065	23.887	25.579	26.516	23.442	32.003	44.198	51.395	8.745	35.718	6.414	-0.135	36.507	0.329	0	93	15.2	40.0	2.8	0.144	0.141	0.0035	3.54	3.0
101	5/24/1999	4:32:36 PM	0	26.019	23.762	25.614	26.471	23.316	31.721	44.012	51.181	8.88	36.124	6.414	-0.135	36.43	0.33	0	94	15.1	40.1	2.8	0.144	0.142	0.0035	3.53	3.0
102	5/24/1999	4:33:35 PM	0	25.965	23.807	25.579	26.516	23.362	31.924	44.229	51.517	8.784	36.293	6.445	-0.135	36.415	0.329	0	95	15.1	40.3	2.8	0.144	0.141	0.0035	3.51	3.0
103	5/24/1999	4:34:36 PM	0	25.965	23.887	25.579	26.516	23.442	31.766	44.043	51.242	8.569	36.157	6.445	-0.135	36.138	0.33	0	96	15.0	40.1	2.8	0.144	0.142	0.0035	3.53	3.0
104	5/24/1999	4:35:35 PM	0	25.965	23.807	25.579	26.596	23.442	31.845	43.826	50.815	8.497	36.326	6.445	-0.089	36.246	0.33	0	97	15.0	40.1	2.8	0.144	0.142	0.0035	3.54	3.0
105	5/24/1999	4:36:36 PM	0	25.965	23.807	25.579	26.596	23.362	31.845	44.074	51.273	8.593	36.157	6.476	-0.135	36.2	0.327	0	98	15.0	40.1	2.8	0.143	0.140	0.0035	3.50	3.0
106	5/24/1999	4:37:37 PM	0	26.03	23.853	25.544	26.641	23.488	31.89	44.167	51.364	8.681	36.181	6.445	-0.135	36.261	0.328	0	99	15.0	40.2	2.8	0.143	0.141	0.0035	3.51	3.0
107	5/24/1999	4:38:34 PM	0	26.03	23.853	25.544	26.561	23.327	32.128	44.136	51.334	8.569	36.326	6.445	-0.135	36.246	0.328	0.003	100	15.0	40.2	2.8	0.143	0.141	0.0035	3.51	3.0
108	5/24/1999	4:39:37 PM	0	26.03	23.853	25.544	26.561	23.488	31.969	43.647	50.785	8.553	36.056	6.445	-0.135	36.261	0.329	0	101	15.0	39.8	2.7	0.144	0.141	0.0036	3.55	3.0
109	5/24/1999	4:40:40 PM	0	26.03	23.853	25.544	26.401	23.407	31.89	44.229	51.608	8.609	36.056	6.445	-0.135	36.246	0.33	0	102	15.0	40.1	2.8	0.144	0.142	0.0035	3.53	3.0
110	5/24/1999	4:41:39 PM	0	26.03	23.853	25.624	26.481	23.327	32.128	44.074	51.273	8.585	35.887	6.414	-0.135	36.215	0.328	0	103	15.0	40.0	2.8	0.143	0.141	0.0035	3.52	3.0
111	5/24/1999	4:42:36 PM	0	26.03	23.853	25.544	26.401	23.327	32.048	44.384	51.7	8.8	36.022	6.445	-0.135	36.276	0.328	0	104	15.1	40.2	2.8	0.142	0.140	0.0035	3.49	3.0
112	5/24/1999	4:43:37 PM	0	26.03	23.853	25.544	26.481	23.407	32.128	43.609	50.815	8.705	35.853	6.414	-0.135	36.23	0.326	0	105	15.0	39.7	2.7	0.142	0.140	0.0035	3.53	3.0
113	5/24/1999	4:44:38 PM	0	26.03	23.853	25.544	26.401	23.327	32.207	43.64	50.785	8.473	36.36	6.445	-0.135	36.353	0.326	0	106	15.1	40.0	2.8	0.142	0.140	0.0035	3.50	3.0
114	5/24/1999	4:45:41 PM	0	25.95	23.853	25.544	26.321	23.327	32.128	43.961	51.181	8.761	36.293	6.445	-0.135	36.23	0.326	0	107	15.0	40.1	2.8	0.142	0.140	0.0035	3.49	3.0
115	5/24/1999	4:46:34 PM	0	25.95	23.853	25.544	26.241	23.327	32.048	44.074	51.364	8.633	36.326	6.414	-0.135	36.323	0.325	0	108	15.1	40.2	2.8	0.142	0.140	0.0035	3.48	3.0
116	5/24/1999	4:47:35 PM	0	26.03	23.853	25.624	26.321	23.407	31.89	43.795	51.059	8.481	36.529	6.445	-0.135	36.2	0.325	0	109	15.0	40.2	2.8	0.142	0.139	0.0035	3.47	3.0
117	5/24/1999	4:48:38 PM	0	26.03	23.853	25.624	26.321	23.407	31.89	44.477	51.608	8.593	36.394	6.445	-0.135	36.276	0.325	0	110	15.1	40.4	2.8	0.142	0.139	0.0034	3.45	2.9
118	5/24/1999	4:49:37 PM	0	26.03	23.772	25.544	26.401	23.407	31.81	43.96	51.12	8.609	36.225	6.383	-0.135	36.307	0.321	0	111	15.1	40.1	2.8	0.140	0.138	0.0034	3.44	2.9
119	5/24/1999	4:50:41 PM	0	25.95	23.853	25.544	26.401	23.407	31.969	44.322	51.608	8.808	35.955	6.414	-0.135	36.169	0.323	0	112	15.0	40.1	2.8	0.141	0.139	0.0035	3.46	2.9
120	5/24/1999	4:51:37 PM	0	26.075	23.898	25.589	26.526	23.453	32.093	44.384	51.578	8.721	36.157	6.445	-0.135	36.369	0.322	0	113	15.1	40.3	2.8	0.141	0.138	0.0034	3.43	2.9
121	5/24/1999	4:52:36 PM	0	25.995	23.818	25.589	26.526	23.774	32.014	43.981	51.242	8.529	36.022	6.445	-0.135	36.23	0.323	0	114	15.0	40.0	2.8	0.141	0.139	0.0035	3.47	3.0
122	5/24/1999	4:53:40 PM	0	25.995	23.818	25.589	26.526	23.453	31.935	43.857	50.998	8.521	35.955	6.414	-0.135	36.338	0.321	0	115	15.1	39.9	2.8	0.140	0.138	0.0035	3.45	2.9
123	5/24/1999	4:54:34 PM	0	25.995	23.818	25.589	26.526	23.533	31.935	44.198	51.303	8.713	36.124	6.414	-0.135	36.307	0.322	0	116	15.1	40.2	2.8	0.141	0.138	0.0034	3.44	2.9
124	5/24/1999	4:55:37 PM	0	25.995	23.898	25.589	26.606	23.533	31.855	44.415	51.7	8.808	36.157	6.476	-0.135	36.276	0.322	0	117	15.1	40.3	2.8	0.141	0.138	0.0034	3.43	2.9
125	5/24/1999	4:56:36 PM	0	26.041	23.944	25.555	26.732	23.579	32.059	44.043	51.303	8.689	36.056	6.445	-0.135	36.399	0.32	0.003	118	15.1	40.0	2.8	0.140	0.138	0.0034	3.43	2.9
126	5/24/1999	4:57:35 PM	0	26.041	23.863	25.555	26.732	23.498	31.9	43.95	51.242	8.641	35.955	6.445	-0.135	36.2	0.32	0	119	15.0	40.0	2.8	0.140	0.138	0.0034	3.44	2.9
127	5/24/1999	4:58:39 PM	0	26.041	23.863	25.555	26.732	23.579	32.059	44.012	51.242	8.808	35.921	6.414	-0.135	36.138	0.318	0	120	15.0	40.0	2.8	0.139	0.137	0.0034	3.42	2.9
128	5/24/1999	4:59:35 PM	0	26.041	23.863	25.555	26.732	23.418	31.98	44.539	51.608	8.561	36.529	6.383	-0.135	36.292	0.318	0	121	15.1	40.5	2.8	0.139	0.137	0.0034	3.37	2.9
129	5/24/1999	5:00:37 PM	0	26.041	23.944	25.555	26.652	23.257	32.534	43.95	51.212	8.473	35.718	6.445	-0.135	36.261	0.317	0	122	15.0	39.8	2.7	0.138	0.136	0.0034	3.42	2.9
130	5/24/1999	5:01:36 PM	0	26.041	23.863	25.555	26.572	23.097	32.614	44.322	51.517	8.665	36.293	6.445	-0.135	36.184	0.318	0	123	15.0	40.3	2.8	0.139	0.137	0.0034	3.39	2.9
131	5/24/1999	5:02:37 PM	0	26.041	23.944	25.635	26.652	23.097	33.089	44.26	51.303	8.561	36.597	6.476	-0.135	36.292	0.322	0	124	15.1	40.4	2.8	0.141	0.138	0.0034	3.42	2.9
132	5/24/1999	5:03:38 PM	0	26.041	23.863	25.555	26.492	22.856	33.01	44.074	-51.303	8.816	36.563	6.414	-0.135	36.276	0.319	0	125	15.1	40.3	2.8	0.139	0.137	0.0034	3.40	2.9
133	5/24/1999	5:04:39 PM	0	26.041	23.863	25.555	26.652	22.856	32.93	43.981	51.151	8.617	36.157	6.414	-0.135	36.276	0.318	0	126	15.1	40.1	2.8	0.139	0.137	0.0034	3.41	2.9
134	5/24/1999	5:05:40 PM	0	25.995	23.898	25.589	26.446	22.73	33.123	43.981	51.059	8.665	35.819	6.445	-0.135	36.338	0.319	0	127	15.1	39.9	2.8	0.139	0.137	0.0034	3.43	2.9
135	5/24/1999	5:06:41 PM	0	26.121	23.944	25.635	26.572	22.695	33.168	43.888	51.029	8.601	35.887	6.445	-0.135	36.261	0.316	0	128	15.0	39.9	2.8	0.138	0.136	0.0034	3.40	2.9
136	5/24/1999	5:07:40 PM	0	26.075	23.898	25.589	26.526	22.569	32.41	44.229	51.395	8.521	36.36	6.445	-0.135	36.154	0.318	0	129	15.0	40.3	2.8	0.139	0.137	0.0034	3.39	2.9
137	5/24/1999	5:08:35 PM	0	26.03	23.853	25.544	26.561	22.443	33.157	44.198	51.334	8.617	36.022	6.445	-0.135	36.384	0.317	0	130	15.1	40.1	2.8	0.138	0.136	0.0034	3.40	2.9
138	5/24/1999	5:09:38 PM	0	26.03	23.933	25.544	26.401	22.443	32.92	44.229	51.425	8.776	36.326	6.445	-0.135	36.23	0.318	0	131	15.0	40.3	2.8	0.139	0.137	0.0034	3.39	2.9
139	5/24/1999	5:10:37 PM	0	25.965	23.887	25.579	26.516	22.558	32.796	44.198	51.486	8.809	36.293	6.414	-0.135	36.184	0.315	0	132	15.0	40.2	2.8	0.138	0.135	0.0034	3.36	2.9
140	5/24/1999	5:11:38 PM	0	25.965	23.887	25.499	26.436	22.639	32.558	44.446	51.791	8.84	36.394	6.414	-0.135	36.415	0.315	0	133	15.1	40.4	2.8	0.138	0.136	0.0034	3.35	2.9
141	5/24/1999	5:12:39 PM	0	26.065	23.968	25.579	26.436	22.799	32.558	44.105	51.395	8.84	36.022	6.414	-0.135	36.384	0.316	0	134	15.1	40.1	2.8	0.138	0.136	0.0034	3.39	2.9
142	5/24/1999	5:13:38 PM	0	26.065	23.968	25.579	26.436	22.719	32.4	43.764	50.907	8.705	36.124	6.414	-0.135	36.43	0.312	0	135	15.1	39.9	2.8	0.136	0.134	0.0034	3.35	2.9
143	5/24/1999	5:14:37 PM	0	26.019	23.922	25.614	26.391	22.834	32.276	44.198	51.303	8.737	36.09	6.414	-0.089	36.522	0.313	0	136	15.2	40.1	2.8	0.137	0.134	0.0033	3.35	2.8
144	5/24/1999	5:15:36 PM	0	26.019	23.922	25.534	26.391	22.995	32.196	44.167	51.395	8.569	35.819	6.445	-0.135	36.491	0.313	0	137	15.1	40.0	2.8	0.137	0.135	0.0034	3.37	2.9
145	5/24/1999	5:16:35 PM	0	26.019	23.922	25.614	26.551	23.156	32.355	37.72	50.754	8.417	29.937	12.177	-0.135	37.213	1.218	0	138	15.4	33.8	2.3	0.532	0.523	0.0154	15.45	13.1
146	5/24/1999	5:17:38 PM	0	26.019	23.922	25.534	26.471	23.236	32.196	42.711	50.876	8.577	34.94	7.339	-0.135	36.706	0.694	0.003	139	15.2	38.8	2.7	0.303	0.298	0.0077	7.69	6.5
147	5/24/1999	5:18:37 PM	0	25.974	23.877	25.568	26.505	23.271	31.914	43.547	50.388	8.457	35.718	6.322	-0.135	36.676	0.595	0	140	15.2	39.6	2.7	0.260	0.256	0.0064	6.45	5.5
148	5/24/1999	5:19:40 PM	0	25.974	23.877	25.568	26.505	23.191	32.1[illegible]2	44.508	51.303	8.898	36.225	6.044	-0.135	36.63	0.542	0.003	141	15.2	40.4	2.8	0.237	0.233	0.0058	5.77	4.9
149	5/24/1999	5:20:39 PM	0	25.974	23.877	25.488	26.585	23.351	31.735	44.756	51.639	8.776	36.326	6.044	-0.135	36.584	0.509	0	142	15.2	40.5	2.8	0.222	0.219	0.0054	5.41	4.6
150	5/24/1999	5:21:38 PM	0	26.099	23.922	25.614	26.551	23.397	31.959	13.328	51.395	8.641	5.865	37.016	-0.089	36.276	0.011	0	143	15.1	9.6	0.7	0.005	0.005	0.0005	0.49	0.4
151	5/24/1999	5:22:35 PM	1	26.054	23.877	25.488	26.585	23.432	31.933	-0.713	-1.779	0.478	-0.727	-1.66	68.815	-0.08	0.011	0	144	0.0	-0.7	0.0	0.005	0.005	-0.0066	-6.58	-5.6
152	5/24/1999	5:23:38 PM	0	26.099	23.922	25.534	26.551	23.477	31.959	-0.031	-1.779	0.471	-0.017	-2.369	-0.135	-0.08	0.011	0	145	0.0	0.0	0.0	0.005	0.005	-0.1971	-197.10	-167.7
153																											
154		Averages		26.0	23.8	25.5	26.4	23.1	32.2	43.9	51.1	8.8	35.8	6.4	-0.1	36.6	0.354	0.0		15.2	39.9	2.7	0.155	0.152	0.004	3.8	3.3
155		Maximum		26.1	24.0	25.6	26.7	23.8	33.2	44.8	51.9	9.6	36.6	7.1	-0.1	38.2	0.762	0.0		15.8	40.5	2.8	0.333	0.329	0.008	8.5	7.2
156		Median		26.0	23.8	25.5	26.4	23.1	32.0	44.0	51.2	8.7	36.0	6.4	-0.1	36.4	0.338	0.0		15.1	40.0	2.8	0.148	0.146	0.004	3.6	3.1
157		Minimum		25.8	23.7	25.4	26.0	22.3	31.0	42.6	49.7	8.5	34.1	6.2	-0.2	36.1	0.312	0.0		15.0	38.3	2.6	0.136	0.134	0.003	3.3	2.8
158		Std Dev		0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.2	0.6	0.1	0.0	0.6	0.061	0.0		0.2	0.5	0.0	0.026	0.026	0.001	0.7	0.6
159		Number of Points Used		107	107	107	107	107	107	107	107	107	107	107	107	107	107	107		107	107	107	107	107	107	107	107



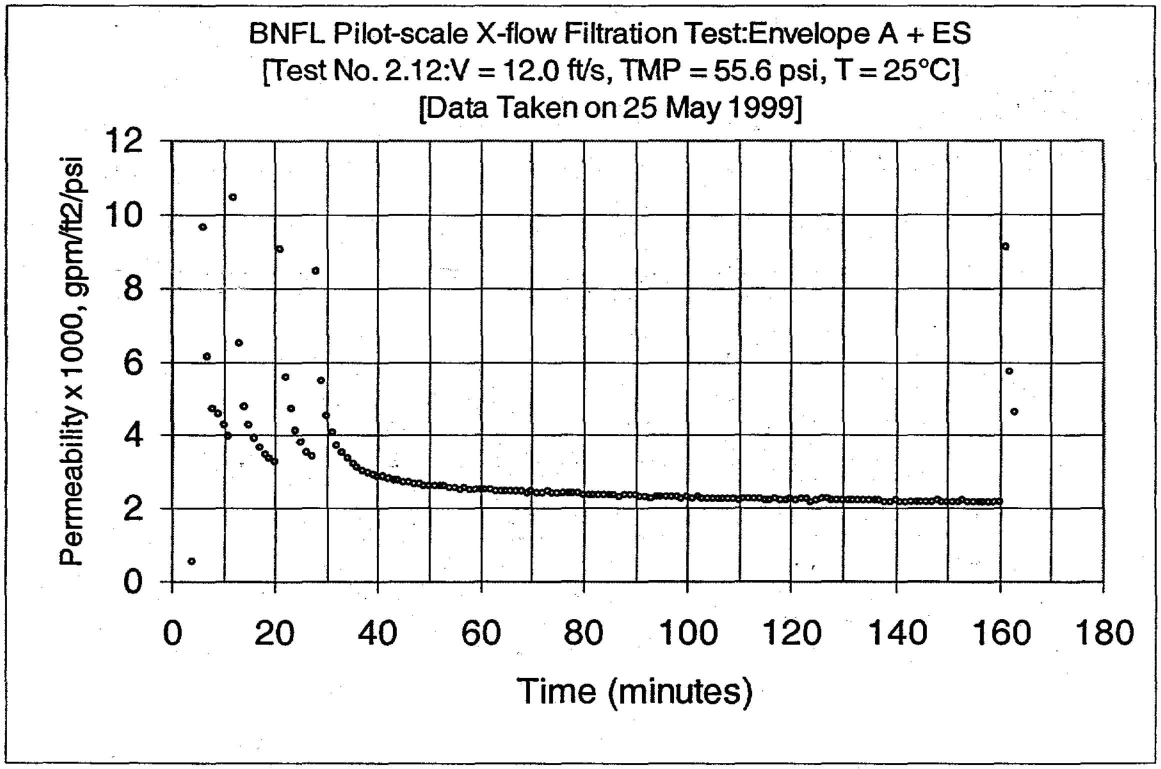


Figure B14: Test Run 2.12, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.12

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/25/1999	8:51:31 AM	0	21.498	20.92	20.527	22.184	22.005	29.79	-0.031	-0.011	-0.016	-0.051	-0.027	-0.228	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/25/1999	8:56:41 AM	0	21.553	20.975	20.582	22.409	22.14	29.923	-0.062	0.02	-0.016	0.016	-0.027	-0.228	-0.08	0.011	0									
5	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
6	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
7	5/25/1999	9:15:16 AM	0	21.718	21.059	20.827	22.896	22.546	30.563	0.124	-1.81	0.503	0.05	-2.43	-0.228	-0.08	0.012	0	1	0.0	0.1	0.0	0.005	0.006	0.0678	67.83	57.7
8	5/25/1999	9:16:36 AM	0	21.763	21.105	20.873	22.941	22.511	30.925	0.124	-1.81	0.503	0.05	-2.461	-0.228	-0.08	0.012	0	2	0.0	0.1	0.0	0.005	0.006	0.0677	67.74	57.6
9	5/25/1999	9:17:35 AM	0	21.763	21.105	20.873	22.941	22.189	31.322	0.093	-1.81	0.511	0.05	-2.43	-0.228	-0.08	0.011	0	3	0.0	0.1	0.0	0.005	0.005	0.0756	75.56	64.3
10	5/25/1999	9:18:36 AM	0	21.647	21.069	21.482	22.906	22.073	31.605	13.792	26.637	5.154	9.888	12.085	-0.228	26.139	0.013	0	4	10.8	11.8	0.8	0.006	0.006	0.0005	0.53	0.5
11	5/25/1999	9:19:35 AM	0	21.808	21.069	21.643	22.906	21.751	31.143	19.495	26.607	4.955	14.689	6.507	-0.228	26.246	0.653	0	5	10.9	17.1	1.2	0.285	0.314	0.0184	18.35	15.6
12	5/25/1999	9:20:36 AM	0	21.969	21.15	21.965	22.745	21.59	31.922	47.918	57.645	9.854	38.997	9.003	-0.228	39.364	0.882	0	6	16.3	43.5	3.0	0.385	0.420	0.0097	9.66	8.2
13	5/25/1999	9:21:35 AM	0	21.969	21.069	22.367	22.986	21.429	32.032	84.956	95.482	6.83	78.181	9.65	-0.228	31.684	1.063	0	7	13.1	81.6	5.6	0.464	0.500	0.0061	6.13	5.2
14	5/25/1999	9:22:38 AM	0	22.533	21.15	23.091	23.227	21.429	[illegible]	29.29	38.741	8.242	18.679	8.51	-0.228	35.324	0.245	0	8	14.7	24.0	1.7	0.107	0.113	0.0047	4.71	4.0
15	5/25/1999	9:23:35 AM	0	23.337	21.15	23.573	23.308	21.429	32.002	68.095	76.091	8.335	62.663	7.216	-0.228	29.411	0.659	0	9	12.2	65.4	4.5	0.288	0.300	0.0046	4.58	3.9
16	5/25/1999	9:24:36 AM	0	23.854	21.185	24.25	23.343	21.464	32.195	56.007	65.572	6.67	50.526	8.88	-0.228	29.825	0.507	0	10	12.4	53.3	3.7	0.221	0.226	0.0042	4.24	3.6
17	5/25/1999	9:25:35 AM	0	24.496	21.105	24.731	23.423	21.384	32.116	59.727	69.139	6.263	53.467	8.756	-0.228	29.487	0.51	0	11	12.2	56.6	3.9	0.223	0.224	0.0040	3.96	3.4
18	5/25/1999	9:26:38 AM	0	25.172	21.14	25.327	23.378	21.339	32.15	53.032	67.402	6.08	47.99	13.564	-0.228	30.056	1.218	0	12	12.5	50.5	3.5	0.532	0.527	0.0104	10.43	8.9
19	5/25/1999	9:27:35 AM	0	25.448	21.095	25.762	23.253	21.293	32.264	62.764	68.438	5.904	57.355	5.151	-0.181	29.487	0.911	0	13	12.2	60.1	4.1	0.398	0.389	0.0065	6.48	5.5
20	5/25/1999	9:28:36 AM	0	26.248	21.175	26.322	23.253	21.293	31.709	60.904	67.95	6.064	55.428	6.507	-0.228	29.702	0.662	0	14	12.3	58.2	4.0	0.289	0.278	0.0048	4.79	4.1
21	5/25/1999	9:29:35 AM	0	26.443	21.13	26.836	23.127	21.57	31.268	59.448	66.334	6.511	52.622	6.044	-0.181	30.747	0.575	0	15	12.8	56.0	3.9	0.251	0.238	0.0043	4.26	3.6
22	5/25/1999	9:30:36 AM	0	27.003	21.13	27.395	23.127	21.731	30.95	55.542	62.401	5.976	50.492	6.26	-0.181	29.088	0.506	0	16	12.1	53.0	3.7	0.221	0.207	0.0039	3.90	3.3
23	5/25/1999	9:31:41 AM	0	27.082	21.211	27.954	23.127	22.053	30.791	60.997	68.774	6.199	55.597	7	-0.181	29.656	0.533	0	17	12.3	58.3	4.0	0.233	0.214	0.0037	3.68	3.1
24	5/25/1999	9:32:38 AM	0	27.721	21.13	28.512	23.127	22.214	30.633	58.766	65.633	6.16	53.501	6.168	-0.181	29.457	0.492	0.003	18	12.2	56.1	3.9	0.215	0.195	0.0035	3.47	3.0
25	5/25/1999	9:33:39 AM	0	28.2	21.211	28.83	23.288	22.295	30.553	58.301	65.084	6.231	53.028	6.137	-0.181	29.733	0.48	0	19	12.3	55.7	3.8	0.210	0.188	0.0034	3.38	2.9
26	5/25/1999	9:34:38 AM	0	28.439	21.13	28.671	23.288	22.375	30.474	56.379	63.346	6.152	50.695	6.075	-0.181	29.165	0.442	0	20	12.1	53.5	3.7	0.193	0.174	0.0033	3.25	2.8
27	5/25/1999	9:35:35 AM	0	28.997	21.211	28.432	23.609	22.536	30.394	52.412	61.639	5.761	47.382	8.664	-0.228	29.718	1.138	0	21	12.3	49.9	3.4	0.497	0.452	0.0090	9.05	7.7
28	5/25/1999	9:36:38 AM	0	28.838	21.211	28.273	23.689	22.536	30.315	54.964	62.92	5.816	50.323	7.216	-0.181	29.119	0.738	0	22	12.1	52.7	3.6	0.322	0.294	0.0056	5.59	4.8
29	5/25/1999	9:37:35 AM	0	28.678	21.13	28.113	23.85	22.697	30.235	56.286	63.377	5.745	51.405	6.445	-0.181	29.134	0.636	0	23	12.1	53.8	3.7	0.278	0.255	0.0047	4.73	4.0
30	5/25/1999	9:38:38 AM	0	28.484	21.256	28.078	23.975	22.742	30.28	56.596	63.59	5.928	51.642	6.322	-0.181	28.965	0.554	0	24	12.0	54.1	3.7	0.242	0.222	0.0041	4.10	3.5
31	5/25/1999	9:39:37 AM	0	28.449	21.301	27.963	24.101	22.948	30.165	56.999	63.987	5.848	52.047	6.414	-0.228	28.904	0.517	0	25	12.0	54.5	3.8	0.226	0.208	0.0038	3.81	3.2
32	5/25/1999	9:40:36 AM	0	28.369	21.221	27.884	24.181	22.948	30.086	57.774	64.993	6.008	53.062	6.538	-0.228	28.781	0.483	0	26	11.9	55.4	3.8	0.211	0.195	0.0035	3.51	3.0
33	5/25/1999	9:41:39 AM	0	28.369	21.301	27.804	24.181	23.029	30.086	57.309	64.322	6.08	52.554	6.383	-0.181	29.226	0.464	0	27	12.1	54.9	3.8	0.203	0.187	0.0034	3.41	2.9
34	5/25/1999	9:42:34 AM	0	28.334	21.266	27.689	24.226	22.993	30.051	55.418	63.895	5.705	50.594	7.894	-0.181	29.395	1.103	0	28	12.2	53.0	3.7	0.482	0.447	0.0084	8.43	7.2
35	5/25/1999	9:43:35 AM	0	28.255	21.266	27.609	24.306	23.074	30.051	56.255	64.871	5.856	51.405	7.616	-0.181	29.149	0.723	0	29	12.1	53.8	3.7	0.316	0.293	0.0055	5.45	4.6
36	5/25/1999	9:44:36 AM	0	28.22	21.311	27.495	24.432	23.119	30.096	58.146	65.206	5.968	52.487	6.353	-0.181	29.134	0.617	0	30	12.1	55.3	3.8	0.269	0.251	0.0045	4.54	3.9
37	5/25/1999	9:45:35 AM	0	28.185	21.357	27.46	24.637	23.244	30.14	57.867	64.81	5.992	52.487	6.137	-0.228	29.057	0.55	0	31	12.1	55.2	3.8	0.240	0.224	0.0041	4.06	3.5
38	5/25/1999	9:46:34 AM	0	28.105	21.357	27.46	24.557	23.244	30.061	58.177	64.993	6.016	52.521	6.199	-0.181	29.165	0.505	0	32	12.1	55.3	3.8	0.220	0.206	0.0037	3.72	3.2
39	5/25/1999	9:47:35 AM	0	28.07	21.321	27.345	24.682	23.29	30.106	58.332	64.993	5.976	52.825	6.199	-0.181	29.027	0.475	0	33	12.0	55.6	3.8	0.207	0.194	0.0035	3.49	3.0
40	5/25/1999	9:48:36 AM	0	27.99	21.321	27.265	24.682	23.37	30.026	58.022	64.932	6.024	52.656	6.199	-0.181	28.95	0.454	0	34	12.0	55.3	3.8	0.198	0.186	0.0034	3.36	2.9
41	5/25/1999	9:49:37 AM	0	27.876	21.286	27.151	24.727	23.415	30.15	58.053	65.206	6.128	52.791	6.199	-0.181	28.996	0.435	0	35	12.0	55.4	3.8	0.190	0.179	0.0032	3.23	2.7
42	5/25/1999	9:50:38 AM	0	27.841	21.412	27.195	24.772	23.46	30.195	58.053	65.084	6.152	52.926	6.229	-0.181	29.011	0.424	0	36	12.0	55.5	3.8	0.185	0.174	0.0031	3.14	2.7
43	5/25/1999	9:51:35 AM	0	27.806	21.457	27.161	24.818	23.506	30.16	59.045	65.969	6.223	52.521	6.229	-0.181	28.95	0.411	0	37	12.0	55.8	3.8	0.179	0.169	0.0030	3.03	2.6
44	5/25/1999	9:52:38 AM	0	27.726	21.457	27.001	24.898	23.506	30.16	58.332	65.389	6.207	52.96	6.229	-0.181	29.011	0.402	0	38	12.0	55.6	3.8	0.175	0.166	0.0030	2.98	2.5
45	5/25/1999	9:53:39 AM	0	27.691	21.422	27.046	24.943	23.471	30.682	58.58	65.511	6.064	52.89	6.229	-0.181	28.981	0.392	0	39	12.0	55.6	3.8	0.171	0.162	0.0029	2.90	2.5
46	5/25/1999	9:54:34 AM	0	27.611	21.422	26.966	24.943	23.31	30.92	57.867	64.932	6.088	52.622	6.26	-0.181	28.873	0.386	0	40	12.0	55.2	3.8	0.169	0.159	0.0029	2.89	2.5
47	5/25/1999	9:55:35 AM	0	27.622	21.433	26.976	24.873	23.159	31.486	58.177	64.932	5.976	52.622	6.229	-0.181	28.873	0.381	0	41	12.0	55.4	3.8	0.166	0.157	0.0028	2.84	2.4
48	5/25/1999	9:56:38 AM	0	27.542	21.513	26.896	24.793	22.836	31.645	58.208	65.054	6.144	52.69	6.229	-0.181	28.95	0.374	0	42	12.0	55.4	3.8	0.163	0.155	0.0028	2.79	2.4
49	5/25/1999	9:57:37 AM	0	27.542	21.513	26.817	24.713	22.677	31.962	57.402	64.261	6.168	52.588	6.199	-0.181	29.057	0.368	0.003	43	12.1	55.0	3.8	0.161	0.153	0.0028	2.78	2.4
50	5/25/1999	9:58:34 AM	0	27.542	21.513	26.817	24.832	22.355	32.121	57.743	64.658	6.231	52.69	6.26	-0.181	29.103	0.366	0	44	12.1	55.2	3.8	0.160	0.152	0.0028	2.75	2.3
51	5/25/1999	9:59:39 AM	0	27.462	21.513	26.737	24.472	22.355	32.2	57.433	64.2	6.215	52.622	6.26	-0.181	29.088	0.361	0	45	12.1	55.0	3.8	0.158	0.150	0.0027	2.73	2.3
52	5/25/1999	10:00:36 AM	0	27.462	21.513	26.737	24.392	22.196	32.517	57.495	64.322	6.247	51.98	6.199	-0.135	29.211	0.356	0	46	12.1	54.7	3.8	0.155	0.148	0.0027	2.70	2.3
53	5/25/1999	10:01:40 AM	0	27.382	21.513	26.737	24.312	22.114	32.279	57.712	64.597	6.263	51.844	6.229	-0.181	29.272	0.351	0	47	12.1	54.8	3.8	0.153	0.146	0.0027	2.66	2.3
54	5/25/1999	10:02:34 AM	0	27.302	21.513	26.657	24.231	22.034	32.279	57.991	65.237	6.343	52.149	6.291	-0.181	29.149	0.351	0	48	12.1	55.1	3.8	0.153	0.146	0.0027	2.66	2.3
55	5/25/1999	10:03:35 AM	0	27.302	21.594	26.657	24.071	22.114	32.279	58.146	65.267	6.239	51.98	6.291	-0.181	29.134	0.348	0	49	12.1	55.1	3.8	0.152	0.145	0.0026	2.63	2.2
56	5/25/1999	10:04:34 AM	0	27.257	21.548	26.532	24.106	21.988	32.393	58.116	64.962	6.215	52.318	6.322	-0.181	28.996	0.348	0	50	12.0	55.2	3.8	0.152	0.146	0.0026	2.64	2.2
57	5/25/1999	10:05:35 AM	0	27.302	21.674	26.577	24.071	21.953	32.676	56.813	63.59	6.12	52.25	6.26	-0.181	29.226	0.343	0	51	12.1	54.5	3.8	0.150	0.143	0.0026	2.63	2.2
58	5/25/1999	10:06:34 AM	0	27.177	21.629	26.532	24.106	21.668	32.631	57.309	64.261	6.199	51.676	6.229	-0.181	29.226	0.341	0	52	12.1	54.5	3.8	0.149	0.143	0.0026	2.62	2.2
59	5/25/1999	10:07:42 AM	0	27.132	21.583	26.487	23.96	21.621	32.349	58.363	65.481	6.024	53.433	6.445	-0.181	28.658	0.347	0	53	11.9	55.9	3.9	0.151	0.145	0.0026	2.60	2.2
60	5/25/1999	10:08:34 AM	0	27.132	21.664	26.487	23.96	21.701	32.586	58.921	65.938	6.12	53.535	6.383	-0.181	28.673	0.343	0	54	11.9	56.2	3.9	0.150	0.144	0.0026	2.55	2.2
61	5/25/1999	10:09:40 AM	0	27.167	21.619	26.442	24.015	21.736	32.542	57.588	64.444	6.207	51.946	6.168	-0.181	29.257	0.334	0	55	12.1	54.8	3.8	0.146	0.140	0.0026	2.56	2.2
62	5/25/1999	10:10:39 AM	0	27.087	21.699	26.522	24.015	21.897	32.304	57.96	64.932	6.359	52.352	6.229	-0.135	29.242	0.333	0	56	12.1	55.2	3.8	0.145	0.139	0.0025	2.53	2.1
63	5/25/1999	10:11:36 AM	0	27.122	21.654	26.397	23.89	21.933	31.625	57.464	64.292	6.199	52.081	6.229	-0.135	29.272	0.331	0	57	12.1	54.8	3.8	0.144	0.139	0.0025	2.54	2.2
64	5/25/1999	10:12:35 AM	0	27.122	21.654	26.477	24.051	22.174	31.307	57.402	64.139	6.279	51.98	6.26	-0.135	29.288	0.329	0	58	12.2	54.7	3.8	0.144	0.138	0.0025	2.52	2.1
65	5/25/1999	10:13:36 AM	0	26.997	21.608	26.352	24.086	22.451	31.025	57.929	64.871	6.295	51.946	6.26	-0.135	29.18	0.328	0	59	12.1	54.9	3.8	0.143	0.138	0.0025	2.51	2.1
66	5/25/1999	10:14:37 AM	0	27.042	21.734	26.397	24.211	22.737	30.831	57.526	64.353	6.191	52.216	6.291	-0.135	29.198	0.327	0	60	12.1	54.9	3.8	0.143	0.137	0.0025	2.50	2.1
67	5/25/1999	10:15:36 AM	0	26.997	21.608	26.272	24.326	22.853	30.707	57.495	64.475	6.263	51.642	6.291	-0.135	29.134	0.326	0	61	12.1	54.6	3.8	0.142	0.137	0.0025	2.52	2.1
68	5/25/1999	10:16:35 AM	0	26.917	21.689	26.272	24.487	23.013	30.548	58.208	65.267	6.327	51.811	6.291	-0.135	29.149	0.326	0	62	12.1	55.0	3.8	0.142	0.137	0.0025	2.50	2.1
69	5/25/1999	10:17:38 AM	0	26.962	21.734	26.397	24.612	23.219	30.513	57.774	64.688	6.239	52.115	6.322	-0.135	29.103	0.324	0	63	12.1	54.9	3.8	0.141	0.136	0.0025	2.48	2.1
70	5/25/1999	10:18:35 AM	0	26.882	21.734	26.317	24.692	23.219	30.434	57.774	64.749	6.247	52.656	6.353	-0.135	29.073	0.324	0	64	12.1	55.2	3.8	0.141	0.136	0.0025	2.47	2.1
71	5/25/1999	10:19:36 AM	0	26.882	21.734	26.237	24.692	23.38	30.434	58.363	65.694	6.407	51.777	6.322	-0.181	29.057	0.322	0	65	12.1	55.1	3.8	0.141	0.136	0.0025	2.47	2.1
72	5/25/1999	10:20:35 AM	0	26.848	21.699	26.282	24.898	23.425	30.319	58.053	65.267	6.327	52.284	6.322	-0.135	29.103	0.321	0	66	12.1	55.2	3.8	0.140	0.135	0.0025	2.45	2.1
73	5/25/1999	10:21:38 AM	0	26.927	21.78	26.282	24.898	23.506	30.24	58.053	65.176	6.215	52.115	6.322	-0.135	29.119	0.323	0	67	12.1	55.1	3.8	0.141	0.136	0.0025	2.47	2.1
74	5/25/1999	10:22:35 AM	0	26.893	21.745	26.327	25.103	23.631	30.285	57.929	64.993	6.191	51.878	6.291	-0.181	29.027	0.32	0	68	12.0	54.9	3.8	0.140	0.135	0.0025	2.45	2.1
75	5/25/1999	10:23:40 AM	0	26.893	21.745	26.247	25.023	23.711	30.265	58.363	65.42	6.144	52.723	6.353	-0.135	28.996	0.317	0	69	12.0	55.5	3.8	0.138	0.134	0.0024	2.41	2.0
76	5/25/1999	10:24:35 AM	0	26.858	21.79	26.292	25.229	23.757	30.33	58.363	65.481	6.255	52.757	6.414	-0.135	28.796	0.324	0	70	12.0	55.6	3.8	0.141	0.136	0.0025	2.46	2.1
77	5/25/1999	10:25:40 AM	0	26.858	21.79	26.212	25.148	23.757	30.25	59.138	66.273	6.096	52.994	6.414	-0.135	28.796	0.319	0	71	12.0	56.1	3.9	0.139	0.135	0.0024	2.40	2.0
78	5/25/1999	10:26:37 AM	0	26.823	21.835	26.257	25.354	23.802	30.295	58.642	65.694	6.056	53.197	6.383	-0.135	28.796	0.319	0	72	12.0	55.9	3.9	0.139	0.134	0.0024	2.40	2.0
79	5/25/1999	10:27:36 AM	0	26.788	21.881	26.302	25.319	23.847	30.34	57.495	64.505	6.152	52.757	6.353	-0.181	28.796	0.32	0	73	12.0	55.1	3.8	0.140	0.135	0.0024	2.44	2.1
80	5/25/1999	10:28:35 AM	0	26.788	21.8	26.222	25.399	23.847	30.34	58.022	65.206	6.104	53.028	6.383	-0.135	28.812	0.319	0	74	12.0	55.5	3.8	0.139	0.135	0.0024	2.42	2.1
81	5/25/1999	10:29:38 AM	0	26.833	21.846	26.267	25.364	23.973	30.385	58.487	65.572	6.136	53.535	6.353	-0.135	28.827	0.319	0	75	12.0	56.0	3.9	0.139	0.134	0.0024	2.40	2.0

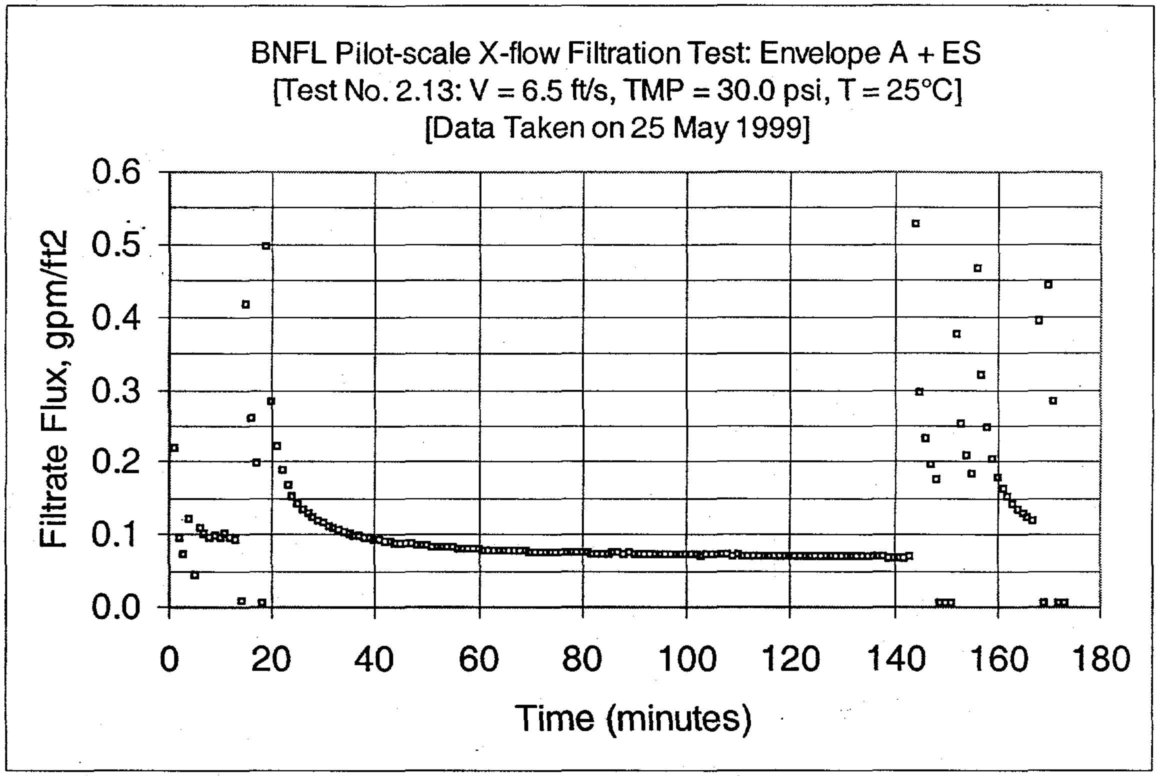
Pilot Scale X-Flow Filtration Test: Env. A, Run 2.12

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/25/1999	10:30:37 AM	0	26.833	21.846	26.187	25.444	23.812	30.782	58.301	65.359	6.183	53.028	6.353	-0.135	28.827	0.315	0	76	12.0	55.7	3.8	0.138	0.133	0.0024	2.39	2.0
83	5/25/1999	10:31:36 AM	0	26.798	21.811	26.233	25.489	23.617	31.144	58.425	65.42	6.08	52.791	6.353	-0.135	28.75	0.316	0	77	11.9	55.6	3.8	0.138	0.133	0.0024	2.40	2.0
84	5/25/1999	10:32:35 AM	0	26.763	21.856	26.278	25.374	23.341	31.665	58.383	65.42	6.128	52.791	6.353	-0.135	28.75	0.317	0	78	11.9	55.6	3.8	0.138	0.134	0.0024	2.40	2.0
85	5/25/1999	10:33:36 AM	0	26.809	21.982	26.323	25.34	23.226	31.869	58.549	65.542	6.136	53.264	6.353	-0.135	28.719	0.317	0	79	11.9	55.9	3.9	0.138	0.133	0.0024	2.39	2.0
86	5/25/1999	10:34:35 AM	0	26.729	21.982	26.243	25.259	22.985	32.424	58.611	65.847	6.199	53.095	6.353	-0.135	28.658	0.314	0	80	11.9	55.9	3.9	0.137	0.132	0.0024	2.37	2.0
87	5/25/1999	10:35:36 AM	0	26.729	21.982	26.243	25.099	22.824	32.265	57.743	64.566	5.952	53.67	6.353	-0.135	28.673	0.314	0	81	11.9	55.7	3.8	0.137	0.132	0.0024	2.38	2.0
88	5/25/1999	10:36:35 AM	0	26.774	22.028	26.208	25.064	22.869	32.389	58.642	65.786	6.183	53.366	6.353	-0.135	28.673	0.313	0	82	11.9	56.0	3.9	0.137	0.132	0.0024	2.36	2.0
89	5/25/1999	10:37:36 AM	0	26.729	21.982	26.163	24.859	22.663	32.503	59.417	66.487	6.112	53.366	6.353	-0.135	28.673	0.314	0	83	11.9	56.4	3.9	0.137	0.133	0.0024	2.35	2.0
90	5/25/1999	10:38:37 AM	0	26.729	21.982	26.163	24.779	22.583	32.503	59.107	66.213	6.144	52.926	6.353	-0.135	28.566	0.311	0	84	11.9	56.0	3.9	0.136	0.131	0.0023	2.35	2.0
91	5/25/1999	10:39:36 AM	0	26.729	21.982	26.163	24.779	22.341	32.82	58.983	65.969	5.96	53.535	6.353	-0.135	28.443	0.312	0	85	11.8	56.3	3.9	0.136	0.132	0.0023	2.34	2.0
92	5/25/1999	10:40:37 AM	0	26.729	21.982	26.163	24.618	22.422	32.82	58.983	65.999	6.16	53.805	6.353	-0.135	28.566	0.312	0	86	11.9	56.4	3.9	0.136	0.132	0.0023	2.34	2.0
93	5/25/1999	10:41:34 AM	0	26.729	22.063	26.163	24.698	22.261	32.503	59.045	66.243	6.136	54.076	6.322	-0.135	28.627	0.312	0	87	11.9	56.6	3.9	0.136	0.132	0.0023	2.33	2.0
94	5/25/1999	10:42:37 AM	0	26.729	22.063	26.083	24.618	22.341	32.582	58.642	65.755	6.088	53.332	6.322	-0.135	28.597	0.31	0	88	11.9	56.0	3.9	0.135	0.131	0.0023	2.34	2.0
95	5/25/1999	10:43:36 AM	0	26.684	22.017	26.118	24.653	22.215	32.775	58.549	65.542	6.136	53.67	6.322	-0.135	28.627	0.31	0	89	11.9	56.1	3.9	0.135	0.131	0.0023	2.34	2.0
96	5/25/1999	10:44:37 AM	0	26.684	22.098	26.118	24.573	22.296	32.854	58.797	65.999	6.104	53.602	6.322	-0.135	28.581	0.312	0	90	11.9	56.2	3.9	0.136	0.132	0.0023	2.35	2.0
97	5/25/1999	10:45:40 AM	0	26.684	22.098	26.118	24.573	22.135	32.775	59.045	66.121	6.12	53.772	6.291	-0.135	28.704	0.305	0	91	11.9	56.4	3.9	0.133	0.129	0.0023	2.29	1.9
98	5/25/1999	10:46:37 AM	0	26.638	22.052	26.073	24.528	22.089	32.651	58.983	66.06	6.223	53.433	6.291	-0.135	28.673	0.304	0	92	11.9	56.2	3.9	0.133	0.129	0.0023	2.29	1.9
99	5/25/1999	10:47:34 AM	0	26.763	22.178	26.118	24.573	22.215	33.013	59.2	66.365	6.223	53.738	6.26	-0.135	28.643	0.304	0	93	11.9	56.5	3.9	0.133	0.129	0.0023	2.28	1.9
100	5/25/1999	10:48:35 AM	0	26.673	22.007	26.027	24.482	22.205	32.607	58.487	65.45	6	53.4	6.291	-0.135	28.597	0.305	0	94	11.9	55.9	3.9	0.133	0.129	0.0023	2.31	2.0
101	5/25/1999	10:49:36 AM	0	26.673	22.087	26.027	24.482	22.124	32.886	58.797	65.694	6.048	53.636	6.291	-0.135	28.658	0.305	0	95	11.9	56.2	3.9	0.133	0.129	0.0023	2.30	2.0
102	5/25/1999	10:50:35 AM	0	26.628	22.122	26.062	24.357	21.998	32.879	58.642	65.481	6.058	52.825	6.291	-0.135	28.658	0.304	0	96	11.9	55.7	3.8	0.133	0.129	0.0023	2.31	2.0
103	5/25/1999	10:51:41 AM	0	26.628	22.122	26.062	24.357	22.079	32.562	59.045	66.304	6.072	53.129	6.291	-0.135	28.612	0.304	0	97	11.9	56.1	3.9	0.133	0.129	0.0023	2.30	2.0
104	5/25/1999	10:52:35 AM	0	26.663	22.157	26.017	24.392	22.114	31.883	59.014	66.06	6.215	52.926	6.291	-0.135	28.658	0.306	0	98	11.9	56.0	3.9	0.134	0.130	0.0023	2.32	2.0
105	5/25/1999	10:53:39 AM	0	26.663	22.157	26.017	24.472	22.436	31.566	58.611	65.572	6.12	53.535	6.291	-0.135	28.627	0.301	0	99	11.9	56.1	3.9	0.131	0.128	0.0023	2.28	1.9
106	5/25/1999	10:54:35 AM	0	26.663	22.157	26.017	24.472	22.597	31.169	58.58	65.603	6.104	53.569	6.291	-0.089	28.627	0.303	0	100	11.9	56.1	3.9	0.132	0.129	0.0023	2.29	2.0
107	5/25/1999	10:55:37 AM	0	26.663	22.157	26.097	24.632	22.838	31.01	58.921	66.182	6.247	53.298	6.291	-0.135	28.581	0.3	0	101	11.9	56.1	3.9	0.131	0.127	0.0023	2.26	1.9
108	5/25/1999	10:56:38 AM	0	26.663	22.157	26.017	24.793	23.079	30.851	59.262	66.365	6.128	52.622	6.291	-0.135	28.627	0.302	0	102	11.9	55.9	3.9	0.132	0.128	0.0023	2.29	1.9
109	5/25/1999	10:57:35 AM	0	26.663	22.157	26.097	24.873	23.24	30.772	58.363	65.42	6.191	54.143	6.291	-0.135	28.658	0.301	0	103	11.9	56.3	3.9	0.131	0.127	0.0023	2.27	1.9
110	5/25/1999	10:58:36 AM	0	26.583	22.157	26.097	25.033	23.32	30.692	59.107	66.243	6.152	53.569	6.322	-0.135	28.612	0.3	0	104	11.9	56.3	3.9	0.131	0.127	0.0023	2.25	1.9
111	5/25/1999	10:59:35 AM	0	26.663	22.157	26.097	25.113	23.561	30.454	58.828	65.847	6.12	53.602	6.291	-0.135	28.689	0.3	0	105	11.9	56.2	3.9	0.131	0.127	0.0023	2.26	1.9
112	5/25/1999	11:00:36 AM	0	26.583	22.157	26.017	25.194	23.561	30.533	58.983	66.06	6.08	53.264	6.322	-0.089	28.627	0.3	0	106	11.9	56.1	3.9	0.131	0.127	0.0023	2.27	1.9
113	5/25/1999	11:01:41 AM	0	26.628	22.203	26.062	25.319	23.767	30.419	58.642	65.603	6.048	53.197	6.322	-0.135	28.627	0.3	0	107	11.9	55.9	3.9	0.131	0.127	0.0023	2.27	1.9
114	5/25/1999	11:02:40 AM	0	26.673	22.248	26.107	25.444	23.812	30.385	58.332	65.389	6.12	53.163	6.353	-0.135	28.612	0.298	0	108	11.9	55.7	3.8	0.130	0.126	0.0023	2.26	1.9
115	5/25/1999	11:03:35 AM	0	26.593	22.248	26.107	25.604	23.893	30.305	58.983	65.908	6.104	53.602	6.353	-0.089	28.612	0.298	0	109	11.9	56.3	3.9	0.130	0.126	0.0022	2.24	1.9
116	5/25/1999	11:04:38 AM	0	26.638	22.294	26.153	25.569	24.018	30.35	58.766	65.938	6.168	53.062	6.322	-0.135	28.566	0.295	0	110	11.9	55.9	3.9	0.129	0.125	0.0022	2.23	1.9
117	5/25/1999	11:05:37 AM	0	26.638	22.294	26.073	25.65	24.018	30.35	58.456	65.603	6.152	52.859	6.291	-0.089	28.689	0.298	0	111	11.9	55.7	3.8	0.130	0.126	0.0023	2.27	1.9
118	5/25/1999	11:06:36 AM	0	26.684	22.259	26.118	25.695	24.144	30.295	57.836	64.84	6.128	52.859	6.291	-0.135	28.781	0.298	0	112	11.9	55.3	3.8	0.130	0.126	0.0023	2.28	1.9
119	5/25/1999	11:07:37 AM	0	26.649	22.304	26.083	25.74	24.109	30.678	58.208	65.328	6.152	52.791	6.291	-0.089	28.75	0.294	0	113	11.9	55.5	3.8	0.128	0.125	0.0022	2.24	1.9
120	5/25/1999	11:08:36 AM	0	26.649	22.304	26.163	25.74	24.029	31.155	59.045	66.182	6.255	52.453	6.291	-0.135	28.796	0.295	0	114	12.0	55.7	3.8	0.129	0.125	0.0022	2.24	1.9
121	5/25/1999	11:09:35 AM	0	26.694	22.35	26.128	25.865	23.753	[illegible]	58.208	65.389	6.136	52.96	6.322	-0.089	28.766	0.293	0	115	11.9	55.6	3.8	0.128	0.124	0.0022	2.23	1.9
122	5/25/1999	11:10:36 AM	0	26.659	22.315	26.094	25.75	23.636	31.721	58.704	65.999	6.263	52.757	6.322	-0.089	28.75	0.29	0	116	11.9	55.7	3.8	0.127	0.123	0.0022	2.20	1.9
123	5/25/1999	11:11:35 AM	0	26.659	22.315	26.094	25.67	23.397	31.721	58.797	65.969	6.144	52.352	6.322	-0.135	28.735	0.296	0	117	11.9	55.6	3.8	0.129	0.125	0.0023	2.25	1.9
124	5/25/1999	11:12:36 AM	0	26.624	22.36	26.139	25.556	23.362	32.003	58.27	65.176	6.008	52.723	6.322	-0.089	28.704	0.293	0	118	11.9	55.5	3.8	0.128	0.124	0.0022	2.23	1.9
125	5/25/1999	11:13:41 AM	0	26.624	22.36	26.059	25.475	23.041	32.4	58.239	65.328	6.16	53.467	6.353	-0.089	28.827	0.294	0	119	12.0	55.9	3.9	0.128	0.125	0.0022	2.23	1.9
126	5/25/1999	11:14:36 AM	0	26.704	22.36	26.059	25.315	22.799	32.717	58.084	65.145	6.144	52.825	6.322	-0.135	28.75	0.294	0	120	11.9	55.5	3.8	0.128	0.125	0.0022	2.25	1.9
127	5/25/1999	11:15:37 AM	0	26.704	22.441	26.059	25.235	22.558	33.508	57.929	64.871	6.096	52.859	6.322	-0.135	28.781	0.292	0	121	11.9	55.4	3.8	0.127	0.124	0.0022	2.23	1.9
128	5/25/1999	11:16:36 AM	0	26.624	22.36	26.059	25.155	22.478	33.429	58.239	65.237	6.144	52.859	6.322	-0.135	28.781	0.297	0	122	11.9	55.5	3.8	0.130	0.126	0.0023	2.27	1.9
129	5/25/1999	11:17:35 AM	0	26.624	22.36	26.059	24.995	22.156	33.667	58.239	65.237	6.215	52.622	6.322	-0.089	28.766	0.293	0	123	11.9	55.4	3.8	0.128	0.124	0.0022	2.24	1.9
130	5/25/1999	11:18:36 AM	0	26.659	22.395	26.094	24.949	22.11	33.78	58.797	65.877	6.239	53.467	6.322	-0.135	28.796	0.289	0	124	12.0	56.1	3.9	0.126	0.122	0.0022	2.18	1.9
131	5/25/1999	11:19:35 AM	0	26.659	22.395	26.094	24.789	22.11	33.938	58.084	64.993	6.088	52.791	6.322	-0.135	28.766	0.291	0	125	11.9	55.4	3.8	0.127	0.123	0.0022	2.22	1.9
132	5/25/1999	11:20:34 AM	0	26.614	22.43	26.048	24.744	21.904	33.735	58.487	65.816	6.271	52.825	6.353	-0.089	28.781	0.294	0	126	11.9	55.7	3.8	0.128	0.125	0.0022	2.24	1.9
133	5/25/1999	11:21:35 AM	0	26.694	22.43	26.048	24.664	21.904	33.656	57.991	64.962	6.168	52.757	6.322	-0.135	28.812	0.293	0	127	12.0	55.4	3.8	0.128	0.124	0.0022	2.24	1.9
134	5/25/1999	11:22:34 AM	0	26.649	22.385	26.083	24.698	21.697	32.978	58.177	65.237	6.08	52.994	6.353	-0.089	28.812	0.287	0	128	12.0	55.6	3.8	0.125	0.122	0.0022	2.19	1.9
135	5/25/1999	11:23:35 AM	0	26.604	22.42	26.038	24.573	21.893	33.329	57.991	65.054	6.112	53.028	6.322	-0.089	28.689	0.29	0	129	11.9	55.5	3.8	0.127	0.123	0.0022	2.22	1.9
136	5/25/1999	11:24:36 AM	0	26.638	22.374	25.993	24.608	21.687	33.126	58.549	65.694	6.168	52.723	6.353	-0.135	28.689	0.289	0	130	11.9	55.6	3.8	0.126	0.123	0.0022	2.21	1.9
137	5/25/1999	11:25:35 AM	0	26.638	22.455	25.993	24.528	21.928	32.968	58.704	65.847	6.287	52.183	6.322	-0.089	28.781	0.291	0	131	11.9	55.4	3.8	0.127	0.124	0.0022	2.23	1.9
138	5/25/1999	11:26:38 AM	0	26.593	22.409	26.027	24.482	21.883	32.29	58.332	65.542	6.144	52.453	6.353	-0.089	28.75	0.291	0	132	11.9	55.4	3.8	0.127	0.123	0.0022	2.23	1.9
139	5/25/1999	11:27:35 AM	0	26.628	22.364	26.062	24.517	22.159	32.086	58.456	65.511	6.183	52.96	6.353	-0.135	28.75	0.29	0	133	11.9	55.7	3.8	0.127	0.123	0.0022	2.21	1.9
140	5/25/1999	11:28:34 AM	0	26.628	22.444	25.982	24.598	22.32	31.69	58.27	65.298	6.104	52.656	6.353	-0.089	28.781	0.289	0	134	11.9	55.5	3.8	0.126	0.123	0.0022	2.21	1.9
141	5/25/1999	11:29:35 AM	0	26.628	22.444	26.062	24.598	22.642	31.452	57.887	64.993	6.168	52.723	6.353	-0.089	28.704	0.287	0	135	11.9	55.3	3.8	0.125	0.123	0.0022	2.20	1.9
142	5/25/1999	11:30:34 AM	0	26.583	22.399	26.017	24.713	22.758	31.089	58.628	65.999	6.144	52.622	6.322	-0.089	28.735	0.288	0	136	11.9	55.7	3.8	0.126	0.122	0.0022	2.19	1.9
143	5/25/1999	11:31:35 AM	0	26.628	22.444	26.062	24.618	23.044	30.975	57.605	64.81	6.008	52.96	6.353	-0.089	28.75	0.286	0	137	11.9	55.4	3.8	0.125	0.121	0.0022	2.19	1.9
144	5/25/1999	11:32:34 AM	0	26.628	22.525	26.062	24.998	23.285	30.817	58.363	65.542	6.247	52.554	6.353	-0.089	28.781	0.284	0	138	11.9	55.5	3.8	0.124	0.120	0.0022	2.17	1.8
145	5/25/1999	11:33:35 AM	0	26.583	22.479	26.017	25.113	23.4	30.692	59.324	66.456	6.12	53.467	6.383	-0.089	28.689	0.285	0	139	11.9	56.4	3.9	0.124	0.121	0.0021	2.14	1.8
146	5/25/1999	11:34:34 AM	0	26.628	22.525	26.062	25.239	23.626	30.578	58.659	66.091	6.199	52.926	6.414	-0.089	28.75	0.29	0	140	11.9	55.9	3.9	0.127	0.123	0.0022	2.20	1.9
147	5/25/1999	11:35:35 AM	0	26.628	22.525	26.062	25.399	23.687	30.419	58.58	65.786	6.08	53.636	6.414	-0.089	28.566	0.289	0	141	11.9	56.1	3.9	0.126	0.122	0.0022	2.18	1.9
148	5/25/1999	11:36:34 AM	0	26.593	22.49	26.107	25.524	23.893	30.464	58.518	65.633	6.032	53.636	6.414	-0.089	28.597	0.285	0	142	11.9	56.1	3.9	0.124	0.121	0.0022	2.15	1.8
149	5/25/1999	11:37:38 AM	0	26.593	22.57	26.107	25.604	23.893	30.544	58.426	65.42	6.064	53.4	6.414	-0.089	28.612	0.288	0	143	11.9	55.9	3.9	0.126	0.122	0.0022	2.18	1.9
150	5/25/1999	11:38:34 AM	0	26.593	22.49	26.027	25.604	23.973	30.385	59.541	66.639	6.199	54.143	6.383	-0.135	28.658	0.289	0	144	11.9	56.8	3.9	0.126	0.123	0.0022	2.16	1.8
151	5/25/1999	11:39:36 AM	0	26.558	22.535	26.073	25.81	24.098	30.27	58.649	65.664	6.072	53.197	6.383	-0.089	28.535	0.288	0	145	11.8	55.9	3.9	0.126	0.122	0.0022	2.18	1.8
152	5/25/1999	11:40:34 AM	0	26.604	22.581	26.118	25.775	24.144	30.315	58.146	65.42	6.112	53.4	6.383	-0.089	28.612	0.283	0	146	11.9	55.8	3.8	0.124	0.120	0.0021	2.15	1.8
153	5/25/1999	11:41:36 AM	0	26.649	22.546	26.083	25.9	24.269	30.281	58.952	66.091	6.183	53.298	6.383	-0.089	28.658	0.286	0	147	11.9	56.1	3.9	0.125	0.121	0.0022	2.16	1.8
154	5/25/1999	11:42:37 AM	0	26.569	22.546	26.083	25.9	24.269	30.281	58.425	65.481	6.096	52.825	6.383	-0.089	28.597	0.288	0	148	11.9	55.6	3.8	0.126	0.122	0.0022	2.19	1.8
155	5/25/1999	11:43:36 AM	0	26.614	22.591	26.048	26.025	24.395	30.564	59.2	66.365	6.16	53.467	6.414	-0.089	28.55	0.287	0	149	11.8	56.3	3.9	0.125	0.122	0.0022	2.16	1.8
156	5/25/1999	11:44:35 AM	0	26.659	22.556	26.094	25.991	24.28	30.768	58.69	66.182	6.223	53.67	6.414	-0.089	28.581	0.29	0	150	11.9	56.3	3.9	0.127	0.123	0.0022	2.18	1.8
157	5/25/1999	11:45:42 AM	0	26.624	22.602	26.059	26.036	24.165	31.21	59.324	66.548	6.215	53.366	6.383	-0.089	28.612	0.289	0	151	11.9	56.3	3.9	0.126	0.122	0.0022	2.17	1.8
158	5/25/1999	11:46:35 AM	0	26.624	22.602	26.059	25.956	24.004	31.527	59.014	66.091	6.016	53.298	6.414	-0.089	28.458	0.286	0	152	11.8	56.2	3.9	0.125	0.121	0.0022	2.16	1.8
159	5/25/1999	11:47:36 AM	0	26.67	22.647	26.024	26.001	23.729	31.81	58.642	65.633	6.064	53.841	6.414	-0.089	28.535	0.291	0	153	11.8	56.3	3.9	0.127	0.123	0.0022	2.19	1.8
160	5/25/1999	11:48:39 AM	0	26.59	22.567	26.024	25.841	23.568	31.731	58.797	65.725	6	53.974	6.383	-0.089	28.443	0.288	0	154	11.8	56.4	3.9	0.126	0.122	0.0022	2.17	1.8
161	5/25/1999	11:49:40 AM	0	26.635	22.693	26.069	25.726	23.373	32.569	58.952	66.243	6.032	53.4	6.383	-0.089	28.504	0.285	0	155	11.8	56.2	3.9	0.124	0.121	0.0021	2.15	1.8
162	5/25/1999	11:50:37 AM	0	26.635	22.693	26.069	25.726	23.051	33.044	58.673	65.786	6.096	53.197	6.383	-0.089	28.52	0.287	0	156	11.8	55.9	3.9	0.125	0.122	0.0022	2.17	1.8

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.12

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
163	5/25/1999	11:51:38 AM	0	26.635	22.693	26.069	25.566	22.81	33.281	59.262	66.548	6.152	53.467	6.353
164	5/25/1999	11:52:41 AM	0	26.68	22.738	26.035	25.611	22.534	33.564	59.076	66.121	6.207	53.366	6.383
165	5/25/1999	11:53:36 AM	0	26.635	22.693	26.069	25.406	22.569	33.914	59.2	66.182	6.183	53.501	6.383
166	5/25/1999	11:54:39 AM	0	26.635	22.693	26.069	25.326	22.408	33.756	58.952	66.091	6.191	53.467	6.383
167	5/25/1999	11:55:36 AM	0	26.67	22.728	26.024	25.2	22.282	34.107	55.635	64.962	5.649	50.289	8.571
168	5/25/1999	11:56:35 AM	0	26.67	22.808	26.024	25.2	22.121	33.869	57.619	65.694	5.777	51.98	7.339
169	5/25/1999	11:57:36 AM	0	26.704	22.762	26.059	25.155	22.075	33.508	57.991	65.115	5.832	53.941	6.322
170														
171		Averages		26.9	22.0	26.3	25.0	23.0	31.6	58.4	65.5	6.1	52.9	6.3
172		Maximum		28.3	22.7	27.7	26.0	24.4	33.9	59.5	66.6	6.4	54.1	7.9
173		Median		26.7	22.1	26.1	24.9	23.0	31.5	58.4	65.5	6.1	52.9	6.3
174		Minimum		26.6	21.3	26.0	23.9	21.6	30.0	55.4	63.6	5.7	50.6	6.1
175		Std Dev		0.4	0.4	0.4	0.5	0.8	1.1	0.6	0.6	0.1	0.6	0.2
176		Number of Points Used		133	133	133	133	133	133	133	133	133	133	133

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163	-0.089	28.489	0.284	0	157	11.8	56.4	3.9	0.124	0.120	0.0021	2.13	1.8
164	-0.089	28.52	0.286	0	158	11.8	56.2	3.9	0.125	0.121	0.0022	2.16	1.8
165	-0.089	28.55	0.284	0	159	11.8	56.4	3.9	0.124	0.120	0.0021	2.14	1.8
166	-0.089	28.504	0.287	0	160	11.8	56.2	3.9	0.125	0.122	0.0022	2.16	1.8
167	-0.089	29.042	1.133	0	161	12.1	53.0	3.7	0.495	0.481	0.0091	9.07	7.7
168	-0.089	28.812	0.738	0	162	12.0	54.8	3.8	0.322	0.313	0.0057	5.71	4.9
169	-0.089	28.75	0.611	0	163	11.9	56.0	3.9	0.267	0.259	0.0046	4.63	3.9
170													
171	-0.1	28.8	0.330	0.0		12.0	55.6	3.8	0.144	0.139	0.002	2.5	2.1
172	-0.1	29.4	1.103	0.0		12.2	56.8	3.9	0.482	0.447	0.008	8.4	7.2
173	-0.1	28.8	0.305	0.0		11.9	55.7	3.8	0.133	0.129	0.002	2.3	2.0
174	-0.2	28.4	0.283	0.0		11.8	53.0	3.7	0.124	0.120	0.002	2.1	1.8
175	0.0	0.2	0.091	0.0		0.1	0.6	0.0	0.040	0.036	0.001	0.7	0.6
176	133	133	133	133		133	133	133	133	133	133	133	133



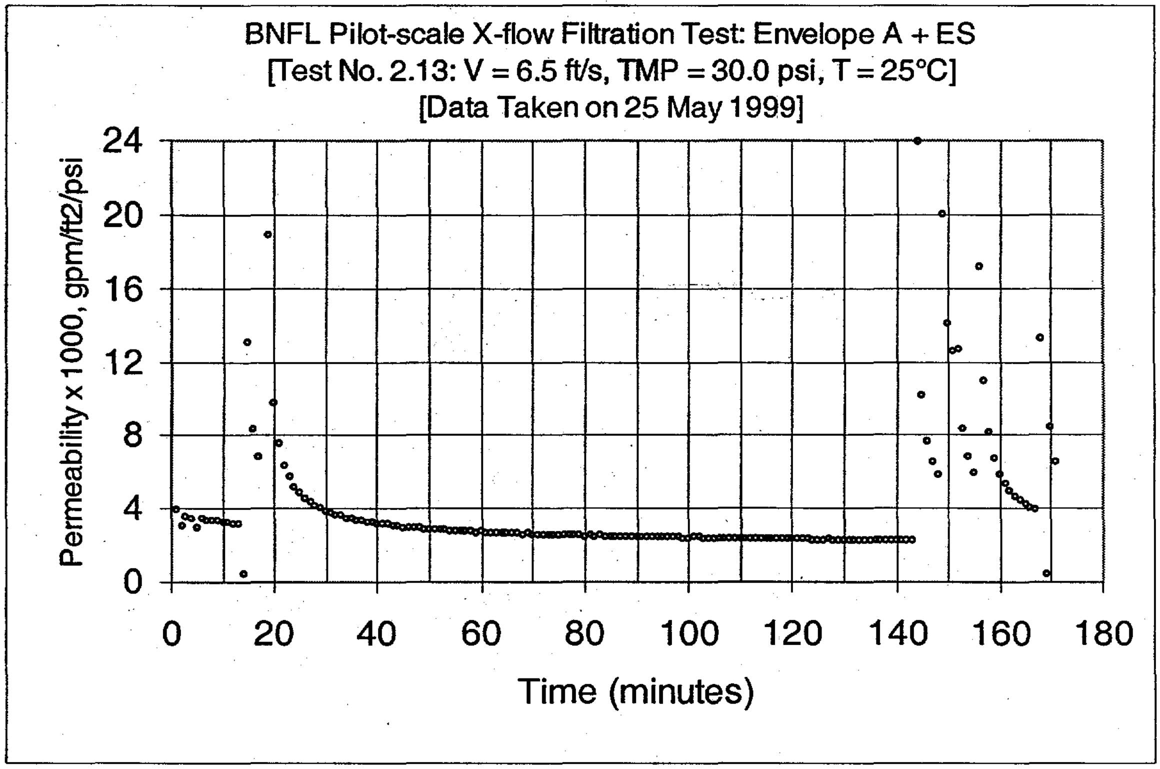


Figure B15: Test Run 2.13, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.13

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/25/1999	8:51:31 AM	0	21.498	20.92	20.527	22.194	22.005	29.79	-0.031	-0.011	-0.016	-0.051	-0.027	-0.228	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/25/1999	8:56:41 AM	0	21.553	20.975	20.582	22.409	22.14	29.923	-0.062	0.02	-0.016	0.016	-0.027	-0.228	-0.08	0.011	0									
5	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
6	DATE	TIME	SOLENOI(	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
7	5/25/1999	11:59:09 AM	0	26.614	22.752	25.968	24.904	22.065	33.102	58.642	65.481	5.864	53.467	6.199	-0.089	28.719	0.514	0	1	11.9	56.1	3.9	0.224	0.218	0.0039	3.90	3.3
8	5/25/1999	12:00:35 PM	0	26.694	22.752	25.968	24.984	21.984	33.761	33.412	42.797	4.189	30.41	8.695	-0.089	23.42	0.223	0	2	9.7	31.9	2.2	0.097	0.095	0.0030	2.97	2.5
9	5/25/1999	12:01:42 PM	0	26.649	22.706	25.683	25.019	22.019	32.399	21.324	30.845	2.114	19.727	8.88	-0.089	14.466	0.168	0	3	6.0	20.5	1.4	0.073	0.072	0.0035	3.51	3.0
10	5/25/1999	12:02:39 PM	0	26.489	22.787	25.523	24.939	22.1	32.978	35.923	45.327	2.705	34.298	8.51	-0.089	17.138	0.28	0	4	7.1	35.1	2.4	0.122	0.120	0.0034	3.43	2.9
11	5/25/1999	12:03:36 PM	0	26.364	22.741	25.318	25.134	22.135	32.458	15.931	23.161	2.362	14.351	6.661	-0.089	15.771	0.101	0	5	6.5	15.1	1.0	0.044	0.044	0.0029	2.89	2.5
12	5/25/1999	12:04:39 PM	0	26.364	22.822	25.238	24.974	22.457	32.141	32.73	42.979	2.442	31.019	9.558	-0.089	15.863	0.252	0	6	6.6	31.9	2.2	0.110	0.109	0.0034	3.43	2.9
13	5/25/1999	12:05:38 PM	0	26.239	22.776	25.112	25.089	22.572	31.621	31.583	41.577	2.601	29.261	9.373	-0.089	16.401	0.231	0	7	6.8	30.4	2.1	0.101	0.101	0.0033	3.30	2.8
14	5/25/1999	12:06:35 PM	0	26.159	22.776	24.952	25.089	22.974	31.462	29.755	39.778	2.298	28.382	9.373	-0.135	15.157	0.22	0	8	6.3	29.1	2.0	0.096	0.096	0.0033	3.31	2.8
15	5/25/1999	12:07:38 PM	0	26.033	22.811	24.827	25.124	23.17	31.1	30.034	39.931	2.314	28.584	9.188	-0.089	15.095	0.222	0	9	6.3	29.3	2.0	0.097	0.097	0.0033	3.32	2.8
16	5/25/1999	12:08:39 PM	0	25.953	22.731	24.747	25.204	23.33	30.941	30.499	40.357	2.25	29.024	9.219	-0.089	14.972	0.219	0	10	6.2	29.8	2.1	0.096	0.096	0.0032	3.24	2.8
17	5/25/1999	12:09:38 PM	0	25.918	22.857	24.712	25.409	23.536	30.747	32.141	42.187	2.458	30.613	9.342	-0.089	15.602	0.23	0	11	6.5	31.4	2.2	0.100	0.101	0.0032	3.23	2.7
18	5/25/1999	12:10:35 PM	0	25.713	22.731	24.586	25.444	23.652	30.623	31.676	41.516	2.521	30.038	9.126	-0.089	15.986	0.218	0	12	6.6	30.9	2.1	0.095	0.096	0.0031	3.12	2.7
19	5/25/1999	12:11:38 PM	0	25.678	22.776	24.471	25.569	23.777	30.509	30.778	40.51	2.561	28.889	9.003	-0.089	16.124	0.208	0	13	6.7	29.8	2.1	0.091	0.092	0.0031	3.09	2.6
20	5/25/1999	12:12:37 PM	0	25.643	22.822	24.436	25.695	23.903	30.554	23.835	37.888	2.354	21.823	13.163	-0.042	16.862	0.019	0	14	7.0	22.8	1.6	0.008	0.008	0.0004	0.37	0.3
21	5/25/1999	12:13:34 PM	0	25.403	22.822	24.276	25.775	23.963	30.315	32.699	38.65	2.314	30.951	5.212	-0.089	16.585	0.935	0	15	6.9	31.8	2.2	0.408	0.417	0.0131	13.09	11.1
22	5/25/1999	12:14:35 PM	0	25.208	22.867	24.321	25.9	24.189	30.36	32.141	39.199	2.362	30.173	6.322	-0.089	16.416	0.583	0	16	6.8	31.2	2.1	0.255	0.259	0.0083	8.33	7.1
23	5/25/1999	12:15:34 PM	0	25.128	22.787	24.161	25.9	24.269	30.36	30.003	37.369	2.426	28.415	6.414	-0.089	15.756	0.444	0	17	6.5	29.2	2.0	0.194	0.198	0.0068	6.79	5.8
24	5/25/1999	12:16:35 PM	1	25.253	22.832	24.126	26.025	24.315	30.326	1.364	38.284	2.314	-0.998	36.061	60.48	15.495	0.011	0	18	6.4	0.2	0.0	0.005	0.005	0.0269	26.90	22.9
25	5/25/1999	12:17:34 PM	0	25.139	22.878	24.011	26.231	24.44	30.371	27.213	35.936	2.21	25.609	8.017	-0.089	16.094	1.109	0	19	6.7	26.4	1.8	0.484	0.498	0.0188	18.85	16.0
26	5/25/1999	12:18:39 PM	0	24.818	22.878	24.011	26.231	24.36	30.45	29.6	36.699	2.314	28.314	6.322	-0.089	15.848	0.631	0	20	6.6	29.0	2.0	0.275	0.283	0.0098	9.78	8.3
27	5/25/1999	12:19:34 PM	0	24.783	22.923	23.816	26.196	24.325	31.051	29.91	36.79	2.282	28.551	6.199	-0.089	15.786	0.488	0	21	6.6	29.2	2.0	0.213	0.220	0.0075	7.54	6.4
28	5/25/1999	12:20:35 PM	0	24.783	22.843	23.735	26.196	23.924	31.369	30.375	37.247	2.354	28.652	6.229	-0.089	15.756	0.414	0	22	6.5	29.5	2.0	0.181	0.187	0.0063	6.35	5.4
29	5/25/1999	12:21:38 PM	0	24.748	22.888	23.781	26.081	23.809	31.652	30.158	37.247	2.266	28.449	6.26	-0.089	15.725	0.368	0	23	6.5	29.3	2.0	0.161	0.166	0.0057	5.67	4.8
30	5/25/1999	12:22:35 PM	0	24.633	22.934	23.666	26.126	23.613	31.617	30.747	37.796	2.418	28.821	6.291	-0.089	15.756	0.337	0	24	6.5	29.8	2.1	0.147	0.153	0.0051	5.13	4.4
31	5/25/1999	12:23:38 PM	0	24.553	22.934	23.666	26.046	23.453	32.093	30.282	37.247	2.362	28.584	6.322	-0.089	15.725	0.314	0	25	6.5	29.4	2.0	0.137	0.142	0.0048	4.84	4.1
32	5/25/1999	12:24:35 PM	0	24.518	22.979	23.551	26.012	23.177	32.614	30.344	37.461	2.513	28.584	6.322	-0.089	15.725	0.295	0	26	6.5	29.5	2.0	0.129	0.134	0.0046	4.55	3.9
33	5/25/1999	12:25:36 PM	0	24.438	22.899	23.47	25.932	23.097	33.168	30.468	37.613	2.418	28.922	6.322	-0.089	15.694	0.281	0	27	6.5	29.7	2.0	0.123	0.128	0.0043	4.31	3.7
34	5/25/1999	12:26:35 PM	0	24.438	22.979	23.39	25.852	22.614	33.485	30.84	37.857	2.434	28.483	6.322	-0.089	15.679	0.27	0	28	6.5	29.7	2.0	0.118	0.123	0.0042	4.16	3.5
35	5/25/1999	12:27:36 PM	0	24.358	22.979	23.31	25.852	22.534	33.485	30.468	37.461	2.442	28.821	6.353	-0.089	15.725	0.258	0	29	6.5	29.6	2.0	0.113	0.118	0.0040	3.99	3.4
36	5/25/1999	12:28:35 PM	0	24.312	22.934	23.345	25.726	22.167	33.677	30.685	37.735	2.41	28.821	6.383	-0.089	15.771	0.251	0	30	6.5	29.8	2.1	0.110	0.115	0.0039	3.86	3.3
37	5/25/1999	12:29:38 PM	0	24.278	22.979	23.31	25.772	22.132	33.959	31.026	38.162	2.553	29.024	6.383	-0.089	15.74	0.244	0	31	6.5	30.0	2.1	0.107	0.112	0.0037	3.72	3.2
38	5/25/1999	12:30:40 PM	0	24.232	23.014	23.264	25.566	21.845	34.072	30.623	37.583	2.458	28.686	6.353	-0.089	15.71	0.236	0	32	6.5	29.7	2.0	0.103	0.108	0.0036	3.65	3.1
39	5/25/1999	12:31:36 PM	0	24.187	22.969	23.139	25.601	21.799	34.028	30.22	37.217	2.402	28.72	6.383	-0.089	15.679	0.229	0	33	6.5	29.5	2.0	0.100	0.105	0.0036	3.58	3.0
40	5/25/1999	12:32:35 PM	0	24.061	22.923	23.093	25.475	21.673	33.904	30.623	37.857	2.545	28.99	6.383	-0.089	15.694	0.224	0	34	6.5	29.8	2.1	0.098	0.103	0.0035	3.46	2.9
41	5/25/1999	12:33:36 PM	0	24.141	23.004	23.093	25.556	21.673	33.904	30.282	37.4	2.434	28.821	6.353	-0.042	15.679	0.219	0	35	6.5	29.6	2.0	0.096	0.101	0.0034	3.41	2.9
42	5/25/1999	12:34:38 PM	0	24.096	23.039	23.048	25.51	21.708	33.464	30.84	37.857	2.545	28.686	6.383	-0.089	15.648	0.214	0	36	6.5	29.8	2.1	0.093	0.099	0.0033	3.32	2.8
43	5/25/1999	12:35:34 PM	0	23.97	22.993	23.002	25.465	21.662	33.34	30.499	37.552	2.497	28.787	6.353	-0.089	15.694	0.21	0	37	6.5	29.6	2.0	0.092	0.097	0.0033	3.27	2.8
44	5/25/1999	12:36:36 PM	0	24.005	23.028	22.957	25.5	21.697	32.978	30.499	37.705	2.569	28.922	6.383	-0.089	15.679	0.207	0	38	6.5	29.7	2.0	0.090	0.096	0.0032	3.22	2.7
45	5/25/1999	12:37:37 PM	0	23.96	22.983	22.831	25.455	21.732	32.854	30.803	37.857	2.521	28.72	6.383	-0.089	15.648	0.204	0	39	6.5	29.8	2.1	0.089	0.095	0.0032	3.18	2.7
46	5/25/1999	12:38:38 PM	0	23.88	22.983	22.911	25.374	21.893	32.934	30.405	37.43	2.497	28.99	6.383	-0.089	15.679	0.2	0	40	6.5	29.7	2.0	0.087	0.093	0.0031	3.12	2.7
47	5/25/1999	12:39:35 PM	0	23.834	23.018	22.866	25.409	22.009	32.414	30.747	37.827	2.545	28.584	6.414	-0.089	15.679	0.198	0	41	6.5	29.7	2.0	0.086	0.092	0.0031	3.10	2.6
48	5/25/1999	12:40:36 PM	0	23.789	22.972	22.82	25.204	21.963	32.29	30.718	37.766	2.489	28.652	6.383	-0.089	15.664	0.196	0	42	6.5	29.7	2.0	0.086	0.091	0.0031	3.07	2.6
49	5/25/1999	12:41:35 PM	0	23.744	22.927	22.855	25.239	22.159	31.848	30.468	37.613	2.569	28.855	6.414	-0.089	15.679	0.193	0	43	6.5	29.7	2.0	0.084	0.090	0.0030	3.02	2.6
50	5/25/1999	12:42:36 PM	0	23.709	23.053	22.901	25.204	22.446	31.576	30.499	37.613	2.553	28.821	6.414	-0.089	15.679	0.191	0	44	6.5	29.7	2.0	0.083	0.088	0.0030	2.98	2.5
51	5/25/1999	12:43:37 PM	0	23.663	23.007	22.855	25.319	22.803	30.419	30.406	37.552	2.529	28.855	6.414	-0.089	15.664	0.189	0	45	6.5	29.6	2.0	0.083	0.088	0.0030	2.96	2.5
52	5/25/1999	12:44:36 PM	0	23.744	23.007	22.855	25.319	23.044	30.975	30.685	37.888	2.577	28.652	6.383	-0.089	15.633	0.188	0	46	6.5	29.7	2.0	0.082	0.087	0.0029	2.94	2.5
53	5/25/1999	12:45:41 PM	0	23.698	22.962	22.81	25.514	23.159	30.772	30.437	37.491	2.513	28.652	6.414	-0.089	15.633	0.186	0	47	6.5	29.5	2.0	0.081	0.086	0.0029	2.92	2.5
54	5/25/1999	12:46:36 PM	0	23.663	23.007	22.855	25.559	23.446	30.578	30.561	37.735	2.585	28.889	6.414	-0.089	15.664	0.184	0	48	6.5	29.7	2.0	0.080	0.085	0.0029	2.87	2.4
55	5/25/1999	12:47:35 PM	0	23.618	22.962	22.89	25.594	23.641	30.454	30.375	37.43	2.513	28.787	6.383	-0.089	15.633	0.182	0	49	6.5	29.6	2.0	0.079	0.084	0.0029	2.85	2.4
56	5/25/1999	12:48:36 PM	0	23.628	23.053	22.82	25.684	23.812	30.305	30.609	37.979	2.585	28.821	6.414	-0.089	15.648	0.182	0	50	6.5	29.8	2.1	0.079	0.085	0.0028	2.83	2.4
57	5/25/1999	12:49:35 PM	0	23.628	23.053	22.901	25.764	23.973	30.226	30.747	37.979	2.601	28.449	6.383	-0.089	15.664	0.18	0	51	6.5	29.6	2.0	0.079	0.083	0.0028	2.82	2.4
58	5/25/1999	12:50:36 PM	0	23.674	23.018	22.946	25.89	24.096	30.428	30.871	38.071	2.625	28.99	6.414	-0.042	15.648	0.179	0	52	6.5	29.9	2.1	0.078	0.083	0.0028	2.77	2.4
59	5/25/1999	12:51:37 PM	0	23.719	23.063	22.992	26.015	24.224	30.236	30.561	37.674	2.537	28.618	6.414	-0.089	15.648	0.178	0	53	6.5	29.6	2.0	0.078	0.082	0.0028	2.78	2.4
60	5/25/1999	12:52:38 PM	0	23.639	22.983	22.911	26.095	24.304	30.156	30.809	38.04	2.665	28.99	6.414	-0.089	15.694	0.177	0	54	6.5	29.9	2.1	0.077	0.082	0.0027	2.74	2.3
61	5/25/1999	12:53:37 PM	0	23.684	23.028	22.957	26.22	24.349	30.042	30.468	37.552	2.641	28.787	6.383	-0.089	15.648	0.176	0	55	6.5	29.6	2.0	0.077	0.081	0.0027	2.75	2.3
62	5/25/1999	12:54:38 PM	0	23.684	23.028	22.957	26.3	24.349	30.44	30.902	38.071	2.617	28.821	6.414	-0.089	15.602	0.175	0	56	6.5	29.9	2.1	0.076	0.081	0.0027	2.71	2.3
63	5/25/1999	12:55:37 PM	0	23.649	22.993	23.002	26.265	24.154	30.882	30.53	37.735	2.601	28.584	6.445	-0.089	15.664	0.175	0	57	6.5	29.6	2.0	0.076	0.081	0.0027	2.74	2.3
64	5/25/1999	12:56:36 PM	0	23.695	23.039	23.048	26.231	24.039	31.088	30.685	37.888	2.585	28.956	6.445	-0.089	15.664	0.173	0	58	6.5	29.8	2.1	0.076	0.080	0.0027	2.68	2.3
65	5/25/1999	12:57:37 PM	0	23.74	23.084	23.173	26.276	23.763	31.448	30.902	38.193	2.705	28.787	6.445	-0.089	15.633	0.172	0	59	6.5	29.8	2.1	0.075	0.079	0.0026	2.65	2.3
66	5/25/1999	12:58:36 PM	0	23.785	23.049	23.219	26.241	23.848	31.652	30.468	37.522	2.537	28.618	6.445	-0.089	15.664	0.172	0	60	6.5	29.5	2.0	0.075	0.079	0.0027	2.67	2.3
67	5/25/1999	12:59:37 PM	0	23.831	23.095	23.345	26.126	23.533	31.776	30.313	37.461	2.521	28.618	6.445	-0.089	15.679	0.171	0	61	6.5	29.5	2.0	0.075	0.078	0.0027	2.65	2.3
68	5/25/1999	1:00:36 PM	0	23.831	23.175	23.264	26.126	23.212	32.41	30.592	37.796	2.689	29.024	6.445	-0.089	15.633	0.171	0	62	6.5	29.8	2.1	0.075	0.078	0.0026	2.63	2.2
69	5/25/1999	1:01:35 PM	0	23.957	23.14	23.47	26.012	22.936	32.851	30.84	38.04	2.657	28.821	6.445	-0.089	15.679	0.171	0	63	6.5	29.8	2.1	0.075	0.078	0.0026	2.61	2.2
70	5/25/1999	1:02:36 PM	0	23.957	23.14	23.47	26.012	22.775	33.326	30.499	37.644	2.633	28.787	6.445	-0.089	15.664	0.17	0	64	6.5	29.6	2.0	0.074	0.077	0.0026	2.61	2.2
71	5/25/1999	1:03:39 PM	0	24.037	23.08	23.551	25.932	22.454	33.485	30.282	37.461	2.569	28.787	6.445	-0.089	15.664	0.17	0	65	6.5	29.5	2.0	0.074	0.077	0.0026	2.62	2.2
72	5/25/1999	1:04:36 PM	0	24.072	23.095	23.586	25.886	22.327	33.361	30.778	37.888	2.577	28.551	6.414	-0.089	15.618	0.169	0	66	6.5	29.7	2.0	0.074	0.077	0.0026	2.59	2.2
73	5/25/1999	1:05:35 PM	0	24.197	23.14	23.631	25.852	22.132	33.485	30.313	37.4	2.489	28.449	6.445	-0.089	15.633	0.169	0	67	6.5	29.4	2.0	0.074	0.077	0.0026	2.61	2.2
74	5/25/1999	1:06:34 PM	0	24.232	23.095	23.666	25.726	22.006	33.756	30.871	38.01	2.625	28.686	6.445	-0.089	15.664	0.168	0	68	6.5	29.8	2.1	0.073	0.076	0.0026	2.56	2.2
75	5/25/1999	1:07:37 PM	0	24.267	23.13	23.701	25.761	21.96	33.79	30.251	37.491	2.489	28.517	6.476	-0.089	15.71	0.168	0	69	6.5	29.4	2.0	0.073	0.076	0.0026	2.59	2.2
76	5/25/1999	1:08:34 PM	0	24.347	23.13	23.781	25.841	21.88	33.869	30.716	37.766	2.601	28.753	6.476	-0.089	15.71	0.167	0	70	6.5	29.7	2.1	0.073	0.075	0.0025	2.54	2.2
77	5/25/1999	1:09:35 PM	0	24.302	23.164	23.816	25.796	21.834	33.746	30.406	37.491	2.593	28.922	6.445	-0.089	15.679	0.167	0	71	6.5	29.7	2.0	0.073	0.075	0.0025	2.54	2.2
78	5/25/1999	1:10:34 PM	0	24.462	23.164	23.896	25.636	21.592	33.904	30.189	37.369	2.601	28.652	6.445	-0.089	15.664	0.167	0	72	6.5	29.4	2.0	0.073	0.075	0.0026	2.56	2.2
79	5/25/1999	1:11:35 PM	0	24.417	23.199	23.851	25.75	21.706	33.622	30.747	38.01	2.625	28.787	6.445	-0.089	15.664	0.166	0	73	6.5	29.8	2.1	0.072	0.075	0.0025	2.51	2.1
80	5/25/1999	1:12:34 PM	0	24.452	23.154	23.885	25.625	21.582	33.34	30.53	37.735	2.617	28.686	6.445	-0.089	15.648	0.166	0	74	6.5	29.6	2.0	0.072	0.075	0.0025	2.53	2.1
81	5/25/1999	1:13:35 PM	0	24.487	23.109	23.92	25.66	21.617	33.057	30.53	37.766	2.601	28.314	6.414	-0.089	15.694	0.166	0	75	6.5	29.4	2.0	0.072	0.075	0.0025	2.54	2.2

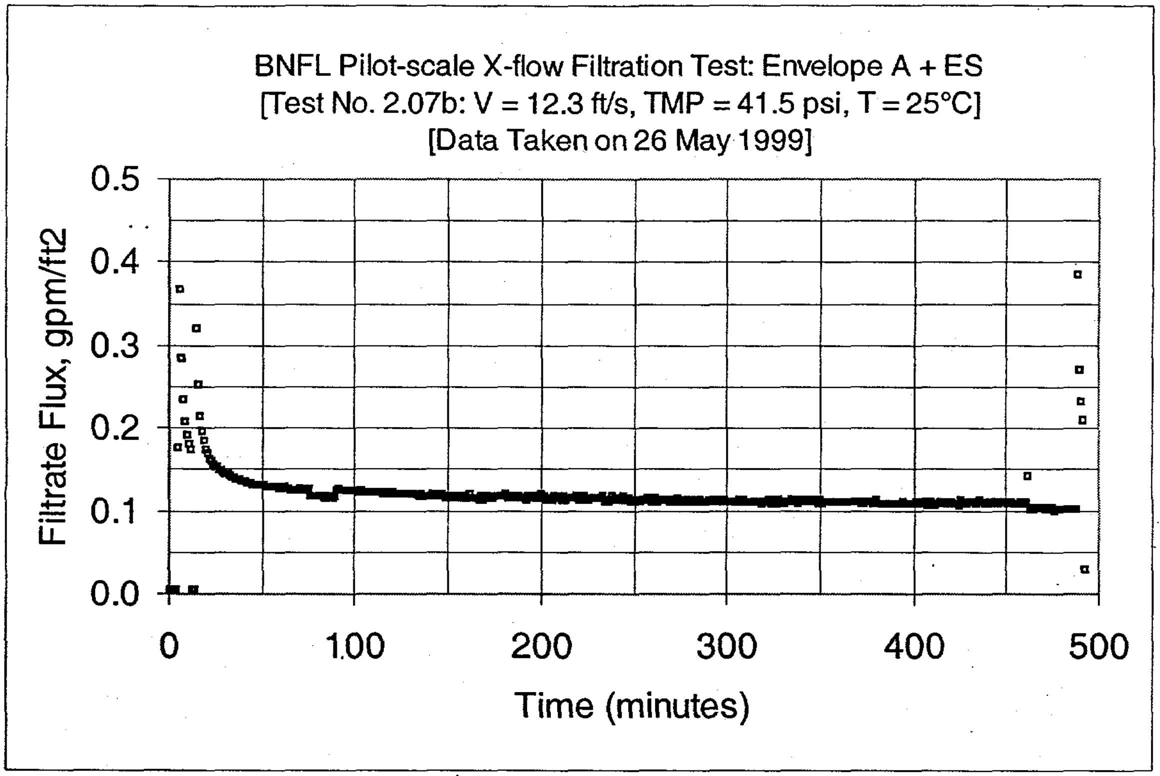
Pilot Scale X-Flow Filtration Test: Env. A, Run 2.13

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/25/1999	1:14:36 PM	0	24.522	23.143	23.875	25.374	21.652	32.854	30.437	37.613	2.617	28.922	6.445	-0.089	15.679	0.165	0	76	6.5	29.7	2.0	0.072	0.074	0.0025	2.51	2.1
83	5/25/1999	1:15:37 PM	0	24.556	23.096	23.91	25.489	21.848	32.73	30.995	38.071	2.657	28.584	6.445	-0.089	15.694	0.165	0	77	6.5	29.8	2.1	0.072	0.074	0.0025	2.49	2.1
84	5/25/1999	1:16:34 PM	0	24.556	23.178	23.99	25.409	21.848	32.572	30.592	37.857	2.577	28.517	6.414	-0.089	15.664	0.166	0	78	6.5	29.6	2.0	0.072	0.074	0.0025	2.51	2.1
85	5/25/1999	1:17:35 PM	0	24.591	23.133	24.026	25.524	21.983	32.448	30.53	37.674	2.569	28.618	6.445	-0.089	15.679	0.164	0	79	6.5	29.6	2.0	0.072	0.074	0.0025	2.49	2.1
86	5/25/1999	1:18:34 PM	0	24.672	23.133	24.026	25.524	22.124	31.972	31.088	38.254	2.665	28.821	6.445	-0.089	15.694	0.164	0	80	6.5	30.0	2.1	0.072	0.074	0.0025	2.46	2.1
87	5/25/1999	1:19:40 PM	0	24.672	23.133	24.105	25.604	22.366	31.576	30.53	37.705	2.593	28.686	6.445	-0.042	15.664	0.164	0	81	6.5	29.6	2.0	0.072	0.073	0.0025	2.48	2.1
88	5/25/1999	1:20:39 PM	0	24.707	23.168	24.14	25.479	22.642	31.214	30.747	37.857	2.593	28.652	6.445	-0.089	15.71	0.163	0	82	6.5	29.7	2.0	0.071	0.073	0.0025	2.45	2.1
89	5/25/1999	1:21:38 PM	0	24.707	23.168	24.14	25.479	23.124	30.975	30.654	37.888	2.609	28.449	6.445	-0.089	15.71	0.163	0	83	6.5	29.6	2.0	0.071	0.073	0.0025	2.47	2.1
90	5/25/1999	1:22:34 PM	0	24.707	23.168	24.14	25.479	23.285	30.737	30.468	37.705	2.593	28.652	6.445	-0.089	15.664	0.162	0	84	6.5	29.6	2.0	0.071	0.072	0.0025	2.45	2.1
91	5/25/1999	1:23:36 PM	0	24.787	23.168	24.22	25.559	23.446	30.578	31.8	39.229	2.633	29.159	6.568	-0.089	15.479	0.164	0	85	6.4	30.5	2.1	0.072	0.073	0.0024	2.40	2.0
92	5/25/1999	1:24:37 PM	0	24.832	23.133	24.266	25.764	23.652	30.464	30.964	38.284	2.553	29.261	6.599	-0.089	15.464	0.165	0	86	6.4	30.1	2.1	0.072	0.074	0.0024	2.44	2.1
93	5/25/1999	1:25:36 PM	0	24.832	23.133	24.266	25.764	23.732	30.305	31.211	38.437	2.545	29.024	6.568	-0.089	15.433	0.166	0	87	6.4	30.1	2.1	0.072	0.074	0.0025	2.46	2.1
94	5/25/1999	1:26:35 PM	0	24.832	23.133	24.346	25.925	23.893	30.226	31.426	38.863	2.569	29.125	6.568	-0.089	15.464	0.165	0	88	6.4	30.3	2.1	0.072	0.073	0.0024	2.42	2.1
95	5/25/1999	1:27:36 PM	0	24.877	23.178	24.311	26.05	24.018	30.191	31.119	38.345	2.521	29.294	6.538	-0.089	15.464	0.165	0	89	6.4	30.2	2.1	0.072	0.073	0.0024	2.43	2.1
96	5/25/1999	1:28:35 PM	0	24.922	23.224	24.436	26.175	24.224	30.156	30.716	37.888	2.473	29.193	6.538	-0.089	15.495	0.165	0	90	6.4	30.0	2.1	0.072	0.073	0.0024	2.44	2.1
97	5/25/1999	1:29:36 PM	0	24.922	23.143	24.436	26.175	24.304	30.156	31.304	38.62	2.593	29.565	6.538	-0.089	15.51	0.163	0	91	6.4	30.4	2.1	0.071	0.072	0.0024	2.38	2.0
98	5/25/1999	1:30:39 PM	0	25.013	23.234	24.447	26.345	24.315	30.485	31.552	38.833	2.529	29.227	6.507	-0.089	15.51	0.164	0	92	6.4	30.4	2.1	0.072	0.073	0.0024	2.39	2.0
99	5/25/1999	1:31:36 PM	0	25.013	23.234	24.447	26.425	24.154	30.603	31.459	38.711	2.489	29.497	6.538	-0.089	15.387	0.164	0	93	6.4	30.5	2.1	0.072	0.073	0.0024	2.39	2.0
100	5/25/1999	1:32:35 PM	0	25.013	23.154	24.447	26.425	23.994	31.041	30.871	38.071	2.473	29.328	6.507	-0.089	15.495	0.163	0	94	6.4	30.1	2.1	0.071	0.072	0.0024	2.40	2.0
101	5/25/1999	1:33:36 PM	0	25.104	23.245	24.536	26.436	23.763	31.21	31.18	38.345	2.545	29.328	6.507	-0.089	15.464	0.164	0	95	6.4	30.3	2.1	0.072	0.073	0.0024	2.40	2.0
102	5/25/1999	1:34:35 PM	0	25.104	23.164	24.457	26.276	23.683	31.686	31.614	38.833	2.569	29.362	6.476	-0.089	15.479	0.163	0	96	6.4	30.5	2.1	0.071	0.072	0.0024	2.37	2.0
103	5/25/1999	1:35:36 PM	0	25.149	23.21	24.503	26.241	23.407	31.969	31.026	38.04	2.497	29.565	6.476	-0.089	15.479	0.163	0	97	6.4	30.3	2.1	0.071	0.072	0.0024	2.38	2.0
104	5/25/1999	1:36:35 PM	0	25.114	23.255	24.628	26.286	23.132	32.569	31.49	38.711	2.593	29.463	6.476	-0.089	15.541	0.164	0	98	6.4	30.5	2.1	0.072	0.072	0.0024	2.37	2.0
105	5/25/1999	1:37:36 PM	0	25.114	23.255	24.628	26.206	22.81	32.666	31.242	38.437	2.577	29.328	6.476	-0.089	15.479	0.161	0	99	6.4	30.3	2.1	0.070	0.071	0.0023	2.35	2.0
106	5/25/1999	1:38:35 PM	0	25.194	23.255	24.708	26.206	22.649	33.361	31.088	38.406	2.593	29.43	6.476	-0.042	15.541	0.161	0	100	6.4	30.3	2.1	0.070	0.071	0.0023	2.34	2.0
107	5/25/1999	1:39:38 PM	0	25.194	23.255	24.628	26.046	22.408	33.202	31.18	38.315	2.521	29.294	6.476	-0.042	15.495	0.162	0	101	6.4	30.2	2.1	0.071	0.071	0.0024	2.36	2.0
108	5/25/1999	1:40:35 PM	0	25.194	23.255	24.628	26.046	22.408	33.281	30.902	38.132	2.529	29.125	6.476	-0.089	15.495	0.161	0	102	6.4	30.0	2.1	0.070	0.071	0.0024	2.37	2.0
109	5/25/1999	1:41:40 PM	0	25.275	23.255	24.708	25.886	22.167	33.44	30.84	38.01	2.553	29.328	6.476	-0.089	15.479	0.16	0	103	6.4	30.1	2.1	0.070	0.070	0.0023	2.34	2.0
110	5/25/1999	1:42:35 PM	0	25.275	23.255	24.708	25.806	22.167	33.835	31.057	38.162	2.513	29.294	6.476	-0.089	15.525	0.161	0	104	6.4	30.2	2.1	0.070	0.071	0.0023	2.35	2.0
111	5/25/1999	1:43:38 PM	0	25.309	23.21	24.663	25.761	22.201	33.316	31.304	38.437	2.521	29.666	6.538	-0.089	15.449	0.161	0	105	6.4	30.5	2.1	0.070	0.071	0.0023	2.33	2.0
112	5/25/1999	1:44:35 PM	0	25.264	23.245	24.698	25.636	22.075	33.746	31.428	38.62	2.529	29.768	6.507	-0.089	15.464	0.161	0	106	6.4	30.6	2.1	0.070	0.071	0.0023	2.32	2.0
113	5/25/1999	1:45:34 PM	0	25.299	23.199	24.652	25.51	21.869	33.226	31.707	39.016	2.593	29.903	6.538	-0.089	15.433	0.162	0	107	6.4	30.8	2.1	0.071	0.071	0.0023	2.32	2.0
114	5/25/1999	1:46:35 PM	0	25.299	23.199	24.733	25.59	21.869	3[illegible]78	31.397	38.62	2.473	29.362	6.507	-0.089	15.433	0.162	0	108	6.4	30.4	2.1	0.071	0.071	0.0023	2.35	2.0
115	5/25/1999	1:47:36 PM	0	25.334	23.234	24.687	25.465	21.823	33.181	31.645	38.955	2.585	29.599	6.507	-0.089	15.387	0.16	0	109	6.4	30.6	2.1	0.070	0.070	0.0023	2.30	2.0
116	5/25/1999	1:48:37 PM	0	25.368	23.189	24.722	25.58	21.778	33.057	31.521	38.741	2.593	29.971	6.507	-0.089	15.433	0.161	0	110	6.4	30.7	2.1	0.070	0.071	0.0023	2.30	2.0
117	5/25/1999	1:49:34 PM	0	25.323	23.224	24.757	25.695	21.893	32.696	31.645	38.772	2.529	29.768	6.476	-0.089	15.418	0.16	0	111	6.4	30.7	2.1	0.070	0.070	0.0023	2.29	1.9
118	5/25/1999	1:50:35 PM	0	25.403	23.224	24.757	25.615	21.974	32.817	32.048	39.26	2.577	29.869	6.476	-0.089	15.433	0.161	0	112	6.4	31.0	2.1	0.070	0.071	0.0023	2.29	1.9
119	5/25/1999	1:51:34 PM	0	25.403	23.304	24.757	25.695	22.135	32.458	31.242	38.528	2.593	29.666	6.476	-0.042	15.418	0.161	0	113	6.4	30.5	2.1	0.070	0.071	0.0023	2.32	2.0
120	5/25/1999	1:52:35 PM	0	25.438	23.259	24.792	25.489	22.17	32.176	31.8	39.168	2.633	29.869	6.476	-0.089	15.418	0.161	0	114	6.4	30.8	2.1	0.070	0.071	0.0023	2.29	2.0
121	5/25/1999	1:53:38 PM	0	25.438	23.259	24.872	25.65	22.492	31.621	31.862	38.965	2.569	29.362	6.476	-0.042	15.433	0.16	0	115	6.4	30.6	2.1	0.070	0.070	0.0023	2.29	1.9
122	5/25/1999	1:54:37 PM	0	25.473	23.294	24.827	25.444	22.768	31.258	31.614	38.802	2.625	29.768	6.445	-0.042	15.418	0.16	0	116	6.4	30.7	2.1	0.070	0.070	0.0023	2.29	1.9
123	5/25/1999	1:55:38 PM	0	25.393	23.213	24.827	25.604	23.009	30.941	31.738	38.955	2.577	29.632	6.445	-0.089	15.372	0.159	0	117	6.4	30.7	2.1	0.069	0.070	0.0023	2.27	1.9
124	5/25/1999	1:56:35 PM	0	25.518	23.259	24.872	25.65	23.376	30.827	31.738	38.955	2.537	29.768	6.445	-0.089	15.418	0.16	0	118	6.4	30.8	2.1	0.070	0.070	0.0023	2.28	1.9
125	5/25/1999	1:57:36 PM	0	25.518	23.339	24.872	25.81	23.536	30.668	31.645	38.833	2.561	29.734	6.445	-0.089	15.387	0.16	0	119	6.4	30.7	2.1	0.070	0.070	0.0023	2.28	1.9
126	5/25/1999	1:58:35 PM	0	25.438	23.259	24.952	25.89	23.697	30.509	31.831	39.046	2.569	29.869	6.445	-0.089	15.387	0.16	0	120	6.4	30.9	2.1	0.070	0.070	0.0023	2.27	1.9
127	5/25/1999	1:59:34 PM	0	25.438	23.259	24.872	25.97	23.858	30.27	31.614	38.802	2.577	29.7	6.445	-0.089	15.372	0.16	0	121	6.4	30.7	2.1	0.070	0.070	0.0023	2.29	1.9
128	5/25/1999	2:00:37 PM	0	25.483	23.304	24.917	26.175	24.063	30.315	31.831	38.955	2.521	29.7	6.445	-0.089	15.418	0.159	0	122	6.4	30.8	2.1	0.069	0.070	0.0023	2.26	1.9
129	5/25/1999	2:01:39 PM	0	25.529	23.269	24.962	26.22	24.189	30.281	31.057	38.193	2.545	29.734	6.414	-0.089	15.433	0.159	0	123	6.4	30.4	2.1	0.069	0.069	0.0023	2.29	1.9
130	5/25/1999	2:02:35 PM	0	25.529	23.269	24.962	26.3	24.349	30.122	31.924	39.168	2.625	29.686	6.414	-0.042	15.387	0.159	0.003	124	6.4	30.6	2.1	0.069	0.069	0.0023	2.26	1.9
131	5/25/1999	2:03:34 PM	0	25.574	23.234	25.008	26.425	24.475	30.087	31.676	38.924	2.601	29.801	6.445	-0.089	15.403	0.158	0	125	6.4	30.7	2.1	0.069	0.069	0.0022	2.24	1.9
132	5/25/1999	2:04:36 PM	0	25.539	23.28	24.973	26.551	24.52	30.291	31.49	38.559	2.537	29.666	6.414	-0.089	15.356	0.158	0	126	6.4	30.6	2.1	0.069	0.069	0.0023	2.26	1.9
133	5/25/1999	2:05:37 PM	0	25.584	23.248	25.018	26.516	24.405	30.892	31.645	38.863	2.521	29.666	6.414	-0.089	15.418	0.159	0	127	6.4	30.7	2.1	0.069	0.069	0.0022	2.26	1.9
134	5/25/1999	2:06:38 PM	0	25.63	23.29	24.984	26.641	24.21	31.017	31.304	38.528	2.561	29.734	6.445	-0.089	15.387	0.157	0	128	6.4	30.5	2.1	0.069	0.069	0.0022	2.25	1.9
135	5/25/1999	2:07:35 PM	0	25.675	23.416	25.029	26.606	24.095	31.459	31.8	38.955	2.593	29.7	6.445	-0.089	15.418	0.158	0	129	6.4	30.8	2.1	0.069	0.069	0.0022	2.24	1.9
136	5/25/1999	2:08:36 PM	0	25.595	23.336	25.029	26.526	23.854	31.538	32.079	39.321	2.601	29.734	6.445	-0.042	15.341	0.158	0	130	6.4	30.9	2.1	0.069	0.069	0.0022	2.23	1.9
137	5/25/1999	2:09:37 PM	0	25.64	23.381	24.994	26.572	23.659	32.059	31.428	38.62	2.545	29.903	6.445	-0.089	15.433	0.158	0	131	6.4	30.7	2.1	0.069	0.069	0.0022	2.25	1.9
138	5/25/1999	2:10:36 PM	0	25.72	23.301	25.074	26.412	23.257	32.455	31.397	38.62	2.545	29.463	6.414	-0.042	15.372	0.157	0	132	6.4	30.4	2.1	0.068	0.068	0.0022	2.25	1.9
139	5/25/1999	2:11:35 PM	0	25.686	23.347	25.04	26.377	23.062	33.213	32.017	39.29	2.641	29.599	6.414	-0.089	15.433	0.157	0	133	6.4	30.8	2.1	0.069	0.068	0.0022	2.22	1.9
140	5/25/1999	2:12:36 PM	0	25.731	23.392	25.065	26.182	22.786	33.179	31.707	38.955	2.537	29.768	6.414	-0.089	15.387	0.158	0	134	6.4	30.7	2.1	0.069	0.069	0.0022	2.24	1.9
141	5/25/1999	2:13:37 PM	0	25.686	23.347	25.04	26.217	22.66	32.975	31.862	39.138	2.577	29.768	6.445	-0.089	15.403	0.157	0	135	6.4	30.8	2.1	0.069	0.069	0.0022	2.22	1.9
142	5/25/1999	2:14:40 PM	0	25.686	23.347	25.12	26.057	22.499	33.134	31.614	38.741	2.489	29.835	6.445	-0.042	15.433	0.157	0	136	6.4	30.7	2.1	0.069	0.068	0.0022	2.22	1.9
143	5/25/1999	2:15:35 PM	0	25.686	23.347	25.12	26.137	22.499	33.45	31.676	38.741	2.513	29.666	6.414	-0.089	15.418	0.157	0	137	6.4	30.7	2.1	0.069	0.068	0.0022	2.23	1.9
144	5/25/1999	2:16:40 PM	0	25.766	23.347	25.04	26.137	22.499	33.213	31.645	38.62	2.473	29.734	6.414	-0.089	15.403	0.157	0	138	6.4	30.7	2.1	0.069	0.068	0.0022	2.23	1.9
145	5/25/1999	2:17:37 PM	0	25.766	23.347	25.12	26.057	22.338	33.688	31.924	38.955	2.545	29.7	6.414	-0.042	15.418	0.156	0	139	6.4	30.8	2.1	0.068	0.068	0.0022	2.20	1.9
146	5/25/1999	2:18:36 PM	0	25.8	23.381	25.074	26.172	22.132	33.88	31.955	39.046	2.561	29.937	6.414	-0.042	15.387	0.156	0	140	6.4	30.9	2.1	0.068	0.068	0.0022	2.20	1.9
147	5/25/1999	2:19:35 PM	0	25.8	23.381	25.154	26.172	22.212	33.88	31.707	38.833	2.521	29.43	6.414	-0.089	15.403	0.156	0	141	6.4	30.6	2.1	0.068	0.068	0.0022	2.22	1.9
148	5/25/1999	2:20:36 PM	0	25.835	23.336	25.189	26.126	22.006	33.914	32.017	39.107	2.545	30.004	6.414	-0.089	15.418	0.157	0	142	6.4	31.0	2.1	0.068	0.068	0.0022	2.20	1.9
149	5/25/1999	2:21:35 PM	0	25.835	23.416	25.109	26.046	21.925	33.914	31.552	38.68	2.497	29.903	6.414	-0.089	15.403	0.157	0	143	6.4	30.7	2.1	0.069	0.068	0.0022	2.22	1.9
150	5/25/1999	2:22:38 PM	0	25.87	23.371	25.224	26.081	21.88	33.79	22.874	35.997	2.083	21.417	12.424	-0.089	16.017	1.218	0	144	6.6	22.1	1.5	0.532	0.528	0.0239	23.86	20.3
151	5/25/1999	2:23:37 PM	0	25.825	23.406	25.179	25.876	21.753	33.35	29.848	37.339	2.242	28.415	6.877	-0.042	15.756	0.68	0	145	6.5	29.1	2.0	0.297	0.295	0.0101	10.14	8.6
152	5/25/1999	2:24:38 PM	0	25.905	23.486	25.259	25.956	21.834	32.796	30.964	37.857	2.234	29.227	6.199	-0.089	15.648	0.532	0	146	6.5	30.1	2.1	0.232	0.231	0.0077	7.66	6.5
153	5/25/1999	2:25:37 PM	0	25.814	23.395	25.168	25.626	21.823	32.627	31.026	37.918	2.25	29.294	6.322	-0.089	15.648	0.453	0.003	147	6.5	30.2	2.1	0.198	0.197	0.0065	6.53	5.6
154	5/25/1999	2:26:34 PM	0	25.849	23.35	25.123	25.74	22.019	32.345	31.057	38.01	2.282	29.159	6.322	-0.042	15.571	0.405	0	148	6.5	30.1	2.1	0.177	0.176	0.0059	5.85	5.0
155	5/25/1999	2:27:41 PM	1	25.804	23.385	25.077	25.615	22.135	32.062	1.116	38.68	2.17	-0.592	36.677	60.804	15.418	0.012	0	149	6.4	0.3	0.0	0.005	0.005	0.0200	19.95	17.0
156	5/25/1999	2:28:34 PM	1	25.804	23.385	25.157	25.855	22.296	32.3	1.24	38.772	2.188	-0.558	36.708	60.85	15.403	0.011	0	150	6.4	0.3	0.0	0.005	0.005	0.0140	14.02	11.9
157	5/25/1999	2:29:35 PM	1	25.804	23.385	25.157	25.775	22.296	32.221	1.116	38.528	2.21	-0.356	36.554	60.85	15.356	0.011	0	151	6.4	0.4	0.0	0.005	0.005	0.0126	12.58	10.7
158	5/25/1999	2:30:34 PM	0	25.838	23.42	25.192	25.89	22.411	32.255	30.592	37.247	2.202	28.686	5.921	-0.042	15.817	0.864	0	152	6.6	29.6	2.0	0.377	0.375	0.0127	12.66	10.8
159	5/25/1999	2:31:39 PM	0	25.918	23.42	25.192	25.73	22.652	31.621	30.871	37.583	2.178	29.463	6.044	-0.042	15.664	0.58	0	153	6.5	30.2	2.1	0.253	0.252	0.0083	8.35	7.1
160	5/25/1999	2:32:36 PM	0	25.918	23.42	25.192	25.81	23.295	31.383	31.15	38.01	2.298	29.294	6.137	-0.042	15.618	0.478	0	154	6.5	30.2	2.1	0.209	0.208	0.0069	6.87	5.8
161	5/25/1999	2:33:35 PM	0	25.918	23.42	25.192	25.73	23.295	30.906	31.428	38.437	2.386	29.632	6.168	-0.089	15.571	0.42	0	155	6.5	30.5	2.1	0.183	0.182	0.0060	5.97	5.1
162	5/25/1999	2:34:40 PM	0	25.873	23.374	25.147	25.764	23.491	30.702	28.019	37.308	2.298	28.421	6.51	-0.089	15.971	1.073	0	156	6.6	27.2	1.9	0.468	0.466	0.0171	17.14	14.6

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.13

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
163	5/25/1999	2:35:37 PM	0	25.918	23.42	25.192	25.97	23.697	30.509	30.065	37.613	2.274	28.179	6.784
164	5/25/1999	2:36:38 PM	0	25.918	23.42	25.192	26.05	23.858	30.35	31.088	37.857	2.298	29.668	6.076
165	5/25/1999	2:37:35 PM	0	25.884	23.385	25.238	26.255	24.063	30.236	31.18	38.193	2.282	29.362	6.199
166	5/25/1999	2:38:34 PM	0	25.884	23.385	25.238	26.255	24.224	30.156	31.304	38.315	2.354	29.801	6.26
167	5/25/1999	2:39:35 PM	0	25.929	23.35	25.283	26.46	24.51	30.261	31.428	38.467	2.346	29.497	6.26
168	5/25/1999	2:40:34 PM	0	25.974	23.395	25.248	26.585	24.635	30.246	31.057	38.193	2.354	29.903	6.291
169	5/25/1999	2:41:38 PM	0	25.939	23.44	25.293	26.95	24.841	29.973	31.242	38.254	2.314	29.632	6.322
170	5/25/1999	2:42:37 PM	0	25.965	23.406	25.339	26.915	24.806	30.336	31.18	38.071	2.242	29.193	6.291
171	5/25/1999	2:43:35 PM	0	25.95	23.451	25.304	26.881	24.691	30.62	31.304	38.559	2.465	29.768	6.322
172	5/25/1999	2:44:37 PM	0	25.87	23.371	25.304	26.881	24.451	31.017	31.459	38.467	2.378	30.004	6.322
173	5/25/1999	2:45:36 PM	0	26.041	23.381	25.315	26.891	24.301	31.107	31.428	38.437	2.45	29.903	6.353
174	5/25/1999	2:46:37 PM	0	26.006	23.507	25.36	26.857	24.266	31.549	30.53	37.156	2.202	28.922	5.829
175	5/25/1999	2:47:38 PM	0	26.051	23.472	25.405	26.822	23.911	32.386	30.282	34.381	-0.734	-4.108	3.856
176	5/25/1999	2:48:39 PM	0	25.971	23.472	25.325	26.822	23.75	32.545	54.396	61.578	3.303	51.27	6.291
177	5/25/1999	2:49:36 PM	0	26.017	23.518	25.371	26.628	23.394	32.907	44.849	51.974	2.92	42.919	6.414
178	5/25/1999	2:50:35 PM	0	26.017	23.518	25.291	26.548	23.153	33.461	-0.186	-1.749	0.495	-0.288	-2.153
179	5/25/1999	2:51:38 PM	0	25.937	23.518	25.291	26.548	22.912	33.461	0.031	-1.749	0.487	-0.017	-2.369
180														
181		Averages		24.7	23.1	24.1	25.9	22.9	32.1	31.0	38.2	2.5	29.1	6.4
182		Maximum		25.8	23.4	25.2	26.6	24.6	34.1	32.1	39.3	2.7	30.0	8.0
183		Median		24.8	23.2	24.1	25.9	22.8	32.3	30.9	38.0	2.6	29.0	6.4
184		Minimum		23.6	22.8	22.8	25.2	21.6	30.0	27.2	35.9	2.2	25.6	6.2
185		Std Dev		0.7	0.1	0.8	0.4	0.9	1.3	0.7	0.6	0.1	0.6	0.2
186		Number of Points Used		125	125	125	125	125	125	125	125	125	125	125

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163	-0.042	15.786	0.734	0	157	6.6	29.1	2.0	0.320	0.319	0.0109	10.94	9.3
164	-0.089	15.648	0.567	0	158	6.5	30.4	2.1	0.248	0.246	0.0081	8.10	6.9
165	-0.089	15.618	0.467	0	159	6.5	30.3	2.1	0.204	0.203	0.0067	6.69	5.7
166	-0.089	15.602	0.411	0	160	6.5	30.6	2.1	0.179	0.178	0.0058	5.83	5.0
167	-0.089	15.556	0.375	0	161	6.5	30.5	2.1	0.164	0.162	0.0053	5.33	4.5
168	-0.089	15.556	0.349	0	162	6.5	30.5	2.1	0.152	0.151	0.0050	4.96	4.2
169	-0.042	15.51	0.326	0	163	6.4	30.4	2.1	0.142	0.141	0.0046	4.64	3.9
170	-0.042	15.495	0.309	0	164	6.4	30.2	2.1	0.135	0.134	0.0044	4.43	3.8
171	-0.089	15.495	0.297	0	165	6.4	30.5	2.1	0.130	0.129	0.0042	4.21	3.6
172	-0.089	15.541	0.285	0	166	6.4	30.7	2.1	0.124	0.123	0.0040	4.01	3.4
173	-0.042	15.495	0.275	0	167	6.4	30.7	2.1	0.120	0.119	0.0039	3.88	3.3
174	-0.042	15.802	0.912	0	168	6.6	29.7	2.0	0.398	0.394	0.0133	13.26	11.3
175	-0.089	-0.065	0.011	0	169	0.0	13.1	0.9	0.005	0.005	0.0004	0.36	0.3
176	-0.042	20.41	1.026	0	170	8.5	52.8	3.6	0.448	0.444	0.0084	8.40	7.1
177	-0.089	18.582	0.658	0	171	7.7	43.9	3.0	0.287	0.284	0.0065	6.48	5.5
178	-0.042	-0.08	0.011	0	172	0.0	-0.2	0.0	0.005	0.005	-0.0201	-20.10	-17.1
179	-0.042	-0.08	0.011	0	173	0.0	0.0	0.0	0.005	0.005	0.6804	680.40	579.0
180													
181	-0.1	15.6	0.194	0.0		6.5	30.0	2.1	0.085	0.087	0.003	2.9	2.5
182	0.0	16.1	1.109	0.0		6.7	31.0	2.1	0.484	0.498	0.019	18.8	16.0
183	-0.1	15.6	0.165	0.0		6.5	29.9	2.1	0.072	0.074	0.002	2.5	2.1
184	-0.1	15.3	0.156	0.0		6.4	26.4	1.8	0.068	0.068	0.002	2.2	1.9
185	0.0	0.1	0.104	0.0		0.1	0.6	0.0	0.045	0.047	0.002	1.8	1.5
186	125	125	125	125		125	125	125	125	125	125	125	125



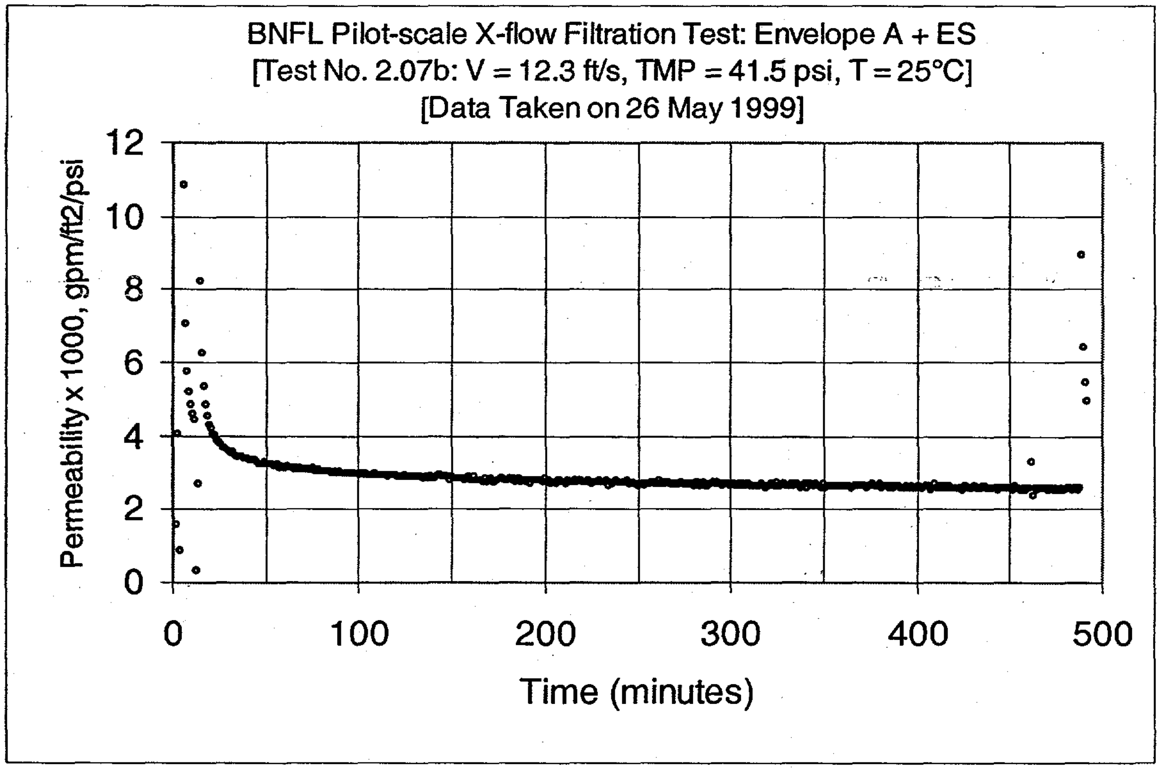


Figure B16: Test Run 2.07b, 0.5 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeroe			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/26/1999	9:13:40 AM	0	24.351	21.926	24.345	22.796	22.481	29.967	-0.062	0.02	-0.016	0.016	-0.057	-0.135	-0.08	0.011	0.003		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/26/1999	9:15:12 AM	0	24.351	21.926	24.345	22.796	22.481	29.987	-0.062	0.02	-0.016	0.016	-0.057	-0.135	-0.08	0.011	0.003									
5	5/26/1999	9:16:12 AM	0	24.316	21.971	24.23	22.841	22.652	30.191	-0.062	0.02	-0.016	-0.017	-0.057	-0.135	-0.08	0.011	0.003									
6	5/26/1999	9:17:12 AM	0	24.316	21.936	24.31	22.921	22.652	30.111	-0.062	0.02	-0.016	-0.017	-0.027	-0.135	-0.08	0.011	0.003									
7	5/26/1999	9:18:13 AM	0	24.28	21.936	24.275	22.886	22.617	30.156	-0.062	0.02	-0.016	-0.017	-0.057	-0.181	-0.08	0.011	0									
8	data																							at 25C	PERMIABILITY x 1000		PERMIABILITY
9	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
10	5/26/1999	9:32:25 AM	1	23.738	22.036	24.134	22.825	21.349	32.118	0.124	-1.779	0.431	0.05	-2.369	71.779	-0.08	0.011	0	1	0.0	0.1	0.0	0.005	0.005	0.0566	56.56	48.1
11	5/26/1999	9:33:26 AM	1	23.899	22.036	24.535	22.825	21.384	32.195	7.903	40.053	9.981	-1.674	31.561	71.918	40.331	0.011	0	2	16.7	3.1	0.2	0.005	0.005	0.0016	1.56	1.3
12	5/26/1999	9:34:26 AM	1	24.175	21.991	24.971	22.78	21.51	32.239	4.184	22.826	6.048	-1.809	17.94	71.871	30.102	0.011	0	3	12.5	1.2	0.1	0.005	0.005	0.0040	4.05	3.4
13	5/26/1999	9:35:26 AM	0	24.656	21.991	25.372	22.7	21.303	32.274	8.368	22.43	6.16	2.62	13.471	-0.089	30.532	0.011	0	4	12.7	5.5	0.4	0.005	0.005	0.0009	0.86	0.7
14	5/26/1999	9:36:26 AM	0	25.297	22.026	25.772	22.735	21.258	32.309	15.373	22.399	6.072	9.787	6.568	-0.135	30.655	0.409	0	5	12.7	12.6	0.9	0.179	0.175	0.0139	13.89	11.8
15	5/26/1999	9:37:26 AM	0	25.493	22.026	26.127	22.735	21.177	32.071	36.388	47.522	5.92	31.12	10.421	-0.135	29.779	0.867	0.003	6	12.4	33.8	2.3	0.378	0.367	0.0109	10.86	9.2
16	5/26/1999	9:38:26 AM	0	26.168	21.901	26.482	22.735	21.419	31.709	42.401	51.547	5.394	37.882	8.756	-0.135	27.951	0.677	0.003	7	11.6	40.1	2.8	0.296	0.284	0.0071	7.06	6.0
17	5/26/1999	9:39:26 AM	0	26.568	21.981	26.801	22.69	21.454	31.392	43.299	50.084	5.992	37.814	6.353	-0.135	29.595	0.564	0	8	12.3	40.6	2.8	0.246	0.234	0.0058	5.77	4.9
18	5/26/1999	9:40:26 AM	0	26.808	21.981	27.2	22.69	21.616	31.154	42.618	49.535	6.104	37.544	6.414	-0.181	29.979	0.505	0.003	9	12.4	40.1	2.8	0.220	0.207	0.0052	5.17	4.4
19	5/26/1999	9:41:26 AM	0	27.127	21.981	27.52	22.851	21.857	30.995	42.866	50.053	6.231	36.901	6.476	-0.135	29.948	0.473	0	10	12.4	39.9	2.7	0.206	0.192	0.0048	4.83	4.1
20	5/26/1999	9:42:26 AM	0	27.207	22.062	27.28	23.011	22.099	30.757	42.122	49.26	6.239	36.09	6.445	-0.135	29.749	0.438	0	11	12.3	39.1	2.7	0.191	0.179	0.0046	4.59	3.9
21	5/26/1999	9:43:26 AM	0	27.447	21.981	27.2	23.413	22.34	30.598	41.874	49.077	6.12	36.529	6.507	-0.135	29.626	0.424	0	12	12.3	39.2	2.7	0.185	0.174	0.0044	4.44	3.8
22	5/26/1999	9:44:27 AM	0	27.287	21.981	26.961	23.815	22.501	30.439	18.442	49.199	6.128	13.878	30.174	-0.135	29.518	0.011	0	13	12.3	16.2	1.1	0.005	0.005	0.0003	0.28	0.2
23	5/26/1999	9:45:27 AM	0	27.207	21.981	26.721	24.136	22.707	30.28	4.308	49.108	5.753	-0.896	44.258	-0.135	29.441	0.011	0	14	12.2	1.7	0.1	0.005	0.005	0.0027	2.68	2.3
24	5/26/1999	9:46:27 AM	0	27.172	22.107	26.561	24.341	22.823	30.2	41.471	49.321	5.753	36.529	7.308	-0.135	29.288	0.765	0	15	12.2	39.0	2.7	0.334	0.320	0.0082	8.20	7.0
25	5/26/1999	9:47:27 AM	0	27.012	22.107	26.287	24.502	23.029	30.165	43.175	50.236	5.936	37.814	6.199	-0.135	29.088	0.6	0	16	12.1	40.5	2.8	0.262	0.253	0.0062	6.24	5.3
26	5/26/1999	9:48:27 AM	0	26.933	22.026	26.127	24.662	23.189	30.006	42.99	49.992	5.944	37.611	6.291	-0.135	28.965	0.508	0	17	12.0	40.3	2.8	0.222	0.215	0.0053	5.33	4.5
27	5/26/1999	9:49:27 AM	0	26.693	22.026	25.932	24.707	23.315	29.972	43.113	50.023	5.904	38.355	6.353	-0.135	28.827	0.462	0	18	12.0	40.7	2.8	0.202	0.196	0.0048	4.82	4.1
28	5/26/1999	9:50:27 AM	0	26.578	22.117	25.692	24.788	23.475	29.972	43.361	50.48	5.928	37.544	6.383	-0.135	28.812	0.43	0	19	12.0	40.5	2.8	0.188	0.184	0.0046	4.55	3.9
29	5/26/1999	9:51:27 AM	0	26.463	21.991	25.577	24.833	23.44	29.937	42.928	49.931	5.912	37.814	6.414	-0.135	28.858	0.405	0	20	12.0	40.4	2.8	0.177	0.174	0.0043	4.31	3.7
30	5/26/1999	9:52:27 AM	0	26.303	22.162	25.381	24.913	23.485	29.857	43.299	50.388	6.064	37.375	6.383	-0.135	28.888	0.389	0	21	12.0	40.3	2.8	0.170	0.168	0.0042	4.17	3.5
31	5/26/1999	9:53:28 AM	0	26.188	22.082	25.221	24.878	23.611	29.902	43.299	50.297	6.008	37.713	6.445	-0.135	28.827	0.375	0	22	12.0	40.5	2.8	0.164	0.163	0.0040	4.02	3.4
32	5/26/1999	9:54:28 AM	0	26.073	22.046	25.106	25.003	23.611	29.947	42.866	49.87	5.92	37.375	6.445	-0.135	28.781	0.365	0	23	11.9	40.1	2.8	0.159	0.159	0.0040	3.96	3.4
33	5/26/1999	9:55:28 AM	0	25.958	22.092	24.946	25.048	23.656	30.026	43.052	50.358	6.048	37.577	6.476	-0.135	28.827	0.357	0	24	12.0	40.3	2.8	0.156	0.156	0.0039	3.87	3.3
34	5/26/1999	9:56:28 AM	0	25.798	22.092	24.751	25.128	23.576	29.991	42.711	49.809	5.968	37.577	6.476	-0.135	28.796	0.35	0	25	12.0	40.1	2.8	0.153	0.154	0.0038	3.83	3.3
35	5/26/1999	9:57:28 AM	0	25.683	22.137	24.716	25.173	23.701	30.195	43.021	49.962	5.912	37.442	6.538	-0.135	28.504	0.346	0	26	11.8	40.2	2.8	0.151	0.152	0.0038	3.78	3.2
36	5/26/1999	9:58:28 AM	0	25.568	22.102	24.52	25.138	23.586	30.717	43.299	50.541	6.072	37.949	6.507	-0.135	28.673	0.338	0	27	11.9	40.6	2.8	0.148	0.150	0.0037	3.68	3.1
37	5/26/1999	9:59:28 AM	0	25.407	22.102	24.405	25.183	23.345	31	43.268	50.449	6.088	37.51	6.445	-0.135	28.858	0.333	0	28	12.0	40.4	2.8	0.145	0.148	0.0037	3.66	3.1
38	5/26/1999	10:00:28 AM	0	25.292	22.147	24.325	25.023	23.23	31.442	42.835	49.779	6.04	37.78	6.507	-0.135	28.796	0.328	0	29	12.0	40.3	2.8	0.143	0.146	0.0036	3.62	3.1
39	5/26/1999	10:01:29 AM	0	25.177	22.193	24.29	25.068	22.828	31.362	43.392	50.815	6.032	38.287	6.538	-0.135	28.504	0.326	0	30	11.8	40.8	2.8	0.142	0.145	0.0036	3.56	3.0
40	5/26/1999	10:02:29 AM	0	25.062	22.193	24.29	24.908	22.712	31.6	43.082	50.358	5.992	37.882	6.507	-0.135	28.443	0.323	0	31	11.8	40.5	2.8	0.141	0.144	0.0036	3.55	3.0
41	5/26/1999	10:03:29 AM	0	24.937	22.112	24.13	24.873	22.597	31.759	42.773	49.779	5.88	37.51	6.507	-0.135	28.458	0.32	0	32	11.8	40.1	2.8	0.140	0.143	0.0036	3.57	3.0
42	5/26/1999	10:04:29 AM	0	24.857	22.238	24.175	24.873	22.391	31.883	43.299	50.358	5.824	38.017	6.538	-0.135	28.412	0.318	0	33	11.8	40.7	2.8	0.139	0.142	0.0035	3.49	3.0
43	5/26/1999	10:05:29 AM	0	24.822	22.238	24.095	24.587	22.355	31.962	43.392	50.51	5.984	37.983	6.538	-0.135	28.458	0.313	0	34	11.8	40.7	2.8	0.137	0.140	0.0034	3.45	2.9
44	5/26/1999	10:06:29 AM	0	24.742	22.238	24.095	24.587	22.275	31.962	43.609	50.846	5.976	37.983	6.507	-0.135	28.458	0.311	0	35	11.8	40.8	2.8	0.136	0.139	0.0034	3.41	2.9
45	5/26/1999	10:07:29 AM	0	24.616	22.193	24.015	24.552	22.275	32.042	43.33	50.297	5.864	37.814	6.507	-0.135	28.489	0.308	0	36	11.8	40.6	2.8	0.134	0.138	0.0034	3.41	2.9
46	5/26/1999	10:08:29 AM	0	24.616	22.238	23.889	24.507	22.114	32.235	42.804	49.901	5.944	37.544	6.476	-0.135	28.643	0.306	0	37	11.9	40.2	2.8	0.134	0.138	0.0034	3.43	2.9
47	5/26/1999	10:09:29 AM	0	24.536	22.193	23.934	24.427	22.195	32.121	43.175	50.358	6.128	38.051	6.507	-0.135	28.673	0.303	0	38	11.9	40.6	2.8	0.132	0.136	0.0034	3.36	2.9
48	5/26/1999	10:10:29 AM	0	24.581	22.273	23.889	24.507	22.069	32.076	43.021	49.962	5.984	37.408	6.507	-0.135	28.643	0.302	0	39	11.9	40.2	2.8	0.132	0.136	0.0034	3.38	2.9
49	5/26/1999	10:11:29 AM	0	24.411	22.228	23.844	24.427	22.069	32.235	42.711	49.87	5.984	37.273	6.507	-0.135	28.612	0.299	0.003	40	11.9	40.0	2.8	0.131	0.135	0.0034	3.37	2.9
50	5/26/1999	10:12:30 AM	0	24.491	22.228	23.764	24.507	22.023	32.031	43.299	50.48	6.072	37.713	6.538	-0.135	28.597	0.297	0	41	11.9	40.5	2.8	0.130	0.134	0.0033	3.31	2.8
51	5/26/1999	10:13:30 AM	0	24.411	22.308	23.764	24.301	22.023	32.031	42.99	50.358	6.024	37.882	6.538	-0.135	28.75	0.296	0	42	11.9	40.4	2.8	0.129	0.134	0.0033	3.31	2.8
52	5/26/1999	10:14:30 AM	0	24.411	22.228	23.764	24.256	21.862	32.031	43.175	50.175	5.96	37.476	6.538	-0.135	28.658	0.295	0	43	11.9	40.3	2.8	0.129	0.133	0.0033	3.31	2.8
53	5/26/1999	10:15:30 AM	0	24.285	22.182	23.683	24.256	21.978	31.987	42.711	49.901	5.968	37.611	6.568	-0.135	28.597	0.293	0	44	11.9	40.2	2.8	0.128	0.133	0.0033	3.31	2.8
54	5/26/1999	10:16:30 AM	0	24.285	22.263	23.718	24.336	21.978	31.907	43.361	50.846	6.144	37.239	6.507	-0.089	28.627	0.291	0	45	11.9	40.3	2.8	0.127	0.132	0.0033	3.27	2.8
55	5/26/1999	10:17:30 AM	0	24.205	22.218	23.593	24.417	22.013	31.942	43.671	50.937	6.064	37.848	6.568	-0.135	28.581	0.29	0.003	46	11.9	40.8	2.8	0.127	0.132	0.0032	3.23	2.8
56	5/26/1999	10:18:30 AM	0	24.24	22.298	23.673	24.372	21.933	31.942	43.175	50.297	6.008	37.848	6.568	-0.135	28.597	0.29	0	47	11.9	40.5	2.8	0.127	0.131	0.0032	3.24	2.8
57	5/26/1999	10:19:30 AM	0	24.24	22.298	23.753	24.452	22.013	31.783	42.835	50.175	5.968	38.017	6.599	-0.135	28.458	0.29	0	48	11.8	40.4	2.8	0.127	0.131	0.0032	3.24	2.8
58	5/26/1999	10:20:30 AM	0	24.32	22.253	23.949	24.407	21.968	31.897	42.99	50.236	5.976	37.442	6.599	-0.135	28.489	0.291	0	49	11.8	40.2	2.8	0.127	0.131	0.0033	3.25	2.8
59	5/26/1999	10:21:30 AM	0	24.4	22.253	24.029	24.407	22.048	31.58	42.773	50.206	6.024	37.882	6.661	-0.135	28.504	0.29	0	50	11.8	40.3	2.8	0.127	0.130	0.0032	3.23	2.7
60	5/26/1999	10:22:31 AM	0	24.355	22.253	24.144	24.407	22.29	31.139	42.835	50.053	5.944	37.915	6.63	-0.135	28.489	0.29	0	51	11.8	40.4	2.8	0.127	0.130	0.0032	3.21	2.7
61	5/26/1999	10:23:31 AM	0	24.516	22.333	24.225	24.487	22.405	30.821	42.618	49.809	5.96	37.814	6.661	-0.135	28.458	0.289	0	52	11.8	40.2	2.8	0.126	0.129	0.0032	3.21	2.7
62	5/26/1999	10:24:31 AM	0	24.631	22.288	24.305	24.442	22.772	30.662	42.711	50.236	5.976	37.577	6.63	-0.135	28.55	0.289	0.003	53	11.8	40.1	2.8	0.126	0.129	0.0032	3.20	2.7
63	5/26/1999	10:25:31 AM	0	24.756	22.253	24.43	24.647	22.888	30.503	42.99	50.388	6.024	37.679	6.661	-0.135	28.689	0.29	0	54	11.9	40.3	2.8	0.127	0.129	0.0032	3.19	2.7
64	5/26/1999	10:26:31 AM	0	24.836	22.414	24.59	24.727	23.013	30.389	42.99	50.388	5.928	37.814	6.722	-0.135	28.458	0.291	0	55	11.8	40.4	2.8	0.127	0.129	0.0032	3.18	2.7
65	5/26/1999	10:27:31 AM	0	24.836	22.333	24.671	24.888	23.174	30.23	43.021	50.449	5.92	37.611	6.692	-0.135	28.382	0.293	0	56	11.8	40.3	2.8	0.128	0.129	0.0032	3.20	2.7
66	5/26/1999	10:28:31 AM	0	24.917	22.333	24.671	25.048	23.415	30.275	43.206	50.48	5.968	38.186	6.692	-0.135	28.428	0.291	0	57	11.8	40.7	2.8	0.127	0.128	0.0032	3.15	2.7
67	5/26/1999	10:29:31 AM	0	25.042	22.298	24.796	25.173	23.541	30.116	42.835	50.266	5.848	37.544	6.692	-0.135	28.458	0.291	0	58	11.8	40.2	2.8	0.127	0.128	0.0032	3.18	2.7
68	5/26/1999	10:30:31 AM	0	25.122	22.343	24.876	25.173	23.666	30.036	42.697	50.053	5.832	37.78	6.692	-0.135	28.443	0.289	0	59	11.8	40.3	2.8	0.126	0.127	0.0031	3.14	2.7
69	5/26/1999	10:31:31 AM	0	25.247	22.424	25.001	25.138	23.746	30.081	43.206	50.785	5.785	38.152	6.753	-0.089	28.059	0.29	0	60	11.6	40.7	2.8	0.127	0.127	0.0031	3.11	2.6
70	5/26/1999	10:32:32 AM	0	25.327	22.389	25.046	25.298	23.827	29.922	43.052	50.48	5.689	38.355	6.784	-0.135	27.967	0.296	0	61	11.6	40.7	2.8	0.129	0.129	0.0032	3.17	2.7
71	5/26/1999	10:33:32 AM	0	25.372	22.308	25.127	25.344	24.193	29.967	43.454	50.876	5.896	37.882	6.753	-0.135	28.136	0.293	0	62	11.7	40.7	2.8	0.128	0.127	0.0031	3.13	2.7
72	5/26/1999	10:34:32 AM	0	25.498	22.354	25.332	25.549	24.238	29.852	42.804	50.114	5.896	37.78	6.692	-0.089	28.428	0.29	0	63	11.8	40.3	2.8	0.127	0.125	0.0031	3.11	2.6
73	5/26/1999	10:35:32 AM	0	25.498	22.399	25.377	25.674	24.364	29.897	42.928	50.297	5.944	37.645	6.692	-0.135	28.504	0.291	0	64	11.8	40.3	2.8	0.127	0.126	0.0031	3.12	2.7
74	5/26/1999	10:36:32 AM	0	25.543	22.399	25.422	25.799	24.203	30.136	43.021	50.206	5.872	37.611	6.692	-0.089	28.489	0.289	0	65	11.8	40.3	2.8	0.126	0.125	0.0031	3.09	2.6
75	5/26/1999	10:37:32 AM	0	25.668	22.409	25.502	25.764	24.008	30.576	42.773	50.388	5.904	37.476	6.692	-0.135	28.581	0.29	0	66	11.9	40.1	2.8	0.127	0.125	0.0031	3.11	2.6
76	5/26/1999	10:38:32 AM	0	25.713	22.409	25.547	25.764	23.652	30.941	43.268	50.541	5.952	37.375	6.692	-0.089	28.535	0.29	0	67	11.8	40.3	2.8	0.127	0.125	0.0031	3.09	2.6
77	5/26/1999	10:39:32 AM	0	25.919	22.455	25.593	25.73	23.617	31.383	42.773	50.023	5.88	37.307	6.661	-0.135	28.581	0.291	0	68	11.9	40.0	2.8	0.127	0.125	0.0031	3.12	2.7
78	5/26/1999	10:40:32 AM	0	25.964	22.5	25.798	25.695	23.341	31.541	42.928	50.175	5.992	37.239	6.692	-0.135	28.597	0.288	0	69	11.9	40.1	2.8	0.126	0.123	0.0031	3.07	2.6
79	5/26/1999	10:41:32 AM	0	26.044	22.5	25.798	25.535	23.261	31.903	42.928	50.419	5.761	38.355	6.846	-0.089	27.859	0.293	0	70	11.6	40.6	2.8	0.128	0.125	0.0031	3.08	2.6
80	5/26/1999	10:42:32 AM	0	26.089	22.465	25.798	25.42	23.065	31.363	43.671	51.212	5.729	38.084	6.815	-0.089	28.013	0.294	0	71	11.6	40.9	2.8	0.128	0.125	0.0031	3.07	2.6
81	5/26/1999	10:43:33 AM	0	26.169	22.465	25.843	25.42	22.985	32.028	43.392	50.907	5.785	38.389	6.815	-0.135	28.059	0.293	0.003	72	11.6	40.9	2.8	0.128	0.125	0.0031	3.05	2.6

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/26/1999	10:44:33 AM	0	26.214	22.465	25.968	25.259	22.869	31.993	43.268	50.48	5.785	38.321	6.815	-0.089	28.044	0.293	0.003	73	11.6	40.8	2.8	0.128	0.124	0.0031	3.05	2.6
83	5/26/1999	10:45:33 AM	0	26.294	22.511	25.968	25.225	22.869	31.993	43.144	50.51	5.713	38.118	6.816	-0.135	27.967	0.294	0	74	11.6	40.6	2.8	0.128	0.125	0.0031	3.07	2.6
84	5/26/1999	10:46:33 AM	0	26.294	22.511	25.888	25.225	22.789	32.152	42.649	50.297	5.848	37.746	6.938	-0.089	27.414	0.296	0.003	75	11.4	40.2	2.8	0.129	0.126	0.0031	3.14	2.7
85	5/26/1999	10:47:33 AM	0	26.134	22.511	25.648	25.225	22.708	32.231	41.44	48.407	6.542	35.887	6.322	-0.089	30.04	0.274	0	76	12.5	38.7	2.7	0.120	0.117	0.0030	3.04	2.6
86	5/26/1999	10:48:33 AM	0	26.134	22.511	25.568	25.305	22.789	32.152	41.533	48.468	6.487	35.616	6.353	-0.089	29.964	0.272	0	77	12.4	38.6	2.7	0.119	0.117	0.0030	3.03	2.6
87	5/26/1999	10:49:33 AM	0	26.134	22.591	25.408	25.225	22.708	32.072	41.378	48.224	6.351	35.481	6.353	-0.089	30.025	0.272	0	78	12.5	38.4	2.6	0.119	0.117	0.0031	3.05	2.6
88	5/26/1999	10:50:33 AM	0	25.974	22.511	25.328	25.225	22.708	31.914	41.936	48.894	6.455	36.056	6.383	-0.089	29.856	0.272	0	79	12.4	39.0	2.7	0.119	0.118	0.0030	3.02	2.6
89	5/26/1999	10:51:34 AM	0	25.974	22.511	25.248	25.225	22.95	32.31	41.688	48.559	6.399	35.481	6.353	-0.135	30.04	0.269	0	80	12.5	38.6	2.7	0.117	0.117	0.0030	3.02	2.6
90	5/26/1999	10:52:34 AM	0	25.894	22.591	25.088	25.225	22.708	32.152	41.285	48.102	6.407	35.583	6.383	-0.089	30.04	0.268	0	81	12.5	38.4	2.6	0.117	0.117	0.0030	3.04	2.6
91	5/26/1999	10:53:34 AM	0	25.769	22.546	25.008	25.225	22.789	32.31	41.75	48.62	6.423	35.346	6.383	-0.089	30.04	0.267	0	82	12.5	38.5	2.7	0.117	0.117	0.0030	3.02	2.6
92	5/26/1999	10:54:34 AM	0	25.689	22.626	24.928	25.305	22.663	32.107	41.471	48.559	6.542	35.549	6.445	-0.135	29.979	0.265	0	83	12.4	38.5	2.7	0.116	0.116	0.0030	3.01	2.6
93	5/26/1999	10:55:34 AM	0	25.689	22.546	24.802	25.179	22.743	32.503	41.595	48.712	6.527	35.549	6.445	-0.089	30.025	0.266	0	84	12.5	38.6	2.7	0.116	0.117	0.0030	3.03	2.6
94	5/26/1999	10:56:34 AM	0	25.609	22.546	24.642	25.179	22.663	32.028	41.595	48.681	6.423	35.515	6.445	-0.089	30.025	0.263	0	85	12.5	38.6	2.7	0.115	0.116	0.0030	3.01	2.6
95	5/26/1999	10:57:34 AM	0	25.449	22.546	24.597	25.179	22.663	32.345	41.378	48.163	6.383	35.786	6.476	-0.089	29.964	0.262	0	86	12.4	38.6	2.7	0.114	0.116	0.0030	3.00	2.6
96	5/26/1999	10:58:34 AM	0	25.449	22.581	24.562	25.134	22.618	32.062	41.657	48.681	6.487	35.988	6.507	-0.135	30.025	0.261	0	87	12.5	38.8	2.7	0.114	0.115	0.0030	2.97	2.5
97	5/26/1999	10:59:34 AM	0	25.243	22.581	24.482	25.134	22.618	32.379	41.781	48.955	6.511	35.616	6.507	-0.089	29.994	0.264	0	88	12.4	38.7	2.7	0.115	0.117	0.0030	3.02	2.6
98	5/26/1999	11:00:34 AM	0	25.243	22.661	24.436	25.134	22.618	32.3	41.564	48.894	6.542	35.616	6.507	-0.089	29.994	0.261	0	89	12.4	38.6	2.7	0.114	0.116	0.0030	3.00	2.6
99	5/26/1999	11:01:35 AM	0	25.163	22.581	24.276	25.214	22.572	32.221	41.657	48.681	6.343	35.955	6.568	-0.089	29.702	0.263	0	90	12.3	38.8	2.7	0.115	0.117	0.0030	3.02	2.6
100	5/26/1999	11:02:35 AM	0	25.083	22.661	24.276	25.214	22.572	32.3	44.601	52.309	6.503	38.524	7.154	-0.089	29.933	0.276	0	91	12.4	41.6	2.9	0.120	0.123	0.0030	2.96	2.5
101	5/26/1999	11:03:35 AM	0	24.957	22.661	24.276	25.089	22.652	32.255	44.725	52.736	6.519	38.862	7.123	-0.135	29.672	0.281	0	92	12.3	41.8	2.9	0.123	0.125	0.0030	3.00	2.5
102	5/26/1999	11:04:35 AM	0	24.957	22.696	24.15	25.169	22.652	31.7	44.384	52.126	6.479	38.727	7.031	-0.089	29.887	0.277	0	93	12.4	41.6	2.9	0.121	0.124	0.0030	2.98	2.5
103	5/26/1999	11:05:35 AM	0	24.832	22.616	24.15	25.249	22.974	31.303	44.694	52.309	6.479	38.49	7.061	-0.089	29.871	0.278	0	94	12.4	41.6	2.9	0.121	0.124	0.0030	2.99	2.5
104	5/26/1999	11:06:35 AM	0	24.797	22.696	24.15	25.249	23.215	31.065	44.539	52.004	6.335	38.761	7.031	-0.089	29.917	0.276	0	95	12.4	41.7	2.9	0.120	0.123	0.0030	2.96	2.5
105	5/26/1999	11:07:35 AM	0	24.842	22.616	24.15	25.409	23.33	30.827	44.911	52.584	6.479	38.558	7.031	-0.089	29.871	0.277	0	96	12.4	41.7	2.9	0.121	0.124	0.0030	2.97	2.5
106	5/26/1999	11:08:35 AM	0	24.717	22.696	24.07	25.409	23.617	30.747	44.291	51.913	6.415	38.659	7	-0.089	29.871	0.277	0.003	97	12.4	41.5	2.9	0.121	0.124	0.0030	2.99	2.5
107	5/26/1999	11:09:35 AM	0	24.637	22.696	24.07	25.615	23.777	30.554	44.291	52.279	6.582	38.896	7	-0.089	29.933	0.275	0	98	12.4	41.6	2.9	0.120	0.123	0.0030	2.96	2.5
108	5/26/1999	11:10:35 AM	0	24.682	22.661	24.035	25.695	23.983	30.474	44.26	52.065	6.479	38.794	7	-0.089	29.933	0.276	0	99	12.4	41.5	2.9	0.120	0.124	0.0030	2.98	2.5
109	5/26/1999	11:11:35 AM	0	24.602	22.661	24.035	25.775	24.144	30.795	44.663	52.187	6.359	38.524	6.969	-0.089	29.902	0.277	0	100	12.4	41.6	2.9	0.121	0.124	0.0030	2.99	2.5
110	5/26/1999	11:12:35 AM	0	24.647	22.741	24.116	25.82	24.269	30.281	45.035	52.584	6.479	38.761	6.938	-0.089	29.841	0.276	0	101	12.4	41.9	2.9	0.120	0.124	0.0029	2.95	2.5
111	5/26/1999	11:13:35 AM	0	24.647	22.706	24.241	26.06	24.51	30.201	44.353	51.974	6.463	38.696	6.969	-0.089	29.994	0.276	0	102	12.4	41.6	2.9	0.120	0.123	0.0030	2.96	2.5
112	5/26/1999	11:14:35 AM	0	24.692	22.752	24.367	26.105	24.555	30.246	44.787	52.401	6.439	38.862	7	-0.089	29.887	0.276	0	103	12.4	41.8	2.9	0.120	0.123	0.0029	2.93	2.5
113	5/26/1999	11:15:36 AM	0	24.738	22.717	24.492	26.151	24.52	30.609	44.663	52.309	6.479	38.287	7	-0.089	29.994	0.279	0	104	12.4	41.5	2.9	0.122	0.124	0.0030	2.98	2.5
114	5/26/1999	11:16:36 AM	0	24.738	22.762	24.618	26.196	24.325	30.847	44.663	52.248	6.511	38.456	7	-0.089	29.917	0.277	0	105	12.4	41.6	2.9	0.121	0.122	0.0029	2.94	2.5
115	5/26/1999	11:17:36 AM	0	24.909	22.762	24.618	26.196	24.05	31.289	44.911	52.706	6.542	38.558	7.061	-0.089	29.887	0.278	0	106	12.4	41.7	2.9	0.121	0.123	0.0029	2.94	2.5
116	5/26/1999	11:18:36 AM	0	24.989	22.728	24.823	26.161	23.889	31.607	44.508	52.492	6.439	38.321	7.061	-0.089	29.994	0.277	0	107	12.4	41.4	2.9	0.121	0.122	0.0029	2.93	2.5
117	5/26/1999	11:19:36 AM	0	25.069	22.808	24.903	26.081	23.774	31.855	44.725	52.462	6.399	38.727	7.092	-0.089	29.702	0.28	0	108	12.3	41.7	2.9	0.122	0.123	0.0029	2.94	2.5
118	5/26/1999	11:20:36 AM	0	25.194	22.853	24.949	25.966	23.694	32.093	44.074	52.004	6.383	38.558	7.092	-0.089	29.964	0.279	0.003	109	12.4	41.3	2.8	0.122	0.122	0.0030	2.95	2.5
119	5/26/1999	11:21:36 AM	0	25.32	22.819	25.029	25.966	23.498	32.252	44.477	52.187	6.391	38.321	7.092	-0.089	29.933	0.279	0	110	12.4	41.4	2.9	0.122	0.122	0.0029	2.94	2.5
120	5/26/1999	11:22:36 AM	0	25.32	22.819	25.154	26.012	23.498	32.297	44.508	52.096	6.423	38.693	7.123	-0.089	30.025	0.279	0	111	12.5	41.6	2.9	0.122	0.121	0.0029	2.92	2.5
121	5/26/1999	11:23:36 AM	0	25.4	22.899	25.235	25.932	23.177	32.455	44.105	51.699	6.375	38.456	7.123	-0.042	29.994	0.279	0	112	12.4	41.3	2.8	0.122	0.121	0.0029	2.93	2.5
122	5/26/1999	11:24:36 AM	0	25.48	22.819	25.235	25.932	23.257	32.297	44.26	51.913	6.391	38.524	7.092	-0.089	29.933	0.281	0	113	12.4	41.4	2.9	0.123	0.122	0.0029	2.94	2.5
123	5/26/1999	11:25:37 AM	0	25.606	22.864	25.44	25.817	23.223	32.104	44.384	52.157	6.351	38.355	7.123	-0.089	29.964	0.28	0	114	12.4	41.4	2.9	0.122	0.121	0.0029	2.92	2.5
124	5/26/1999	11:26:37 AM	0	25.686	22.864	25.44	25.817	23.223	32.421	44.446	52.34	6.439	38.456	7.123	-0.089	29.994	0.28	0	115	12.4	41.5	2.9	0.122	0.121	0.0029	2.91	2.5
125	5/26/1999	11:27:37 AM	0	25.686	22.945	25.52	25.737	23.062	32.342	44.477	52.096	6.407	38.896	7.154	-0.089	29.933	0.279	0	116	12.4	41.7	2.9	0.122	0.120	0.0029	2.88	2.5
126	5/26/1999	11:28:37 AM	0	25.766	22.945	25.6	25.817	23.142	32.659	43.888	51.852	6.319	38.355	7.123	-0.089	29.979	0.281	0	117	12.4	41.1	2.8	0.123	0.121	0.0029	2.93	2.5
127	5/26/1999	11:29:37 AM	0	25.846	22.864	25.6	25.737	22.982	32.5	44.198	52.035	6.479	38.456	7.123	-0.089	29.917	0.28	0	118	12.4	41.3	2.8	0.122	0.120	0.0029	2.91	2.5
128	5/26/1999	11:30:37 AM	0	25.926	22.91	25.68	25.737	23.062	32.659	44.198	52.096	6.439	38.389	7.154	-0.089	29.964	0.282	0	119	12.4	41.3	2.8	0.123	0.121	0.0029	2.92	2.5
129	5/26/1999	11:31:37 AM	0	26.006	22.91	25.76	25.737	22.982	32.579	44.322	52.218	6.415	38.524	7.154	-0.089	29.933	0.282	0.003	120	12.4	41.4	2.9	0.123	0.121	0.0029	2.91	2.5
130	5/26/1999	11:32:37 AM	0	26.086	22.945	25.84	25.737	23.062	32.579	44.694	52.492	6.431	38.727	7.154	-0.089	29.902	0.283	0	121	12.4	41.7	2.9	0.124	0.121	0.0029	2.89	2.5
131	5/26/1999	11:33:37 AM	0	26.086	22.945	25.92	25.737	22.982	32.579	44.291	52.279	6.519	38.423	7.154	-0.089	30.01	0.28	0	122	12.5	41.4	2.9	0.122	0.119	0.0029	2.88	2.5
132	5/26/1999	11:34:37 AM	0	26.246	22.945	25.92	25.737	22.901	32.659	44.136	51.974	6.439	38.693	7.154	-0.089	30.025	0.281	0.003	123	12.5	41.4	2.9	0.123	0.120	0.0029	2.89	2.5
133	5/26/1999	11:35:38 AM	0	26.326	22.945	26.08	25.657	22.901	32.262	44.291	52.34	6.463	38.254	7.154	-0.089	29.871	0.28	0	124	12.4	41.3	2.8	0.122	0.119	0.0029	2.87	2.4
134	5/26/1999	11:36:38 AM	0	26.326	23.025	26.08	25.577	22.982	32.376	43.919	51.699	6.327	38.22	7.154	-0.089	29.948	0.283	0	125	12.4	41.1	2.8	0.124	0.120	0.0029	2.92	2.5
135	5/26/1999	11:37:38 AM	0	26.361	22.979	26.08	25.737	22.901	32.421	44.508	52.401	6.495	38.794	7.154	-0.089	29.964	0.283	0	126	12.4	41.7	2.9	0.124	0.120	0.0029	2.88	2.4
136	5/26/1999	11:38:38 AM	0	26.486	22.899	26.24	25.531	22.856	32.5	44.012	51.791	6.391	38.254	7.185	-0.089	30.025	0.282	0.003	127	12.5	41.1	2.8	0.123	0.119	0.0029	2.89	2.5
137	5/26/1999	11:39:38 AM	0	26.566	23.025	26.195	25.737	22.982	32.455	44.353	52.309	6.447	38.794	7.185	-0.089	29.948	0.283	0	128	12.4	41.6	2.9	0.124	0.119	0.0029	2.87	2.4
138	5/26/1999	11:40:38 AM	0	26.566	22.979	26.275	25.611	22.856	32.376	44.074	52.035	6.519	38.287	7.154	-0.089	30.025	0.282	0.003	129	12.5	41.2	2.8	0.123	0.119	0.0029	2.88	2.5
139	5/26/1999	11:41:38 AM	0	26.6	22.979	26.275	25.692	22.856	32.693	44.043	52.065	6.399	38.017	7.185	-0.089	30.01	0.282	0	130	12.5	41.0	2.8	0.123	0.119	0.0029	2.90	2.5
140	5/26/1999	11:42:38 AM	0	26.68	22.979	26.355	25.772	22.936	32.534	44.043	52.035	6.423	38.456	7.185	-0.089	30.025	0.283	0	131	12.5	41.2	2.8	0.124	0.119	0.0029	2.88	2.5
141	5/26/1999	11:43:38 AM	0	26.76	22.979	26.435	25.772	22.936	32.41	43.95	52.065	6.463	38.355	7.185	-0.042	30.102	0.283	0	132	12.5	41.2	2.8	0.124	0.119	0.0029	2.88	2.5
142	5/26/1999	11:44:38 AM	0	26.84	23.06	26.435	25.772	22.936	32.41	44.136	51.791	6.383	38.761	7.216	-0.089	30.04	0.284	0	133	12.5	41.4	2.9	0.124	0.119	0.0029	2.87	2.4
143	5/26/1999	11:45:38 AM	0	26.715	23.06	26.515	25.772	23.016	32.41	44.353	52.462	6.519	38.456	7.185	-0.042	30.04	0.283	0	134	12.5	41.4	2.9	0.124	0.118	0.0029	2.86	2.4
144	5/26/1999	11:46:38 AM	0	26.875	23.014	26.549	25.772	22.89	32.41	44.477	52.157	6.263	38.254	7.185	-0.089	30.01	0.28	0	135	12.5	41.4	2.9	0.122	0.117	0.0028	2.83	2.5
145	5/26/1999	11:47:39 AM	0	26.875	23.014	26.549	25.726	22.971	32.49	44.322	52.126	6.303	38.693	7.216	-0.089	30.04	0.287	0	136	12.5	41.5	2.9	0.126	0.120	0.0029	2.89	2.5
146	5/26/1999	11:48:39 AM	0	26.875	23.095	26.629	25.646	22.89	32.331	43.95	51.639	6.311	38.558	7.185	-0.089	30.01	0.283	0	137	12.5	41.3	2.9	0.124	0.118	0.0029	2.86	2.4
147	5/26/1999	11:49:39 AM	0	26.955	23.014	26.709	25.726	22.971	32.49	44.136	52.004	6.503	38.659	7.216	-0.089	30.117	0.28	0	138	12.5	41.4	2.9	0.122	0.117	0.0028	2.81	2.4
148	5/26/1999	11:50:39 AM	0	26.989	23.014	26.709	25.726	22.971	32.41	43.919	51.852	6.423	38.186	7.185	-0.089	29.979	0.283	0	139	12.4	41.1	2.8	0.124	0.118	0.0029	2.87	2.4
149	5/26/1999	11:51:39 AM	0	27.035	23.049	26.789	25.726	23.247	32.49	43.95	51.76	6.319	38.287	7.185	-0.089	30.071	0.282	0	140	12.5	41.1	2.8	0.123	0.117	0.0028	2.85	2.4
150	5/26/1999	11:52:39 AM	0	27.115	23.049	26.789	25.601	23.008	32.252	44.198	52.218	6.495	38.456	7.216	-0.089	30.04	0.283	0	141	12.5	41.3	2.8	0.124	0.118	0.0028	2.84	2.4
151	5/26/1999	11:53:39 AM	0	27.115	23.095	26.903	25.881	23.051	32.365	44.074	51.882	6.359	38.456	7.185	-0.089	30.071	0.286	0.003	142	12.5	41.3	2.8	0.125	0.118	0.0029	2.87	2.4
152	5/26/1999	11:54:39 AM	0	27.149	23.095	26.949	25.726	22.845	32.207	43.888	51.425	6.295	38.524	7.185	-0.042	30.04	0.291	0	143	12.5	41.2	2.8	0.127	0.120	0.0029	2.92	2.5
153	5/26/1999	11:55:39 AM	0	27.229	23.049	26.823	25.881	22.925	32.365	44.012	51.639	6.319	38.389	7.185	-0.089	30.04	0.288	0.003	144	12.5	41.2	2.8	0.126	0.119	0.0029	2.90	2.5
154	5/26/1999	11:56:39 AM	0	27.229	23.049	26.983	25.601	22.971	32.048	43.764	51.578	6.383	38.22	7.185	-0.089	30.04	0.284	0	145	12.5	41.0	2.8	0.124	0.117	0.0029	2.86	2.4
155	5/26/1999	11:57:39 AM	0	27.309	23.049	26.983	25.681	22.925	32.445	44.136	52.065	6.407	38.693	7.216	-0.042	30.04	0.288	0	146	12.5	41.4	2.9	0.126	0.119	0.0029	2.87	2.4
156	5/26/1999	11:58:40 AM	0	27.309	23.049	26.983	25.601	22.925	32.286	44.136	52.187	6.319	38.456	7.216	-0.089	30.04	0.289	0	147	12.5	41.3	2.8	0.126	0.119	0.0029	2.89	2.5
157	5/26/1999	11:59:40 AM	0	27.309	23.049	26.983	25.681	23.168	32.445	43.961	51.791	6.303	38.524	7.216	-0.042	30.133	0.286	0	148	12.5	41.3	2.8	0.125	0.118	0.0029	2.86	2.4
158	5/26/1999	12:00:40 PM	0	27.389	23.049	27.143	25.761	23.006	32.286	44.353	52.035	6.375	38.118	7.185	-0.089	30.04	0.277	0.003	149	12.5	41.2	2.8	0.121	0.114	0.0028	2.76	2.4
159	5/26/1999	12:01:40 PM	0	27.344	23.13	27.143	25.761	23.006	32.479	43.795	51.821	6.311	38.727	7.216	-0.089	30.117	0.286	0	150	12.5	41.3	2.8	0.125	0.118	0.0028	2.85	2.4
160	5/26/1999	12:02:40 PM	0	27.469	23.13	27.143	25.841	23.006	32.286	44.663	52.584	6.471	38.727	7.216	-0.089	30.01	0.285	0.003	151	12.5	41.7	2.9	0.124	0.117	0.0028	2.81	2.4
161	5/26/1999	12:03:40 PM	0	27.549	23.13	27.223	25.841	23.006	32.048	44.074	51.974	6.359	38.524	7.216	-0.042	30.102	0.282	0.003	152	12.5	41.3	2.8	0.123	0.116	0.0028	2.80	2.4
162	5/26/1999	12:04:40 PM	0	27.503	23.13	27.303	25.921	22.96	32.083	44.384	52.187	6.447	38.321	7.216	-0.042	30.071	0.283	0	153	12.5	41.4	2.9	0.124	0.116	0.0028	2.80	2.4

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163	5/26/1999	12:05:40 PM	0	27.503	23.164	27.257	25.796	23.086	32.286	44.229	52.431	6.471	38.558	7.216	-0.089	30.117	0.285	0	154	12.5	41.4	2.9	0.124	0.117	0.0028	2.82	2.4
164	5/26/1999	12:06:40 PM	0	27.583	23.084	27.257	25.796	22.96	32.162	44.539	52.875	6.463	38.625	7.216	-0.089	30.04	0.286	0	155	12.5	41.6	2.9	0.125	0.117	0.0028	2.82	2.4
165	5/26/1999	12:07:40 PM	0	27.583	23.084	27.337	25.761	22.96	32.162	44.136	52.004	6.407	38.321	7.216	-0.089	30.025	0.283	0	156	12.5	41.2	2.8	0.124	0.116	0.0028	2.81	2.4
166	5/26/1999	12:08:41 PM	0	27.628	23.164	27.337	25.796	22.96	32.003	44.012	51.578	6.335	38.558	7.216	-0.089	30.133	0.282	0	157	12.5	41.3	2.8	0.123	0.115	0.0028	2.79	2.4
167	5/26/1999	12:09:41 PM	0	27.708	23.164	27.337	25.796	22.799	32.321	43.702	51.791	6.503	38.558	7.185	-0.089	29.948	0.284	0	158	12.4	41.1	2.8	0.124	0.116	0.0028	2.82	2.4
168	5/26/1999	12:10:41 PM	0	27.663	23.164	27.337	25.876	22.96	32.162	44.105	51.882	6.439	38.456	7.216	-0.089	30.194	0.289	0.003	159	12.5	41.3	2.8	0.126	0.118	0.0029	2.86	2.4
169	5/26/1999	12:11:41 PM	0	27.743	23.164	27.417	25.841	22.96	31.845	44.942	52.889	6.439	38.625	7.216	-0.089	30.025	0.286	0.003	160	12.5	41.8	2.9	0.125	0.117	0.0028	2.79	2.4
170	5/26/1999	12:12:41 PM	0	27.743	23.164	27.417	25.876	22.96	32.003	44.136	51.821	6.407	38.084	7.185	-0.089	30.133	0.28	0	161	12.5	41.1	2.8	0.122	0.114	0.0028	2.78	2.4
171	5/26/1999	12:13:41 PM	0	27.823	23.164	27.417	25.876	22.96	32.241	43.95	51.791	6.359	38.321	7.216	-0.089	30.025	0.292	0.003	162	12.5	41.1	2.8	0.127	0.119	0.0029	2.90	2.5
172	5/26/1999	12:14:41 PM	0	27.743	23.164	27.497	26.001	23.041	32.162	44.229	52.279	6.399	38.625	7.216	-0.089	30.01	0.282	0	163	12.5	41.4	2.9	0.123	0.115	0.0028	2.77	2.4
173	5/26/1999	12:15:41 PM	0	27.823	23.164	27.497	25.841	23.006	32.083	44.353	52.126	6.463	38.49	7.216	-0.089	30.056	0.284	0	164	12.5	41.4	2.9	0.124	0.116	0.0028	2.79	2.4
174	5/26/1999	12:16:41 PM	0	27.823	23.164	27.497	25.876	23.041	32.083	43.981	51.882	6.375	38.423	7.246	-0.042	30.04	0.28	0.003	165	12.5	41.2	2.8	0.122	0.114	0.0028	2.77	2.4
175	5/26/1999	12:17:41 PM	0	27.902	23.164	27.497	25.796	23.041	31.969	43.919	51.852	6.359	38.389	7.216	-0.089	30.071	0.282	0	166	12.5	41.2	2.8	0.123	0.115	0.0028	2.79	2.4
176	5/26/1999	12:18:41 PM	0	27.902	23.164	27.577	25.956	23.041	32.241	44.663	52.309	6.343	38.321	7.216	-0.042	30.179	0.279	0	167	12.5	41.5	2.9	0.122	0.113	0.0027	2.73	2.3
177	5/26/1999	12:19:42 PM	0	27.902	23.245	27.577	25.796	23.041	32.241	44.322	52.157	6.383	38.321	7.216	-0.089	30.102	0.288	0	168	12.5	41.3	2.8	0.126	0.117	0.0028	2.83	2.4
178	5/26/1999	12:20:42 PM	0	27.902	23.21	27.337	25.921	23.086	31.924	44.322	52.401	6.511	38.625	7.154	-0.089	30.148	0.277	0	169	12.5	41.5	2.9	0.121	0.113	0.0027	2.73	2.3
179	5/26/1999	12:21:42 PM	0	27.823	23.164	27.178	25.876	23.041	32.048	44.136	52.035	6.423	38.592	7.092	-0.042	30.056	0.279	0.003	170	12.5	41.4	2.9	0.122	0.115	0.0028	2.77	2.4
180	5/26/1999	12:22:42 PM	0	27.743	23.245	26.983	25.956	23.121	32.207	44.229	52.096	6.319	38.862	7.123	-0.089	29.733	0.282	0	171	12.3	41.5	2.9	0.123	0.116	0.0028	2.80	2.4
181	5/26/1999	12:23:42 PM	0	27.663	23.164	26.778	25.956	23.121	31.924	44.725	52.584	6.239	39.302	7.092	-0.089	29.626	0.277	0	172	12.3	42.0	2.9	0.121	0.115	0.0027	2.74	2.3
182	5/26/1999	12:24:42 PM	0	27.503	23.164	26.664	26.081	23.201	32.003	44.415	52.309	6.263	39.268	7.092	-0.042	29.61	0.273	0	173	12.3	41.8	2.9	0.119	0.114	0.0027	2.72	2.3
183	5/26/1999	12:25:42 PM	0	27.469	23.21	26.504	26.001	23.247	32.207	44.818	52.706	6.311	39.031	7.061	-0.089	29.549	0.277	0	174	12.3	41.9	2.9	0.121	0.116	0.0028	2.77	2.4
184	5/26/1999	12:26:42 PM	0	27.309	23.29	26.344	26.081	23.247	31.969	44.508	52.157	6.16	39.335	7.031	-0.042	29.564	0.278	0	175	12.3	41.9	2.9	0.121	0.117	0.0028	2.79	2.4
185	5/26/1999	12:27:42 PM	0	27.229	23.21	26.219	26.081	23.247	32.003	44.787	52.828	6.391	39.268	6.969	-0.089	29.503	0.28	0	176	12.2	42.0	2.9	0.122	0.118	0.0028	2.81	2.4
186	5/26/1999	12:28:42 PM	0	27.149	23.21	26.024	26.081	23.166	31.89	44.942	52.553	6.303	39.268	6.969	-0.042	29.533	0.278	0	177	12.3	42.1	2.9	0.121	0.118	0.0028	2.80	2.4
187	5/26/1999	12:29:42 PM	0	26.944	23.29	25.944	26.001	23.327	32.207	44.725	52.401	6.207	39.369	6.938	-0.042	29.503	0.276	0	178	12.2	42.0	2.9	0.120	0.117	0.0028	2.79	2.4
188	5/26/1999	12:30:42 PM	0	26.83	23.21	25.784	26.081	23.247	32.048	45.159	52.736	6.287	39.471	6.877	-0.042	29.487	0.274	0.003	179	12.2	42.3	2.9	0.120	0.117	0.0028	2.77	2.4
189	5/26/1999	12:31:42 PM	0	26.67	23.29	25.704	26.161	23.247	32.286	45.035	52.523	6.279	39.403	6.877	-0.089	29.518	0.273	0	180	12.3	42.2	2.9	0.119	0.117	0.0028	2.77	2.4
190	5/26/1999	12:32:43 PM	0	26.59	23.29	25.624	26.081	23.247	32.128	45.221	52.889	6.319	39.471	6.877	-0.089	29.334	0.277	0	181	12.2	42.3	2.9	0.121	0.119	0.0028	2.81	2.4
191	5/26/1999	12:33:43 PM	0	26.51	23.29	25.509	26.081	23.327	32.048	44.632	52.065	6.407	39.166	6.784	-0.089	29.871	0.268	0	182	12.4	41.9	2.9	0.117	0.115	0.0028	2.75	2.3
192	5/26/1999	12:34:43 PM	0	26.27	23.29	25.384	26.046	23.166	32.093	44.384	51.699	6.311	38.828	6.753	-0.089	29.764	0.273	0	183	12.4	41.6	2.9	0.119	0.118	0.0028	2.83	2.4
193	5/26/1999	12:35:43 PM	0	26.27	23.336	25.269	26.001	23.166	31.81	44.508	51.913	6.367	39.031	6.753	-0.042	29.871	0.264	0	184	12.4	41.8	2.9	0.115	0.114	0.0027	2.74	2.3
194	5/26/1999	12:36:43 PM	0	26.155	23.255	25.189	26.046	23.212	31.731	44.88	52.096	6.375	38.964	6.722	-0.089	29.749	0.268	0	185	12.3	41.9	2.9	0.117	0.116	0.0028	2.78	2.4
195	5/26/1999	12:37:43 PM	0	26.075	23.336	25.109	26.046	23.247	32.093	44.415	51.76	6.399	39.099	6.722	-0.042	29.81	0.269	0	186	12.4	41.8	2.9	0.117	0.117	0.0028	2.80	2.4
196	5/26/1999	12:38:43 PM	0	25.915	23.255	25.029	26.126	23.292	32.41	45.531	52.858	6.375	39.065	6.692	-0.089	29.672	0.263	0	187	12.3	42.3	2.9	0.115	0.115	0.0027	2.71	2.3
197	5/26/1999	12:39:43 PM	0	25.835	23.301	24.869	26.046	23.212	32.014	44.973	52.126	6.335	39.065	6.692	-0.042	29.825	0.265	0	188	12.4	42.0	2.9	0.116	0.116	0.0028	2.76	2.4
198	5/26/1999	12:40:43 PM	0	25.755	23.255	24.789	26.046	23.212	31.935	45.004	52.34	6.447	39.335	6.661	-0.089	29.856	0.264	0	189	12.4	42.2	2.9	0.115	0.116	0.0027	2.75	2.3
199	5/26/1999	12:41:43 PM	0	25.675	23.336	24.789	26.126	23.212	31.935	44.663	52.065	6.407	39.065	6.63	-0.089	29.81	0.261	0	190	12.4	41.9	2.9	0.114	0.115	0.0027	2.74	2.3
200	5/26/1999	12:42:43 PM	0	25.515	23.381	24.708	26.206	23.292	32.376	44.725	51.943	6.415	38.93	6.63	-0.042	29.718	0.263	0.003	191	12.3	41.8	2.9	0.115	0.116	0.0028	2.77	2.4
201	5/26/1999	12:43:43 PM	0	25.48	23.336	24.754	26.172	23.257	32.138	44.911	51.852	6.335	39.504	6.63	-0.042	29.779	0.258	0	192	12.4	42.2	2.9	0.113	0.113	0.0027	2.69	2.3
202	5/26/1999	12:44:44 PM	0	25.4	23.301	24.754	26.252	23.132	32.217	45.252	52.492	6.447	39.302	6.63	-0.042	29.795	0.265	0	193	12.4	42.3	2.9	0.116	0.116	0.0028	2.76	2.3
203	5/26/1999	12:45:44 PM	0	25.4	23.381	24.548	26.092	23.177	31.98	45.159	52.34	6.439	39.099	6.63	-0.042	29.779	0.262	0	194	12.4	42.1	2.9	0.114	0.116	0.0027	2.75	2.3
204	5/26/1999	12:46:44 PM	0	25.32	23.381	24.674	26.092	23.257	32.217	44.725	51.821	6.351	39.065	6.568	-0.089	29.933	0.264	0	195	12.4	41.9	2.9	0.115	0.116	0.0028	2.78	2.4
205	5/26/1999	12:47:44 PM	0	25.24	23.301	24.513	26.137	23.303	32.455	44.818	51.974	6.479	38.997	6.568	-0.089	29.948	0.261	0	196	12.4	41.9	2.9	0.114	0.116	0.0028	2.76	2.3
206	5/26/1999	12:48:44 PM	0	25.205	23.381	24.594	26.172	23.177	32.217	44.942	52.126	6.431	39.099	6.568	-0.042	29.917	0.263	0	197	12.4	42.0	2.9	0.115	0.116	0.0028	2.76	2.4
207	5/26/1999	12:49:44 PM	0	25.16	23.301	24.559	26.252	23.338	32.059	44.663	51.882	6.455	39.504	6.568	-0.042	29.933	0.263	0	198	12.4	42.1	2.9	0.115	0.116	0.0028	2.76	2.4
208	5/26/1999	12:50:44 PM	0	25.205	23.427	24.559	26.297	23.464	31.945	44.787	51.882	6.391	38.862	6.568	-0.089	29.902	0.259	0.003	199	12.4	41.8	2.9	0.113	0.114	0.0027	2.74	2.3
209	5/26/1999	12:51:44 PM	0	25.125	23.347	24.479	26.377	23.464	32.024	44.694	52.035	6.447	39.2	6.538	-0.042	29.887	0.267	0	200	12.4	41.9	2.9	0.117	0.118	0.0028	2.82	2.4
210	5/26/1999	12:52:44 PM	0	25.045	23.347	24.479	26.297	23.383	32.262	45.314	52.431	6.519	39.538	6.568	-0.042	29.933	0.263	0	201	12.4	42.4	2.9	0.115	0.117	0.0027	2.75	2.3
211	5/26/1999	12:53:44 PM	0	25.045	23.392	24.399	26.422	23.303	32.262	45.004	51.943	6.383	39.234	6.538	-0.089	29.902	0.263	0	202	12.4	42.1	2.9	0.115	0.117	0.0028	2.77	2.4
212	5/26/1999	12:54:44 PM	0	25.045	23.347	24.444	26.262	23.303	32.262	44.756	51.913	6.455	38.93	6.538	-0.089	29.856	0.252	0	203	12.4	41.8	2.9	0.110	0.112	0.0027	2.67	2.3
213	5/26/1999	12:55:45 PM	0	24.965	23.392	24.444	26.342	23.348	32.024	44.608	51.974	6.479	39.234	6.538	-0.042	29.917	0.259	0	204	12.4	41.9	2.9	0.113	0.115	0.0027	2.74	2.3
214	5/26/1999	12:56:45 PM	0	25.01	23.392	24.318	26.262	23.348	32.307	45.097	52.187	6.367	39.302	6.538	-0.089	29.825	0.258	0	205	12.4	42.2	2.9	0.113	0.115	0.0027	2.72	2.3
215	5/26/1999	12:57:45 PM	0	24.93	23.392	24.364	26.502	23.429	32.069	44.663	51.76	6.383	39.369	6.538	-0.042	29.871	0.252	0	206	12.4	42.0	2.9	0.110	0.112	0.0027	2.67	2.3
216	5/26/1999	12:58:45 PM	0	24.93	23.392	24.284	26.262	23.429	[illegible]	44.477	51.669	6.359	39.133	6.568	-0.089	29.887	0.262	0	207	12.4	41.8	2.9	0.114	0.117	0.0028	2.79	2.4
217	5/26/1999	12:59:45 PM	0	24.93	23.392	24.284	26.422	23.394	32.114	44.756	52.096	6.423	39.471	6.538	-0.042	29.856	0.261	0	208	12.4	42.1	2.9	0.114	0.116	0.0028	2.76	2.3
218	5/26/1999	1:00:45 PM	0	24.895	23.438	24.249	26.342	23.394	32.273	44.88	52.035	6.503	38.862	6.538	-0.089	29.825	0.256	0	209	12.4	41.9	2.9	0.112	0.114	0.0027	2.73	2.3
219	5/26/1999	1:01:45 PM	0	24.85	23.438	24.249	26.342	23.394	32.149	44.663	51.852	6.399	39.133	6.507	-0.042	29.887	0.257	0	210	12.4	41.9	2.9	0.112	0.115	0.0027	2.74	2.3
220	5/26/1999	1:02:45 PM	0	24.815	23.438	24.249	26.468	23.555	32.228	44.973	51.852	6.327	38.896	6.507	-0.042	29.856	0.251	0.003	211	12.4	41.9	2.9	0.110	0.112	0.0027	2.67	2.3
221	5/26/1999	1:03:45 PM	0	24.815	23.438	24.249	26.388	23.474	32.352	44.88	52.157	6.503	39.031	6.507	-0.042	29.81	0.263	0	212	12.4	42.0	2.9	0.115	0.117	0.0028	2.80	2.4
222	5/26/1999	1:04:46 PM	0	24.735	23.438	24.169	26.468	23.394	32.59	44.849	52.065	6.527	38.93	6.507	-0.042	29.871	0.254	0	213	12.4	41.9	2.9	0.111	0.114	0.0027	2.71	2.3
223	5/26/1999	1:05:46 PM	0	24.735	23.438	24.169	26.468	23.314	32.194	44.601	51.517	6.335	39.099	6.476	-0.042	29.856	0.257	0	214	12.4	41.9	2.9	0.112	0.115	0.0027	2.74	2.3
224	5/26/1999	1:06:46 PM	0	24.735	23.438	24.169	26.468	23.394	32.273	44.787	51.791	6.335	39.031	6.507	-0.042	29.749	0.255	0	215	12.3	41.9	2.9	0.111	0.114	0.0027	2.72	2.3
225	5/26/1999	1:07:46 PM	0	24.7	23.438	24.089	26.353	23.359	32.194	44.632	51.943	6.471	38.964	6.507	-0.042	29.856	0.258	0.003	216	12.4	41.8	2.9	0.113	0.116	0.0028	2.76	2.4
226	5/26/1999	1:08:46 PM	0	24.735	23.438	24.054	26.388	23.394	32.194	44.88	52.004	6.479	39.031	6.507	-0.089	29.917	0.256	0	217	12.4	42.0	2.9	0.112	0.115	0.0027	2.74	2.3
227	5/26/1999	1:09:46 PM	0	24.655	23.483	24.008	26.433	23.394	32.318	44.725	51.76	6.359	38.964	6.476	-0.042	29.779	0.257	0	218	12.4	41.8	2.9	0.112	0.115	0.0028	2.76	2.3
228	5/26/1999	1:10:46 PM	0	24.62	23.483	23.974	26.433	23.52	32.194	44.911	52.187	6.495	39.268	6.476	-0.042	29.656	0.259	0	219	12.3	42.1	2.9	0.113	0.116	0.0028	2.77	2.4
229	5/26/1999	1:11:46 PM	0	24.54	23.564	23.893	26.433	23.44	32.318	44.632	52.004	6.455	38.727	6.445	-0.042	29.779	0.25	0	220	12.4	41.7	2.9	0.109	0.113	0.0027	2.70	2.3
230	5/26/1999	1:12:46 PM	0	24.54	23.483	23.813	26.513	23.52	32.159	44.446	51.425	6.303	39.2	6.445	-0.042	29.871	0.254	0	221	12.4	41.8	2.9	0.111	0.115	0.0027	2.74	2.3
231	5/26/1999	1:13:46 PM	0	24.46	23.483	23.859	26.593	23.681	32.476	44.911	51.791	6.383	39.031	6.445	-0.042	29.841	0.254	0	222	12.4	42.0	2.9	0.111	0.115	0.0027	2.73	2.3
232	5/26/1999	1:14:47 PM	0	24.425	23.529	23.778	26.559	23.6	32.125	44.756	52.157	6.519	38.997	6.414	-0.042	29.718	0.257	0	223	12.3	41.9	2.9	0.112	0.116	0.0028	2.77	2.4
233	5/26/1999	1:15:47 PM	0	24.425	23.529	23.618	26.559	23.646	32.397	44.322	51.395	6.311	39.065	6.414	-0.042	29.764	0.25	0	224	12.4	41.7	2.9	0.109	0.113	0.0027	2.72	2.3
234	5/26/1999	1:16:47 PM	0	24.345	23.529	23.696	26.638	23.566	32.204	44.694	51.73	6.407	39.065	6.445	-0.042	29.779	0.248	0.003	225	12.4	41.9	2.9	0.108	0.112	0.0027	2.68	2.3
235	5/26/1999	1:17:47 PM	0	24.265	23.529	23.696	26.638	23.566	32.284	45.252	52.462	6.439	39.302	6.445	-0.042	29.81	0.255	0	226	12.4	42.3	2.9	0.111	0.115	0.0027	2.73	2.3
236	5/26/1999	1:18:47 PM	0	24.265	23.529	23.618	26.479	23.405	32.284	45.004	52.309	6.503	39.133	6.445	-0.042	29.687	0.251	0.003	227	12.3	42.1	2.9	0.110	0.114	0.0027	2.71	2.3
237	5/26/1999	1:19:47 PM	0	24.265	23.448	23.696	26.559	23.566	32.249	44.849	52.004	6.487	39.031	6.445	-0.042	29.733	0.254	0	228	12.3	41.9	2.9	0.111	0.115	0.0027	2.74	2.3
238	5/26/1999	1:20:47 PM	0	24.31	23.529	23.696	26.479	23.611	32.363	44.632	51.852	6.447	38.997	6.445	-0.042	29.779	0.255	0	229	12.4	41.8	2.9	0.111	0.115	0.0028	2.76	2.4
239	5/26/1999	1:21:47 PM	0	24.23	23.574	23.744	26.604	23.485	32.487	45.128	52.157	6.495	39.538	6.476	-0.042	29.764	0.254	0	230	12.4	42.3	2.9	0.111	0.115	0.0027	2.71	2.3
240	5/26/1999	1:22:48 PM	0	24.184	23.574	23.744	26.604	23.611	32.249	45.128	52.584	6.447	38.794	6.445	-0.042	29.825	0.253	0	231	12.4	42.0	2.9	0.110	0.114	0.0027	2.73	2.3
241	5/26/1999	1:23:48 PM	0	24.31	23.54	23.824	26.604	23.691	32.249	44.57	51.821	6.455	39.268	6.445	-0.042	29.81	0.253	0.003	232	12.4	41.9	2.9	0.110	0.114	0.0027	2.72	2.3
242	5/26/1999	1:24:48 PM	0	24.23	23.574	23.824	26.684	23.611	32.487	44.818	51.882	6.375	39.065	6.476	-0.089	29.856	0.26	0	233	12.4	41.9	2.9	0.114	0.117	0.0028	2.80	2.4
243	5/26/1999	1:25:48 PM	0	24.31	23.62	23.904	26.764	23.611	32.566	45.097	52.218	6.558	38.828	6.476	-0.042	29.764	0.246	0	234	12.4	42.0	2.9	0.107	0.111	0.0026	2.64	2.2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
244	5/26/1999	1:26:48 PM	0	24.356	23.574	23.95	26.764	23.737	32.611	44.601	51.821	6.375	38.862	6.507	-0.042	29.764	0.252	0.003	235	12.4	41.7	2.9	0.110	0.113	0.0027	2.72	2.3
245	5/26/1999	1:27:48 PM	0	24.356	23.574	24.03	26.809	23.737	32.294	44.973	52.187	6.391	38.896	6.476	-0.089	29.733	0.248	0	236	12.3	41.9	2.9	0.108	0.111	0.0027	2.65	2.3
246	5/26/1999	1:28:48 PM	0	24.436	23.54	24.03	26.809	23.817	32.057	44.849	52.035	6.511	39.065	6.507	-0.042	29.795	0.253	0.003	237	12.4	42.0	2.9	0.110	0.114	0.0027	2.71	2.3
247	5/26/1999	1:29:48 PM	0	24.436	23.62	24.11	26.729	23.817	32.374	44.973	52.248	6.455	39.099	6.507	-0.089	29.81	0.261	0	238	12.4	42.0	2.9	0.114	0.117	0.0028	2.78	2.4
248	5/26/1999	1:30:48 PM	0	24.516	23.54	24.191	26.889	23.817	32.77	44.756	51.913	6.463	38.93	6.507	-0.042	29.887	0.253	0	239	12.4	41.8	2.9	0.110	0.113	0.0027	2.70	2.3
249	5/26/1999	1:31:49 PM	0	24.516	23.54	24.191	26.729	23.496	33.324	44.88	51.943	6.311	39.268	6.538	-0.042	29.733	0.257	0	240	12.3	42.1	2.9	0.112	0.115	0.0027	2.73	2.3
250	5/26/1999	1:32:49 PM	0	24.642	23.62	24.236	26.889	23.657	33.087	44.322	51.608	6.399	38.794	6.507	-0.042	29.764	0.252	0	241	12.4	41.6	2.9	0.110	0.112	0.0027	2.70	2.3
251	5/26/1999	1:33:49 PM	0	24.596	23.666	24.271	26.809	23.416	33.166	44.57	51.913	6.439	39.031	6.538	-0.042	29.825	0.254	0	242	12.4	41.8	2.9	0.111	0.113	0.0027	2.71	2.3
252	5/26/1999	1:34:49 PM	0	24.677	23.62	24.271	26.809	23.416	33.403	44.663	52.065	6.447	39.166	6.538	-0.042	29.871	0.256	0.003	243	12.4	41.9	2.9	0.112	0.114	0.0027	2.72	2.3
253	5/26/1999	1:35:49 PM	0	24.757	23.62	24.351	26.729	23.014	33.641	44.973	51.913	6.439	38.828	6.538	-0.042	29.733	0.261	0	244	12.3	41.9	2.9	0.114	0.116	0.0028	2.77	2.4
254	5/26/1999	1:36:49 PM	0	24.757	23.62	24.431	26.729	23.014	33.754	44.942	51.882	6.463	38.997	6.538	-0.042	29.841	0.252	0.003	245	12.4	42.0	2.9	0.110	0.112	0.0027	2.66	2.3
255	5/26/1999	1:37:49 PM	0	24.791	23.62	24.386	26.684	22.808	33.72	44.663	51.486	6.199	38.997	6.568	-0.089	29.764	0.257	0	246	12.4	41.8	2.9	0.112	0.114	0.0027	2.73	2.3
256	5/26/1999	1:38:49 PM	0	24.872	23.655	24.466	26.764	22.808	33.912	44.88	52.126	6.487	39.166	6.538	-0.042	29.825	0.258	0	247	12.4	42.0	2.9	0.113	0.114	0.0027	2.72	2.3
257	5/26/1999	1:39:49 PM	0	24.872	23.609	24.5	26.718	22.521	33.675	44.291	51.639	6.423	38.794	6.538	-0.042	29.841	0.249	0	248	12.4	41.5	2.9	0.109	0.110	0.0027	2.65	2.3
258	5/26/1999	1:40:50 PM	0	24.906	23.609	24.5	26.718	22.521	33.788	44.911	52.187	6.399	38.828	6.538	-0.042	29.81	0.255	0	249	12.4	41.9	2.9	0.111	0.113	0.0027	2.70	2.3
259	5/26/1999	1:41:50 PM	0	24.966	23.644	24.581	26.718	22.475	33.709	45.004	52.248	6.343	38.794	6.568	-0.042	29.871	0.251	0	250	12.4	41.9	2.9	0.110	0.111	0.0026	2.65	2.3
260	5/26/1999	1:42:50 PM	0	24.941	23.644	24.535	26.753	22.475	33.664	45.004	51.943	6.303	39.2	6.538	-0.089	29.795	0.253	0	251	12.4	42.1	2.9	0.110	0.112	0.0027	2.66	2.3
261	5/26/1999	1:43:50 PM	0	24.975	23.679	24.615	26.788	22.314	33.935	44.88	51.882	6.359	39.031	6.568	-0.042	29.841	0.254	0	252	12.4	42.0	2.9	0.111	0.112	0.0027	2.67	2.3
262	5/26/1999	1:44:50 PM	0	25.056	23.598	24.65	26.788	22.349	33.698	44.446	51.639	6.423	38.997	6.568	-0.042	29.825	0.251	0.003	253	12.4	41.7	2.9	0.110	0.111	0.0027	2.65	2.3
263	5/26/1999	1:45:50 PM	0	25.01	23.633	24.604	26.662	22.303	33.891	44.477	51.913	6.431	38.964	6.568	-0.042	29.917	0.249	0	254	12.4	41.7	2.9	0.109	0.110	0.0026	2.63	2.2
264	5/26/1999	1:46:51 PM	0	25.09	23.713	24.639	26.457	22.499	33.213	44.88	52.248	6.527	39.031	6.568	-0.042	29.871	0.256	0.003	255	12.4	42.0	2.9	0.112	0.113	0.0027	2.69	2.3
265	5/26/1999	1:47:51 PM	0	25.125	23.668	24.719	26.697	22.499	33.054	44.57	51.578	6.391	38.828	6.568	-0.089	29.948	0.255	0	256	12.4	41.7	2.9	0.111	0.112	0.0027	2.69	2.3
266	5/26/1999	1:48:51 PM	0	25.125	23.668	24.719	26.697	22.58	32.738	45.159	52.37	6.447	39.133	6.568	-0.042	29.825	0.255	0	257	12.4	42.1	2.9	0.111	0.112	0.0027	2.66	2.3
267	5/26/1999	1:49:51 PM	0	25.16	23.622	24.754	26.652	22.695	32.693	44.88	52.126	6.471	38.727	6.568	-0.042	29.841	0.26	0	258	12.4	41.8	2.9	0.114	0.114	0.0027	2.73	2.3
268	5/26/1999	1:50:51 PM	0	25.24	23.622	24.834	26.652	22.821	32.851	44.601	52.187	6.503	38.794	6.568	-0.042	29.81	0.258	0.003	259	12.4	41.7	2.9	0.113	0.113	0.0027	2.71	2.3
269	5/26/1999	1:51:51 PM	0	25.24	23.657	24.834	26.732	22.89	32.727	44.446	51.547	6.423	38.828	6.568	-0.042	29.887	0.254	0	260	12.4	41.6	2.9	0.111	0.111	0.0027	2.68	2.3
270	5/26/1999	1:52:51 PM	0	25.194	23.657	24.869	26.811	22.81	32.331	44.446	51.669	6.359	38.862	6.568	-0.089	29.871	0.255	0	261	12.4	41.7	2.9	0.111	0.112	0.0027	2.68	2.3
271	5/26/1999	1:53:51 PM	0	25.275	23.657	24.869	26.766	22.971	32.41	44.415	51.882	6.487	38.761	6.599	-0.042	29.979	0.264	0	262	12.4	41.6	2.9	0.115	0.116	0.0028	2.78	2.4
272	5/26/1999	1:54:51 PM	0	25.229	23.737	24.949	26.686	22.89	32.49	44.849	52.096	6.568	39.166	6.63	-0.042	29.917	0.255	0	263	12.4	42.0	2.9	0.111	0.111	0.0027	2.65	2.3
273	5/26/1999	1:55:51 PM	0	25.275	23.737	24.869	26.686	23.132	32.252	44.973	52.187	6.431	38.693	6.599	-0.042	29.948	0.259	0	264	12.4	41.8	2.9	0.113	0.113	0.0027	2.71	2.3
274	5/26/1999	1:56:51 PM	0	25.355	23.657	24.949	26.686	23.051	32.41	45.159	52.431	6.55	38.828	6.599	-0.042	29.964	0.256	0	265	12.4	42.0	2.9	0.112	0.112	0.0027	2.67	2.3
275	5/26/1999	1:57:51 PM	0	25.355	23.737	25.029	26.846	23.132	32.093	44.291	51.456	6.351	38.456	6.63	-0.042	29.856	0.258	0	266	12.4	41.4	2.9	0.113	0.113	0.0027	2.72	2.3
276	5/26/1999	1:58:51 PM	0	25.435	23.737	25.029	26.721	23.166	32.014	44.229	51.395	6.255	38.727	6.63	-0.042	29.871	0.258	0	267	12.4	41.5	2.9	0.113	0.113	0.0027	2.71	2.3
277	5/26/1999	1:59:52 PM	0	25.435	23.612	25.029	26.846	23.247	32.014	44.725	52.126	6.487	38.794	6.63	-0.042	29.902	0.257	0	268	12.4	41.8	2.9	0.112	0.112	0.0027	2.68	2.3
278	5/26/1999	2:00:52 PM	0	25.389	23.737	25.064	26.721	23.212	32.048	44.105	51.364	6.319	39.2	6.63	-0.042	29.856	0.258	0	269	12.4	41.7	2.9	0.112	0.112	0.0027	2.68	2.3
279	5/26/1999	2:01:52 PM	0	25.389	23.692	24.984	26.721	23.453	32.014	44.446	51.78	6.511	38.625	6.63	-0.042	29.917	0.254	0	270	12.4	41.5	2.9	0.111	0.111	0.0027	2.67	2.3
280	5/26/1999	2:02:52 PM	0	25.515	23.657	25.109	26.766	23.373	31.969	44.446	51.852	6.415	38.794	6.63	-0.089	29.887	0.255	0	271	12.4	41.6	2.9	0.111	0.111	0.0027	2.67	2.3
281	5/26/1999	2:03:52 PM	0	25.47	23.692	25.109	26.766	23.373	32.014	44.322	51.639	6.391	38.93	6.63	-0.042	29.856	0.258	0	272	12.4	41.6	2.9	0.113	0.112	0.0027	2.70	2.3
282	5/26/1999	2:04:52 PM	0	25.515	23.737	25.109	26.686	23.292	32.014	44.663	51.669	6.311	38.997	6.63	-0.042	29.933	0.256	0.003	273	12.4	41.8	2.9	0.112	0.111	0.0027	2.66	2.3
283	5/26/1999	2:05:52 PM	0	25.515	23.657	25.109	26.766	23.292	31.776	44.57	51.73	6.439	38.997	6.599	-0.042	29.856	0.262	0	274	12.4	41.8	2.9	0.114	0.114	0.0027	2.73	2.3
284	5/26/1999	2:06:52 PM	0	25.515	23.783	25.109	26.606	23.292	32.172	44.57	52.096	6.431	38.862	6.599	-0.042	29.948	0.256	0	275	12.4	41.7	2.9	0.112	0.111	0.0027	2.67	2.3
285	5/26/1999	2:07:52 PM	0	25.595	23.657	25.189	26.686	23.292	32.059	44.787	52.279	6.455	39.133	6.63	-0.042	29.887	0.259	0	276	12.4	42.0	2.9	0.113	0.112	0.0027	2.68	2.3
286	5/26/1999	2:08:53 PM	0	25.595	23.783	25.189	26.652	23.257	32.138	44.539	51.913	6.447	38.727	6.63	-0.042	29.964	0.255	0	277	12.4	41.6	2.9	0.111	0.111	0.0027	2.66	2.3
287	5/26/1999	2:09:53 PM	0	25.64	23.703	25.189	26.732	23.373	31.98	44.663	52.218	6.566	38.896	6.63	-0.042	29.81	0.259	0.003	278	12.4	41.8	2.9	0.113	0.112	0.0027	2.69	2.3
288	5/26/1999	2:10:53 PM	0	25.64	23.737	25.235	26.572	23.338	32.138	44.725	52.004	6.447	39.234	6.63	-0.042	29.933	0.261	0	279	12.4	42.0	2.9	0.114	0.113	0.0027	2.70	2.3
289	5/26/1999	2:11:53 PM	0	25.595	23.783	25.235	26.652	23.257	32.059	44.57	51.73	6.359	39.133	6.63	-0.042	29.948	0.258	0	280	12.4	41.9	2.9	0.113	0.112	0.0027	2.67	2.3
290	5/26/1999	2:12:53 PM	0	25.64	23.703	25.235	26.572	23.132	32.614	44.725	52.157	6.431	39.302	6.661	-0.042	29.841	0.253	0	281	12.4	42.0	2.9	0.110	0.110	0.0026	2.61	2.2
291	5/26/1999	2:13:53 PM	0	25.72	23.703	25.315	26.572	23.097	32.614	44.57	52.096	6.327	38.828	6.661	-0.042	29.718	0.262	0.003	282	12.3	41.7	2.9	0.114	0.113	0.0027	2.72	2.3
292	5/26/1999	2:14:53 PM	0	25.72	23.703	25.315	26.652	23.016	32.93	44.26	51.669	6.383	38.693	6.63	-0.042	29.871	0.259	0	283	12.4	41.5	2.9	0.113	0.112	0.0027	2.70	2.3
293	5/26/1999	2:15:53 PM	0	25.64	23.783	25.235	26.572	22.936	32.896	44.539	51.913	6.407	39.133	6.63	-0.089	29.887	0.254	0	284	12.4	41.8	2.9	0.111	0.110	0.0026	2.63	2.2
294	5/26/1999	2:16:53 PM	0	25.72	23.703	25.315	26.732	23.016	33.247	44.446	51.791	6.343	38.727	6.63	-0.042	29.933	0.256	0	285	12.4	41.6	2.9	0.112	0.111	0.0027	2.66	2.3
295	5/26/1999	2:17:54 PM	0	25.72	23.783	25.315	26.492	22.856	33.168	44.663	51.821	6.359	38.964	6.661	-0.042	29.933	0.261	0	286	12.4	41.8	2.9	0.114	0.113	0.0027	2.70	2.3
296	5/26/1999	2:18:54 PM	0	25.755	23.783	25.349	26.606	22.81	33.123	44.911	52.34	6.487	39.065	6.63	-0.042	29.933	0.256	0	287	12.4	42.0	2.9	0.112	0.111	0.0026	2.64	2.2
297	5/26/1999	2:19:54 PM	0	25.755	23.737	25.349	26.606	22.649	33.361	44.601	52.065	6.439	38.862	6.661	-0.042	29.917	0.254	0	288	12.4	41.7	2.9	0.111	0.110	0.0026	2.63	2.2
298	5/26/1999	2:20:54 PM	0	25.835	23.818	25.304	26.641	22.649	33.361	44.57	51.943	6.343	38.727	6.63	-0.042	29.948	0.256	0	289	12.4	41.6	2.9	0.112	0.111	0.0027	2.66	2.3
299	5/26/1999	2:21:54 PM	0	25.835	23.818	25.384	26.721	22.443	33.316	44.632	51.974	6.399	38.558	6.63	-0.042	29.948	0.256	0	290	12.4	41.6	2.9	0.112	0.111	0.0027	2.66	2.3
300	5/26/1999	2:22:54 PM	0	25.87	23.727	25.384	26.721	22.523	33.271	44.911	51.943	6.391	38.93	6.63	-0.042	29.902	0.262	0	291	12.4	41.9	2.9	0.114	0.113	0.0027	2.70	2.3
301	5/26/1999	2:23:54 PM	0	25.825	23.807	25.339	26.598	22.604	33.033	44.384	51.791	6.463	38.693	6.63	-0.042	29.964	0.256	0	292	12.4	41.5	2.9	0.112	0.111	0.0027	2.66	2.3
302	5/26/1999	2:24:54 PM	0	25.905	23.807	25.419	26.756	22.478	33.271	44.756	51.913	6.367	39.065	6.63	-0.042	29.917	0.263	0	293	12.4	41.9	2.9	0.115	0.113	0.0027	2.71	2.3
303	5/26/1999	2:25:54 PM	0	25.859	23.887	25.419	26.63	22.397	33.147	44.911	52.309	6.423	39.031	6.63	-0.042	29.948	0.259	0	294	12.4	42.0	2.9	0.113	0.112	0.0027	2.66	2.3
304	5/26/1999	2:26:54 PM	0	25.859	23.762	25.373	26.71	22.432	33.226	44.942	52.309	6.415	38.862	6.661	-0.042	29.841	0.259	0	295	12.4	41.9	2.9	0.113	0.112	0.0027	2.67	2.3
305	5/26/1999	2:27:54 PM	0	25.859	23.762	25.408	26.71	22.352	33.023	44.694	51.821	6.311	38.659	6.63	-0.042	29.933	0.254	0	296	12.4	41.7	2.9	0.111	0.110	0.0026	2.63	2.2
306	5/26/1999	2:28:55 PM	0	25.894	23.797	25.408	26.745	22.387	33.181	44.322	51.852	6.455	38.625	6.661	-0.042	29.917	0.259	0.003	297	12.4	41.5	2.9	0.113	0.112	0.0027	2.70	2.3
307	5/26/1999	2:29:55 PM	0	25.894	23.797	25.408	26.745	22.387	32.786	44.508	51.791	6.383	38.828	6.63	-0.042	29.917	0.257	0	298	12.4	41.7	2.9	0.112	0.111	0.0027	2.66	2.3
308	5/26/1999	2:30:55 PM	0	25.894	23.751	25.488	26.7	22.387	32.231	44.632	52.004	6.447	38.93	6.63	-0.042	29.948	0.259	0.003	299	12.4	41.8	2.9	0.113	0.112	0.0027	2.67	2.3
309	5/26/1999	2:31:55 PM	0	25.849	23.877	25.443	26.7	22.663	32.186	45.128	52.492	6.431	38.896	6.63	-0.042	29.994	0.256	0.003	300	12.4	42.0	2.9	0.112	0.110	0.0026	2.63	2.2
310	5/26/1999	2:32:55 PM	0	25.849	23.751	25.523	26.62	22.663	32.107	44.508	51.913	6.503	38.727	6.63	-0.042	29.948	0.259	0	301	12.4	41.6	2.9	0.113	0.111	0.0027	2.68	2.3
311	5/26/1999	2:33:55 PM	0	25.929	23.751	25.523	26.46	22.904	32.424	44.632	52.248	6.574	38.896	6.63	-0.042	29.917	0.257	0	302	12.4	41.8	2.9	0.112	0.111	0.0026	2.65	2.3
312	5/26/1999	2:34:55 PM	0	25.849	23.751	25.443	26.54	22.904	32.107	44.88	52.126	6.471	39.099	6.63	-0.042	29.933	0.256	0	303	12.4	42.0	2.9	0.112	0.110	0.0026	2.63	2.2
313	5/26/1999	2:35:55 PM	0	25.929	23.706	25.443	26.62	22.904	32.265	44.601	51.943	6.455	39.065	6.661	-0.042	29.979	0.255	0	304	12.4	41.8	2.9	0.111	0.110	0.0026	2.63	2.2
314	5/26/1999	2:36:56 PM	0	25.929	23.751	25.523	26.54	22.904	31.79	44.446	51.852	6.375	38.93	6.63	-0.042	29.994	0.256	0	305	12.4	41.7	2.9	0.113	0.111	0.0027	2.66	2.3
315	5/26/1999	2:37:56 PM	0	25.929	23.832	25.523	26.62	22.965	31.869	44.787	52.096	6.359	38.862	6.63	-0.042	29.902	0.255	0	306	12.4	41.8	2.9	0.111	0.110	0.0026	2.62	2.2
316	5/26/1999	2:38:56 PM	0	25.929	23.751	25.443	26.46	22.904	32.028	44.167	51.699	6.463	38.761	6.63	-0.042	29.902	0.259	0	307	12.4	41.5	2.9	0.113	0.112	0.0027	2.69	2.3
317	5/26/1999	2:39:56 PM	0	25.929	23.751	25.523	26.46	22.824	32.072	44.353	51.73	6.383	38.997	6.63	-0.042	29.948	0.254	0	308	12.4	41.7	2.9	0.111	0.109	0.0026	2.62	2.2
318	5/26/1999	2:40:56 PM	0	25.929	23.832	25.568	26.46	22.904	31.631	44.384	51.699	6.519	39.031	6.63	-0.042	29.933	0.26	0	309	12.4	41.7	2.9	0.114	0.112	0.0027	2.68	2.3
319	5/26/1999	2:41:56 PM	0	25.974	23.832	25.523	26.46	23.145	31.834	44.601	51.913	6.327	38.592	6.63	-0.042	29.902	0.258	0	310	12.4	41.6	2.9	0.113	0.111	0.0027	2.67	2.3
320	5/26/1999	2:42:56 PM	0	25.929	23.751	25.568	26.38	23.145	31.79	44.849	52.187	6.479	38.896	6.63	-0.042	29.933	0.255	0	311	12.4	41.9	2.9	0.111	0.110	0.0026	2.62	2.2
321	5/26/1999	2:43:56 PM	0	25.929	23.832	25.523	26.46	22.985	32.152	44.911	52.279	6.479	38.761	6.661	-0.042	29.979	0.256	0	312	12.4	41.8	2.9	0.112	0.110	0.0026	2.63	2.2
322	5/26/1999	2:44:56 PM	0	25.974	23.877	25.523	26.345	22.95	[illegible]	44.539	51.547	6.343	39.268	6.63	-0.042	29.933	0.255	0.003	313	12.4	41.9	2.9	0.111	0.110	0.0026	2.62	2.2
323	5/26/1999	2:45:56 PM	0	25.929	23.797	25.568	26.425	22.95	32.072	44.291	51.882	6.463	38.828	6.63	-0.042	29.902	0.256	0	314	12.4	41.6	2.9	0.112	0.110	0.0026	2.65	2.3
324	5/26/1999	2:46:57 PM	0	26.054	23.797	25.568	26.425	22.95	32.072	44.725	52.157	6.439	38.997	6.63	-0.042	29.979	0.256	0.003	315	12.4	41.9	2.9	0.112	0.110	0.0026	2.63	2.2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
325	5/26/1999	2:47:57 PM	0	25.974	23.797	25.568	26.505	23.03	31.993	44.787	52.065	6.487	39.065	6.63	-0.042	29.964	0.258	0	316	12.4	41.9	2.9	0.113	0.111	0.0026	2.64	2.2
326	5/26/1999	2:48:57 PM	0	26.019	23.797	25.568	26.505	23.03	32.152	44.725	51.943	6.391	38.794	6.63	-0.042	29.933	0.259	0	317	12.4	41.8	2.9	0.113	0.111	0.0027	2.66	2.3
327	5/26/1999	2:49:57 PM	0	25.974	23.797	25.568	26.585	23.191	31.834	44.725	52.035	6.391	38.896	6.661	-0.042	29.994	0.256	0	318	12.4	41.8	2.9	0.112	0.110	0.0026	2.63	2.2
328	5/26/1999	2:50:57 PM	0	25.974	23.842	25.568	26.745	23.191	31.993	44.911	52.187	6.471	38.896	6.63	-0.042	29.856	0.253	0	319	12.4	41.9	2.9	0.110	0.109	0.0026	2.59	2.2
329	5/26/1999	2:51:57 PM	0	26.054	23.797	25.568	26.71	23.236	31.834	45.128	52.553	6.495	38.964	6.661	-0.042	29.917	0.256	0	320	12.4	42.0	2.9	0.112	0.110	0.0026	2.62	2.2
330	5/26/1999	2:52:57 PM	0	26.019	23.842	25.568	26.79	23.191	32.038	45.035	52.309	6.503	38.862	6.63	-0.042	29.902	0.258	0	321	12.4	41.9	2.9	0.113	0.111	0.0026	2.64	2.2
331	5/26/1999	2:53:57 PM	0	26.099	23.842	25.534	26.79	23.316	31.959	44.167	51.364	6.295	38.659	6.63	-0.042	29.887	0.258	0	322	12.4	41.4	2.9	0.113	0.111	0.0027	2.68	2.3
332	5/26/1999	2:54:57 PM	0	26.019	23.762	25.453	26.915	23.316	32.117	44.787	51.913	6.287	38.761	6.599	-0.042	29.917	0.259	0	323	12.4	41.8	2.9	0.113	0.112	0.0027	2.67	2.3
333	5/26/1999	2:55:57 PM	0	26.065	23.807	25.339	26.836	23.201	31.879	44.508	51.943	6.487	38.862	6.599	-0.042	29.948	0.252	0	324	12.4	41.7	2.9	0.110	0.109	0.0026	2.61	2.2
334	5/26/1999	2:56:57 PM	0	25.985	23.887	25.339	26.87	23.282	31.924	44.196	51.486	6.407	38.862	6.568	-0.042	29.795	0.26	0	325	12.4	41.5	2.9	0.114	0.112	0.0027	2.71	2.3
335	5/26/1999	2:57:57 PM	0	25.905	23.807	25.259	26.876	23.362	30.675	44.942	52.309	6.503	38.828	6.568	-0.042	29.825	0.254	0.003	326	12.4	41.9	2.9	0.111	0.110	0.0026	2.63	2.2
336	5/26/1999	2:58:57 PM	0	25.825	23.807	25.179	26.756	23.683	31.21	44.632	51.639	6.319	38.93	6.538	-0.042	29.825	0.251	0	327	12.4	41.8	2.9	0.110	0.109	0.0026	2.61	2.2
337	5/26/1999	2:59:58 PM	0	25.825	23.807	25.064	26.801	23.648	31.493	44.508	51.73	6.375	38.93	6.538	-0.042	29.856	0.257	0.003	328	12.4	41.7	2.9	0.112	0.112	0.0027	2.68	2.3
338	5/26/1999	3:00:58 PM	0	25.79	23.853	25.029	26.926	23.648	31.255	44.477	51.852	6.399	38.794	6.538	-0.042	29.994	0.255	0	329	12.4	41.6	2.9	0.111	0.111	0.0027	2.67	2.3
339	5/26/1999	3:01:58 PM	0	25.755	23.818	25.029	27.006	23.694	31.459	44.756	51.76	6.271	39.166	6.507	-0.042	29.887	0.252	0.003	330	12.4	42.0	2.9	0.110	0.110	0.0026	2.62	2.2
340	5/26/1999	3:02:58 PM	0	25.675	23.818	24.949	27.006	23.613	31.617	44.415	51.639	6.423	38.896	6.476	-0.042	29.887	0.249	0	331	12.4	41.7	2.9	0.109	0.109	0.0026	2.61	2.2
341	5/26/1999	3:03:58 PM	0	25.56	23.863	24.914	26.971	23.659	31.96	45.159	52.462	6.495	39.133	6.476	-0.042	29.948	0.254	0.003	332	12.4	42.1	2.9	0.111	0.111	0.0026	2.64	2.2
342	5/26/1999	3:04:58 PM	0	25.56	23.863	24.834	26.891	23.579	31.9	44.663	51.699	6.327	39.133	6.476	-0.042	29.917	0.253	0	333	12.4	41.9	2.9	0.110	0.111	0.0026	2.65	2.3
343	5/26/1999	3:05:58 PM	0	25.48	23.783	24.834	27.017	23.544	32.059	45.221	52.34	6.439	39.335	6.476	-0.042	29.718	0.254	0	334	12.3	42.3	2.9	0.111	0.111	0.0026	2.63	2.2
344	5/26/1999	3:06:58 PM	0	25.526	23.828	24.719	26.857	23.383	32.183	44.911	52.065	6.423	39.099	6.445	-0.042	29.749	0.254	0	335	12.3	42.0	2.9	0.111	0.112	0.0027	2.66	2.3
345	5/26/1999	3:07:58 PM	0	25.365	23.828	24.799	26.857	23.383	32.242	45.097	52.34	6.423	39.335	6.476	-0.042	29.749	0.255	0	336	12.3	42.2	2.9	0.111	0.112	0.0027	2.65	2.3
346	5/26/1999	3:08:59 PM	0	25.365	23.828	24.559	26.742	23.303	[illegible]	45.004	52.34	6.495	39.234	6.445	-0.042	29.856	0.252	0	337	12.4	42.1	2.9	0.110	0.111	0.0026	2.64	2.3
347	5/26/1999	3:09:59 PM	0	25.331	23.828	24.684	26.742	23.348	32.149	44.911	52.157	6.542	39.268	6.445	-0.042	29.856	0.247	0	338	12.4	42.1	2.9	0.108	0.109	0.0026	2.58	2.2
348	5/26/1999	3:10:59 PM	0	25.251	23.874	24.604	26.742	23.348	32.386	44.849	51.852	6.359	38.93	6.414	-0.042	29.887	0.248	0	339	12.4	41.9	2.9	0.108	0.109	0.0026	2.61	2.2
349	5/26/1999	3:11:59 PM	0	25.251	23.92	24.57	26.706	23.268	32.307	44.942	51.974	6.479	39.234	6.414	-0.042	29.948	0.255	0	340	12.4	42.1	2.9	0.111	0.113	0.0027	2.68	2.3
350	5/26/1999	3:12:59 PM	0	25.216	23.92	24.49	26.788	23.394	32.511	45.283	52.309	6.542	39.133	6.414	-0.042	29.887	0.247	0	341	12.4	42.2	2.9	0.108	0.109	0.0026	2.59	2.2
351	5/26/1999	3:13:59 PM	0	25.216	23.839	24.409	26.867	23.44	32.194	44.88	51.882	6.447	38.997	6.414	-0.042	29.856	0.254	0	342	12.4	41.9	2.9	0.111	0.113	0.0027	2.69	2.3
352	5/26/1999	3:14:59 PM	0	25.056	23.839	24.49	26.867	23.394	32.273	44.973	52.004	6.487	39.065	6.383	-0.042	29.856	0.255	0	343	12.4	42.0	2.9	0.111	0.113	0.0027	2.69	2.3
353	5/26/1999	3:16:00 PM	0	25.056	23.839	24.375	26.788	23.314	32.714	45.097	52.035	6.479	39.099	6.383	-0.042	29.887	0.248	0	344	12.4	42.1	2.9	0.108	0.110	0.0026	2.62	2.2
354	5/26/1999	3:17:00 PM	0	24.975	23.885	24.329	26.913	23.233	32.748	45.19	52.309	6.495	38.964	6.383	-0.042	29.856	0.248	0	345	12.4	42.1	2.9	0.108	0.110	0.0026	2.62	2.2
355	5/26/1999	3:18:00 PM	0	25.021	23.839	24.375	26.867	23.279	33.031	44.849	52.096	6.455	38.862	6.383	-0.042	29.825	0.252	0	346	12.4	41.9	2.9	0.110	0.112	0.0027	2.68	2.3
356	5/26/1999	3:19:00 PM	0	24.895	23.885	24.329	26.753	23.118	33.585	45.345	52.645	6.399	38.964	6.383	-0.042	29.902	0.247	0	347	12.4	42.2	2.9	0.108	0.110	0.0026	2.61	2.2
357	5/26/1999	3:20:00 PM	0	24.895	23.839	24.249	26.788	22.832	33.54	44.725	51.669	6.447	39.2	6.383	-0.042	29.81	0.249	0	348	12.4	42.0	2.9	0.109	0.111	0.0026	2.65	2.3
358	5/26/1999	3:21:00 PM	0	24.895	23.92	24.249	26.867	22.671	33.698	45.097	52.279	6.511	38.964	6.353	-0.042	29.841	0.243	0	349	12.4	42.0	2.9	0.106	0.108	0.0026	2.58	2.2
359	5/26/1999	3:22:00 PM	0	24.895	23.92	24.169	26.788	22.832	33.54	45.035	52.035	6.423	39.133	6.383	-0.042	29.856	0.253	0	350	12.4	42.1	2.9	0.110	0.113	0.0027	2.69	2.3
360	5/26/1999	3:23:00 PM	0	24.77	23.874	24.203	26.867	22.625	33.732	44.632	51.73	6.431	38.828	6.353	-0.042	29.841	0.241	0	351	12.4	41.7	2.9	0.105	0.108	0.0026	2.58	2.2
361	5/26/1999	3:24:01 PM	0	24.85	23.874	24.203	26.742	22.706	33.811	44.787	51.73	6.439	38.997	6.353	-0.042	29.841	0.247	0	352	12.4	41.9	2.9	0.108	0.110	0.0026	2.63	2.2
362	5/26/1999	3:25:01 PM	0	24.724	23.874	24.078	26.742	22.625	33.256	45.252	52.797	6.574	39.099	6.353	-0.042	29.887	0.247	0.003	353	12.4	42.2	2.9	0.108	0.111	0.0026	2.62	2.2
363	5/26/1999	3:26:01 PM	0	24.724	23.909	24.078	26.697	22.66	33.846	45.097	52.065	6.391	39.268	6.353	-0.042	29.764	0.246	0	354	12.4	42.2	2.9	0.107	0.110	0.0026	2.61	2.2
364	5/26/1999	3:27:01 PM	0	24.679	23.909	23.952	26.652	22.373	33.801	44.942	51.974	6.415	38.896	6.353	-0.042	29.871	0.245	0	355	12.4	41.9	2.9	0.107	0.110	0.0026	2.63	2.2
365	5/26/1999	3:28:01 PM	0	24.679	23.898	24.032	26.652	22.454	33.914	44.725	52.004	6.503	39.065	6.353	-0.042	29.795	0.245	0.003	356	12.4	41.9	2.9	0.107	0.110	0.0026	2.62	2.2
366	5/26/1999	3:29:01 PM	0	24.633	23.898	23.987	26.526	22.327	33.835	44.88	51.791	6.407	39.335	6.322	-0.042	29.841	0.246	0	357	12.4	42.1	2.9	0.107	0.111	0.0026	2.62	2.2
367	5/26/1999	3:30:01 PM	0	24.588	23.853	23.941	26.641	22.247	33.395	44.942	51.913	6.423	39.234	6.353	-0.042	29.718	0.247	0	358	12.3	42.1	2.9	0.108	0.111	0.0026	2.64	2.2
368	5/26/1999	3:31:02 PM	0	24.588	23.933	24.022	26.641	22.362	33.157	44.737	51.974	6.471	39.133	6.353	-0.042	29.825	0.246	0	359	12.4	42.0	2.9	0.107	0.110	0.0026	2.63	2.2
369	5/26/1999	3:32:02 PM	0	24.543	23.887	23.941	26.516	22.478	32.875	44.756	51.791	6.383	39.099	6.322	-0.042	29.871	0.246	0	360	12.4	41.9	2.9	0.107	0.111	0.0026	2.64	2.2
370	5/26/1999	3:33:02 PM	0	24.543	23.968	23.896	26.516	22.558	32.717	45.314	52.401	6.455	38.896	6.353	-0.042	29.871	0.245	0	361	12.4	42.1	2.9	0.107	0.110	0.0026	2.62	2.2
371	5/26/1999	3:34:02 PM	0	24.543	23.922	23.851	26.596	22.639	32.196	45.252	52.065	6.335	39.268	6.322	-0.042	29.825	0.244	0.003	362	12.4	42.3	2.9	0.107	0.110	0.0026	2.60	2.2
372	5/26/1999	3:35:02 PM	0	24.417	23.922	23.851	26.63	22.834	32.355	45.035	52.096	6.471	38.997	6.322	-0.042	29.825	0.244	0	363	12.4	42.0	2.9	0.107	0.110	0.0026	2.62	2.2
373	5/26/1999	3:36:02 PM	0	24.417	23.922	23.851	26.63	22.754	32.434	44.88	52.157	6.463	39.133	6.322	-0.042	29.825	0.244	0	364	12.4	42.0	2.9	0.107	0.110	0.0026	2.62	2.2
374	5/26/1999	3:37:02 PM	0	24.417	23.877	23.851	26.71	22.95	32.038	45.314	52.37	6.463	39.471	6.322	-0.042	29.825	0.244	0	365	12.4	42.4	2.9	0.107	0.110	0.0026	2.60	2.2
375	5/26/1999	3:38:03 PM	0	24.372	23.877	23.805	26.63	23.03	31.914	44.446	51.608	6.447	39.268	6.322	-0.042	29.779	0.245	0	366	12.4	41.9	2.9	0.107	0.111	0.0026	2.64	2.2
376	5/26/1999	3:39:03 PM	0	24.372	23.877	23.851	26.585	23.191	31.721	45.252	52.004	6.423	39.234	6.353	-0.042	29.887	0.244	0	367	12.4	42.2	2.9	0.107	0.110	0.0026	2.60	2.2
377	5/26/1999	3:40:03 PM	0	24.372	23.877	23.966	26.63	23.11	31.993	44.508	51.821	6.407	38.862	6.353	-0.042	29.795	0.244	0.003	368	12.4	41.7	2.9	0.107	0.110	0.0026	2.63	2.2
378	5/26/1999	3:41:03 PM	0	24.372	23.922	24.171	26.71	23.156	32.117	44.725	51.791	6.415	39.031	6.383	-0.042	29.887	0.246	0	369	12.4	41.9	2.9	0.107	0.110	0.0026	2.63	2.2
379	5/26/1999	3:42:03 PM	0	24.497	23.922	24.206	26.79	23.075	32.152	45.128	52.096	6.487	38.997	6.414	-0.042	29.825	0.246	0	370	12.4	42.1	2.9	0.107	0.110	0.0026	2.61	2.2
380	5/26/1999	3:43:03 PM	0	24.577	23.922	24.332	26.71	23.236	31.959	44.911	52.065	6.391	39.031	6.445	-0.042	29.856	0.248	0	371	12.4	42.0	2.9	0.108	0.110	0.0026	2.63	2.2
381	5/26/1999	3:44:03 PM	0	24.658	23.877	24.457	26.71	23.236	31.959	44.167	51.334	6.311	38.964	6.445	-0.042	29.902	0.246	0	372	12.4	41.6	2.9	0.107	0.109	0.0026	2.62	2.2
382	5/26/1999	3:45:03 PM	0	24.738	23.922	24.492	26.79	23.397	31.959	45.035	51.974	6.431	39.031	6.476	-0.042	29.887	0.246	0	373	12.4	42.0	2.9	0.107	0.109	0.0026	2.59	2.2
383	5/26/1999	3:46:03 PM	0	24.818	23.922	24.572	26.71	23.236	31.721	45.159	52.492	6.542	38.896	6.476	-0.042	29.933	0.248	0	374	12.4	42.0	2.9	0.108	0.110	0.0026	2.61	2.2
384	5/26/1999	3:47:03 PM	0	24.898	23.968	24.572	26.79	23.397	31.845	45.314	52.706	6.527	39.234	6.476	-0.042	29.856	0.249	0	375	12.4	42.3	2.9	0.109	0.110	0.0026	2.60	2.2
385	5/26/1999	3:48:04 PM	0	24.898	23.968	24.572	26.79	23.477	31.562	44.291	51.669	6.359	39.031	6.476	-0.042	29.825	0.25	0	376	12.4	41.7	2.9	0.109	0.110	0.0027	2.65	2.3
386	5/26/1999	3:49:04 PM	0	25.024	23.922	24.572	26.79	23.638	31.448	44.756	51.974	6.383	39.031	6.476	-0.042	29.917	0.248	0.003	377	12.4	41.9	2.9	0.108	0.110	0.0026	2.62	2.2
387	5/26/1999	3:50:04 PM	0	24.943	23.968	24.572	26.756	23.523	31.924	44.415	51.76	6.407	39.335	6.476	-0.042	29.948	0.247	0	378	12.4	41.9	2.9	0.108	0.109	0.0026	2.61	2.2
388	5/26/1999	3:51:04 PM	0	24.943	23.968	24.618	26.836	23.442	31.845	44.663	51.974	6.487	38.828	6.476	-0.042	29.902	0.249	0	379	12.4	41.7	2.9	0.109	0.110	0.0026	2.63	2.2
389	5/26/1999	3:52:04 PM	0	25.069	23.968	24.663	26.756	23.488	31.527	45.004	52.248	6.319	38.93	6.476	-0.042	29.81	0.254	0.003	380	12.4	42.0	2.9	0.111	0.112	0.0027	2.67	2.3
390	5/26/1999	3:53:04 PM	0	24.943	23.933	24.663	26.801	23.568	31.969	44.973	52.218	6.574	39.166	6.476	-0.042	29.902	0.246	0	381	12.4	42.1	2.9	0.107	0.108	0.0026	2.58	2.2
391	5/26/1999	3:54:04 PM	0	25.069	23.933	24.663	26.801	23.533	31.81	44.508	51.73	6.383	39.065	6.507	-0.042	29.902	0.247	0	382	12.4	41.8	2.9	0.108	0.109	0.0026	2.61	2.2
392	5/26/1999	3:55:04 PM	0	25.114	23.933	24.743	26.881	23.613	31.855	44.787	52.096	6.542	38.93	6.476	-0.042	29.81	0.248	0	383	12.4	41.9	2.9	0.108	0.109	0.0026	2.61	2.2
393	5/26/1999	3:56:05 PM	0	25.114	23.898	24.708	27.006	23.613	32.014	44.818	51.913	6.455	38.896	6.476	-0.042	29.871	0.248	0.003	384	12.4	41.9	2.9	0.108	0.109	0.0026	2.61	2.2
394	5/26/1999	3:57:05 PM	0	25.114	23.978	24.628	26.926	23.613	31.617	44.911	52.035	6.423	39.065	6.476	-0.042	29.856	0.247	0	385	12.4	42.0	2.9	0.108	0.109	0.0026	2.60	2.2
395	5/26/1999	3:58:05 PM	0	25.16	23.944	24.708	27.051	23.659	31.583	44.539	51.73	6.407	38.896	6.476	-0.042	29.871	0.248	0	386	12.4	41.7	2.9	0.108	0.109	0.0026	2.62	2.2
396	5/26/1999	3:59:05 PM	0	25.16	23.944	24.754	26.891	23.82	31.504	44.911	52.096	6.447	38.93	6.507	-0.042	29.856	0.245	0	387	12.4	41.9	2.9	0.107	0.108	0.0026	2.57	2.2
397	5/26/1999	4:00:05 PM	0	25.16	23.944	24.834	26.811	23.9	31.583	44.446	51.517	6.343	39.031	6.476	-0.042	29.933	0.249	0	388	12.4	41.7	2.9	0.109	0.109	0.0026	2.62	2.2
398	5/26/1999	4:01:05 PM	0	25.205	23.944	24.799	26.857	23.704	32.262	44.167	51.578	6.399	38.761	6.507	-0.042	29.856	0.246	0	389	12.4	41.5	2.9	0.107	0.108	0.0026	2.60	2.2
399	5/26/1999	4:02:05 PM	0	25.205	23.989	24.879	26.857	23.544	33.054	44.539	51.852	6.447	38.659	6.507	-0.042	29.871	0.248	0	390	12.4	41.6	2.9	0.108	0.109	0.0026	2.61	2.2
400	5/26/1999	4:03:05 PM	0	25.205	23.909	24.799	26.857	23.223	32.975	45.128	52.584	6.503	39.133	6.507	-0.042	29.902	0.246	0	391	12.4	42.1	2.9	0.107	0.108	0.0026	2.56	2.2
401	5/26/1999	4:04:05 PM	0	25.285	23.989	24.799	26.937	22.982	33.371	44.973	52.309	6.487	38.862	6.507	-0.042	29.871	0.246	0	392	12.4	41.9	2.9	0.107	0.108	0.0026	2.58	2.2
402	5/26/1999	4:05:05 PM	0	25.285	23.909	24.754	26.777	22.947	33.529	44.756	52.126	6.479	38.896	6.507	-0.042	29.902	0.245	0	393	12.4	41.8	2.9	0.107	0.108	0.0026	2.57	2.2
403	5/26/1999	4:06:05 PM	0	25.365	23.909	24.799	26.857	22.821	33.45	44.911	52.401	6.527	38.896	6.507	-0.042	29.887	0.249	0	394	12.4	41.9	2.9	0.109	0.109	0.0026	2.61	2.2
404	5/26/1999	4:07:06 PM	0	25.365	23.989	24.799	26.652	22.821	33.45	44.787	51.943	6.359	39.133	6.476	-0.042	29.948	0.247	0	395	12.4	42.0	2.9	0.108	0.108	0.0026	2.58	2.2
405	5/26/1999	4:08:06 PM	0	25.32	23.989	24.834	26.652	22.821	32.817	44.539	51.73	6.447	38.93	6.507	-0.042	29.933	0.246	0.003	396	12.4	41.7	2.9	0.107	0.108	0.0026	2.59	2.2

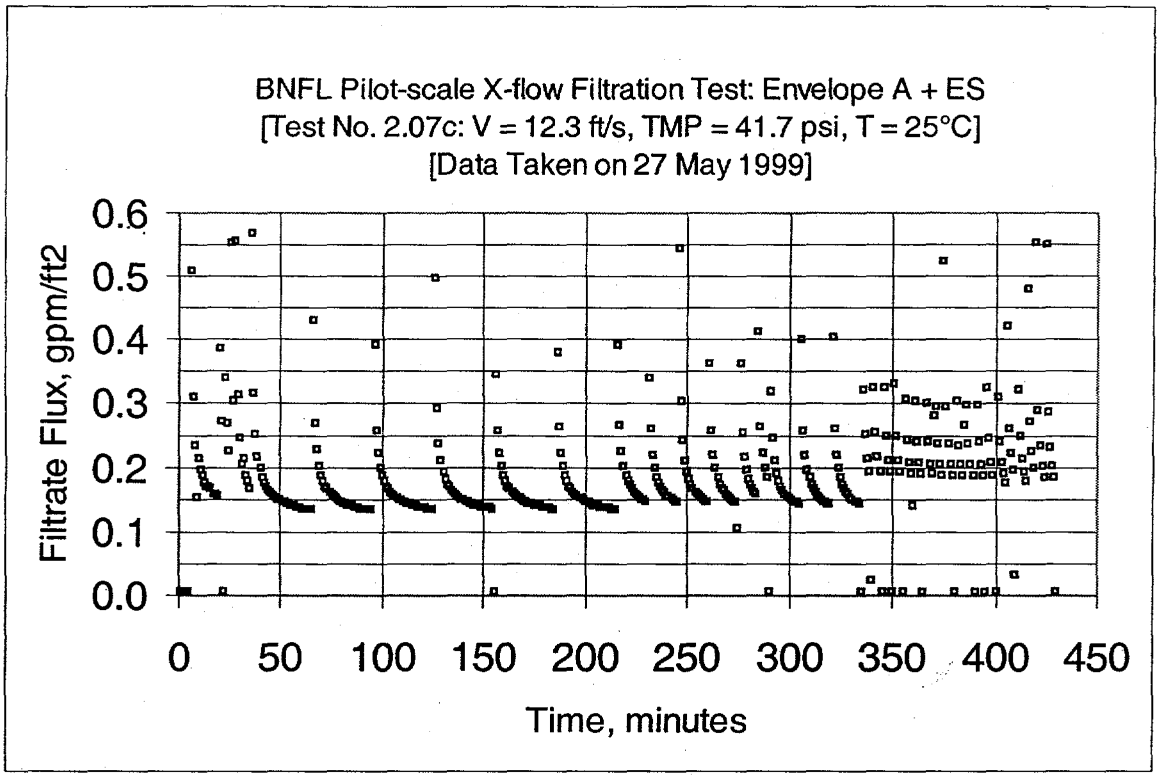
Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
406	5/26/1999	4:09:06 PM	0	25.32	23.944	24.914	26.652	22.856	33.801	44.756	51.699	6.343	38.896	6.507	-0.042	29.871	0.249	0.003	397	12.4	41.8	2.9	0.109	0.109	0.0026	2.61	2.2
407	5/26/1999	4:10:06 PM	0	25.355	23.978	24.869	26.732	22.814	33.643	44.694	51.913	6.399	38.862	6.507	-0.042	29.964	0.247	0	398	12.4	41.8	2.9	0.108	0.108	0.0026	2.59	2.2
408	5/26/1999	4:11:06 PM	0	25.355	23.978	24.869	26.686	22.569	33.598	45.097	52.37	6.471	39.065	6.507	-0.042	29.917	0.247	0	399	12.4	42.1	2.9	0.108	0.108	0.0026	2.57	2.2
409	5/26/1999	4:12:06 PM	0	25.355	23.933	24.903	26.561	22.362	33.519	45.066	52.309	6.391	38.862	6.507	-0.042	29.948	0.249	0	400	12.4	42.0	2.9	0.109	0.109	0.0026	2.60	2.2
410	5/26/1999	4:13:06 PM	0	25.389	24.013	24.903	26.561	22.443	33.318	45.159	52.279	6.423	39.065	6.507	-0.042	29.871	0.25	0	401	12.4	42.1	2.9	0.109	0.109	0.0026	2.60	2.2
411	5/26/1999	4:14:06 PM	0	25.344	23.968	24.984	26.481	22.362	33.033	44.539	51.578	6.335	39.099	6.507	-0.042	29.948	0.247	0	402	12.4	41.8	2.9	0.108	0.108	0.0026	2.58	2.2
412	5/26/1999	4:15:06 PM	0	25.424	23.968	25.018	26.596	22.478	32.637	45.252	52.462	6.455	38.794	6.538	-0.042	29.933	0.248	0	403	12.4	42.0	2.9	0.108	0.108	0.0026	2.57	2.2
413	5/26/1999	4:16:06 PM	0	25.424	24.048	25.098	26.471	22.639	32.479	44.725	51.791	6.463	38.828	6.568	-0.042	29.902	0.252	0	404	12.4	41.8	2.9	0.110	0.110	0.0026	2.63	2.2
414	5/26/1999	4:17:06 PM	0	25.459	24.048	25.133	26.516	22.915	32.513	44.353	51.456	6.255	38.693	6.568	-0.042	29.825	0.252	0	405	12.4	41.5	2.9	0.110	0.110	0.0026	2.64	2.2
415	5/26/1999	4:18:07 PM	0	25.539	23.957	25.213	26.391	22.789	32.513	44.725	52.096	6.503	39.065	6.568	-0.042	29.779	0.251	0	406	12.4	41.9	2.9	0.110	0.109	0.0026	2.60	2.2
416	5/26/1999	4:19:07 PM	0	25.574	24.083	25.293	26.345	22.95	32.31	44.694	52.096	6.431	38.997	6.568	-0.042	29.825	0.246	0	407	12.4	41.8	2.9	0.107	0.107	0.0025	2.55	2.2
417	5/26/1999	4:20:07 PM	0	25.654	23.957	25.408	26.265	22.869	32.31	44.694	51.913	6.479	39.2	6.599	-0.042	29.825	0.249	0	408	12.4	41.9	2.9	0.109	0.107	0.0026	2.56	2.2
418	5/26/1999	4:21:07 PM	0	25.734	24.038	25.408	26.345	22.95	32.072	44.539	52.035	6.431	38.794	6.599	-0.042	29.779	0.257	0	409	12.4	41.7	2.9	0.112	0.111	0.0027	2.66	2.3
419	5/26/1999	4:22:07 PM	0	25.814	24.038	25.488	26.3	22.869	32.152	45.035	52.309	6.455	38.964	6.599	-0.042	29.933	0.251	0	410	12.4	42.0	2.9	0.110	0.108	0.0026	2.57	2.2
420	5/26/1999	4:23:07 PM	0	25.849	23.992	25.568	26.38	23.11	32.345	44.694	51.974	6.447	38.693	6.63	-0.042	29.81	0.248	0	411	12.4	41.7	2.9	0.108	0.107	0.0026	2.56	2.2
421	5/26/1999	4:24:07 PM	0	25.929	23.992	25.603	26.22	23.03	32.028	44.57	51.821	6.447	39.065	6.63	-0.042	29.887	0.254	0	412	12.4	41.8	2.9	0.111	0.109	0.0026	2.61	2.2
422	5/26/1999	4:25:08 PM	0	25.929	23.992	25.603	26.3	23.145	32.028	44.88	52.37	6.239	39.403	6.692	-0.042	29.518	0.254	0.003	413	12.3	42.1	2.9	0.111	0.109	0.0026	2.59	2.2
423	5/26/1999	4:26:08 PM	0	26.009	23.992	25.763	26.22	23.226	32.107	44.818	52.279	6.303	39.268	6.722	-0.042	29.533	0.259	0	414	12.3	42.0	2.9	0.113	0.111	0.0026	2.63	2.2
424	5/26/1999	4:27:08 PM	0	26.009	24.072	25.763	26.3	23.145	32.107	45.221	52.675	6.271	39.504	6.722	-0.042	29.487	0.254	0	415	12.2	42.4	2.9	0.111	0.109	0.0026	2.56	2.2
425	5/26/1999	4:28:08 PM	0	26.089	24.072	25.843	26.14	22.985	31.948	44.818	52.401	6.295	38.794	6.753	-0.042	29.487	0.256	0.003	416	12.2	41.8	2.9	0.112	0.109	0.0026	2.61	2.2
426	5/26/1999	4:29:08 PM	0	26.169	23.992	25.923	26.3	23.306	32.186	44.911	52.248	6.231	39.302	6.753	-0.089	29.503	0.254	0.003	417	12.2	42.1	2.9	0.111	0.108	0.0026	2.57	2.2
427	5/26/1999	4:30:08 PM	0	26.249	23.992	25.878	26.095	23.1	31.71	44.942	52.34	6.255	39.302	6.753	-0.042	29.38	0.259	0.003	418	12.2	42.1	2.9	0.113	0.110	0.0026	2.62	2.2
428	5/26/1999	4:31:08 PM	0	26.329	23.992	26.003	26.14	23.145	31.71	45.035	52.523	6.215	39.099	6.784	-0.042	29.503	0.256	0	419	12.2	42.1	2.9	0.112	0.109	0.0026	2.58	2.2
429	5/26/1999	4:32:08 PM	0	26.329	23.992	25.843	26.14	23.065	31.948	45.097	52.553	6.279	39.335	6.753	-0.042	29.533	0.257	0.003	420	12.3	42.2	2.9	0.112	0.110	0.0026	2.60	2.2
430	5/26/1999	4:33:08 PM	0	26.329	23.992	25.798	26.3	23.065	31.869	45.252	52.675	6.168	39.403	6.753	-0.042	29.441	0.256	0	421	12.2	42.3	2.9	0.112	0.109	0.0026	2.58	2.2
431	5/26/1999	4:34:08 PM	0	26.204	24.072	25.763	26.175	22.985	31.948	44.849	52.279	6.223	39.369	6.722	-0.042	29.457	0.253	0	422	12.2	42.1	2.9	0.110	0.108	0.0026	2.57	2.2
432	5/26/1999	4:35:08 PM	0	26.169	24.072	25.763	26.3	23.065	32.265	45.252	52.767	6.287	39.268	6.692	-0.042	29.441	0.255	0.003	423	12.2	42.3	2.9	0.111	0.109	0.0026	2.58	2.2
433	5/26/1999	4:36:08 PM	0	26.169	23.992	25.603	26.255	22.985	32.265	45.19	52.492	6.263	39.403	6.661	-0.042	29.441	0.252	0	424	12.2	42.3	2.9	0.110	0.108	0.0026	2.56	2.2
434	5/26/1999	4:37:08 PM	0	26.089	24.072	25.523	26.38	23.145	32.107	45.531	53.193	6.415	39.302	6.661	-0.042	29.457	0.248	0	425	12.2	42.4	2.9	0.108	0.107	0.0025	2.52	2.1
435	5/26/1999	4:38:08 PM	0	26.089	23.992	25.443	26.3	23.065	32.028	45.252	52.828	6.287	39.504	6.63	-0.089	29.441	0.259	0	426	12.2	42.4	2.9	0.113	0.112	0.0026	2.63	2.2
436	5/26/1999	4:39:08 PM	0	26.009	23.992	25.363	26.3	22.985	31.79	44.601	52.035	6.223	39.2	6.63	-0.042	29.457	0.254	0	427	12.2	41.9	2.9	0.111	0.110	0.0026	2.62	2.2
437	5/26/1999	4:40:09 PM	0	25.974	23.992	25.283	26.22	23.065	31.631	44.849	52.126	6.311	39.673	6.63	-0.042	29.487	0.252	0	428	12.2	42.3	2.9	0.110	0.109	0.0026	2.58	2.2
438	5/26/1999	4:41:09 PM	0	25.974	24.038	25.328	26.14	23.191	31.472	45.066	52.34	6.247	39.741	6.599	-0.042	29.457	0.252	0.003	429	12.2	42.4	2.9	0.110	0.109	0.0026	2.57	2.2
439	5/26/1999	4:42:09 PM	0	25.974	24.038	25.248	26.185	23.226	31.755	44.942	51.943	6.175	39.572	6.599	-0.042	29.395	0.253	0.003	430	12.2	42.3	2.9	0.110	0.110	0.0026	2.60	2.2
440	5/26/1999	4:43:09 PM	0	25.814	24.038	25.168	26.105	23.11	31.834	44.818	52.004	6.188	39.268	6.599	-0.042	29.38	0.253	0.003	431	12.2	42.0	2.9	0.110	0.110	0.0026	2.61	2.2
441	5/26/1999	4:44:09 PM	0	25.779	24.038	25.088	26.185	23.11	32.072	45.19	51.882	6.16	39.673	6.599	-0.042	29.441	0.255	0	432	12.2	42.4	2.9	0.111	0.111	0.0026	2.62	2.2
442	5/26/1999	4:45:09 PM	0	25.734	24.038	25.088	26.185	23.191	32.152	45.903	53.224	6.311	39.707	6.568	-0.042	29.334	0.254	0	433	12.2	42.8	3.0	0.111	0.111	0.0026	2.58	2.2
443	5/26/1999	4:46:09 PM	0	25.654	24.083	25.053	26.391	23.236	32.117	45.438	52.553	6.247	40.113	6.568	-0.042	29.334	0.25	0	434	12.2	42.8	2.9	0.109	0.109	0.0025	2.55	2.2
444	5/26/1999	4:47:09 PM	0	25.699	24.003	24.973	26.391	23.156	31.879	45.469	52.889	6.295	39.91	6.568	-0.042	29.349	0.251	0	435	12.2	42.7	2.9	0.110	0.110	0.0026	2.57	2.2
445	5/26/1999	4:48:10 PM	0	25.619	24.048	24.973	26.391	23.236	31.8	45.221	52.614	6.223	39.843	6.568	-0.042	29.318	0.256	0	436	12.2	42.5	2.9	0.112	0.112	0.0026	2.63	2.2
446	5/26/1999	4:49:10 PM	0	25.619	24.003	24.893	26.391	23.236	31.641	45.035	52.584	6.319	39.843	6.538	-0.042	29.288	0.252	0	437	12.2	42.4	2.9	0.110	0.110	0.0026	2.60	2.2
447	5/26/1999	4:50:10 PM	0	25.584	24.048	24.813	26.391	23.397	31.766	45.593	52.858	6.263	39.707	6.538	-0.089	29.38	0.251	0	438	12.2	42.7	2.9	0.110	0.110	0.0026	2.58	2.2
448	5/26/1999	4:51:10 PM	0	25.504	24.048	24.858	26.436	23.442	31.886	45.283	52.279	6.112	39.978	6.507	-0.042	29.334	0.248	0	439	12.2	42.6	2.9	0.108	0.109	0.0025	2.55	2.2
449	5/26/1999	4:52:10 PM	0	25.504	24.048	24.778	26.356	23.362	31.924	45.717	53.041	6.415	40.214	6.507	-0.042	29.318	0.252	0	440	12.2	43.0	3.0	0.110	0.111	0.0026	2.58	2.2
450	5/26/1999	4:53:10 PM	0	25.344	24.048	24.778	26.356	23.362	32.241	45.562	52.584	6.263	39.538	6.538	-0.042	29.38	0.248	0	441	12.2	42.6	2.9	0.108	0.109	0.0026	2.56	2.2
451	5/26/1999	4:54:10 PM	0	25.344	24.048	24.698	26.276	23.282	31.845	45.81	52.828	6.175	39.64	6.507	-0.089	29.288	0.249	0	442	12.2	42.7	2.9	0.109	0.110	0.0026	2.57	2.2
452	5/26/1999	4:55:10 PM	0	25.344	24.013	24.663	26.356	23.327	31.81	45.221	52.614	6.247	40.113	6.507	-0.042	29.365	0.248	0	443	12.2	42.7	2.9	0.108	0.109	0.0026	2.56	2.2
453	5/26/1999	4:56:10 PM	0	25.309	24.013	24.708	26.401	23.488	[illegible]	45.283	52.492	6.239	39.876	6.507	-0.042	29.211	0.245	0	444	12.1	42.6	2.9	0.107	0.108	0.0025	2.53	2.2
454	5/26/1999	4:57:11 PM	0	25.275	24.013	24.708	26.366	23.568	31.869	45.283	52.492	6.239	39.707	6.476	-0.042	29.272	0.249	0	445	12.1	42.5	2.9	0.109	0.110	0.0026	2.58	2.2
455	5/26/1999	4:58:11 PM	0	25.229	24.059	24.628	26.366	23.327	31.969	45.407	52.523	6.295	39.944	6.476	-0.042	29.334	0.247	0.003	446	12.2	42.7	2.9	0.108	0.109	0.0026	2.55	2.2
456	5/26/1999	4:59:11 PM	0	25.194	24.059	24.548	26.366	23.453	31.572	45.531	52.492	6.223	39.572	6.476	-0.042	29.288	0.249	0	447	12.2	42.6	2.9	0.109	0.110	0.0026	2.59	2.2
457	5/26/1999	5:00:11 PM	0	25.194	23.978	24.548	26.366	23.533	31.697	45.748	52.797	6.223	39.876	6.445	-0.042	29.334	0.249	0	448	12.2	42.8	3.0	0.109	0.110	0.0026	2.57	2.2
458	5/26/1999	5:01:11 PM	0	25.16	23.978	24.468	26.366	23.739	31.459	45.407	52.767	6.351	39.876	6.476	-0.042	29.349	0.247	0	449	12.2	42.6	2.9	0.108	0.109	0.0026	2.57	2.2
459	5/26/1999	5:02:11 PM	0	25.08	24.024	24.628	26.286	23.739	32.014	44.787	52.187	6.255	39.978	6.476	-0.089	29.318	0.248	0	450	12.2	42.4	2.9	0.108	0.109	0.0026	2.58	2.2
460	5/26/1999	5:03:11 PM	0	25.16	24.104	24.914	26.412	23.498	32.297	45.345	52.553	6.247	39.707	6.538	-0.042	29.288	0.249	0	451	12.2	42.5	2.9	0.109	0.109	0.0026	2.56	2.2
461	5/26/1999	5:04:11 PM	0	25.24	24.069	25.235	26.332	23.544	32.297	44.818	52.035	6.128	39.538	6.599	-0.042	29.334	0.247	0	452	12.2	42.2	2.9	0.108	0.107	0.0025	2.54	2.2
462	5/26/1999	5:05:11 PM	0	25.48	24.069	25.475	26.332	23.418	32.104	45.004	52.004	5.944	39.437	6.63	-0.042	29.318	0.255	0	453	12.2	42.2	2.9	0.111	0.110	0.0026	2.60	2.2
463	5/26/1999	5:06:12 PM	0	25.686	24.069	25.84	26.252	23.464	32.342	45.128	52.675	6.136	39.707	6.692	-0.042	29.411	0.255	0	454	12.2	42.4	2.9	0.111	0.109	0.0026	2.56	2.2
464	5/26/1999	5:07:12 PM	0	26.086	24.069	26.16	26.377	23.303	32.342	44.663	52.096	6.168	39.2	6.753	-0.042	29.349	0.256	0	455	12.2	41.9	2.9	0.112	0.108	0.0026	2.58	2.2
465	5/26/1999	5:08:12 PM	0	26.131	24.069	26.4	26.297	23.303	32.104	45.252	52.767	6.263	39.403	6.815	-0.089	29.426	0.255	0	456	12.2	42.3	2.9	0.111	0.107	0.0025	2.53	2.2
466	5/26/1999	5:09:12 PM	0	26.406	24.069	26.72	26.297	23.303	32.262	45.19	52.95	6.056	40.113	6.969	-0.042	28.812	0.26	0.003	457	12.0	42.7	2.9	0.114	0.108	0.0025	2.54	2.2
467	5/26/1999	5:10:12 PM	0	26.566	24.069	26.8	26.217	23.383	32.579	45.345	53.041	6.072	39.843	6.969	-0.042	28.888	0.265	0	458	12.0	42.6	2.9	0.116	0.110	0.0026	2.58	2.2
468	5/26/1999	5:11:12 PM	0	26.726	24.069	26.72	26.297	23.303	32.659	45.748	53.254	6.056	40.316	6.969	-0.042	28.919	0.261	0	459	12.0	43.0	3.0	0.114	0.109	0.0025	2.52	2.1
469	5/26/1999	5:12:12 PM	0	26.806	24.069	26.64	26.137	23.142	32.579	45.624	53.072	6.072	40.079	6.938	-0.089	28.827	0.265	0	460	12.0	42.9	3.0	0.116	0.110	0.0026	2.58	2.2
470	5/26/1999	5:13:12 PM	0	26.886	24.069	26.64	26.137	23.223	32.783	45.004	52.736	6.088	39.775	6.907	-0.042	28.904	0.263	0	461	12.0	42.4	2.9	0.115	0.110	0.0026	2.59	2.2
471	5/26/1999	5:14:12 PM	0	26.886	24.069	26.56	26.137	23.062	32.579	46.027	53.62	6.12	40.079	6.784	-0.042	28.873	0.337	0	462	12.0	43.1	3.0	0.147	0.141	0.0033	3.27	2.8
472	5/26/1999	5:15:12 PM	0	26.886	24.069	26.56	26.217	23.142	32.862	45.779	53.041	6.088	40.654	6.445	-0.042	28.858	0.245	0.003	463	12.0	43.2	3.0	0.107	0.102	0.0024	2.37	2.0
473	5/26/1999	5:16:12 PM	0	26.886	24.069	26.56	26.057	23.062	32.659	43.237	53.011	5.904	37.544	9.28	-0.042	28.888	0.249	0	464	12.0	40.4	2.8	0.109	0.104	0.0026	2.58	2.2
474	5/26/1999	5:17:13 PM	0	26.965	24.035	26.56	26.182	23.142	32.659	42.742	52.797	6.048	37.949	9.28	-0.042	28.842	0.245	0	465	12.0	40.3	2.8	0.107	0.102	0.0025	2.54	2.2
475	5/26/1999	5:18:13 PM	0	26.931	24.069	26.48	26.057	22.982	32.896	43.113	53.132	5.984	37.544	9.249	-0.042	28.842	0.248	0	466	12.0	40.3	2.8	0.108	0.104	0.0026	2.58	2.2
476	5/26/1999	5:19:13 PM	0	26.886	24.069	26.32	26.057	23.062	32.817	43.485	53.742	6.112	37.78	9.188	-0.042	28.812	0.246	0	467	12.0	40.6	2.8	0.107	0.103	0.0025	2.55	2.2
477	5/26/1999	5:20:13 PM	0	26.806	24.069	26.08	25.977	23.062	32.5	43.021	52.95	6.088	37.983	9.157	-0.042	28.75	0.244	0	468	11.9	40.5	2.8	0.107	0.103	0.0026	2.55	2.2
478	5/26/1999	5:21:13 PM	0	26.726	24.069	26	25.977	23.062	32.896	43.082	52.736	5.92	37.78	9.157	-0.042	28.735	0.244	0	469	11.9	40.4	2.8	0.107	0.104	0.0026	2.56	2.2
479	5/26/1999	5:22:13 PM	0	26.646	24.069	25.76	26.057	23.062	32.659	43.206	53.011	6	37.442	9.034	-0.042	29.18	0.241	0	470	12.1	40.3	2.8	0.105	0.103	0.0026	2.55	2.2
480	5/26/1999	5:23:13 PM	0	26.566	24.069	25.76	26.137	23.062	32.817	42.868	52.462	6.08	37.375	9.034	-0.042	29.18	0.238	0	471	12.1	40.1	2.8	0.104	0.102	0.0025	2.53	2.2
481	5/26/1999	5:24:14 PM	0	26.441	24.069	25.52	26.137	23.062	32.738	42.525	52.279	6.152	37.104	8.972	-0.042	29.288	0.238	0	472	12.2	39.8	2.7	0.104	0.102	0.0026	2.57	2.2
482	5/26/1999	5:25:14 PM	0	26.406	24.069	25.44	26.137	23.097	32.421	42.618	52.401	6.183	37.51	8.972	-0.042	29.303	0.237	0	473	12.2	40.1	2.8	0.103	0.102	0.0026	2.55	2.2
483	5/26/1999	5:26:14 PM	0	26.326	24.15	25.36	26.137	23.097	32.104	43.485	52.95	6	37.713	9.034	-0.042	29.027	0.238	0.003	474	12.0	40.6	2.8	0.104	0.103	0.0025	2.53	2.2
484	5/26/1999	5:27:14 PM	0	26.166	24.15	25.2	26.137	23.223	31.98	42.804	52.309	6.112	37.51	8.941	-0.042	29.18	0.237	0	475	12.1	40.2	2.8	0.103	0.103	0.0026	2.56	2.2
485	5/26/1999	5:28:14 PM	0	26.041	24.024	25.04	26.172	23.383	32.421	42.153	51.334	6.596	36.259	8.726	-0.042	30.424	0.228	0	476	12.6	39.2	2.7	0.100	0.099	0.0025	2.54	2.2
486	5/26/1999	5:29:14 PM	0	25.881	24.069	24.914	26.217	23.383	32.138	42.618	52.157	6.463	36.597	8.849	-0.042	29.933	0.23	0.003	477	12.4	39.8	2.7	0.100	0.101	0.0025	2.54	2.2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
487	5/26/1999	5:30:14 PM	0	25.846	24.069	24.834	26.297	23.464	31.98	42.525	52.248	6.495	36.563	8.88
488	5/26/1999	5:31:14 PM	0	25.686	24.069	24.879	26.332	23.383	32.455	42.618	52.096	6.415	36.8	8.88
489	5/26/1999	5:32:14 PM	0	25.686	24.15	24.799	26.377	23.303	32.455	42.835	52.37	6.319	37.307	8.88
490	5/26/1999	5:33:14 PM	0	25.606	24.069	24.799	26.457	23.383	32.376	42.525	52.187	6.287	36.8	8.91
491	5/26/1999	5:34:15 PM	0	25.526	24.069	24.719	26.492	23.464	32.024	42.401	52.096	6.263	36.969	8.91
492	5/26/1999	5:35:15 PM	0	25.365	24.069	24.719	26.537	23.383	32.342	42.587	52.157	6.199	37.104	8.91
493	5/26/1999	5:36:15 PM	0	25.365	24.069	24.639	26.537	23.303	32.104	43.175	52.645	6.311	37.341	8.941
494	5/26/1999	5:37:15 PM	0	25.285	24.069	24.639	26.457	23.464	31.787	42.556	52.187	6.383	36.766	8.849
495	5/26/1999	5:38:15 PM	0	25.285	24.069	24.639	26.457	23.303	32.183	42.649	52.248	6.423	36.867	8.849
496	5/26/1999	5:39:15 PM	0	25.285	24.069	24.639	26.457	23.383	32.342	42.835	52.614	6.431	37.273	8.849
497	5/26/1999	5:40:15 PM	0	25.205	24.069	24.604	26.457	23.223	32.421	42.68	52.492	6.439	37.003	8.88
498	5/26/1999	5:41:16 PM	0	25.285	24.069	24.604	26.582	23.303	32.262	46.058	52.187	6.215	40.147	5.521
499	5/26/1999	5:42:16 PM	0	25.09	24.115	24.479	26.502	23.348	32.228	44.756	51.669	6.191	39.606	6.26
500	5/26/1999	5:43:16 PM	0	25.09	24.115	24.524	26.502	23.268	32.466	45.066	51.76	6.247	39.606	6.137
501	5/26/1999	5:44:16 PM	0	25.01	24.115	24.444	26.502	23.348	32.545	44.694	51.73	6.223	39.572	6.229
502	5/26/1999	5:45:16 PM	0	25.09	24.115	24.444	26.502	23.348	32.228	-6.137	-1.688	0.439	-6.441	3.795
503														
504		Averages		25.6	23.4	25.1	26.1	23.1	32.1	44.4	51.7	6.3	38.7	6.7
505		Maximum		27.9	24.1	27.6	27.1	24.6	33.9	45.9	53.3	6.6	40.3	7.3
506		Median		25.5	23.6	24.9	26.3	23.1	32.1	44.6	52.0	6.4	38.9	6.6
507		Minimum		24.2	22.0	23.6	24.3	21.9	29.9	41.3	48.1	5.7	35.3	6.2
508		Std Dev		0.9	0.6	0.9	0.7	0.4	0.8	0.9	0.9	0.2	0.8	0.3
509		Number of Points Used		447	447	447	447	447	447	447	447	447	447	447

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
487	-0.042	29.964	0.23	0	478	12.4	39.5	2.7	0.100	0.101	0.0026	2.55	2.2
488	-0.042	29.994	0.229	0	479	12.4	39.7	2.7	0.100	0.100	0.0025	2.53	2.1
489	-0.089	29.718	0.231	0.003	480	12.3	40.1	2.8	0.101	0.101	0.0025	2.53	2.2
490	-0.042	29.487	0.231	0	481	12.2	39.7	2.7	0.101	0.101	0.0026	2.56	2.2
491	-0.042	29.457	0.232	0	482	12.2	39.7	2.7	0.101	0.102	0.0026	2.57	2.2
492	-0.042	29.457	0.232	0	483	12.2	39.8	2.7	0.101	0.102	0.0026	2.56	2.2
493	-0.042	29.441	0.231	0	484	12.2	40.3	2.8	0.101	0.102	0.0025	2.53	2.2
494	-0.089	29.61	0.23	0	485	12.3	39.7	2.7	0.100	0.101	0.0026	2.56	2.2
495	-0.042	29.641	0.23	0	486	12.3	39.8	2.7	0.100	0.101	0.0026	2.55	2.2
496	-0.042	29.672	0.23	0	487	12.3	40.1	2.8	0.100	0.101	0.0025	2.53	2.2
497	-0.042	29.595	0.23	0	488	12.3	39.8	2.7	0.100	0.102	0.0025	2.55	2.2
498	-0.042	30.01	0.871	0	489	12.5	43.1	3.0	0.380	0.384	0.0089	8.92	7.6
499	-0.089	29.917	0.611	0	490	12.4	42.2	2.9	0.267	0.271	0.0064	6.42	5.5
500	-0.042	29.856	0.522	0.003	491	12.4	42.3	2.9	0.228	0.231	0.0055	5.46	4.6
501	-0.042	29.841	0.47	0	492	12.4	42.1	2.9	0.205	0.208	0.0049	4.95	4.2
502	-0.042	-0.065	0.066	0	493	0.0	-6.3	-0.4	0.029	0.029	-0.0047	-4.65	-4.0
503													
504	-0.1	29.6	0.270	0.0		12.3	41.5	2.9	0.118	0.117	0.003	2.8	2.4
505	0.0	30.2	0.765	0.0		12.5	43.0	3.0	0.334	0.320	0.008	8.2	7.0
506	0.0	29.9	0.259	0.0		12.4	41.8	2.9	0.113	0.113	0.003	2.7	2.3
507	-0.1	27.4	0.241	0.0		11.4	38.4	2.6	0.105	0.107	0.003	2.5	2.1
508	0.0	0.5	0.039	0.0		0.2	0.8	0.1	0.017	0.016	0.000	0.4	0.4
509	447	447	447	447		447	447	447	447	447	447	447	447



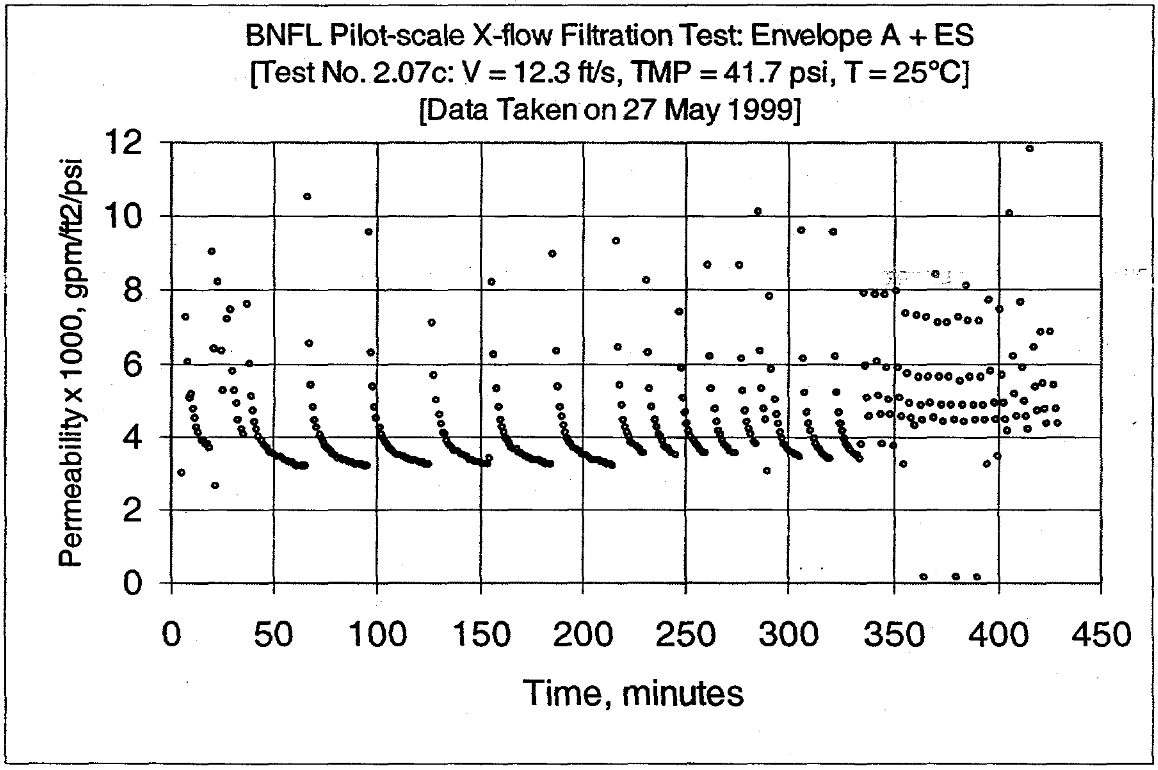
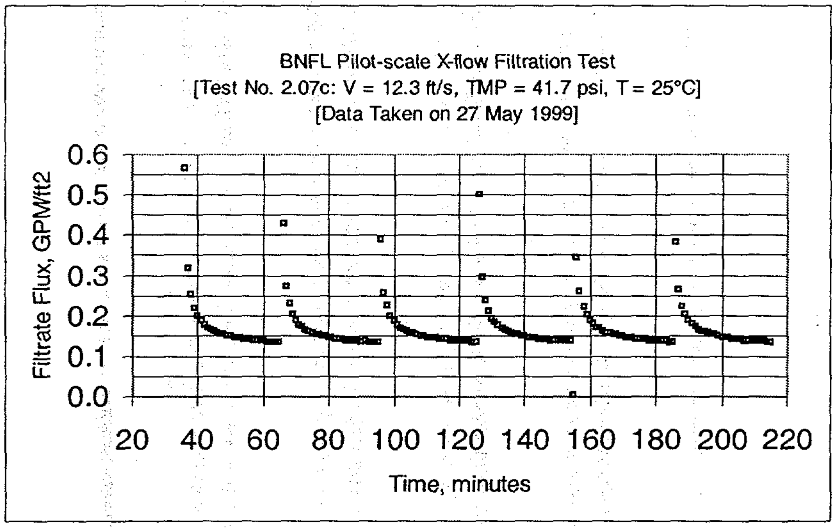
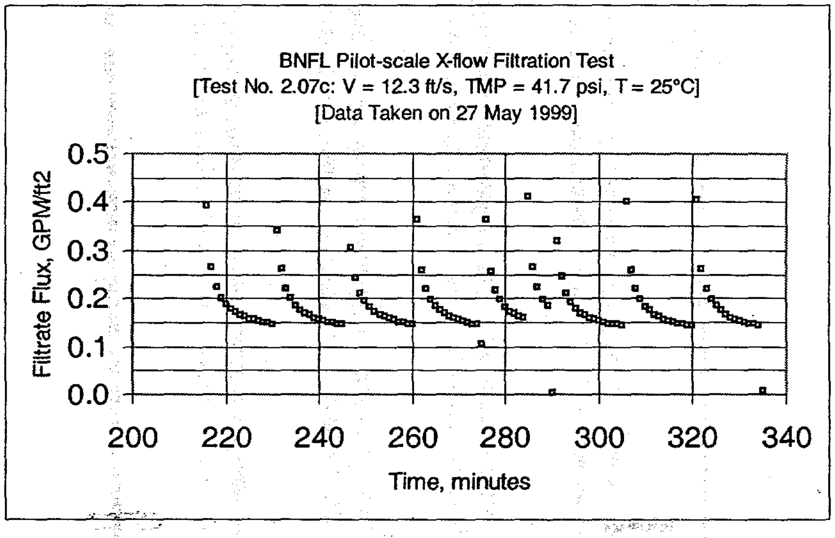


Figure B17a: Test Run 2.07c, 0.5 wt% Insoluble Solids Concentration (Entire Run)





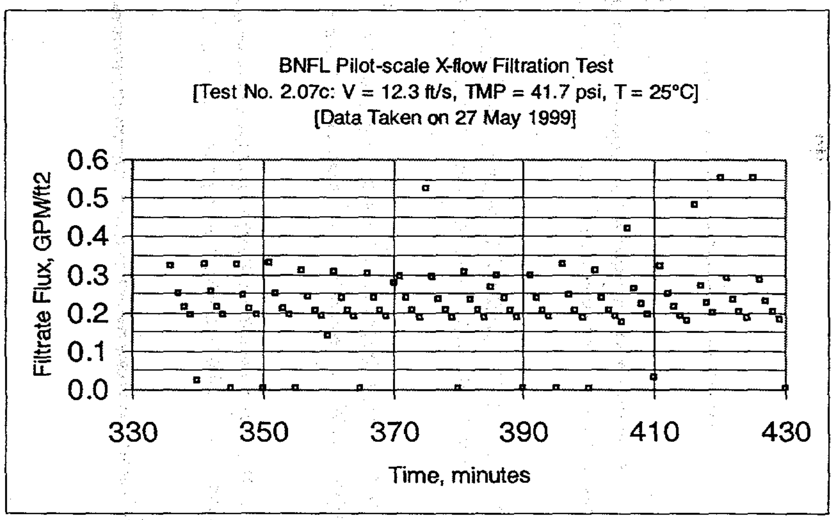


Figure B17b: Test Run 2.07c, 0.5 wt% Insoluble Solids Concentration (30, 15, & 5 min. Backpulsing)

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	5/27/1999	8:19:51 AM	0	22.323	21.746	21.272	21.488	21.663	30.524	-0.062	0.02	-0.016	-0.017	-0.088	-0.181	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/psi				
4	5/27/1999	8:20:51 AM	0	22.242	21.746	21.272	21.408	21.663	30.683	-0.062	0.02	-0.016	-0.017	-0.119	-0.135	-0.08	0.011	0									
5	5/27/1999	8:21:51 AM	0	22.287	21.791	21.272	21.453	21.969	30.604	-0.031	-0.011	-0.016	0.016	-0.119	-0.181	-0.095	0.011	0									
6	data																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
7	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	5/27/1999	8:47:51 AM	0	22.01	21.755	21.281	21.579	21.309	31.09	0.186	-1.779	0.463	0.05	-2.4	-0.181	-0.08	0.011	0	1	0.0	0.1	0.0	0.005	0.005	0.0452	45.25	38.5
9	5/27/1999	8:48:51 AM	0	22.055	21.755	21.362	21.498	21.39	31.01	0.186	-1.749	0.463	0.084	-2.369	-0.135	-0.08	0.011	0	2	0.0	0.1	0.0	0.005	0.005	0.0395	39.46	33.6
10	5/27/1999	8:49:51 AM	0	22.01	21.755	21.362	21.498	21.309	30.931	0.186	-1.779	0.463	0.05	-2.4	-0.181	-0.08	0.011	0.003	3	0.0	0.1	0.0	0.005	0.005	0.0451	45.14	38.4
11	5/27/1999	8:50:51 AM	1	22.01	21.755	21.281	21.579	21.39	31.01	0.155	-1.779	0.463	0.05	-2.369	71.084	-0.08	0.011	0	4	0.0	0.1	0.0	0.005	0.005	0.0521	52.09	44.3
12	5/27/1999	8:51:51 AM	1	22.091	21.755	22.408	21.579	21.47	30.931	5.083	52.553	6.295	-1.032	46.847	71.316	30.163	0.013	0	5	12.5	2.0	0.1	0.006	0.006	0.0030	3.02	2.6
13	5/27/1999	8:52:51 AM	0	22.413	21.755	22.81	21.74	21.551	31.01	43.95	52.34	6.152	37.814	7.894	-0.181	30.44	1.096	0	6	12.6	40.9	2.8	0.479	0.510	0.0125	12.48	10.6
14	5/27/1999	8:53:51 AM	0	23.217	21.71	23.212	21.659	21.631	30.846	45.035	52.279	5.688	40.586	6.907	-0.181	29.38	0.876	0	7	12.2	42.8	3.0	0.295	0.310	0.0073	7.25	6.2
15	5/27/1999	8:54:51 AM	0	23.378	21.755	23.613	21.695	21.667	30.931	42.401	48.498	7.979	34.974	5.562	-0.181	34.571	0.613	0.003	8	14.3	38.7	2.7	0.224	0.233	0.0060	6.02	5.1
16	5/27/1999	8:55:51 AM	0	23.779	21.71	23.97	21.74	21.873	30.931	32.462	40.113	5.665	27.942	7.123	-0.135	29.38	0.341	0	9	12.2	30.2	2.1	0.149	0.153	0.0051	5.07	4.3
17	5/27/1999	8:56:52 AM	0	23.859	21.71	24.336	21.901	21.908	30.886	43.423	53.651	5.441	39.133	9.681	-0.181	27.89	0.462	0	10	11.5	41.3	2.8	0.210	0.214	0.0052	5.19	4.4
18	5/27/1999	8:57:52 AM	0	24.341	21.8	24.736	22.223	22.034	30.931	43.857	53.224	5.689	38.964	8.88	-0.135	28.335	0.449	0.003	11	11.8	41.4	2.9	0.196	0.197	0.0048	4.77	4.1
19	5/27/1999	8:58:52 AM	0	24.867	21.8	25.057	22.59	22.159	30.852	43.857	52.96	5.665	39.403	8.541	-0.181	28.259	0.431	0	12	11.7	41.6	2.9	0.188	0.188	0.0045	4.51	3.8
20	5/27/1999	8:59:52 AM	0	24.947	21.8	25.547	22.911	22.24	30.817	43.919	52.767	6.136	38.659	8.14	-0.135	29.088	0.409	0	13	12.1	41.3	2.8	0.179	0.176	0.0043	4.26	3.6
21	5/27/1999	9:00:52 AM	0	25.473	21.72	25.627	23.117	22.365	30.782	44.229	53.193	6.287	39.166	7.955	-0.181	29.18	0.399	0	14	12.1	41.7	2.9	0.174	0.171	0.0041	4.10	3.5
22	5/27/1999	9:01:52 AM	0	25.393	21.765	25.387	23.323	22.572	30.861	45.469	53.895	6.128	40.248	7.924	-0.135	29.411	0.39	0	15	12.2	42.9	3.0	0.170	0.168	0.0039	3.93	3.3
23	5/27/1999	9:02:52 AM	0	25.438	21.81	25.192	23.403	22.572	31.065	44.942	53.376	6.295	39.876	7.678	-0.181	29.779	0.384	0	16	12.4	42.4	2.9	0.168	0.167	0.0039	3.93	3.3
24	5/27/1999	9:03:52 AM	0	25.403	21.775	24.996	23.449	22.777	31.065	44.167	51.913	6.359	38.321	7.216	-0.135	29.887	0.361	0	17	12.4	41.2	2.8	0.158	0.158	0.0038	3.82	3.3
25	5/27/1999	9:04:53 AM	0	25.242	21.775	24.756	23.529	22.697	31.109	44.074	51.882	6.247	38.761	7.185	-0.135	29.641	0.359	0	18	12.3	41.4	2.9	0.157	0.158	0.0038	3.81	3.2
26	5/27/1999	9:05:53 AM	0	25.207	21.74	24.641	23.609	22.742	30.95	44.291	51.821	6.183	38.794	7.061	-0.181	29.61	0.351	0	19	12.3	41.5	2.9	0.153	0.155	0.0037	3.73	3.2
27	5/27/1999	9:06:53 AM	0	25.047	21.785	24.4	23.654	22.868	31.154	45.779	52.035	6.096	40.282	5.336	-0.135	29.856	0.873	0	20	12.4	43.0	3.0	0.381	0.388	0.0090	9.01	7.7
28	5/27/1999	9:07:53 AM	0	24.932	21.785	24.285	23.619	22.868	31.119	45.004	51.791	6.08	39.809	6.26	-0.135	29.61	0.609	0	21	12.3	42.4	2.9	0.266	0.271	0.0064	6.40	5.4
29	5/27/1999	9:08:53 AM	0	24.816	21.75	24.069	23.664	22.833	31.322	4.525	52.823	5.84	-0.796	47.186	-0.135	29.18	0.011	0	22	12.1	1.9	0.1	0.005	0.005	0.0026	2.64	2.2
30	5/27/1999	9:09:53 AM	0	24.861	21.75	24.054	23.664	22.878	31.243	44.136	52.035	5.904	38.828	7.4	-0.135	29.564	0.758	0	23	12.3	41.5	2.9	0.331	0.340	0.0082	8.19	7.0
31	5/27/1999	9:10:53 AM	0	24.621	21.795	23.813	23.629	22.797	31.367	45.004	51.608	5.888	40.012	6.044	-0.181	29.318	0.595	0	24	12.2	42.5	2.9	0.260	0.269	0.0063	6.32	5.4
32	5/27/1999	9:11:53 AM	0	24.541	21.795	23.733	23.79	22.843	31.367	46.058	52.98	6.128	40.214	6.137	-0.135	29.303	0.501	0.003	25	12.2	43.1	3.0	0.219	0.227	0.0053	5.26	4.5
33	5/27/1999	9:12:53 AM	0	24.425	21.84	23.618	23.674	22.923	31.491	40.045	51.821	5.864	34.737	11.037	-0.135	29.764	1.218	0.003	26	12.4	37.4	2.6	0.532	0.553	0.0148	14.79	12.6
34	5/27/1999	9:13:53 AM	0	24.23	21.885	23.583	23.754	22.888	31.536	45.283	52.462	5.984	39.234	6.661	-0.181	29.411	0.67	0.003	27	12.2	42.3	2.9	0.292	0.304	0.0072	7.20	6.1
35	5/27/1999	9:14:53 AM	0	24.15	21.805	23.467	23.639	22.888	31.536	39.983	52.035	5.96	34.399	11.037	-0.181	29.825	1.218	0	28	12.4	37.2	2.6	0.532	0.555	0.0149	14.93	12.7
36	5/27/1999	9:15:53 AM	0	24.034	21.85	23.387	23.684	22.853	31.615	44.973	52.309	6.072	39.234	6.538	-0.135	29.426	0.687	0.003	29	12.2	42.1	2.9	0.300	0.314	0.0075	7.46	6.3
37	5/27/1999	9:16:54 AM	0	23.954	21.895	23.352	23.684	22.978	31.58	45.407	52.218	6.199	39.707	6.044	-0.135	29.733	0.539	0	30	12.3	42.6	2.9	0.235	0.247	0.0058	5.79	4.9
38	5/27/1999	9:17:54 AM	0	23.919	21.815	23.191	23.729	22.978	31.625	41.626	51.364	6.271	36.563	9.311	-0.135	29.902	0.449	0.003	31	12.4	39.1	2.7	0.196	0.206	0.0053	5.28	4.5
39	5/27/1999	9:18:54 AM	0	23.884	21.86	23.076	23.81	22.978	31.669	45.872	53.072	5.649	41.364	6.414	-0.135	28.013	0.466	0	32	11.6	43.6	3.0	0.203	0.215	0.0049	4.93	4.2
40	5/27/1999	9:19:54 AM	0	23.804	21.86	22.996	23.775	23.104	31.669	44.508	51.669	6.199	39.133	6.63	-0.135	29.641	0.404	0	33	12.3	41.8	2.9	0.176	0.187	0.0045	4.46	3.8
41	5/27/1999	9:20:54 AM	0	23.643	21.906	22.961	23.775	23.069	31.59	44.787	52.035	6.447	39.166	6.568	-0.135	29.687	0.384	0	34	12.3	42.0	2.9	0.168	0.178	0.0042	4.23	3.6
42	5/27/1999	9:21:54 AM	0	23.653	21.825	22.88	23.82	23.114	31.794	43.919	51.334	6.519	38.423	6.507	-0.135	30.056	0.363	0	35	12.5	41.2	2.8	0.158	0.168	0.0041	4.09	3.5
43	5/27/1999	9:22:54 AM	0	23.573	21.87	22.765	23.865	23.114	31.838	37.999	51.273	6.08	32.134	12.609	-0.135	30.563	1.218	0	36	12.7	35.1	2.4	0.532	0.567	0.0162	16.16	13.7
44	5/27/1999	9:23:54 AM	0	23.457	21.916	22.73	23.785	23.079	31.838	43.95	51.334	6.207	39.099	6.63	-0.135	30.102	0.678	0	37	12.5	41.5	2.9	0.296	0.316	0.0076	7.60	6.5
45	5/27/1999	9:24:54 AM	0	23.297	21.916	22.649	23.91	23.079	31.804	45.004	51.608	6.215	39.369	5.983	-0.135	29.979	0.541	0	38	12.4	42.2	2.9	0.236	0.252	0.0060	5.98	5.1
46	5/27/1999	9:25:54 AM	0	23.262	21.881	22.614	23.956	23.124	31.848	45.438	52.157	6.327	39.775	6.106	-0.135	29.948	0.465	0.003	39	12.4	42.6	2.9	0.203	0.217	0.0051	5.10	4.3
47	5/27/1999	9:26:55 AM	0	23.181	21.881	22.614	23.875	23.17	32.007	44.973	51.547	6.375	38.93	6.075	-0.135	29.795	0.424	0	40	12.4	42.0	2.9	0.185	0.198	0.0047	4.72	4.0
48	5/27/1999	9:27:55 AM	0	23.146	21.926	22.579	24.126	23.17	31.972	44.973	51.76	6.359	39.268	6.137	-0.135	29.81	0.397	0	41	12.4	42.1	2.9	0.173	0.186	0.0044	4.41	3.8
49	5/27/1999	9:28:55 AM	0	23.066	21.972	22.499	24.126	23.215	32.176	44.663	51.425	6.319	38.794	6.137	-0.135	29.795	0.377	0.003	42	12.4	41.7	2.9	0.165	0.177	0.0042	4.23	3.6
50	5/27/1999	9:29:55 AM	0	23.111	21.891	22.59	24.172	23.215	32.176	45.221	51.669	6.359	38.964	6.137	-0.135	29.795	0.363	0	43	12.4	42.1	2.9	0.158	0.170	0.0040	4.03	3.4
51	5/27/1999	9:30:55 AM	0	23.157	21.937	22.464	24.252	23.341	32.062	44.849	51.699	6.495	39.031	6.168	-0.135	29.687	0.351	0.003	44	12.3	41.9	2.9	0.153	0.165	0.0039	3.93	3.3
52	5/27/1999	9:31:55 AM	0	23.076	21.937	22.429	24.172	23.261	32.221	44.88	51.699	6.343	39.065	6.199	-0.135	29.795	0.342	0	45	12.4	42.0	2.9	0.149	0.161	0.0038	3.83	3.3
53	5/27/1999	9:32:55 AM	0	23.041	21.962	22.474	24.297	23.306	32.186	44.756	51.334	6.351	39.065	6.229	-0.135	29.81	0.335	0.003	46	12.4	41.9	2.9	0.146	0.157	0.0037	3.75	3.2
54	5/27/1999	9:33:55 AM	0	22.961	21.962	22.394	24.217	23.432	32.265	44.601	51.578	6.439	38.93	6.229	-0.135	29.764	0.329	0	47	12.4	41.8	2.9	0.144	0.155	0.0037	3.70	3.2
55	5/27/1999	9:34:55 AM	0	22.926	21.947	22.359	24.343	23.351	32.231	44.818	51.578	6.407	39.166	6.229	-0.135	29.718	0.323	0	48	12.3	42.0	2.9	0.141	0.152	0.0036	3.62	3.1
56	5/27/1999	9:35:56 AM	0	22.972	21.993	22.279	24.388	23.432	32.369	44.787	51.669	6.367	38.93	6.229	-0.135	29.656	0.318	0	49	12.3	41.9	2.9	0.139	0.150	0.0036	3.58	3.0
57	5/27/1999	9:36:56 AM	0	22.891	21.993	22.324	24.388	23.397	32.152	44.446	51.334	6.383	38.898	6.229	-0.135	29.733	0.315	0	50	12.3	41.7	2.9	0.138	0.148	0.0036	3.56	3.0
58	5/27/1999	9:37:56 AM	0	22.937	22.038	22.45	24.388	23.442	32.355	44.973	51.791	6.463	38.862	6.26	-0.135	29.718	0.312	0	51	12.3	41.9	2.9	0.136	0.146	0.0035	3.49	3.0
59	5/27/1999	9:38:56 AM	0	23.017	22.038	22.45	24.433	23.523	32.4	44.322	51.242	6.391	39.099	6.291	-0.089	29.764	0.309	0	52	12.4	41.7	2.9	0.135	0.145	0.0035	3.48	3.0
60	5/27/1999	9:39:56 AM	0	23.017	22.038	22.611	24.559	23.488	32.479	44.539	51.425	6.487	38.592	6.291	-0.135	29.702	0.308	0	53	12.3	41.6	2.9	0.134	0.144	0.0035	3.46	2.9
61	5/27/1999	9:40:56 AM	0	22.962	22.084	22.656	24.479	23.568	32.524	44.725	51.699	6.439	38.423	6.322	-0.135	29.672	0.306	0	54	12.3	41.6	2.9	0.134	0.143	0.0034	3.43	2.9
62	5/27/1999	9:41:56 AM	0	22.962	22.084	22.782	24.479	23.613	32.524	44.88	51.578	6.439	38.93	6.291	-0.135	29.718	0.304	0	55	12.3	41.9	2.9	0.133	0.141	0.0034	3.37	2.9
63	5/27/1999	9:42:56 AM	0	23.108	22.003	22.863	24.444	23.533	32.49	44.601	51.547	6.455	39.234	6.291	-0.135	29.687	0.303	0	56	12.3	41.9	2.9	0.132	0.141	0.0034	3.35	2.9
64	5/27/1999	9:43:57 AM	0	23.108	22.049	23.104	24.524	23.613	32.41	44.694	51.608	6.487	39.065	6.353	-0.135	29.749	0.302	0	57	12.3	41.9	2.9	0.132	0.139	0.0033	3.32	2.8
65	5/27/1999	9:44:57 AM	0	23.395	22.094	23.39	24.49	23.659	32.569	44.353	51.303	6.351	39.133	6.383	-0.135	29.764	0.302	0.003	58	12.4	41.7	2.9	0.132	0.138	0.0033	3.31	2.8
66	5/27/1999	9:45:57 AM	0	23.636	22.014	23.551	24.49	23.659	32.614	44.663	51.76	6.399	38.49	6.383	-0.089	29.672	0.302	0	59	12.3	41.6	2.9	0.132	0.137	0.0033	3.30	2.8
67	5/27/1999	9:46:57 AM	0	23.796	22.14	23.917	24.535	23.704	32.579	44.477	51.578	6.359	38.592	6.445	-0.089	29.779	0.303	0.003	60	12.4	41.5	2.9	0.132	0.136	0.0033	3.28	2.8
68	5/27/1999	9:47:57 AM	0	24.002	22.14	24.158	24.455	23.704	32.421	45.19	52.34	6.303	38.828	6.445	-0.135	29.764	0.302	0.003	61	12.4	42.0	2.9	0.132	0.135	0.0032	3.21	2.7
69	5/27/1999	9:48:57 AM	0	24.128	22.059	24.364	24.5	23.75	32.466	44.322	51.517	6.391	38.862	6.476	-0.135	29.825	0.303	0.003	62	12.4	41.6	2.9	0.132	0.135	0.0032	3.24	2.8
70	5/27/1999	9:49:57 AM	0	24.449	22.105	24.524	24.5	23.75	32.624	44.508	51.517	6.375	38.727	6.507	-0.135	29.795	0.303	0	63	12.4	41.6	2.9	0.132	0.134	0.0032	3.22	2.7
71	5/27/1999	9:50:57 AM	0	24.655	22.151	24.81	24.546	23.796	32.624	44.384	51.517	6.335	38.287	6.507	-0.135	29.795	0.304	0.003	64	12.4	41.3	2.8	0.133	0.133	0.0032	3.23	2.7
72	5/27/1999	9:51:57 AM	0	24.735	22.151	24.97	24.466	23.876	32.511	44.074	51.09	6.223	38.592	6.538	-0.135	29.871	0.305	0	65	12.4	41.3	2.8	0.133	0.133	0.0032	3.22	2.7
73	5/27/1999	9:52:57 AM	0	25.376	22.151	25.131	24.546	23.921	32.793	43.671	51.09	6.056	37.915	6.722	-0.089	30.332	0.986	0	66	12.6	40.8	2.8	0.430	0.429	0.0105	10.51	8.9
74	5/27/1999	9:53:58 AM	0	25.422	22.196	25.336	24.671	23.921	32.952	44.012	50.724	6.016	38.693	6.26	-0.089	30.071	0.624	0	67	12.5	41.4	2.9	0.272	0.270	0.0065	6.53	5.6
75	5/27/1999	9:54:58 AM	0	25.422	22.196	25.622	24.671	24.002	32.759	45.004	51.791	6.303	39.166	5.952	-0.089	30.025	0.532	0	68	12.5	42.1	2.9	0.232	0.228	0.0054	5.42	4.6
76	5/27/1999	9:55:58 AM	0	25.787	22.242	25.782	24.637	24.047	32.838	44.57	51.151	6.287	39.2	6.075	-0.089	29.994	0.474	0	69	12.4	41.9	2.9	0.207	0.202	0.0048	4.83	4.1
77	5/27/1999	9:56:58 AM	0	25.787	22.288	25.967	24.762	24.047	32.68	44.725	51.578	6.335	39.538	6.137	-0.135	29.979	0.442	0	70	12.4	42.1	2.9	0.193	0.188	0.0045	4.45	3.8
78	5/27/1999	9:57:58 AM	0	26.073	22.207	26.147	24.762	24.093	32.883	44.663	51.486	6.303	38.693	6.168	-0.135	29.948	0.42	0	71	12.4	41.7	2.9	0.183	0.178	0.0043	4.26	3.6
79	5/27/1999	9:58:58 AM	0	26.358	22.253	26.307	24.808	24.093	33.087	44.88	51.608	6.231	39.099	6.199	-0.089	30.025	0.405	0	72	12.5	42.0	2.9	0.177	0.170	0.0041	4.06	3.5
80	5/27/1999	9:59:58 AM	0	26.518	22.253	26.512	24.808	24.138	33.087	45.004	51.913	6.399	38.761	6.229	-0.135	29.979	0.396	0.003	73	12.4	41.9	2.9	0.173	0.166	0.0040	3.96	3.4
81	5/27/1999	10:00:58 AM	0	26.438	22.253	26.592	24.773	24.138	33.166	44.353	51.395	6.295	39.302	6.229	-0.135	30.025	0.386	0	74	12.5	41.8	2.9	0.169	0.161	0.0039	3.85	3.3

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	5/27/1999	10:01:58 AM	0	26.564	22.299	26.877	24.934	24.184	33.166	44.477	51.334	6.199	38.592	6.26	-0.135	29.825	0.38	0	75	12.4	41.5	2.9	0.166	0.157	0.0038	3.79	3.2
83	5/27/1999	10:02:59 AM	0	26.963	22.299	27.037	24.773	24.264	33.052	44.167	51.09	6.311	38.828	6.26	-0.135	29.933	0.373	0	76	12.4	41.5	2.9	0.163	0.154	0.0037	3.71	3.2
84	5/27/1999	10:03:59 AM	0	27.123	22.345	27.162	24.899	24.31	33.177	44.291	51.425	6.311	38.794	6.291	-0.135	29.964	0.369	0	77	12.4	41.5	2.9	0.161	0.152	0.0037	3.65	3.1
85	5/27/1999	10:04:59 AM	0	27.408	22.264	27.368	24.899	24.23	33.177	44.322	51.456	6.375	38.693	6.291	-0.135	29.979	0.366	0	78	12.4	41.5	2.9	0.160	0.150	0.0036	3.60	3.1
86	5/27/1999	10:05:59 AM	0	27.533	22.345	27.527	24.979	24.31	33.142	44.632	51.608	6.319	38.761	6.291	-0.089	29.933	0.362	0	79	12.4	41.7	2.9	0.158	0.147	0.0035	3.53	3.0
87	5/27/1999	10:06:59 AM	0	27.613	22.39	27.607	25.025	24.355	33.142	44.57	51.742	6.255	38.659	6.291	-0.135	30.01	0.36	0	80	12.5	41.6	2.9	0.157	0.146	0.0035	3.51	3.0
88	5/27/1999	10:07:59 AM	0	27.773	22.31	27.812	24.99	24.436	33.346	45.035	52.187	6.439	38.896	6.291	-0.089	30.025	0.357	0	81	12.5	42.0	2.9	0.156	0.144	0.0034	3.43	2.9
89	5/27/1999	10:08:59 AM	0	27.818	22.356	27.972	25.071	24.401	33.425	44.632	51.639	6.343	38.862	6.322	-0.135	29.994	0.356	0	82	12.4	41.7	2.9	0.155	0.143	0.0034	3.43	2.9
90	5/27/1999	10:09:59 AM	0	27.818	22.402	28.051	25.071	24.401	33.188	44.694	51.303	6.271	38.93	6.322	-0.089	30.04	0.352	0	83	12.5	41.8	2.9	0.154	0.141	0.0034	3.38	2.9
91	5/27/1999	10:10:59 AM	0	28.103	22.402	28.256	25.036	24.447	33.312	44.539	51.547	6.383	38.524	6.353	-0.089	30.01	0.352	0	84	12.5	41.5	2.9	0.154	0.140	0.0034	3.38	2.9
92	5/27/1999	10:11:59 AM	0	28.342	22.402	28.416	25.162	24.447	33.391	44.167	51.09	6.391	38.997	6.322	-0.089	30.025	0.351	0	85	12.5	41.6	2.9	0.153	0.139	0.0034	3.35	2.9
93	5/27/1999	10:12:59 AM	0	28.308	22.447	28.495	25.162	24.492	32.882	44.167	51.242	6.303	38.896	6.353	-0.089	30.04	0.35	0	86	12.5	41.5	2.9	0.153	0.139	0.0033	3.34	2.8
94	5/27/1999	10:14:00 AM	0	28.468	22.367	28.62	25.162	24.492	33.04	44.632	51.669	6.343	38.659	6.353	-0.135	30.102	0.349	0	87	12.5	41.6	2.9	0.152	0.138	0.0033	3.31	2.8
95	5/27/1999	10:15:00 AM	0	28.593	22.493	28.825	25.207	24.699	33.065	44.694	51.76	6.383	38.49	6.353	-0.135	30.025	0.349	0	88	12.5	41.6	2.9	0.152	0.137	0.0033	3.29	2.8
96	5/27/1999	10:16:00 AM	0	28.832	22.493	28.905	25.253	24.538	33.244	44.198	51.029	6.287	38.794	6.353	-0.089	30.071	0.347	0	89	12.5	41.5	2.9	0.151	0.136	0.0033	3.28	2.8
97	5/27/1999	10:17:00 AM	0	29.037	22.459	28.87	25.207	24.538	33.006	44.229	51.273	6.287	38.828	6.353	-0.089	30.01	0.346	0	90	12.5	41.5	2.9	0.151	0.136	0.0033	3.27	2.8
98	5/27/1999	10:18:00 AM	0	29.037	22.459	28.631	25.253	24.664	33.21	44.167	51.303	6.279	39.099	6.322	-0.089	29.994	0.344	0	91	12.4	41.6	2.9	0.150	0.136	0.0033	3.26	2.8
99	5/27/1999	10:19:00 AM	0	28.877	22.505	28.472	25.379	24.79	33.21	44.353	51.517	6.327	38.761	6.291	-0.089	29.994	0.341	0	92	12.4	41.6	2.9	0.149	0.135	0.0033	3.25	2.8
100	5/27/1999	10:20:00 AM	0	28.843	22.505	28.358	25.379	24.79	33.176	44.57	51.517	6.351	39.031	6.26	-0.089	29.933	0.339	0.003	93	12.4	41.8	2.9	0.148	0.135	0.0032	3.22	2.7
101	5/27/1999	10:21:00 AM	0	28.684	22.505	28.199	25.505	24.916	33.176	44.322	51.212	6.295	39.302	6.26	-0.089	29.948	0.336	0	94	12.4	41.8	2.9	0.147	0.134	0.0032	3.21	2.7
102	5/27/1999	10:22:00 AM	0	28.649	22.631	28.039	25.505	24.916	33.458	44.012	50.848	6.191	38.862	6.26	-0.135	29.917	0.334	0.003	95	12.4	41.4	2.9	0.146	0.134	0.0032	3.23	2.8
103	5/27/1999	10:23:01 AM	0	28.49	22.55	28.051	25.631	24.962	33.379	44.167	51.73	6.112	37.915	6.722	-0.089	30.47	0.975	0	96	12.6	41.0	2.8	0.426	0.391	0.0095	9.53	8.1
104	5/27/1999	10:24:01 AM	0	28.49	22.55	27.811	25.55	24.836	33.503	43.702	50.996	6.128	38.592	6.476	-0.135	30.271	0.639	0.003	97	12.6	41.1	2.8	0.279	0.258	0.0063	6.27	5.3
105	5/27/1999	10:25:01 AM	0	28.456	22.596	27.732	25.55	24.927	33.345	44.291	50.996	6.239	38.896	6.137	-0.089	30.179	0.553	0	98	12.5	41.6	2.9	0.241	0.224	0.0054	5.38	4.6
106	5/27/1999	10:26:01 AM	0	28.342	22.642	27.818	25.831	24.882	33.108	44.26	50.968	6.199	38.964	6.26	-0.089	30.194	0.494	0	99	12.5	41.6	2.9	0.216	0.200	0.0048	4.82	4.1
107	5/27/1999	10:27:01 AM	0	28.182	22.642	27.538	25.676	24.927	33.628	44.88	51.852	6.279	38.287	6.291	-0.089	30.071	0.46	0	100	12.5	41.6	2.9	0.201	0.187	0.0045	4.50	3.8
108	5/27/1999	10:28:01 AM	0	28.103	22.642	27.378	25.676	24.927	33.39	44.787	51.73	6.239	38.659	6.322	-0.089	30.04	0.434	0	101	12.5	41.7	2.9	0.189	0.177	0.0042	4.25	3.6
109	5/27/1999	10:29:01 AM	0	28.023	22.688	27.264	25.722	24.893	33.594	44.508	51.791	6.407	38.558	6.383	-0.089	30.025	0.414	0	102	12.5	41.5	2.9	0.181	0.170	0.0041	4.08	3.5
110	5/27/1999	10:30:01 AM	0	27.909	22.688	27.184	25.722	24.893	33.673	44.787	51.73	6.263	38.862	6.383	-0.089	30.025	0.403	0	103	12.5	41.8	2.9	0.176	0.166	0.0040	3.96	3.4
111	5/27/1999	10:31:01 AM	0	27.829	22.688	27.07	25.768	24.939	33.56	44.167	50.996	6.199	38.625	6.414	-0.089	30.025	0.389	0	104	12.5	41.4	2.9	0.170	0.160	0.0039	3.87	3.3
112	5/27/1999	10:32:01 AM	0	27.715	22.734	26.991	25.848	24.939	33.718	44.198	51.486	6.447	38.794	6.445	-0.089	30.01	0.381	0.003	105	12.5	41.5	2.9	0.166	0.157	0.0038	3.79	3.2
113	5/27/1999	10:33:02 AM	0	27.635	22.734	26.911	25.768	24.939	33.289	44.384	51.669	6.311	38.794	6.414	-0.089	29.994	0.375	0	106	12.4	41.6	2.9	0.164	0.155	0.0037	3.73	3.2
114	5/27/1999	10:34:02 AM	0	27.521	22.78	26.877	25.814	24.985	33.605	44.136	51.395	6.311	38.49	6.414	-0.089	30.025	0.368	0	107	12.5	41.3	2.8	0.161	0.152	0.0037	3.69	3.1
115	5/27/1999	10:35:02 AM	0	27.521	22.746	26.797	25.894	25.065	33.684	44.322	51.578	6.447	38.693	6.445	-0.089	29.933	0.362	0	108	12.4	41.5	2.9	0.158	0.150	0.0036	3.62	3.1
116	5/27/1999	10:36:02 AM	0	27.487	22.826	26.763	25.939	24.985	33.684	44.167	51.334	6.359	38.862	6.445	-0.089	29.933	0.356	0	109	12.4	41.5	2.9	0.155	0.148	0.0036	3.56	3.0
117	5/27/1999	10:37:02 AM	0	27.327	22.826	26.637	25.939	25.031	33.73	44.26	51.303	6.239	39.133	6.476	-0.089	29.841	0.351	0	110	12.4	41.7	2.9	0.153	0.146	0.0035	3.51	3.0
118	5/27/1999	10:38:02 AM	0	27.327	22.746	26.523	25.939	25.031	33.651	43.888	50.876	6.279	38.49	6.445	-0.089	29.994	0.347	0	111	12.4	41.2	2.8	0.151	0.145	0.0035	3.52	3.0
119	5/27/1999	10:39:02 AM	0	27.213	22.792	26.489	25.965	25.157	33.933	44.198	51.303	6.295	38.321	6.476	-0.089	29.994	0.343	0	112	12.4	41.3	2.8	0.150	0.144	0.0035	3.48	3.0
120	5/27/1999	10:40:02 AM	0	27.133	22.792	26.329	25.905	25.202	33.696	44.632	51.73	6.279	38.761	6.476	-0.089	29.841	0.342	0	113	12.4	41.7	2.9	0.149	0.144	0.0034	3.45	2.9
121	5/27/1999	10:41:02 AM	0	27.099	22.918	26.375	25.951	25.122	33.82	44.57	51.578	6.359	38.558	6.476	-0.089	29.964	0.339	0	114	12.4	41.6	2.9	0.148	0.142	0.0034	3.43	2.9
122	5/27/1999	10:42:02 AM	0	27.019	22.884	26.341	26.031	25.122	33.741	44.105	51.242	6.295	38.524	6.507	-0.089	29.933	0.336	0	115	12.4	41.3	2.8	0.147	0.141	0.0034	3.42	2.9
123	5/27/1999	10:43:02 AM	0	26.905	22.884	26.261	25.997	25.248	33.92	44.726	52.035	6.375	38.558	6.445	-0.089	29.917	0.333	0	116	12.4	41.6	2.9	0.145	0.140	0.0034	3.37	2.9
124	5/27/1999	10:44:03 AM	0	26.905	22.884	26.181	26.077	25.248	3[illegible]36	44.384	51.486	6.383	38.93	6.476	-0.089	29.979	0.33	0	117	12.4	41.7	2.9	0.144	0.139	0.0033	3.35	2.8
125	5/27/1999	10:45:03 AM	0	26.826	22.884	26.181	26.077	25.294	34.103	44.632	51.76	6.471	38.22	6.476	-0.089	29.948	0.329	0.003	118	12.4	41.4	2.9	0.144	0.139	0.0034	3.35	2.9
126	5/27/1999	10:46:03 AM	0	26.791	22.93	26.067	26.203	25.214	34.069	44.012	51.273	6.383	38.659	6.476	-0.089	29.933	0.326	0.003	119	12.4	41.3	2.8	0.142	0.138	0.0033	3.34	2.8
127	5/27/1999	10:47:03 AM	0	26.757	22.93	25.987	26.123	25.214	34.069	44.074	51.059	6.295	38.524	6.507	-0.089	29.902	0.323	0.003	120	12.4	41.3	2.8	0.141	0.137	0.0033	3.32	2.8
128	5/27/1999	10:48:03 AM	0	26.677	22.976	25.953	26.169	25.26	34.035	44.074	51.12	6.271	38.423	6.476	-0.089	29.902	0.322	0	121	12.4	41.2	2.8	0.141	0.137	0.0033	3.32	2.8
129	5/27/1999	10:49:03 AM	0	26.643	22.976	25.953	26.169	25.26	34.035	44.074	51.303	6.351	38.423	6.476	-0.089	29.856	0.32	0	122	12.4	41.2	2.8	0.140	0.136	0.0033	3.30	2.8
130	5/27/1999	10:50:03 AM	0	26.563	23.022	25.918	26.295	25.226	34.239	44.229	51.364	6.471	38.693	6.476	-0.042	29.871	0.319	0.003	123	12.4	41.5	2.9	0.139	0.136	0.0033	3.27	2.8
131	5/27/1999	10:51:03 AM	0	26.483	23.022	25.838	26.215	25.352	34.16	44.539	51.791	6.319	38.49	6.507	-0.042	29.887	0.318	0	124	12.4	41.5	2.9	0.139	0.136	0.0033	3.27	2.8
132	5/27/1999	10:52:03 AM	0	26.449	23.069	25.804	26.261	25.352	34.205	44.074	51.242	6.303	38.49	6.507	-0.089	29.887	0.315	0	125	12.4	41.3	2.8	0.138	0.134	0.0033	3.26	2.8
133	5/27/1999	10:53:04 AM	0	26.449	23.069	25.724	26.341	25.352	34.126	40.293	50.541	6.056	35.008	9.485	-0.042	30.44	1.166	0	126	12.6	37.7	2.6	0.509	0.499	0.0132	13.25	11.3
134	5/27/1999	10:54:04 AM	0	26.255	23.115	25.69	26.227	25.398	34.521	43.64	50.449	6.04	38.862	6.445	-0.042	30.148	0.684	0	127	12.5	41.3	2.8	0.299	0.293	0.0071	7.10	6.0
135	5/27/1999	10:55:04 AM	0	26.255	23.115	25.61	26.307	25.398	34.33	44.57	51.334	6.327	39.234	5.963	-0.042	30.148	0.554	0	128	12.5	41.9	2.9	0.242	0.238	0.0057	5.67	4.8
136	5/27/1999	10:56:04 AM	0	26.095	23.115	25.61	26.307	25.364	34.375	44.756	51.517	6.215	39.065	6.075	-0.089	30.025	0.488	0	129	12.5	41.9	2.9	0.213	0.209	0.0050	5.00	4.3
137	5/27/1999	10:57:04 AM	0	26.095	23.161	25.656	26.433	25.444	34.533	44.105	50.754	6.136	39.099	6.137	-0.042	29.994	0.449	0	130	12.4	41.6	2.9	0.196	0.192	0.0046	4.63	3.9
138	5/27/1999	10:58:04 AM	0	26.141	23.161	25.542	26.433	25.364	34.341	44.756	51.791	6.367	39.133	6.137	-0.042	29.917	0.424	0	131	12.4	41.9	2.9	0.185	0.182	0.0043	4.35	3.7
139	5/27/1999	10:59:04 AM	0	26.107	23.081	25.588	26.479	25.41	34.578	44.973	51.821	6.399	38.997	6.168	-0.042	29.871	0.405	0	132	12.4	42.0	2.9	0.177	0.174	0.0041	4.14	3.5
140	5/27/1999	11:00:05 AM	0	26.027	23.127	25.462	26.399	25.41	34.578	44.725	51.517	6.223	38.761	6.168	-0.089	29.795	0.392	0	133	12.4	41.7	2.9	0.171	0.169	0.0040	4.05	3.4
141	5/27/1999	11:01:05 AM	0	26.073	23.127	25.382	26.479	25.456	34.578	44.322	50.998	6.255	39.133	6.199	-0.089	29.871	0.379	0	134	12.4	41.7	2.9	0.165	0.164	0.0039	3.92	3.3
142	5/27/1999	11:02:05 AM	0	25.993	23.253	25.382	26.525	25.456	34.466	44.911	51.791	6.343	38.761	6.199	-0.042	29.856	0.372	0	135	12.4	41.8	2.9	0.162	0.161	0.0038	3.84	3.3
143	5/27/1999	11:03:05 AM	0	25.993	23.253	25.348	26.525	25.456	34.624	44.57	51.76	6.407	38.794	6.229	-0.042	29.964	0.363	0	136	12.4	41.7	2.9	0.158	0.157	0.0038	3.76	3.2
144	5/27/1999	11:04:05 AM	0	25.959	23.219	25.348	26.525	25.502	34.466	44.416	51.181	6.351	38.693	6.229	-0.042	29.856	0.357	0	137	12.4	41.6	2.9	0.156	0.154	0.0037	3.71	3.2
145	5/27/1999	11:05:05 AM	0	25.879	23.253	25.394	26.571	25.582	34.748	44.694	51.578	6.279	38.93	6.229	-0.042	29.718	0.351	0	138	12.3	41.8	2.9	0.153	0.152	0.0036	3.62	3.1
146	5/27/1999	11:06:05 AM	0	25.879	23.219	25.234	26.571	25.502	34.353	44.384	50.937	6.207	38.761	6.199	-0.042	29.825	0.347	0.003	139	12.4	41.6	2.9	0.151	0.150	0.0036	3.62	3.1
147	5/27/1999	11:07:05 AM	0	25.845	23.346	25.28	26.571	25.582	34.636	44.539	51.517	6.279	39.133	6.26	-0.089	29.841	0.342	0	140	12.4	41.8	2.9	0.149	0.148	0.0035	3.54	3.0
148	5/27/1999	11:08:06 AM	0	25.765	23.266	25.28	26.617	25.629	34.636	44.539	51.547	6.287	38.592	6.229	-0.042	29.856	0.338	0	141	12.4	41.6	2.9	0.148	0.146	0.0035	3.52	3.0
149	5/27/1999	11:09:06 AM	0	25.765	23.346	25.2	26.697	25.629	34.715	44.229	50.968	6.247	38.794	6.26	-0.042	29.795	0.335	0	142	12.4	41.5	2.9	0.146	0.145	0.0035	3.50	3.0
150	5/27/1999	11:10:06 AM	0	25.732	23.312	25.12	26.697	25.595	34.918	44.801	51.639	6.399	38.693	6.229	-0.042	29.871	0.331	0	143	12.4	41.6	2.9	0.144	0.144	0.0035	3.46	2.9
151	5/27/1999	11:11:06 AM	0	25.732	23.312	25.166	26.743	25.595	34.76	44.415	51.395	6.271	38.693	6.26	-0.089	29.81	0.329	0	144	12.4	41.6	2.9	0.144	0.143	0.0034	3.44	2.9
152	5/27/1999	11:12:06 AM	0	25.651	23.439	25.133	26.663	25.595	34.681	44.942	52.096	6.423	38.93	6.26	-0.089	29.764	0.325	0	145	12.4	41.9	2.9	0.142	0.141	0.0034	3.37	2.9
153	5/27/1999	11:13:06 AM	0	25.651	23.312	25.133	26.709	25.721	34.839	44.694	52.126	6.503	39.099	6.26	-0.042	29.764	0.324	0.003	146	12.4	41.9	2.9	0.141	0.141	0.0034	3.36	2.9
154	5/27/1999	11:14:06 AM	0	25.618	23.439	25.052	26.709	25.721	34.885	44.26	51.303	6.319	38.592	6.291	-0.042	29.764	0.322	0.003	147	12.4	41.4	2.9	0.141	0.140	0.0034	3.39	2.9
155	5/27/1999	11:15:06 AM	0	25.618	23.439	25.052	26.709	25.767	34.806	45.097	51.974	6.279	38.964	6.291	-0.042	29.81	0.319	0	148	12.4	42.0	2.9	0.139	0.139	0.0033	3.31	2.8
156	5/27/1999	11:16:06 AM	0	25.618	23.405	25.019	26.835	25.687	34.615	44.167	50.907	6.231	39.133	6.322	-0.042	29.656	0.318	0	149	12.3	41.7	2.9	0.139	0.139	0.0033	3.33	2.8
157	5/27/1999	11:17:06 AM	0	25.504	23.405	25.019	26.835	25.767	34.773	44.601	51.821	6.423	38.355	6.322	-0.042	29.764	0.316	0	150	12.4	41.5	2.9	0.138	0.138	0.0033	3.32	2.8
158	5/27/1999	11:18:06 AM	0	25.584	23.485	25.019	26.915	25.767	34.66	44.57	51.699	6.399	38.625	6.291	-0.042	29.795	0.313	0	151	12.4	41.6	2.9	0.137	0.137	0.0033	3.28	2.8
159	5/27/1999	11:19:07 AM	0	25.55	23.531	24.985	26.835	25.687	35.009	44.57	51.608	6.359	38.828	6.322	-0.042	29.841	0.313	0.003	152	12.4	41.7	2.9	0.137	0.137	0.0033	3.28	2.8
160	5/27/1999	11:20:07 AM	0	25.47	23.531	24.858	26.961	25.733	34.897	44.787	51.791	6.391	38.524	6.291	-0.042	29.81	0.311	0	153	12.4	41.7	2.9	0.136	0.136	0.0033	3.27	2.8
161	5/27/1999	11:21:07 AM	0	25.47	23.531	24.905	26.927	25.659	35.179	44.539	51.639	6.343	38.997	6.322	-0.042	29.749	0.31	0.003	154	12.3	41.8	2.9	0.135	0.136	0.0032	3.25	2.8
162	5/27/1999	11:22:07 AM	1	25.596	23.531	24.951	27.007	25.659	34.943	4.494	51.547	5.928	-1.437	46.446	70.899	29.687	0.012	0.003	155	12.3	1.5	0.1	0.005	0.005	0.0034	3.43	2.9

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163	5/27/1999	11:23:07 AM	0	25.516	23.497	24.951	26.927	25.859	34.706	45.004	51.547	6.152	39.302	5.798	-0.042	30.271	0.788	0	156	12.6	42.2	2.9	0.344	0.344	0.0082	8.17	7.0
164	5/27/1999	11:24:07 AM	0	25.436	23.578	24.871	27.053	25.906	34.706	44.353	51.334	6.207	38.693	6.26	-0.042	30.025	0.589	0.003	157	12.5	41.5	2.9	0.257	0.258	0.0062	6.21	5.3
165	5/27/1999	11:25:08 AM	0	25.356	23.624	24.917	27.053	25.906	34.968	44.198	51.242	6.247	39.133	6.199	-0.042	29.933	0.507	0	158	12.4	41.7	2.9	0.221	0.222	0.0053	5.32	4.5
166	5/27/1999	11:26:08 AM	0	25.402	23.59	24.837	26.973	25.906	34.909	44.756	51.78	6.295	38.93	6.26	-0.042	29.917	0.458	0.003	159	12.4	41.8	2.9	0.200	0.201	0.0048	4.80	4.1
167	5/27/1999	11:27:08 AM	0	25.402	23.624	24.883	27.099	25.952	34.955	44.446	51.395	6.335	38.625	6.291	0.004	29.871	0.426	0	160	12.4	41.5	2.9	0.186	0.187	0.0045	4.49	3.8
168	5/27/1999	11:28:08 AM	0	25.368	23.671	24.883	27.099	25.952	35.225	44.322	51.547	6.311	38.592	6.322	-0.042	29.81	0.406	0	161	12.4	41.5	2.9	0.177	0.178	0.0043	4.29	3.7
169	5/27/1999	11:29:08 AM	0	25.368	23.671	24.803	27.099	25.952	35.034	43.919	51.212	6.279	38.186	6.383	-0.042	29.841	0.387	0.003	162	12.4	41.1	2.8	0.169	0.170	0.0041	4.14	3.5
170	5/27/1999	11:30:08 AM	0	25.368	23.671	24.803	27.225	25.952	35.158	44.787	51.882	6.415	38.625	6.383	-0.042	29.795	0.379	0.003	163	12.4	41.7	2.9	0.165	0.166	0.0040	3.99	3.4
171	5/27/1999	11:31:08 AM	0	25.415	23.717	24.803	27.146	25.872	35.08	44.415	51.517	6.375	38.828	6.353	-0.042	29.917	0.369	0	164	12.4	41.6	2.9	0.161	0.162	0.0039	3.89	3.3
172	5/27/1999	11:32:08 AM	0	25.334	23.717	24.896	27.272	25.998	35.158	44.167	51.364	6.367	38.524	6.383	-0.042	29.81	0.362	0	165	12.4	41.3	2.9	0.158	0.158	0.0038	3.83	3.3
173	5/27/1999	11:33:08 AM	0	25.381	23.763	24.85	27.272	25.965	35.204	44.508	51.852	6.439	38.693	6.414	-0.042	29.825	0.354	0	166	12.4	41.6	2.9	0.155	0.155	0.0037	3.73	3.2
174	5/27/1999	11:34:08 AM	0	25.301	23.763	24.816	27.352	25.965	35.125	44.384	51.73	6.359	38.625	6.414	-0.042	29.856	0.349	0	167	12.4	41.5	2.9	0.152	0.153	0.0037	3.69	3.1
175	5/27/1999	11:35:09 AM	0	25.301	23.683	24.736	27.352	25.965	35.283	44.477	51.913	6.439	38.49	6.383	-0.042	29.887	0.344	0	168	12.4	41.5	2.9	0.150	0.151	0.0036	3.65	3.1
176	5/27/1999	11:36:09 AM	0	25.221	23.763	24.736	27.352	26.045	35.487	44.57	51.699	6.415	38.862	6.414	-0.042	29.733	0.34	0	169	12.3	41.7	2.9	0.148	0.150	0.0036	3.58	3.1
177	5/27/1999	11:37:09 AM	0	25.267	23.81	24.782	27.318	26.091	35.329	44.167	50.907	6.207	38.794	6.414	-0.042	29.795	0.336	0	170	12.4	41.5	2.9	0.147	0.148	0.0036	3.56	3.0
178	5/27/1999	11:38:09 AM	0	25.267	23.81	24.782	27.398	26.091	35.25	44.167	51.517	6.415	38.389	6.383	-0.042	29.779	0.332	0	171	12.4	41.3	2.8	0.145	0.146	0.0035	3.53	3.0
179	5/27/1999	11:39:09 AM	0	25.187	23.937	24.829	27.364	26.137	35.487	44.818	52.035	6.455	38.659	6.445	0.004	29.825	0.329	0	172	12.4	41.7	2.9	0.144	0.144	0.0035	3.48	2.9
180	5/27/1999	11:40:09 AM	0	25.187	23.89	24.748	27.444	26.137	35.532	44.353	51.517	6.367	38.828	6.414	0.004	29.841	0.326	0	173	12.4	41.6	2.9	0.142	0.143	0.0034	3.45	2.9
181	5/27/1999	11:41:09 AM	0	25.233	23.856	24.748	27.444	26.217	35.374	44.384	51.578	6.471	39.031	6.445	-0.042	29.749	0.324	0.003	174	12.3	41.7	2.9	0.141	0.142	0.0034	3.42	2.9
182	5/27/1999	11:42:09 AM	0	25.233	23.903	24.668	27.49	26.264	35.296	44.787	52.126	6.495	38.727	6.414	-0.042	29.825	0.322	0	175	12.4	41.8	2.9	0.141	0.142	0.0034	3.40	2.9
183	5/27/1999	11:43:09 AM	0	25.2	23.903	24.715	27.49	26.264	35.578	44.353	51.639	6.455	38.592	6.414	-0.042	29.81	0.319	0	176	12.4	41.5	2.9	0.139	0.140	0.0034	3.38	2.9
184	5/27/1999	11:44:10 AM	0	25.28	23.903	24.715	27.49	26.184	35.578	44.477	51.608	6.351	38.659	6.445	-0.042	29.795	0.317	0	177	12.4	41.6	2.9	0.138	0.139	0.0034	3.36	2.9
185	5/27/1999	11:45:10 AM	0	25.246	23.903	24.761	27.537	26.184	35.466	44.074	51.303	6.359	38.49	6.445	0.004	29.779	0.317	0	178	12.4	41.3	2.8	0.138	0.139	0.0034	3.37	2.9
186	5/27/1999	11:46:10 AM	0	25.166	23.949	24.761	27.537	26.31	35.624	44.26	51.395	6.351	38.592	6.414	-0.042	29.795	0.315	0	179	12.4	41.4	2.9	0.138	0.138	0.0033	3.34	2.8
187	5/27/1999	11:47:10 AM	0	25.166	23.996	24.681	27.537	26.23	35.545	44.694	51.791	6.319	38.456	6.445	0.004	29.779	0.313	0.003	180	12.4	41.6	2.9	0.137	0.138	0.0033	3.32	2.8
188	5/27/1999	11:48:10 AM	0	25.166	23.949	24.728	27.583	26.23	35.624	44.415	51.425	6.351	38.794	6.445	-0.042	29.795	0.312	0	181	12.4	41.6	2.9	0.136	0.137	0.0033	3.30	2.8
189	5/27/1999	11:49:10 AM	0	25.166	24.076	24.647	27.663	26.276	35.669	44.539	52.035	6.431	38.862	6.445	-0.042	29.702	0.311	0	182	12.3	41.7	2.9	0.136	0.137	0.0033	3.29	2.8
190	5/27/1999	11:50:10 AM	0	25.212	23.996	24.647	27.663	26.276	35.591	44.26	51.395	6.335	38.659	6.476	0.004	29.656	0.309	0	183	12.3	41.5	2.9	0.135	0.136	0.0033	3.29	2.8
191	5/27/1999	11:51:10 AM	0	25.132	24.043	24.694	27.583	26.403	35.557	44.601	51.974	6.375	38.49	6.476	-0.042	29.718	0.306	0	184	12.3	41.5	2.9	0.134	0.135	0.0032	3.24	2.8
192	5/27/1999	11:52:10 AM	0	25.259	24.123	24.694	27.709	26.403	35.557	44.043	51.242	6.255	38.456	6.476	0.004	29.733	0.306	0	185	12.3	41.2	2.8	0.134	0.135	0.0033	3.27	2.8
193	5/27/1999	11:53:10 AM	0	25.259	24.043	24.614	27.709	26.449	35.636	45.19	51.486	6.215	39.707	5.459	-0.042	30.04	0.862	0	186	12.5	42.4	2.9	0.376	0.380	0.0090	8.96	7.6
194	5/27/1999	11:54:10 AM	0	25.145	24.17	24.614	27.709	26.403	35.4	44.725	51.882	6.175	38.828	6.199	0.004	29.948	0.599	0	187	12.4	41.8	2.9	0.261	0.264	0.0063	6.33	5.4
195	5/27/1999	11:55:11 AM	0	25.145	24.17	24.66	27.755	26.449	35.761	44.477	51.547	6.263	38.898	6.291	0.004	29.902	0.506	0.003	188	12.4	41.7	2.9	0.221	0.223	0.0053	5.35	4.6
196	5/27/1999	11:56:11 AM	0	25.145	24.089	24.707	27.802	26.529	35.603	44.446	51.578	6.144	38.693	6.353	0.004	29.825	0.456	0	189	12.4	41.6	2.9	0.199	0.201	0.0048	4.83	4.1
197	5/27/1999	11:57:11 AM	0	25.112	24.17	24.58	27.802	26.496	35.807	43.981	51.212	6.128	38.456	6.414	-0.042	29.795	0.426	0.003	190	12.4	41.2	2.8	0.186	0.188	0.0046	4.57	3.9
198	5/27/1999	11:58:11 AM	0	25.112	24.136	24.627	27.802	26.496	35.649	44.229	51.425	6.263	38.727	6.383	-0.042	29.764	0.404	0	191	12.4	41.5	2.9	0.176	0.178	0.0043	4.30	3.7
199	5/27/1999	11:59:11 AM	0	25.192	24.136	24.627	27.848	26.496	35.807	44.167	51.242	6.215	39.099	6.445	-0.042	29.764	0.388	0	192	12.4	41.6	2.9	0.169	0.171	0.0041	4.11	3.5
200	5/27/1999	12:00:11 PM	0	25.158	24.263	24.593	27.768	26.542	36.168	44.694	52.035	6.247	38.659	6.445	0.004	29.825	0.376	0	193	12.4	41.7	2.9	0.164	0.166	0.0040	3.98	3.4
201	5/27/1999	12:01:11 PM	0	25.205	24.263	24.673	27.928	26.542	35.695	44.446	51.852	6.335	38.761	6.476	0.004	29.795	0.366	0.003	194	12.4	41.6	2.9	0.160	0.161	0.0039	3.88	3.3
202	5/27/1999	12:02:11 PM	0	25.125	24.309	24.673	27.895	26.542	35.932	44.694	52.065	6.367	38.727	6.445	0.004	29.795	0.36	0.003	195	12.4	41.7	2.9	0.157	0.159	0.0038	3.80	3.2
203	5/27/1999	12:03:11 PM	0	25.125	24.229	24.64	27.895	26.589	35.899	44.291	51.486	6.295	38.794	6.476	0.004	29.779	0.351	0	196	12.4	41.5	2.9	0.153	0.155	0.0037	3.73	3.2
204	5/27/1999	12:04:11 PM	0	25.125	24.309	24.64	27.895	26.509	35.899	44.291	51.517	6.303	38.896	6.476	-0.042	29.702	0.348	0	197	12.3	41.6	2.9	0.152	0.153	0.0037	3.69	3.1
205	5/27/1999	12:05:11 PM	0	25.045	24.276	24.606	27.941	26.555	36.102	44.012	51.517	6.383	39.065	6.476	0.004	29.687	0.342	0	198	12.3	41.5	2.9	0.149	0.151	0.0036	3.63	3.1
206	5/27/1999	12:06:11 PM	0	25.171	24.356	24.606	27.941	26.555	35.944	44.229	51.608	6.343	38.524	6.476	0.004	29.718	0.338	0.003	199	12.3	41.4	2.9	0.148	0.149	0.0036	3.61	3.1
207	5/27/1999	12:07:11 PM	0	25.171	24.403	24.653	27.988	26.555	36.069	44.322	51.517	6.327	38.693	6.476	0.004	29.687	0.332	0	200	12.3	41.5	2.9	0.145	0.146	0.0035	3.53	3.0
208	5/27/1999	12:08:11 PM	0	25.091	24.403	24.526	27.988	26.602	36.227	43.981	51.151	6.239	38.592	6.476	0.004	29.733	0.33	0	201	12.3	41.3	2.8	0.144	0.146	0.0035	3.54	3.0
209	5/27/1999	12:09:12 PM	0	25.138	24.403	24.573	27.988	26.602	36.227	44.012	51.303	6.247	38.794	6.476	0.004	29.749	0.328	0	202	12.3	41.4	2.9	0.143	0.145	0.0035	3.50	3.0
210	5/27/1999	12:10:12 PM	0	25.058	24.369	24.653	28.067	26.602	35.833	44.415	51.76	6.247	38.321	6.507	0.004	29.687	0.324	0	203	12.3	41.4	2.9	0.141	0.143	0.0035	3.45	2.9
211	5/27/1999	12:11:12 PM	0	25.104	24.45	24.62	28.034	26.648	36.148	44.105	51.547	6.343	38.659	6.507	0.004	29.672	0.321	0	204	12.3	41.4	2.9	0.140	0.142	0.0034	3.42	2.9
212	5/27/1999	12:12:12 PM	0	25.104	24.45	24.62	28.034	26.728	36.194	44.291	51.578	6.319	38.964	6.507	0.004	29.733	0.318	0.003	205	12.3	41.6	2.9	0.139	0.140	0.0034	3.37	2.9
213	5/27/1999	12:13:12 PM	0	25.104	24.416	24.62	28.16	26.728	36.194	44.353	52.035	6.455	38.761	6.507	0.004	29.749	0.317	0	206	12.3	41.6	2.9	0.138	0.140	0.0034	3.37	2.9
214	5/27/1999	12:14:12 PM	0	25.151	24.496	24.586	28.16	26.728	36.003	44.725	51.974	6.447	38.423	6.507	0.004	29.702	0.315	0	207	12.3	41.6	2.9	0.138	0.139	0.0033	3.35	2.8
215	5/27/1999	12:15:12 PM	0	25.151	24.496	24.586	28.24	26.822	36.24	43.95	51.273	6.351	38.693	6.538	0.004	29.672	0.314	0	208	12.3	41.3	2.8	0.137	0.139	0.0034	3.36	2.9
216	5/27/1999	12:16:12 PM	0	25.118	24.496	24.586	28.207	26.775	36.476	44.539	52.065	6.311	38.355	6.538	0.004	29.702	0.313	0	209	12.3	41.4	2.9	0.137	0.138	0.0033	3.34	2.8
217	5/27/1999	12:17:12 PM	0	25.118	24.463	24.633	28.287	26.695	35.261	44.415	51.639	6.327	38.693	6.507	0.004	29.733	0.31	0.003	210	12.3	41.6	2.9	0.135	0.137	0.0033	3.29	2.8
218	5/27/1999	12:18:13 PM	0	25.118	24.59	24.553	28.207	26.022	35.34	44.229	51.395	6.327	38.794	6.507	0.004	29.718	0.311	0.003	211	12.3	41.5	2.9	0.136	0.137	0.0033	3.31	2.8
219	5/27/1999	12:19:13 PM	0	25.084	24.463	24.553	27.967	25.348	36.443	44.353	51.852	6.319	38.693	6.538	0.004	29.672	0.308	0	212	12.3	41.5	2.9	0.134	0.136	0.0033	3.28	2.8
220	5/27/1999	12:20:13 PM	0	25.084	24.543	24.633	27.888	24.868	36.68	44.136	51.608	6.383	38.727	6.538	0.004	29.702	0.308	0	213	12.3	41.4	2.9	0.134	0.136	0.0033	3.28	2.8
221	5/27/1999	12:21:13 PM	0	25.036	24.543	24.553	27.568	24.5	36.758	44.26	51.699	6.343	38.727	6.538	0.004	29.672	0.305	0.003	214	12.3	41.5	2.9	0.133	0.135	0.0032	3.25	2.8
222	5/27/1999	12:22:13 PM	0	25.118	24.623	24.553	27.362	24.179	36.758	44.353	51.73	6.423	38.693	6.538	0.004	29.733	0.304	0.003	215	12.3	41.5	2.9	0.133	0.134	0.0032	3.24	2.8
223	5/27/1999	12:23:13 PM	0	25.151	24.577	24.506	27.329	23.972	37.185	45.097	51.395	6.072	39.234	5.551	0.004	30.133	0.886	0	216	12.5	42.2	2.9	0.387	0.392	0.0093	9.30	7.9
224	5/27/1999	12:24:13 PM	0	25.071	24.657	24.54	26.996	23.785	37.139	43.702	50.937	6.128	38.592	6.353	0.004	29.994	0.599	0	217	12.4	41.1	2.8	0.261	0.265	0.0064	6.44	5.5
225	5/27/1999	12:25:13 PM	0	25.104	24.61	24.573	26.996	23.604	37.408	44.229	51.486	6.239	38.456	6.507	0.004	29.825	0.507	0	218	12.4	41.3	2.8	0.221	0.224	0.0054	5.42	4.6
226	5/27/1999	12:26:13 PM	0	25.091	24.644	24.526	26.79	23.27	37.293	43.981	51.242	6.152	38.727	6.568	0.004	29.795	0.454	0.003	219	12.4	41.4	2.9	0.198	0.201	0.0049	4.86	4.1
227	5/27/1999	12:27:13 PM	0	25.045	24.55	24.48	26.697	23.143	37.495	44.446	51.943	6.351	38.997	6.63	0.004	29.856	0.421	0	220	12.4	41.7	2.9	0.184	0.186	0.0045	4.47	3.8
228	5/27/1999	12:28:13 PM	0	25.078	24.584	24.513	26.524	23.098	37.506	44.26	51.425	6.263	38.761	6.63	0.004	29.702	0.402	0	221	12.3	41.5	2.9	0.175	0.178	0.0043	4.29	3.6
229	5/27/1999	12:29:14 PM	0	25.112	24.571	24.5	26.637	22.969	37.415	44.477	52.065	6.287	38.727	6.63	0.004	29.702	0.387	0.003	222	12.3	41.8	2.9	0.169	0.171	0.0041	4.12	3.5
230	5/27/1999	12:30:14 PM	0	25.052	24.558	24.454	26.431	22.634	37.117	43.857	51.425	6.247	38.625	6.63	0.004	29.702	0.374	0	223	12.3	41.2	2.8	0.163	0.166	0.0040	4.02	3.4
231	5/27/1999	12:31:14 PM	0	25.006	24.591	24.441	26.498	22.702	37.278	44.446	51.699	6.287	38.659	6.661	0.05	29.749	0.364	0	224	12.4	41.6	2.9	0.159	0.161	0.0039	3.88	3.3
232	5/27/1999	12:32:14 PM	0	25.039	24.579	24.508	26.325	22.608	37.154	44.26	51.669	6.168	38.49	6.661	0.004	29.779	0.356	0	225	12.4	41.4	2.9	0.155	0.158	0.0038	3.81	3.2
233	5/27/1999	12:33:14 PM	0	25.027	24.566	24.461	26.439	22.562	37.096	43.733	51.364	6.431	38.423	6.661	0.004	29.764	0.349	0	226	12.4	41.1	2.8	0.152	0.155	0.0038	3.77	3.2
234	5/27/1999	12:34:14 PM	0	25.014	24.6	24.449	26.346	22.469	36.735	43.919	51.364	6.343	38.287	6.661	0.004	29.687	0.344	0	227	12.3	41.1	2.8	0.150	0.153	0.0037	3.71	3.2
235	5/27/1999	12:35:14 PM	0	24.921	24.587	24.356	26.38	22.456	36.644	43.826	51.12	6.215	38.592	6.661	0.004	29.718	0.339	0	228	12.3	41.2	2.8	0.148	0.151	0.0037	3.66	3.1
236	5/27/1999	12:36:14 PM	0	24.969	24.495	24.424	26.401	22.443	36.888	44.043	51.425	6.303	38.625	6.661	0.004	29.764	0.334	0	229	12.4	41.3	2.8	0.146	0.148	0.0036	3.59	3.1
237	5/27/1999	12:37:14 PM	1	24.977	24.482	24.377	26.549	22.317	36.62	44.291	51.517	6.279	38.389	6.692	0.004	29.733	0.33	0	230	12.4	41.3	2.8	0.144	0.147	0.0035	3.55	3.0
238	5/27/1999	12:38:15 PM	0	25.045	24.55	24.399	26.537	22.258	36.686	44.229	51.76	6.128	38.49	6.538	0.004	30.086	0.765	0	231	12.5	41.4	2.9	0.334	0.340	0.0082	8.21	7.0
239	5/27/1999	12:39:15 PM	0	24.952	24.538	24.387	26.605	22.246	36.438	44.477	51.547	6.128	38.862	6.322	0.05	29.856	0.589	0	232	12.4	41.7	2.9	0.257	0.262	0.0063	6.28	5.3
240	5/27/1999	12:40:15 PM	0	24.86	24.526	24.375	26.592	22.233	36.032	44.353	51.639	6.199	38.761	6.507	0.004	29.795	0.497	0	233	12.4	41.6	2.9	0.217	0.221	0.0053	5.31	4.5
241	5/27/1999	12:41:15 PM	0	24.848	24.514	24.282	26.501	22.141	36.099	44.291	51.639	6.191	38.524	6.568	0.004	29.887	0.447	0	234	12.4	41.4	2.9	0.195	0.199	0.0048	4.81	4.1
242	5/27/1999	12:42:15 PM	0	24.916	24.502	24.271	26.569	22.049	36.133	43.919	51.334	6.247	38.794	6.63	0.004	29.825	0.416	0	235	12.4	41.4	2.9	0.182	0.185	0.0045	4.48	3.8
243	5/27/1999	12:43:15 PM	0	24.905	24.49	24.259	26.477	22.117	35.84	44.043	51.486	6.343	38.287	6.63	0.004	29.779	0.395	0	236	12.4	41.2	2.8	0.172	0.176	0.0043	4.28	3.6

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
244	5/27/1999	12:44:15 PM	0	24.813	24.559	24.327	26.465	22.025	35.828	44.384	52.035	6.311	38.727	6.63	0.004	29.795	0.381	0.003	237	12.4	41.6	2.9	0.166	0.170	0.0041	4.08	3.5
245	5/27/1999	12:45:15 PM	0	24.881	24.547	24.235	26.534	22.013	35.501	44.136	51.669	6.271	38.118	6.661	0.004	29.687	0.37	0	238	12.3	41.1	2.8	0.162	0.165	0.0040	4.01	3.4
246	5/27/1999	12:46:15 PM	0	24.87	24.582	24.224	26.522	21.921	35.647	43.826	51.395	6.239	38.625	6.661	0.004	29.672	0.38	0	239	12.3	41.2	2.8	0.157	0.161	0.0039	3.90	3.3
247	5/27/1999	12:47:15 PM	0	24.904	24.524	24.258	26.431	21.749	35.715	44.105	51.852	6.463	38.287	6.661	0.004	29.718	0.35	0	240	12.3	41.2	2.8	0.153	0.156	0.0038	3.79	3.2
248	5/27/1999	12:48:15 PM	0	24.812	24.559	24.201	26.465	21.783	35.231	44.229	51.547	6.375	38.456	6.692	0.004	29.764	0.345	0	241	12.4	41.3	2.9	0.151	0.154	0.0037	3.73	3.2
249	5/27/1999	12:49:15 PM	0	24.836	24.502	24.235	26.454	21.726	35.328	43.857	51.303	6.359	38.017	6.661	0.004	29.749	0.339	0	242	12.3	40.9	2.8	0.148	0.151	0.0037	3.69	3.1
250	5/27/1999	12:50:15 PM	0	24.744	24.536	24.224	26.397	21.599	35.253	44.012	51.639	6.335	38.355	6.661	0.004	29.749	0.334	0.003	243	12.3	41.2	2.8	0.146	0.149	0.0036	3.62	3.1
251	5/27/1999	12:51:15 PM	0	24.779	24.525	24.213	26.431	21.689	34.374	44.663	52.065	6.399	38.355	6.692	0.004	29.702	0.33	0	244	12.3	41.5	2.9	0.144	0.147	0.0035	3.55	3.0
252	5/27/1999	12:52:08 PM	0	24.848	24.514	24.202	26.34	21.738	34.126	44.446	51.913	6.391	38.423	6.692	0.004	29.672	0.326	0	245	12.3	41.4	2.9	0.142	0.146	0.0035	3.51	3.0
253	5/27/1999	12:53:08 PM	0	24.802	24.549	24.156	26.375	21.853	33.606	36.915	50.602	6	31.559	12.917	0.05	30.44	1.218	0	246	12.6	34.2	2.4	0.532	0.545	0.0159	15.90	13.5
254	5/27/1999	12:54:08 PM	0	24.711	24.536	24.271	26.124	22.13	[illegible]	43.795	51.09	6.144	38.828	6.538	0.004	30.025	0.683	0	247	12.5	41.3	2.8	0.298	0.304	0.0074	7.37	6.3
255	5/27/1999	12:55:08 PM	0	24.746	24.538	24.18	26.159	22.245	33.392	44.384	51.639	6.191	38.355	6.414	0.004	29.917	0.544	0	248	12.4	41.4	2.9	0.237	0.243	0.0059	5.87	5.0
256	5/27/1999	12:56:08 PM	0	24.7	24.527	24.134	26.033	22.314	33.268	44.196	51.425	6.136	38.693	6.568	0.004	29.887	0.472	0.003	249	12.4	41.4	2.9	0.206	0.211	0.0051	5.09	4.3
257	5/27/1999	12:57:09 PM	0	24.815	24.481	24.249	26.068	22.429	32.907	44.26	51.639	6.183	38.828	6.599	0.004	29.81	0.433	0	250	12.4	41.5	2.9	0.189	0.193	0.0046	4.65	4.0
258	5/27/1999	12:58:09 PM	0	24.69	24.516	24.203	25.942	22.625	32.386	43.95	51.425	6.279	38.524	6.661	0.004	29.733	0.405	0	251	12.3	41.2	2.8	0.177	0.181	0.0044	4.38	3.7
259	5/27/1999	12:59:09 PM	0	24.724	24.516	24.158	26.102	22.947	32.104	44.074	51.334	6.16	38.456	6.692	0.004	29.81	0.385	0.003	252	12.4	41.3	2.8	0.168	0.172	0.0042	4.17	3.5
260	5/27/1999	1:00:09 PM	0	24.724	24.471	24.158	25.977	23.142	31.866	44.508	52.004	6.343	38.524	6.692	0.004	29.764	0.372	0	253	12.4	41.5	2.9	0.162	0.166	0.0040	4.01	3.4
261	5/27/1999	1:01:09 PM	0	24.679	24.471	24.193	26.137	23.338	31.583	44.043	51.547	6.255	38.49	6.692	0.004	29.702	0.362	0	254	12.3	41.3	2.8	0.158	0.162	0.0039	3.92	3.3
262	5/27/1999	1:02:09 PM	0	24.759	24.425	24.193	26.092	23.659	31.424	44.167	51.76	6.375	38.625	6.661	0.004	29.718	0.356	0	255	12.3	41.4	2.9	0.155	0.159	0.0038	3.84	3.3
263	5/27/1999	1:03:09 PM	0	24.759	24.425	24.193	26.172	23.82	31.186	44.198	51.456	6.303	38.389	6.692	0.004	29.779	0.346	0	256	12.4	41.3	2.8	0.151	0.155	0.0037	3.74	3.2
264	5/27/1999	1:04:10 PM	0	24.679	24.345	24.273	26.252	24.06	31.107	44.322	52.004	6.471	38.355	6.692	0.004	29.702	0.339	0	257	12.3	41.3	2.9	0.148	0.151	0.0037	3.65	3.1
265	5/27/1999	1:05:10 PM	0	24.759	24.471	24.273	26.332	24.186	30.834	44.167	51.547	6.359	38.693	6.692	0.05	29.733	0.335	0	258	12.3	41.4	2.9	0.146	0.149	0.0036	3.60	3.1
266	5/27/1999	1:06:10 PM	0	24.804	24.471	24.318	26.457	24.301	30.834	44.198	51.852	6.271	38.524	6.722	0.004	29.718	0.33	0	259	12.3	41.4	2.9	0.144	0.147	0.0036	3.55	3.0
267	5/27/1999	1:07:10 PM	0	24.724	24.39	24.399	26.537	24.507	30.675	44.198	51.73	6.423	38.186	6.753	0.004	28.641	0.329	0	260	12.3	41.2	2.8	0.144	0.146	0.0035	3.55	3.0
268	5/27/1999	1:08:10 PM	0	24.93	24.436	24.444	26.662	24.532	30.8	44.415	50.724	5.936	39.707	5.582	0.004	30.04	0.818	0.003	261	12.5	42.1	2.9	0.357	0.363	0.0086	8.62	7.3
269	5/27/1999	1:09:10 PM	0	24.93	24.481	24.524	26.662	24.312	31.162	44.632	51.76	5.992	38.964	6.353	0.004	29.933	0.584	0	262	12.4	41.8	2.9	0.255	0.256	0.0062	6.16	5.3
270	5/27/1999	1:10:10 PM	0	24.895	24.481	24.57	26.788	24.277	31.401	43.888	51.09	6.215	38.794	6.353	0.004	29.779	0.5	0.003	263	12.4	41.3	2.9	0.218	0.221	0.0053	5.34	4.5
271	5/27/1999	1:11:10 PM	0	24.895	24.447	24.695	26.673	24.082	31.525	44.198	51.547	6.215	38.389	6.414	0.004	29.825	0.449	0	264	12.4	41.3	2.8	0.196	0.198	0.0048	4.79	4.1
272	5/27/1999	1:12:10 PM	0	25.021	24.447	24.695	26.593	24.002	31.684	44.167	51.334	6.247	38.896	6.414	0.004	29.902	0.419	0	265	12.4	41.5	2.9	0.183	0.184	0.0044	4.44	3.8
273	5/27/1999	1:13:10 PM	0	25.066	24.492	24.741	26.559	23.8	32.204	44.632	52.004	6.319	38.659	6.476	0.004	29.764	0.396	0.003	266	12.4	41.6	2.9	0.173	0.174	0.0042	4.18	3.6
274	5/27/1999	1:14:10 PM	0	25.066	24.412	24.821	26.559	23.325	32.759	44.105	51.151	6.215	38.625	6.507	0.004	29.764	0.382	0	267	12.4	41.4	2.9	0.167	0.168	0.0041	4.05	3.4
275	5/27/1999	1:15:11 PM	0	25.192	24.412	24.866	26.364	23.084	33.155	44.167	51.425	6.311	38.896	6.538	0.004	29.749	0.371	0	268	12.3	41.5	2.9	0.162	0.163	0.0039	3.91	3.3
276	5/27/1999	1:16:11 PM	0	25.147	24.412	24.901	26.444	22.968	33.472	44.291	51.547	6.295	38.49	6.538	0.004	29.749	0.362	0	269	12.3	41.4	2.9	0.158	0.158	0.0038	3.83	3.3
277	5/27/1999	1:17:11 PM	0	25.227	24.457	24.947	26.319	22.762	33.472	44.26	51.303	6.175	38.93	6.538	0.004	29.749	0.356	0	270	12.3	41.6	2.9	0.155	0.156	0.0037	3.74	3.2
278	5/27/1999	1:18:11 PM	0	25.307	24.412	24.981	26.319	22.601	33.516	44.322	51.486	6.311	38.49	6.538	0.004	29.764	0.35	0	271	12.4	41.4	2.9	0.153	0.153	0.0037	3.69	3.1
279	5/27/1999	1:19:11 PM	0	25.341	24.492	24.981	26.079	22.44	33.709	44.074	51.334	6.231	38.659	6.538	0.004	29.764	0.343	0	272	12.4	41.4	2.9	0.150	0.150	0.0036	3.62	3.1
280	5/27/1999	1:20:11 PM	0	25.341	24.447	25.096	26.113	22.314	33.506	44.043	51.547	6.367	38.761	6.568	0.004	29.81	0.339	0.003	273	12.4	41.4	2.9	0.148	0.148	0.0036	3.56	3.0
281	5/27/1999	1:21:11 PM	0	25.376	24.447	25.016	25.988	22.188	33.619	43.826	51.058	6.295	38.761	6.568	0.004	29.81	0.335	0.003	274	12.4	41.3	2.8	0.146	0.146	0.0035	3.54	3.0
282	5/27/1999	1:22:12 PM	1	25.411	24.481	25.131	26.068	22.188	33.54	-6.943	53.285	5.649	-10.329	72.887	69.093	28.842	0.242	0	275	12.0	-8.6	-0.6	0.106	0.105	-0.0122	-12.19	-10.4
283	5/27/1999	1:23:12 PM	0	25.571	24.436	25.211	26.022	22.142	33.97	45.159	51.669	6.088	39.268	5.551	0.004	30.194	0.839	0	276	12.5	42.2	2.9	0.366	0.364	0.0086	8.62	7.3
284	5/27/1999	1:24:12 PM	0	25.445	24.471	25.2	26.057	22.177	33.134	44.198	51.517	6.136	38.828	6.291	0.004	29.933	0.585	0.003	277	12.4	41.5	2.9	0.255	0.254	0.0061	6.12	5.2
285	5/27/1999	1:25:12 PM	0	25.526	24.425	25.2	25.977	22.74	30.039	43.981	51.242	6.207	38.592	6.322	0.004	29.979	0.5	0.003	278	12.4	41.3	2.8	0.218	0.217	0.0053	5.26	4.5
286	5/27/1999	1:26:12 PM	0	25.595	24.38	25.315	25.932	22.776	31.141	44.353	51.699	6.263	38.592	6.414	0.004	29.933	0.453	0	279	12.4	41.5	2.9	0.198	0.196	0.0047	4.73	4.0
287	5/27/1999	1:27:12 PM	0	25.595	24.38	25.269	25.806	22.569	32.172	44.074	51.181	6.239	38.761	6.445	0.004	29.917	0.422	0	280	12.4	41.4	2.9	0.184	0.183	0.0044	4.41	3.8
288	5/27/1999	1:28:12 PM	0	25.63	24.38	25.304	25.761	22.523	30.744	44.105	51.547	6.287	38.456	6.445	0.004	29.917	0.401	0	281	12.4	41.3	2.8	0.175	0.174	0.0042	4.20	3.6
289	5/27/1999	1:29:12 PM	0	25.71	24.414	25.304	25.841	22.684	31.855	44.198	51.486	6.319	38.524	6.476	0.05	29.902	0.387	0	282	12.4	41.4	2.9	0.169	0.168	0.0040	4.05	3.4
290	5/27/1999	1:30:12 PM	0	25.79	24.414	25.384	25.841	22.845	31.686	44.539	51.943	6.287	38.862	6.507	0.004	29.764	0.374	0	283	12.4	41.7	2.9	0.163	0.162	0.0039	3.87	3.3
291	5/27/1999	1:31:13 PM	0	25.745	24.414	25.339	25.876	23.088	31.493	44.322	51.456	6.359	38.727	6.538	0.004	29.948	0.365	0	284	12.4	41.5	2.9	0.159	0.158	0.0038	3.80	3.2
292	5/27/1999	1:32:13 PM	0	25.79	24.414	25.464	26.001	23.362	31.176	43.547	50.785	6.024	38.22	6.414	0.004	30.348	0.957	0	285	12.6	40.9	2.8	0.418	0.412	0.0101	10.09	8.6
293	5/27/1999	1:33:13 PM	0	25.87	24.334	25.464	26.001	23.648	31.017	44.725	51.73	6.287	38.761	6.26	0.004	30.179	0.614	0	286	12.5	41.7	2.9	0.268	0.265	0.0063	6.34	5.4
294	5/27/1999	1:34:13 PM	0	25.87	24.414	25.464	26.161	23.889	30.858	44.539	51.608	6.215	38.93	6.291	0.05	30.04	0.515	0.003	287	12.5	41.7	2.9	0.225	0.222	0.0053	5.32	4.5
295	5/27/1999	1:35:13 PM	0	25.915	24.334	25.509	26.286	24.095	30.858	44.26	51.242	6.231	38.558	6.383	0.004	30.04	0.46	0	288	12.5	41.4	2.9	0.201	0.198	0.0048	4.78	4.1
296	5/27/1999	1:36:13 PM	0	25.835	24.38	25.635	26.366	24.256	30.665	44.043	51.181	6.271	38.727	6.414	0.004	30.025	0.429	0	289	12.5	41.4	2.9	0.187	0.184	0.0044	4.45	3.8
297	5/27/1999	1:37:13 PM	1	25.961	24.345	-25.429	26.492	24.381	30.63	4.246	51.456	5.944	-1.133	46.446	71.038	29.779	0.011	0	290	12.4	1.6	0.1	0.005	0.005	0.0030	3.05	2.6
298	5/27/1999	1:38:13 PM	0	26.086	24.31	25.6	26.697	24.587	30.675	44.043	51.73	6.239	38.152	6.938	0.004	30.317	0.743	0	291	12.6	41.1	2.8	0.324	0.319	0.0078	7.76	6.6
299	5/27/1999	1:39:13 PM	0	26.006	24.436	25.646	26.742	24.632	30.755	44.601	51.395	6.072	39.369	6.168	0.004	30.163	0.571	0	292	12.5	42.0	2.9	0.249	0.245	0.0058	5.83	5.0
300	5/27/1999	1:40:13 PM	0	26.051	24.401	25.691	26.788	24.357	31.162	44.601	51.791	6.231	38.93	6.322	0.004	30.117	0.492	0	293	12.5	41.8	2.9	0.215	0.211	0.0050	5.04	4.3
301	5/27/1999	1:41:13 PM	0	26.017	24.321	25.736	26.788	24.242	31.401	44.229	51.303	6.247	38.727	6.383	0.004	30.025	0.446	0.003	294	12.5	41.5	2.9	0.195	0.191	0.0046	4.60	3.9
302	5/27/1999	1:42:14 PM	0	26.062	24.412	25.702	26.796	24.127	31.446	43.764	51.059	6.247	38.49	6.414	0.004	29.994	0.419	0.003	295	12.4	41.1	2.8	0.183	0.179	0.0044	4.36	3.7
303	5/27/1999	1:43:14 PM	0	26.107	24.412	25.782	26.636	23.967	31.491	43.95	50.998	6.247	38.423	6.445	0.004	30.01	0.398	0	296	12.5	41.2	2.8	0.174	0.170	0.0041	4.13	3.5
304	5/27/1999	1:44:14 PM	0	26.153	24.377	25.747	26.604	23.646	32.17	43.95	51.181	6.279	38.558	6.414	0.004	30.025	0.385	0	297	12.5	41.3	2.8	0.168	0.165	0.0040	3.99	3.4
305	5/27/1999	1:45:14 PM	0	26.198	24.377	25.747	26.524	23.451	32.725	44.384	51.76	6.375	38.828	6.476	0.004	30.01	0.373	0	298	12.5	41.6	2.9	0.163	0.159	0.0038	3.83	3.3
306	5/27/1999	1:46:14 PM	0	26.198	24.377	25.793	26.444	23.175	33.2	44.198	51.639	6.423	38.456	6.445	0.004	29.979	0.364	0	299	12.4	41.3	2.8	0.159	0.155	0.0038	3.76	3.2
307	5/27/1999	1:47:14 PM	0	26.198	24.297	25.793	26.489	22.934	33.641	44.632	51.821	6.399	39.065	6.507	0.004	29.964	0.358	0	300	12.4	41.8	2.9	0.156	0.153	0.0037	3.65	3.1
308	5/27/1999	1:48:14 PM	0	26.198	24.423	25.793	26.489	22.853	33.799	44.136	51.486	6.311	38.456	6.507	0.004	30.01	0.351	0.003	301	12.5	41.3	2.8	0.153	0.150	0.0036	3.63	3.1
309	5/27/1999	1:49:15 PM	0	26.278	24.423	25.873	26.329	22.612	33.833	43.871	51.12	6.351	38.49	6.507	0.004	29.902	0.346	0	302	12.4	41.1	2.8	0.151	0.147	0.0036	3.59	3.1
310	5/27/1999	1:50:15 PM	0	26.233	24.377	25.827	26.444	22.406	33.754	43.857	51.212	6.359	38.862	6.507	0.004	29.948	0.343	0.003	303	12.4	41.4	2.9	0.150	0.146	0.0035	3.54	3.0
311	5/27/1999	1:51:15 PM	0	26.313	24.377	25.827	26.204	22.406	33.596	44.26	51.425	6.12	39.2	6.599	0.004	29.487	0.342	0	304	12.2	41.7	2.9	0.149	0.146	0.0035	3.50	3.0
312	5/27/1999	1:52:15 PM	0	26.313	24.412	25.862	26.284	22.119	34.025	44.818	52.004	6.096	39.031	6.568	0.004	29.395	0.339	0.003	305	12.2	41.9	2.9	0.148	0.144	0.0034	3.45	2.9
313	5/27/1999	1:53:15 PM	0	26.347	24.286	25.862	26.319	22.038	34.138	44.818	51.76	5.848	39.133	6.26	0.05	29.902	0.943	0	306	12.4	42.0	2.9	0.412	0.402	0.0096	9.57	8.1
314	5/27/1999	1:54:15 PM	0	26.382	24.366	25.896	26.353	22.119	33.901	44.539	51.76	6.032	39.673	6.353	0.004	29.702	0.608	0	307	12.3	42.1	2.9	0.265	0.259	0.0061	6.15	5.2
315	5/27/1999	1:55:15 PM	0	26.337	24.401	25.851	26.193	22.073	33.777	44.322	51.181	5.936	39.843	6.199	0.004	29.595	0.518	0.003	308	12.3	42.1	2.9	0.226	0.221	0.0052	5.25	4.5
316	5/27/1999	1:56:15 PM	0	26.417	24.401	25.966	26.262	21.947	33.777	44.57	51.76	6.08	39.471	6.26	0.004	29.564	0.464	0	309	12.3	42.0	2.9	0.203	0.197	0.0047	4.69	4.0
317	5/27/1999	1:57:15 PM	0	26.326	24.31	25.966	26.262	21.82	33.846	45.066	52.34	6.144	38.964	6.322	0.004	29.503	0.431	0	310	12.2	42.0	2.9	0.188	0.183	0.0044	4.36	3.7
318	5/27/1999	1:58:15 PM	0	26.361	24.31	25.92	26.297	21.89	33.564	44.539	51.76	6.128	39.437	6.322	0.004	29.395	0.409	0	311	12.2	42.0	2.9	0.179	0.174	0.0041	4.14	3.5
319	5/27/1999	1:59:16 PM	0	26.361	24.345	25.875	26.252	22.051	32.965	44.446	51.73	6.207	39.538	6.322	0.004	29.441	0.391	0	312	12.2	42.0	2.9	0.171	0.167	0.0040	3.97	3.4
320	5/27/1999	2:00:16 PM	0	26.315	24.299	25.704	26.081	22.167	32.806	45.128	52.309	6.215	39.369	6.383	0.004	29.365	0.378	0	313	12.2	42.2	2.9	0.165	0.162	0.0038	3.83	3.3
321	5/27/1999	2:01:16 PM	0	26.27	24.334	25.624	25.841	22.282	32.762	44.694	51.699	6.128	39.268	6.383	0.004	29.318	0.364	0	314	12.2	42.0	2.9	0.159	0.156	0.0037	3.72	3.2
322	5/27/1999	2:02:16 PM	0	26.145	24.289	25.624	26.001	22.362	32.558	44.384	51.395	6.072	39.403	6.383	0.004	29.334	0.357	0	315	12.2	41.9	2.9	0.156	0.153	0.0037	3.66	3.1
323	5/27/1999	2:03:16 PM	0	26.225	24.289	25.499	25.956	22.317	32.558	44.229	51.486	6.144	39.504	6.414	0.004	29.426	0.348	0	316	12.2	41.9	2.9	0.152	0.150	0.0036	3.58	3.0
324	5/27/1999	2:04:16 PM	0	26.145	24.324	25.499	25.911	22.513	32.276	45.004	51.974	6.136	39.065	6.414	0.05	29.411	0.343	0	317	12.2	42.0	2.9	0.150	0.148	0.0035	3.51	3.0

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
325	5/27/1999	2:05:16 PM	0	26.099	24.324	25.453	25.911	22.593	32.355	44.477	51.852	6.16	39.471	6.414	0.004	29.38	0.339	0.003	318	12.2	42.0	2.9	0.148	0.146	0.0035	3.48	3.0
326	5/27/1999	2:06:16 PM	0	26.054	24.243	25.373	25.945	22.628	32.072	44.632	51.76	6.16	39.538	6.414	0.004	29.365	0.334	0	319	12.2	42.1	2.9	0.146	0.144	0.0034	3.43	2.9
327	5/27/1999	2:07:16 PM	0	25.974	24.278	25.328	25.945	22.708	32.152	44.353	51.606	6.168	39.64	6.445	0.004	29.349	0.33	0	320	12.2	42.0	2.9	0.144	0.143	0.0034	3.40	2.9
328	5/27/1999	2:08:17 PM	0	26.009	24.278	25.203	25.865	22.869	31.631	45.004	51.852	5.952	39.64	5.921	0.004	29.887	0.929	0	321	12.4	42.3	2.9	0.406	0.403	0.0095	9.53	8.1
329	5/27/1999	2:09:17 PM	0	25.849	24.313	25.248	25.98	23.11	31.358	44.88	51.791	5.968	39.741	6.383	0.004	29.457	0.604	0	322	12.2	42.3	2.9	0.264	0.262	0.0062	6.19	5.3
330	5/27/1999	2:10:17 PM	0	25.814	24.278	25.123	25.98	23.386	30.837	44.911	52.065	6.104	39.437	6.383	0.004	29.441	0.506	0	323	12.2	42.2	2.9	0.221	0.220	0.0052	5.22	4.4
331	5/27/1999	2:11:17 PM	0	25.814	24.233	25.043	26.185	23.753	30.599	45.035	52.279	6.072	39.437	6.445	0.004	29.457	0.454	0	324	12.2	42.2	2.9	0.198	0.198	0.0047	4.69	4.0
332	5/27/1999	2:12:17 PM	0	25.734	24.278	25.088	26.3	23.913	30.485	44.725	52.126	6.168	39.065	6.445	0.004	29.411	0.421	0	325	12.2	41.9	2.9	0.184	0.183	0.0044	4.38	3.7
333	5/27/1999	2:13:17 PM	0	25.654	24.359	25.008	26.345	24.164	30.246	44.477	51.76	6.048	39.437	6.507	0.004	29.303	0.399	0	326	12.2	42.0	2.9	0.174	0.174	0.0042	4.15	3.5
334	5/27/1999	2:14:17 PM	0	25.619	24.324	25.008	26.551	24.36	30.246	45.128	52.553	6.183	39.065	6.507	0.05	29.411	0.381	0	327	12.2	42.1	2.9	0.166	0.166	0.0040	3.95	3.4
335	5/27/1999	2:15:17 PM	0	25.539	24.243	25.018	26.676	24.486	30.132	44.787	51.974	6.056	39.166	6.538	0.004	29.334	0.368	0	328	12.2	42.0	2.9	0.161	0.161	0.0038	3.83	3.3
336	5/27/1999	2:16:17 PM	0	25.504	24.289	24.938	26.676	24.646	30.177	44.446	51.791	6.191	39.2	6.568	0.004	29.395	0.36	0	329	12.2	41.8	2.9	0.157	0.157	0.0038	3.76	3.2
337	5/27/1999	2:17:17 PM	0	25.47	24.254	24.903	26.801	24.611	30.54	45.035	52.065	6.056	39.031	6.568	0.004	29.349	0.35	0	330	12.2	42.0	2.9	0.153	0.153	0.0036	3.64	3.1
338	5/27/1999	2:18:17 PM	0	25.515	24.299	24.869	26.766	24.416	30.903	44.632	52.248	6.207	39.234	6.568	0.05	29.334	0.342	0	331	12.2	41.9	2.9	0.149	0.150	0.0036	3.57	3.0
339	5/27/1999	2:19:18 PM	0	25.435	24.299	24.789	26.766	24.256	31.027	44.601	52.096	6.239	38.964	6.599	0.004	29.303	0.336	0.003	332	12.2	41.8	2.9	0.147	0.148	0.0035	3.53	3.0
340	5/27/1999	2:20:18 PM	0	25.4	24.265	24.754	26.777	24.221	31.152	44.601	51.821	6.112	38.964	6.599	0.004	0	0.332	0	333	0.0	41.8	2.9	0.145	0.146	0.0035	3.49	3.0
341	5/27/1999	2:21:18 PM	0	25.365	24.31	24.799	26.697	24.026	31.707	44.725	52.004	6.128	39.065	6.599	0.004	29.288	0.327	0	334	12.2	41.9	2.9	0.143	0.144	0.0034	3.43	2.9
342	5/27/1999	2:22:18 PM	1	25.365	24.275	24.799	26.617	23.624	32.024	4.122	52.035	5.761	-1.606	47.032	71.038	29.18	0.011	0	335	12.1	1.3	0.1	0.005	0.005	0.0038	3.84	3.3
343	5/27/1999	2:23:18 PM	0	25.251	24.275	24.765	26.662	23.348	32.307	43.423	51.029	5.896	38.49	7	0.004	29.626	0.733	0.003	336	12.3	41.0	2.8	0.320	0.322	0.0079	7.86	6.7
344	5/27/1999	2:24:18 PM	0	25.251	24.275	24.604	26.502	22.868	32.703	45.004	51.791	5.904	39.64	6.199	0.004	29.487	0.57	0	337	12.2	42.3	2.9	0.249	0.252	0.0059	5.95	5.1
345	5/27/1999	2:25:18 PM	0	25.216	24.321	24.604	26.422	22.786	32.941	44.911	52.004	6.064	39.403	6.383	0.004	29.457	0.486	0	338	12.2	42.2	2.9	0.212	0.215	0.0051	5.09	4.3
346	5/27/1999	2:26:18 PM	0	25.17	24.275	24.604	26.182	22.59	33.223	45.128	52.37	6.104	39.504	6.445	0.004	29.334	0.44	0	339	12.2	42.3	2.9	0.192	0.194	0.0046	4.59	3.9
347	5/27/1999	2:27:18 PM	1	25.251	24.275	24.604	26.182	22.384	33.337	4.37	52.431	5.896	-1.133	47.155	71.038	29.103	0.054	0	340	12.1	1.6	0.1	0.024	0.024	0.0147	14.73	12.5
348	5/27/1999	2:28:18 PM	0	25.125	24.356	24.524	26.182	22.303	33.653	43.764	51.517	5.952	38.794	6.938	0.004	29.702	0.733	0	341	12.3	41.3	2.8	0.320	0.324	0.0079	7.86	6.7
349	5/27/1999	2:29:19 PM	0	25.045	24.31	24.399	25.897	22.097	33.529	44.694	52.004	6.072	39.335	6.353	0.004	29.518	0.571	0	342	12.3	42.0	2.9	0.249	0.254	0.0060	6.03	5.1
350	5/27/1999	2:30:19 PM	0	25.045	24.39	24.559	26.092	22.097	33.767	44.539	51.882	6.04	39.403	6.414	0.004	29.503	0.487	0.003	343	12.2	42.0	2.9	0.213	0.215	0.0051	5.13	4.4
351	5/27/1999	2:31:19 PM	0	24.999	24.265	24.433	26.012	22.051	33.326	44.57	51.882	6.04	39.302	6.476	0.004	29.318	0.437	0	344	12.2	41.9	2.9	0.191	0.194	0.0046	4.62	3.9
352	5/27/1999	2:32:19 PM	1	25.06	24.345	24.388	25.966	21.971	33.44	4.277	52.096	5.832	-1.235	47.062	71.038	29.057	0.013	0	345	12.1	1.5	0.1	0.006	0.006	0.0038	3.80	3.2
353	5/27/1999	2:33:19 PM	0	25.034	24.299	24.388	26.046	22.006	33.44	44.105	51.943	6.008	39.133	6.815	0.004	29.58	0.733	0.003	346	12.3	41.6	2.9	0.320	0.326	0.0078	7.82	6.7
354	5/27/1999	2:34:19 PM	0	24.989	24.334	24.342	26.081	21.88	33.553	44.601	51.456	5.968	39.471	6.229	0.004	29.503	0.557	0	347	12.2	42.0	2.9	0.243	0.248	0.0059	5.89	5.0
355	5/27/1999	2:35:19 PM	0	24.863	24.334	24.342	26.116	21.834	33.192	44.725	51.943	6.072	39.437	6.445	0.004	29.503	0.476	0.003	348	12.2	42.1	2.9	0.208	0.212	0.0050	5.03	4.3
356	5/27/1999	2:36:19 PM	0	24.943	24.243	24.297	26.116	22.11	32.672	44.477	51.517	5.968	39.031	6.414	0.004	29.318	0.434	0	349	12.2	41.8	2.9	0.189	0.193	0.0046	4.63	3.9
357	5/27/1999	2:37:20 PM	1	24.978	24.324	24.332	25.831	22.11	32.672	3.874	51.76	5.777	-1.268	47.032	71.084	29.119	0.011	0	350	12.1	1.3	0.1	0.005	0.005	0.0038	3.76	3.2
358	5/27/1999	2:38:20 PM	0	24.853	24.278	24.286	25.785	22.226	32.469	44.353	52.065	5.936	38.964	6.722	0.004	29.595	0.74	0	351	12.3	41.7	2.9	0.323	0.330	0.0079	7.91	6.7
359	5/27/1999	2:39:20 PM	0	24.808	24.278	24.286	25.865	22.306	32.389	44.818	51.974	6.016	39.606	6.26	0.004	29.533	0.559	0	352	12.3	42.2	2.9	0.244	0.249	0.0059	5.90	5.0
360	5/27/1999	2:40:20 PM	0	24.808	24.233	24.286	25.82	22.341	32.072	44.198	51.334	6.016	39.099	6.476	0.004	29.365	0.474	0	353	12.2	41.6	2.9	0.207	0.211	0.0051	5.07	4.3
361	5/27/1999	2:41:20 PM	0	24.727	24.233	24.116	25.9	22.583	[illegible]	44.725	51.974	6.128	39.741	6.476	0.004	29.318	0.432	0	354	12.2	42.2	2.9	0.189	0.193	0.0046	4.58	3.9
362	5/27/1999	2:42:20 PM	0	24.808	24.233	24.241	25.82	22.985	31.234	4.091	51.852	5.785	-1.099	47.001	71.13	29.011	0.011	0	355	12.0	1.5	0.1	0.005	0.005	0.0033	3.28	2.8
363	5/27/1999	2:43:20 PM	0	24.727	24.233	24.241	25.96	23.261	30.872	44.415	51.669	5.896	39.504	6.538	0.004	29.472	0.691	0	356	12.2	42.0	2.9	0.302	0.308	0.0073	7.34	6.3
364	5/27/1999	2:44:20 PM	0	24.647	24.233	24.241	26.06	23.582	30.599	44.973	51.913	5.912	39.64	6.291	0.004	29.411	0.542	0	357	12.2	42.3	2.9	0.237	0.242	0.0057	5.71	4.9
365	5/27/1999	2:45:20 PM	0	24.727	24.278	24.161	26.14	23.868	30.44	44.694	51.913	6.136	39.775	6.363	0.004	29.38	0.466	0	358	12.2	42.2	2.9	0.203	0.208	0.0049	4.93	4.2
366	5/27/1999	2:46:20 PM	0	24.692	24.198	24.081	26.345	24.164	30.326	44.911	52.37	6.088	39.64	6.476	0.004	29.165	0.426	0	359	12.1	42.3	2.9	0.186	0.191	0.0045	4.51	3.8
367	5/27/1999	2:47:20 PM	0	24.692	24.278	24.206	26.425	24.315	30.326	35.303	51.547	5.88	29.632	15.567	0.05	30.025	0.314	0	360	12.5	32.5	2.2	0.137	0.140	0.0043	4.32	3.7
368	5/27/1999	2:48:21 PM	0	24.612	24.243	24.171	26.551	24.44	30.246	44.415	51.669	5.88	39.369	6.507	0.004	29.533	0.684	0	361	12.3	41.9	2.9	0.299	0.306	0.0073	7.30	6.2
369	5/27/1999	2:49:21 PM	0	24.623	24.243	24.137	26.676	24.566	30.132	45.531	52.126	5.976	39.775	5.963	0.004	29.38	0.537	0	362	12.2	42.7	2.9	0.234	0.240	0.0056	5.63	4.8
370	5/27/1999	2:50:21 PM	0	24.668	24.254	24.137	26.801	24.726	30.096	44.973	51.974	6.008	39.707	6.168	0.004	29.303	0.462	0	363	12.2	42.3	2.9	0.202	0.207	0.0049	4.88	4.2
371	5/27/1999	2:51:21 PM	0	24.588	24.254	24.102	26.801	24.771	30.143	44.663	51.606	6.088	39.978	6.199	0.004	29.334	0.423	0	364	12.2	42.3	2.9	0.185	0.189	0.0045	4.48	3.8
372	5/27/1999	2:52:21 PM	0	24.714	24.219	24.067	26.846	24.737	30.506	33.319	51.151	5.8	28.72	17.478	0.05	30.025	0.011	0	365	12.5	31.0	2.1	0.005	0.005	0.0002	0.16	0.1
373	5/27/1999	2:53:21 PM	0	24.599	24.265	24.032	26.891	24.542	30.789	44.539	51.699	5.856	39.2	6.568	0.004	29.503	0.674	0.003	366	12.2	41.9	2.9	0.294	0.302	0.0072	7.22	6.1
374	5/27/1999	2:54:21 PM	0	24.564	24.23	23.998	26.777	24.346	30.993	45.035	52.004	5.968	39.673	6.291	0.004	29.411	0.532	0	367	12.2	42.4	2.9	0.232	0.239	0.0056	5.64	4.8
375	5/27/1999	2:55:21 PM	0	24.529	24.195	24.043	26.742	24.151	31.197	44.663	51.974	6.024	39.538	6.353	0.004	29.303	0.46	0	368	12.2	42.1	2.9	0.201	0.206	0.0049	4.90	4.2
376	5/27/1999	2:56:21 PM	0	24.494	24.241	24.008	26.788	23.956	31.956	44.942	52.309	6.144	39.166	6.414	0.004	29.257	0.422	0	369	12.1	42.1	2.9	0.184	0.189	0.0045	4.51	3.8
377	5/27/1999	2:57:21 PM	0	24.575	24.286	23.928	26.673	23.6	32.397	36.078	51.334	5.832	30.714	14.365	0.004	29.933	0.622	0	370	12.4	33.4	2.3	0.272	0.280	0.0084	8.38	7.1
378	5/27/1999	2:58:22 PM	0	24.54	24.286	23.974	26.673	23.279	32.714	44.322	51.606	5.88	39.437	6.538	0.004	29.487	0.658	0	371	12.2	41.9	2.9	0.287	0.296	0.0071	7.06	6.0
379	5/27/1999	2:59:22 PM	0	24.505	24.206	23.893	26.593	23.164	33.031	44.911	52.126	5.936	39.369	6.322	0.004	29.395	0.527	0	372	12.2	42.1	2.9	0.230	0.237	0.0056	5.63	4.8
380	5/27/1999	3:00:22 PM	0	24.425	24.332	23.859	26.399	22.923	33.076	44.973	52.279	6.008	39.268	6.445	0.004	29.334	0.456	0	373	12.2	42.1	2.9	0.199	0.206	0.0049	4.88	4.2
381	5/27/1999	3:01:22 PM	0	24.425	24.332	23.813	26.559	22.762	33.031	45.128	52.309	6.08	39.673	6.476	0.004	29.257	0.417	0	374	12.1	42.4	2.9	0.182	0.188	0.0044	4.44	3.8
382	5/27/1999	3:02:22 PM	0	24.505	24.206	23.778	26.319	22.601	33.472	37.379	51.151	5.769	31.898	13.194	0.004	29.917	1.158	0.003	375	12.4	34.6	2.4	0.506	0.523	0.0151	15.11	12.9
383	5/27/1999	3:03:22 PM	0	24.345	24.332	23.859	26.399	22.556	33.506	44.384	51.576	5.896	39.2	6.476	0.004	29.441	0.654	0	376	12.2	41.8	2.9	0.285	0.295	0.0071	7.06	6.0
384	5/27/1999	3:04:22 PM	0	24.299	24.286	23.813	26.353	22.314	33.664	44.725	51.821	6.008	39.504	6.229	0.004	29.318	0.523	0	377	12.2	42.1	2.9	0.228	0.236	0.0056	5.61	4.8
385	5/27/1999	3:05:22 PM	0	24.299	24.286	23.733	26.228	22.314	33.585	44.88	51.652	6.048	39.504	6.383	0.004	29.288	0.455	0	378	12.2	42.2	2.9	0.199	0.206	0.0049	4.88	4.2
386	5/27/1999	3:06:22 PM	0	24.254	24.241	23.687	26.353	22.108	33.619	44.88	52.035	6.008	39.403	6.414	0.004	29.242	0.414	0	379	12.1	42.1	2.9	0.181	0.188	0.0045	4.45	3.8
387	5/27/1999	3:07:22 PM	0	24.334	24.241	23.687	26.308	22.108	33.698	34.714	51.364	5.816	28.551	15.906	0.05	29.979	0.011	0.003	380	12.4	31.6	2.2	0.005	0.005	0.0002	0.16	0.1
388	5/27/1999	3:08:22 PM	0	24.208	24.275	23.642	26.342	22.062	33.653	44.694	52.157	6	39.538	6.568	0.004	29.426	0.672	0.003	381	12.2	42.1	2.9	0.293	0.305	0.0072	7.24	6.2
389	5/27/1999	3:09:22 PM	0	24.163	24.275	23.642	26.182	22.142	33.371	44.911	51.882	5.944	39.538	6.353	0.004	29.303	0.516	0	382	12.2	42.2	2.9	0.225	0.234	0.0055	5.54	4.7
390	5/27/1999	3:10:22 PM	0	24.163	24.23	23.551	26.217	22.177	33.054	44.973	52.279	6.112	39.437	6.445	0.004	29.288	0.451	0	383	12.2	42.2	2.9	0.197	0.205	0.0049	4.86	4.1
391	5/27/1999	3:11:22 PM	0	24.117	24.265	23.551	26.092	22.293	32.772	45.128	52.218	6.016	39.606	6.476	0.004	29.242	0.412	0	384	12.1	42.4	2.9	0.180	0.187	0.0044	4.42	3.8
392	5/27/1999	3:12:22 PM	0	24.198	24.219	23.505	26.206	22.464	32.455	35.965	51.456	5.761	30.004	14.612	0.004	29.825	0.586	0	385	12.4	33.0	2.3	0.256	0.267	0.0061	8.09	6.9
393	5/27/1999	3:13:23 PM	0	24.152	24.219	23.505	26.046	22.488	32.331	44.364	51.669	5.968	39.504	6.383	0.004	29.472	0.658	0	386	12.2	41.9	2.9	0.287	0.300	0.0071	7.14	6.1
394	5/27/1999	3:14:23 PM	0	24.072	24.219	23.586	26.046	22.569	32.128	44.508	51.456	5.968	39.471	6.383	0.004	29.38	0.521	0	387	12.2	42.0	2.9	0.227	0.237	0.0056	5.64	4.8
395	5/27/1999	3:15:23 PM	0	24.072	24.219	23.46	25.966	22.604	32.331	44.725	52.004	6.072	39.403	6.507	0.004	29.226	0.45	0	388	12.1	42.1	2.9	0.196	0.205	0.0049	4.88	4.2
396	5/27/1999	3:16:23 PM	0	24.072	24.254	23.46	25.886	22.684	32.128	45.004	52.401	6.096	39.538	6.568	0.004	29.334	0.412	0	389	12.2	42.3	2.9	0.180	0.188	0.0044	4.44	3.8
397	5/27/1999	3:17:23 PM	0	24.107	24.254	23.46	25.921	22.684	31.924	32.668	51.456	5.888	27.367	17.848	0.05	30.025	0.011	0.003	390	12.5	30.0	2.1	0.005	0.005	0.0002	0.17	0.1
398	5/27/1999	3:18:23 PM	0	23.961	24.254	23.414	26.001	23.006	31.572	44.446	51.791	6.048	39.369	6.476	0.004	29.441	0.655	0	391	12.2	41.9	2.9	0.286	0.299	0.0071	7.14	6.1
399	5/27/1999	3:19:23 PM	0	23.946	24.254	23.46	26.081	23.247	31.21	45.345	52.218	6.032	39.944	6.26	0.004	29.334	0.524	0.003	392	12.2	42.6	2.9	0.229	0.239	0.0056	5.60	4.8
400	5/27/1999	3:20:23 PM	0	23.946	24.254	23.46	26.081	23.648	31.017	44.818	51.821	5.976	39.471	6.445	0.004	29.288	0.451	0	393	12.2	42.1	2.9	0.197	0.206	0.0049	4.88	4.2
401	5/27/1999	3:21:23 PM	0	23.946	24.299	23.46	26.241	23.809	30.778	44.663	51.821	5.968	39.538	6.445	0.004	29.242	0.414	0	394	12.1	42.1	2.9	0.181	0.189	0.0045	4.48	3.8
402	5/27/1999	3:22:24 PM	1	23.946	24.174	23.379	26.366	24.096	30.744	4.215	52.736	5.896	-1.133	47.34	71.13	28.934	0.011	0	395	12.0	1.5	0.1	0.005	0.005	0.0033	3.26	2.8
403	5/27/1999	3:23:24 PM	0	23.911	24.219	23.345	26.526	24.256	30.665	44.88	52.126	5.928	39.403	6.414	-0.042	29.503	0.709	0	396	12.2	42.1	2.9	0.310	0.324	0.0077	7.70	6.6
404	5/27/1999	3:24:24 PM	0	23.957	24.265	23.39	26.652	24.461	30.506	44.787	51.334	5.872	39.843	6.168	0.004	29.334	0.536	0	397	12.2	42.3	2.9	0.234	0.245	0.0058	5.79	4.9
405	5/27/1999	3:25:24 PM	0	23.957	24.184	23.47	26.777	24.587	30.392	44.849	51.699	5.992	39.471	6.383	0.004	29.303	0.457	0	398	12.2	42.2	2.9	0.199	0.208	0.0049	4.94	4.2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.07c

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
406	5/27/1999	3:26:24 PM	0	23.922	24.23	23.516	26.857	24.667	30.437	44.942	52.004	6.064	39.369	6.414	0.004	29.288	0.413	0	399	12.2	42.2	2.9	0.180	0.188	0.0045	4.46	3.8
407	5/27/1999	3:27:24 PM	1	24.048	24.195	23.481	27.027	24.632	30.641	4.122	52.096	5.753	-1.235	47.216	71.13	28.965	0.011	0	400	12.0	1.4	0.1	0.005	0.005	0.0035	3.47	3.0
408	5/27/1999	3:28:24 PM	0	24.013	24.241	23.527	27.107	24.518	31.004	44.477	51.852	6.024	39.065	6.414	0.004	29.457	0.684	0	401	12.2	41.8	2.9	0.299	0.311	0.0075	7.45	6.3
409	5/27/1999	3:29:25 PM	0	24.059	24.206	23.446	27.153	24.403	31.207	44.725	51.882	6.008	39.707	6.229	0.004	29.349	0.525	0	402	12.2	42.2	2.9	0.229	0.239	0.0057	5.67	4.8
410	5/27/1999	3:30:25 PM	0	23.978	24.171	23.457	27.038	24.288	31.491	44.57	51.882	6.024	39.538	6.383	0.004	29.226	0.455	0.003	403	12.1	42.1	2.9	0.199	0.207	0.0049	4.93	4.2
411	5/27/1999	3:31:25 PM	0	23.944	24.171	23.503	27.004	24.047	31.808	44.973	52.431	6.128	39.876	6.445	0.004	29.257	0.416	0	404	12.1	42.4	2.9	0.182	0.189	0.0045	4.47	3.8
412	5/27/1999	3:32:25 PM	0	23.989	24.217	23.503	26.924	23.772	32.487	45.004	52.035	6.048	39.707	6.476	0.004	29.165	0.388	0.003	405	12.1	42.4	2.9	0.169	0.177	0.0042	4.17	3.6
413	5/27/1999	3:33:25 PM	0	23.989	24.262	23.549	26.809	23.577	33.2	44.725	51.639	5.856	39.437	6.322	0.004	29.656	0.929	0	406	12.3	42.1	2.9	0.406	0.423	0.0100	10.04	8.5
414	5/27/1999	3:34:25 PM	0	24.035	24.262	23.549	26.809	23.175	33.245	44.818	51.821	5.928	39.809	6.199	0.004	29.334	0.574	0.003	407	12.2	42.3	2.9	0.251	0.261	0.0062	6.17	5.3
415	5/27/1999	3:35:25 PM	0	24.035	24.262	23.549	26.649	22.853	33.641	45.128	52.126	6.08	40.181	6.137	0.004	29.18	0.487	0	408	12.1	42.7	2.9	0.213	0.222	0.0052	5.19	4.4
416	5/27/1999	3:36:25 PM	0	24.035	24.262	23.549	26.569	22.773	33.561	45.841	52.797	6.104	39.876	6.26	0.004	29.211	0.432	0	409	12.1	42.9	3.0	0.189	0.196	0.0046	4.58	3.9
417	5/27/1999	3:37:25 PM	1	24.115	24.262	23.468	26.569	22.727	33.403	4.122	52.645	5.84	-1.032	47.309	71.084	28.858	0.072	0	410	12.0	1.5	0.1	0.031	0.033	0.0212	21.24	18.1
418	5/27/1999	3:38:25 PM	0	24.035	24.262	23.549	26.444	22.693	33.561	45.19	52.431	5.968	39.302	6.507	0.004	29.38	0.708	0	411	12.2	42.2	2.9	0.309	0.322	0.0076	7.62	6.5
419	5/27/1999	3:39:25 PM	0	24.069	24.217	23.503	26.524	22.566	34.149	45.066	51.699	5.928	39.741	6.044	0.004	29.318	0.547	0.003	412	12.2	42.4	2.9	0.239	0.249	0.0059	5.87	5.0
420	5/27/1999	3:40:26 PM	0	24.069	24.251	23.503	26.524	22.486	33.675	45.035	52.035	6.048	40.147	6.199	0.004	29.18	0.467	0.003	413	12.1	42.6	2.9	0.204	0.213	0.0050	4.99	4.2
421	5/27/1999	3:41:26 PM	0	24.024	24.171	23.538	26.479	22.279	34.026	45.097	52.37	6.064	39.572	6.229	0.004	29.088	0.423	0	414	12.1	42.3	2.9	0.185	0.192	0.0045	4.55	3.9
422	5/27/1999	3:42:26 PM	0	24.104	24.251	23.492	26.479	22.279	33.822	45.221	52.218	6.072	39.673	6.291	0.004	29.196	0.392	0	415	12.1	42.4	2.9	0.171	0.179	0.0042	4.21	3.6
423	5/27/1999	3:43:26 PM	0	24.059	24.241	23.492	26.388	22.153	34.217	43.392	52.218	5.88	37.915	8.017	0.004	29.533	1.055	0	416	12.3	40.7	2.8	0.461	0.481	0.0118	11.82	10.1
424	5/27/1999	3:44:26 PM	0	24.093	24.16	23.527	26.468	21.947	34.252	44.384	51.547	5.88	39.741	6.353	0.004	29.318	0.596	0.003	417	12.2	42.1	2.9	0.260	0.271	0.0064	6.45	5.5
425	5/27/1999	3:45:26 PM	0	24.048	24.195	23.561	26.342	21.901	33.97	44.539	51.547	5.888	39.775	6.414	0.004	29.242	0.497	0	418	12.1	42.2	2.9	0.217	0.226	0.0054	5.36	4.6
426	5/27/1999	3:46:26 PM	0	24.083	24.23	23.516	26.297	21.936	33.608	44.725	51.852	5.96	39.673	6.507	0.004	29.196	0.439	0	419	12.1	42.2	2.9	0.192	0.200	0.0047	4.74	4.0
427	5/27/1999	3:47:26 PM	0	24.163	24.184	23.551	26.252	21.971	33.134	39.797	51.852	5.816	34.433	11.222	0.004	29.641	1.218	0	420	12.3	37.1	2.6	0.532	0.554	0.0149	14.93	12.7
428	5/27/1999	3:48:27 PM	0	23.992	24.219	23.505	26.252	22.086	32.648	44.632	51.639	5.864	39.775	6.26	0.004	29.365	0.634	0	421	12.2	42.2	2.9	0.277	0.289	0.0068	6.84	5.8
429	5/27/1999	3:49:27 PM	0	24.072	24.219	23.505	26.126	22.167	32.569	45.283	51.791	5.92	39.978	6.014	0.004	29.211	0.512	0	422	12.1	42.6	2.9	0.224	0.233	0.0055	5.47	4.7
430	5/27/1999	3:50:27 PM	0	24.026	24.174	23.46	26.161	22.443	32.524	44.818	52.035	6.072	40.012	6.229	0.004	29.18	0.444	0	423	12.1	42.4	2.9	0.194	0.202	0.0048	4.77	4.1
431	5/27/1999	3:51:27 PM	0	23.981	24.128	23.414	26.196	22.443	32.241	45.035	52.004	6.04	39.572	6.26	0.004	29.088	0.407	0	424	12.1	42.3	2.9	0.178	0.186	0.0044	4.39	3.7
432	5/27/1999	3:52:27 PM	0	24.141	24.209	23.495	26.356	22.719	32.162	39.921	51.486	5.856	35.143	10.729	0.004	29.718	1.209	0	425	12.3	37.5	2.6	0.528	0.551	0.0147	14.67	12.5
433	5/27/1999	3:53:27 PM	0	24.061	24.289	23.575	26.276	22.88	31.527	44.911	51.943	5.944	39.538	6.353	0.004	29.395	0.633	0	426	12.2	42.2	2.9	0.276	0.288	0.0068	6.81	5.8
434	5/27/1999	3:54:27 PM	0	24.061	24.209	23.575	26.516	23.316	31.165	45.283	52.065	5.936	39.978	6.106	0.004	29.272	0.508	0	427	12.1	42.6	2.9	0.222	0.231	0.0054	5.42	4.6
435	5/27/1999	3:55:27 PM	0	24.061	24.289	23.575	26.516	23.638	30.927	44.842	52.065	6.024	39.809	6.322	0.004	29.211	0.445	0	428	12.1	42.4	2.9	0.194	0.202	0.0048	4.77	4.1
436	5/27/1999	3:56:27 PM	0	24.061	24.209	23.575	26.676	23.924	30.813	44.973	51.821	6.016	39.606	6.353	0.004	29.134	0.406	0	429	12.1	42.3	2.9	0.177	0.185	0.0044	4.36	3.7
437	5/27/1999	3:57:28 PM	0	24.061	24.209	23.495	26.596	24.165	30.575	-2.139	-1.718	0.415	-2.249	-0.119	0.004	-0.08	0.011	0.003	430	0.0	-2.2	-0.2	0.005	0.005	-0.0023	-2.28	-1.9
438																											
439	Most	Averages		25.3	23.6	24.8	26.1	23.9	33.3	43.0	51.6	6.2	37.4	8.0	2.0	29.7	0.435	0.0		12.3	40.2	2.8	0.190	0.191	0.004760	4.8	4.1
440	Data	Maximum		29.0	24.7	28.9	28.3	26.8	37.7	46.1	53.9	8.0	41.4	72.9	71.3	34.6	1.218	0.0		14.3	43.6	3.0	0.532	0.567	0.021245	21.2	18.1
441		Median		25.1	24.2	24.6	26.3	23.7	33.2	44.4	51.6	6.2	38.8	6.4	0.0	29.8	0.382	0.0		12.4	41.6	2.9	0.167	0.166	0.004026	4.0	3.4
442		Minimum		22.1	21.7	22.3	21.6	21.5	30.0	-6.9	40.1	5.4	-10.3	5.3	-0.2	27.7	0.011	0.0		11.5	-8.6	-0.6	0.005	0.005	-0.012188	-12.2	-10.4
443		Std Dev		1.2	1.0	1.3	1.2	1.4	1.8	7.2	0.7	0.2	7.2	7.5	11.8	0.4	0.191	0.0		0.2	7.2	0.5	0.083	0.086	0.002448	2.4	2.1
444		Number of Points Used		424	424	424	424	424	424	424	424	424	424	424	424	424	424	424		424	424	424	424	424	424	424	424
445																											
446	Selected	Averages		25.4	23.8	24.9	26.3	24.0	33.5	44.5	51.6	6.2	38.9	6.4	0.0	29.7	0.429	0.0		12.3	41.7	2.9	0.187	0.188	0.004512	4.5	3.8
447	Data	Maximum		29.0	24.7	28.9	28.3	26.8	37.7	45.8	52.8	6.5	40.2	8.0	0.1	30.5	1.055	0.0		12.6	42.9	3.0	0.461	0.481	0.011822	11.8	10.1
448	(outliers	Median		25.2	24.2	24.7	26.3	24.0	33.4	44.5	51.6	6.3	38.9	6.4	0.0	29.8	0.379	0.0		12.4	41.6	2.9	0.165	0.166	0.003957	4.0	3.4
449	were	Minimum		22.9	21.9	22.3	23.8	21.6	30.0	43.4	50.4	5.8	37.9	5.5	-0.1	29.1	0.302	0.0		12.1	40.7	2.8	0.132	0.133	0.003209	3.2	2.7
450	removed)	Std Dev		1.2	0.8	1.3	0.9	1.4	1.8	0.4	0.4	0.2	0.4	0.2	0.1	0.3	0.137	0.0		0.1	0.4	0.0	0.060	0.061	0.001461	1.5	1.2
451		Number of Points Used		369	369	369	369	369	369	369	369	369	369	369	369	369	369	369		369	369	369	369	369	369	369	369
452																											
453	For data	Averages		25.7	23.1	25.3	26.2	25.1	34.2	44.4	51.5	6.3	38.7	6.4	-0.1	29.9	0.387	0.0		12.4	41.6	2.9	0.169	0.167	0.004045	4.0	3.4
454	from the	Maximum		29.0	24.6	28.9	28.3	26.8	36.8	45.4	52.3	6.5	39.8	12.6	0.0	30.6	1.218	0.0		12.7	42.6	2.9	0.532	0.567	0.016155	16.2	13.7
455	30-minute	Median		25.4	23.1	24.9	26.3	25.3	34.2	44.4	51.5	6.3	38.8	6.4	-0.1	29.8	0.344	0.0		12.4	41.6	2.9	0.150	0.146	0.003526	3.5	3.0
456	backpulse	Minimum		22.9	21.9	22.3	23.8	23.1	31.8	38.0	50.4	6.0	32.1	5.5	-0.1	29.7	0.302	0.0		12.3	35.1	2.4	0.132	0.133	0.003209	3.2	2.7
457	frequency	Std Dev		1.5	0.8	1.6	1.3	1.1	1.3	0.7	0.3	0.1	0.6	0.5	0.0	0.2	0.138	0.0		0.1	0.6	0.0	0.060	0.061	0.001598	1.6	1.4
458	only	Number of Points Used		179	179	179	179	179	179	179	179	179	179	179	179	179	179	179		179	179	179	179	179	179	179	179
459																											
460	For data	Averages		25.4	24.4	24.9	26.4	23.0	33.2	44.3	51.6	6.2	38.8	6.5	0.0	29.5	0.443	0.0		12.2	41.5	2.9	0.193	0.194	0.004681	4.7	4.0
461	from the	Maximum		26.4	24.7	26.0	27.3	24.6	37.7	45.2	52.6	6.5	39.8	12.9	0.1	30.4	1.218	0.0		12.6	42.3	2.9	0.532	0.545	0.015905	15.9	13.5
462	15-minute	Median		25.4	24.4	24.9	26.4	22.8	32.8	44.3	51.6	6.2	38.7	6.5	0.0	29.8	0.382	0.0		12.4	41.5	2.9	0.167	0.167	0.004020	4.0	3.4
463	backpulse	Minimum		24.7	24.2	24.1	25.8	21.6	30.0	36.9	50.6	5.8	31.6	5.6	0.0	0.0	0.326	0.0		0.0	34.2	2.4	0.142	0.143	0.003399	3.4	2.9
464	frequency	Std Dev		0.6	0.1	0.6	0.3	0.9	2.2	0.8	0.3	0.1	0.8	0.6	0.0	2.8	0.157	0.0		1.1	0.8	0.1	0.068	0.069	0.001779	1.8	1.5
465	only	Number of Points Used		117	117	117	117	117	117	117	117	117	117	117	117	117	117	117		117	117	117	117	117	117	117	117
466																											
467	For data	Averages		24.4	24.2	23.8	26.4	23.0	32.3	44.2	51.9	6.0	39.0	6.9	0.0	29.4	0.555	0.0		12.2	41.6	2.9	0.242	0.251	0.006081	6.1	5.2
468	from the	Maximum		25.3	24.4	24.8	27.2	24.8	34.3	45.8	52.8	6.1	40.2	15.6	0.1	30.0	1.218	0.0		12.5	42.9	3.0	0.532	0.554	0.015107	15.1	12.9
469	5-minute	Median		24.2	24.3	23.6	26.4	22.7	32.5	44.8	51.9	6.0	39.5	6.4	0.0	29.3	0.510	0.0		12.2	42.2	2.9	0.223	0.232	0.005443	5.4	4.6
470	backpulse	Minimum		23.9	24.1	23.3	25.8	21.8	30.1	35.3	51.0	5.8	29.6	6.0	0.0	29.1	0.314	0.0		12.1	32.5	2.2	0.137	0.140	0.004172	4.2	3.6
471	frequency	Std Dev		0.4	0.0	0.4	0.3	0.9	1.2	2.0	0.3	0.1	2.1	1.8	0.0	0.2	0.175	0.0		0.1	2.0	0.1	0.076	0.079	0.002199	2.2	1.9
472	only	Number of Points Used		84	84	84	84	84	84	84	84	84	84	84	84	84	84	84		84	84	84	84	84	84	84	84

APPENDIX C

EXPERIMENTAL DATA: HIGH SOLIDS CONCENTRATION

Appendix Contents

1. Nomeclature sheet for data tables
2. Experimental data:

Fig.	Run	Solution	Done on
C1	2.14	7 wt% Solids	6/11/99
C2	2.14b	8 wt% Solids	6/16/99
C3	2.20b	5 to 16 wt% Solids	6/17/99

General Note: For measurement uncertainties see Appendix F

Special Notes:

a. The data for every test run are highlighted with two graphs: Filtrate Flux vs. Time and Permeability vs. Time. Those graphs include all the data taken during the run period.
b. The beginning and end of the data for most graphs show large deviations from the overall series of points. Those deviations were caused by backpulsing the filter that temporarily stopped the flow of filtrate.
c. All columns of data, in all the tables, are ended with several statistical values of that column, i.e., Average, Maximum, Median, Minimum, Standard Deviation, and Number of Points used (in calculating the 5 statistical quantities). Most of the data with time were maintain constant, and therefore the statistics are meaningful for normally distributed data, however Filtrate Flux and Permeability decrease with time and therefore are not normally distributed.
d. To calculate those quantities mentioned in item c, only those data points that start from the end of a backpulse to just before the ending backpulse were included. This is the reason why the quantity of Number of Points Used was given.
e. The data for the graphs, and all the data taken for the individual test run that the graphs represent, immediately follow the specific figure.
f. Run 2.14 was done after the test rig was cleaned due plugging when the solids concentration was increased from 0.5 wt% to between 10 and 15.wt%. In an attempt to unplug the test rig in a hurry the slurry was diluted with water. Therefore, the slurry for this run had a sodium concentration closer to 3 M instead of the target of 5.5 M. After the wash run another batch of slurry was made and a new run was done and called 2.14b.
g. Run 2.20b was not a steady-state run like 2.14 and 2.14b, where the filtrate returns to the slurry to maintain its concentration. Run 2.20b was done to successively make the slurry more concentrated until the filter plugged. That is why the Filtrate Flux graph of Fig. C3 appears to have steps. Starting with approximately 80 liters of post-washed slurry, approximately 7.3 liters of filtrate was removed 6 times and the remaining 36 liters just barely covered the bottom of the slurry reservoir. The run had to stop because the cooling coils were totally exposed and couldn't cool the slurry which became very hot and the pumps began to draw in air because the thick slurry

couldn't supply the suction line with slurry fast enough. Fortunately, the filter did not plug at all.

Nomenclature For Data Sheets
(See Figure 1: Main Test Rig - Pilot Scale Cross Flow for the Instrument Location)

Column	Heading		Full Heading	Explanation
A =	DATE	=	DATE	Day the test was done
B =	TIME	=	TIME	Time data entry was made
C =	SOLENOID	=	SOLENOID	1=yes, 0=no: for the pressure to the backpulse piston
D =	FLTRT (deg	=	FLTRT (deg C) T2	Filtrate Temperature in Filter at exit of the Filter Housing
E =	CL LOOP (c	=	CL LOOP (deg C) T3	Temperature of Liquid in the Cleaning Loop
F =	SL LOOP (c	=	SL LOOP (deg C) T1	Temperature of Liquid in the Slurry Loop at the Reservoir Tank
G =	UP AMB (de	=	UP AMB (deg C) T4	Ambient Temperature at the top of the Test Rig - 3rd level
H =	BOT AMB (	=	BOT AMB (deg C) T5	Ambient Temperature at the bottom of the Test Rig - 1st level
I =	T6 (deg C)	=	T6 (deg C) SPARE	Spare Thermocouple - Currently Not Being Used
J =	BOT DP (ps	=	BOT DP (psid) dP2	Differential Pressure between the Filter Slurry Entrance and the bottom Filtrate Exit
K =	FLTR (psig)	=	FLTR (psig) P1	Gauge Pressure at the Filter Slurry Entrance
L =	FLTR DP (p	=	FLTR DP (psid) dP1	Differential Pressure between the Filter Slurry Entrance and Exit
M =	TOP DP (ps	=	TOP DP (psig) dP3	Differential Pressure between the Filter Slurry Exit and the Top Filtrate Exit
N =	FLTRATE (	=	FLTRATE (psig) P2	Gauge Pressure at the Filter Filtrate Exit
O =	PISTON (ps	=	PISTON (psig) P3	Air Gauge Pressure Applied to Backpulse Piston
P =	SL FLOW (	=	SL FLOW (gpm) Q1	Flow Rate of the Slurry Flow
Q =	FLTR FLOV	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow
R =	V9	=		Spare Channel Not Used

The following columns are calculated results based on the appropriate columns

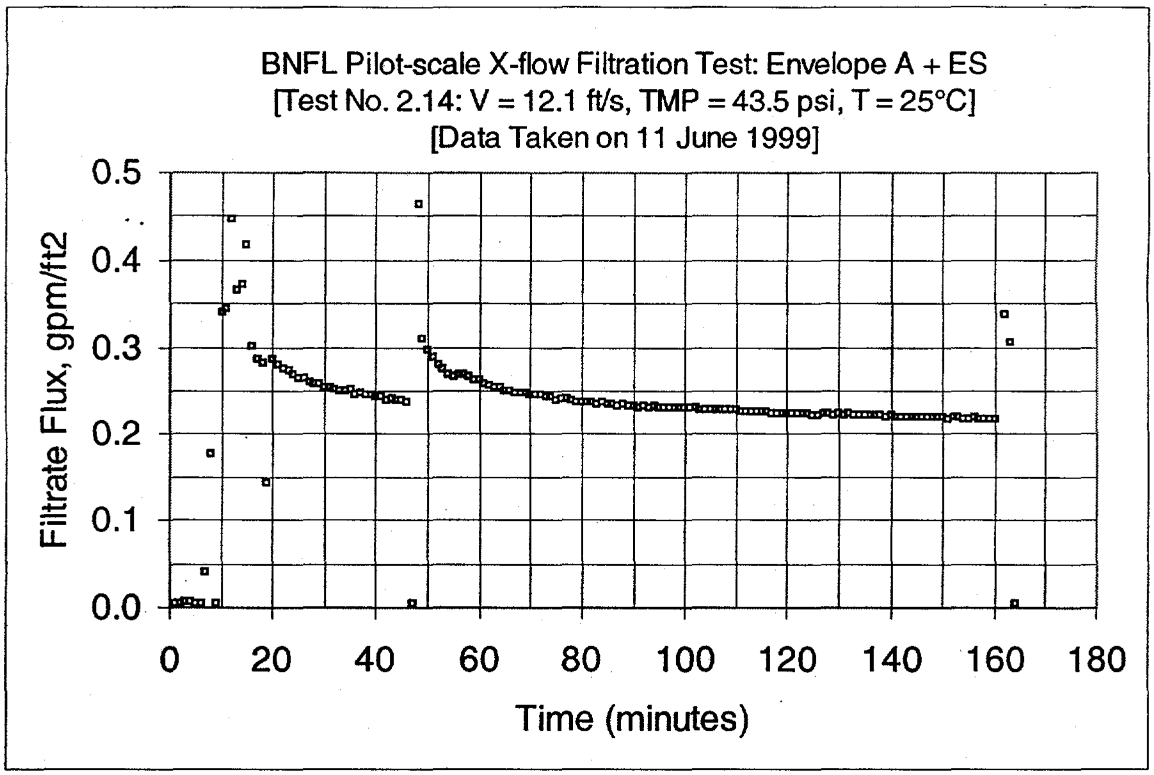
S =	Number	=	Number	Data number which is equivalent to 1 minute since this was the acquisition frequency
T =	Vel, ft/s	=	Vel, ft/s	Axial slurry velocity = [Column P] / 7.48 gal/ft2 / 60 sec/min / flow area (=0.005369 ft2*)
U =	TMP, PSI	=	TMP, PSI	Transmembrane Pressure = ([Column J] + [Column M])/2
V =	TMP, bar	=	TMP, bar	[Column U] / 14.504 bar/psi
W =	GPM/FT2	=	GPM/FT2	[Column Q] / inside diameter filter surface area (= 2.29 ft2**)
X =	GPM/FT2	=	GPM/FT2 at 25°C	Test Spec. correction factor: [Column W] x exp(2500 x ((1/(273+[Column T]))-(1/298)))
Y =	PERMIABILITY	=	PERMIABILITY (gpm/ft2/psi)	[Column X] / [Column U]
Z =	x 1000	=	PERMIABILITY x 1000	[Column Z] x 1000
AA =	PERMIABILITY	=	PERMIABILITY (m/day/bar)	[Column Y] x conversion factor (= 851.0145 m/day/bar / gpm/ft2/bar)

*Axial slurry flow area is based on 7 porous tubes with an inside diameter of 3/8 inch: 7 x pi / 4 * (0.375 inch / 12 inches/ft)^2 = 0.005369 ft2
**Inside diameter filter surface area for 7 tubes with an inside diameter of 3/8 inch, 40-inches long: 7 x pi x (0.375 inch) x 40 inches / 144 in^2/ft^2 = 2.29 ft2

Exceptions:
1. For Run 2.21b (Cleaning); This run was carried out over a three different periods on three days therefore there are two NUMBER COLUMNS: S & T. Column S is continuous and Column T is continuous but starts over for each period. All the columns to the right of Column S are shifted by one.
2. For Run 2.22b (Water); After July 10, 1999 a second filtrate flow meter was added to measure flow rates from 1.2 to 5 gpm. The final water test run (Run 2.22b) has an extra filtrate flow rate column. Column R, the spare column, was made the new flow rate:

R = | Q3, FLTR F | = | Q3, FLTR FLOW (gpm) | Flow Rate of the Filtrate Flow (above 1.2 gpm), Installed after 7/10/99

also Run 2.22b has two NUMBER columns (like Run 2.21b) so Exception 1 also applies.



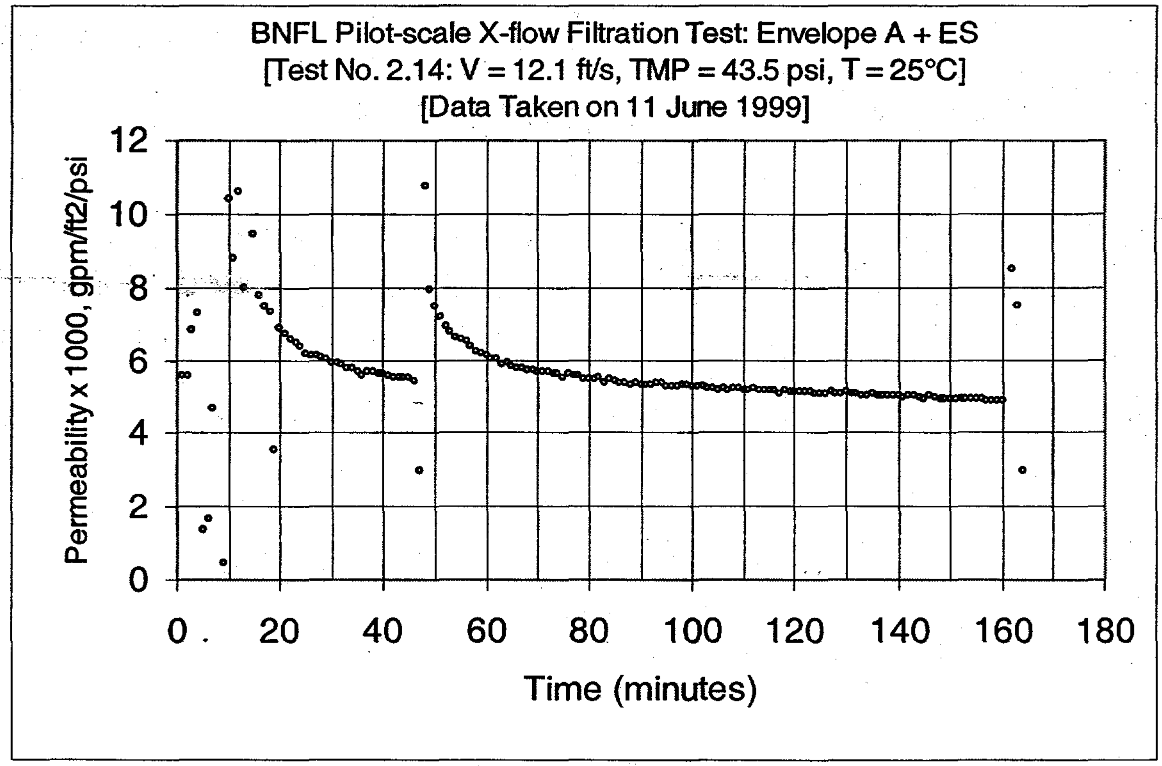


Figure C1: Test Run 2.14, 7 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.14

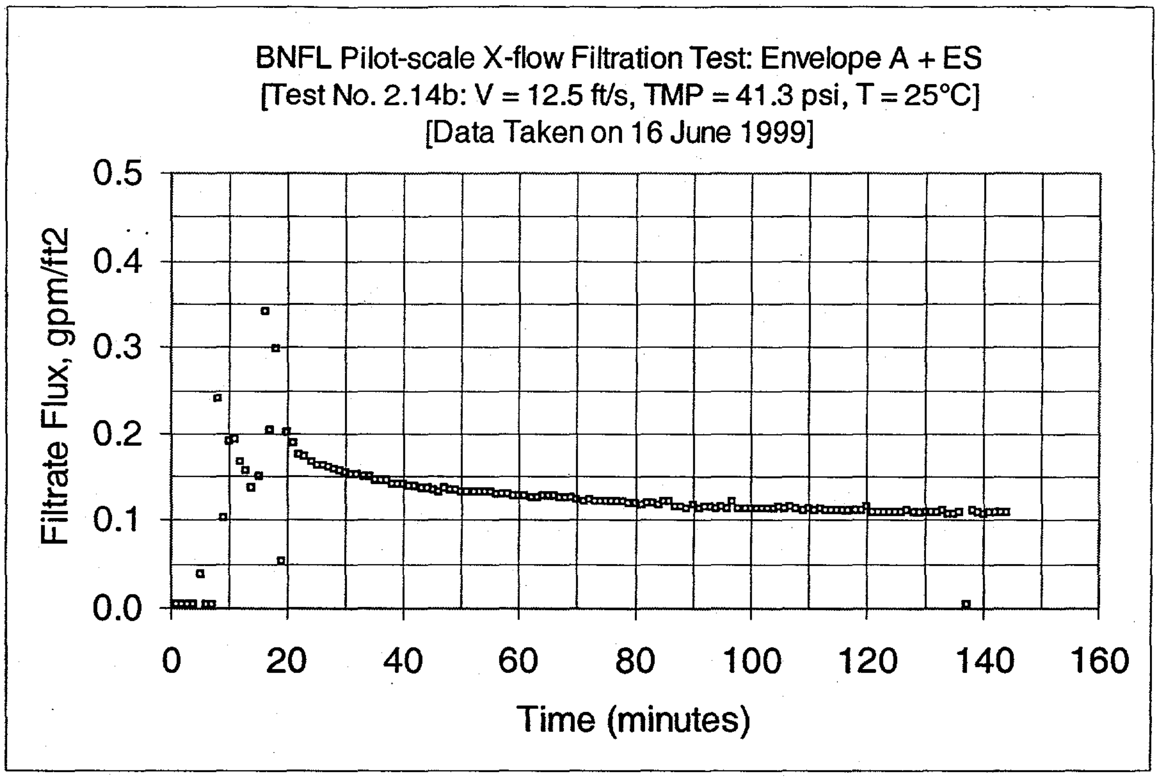
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/11/1999	7:29:57 AM	0	22.297	21.846	21.21	22.393	21.883	30.975	-0.062	-0.925	0.008	0.05	-0.119	-0.089	-0.095	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/11/1999	7:30:57 AM	0	22.342	21.846	21.291	22.313	21.802	31.179	-0.062	-0.925	0.008	0.016	-0.119	-0.089	-0.08	0.011	0									
5	6/11/1999	7:31:57 AM	0	22.422	21.846	21.21	22.313	21.641	31.258	-0.062	-0.956	0	0.016	-0.119	-0.089	-0.08	0.011	0									
6	6/11/1999	7:32:57 AM	0	22.342	21.846	21.21	22.313	21.561	[illegible].338	-0.062	-0.925	0.008	0.05	-0.119	-0.042	-0.08	0.011	0									
7	6/11/1999	7:33:58 AM	0	22.262	21.846	21.291	22.233	21.606	31.338	-0.093	-0.956	0.008	0.05	-0.119	-0.042	-0.08	0.011	0									
8	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
9	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE	PISTON (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
10	6/11/1999	8:26:37 AM	1	23.246	21.991	25.647	23.296	21.963	31.039	0.124	20.509	0.136	1.572	18.556	41.865	-0.08	0.011	0	1	0.0	0.8	0.1	0.005	0.005	0.0056	5.56	4.7
11	6/11/1999	8:27:53 AM	1	23.246	21.991	25.647	23.296	21.963	31.039	0.124	20.509	0.136	1.572	18.556	41.865	-0.08	0.011	0	2	0.0	0.8	0.1	0.005	0.005	0.0056	5.56	4.7
12	6/11/1999	8:28:54 AM	1	23.291	21.946	24.731	23.584	22.144	30.925	0.248	20.509	0.184	1.808	18.464	41.911	-0.08	0.016	0	3	0.0	1.0	0.1	0.007	0.007	0.0068	6.85	5.8
13	6/11/1999	8:29:54 AM	1	23.291	22.072	24.25	23.664	22.305	30.925	0.093	20.631	0.2	1.504	18.68	70.158	-0.08	0.013	0	4	0.0	0.8	0.1	0.006	0.006	0.0073	7.26	6.2
14	6/11/1999	8:30:54 AM	1	23.246	21.991	24.17	23.664	22.35	30.801	6.912	22.338	8.697	0.287	13.41	70.204	36.722	0.011	0	5	15.2	3.6	0.2	0.005	0.005	0.0014	1.37	1.2
15	6/11/1999	8:31:54 AM	1	23.291	22.072	24.49	23.744	22.43	30.766	5.455	24.32	6.606	0.354	16.954	70.204	33.681	0.011	0	6	14.0	2.9	0.2	0.005	0.005	0.0017	1.68	1.4
16	6/11/1999	8:32:54 AM	0	23.693	21.991	24.651	23.744	22.811	30.766	10.848	23.883	6.638	6.136	10.914	0.004	34.848	0.09	0	7	14.5	8.5	0.6	0.039	0.040	0.0047	4.67	4.0
17	6/11/1999	8:33:54 AM	0	24.175	21.991	24.731	23.744	22.672	30.573	12.956	25.631	4.739	9.855	10.729	0.004	28.458	0.404	0	8	11.8	11.4	0.8	0.176	0.178	0.0156	15.58	13.3
18	6/11/1999	8:34:54 AM	0	24.621	21.991	25.256	23.79	22.797	30.652	13.111	24.015	6.287	8.739	8.941	-0.042	32.114	0.011	0	9	13.3	10.9	0.8	0.005	0.005	0.0004	0.44	0.4
19	6/11/1999	8:35:54 AM	0	25.377	22.036	25.737	23.709	22.672	30.652	35.024	44.656	6.566	30.579	7.647	0.004	34.034	0.796	0	10	14.1	32.8	2.3	0.347	0.340	0.0104	10.38	8.8
20	6/11/1999	8:36:54 AM	0	25.823	22.036	26.137	23.79	22.797	30.697	41.068	50.676	5.386	37.205	7.647	0.004	31.085	0.812	0	11	12.9	39.1	2.7	0.354	0.343	0.0088	8.77	7.5
21	6/11/1999	8:37:54 AM	0	26.383	22.036	26.536	23.79	22.843	30.573	43.702	52.462	5.226	40.586	6.229	-0.042	29.902	1.07	0	12	12.4	42.1	2.9	0.467	0.447	0.0106	10.62	9.0
22	6/11/1999	8:38:55 AM	0	26.987	22.082	26.981	23.835	22.923	30.538	46.895	51.821	5.13	44.474	2.47	0.004	28.673	0.884	0	13	11.9	45.7	3.1	0.386	0.365	0.0080	7.99	6.8
23	6/11/1999	8:39:55 AM	0	26.748	22.001	27.46	23.915	22.888	30.538	19.155	51.242	5.346	13.033	30.236	0.004	29.825	0.913	0	14	12.4	16.1	1.1	0.399	0.372	0.0231	23.12	19.7
24	6/11/1999	8:40:55 AM	0	27.751	22.046	27.824	23.96	22.888	30.503	45.221	51.425	5.457	42.987	3.24	-0.042	30.916	1.031	0	15	12.8	44.1	3.0	0.450	0.416	0.0094	9.43	8.0
25	6/11/1999	8:41:55 AM	0	27.911	22.046	27.664	23.96	22.933	30.583	40.293	50.996	5.529	37.003	8.448	0.004	30.455	0.743	0	16	12.6	38.6	2.7	0.324	0.301	0.0078	7.79	6.6
26	6/11/1999	8:42:55 AM	0	27.751	22.092	27.47	24.005	22.933	30.866	40.262	51.09	5.513	36.496	9.034	-0.042	30.255	0.703	0	17	12.6	38.4	2.6	0.307	0.286	0.0075	7.46	6.4
27	6/11/1999	8:43:55 AM	0	27.796	22.092	27.23	24.246	22.772	31.104	40.293	51.303	5.282	36.834	8.756	-0.042	30.209	0.69	0	18	12.5	38.6	2.7	0.301	0.283	0.0073	7.34	6.2
28	6/11/1999	8:44:55 AM	0	27.836	22.092	27.195	24.166	22.737	31.263	41.471	51.242	5.194	38.659	8.017	-0.042	29.887	0.35	0	19	12.4	40.1	2.8	0.153	0.144	0.0036	3.59	3.1
29	6/11/1999	8:45:55 AM	0	27.522	22.057	27.036	24.291	22.657	31.387	43.144	51.943	5.122	40.451	6.646	-0.042	29.165	0.695	0	20	12.1	41.8	2.9	0.303	0.287	0.0069	6.86	5.8
30	6/11/1999	8:46:55 AM	0	27.442	22.057	26.956	24.131	22.576	31.387	43.237	52.004	5.138	40.248	6.568	-0.042	28.274	0.678	0	21	11.7	41.7	2.9	0.296	0.280	0.0067	6.71	5.7
31	6/11/1999	8:47:56 AM	0	27.282	22.137	26.716	24.211	22.541	31.545	43.144	51.76	5.186	40.552	6.229	-0.042	28.858	0.663	0	22	12.0	41.8	2.9	0.289	0.276	0.0066	6.59	5.6
32	6/11/1999	8:48:56 AM	0	27.202	22.102	26.556	24.176	22.418	31.59	43.516	51.652	5.122	40.722	6.075	-0.042	28.873	0.652	0	23	12.0	42.1	2.9	0.285	0.272	0.0065	6.47	5.5
33	6/11/1999	8:49:56 AM	0	27.167	22.182	26.522	24.131	22.426	31.625	43.361	51.456	5.106	40.992	5.921	-0.042	28.842	0.644	0	24	12.0	42.2	2.9	0.281	0.269	0.0064	6.39	5.4
34	6/11/1999	8:50:56 AM	0	27.087	22.102	26.442	24.015	22.38	31.749	44.67	52.584	5.242	41.262	5.829	-0.042	29.441	0.633	0	25	12.2	42.9	3.0	0.276	0.265	0.0062	6.18	5.3
35	6/11/1999	8:51:56 AM	0	26.928	22.102	26.362	24.096	22.38	31.828	44.448	52.279	5.074	41.834	5.736	-0.042	28.934	0.63	0	26	12.0	43.0	3.0	0.275	0.265	0.0062	6.15	5.2
36	6/11/1999	8:52:56 AM	0	26.848	22.182	26.202	24.015	22.38	31.828	44.57	52.279	5.17	41.195	5.582	0.004	29.595	0.62	0	27	12.3	42.9	3.0	0.271	0.262	0.0061	6.10	5.2
37	6/11/1999	8:53:56 AM	0	26.768	22.102	26.122	24.096	22.219	31.907	44.105	52.004	5.218	41.262	5.428	0.004	29.457	0.613	0	28	12.2	42.7	2.9	0.268	0.259	0.0061	6.08	5.2
38	6/11/1999	8:54:56 AM	0	26.688	22.228	26.042	24.015	22.139	31.907	44.136	51.608	5.138	41.77	5.397	0.004	29.718	0.608	0	29	12.3	43.0	3.0	0.265	0.258	0.0060	6.00	5.1
39	6/11/1999	8:55:56 AM	0	26.608	22.182	26.042	24.015	22.174	31.987	43.961	51.547	5.226	41.668	5.305	-0.042	29.487	0.6	0	30	12.2	42.8	3.0	0.262	0.254	0.0059	5.94	5.1
40	6/11/1999	8:56:56 AM	0	26.563	22.102	25.962	24.015	22.219	31.967	44.57	52.157	5.058	41.499	5.243	-0.042	29.365	0.598	0	31	12.2	43.0	3.0	0.261	0.254	0.0059	5.90	5.0
41	6/11/1999	8:57:57 AM	0	26.528	22.137	25.882	24.015	22.3	31.967	44.446	51.882	5.146	41.871	5.182	-0.042	28.919	0.594	0	32	12.0	43.2	3.0	0.259	0.253	0.0059	5.86	5.0
42	6/11/1999	8:58:57 AM	0	26.403	22.137	25.882	23.97	22.255	31.987	44.353	51.821	5.082	42.141	5.12	-0.042	29.641	0.587	0	33	12.3	43.2	3.0	0.256	0.250	0.0058	5.78	4.9
43	6/11/1999	8:59:57 AM	0	26.323	22.137	25.722	24.051	22.094	31.942	44.477	51.73	5.162	41.736	5.089	-0.042	28.766	0.582	0	34	11.9	43.1	3.0	0.254	0.249	0.0058	5.78	4.9
44	6/11/1999	9:00:57 AM	0	26.243	22.137	25.677	23.97	22.094	31.942	45.81	53.193	4.859	43.122	5.089	-0.042	28.213	0.587	0	35	11.7	44.5	3.1	0.256	0.251	0.0057	5.65	4.8
45	6/11/1999	9:01:57 AM	0	26.163	22.218	25.597	23.97	22.094	32.021	45.376	52.675	4.923	42.649	4.997	0.004	28.074	0.571	0	36	11.7	44.0	3.0	0.249	0.245	0.0056	5.57	4.7
46	6/11/1999	9:02:57 AM	0	26.163	22.218	25.597	23.89	22.048	31.897	44.911	52.279	4.955	42.378	4.997	0.004	28.013	0.575	0	37	11.6	43.6	3.0	0.251	0.247	0.0057	5.66	4.8
47	6/11/1999	9:03:57 AM	0	26.163	22.172	25.597	23.97	22.174	31.818	44.57	51.882	5.043	42.175	4.966	-0.042	29.272	0.572	0	38	12.1	43.4	3.0	0.250	0.246	0.0057	5.66	4.8
48	6/11/1999	9:04:57 AM	0	26.083	22.218	25.472	24.051	22.129	31.897	45.19	52.492	5.082	42.209	4.935	-0.042	28.612	0.571	0	39	11.9	43.7	3.0	0.249	0.246	0.0056	5.63	4.8
49	6/11/1999	9:05:57 AM	0	25.958	22.172	25.472	24.005	22.209	32.056	44.849	52.096	5.096	42.209	4.843	-0.042	29.564	0.567	0	40	12.3	43.5	3.0	0.248	0.244	0.0056	5.61	4.8
50	6/11/1999	9:06:57 AM	0	25.958	22.207	25.472	24.005	22.048	32.056	44.88	52.126	5.011	42.209	4.812	0.004	29.365	0.564	0	41	12.2	43.5	3.0	0.246	0.243	0.0056	5.58	4.7
51	6/11/1999	9:07:57 AM	0	25.958	22.253	25.472	23.88	22.048	*32.011	44.694	51.639	5.027	42.378	4.75	-0.042	29.533	0.558	0	42	12.3	43.5	3.0	0.244	0.240	0.0055	5.52	4.7
52	6/11/1999	9:08:58 AM	0	25.833	22.207	25.347	23.96	22.048	31.932	45.004	52.218	5.154	42.006	4.719	-0.042	28.581	0.557	0	43	11.9	43.5	3.0	0.243	0.241	0.0055	5.53	4.7
53	6/11/1999	9:09:58 AM	0	25.833	22.207	25.301	23.88	22.003	31.932	44.663	51.974	5.17	42.175	4.688	0.004	28.965	0.553	0	44	12.0	43.4	3.0	0.241	0.239	0.0055	5.51	4.7
54	6/11/1999	9:10:58 AM	0	25.833	22.243	25.301	23.915	22.003	31.808	44.57	51.395	5.019	42.277	4.627	0.004	28.965	0.552	0	45	12.0	43.4	3.0	0.241	0.239	0.0055	5.50	4.7
55	6/11/1999	9:11:58 AM	0	25.788	22.162	25.301	23.915	22.038	31.888	45.221	52.34	5.066	42.446	4.627	0.004	29.011	0.547	0	46	12.0	43.8	3.0	0.239	0.237	0.0054	5.40	4.6
56	6/11/1999	9:12:58 AM	1	25.788	22.243	25.301	23.995	21.877	31.888	3.409	51.73	4.923	-0.22	47.34	69.695	27.982	0.011	0	47	11.6	1.6	0.1	0.005	0.005	0.0030	2.99	2.5
57	6/11/1999	9:13:58 AM	0	25.788	22.197	25.256	23.995	21.993	31.764	44.601	51.242	5.162	41.905	4.719	0.004	28.812	1.07	0	48	12.0	43.3	3.0	0.467	0.464	0.0107	10.72	9.1
58	6/11/1999	9:14:58 AM	0	25.743	22.197	25.256	24.076	21.993	31.843	40.82	52.523	5.266	37.205	9.465	0.004	29.687	0.716	0	49	12.3	39.0	2.7	0.313	0.310	0.0080	7.95	6.8
59	6/11/1999	9:15:58 AM	0	25.743	22.197	25.256	23.95	21.993	31.764	40.727	51.608	5.274	38.355	8.541	0.004	29.334	0.684	0	50	12.2	39.5	2.7	0.299	0.296	0.0075	7.50	6.4
60	6/11/1999	9:16:58 AM	0	25.743	22.152	25.211	23.96	22.109	31.526	41.719	51.73	5.234	38.659	8.14	-0.042	29.441	0.664	0	51	12.2	40.2	2.8	0.290	0.288	0.0072	7.17	6.1
61	6/11/1999	9:17:58 AM	0	25.698	22.233	25.256	23.825	22.189	31.367	41.75	51.791	5.202	38.964	7.955	0.004	28.965	0.647	0	52	12.0	40.4	2.8	0.282	0.280	0.0069	6.95	5.9
62	6/11/1999	9:18:58 AM	0	25.698	22.233	25.131	23.905	22.43	31.084	42.339	52.279	5.33	39.133	7.709	0.004	29.011	0.634	0	53	12.0	40.7	2.8	0.277	0.276	0.0068	6.77	5.8
63	6/11/1999	9:19:59 AM	0	25.698	22.233	25.131	23.905	22.43	31.005	42.216	51.852	5.29	38.964	7.493	0.004	29.088	0.62	0	54	12.1	40.6	2.8	0.271	0.270	0.0066	6.64	5.7
64	6/11/1999	9:20:59 AM	0	25.698	22.233	25.131	24.066	22.43	30.925	41.967	51.578	5.266	39.133	7.524	0.004	29.58	0.615	0	55	12.3	40.6	2.8	0.268	0.267	0.0066	6.60	5.6
65	6/11/1999	9:21:59 AM	0	25.618	22.278	25.131	24.146	22.511	30.846	43.175	52.584	5.298	39.335	7.216	-0.042	28.965	0.62	0	56	12.0	41.3	2.8	0.271	0.270	0.0065	6.54	5.6
66	6/11/1999	9:22:59 AM	0	25.618	22.233	25.131	24.226	22.511	30.766	43.919	51.456	5.218	40.958	5.644	0.004	29.656	0.62	0	57	12.3	42.4	2.9	0.271	0.270	0.0064	6.35	5.4
67	6/11/1999	9:23:59 AM	0	25.538	22.233	25.131	24.226	22.591	30.687	44.601	51.943	5.258	41.06	5.675	-0.042	30.194	0.614	0	58	12.5	42.8	3.0	0.268	0.267	0.0062	6.24	5.3
68	6/11/1999	9:24:59 AM	0	25.538	22.233	25.131	24.306	22.591	30.687	43.919	51.425	5.186	41.127	5.613	0.004	28.781	0.606	0	59	11.9	42.5	2.9	0.265	0.264	0.0062	6.20	5.3
69	6/11/1999	9:25:59 AM	0	25.538	22.233	25.131	24.226	22.717	30.528	44.322	51.974	5.29	41.262	5.551	0.004	29.226	0.602	0	60	12.1	42.8	3.0	0.263	0.262	0.0061	6.12	5.2
70	6/11/1999	9:26:59 AM	0	25.583	22.233	25.096	24.306	22.752	30.528	44.477	52.34	5.242	41.161	5.49	-0.042	28.812	0.592	0	61	12.0	42.8	3.0	0.258	0.258	0.0060	6.02	5.1
71	6/11/1999	9:27:59 AM	0	25.583	22.278	25.096	24.432	22.878	30.414	43.796	51.425	5.282	40.924	5.428	0.004	29.687	0.588	0	62	12.3	42.4	2.9	0.257	0.256	0.0060	6.04	5.1
72	6/11/1999	9:28:59 AM	0	25.583	22.323	25.096	24.432	22.878	30.414	44.787	52.431	5.17	41.634	5.428	0.004	28.934	0.585	0	63	12.0	43.2	3.0	0.255	0.255	0.0059	5.89	5.0
73	6/11/1999	9:30:00 AM	0	25.547	22.243	25.016	24.557	23.003	30.334	44.539	51.899	5.043	41.499	5.397	-0.042	28.704	0.583	0	64	11.9	43.0	3.0	0.255	0.254	0.0059	5.91	5.0
74	6/11/1999	9:31:00 AM	0	25.628	22.243	25.061	24.557	23.039	30.255	44.911	52.096	5.186	41.364	5.336	0.004	28.55	0.576	0	65	11.8	43.1	3.0	0.251	0.251	0.0058	5.82	5.0
75	6/11/1999	9:32:00 AM	0	25.547	22.243	25.061	24.637	23.084	30.22	44.663	52.126	5.362	41.668	5.274	-0.042	29.779	0.572	0	66	12.4	43.2	3.0	0.250	0.249	0.0058	5.77	4.9
76	6/11/1999	9:33:00 AM	0	25.512	22.288	25.026	24.637	23.129	30.265	44.663	51.669	5.154	41.33	5.243	0.004	29.733	0.569	0	67	12.3	43.0	3.0	0.248	0.248	0.0058	5.77	4.9
77	6/11/1999	9:34:00 AM	0	25.512	22.288	25.071	24.762	23.209	30.309	44.756	51.76	5.282	41.229	5.182	0.004	29.134	0.567	0	68	12.1	43.0	3.0	0.248	0.247	0.0057	5.75	4.9
78	6/11/1999	9:35:00 AM	0	25.477	22.333	25.071	24.727	23.254	30.309	44.973	51.578	5.218	41.499	5.182	-0.042	29.641	0.568	0	69	12.3	43.2	3.0	0.248	0.247	0.0057	5.72	4.9
79	6/11/1999	9:36:00 AM	0	25.477	22.253	25.036	24.853	23.254	30.275	44.942	52.004	5.25	41.601	5.212	0.004	28.673	0.562	0	70	11.9	43.3	3.0	0.245	0.245	0.0057	5.66	4.8
80	6/11/1999	9:37:00 AM	0	25.442	22.298	25.036	24.772	23.3	30.831	44.694	51.882	5.234	41.736	5.182	0.004	28.858	0.563	0	71	12.0	43.2	3.0	0.246	0.246	0.0057	5.68	4.8
81	6/11/1999	9:38:00 AM	0	25.442	22.298	25.001	24.818	23.184	30.91	44.601	51.821	5.282	41.905	5.151	0.004	29.119	0.563	0	72	12.1	43.3	3.0	0.246	0.246	0.0057	5.68	4.8

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.14

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	6/11/1999	9:39:00 AM	0	25.488	22.343	25.001	24.737	23.104	31.273	44.818	51.974	5.362	41.499	5.089	0.004	29.426	0.558	0	73	12.2	43.2	3.0	0.244	0.244	0.0056	5.64	4.8
83	6/11/1999	9:40:01 AM	0	25.453	22.263	24.966	24.783	22.988	31.352	45.004	51.791	5.194	41.77	5.089	0.004	29.58	0.558	0	74	12.3	43.4	3.0	0.244	0.244	0.0056	5.62	4.8
84	6/11/1999	9:41:01 AM	0	25.453	22.308	25.046	24.702	22.908	31.556	45.035	52.035	5.13	42.04	5.089	0.004	29.334	0.551	0	75	12.2	43.5	3.0	0.241	0.240	0.0055	5.52	4.7
85	6/11/1999	9:42:01 AM	0	25.453	22.308	24.966	24.622	22.747	31.511	44.911	51.943	5.186	41.465	5.027	0.004	29.718	0.554	0	76	12.3	43.2	3.0	0.242	0.242	0.0056	5.61	4.8
86	6/11/1999	9:43:01 AM	0	25.496	22.308	24.966	24.667	22.667	31.635	44.756	51.547	5.218	41.603	4.997	0.004	29.073	0.551	0	77	12.1	43.3	3.0	0.241	0.241	0.0056	5.56	4.7
87	6/11/1999	9:44:01 AM	0	25.418	22.354	24.966	24.622	22.712	31.6	44.818	51.76	5.314	41.195	4.997	0.004	28.612	0.547	0	78	11.9	43.0	3.0	0.239	0.239	0.0056	5.56	4.7
88	6/11/1999	9:45:01 AM	0	25.418	22.434	24.931	24.587	22.632	31.759	45.5	52.035	5.266	41.77	4.997	0.004	29.441	0.544	0	79	12.2	43.6	3.0	0.237	0.238	0.0055	5.45	4.6
89	6/11/1999	9:46:01 AM	0	25.418	22.354	24.931	24.507	22.561	31.759	45.128	51.943	5.306	41.702	4.966	0.004	29.088	0.544	0	80	12.1	43.4	3.0	0.237	0.238	0.0055	5.48	4.7
90	6/11/1999	9:47:01 AM	0	25.337	22.354	24.931	24.427	22.551	31.918	45.748	52.401	5.186	41.296	4.966	0.004	29.503	0.543	0	81	12.2	43.5	3.0	0.237	0.238	0.0055	5.46	4.6
91	6/11/1999	9:48:01 AM	0	25.418	22.354	24.931	24.427	22.471	31.918	44.818	51.547	5.226	41.364	4.935	0.004	29.257	0.544	0	82	12.1	43.1	3.0	0.237	0.238	0.0055	5.52	4.7
92	6/11/1999	9:49:01 AM	0	25.337	22.399	24.931	24.347	22.391	31.838	45.81	52.584	5.258	41.668	4.935	0.004	29.349	0.539	0	83	12.2	43.7	3.0	0.235	0.236	0.0054	5.39	4.6
93	6/11/1999	9:50:01 AM	0	25.463	22.354	24.931	24.472	22.391	31.997	44.849	51.639	5.234	41.803	4.935	0.004	29.61	0.54	0	84	12.3	43.3	3.0	0.236	0.236	0.0055	5.45	4.6
94	6/11/1999	9:51:02 AM	0	25.337	22.434	24.931	24.427	22.391	31.838	45.159	51.669	5.186	41.77	4.904	0.004	28.888	0.537	0	85	12.0	43.5	3.0	0.234	0.235	0.0054	5.40	4.6
95	6/11/1999	9:52:02 AM	0	25.337	22.434	24.851	24.472	22.391	31.918	45.314	52.157	5.226	42.108	4.904	0.004	29.318	0.535	0	86	12.2	43.7	3.0	0.234	0.235	0.0054	5.37	4.6
96	6/11/1999	9:53:02 AM	0	25.337	22.434	24.851	24.427	22.31	31.997	45.19	51.73	5.17	41.736	4.904	0.004	29.057	0.533	0	87	12.1	43.5	3.0	0.233	0.234	0.0054	5.38	4.6
97	6/11/1999	9:54:02 AM	0	25.418	22.434	24.931	24.347	22.391	31.997	46.058	52.523	5.21	41.972	4.873	0.004	29.257	0.535	0	88	12.1	44.0	3.0	0.234	0.234	0.0053	5.32	4.5
98	6/11/1999	9:55:02 AM	0	25.337	22.434	24.851	24.427	22.31	31.997	45.221	52.035	5.298	41.736	4.843	0.004	29.564	0.531	0	89	12.3	43.5	3.0	0.232	0.233	0.0054	5.35	4.6
99	6/11/1999	9:56:02 AM	0	25.337	22.434	24.931	24.347	22.31	32.111	45.469	52.157	5.338	41.939	4.843	0.004	29.595	0.531	0	90	12.3	43.7	3.0	0.232	0.232	0.0053	5.31	4.5
100	6/11/1999	9:57:03 AM	0	25.337	22.434	24.931	24.266	22.23	32.076	44.973	51.669	5.282	41.803	4.843	0.004	29.349	0.53	0	91	12.2	43.4	3.0	0.231	0.232	0.0053	5.34	4.5
101	6/11/1999	9:58:03 AM	0	25.337	22.434	24.806	24.301	22.184	32.155	45.128	51.608	5.298	41.77	4.812	0.004	29.518	0.529	0	92	12.3	43.4	3.0	0.231	0.232	0.0053	5.34	4.5
102	6/11/1999	9:59:03 AM	0	25.337	22.389	24.851	24.221	22.265	32.031	44.57	51.425	5.418	41.702	4.781	0.004	28.735	0.526	0	93	11.9	43.1	3.0	0.230	0.231	0.0054	5.37	4.6
103	6/11/1999	10:00:03 AM	0	25.292	22.469	24.886	24.221	22.184	32.031	45.097	51.547	5.282	41.364	4.812	0.004	29.272	0.53	0	94	12.1	43.2	3.0	0.231	0.232	0.0054	5.37	4.6
104	6/11/1999	10:01:03 AM	0	25.292	22.469	24.806	24.256	22.184	32.031	45.5	52.248	5.37	41.702	4.812	0.004	29.272	0.526	0	95	12.1	43.6	3.0	0.230	0.231	0.0053	5.30	4.5
105	6/11/1999	10:02:03 AM	0	25.372	22.469	24.886	24.221	22.265	32.031	45.438	52.065	5.322	42.209	4.781	0.004	29.518	0.526	0	96	12.3	43.8	3.0	0.230	0.230	0.0053	5.26	4.5
106	6/11/1999	10:03:03 AM	0	25.372	22.469	24.886	24.221	22.184	31.907	45.373	52.157	5.25	41.77	4.781	0.004	29.533	0.526	0	97	12.3	43.6	3.0	0.230	0.230	0.0053	5.29	4.5
107	6/11/1999	10:04:03 AM	0	25.327	22.424	24.841	24.221	22.219	32.066	45.314	52.065	5.33	41.905	4.781	0.004	28.934	0.528	0	98	12.0	43.6	3.0	0.230	0.232	0.0053	5.31	4.5
108	6/11/1999	10:05:03 AM	0	25.327	22.469	24.841	24.176	22.139	32.111	45.438	52.218	5.378	41.803	4.781	0.004	29.088	0.527	0	99	12.1	43.6	3.0	0.230	0.231	0.0053	5.30	4.5
109	6/11/1999	10:06:03 AM	0	25.327	22.424	24.841	24.141	22.219	32.145	45.438	52.218	5.306	41.871	4.781	0.004	28.105	0.527	0	100	11.7	43.7	3.0	0.230	0.231	0.0053	5.29	4.5
110	6/11/1999	10:07:03 AM	0	25.327	22.379	24.841	24.176	22.139	31.987	45.593	51.974	5.25	41.905	4.75	0.004	28.858	0.527	0	101	12.0	43.7	3.0	0.230	0.231	0.0053	5.28	4.5
111	6/11/1999	10:08:03 AM	0	25.282	22.424	24.761	24.176	22.094	32.021	45.066	51.547	5.178	41.939	4.75	0.004	28.834	0.524	0	102	12.0	43.5	3.0	0.229	0.230	0.0053	5.29	4.5
112	6/11/1999	10:09:03 AM	0	25.327	22.379	24.841	24.256	22.139	[illegible]	45.438	52.218	5.258	42.04	4.75	0.004	28.305	0.523	0	103	11.7	43.7	3.0	0.228	0.229	0.0052	5.24	4.5
113	6/11/1999	10:10:03 AM	0	25.282	22.459	24.796	24.211	22.094	31.942	46.058	52.553	5.362	41.939	4.719	0.004	28.842	0.522	0	104	12.0	44.0	3.0	0.228	0.229	0.0052	5.21	4.4
114	6/11/1999	10:11:04 AM	0	25.282	22.459	24.796	24.211	22.174	31.58	46.058	52.736	5.162	41.939	4.719	0.004	29.303	0.52	0	105	12.2	44.0	3.0	0.227	0.228	0.0052	5.19	4.4
115	6/11/1999	10:12:04 AM	0	25.282	22.459	24.876	24.211	22.415	31.387	45.035	51.547	5.202	42.513	4.719	0.004	29.134	0.521	0	106	12.1	43.8	3.0	0.227	0.228	0.0052	5.21	4.4
116	6/11/1999	10:13:04 AM	0	25.282	22.539	24.751	24.291	22.496	31.183	45.593	52.431	5.296	42.48	4.719	0.004	29.395	0.519	0	107	12.2	44.0	3.0	0.227	0.228	0.0052	5.18	4.4
117	6/11/1999	10:14:04 AM	0	25.237	22.459	24.796	24.291	22.576	31.149	45.19	52.157	5.282	42.108	4.719	0.004	28.981	0.519	0	108	12.0	43.6	3.0	0.227	0.228	0.0052	5.22	4.4
118	6/11/1999	10:15:04 AM	0	25.282	22.459	24.796	24.372	22.737	31.026	45.655	52.431	5.234	42.48	4.688	0.004	29.533	0.522	0	109	12.3	44.1	3.0	0.228	0.229	0.0052	5.20	4.4
119	6/11/1999	10:16:04 AM	0	25.282	22.459	24.876	24.452	22.818	30.99	45.841	52.675	5.234	42.448	4.688	0.004	29.211	0.521	0	110	12.1	44.1	3.0	0.227	0.228	0.0052	5.17	4.4
120	6/11/1999	10:17:04 AM	0	25.282	22.459	24.796	24.452	22.818	30.945	45.655	52.004	5.186	42.277	4.688	0.004	29.011	0.518	0	111	12.0	44.0	3.0	0.226	0.227	0.0052	5.17	4.4
121	6/11/1999	10:18:04 AM	0	25.282	22.459	24.876	24.452	22.818	30.99	45.283	52.065	5.266	42.006	4.658	0.004	30.056	0.518	0	112	12.5	43.8	3.0	0.226	0.227	0.0052	5.20	4.4
122	6/11/1999	10:19:04 AM	0	25.282	22.459	24.796	24.612	22.898	30.91	45.624	52.004	5.282	42.412	4.658	-0.042	29.334	0.516	0	113	12.2	44.0	3.0	0.225	0.227	0.0051	5.15	4.4
123	6/11/1999	10:20:05 AM	0	25.247	22.504	24.841	24.692	23.104	30.831	45.19	51.669	5.202	42.243	4.658	0.004	29.979	0.517	0	114	12.4	43.7	3.0	0.226	0.227	0.0052	5.19	4.4
124	6/11/1999	10:21:05 AM	0	25.327	22.504	24.841	24.737	23.059	30.717	45.252	51.791	5.202	42.074	4.658	0.004	28.766	0.516	0	115	11.9	43.7	3.0	0.225	0.226	0.0052	5.18	4.4
125	6/11/1999	10:22:05 AM	0	25.327	22.504	24.841	24.737	23.184	30.558	45.531	51.639	5.146	42.006	4.658	0.004	28.75	0.515	0	116	11.9	43.8	3.0	0.225	0.226	0.0052	5.18	4.4
126	6/11/1999	10:23:05 AM	0	25.292	22.55	24.841	24.863	23.265	30.682	46.43	52.797	5.242	42.108	4.658	0.004	28.919	0.514	0	117	12.0	44.3	3.1	0.224	0.225	0.0051	5.09	4.3
127	6/11/1999	10:24:05 AM	0	25.247	22.55	24.886	24.943	23.265	30.603	45.066	51.76	5.226	42.344	4.658	0.004	28.658	0.514	0	118	11.9	43.7	3.0	0.224	0.225	0.0052	5.15	4.4
128	6/11/1999	10:25:05 AM	0	25.292	22.55	24.931	24.943	23.39	30.523	45.345	51.699	5.202	42.448	4.627	0.004	29.365	0.515	0	119	12.2	43.9	3.0	0.225	0.225	0.0051	5.13	4.4
129	6/11/1999	10:26:05 AM	0	25.337	22.514	24.931	25.068	23.471	30.647	45.314	51.669	5.21	42.547	4.658	0.004	29.011	0.512	0	120	12.0	43.9	3.0	0.224	0.224	0.0051	5.10	4.3
130	6/11/1999	10:27:05 AM	0	25.257	22.56	24.851	25.068	23.435	30.965	45.252	51.486	5.082	42.074	4.627	0.004	29.564	0.512	0	121	12.3	43.7	3.0	0.224	0.224	0.0051	5.14	4.4
131	6/11/1999	10:28:05 AM	0	25.303	22.56	24.851	25.113	23.24	31.124	45.345	51.791	5.146	42.209	4.627	0.004	28.965	0.512	0	122	12.0	43.8	3.0	0.224	0.224	0.0051	5.13	4.4
132	6/11/1999	10:29:05 AM	0	25.303	22.56	24.896	25.033	23.24	31.407	45.593	52.065	5.194	42.581	4.627	0.004	28.489	0.514	0	123	11.8	44.1	3.0	0.224	0.225	0.0051	5.10	4.3
133	6/11/1999	10:30:05 AM	0	25.303	22.56	24.896	25.033	23.159	31.328	45.407	51.882	5.234	42.581	4.627	0.004	28.996	0.511	0	124	12.0	44.0	3.0	0.223	0.224	0.0051	5.09	4.3
134	6/11/1999	10:31:05 AM	0	25.222	22.56	24.942	24.918	23.044	31.69	45.624	52.126	5.226	42.311	4.627	0.004	28.95	0.509	0	125	12.0	44.0	3.0	0.222	0.223	0.0051	5.06	4.3
135	6/11/1999	10:32:06 AM	0	25.348	22.605	24.942	24.998	22.883	31.69	45.593	52.218	5.226	42.175	4.627	0.004	29.733	0.509	0	126	12.3	43.9	3.0	0.222	0.223	0.0051	5.07	4.3
136	6/11/1999	10:33:06 AM	0	25.268	22.605	24.862	24.918	22.883	31.769	45.531	52.065	5.194	42.074	4.627	0.004	28.627	0.511	0	127	11.9	43.8	3.0	0.223	0.224	0.0051	5.11	4.4
137	6/11/1999	10:34:06 AM	0	25.268	22.525	24.907	24.838	22.723	31.814	45.469	51.791	5.21	42.344	4.627	0.004	28.981	0.511	0	128	12.0	43.9	3.0	0.223	0.224	0.0051	5.09	4.3
138	6/11/1999	10:35:06 AM	0	25.268	22.651	24.907	24.803	22.768	31.972	45.779	52.096	5.194	42.378	4.627	0.004	29.088	0.51	0	129	12.1	44.1	3.0	0.223	0.223	0.0051	5.06	4.3
139	6/11/1999	10:36:06 AM	0	25.313	22.57	24.907	24.883	22.768	31.928	44.942	51.212	5.122	42.311	4.596	0.004	28.581	0.511	0	130	11.9	43.6	3.0	0.223	0.224	0.0051	5.13	4.4
140	6/11/1999	10:37:06 AM	0	25.313	22.651	24.907	24.803	22.768	31.893	45.886	52.004	5.226	42.48	4.596	0.004	27.798	0.509	0	131	11.5	44.1	3.0	0.222	0.223	0.0051	5.05	4.3
141	6/11/1999	10:38:06 AM	0	25.313	22.651	24.827	24.723	22.688	31.972	46.213	52.706	5.242	42.378	4.596	0.004	29.395	0.51	0	132	12.2	44.3	3.1	0.223	0.224	0.0051	5.05	4.3
142	6/11/1999	10:39:06 AM	0	25.313	22.651	24.907	24.643	22.607	31.972	45.934	52.462	5.17	42.75	4.596	0.004	29.564	0.508	0	133	12.3	44.3	3.1	0.222	0.222	0.0050	5.01	4.3
143	6/11/1999	10:40:07 AM	0	25.313	22.651	24.827	24.723	22.607	31.893	46.554	52.584	5.122	42.412	4.596	0.004	29.564	0.507	0	134	12.3	44.5	3.1	0.221	0.222	0.0050	5.00	4.3
144	6/11/1999	10:41:07 AM	0	25.313	22.57	24.907	24.643	22.768	31.972	45.283	51.821	5.178	42.277	4.596	0.004	29.119	0.507	0	135	12.1	43.8	3.0	0.221	0.222	0.0051	5.07	4.3
145	6/11/1999	10:42:07 AM	0	25.358	22.57	24.907	24.723	22.688	32.052	45.531	51.791	5.074	42.75	4.565	0.004	29.334	0.507	0	136	12.2	44.1	3.0	0.221	0.222	0.0050	5.03	4.3
146	6/11/1999	10:43:07 AM	0	25.358	22.696	24.907	24.643	22.688	32.052	45.779	52.035	5.074	42.311	4.596	0.004	28.335	0.507	0	137	11.8	44.0	3.0	0.221	0.222	0.0050	5.04	4.3
147	6/11/1999	10:44:07 AM	0	25.313	22.616	24.827	24.643	22.607	32.052	45.779	52.126	5.17	42.75	4.565	0.004	28.888	0.507	0	138	12.0	44.3	3.1	0.221	0.222	0.0050	5.02	4.3
148	6/11/1999	10:45:07 AM	0	25.313	22.57	24.827	24.643	22.607	32.131	45.531	52.035	5.17	42.277	4.565	0.004	29.119	0.504	0	139	12.1	43.9	3.0	0.220	0.221	0.0050	5.04	4.3
149	6/11/1999	10:46:07 AM	0	25.313	22.651	24.907	24.643	22.527	32.131	45.624	52.035	5.062	42.378	4.565	0.004	29.272	0.507	0	140	12.1	44.0	3.0	0.221	0.222	0.0050	5.04	4.3
150	6/11/1999	10:47:08 AM	0	25.313	22.651	24.907	24.643	22.527	32.21	45.872	52.492	5.298	42.718	4.565	0.004	28.504	0.505	0	141	11.8	44.3	3.1	0.220	0.221	0.0050	4.99	4.2
151	6/11/1999	10:48:08 AM	0	25.313	22.651	24.827	24.678	22.446	32.29	45.934	52.614	5.26	42.344	4.534	0.004	29.441	0.503	0	142	12.2	44.1	3.0	0.220	0.221	0.0050	5.00	4.3
152	6/11/1999	10:49:08 AM	0	25.393	22.651	24.907	24.688	22.446	32.21	45.469	51.791	5.162	42.885	4.534	0.004	29.011	0.505	0	143	12.0	44.2	3.0	0.220	0.221	0.0050	5.00	4.3
153	6/11/1999	10:50:08 AM	0	25.313	22.651	24.907	24.643	22.446	32.131	45.996	52.066	5.098	43.088	4.534	0.004	29.242	0.504	0	144	12.1	44.5	3.1	0.220	0.221	0.0050	4.95	4.2
154	6/11/1999	10:51:08 AM	0	25.268	22.651	24.907	24.643	22.401	32.21	46.089	52.37	5.138	42.818	4.534	0.004	28.95	0.502	0	145	12.0	44.5	3.1	0.219	0.220	0.0049	4.94	4.2
155	6/11/1999	10:52:08 AM	0	25.313	22.651	24.907	24.643	22.446	32.166	45.438	51.974	5.138	42.581	4.565	0.004	28.673	0.504	0	146	11.9	44.0	3.0	0.220	0.221	0.0050	5.01	4.3
156	6/11/1999	10:53:08 AM	0	25.348	22.686	24.862	24.678	22.401	32.166	45.934	52.157	5.146	42.885	4.534	0.004	28.796	0.502	0	147	12.0	44.4	3.1	0.219	0.220	0.0050	4.95	4.2
157	6/11/1999	10:54:08 AM	0	25.348	22.686	24.862	24.598	22.527	32.166	46.616	52.675	5.066	42.784	4.504	0.004	28.335	0.502	0	148	11.8	44.7	3.1	0.219	0.220	0.0049	4.92	4.2
158	6/11/1999	10:55:08 AM	0	25.348	22.686	24.862	24.678	22.401	32.166	46.151	52.218	5.106	42.784	4.504	0.004	28.397	0.5	0	149	11.8	44.5	3.1	0.218	0.219	0.0049	4.93	4.2
159	6/11/1999	10:56:09 AM	0	25.348	22.686	24.942	24.598	22.481	32.086	46.058	52.706	5.066	43.325	4.504	0.004	28.412	0.501	0	150	11.8	44.7	3.1	0.219	0.219	0.0049	4.90	4.2
160	6/11/1999	10:57:09 AM	0	25.348	22.686	24.816	24.678	22.481	32.042	45.965	52.431	5.194	42.75	4.504	0.004	28.366	0.498	0	151	11.8	44.4	3.1	0.217	0.219	0.0049	4.93	4.2
161	6/11/1999	10:58:09 AM	0	25.348	22.64	24.862	24.678	22.436	32.042	46.213	52.279	5.035	42.818	4.504	0.004	28.766	0.5	0	152	11.9	44.5	3.1	0.218	0.219	0.0049	4.92	4.2
162	6/11/1999	10:59:09 AM	0	25.303	22.64	24.862	24.758	22.481	31.883	46.244	52.584	5.114	42.547	4.504	0.004	28.996	0.5	0	153	12.0	44.4	3.1	0.218	0.219	0.0049	4.94	4.2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.14

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
163	6/11/1999	11:00:09 AM	0	25.348	22.721	24.862	24.632	22.355	32.121	45.872	52.187	5.138	42.649	4.504	0.004	28.95	0.498	0	154	12.0	44.3	3.1	0.217	0.218	0.0049	4.93	4.2
164	6/11/1999	11:01:09 AM	0	25.303	22.721	24.896	24.632	22.355	31.962	46.182	52.492	5.066	42.953	4.473	0.004	28.704	0.5	0	155	11.9	44.6	3.1	0.218	0.219	0.0049	4.91	4.2
165	6/11/1999	11:02:09 AM	0	25.303	22.721	24.896	24.632	22.516	32.042	46.275	52.797	5.218	42.818	4.473	0.004	29.011	0.501	0	156	12.0	44.5	3.1	0.219	0.219	0.0049	4.92	4.2
166	6/11/1999	11:03:09 AM	0	25.303	22.721	24.896	24.632	22.391	32.2	46.089	52.492	5.066	43.122	4.473	0.004	29.303	0.497	0	157	12.2	44.6	3.1	0.217	0.218	0.0049	4.88	4.2
167	6/11/1999	11:04:09 AM	0	25.337	22.721	24.896	24.552	22.516	32.121	46.12	52.126	4.971	42.818	4.473	0.004	28.443	0.497	0	158	11.8	44.5	3.1	0.217	0.218	0.0049	4.89	4.2
168	6/11/1999	11:05:10 AM	0	25.337	22.721	24.851	24.587	22.436	31.997	45.965	52.157	5.096	43.054	4.473	0.004	29.057	0.497	0	159	12.1	44.5	3.1	0.217	0.218	0.0049	4.89	4.2
169	6/11/1999	11:06:10 AM	0	25.383	22.721	24.851	24.507	22.551	32.076	46.069	52.157	5.058	42.885	4.442	0.004	28.735	0.495	0	160	11.9	44.5	3.1	0.216	0.217	0.0049	4.88	4.2
170	6/11/1999	11:07:10 AM	0	25.337	22.675	24.771	24.587	22.551	31.997	42.153	51.791	5.051	38.727	8.017	0.05	28.643	1.218	0	161	11.9	40.4	2.8	0.532	0.535	0.0132	13.23	11.3
171	6/11/1999	11:08:10 AM	0	25.337	22.675	24.851	24.462	22.551	32.076	41.44	52.248	5.218	38.321	8.695	0.004	29.027	0.771	0	162	12.0	39.9	2.7	0.337	0.338	0.0085	8.48	7.2
172	6/11/1999	11:09:10 AM	0	25.337	22.675	24.851	24.587	22.471	32.031	42.866	52.919	5.282	38.997	7.986	0.004	29.334	0.699	0	163	12.2	40.9	2.8	0.305	0.306	0.0075	7.49	6.4
173	6/11/1999	11:10:10 AM	1	25.372	22.756	24.931	24.587	22.506	31.873	3.626	52.523	4.827	-0.356	47.648	69.834	28.566	0.011	0	164	11.9	1.6	0.1	0.005	0.005	0.0029	2.94	2.5
174																											
175	Last Two	Averages		25.4	22.5	24.9	24.5	22.6	31.5	45.1	52.0	5.2	41.9	5.0	0.0	29.1	0.542	0.0		12.1	43.5	2.999	0.236	0.237	0.005	5.5	4.6
176	Hours of	Maximum		25.8	22.7	25.3	25.1	23.5	32.3	46.6	52.8	5.4	43.3	9.5	0.0	30.2	1.070	0.0		12.5	44.7	3.1	0.467	0.464	0.011	10.7	9.1
177	Run 2.14	Median		25.3	22.5	24.9	24.6	22.6	31.8	45.4	52.0	5.2	42.0	4.7	0.0	29.1	0.522	0.0		12.1	43.7	3.0	0.228	0.229	0.005	5.2	4.4
178		Minimum		25.2	22.2	24.8	23.8	22.0	30.2	40.7	51.2	5.0	37.2	4.4	0.0	27.8	0.495	0.0		11.5	39.0	2.7	0.216	0.217	0.005	4.9	4.2
179		Std Deviation		0.1	0.2	0.1	0.3	0.4	0.6	1.1	0.4	0.1	1.0	0.9	0.0	0.4	0.065	0.0		0.2	1.0	0.1	0.029	0.028	0.001	0.7	0.6
180		Number of Points Used		113	113	113	113	113	113	113	113	113	113	113	113	113	113	113		113	113	113	113	113	113	113	113
181																											
182	First Half	Averages		26.5	22.2	25.9	24.0	22.2	31.8	44.4	52.0	5.1	41.7	5.3	0.0	29.0	0.6	0.0		12.0	43.1	3.0	0.261	0.255	0.006	5.9	5.0
183	Hour of	Maximum		27.5	22.3	27.0	24.3	22.7	32.1	43.8	53.2	5.2	43.1	6.8	0.0	29.7	0.7	0.0		12.3	44.5	3.1	0.303	0.287	0.007	6.9	5.8
184	Run 2.14	Medium		26.4	22.2	25.9	24.0	22.2	31.9	44.6	52.0	5.1	41.9	5.1	0.0	29.0	0.6	0.0		12.0	43.2	3.0	0.256	0.251	0.006	5.8	4.9
185		Minimum		25.8	22.1	25.3	23.9	22.0	31.4	43.1	51.4	4.9	40.2	4.6	0.0	28.0	0.5	0.0		11.6	41.7	2.9	0.239	0.237	0.005	5.4	4.6
186		Std Deviation		0.5	0.1	0.5	0.1	0.2	0.2	0.7	0.4	0.1	0.7	0.6	0.0	0.5	0.0	0.0		0.2	0.7	0.05	0.018	0.013	0.000	0.4	0.3
187		Number of Points Used		27	27	27	27	27	27	27	27	27	27	27	27	27	27	27		27	27	27	27	27	27	27	27



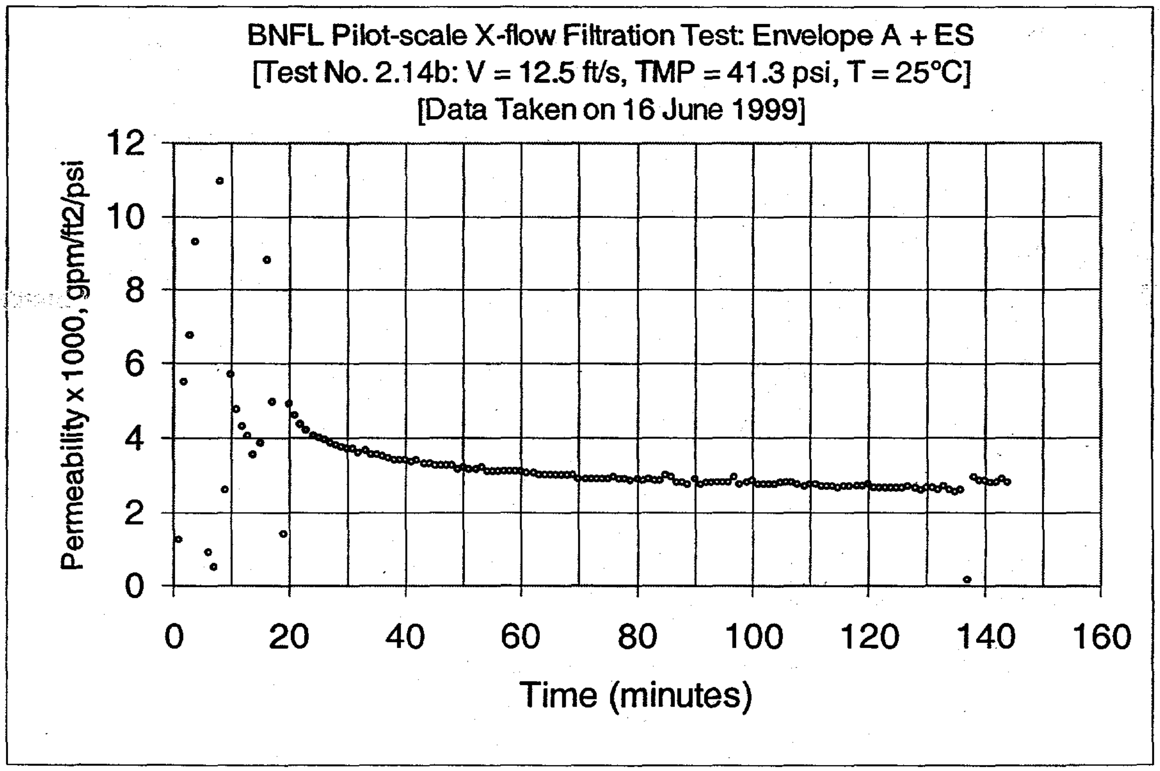


Figure C2: Test Run 2.14b, 8 wt% Insoluble Solids Concentration

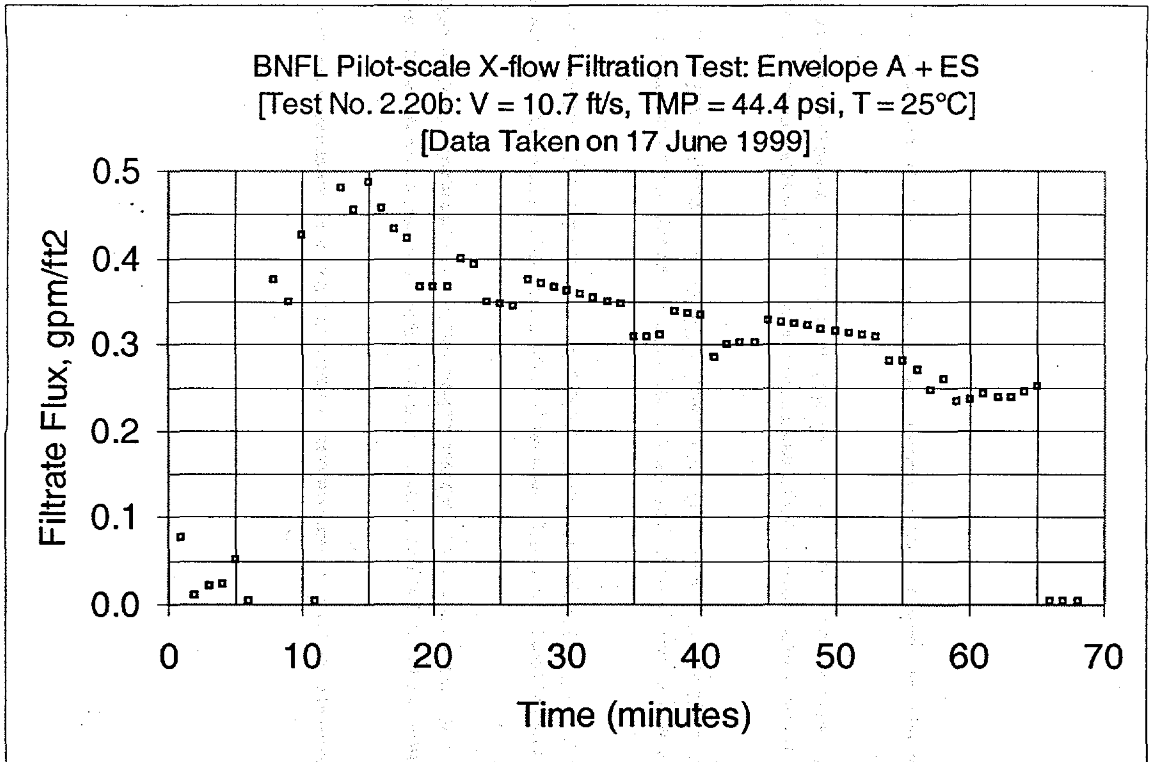
Pilot Scale X-Flow Filtration Test: Env. A, Run 2.14b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig)
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG
3	6/16/1999	8:10:19 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088
4	6/16/1999	8:12:12 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088
5	6/16/1999	8:13:12 AM	0	22.448	22.113	21.558	22.258	21.264	31.001	-0.062	-0.041	-0.024	0.05	-0.119
6	6/16/1999	8:14:12 AM	0	22.448	22.113	21.558	22.258	21.264	30.986	-0.062	-0.041	-0.024	0.05	-0.119
7	data													
8	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig)
9	6/16/1999	2:39:13 PM	1	32.156	23.926	29.448	26.394	22.758	31.883	2.944	19.777	-0.387	3.735	16.153
10	6/16/1999	2:40:13 PM	1	32.077	24.006	28.651	26.554	22.597	32.042	0.31	19.686	-0.479	1.267	18.618
11	6/16/1999	2:41:13 PM	1	31.918	23.971	27.854	26.474	22.597	31.962	0.217	19.716	-0.399	1.098	18.772
12	6/16/1999	2:42:13 PM	1	31.839	24.006	27.296	26.554	22.723	32.121	-0.062	19.533	-0.55	1.031	18.834
13	6/16/1999	2:43:13 PM	1	31.68	24.052	26.657	26.519	22.597	32.121	-4.556	9.929	1.827	-5.292	14.119
14	6/16/1999	2:44:13 PM	1	30.931	23.971	27.899	26.834	22.481	32.245	9.484	19.929	9.558	0.625	9.881
15	6/16/1999	2:45:14 PM	0	30.931	23.971	27.899	26.679	22.481	32.245	12.336	25.143	5.505	7.251	12.023
16	6/16/1999	2:46:14 PM	0	29.739	23.971	28.457	26.714	22.642	32.245	20.115	26.546	6.096	23.919	5.786
17	6/16/1999	2:47:14 PM	0	29.58	23.971	28.935	26.839	22.562	32.324	43.423	54.931	9.399	35.008	10.544
18	6/16/1999	2:48:14 PM	0	29.5	23.971	29.413	26.839	22.562	32.438	36.853	43.62	7.061	29.768	5.952
19	6/16/1999	2:49:14 PM	0	29.739	23.971	29.731	26.919	22.642	32.245	43.33	51.76	5.218	38.389	7.493
20	6/16/1999	2:50:14 PM	0	29.978	23.891	30.129	26.839	22.642	32.483	41.502	48.559	5.912	36.563	8.322
21	6/16/1999	2:51:14 PM	0	30.296	23.891	30.446	26.839	22.688	32.403	42.029	49.016	5.992	36.259	6.168
22	6/16/1999	2:52:14 PM	0	30.614	23.891	30.764	26.839	22.642	32.403	41.006	49.321	5.98	35.515	7.246
23	6/16/1999	2:53:14 PM	0	30.728	23.971	31.002	26.919	22.642	32.324	41.471	50.266	6.343	36.293	7.801
24	6/16/1999	2:54:14 PM	0	31.408	23.971	31.241	26.919	22.642	32.403	41.75	50.907	6.084	35.752	8.387
25	6/16/1999	2:55:15 PM	0	31.408	23.891	31.479	26.954	22.642	32.483	43.981	51.029	6.622	38.828	6.291
26	6/16/1999	2:56:15 PM	1	31.567	23.971	31.875	26.954	22.642	32.403	5.238	50.846	6.128	-1.437	44.412
27	6/16/1999	2:57:15 PM	0	31.963	23.971	32.034	26.999	22.677	32.086	41.347	50.084	6.279	36.191	8.14
28	6/16/1999	2:58:15 PM	0	32.122	23.891	32.227	26.919	22.677	32.403	44.539	51.517	6.702	37.78	6.044
29	6/16/1999	2:59:15 PM	0	32.236	23.891	32.43	26.794	22.723	32.403	44.012	50.541	6.806	38.558	6.075
30	6/16/1999	3:00:15 PM	0	32.394	23.926	32.667	26.839	22.863	32.324	43.516	50.449	6.854	37.713	6.014
31	6/16/1999	3:01:15 PM	0	32.597	23.891	32.86	26.954	22.677	32.359	44.477	51.456	6.774	38.423	6.075
32	6/16/1999	3:02:15 PM	0	32.87	23.846	33.019	26.999	22.758	32.517	43.95	50.846	6.894	38.254	6.044
33	6/16/1999	3:03:15 PM	0	32.949	23.971	33.177	26.954	22.597	32.279	43.671	50.48	6.511	38.017	6.075
34	6/16/1999	3:04:16 PM	0	33.345	23.926	33.414	27.114	22.677	32.279	44.196	51.334	6.503	38.321	6.137
35	6/16/1999	3:05:16 PM	0	33.424	23.846	33.572	27.273	22.758	32.2	44.353	51.212	6.431	38.828	6.075
36	6/16/1999	3:06:16 PM	0	33.582	23.846	33.73	27.194	22.758	32.2	44.508	51.458	6.558	38.625	6.044
37	6/16/1999	3:07:16 PM	0	33.819	23.926	33.889	27.273	22.597	32.121	44.911	51.364	6.463	39.133	6.075
38	6/16/1999	3:08:16 PM	0	33.977	23.926	34.047	27.353	22.838	32.121	45.066	51.73	6.423	38.862	6.044
39	6/16/1999	3:09:16 PM	0	34.136	23.926	34.205	27.353	22.677	32.121	44.012	50.815	6.439	38.693	6.044
40	6/16/1999	3:10:16 PM	0	34.294	23.846	34.318	27.273	22.999	32.2	44.508	51.242	6.168	39.471	6.075
41	6/16/1999	3:11:16 PM	0	34.294	23.846	34.442	27.194	22.918	31.804	43.733	50.419	6.128	38.558	6.075
42	6/16/1999	3:12:16 PM	0	34.452	23.971	34.521	27.114	23.079	31.645	44.756	51.456	6.303	39.504	6.106
43	6/16/1999	3:13:16 PM	0	34.61	23.846	34.757	27.114	22.918	31.804	44.384	50.937	6.287	38.558	6.044
44	6/16/1999	3:14:16 PM	0	34.768	23.846	34.757	27.114	22.918	31.645	45.066	51.821	6.471	38.693	6.044
45	6/16/1999	3:15:16 PM	0	34.926	23.846	34.915	27.194	22.999	31.531	44.291	51.029	6.12	39.133	6.044
46	6/16/1999	3:16:17 PM	0	34.97	23.891	35.118	27.433	23.079	31.566	44.601	51.578	6.471	38.794	6.075
47	6/16/1999	3:17:17 PM	0	35.162	23.891	35.275	27.558	23.285	31.452	44.725	51.212	6.247	38.896	6.044
48	6/16/1999	3:18:17 PM	0	35.286	23.891	35.32	27.478	23.446	31.417	44.477	51.364	6.287	38.558	6.075
49	6/16/1999	3:19:17 PM	0	35.444	23.936	35.478	27.603	23.491	31.417	44.477	50.907	6.327	38.896	6.044
50	6/16/1999	3:20:17 PM	0	35.488	23.936	35.557	27.523	23.652	31.293	43.826	50.602	6.008	38.49	6.044
51	6/16/1999	3:21:17 PM	0	35.646	23.856	35.714	27.443	23.571	31.258	44.167	50.968	6.247	39.133	6.106
52	6/16/1999	3:22:17 PM	0	35.769	23.856	35.916	27.364	23.617	31.462	44.229	51.181	6.455	38.456	6.106
53	6/16/1999	3:23:17 PM	0	35.848	23.901	35.995	27.329	23.697	31.303	45.283	52.187	6.104	39.031	6.106
54	6/16/1999	3:24:17 PM	0	35.927	23.947	36.118	27.329	23.617	31.665	44.105	50.937	6.439	38.389	6.044
55	6/16/1999	3:25:17 PM	0	36.129	23.947	36.276	27.294	23.502	31.824	44.167	51.395	6.247	39.234	6.199
56	6/16/1999	3:26:18 PM	0	36.208	23.912	36.276	27.374	23.421	31.963	44.384	50.815	5.912	38.794	6.168
57	6/16/1999	3:27:18 PM	0	36.366	23.947	36.557	27.339	23.386	32.141	45.004	51.882	6.064	40.012	6.199
58	6/16/1999	3:28:18 PM	0	36.489	23.867	36.635	27.179	23.226	32.265	43.95	50.907	5.928	38.93	6.137
59	6/16/1999	3:29:18 PM	0	36.489	23.992	36.714	27.1	23.226	32.345	45.159	51.699	6.032	39.2	6.137
60	6/16/1999	3:30:18 PM	0	36.725	23.912	36.714	27.179	23.145	32.186	45.19	51.852	6.096	38.794	6.137
61	6/16/1999	3:31:18 PM	0	36.804	23.912	36.872	27.02	23.226	32.582	44.446	51.242	5.984	38.49	6.137
62	6/16/1999	3:32:18 PM	0	36.883	23.957	37.029	27.1	22.985	32.662	44.973	52.431	6.152	39.707	6.168
63	6/16/1999	3:33:18 PM	0	37.04	23.912	37.108	27.02	23.065	32.582	45.562	52.706	6.088	39.437	6.199
64	6/16/1999	3:34:18 PM	0	37.119	23.912	37.186	27.02	22.904	32.741	45.531	52.096	5.848	38.693	6.168
65	6/16/1999	3:35:19 PM	0	37.119	23.912	37.344	26.86	22.824	32.775	45.345	52.309	6.096	39.471	6.168
66	6/16/1999	3:36:19 PM	0	37.355	23.912	37.299	26.86	22.824	32.538	44.663	51.364	6.144	38.896	6.106
67	6/16/1999	3:37:19 PM	0	37.355	23.912	37.501	26.655	22.985	32.82	44.322	50.815	5.968	38.355	6.014
68	6/16/1999	3:38:19 PM	0	37.512	23.867	37.456	26.7	22.824	32.854	44.415	51.273	6.231	39.133	6.106
69	6/16/1999	3:39:19 PM	0	37.512	23.992	37.535	26.54	22.698	33.013	45.314	51.699	6.16	39.606	6.106
70	6/16/1999	3:40:19 PM	0	37.547	23.947	37.614	26.46	22.618	32.934	45.035	51.517	6.064	39.031	6.075
71	6/16/1999	3:41:19 PM	0	37.625	23.947	37.692	26.255	22.698	32.934	45.159	51.791	6.112	39.504	6.106
72	6/16/1999	3:42:19 PM	0	37.659	23.947	37.726	26.175	22.618	32.81	45.624	52.797	6.136	40.35	6.199
73	6/16/1999	3:43:19 PM	0	37.738	23.947	37.805	25.97	22.572	33.047	45.81	53.011	6.239	40.147	6.137
74	6/16/1999	3:44:19 PM	0	37.895	23.901	37.884	25.925	22.492	33.047	45.035	52.065	6.207	40.079	6.168
75	6/16/1999	3:45:20 PM	0	37.974	23.936	37.996	25.89	22.492	33.003	44.477	51.151	5.785	39.437	6.137
76	6/16/1999	3:46:20 PM	0	38.008	23.856	37.918	25.764	22.411	33.161	44.942	51.395	5.785	39.673	6.106
77	6/16/1999	3:47:20 PM	0	38.008	23.856	38.031	25.764	22.527	33.082	44.694	51.639	5.816	39.133	6.106
78	6/16/1999	3:48:20 PM	0	38.042	23.936	38.153	25.559	22.285	33.037	45.19	52.004	6.056	39.606	6.075
79	6/16/1999	3:49:20 PM	0	38.121	23.891	38.188	25.559	22.401	33.16	46.069	52.37	5.964	38.794	6.014
80	6/16/1999	3:50:20 PM	0	38.234	23.846	38.222	25.479	22.275	32.913	45.81	52.584	6.215	39.133	6.014
81	6/16/1999	3:51:20 PM	0	38.234	23.926	38.3	25.354	22.275	32.792	44.787	51.466	6.088	39.234	6.014

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	-0.135	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	-0.135	-0.08	0.011	0									
5	-0.089	-0.08	0.011	0									
6	-0.089	-0.08	0.011	0									
7										at 25C	PERMABILITY	x 1000	PERMABILITY
8	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	31.492	-0.065	0.011	0	1	0.0	3.3	0.2	0.005	0.004	0.0013	1.27	1.1
10	31.492	-0.08	0.011	0	2	0.0	0.8	0.1	0.005	0.004	0.0055	5.50	4.7
11	31.492	-0.065	0.011	0	3	0.0	0.7	0.0	0.005	0.004	0.0067	6.74	5.7
12	31.492	-0.08	0.011	0.003	4	0.0	0.5	0.0	0.005	0.005	0.0093	9.30	7.9
13	69.695	13.836	0.092	0.003	5	5.7	-4.9	-0.3	0.040	0.038	-0.0078	-7.79	-6.6
14	69.741	39.64	0.011	0.003	6	16.5	5.1	0.3	0.005	0.004	0.0009	0.88	0.7
15	0.004	28.382	0.012	0	7	11.8	9.8	0.7	0.005	0.005	0.0005	0.49	0.4
16	0.004	39.118	0.607	0	8	16.2	22.0	1.5	0.265	0.241	0.0109	10.93	9.3
17	0.004	34.495	0.261	0	9	14.3	39.2	2.7	0.114	0.102	0.0026	2.60	2.2
18	0.004	32.083	0.493	0	10	13.3	33.3	2.3	0.215	0.190	0.0057	5.72	4.9
19	0.004	26.262	0.505	0	11	10.9	40.9	2.8	0.220	0.193	0.0047	4.73	4.0
20	0.004	27.736	0.442	0	12	11.5	39.0	2.7	0.193	0.167	0.0043	4.29	3.7
21	0.004	28.566	0.42	0	13	11.9	39.1	2.7	0.183	0.158	0.0040	4.03	3.4
22	0.004	29.073	0.367	0	14	12.1	38.3	2.6	0.160	0.137	0.0036	3.57	3.0
23	0.004	29.58	0.406	0	15	12.3	38.9	2.7	0.177	0.150	0.0039	3.86	3.3
24	0.004	29.81	0.929	0	16	12.4	38.8	2.7	0.406	0.341	0.0088	8.81	7.5
25	0.004	30.47	0.559	0	17	12.6	41.4	2.9	0.244	0.204	0.0049	4.93	4.2
26	68.861	30.808	0.823	0	18	12.8	1.9	0.1	0.359	0.297	0.1565	156.46	133.1
27	0.004	30.225	0.151	0	19	12.5	38.8	2.7	0.066	0.054	0.0014	1.40	1.2
28	-0.042	30.947	0.564	0	20	12.8	41.2	2.8	0.246	0.202	0.0049	4.90	4.2
29	-0.042	30.225	0.532	0	21	12.5	41.3	2.8	0.232	0.189	0.0046	4.59	3.9
30	-0.042	30.655	0.5	0.003	22	12.7	40.6	2.8	0.218	0.177	0.0044	4.35	3.7
31	-0.042	30.486	0.492	0.003	23	12.7	41.5	2.9	0.215	0.173	0.0042	4.18	3.6
32	-0.042	30.44	0.478	0	24	12.6	41.1	2.8	0.209	0.167	0.0041	4.07	3.5
33	0.004	30.977	0.469	0.003	25	12.9	40.8	2.8	0.205	0.164	0.0040	4.01	3.4
34	0.004	30.532	0.472	0.003	26	12.7	41.3	2.8	0.206	0.164	0.0040	3.97	3.4
35	-0.042	30.854	0.464	0	27	12.8	41.6	2.9	0.203	0.160	0.0039	3.85	3.3
36	0.004	30.578	0.46	0	28	12.7	41.6	2.9	0.201	0.158	0.0038	3.80	3.2
37	-0.042	29.933	0.458	0	29	12.4	42.0	2.9	0.200	0.157	0.0037	3.73	3.2
38	0.004	30.24	0.456	0	30	12.5	42.0	2.9	0.199	0.155	0.0037	3.70	3.2
39	-0.042	30.517	0.45	0	31	12.7	41.4	2.9	0.196	0.153	0.0037	3.69	3.1
40	0.004	29.672	0.447	0	32	12.3	42.0	2.9	0.195	0.151	0.0036	3.60	3.1
41	0.004	30.317	0.448	0	33	12.6	41.1	2.8	0.196	0.151	0.0037	3.67	3.1
42	0.004	29.825	0.443	0	34	12.4	42.1	2.9	0.193	0.149	0.0035	3.54	3.0
43	0.004	29.641	0.438	0	35	12.3	41.5	2.9	0.191	0.147	0.0035	3.53	3.0
44	-0.042	29.426	0.435	0	36	12.2	41.9	2.9	0.190	0.146	0.0035	3.48	3.0
45	0.004	29.334	0.435	0	37	12.2	41.7	2.9	0.190	0.145	0.0035	3.47	3.0
46	-0.042	30.01	0.429	0	38	12.5	41.7	2.9	0.187	0.142	0.0034	3.41	2.9
47	0.004	29.795	0.43	0.003	39	12.4	41.8	2.9	0.188	0.142	0.0034	3.39	2.9
48	0.004	29.764	0.427	0.003	40	12.4	41.5	2.9	0.186	0.141	0.0034	3.39	2.9
49	0.004	30.424	0.425	0	41	12.6	41.7	2.9	0.186	0.140	0.0033	3.35	2.8
50	0.004	29.994	0.424	0	42	12.4	41.2	2.8	0.185	0.139	0.0034	3.38	2.9
51	-0.042	29.779	0.424	0	43	12.4	41.7	2.9	0.185	0.138	0.0033	3.32	2.8
52	0.004	30.194	0.423	0.003	44	12.5	41.3	2.9	0.185	0.137	0.0033	3.32	2.8
53	-0.042	30.655	0.42	0	45	12.7	42.2	2.9	0.183	0.136	0.0032	3.23	2.7
54	0.004	30.394	0.415	0	46	12.6	41.2	2.8	0.181	0.134	0.0032	3.25	2.8
55	-0.042	30.701	0.424	0	47	12.7	41.7	2.9	0.185	0.136	0.0033	3.27	2.8
56	0.004	29.318	0.42	0	48	12.2	41.6	2.9	0.183	0.135	0.0032	3.25	2.8
57	0.004	29.272	0.421	0	49	12.1	42.5	2.9	0.184	0.134	0.0032	3.16	2.7
58	0.004	29.81	0.418	0	50	12.4	41.4	2.9	0.182	0.133	0.0032	3.21	2.7
59	0.004	29.61	0.42	0	51	12.3	42.2	2.9	0.183	0.133	0.0032	3.16	2.7
60	0.004	30.394	0.419	0	52	12.6	42.0	2.9	0.183	0.133	0.0032	3.17	2.7
61	-0.042	30.578	0.419	0	53	12.7	41.5	2.9	0.183	0.133	0.0032	3.20	2.7
62	0.004	29.61	0.419	0.003	54	12.3	42.3	2.9	0.183	0.132	0.0031	3.12	2.7
63	-0.042	30.133	0.421	0	55	12.5	42.5	2.9	0.184	0.132	0.0031	3.12	2.7
64	0.004	29.165	0.419	0	56	12.1	42.1	2.9	0.183	0.132	0.0031	3.12	2.7
65	-0.042	28.581	0.42	0	57	11.9	42.4	2.9	0.183	0.131	0.0031	3.10	2.6
66	-0.042	29.856	0.416	0	58	12.4	41.8	2.9	0.182	0.130	0.0031	3.12	2.7
67	0.004	28.996	0.411	0	59	12.0	41.3	2.9	0.179	0.128	0.0031	3.10	2.6
68	-0.042	30.01	0.413	0	60	12.5	41.8	2.9	0.180	0.129	0.0031	3.08	2.6
69	0.004	30.025	0.413	0.003	61	12.5	42.5	2.9	0.180	0.129	0.0030	3.03	2.6
70	0.004	29.764	0.411	0	62	12.4	42.0	2.9	0.179	0.128	0.0030	3.04	2.6
71	0.004	29.641	0.411	0	63	12.3	42.3	2.9	0.179	0.127	0.0030	3.01	2.6
72	0.004	28.796	0.419	0	64	12.0	43.0	3.0	0.183	0.130	0.0030	3.02	2.6
73	0.004	29.656	0.415	0.003	65	12.3	43.0	3.0	0.181	0.128	0.0030	2.98	2.5
74	0.004	29.165	0.416	0	66	12.1	42.6	2.9	0.182	0.128	0.0030	3.01	2.6
75	0.004	29.871	0.411	0	67	12.4	42.0	2.9	0.179	0.126	0.0030	3.01	2.6
76	0.004	28.95	0.413	0	68	12.0	42.3	2.9	0.180	0.127	0.0030	3.01	2.6
77	0.004	29.226	0.412	0	69	12.1	41.9	2.9	0.180	0.127	0.0030	3.02	2.6
78	0.004	29.18	0.404	0	70	12.1	42.4	2.9	0.176	0.124	0.0029	2.92	2.5
79	0.004	29.749	0.403	0	71	12.3	42.4	2.9	0.176	0.123	0.0029	2.90	2.5
80	0.004	30.424	0.404	0	72	12.6	42.5	2.9	0.176	0.123	0.0029	2.91	2.5
81	0.004	29.626	0.402	0.003	73	12.3	42.0	2.9	0.175	0.123	0.0029	2.92	2.5

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.14b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	6/16/1999	3:52:20 PM	0	38.391	23.926	38.3	25.274	22.275	33.027	44.849	51.517	5.952	39.234	6.014	-0.042	29.487	0.403	0	74	12.2	42.0	2.9	0.176	0.123	0.0029	2.92	2.5
83	6/16/1999	3:53:20 PM	0	38.347	23.801	38.335	25.389	22.195	32.868	45.035	51.73	6.319	39.403	5.983	0.004	29.426	0.4	0	75	12.2	42.2	2.9	0.175	0.122	0.0029	2.89	2.5
84	6/16/1999	3:54:20 PM	0	38.381	23.881	38.413	25.309	22.104	32.789	43.919	50.693	6.175	38.964	6.014	-0.042	29.395	0.401	0	76	12.2	41.4	2.9	0.175	0.122	0.0029	2.94	2.5
85	6/16/1999	3:55:20 PM	0	38.459	23.836	38.447	25.263	22.104	32.586	44.694	52.004	6.056	39.335	6.044	0.004	29.979	0.402	0	77	12.4	42.0	2.9	0.175	0.122	0.0029	2.91	2.5
86	6/16/1999	3:56:20 PM	0	38.538	23.836	38.526	25.263	22.265	32.304	45.562	52.37	6.191	39.403	6.075	0.004	29.672	0.403	0.003	78	12.3	42.5	2.9	0.176	0.122	0.0029	2.88	2.4
87	6/16/1999	3:57:21 PM	0	38.572	23.79	38.639	25.183	22.3	32.145	44.849	51.547	5.872	39.707	6.044	-0.042	29.825	0.4	0	79	12.4	42.3	2.9	0.175	0.121	0.0029	2.86	2.4
88	6/16/1999	3:58:21 PM	0	38.572	23.871	38.56	25.058	22.541	32.145	44.229	51.09	6.327	38.558	6.014	0.004	30.071	0.395	0	80	12.5	41.4	2.9	0.172	0.120	0.0029	2.89	2.5
89	6/16/1999	3:59:21 PM	0	38.651	23.826	38.717	25.013	22.461	31.987	45.097	51.606	6.255	38.862	6.014	0.004	30.578	0.393	0.003	81	12.7	42.0	2.9	0.172	0.119	0.0028	2.83	2.4
90	6/16/1999	4:00:21 PM	0	38.729	23.871	38.717	25.058	22.541	31.987	44.57	50.846	5.832	38.287	5.952	-0.042	29.856	0.395	0	82	12.4	41.4	2.9	0.172	0.119	0.0029	2.88	2.4
91	6/16/1999	4:01:21 PM	0	38.685	23.906	38.751	25.058	22.576	31.828	44.415	51.09	6.024	39.2	6.044	0.004	29.288	0.395	0	83	12.2	41.8	2.9	0.172	0.119	0.0028	2.85	2.4
92	6/16/1999	4:02:21 PM	0	38.685	23.826	38.751	25.013	22.737	31.783	43.95	50.632	6.239	38.321	6.014	0.004	30.363	0.392	0	84	12.6	41.1	2.8	0.171	0.118	0.0029	2.87	2.4
93	6/16/1999	4:03:22 PM	0	38.764	23.826	38.83	25.013	22.576	31.704	44.663	51.059	6.247	38.22	5.952	0.004	30.747	0.41	0.003	85	12.8	41.4	2.9	0.179	0.123	0.0030	2.98	2.5
94	6/16/1999	4:04:22 PM	0	38.842	23.906	38.83	24.933	22.737	31.942	44.477	50.968	6.199	38.862	6.014	0.004	29.672	0.407	0	86	12.3	41.7	2.9	0.178	0.122	0.0029	2.94	2.5
95	6/16/1999	4:05:22 PM	0	38.921	23.826	38.908	25.013	22.576	31.863	44.322	50.968	6.598	39.234	6.014	-0.042	31.208	0.388	0	87	13.0	41.8	2.9	0.169	0.117	0.0028	2.79	2.4
96	6/16/1999	4:06:22 PM	0	38.921	23.826	38.987	25.013	22.737	31.863	44.012	50.571	6.207	38.625	6.044	0.004	30.517	0.386	0	88	12.7	41.3	2.8	0.169	0.116	0.0028	2.80	2.4
97	6/16/1999	4:07:22 PM	0	38.921	23.906	38.987	25.013	22.657	31.863	44.105	50.602	6.247	38.862	6.014	0.004	31.054	0.383	0	89	12.9	41.5	2.9	0.167	0.115	0.0028	2.77	2.4
98	6/16/1999	4:08:22 PM	0	38.955	23.826	38.987	25.013	22.818	31.897	43.578	50.266	6.319	38.051	5.983	0.004	29.856	0.392	0	90	12.4	40.8	2.8	0.171	0.117	0.0029	2.88	2.4
99	6/16/1999	4:09:22 PM	0	39.033	23.78	39.021	25.013	22.657	31.704	44.229	50.785	6.303	38.524	6.014	0.004	29.979	0.383	0	91	12.4	41.4	2.9	0.167	0.115	0.0028	2.77	2.4
100	6/16/1999	4:10:22 PM	0	39.112	23.906	39.021	25.013	22.692	31.897	43.547	50.541	6.503	38.084	6.014	-0.042	30.102	0.384	0	92	12.5	40.8	2.8	0.168	0.115	0.0028	2.82	2.4
101	6/16/1999	4:11:22 PM	0	39.112	23.78	39.144	25.013	22.611	31.659	43.857	50.388	6.056	38.254	6.044	-0.042	30.025	0.386	0	93	12.5	41.1	2.8	0.169	0.115	0.0028	2.81	2.4
102	6/16/1999	4:12:22 PM	0	39.112	23.826	39.099	24.968	22.576	31.942	44.415	51.151	6.487	38.254	6.044	0.004	30.532	0.384	0.003	94	12.7	41.3	2.8	0.168	0.115	0.0028	2.78	2.4
103	6/16/1999	4:13:23 PM	0	39.112	23.826	39.099	24.968	22.37	31.818	44.322	50.754	6.144	38.152	6.044	0.004	30.44	0.385	0.003	95	12.6	41.2	2.8	0.168	0.115	0.0028	2.79	2.4
104	6/16/1999	4:14:23 PM	0	39.19	23.78	39.178	24.968	22.451	31.897	43.547	50.023	6.128	37.746	6.014	0.004	30.47	0.382	0	96	12.6	40.6	2.8	0.167	0.114	0.0028	2.80	2.4
105	6/16/1999	4:15:23 PM	0	39.19	23.861	39.178	24.968	22.37	31.977	44.353	51.242	6.343	38.423	6.075	-0.042	30.747	0.407	0	97	12.8	41.4	2.9	0.178	0.121	0.0029	2.93	2.5
106	6/16/1999	4:16:23 PM	0	39.269	23.78	39.178	24.888	22.451	31.977	44.694	51.242	6.55	38.524	6.044	-0.042	29.672	0.384	0	98	12.3	41.6	2.9	0.168	0.115	0.0028	2.75	2.3
107	6/16/1999	4:17:23 PM	0	39.225	23.861	39.178	24.888	22.37	.977	43.671	50.175	6.295	37.78	6.014	-0.042	31.914	0.383	0.003	99	13.2	40.7	2.8	0.167	0.114	0.0028	2.80	2.4
108	6/16/1999	4:18:23 PM	0	39.269	23.861	39.256	24.808	22.451	32.056	43.021	49.626	6.279	38.051	6.014	-0.042	31.407	0.385	0	100	13.0	40.5	2.8	0.168	0.115	0.0028	2.83	2.4
109	6/16/1999	4:19:23 PM	0	39.303	23.78	39.256	24.888	22.531	31.977	43.578	50.114	6.072	38.254	6.044	-0.042	29.81	0.38	0	101	12.4	40.9	2.8	0.166	0.113	0.0028	2.76	2.4
110	6/16/1999	4:20:23 PM	0	39.303	23.815	39.212	24.888	22.405	31.977	43.919	50.815	6.343	38.456	6.044	-0.042	30.348	0.379	0	102	12.6	41.2	2.8	0.165	0.113	0.0027	2.74	2.3
111	6/16/1999	4:21:24 PM	0	39.426	23.78	39.335	24.888	22.486	31.977	44.57	51.303	6.367	38.862	6.075	-0.042	31.054	0.384	0	103	12.9	41.7	2.9	0.168	0.114	0.0027	2.73	2.3
112	6/16/1999	4:22:24 PM	0	39.382	23.861	39.291	24.808	22.566	31.853	44.229	51.09	6.207	38.456	6.106	-0.042	29.395	0.382	0	104	12.2	41.3	2.9	0.167	0.114	0.0027	2.75	2.3
113	6/16/1999	4:23:24 PM	0	39.382	23.735	39.291	24.843	22.486	31.932	44.663	51.273	6.231	38.592	6.106	-0.042	31.069	0.39	0	105	12.9	41.6	2.9	0.170	0.116	0.0028	2.79	2.4
114	6/16/1999	4:24:24 PM	0	39.46	23.735	39.291	24.762	22.486	31.853	43.578	49.84	5.729	38.188	6.106	-0.042	30.102	0.384	0	106	12.5	40.9	2.8	0.168	0.114	0.0028	2.79	2.4
115	6/16/1999	4:25:24 PM	0	39.46	23.815	39.369	24.923	22.486	31.774	44.632	51.669	6.128	38.558	6.137	-0.042	29.349	0.393	0	107	12.2	41.6	2.9	0.172	0.117	0.0028	2.80	2.4
116	6/16/1999	4:26:24 PM	0	39.46	23.77	39.369	24.762	22.486	31.456	44.632	51.486	5.968	38.964	6.168	-0.042	29.948	0.385	0	108	12.4	41.8	2.9	0.168	0.114	0.0027	2.73	2.3
117	6/16/1999	4:27:25 PM	0	39.46	23.815	39.447	24.762	22.566	31.536	43.64	50.541	6.136	38.321	6.075	-0.042	30.455	0.377	0	109	12.6	41.0	2.8	0.165	0.112	0.0027	2.72	2.3
118	6/16/1999	4:28:25 PM	0	39.46	23.815	39.369	24.762	22.486	31.536	43.981	50.632	6.088	37.915	6.044	-0.042	30.424	0.38	0	110	12.6	40.9	2.8	0.166	0.113	0.0028	2.75	2.3
119	6/16/1999	4:29:25 PM	0	39.46	23.815	39.447	24.602	22.647	31.536	43.361	49.962	5.992	38.254	6.044	-0.042	30.025	0.378	0	111	12.5	40.8	2.8	0.165	0.112	0.0027	2.74	2.3
120	6/16/1999	4:30:25 PM	0	39.539	23.77	39.447	24.762	22.647	31.536	44.849	51.73	6.008	38.794	6.106	-0.042	29.395	0.381	0	112	12.2	41.8	2.9	0.166	0.113	0.0027	2.70	2.3
121	6/16/1999	4:31:25 PM	0	39.46	23.735	39.482	24.843	22.727	31.615	43.826	50.327	6.096	38.118	6.044	-0.042	30.44	0.375	0	113	12.6	41.0	2.8	0.164	0.111	0.0027	2.71	2.3
122	6/16/1999	4:32:25 PM	0	39.617	23.815	39.482	24.843	22.682	31.536	43.888	50.145	6	38.625	6.044	-0.089	30.47	0.377	0	114	12.6	41.3	2.8	0.165	0.112	0.0027	2.70	2.3
123	6/16/1999	4:33:25 PM	0	39.539	23.815	39.526	24.843	22.762	31.536	44.539	51.151	6.112	38.524	6.044	-0.042	30.563	0.374	0	115	12.7	41.5	2.9	0.163	0.111	0.0027	2.66	2.3
124	6/16/1999	4:34:25 PM	0	39.573	23.815	39.526	24.843	22.727	31.615	43.919	50.815	6.295	38.896	6.075	-0.042	29.841	0.38	0	116	12.4	41.4	2.9	0.166	0.112	0.0027	2.71	2.3
125	6/16/1999	4:35:25 PM	0	39.617	23.815	39.604	24.923	22.727	31.694	44.384	51.09	6.263	38.254	6.044	-0.042	30.778	0.376	0	117	12.8	41.3	2.8	0.164	0.111	0.0027	2.68	2.3
126	6/16/1999	4:36:25 PM	0	39.617	23.815	39.526	24.843	22.566	31.615	44.167	50.632	6.032	38.389	6.044	-0.042	29.902	0.374	0	118	12.4	41.3	2.8	0.163	0.111	0.0027	2.68	2.3
127	6/16/1999	4:37:25 PM	0	39.695	23.815	39.604	24.843	22.647	31.615	44.074	50.541	6.255	38.862	6.044	-0.042	30.854	0.378	0	119	12.8	41.5	2.9	0.165	0.112	0.0027	2.69	2.3
128	6/16/1999	4:38:25 PM	0	39.695	23.815	39.604	24.843	22.486	31.536	44.415	51.12	6.359	39.944	6.014	-0.042	29.656	0.392	0	120	12.3	42.2	2.9	0.171	0.116	0.0027	2.74	2.3
129	6/16/1999	4:39:26 PM	0	39.695	23.815	39.683	24.923	22.727	31.694	44.136	50.815	6.263	38.423	6.044	-0.042	30.301	0.373	0	121	12.6	41.3	2.8	0.163	0.110	0.0027	2.66	2.3
130	6/16/1999	4:40:26 PM	0	39.774	23.815	39.683	24.843	22.727	31.456	43.919	50.724	6.391	39.031	6.014	-0.042	29.165	0.371	0	122	12.1	41.5	2.9	0.162	0.109	0.0028	2.63	2.2
131	6/16/1999	4:41:26 PM	0	39.695	23.815	39.683	24.843	22.807	31.615	44.353	50.907	6.112	38.321	6.044	-0.089	30.424	0.374	0	123	12.6	41.3	2.9	0.163	0.110	0.0027	2.66	2.3
132	6/16/1999	4:42:26 PM	0	39.774	23.815	39.761	24.843	22.647	31.615	43.64	50.145	6.144	38.49	6.014	-0.042	30.609	0.371	0	124	12.7	41.1	2.8	0.162	0.109	0.0027	2.65	2.3
133	6/16/1999	4:43:26 PM	0	39.774	23.815	39.761	24.923	22.727	31.615	43.454	50.358	6.048	39.031	6.044	-0.042	30.24	0.373	0	125	12.5	41.2	2.8	0.163	0.110	0.0027	2.66	2.3
134	6/16/1999	4:44:26 PM	0	39.774	23.735	39.761	24.762	22.727	31.536	44.322	50.968	6.391	38.49	6.044	-0.042	29.948	0.373	0	126	12.4	41.4	2.9	0.163	0.110	0.0026	2.65	2.3
135	6/16/1999	4:45:26 PM	0	39.852	23.735	39.839	24.843	22.853	31.536	43.95	50.785	6.016	38.389	6.044	-0.042	30.87	0.377	0	127	12.8	41.2	2.8	0.165	0.111	0.0027	2.69	2.3
136	6/16/1999	4:46:26 PM	0	39.852	23.861	39.883	24.808	22.692	31.536	44.446	51.395	6.423	38.524	6.044	0.004	30.209	0.374	0	128	12.5	41.5	2.9	0.163	0.110	0.0026	2.64	2.2
137	6/16/1999	4:47:26 PM	0	39.852	23.78	39.883	24.843	22.727	31.694	44.446	51.059	6.319	38.828	6.044	-0.089	29.38	0.372	0	129	12.2	41.6	2.9	0.162	0.109	0.0026	2.62	2.2
138	6/16/1999	4:48:26 PM	0	39.975	23.78	39.839	24.806	22.647	31.615	43.857	50.48	6.056	38.389	6.044	-0.042	30.547	0.374	0	130	12.7	41.1	2.8	0.163	0.110	0.0027	2.67	2.3
139	6/16/1999	4:49:27 PM	0	40.053	23.815	39.962	24.843	22.692	31.774	44.849	51.517	6.295	39.065	6.044	-0.042	30.517	0.377	0	131	12.7	42.0	2.8	0.165	0.110	0.0026	2.63	2.2
140	6/16/1999	4:50:27 PM	0	39.975	23.861	39.996	24.806	22.772	31.58	44.477	50.996	6.191	38.592	6.044	-0.042	30.332	0.373	0	132	12.6	41.5	2.9	0.163	0.109	0.0026	2.62	2.2
141	6/16/1999	4:51:27 PM	0	39.975	23.78	39.962	24.647	22.692	31.58	44.136	50.663	6.104	38.355	6.044	-0.042	29.964	0.382	0.003	133	12.4	41.2	2.8	0.167	0.112	0.0027	2.71	2.3
142	6/16/1999	4:52:27 PM	0	40.053	23.78	40.04	24.808	22.772	31.739	43.919	50.602	6.223	38.524	6.044	-0.042	29.825	0.37	0	134	12.4	41.2	2.8	0.162	0.108	0.0026	2.62	2.2
143	6/16/1999	4:53:27 PM	0	40.131	23.78	39.962	24.808	22.772	31.501	44.694	51.425	6.598	39.369	6.044	-0.042	30.808	0.37	0.003	135	12.8	42.0	2.9	0.162	0.108	0.0026	2.57	2.2
144	6/16/1999	4:54:27 PM	0	40.053	23.78	40.04	24.808	22.772	31.739	44.973	51.639	6.439	38.828	6.014	-0.042	30.839	0.375	0	136	12.8	41.9	2.9	0.164	0.109	0.0026	2.61	2.2
145	6/16/1999	4:55:27 PM	0	39.661	23.78	40.04	24.808	22.692	31.58	28.391	52.035	6.183	23.276	22.655	-0.042	29.841	0.013	0	137	12.4	25.8	1.8	0.006	0.004	0.0001	0.15	0.1
146	6/16/1999	4:56:27 PM	0	40.21	23.861	40.04	24.647	22.772	31.58	40.51	51.517	5.968	35.076	10.112	-0.042	29.411	0.381	0	138	12.2	37.8	2.6	0.166	0.111	0.0029	2.94	2.5
147	6/16/1999	4:57:27 PM	0	40.175	23.78	40.118	24.727	22.611	31.58	40.386	51.029	6.207	35.211	9.712	-0.042	29.196	0.373	0	139	12.1	37.8	2.6	0.163	0.109	0.0029	2.87	2.4
148	6/16/1999	4:58:27 PM	0	40.332	23.78	40.162	24.692	22.772	31.739	40.851	50.907	6.215	34.737	9.496	-0.042	29.702	0.372	0	140	12.3	37.8	2.6	0.162	0.108	0.0029	2.86	2.4
149	6/16/1999	4:59:27 PM	0	40.288	23.826	40.118	24.692	22.692	31.739	41.564	52.279	6.455	36.09	9.465	-0.042	30.394	0.375	0	141	12.6	38.8	2.7	0.164	0.109	0.0028	2.81	2.4
150	6/16/1999	5:00:28 PM	0	40.175	23.78	40.197	24.692	22.611	31.659	41.688	51.517	6.207	36.326	9.465	-0.042	30.824	0.374	0	142	12.8	39.0	2.7	0.163	0.109	0.0028	2.79	2.4
151	6/16/1999	5:01:28 PM	0	40.21	23.78	40.197	24.647	22.611	31.739	40.913	50.846	6.215	35.786	9.249	-0.042	29.38	0.38	0	143	12.2	38.3	2.6	0.166	0.110	0.0029	2.88	2.5
152	6/16/1999	5:02:28 PM	0	40.288	23.78	40.241	24.647	22.737	31.818	41.967	50.815	6.08	36.428	8.232	-0.089	31.069	0.378	0	144	12.9	39.2	2.7	0.165	0.110	0.0028	2.80	2.4
153																											
154		Averages		37.8	23.9	37.9	25.7	22.7	32.0	44.1	51.2	6.2	38.5	8.4	0.0	30.1	0.402	0.0		12.5	41.3	2.8	0.176	0.125	0.003	3.0	2.6
155		Maximum		40.3	24.0	40.2	27.6	23.7	33.2	46.1	53.0	6.9	40.4	22.7	0.0	31.9	0.564	0.0		13.2	43.0	3.0	0.246	0.202	0.005	4.9	4.2
156		Median		38.7	23.8	38.7	25.1	22.7	31.9	44.4	51.1	6.2	38.6	6.0	0.0	30.0	0.400	0.0		12.5	41.5	2.9	0.175	0.121	0.003	2.9	2.5
157		Minimum		32.1	23.7	32.2	24.6	22.1	31.3	28.4	49.8	5.7	23.3	6.0	-0.1	28.6	0.013	0.0		11.9	25.8	1.8	0.006	0.004	0.0001	0.1	0.1
158		Std Dev		2.2	0.1	2.1	1.1	0.3	0.5	1.7	0.6	0.2	1.6	1.7	0.0	0.6	0.048	0.0		0.2	1.7	0.1	0.021	0.021	0.000	0.5	0.4
159		Number of Points Used		125	125	125	125	125	125	125	125	125	125	125	125	125	125	125		125	125	125	125	125	125	125	125



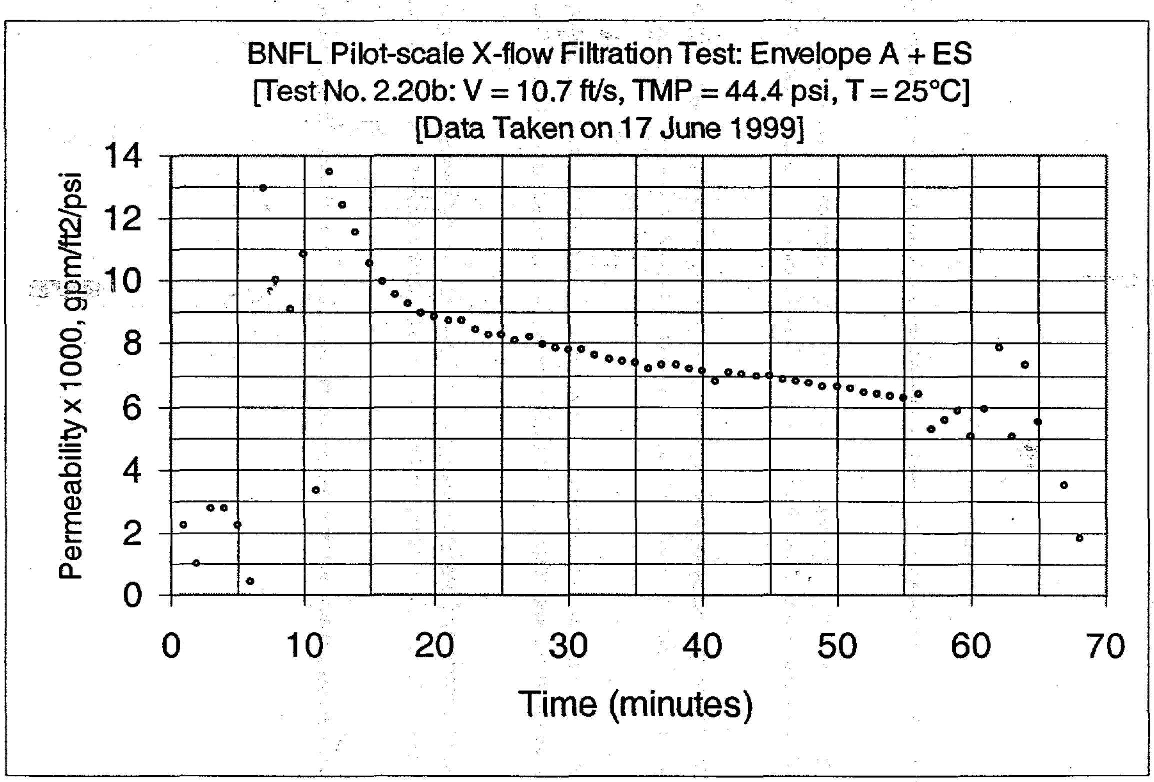


Figure C3: Test Run 2.20b, 5 wt% to 16 wt% Insoluble Solids Concentration

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.20b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (deg C)	CL LOOP	SL LOOP	UP AMB	BOT AMB	T6 (deg C)	BOT DP	FLTR (psig)	FLTR DP	TOP DP	FLTRATE (psig)	PISTON (psig)	SL FLOW	FLTR FLOW	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/17/1999	10:02:46 AM	0	23.191	21.649	23.427	21.956	21.445	31.82	-0.062	0.02	-0.032	0.016	-0.066	-0.136	-0.06	0.011	0		Conversion =		651.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/17/1999	10:03:46 AM	0	23.111	21.649	23.347	21.956	21.364	31.699	-0.062	0.02	-0.024	0.05	-0.066	-0.136	-0.06	0.011	0									
5	6/17/1999	10:04:46 AM	0	23.191	21.649	23.427	21.83	21.263	31.699	-0.062	0.02	-0.024	0.016	-0.066	-0.135	-0.06	0.011	0.003									
6	6/17/1999	10:05:46 AM	0	23.066	21.665	23.347	21.956	21.077	31.699	-0.062	0.02	-0.032	0.016	-0.066	-0.135	-0.06	0.011	0									
7	6/17/1999	10:06:46 AM	0	23.066	21.665	23.302	21.956	21.077	31.614	-0.062	0.02	-0.032	0.05	-0.066	-0.135	-0.06	0.011	0									
8	6/17/1999	10:07:46 AM	0	23.066	21.665	23.382	21.83	20.996	31.734	-0.062	0.02	-0.032	0.016	-0.119	-0.135	-0.06	0.011	0.003									
9	6/17/1999	10:08:46 AM	0	22.965	21.665	23.302	21.83	21.077	31.496	-0.062	0.02	-0.032	0.016	-0.066	-0.136	-0.06	0.011	0									
10	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
11	DATE	TIME	SOLENOID	FLTRT (deg C)	CL LOOP	SL LOOP	UP AMB	BOT AMB	T6 (deg C)	BOT DP	FLTR (psig)	FLTR DP	TOP DP	FLTRATE (psig)	PISTON (psig)	SL FLOW	FLTR FLOW	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM FT2 psi	m/day bar
12	6/17/1999	10:56:38 AM	0	24.642	21.775	24.756	23.449	22.134	30.791	36.706	40.662	2.043	33.453	5.069	-0.069	2.04	0.175	0	1	0.6	34.6	2.4	0.076	0.077	0.0022	2.22	1.9
13	6/17/1999	10:57:38 AM	0	24.842	21.856	24.676	23.529	22.214	30.712	11.003	17.368	0.942	9.958	6.26	-0.135	1.179	0.023	0.003	2	0.5	10.5	0.7	0.010	0.010	0.0010	0.97	0.8
14	6/17/1999	10:58:38 AM	0	24.867	21.775	24.435	23.609	22.214	30.712	8.368	17.124	0.78	7.826	6.633	-0.135	1.026	0.05	0	3	0.4	8.1	0.6	0.022	0.022	0.0027	2.74	2.3
15	6/17/1999	10:59:38 AM	0	24.922	21.856	24.115	23.609	22.295	30.633	8.957	17.612	1.037	7.623	6.671	-0.135	1.01	0.051	0	4	0.4	8.3	0.6	0.022	0.023	0.0028	2.75	2.3
16	6/17/1999	11:00:39 AM	0	24.642	21.82	24.079	23.689	22.375	30.553	23.99	32.644	1.875	22.127	6.695	-0.135	1.671	0.114	0	5	0.7	23.1	1.6	0.050	0.051	0.0022	2.22	1.9
17	6/17/1999	11:01:39 AM	0	24.842	21.775	23.839	23.815	22.375	30.474	15.126	27.521	4.309	9.178	12.393	-0.135	17.154	0.011	0	6	7.1	12.2	0.8	0.005	0.005	0.0004	0.41	0.3
18	6/17/1999	11:02:39 AM	0	24.406	21.856	23.756	23.615	22.456	30.439	44.725	54.261	8.457	35.921	9.496	-0.069	25.878	1.155	0	7	10.7	40.3	2.8	0.504	0.522	0.0130	12.95	11.0
19	6/17/1999	11:03:39 AM	0	24.325	21.901	23.756	23.615	22.662	30.439	44.415	51.639	14.258	30.613	7.154	-0.069	33.251	0.831	0	8	13.8	37.5	2.6	0.363	0.376	0.0100	10.02	8.5
20	6/17/1999	11:04:39 AM	0	24.245	21.82	23.518	23.695	22.662	30.359	45.5	51.517	13.428	31.458	6.137	-0.069	32.728	0.767	0	9	13.6	38.5	2.7	0.335	0.349	0.0091	9.07	7.7
21	6/17/1999	11:05:39 AM	0	24.065	21.865	23.322	23.86	22.662	30.404	44.849	52.157	10.836	34.061	7.709	-0.069	29.564	0.933	0	10	12.3	39.5	2.7	0.407	0.427	0.0106	10.83	9.2
22	6/17/1999	11:06:39 AM	0	24.049	21.865	23	24.101	22.707	30.324	3.781	53.62	4.532	-0.761	49.158	-0.069	29.457	0.011	0.003	11	12.2	1.5	0.1	0.005	0.005	0.0034	3.37	2.9
23	6/17/1999	11:07:39 AM	0	23.648	21.911	22.84	24.146	22.833	30.324	43.95	52.279	4.42	39.843	6.479	-0.069	30.424	1.218	0	12	12.6	41.9	2.9	0.532	0.565	0.0135	13.49	11.5
24	6/17/1999	11:08:39 AM	0	23.372	21.865	22.563	24.226	22.833	30.324	41.006	52.814	4.237	36.482	11.622	-0.135	29.626	1.027	0	13	12.3	38.7	2.7	0.448	0.480	0.0124	12.40	10.6
25	6/17/1999	11:09:39 AM	0	23.261	21.83	22.403	24.146	22.913	30.29	41.781	53.072	4.492	37.239	11.129	-0.069	29.441	0.969	0.003	14	12.2	39.5	2.7	0.423	0.455	0.0115	11.53	9.8
26	6/17/1999	11:10:39 AM	0	23.176	21.875	22.85	24.351	22.878	30.493	47.763	52.814	4.229	44.506	4.643	-0.069	28.704	1.05	0	15	11.9	46.1	3.2	0.458	0.487	0.0106	10.56	9.0
27	6/17/1999	11:11:39 AM	0	23.417	21.875	23.261	24.271	22.797	30.69	47.67	52.96	4.309	44.136	4.904	-0.069	28.834	0.995	0	16	12.0	45.9	3.2	0.434	0.456	0.0099	9.94	8.5
28	6/17/1999	11:12:40 AM	0	23.783	21.921	23.573	24.156	22.762	31.049	47.236	52.492	4.213	43.663	5.212	-0.069	28.812	0.952	0	17	12.0	45.4	3.1	0.416	0.433	0.0095	9.52	8.1
29	6/17/1999	11:13:40 AM	0	23.944	21.921	24.099	24.156	22.601	31.015	47.763	53.224	4.061	43.663	5.336	-0.069	28.566	0.944	0	18	11.9	45.7	3.2	0.412	0.423	0.0092	9.25	7.9
30	6/17/1999	11:14:40 AM	0	24.345	21.921	24.465	23.995	22.521	31.173	42.649	53.376	4.348	39.606	10.205	-0.136	27.967	0.83	0	19	11.6	41.1	2.8	0.362	0.368	0.0089	8.94	7.6
31	6/17/1999	11:15:40 AM	0	24.631	21.966	24.545	24.121	22.405	31.253	43.021	53.041	3.949	39.643	10.174	-0.069	27.89	0.829	0	20	11.6	41.4	2.9	0.362	0.367	0.0088	8.85	7.5
32	6/17/1999	11:16:40 AM	0	24.791	21.966	24.306	23.96	22.325	31.377	44.043	54.322	4.149	39.606	10.061	-0.136	28.044	0.822	0	21	11.6	41.8	2.9	0.359	0.368	0.0087	8.75	7.4
33	6/17/1999	11:17:40 AM	0	24.711	22.011	24.064	23.88	22.244	31.456	47.949	53.496	3.836	43.796	5.49	-0.069	27.951	0.892	0	22	11.6	45.9	3.2	0.389	0.400	0.0087	8.72	7.4
34	6/17/1999	11:18:40 AM	0	24.551	21.966	23.904	23.96	22.244	31.456	48.91	54.108	3.966	44.271	5.49	-0.069	27.859	0.873	0	23	11.6	46.6	3.2	0.381	0.393	0.0084	8.44	7.2
35	6/17/1999	11:19:40 AM	0	24.39	21.865	23.743	23.96	22.325	31.456	44.322	54.596	4.029	40.248	10.112	-0.069	27.583	0.771	0	24	11.4	42.3	2.9	0.337	0.349	0.0082	8.25	7.0
36	6/17/1999	11:20:40 AM	0	24.355	21.966	23.563	24.005	22.37	31.456	44.446	54.261	3.942	39.976	10.051	-0.069	27.46	0.767	0	25	11.4	42.2	2.9	0.335	0.349	0.0083	8.26	7.0
37	6/17/1999	11:21:40 AM	0	24.23	21.966	23.788	23.96	22.29	31.456	45.097	54.901	4.077	40.38	10.061	-0.069	27.398	0.767	0.003	26	11.4	42.7	2.9	0.335	0.346	0.0081	8.11	6.9
38	6/17/1999	11:22:41 AM	0	24.355	21.931	23.984	24.005	22.209	31.501	48.104	54.2	3.918	43.866	6.014	-0.069	27.414	0.837	0	27	11.4	46.0	3.2	0.365	0.376	0.0082	8.18	7.0
39	6/17/1999	11:23:41 AM	0	24.39	22.011	24.27	23.925	22.164	31.615	48.941	55.064	3.969	44.711	6.014	-0.069	27.491	0.835	0	28	11.4	46.8	3.2	0.365	0.372	0.0079	7.95	6.8
40	6/17/1999	11:24:41 AM	0	24.596	22.011	24.43	23.88	22.164	31.536	48.617	54.931	4.077	44.948	6.69	-0.069	27.491	0.827	0	29	11.4	46.9	3.2	0.361	0.367	0.0078	7.83	6.7
41	6/17/1999	11:25:41 AM	0	24.791	21.966	24.51	23.8	22.29	31.774	48.6	54.667	4.013	44.506	5.796	-0.069	27.445	0.821	0	30	11.4	46.6	3.2	0.358	0.363	0.0078	7.81	6.6
42	6/17/1999	11:26:41 AM	0	24.917	22.011	24.631	23.845	22.209	31.739	47.887	53.376	3.71	44.407	5.705	-0.069	27.491	0.819	0	31	11.4	46.1	3.2	0.358	0.359	0.0078	7.78	6.6
43	6/17/1999	11:27:41 AM	0	24.952	21.966	24.866	23.845	22.063	31.853	48.383	54.352	4.141	44.677	5.644	-0.069	27.368	0.81	0	32	11.4	46.5	3.2	0.354	0.355	0.0076	7.63	6.5
44	6/17/1999	11:28:41 AM	0	25.192	21.966	25.106	23.8	22.003	31.853	48.755	54.169	3.636	44.643	5.644	-0.069	27.46	0.805	0	33	11.4	46.7	3.2	0.351	0.350	0.0075	7.50	6.4
45	6/17/1999	11:29:41 AM	0	25.432	22.046	25.266	23.8	22.063	31.615	48.766	54.667	3.926	44.86	5.613	-0.069	27.567	0.801	0	34	11.4	46.8	3.2	0.350	0.347	0.0074	7.41	6.3
46	6/17/1999	11:30:41 AM	0	25.512	22.046	25.507	23.719	22.063	31.694	43.609	54.383	4.053	39.976	10.613	-0.069	27.475	0.718	0	35	11.4	41.8	2.9	0.313	0.309	0.0074	7.39	6.3
47	6/17/1999	11:31:42 AM	0	25.673	22.046	25.347	23.719	22.063	31.65	44.88	55.419	4.045	40.722	10.544	-0.069	27.26	0.716	0.003	36	11.3	42.6	3.0	0.313	0.310	0.0072	7.23	6.2
48	6/17/1999	11:32:42 AM	0	25.753	22.001	25.141	23.8	22.063	31.694	44.446	55.145	4.037	40.891	10.462	-0.069	27.091	0.716	0	37	11.2	42.7	2.9	0.313	0.311	0.0073	7.30	6.2
49	6/17/1999	11:33:42 AM	0	25.626	22.046	25.186	23.835	22.003	31.65	48.538	55.267	4.269	44.578	6.414	-0.069	27.383	0.783	0	38	11.4	46.6	3.2	0.342	0.340	0.0073	7.30	6.2
50	6/17/1999	11:34:42 AM	0	25.593	22.001	25.106	23.835	22.038	31.774	49.064	55.572	4.229	44.305	6.353	-0.069	27.291	0.774	0	39	11.3	46.7	3.2	0.338	0.337	0.0072	7.22	6.1
51	6/17/1999	11:35:42 AM	0	25.467	22.046	25.026	23.835	22.003	31.729	48.724	56.206	4.245	45.15	6.291	-0.069	27.352	0.769	0	40	11.4	46.9	3.2	0.336	0.335	0.0071	7.15	6.1
52	6/17/1999	11:36:42 AM	0	25.467	22.001	24.981	23.835	22.038	31.729	43.981	54.87	3.997	40.079	10.652	-0.069	27.183	0.655	0	41	11.3	42.0	2.9	0.286	0.286	0.0068	6.81	5.8
53	6/17/1999	11:37:42 AM	0	25.467	22.001	25.026	23.835	21.958	31.65	44.229	54.84	3.694	40.722	10.613	-0.069	27.045	0.691	0	42	11.2	42.5	2.9	0.302	0.301	0.0071	7.10	6.0
54	6/17/1999	11:38:42 AM	0	25.367	22.001	25.061	23.754	22.038	31.57	45.436	56.364	4.332	40.722	10.482	-0.069	27.03	0.693	0	43	11.2	43.1	3.0	0.303	0.302	0.0070	7.01	6.0
55	6/17/1999	11:39:43 AM	0	25.467	22.082	25.301	23.754	22.038	31.57	45.779	56.791	4.237	41.499	10.513	-0.069	26.907	0.701	0	44	11.2	43.6	3.0	0.306	0.303	0.0070	6.95	5.9
56	6/17/1999	11:40:43 AM	0	25.663	22.036	25.542	23.79	21.993	31.729	49.25	56.09	4.125	45.218	6.599	-0.069	26.846	0.765	0	45	11.1	47.2	3.3	0.334	0.329	0.0070	6.96	5.9
57	6/17/1999	11:41:43 AM	0	25.903	22.036	25.817	23.79	21.993	31.729	49.312	56.029	4.065	45.691	6.63	-0.069	26.323	0.764	0	46	10.9	47.5	3.3	0.334	0.326	0.0069	6.86	5.8
58	6/17/1999	11:42:43 AM	0	26.143	22.036	26.057	23.79	21.993	31.605	49.806	56.456	4.006	45.319	6.63	-0.069	26.17	0.763	0.003	47	10.9	47.6	3.3	0.333	0.323	0.0068	6.80	5.8
59	6/17/1999	11:43:43 AM	0	26.303	22.117	26.297	23.709	22.073	31.286	49.219	56.181	3.846	46.3	6.661	-0.069	25.863	0.764	0.003	48	10.7	47.8	3.3	0.334	0.322	0.0067	6.73	5.7
60	6/17/1999	11:44:43 AM	0	26.623	22.036	26.536	23.79	22.234	31.206	49.684	56.12	3.782	46.266	6.599	-0.042	25.939	0.759	0	49	10.8	48.0	3.3	0.331	0.317	0.0066	6.62	5.6
61	6/17/1999	11:45:43 AM	0	26.863	22.117	26.731	23.87	22.234	31.049	49.312	56.212	3.806	46.3	6.568	-0.069	25.909	0.758	0	50	10.8	47.8	3.3	0.331	0.315	0.0066	6.59	5.6
62	6/17/1999	11:46:43 AM	0	27.102	22.117	27.016	23.87	22.395	30.89	49.964	56.669	3.702	45.962	6.63	-0.069	25.217	0.761	0	51	10.5	48.0	3.3	0.332	0.314	0.0065	6.54	5.6
63	6/17/1999	11:47:43 AM	0	27.342	22.117	27.256	23.79	22.476	30.89	50.397	57.036	3.862	46.232	6.599	-0.069	25.125	0.76	0	52	10.4	48.3	3.3	0.332	0.312	0.0064	6.45	5.5
64	6/17/1999	11:48:43 AM	0	27.502	22.117	27.415	23.96	22.476	30.811	50.056	56.606	3.519	46.672	6.666	-0.069	25.11	0.757	0	53	10.4	48.4	3.3	0.330	0.309	0.0064	6.39	5.4
65	6/17/1999	11:49:44 AM	0	27.741	22.117	27.734	24.03	22.637	30.732	46.058	56.576	3.59	43.19	10.613	-0.069	24.741	0.695	0	54	10.3	44.6	3.1	0.303	0.281	0.0063	6.30	5.4
66	6/17/1999	11:50:44 AM	0	28.06	22.036	28.133	24.03	22.637	30.573	46.275	56.7	3.215	43.359	10.482	-0.069	23.697	0.701	0	55	9.8	44.6	3.1	0.306	0.280	0.0063	6.28	5.3
67	6/17/1999	11:51:44 AM	0	28.344	22.162	28.576	24.03	22.717	30.573	43.796	54.106	2.601	40.657	10.266	-0.069	21.884	0.684	0	56	9.1	42.3	2.9	0.299	0.270	0.0064	6.39	5.4
68	6/17/1999	11:52:44 AM	0	28.776	22.162	29.009	24.076	22.923	30.617	47.453	53.224	2.621	46.435	5.86	-0.069	20.886	0.631	0	57	8.7	46.9	3.2	0.275	0.246	0.0052	5.25	4.5
69	6/17/1999	11:53:44 AM	0	29.221	22.082	29.452	24.156	22.923	30.536	46.104	54.413	2.434	45.556	6.507	-0.069	19.135	0.675	0	58	7.9	46.6	3.2	0.295	0.260	0.0056	5.56	4.7
70	6/17/1999	11:54:44 AM	0	29.619	22.062	29.65	24.121	23.084	30.456	43.266	49.474	3.144	36.969	5.305	-0.069	18.09	0.615	0	59	7.5	40.1	2.8	0.268	0.235	0.0059	5.85	5.0
71	6/17/1999	11:55:44 AM	0	29.982	22.207	30.371	24.201	23.084	30.424	46.363	54.801	3.166	45.049	5.829	-0.069	20.425	0.626	0	60	8.5	46.7	3.2	0.274	0.236	0.0051	5.06	4.3
72	6/17/1999	11:56:44 AM	0	30.3	22.127	30.689	24.261	23.129	30.863	40.107	45.996	2.713	41.262	6.044	-0.069	20.164	0.646	0	61	8.4	40.7	2.8	0.283	0.242	0.0059	5.94	5.1
73	6/17/1999	11:57:45 AM	0	30.777	22.127	31.086	24.261	22.966	30.946	26.464	33.965	2.063	32.236	5.736	-0.069	18.06	0.646	0	62	7.5	30.4	2.1	0.282	0.238	0.0079	7.85	6.7
74	6/17/1999	11:58:45 AM	0	31.139	22.172	31.526	24.326	23.013	31.026	46.352	54.352	2.601	46.436	6.322	-0.069	20.133	0.656	0	63	8.4	47.4	3.3	0.286	0.239	0.0050	5.05	4.3
75	6/17/1999	11:59:45 AM	0	31.457	22.172	31.924	24.166	22.853	31.307	34.652	40.418	1.636	32.1	6.166	-0.069	17.983	0.678	0	64	7.5	33.4	2.3	0.296	0.245	0.0073	7.33	6.2
76	6/17/1999	12:00:45 PM	0	31.616	22.092	32.241	24.291	22.692	31.342	47.019	53.603	2.497	44.846	6.846	-0.069	20.103	0.704	0	65	8.3	45.9	3.2	0.307	0.252	0.0055	5.48	4.7
77	6/17/1999	12:01:45 PM	0	31.854	22.218	26.077	24.211	22.737	31.466	-0.713	-0.89	0.058	-1.133	0.282	-0.042	-0.06	0.011	0.003	66	0.0	-0.9	-0.1	0.005	0.005	-0.0050	-5.05	-4.3
78	6/17/1999	12:02:45 PM	0	31.86	22.218	31.414	24.051	22.631	31.645	0.82	1.756	-1.771	1.673	1.268	-0.069	-0.06	0.011	0	67	0.0	1.1	0.1	0.005	0.004	0.0035	3.51	3.0
79	6/17/1999	12:03:45 PM	0	31.546	22.218	31.051	24.291	22.576	31.625	1.467	3.313	-1.691	2.958	1.946	-0.069	48.656	0.011	0	68	20.3	2.2	0.2	0.005	0.004	0.0018	1.83	1.6
80																											
81		Averages		26.1	22.0	26.0	24.0	22.4	31.2	46.2	53.8	3.7	42.7	7.8	-0.1	25.9	0.783	0.0		10.7	44.4	3.1	0.342	0.336	0.008	7.8	6.6
82		Maximum		31.8	22.2	32.2	24.4	23.1	31.9	50.4	57.0	4.5	46.7	11.6	0.0	30.4	1.218	0.0		12.6	48.4	3.3	0.532	0.565	0.013	13.5	11.5
83		Median		25.5	22.0	25.1	24.0	22.3	31.4	47.7	54.8	4.0	44.0	6.6	-0.1	27.3	0.765	0.0		11.3	45.9	3.2	0.334	0.327	0.007	7.3	6.2
84		Minimum		23.2	21.8	22.4	23.7	22.0	30.3	28.6	34.0	1.8	32.1	4.8	-0.1	18.0	0.615	0.0		7.5	30.4	2.1	0.268	0.235	0.005	5.0	4.3
85		Std Dev		2.2	0.1	2.5	0.2	0.4	0.5	3.9	3.8	0.8	3.4	2.1	0.0	3.2	0.118	0.0		1.3	3.6	0.2	0.051	0.059	0.002	1.7	1.4
86		Number of Points Used		54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54

APPENDIX D

EXPERIMENTAL DATA: SLURRY WASH

Appendix Contents
1. Nomeclature sheet for data tables
2. Experimental data:

Fig.	Run	Solution	Done on
D1	2.15	First Wash 1	6/11/99
D2	2.16	First Wash 2	6/14/99
D3	2.18	First Wash 3	6/14/99
D4	2.19	First Wash 4	6/14/99
D5	2.15b	Second Wash 1	6/16/99
D6	2.16b	Second Wash 2	6/16/99
D7	2.17b	Second Wash 3	6/16/99
D8	2.18b	Second Wash 4	6/16/99
D9	2.19b	Second Wash 5	6/26/99

General Note: For measurement uncertainties see Appendix F

Special Notes:

a. Run 2.17 was not done because run 2.14 began with a dilute slurry that was taken as a first wash run.
b. The data for every test run are highlighted with the top two graphs in each figure: Filtrate Flux vs. Time and Permeability vs. Time. Those graphs include all the data taken during the run period.
c. The bottom graph of each figure is a subset of the Filtrate Flux vs. Time data during the period that the filtrate was being removed to prepare for another charge of water.
d. The beginning and end of the data for most graphs show large deviations from the overall series of points. Those deviations were caused by backpulsing the filter that temporarily stopped the flow of filtrate.
e. All columns of data, in all the tables, are ended with several statistical values of that column, i.e., Average, Maximum, Median, Minimum, Standard Deviation, and Number of Points used (in calculating the 5 statistical quantities). Most of the data with time were maintain constant, and therefore the statistics are meaningful for normally distributed data, however Filtrate Flux and Permeability decrease with time and therefore are not normally distributed.
f. To calculate those quantities mentioned in item e, only those data points that start from the end of a backpulse to just before the ending backpulse were included. This is the reason why the quantity of Number of Points Used was given.
g. The data for the graphs, and all the data taken for the individual test run that the graphs represent, immediately follow the specific figure.
h. As second set of statistical values is given for the time period just during when filtrate was removed from the test rig. This is shown as the bottom graph of all the figures as explained in item

i. Note, the flowmeter for the filtrate flux, Q2, could only measure up to 0.533 gpm/ft2. Any data above that value is meaningless.

Nomenclature For Data Sheets

(See Figure 1: Main Test Rig - Pilot Scale Cross Flow for the Instrument Location)

Column	Heading		Full Heading	Explanation
A =	DATE	=	DATE	Day the test was done
B =	TIME	=	TIME	Time data entry was made
C =	SOLENOID	=	SOLENOID	1=yes, 0=no: for the pressure to the backpulse piston
D =	FLTRT (deg	=	FLTRT (deg C) T2	Filtrate Temperature in Filter at exit of the Filter Housing
E =	CL LOOP (c	=	CL LOOP (deg C) T3	Temperature of Liquid in the Cleaning Loop
F =	SL LOOP (c	=	SL LOOP (deg C) T1	Temperature of Liquid in the Slurry Loop at the Reservoir Tank
G =	UP AMB (de	=	UP AMB (deg C) T4	Ambient Temperature at the top of the Test Rig - 3rd level
H =	BOT AMB (	=	BOT AMB (deg C) T5	Ambient Temperature at the bottom of the Test Rig - 1st level
I =	T6 (deg C) S	=	T6 (deg C) SPARE	Spare Thermocouple - Currently Not Being Used
J =	BOT DP (ps	=	BOT DP (psid) dP2	Differential Pressure between the Filter Slurry Entrance and the bottom Filtrate Exit
K =	FLTR (psig)	=	FLTR (psig) P1	Gauge Pressure at the Filter Slurry Entrance
L =	FLTR DP (p	=	FLTR DP (psid) dP1	Differential Pressure between the Filter Slurry Entrance and Exit
M =	TOP DP (ps	=	TOP DP (psig) dP3	Differential Pressure between the Filter Slurry Exit and the Top Filtrate Exit
N =	FLTRATE (	=	FLTRATE (psig) P2	Gauge Pressure at the Filter Filtrate Exit
O =	PISTON (ps	=	PISTON (psig) P3	Air Gauge Pressure Applied to Backpulse Piston
P =	SL FLOW (c	=	SL FLOW (gpm) Q1	Flow Rate of the Slurry Flow
Q =	FLTR FLOV	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow
R =	V9	=		Spare Channel Not Used

The following columns are calculated results based on the appropriate columns

Column	Heading		Full Heading	Explanation
S =	Number	=	Number	Data number which is equivalent to 1 minute since this was the acquisition frequency
T =	Vel, ft/s	=	Vel, ft/s	Axial slurry velocity = [Column P] / 7.48 gal/ft2 / 60 sec/min / flow area (=0.005369 ft2*)
U =	TMP, PSI	=	TMP, PSI	Transmembrane Pressure = ([Column J] + [Column M])/2
V =	TMP, bar	=	TMP, bar	[Column U] / 14.504 bar/psi
W =	GPM/FT2	=	GPM/FT2	[Column Q] / inside diameter filter surface area (= 2.29 ft2**)
X =	GPM/FT2	=	GPM/FT2 at 25°C	Test Spec. correction factor: [Column W] x exp(2500 x ((1/(273+[Column T]))-(1/298)))
Y =	PERMIABILITY	=	PERMIABILITY (gpm/ft2/psi)	[Column X] / [Column U]
Z =	x 1000	=	PERMIABILITY x 1000	[Column Z] x 1000
AA =	PERMIABILITY	=	PERMIABILITY (m/day/bar)	[Column Y] x conversion factor (= 851.0145 m/day/bar / gpm/ft2/bar)

*Axial slurry flow area is based on 7 porous tubes with an inside diameter of 3/8 inch: 7 x pi / 4 * (0.375 inch / 12 inches/ft)^2 = 0.005369 ft2

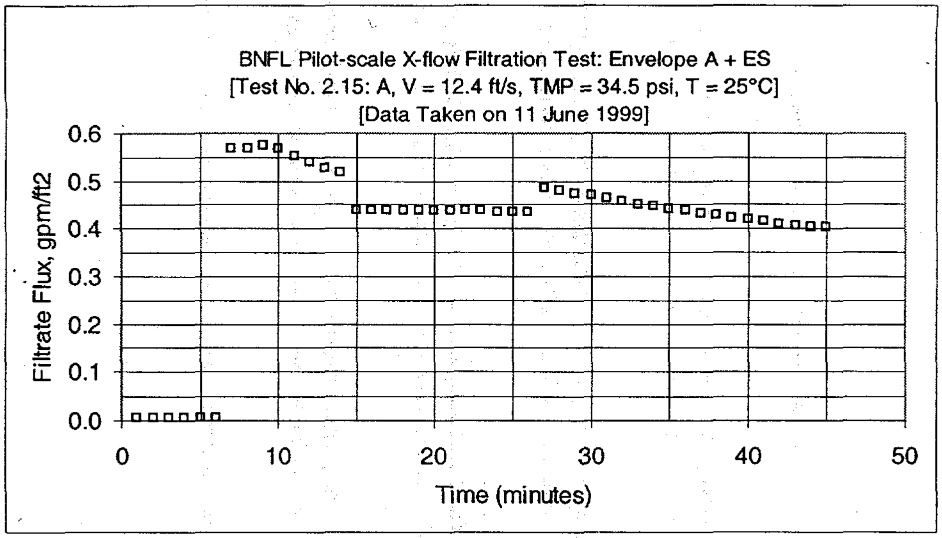
**Inside diameter filter surface area for 7 tubes with an inside diameter of 3/8 inch, 40-inches long: 7 x pi x (0.375 inch) x 40 inches / 144 in^2/ft^2 = 2.29 ft2

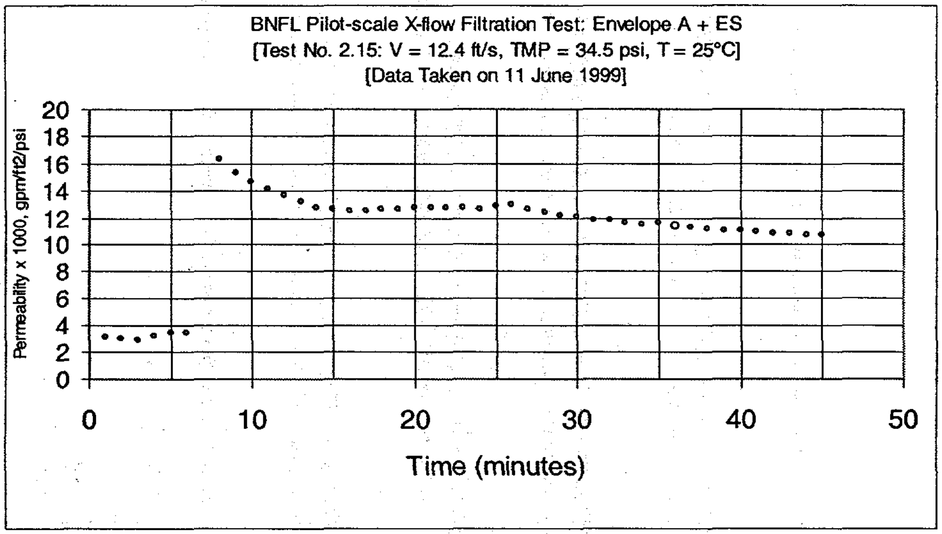
Exceptions:

1. For Run 2.21b (Cleaning); This run was carried out over a three different periods on three days therefore there are two NUMBER COLUMNS: S & T. Column S is continuous and Column T is continuous but starts over for each period. All the columns to the right of Column S are shifted by one.
2. For Run 2.22b (Water); After July 10, 1999 a second filtrate flow meter was added to measure flow rates from 1.2 to 5 gpm. The final water test run (Run 2.22b) has an extra filtrate flow rate column. Column R, the spare column, was made the new flow rate:

Column	Heading		Full Heading	Explanation
R =	Q3, FLTR F	=	Q3, FLTR FLOW (gpm)	Flow Rate of the Filtrate Flow (above 1.2 gpm), installed after 7/10/99

also Run 2.22b has two NUMBER columns (like Run 2.21b) so Exception 1 also applies.





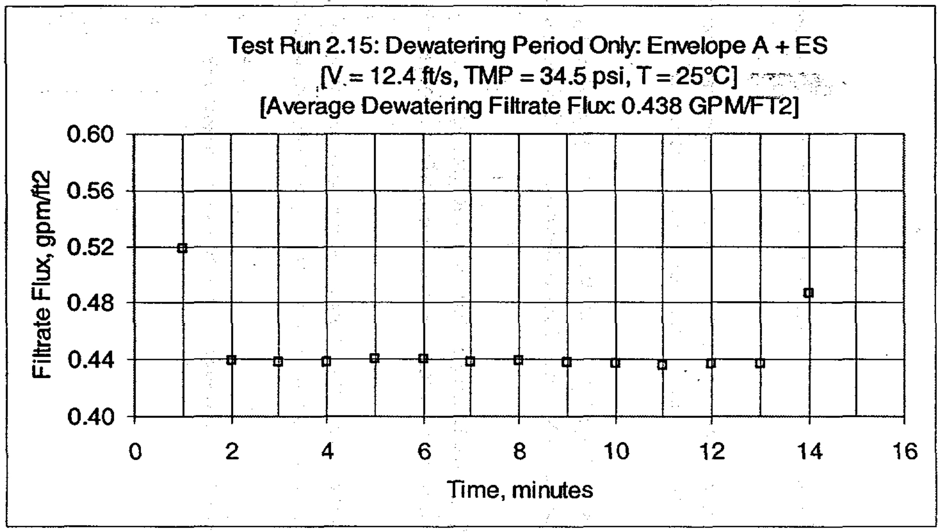
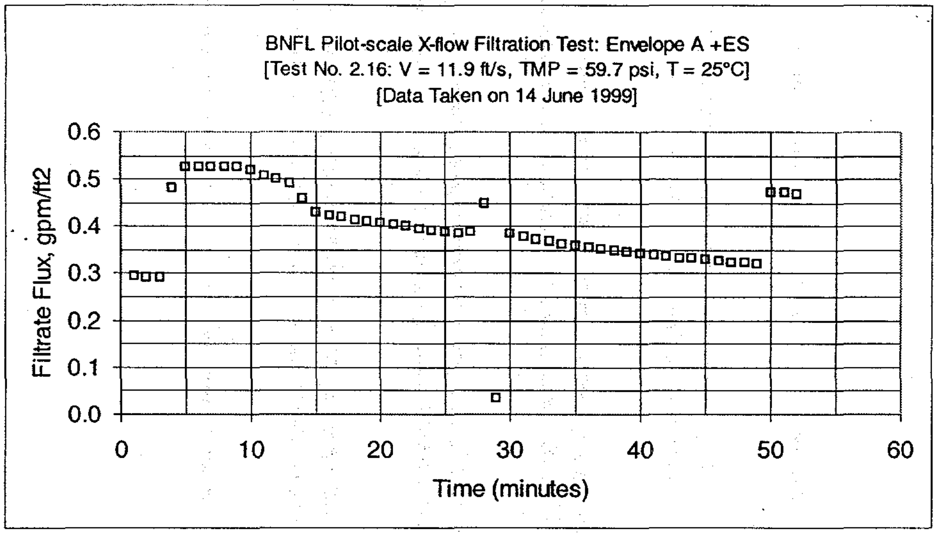
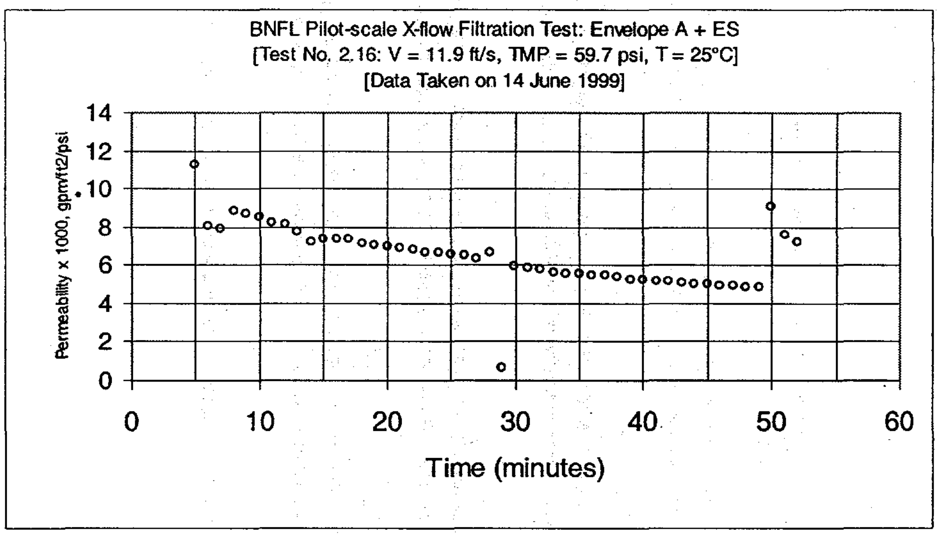


Figure D1: Test Run 2.15, First Wash 1

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.15

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/11/1999	7:29:57 AM	0	22.297	21.846	21.21	22.393	21.883	30.975	-0.062	-0.925	0.008	0.05	-0.119	-0.089	-0.095	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/11/1999	7:30:57 AM	0	22.342	21.846	21.291	22.313	21.802	31.179	-0.062	-0.925	0.008	0.016	-0.119	-0.089	-0.08	0.011	0									
5	6/11/1999	7:31:57 AM	0	22.422	21.846	21.21	22.313	21.641	31.258	-0.062	-0.956	0	0.016	-0.119	-0.089	-0.08	0.011	0									
6	6/11/1999	7:32:57 AM	0	22.342	21.846	21.21	22.313	21.561	31.338	-0.062	-0.925	0.008	0.05	-0.119	-0.042	-0.08	0.011	0									
7	6/11/1999	7:33:58 AM	0	22.262	21.846	21.291	22.233	21.606	31.338	-0.093	-0.956	0.008	0.05	-0.119	-0.042	-0.08	0.011	0									
8	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
9	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
10	6/11/1999	11:11:29 AM	1	25.292	22.711	24.931	24.667	22.506	31.873	3.347	51.943	4.819	-0.22	47.432	69.88	28.658	0.011	0	1	12.0	1.6	0.1	0.005	0.005	0.0031	3.08	2.6
11	6/11/1999	11:12:29 AM	1	25.292	22.711	24.886	24.622	22.586	31.873	3.967	53.011	4.923	-0.727	47.679	69.88	28.443	0.011	0	2	11.8	1.6	0.1	0.005	0.005	0.0030	2.97	2.5
12	6/11/1999	11:13:29 AM	1	25.292	22.711	23.764	24.622	22.506	31.873	3.657	51.09	4.452	-0.288	46.2	69.927	29.057	0.011	0	3	12.1	1.7	0.1	0.005	0.005	0.0030	2.95	2.5
13	6/11/1999	11:14:29 AM	1	25.292	22.711	23.282	24.622	22.506	31.873	3.409	49.962	4.301	-0.322	45.183	69.88	28.535	0.011	0	4	11.8	1.5	0.1	0.005	0.005	0.0033	3.27	2.8
14	6/11/1999	11:15:29 AM	1	24.491	22.711	22.961	24.622	22.506	31.873	3.409	49.535	4.093	-0.491	44.905	69.927	28.52	0.011	0	5	11.8	1.5	0.1	0.005	0.005	0.0035	3.49	3.0
15	6/11/1999	11:16:30 AM	1	24.09	22.711	22.719	24.702	22.586	31.556	3.254	49.474	4.125	-0.322	44.874	69.927	28.735	0.011	0	6	11.9	1.5	0.1	0.005	0.005	0.0035	3.49	3.0
16	6/11/1999	11:17:30 AM	0	23.528	22.711	22.639	24.863	22.586	31.794	29.693	48.529	4.324	26.691	17.108	0.05	30.04	1.218	0	7	12.5	28.2	1.9	0.532	0.569	0.0202	20.17	17.2
17	6/11/1999	11:18:30 AM	0	23.287	22.711	22.559	24.702	22.586	31.714	36.357	48.559	4.364	33.318	10.451	0.05	30.225	1.218	0	8	12.5	34.8	2.4	0.532	0.570	0.0164	16.36	13.9
18	6/11/1999	11:19:30 AM	0	23.045	22.746	22.317	24.783	22.586	31.873	38.867	48.407	4.476	35.853	8.202	0.05	30.01	1.218	0	9	12.5	37.4	2.6	0.532	0.574	0.0154	15.36	13.1
19	6/11/1999	11:20:30 AM	0	22.885	22.711	22.237	24.702	22.506	31.952	40.324	48.986	4.452	37.239	7.123	0.05	30.025	1.206	0	10	12.5	38.8	2.7	0.526	0.569	0.0147	14.68	12.5
20	6/11/1999	11:21:30 AM	0	22.759	22.791	22.076	24.702	22.506	31.873	40.913	48.59	4.508	37.713	6.291	0.004	30.071	1.167	0.003	11	12.5	39.3	2.7	0.509	0.554	0.0141	14.08	12.0
21	6/11/1999	11:22:30 AM	0	22.643	22.791	22.237	24.702	22.426	31.952	41.254	48.071	4.404	38.118	5.767	0.05	29.795	1.143	0	12	12.4	39.7	2.7	0.499	0.540	0.0136	13.60	11.6
22	6/11/1999	11:23:30 AM	0	22.804	22.791	22.639	24.702	22.461	31.873	41.44	48.071	4.388	38.49	5.459	0.05	29.856	1.128	0	13	12.4	40.0	2.8	0.492	0.527	0.0132	13.17	11.2
23	6/11/1999	11:24:30 AM	0	23.045	22.791	22.835	24.702	22.667	31.952	42.556	49.443	4.636	39.099	5.243	0.05	30.056	1.116	0	14	12.5	40.8	2.8	0.487	0.518	0.0127	12.69	10.8
24	6/11/1999	11:25:30 AM	0	23.287	22.791	23.282	24.702	22.586	31.714	36.419	49.077	4.492	33.419	10.821	0.05	29.779	0.959	0	15	12.4	34.9	2.4	0.419	0.440	0.0126	12.59	10.7
25	6/11/1999	11:26:30 AM	0	23.608	22.711	23.603	24.622	22.586	31.476	36.295	48.437	4.436	33.723	10.883	0.004	29.733	0.965	0	16	12.3	35.0	2.4	0.421	0.438	0.0125	12.52	10.7
26	6/11/1999	11:27:31 AM	0	23.929	22.791	23.924	24.783	22.747	31.159	36.605	49.26	4.444	33.148	10.975	0.004	29.887	0.974	0	17	12.4	34.9	2.4	0.425	0.438	0.0126	12.57	10.7
27	6/11/1999	11:28:31 AM	0	24.25	22.711	24.245	24.702	22.828	31.079	36.233	49.138	4.54	33.182	11.037	0.004	29.917	0.986	0	18	12.4	34.7	2.4	0.430	0.440	0.0127	12.67	10.8
28	6/11/1999	11:29:31 AM	0	24.571	22.711	24.566	24.748	22.988	31	36.574	49.23	4.488	32.878	11.099	0.05	30.179	0.996	0	19	12.5	34.7	2.4	0.435	0.440	0.0127	12.67	10.8
29	6/11/1999	11:30:31 AM	0	24.937	22.836	25.092	24.828	23.114	30.806	35.83	49.077	4.556	33.182	11.222	0.004	29.702	1.007	0	20	12.3	34.5	2.4	0.440	0.438	0.0127	12.71	10.8
30	6/11/1999	11:31:31 AM	0	25.257	22.756	25.412	24.828	23.275	30.806	35.83	48.773	4.476	33.013	11.314	0.004	29.656	1.017	0	21	12.3	34.4	2.4	0.444	0.439	0.0127	12.75	10.8
31	6/11/1999	11:32:31 AM	0	25.703	22.801	25.812	24.906	23.32	30.851	35.954	48.803	4.46	32.81	11.407	0.004	30.133	1.027	0	22	12.5	34.4	2.4	0.448	0.438	0.0127	12.75	10.8
32	6/11/1999	11:33:31 AM	0	26.103	22.801	26.257	25.033	23.4	30.692	35.892	49.169	4.476	32.81	11.53	0.05	30.056	1.038	0	23	12.5	34.4	2.4	0.453	0.437	0.0127	12.73	10.8
33	6/11/1999	11:34:31 AM	0	26.548	22.801	26.657	24.953	23.481	30.613	36.233	49.535	4.516	32.946	11.622	0.004	30.102	1.047	0	24	12.5	34.6	2.4	0.457	0.436	0.0126	12.61	10.7
34	6/11/1999	11:35:31 AM	0	26.948	22.847	27.136	25.079	23.606	30.656	35.582	48.833	4.488	32.743	11.807	0.004	30.025	1.063	0	25	12.5	34.2	2.4	0.464	0.437	0.0128	12.80	10.9
35	6/11/1999	11:36:31 AM	0	27.427	22.811	27.705	25.124	23.446	31.055	35.066	48.803	4.58	32.303	11.869	0.004	29.902	1.08	0	26	12.4	33.7	2.3	0.471	0.437	0.0130	12.98	11.0
36	6/11/1999	11:37:32 AM	0	27.951	22.811	28.183	25.044	23.491	31.338	39.89	49.199	4.572	36.935	7.955	0.004	29.795	1.218	0	27	12.4	38.4	2.6	0.532	0.487	0.0127	12.67	10.8
37	6/11/1999	11:38:32 AM	0	28.43	22.811	28.662	25.124	23.33	31.179	40.262	49.535	4.484	37.172	7.616	0.004	29.856	1.218	0	28	12.4	38.7	2.7	0.532	0.480	0.0124	12.40	10.6
38	6/11/1999	11:39:32 AM	0	28.828	22.811	29.184	25.124	23.33	31.621	40.541	49.443	4.564	37.476	7.524	0.05	30.117	1.218	0	29	12.5	39.0	2.7	0.532	0.473	0.0121	12.14	10.3
39	6/11/1999	11:40:32 AM	0	29.271	22.857	29.503	25.054	23.33	31.621	40.541	49.352	4.396	37.376	7.493	0.05	30.47	1.218	0.003	30	12.6	39.0	2.7	0.532	0.469	0.0120	12.05	10.3
40	6/11/1999	11:41:32 AM	0	29.669	22.902	29.9	25.089	23.341	31.7	40.913	49.809	4.564	37.442	7.431	0.004	29.718	1.218	0	31	12.3	39.2	2.7	0.532	0.464	0.0118	11.85	10.1
41	6/11/1999	11:42:32 AM	0	30.192	22.822	30.422	25.054	23.261	31.745	40.603	49.565	4.516	36.935	7.431	0.05	29.641	1.218	0	32	12.3	38.8	2.7	0.532	0.458	0.0118	11.81	10.0
42	6/11/1999	11:43:32 AM	0	30.589	22.822	30.899	25.054	23.18	31.903	40.603	49.413	4.364	37.51	7.524	0.004	30.517	1.218	0	33	12.7	39.1	2.7	0.532	0.452	0.0116	11.57	9.8
43	6/11/1999	11:44:32 AM	0	30.966	22.822	31.296	25.054	23.019	32.107	40.045	48.955	4.484	37.273	7.524	0.004	30.133	1.218	0	34	12.5	38.7	2.7	0.532	0.447	0.0116	11.56	9.8
44	6/11/1999	11:45:33 AM	0	31.349	22.867	31.613	25.019	23.145	32.107	39.859	49.047	4.508	36.766	7.647	0.004	29.825	1.218	0	35	12.4	38.3	2.6	0.532	0.443	0.0116	11.57	9.8
45	6/11/1999	11:46:33 AM	0	31.825	22.867	32.054	24.974	22.985	32.028	40.045	48.925	4.492	36.766	7.739	0.05	29.165	1.218	0	36	12.1	38.4	2.6	0.532	0.438	0.0114	11.40	9.7
46	6/11/1999	11:47:33 AM	0	32.142	22.867	32.45	25.019	23.065	32.107	40.014	49.352	4.508	36.732	7.863	0.004	30.639	1.218	0	37	12.7	38.4	2.6	0.532	0.433	0.0113	11.29	9.6
47	6/11/1999	11:48:33 AM	0	32.539	22.867	32.846	25.019	23.145	32.107	39.89	49.199	4.468	36.665	7.986	0.05	30.133	1.218	0	38	12.5	38.3	2.6	0.532	0.429	0.0112	11.20	9.5
48	6/11/1999	11:49:33 AM	0	32.979	22.867	33.242	25.019	22.985	32.028	40.262	49.809	4.524	36.462	8.017	0.004	29.733	1.218	0	39	12.3	38.4	2.6	0.532	0.424	0.0111	11.06	9.4
49	6/11/1999	11:50:33 AM	0	33.41	22.913	33.658	25.064	23.065	32.107	39.859	49.718	4.412	36.563	8.202	0.004	30.194	1.218	0	40	12.5	38.2	2.6	0.532	0.421	0.0110	11.01	9.4
50	6/11/1999	11:51:34 AM	0	33.647	22.867	33.954	24.939	22.985	32.231	39.642	49.626	4.468	36.124	8.263	0.004	29.733	1.218	0.003	41	12.3	37.9	2.6	0.532	0.416	0.0110	10.99	9.4
51	6/11/1999	11:52:34 AM	0	34.042	22.948	34.349	24.939	22.904	32.107	39.642	49.321	4.436	36.293	8.325	0.004	30.117	1.218	0	42	12.5	38.0	2.6	0.532	0.412	0.0109	10.85	9.2
52	6/11/1999	11:53:34 AM	0	34.438	22.948	34.744	24.904	23.03	32.265	39.022	49.047	4.436	36.259	8.479	0.05	29.795	1.218	0	43	12.4	37.6	2.6	0.532	0.408	0.0108	10.83	9.2
53	6/11/1999	11:54:34 AM	0	34.754	22.867	35.059	24.904	22.95	32.31	38.929	49.108	4.324	36.191	8.633	0.004	30.025	1.218	0	44	12.5	37.6	2.6	0.532	0.404	0.0108	10.76	9.2
54	6/11/1999	11:55:34 AM	0	35.07	22.867	35.183	24.904	22.869	32.186	38.867	49.169	4.388	36.124	8.726	0.004	31.5	1.218	0	45	13.1	37.5	2.6	0.532	0.403	0.0107	10.75	9.1
55																											
56	Values	Averages		29.1	22.8	29.1	24.9	23.0	31.9	39.7	49.1	4.5	36.5	8.0	0.0	30.0	1.206	0.0		12.5	38.1	2.6	0.526	0.473	0.013	12.5	10.6
57	for	Maximum		35.1	22.9	35.2	25.1	23.5	32.3	42.6	49.8	4.6	39.1	17.1	0.1	31.5	1.218	0.0		13.1	40.8	2.8	0.532	0.574	0.020	20.2	17.2
58	close-loop	Median		30.2	22.8	30.4	25.0	23.0	32.0	40.0	49.2	4.5	36.8	7.7	0.0	30.0	1.218	0.0		12.5	38.4	2.6	0.532	0.458	0.012	11.8	10.0
59	operation	Minimum		22.6	22.7	22.1	24.7	22.4	31.2	29.7	48.1	4.3	26.7	5.2	0.0	29.2	1.116	0.0		12.1	28.2	1.9	0.487	0.403	0.011	10.7	9.1
60		Std Dev		4.4	0.1	4.7	0.1	0.3	0.3	2.2	0.5	0.1	2.2	2.1	0.0	0.4	0.029	0.0		0.2	2.2	0.2	0.013	0.057	0.002	2.1	1.8
61		Number of Points Used		27	27	27	27	27	27	27	27	27	27	27	27	27	27	27		27	27	27	27	27	27	27	27
62																											
63	Values	Averages		25.2	22.8	25.3	24.9	23.1	31.0	36.0	49.0	4.5	33.0	11.3	0.0	29.9	1.013	0.0		12.4	34.5	2.4	0.442	0.438	0.0	12.7	10.8
64	when	Maximum		27.4	22.8	27.7	25.1	23.6	31.7	36.6	49.5	4.6	33.7	11.9	0.1	30.2	1.080	0.0		12.5	35.0	2.4	0.471	0.440	0.013	13.0	11.0
65	dewatering	Median		25.1	22.8	25.3	24.8	23.2	30.9	36.1	49.1	4.5	33.0	11.3	0.0	29.9	1.012	0.0		12.4	34.5	2.4	0.442	0.438	0.013	12.7	10.8
66		Minimum		23.3	22.7	23.3	24.6	22.8	30.6	35.1	48.4	4.4	32.3	10.8	0.0	29.7	0.959	0.0		12.3	33.7	2.3	0.419	0.436	0.013	12.5	10.7
67		Std Dev		1.3	0.0	1.4	0.2	0.3	0.3	0.4	0.3	0.0	0.3	0.3	0.0	0.2	0.037	0.0		0.1	0.4	0.0	0.016	0.001	0.000	0.1	0.1
68		Number of Points Used		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12		12	12	12	12	12	12	12	12





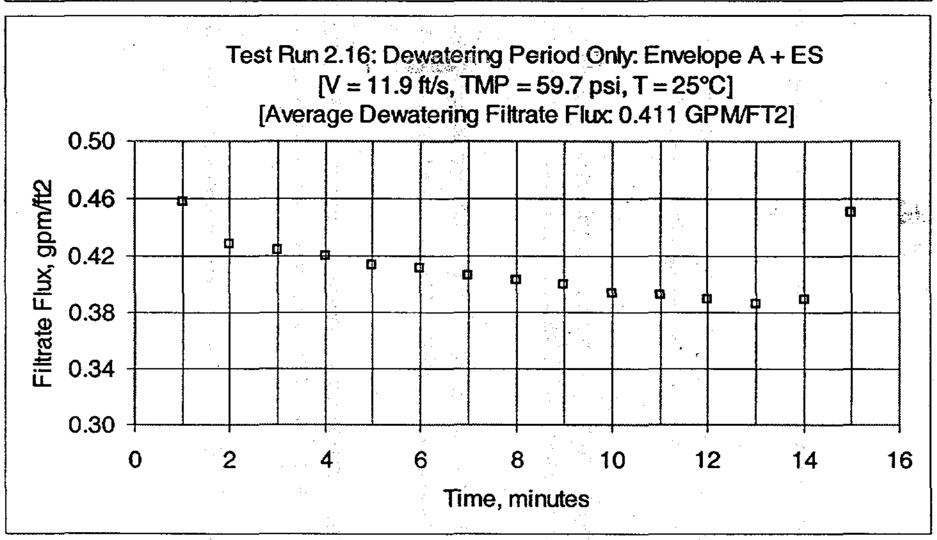
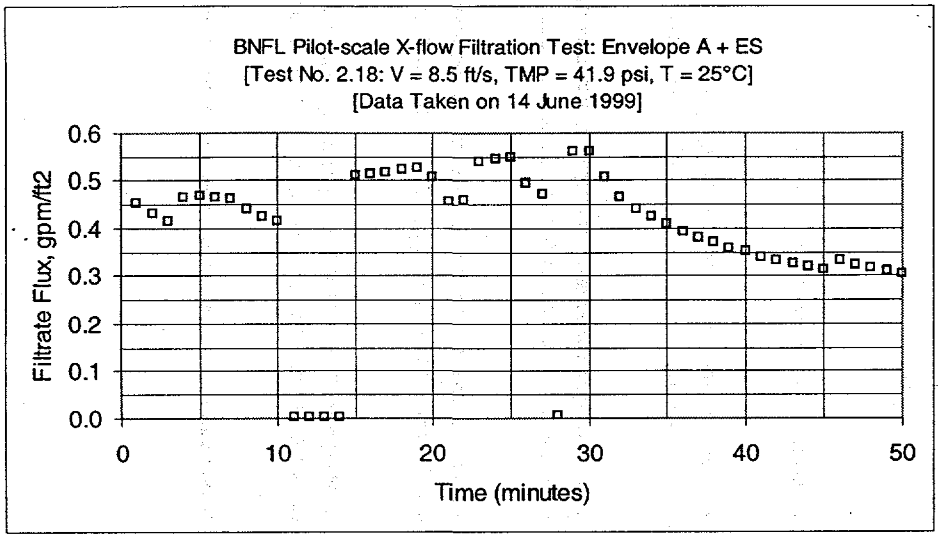
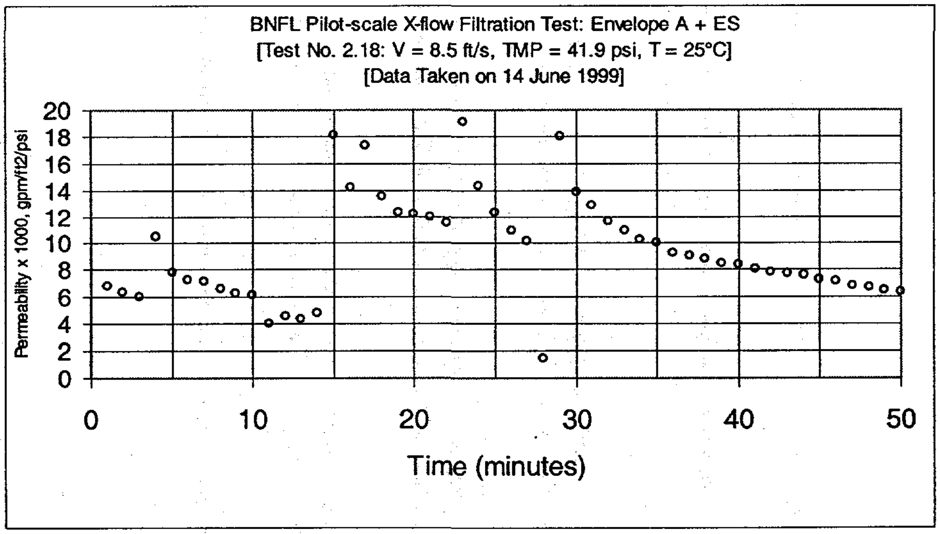


Figure D2: Test Run 2.16, First Wash 2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.16

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig) (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/14/1999	8:54:06 AM	0	22.759	22.057	21.824	23.087	22.139	31.352	-0.062	0.02	-0.024	0.016	-0.119	0.05	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/14/1999	8:56:23 AM	0	22.759	22.057	21.824	23.087	22.139	31.352	-0.062	0.02	-0.024	0.016	-0.119	0.05	-0.08	0.011	0									
5	6/14/1999	8:57:23 AM	0	22.759	22.182	21.87	23.132	22.38	31.193	-0.093	0.02	-0.024	-0.017	-0.119	0.004	-0.08	0.011	0									
6	6/14/1999	8:58:23 AM	0	22.678	22.102	21.87	23.212	22.461	31.159	-0.093	0.02	-0.024	-0.017	-0.119	0.004	-0.08	0.011	0						at 25C	PERMEABILITY	x 1000	PERMEABILITY
7	data																										
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig) (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	6/14/1999	1:29:18 PM	0	26.485	23.245	26.379	26.516	22.639	32.969	19.681	26.759	2.202	19.321	5.796	0.05	21.715	0.703	0	1	9.0	19.5	1.3	0.307	0.295	0.0151	15.14	12.9
10	6/14/1999	1:30:19 PM	0	26.499	23.164	26.139	26.516	22.558	33.192	20.952	28.009	2.489	18.712	5.644	0.096	21.731	0.693	0	2	9.0	19.8	1.4	0.303	0.293	0.0148	14.77	12.6
11	6/14/1999	1:31:19 PM	0	26.339	23.245	25.819	26.516	22.397	33.226	20.642	27.491	2.138	19.591	5.582	0.096	21.654	0.688	0	3	9.0	20.1	1.4	0.300	0.294	0.0146	14.59	12.4
12	6/14/1999	1:32:19 PM	1	26.054	23.199	25.534	26.391	22.432	33.068	-8.478	85.45	4.253	6.44	81.763	80.716	29.994	1.119	0	4	12.4	0.0	0.0	0.488	0.481	-25.3269	-25326.94	-21553.6
13	6/14/1999	1:33:19 PM	0	25.939	23.28	25.453	26.391	22.432	33.226	48.073	83.866	3.949	45.049	34.643	0.05	30.04	1.218	0	5	12.5	46.6	3.2	0.532	0.525	0.0113	11.28	9.6
14	6/14/1999	1:34:19 PM	0	26.054	23.234	25.328	26.345	22.432	33.068	66.143	86.793	2.282	64.692	20.128	0.05	22.483	1.218	0	6	9.3	65.4	4.5	0.532	0.527	0.0081	8.05	6.9
15	6/14/1999	1:35:19 PM	0	25.974	23.154	25.408	26.345	22.467	33.023	69.49	82.921	6.511	63.914	12.393	0.096	36.891	1.218	0	7	15.3	66.7	4.6	0.532	0.526	0.0079	7.88	6.7
16	6/14/1999	1:36:19 PM	0	25.974	23.154	25.363	26.345	22.706	32.978	60.657	69.048	4.699	58.065	7.154	0.05	30.993	1.218	0	8	12.9	59.4	4.1	0.532	0.526	0.0089	8.87	7.5
17	6/14/1999	1:37:19 PM	0	25.929	23.189	25.408	26.46	22.663	32.944	62.888	71.365	4.652	58.133	7	0.096	30.317	1.218	0	9	12.6	60.5	4.2	0'532	0.526	0.0087	8.69	7.4
18	6/14/1999	1:38:19 PM	0	25.929	23.189	25.363	26.46	22.663	32.82	62.764	70.42	4.237	58.978	8.507	0.05	30.01	1.203	0	10	12.5	60.9	4.2	0.525	0.520	0.0085	8.54	7.3
19	6/14/1999	1:39:20 PM	0	25.929	23.189	25.363	26.62	22.743	33.137	62.95	70.146	4.508	60.398	6.014	0.05	30.01	1.176	0	11	12.5	61.7	4.3	0.513	0.508	0.0082	8.24	7.0
20	6/14/1999	1:40:20 PM	0	25.849	23.189	25.283	26.62	22.502	33.216	63.663	70.755	4.5	59.623	5.675	0.05	29.825	1.157	0	12	12.4	61.7	4.3	0.505	0.501	0.0081	8.12	6.9
21	6/14/1999	1:41:20 PM	0	25.849	23.189	25.238	26.54	22.502	33.25	64.5	70.999	4.556	62.393	5.336	0.096	29.702	1.134	0.003	13	12.3	63.4	4.4	0.495	0.492	0.0078	7.75	6.6
22	6/14/1999	1:42:20 PM	0	25.804	23.269	25.238	26.495	22.378	32.978	64.686	71.243	4.332	61.953	5.274	0.05	29.395	1.056	0	14	12.2	63.3	4.4	0.461	0.458	0.0072	7.23	6.2
23	6/14/1999	1:43:20 PM	0	25.804	23.224	25.238	26.495	22.378	32.854	59.82	71.823	4.332	56.206	11.068	0.05	29.196	0.988	0	15	12.1	58.0	4.0	0.431	0.428	0.0074	7.36	6.3
24	6/14/1999	1:44:20 PM	0	25.804	23.224	25.238	26.255	22.537	32.255	59.572	71.518	4.348	55.901	10.975	0.05	29.068	0.978	0.003	16	12.1	57.7	4.0	0.427	0.424	0.0073	7.35	6.3
25	6/14/1999	1:45:20 PM	0	25.804	23.304	25.238	26.415	22.696	32.255	58.487	70.542	4.181	55.868	10.883	0.05	28.965	0.969	0	17	12.0	57.2	3.9	0.423	0.420	0.0073	7.35	6.3
26	6/14/1999	1:46:20 PM	0	25.758	23.304	25.238	26.335	22.696	32.3	60.564	72.707	4.436	56.138	10.79	0.096	28.873	0.955	0	18	12.0	58.4	4.0	0.417	0.414	0.0071	7.10	6.0
27	6/14/1999	1:47:20 PM	0	25.724	23.224	25.238	26.37	22.859	32.141	59.572	71.701	4.508	56.848	10.698	0.096	28.95	0.948	0.003	19	12.0	58.2	4.0	0.414	0.411	0.0071	7.06	6.0
28	6/14/1999	1:48:21 PM	0	25.724	23.178	25.157	26.415	22.859	32.062	59.51	71.818	4.524	57.524	10.636	0.05	29.011	0.936	0	20	12.0	58.5	4.0	0.409	0.407	0.0070	6.95	5.9
29	6/14/1999	1:49:21 PM	0	25.678	23.304	25.238	26.415	22.939	32.062	60.44	72.371	4.316	57.152	10.575	0.05	28.796	0.929	0.003	21	12.0	58.8	4.1	0.406	0.403	0.0069	6.85	5.8
30	6/14/1999	1:50:21 PM	0	25.804	23.224	25.157	26.575	22.939	31.938	60.006	71.731	4.261	57.355	10.482	0.05	28.704	0.921	0	22	11.9	58.7	4.0	0.402	0.400	0.0068	6.82	5.8
31	6/14/1999	1:51:21 PM	0	25.724	23.224	25.238	26.495	22.939	32.141	60.781	72.585	4.428	57.727	10.421	0.05	28.766	0.909	0	23	11.9	59.3	4.1	0.397	0.394	0.0067	6.65	5.7
32	6/14/1999	1:52:21 PM	0	25.804	23.304	25.157	26.575	22.859	32.141	61.09	72.341	4.213	57.795	10.359	0.05	28.643	0.904	0	24	11.9	59.4	4.1	0.395	0.393	0.0066	6.61	5.6
33	6/14/1999	1:53:21 PM	0	25.724	23.224	25.238	26.575	22.859	32.062	60.904	72.463	4.221	58.099	10.328	0.05	28.643	0.898	0	25	11.9	59.5	4.1	0.392	0.389	0.0065	6.54	5.6
34	6/14/1999	1:54:21 PM	0	25.884	23.304	25.398	26.655	22.939	31.983	61.059	72.524	4.269	57.761	10.297	0.05	28.044	0.894	0	26	11.6	59.4	4.1	0.390	0.386	0.0065	6.50	5.5
35	6/14/1999	1:55:21 PM	0	25.964	23.224	25.558	26.655	23.019	32.062	62.578	74.14	3.942	60.026	10.39	0.05	27.137	0.906	0.003	27	11.3	61.3	4.2	0.396	0.389	0.0064	6.35	5.4
36	6/14/1999	1:56:21 PM	0	26.169	23.224	25.798	26.735	23.1	31.983	68.467	74.658	4.133	66.619	4.688	0.05	27.23	1.055	0.003	28	11.3	67.5	4.7	0.461	0.450	0.0067	6.67	5.7
37	6/14/1999	1:57:21 PM	0	26.364	23.224	26.163	26.735	23.1	31.983	53.838	74.567	3.774	52.284	20.036	0.096	26.922	0.081	0	29	11.2	53.1	3.7	0.035	0.034	0.0006	0.65	0.5
38	6/14/1999	1:58:22 PM	0	26.524	23.35	26.358	26.86	23.019	32.062	66.061	75.42	4.117	63.103	8.109	0.05	27.045	0.913	0.003	30	11.2	64.6	4.5	0.399	0.384	0.0059	5.94	5.1
39	6/14/1999	1:59:22 PM	0	26.604	23.35	26.597	26.86	23.1	31.79	66.236	75.634	3.973	62.663	8.048	0.05	26.83	0.905	0	31	11.1	64.4	4.4	0.395	0.378	0.0059	5.86	5.0
40	6/14/1999	2:00:22 PM	0	26.969	23.269	26.802	26.735	23.145	31.472	65.399	74.475	3.822	63.035	7.863	0.05	26.892	0.898	0	32	11.2	64.2	4.4	0.392	0.373	0.0058	5.80	4.9
41	6/14/1999	2:01:22 PM	0	27.208	23.269	26.962	26.78	23.306	31.631	66.422	75.207	4.053	63.644	7.77	0.096	27.061	0.892	0	33	11.2	65.0	4.5	0.389	0.369	0.0057	5.67	4.8
42	6/14/1999	2:02:22 PM	0	27.288	23.269	27.167	26.86	23.386	31.79	66.296	75.42	4.125	63.779	7.647	0.05	27.014	0.883	0	34	11.2	65.0	4.5	0.385	0.363	0.0056	5.58	4.7
43	6/14/1999	2:03:22 PM	0	27.653	23.315	27.327	26.78	23.432	31.755	66.67	75.115	3.79	63.914	7.585	0.05	26.861	0.881	0	35	11.1	65.3	4.5	0.385	0.360	0.0055	5.52	4.7
44	6/14/1999	2:04:22 PM	0	27.732	23.315	27.486	26.825	23.351	31.914	66.732	75.42	3.942	64.015	7.462	0.05	26.723	0.873	0	36	11.1	65.4	4.5	0.381	0.356	0.0054	5.44	4.6
45	6/14/1999	2:05:22 PM	0	27.892	23.234	27.648	26.79	23.432	31.721	66.05	74.567	3.894	63.576	7.4	0.05	26.769	0.869	0	37	11.1	64.8	4.5	0.379	0.352	0.0054	5.44	4.6
46	6/14/1999	2:06:22 PM	0	28.017	23.28	27.771	26.87	23.557	31.8	66.979	75.207	3.934	63.644	7.308	0.05	26.738	0.866	0	38	11.1	65.3	4.5	0.378	0.350	0.0054	5.36	4.6
47	6/14/1999	2:07:22 PM	0	28.097	23.325	27.93	26.87	23.603	31.959	67.041	75.512	4.053	64.117	7.216	0.096	26.815	0.86	0	39	11.1	65.6	4.5	0.375	0.346	0.0053	5.28	4.5
48	6/14/1999	2:08:22 PM	0	28.381	23.325	28.135	26.836	23.523	32.355	67.537	76.213	4.005	63.81	7.123	0.05	26.799	0.855	0	40	11.1	65.6	4.5	0.373	0.342	0.0052	5.22	4.4
49	6/14/1999	2:09:22 PM	0	28.541	23.325	28.294	26.915	23.362	32.4	67.103	75.481	3.969	64.049	7.061	0.05	26.723	0.851	0	41	11.1	65.6	4.5	0.371	0.339	0.0052	5.17	4.4
50	6/14/1999	2:10:23 PM	0	28.665	23.245	28.374	26.961	23.201	32.558	67.165	75.207	3.949	64.32	7	0.05	26.6	0.848	0.003	42	11.0	65.7	4.5	0.370	0.337	0.0051	5.13	4.4
51	6/14/1999	2:11:23 PM	0	28.825	23.325	28.534	26.836	23.121	32.682	67.072	75.146	3.894	64.286	6.938	0.05	26.646	0.845	0	43	11.1	65.7	4.5	0.369	0.334	0.0051	5.09	4.3
52	6/14/1999	2:12:23 PM	0	28.939	23.325	28.613	27.041	23.041	32.637	68.157	76.366	3.918	64.556	6.938	0.05	26.293	0.845	0	44	10.9	66.4	4.6	0.369	0.334	0.0050	5.03	4.3
53	6/14/1999	2:13:23 PM	0	29.064	23.371	28.738	27.12	22.926	32.762	67.506	75.451	3.848	65.3	6.907	0.05	26.323	0.84	0.003	45	10.9	66.4	4.6	0.367	0.330	0.0050	4.98	4.2
54	6/14/1999	2:14:23 PM	0	29.143	23.371	28.897	27.12	22.845	32.841	67.723	75.573	3.758	64.624	6.846	0.05	26.323	0.836	0	46	10.9	66.2	4.6	0.365	0.327	0.0049	4.95	4.2
55	6/14/1999	2:15:23 PM	0	29.303	23.371	29.056	27.12	22.845	32.999	67.94	75.847	3.894	64.793	6.784	0.05	26.262	0.833	0	47	10.9	66.4	4.6	0.364	0.325	0.0049	4.90	4.2
56	6/14/1999	2:16:23 PM	0	29.337	23.371	29.136	26.995	22.765	33.078	67.661	75.573	3.766	64.962	6.722	0.05	26.093	0.831	0	48	10.8	66.3	4.6	0.363	0.323	0.0049	4.88	4.2
57	6/14/1999	2:17:23 PM	0	29.542	23.325	29.216	26.915	22.684	33.078	68.405	76.183	3.957	64.658	6.661	0.05	26.108	0.825	0	49	10.8	66.5	4.6	0.360	0.320	0.0048	4.82	4.1
58	6/14/1999	2:18:23 PM	0	29.656	23.325	29.295	26.915	22.719	33.113	53.59	75.268	3.487	50.729	20.837	0.096	26.83	1.218	0	50	11.1	52.2	3.6	0.532	0.472	0.0090	9.05	7.7
59	6/14/1999	2:19:23 PM	0	29.815	23.325	29.33	26.961	22.639	33.192	64.035	75.603	3.622	60.702	10.482	0.05	26.508	1.218	0	51	11.0	62.4	4.3	0.532	0.472	0.0076	7.56	6.4
60	6/14/1999	2:20:24 PM	0	29.894	23.325	29.489	26.836	22.719	33.35	66.732	75.725	3.878	64.015	7.585	0.05	26.339	1.218	0	52	10.9	65.4	4.5	0.532	0.469	0.0072	7.18	6.1
61																											
62	Values	Averages		27.7	23.3	27.5	26.8	23.1	32.4	65.9	74.6	4.0	63.0	7.6	0.1	27.2	0.880	0.0		11.3	64.4	4.4	0.384	0.360	0.006	5.6	4.7
63	for	Maximum		29.5	23.4	29.2	27.1	23.6	33.3	68.4	76.4	4.6	65.3	20.0	0.1	30.0	1.203	0.0		12.5	66.5	4.6	0.525	0.520	0.009	8.5	7.3
64	close-loop	Median		27.9	23.3	27.6	26.9	23.1	32.4	66.7	75.4	3.9	63.8	7.1	0.1	26.8	0.866	0.0		11.1	65.3	4.5	0.378	0.350	0.005	5.4	4.6
65	operation	Minimum		25.8	23.2	25.2	26.5	22.5	31.5	53.8	70.1	3.8	52.3	5.3	0.1	26.1	0.081	0.0		10.8	53.1	3.7	0.035	0.034	0.001	0.6	0.5
66		Std Dev		1.2	0.1	1.3	0.2	0.3	0.6	2.9	1.6	0.2	2.7	2.6	0.0	1.2	0.199	0.0		0.5	2.8	0.2	0.087	0.090	0.001	1.5	1.3
67		Number of Points Used		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25		25	25	25	25	25	25	25	25
68																											
69	Values	Averages		25.8	23.3	25.3	26.5	22.8	32.2	61.2	72.3	4.3	58.2	9.9	0.1	28.6	0.950	0.0		11.9	59.7	4.1	0.415	0.411	0.007	6.9	5.9
70	during	Maximum		26.2	23.3	25.8	26.7	23.1	33.0	66.5	74.7	4.5	66.6	11.1	0.1	29.4	1.056	0.0		12.2	67.5	4.7	0.461	0.458	0.007	7.4	6.3
71	dewatering	Median		25.8	23.2	25.2	26.5	22.9	32.1	60.6	72.3	4.3	57.5	10.5	0.1	28.8	0.936	0.0		12.0	58.8	4.1	0.409	0.407	0.007	6.9	5.8
72		Minimum		25.7	23.2	25.2	26.3	22.4	31.9	56.5	70.5	3.9	55.9	4.7	0.1	27.1	0.894	0.0		11.3	57.2	3.9	0.390	0.386	0.006	6.4	5.4
73		Std Dev		0.1	0.0	0.2	0.1	0.2	0.3	2.4	1.0	0.1	2.7	1.9	0.0	0.6	0.050	0.0		0.3	2.6	0.2	0.022	0.021	0.000	0.3	0.3
74		Number of Points Used		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15		15	15	15	15	15	15	15	15





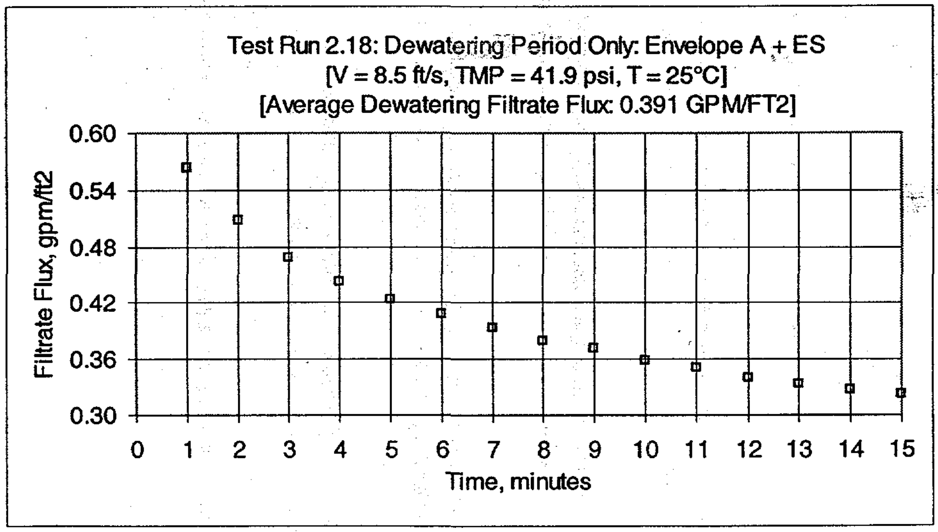


Figure D3: Test Run 2.18, First Wash 3

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.18

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/14/1999	8:54:06 AM	0	22.759	22.057	21.824	23.087	22.139	31.352	-0.062	0.02	-0.024	0.016	-0.119	0.05	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/14/1999	8:56:23 AM	0	22.759	22.057	21.824	23.087	22.139	31.352	-0.062	0.02	-0.024	0.016	-0.119	0.05	-0.08	0.011	0									
5	6/14/1999	8:57:23 AM	0	22.759	22.182	21.87	23.132	22.38	31.193	-0.093	0.02	-0.024	-0.017	-0.119	0.004	-0.08	0.011	0									
6	6/14/1999	8:58:23 AM	0	22.678	22.102	21.87	23.212	22.461	31.159	-0.093	0.02	-0.024	-0.017	-0.119	0.004	-0.08	0.011	0									
7	data																							at 25C	PERMEABILITY x 1000		PERMEABILITY
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	6/14/1999	2:21:20 PM	0	29.974	23.406	29.569	26.756	22.639	33.226	68.715	75.908	3.742	65.199	6.168	0.05	26.262	1.18	0	1	10.9	67.0	4.6	0.515	0.454	0.0068	6.78	5.8
10	6/14/1999	2:22:20 PM	0	30.008	23.36	29.603	26.756	22.593	33.271	70.079	76.67	3.87	66.145	5.243	0.05	26.216	1.126	0	2	10.9	68.1	4.7	0.492	0.433	0.0064	6.35	5.4
11	6/14/1999	2:23:20 PM	0	30.043	23.36	29.762	26.71	22.432	33.384	70.544	76	3.59	67.126	4.627	0.05	26.277	1.087	0	3	10.9	68.8	4.7	0.475	0.416	0.0060	6.04	5.1
12	6/14/1999	2:24:20 PM	0	30.123	23.315	29.762	26.665	22.432	33.181	46.058	74.841	3.63	42.682	27.771	0.096	27.383	1.218	0	4	11.4	44.4	3.1	0.532	0.466	0.0105	10.50	8.9
13	6/14/1999	2:25:21 PM	0	30.202	23.315	29.558	26.505	22.387	33.216	61.338	74.78	3.742	58.809	12.485	0.05	26.968	1.218	0	5	11.2	60.1	4.1	0.532	0.469	0.0078	7.80	6.6
14	6/14/1999	2:26:21 PM	0	30.078	23.395	29.593	26.665	22.422	33.216	65.069	74.597	3.734	63.305	8.571	0.05	26.769	1.218	0	6	11.1	64.2	4.4	0.532	0.468	0.0073	7.29	6.2
15	6/14/1999	2:27:21 PM	0	30.157	23.395	29.593	26.62	22.341	33.137	66.453	74.567	3.949	64.489	6.907	0.05	26.784	1.21	0	7	11.1	65.5	4.5	0.528	0.465	0.0071	7.10	6.0
16	6/14/1999	2:28:21 PM	0	30.112	23.35	29.593	26.7	22.502	32.82	68.157	75.115	3.79	65.266	5.796	0.05	26.738	1.147	0.003	8	11.1	66.7	4.6	0.501	0.441	0.0066	6.61	5.6
17	6/14/1999	2:29:21 PM	0	30.112	23.385	29.548	26.655	22.583	32.503	69.583	75.786	4.061	65.773	5.12	0.05	26.692	1.104	0	9	11.1	67.7	4.7	0.482	0.425	0.0063	6.28	5.3
18	6/14/1999	2:30:21 PM	0	30.112	23.385	29.229	26.78	22.859	32.3	69.676	74.963	3.766	66.45	4.565	0.05	26.677	1.068	0	10	11.1	68.1	4.7	0.466	0.415	0.0061	6.09	5.2
19	6/14/1999	2:31:21 PM	1	30.033	23.465	27.795	26.655	22.904	32.221	2.355	74.384	3.112	-0.119	71.1	84.42	25.878	0.011	0.003	11	10.7	1.1	0.1	0.005	0.004	0.0040	3.97	3.4
20	6/14/1999	2:32:21 PM	1	29.794	23.304	27.157	26.735	22.859	32.3	2.386	73.499	2.904	-0.389	70.206	84.513	26.323	0.011	0.003	12	10.9	1.0	0.1	0.005	0.005	0.0045	4.53	3.9
21	6/14/1999	2:33:21 PM	1	28.839	23.385	26.997	26.815	22.859	32.062	2.417	73.406	2.976	-0.356	70.021	84.559	26.369	0.011	0	13	10.9	1.0	0.1	0.005	0.005	0.0044	4.41	3.8
22	6/14/1999	2:34:21 PM	1	28.36	23.465	26.757	26.895	23.019	31.983	2.541	72.829	2.825	-0.626	69.744	69.973	26.538	0.011	0	14	11.0	1.0	0.1	0.005	0.005	0.0048	4.77	4.1
23	6/14/1999	2:35:21 PM	0	27.562	23.43	26.518	26.895	23.1	31.903	26.763	49.169	1.787	27.705	19.45	0.096	21.408	1.218	0	15	8.9	28.2	1.9	0.532	0.510	0.0180	18.05	15.4
24	6/14/1999	2:36:22 PM	0	27.163	23.385	26.196	26.94	23.065	32.062	37.07	49.382	2.087	35.65	11.191	0.05	20.983	1.218	0	16	8.7	36.4	2.5	0.532	0.514	0.0141	14.14	12.0
25	6/14/1999	2:37:22 PM	0	26.784	23.385	25.958	26.895	23.019	32.062	30.964	53.681	2.904	28.821	21.946	0.096	26.431	1.218	0	17	11.0	29.9	2.1	0.532	0.518	0.0173	17.32	14.7
26	6/14/1999	2:38:22 PM	0	26.444	23.43	25.638	26.974	22.859	32.062	39.332	53.742	2.657	37.679	13.626	0.05	25.064	1.218	0	18	10.4	38.5	2.7	0.532	0.522	0.0136	13.56	11.5
27	6/14/1999	2:39:22 PM	0	26.204	23.385	25.318	26.974	23.065	31.903	44.105	53.986	2.505	41.972	9.527	0.096	24.142	1.218	0	19	10.0	43.0	3.0	0.532	0.527	0.0122	12.24	10.4
28	6/14/1999	2:40:22 PM	0	26.009	23.43	25.123	27.054	23.1	31.948	43.547	51.852	5.282	39.64	7.555	0.05	33.266	1.166	0	20	13.8	41.6	2.9	0.509	0.507	0.0122	12.20	10.4
29	6/14/1999	2:41:22 PM	0	25.689	23.43	24.882	27.1	23.261	31.948	39.58	46.181	3.359	36.834	6.106	0.05	26.354	1.047	0	21	10.9	38.2	2.6	0.457	0.459	0.0120	12.00	10.2
30	6/14/1999	2:42:22 PM	0	25.529	23.43	24.562	27.1	23.306	31.79	41.161	51.456	2.154	39.031	9.095	0.05	21.009	1.045	0	22	8.7	40.1	2.8	0.456	0.462	0.0115	11.52	9.8
31	6/14/1999	2:43:22 PM	0	25.268	23.43	24.401	27.1	23.386	31.79	28.96	50.996	1.851	27.638	21.176	0.096	21.101	1.218	0.003	23	8.8	28.3	2.0	0.532	0.541	0.0191	19.10	16.3
32	6/14/1999	2:44:22 PM	0	24.968	23.35	24.161	27.145	23.386	31.79	39.084	51.12	2.075	37.104	11.345	0.096	20.778	1.218	0.003	24	8.6	38.1	2.6	0.532	0.544	0.0143	14.29	12.2
33	6/14/1999	2:45:22 PM	0	24.773	23.475	23.885	27.145	23.386	31.914	45.376	53.603	1.875	43.764	7.832	0.05	19.335	1.218	0.003	25	8.0	44.6	3.1	0.532	0.549	0.0123	12.31	10.5
34	6/14/1999	2:46:23 PM	0	24.612	23.395	23.805	27.065	23.512	31.596	46.182	51.882	2.849	44.102	5.089	0.05	22.499	1.096	0	26	9.3	45.1	3.1	0.478	0.495	0.0110	10.96	9.3
35	6/14/1999	2:47:23 PM	0	24.452	23.44	23.61	27.065	23.512	31.676	47.36	52.858	2.617	45.455	4.627	0.05	21.5	1.041	0	27	8.9	46.4	3.2	0.454	0.473	0.0102	10.18	8.7
36	6/14/1999	2:48:23 PM	0	24.337	23.44	23.369	27.03	23.477	31.721	4.277	53.285	2.362	3.059	48.079	0.05	20.441	0.012	0	28	8.5	3.7	0.3	0.005	0.005	0.0015	1.50	1.3
37	6/14/1999	2:49:23 PM	0	23.936	23.44	23.128	27.03	23.397	31.879	31.8	52.614	1.987	30.647	20.097	0.05	21.823	1.218	0	29	9.1	31.2	2.2	0.532	0.561	0.0180	17.96	15.3
38	6/14/1999	2:50:23 PM	0	23.82	23.486	22.967	27.11	23.442	31.8	41.192	52.736	2.218	39.91	10.606	0.05	21.377	1.218	0	30	8.9	40.6	2.8	0.532	0.563	0.0139	13.89	11.8
39	6/14/1999	2:51:23 PM	0	23.66	23.406	22.772	27.155	23.442	32.117	40.324	53.376	2.194	38.592	12.206	0.05	21.04	1.092	0	31	8.7	39.5	2.7	0.477	0.508	0.0129	12.87	11.0
40	6/14/1999	2:52:23 PM	0	23.625	23.406	22.53	27.155	23.121	32.321	41.254	53.468	2.202	39.403	11.437	0.05	20.917	1	0	32	8.7	40.3	2.8	0.437	0.468	0.0116	11.61	9.9
41	6/14/1999	2:53:23 PM	0	23.338	23.406	22.37	27.155	22.88	32.558	40.789	52.462	2.266	39.978	10.944	0.05	20.825	0.94	0	33	8.6	40.4	2.8	0.410	0.442	0.0109	10.95	9.3
42	6/14/1999	2:54:24 PM	0	23.178	23.486	22.174	27.075	22.684	32.558	41.843	53.224	2.194	40.282	10.605	0.05	20.794	0.896	0	34	8.6	41.1	2.8	0.391	0.424	0.0103	10.32	8.8
43	6/14/1999	2:55:24 PM	0	22.982	23.451	22.048	27.2	22.684	32.682	41.254	52.614	2.13	40.181	10.326	0.05	20.563	0.86	0	35	8.5	40.7	2.8	0.375	0.408	0.0100	10.03	8.5
44	6/14/1999	2:56:24 PM	0	22.902	23.451	22.415	27.155	22.719	32.717	42.99	53.895	2.41	41.465	10.205	0.096	20.656	0.837	0.003	36	8.6	42.2	2.9	0.365	0.393	0.0093	9.31	7.9
45	6/14/1999	2:57:24 PM	0	23.017	23.451	22.817	27.2	22.799	32.999	42.649	53.925	2.497	40.857	10.051	0.096	20.609	0.818	0	37	8.6	41.8	2.9	0.357	0.380	0.0091	9.10	7.7
46	6/14/1999	2:58:24 PM	0	23.223	23.451	23.219	27.12	22.558	33.078	43.062	53.559	2.21	40.722	9.989	0.05	20.594	0.808	0	38	8.5	41.9	2.9	0.353	0.371	0.0089	8.85	7.5
47	6/14/1999	2:59:24 PM	0	23.545	23.531	23.62	26.995	22.478	33.033	42.68	53.193	2.162	41.567	9.897	0.096	20.487	0.789	0	39	8.5	42.1	2.9	0.344	0.358	0.0085	8.50	7.2
48	6/14/1999	3:00:24 PM	0	23.901	23.486	23.976	26.915	22.639	33.35	42.401	53.224	2.234	41.127	9.804	0.05	20.487	0.781	0	40	8.5	41.8	2.9	0.341	0.351	0.0084	8.40	7.2
49	6/14/1999	3:01:24 PM	0	24.302	23.486	24.457	26.836	22.478	33.271	42.804	53.285	2.296	41.601	9.773	0.05	20.548	0.768	0	41	8.5	42.2	2.9	0.335	0.340	0.0081	8.07	6.9
50	6/14/1999	3:02:24 PM	0	24.783	23.486	24.936	26.916	22.478	33.35	43.33	54.23	2.601	41.668	9.743	0.096	20.41	0.763	0	42	8.5	42.5	2.9	0.333	0.334	0.0079	7.85	6.7
51	6/14/1999	3:03:25 PM	0	25.104	23.44	25.339	26.915	22.432	33.192	43.547	54.139	2.21	41.972	9.681	0.096	20.425	0.757	0	43	8.5	42.8	2.9	0.330	0.327	0.0077	7.66	6.5
52	6/14/1999	3:04:25 PM	0	25.504	23.521	25.774	26.995	22.397	33.226	43.175	53.407	2.138	41.601	9.619	0.05	20.287	0.753	0	44	8.4	42.4	2.9	0.329	0.322	0.0076	7.59	6.5
53	6/14/1999	3:05:25 PM	0	26.099	23.521	26.254	26.905	22.478	33.305	43.516	54.078	2.25	42.716	9.619	0.05	20.026	0.748	0	45	8.3	43.1	3.0	0.327	0.315	0.0073	7.31	6.2
54	6/14/1999	3:06:25 PM	0	26.499	23.521	26.653	27.03	22.513	33.305	48.135	55.023	2.45	45.928	5.983	0.05	19.949	0.801	0	46	8.3	47.0	3.2	0.350	0.334	0.0071	7.10	6.0
55	6/14/1999	3:07:25 PM	0	26.934	23.521	27.007	26.965	22.432	33.102	48.476	54.901	2.226	46.097	5.551	0.05	20.01	0.787	0	47	8.3	47.3	3.3	0.344	0.325	0.0069	6.87	5.8
56	6/14/1999	3:08:25 PM	0	27.333	23.475	27.566	26.985	22.548	33.261	47.763	54.291	2.314	46.808	5.459	0.05	20.01	0.778	0	48	8.3	47.3	3.3	0.340	0.316	0.0067	6.68	5.7
57	6/14/1999	3:09:25 PM	0	27.732	23.475	27.965	26.985	22.387	33.34	48.91	54.992	2.481	47.044	5.366	0.05	19.78	0.771	0	49	8.2	48.0	3.3	0.337	0.310	0.0065	6.46	5.5
58	6/14/1999	3:10:25 PM	0	28.086	23.51	28.364	26.86	22.387	32.944	48.6	54.748	2.322	48.739	5.243	0.05	19.857	0.764	0	50	8.2	47.7	3.3	0.334	0.304	0.0064	6.37	5.4
59	6/14/1999	3:11:25 PM	1	28.326	23.43	28.682	26.94	22.628	32.582	1.921	55.877	2.027	0.219	52.918	70.297	19.396	0.011	0	51	8.0	1.1	0.1	0.005	0.004	0.0041	4.05	3.4
60																											
61	Values	Averages		28.9	23.4	28.2	26.8	22.6	32.7	36.9	66.9	3.0	34.4	29.1	30.3	23.9	0.591	0.0		9.9	35.6	2.5	0.258	0.232	0.006	5.7	4.9
62	for	Maximum		30.2	23.5	29.6	27.0	23.0	33.3	69.7	75.8	4.1	66.5	71.1	84.6	26.8	1.210	0.0		11.1	68.1	4.7	0.528	0.465	0.007	7.1	6.0
63	close-loop	Median		28.8	23.4	28.0	26.8	22.6	32.6	48.5	73.4	2.9	46.7	5.8	0.1	26.3	0.771	0.0		10.9	47.3	3.3	0.337	0.310	0.006	6.3	5.3
64	operation	Minimum		26.9	23.3	26.8	26.6	22.3	32.0	1.9	54.3	2.0	-0.6	4.6	0.1	19.4	0.011	0.0		8.0	1.0	0.1	0.005	0.004	0.004	4.0	3.4
65		Std Dev		1.1	0.1	1.0	0.1	0.2	0.5	28.4	9.5	0.7	28.4	30.1	38.5	3.3	0.480	0.0		1.4	28.4	2.0	0.210	0.187	0.001	1.1	1.0
66		Number of Points Used		13	13	13	13	13	13	13	13	13	13	13	13	13	13	13		13	13	13	13	13	13	13	13
67																											
68	Values	Averages		24.1	23.5	23.8	27.0	22.7	32.9	42.6	53.5	2.3	41.2	10.0	0.1	20.6	0.861	0.0		8.5	41.9	2.9	0.376	0.391	0.009	9.4	8.0
69	during	Maximum		26.5	23.5	26.7	27.2	23.4	33.4	48.1	55.0	2.6	45.9	12.2	0.1	21.4	1.218	0.0		8.9	47.0	3.2	0.532	0.563	0.014	13.9	11.8
70	dewatering	Median		23.7	23.5	23.2	27.1	22.6	33.0	42.7	53.4	2.2	41.1	10.0	0.1	20.6	0.808	0.0		8.5	41.9	2.9	0.353	0.371	0.009	8.9	7.5
71		Minimum		22.9	23.4	22.0	26.8	22.4	31.8	40.3	52.5	2.1	38.6	8.0	0.1	19.9	0.748	0.0		8.3	39.5	2.7	0.327	0.315	0.007	7.1	6.0
72		Std Dev		1.1	0.0	1.5	0.1	0.3	0.5	1.7	0.6	0.1	1.6	1.2	0.0	0.3	0.129	0.0		0.1	1.6	0.1	0.056	0.069	0.002	1.9	1.6
73		Number of Points Used		17	17	17	17	17	17	17	17	17	17	17	17	17	17	17		17	17	17	17	17	17	17	17

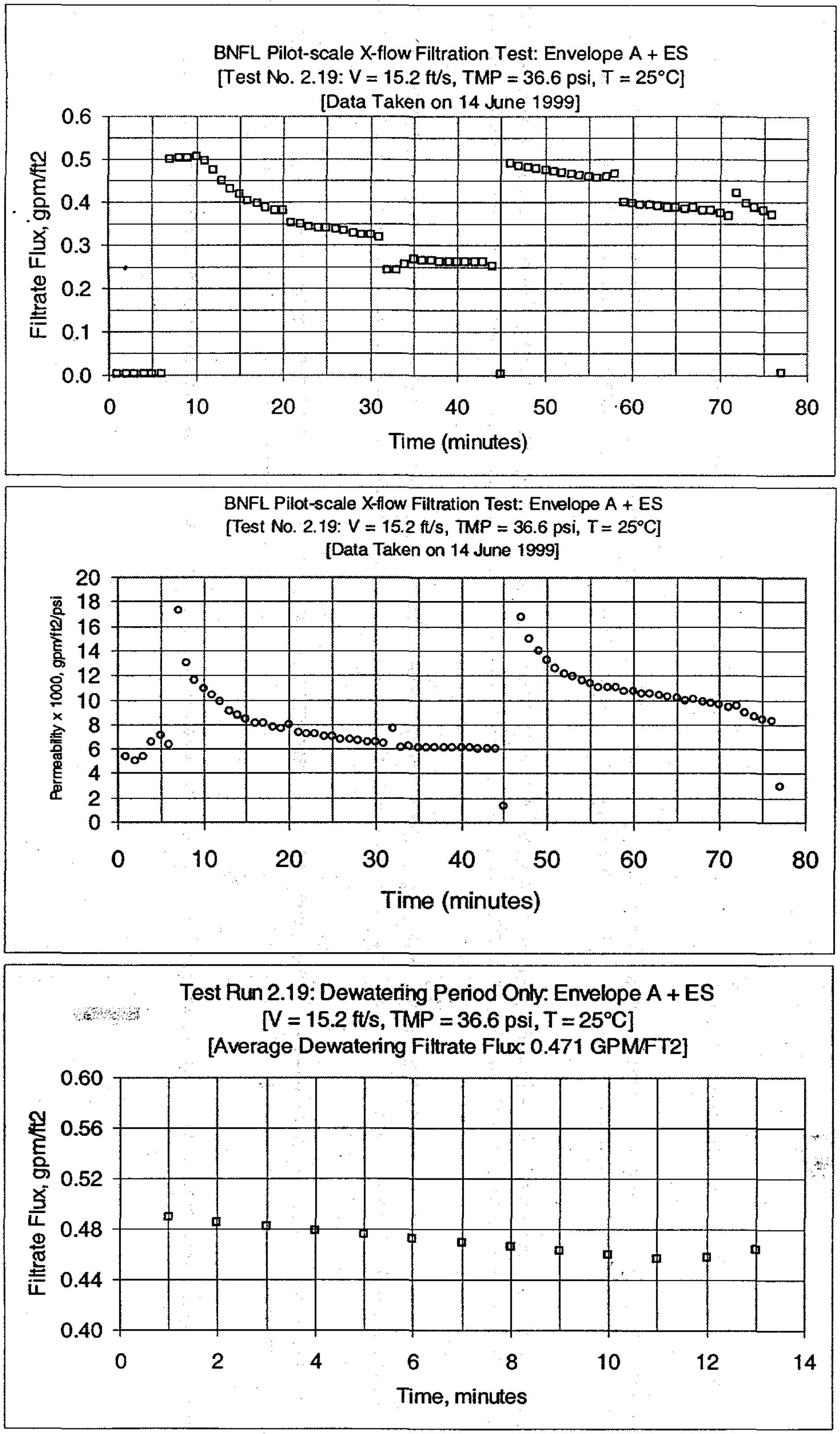


Figure D4: Test Run 2.19, First Wash 4

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.19

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (p	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM		Filter Surface Area			2.29	FT2				
3	6/14/1999	8:54:06 AM	0	22.759	22.057	21.824	23.087	22.139	31.352	-0.062	0.02	-0.024	0.016	-0.119	0.05	-0.08	0.011	0	Conversion			851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/14/1999	8:56:23 AM	0	22.759	22.057	21.824	23.087	22.139	31.352	-0.062	0.02	-0.024	0.016	-0.119	0.05	-0.08	0.011	0									
5	6/14/1999	8:57:23 AM	0	22.759	22.182	21.87	23.132	22.38	31.193	-0.093	0.02	-0.024	-0.017	-0.119	0.004	-0.08	0.011	0									
6	6/14/1999	8:58:23 AM	0	22.678	22.102	21.87	23.212	22.461	31.159	-0.093	0.02	-0.024	-0.017	-0.119	0.004	-0.08	0.011	0									
7	data																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
8	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE	PISTON (p	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	6/14/1999	3:11:30 PM	1	28.291	23.556	26.717	26.94	22.663	32.627	1.487	55.328	1.899	0.118	52.887	70.297	19.396	0.011	0.003	1	8.0	0.8	0.1	0.005	0.004	0.0054	5.40	4.6
10	6/14/1999	3:12:30 PM	1	27.927	23.51	28.159	26.94	22.502	32.424	1.673	55.114	1.763	0.084	52.702	70.39	19.381	0.011	0	2	8.0	0.9	0.1	0.005	0.004	0.0050	5.01	4.3
11	6/14/1999	3:13:31 PM	1	28.066	23.51	27.76	27.225	22.663	32.186	1.611	53.773	1.843	0.05	51.408	70.39	19.35	0.011	0	3	8.0	0.8	0.1	0.005	0.004	0.0054	5.35	4.6
12	6/14/1999	3:14:31 PM	1	28.326	23.43	27.521	27.1	22.663	32.345	1.271	53.864	1.851	0.084	51.469	70.436	19.212	0.011	0	4	8.0	0.7	0.0	0.005	0.004	0.0066	6.61	5.6
13	6/14/1999	3:15:31 PM	1	28.066	23.51	27.361	27.02	22.583	32.265	1.209	54.017	1.572	0.05	52.086	70.482	19.304	0.011	0	5	8.0	0.6	0.0	0.005	0.004	0.0071	7.14	6.1
14	6/14/1999	3:16:31 PM	1	27.927	23.51	27.441	26.94	22.824	32.107	1.426	54.047	1.715	-0.017	51.839	70.528	19.289	0.011	0	6	8.0	0.7	0.0	0.005	0.004	0.0064	6.37	5.4
15	6/14/1999	3:17:31 PM	0	27.847	23.51	27.236	26.94	22.904	32.107	29.226	54.596	1.875	28.551	24.258	0.096	21.208	1.218	0	7	8.8	28.9	2.0	0.532	0.500	0.0173	17.29	14.7
16	6/14/1999	3:18:31 PM	0	27.767	23.556	27.042	27.02	22.824	32.028	38.96	54.626	1.7	38.423	14.827	0.096	20.886	1.218	0	8	8.7	38.7	2.7	0.532	0.502	0.0130	12.98	11.0
17	6/14/1999	3:19:31 PM	0	27.528	23.51	26.882	26.94	22.985	32.028	44.012	54.931	2.027	42.818	10.174	0.096	20.702	1.218	0	9	8.6	43.4	3.0	0.532	0.504	0.0116	11.62	9.9
18	6/14/1999	3:20:31 PM	0	27.368	23.51	26.643	27.02	22.904	31.948	46.771	55.663	2.186	45.759	7.709	0.096	20.686	1.218	0	10	8.6	46.3	3.2	0.532	0.508	0.0110	10.98	9.3
19	6/14/1999	3:21:31 PM	0	27.288	23.51	26.463	27.02	22.985	31.869	48.29	55.023	1.963	47.145	6.168	0.05	20.548	1.183	0	11	8.5	47.7	3.3	0.516	0.495	0.0104	10.38	8.8
20	6/14/1999	3:22:31 PM	0	27.094	23.51	26.288	27.02	23.065	31.914	49.126	54.87	1.747	47.618	5.243	0.05	20.287	1.125	0	12	8.4	48.4	3.3	0.491	0.474	0.0098	9.79	8.3
21	6/14/1999	3:23:32 PM	0	26.889	23.556	26.083	27.179	23.065	31.948	49.994	55.419	2.09	48.971	4.781	0.05	20.256	1.062	0	13	8.4	49.5	3.4	0.464	0.450	0.0091	9.09	7.7
22	6/14/1999	3:24:32 PM	0	26.774	23.556	25.968	27.179	23.11	31.834	50.18	55.694	2.067	48.565	4.688	0.096	20.241	1.014	0	14	8.4	49.4	3.4	0.443	0.431	0.0087	8.73	7.4
23	6/14/1999	3:25:32 PM	0	26.614	23.475	25.808	27.304	23.11	31.914	50.893	55.419	2.083	49.072	4.38	0.05	20.241	0.982	0.003	15	8.4	50.0	3.4	0.429	0.419	0.0084	8.38	7.1
24	6/14/1999	3:26:32 PM	0	26.534	23.601	25.728	27.304	23.191	31.914	50.562	56.242	2.434	48.869	4.75	0.05	20.118	0.944	0.003	16	8.3	49.7	3.4	0.412	0.404	0.0081	8.12	6.9
25	6/14/1999	3:27:32 PM	0	26.294	23.475	25.488	27.145	23.191	31.993	50.056	55.297	2.059	48.193	4.504	0.096	20.028	0.923	0	17	8.3	49.1	3.4	0.403	0.397	0.0081	8.09	6.9
26	6/14/1999	3:28:32 PM	0	26.214	23.521	25.373	27.145	23.316	31.914	51.048	55.785	2.114	49.275	4.319	0.096	20.133	0.899	0	18	8.4	50.2	3.5	0.392	0.388	0.0077	7.74	6.6
27	6/14/1999	3:29:32 PM	0	26.099	23.601	25.168	27.145	23.477	31.959	50.831	55.755	2.242	49.005	4.134	0.05	20.072	0.88	0	19	8.3	49.9	3.4	0.384	0.382	0.0077	7.66	6.5
28	6/14/1999	3:30:32 PM	0	25.859	23.521	25.053	27.19	23.316	31.879	48.569	56.456	2.37	46.739	6.938	0.05	20.026	0.876	0	20	8.3	47.7	3.3	0.382	0.382	0.0080	8.01	6.8
29	6/14/1999	3:31:32 PM	0	25.745	23.521	24.893	27.19	23.397	32.038	49.157	56.334	2.354	46.976	6.075	0.05	19.995	0.806	0	21	8.3	48.1	3.3	0.352	0.353	0.0073	7.34	6.2
30	6/14/1999	3:32:32 PM	0	25.664	23.566	24.858	27.155	23.156	32.241	49.095	55.755	2.067	47.855	5.952	0.05	19.872	0.796	0	22	8.2	48.5	3.3	0.347	0.349	0.0072	7.20	6.1
31	6/14/1999	3:33:32 PM	0	25.584	23.566	24.778	27.075	23.121	32.558	49.157	55.785	2.394	47.247	5.767	0.05	20.01	0.786	0	23	8.3	48.2	3.3	0.343	0.345	0.0072	7.16	6.1
32	6/14/1999	3:34:32 PM	0	25.424	23.566	24.618	27.075	22.96	32.637	49.25	55.419	2.178	47.923	5.644	0.096	19.995	0.774	0	24	8.3	48.6	3.3	0.338	0.342	0.0070	7.03	6.0
33	6/14/1999	3:35:32 PM	0	25.344	23.566	24.412	27.075	22.96	32.637	49.25	55.663	2.218	47.618	5.49	0.05	20.01	0.765	0.003	25	8.3	48.4	3.3	0.334	0.340	0.0070	7.01	6.0
34	6/14/1999	3:36:32 PM	0	25.104	23.566	24.297	26.995	22.799	32.796	49.901	55.999	2.282	48.7	5.336	0.096	19.964	0.755	0	26	8.3	49.3	3.4	0.330	0.336	0.0068	6.82	5.8
35	6/14/1999	3:37:32 PM	0	25.024	23.647	24.137	26.995	22.719	32.91	49.374	55.785	2.553	48.295	5.212	0.05	19.949	0.745	0	27	8.3	48.8	3.4	0.325	0.333	0.0068	6.82	5.8
36	6/14/1999	3:38:32 PM	0	24.896	23.647	24.137	26.67	22.476	32.91	50.273	56.09	2.296	48.599	5.089	0.05	19.964	0.734	0	28	8.3	49.4	3.4	0.320	0.328	0.0066	6.64	5.7
37	6/14/1999	3:39:33 PM	0	24.736	23.566	23.931	26.86	22.593	32.989	50.428	56.395	2.33	48.531	4.966	0.096	19.98	0.724	0	29	8.3	48.5	3.4	0.316	0.326	0.0066	6.58	5.6
38	6/14/1999	3:40:33 PM	0	24.656	23.601	23.851	26.86	22.352	32.989	50.18	55.907	2.505	48.362	4.873	0.05	19.918	0.719	0	30	8.3	49.3	3.4	0.314	0.324	0.0066	6.58	5.6
39	6/14/1999	3:41:33 PM	0	24.612	23.601	23.77	26.905	22.352	33.102	49.963	55.572	2.186	48.633	4.719	0.05	19.964	0.708	0	31	8.3	49.3	3.4	0.309	0.320	0.0065	6.49	5.5
40	6/14/1999	3:42:33 PM	0	24.532	23.556	24.126	26.825	22.593	32.865	37.288	48.925	11.218	27.029	10.482	0.05	45.815	0.548	0	32	18.9	32.2	2.2	0.238	0.244	0.0076	7.60	6.5
41	6/14/1999	3:43:33 PM	0	24.612	23.636	24.447	26.905	22.548	33.023	43.237	50.449	8.314	35.786	6.199	0.05	39.886	0.55	0	33	16.6	39.5	2.7	0.240	0.244	0.0062	6.17	5.3
42	6/14/1999	3:44:33 PM	0	24.727	23.51	24.722	26.86	22.422	32.978	44.663	51.882	6.535	37.949	6.63	0.05	35.401	0.583	0	34	14.7	41.3	2.8	0.255	0.257	0.0062	6.21	5.3
43	6/14/1999	3:45:34 PM	0	25.048	23.591	25.043	26.86	22.422	33.137	46.565	52.34	6.957	40.417	5.027	0.05	35.017	0.614	0.003	35	14.5	43.5	3.0	0.268	0.268	0.0062	6.15	5.2
44	6/14/1999	3:46:34 PM	0	25.243	23.626	25.318	26.94	22.378	32.854	46.213	51.882	6.606	39.876	5.089	0.05	34.909	0.614	0	36	14.5	43.0	3.0	0.268	0.266	0.0062	6.17	5.3
45	6/14/1999	3:47:34 PM	0	25.644	23.626	25.593	26.815	22.135	33.013	46.337	51.974	6.606	40.316	5.151	0.05	34.94	0.616	0	37	14.5	43.3	3.0	0.269	0.264	0.0061	6.10	5.2
46	6/14/1999	3:48:34 PM	0	25.758	23.58	25.833	26.815	22.135	33.047	46.12	52.187	6.566	39.91	5.182	0.05	34.71	0.619	0	38	14.4	43.0	3.0	0.270	0.264	0.0061	6.14	5.2
47	6/14/1999	3:49:34 PM	0	26.159	23.58	26.153	26.929	22.17	32.81	45.965	51.821	6.407	40.147	5.212	0.05	34.664	0.623	0	39	14.4	43.1	3.0	0.272	0.263	0.0061	6.12	5.2
48	6/14/1999	3:50:34 PM	0	26.273	23.615	26.427	26.849	21.963	32.686	45.407	51.456	6.566	39.91	5.274	0.05	34.28	0.627	0	40	14.2	42.7	2.9	0.274	0.263	0.0062	6.16	5.2
49	6/14/1999	3:51:34 PM	0	26.513	23.615	26.667	26.804	22.205	32.448	46.337	52.37	6.734	40.079	5.305	0.05	34.556	0.63	0.003	41	14.3	43.2	3.0	0.275	0.262	0.0061	6.07	5.2
50	6/14/1999	3:52:34 PM	0	26.868	23.57	26.987	26.964	22.124	32.29	46.151	52.401	6.638	40.147	5.336	0.05	34.464	0.632	0	42	14.3	43.1	3.0	0.276	0.261	0.0060	6.05	5.1
51	6/14/1999	3:53:34 PM	0	27.108	23.57	27.181	26.884	22.24	32.166	46.337	52.523	6.463	40.417	5.397	0.05	34.065	0.637	0	43	14.1	43.4	3.0	0.278	0.262	0.0060	6.03	5.1
52	6/14/1999	3:54:34 PM	0	27.347	23.57	27.421	26.919	22.481	32.086	45.5	51.456	7.699	38.558	5.243	0.05	37.674	0.618	0	44	15.6	42.0	2.9	0.270	0.252	0.0060	6.00	5.1
53	6/14/1999	3:55:34 PM	0	27.587	23.57	27.74	26.999	22.642	32.007	6.726	51.852	6.614	0.05	44.227	0.096	35.601	0.011	0	45	14.8	3.4	0.2	0.005	0.004	0.0013	1.31	1.1
54	6/14/1999	3:56:34 PM	0	27.986	23.57	27.979	27.159	22.723	31.848	26.5	51.151	5.226	21.721	23.96	0.05	37.336	1.218	0	46	15.5	24.1	1.7	0.532	0.489	0.0203	20.30	17.3
55	6/14/1999	3:57:34 PM	0	28.305	23.65	28.298	27.159	22.883	31.883	31.242	51.09	5.146	26.928	19.049	0.05	37.259	1.218	0	47	15.5	29.1	2.0	0.532	0.485	0.0167	16.68	14.2
56	6/14/1999	3:58:34 PM	0	28.544	23.57	28.537	27.079	22.803	31.848	34.311	51.212	5.043	30.14	16.183	0.05	36.783	1.218	0	48	15.3	32.2	2.2	0.532	0.482	0.0150	14.95	12.7
57	6/14/1999	3:59:35 PM	0	28.863	23.605	28.776	27.079	22.838	31.769	36.543	51.547	5.146	32.067	14.18	0.05	36.614	1.218	0.003	49	15.2	34.3	2.4	0.532	0.479	0.0140	13.95	11.9
58	6/14/1999	4:00:35 PM	0	29.102	23.57	29.015	27.239	23.044	31.69	38.03	51.699	5.202	33.656	12.609	0.05	36.676	1.218	0	50	15.2	35.8	2.5	0.532	0.476	0.0133	13.27	11.3
59	6/14/1999	4:01:35 PM	0	29.341	23.57	29.209	27.478	23.044	31.452	39.963	52.157	5.529	35.414	11.407	0.05	36.63	1.218	0	51	15.2	37.7	2.6	0.532	0.473	0.0125	12.55	10.7
60	6/14/1999	4:02:35 PM	0	29.659	23.57	29.492	27.638	23.124	31.531	40.417	51.547	5.418	36.698	10.39	0.05	36.338	1.218	0	52	15.1	38.6	2.7	0.532	0.469	0.0122	12.17	10.4
61	6/14/1999	4:03:35 PM	0	29.818	23.57	29.731	27.718	23.33	31.531	41.471	51.73	5.457	37.07	9.558	0.05	36.323	1.218	0	53	15.1	39.3	2.7	0.532	0.466	0.0119	11.88	10.1
62	6/14/1999	4:04:35 PM	0	30.102	23.615	30.016	27.763	23.33	31.576	42.184	51.913	4.679	37.78	8.941	0.05	36.138	1.218	0	54	15.0	40.0	2.8	0.532	0.463	0.0116	11.57	9.9
63	6/14/1999	4:05:35 PM	0	30.34	23.615	30.253	27.603	23.33	31.735	42.928	52.065	5.613	37.915	8.387	0.05	36.338	1.218	0	55	15.1	40.4	2.8	0.532	0.460	0.0114	11.37	9.7
64	6/14/1999	4:06:35 PM	0	30.544	23.615	30.491	27.489	23.33	31.496	43.609	52.035	4.955	38.862	7.924	0.05	36.522	1.218	0	56	15.2	41.2	2.8	0.532	0.457	0.0111	11.08	9.4
65	6/14/1999	4:07:36 PM	0	30.703	23.661	30.377	27.409	23.376	31.496	43.702	52.035	5.585	39.471	7.462	0.05	36.292	1.218	0	57	15.1	41.6	2.9	0.532	0.458	0.0110	11.02	9.4
66	6/14/1999	4:08:36 PM	0	30.544	23.58	29.821	27.329	23.295	31.621	44.446	51.974	5.441	39.606	6.907	0.05	36.722	1.215	0	58	15.2	42.0	2.9	0.530	0.464	0.0110	11.04	9.4
67	6/14/1999	4:09:36 PM	0	30.147	23.626	29.264	27.249	23.341	31.507	39.487	51.76	5.633	34.94	11.684	0.05	36.461	1.029	0	59	15.1	37.2	2.6	0.449	0.399	0.0107	10.72	9.1
68	6/14/1999	4:10:36 PM	0	29.794	23.626	28.752	27.454	23.341	31.586	39.456	51.791	5.33	34.568	11.437	0.05	36.491	1.01	0	60	15.1	37.0	2.6	0.441	0.397	0.0107	10.73	9.1
69	6/14/1999	4:11:36 PM	0	29.396	23.545	28.274	27.613	23.341	31.427	40.169	52.309	5.665	35.008	11.314	0.05	36.292	0.99	0	61	15.1	37.6	2.6	0.432	0.395	0.0105	10.50	8.9
70	6/14/1999	4:12:36 PM	0	28.998	23.591	27.795	27.613	23.467	31.472	39.952	52.065	5.497	35.245	11.16	0.096	36.123	0.973	0	62	15.0	37.6	2.6	0.425	0.393	0.0104	10.45	8.9
71	6/14/1999	4:13:36 PM	0	28.565	23.591	27.361	27.898	23.366	948	39.797	51.639	5.449	35.211	11.006	0.05	35.969	0.955	0	63	14.9	37.5	2.6	0.417	0.390	0.0104	10.41	8.9
72	6/14/1999	4:14:36 PM	0	28.007	23.591	26.882	27.738	23.467	32.028	40.324	52.187	5.441	35.38	10.914	0.05	36.292	0.939	0	64	15.1	37.9	2.6	0.410	0.389	0.0103	10.27	8.7
73	6/14/1999	4:15:36 PM	0	27.732	23.591	26.448	27.763	23.271	32.107	40.417	51.73	5.082	35.819	10.79	0.05	35.631	0.926	0.003	65	14.8	38.1	2.6	0.404	0.388	0.0102	10.18	8.7
74	6/14/1999	4:16:36 PM	0	27.173	23.636	25.968	27.704	23.191	32.389	40.541	52.126	5.665	36.496	10.636	0.05	35.647	0.906	0	66	14.8	38.5	2.7	0.396	0.385	0.0100	9.99	8.5
75	6/14/1999	4:17:36 PM	0	26.774	23.636	25.568	27.624	23.191	32.389	40.51	51.852	5.274	36.563	10.544	0.05	34.771	0.899	0	67	14.4	38.5	2.7	0.392	0.386	0.0100	10.02	8.5
76	6/14/1999	4:18:36 PM	0	26.454	23.636	25.088	27.763	23.11	32.389	41.254	52.492	5.306	36.698	10.451	0.05	34.863	0.878	0.003	68	14.5	39.0	2.7	0.383	0.382	0.0098	9.81	8.3
77	6/14/1999	4:19:36 PM	0	25.939	23.636	24.767	27.829	23.03	32.389	41.285	52.431	5.146	36.834	10.359	0.05	34.019	0.867	0	69	14.1	39.1	2.7	0.378	0.381	0.0098	9.75	8.3
78	6/14/1999	4:20:36 PM	0	25.859	23.636	25.088	27.704	23.236	32.548	40.913	51.882	5.178	36.935	10.297	0.096	34.418	0.858	0	70	14.3	38.9	2.7	0.375	0.374	0.0096	9.60	8.2
79	6/14/1999	4:21:36 PM	0	25.734	23.636	25.728	27.783	22.95	32.751	41.192	52.035	4.923	36.8	10.297	0.05	34.341	0.859	0	71	14.3	39.0	2.7	0.375	0.367	0.0094	9.42	8.0
80	6/14/1999	4:22:36 PM	0	26.054	23.681	26.368	27.704	22.915	32.83	48.213	52.035	4.971	42.448	5.027	0.05	34.74	1.003	0	72	14.4	44.3	3.1	0.438	0.421	0.0095	9.51	8.1
81	6/14/1999	4:23:37 PM	0	26.614	23.636	26.848	27.749	22.789	32.83	48.492	52.279	5.138	42.344	5.058	0.05	34.356	0.96	0.003	73	14.3	44.4	3.1	0.419	0.398	0.0090	8.96	7.6

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.19

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
82	6/14/1999	4:24:37 PM	0	27.253	23.636	27.327	27.624	22.708	32.83	46.678	52.401	5.146	42.682	5.027	0.05	34.28	0.948	0	74	14.2	44.7	3.1	0.414	0.388	0.0087	8.68	7.4
83	6/14/1999	4:25:37 PM	0	27.573	23.762	27.885	27.544	22.708	32.706	47.081	52.553	5.074	42.716	4.997	0.05	34.049	0.944	0	75	14.1	44.9	3.1	0.412	0.380	0.0085	8.47	7.2
84	6/14/1999	4:26:37 PM	0	28.052	23.636	28.364	27.624	22.628	32.741	46.616	52.462	4.811	42.716	4.935	0.05	33.635	0.939	0	76	14.0	44.7	3.1	0.410	0.373	0.0084	8.36	7.1
85	6/14/1999	4:27:37 PM	1	28.131	23.636	28.842	27.499	22.628	32.786	3.905	52.767	4.739	-0.694	48.11	70.436	33.02	0.012	0	77	13.7	1.6	0.1	0.005	0.005	0.0029	2.93	2.5
86																											
87	Values	Averages		26.5	23.6	26.0	27.2	22.8	32.4	44.6	53.4	4.6	40.6	8.2	1.4	29.5	0.797	0.0		12.2	42.5	2.9	0.348	0.339	0.008	7.8	6.7
88	for	Maximum		30.1	23.8	29.3	27.9	23.5	33.1	51.0	56.5	11.2	49.3	48.1	70.4	45.6	1.183	0.0		18.9	50.2	3.5	0.516	0.495	0.011	10.7	9.1
89	close-loop	Median		26.3	23.6	25.8	27.1	23.0	32.4	46.3	52.4	5.1	40.4	5.3	0.1	34.3	0.859	0.0		14.2	43.4	3.0	0.375	0.370	0.008	7.7	6.6
90	operation	Minimum		24.5	23.5	23.8	26.8	22.0	31.4	3.9	48.9	1.7	-0.7	4.1	0.1	19.9	0.011	0.0		8.2	1.6	0.1	0.005	0.004	0.001	1.3	1.1
91		Std Dev		1.3	0.1	1.4	0.3	0.4	0.5	8.6	1.9	2.1	9.7	7.9	9.5	7.7	0.220	0.0		3.2	9.1	0.6	0.096	0.090	0.002	1.9	1.7
92		Number of Points Used		54	54	54	54	54	54	54	54	54	54	54	54	54	54	54		54	54	54	54	54	54	54	54
93																											
94	Values	Averages		29.5	23.6	29.4	27.4	23.1	31.7	38.9	51.7	5.3	34.4	12.1	0.1	36.6	1.218	0.0		15.2	36.6	2.5	0.532	0.471	0.013	13.2	11.2
95	during	Maximum		30.7	23.7	30.5	27.8	23.4	31.9	44.4	52.2	5.6	39.6	24.0	0.1	37.3	1.218	0.0		15.5	42.0	2.9	0.532	0.489	0.020	20.3	17.3
96	dewatering	Median		29.7	23.6	29.5	27.4	23.1	31.6	40.4	51.7	5.2	36.7	10.4	0.1	36.6	1.218	0.0		15.2	38.6	2.7	0.532	0.469	0.012	12.2	10.4
97		Minimum		28.0	23.6	28.0	27.1	22.7	31.5	26.5	51.1	5.0	21.7	6.9	0.1	36.1	1.215	0.0		15.0	24.1	1.7	0.530	0.457	0.011	11.0	9.4
98		Std Dev		0.9	0.0	0.8	0.2	0.2	0.1	5.2	0.4	0.2	5.2	4.9	0.0	0.3	0.001	0.0		0.1	5.2	0.4	0.000	0.010	0.003	2.6	2.2
99		Number of Points Used		13	13	13	13	13	13	13	13	13	13	13	13	13	13	13		13	13	13	13	13	13	13	13

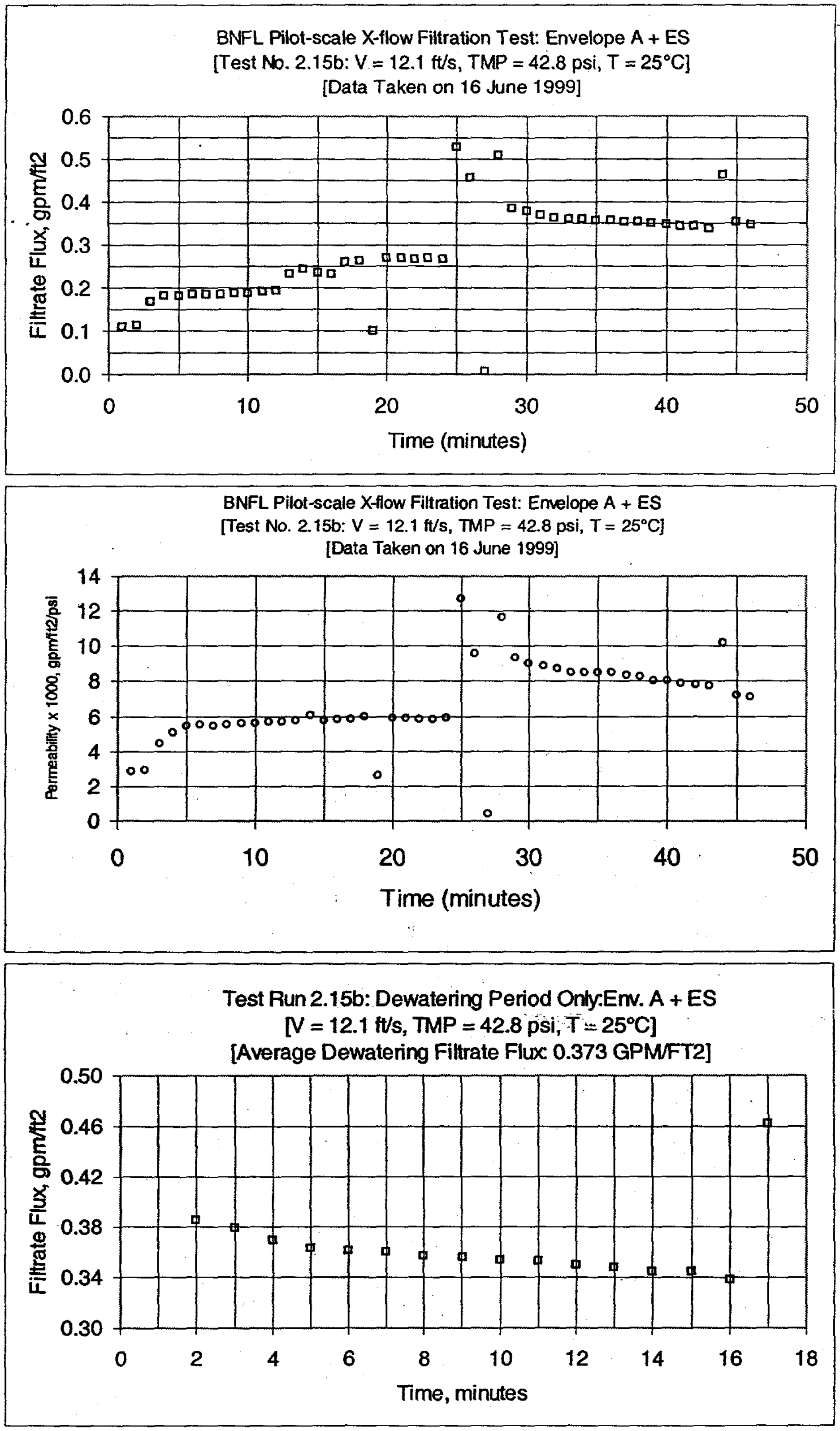
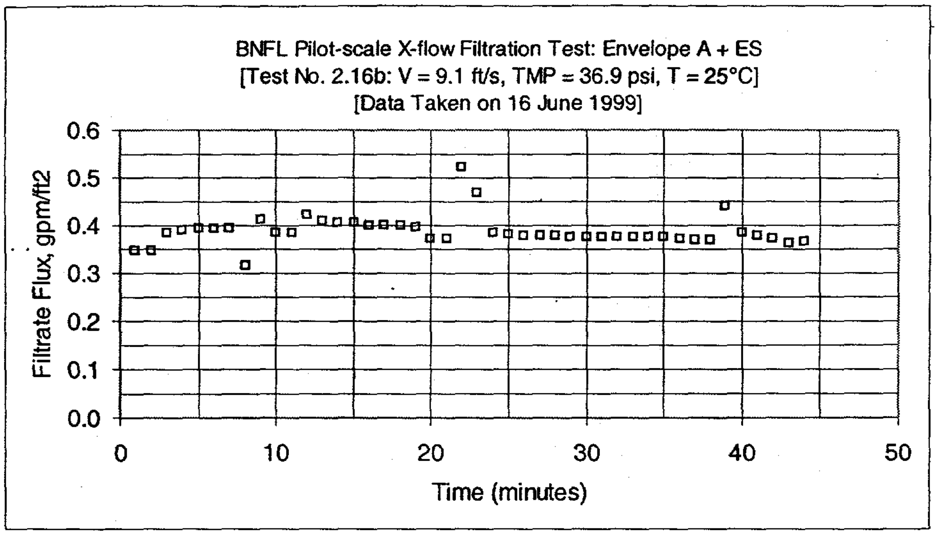
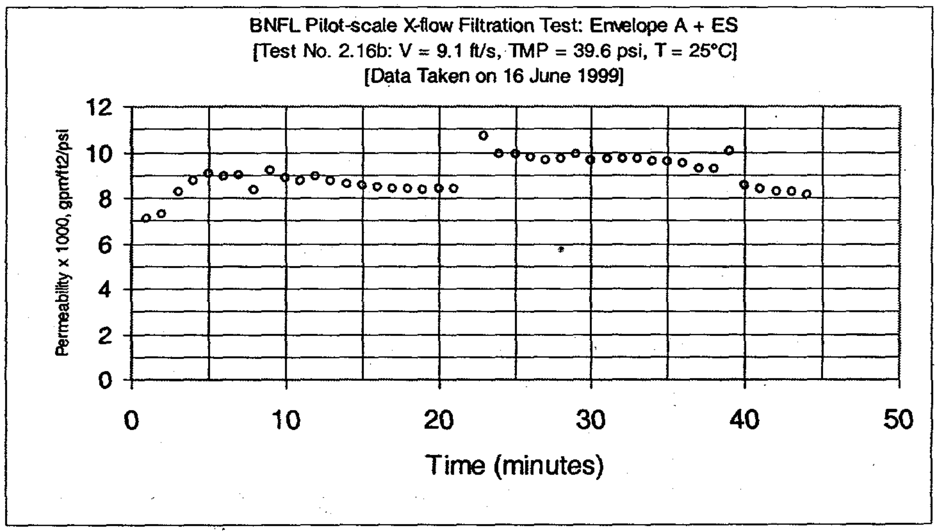


Figure D5: Test Run 2.15b, Second Wash 1

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.15b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig) I	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/16/1999	8:10:19 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088	-0.135	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/16/1999	8:12:12 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088	-0.135	-0.08	0.011	0									
5	6/16/1999	8:13:12 AM	0	22.448	22.113	21.558	22.258	21.264	31.001	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
6	6/16/1999	8:14:12 AM	0	22.448	22.113	21.558	22.258	21.264	30.966	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
7	data																							at 25C	PERMABILITY	x 1000	PERMABILITY
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig) I	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	6/16/1999	5:02:44 PM	0	40.288	23.826	40.319	24.692	22.818	31.863	41.595	50.419	5.832	36.191	8.232	-0.042	30.394	0.382	0	1	12.6	38.9	2.7	0.167	0.111	0.0028	2.84	2.4
10	6/16/1999	5:03:44 PM	0	40.332	23.78	38.786	24.567	22.692	31.818	41.316	50.327	5.824	35.921	8.294	-0.042	29.073	0.375	0	2	12.1	38.6	2.7	0.164	0.113	0.0029	2.93	2.5
11	6/16/1999	5:04:44 PM	0	38.484	23.78	34.026	24.647	22.611	31.659	40.045	50.023	4.548	36.259	9.126	-0.042	27.567	0.495	0	3	11.4	38.2	2.6	0.216	0.169	0.0044	4.43	3.8
12	6/16/1999	5:05:44 PM	0	35.65	23.826	31.765	24.647	22.657	31.739	38.154	48.071	4.755	33.385	9.003	-0.042	29.764	0.501	0	4	12.4	35.8	2.5	0.219	0.182	0.0051	5.08	4.3
13	6/16/1999	5:06:44 PM	0	33.517	23.826	30.62	24.567	22.576	31.659	35.768	45.297	5.306	31.221	8.849	-0.042	31.453	0.488	0	5	13.1	33.5	2.3	0.213	0.182	0.0054	5.45	4.6
14	6/16/1999	5:07:44 PM	0	32.215	23.78	30.178	24.612	22.576	31.659	35.179	44.748	5.194	31.255	8.849	-0.042	31.53	0.484	0	6	13.1	33.2	2.3	0.211	0.183	0.0055	5.51	4.7
15	6/16/1999	5:08:44 PM	0	31.378	23.78	29.939	24.567	22.611	31.545	35.799	45.48	5.33	31.695	8.849	-0.089	31.484	0.484	0	7	13.1	33.7	2.3	0.211	0.184	0.0055	5.46	4.6
16	6/16/1999	5:09:44 PM	0	30.742	23.7	29.542	24.612	22.657	31.625	36.14	45.51	5.338	31.323	8.818	-0.042	31.223	0.482	0	8	13.0	33.7	2.3	0.210	0.186	0.0055	5.50	4.7
17	6/16/1999	5:10:44 PM	0	30.265	23.826	29.144	24.612	22.576	31.659	35.923	45.327	5.322	31.221	8.849	-0.089	31.3	0.484	0	9	13.0	33.6	2.3	0.211	0.188	0.0056	5.61	4.8
18	6/16/1999	5:11:44 PM	0	29.868	23.745	28.87	24.647	22.576	31.58	35.861	45.693	5.146	31.12	8.818	-0.042	31.561	0.48	0	10	13.1	33.5	2.3	0.210	0.188	0.0056	5.62	4.8
19	6/16/1999	5:12:44 PM	0	29.594	23.745	28.427	24.692	22.576	31.625	36.357	45.846	5.282	31.154	8.818	-0.042	31.438	0.48	0	11	13.0	33.8	2.3	0.210	0.190	0.0056	5.64	4.8
20	6/16/1999	5:13:44 PM	0	29.196	23.826	28.153	24.612	22.576	31.704	36.481	46.211	5.449	31.695	8.787	-0.089	31.377	0.483	0	12	13.0	34.1	2.4	0.211	0.193	0.0057	5.67	4.8
21	6/16/1999	5:14:45 PM	0	28.877	23.826	27.834	24.612	22.496	31.704	41.998	52.157	3.997	38.794	9.219	-0.089	25.985	0.572	0	13	10.8	40.4	2.8	0.250	0.231	0.0057	5.71	4.9
22	6/16/1999	5:15:45 PM	0	28.479	23.826	27.515	24.612	22.657	31.704	42.401	52.462	5.122	37.544	9.28	-0.042	29.564	0.596	0	14	12.3	40.0	2.8	0.260	0.243	0.0061	6.07	5.2
23	6/16/1999	5:16:45 PM	0	28.24	23.78	27.116	24.612	22.531	31.625	43.021	52.645	5.266	38.625	8.91	-0.042	30.824	0.573	0	15	12.8	40.8	2.8	0.250	0.236	0.0058	5.78	4.9
24	6/16/1999	5:17:45 PM	0	27.921	23.826	26.956	24.532	22.657	31.704	41.812	51.273	4.771	38.084	8.972	-0.042	29.902	0.56	0	16	12.4	39.9	2.8	0.244	0.231	0.0058	5.79	4.9
25	6/16/1999	5:18:45 PM	0	27.681	23.745	26.556	24.532	22.576	31.704	48.43	56.303	4.348	42.784	9.588	-0.042	28.351	0.617	0	17	11.8	44.6	3.1	0.269	0.258	0.0058	5.78	4.9
26	6/16/1999	5:19:45 PM	0	27.282	23.745	26.317	24.452	22.657	31.704	45.903	55.724	4.747	42.311	9.126	-0.042	29.073	0.625	0.003	18	12.1	44.1	3.0	0.273	0.263	0.0060	5.96	5.1
27	6/16/1999	5:20:45 PM	0	27.042	23.745	26.077	24.452	22.576	31.704	40.076	56.364	4.58	36.665	15.906	-0.042	28.965	0.233	0	19	12.0	38.4	2.6	0.102	0.099	0.0026	2.57	2.2
28	6/16/1999	5:21:45 PM	0	26.803	23.745	25.757	24.532	22.496	31.783	47.67	56.761	3.965	43.359	8.88	-0.042	27.998	0.628	0	20	11.6	45.5	3.1	0.274	0.268	0.0059	5.90	5.0
29	6/16/1999	5:22:46 PM	0	26.483	23.745	25.517	24.372	22.496	31.625	48.011	57.584	4.301	43.223	8.818	-0.089	27.998	0.624	0	21	11.6	45.6	3.1	0.272	0.268	0.0059	5.89	5.0
30	6/16/1999	5:23:46 PM	0	26.243	23.745	25.357	24.452	22.415	31.545	47.949	57.066	4.245	44.035	8.818	-0.042	27.798	0.618	0	22	11.5	46.0	3.2	0.270	0.267	0.0058	5.81	4.9
31	6/16/1999	5:24:46 PM	0	26.083	23.745	25.196	24.452	22.415	31.704	47.732	57.188	4.364	43.832	8.787	-0.042	27.859	0.616	0	23	11.6	45.8	3.2	0.269	0.267	0.0058	5.84	5.0
32	6/16/1999	5:25:46 PM	0	25.923	23.745	24.956	24.372	22.415	31.704	47.174	56.669	4.38	43.9	8.756	-0.089	27.905	0.611	0.003	24	11.6	45.5	3.1	0.267	0.267	0.0059	5.86	5.0
33	6/16/1999	5:26:46 PM	0	25.683	23.745	25.322	24.452	22.496	31.625	43.795	57.005	4.388	39.2	12.639	-0.042	28.228	1.218	0	25	11.7	41.5	2.9	0.532	0.527	0.0127	12.70	10.8
34	6/16/1999	5:27:46 PM	0	25.923	23.745	25.677	24.291	22.496	31.625	49.56	57.432	4.747	45.489	7.061	-0.042	28.197	1.063	0.003	26	11.7	47.5	3.3	0.464	0.455	0.0096	9.58	8.2
35	6/16/1999	5:28:47 PM	0	26.243	23.745	25.997	24.291	22.576	31.783	18.845	56.059	4.668	16.887	36.831	-0.042	30.025	0.016	0	27	12.5	17.9	1.2	0.007	0.007	0.0004	0.38	0.3
36	6/16/1999	5:29:47 PM	0	26.483	23.745	26.317	24.291	22.576	31.783	45.779	55.267	4.699	41.972	8.726	-0.042	29.672	1.214	0	28	12.3	43.9	3.0	0.530	0.511	0.0116	11.64	9.9
37	6/16/1999	5:30:47 PM	0	26.803	23.745	26.718	24.256	22.496	31.704	43.64	55.602	4.46	38.862	11.622	-0.042	29.411	0.927	0	29	12.2	41.3	2.8	0.405	0.386	0.0093	9.35	8.0
38	6/16/1999	5:31:47 PM	0	27.042	23.745	27.036	24.131	22.576	31.783	44.384	56.547	4.699	39.2	11.499	-0.089	29.365	0.918	0	30	12.2	41.8	2.9	0.401	0.379	0.0091	9.06	7.7
39	6/16/1999	5:32:47 PM	0	27.442	23.745	27.435	24.131	22.415	31.863	43.609	56.059	4.827	39.809	11.407	-0.089	29.58	0.906	0	31	12.3	41.7	2.9	0.396	0.370	0.0089	8.86	7.5
40	6/16/1999	5:33:47 PM	0	27.761	23.745	27.834	24.051	22.415	31.783	43.64	55.633	4.66	39.775	11.345	-0.042	29.518	0.9	0.003	32	12.3	41.7	2.9	0.393	0.363	0.0087	8.70	7.4
41	6/16/1999	5:34:47 PM	0	28.08	23.745	27.834	24.051	22.415	31.863	44.477	56.517	4.923	40.282	11.283	-0.042	29.272	0.894	0	33	12.1	42.4	2.9	0.390	0.361	0.0085	8.51	7.2
42	6/16/1999	5:35:47 PM	0	28	23.745	27.355	23.97	22.38	31.863	44.539	56.669	4.907	40.045	11.191	-0.089	29.149	0.88	0	34	12.1	42.3	2.9	0.384	0.360	0.0085	8.51	7.2
43	6/16/1999	5:36:47 PM	0	27.761	23.7	26.956	24.131	22.335	31.704	44.043	55.358	4.628	40.147	11.068	-0.089	29.242	0.864	0	35	12.1	42.1	2.9	0.377	0.357	0.0085	8.48	7.2
44	6/16/1999	5:37:47 PM	0	27.442	23.745	26.556	24.131	22.335	31.783	43.764	55.023	4.556	40.113	10.944	-0.042	29.165	0.851	0	36	12.1	41.9	2.9	0.371	0.356	0.0085	8.48	7.2
45	6/16/1999	5:38:48 PM	0	27.157	23.745	26.237	24.131	22.38	31.704	44.787	56.09	4.795	40.147	10.852	-0.089	29.149	0.838	0	37	12.1	42.5	2.9	0.366	0.353	0.0083	8.32	7.1
46	6/16/1999	5:39:48 PM	0	26.917	23.745	25.917	24.211	22.335	31.704	44.756	55.968	4.652	40.383	10.76	-0.042	29.057	0.83	0	38	12.1	42.6	2.9	0.362	0.353	0.0083	8.30	7.1
47	6/16/1999	5:40:48 PM	0	26.643	23.745	25.757	24.131	22.335	31.739	45.159	56.73	5.178	41.567	10.729	-0.089	28.719	0.818	0	39	11.9	43.4	3.0	0.357	0.350	0.0081	8.06	6.9
48	6/16/1999	5:41:48 PM	0	26.403	23.62	25.677	24.211	22.335	31.704	45.035	56.303	4.811	41.398	10.636	-0.089	28.996	0.811	0.003	40	12.0	43.2	3.0	0.354	0.347	0.0080	8.04	6.8
49	6/16/1999	5:42:48 PM	0	26.323	23.7	25.677	24.051	22.415	31.783	45.841	56.852	4.923	41.533	10.605	-0.089	28.766	0.804	0	41	11.9	43.7	3.0	0.351	0.344	0.0079	7.88	6.7
50	6/16/1999	5:43:48 PM	0	26.198	23.745	25.632	24.051	22.335	31.704	45.996	57.371	4.803	41.871	10.575	-0.089	28.597	0.802	0	42	11.9	43.9	3.0	0.350	0.344	0.0078	7.83	6.7
51	6/16/1999	5:44:48 PM	0	26.243	23.745	25.997	23.97	22.335	31.818	45.5	57.005	4.684	41.972	10.544	-0.089	28.443	0.796	0	43	11.8	43.7	3.0	0.347	0.338	0.0077	7.73	6.6
52	6/16/1999	5:45:49 PM	0	26.403	23.745	26.352	24.051	22.255	31.739	47.143	56.517	4.699	43.832	8.941	-0.042	28.673	1.1	0	44	11.9	45.5	3.1	0.480	0.462	0.0102	10.16	8.6
53	6/16/1999	5:46:49 PM	0	26.678	23.665	26.671	24.005	22.415	31.897	50.521	57.889	4.859	47.348	6.784	-0.089	27.905	0.846	0.003	45	11.6	48.9	3.4	0.369	0.352	0.0072	7.20	6.1
54	6/16/1999	5:47:49 PM	0	27.042	23.7	26.991	24.131	22.29	31.818	50.966	58.194	4.588	46.706	6.661	-0.089	26.984	0.841	0	46	11.2	48.8	3.4	0.367	0.347	0.0071	7.11	6.0
55																											
56	Values	Averages		29.7	23.8	28.5	24.5	22.6	31.7	41.5	52.1	4.9	37.3	10.0	-0.1	29.4	0.568	0.0		12.2	39.4	2.7	0.248	0.230	0.006	5.6	4.8
57	for	Maximum		40.3	23.8	40.3	24.7	22.8	31.9	51.0	58.2	5.8	47.3	36.8	0.0	31.6	1.218	0.0		13.1	48.9	3.4	0.532	0.527	0.013	12.7	10.8
58	close-loop	Median		28.2	23.7	27.1	24.6	22.6	31.7	41.8	52.5	4.8	37.5	8.8	0.0	29.1	0.560	0.0		12.1	39.9	2.8	0.244	0.231	0.006	5.7	4.9
59	operation	Minimum		25.7	23.7	25.0	24.0	22.3	31.5	18.8	44.7	4.0	16.9	6.7	-0.1	26.0	0.016	0.0		10.8	17.9	1.2	0.007	0.007	0.000	0.4	0.3
60		Std Dev		4.2	0.0	3.7	0.2	0.1	0.1	6.6	4.9	0.5	6.6	5.3	0.0	1.6	0.219	0.0		0.7	6.6	0.5	0.096	0.100	0.002	2.1	1.8
61		Number of Points Used		29	29	29	29	29	29	29	29	29	29	29	29	29	29	29		29	29	29	29	29	29	29	29
62																											
63	Values	Averages		27.0	23.7	26.5	24.1	22.4	31.8	44.8	56.2	4.8	40.8	10.7	-0.1	29.1	0.891	0.0		12.1	42.8	3.0	0.389	0.373	0.009	8.7	7.4
64	during	Maximum		28.1	23.7	27.8	24.3	22.6	31.9	47.1	57.4	5.2	43.8	11.6	0.0	29.7	1.214	0.0		12.3	45.5	3.1	0.530	0.511	0.012	11.6	9.9
65	dewatering	Median		26.9	23.7	26.4	24.1	22.4	31.8	44.8	56.3	4.7	40.3	10.9	-0.1	29.1	0.864	0.0		12.1	42.5	2.9	0.377	0.357	0.008	8.5	7.2
66		Minimum		26.2	23.6	25.6	24.0	22.3	31.7	43.6	55.0	4.5	38.9	8.7	-0.1	28.4	0.796	0.0		11.8	41.3	2.8	0.347	0.338	0.008	7.7	6.6
67		Std Dev		0.6	0.0	0.7	0.1	0.1	0.1	1.0	0.6	0.2	1.2	0.8	0.0	0.4	0.107	0.0		0.1	1.1	0.1	0.047	0.044	0.001	0.9	0.8
68		Number of Points Used		17	17	17	17	17	17	17	17	17	17	17	17	17	17	17		17	17	17	17	17	17	17	17





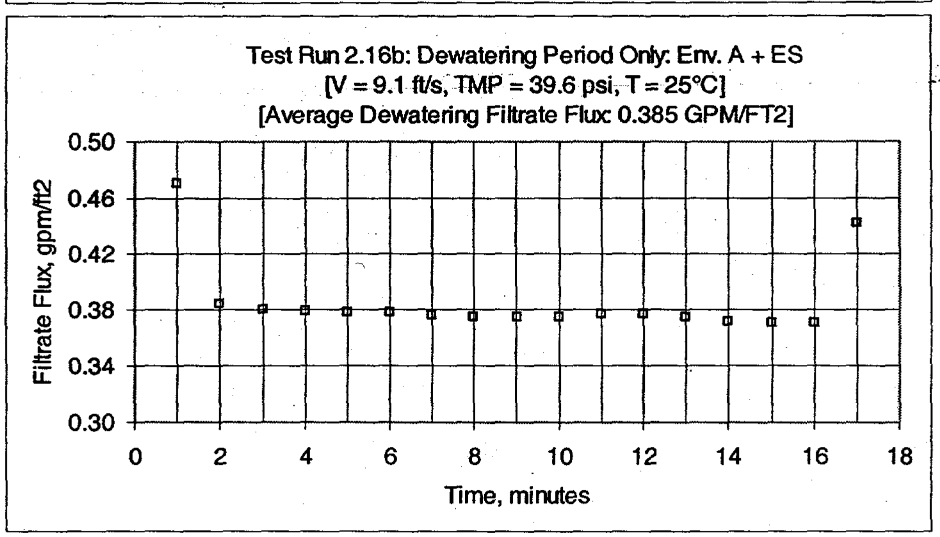
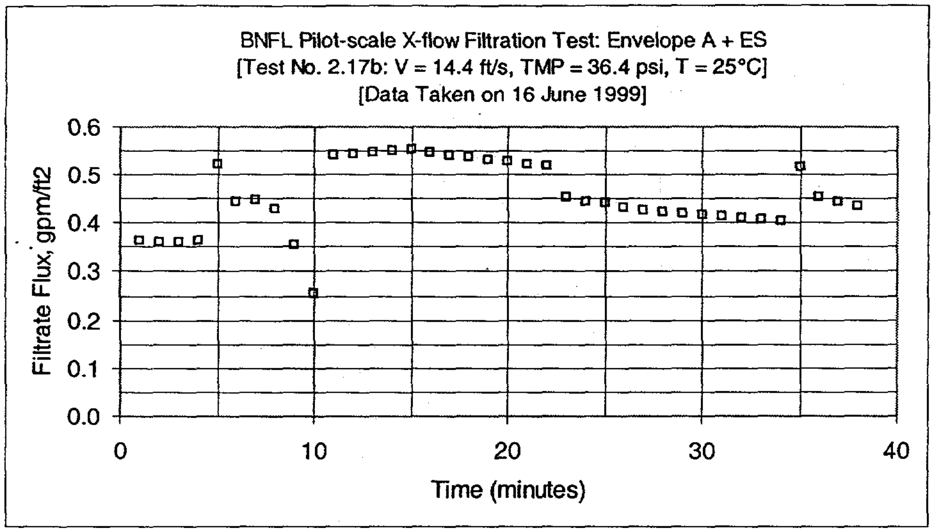
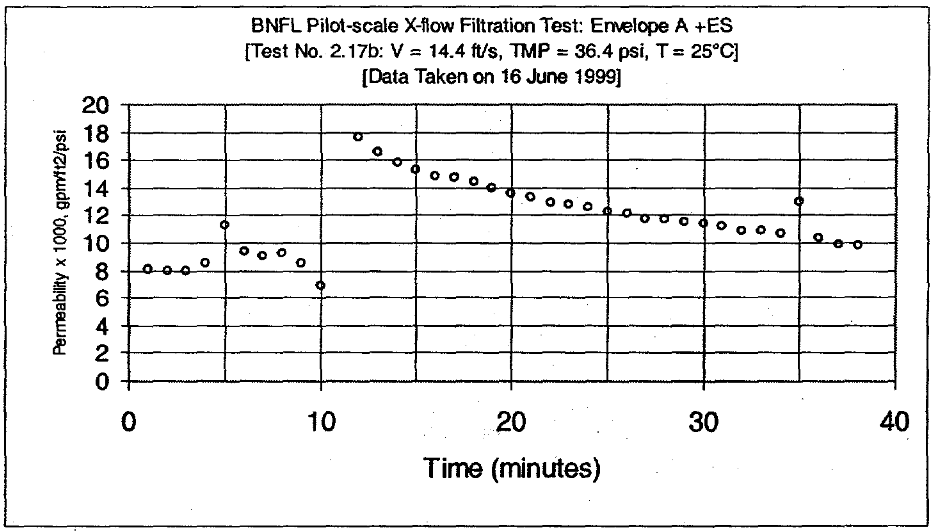


Figure D6: Test Run 2.16b, Second Wash 2

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.16b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig) (	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/16/1999	8:10:19 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088	-0.135	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/16/1999	8:12:12 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088	-0.135	-0.08	0.011	0									
5	6/16/1999	8:13:12 AM	0	22.448	22.113	21.558	22.258	21.264	31.001	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
6	6/16/1999	8:14:12 AM	0	22.448	22.113	21.558	22.258	21.264	30.966	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
7	data																							at 25C	PERMIABILITY	x 1000	PERMIABILITY
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig) (	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	6/16/1999	5:47:52 PM	0	26.997	23.745	26.991	24.211	22.29	31.818	50.862	58.072	4.484	46.672	6.661	-0.042	27.767	0.84	0	1	11.5	48.8	3.4	0.367	0.347	0.0071	7.11	6.1
10	6/16/1999	5:48:52 PM	0	27.362	23.745	26.671	24.166	22.37	31.977	50.087	57.462	4.38	45.387	6.846	-0.089	27.521	0.833	0	2	11.4	47.7	3.3	0.364	0.347	0.0073	7.27	6.2
11	6/16/1999	5:49:52 PM	0	26.838	23.7	25.872	24.211	22.29	31.739	47.763	57.066	3.758	45.15	8.294	-0.089	25.632	0.901	0	3	10.6	46.5	3.2	0.393	0.384	0.0083	8.26	7.0
12	6/16/1999	5:50:52 PM	0	26.313	23.7	25.312	24.086	22.29	31.897	46.771	55.724	4.149	42.75	8.325	-0.042	27.598	0.901	0	4	11.5	44.8	3.1	0.393	0.390	0.0087	8.71	7.4
13	6/16/1999	5:51:52 PM	0	25.878	23.7	24.911	24.166	22.209	31.739	44.942	53.437	3.961	41.939	8.171	-0.042	28.412	0.898	0	5	11.8	43.4	3.0	0.392	0.393	0.0090	9.05	7.7
14	6/16/1999	5:52:52 PM	0	25.558	23.7	24.831	24.086	22.209	31.977	46.678	54.87	4.029	41.837	8.109	-0.042	28.366	0.899	0	6	11.8	44.3	3.1	0.392	0.394	0.0089	8.91	7.6
15	6/16/1999	5:53:52 PM	0	25.397	23.7	24.911	24.086	22.255	32.056	45.903	54.505	4.125	42.006	8.14	-0.042	28.643	0.901	0	7	11.9	44.0	3.0	0.393	0.394	0.0090	8.97	7.6
16	6/16/1999	5:54:52 PM	0	25.477	23.7	24.991	24.086	22.209	32.056	38.743	46.455	2.809	36.732	7.308	-0.042	23.021	0.721	0.003	8	9.6	37.7	2.6	0.315	0.315	0.0083	8.34	7.1
17	6/16/1999	5:55:52 PM	0	25.512	23.655	25.026	24.04	22.209	32.091	46.058	55.663	1.883	44.035	9.373	-0.042	19.135	0.947	0	9	7.9	45.0	3.1	0.413	0.413	0.0092	9.17	7.8
18	6/16/1999	5:56:52 PM	0	25.512	23.655	25.106	23.96	22.164	32.011	43.888	53.315	2.489	42.48	8.91	-0.042	21.808	0.88	0	10	9.1	43.2	3.0	0.384	0.383	0.0089	8.87	7.5
19	6/16/1999	5:57:52 PM	0	25.593	23.655	25.186	23.96	22.063	32.091	44.911	54.017	2.497	42.75	8.941	-0.042	21.838	0.882	0	11	9.4	43.8	3.0	0.385	0.383	0.0087	8.74	7.4
20	6/16/1999	5:58:53 PM	0	25.673	23.69	25.266	23.96	22.003	31.853	48.383	54.779	2.481	45.86	5.86	-0.042	21.531	0.973	0	12	8.9	47.1	3.2	0.425	0.422	0.0089	8.95	7.6
21	6/16/1999	5:59:53 PM	0	25.833	23.655	25.347	23.915	22.038	31.967	48.135	54.169	2.362	46.334	5.736	-0.042	21.316	0.95	0	13	8.8	47.2	3.3	0.415	0.411	0.0087	8.69	7.4
22	6/16/1999	6:00:53 PM	0	25.788	23.61	25.381	23.96	21.877	31.967	48.135	54.626	2.418	46.469	5.705	-0.042	21.285	0.941	0	14	8.8	47.3	3.3	0.411	0.406	0.0086	8.59	7.3
23	6/16/1999	6:01:53 PM	0	25.868	23.61	25.427	23.96	21.958	31.888	48.507	54.474	2.348	46.638	5.675	-0.042	21.285	0.94	0	15	8.8	47.6	3.3	0.410	0.405	0.0085	8.52	7.3
24	6/16/1999	6:02:53 PM	0	25.948	23.69	25.542	23.915	21.877	32.046	48.011	54.596	2.458	46.57	5.644	-0.042	21.178	0.933	0.003	16	8.8	47.3	3.3	0.407	0.401	0.0085	8.48	7.2
25	6/16/1999	6:03:53 PM	0	25.948	23.61	25.542	23.835	21.832	31.967	48.478	54.352	2.362	46.672	5.644	-0.042	21.316	0.932	0	17	8.8	47.6	3.3	0.407	0.401	0.0084	8.42	7.2
26	6/16/1999	6:04:53 PM	0	25.983	23.69	25.577	23.87	21.958	31.922	48.445	54.748	2.37	46.607	5.613	-0.042	21.147	0.929	0	18	8.8	47.6	3.3	0.406	0.399	0.0084	8.38	7.1
27	6/16/1999	6:05:53 PM	0	25.983	23.564	25.577	23.79	21.993	31.367	49.064	55.175	2.577	46.232	5.551	-0.089	21.255	0.927	0	19	8.8	47.6	3.3	0.405	0.398	0.0084	8.36	7.1
28	6/16/1999	6:06:53 PM	0	26.063	23.564	25.657	23.79	22.234	31.208	45.531	50.846	2.458	43.392	4.966	-0.042	21.777	0.871	0	20	9.0	44.5	3.1	0.380	0.373	0.0084	8.40	7.1
29	6/16/1999	6:07:53 PM	0	26.143	23.645	25.737	23.87	22.315	31.049	44.942	50.571	2.697	43.19	4.935	-0.089	21.792	0.867	0	21	9.0	44.1	3.0	0.378	0.371	0.0084	8.41	7.2
30	6/16/1999	6:08:53 PM	0	26.223	23.564	25.737	23.87	22.395	30.97	39.859	50.145	2.394	38.152	9.835	-0.042	22.084	1.218	0.003	22	9.2	39.0	2.7	0.532	0.521	0.0134	13.35	11.4
31	6/16/1999	6:09:54 PM	0	26.143	23.564	25.336	23.95	22.395	30.97	44.942	50.754	2.721	43.021	5.305	-0.042	21.961	1.087	0	23	9.1	44.0	3.0	0.475	0.470	0.0107	10.69	9.1
32	6/16/1999	6:10:54 PM	0	25.903	23.564	25.141	24.03	22.556	30.811	39.735	51.09	2.729	37.814	10.852	-0.042	21.854	0.883	0	24	9.1	38.8	2.7	0.385	0.384	0.0099	9.90	8.4
33	6/16/1999	6:11:54 PM	0	25.663	23.61	24.776	24.111	22.682	30.573	39.58	50.602	2.601	37.172	10.729	-0.089	22.007	0.865	0	25	9.1	38.4	2.6	0.378	0.380	0.0099	9.90	8.4
34	6/16/1999	6:12:54 PM	0	25.387	23.61	24.58	24.236	22.682	30.652	40.045	51.151	2.785	37.78	10.667	-0.042	22.007	0.858	0	26	9.1	38.9	2.7	0.375	0.379	0.0097	9.74	8.3
35	6/16/1999	6:13:54 PM	0	25.147	23.61	24.305	24.316	22.762	30.617	40.2	51.181	2.729	38.051	10.605	-0.089	22.007	0.849	0	27	9.1	39.1	2.7	0.371	0.378	0.0097	9.66	8.2
36	6/16/1999	6:14:54 PM	0	24.952	23.61	23.939	24.397	22.888	30.583	40.231	51.303	2.781	37.478	10.544	-0.042	21.946	0.841	0	28	9.1	38.9	2.7	0.367	0.378	0.0097	9.74	8.3
37	6/16/1999	6:15:54 PM	0	24.631	23.575	23.618	24.522	22.888	30.9	39.053	50.449	2.896	37.003	10.39	-0.089	22.145	0.827	0	29	9.2	38.0	2.6	0.361	0.375	0.0099	9.87	8.4
38	6/16/1999	6:16:54 PM	0	24.39	23.575	23.422	24.442	22.727	31.139	39.766	50.815	2.952	37.915	10.39	-0.042	22.299	0.82	0	30	9.3	38.8	2.7	0.358	0.374	0.0096	9.64	8.2
39	6/16/1999	6:17:54 PM	0	24.069	23.539	23.146	24.567	22.647	31.297	39.735	50.846	2.856	37.51	10.359	-0.089	22.192	0.814	0	31	9.2	38.6	2.7	0.355	0.375	0.0097	9.70	8.3
40	6/16/1999	6:18:55 PM	0	23.874	23.539	22.905	24.442	22.611	31.501	40.107	50.754	2.697	37.172	10.328	-0.042	22.176	0.81	0	32	9.2	38.6	2.7	0.354	0.375	0.0097	9.71	8.3
41	6/16/1999	6:19:55 PM	0	23.633	23.539	22.744	24.487	22.531	31.58	39.642	50.632	2.817	37.746	10.297	-0.042	21.869	0.809	0	33	9.1	38.7	2.7	0.353	0.376	0.0097	9.73	8.3
42	6/16/1999	6:20:55 PM	0	23.472	23.539	22.664	24.452	22.531	31.659	40.479	51.303	2.888	38.254	10.266	-0.042	21.823	0.807	0	34	9.1	39.4	2.7	0.352	0.376	0.0096	9.56	8.1
43	6/16/1999	6:21:55 PM	0	23.312	23.539	22.664	24.326	22.37	31.659	40.324	51.273	2.84	37.848	10.266	-0.089	21.838	0.803	0	35	9.1	39.1	2.7	0.351	0.375	0.0096	9.58	8.2
44	6/16/1999	6:22:55 PM	0	23.231	23.539	22.709	24.291	22.37	31.739	40.138	50.602	2.497	38.22	10.266	-0.089	21.823	0.798	0	36	9.1	39.2	2.7	0.348	0.372	0.0095	9.49	8.1
45	6/16/1999	6:23:55 PM	0	23.312	23.539	22.87	24.291	22.29	31.739	41.068	51.791	2.984	38.727	10.266	-0.089	21.823	0.798	0	37	9.1	39.9	2.8	0.348	0.370	0.0093	9.27	7.9
46	6/16/1999	6:24:55 PM	0	23.437	23.539	23.111	24.211	22.255	31.863	40.882	51.517	2.848	39.166	10.297	-0.089	21.577	0.804	0	38	9.0	40.0	2.8	0.351	0.370	0.0093	9.25	7.9
47	6/16/1999	6:25:55 PM	0	23.678	23.504	23.593	24.211	22.174	31.783	45.004	52.706	2.681	42.953	7.216	-0.089	21.04	0.973	0	39	8.7	44.0	3.0	0.425	0.442	0.0101	10.05	8.6
48	6/16/1999	6:26:55 PM	0	23.999	23.585	24.029	24.086	22.255	31.739	46.771	53.407	3.12	43.494	6.044	-0.089	21.5	0.86	0	40	8.9	45.1	3.1	0.375	0.386	0.0085	8.55	7.3
49	6/16/1999	6:27:55 PM	0	24.481	23.539	24.671	24.131	22.129	31.783	46.306	53.041	3.08	43.9	6.044	-0.089	21.592	0.857	0	41	9.0	45.1	3.1	0.374	0.378	0.0084	8.37	7.1
50	6/16/1999	6:28:55 PM	0	25.077	23.585	25.277	24.005	22.415	31.863	46.306	53.011	2.769	44.305	6.137	-0.089	20.855	0.862	0	42	8.7	45.3	3.1	0.376	0.373	0.0082	8.24	7.0
51	6/16/1999	6:29:55 PM	0	25.603	23.539	25.837	24.005	22.335	31.739	45.469	51.791	2.801	42.885	6.014	-0.042	21.408	0.853	0	43	8.9	44.2	3.0	0.372	0.364	0.0082	8.23	7.0
52	6/16/1999	6:30:55 PM	0	26.118	23.585	26.112	24.005	22.129	31.897	46.058	52.96	2.952	44.001	6.137	-0.089	21.27	0.862	0.003	44	8.8	45.0	3.1	0.376	0.365	0.0081	8.10	6.9
53																											
54	Values	Averages		25.8	23.6	25.4	24.0	22.2	31.8	48.5	53.8	3.0	43.9	6.8	-0.1	23.0	0.903	0.0		9.6	45.2	3.1	0.394	0.389	0.009	8.6	7.4
55	for	Maximum		27.4	23.7	27.0	24.2	22.4	32.1	50.9	58.1	4.5	46.8	9.8	0.0	28.6	1.218	0.0		11.9	48.8	3.4	0.532	0.521	0.013	13.4	11.4
56	close-loop	Median		25.9	23.7	25.4	24.0	22.2	31.9	46.7	54.4	2.7	44.0	6.1	0.0	21.6	0.899	0.0		9.0	45.1	3.1	0.392	0.390	0.008	8.5	7.2
57	operation	Minimum		24.0	23.5	24.0	23.8	21.8	31.0	38.7	46.5	1.9	36.7	4.9	-0.1	19.1	0.721	0.0		7.9	37.7	2.6	0.315	0.315	0.007	7.1	6.1
58		Std Dev		0.7	0.1	0.6	0.1	0.2	0.3	2.6	2.4	0.7	2.5	1.4	0.0	2.9	0.079	0.0		1.2	2.5	0.2	0.035	0.034	0.001	1.0	0.9
59		Number of Points Used		27	27	27	27	27	27	27	27	27	27	27	27	27	27	27		27	27	27	27	27	27	27	27
60																											
61	Values	Averages		24.4	23.6	23.6	24.3	22.8	31.2	40.6	51.1	2.8	38.5	9.9	-0.1	21.9	0.850	0.0		9.1	39.6	2.7	0.371	0.385	0.010	9.7	8.3
62	during	Maximum		26.1	23.6	25.3	24.6	22.9	31.9	45.0	52.7	3.0	43.0	10.9	0.0	22.3	1.087	0.0		9.3	44.0	3.0	0.475	0.470	0.011	10.7	9.1
63	dewatering	Median		24.1	23.5	23.4	24.3	22.8	31.3	40.1	51.1	2.8	37.8	10.3	-0.1	21.9	0.820	0.0		9.1	38.9	2.7	0.358	0.376	0.010	9.7	8.3
64		Minimum		23.2	23.5	22.7	24.0	22.2	30.6	39.1	50.4	2.5	37.0	5.3	-0.1	21.0	0.798	0.0		8.7	38.0	2.6	0.348	0.370	0.009	9.3	7.9
65		Std Dev		1.0	0.0	0.9	0.2	0.2	0.5	1.6	0.5	0.1	1.7	1.4	0.0	0.3	0.073	0.0		0.1	1.7	0.1	0.032	0.026	0.000	0.3	0.3
66		Number of Points Used		17	17	17	17	17	17	17	17	17	17	17	17	17	17	17		17	17	17	17	17	17	17	17





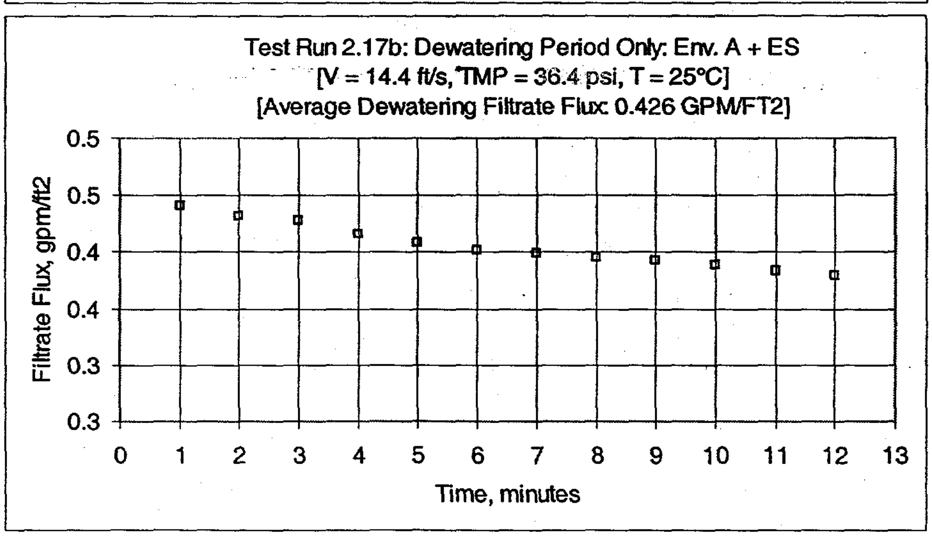
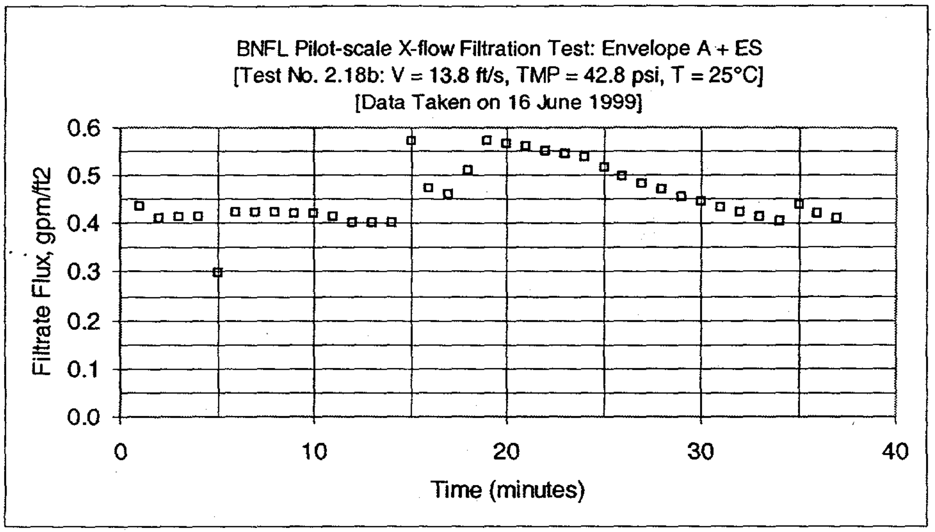


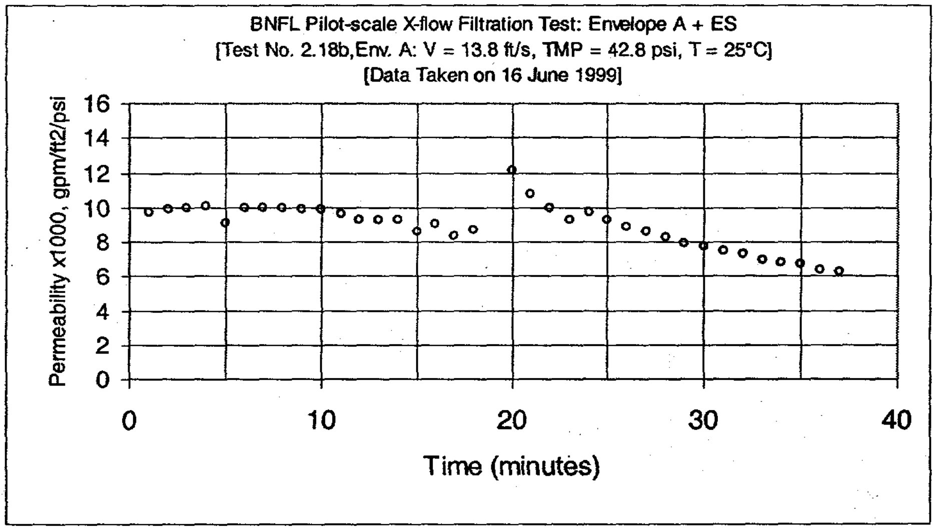
Figure D7: Test Run 2.17b, Second Wash 3

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.17b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE (psig) F
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG
3	6/16/1999	8:10:19 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.066
4	6/16/1999	8:12:12 AM	0	22.448	22.113	21.603	22.303	21.067	31.545	-0.062	-0.041	-0.024	0.016	-0.088
5	6/16/1999	8:13:12 AM	0	22.449	22.113	21.558	22.258	21.264	31.001	-0.062	-0.041	-0.024	0.05	-0.119
6	6/16/1999	8:14:12 AM	0	22.448	22.113	21.558	22.258	21.264	30.966	-0.062	-0.041	-0.024	0.05	-0.119
7	date													
8	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE (psig) F
9	6/16/1999	6:31:32 PM	0	26.358	23.539	26.317	24.005	22.129	31.897	46.151	52.858	2.88	43.663	6.168
10	6/16/1999	6:32:32 PM	0	26.678	23.459	26.591	23.925	21.968	31.897	46.12	52.767	2.737	44.102	6.199
11	6/16/1999	6:33:32 PM	0	26.838	23.539	26.831	23.8	22.129	31.897	45.903	52.523	2.809	43.933	6.229
12	6/16/1999	6:34:32 PM	0	27.157	23.459	26.272	23.925	22.209	32.056	42.401	48.041	1.851	43.325	6.363
13	6/16/1999	6:35:32 PM	0	26.633	23.459	25.632	23.925	22.129	31.977	47.174	55.633	1.659	45.184	8.078
14	6/16/1999	6:36:32 PM	0	26.278	23.414	25.347	23.8	22.209	31.977	48.724	54.901	2.386	48.334	5.829
15	6/16/1999	6:37:32 PM	0	25.993	23.539	25.026	23.8	22.083	32.011	51.141	57.736	3.024	47.99	6.106
16	6/16/1999	6:38:32 PM	0	25.673	23.494	24.786	23.88	22.083	32.011	48.476	54.169	4.899	44.204	5.551
17	6/16/1999	6:39:32 PM	0	25.432	23.494	24.706	23.88	22.083	32.011	45.996	50.754	8.761	37.814	4.38
18	6/16/1999	6:40:33 PM	0	25.272	23.494	24.465	23.88	22.003	31.608	41.099	51.059	8.753	33.047	9.588
19	6/16/1999	6:41:33 PM	0	25.032	23.494	24.305	23.835	22.003	31.888	27.368	51.181	6.024	21.011	23.025
20	6/16/1999	6:42:33 PM	0	24.826	23.449	24.099	23.915	21.958	31.774	33.474	50.388	5.745	28.449	16.553
21	6/16/1999	6:43:33 PM	0	24.686	23.449	23.939	23.835	21.958	32.046	35.737	50.632	5.753	30.478	14.365
22	6/16/1999	6:44:33 PM	0	24.425	23.449	23.778	23.835	21.877	31.967	37.669	51.09	5.753	31.796	12.886
23	6/16/1999	6:45:33 PM	0	24.265	23.404	23.573	23.835	22.038	31.764	38.991	51.212	6.16	33.318	11.746
24	6/16/1999	6:46:33 PM	0	24.14	23.404	23.939	23.835	21.912	31.764	39.735	50.846	5.896	33.858	10.852
25	6/16/1999	6:47:33 PM	0	24.38	23.404	24.295	23.79	21.993	31.843	39.425	50.023	5.537	34.399	10.328
26	6/16/1999	6:48:34 PM	0	24.701	23.404	24.615	23.79	21.912	31.764	40.541	50.663	5.964	34.23	9.619
27	6/16/1999	6:49:34 PM	0	24.942	23.404	24.936	23.709	21.912	31.957	41.161	50.876	6.343	35.312	9.219
28	6/16/1999	6:50:34 PM	0	25.262	23.359	25.291	23.744	21.948	32.116	41.409	50.846	5.362	36.293	9.188
29	6/16/1999	6:51:34 PM	0	25.538	23.359	25.532	23.709	21.787	31.878	41.905	51.059	5.665	36.834	8.756
30	6/16/1999	6:52:34 PM	0	25.938	23.359	25.932	23.584	21.867	31.56	42.666	51.821	5.561	37.341	8.387
31	6/16/1999	6:53:34 PM	0	26.053	23.359	26.172	23.584	22.028	31.357	37.875	51.212	5.689	32.81	12.763
32	6/16/1999	6:54:34 PM	0	26.373	23.439	26.571	23.664	21.983	31.278	37.596	50.907	5.428	33.318	12.732
33	6/16/1999	6:55:35 PM	0	26.738	23.394	26.846	23.744	22.109	31.163	38.371	51.669	5.705	33.689	12.732
34	6/16/1999	6:56:35 PM	0	27.092	23.314	27.21	23.619	22.27	31.039	38.433	51.486	5.114	33.081	12.609
35	6/16/1999	6:57:35 PM	0	27.457	23.359	27.565	23.744	22.305	30.881	38.929	52.218	5.593	33.791	12.578
36	6/16/1999	6:58:35 PM	0	27.651	23.359	27.45	23.744	22.385	30.801	38.774	51.639	5.296	33.351	12.424
37	6/16/1999	6:59:35 PM	0	27.616	23.359	26.971	23.825	22.511	30.846	33.836	51.547	5.154	33.96	12.208
38	6/16/1999	7:00:36 PM	0	27.217	23.359	26.491	23.965	22.511	30.642	39.034	51.578	5.362	33.825	11.992
39	6/16/1999	7:01:36 PM	0	26.896	23.359	26.092	24.066	22.672	30.606	39.58	51.791	5.314	34.433	11.869
40	6/16/1999	7:02:36 PM	0	26.703	23.359	25.852	24.226	22.717	30.528	40.262	52.035	5.234	35.042	11.715
41	6/16/1999	7:03:36 PM	0	26.383	23.278	25.817	24.271	22.717	30.652	39.983	52.218	5.418	35.042	11.653
42	6/16/1999	7:04:36 PM	0	26.303	23.323	25.817	24.271	22.717	31.049	40.076	52.096	5.218	35.718	11.561
43	6/16/1999	7:05:36 PM	0	26.303	23.323	26.057	24.271	22.762	31.129	42.091	52.279	5.194	37.577	9.619
44	6/16/1999	7:06:36 PM	0	26.463	23.369	26.342	24.236	22.556	31.173	46.492	52.187	5.098	42.04	5.397
45	6/16/1999	7:07:36 PM	0	26.748	23.369	26.536	24.156	22.521	31.253	47.019	52.675	5.234	42.581	5.182
46	6/16/1999	7:08:36 PM	0	26.863	23.243	26.821	24.156	22.44	31.411	47.112	52.462	5.003	42.344	5.027
47														
48	Values	Averages		26.3	23.4	25.8	24.0	22.2	31.8	46.1	52.9	4.3	42.4	6.4
49	for	Maximum		27.2	23.5	26.8	24.3	22.8	32.1	51.1	57.7	8.8	48.0	9.6
50	close-loop	Median		26.4	23.5	26.2	23.9	22.1	31.9	46.3	52.6	4.0	43.5	6.1
51	operation	Minimum		25.3	23.2	24.5	23.8	22.0	31.1	41.1	48.0	1.9	33.0	4.4
52		Std Dev		0.5	0.1	0.8	0.2	0.2	0.3	2.6	2.2	2.2	3.8	1.5
53		Number of Points Used		14	14	14	14	14	14	14	14	14	14	14
54														
55	Values	Averages		26.9	23.4	26.6	23.9	22.4	30.9	38.9	51.7	5.4	33.8	12.3
56	during	Maximum		27.7	23.4	27.6	24.3	22.7	31.4	40.3	52.2	5.7	35.0	12.8
57	dewatering	Median		26.9	23.4	26.6	23.7	22.4	30.8	38.8	51.6	5.4	33.8	12.4
58		Minimum		26.1	23.3	25.8	23.6	22.0	30.5	37.6	50.9	5.1	32.8	11.7
59		Std Dev		0.5	0.0	0.6	0.2	0.3	0.3	0.8	0.4	0.2	0.7	0.4
60		Number of Points Used		11	11	11	11	11	11	11	11	11	11	11

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	-0.135	-0.08	0.011	0		Conversion =		651.0145	m3/m2/day/barg / gpm/ft2/barg				
4	-0.135	-0.08	0.011	0									
5	-0.089	-0.08	0.011	0									
6	-0.089	-0.08	0.011	0									
7										at 250	PERMABILITY	x 1000	PERMABILITY
8	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	-0.042	20.901	0.864	0	1	8.7	44.9	3.1	0.377	0.364	0.0081	8.09	6.9
10	-0.042	20.778	0.864	0	2	8.6	45.1	3.1	0.377	0.361	0.0080	8.00	6.8
11	-0.089	20.947	0.866	0	3	8.7	44.9	3.1	0.378	0.359	0.0080	8.00	6.8
12	-0.089	19.964	0.866	0	4	8.3	42.9	3.0	0.378	0.365	0.0085	8.51	7.2
13	-0.089	16.723	1.218	0	5	6.9	46.2	3.2	0.532	0.522	0.0113	11.31	9.6
14	-0.042	18.044	1.025	0	6	7.5	47.5	3.3	0.447	0.443	0.0093	9.32	7.9
15	-0.089	20.763	1.027	0	7	8.6	49.6	3.4	0.448	0.448	0.0090	9.04	7.7
16	-0.089	26.369	0.975	0	8	10.9	46.3	3.2	0.426	0.428	0.0092	9.24	7.9
17	-0.042	36.107	0.806	0	9	15.0	41.9	2.9	0.352	0.355	0.0085	8.47	7.2
18	-0.042	35.739	0.577	0	10	14.8	37.1	2.6	0.252	0.256	0.0069	6.90	5.9
19	-0.089	37.551	1.218	0	11	15.6	24.2	1.7	0.532	0.542	0.0224	22.42	19.1
20	-0.042	36.922	1.218	0	12	15.3	31.0	2.1	0.532	0.545	0.0176	17.62	15.0
21	-0.089	36.763	1.218	0	13	15.3	33.1	2.3	0.532	0.548	0.0165	16.55	14.1
22	-0.089	37.044	1.218	0	14	15.4	34.7	2.4	0.532	0.550	0.0158	15.84	13.5
23	-0.042	37.044	1.218	0	15	15.4	36.2	2.5	0.532	0.554	0.0153	15.31	13.0
24	-0.042	36.875	1.218	0.003	16	15.3	36.8	2.5	0.532	0.548	0.0149	14.89	12.7
25	-0.042	36.906	1.218	0.003	17	15.3	36.9	2.5	0.532	0.542	0.0147	14.69	12.5
26	-0.089	37.597	1.218	0	18	15.6	37.4	2.6	0.532	0.538	0.0144	14.38	12.2
27	-0.089	37.69	1.218	0	19	15.6	38.2	2.6	0.532	0.533	0.0139	13.93	11.9
28	-0.042	36.046	1.218	0	20	15.0	38.9	2.7	0.532	0.527	0.0136	13.57	11.6
29	-0.089	35.877	1.218	0	21	14.9	39.4	2.7	0.532	0.524	0.0133	13.31	11.3
30	-0.042	35.539	1.218	0	22	14.7	40.1	2.8	0.532	0.518	0.0129	12.92	11.0
31	-0.089	35.524	1.072	0	23	14.7	35.3	2.4	0.468	0.453	0.0128	12.81	10.9
32	-0.042	35.447	1.067	0	24	14.7	35.5	2.4	0.466	0.446	0.0126	12.57	10.7
33	-0.042	34.879	1.067	0	25	14.5	36.0	2.5	0.466	0.442	0.0123	12.28	10.4
34	-0.042	34.848	1.056	0	26	14.5	35.8	2.5	0.461	0.433	0.0121	12.12	10.3
35	-0.089	34.679	1.049	0.003	27	14.4	36.4	2.5	0.458	0.426	0.0117	11.72	10.0
36	-0.089	34.71	1.034	0	28	14.4	36.1	2.5	0.451	0.422	0.0117	11.69	9.9
37	-0.042	34.618	1.014	0	29	14.4	36.4	2.5	0.443	0.419	0.0115	11.51	9.8
38	-0.089	34.403	0.995	0	30	14.3	36.5	2.5	0.434	0.417	0.0114	11.43	9.7
39	-0.089	34.31	0.979	0.003	31	14.2	37.0	2.6	0.427	0.414	0.0112	11.20	9.5
40	-0.042	34.31	0.964	0	32	14.2	37.7	2.6	0.421	0.411	0.0109	10.91	9.3
41	-0.089	33.896	0.953	0	33	14.1	37.5	2.6	0.416	0.407	0.0108	10.84	9.2
42	-0.089	33.45	0.946	0	34	13.9	37.9	2.6	0.413	0.404	0.0106	10.65	9.1
43	-0.042	33.066	1.218	0	35	13.7	39.8	2.7	0.532	0.516	0.0130	12.96	11.0
44	-0.089	32.79	1.083	0	36	13.6	44.3	3.1	0.473	0.455	0.0103	10.29	8.8
45	-0.042	32.852	1.06	0	37	13.6	44.8	3.1	0.463	0.443	0.0099	9.89	8.4
46	-0.089	32.375	1.051	0	38	13.4	44.7	3.1	0.459	0.436	0.0097	9.75	8.3
47													
48	-0.1	26.2	0.964	0.0		10.9	44.3	3.1	0.421	0.411	0.009	9.3	7.9
49	0.0	36.1	1.218	0.0		15.0	49.6	3.4	0.532	0.522	0.013	13.0	11.0
50	-0.1	23.7	1.000	0.0		9.8	44.9	3.1	0.437	0.432	0.009	9.1	7.8
51	-0.1	16.7	0.577	0.0		6.9	37.1	2.6	0.252	0.256	0.007	6.9	5.9
52	0.0	6.9	0.165	0.0		2.9	3.0	0.2	0.072	0.069	0.001	1.5	1.3
53	14	14	14	14		14	14	14	14	14	14	14	14
54													
55	-0.1	34.7	1.023	0.0		14.4	36.4	2.5	0.446	0.426	0.012	11.7	10.0
56	0.0	35.5	1.072	0.0		14.7	37.7	2.6	0.468	0.453	0.013	12.8	10.9
57	-0.1	34.7	1.034	0.0		14.4	36.4	2.5	0.451	0.422	0.012	11.7	9.9
58	-0.1	33.9	0.953	0.0		14.1	35.3	2.4	0.416	0.407	0.011	10.8	9.2
59	0.0	0.5	0.042	0.0		0.2	0.7	0.1	0.018	0.015	0.001	0.6	0.5
60	11	11	11	11		11	11	11	11	11	11	11	11





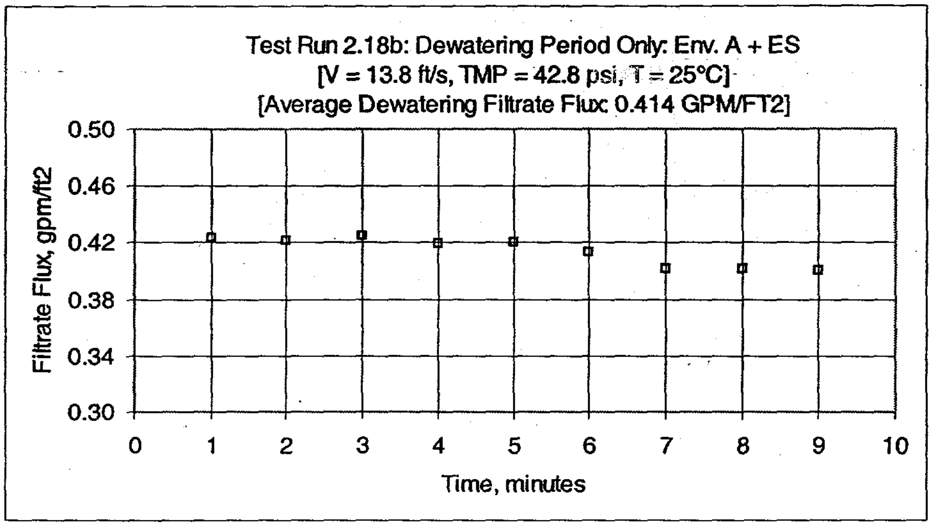
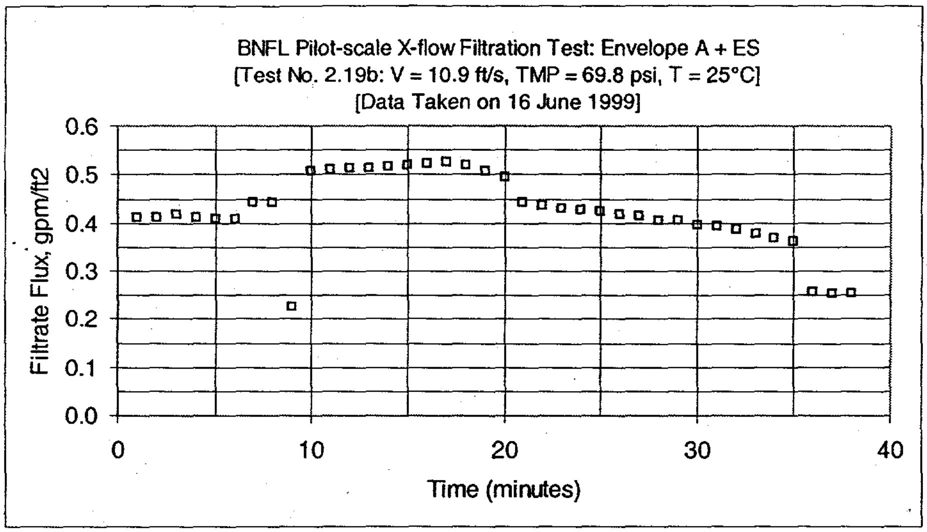
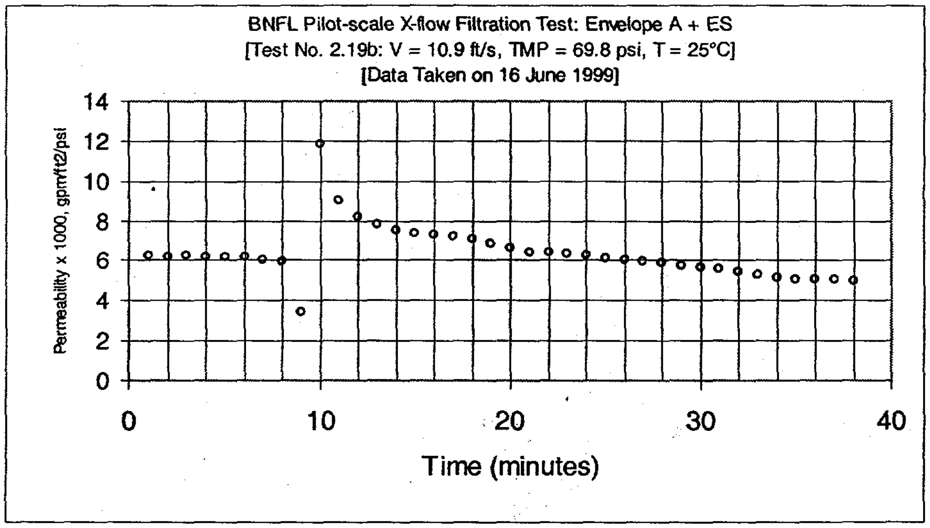


Figure D8: Test Run 2.18b, Second Wash 4

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.18b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/16/1999	8:10:19 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088	-0.135	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/16/1999	8:12:12 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.088	-0.135	-0.08	0.011	0									
5	6/16/1999	8:13:12 AM	0	22.448	22.113	21.558	22.258	21.264	31.001	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
6	6/16/1999	8:14:12 AM	0	22.448	22.113	21.558	22.258	21.264	30.966	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
7	data																							at 25C	PERMABILITY	x 1000	PERMABILITY
8	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	6/16/1999	7:09:06 PM	0	26.987	23.288	26.581	24.156	22.36	31.491	47.174	52.645	5.062	42.547	4.935	-0.042	32.16	1.04	0	1	13.3	44.9	3.1	0.454	0.434	0.0097	9.68	8.2
10	6/16/1999	7:10:06 PM	0	26.668	23.288	25.782	24.156	22.36	31.65	43.702	51.791	4.652	39.437	7.801	-0.042	31.73	0.964	0	2	13.2	41.6	2.9	0.421	0.412	0.0099	9.90	8.4
11	6/16/1999	7:11:06 PM	0	26.268	23.333	25.381	24.076	22.28	31.65	43.454	51.76	4.739	38.862	7.801	-0.089	32.575	0.954	0	3	13.5	41.2	2.8	0.416	0.412	0.0100	10.01	8.5
12	6/16/1999	7:12:06 PM	0	25.913	23.333	25.061	24.076	22.28	31.57	43.299	51.181	4.684	38.659	7.647	-0.089	32.943	0.947	0	4	13.7	41.0	2.8	0.413	0.413	0.0101	10.07	8.6
13	6/16/1999	7:13:06 PM	0	25.547	23.288	24.661	24.076	22.36	31.729	35.396	51.456	4.923	30.072	15.505	-0.042	32.713	0.677	0	5	13.6	32.7	2.3	0.296	0.298	0.0091	9.12	7.8
14	6/16/1999	7:14:06 PM	0	25.227	23.333	24.42	24.121	22.199	31.491	44.539	51.334	4.883	40.485	6.353	-0.089	32.959	0.955	0	6	13.7	42.5	2.9	0.417	0.424	0.0100	9.97	8.5
15	6/16/1999	7:15:06 PM	0	24.907	23.288	24.179	23.995	22.199	31.57	44.353	50.937	4.891	40.417	6.26	-0.089	33.051	0.944	0	7	13.7	42.4	2.9	0.412	0.422	0.0100	9.95	8.5
16	6/16/1999	7:16:07 PM	0	24.666	23.288	23.904	23.995	22.244	31.57	44.539	51.76	5.027	40.248	6.168	-0.089	32.851	0.942	0	8	13.6	42.4	2.9	0.411	0.424	0.0100	10.01	8.5
17	6/16/1999	7:17:07 PM	0	24.425	23.333	23.663	24.076	22.154	31.411	44.756	51.273	4.803	40.282	6.075	-0.089	32.913	0.925	0	9	13.7	42.5	2.9	0.404	0.419	0.0099	9.86	8.4
18	6/16/1999	7:18:07 PM	0	24.185	23.288	23.377	24.076	22.199	31.57	44.601	51.273	4.939	40.62	5.983	-0.089	32.867	0.919	0	10	13.6	42.6	2.9	0.401	0.420	0.0099	9.86	8.4
19	6/16/1999	7:19:07 PM	0	23.944	23.333	23.216	23.995	22.325	31.65	45.655	51.76	5.096	40.383	5.705	-0.089	33.251	0.9	0	11	13.8	43.0	3.0	0.393	0.413	0.0096	9.61	8.2
20	6/16/1999	7:20:07 PM	0	23.703	23.288	22.975	24.04	22.36	31.729	45.562	51.456	5.13	40.755	5.521	-0.089	33.312	0.869	0	12	13.8	43.2	3.0	0.379	0.402	0.0093	9.31	7.9
21	6/16/1999	7:21:07 PM	0	23.542	23.288	22.815	23.915	22.36	31.65	45.872	51.608	5.266	40.857	5.459	-0.089	33.573	0.864	0	13	13.9	43.4	3.0	0.377	0.401	0.0093	9.25	7.9
22	6/16/1999	7:22:07 PM	0	23.382	23.253	22.493	23.915	22.325	31.729	45.5	51.608	5.226	40.755	5.428	-0.042	33.466	0.855	0	14	13.9	43.1	3.0	0.373	0.401	0.0093	9.29	7.9
23	6/16/1999	7:23:07 PM	0	23.141	23.288	22.493	23.995	22.28	31.729	70.172	79.902	7.516	62.934	9.003	-0.042	41.591	1.218	0	15	17.3	66.6	4.6	0.532	0.571	0.0086	8.58	7.3
24	6/16/1999	7:24:07 PM	0	23.06	23.288	22.493	23.995	22.199	31.808	55.48	62.889	6.058	49.681	7.061	-0.089	37.183	1.01	0	16	15.4	52.6	3.6	0.441	0.473	0.0090	9.00	7.7
25	6/16/1999	7:25:07 PM	0	23.141	23.288	22.493	23.915	22.199	31.729	56.503	63.895	3.989	53.095	6.846	-0.089	28.612	0.979	0.003	17	11.9	54.8	3.8	0.427	0.459	0.0084	8.37	7.1
26	6/16/1999	7:26:07 PM	0	23.141	23.288	22.493	23.915	22.119	31.806	60.192	68.652	3.862	57.423	8.109	-0.042	29.38	1.087	0	18	12.2	58.8	4.1	0.475	0.510	0.0087	8.66	7.4
27	6/16/1999	7:27:07 PM	0	23.06	23.288	22.413	23.915	22.038	31.888	35.024	67.798	3.894	31.593	32.147	-0.089	30.685	1.218	0	19	12.7	33.3	2.3	0.532	0.572	0.0172	17.18	14.6
28	6/16/1999	7:28:07 PM	0	23.06	23.288	22.734	23.915	22.038	31.967	48.879	68.255	4.037	44.745	19.019	-0.089	30.501	1.218	0	20	12.7	46.8	3.2	0.532	0.567	0.0121	12.11	10.3
29	6/16/1999	7:29:07 PM	0	23.382	23.288	23.216	23.915	21.958	31.888	54.086	68.804	4.213	50.222	14.149	-0.089	30.04	1.218	0	21	12.5	52.2	3.6	0.532	0.559	0.0107	10.72	9.1
30	6/16/1999	7:30:08 PM	0	23.658	23.243	23.698	23.995	22.073	31.922	56.968	68.56	3.822	53.366	11.407	-0.089	29.979	1.218	0	22	12.4	55.2	3.8	0.532	0.552	0.0100	10.00	8.5
31	6/16/1999	7:31:08 PM	0	24.22	23.288	24.215	23.87	21.993	31.922	60.161	70.725	3.965	57.085	10.143	-0.089	29.441	1.218	0	23	12.2	58.6	4.0	0.532	0.544	0.0093	9.27	7.9
32	6/16/1999	7:32:08 PM	0	24.701	23.243	24.696	23.79	22.073	31.922	58.317	70.298	3.774	53.736	13.934	-0.089	29.641	1.218	0	24	12.3	55.0	3.8	0.532	0.536	0.0097	9.75	8.3
33	6/16/1999	7:33:08 PM	0	25.022	23.288	25.176	23.79	22.154	31.922	57.402	71.243	3.949	53.569	13.626	-0.089	29.518	1.191	0	25	12.3	55.5	3.8	0.520	0.517	0.0093	9.32	7.9
34	6/16/1999	7:34:08 PM	0	25.663	23.198	25.737	23.79	21.963	31.922	57.774	72.127	4.133	54.887	13.348	-0.042	29.503	1.166	0	26	12.2	56.3	3.9	0.509	0.499	0.0089	8.85	7.5
35	6/16/1999	7:35:09 PM	0	26.143	23.243	26.297	23.79	22.073	31.957	58.177	71.975	4.005	54.279	13.132	-0.089	29.549	1.144	0	27	12.3	56.2	3.9	0.499	0.482	0.0086	8.56	7.3
36	6/16/1999	7:36:09 PM	0	26.578	23.198	26.856	23.709	22.154	32.002	58.394	71.67	4.045	55.225	13.009	-0.042	29.242	1.133	0	28	12.1	56.8	3.9	0.495	0.470	0.0083	8.27	7.0
37	6/16/1999	7:37:09 PM	0	27.297	23.198	27.53	23.744	21.948	31.957	59.324	72.615	4.005	56.172	12.917	-0.089	29.011	1.119	0	29	12.0	57.7	4.0	0.488	0.455	0.0079	7.88	6.7
38	6/16/1999	7:38:09 PM	0	27.776	23.278	28.043	23.664	21.948	31.56	58.425	71.975	3.989	55.766	12.732	-0.089	29.149	1.106	0.003	30	12.1	57.1	3.9	0.483	0.444	0.0078	7.77	6.6
39	6/16/1999	7:39:09 PM	0	28.529	23.278	28.726	23.664	21.963	31.481	59.944	73.164	3.798	56.172	12.67	-0.089	28.812	1.1	0	31	12.0	58.1	4.0	0.480	0.433	0.0075	7.46	6.3
40	6/16/1999	7:40:09 PM	0	29.131	23.198	29.362	23.744	21.963	31.322	59.366	72.402	3.854	56.172	12.547	-0.089	28.888	1.09	0	32	12.0	57.8	4.0	0.476	0.422	0.0073	7.30	6.2
41	6/16/1999	7:41:09 PM	0	29.644	23.278	30.078	23.744	22.189	31.163	60.719	73.499	3.742	57.49	12.609	-0.089	28.428	1.091	0	33	11.8	59.1	4.1	0.476	0.414	0.0070	7.00	6.0
42	6/16/1999	7:42:09 PM	0	30.36	23.153	30.793	23.699	22.224	31.084	61.121	73.926	3.87	57.49	12.547	-0.042	28.397	1.09	0	34	11.8	59.3	4.1	0.476	0.405	0.0068	6.84	5.8
43	6/16/1999	7:43:09 PM	0	31.12	23.198	31.463	23.78	22.35	30.96	66.233	73.408	3.702	63.542	6.815	-0.042	28.213	1.197	0	35	11.7	64.9	4.5	0.523	0.437	0.0067	6.74	5.7
44	6/16/1999	7:44:09 PM	0	31.789	23.198	32.097	23.825	22.43	30.722	66.979	73.53	3.838	64.32	6.414	-0.089	28.074	1.171	0	36	11.7	65.6	4.5	0.511	0.421	0.0064	6.41	5.5
45	6/16/1999	7:45:09 PM	0	32.389	23.198	32.538	23.825	22.691	30.687	67.289	74.109	4.013	64.083	6.137	-0.042	28.289	1.157	0	37	11.7	65.7	4.5	0.505	0.411	0.0063	6.25	5.3
46																											
47	Values	Averages		27.9	23.2	27.9	23.9	22.2	31.5	55.8	66.9	4.2	52.2	10.7	-0.1	29.8	1.074	0.0		12.4	54.0	3.7	0.469	0.432	0.008	8.2	7.0
48	for	Maximum		32.4	23.3	32.5	24.2	22.8	32.0	67.3	74.1	5.1	64.3	15.5	0.0	32.9	1.197	0.0		13.7	65.7	4.5	0.523	0.517	0.010	10.1	8.6
49	close-loop	Median		27.1	23.3	27.2	23.8	22.2	31.6	58.4	72.1	4.0	55.5	12.6	-0.1	29.2	1.103	0.0		12.1	57.0	3.9	0.482	0.427	0.008	8.1	6.9
50	operation	Minimum		25.0	23.2	24.7	23.7	21.9	30.7	35.4	51.2	3.7	30.1	4.9	-0.1	28.1	0.677	0.0		11.7	32.7	2.3	0.296	0.298	0.006	6.3	5.3
51		Std Dev		2.2	0.1	2.5	0.2	0.2	0.4	8.9	9.4	0.4	9.6	3.2	0.0	1.7	0.122	0.0		0.7	9.3	0.6	0.053	0.045	0.001	1.3	1.1
52		Number of Points Used		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18		18	18	18	18	18	18	18	18
53																											
54	Values	Averages		24.2	23.3	23.4	24.0	22.3	31.6	45.0	51.4	5.0	40.5	5.9	-0.1	33.1	0.908	0.0		13.8	42.8	3.0	0.396	0.414	0.010	9.7	8.2
55	during	Maximum		25.2	23.3	24.4	24.1	22.4	31.7	45.9	51.8	5.3	40.9	6.4	0.0	33.6	0.955	0.0		13.9	43.4	3.0	0.417	0.424	0.010	10.0	8.5
56	dewatering	Median		24.2	23.3	23.4	24.0	22.2	31.6	44.8	51.5	5.0	40.5	6.0	-0.1	33.1	0.919	0.0		13.7	42.6	2.9	0.401	0.419	0.010	9.9	8.4
57		Minimum		23.4	23.3	22.5	23.9	22.2	31.4	44.4	50.9	4.8	40.2	5.4	-0.1	32.9	0.855	0.0		13.6	42.4	2.9	0.373	0.401	0.009	9.3	7.9
58		Std Dev		0.6	0.0	0.6	0.1	0.1	0.1	0.6	0.3	0.2	0.2	0.3	0.0	0.3	0.036	0.0		0.1	0.4	0.0	0.016	0.009	0.000	0.3	0.3
59		Number of Points Used		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		9	9	9	9	9	9	9	9





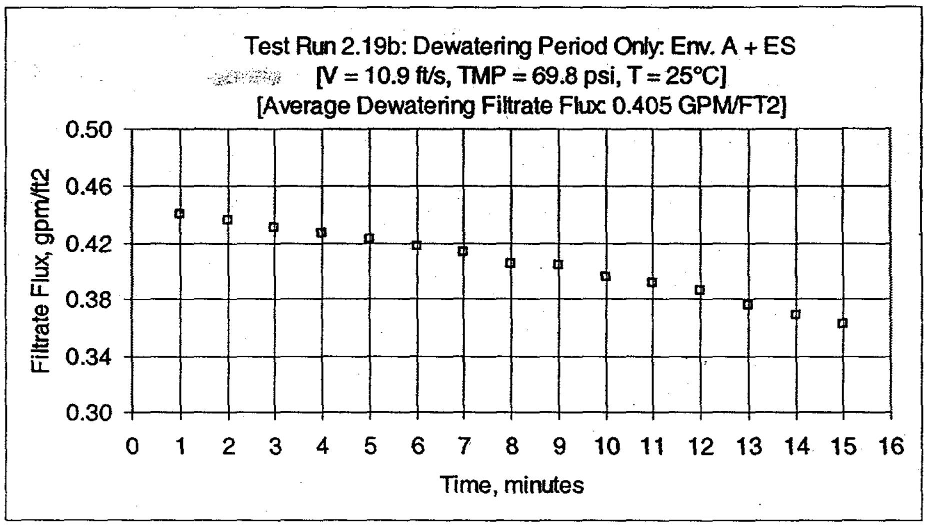


Figure D9: Test Run 2.19b, Wash 5

Pilot Scale X-Flow Filtration Test: Env. A, Run 2.19b

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9									
2	zeros			°C	°C	°C	°C	°C	°C	PSID	PSIG	PSID	PSID	PSIG	PSIG	GPM	GPM			Filter Surface Area =		2.29	FT2				
3	6/16/1999	8:10:19 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.068	-0.135	-0.08	0.011	0		Conversion =		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	6/16/1999	8:12:12 AM	0	22.448	22.113	21.603	22.303	21.067	31.645	-0.062	-0.041	-0.024	0.016	-0.068	-0.135	-0.08	0.011	0									
5	6/16/1999	8:13:12 AM	0	22.448	22.113	21.558	22.258	21.264	31.001	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
6	6/16/1999	8:14:12 AM	0	22.448	22.113	21.558	22.258	21.264	30.966	-0.062	-0.041	-0.024	0.05	-0.119	-0.089	-0.08	0.011	0									
7	data																							at 25C	PERMEABILITY	x 1000	PERMEABILITY
8	DATE	TIME	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psig	FLTR DP (	TOP DP (p	FLTRATE (psig) F	PISTON (psig)	SL FLOW	FLTR FLO	V9	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	6/16/1999	7:45:12 PM	0	32.389	23.196	32.459	23.78	22.511	30.687	66.979	73.591	3.782	64.083	6.137	-0.089	28.274	1.153	0	1	11.7	65.5	4.5	0.503	0.410	0.0063	6.26	5.3
10	6/16/1999	7:46:12 PM	0	32.23	23.196	30.237	24.066	22.591	30.528	67.878	73.774	3.567	64.793	5.274	-0.089	27.644	1.092	0	2	11.5	66.3	4.6	0.477	0.412	0.0062	6.22	5.3
11	6/16/1999	7:47:12 PM	0	30.881	23.243	29.124	24.111	22.717	30.608	68.157	73.489	3.495	64.658	5.182	-0.042	27.475	1.073	0	3	11.4	66.4	4.6	0.468	0.418	0.0063	6.29	5.4
12	6/16/1999	7:48:12 PM	0	29.972	23.243	28.247	24.191	22.797	30.449	68.188	73.804	3.774	65.063	4.904	-0.042	27.752	1.031	0	4	11.5	66.6	4.6	0.450	0.411	0.0062	6.17	5.3
13	6/16/1999	7:49:12 PM	0	29.176	23.163	27.814	24.351	22.878	30.493	67.413	72.249	3.527	64.354	4.75	-0.089	27.998	1.014	0	5	11.6	65.9	4.5	0.443	0.409	0.0062	6.21	5.3
14	6/16/1999	7:50:13 PM	0	28.663	23.208	27.495	24.432	22.958	30.493	68.126	72.961	3.734	64.894	4.627	-0.089	28.074	1.006	0.003	6	11.7	66.5	4.6	0.439	0.410	0.0062	6.16	5.2
15	6/16/1999	7:51:13 PM	0	28.3	23.208	27.335	24.557	23.039	30.617	75.379	81.457	4.157	71.048	5.428	-0.089	29.395	1.083	0	7	12.2	73.2	5.0	0.473	0.443	0.0060	6.05	5.1
16	6/16/1999	7:52:13 PM	0	28.025	23.128	27.14	24.477	23.003	30.935	75.596	81.213	3.686	72.603	5.336	-0.089	27.782	1.076	0	8	11.5	74.1	5.1	0.470	0.442	0.0060	5.97	5.1
17	6/16/1999	7:53:13 PM	0	27.866	23.253	26.946	24.602	22.843	31.218	68.064	82.159	3.67	65.131	13.903	-0.089	27.629	0.547	0	9	11.5	66.6	4.6	0.239	0.226	0.0034	3.40	2.9
18	6/16/1999	7:54:13 PM	0	27.512	23.173	26.706	24.682	22.727	31.377	44.384	81.64	3.255	41.296	36.43	-0.042	28.673	1.218	0	10	11.9	42.8	3.0	0.532	0.507	0.0118	11.83	10.1
19	6/16/1999	7:55:13 PM	0	27.272	23.173	26.501	24.522	22.647	31.173	57.991	81.976	3.567	54.786	23.241	-0.042	28.335	1.218	0	11	11.8	56.4	3.9	0.532	0.510	0.0090	9.04	7.7
20	6/16/1999	7:56:13 PM	0	27.112	23.173	26.307	24.522	22.647	31.456	64.004	81.854	3.519	60.601	17.17	-0.042	28.136	1.218	0	12	11.7	62.3	4.3	0.532	0.513	0.0082	8.23	7.0
21	6/16/1999	7:57:13 PM	0	26.952	23.218	26.147	24.442	22.692	31.58	67.692	81.823	3.567	63.711	13.687	-0.089	28.013	1.218	0	13	11.6	65.7	4.5	0.532	0.515	0.0078	7.84	6.7
22	6/16/1999	7:58:13 PM	0	26.793	23.218	26.032	24.407	22.451	31.536	70.141	81.61	3.383	66.754	11.191	-0.042	27.921	1.218	0	14	11.6	68.4	4.7	0.532	0.517	0.0075	7.55	6.4
23	6/16/1999	7:59:13 PM	0	26.598	23.218	25.872	24.326	22.451	31.501	71.877	81.579	3.463	68.715	9.496	-0.042	27.767	1.218	0	15	11.5	70.3	4.8	0.532	0.519	0.0074	7.38	6.3
24	6/16/1999	8:00:13 PM	0	26.438	23.138	25.587	24.326	22.29	31.739	73.457	82.219	3.782	69.323	8.263	-0.089	27.875	1.218	0	16	11.6	71.4	4.9	0.532	0.523	0.0073	7.33	6.2
25	6/16/1999	8:01:13 PM	0	26.278	23.218	25.472	24.326	22.209	31.739	74.356	82.433	3.734	70.405	7.37	-0.042	27.721	1.218	0	17	11.5	72.4	5.0	0.532	0.525	0.0072	7.25	6.2
26	6/16/1999	8:02:14 PM	0	26.118	23.218	25.357	24.246	22.164	31.818	74.914	81.793	3.495	71.724	6.63	-0.089	27.521	1.203	0	18	11.4	73.3	5.1	0.525	0.520	0.0071	7.09	6.0
27	6/16/1999	8:03:14 PM	0	25.958	23.218	25.151	24.246	22.209	31.739	75.844	82.372	3.598	72.332	6.075	-0.089	27.521	1.166	0	19	11.4	74.1	5.1	0.509	0.507	0.0068	6.84	5.8
28	6/16/1999	8:04:14 PM	0	25.878	23.218	25.071	24.166	22.129	31.897	75.999	81.945	3.662	72.907	5.675	-0.042	27.583	1.134	0	20	11.4	74.5	5.1	0.495	0.494	0.0066	6.64	5.6
29	6/16/1999	8:05:14 PM	0	25.718	23.138	24.831	24.246	22.083	31.739	70.234	82.341	3.646	66.652	11.653	-0.042	27.306	1.005	0	21	11.3	68.4	4.7	0.439	0.441	0.0064	6.44	5.5
30	6/16/1999	8:06:14 PM	0	25.558	23.138	24.751	24.166	21.968	31.977	70.048	81.945	3.543	66.788	11.561	-0.089	27.291	0.992	0	22	11.3	68.4	4.7	0.433	0.436	0.0064	6.37	5.4
31	6/16/1999	8:07:14 PM	0	25.352	23.218	24.59	24.246	22.048	31.774	70.141	82.219	3.71	66.619	11.437	-0.042	27.214	0.976	0.003	23	11.3	68.4	4.7	0.426	0.431	0.0063	6.30	5.4
32	6/16/1999	8:08:14 PM	0	25.272	23.173	24.51	24.166	22.129	31.897	70.42	82.433	3.718	66.551	11.263	-0.042	27.014	0.965	0	24	11.2	68.5	4.7	0.421	0.427	0.0062	6.24	5.3
33	6/16/1999	8:09:14 PM	0	25.157	23.173	24.305	24.166	21.922	32.011	70.544	82.098	3.574	67.227	11.16	-0.089	26.723	0.949	0	25	11.1	68.9	4.7	0.414	0.422	0.0061	6.13	5.2
34	6/16/1999	8:10:14 PM	0	25.032	23.173	24.225	24.04	21.922	31.932	71.319	82.738	3.551	67.701	11.037	-0.042	26.677	0.936	0	26	11.1	69.5	4.8	0.409	0.416	0.0060	6.01	5.1
35	6/16/1999	8:11:15 PM	0	24.872	23.173	24.064	24.121	22.003	31.932	71.102	82.311	3.519	68.005	10.914	-0.042	26.63	0.922	0	27	11.1	69.6	4.8	0.402	0.413	0.0059	5.94	5.1
36	6/16/1999	8:12:15 PM	0	24.791	23.173	24.064	24.04	22.003	31.808	70.823	82.037	3.598	67.734	10.79	-0.089	26.508	0.905	0	28	11.0	69.3	4.8	0.395	0.406	0.0059	5.86	5.0
37	6/16/1999	8:13:15 PM	0	24.791	23.128	24.144	24.04	21.968	31.932	71.908	83.378	3.367	68.951	10.76	-0.089	25.325	0.904	0	29	10.5	70.4	4.9	0.395	0.404	0.0057	5.74	4.9
38	6/16/1999	8:14:15 PM	0	24.746	23.173	24.305	23.995	21.922	31.808	71.567	82.951	3.598	68.613	10.636	-0.089	26.124	0.888	0	30	10.8	70.1	4.8	0.388	0.395	0.0056	5.64	4.8
39	6/16/1999	8:15:15 PM	0	24.872	23.208	24.5	23.995	21.958	31.932	71.97	83.134	3.63	69.053	10.605	-0.089	25.509	0.884	0	31	10.6	70.5	4.9	0.386	0.391	0.0056	5.55	4.7
40	6/16/1999	8:16:15 PM	0	25.067	23.128	24.901	23.915	21.958	31.729	71.815	83.348	3.559	69.864	10.575	-0.089	25.448	0.882	0	32	10.6	70.8	4.9	0.385	0.386	0.0055	5.45	4.6
41	6/16/1999	8:17:15 PM	0	25.467	23.082	25.462	23.915	21.832	31.922	72.559	83.683	3.543	69.492	10.544	-0.089	25.955	0.873	0	33	10.8	71.0	4.9	0.381	0.376	0.0053	5.30	4.5
42	6/16/1999	8:18:16 PM	0	25.823	23.208	26.102	23.87	21.958	31.764	73.023	83.5	3.471	70	10.051	-0.089	25.924	0.87	0	34	10.8	71.5	4.9	0.380	0.368	0.0051	5.15	4.4
43	6/16/1999	8:19:16 PM	0	26.463	23.163	26.616	23.79	21.912	31.843	73.209	83.896	3.63	69.932	9.989	-0.089	25.832	0.869	0	35	10.7	71.6	4.9	0.379	0.363	0.0051	5.07	4.3
44	6/16/1999	8:20:16 PM	0	26.783	23.163	27.016	23.79	22.154	31.605	51.482	57.34	2.657	49.647	5.305	-0.089	21.608	0.622	0	36	9.0	50.6	3.5	0.272	0.257	0.0051	5.08	4.3
45	6/16/1999	8:21:16 PM	0	27.137	23.163	27.131	23.744	22.073	31.843	51.234	56.761	2.553	49.241	5.336	-0.089	21.685	0.617	0.003	37	9.0	50.2	3.5	0.269	0.254	0.0051	5.05	4.3
46	6/16/1999	8:22:16 PM	0	27.377	23.118	27.37	23.87	22.028	31.605	52.195	57.919	2.721	49.005	5.397	-0.042	21.577	0.617	0	38	9.0	50.6	3.5	0.269	0.252	0.0050	4.96	4.2
47																											
48	Values	Averages		29.1	23.2	28.2	24.2	22.8	30.9	65.1	71.4	3.4	62.0	6.0	-0.1	26.4	0.911	0.0		11.0	63.6	4.4	0.398	0.362	0.006	5.7	4.8
49	for	Maximum		32.4	23.3	32.5	24.6	23.0	31.8	75.8	82.2	4.2	72.6	13.9	0.0	29.4	1.153	0.0		12.2	74.1	5.1	0.503	0.443	0.006	6.3	5.4
50	close-loop	Median		28.5	23.2	27.4	24.2	22.8	30.7	68.0	73.5	3.6	64.7	5.3	-0.1	27.7	1.023	0.0		11.5	66.4	4.6	0.446	0.410	0.006	6.1	5.2
51	operation	Minimum		26.8	23.1	26.9	23.7	22.0	30.4	51.2	56.8	2.6	49.0	4.6	-0.1	21.6	0.547	0.0		9.0	50.2	3.5	0.239	0.226	0.003	3.4	2.9
52		Std Dev		1.8	0.0	1.6	0.3	0.4	0.5	8.2	8.8	0.5	7.8	2.4	0.0	2.8	0.223	0.0		1.2	8.0	0.6	0.097	0.082	0.001	0.8	0.7
53		Number of Points Used		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12		12	12	12	12	12	12	12	12
54																											
55	Values	Averages		25.3	23.2	24.8	24.0	22.0	31.9	71.4	82.8	3.6	68.2	10.9	-0.1	26.4	0.921	0.0		10.9	69.8	4.8	0.402	0.405	0.006	5.8	4.9
56	during	Maximum		26.5	23.2	26.8	24.2	22.1	32.0	73.2	83.9	3.7	70.0	11.7	0.0	27.3	1.005	0.0		11.3	71.6	4.9	0.439	0.441	0.006	6.4	5.5
57	dewatering	Median		25.2	23.2	24.5	24.0	22.0	31.9	71.3	82.7	3.6	68.0	10.8	-0.1	26.5	0.905	0.0		11.0	69.6	4.8	0.395	0.406	0.006	5.9	5.0
58		Minimum		24.7	23.1	24.1	23.8	21.8	31.7	70.0	81.9	3.4	66.6	10.0	-0.1	25.3	0.869	0.0		10.5	68.4	4.7	0.379	0.363	0.005	5.1	4.3
59		Std Dev		0.5	0.0	0.7	0.1	0.1	0.1	1.0	0.6	0.1	1.2	0.5	0.0	0.7	0.045	0.0		0.3	1.1	0.1	0.020	0.024	0.000	0.4	0.4
60		Number of Points Used	4	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15		15	15	15	15	15	15	15	15

APPENDIX E

ANALYTICAL DATA

Appendix Contents

1. Eleven pages of Table E1 contain all of the analytical data.
2. Slurry Rheology: Fig. E1, Run 2.13; Fig. E2, Run 2.14b, Fig. E3, Run 2.20b
2. Graphs of selected chemical element concentrations throughout the test by molarity
   Figures E4-E17 are Al, Ca, Cl, Cr, F, Fe, K, Mn, Mo, Na, Ni, P, Pb, and Si
3. Graphs of selected chemical compounds concentration throughout the test by molarity.
   Figures E18-E20 are: Oxalate, Phosphate, and Sulfate
4. Graphs and tabular data on the particle distibutions throughout the test
   Figure E21 is: particle distibution from a real waste sample
   Figures E22A, E22B, to E29A, and E29B are for test runs: Pre-test, 2.01, 2.13, 2.14, 2.16, 2.14b, 2.16b, 2.

Special Notes:

a. There are no measurement uncertainties listed because the measurement uncertainties for analytical data are beyond the scope and control of this task. There is reason to believe that all analytical data can be at least 15% accurate but no quantitative data are given to this effect. Density and filtrate viscosity are the only slurry property data that were obtained at the test rig location and the uncertainty of those data can be stated as:
   Density: ≤ 0.5% of reading by calibration
   Viscosity: 0.34 wt% of reading by manufacturer's statement.
b. Only three figure, E1, E2, E3 are given for the slurry rheology because the rheology was similar for all samples. The slurry basically act as a Newtonian fluid but at the highest solids loading there is a small amount of yield stress which drops off very rapidly after the slurry is put into motion.
c. Each particle analysis was done by a Volume and a Number distribution, thus there are two figures for each, e.g., 19A and 19B.)

	A	B	C	D	E	F
1	TEST RUN ---------------------------------->		Most Recent Entry Date		2.00	2.00
2	BNFL Sample ID ---------------------------->>		February/22/2000	Pre-Test Sample	BNF-SXF2055-A+ES_01a	BNF-SXF2055-A+ES_01b
3	ADS Sample ID ------------------------------>>			3-126787	3-127887	3-127888
4	Type Sample ----------------------------------->>			slurry	slurry loop	slurry loop
5	Sample Size -------------------->	mL		125	15	15
6	Measurement(s) Made ----->>	(SEE NOMECLATURE TO EXPLAIN LETTERS)			SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS
7	Item Measured	Units	Analyst Name			
8	Density	g/mL	Thermal Fluids Lab	1.20	water before test 2.00	water after test 2.00
9	Al	ug/mL	Frank Pennebaker	15650	<0.6	<0.6
10	B	ug/mL	Frank Pennebaker	15.7	<0.3	<0.3
11	Ba	ug/mL	Frank Pennebaker	<0.5	<0.1	<0.1
12	Ca	ug/mL	Frank Pennebaker	39.1	<0.4	<0.4
13	Cd	ug/mL	Frank Pennebaker	<0.5	<0.1	<0.1
14	Cl	ug/mL	Robert Ray/Joyce Cartledge	3766	N/A	N/A
15	Cl Sample	ug/mL	Robert Ray/Sarah Brown	N/A	342.47	N/A
16	Co	ug/mL	Frank Pennebaker	<0.5	<0.1	<0.1
17	Cr	ug/mL	Frank Pennebaker	329	<0.1	<0.1
18	Cu	ug/mL	Frank Pennebaker	<0.5	<0.1	<0.1
19	F (Fluoride) -(only rough rdg)	ug/mL	Robert Ray/Joyce Cartledge	<20	N/A	N/A
20	F Sample	ug/mL	Robert Ray/Sarah Brown	N/A	<1	N/A
21	Fe	ug/mL	Frank Pennebaker	25.1	<0.2	<0.2
22	HCOO (Formate)	ug/mL	Robert Ray/Joyce Cartledge	1447	N/A	N/A
23	K	ug/mL	Sarah Brown	N/A	0.918	N/A
24	La	ug/mL	Frank Pennebaker	N/A	<0.28	<0.28
25	Li	ug/mL	Frank Pennebaker	<6.6	<1.2	<1.2
26	Mg	ug/mL	Frank Pennebaker	6.2	<0.1	<0.1
27	Mn	ug/mL	Frank Pennebaker	7.8	<0.1	<0.1
28	Mo	ug/mL	Frank Pennebaker	30.4	<0.1	<0.1
29	Na	ug/mL	Frank Pennebaker	98700	14	12
30	Ni	ug/mL	Frank Pennebaker	<0.6	<0.15	<0.15
31	NO2 (Nitrite)	ug/mL	Robert Ray/Joyce Cartledge	44946	N/A	N/A
32	NO3 (Nitrate)	ug/mL	Robert Ray/Joyce Cartledge	57471	N/A	N/A
33	C2O4 (Oxalate)	ug/mL	Robert Ray/Joyce Cartledge	743	N/A	N/A
34	P	ug/mL	Frank Pennebaker	69.3	<2	<2
35	PO4 (Phosphate)	ug/mL	Robert Ray/Joyce Cartledge	405	N/A	N/A
36	Pb	ug/mL	Frank Pennebaker	<5	<1	<1
37	Si	ug/mL	Frank Pennebaker	126	<1	<1
38	Sn	ug/mL	Frank Pennebaker	<4	<0.8	<0.8
39	SO4 (Sulfate)	ug/mL	Robert Ray/Joyce Cartledge	343	N/A	N/A
40	Sr	ug/mL	Frank Pennebaker	<1	<0.1	<0.1
41	Ti	ug/mL	Frank Pennebaker	<0.5	<0.1	<0.1
42	V	ug/mL	Frank Pennebaker	<1.5	<0.1	<0.1
43	Zn	ug/mL	Frank Pennebaker	11.1	<0.1	<0.1
44	Zr	ug/mL	Frank Pennebaker	<1.5	<0.3	<0.3
45	Total Organic Carbon	ug/mL	Robert Ray	1509	35.24	N/A
46	Total Inorganic Carbon	ug/mL	Robert Ray	1924	0.41	N/A
47	Suspended Solids	wt%	Beverly Burch	N/A	<0.003	N/A
48	Total Solids	wt%	Beverly Burch	N/A	N/A	N/A
49	Mean Particle Size by Volume	micron	Don Blankenship	2.4/309	N/A	N/A
50	Mean Particle Size by Number	micron	Don Blankenship	N/A	N/A	N/A
51	Kinematic Viscosity	cSt	CONE/TNX-CAPILLARY/TFL	N/A	N/A	N/A
52	Dynamic Viscosity	cP	Calculated	N/A	N/A	N/A
53	Comment			bimodel particle distribution	water before test	water after test

Table E1: Analytical – All data, Page1

	G	H	I	J	K	L
1	TEST RUN -------------------------------->		2.01	2.01	2.01	2.01
2	BNFL Sample ID ------------------------>		Unplanned Sample	BNF-SXF2055-A+ES_02	BNF-SXF2055-A+ES_03	No Sample Kept
3	ADS Sample ID --------------------------->>		TNX Sample/No Number	3-127890	3-127891	No Sample Number
4	Type Sample ---------------------------->		slurry	slurry	slurry	filtrate
5	Sample Size ----------------->>	mL	150	50	15	100mL/returned to mixture
6	Measurement(s) Made --------------->>		TS/SS/VISCOSITY/DENSITY	MICROTRAC	TS/SS	DENSITY ONLY
7	Item Measured	Units				
8	Density	g/mL	1.240	1.232	1.232	1.231
9	Al	ug/mL	N/A	N/A	N/A	N/A
10	B	ug/mL	N/A	N/A	N/A	N/A
11	Ba	ug/mL	N/A	N/A	N/A	N/A
12	Ca	ug/mL	N/A	N/A	N/A	N/A
13	Cd	ug/mL	N/A	N/A	N/A	N/A
14	Cl	ug/mL	N/A	N/A	N/A	N/A
15	Cl Sample	ug/mL	N/A	N/A	N/A	N/A
16	Co	ug/mL	N/A	N/A	N/A	N/A
17	Cr	ug/mL	N/A	N/A	N/A	N/A
18	Cu	ug/mL	N/A	N/A	N/A	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	N/A	N/A	N/A	N/A
20	F Sample	ug/mL	N/A	N/A	N/A	N/A
21	Fe	ug/mL	N/A	N/A	N/A	N/A
22	HCOO (Formate)	ug/mL	N/A	N/A	N/A	N/A
23	K	ug/mL	N/A	N/A	N/A	N/A
24	La	ug/mL	N/A	N/A	N/A	N/A
25	Li	ug/mL	N/A	N/A	N/A	N/A
26	Mg	ug/mL	N/A	N/A	N/A	N/A
27	Mn	ug/mL	N/A	N/A	N/A	N/A
28	Mo	ug/mL	N/A	N/A	N/A	N/A
29	Na	ug/mL	N/A	N/A	N/A	N/A
30	Ni	ug/mL	N/A	N/A	N/A	N/A
31	NO2 (Nitrite)	ug/mL	N/A	N/A	N/A	N/A
32	NO3 (Nitrate)	ug/mL	N/A	N/A	N/A	N/A
33	C2O4 (Oxalate)	ug/mL	N/A	N/A	N/A	N/A
34	P	ug/mL	N/A	N/A	N/A	N/A
35	PO4 (Phosphate)	ug/mL	N/A	N/A	N/A	N/A
36	Pb	ug/mL	N/A	N/A	N/A	N/A
37	Si	ug/mL	N/A	N/A	N/A	N/A
38	Sn	ug/mL	N/A	N/A	N/A	N/A
39	SO4 (Sulfate)	ug/mL	N/A	N/A	N/A	N/A
40	Sr	ug/mL	N/A	N/A	N/A	N/A
41	Ti	ug/mL	N/A	N/A	N/A	N/A
42	V	ug/mL	N/A	N/A	N/A	N/A
43	Zn	ug/mL	N/A	N/A	N/A	N/A
44	Zr	ug/mL	N/A	N/A	N/A	N/A
45	Total Organic Carbon	ug/mL	N/A	N/A	N/A	N/A
46	Total Inorganic Carbon	ug/mL	N/A	N/A	N/A	N/A
47	Suspended Solids	wt%	0.52	N/A	0.4509	N/A
48	Total Solids	wt%	30.57	N/A	28.26	N/A
49	Mean Particle Size by Volume	micron	N/A	2.59	N/A	N/A
50	Mean Particle Size by Numbe	micron	N/A	1.05	N/A	N/A
51	Kinematic Viscosity	cSt	2.4	N/A	N/A	N/A
52	Dynamic Viscosity	cP	3.0	N/A	N/A	N/A
53	Comment		HAAKE/SPINNING CONE			

Table E1: Analytical – All data, Page2

	M	N	O	P	Q	R
1	TEST RUN -------------------------------		2.01	2.13	2.13	2.13
2	BNFL Sample ID ------------------------>		BNF-SXF2055-A+ES_04	BNF-SXF2055-A+ES_02b	BNF-SXF2055-A+ES_03b	Unplanned Sample
3	ADS Sample ID ------------------------->		3-127889	3-128290	3-128291	TNX Sample/No Number
4	Type Sample --------------------------->		filtrate	slurry	slurry	slurry
5	Sample Size ---------------->	mL	15	50	15	150
6	Measurement(s) Made --------------->		SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	MICROTRAC	TS/SS	TS/SS/VISCOSITY/DENSITY
7	Item Measured	Units				
8	Density	g/mL	N/A	1.232	1.240	1.256
9	Al	ug/mL	17900	N/A	N/A	N/A
10	B	ug/mL	25	N/A	N/A	N/A
11	Ba	ug/mL	<0.1	N/A	N/A	N/A
12	Ca	ug/mL	0.5	N/A	N/A	N/A
13	Cd	ug/mL	<0.1	N/A	N/A	N/A
14	Cl	ug/mL	3644	N/A	N/A	N/A
15	Cl Sample	ug/mL	5186.57	N/A	N/A	N/A
16	Co	ug/mL	<0.1	N/A	N/A	N/A
17	Cr	ug/mL	<0.1	N/A	N/A	N/A
18	Cu	ug/mL	<0.1	N/A	N/A	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	206	N/A	N/A	N/A
20	F Sample	ug/mL	219	N/A	N/A	N/A
21	Fe	ug/mL	2.7	N/A	N/A	N/A
22	HCOO (Formate)	ug/mL	1529	N/A	N/A	N/A
23	K	ug/mL	3480.6255	N/A	N/A	N/A
24	La	ug/mL	<0.28	N/A	N/A	N/A
25	Li	ug/mL	<1.2	N/A	N/A	N/A
26	Mg	ug/mL	<0.1	N/A	N/A	N/A
27	Mn	ug/mL	<0.1	N/A	N/A	N/A
28	Mo	ug/mL	35	N/A	N/A	N/A
29	Na	ug/mL	112000	N/A	N/A	N/A
30	Ni	ug/mL	<0.15	N/A	N/A	N/A
31	NO2 (Nitrite)	ug/mL	47422	N/A	N/A	N/A
32	NO3 (Nitrate)	ug/mL	67777	N/A	N/A	N/A
33	C2O4 (Oxalate)	ug/mL	452	N/A	N/A	N/A
34	P	ug/mL	85	N/A	N/A	N/A
35	PO4 (Phosphate)	ug/mL	155	N/A	N/A	N/A
36	Pb	ug/mL	<1	N/A	N/A	N/A
37	Si	ug/mL	93	N/A	N/A	N/A
38	Sn	ug/mL	<0.8	N/A	N/A	N/A
39	SO4 (Sulfate)	ug/mL	304	N/A	N/A	N/A
40	Sr	ug/mL	<0.1	N/A	N/A	N/A
41	Ti	ug/mL	<0.1	N/A	N/A	N/A
42	V	ug/mL	<0.1	N/A	N/A	N/A
43	Zn	ug/mL	5.8	N/A	N/A	N/A
44	Zr	ug/mL	<0.3	N/A	N/A	N/A
45	Total Organic Carbon	ug/mL	1553	N/A	N/A	N/A
46	Total Inorganic Carbon	ug/mL	493.5	N/A	N/A	N/A
47	Suspended Solids	wt%	<0.003	N/A	0.2875	0.83
48	Total Solids	wt%	N/A	N/A	28.50	30.95
49	Mean Particle Size by Volum	micron	N/A	2.32	N/A	N/A
50	Mean Particle Size by Numb	micron	N/A	1.03	N/A	N/A
51	Kinematic Viscosity	cSt	N/A	N/A	N/A	2.4
52	Dynamic Viscosity	cP	N/A	N/A	N/A	3.0
53	Comment					HAAKE/SPINNING CONE

Table E1: Analytical – All data, Page 3

	S	T	U	V	W	X
1	TEST RUN ------------------------------>		2.13	2.14	2.14	2.14
2	BNFL Sample ID ------------------------>>		BNF-SXF2055-A+ES_04b	No Sample Kept	BNF-SXF2055-A+ES_05	BNF-SXF2055-A+ES_06
3	ADS Sample ID ------------------------>>		3-128292	No Sample Number	3-129261	TNX Sample/No Number
4	Type Sample ---------------------------->>		filtrate	filtrate	slurry	slurry
5	Sample Size ----------------->>	mL	15	100mL/returned to mixture	50	150
6	Measurement(s) Made -------------->>		SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	DENSITY ONLY	MICROTRAC/IC-ANIONS	TS/SS/VISCOSITY/DENSITY
7	Item Measured	Units				
8	Density	g/mL	N/A	1.144	1.202	1.186
9	Al	ug/mL	17700	N/A	N/A	N/A
10	B	ug/mL	28	N/A	N/A	N/A
11	Ba	ug/mL	<0.2	N/A	N/A	N/A
12	Ca	ug/mL	<2	N/A	N/A	N/A
13	Cd	ug/mL	<0.5	N/A	N/A	N/A
14	Cl	ug/mL	4539	N/A	2509	N/A
15	Cl Sample	ug/mL	5401.07	N/A	N/A	N/A
16	Co	ug/mL	<0.5	N/A	N/A	N/A
17	Cr	ug/mL	1.1	N/A	N/A	N/A
18	Cu	ug/mL	<0.5	N/A	N/A	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	<20	N/A	72	N/A
20	F Sample	ug/mL	814.8	N/A	N/A	N/A
21	Fe	ug/mL	3.2	N/A	N/A	N/A
22	HCOO (Formate)	ug/mL	1724	N/A	991	N/A
23	K	ug/mL	3908.9460	N/A	N/A	N/A
24	La	ug/mL	<1.4	N/A	N/A	N/A
25	Li	ug/mL	<6.6	N/A	N/A	N/A
26	Mg	ug/mL	<0.5	N/A	N/A	N/A
27	Mn	ug/mL	<0.5	N/A	N/A	N/A
28	Mo	ug/mL	324	N/A	N/A	N/A
29	Na	ug/mL	101850	N/A	N/A	N/A
30	Ni	ug/mL	<0.6	N/A	N/A	N/A
31	NO2 (Nitrite)	ug/mL	52524	N/A	30508	N/A
32	NO3 (Nitrate)	ug/mL	72581	N/A	38503	N/A
33	C2O4 (Oxalate)	ug/mL	469	N/A	10676	N/A
34	P	ug/mL	780	N/A	N/A	N/A
35	PO4 (Phosphate)	ug/mL	161	N/A	234	N/A
36	Pb	ug/mL	<5	N/A	N/A	N/A
37	Si	ug/mL	99	N/A	N/A	N/A
38	Sn	ug/mL	1.2	N/A	N/A	N/A
39	SO4 (Sulfate)	ug/mL	317	N/A	207	N/A
40	Sr	ug/mL	<0.5	N/A	N/A	N/A
41	Ti	ug/mL	<0.5	N/A	N/A	N/A
42	V	ug/mL	<1.2	N/A	N/A	N/A
43	Zn	ug/mL	4.3	N/A	N/A	N/A
44	Zr	ug/mL	<1.5	N/A	N/A	N/A
45	Total Organic Carbon	ug/mL	2284	N/A	N/A	N/A
46	Total Inorganic Carbon	ug/mL	0.89	N/A	N/A	N/A
47	Suspended Solids	wt%	<0.003	N/A	N/A	6.87
48	Total Solids	wt%	N/A	N/A	N/A	25.81
49	Mean Particle Size by Volume	micron	N/A	N/A	1.63/4.89/223	N/A
50	Mean Particle Size by Number	micron	N/A	N/A	1.03	N/A
51	Kinematic Viscosity	cSt	N/A	N/A	N/A	2.1
52	Dynamic Viscosity	cP	N/A	N/A	N/A	2.5
53	Comment				Trimodal partical distribution	HAAKE/SPINNING CONE

Table E1: Analytical – All data, Page 4

	Y	Z	AA	AB	AC	AD
1	TEST RUN ------------------------------		2.14b	2.14b	2.14b	2.14b
2	BNFL Sample ID.--------------------------		BNF-SXF2055-A+ES_05b	BNF-SXF2055-A+ES_05c	BNF-SXF2055-A+ES_05c	BNF-SXF2055-A+ES_06b
3	ADS Sample ID ------------------------>		3-129114	3-130102	3-130102	TNX Sample/No Number
4	Type Sample ----------------------------		slurry	slurry (diluted&filtered)	slurry (solids were dissolved)	slurry
5	Sample Size ---------------->>	mL	50	15	16	150
6	Measurement(s) Made --------------->		MICROTRAC	TS/SS/ICP-ES/IC-ANIONS	ICP-ES	TS/SS/VISCOSITY/DENSITY
7	Item Measured	Units				
8	Density	g/mL	1.281	1.281	1.281	1.275
9	Al	ug/mL	N/A	16350	16805	N/A
10	B	ug/mL	N/A	<1.3	N/A	N/A
11	Ba	ug/mL	N/A	<0.2	6	N/A
12	Ca	ug/mL	N/A	1420	1513	N/A
13	Cd	ug/mL	N/A	<0.2	<5.1	N/A
14	Cl	ug/mL	N/A	3886	3887	N/A
15	Cl Sample	ug/mL	N/A	N/A		N/A
16	Co	ug/mL	N/A	<0.5	<13	N/A
17	Cr	ug/mL	N/A	3100	4411	N/A
18	Cu	ug/mL	N/A	2.3	<13	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	N/A	187	N/A	N/A
20	F Sample	ug/mL	N/A	N/A	N/A	N/A
21	Fe	ug/mL	N/A	406	1606	N/A
22	HCOO (Formate)	ug/mL	N/A	1481	N/A	N/A
23	K	ug/mL	N/A	N/A	N/A	N/A
24	La	ug/mL	N/A	<1.4	<15.1	N/A
25	Li	ug/mL	N/A	<7	<25.1	N/A
26	Mg	ug/mL	N/A	16	<22.52	N/A
27	Mn	ug/mL	N/A	265	298	N/A
28	Mo	ug/mL	N/A	37	43	N/A
29	Na	ug/mL	N/A	120000	119178	N/A
30	Ni	ug/mL	N/A	73	455	N/A
31	NO2 (Nitrite)	ug/mL	N/A	45950	N/A	N/A
32	NO3 (Nitrate)	ug/mL	N/A	61214	N/A	N/A
33	C2O4 (Oxalate)	ug/mL	N/A	10698	N/A	N/A
34	P	ug/mL	N/A	151	<170.2	N/A
35	PO4 (Phosphate)	ug/mL	N/A	299	N/A	N/A
36	Pb	ug/mL	N/A	<5	<151	N/A
37	Si	ug/mL	N/A	665	43065	N/A
38	Sn	ug/mL	N/A	<4	<65.1	N/A
39	SO4 (Sulfate)	ug/mL	N/A	266	N/A	N/A
40	Sr	ug/mL	N/A	3.1	<2.51	N/A
41	Ti	ug/mL	N/A	1	<35.1	N/A
42	V	ug/mL	N/A	<1.2	<32.53	N/A
43	Zn	ug/mL	N/A	1.5	<92.57	N/A
44	Zr	ug/mL	N/A	<0.15	N/A	N/A
45	Total Organic Carbon	ug/mL	N/A	N/A	N/A	N/A
46	Total Inorganic Carbon	ug/mL	N/A	N/A	N/A	N/A
47	Suspended Solids	wt%	N/A	8.17	N/A	8.23
48	Total Solids	wt%	N/A	36.2	N/A	34.48
49	Mean Particle Size by Volume	micron	2.49	N/A	N/A	N/A
50	Mean Particle Size by Numbe	micron	1.028	N/A	N/A	N/A
51	Kinematic Viscosity	cSt	N/A	N/A	N/A	2.4
52	Dynamic Viscosity	cP	N/A	N/A	N/A	3.1
53	Comment			Acid Diluent affected solids	Solids Info for Comparison	HAAKE/SPINNING CONE

Table E1: Analytical – All data, Page 5

	AE	AF	AG	AH	AI	AJ
1	TEST RUN ------------------------->>		2.14b	2.15	2.15b	2.16
2	BNFL Sample ID ---------------------->>		No Sample Kept	BNF-SXF2055-A+ES_07	BNF-SXF2055-A+ES_07b	BNF-SXF2055-A+ES_08
3	ADS Sample ID ----------------------->>		No Sample Number	3-129284	3-129117	3-129262
4	Type Sample ------------------------->>		filtrate	filtrate	filtrate	slurry
5	Sample Size ---------------->>	mL	100mL/returned to mixture	15	15	50
6	Measurement(s) Made ------------->>		VISCOSITY /DENSITY	SS/ICP-ES/AA/TIC-TOC/SE/IC-ANIONS	SS/ICP-ES/AA/TIC-TOC/SE/IC-ANIONS	MICROTRAC
7	Item Measured	Units				
8	Density	g/mL	1.214	1.080	1.105	1.082
9	Al	ug/mL	N/A	5160	7115	N/A
10	B	ug/mL	N/A	7.6	10	N/A
11	Ba	ug/mL	N/A	<0.5	<0.05	N/A
12	Ca	ug/mL	N/A	<2	0.9	N/A
13	Cd	ug/mL	N/A	<0.2	<0.05	N/A
14	Cl	ug/mL	N/A	1255	1773	N/A
15	Cl Sample	ug/mL	N/A	1336.7	1841	N/A
16	Co	ug/mL	N/A	<0.5	<0.05	N/A
17	Cr	ug/mL	N/A	2	2.2	N/A
18	Cu	ug/mL	N/A	<0.4	<0.05	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	N/A	46	63	N/A
20	F Sample	ug/mL	N/A	53.95	<10	N/A
21	Fe	ug/mL	N/A	<0.6	0.88	N/A
22	HCOO (Formate)	ug/mL	N/A	532	721	N/A
23	K	ug/mL	N/A	1076.8566	1594.698	N/A
24	La	ug/mL	N/A	<1.4	<0.14	N/A
25	Li	ug/mL	N/A	<7	<0.7	N/A
26	Mg	ug/mL	N/A	<0.5	<0.03	N/A
27	Mn	ug/mL	N/A	<0.4	<0.02	N/A
28	Mo	ug/mL	N/A	12.7	15	N/A
29	Na	ug/mL	N/A	38550	49000	N/A
30	Ni	ug/mL	N/A	<0.6	0.1	N/A
31	NO2 (Nitrite)	ug/mL	N/A	16553	21918	N/A
32	NO3 (Nitrate)	ug/mL	N/A	25451	35660	N/A
33	C2O4 (Oxalate)	ug/mL	N/A	4383	2969	N/A
34	P	ug/mL	N/A	23	63	N/A
35	PO4 (Phosphate)	ug/mL	N/A	67	272	N/A
36	Pb	ug/mL	N/A	<0.5	<0.5	N/A
37	Si	ug/mL	N/A	32	62	N/A
38	Sn	ug/mL	N/A	<0.5	<0.4	N/A
39	SO4 (Sulfate)	ug/mL	N/A	96	154	N/A
40	Sr	ug/mL	N/A	<0.5	<0.05	N/A
41	Ti	ug/mL	N/A	<0.5	<0.05	N/A
42	V	ug/mL	N/A	<1.2	<0.12	N/A
43	Zn	ug/mL	N/A	1.0	2	N/A
44	Zr	ug/mL	N/A	<1.5	<0.15	N/A
45	Total Organic Carbon	ug/mL	N/A	1998	543	N/A
46	Total Inorganic Carbon	ug/mL	N/A	1774	524	N/A
47	Suspended Solids	wt%	N/A	<0.02	<0.01	N/A
48	Total Solids	wt%	N/A	N/A	N/A	N/A
49	Mean Particle Size by Volume	micron	N/A	N/A	N/A	1.61/4.91/213
50	Mean Particle Size by Number	micron	N/A	N/A	N/A	1.03
51	Kinematic Viscosity	cSt	1.51	N/A	1.33	N/A
52	Dynamic Viscosity	cP	1.84	N/A	1.47	N/A
53	Comment		viscosity done by capillary		viscosity done by capillary	Trimodal particle distribution

Table E1: Analytical – All data, Page 6

	AK	AL	AM	AN	AO	AP
1	TEST RUN --------------------------------->		2.16	2.16	2.16	2.16b
2	BNFL Sample ID ------------------------>		Unplanned Sample	BNF-SXF2055-A+ES_09	BNF-SXF2055-A+ES_10	BNF-SXF2055-A+ES_08b
3	ADS Sample ID ------------------------->		TNX Sample/No Number	3-129288	3-129285	3-129115
4	Type Sample ------------------------------>		slurry	slurry	filtrate	slurry
5	Sample Size ------------------->>	mL	150	15	15	50
6	Measurement(s) Made --------------->>		VISCOSITY ONLY	TS/SS	SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	MICROTRAC
7	Item Measured	Units				
8	Density	g/mL	1.082	1.082	1.045	N/A
9	Al	ug/mL	N/A	N/A	2685	N/A
10	B	ug/mL	N/A	N/A	3.7	N/A
11	Ba	ug/mL	N/A	N/A	<0.5	N/A
12	Ca	ug/mL	N/A	N/A	<2	N/A
13	Cd	ug/mL	N/A	N/A	<0.2	N/A
14	Cl	ug/mL	N/A	N/A	528	N/A
15	Cl Sample	ug/mL	N/A	N/A	645.4	N/A
16	Co	ug/mL	N/A	N/A	<0.5	N/A
17	Cr	ug/mL	N/A	N/A	0.8	N/A
18	Cu	ug/mL	N/A	N/A	<0.4	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	N/A	N/A	26	N/A
20	F Sample	ug/mL	N/A	N/A	11.5	N/A
21	Fe	ug/mL	N/A	N/A	<0.6	N/A
22	HCOO (Formate)	ug/mL	N/A	N/A	233	N/A
23	K	ug/mL	N/A	N/A	490.297	N/A
24	La	ug/mL	N/A	N/A	<1.4	N/A
25	Li	ug/mL	N/A	N/A	<7	N/A
26	Mg	ug/mL	N/A	N/A	<0.5	N/A
27	Mn	ug/mL	N/A	N/A	<0.4	N/A
28	Mo	ug/mL	N/A	N/A	6.9	N/A
29	Na	ug/mL	N/A	N/A	23400	N/A
30	Ni	ug/mL	N/A	N/A	<0.6	N/A
31	NO2 (Nitrite)	ug/mL	N/A	N/A	7286	N/A
32	NO3 (Nitrate)	ug/mL	N/A	N/A	10353	N/A
33	C2O4 (Oxalate)	ug/mL	N/A	N/A	9419	N/A
34	P	ug/mL	N/A	N/A	11	N/A
35	PO4 (Phosphate)	ug/mL	N/A	N/A	30	N/A
36	Pb	ug/mL	N/A	N/A	<5	N/A
37	Si	ug/mL	N/A	N/A	13	N/A
38	Sn	ug/mL	N/A	N/A	<4	N/A
39	SO4 (Sulfate)	ug/mL	N/A	N/A	44	N/A
40	Sr	ug/mL	N/A	N/A	<0.5	N/A
41	Ti	ug/mL	N/A	N/A	<0.5	N/A
42	V	ug/mL	N/A	N/A	<1.2	N/A
43	Zn	ug/mL	N/A	N/A	5.1	N/A
44	Zr	ug/mL	N/A	N/A	<1.5	N/A
45	Total Organic Carbon	ug/mL	N/A	N/A	3370	N/A
46	Total Inorganic Carbon	ug/mL	N/A	N/A	1124	N/A
47	Suspended Solids	wt%	N/A	4.85	<0.02	N/A
48	Total Solids	wt%	N/A	10.518	N/A	N/A
49	Mean Particle Size by Volume	micron	N/A	N/A	N/A	1.7/6
50	Mean Particle Size by Number	micron	N/A	N/A	N/A	1.046
51	Kinematic Viscosity	cSt	<1.8	N/A	N/A	N/A
52	Dynamic Viscosity	cP	<2	N/A	N/A	N/A
53	Comment		HAAKE/SPINNING CONE			bimodal particle distibution

Table E1: Analytical – All data, Page 7

	AQ	AR	AS	AT	AU	AV
1	TEST RUN ------------------------------>		2.16b	2.16b	2.17b	2.18
2	BNFL Sample ID ------------------------>		BNF-SXF2055-A+ES_09b	BNF-SXF2055-A+ES_10b	BNF-SXF2055-A+ES_11b	BNF-SXF2055-A+ES_12
3	ADS Sample ID ------------------------->		3-129123	3-129118	3-129119	3-129286
4	Type Sample --------------------------->		slurry	filtrate	filtrate	filtrate
5	Sample Size ------------------>>	mL	15	15	15	15
6	Measurement(s) Made --------------->>		TS/SS	SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS
7	Item Measured	Units				
8	Density	g/mL	N/A	1.055	1.031	1.025
9	Al	ug/mL	N/A	3180	1535	1320
10	B	ug/mL	N/A	4.9	2.5	<1.5
11	Ba	ug/mL	N/A	<0.05	<0.05	<0.5
12	Ca	ug/mL	N/A	1.2	3.1	<2
13	Cd	ug/mL	N/A	<0.05	<0.05	<0.05
14	Cl	ug/mL	N/A	735	295	233
15	Cl Sample	ug/mL	N/A	1973	360	319.3
16	Co	ug/mL	N/A	<0.05	<0.05	<0.2
17	Cr	ug/mL	N/A	1.1	0.7	<0.5
18	Cu	ug/mL	N/A	<0.05	<0.05	<0.4
19	F (Fluoride) -(only rough rdg)	ug/mL	N/A	36	18	13
20	F Sample	ug/mL	N/A	<10	<10	7.35
21	Fe	ug/mL	N/A	0.31	0.23	<0.6
22	HCOO (Formate)	ug/mL	N/A	320	140	96
23	K	ug/mL	N/A	689.5910	303.408	250.207
24	La	ug/mL	N/A	<0.14	<0.14	<1.4
25	Li	ug/mL	N/A	<0.7	<0.7	<7
26	Mg	ug/mL	N/A	<0.03	<0.03	<0.5
27	Mn	ug/mL	N/A	<0.02	<0.02	<0.4
28	Mo	ug/mL	N/A	7.2	3.3	3.9
29	Na	ug/mL	N/A	18300	11850	12450
30	Ni	ug/mL	N/A	<0.06	<0.06	<0.6
31	NO2 (Nitrite)	ug/mL	N/A	9718	4279	3527
32	NO3 (Nitrate)	ug/mL	N/A	14285	5487	4686
33	C2O4 (Oxalate)	ug/mL	N/A	7057	7755	6325
34	P	ug/mL	N/A	29	13	<9
35	PO4 (Phosphate)	ug/mL	N/A	67	36	11
36	Pb	ug/mL	N/A	<0.5	<0.5	<5
37	Si	ug/mL	N/A	30	17	<6
38	Sn	ug/mL	N/A	<0.4	<0.4	<4
39	SO4 (Sulfate)	ug/mL	N/A	57	25	23
40	Sr	ug/mL	N/A	<0.05	<0.05	<0.5
41	Ti	ug/mL	N/A	<0.05	<0.05	<0.5
42	V	ug/mL	N/A	<0.12	<0.12	<1.2
43	Zn	ug/mL	N/A	1	0.2	5.2
44	Zr	ug/mL	N/A	<0.15	<0.15	<1.5
45	Total Organic Carbon	ug/mL	N/A	966	1039	2492
46	Total Inorganic Carbon	ug/mL	N/A	298	199	498
47	Suspended Solids	wt%	5.49	<.01	<.01	<0.02
48	Total Solids	wt%	12.88	N/A	N/A	N/A
49	Mean Particle Size by Volume	micron	N/A	N/A	N/A	N/A
50	Mean Particle Size by Numbe	micron	N/A	N/A	N/A	N/A
51	Kinematic Viscosity	cSt	N/A	1.15	1.08	N/A
52	Dynamic Viscosity	cP	N/A	1.21	1.11	N/A
53	Comment			viscosity done by capillary	viscosity done by capillary	

Table E1: Analytical – All data, Page 8

	AW	AX	AY	AZ	BA	BB
1	TEST RUN ---------------------------->		2.18b	2.19	2.19b	2.20b
2	BNFL Sample ID ---------------------->		BNF-SXF2055-A+ES_12b	BNF-SXF2055-A+ES_13	BNF-SXF2055-A+ES_13b	BNF-SXF2055-A+ES_14b
3	ADS Sample ID ----------------------->		3-129120	3-129287	3-129121	3-129116
4	Type Sample --------------------------->		filtrate	filtrate	filtrate	slurry (80-liter starting volume)
5	Sample Size ---------------->>	mL	15	15	15	50
6	Measurement(s) Made -------------->>		SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	MICROTRAC
7	Item Measured	Units				
8	Density	g/mL	1.015	1.010	1.0095	from 1.054 to 1.143
9	Al	ug/mL	845	680	367	N/A
10	B	ug/mL	1.5	<1.5	0.9	N/A
11	Ba	ug/mL	<0.05	<0.5	<0.05	N/A
12	Ca	ug/mL	<0.2	<2	<0.2	N/A
13	Cd	ug/mL	<0.05	<0.2	<0.05	N/A
14	Cl	ug/mL	149	127	61	N/A
15	Cl Sample	ug/mL	542	159.3	445	N/A
16	Co	ug/mL	<0.05	<0.5	<0.05	N/A
17	Cr	ug/mL	<0.1	<0.5	<0.1	N/A
18	Cu	ug/mL	<0.05	<0.4	<0.05	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	11	8	6	N/A
20	F Sample	ug/mL	<10	3.05	<10	N/A
21	Fe	ug/mL	0.16	<0.6	0.07	N/A
22	HCOO (Formate)	ug/mL	76	59	37	N/A
23	K	ug/mL	159.9815	131.8985	62.0455	N/A
24	La	ug/mL	<0.14	<1.4	<0.14	N/A
25	Li	ug/mL	<0.7	<7	<0.7	N/A
26	Mg	ug/mL	<0.03	<0.5	<0.03	N/A
27	Mn	ug/mL	<0.02	<0.4	<0.02	N/A
28	Mo	ug/mL	1.8	2.7	0.8	N/A
29	Na	ug/mL	6735	6665	2905	N/A
30	Ni	ug/mL	<0.06	<0.6	<0.06	N/A
31	NO2 (Nitrite)	ug/mL	2254	1850	868	N/A
32	NO3 (Nitrate)	ug/mL	3652	2897	1281	N/A
33	C2O4 (Oxalate)	ug/mL	4294	3888	1564	N/A
34	P	ug/mL	7	<9	3	N/A
35	PO4 (Phosphate)	ug/mL	19	<10	4	N/A
36	Pb	ug/mL	<0.5	<5	<0.5	N/A
37	Si	ug/mL	12	<6	8.6	N/A
38	Sn	ug/mL	<0.4	<4	<0.4	N/A
39	SO4 (Sulfate)	ug/mL	13	12	6	N/A
40	Sr	ug/mL	<0.05	<0.5	<0.05	N/A
41	Ti	ug/mL	<0.05	<0.5	<0.05	N/A
42	V	ug/mL	<0.12	<1.2	<0.12	N/A
43	Zn	ug/mL	0.06	<0.4	<0.03	N/A
44	Zr	ug/mL	<0.15	<1.5	<0.15	N/A
45	Total Organic Carbon	ug/mL	581	1589	262	N/A
46	Total Inorganic Carbon	ug/mL	143	336	88	N/A
47	Suspended Solids	wt%	<.01	<0.02	<.01	N/A
48	Total Solids	wt%	N/A	N/A	N/A	N/A
49	Mean Particle Size by Volume	micron	N/A	N/A	N/A	3.33
50	Mean Particle Size by Numbe	micron	N/A	N/A	N/A	1.016/2.164
51	Kinematic Viscosity	cSt	1.04	N/A	1.00	N/A
52	Dynamic Viscosity	cP	1.06	N/A	1.01	N/A
53	Comment		viscosity done by capillary		viscosity done by capillary	Post-wash De-watering

Table E1: Analytical – All data, Page 9

	BC	BD	BE	BF	BG	BH
1	TEST RUN ------------------------------>		2.20b	2.20b	2.20b	2.20b
2	BNFL Sample ID ------------------------>		BNF-SXF2055-A+ES_15b	BNF-SXF2055-A+ES_16b	Viscosity 2	Viscosity 3
3	ADS Sample ID ------------------------->		3-129124	TNX Sample/No Number	TNX Sample/No Number	TNX Sample/No Number
4	Type Sample --------------------------->		slurry (80-liter starting volume	slurry (80-liter starting volume	slurry (57.9 liters remain)	slurry (43.1 liters remain)
5	Sample Size ----------------->>	mL	15	150	150	150
6	Measurement(s) Made --------------->>		TS/SS	TS/SS/VISCOSITY/DENSITY	TS/SS/VISCOSITY/DENSITY	TS/SS/VISCOSITY/DENSITY
7	Item Measured	Units				
8	Density	g/mL	1.054	1.053	1.077	1.106
9	Al	ug/mL	N/A	N/A	N/A	N/A
10	B	ug/mL	N/A	N/A	N/A	N/A
11	Ba	ug/mL	N/A	N/A	N/A	N/A
12	Ca	ug/mL	N/A	N/A	N/A	N/A
13	Cd	ug/mL	N/A	N/A	N/A	N/A
14	Cl	ug/mL	N/A	N/A	N/A	N/A
15	Cl Sample	ug/mL	N/A	N/A	N/A	N/A
16	Co	ug/mL	N/A	N/A	N/A	N/A
17	Cr	ug/mL	N/A	N/A	N/A	N/A
18	Cu	ug/mL	N/A	N/A	N/A	N/A
19	F (Fluoride) -(only rough rdg)	ug/mL	N/A	N/A	N/A	N/A
20	F Sample	ug/mL	N/A	N/A	N/A	N/A
21	Fe	ug/mL	N/A	N/A	N/A	N/A
22	HCOO (Formate)	ug/mL	N/A	N/A	N/A	N/A
23	K	ug/mL	N/A	N/A	N/A	N/A
24	La	ug/mL	N/A	N/A	N/A	N/A
25	Li	ug/mL	N/A	N/A	N/A	N/A
26	Mg	ug/mL	N/A	N/A	N/A	N/A
27	Mn	ug/mL	N/A	N/A	N/A	N/A
28	Mo	ug/mL	N/A	N/A	N/A	N/A
29	Na	ug/mL	N/A	N/A	N/A	N/A
30	Ni	ug/mL	N/A	N/A	N/A	N/A
31	NO2 (Nitrite)	ug/mL	N/A	N/A	N/A	N/A
32	NO3 (Nitrate)	ug/mL	N/A	N/A	N/A	N/A
33	C2O4 (Oxalate)	ug/mL	N/A	N/A	N/A	N/A
34	P	ug/mL	N/A	N/A	N/A	N/A
35	PO4 (Phosphate)	ug/mL	N/A	N/A	N/A	N/A
36	Pb	ug/mL	N/A	N/A	N/A	N/A
37	Si	ug/mL	N/A	N/A	N/A	N/A
38	Sn	ug/mL	N/A	N/A	N/A	N/A
39	SO4 (Sulfate)	ug/mL	N/A	N/A	N/A	N/A
40	Sr	ug/mL	N/A	N/A	N/A	N/A
41	Ti	ug/mL	N/A	N/A	N/A	N/A
42	V	ug/mL	N/A	N/A	N/A	N/A
43	Zn	ug/mL	N/A	N/A	N/A	N/A
44	Zr	ug/mL	N/A	N/A	N/A	N/A
45	Total Organic Carbon	ug/mL	N/A	N/A	N/A	N/A
46	Total Inorganic Carbon	ug/mL	N/A	N/A	N/A	N/A
47	Suspended Solids	wt%	5.04	4.97	N/A	11.69
48	Total Solids	wt%	6.98	7.85	10.79	14.36
49	Mean Particle Size by Volume	micron	N/A	N/A	N/A	N/A
50	Mean Particle Size by Numbe	micron	N/A	N/A	N/A	N/A
51	Kinematic Viscosity	cSt	N/A	1.6	1.5	1.4
52	Dynamic Viscosity	cP	N/A	1.6	1.6	1.6
53	Comment		Post-wash De-watering	HAAKE/SPINNING CONE	HAAKE/SPINNING CONE	HAAKE/SPINNING CONE

Table E1: Analytical – All data, Page 10

	BI	BJ	BK	BL
1	TEST RUN ---------------------------------->		2.20b	Final Concentrate
2	BNFL Sample ID ---------------------------->		BNF-SXF2055-A+ES_17b	BNF-SXF2055-A+ES_18b
3	ADS Sample ID ----------------------------->		3-129122	3-130103
4	Type Sample -------------------------------->		filtrate	filtrate (~30 liters left)
5	Sample Size ------------------>>	mL	15	15
6	Measurement(s) Made ---------------->>		SS/ICP-ES/AA/TIC-TOC/ISE/IC-ANIONS	TS/SS / ICP-ES
7	Item Measured	Units		
8	Density	g/mL	1.019	1.019
9	Al	ug/mL	705	16.6
10	B	ug/mL	1.4	<0.13
11	Ba	ug/mL	<0.05	<0.02
12	Ca	ug/mL	<0.2	3.3
13	Cd	ug/mL	<0.05	0.1
14	Cl	ug/mL	116	N/A
15	Cl Sample	ug/mL	145	N/A
16	Co	ug/mL	<0.05	<0.02
17	Cr	ug/mL	1	1.5
18	Cu	ug/mL	<0.05	0.07
19	F (Fluoride) -(only rough rdg)	ug/mL	9	N/A
20	F Sample	ug/mL	<10	N/A
21	Fe	ug/mL	0.07	21.4
22	HCOO (Formate)	ug/mL	60	N/A
23	K	ug/mL	131.1485	N/A
24	La	ug/mL	<0.14	<0.14
25	Li	ug/mL	<0.7	<0.7
26	Mg	ug/mL	<0.03	1.1
27	Mn	ug/mL	<0.02	0.16
28	Mo	ug/mL	1.5	0.15
29	Na	ug/mL	8475	38.7
30	Ni	ug/mL	<0.06	1.2
31	NO2 (Nitrite)	ug/mL	1817	N/A
32	NO3 (Nitrate)	ug/mL	2885	N/A
33	C2O4 (Oxalate)	ug/mL	9453	N/A
34	P	ug/mL	6	<0.9
35	PO4 (Phosphate)	ug/mL	12	N/A
36	Pb	ug/mL	<0.5	1.5
37	Si	ug/mL	13	1.4
38	Sn	ug/mL	<0.4	<0.4
39	SO4 (Sulfate)	ug/mL	11	N/A
40	Sr	ug/mL	<0.05	<0.05
41	Ti	ug/mL	<0.05	0.56
42	V	ug/mL	<0.12	<0.12
43	Zn	ug/mL	<0.03	0.33
44	Zr	ug/mL	<0.15	0.15
45	Total Organic Carbon	ug/mL	1184	N/A
46	Total Inorganic Carbon	ug/mL	163	N/A
47	Suspended Solids	wt%	<.01	<0.004
48	Total Solids	wt%	N/A	N/A
49	Mean Particle Size by Volume	micron	N/A	N/A
50	Mean Particle Size by Number	micron	N/A	N/A
51	Kinematic Viscosity	cSt	N/A	N/A
52	Dynamic Viscosity	cP	N/A	N/A
53	Comment			find out remaining solids

Table E1: Analytical – All data, Page 11

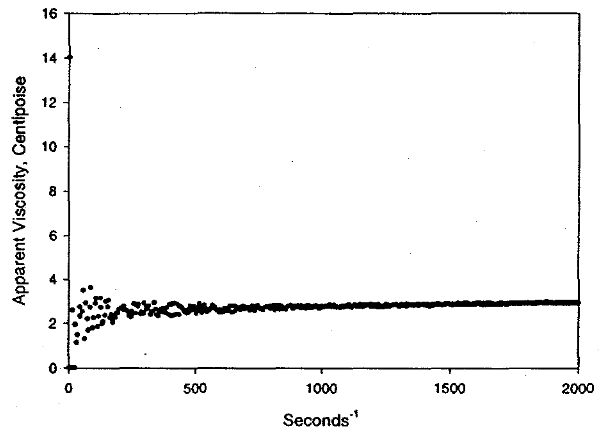


Figure E1. Slurry at 0.5 wt% insoluble solids and 29 wt% total solids: Run 2.13

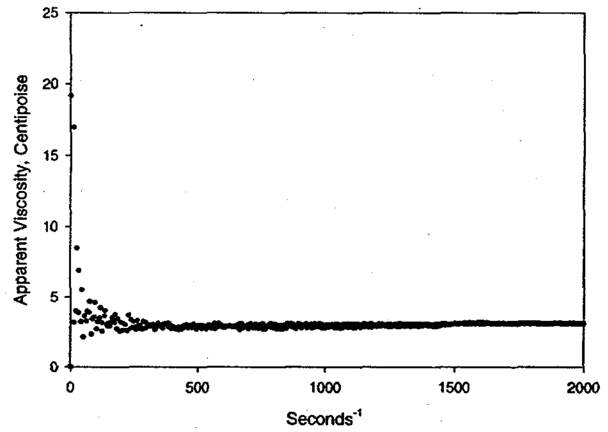


Figure E2. Slurry at 8 wt% insoluble solids and 36 wt% total solids: Run 2.14b

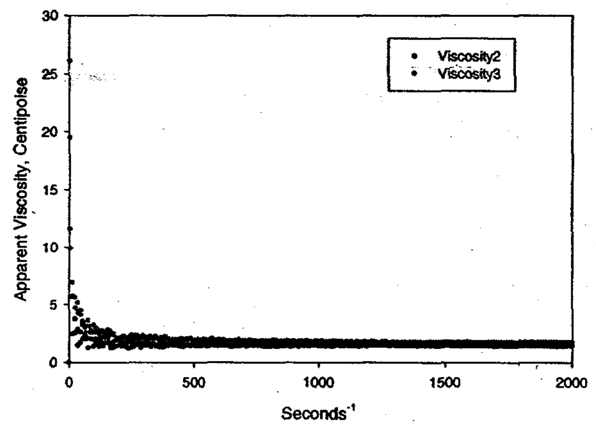
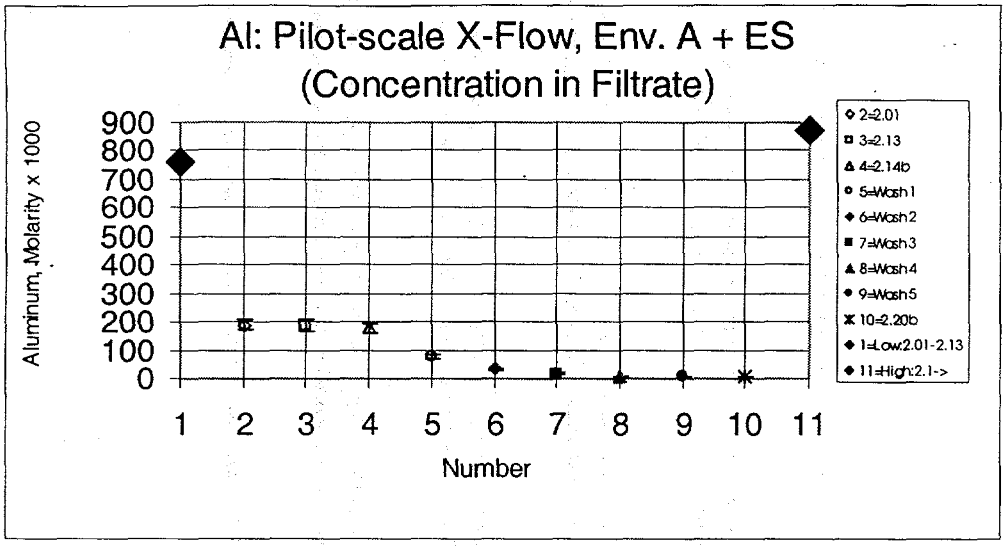
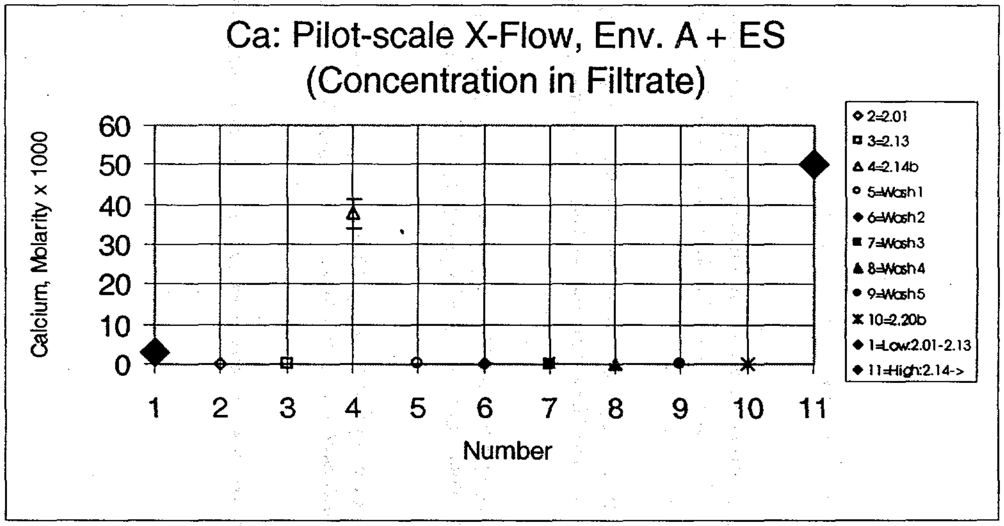


Figure E3. Slurry at 12 wt% insoluble solids and 14 wt% total solids: Run 2.20b





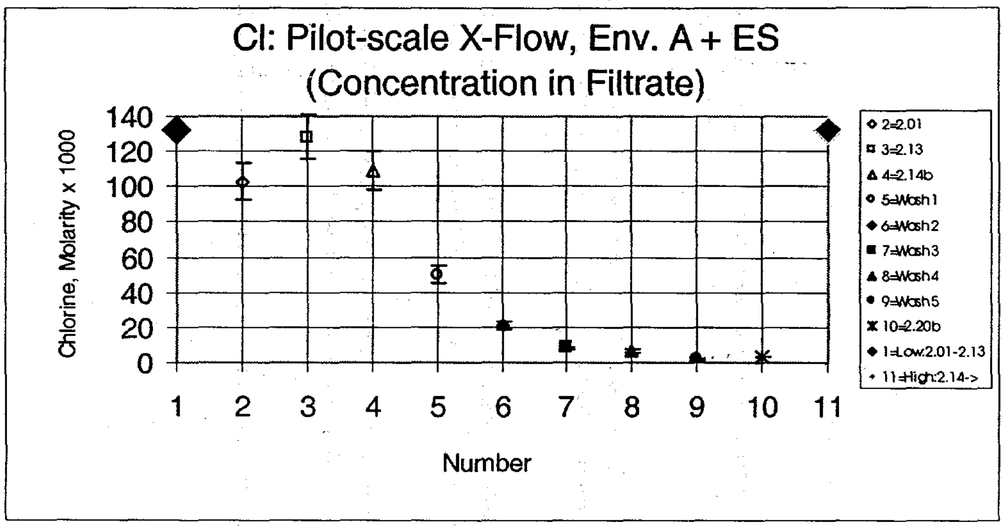
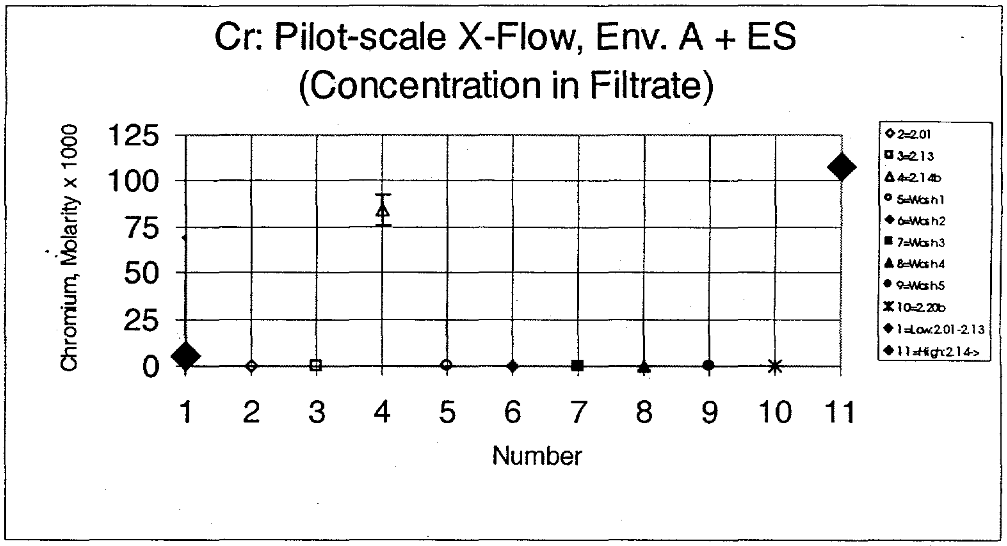
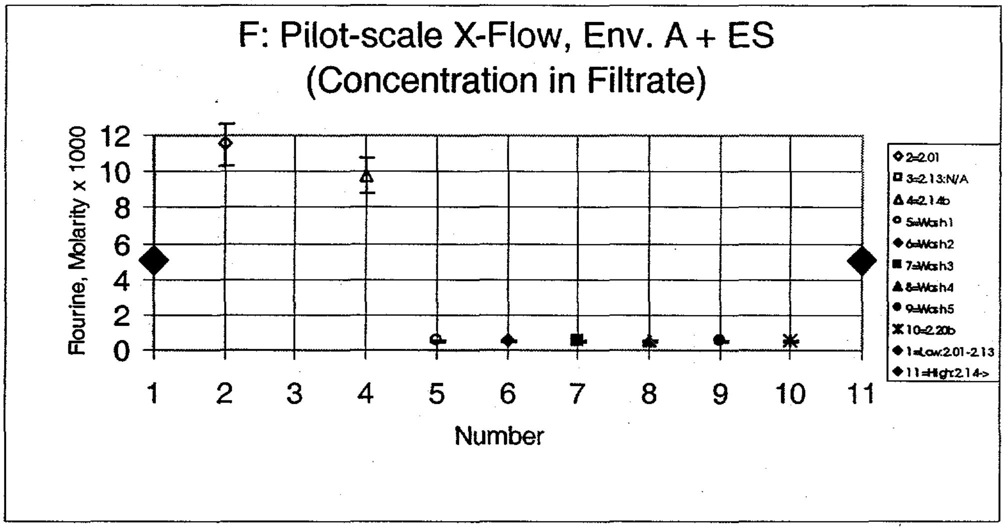


Figure E4, E5, and E6. Aluminum, Calcium, and Chlorine, respectively





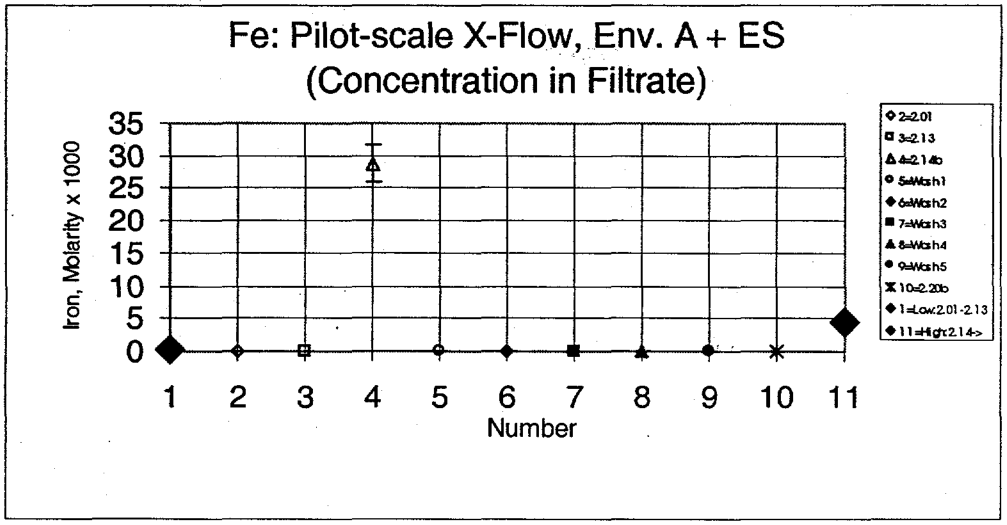
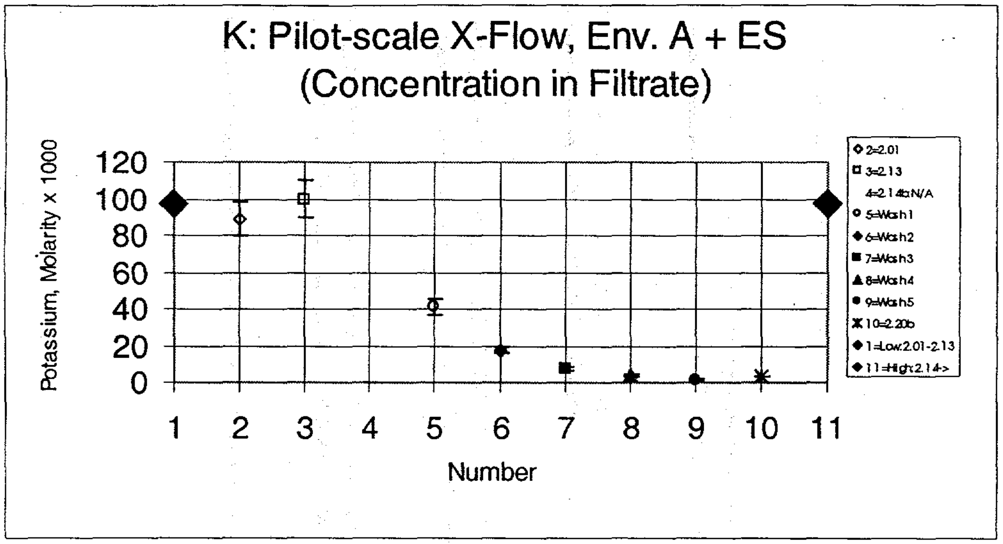
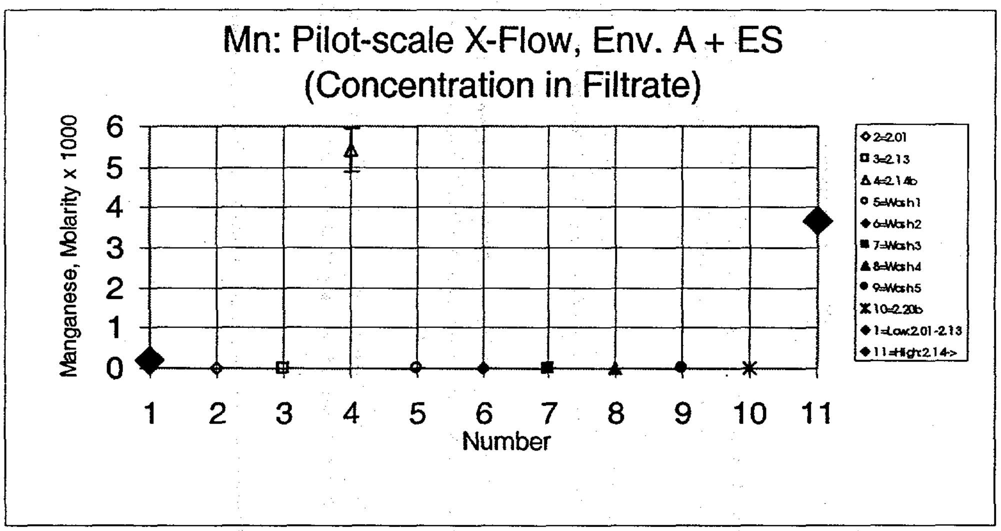


Figure E7, E8, and E9. Chromium, Florine, and Iron, respectively





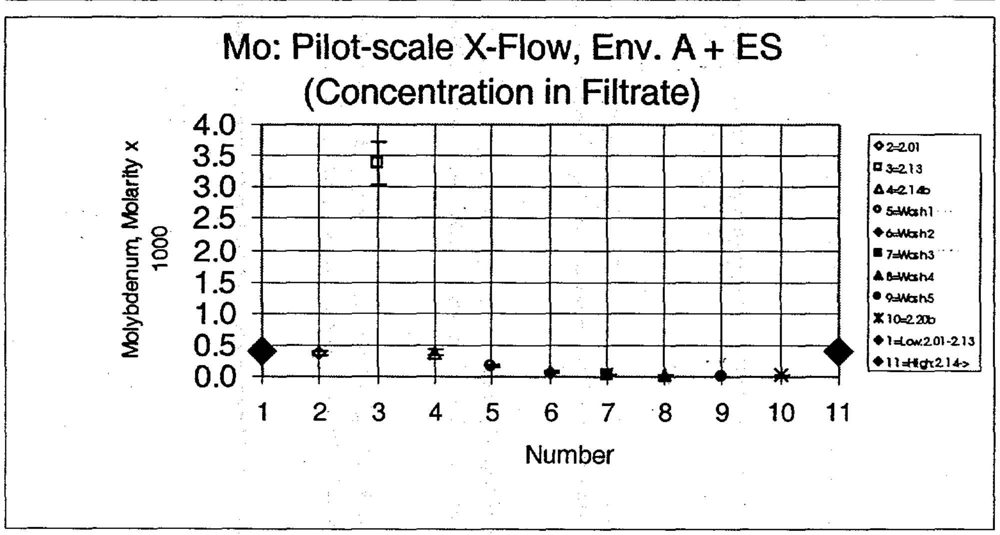
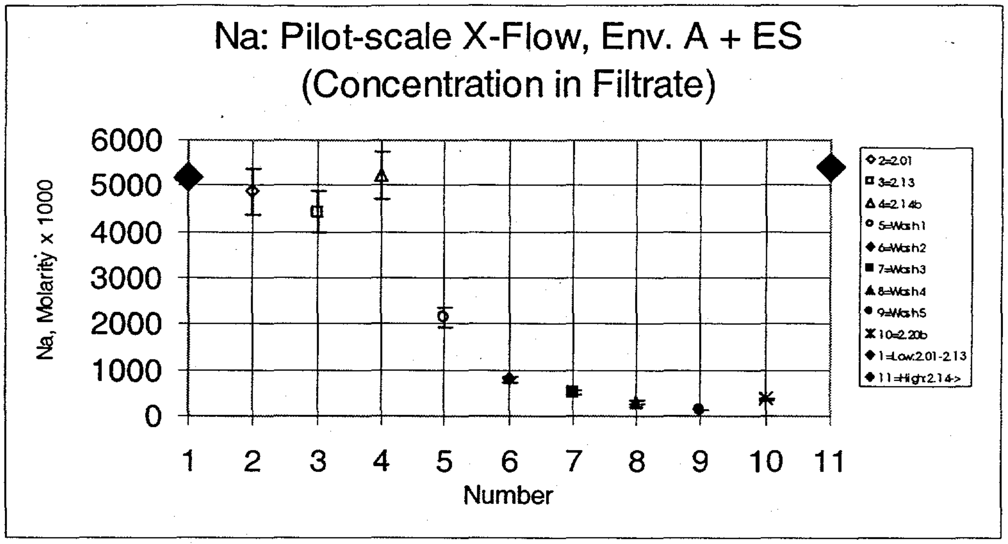
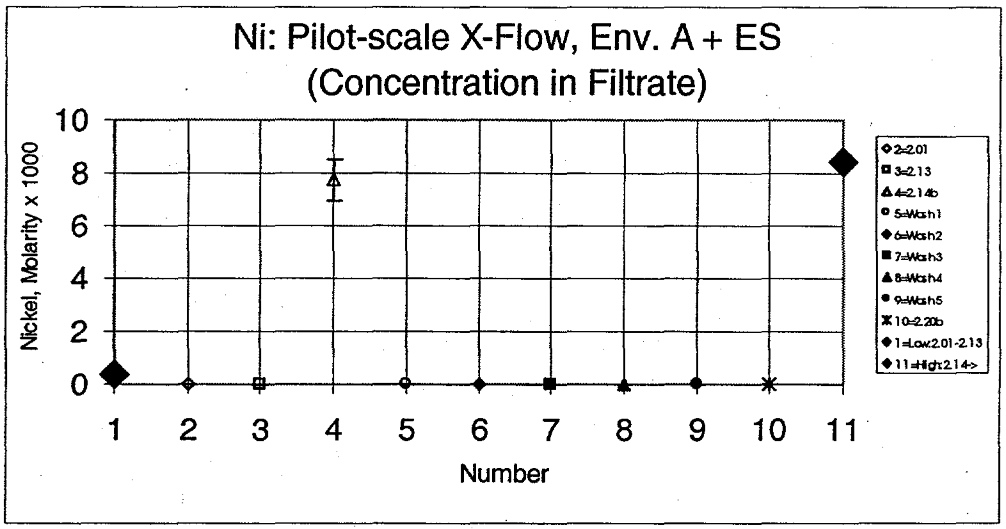


Figure E10, E11, and E12.Potassium, Manganese, and Molybdenum, respectively





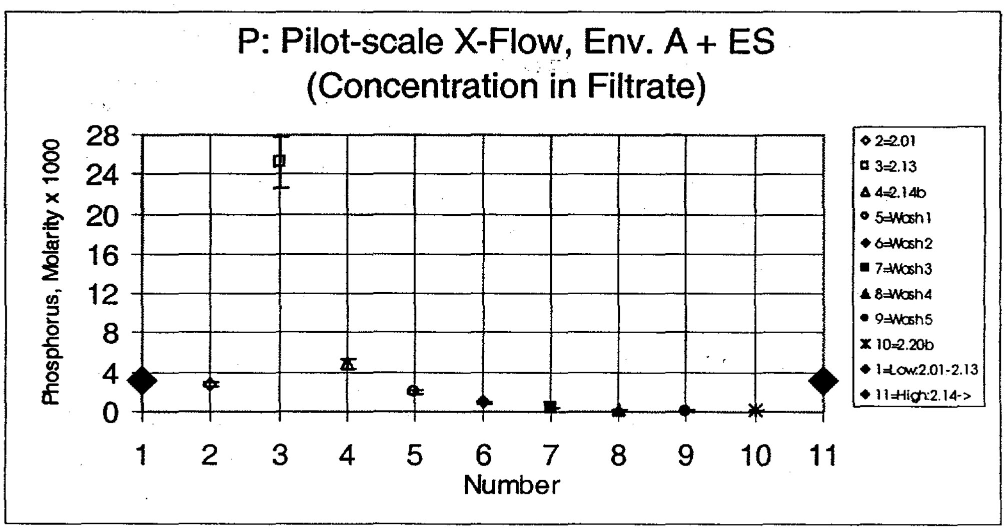
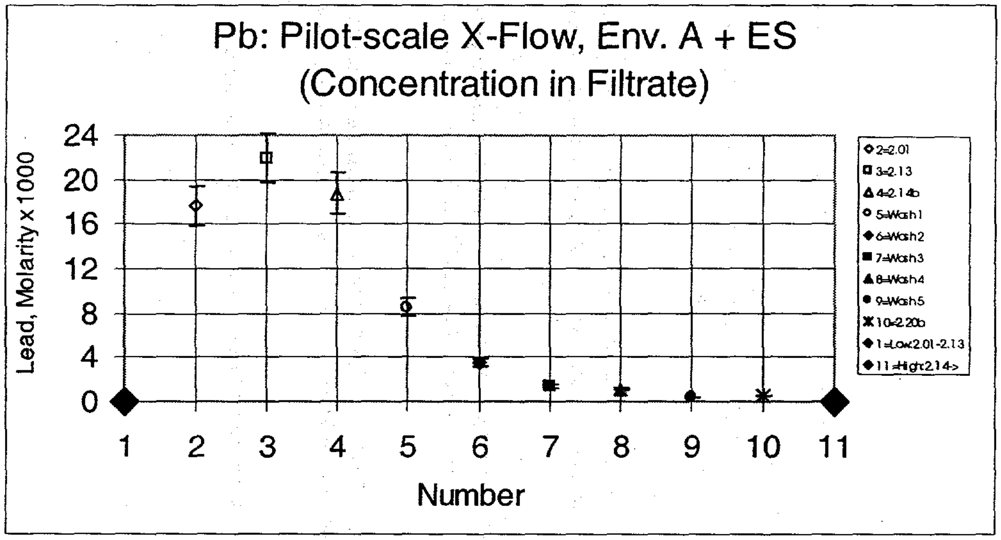


Figure E13, E14, and E15. Sodium, Nickel, and Phosphorous, respectively



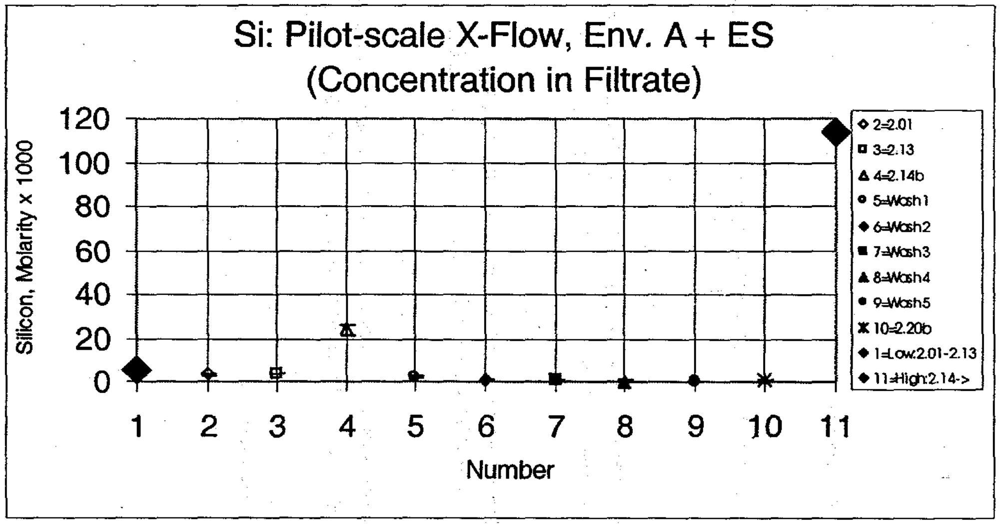
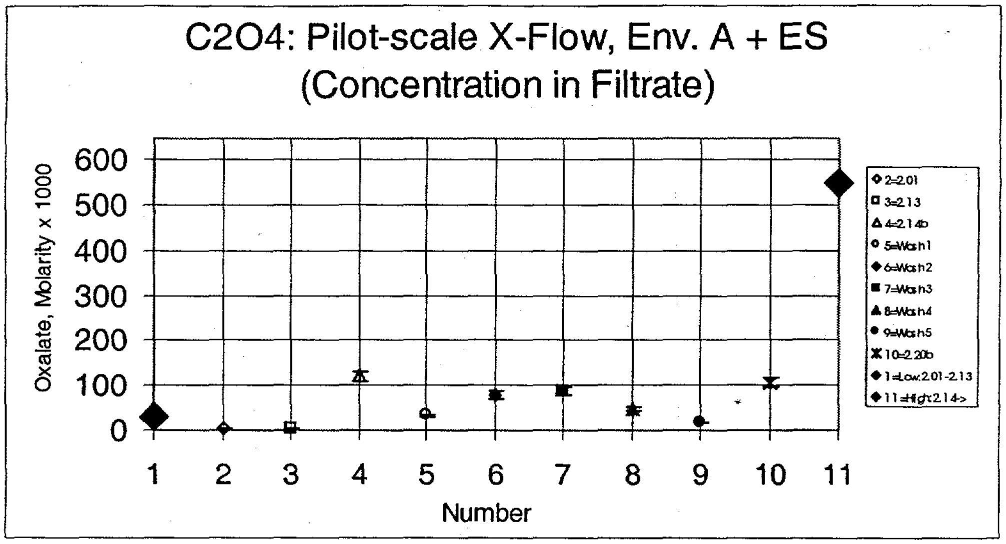
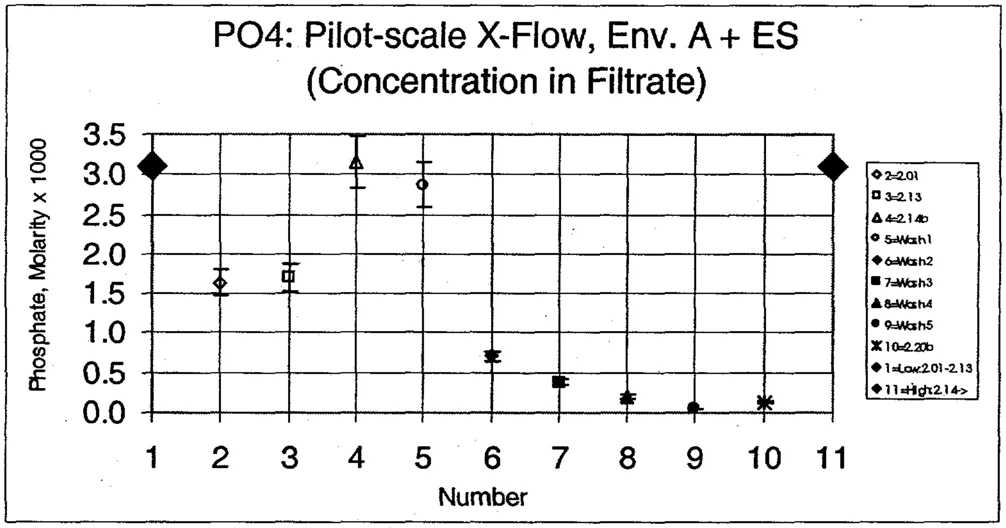


Figure E16 and E17. Lead and Silicon, respectively





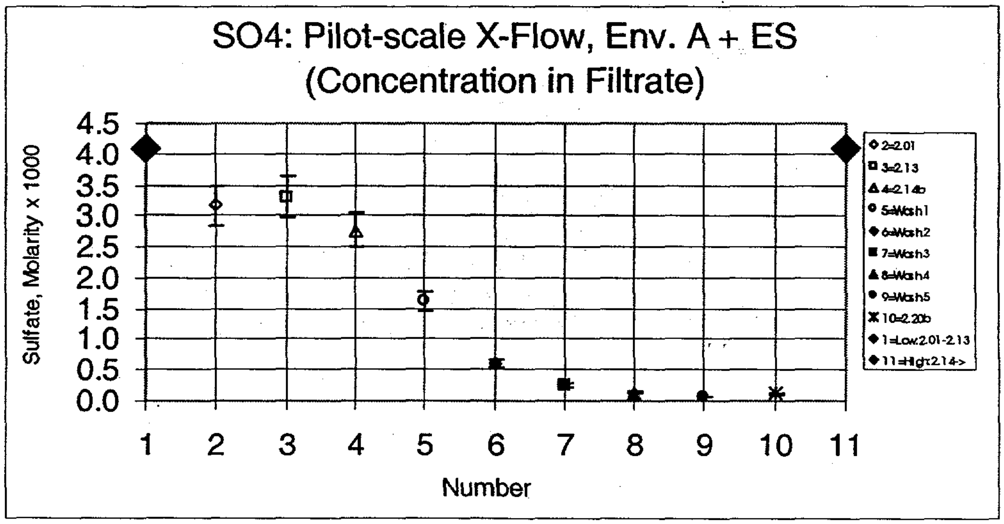


Figure E18, E19, and E20. Oxalate, Phosphate, and Sulfate, respectively

Particle Size Info

Source: "Results of Dilution Studies with Waste from Tank 241-AN-105" by D. L. Herting, HNF-SD-DTR-046, Rev. 0, 10/10/1997.

Undiluted whole tank composite sample of 241-AN-105 had as follows:

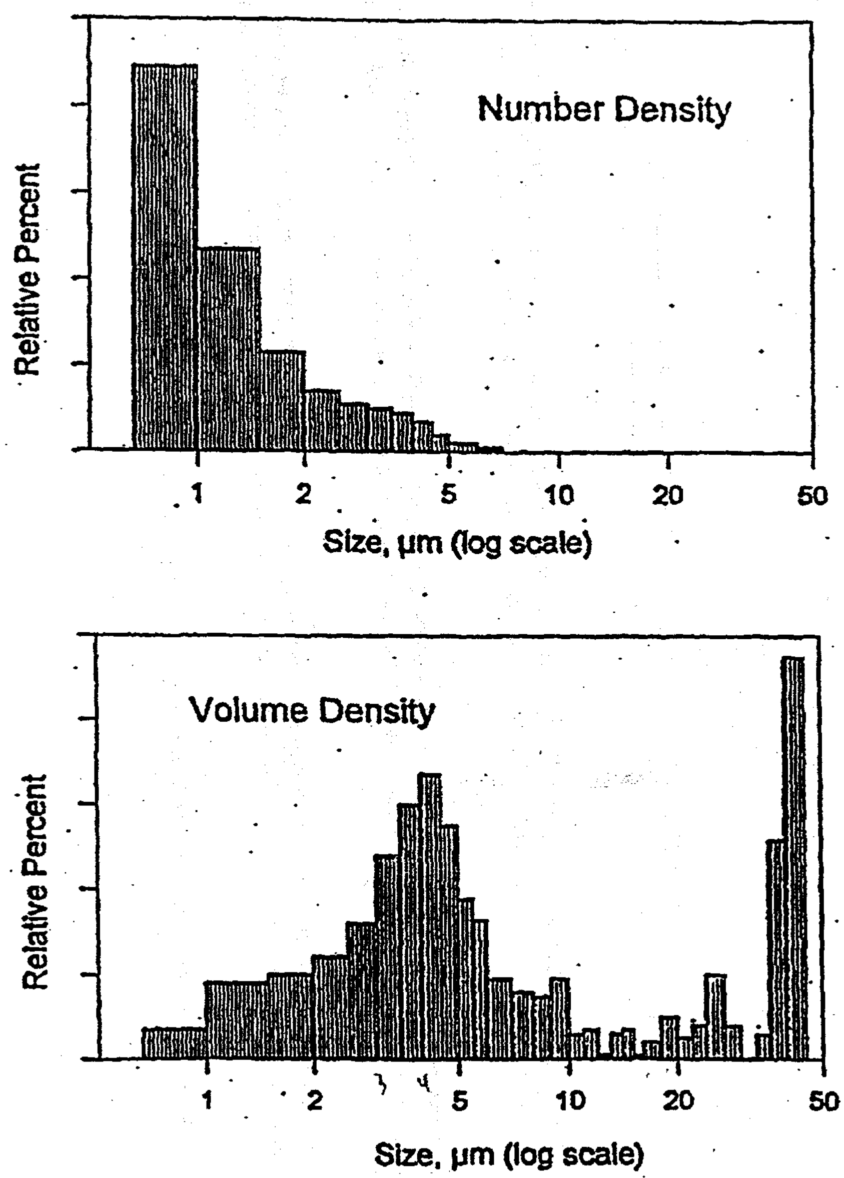


Figure E21. Insoluble Solids Distribution from Actual Tank AN-105 Waste Sample

Particle Size Analysis

3-126787
TFL-A-1

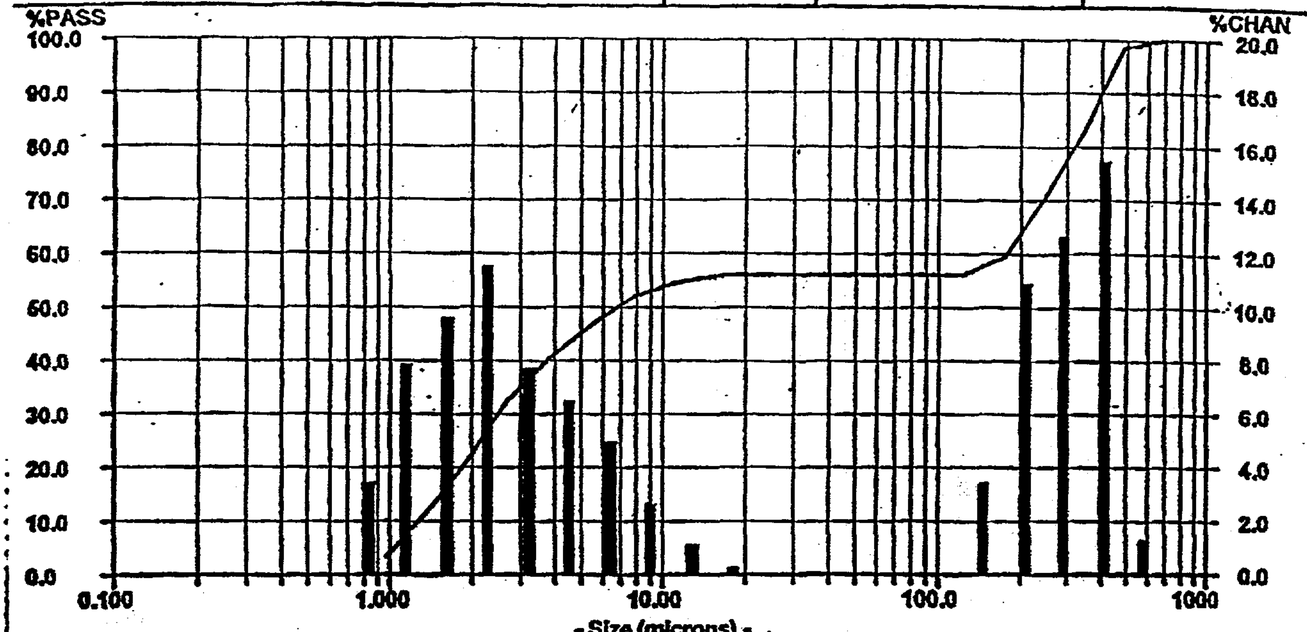
Date: 06/07/99 Meas #: 539
Time: 15:54 Pres #: 1

Ver: 7.01

Smpl Ing

Envelope A + Entrained Solids
Pre-test
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 140.0	10% = 1.303	60% = 179.2	309.4	44%	227.8
mn = 1.216	20% = 1.860	70% = 245.7	2.396	56%	4.321
ma = 3.695	30% = 2.630	80% = 325.5			
cs = 1.624	40% = 3.820	90% = 403.8			
sd = 178.2	60% = 6.684	95% = 449.0			



SIZE	%PASS	%CHAN
704.0	100.00	1.36
497.8	88.64	15.45
352.0	83.19	12.71
248.9	70.48	10.80
176.0	69.68	3.45
124.5	66.13	0.00
88.00	66.13	0.00
62.23	66.13	0.00
44.00	66.13	0.00
31.11	66.13	0.01
22.00	66.12	0.28
15.56	65.84	1.25
11.00	64.59	2.66
7.778	61.93	4.99
5.500	46.94	6.58
3.889	40.36	7.76
2.750	32.60	11.56
1.945	21.04	9.64
1.375	11.40	7.67
0.972	3.63	3.63

SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN

Distribution: Volume
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 30 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0174
Transmission: 0.86
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/A watts
Ultrasonic Time: N/A seconds

Figure E22A.Envelope A+ES Insoluble Solids Volume Distribution: Pre-test Sample
(125 mL sample of simulant was made prior to large batch)

002

MICROTRAC - SRA150 Ver:7.01

Particle Size Analysis

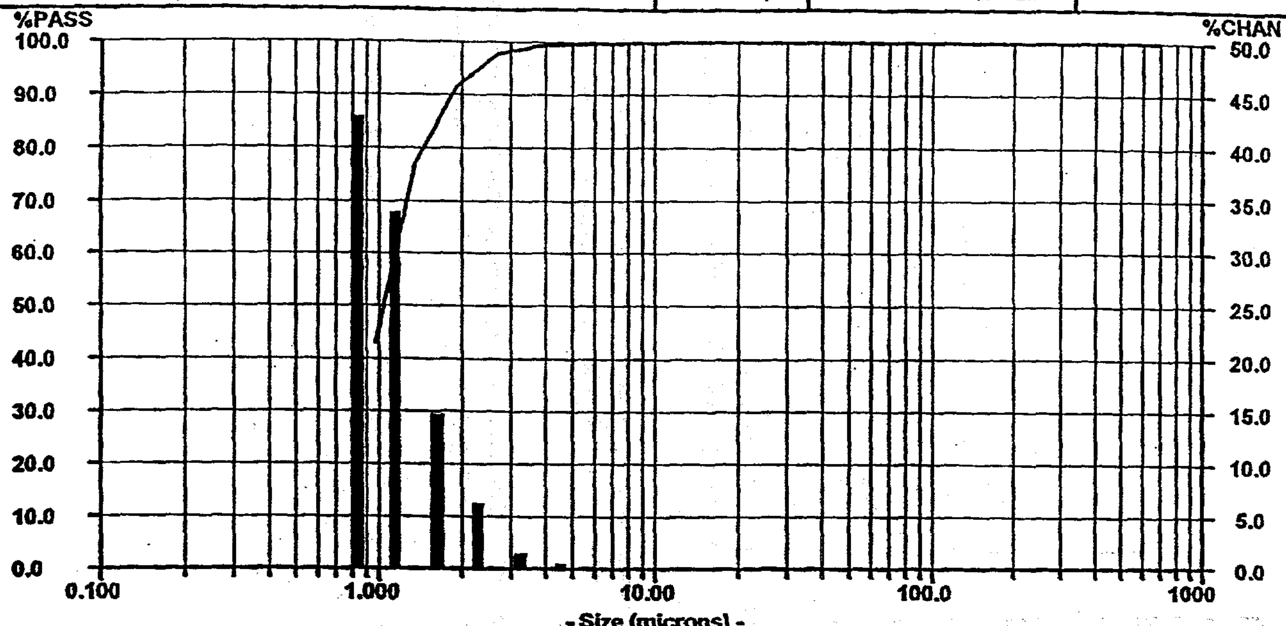
3-126787
TFL-A-1

Date: 05/07/99 Meas #: 639
Time: 15:54 Pres #: 1

Sibling

Envelope A + Entrained Solids
Pre-test
Number Distribution

Summary	Percentiles		Dia	Num%	Width
mv = 140.0	10% = 0.764	60% = 1.130	1.031	100%	0.756
mn = 1.216	20% = 0.826	70% = 1.257			
ma = 3.695	30% = 0.886	80% = 1.444			
cs = 1.624	40% = 0.951	90% = 1.832			
sd = 0.378	50% = 1.031	95% = 2.244			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
352.0	100.00	0.00									
248.9	100.00	0.00									
176.0	100.00	0.00									
124.6	100.00	0.00									
88.00	100.00	0.00									
62.23	100.00	0.00									
44.00	100.00	0.00									
31.11	100.00	0.00									
22.00	100.00	0.00									
15.56	100.00	0.00									
11.00	100.00	0.02									
7.778	99.98	0.12									
5.500	99.86	0.44									
3.889	99.42	1.48									
2.750	97.94	6.24									
1.945	91.70	14.71									
1.375	76.99	33.97									
0.972	43.02	43.02									

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 30 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0174
Transmission: 0.95
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E22B.Envelope A+ES Insoluble Solids Number Distribution: Pre-test Sample
(125 mL sample of simulant was made prior to large batch)

06/10/99 THU 11:06 FAX

Particle Size Analysis

Ver:7.01

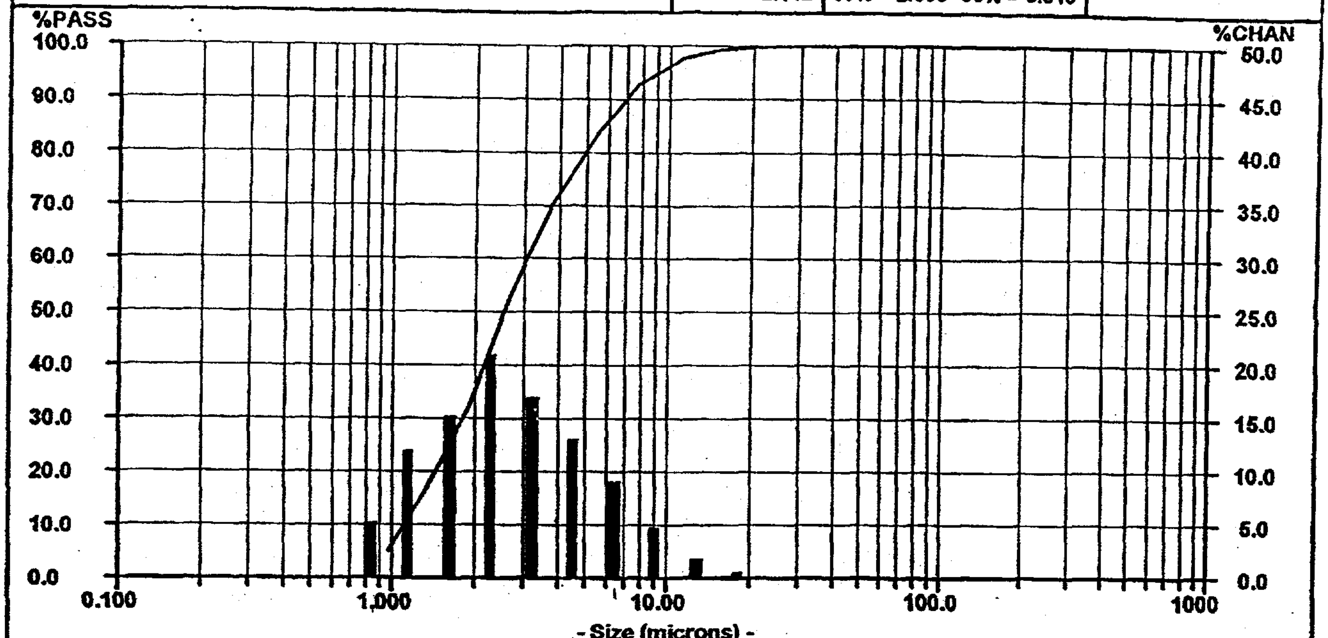
Mark Duignan

3-127890
BNF-SXF2055--A+ES 02

Date: 06/10/99 Meas #: 644
Time: 12:01 Pres #: 1

Envelope A + Entrained Solids
Run 2.01
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 3.452	10% = 1.135	60% = 3.105	2.593	100%	4.224
mn = 1.254	20% = 1.474	70% = 3.843			
ma = 2.210	30% = 1.851	80% = 4.940			
cs = 2.714	40% = 2.208	90% = 6.846			
sd = 2.112	50% = 2.593	95% = 8.810			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
352.0	100.00	0.00									
248.9	100.00	0.00									
176.0	100.00	0.00									
124.5	100.00	0.00									
88.00	100.00	0.00									
62.23	100.00	0.00									
44.00	100.00	0.00									
31.11	100.00	0.03									
22.00	99.97	0.55									
15.56	99.42	1.84									
11.00	97.58	4.71									
7.778	92.87	9.19									
5.500	83.68	13.15									
3.889	70.53	17.00									
2.750	53.53	21.02									
1.945	32.51	15.24									
1.375	17.27	11.99									
0.972	5.28	5.28									

Distribution: Volume
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 30 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0207
Transmission: 0.92
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E23A.Envelope A+ES Insoluble Solids Volume Distribution: Run 2.01
(Low-solids-concentation slurry experienced about 1 hour of circulation)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

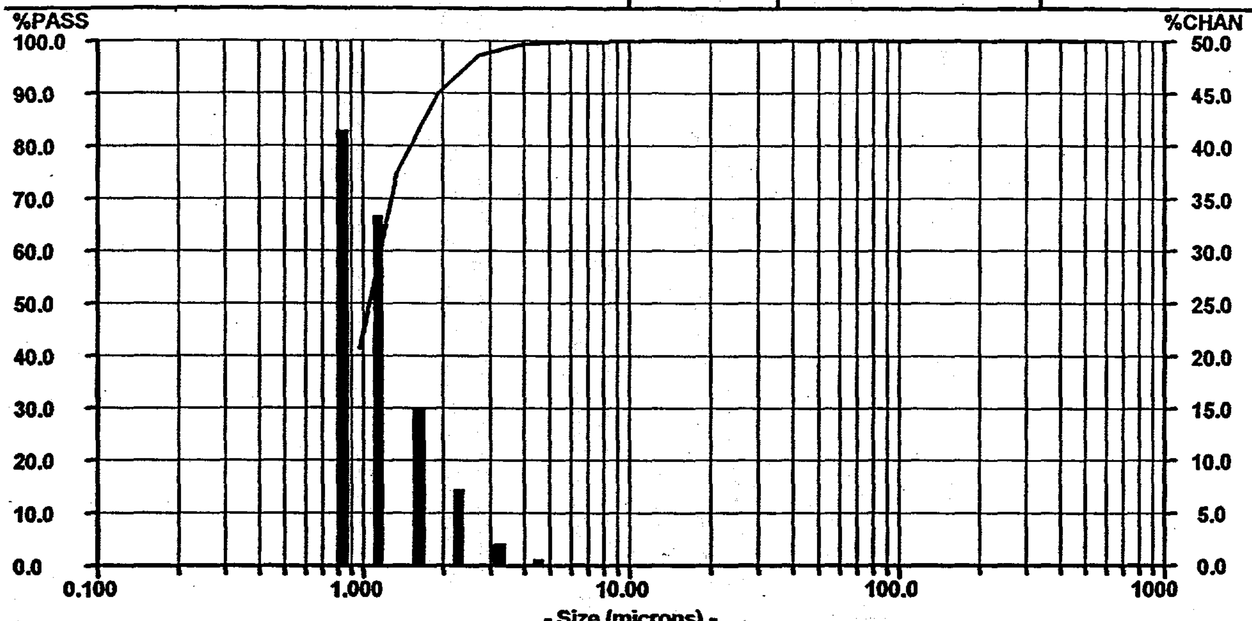
lark Duignan

3-127890
BNF-SXF2055-A+ES_02

Date: 06/10/99 Meas #: 644
Time: 12:01 Pres #: 1

Envelope A + Entrained Solids
Run 2.01
Number Distribution

Summary	Percentiles		Dia	Num%	Width
mv = 3.452	10% = 0.767	60% = 1.152	1.047	100%	0.829
mn = 1.254	20% = 0.831	70% = 1.290			
ma = 2.210	30% = 0.894	80% = 1.500			
cs = 2.714	40% = 0.962	90% = 1.955			
sd = 0.415	50% = 1.047	95% = 2.400			



SIZE	%PASS	%CHAN
704.0	100.00	0.00
497.8	100.00	0.00
352.0	100.00	0.00
248.9	100.00	0.00
176.0	100.00	0.00
124.5	100.00	0.00
88.00	100.00	0.00
62.23	100.00	0.00
44.00	100.00	0.00
31.11	100.00	0.00
22.00	100.00	0.00
15.56	100.00	0.00
11.00	100.00	0.03
7.778	99.97	0.14
5.500	99.83	0.57
3.889	99.26	2.09
2.750	97.17	7.31
1.945	89.86	14.99
1.375	74.87	33.38
0.972	41.49	41.49

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 30 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0207
Transmission: 0.92
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E23B.Envelope A+ES Insoluble Solids Number Distribution: Run 2.01
(Low-solids-concentation slurry experienced about 1 hour of circulation)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

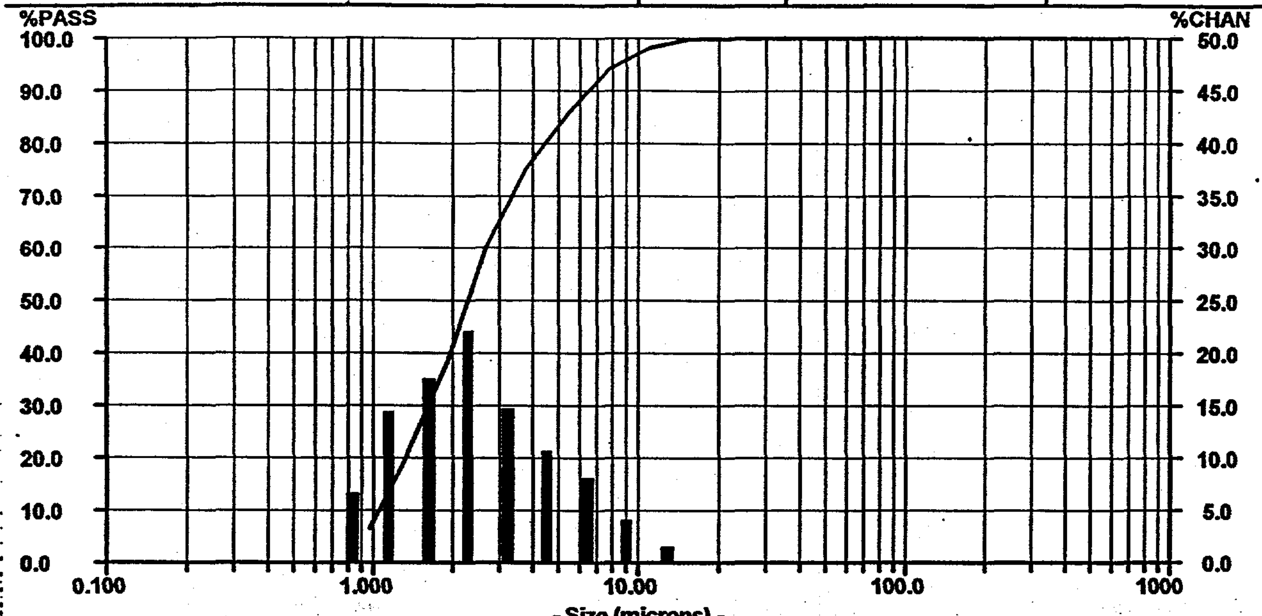
3-128290
BNF-SXF2055-A+ES 02b

Date: 06/10/99 Meas #: 652
Time: 13:45 Pres #: 1

Mark Duignan

Envelope A + Entrained Solids
Run 2.13
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 3.117	10% = 1.072	60% = 2.721	2.321	100%	3.863
mn = 1.213	20% = 1.349	70% = 3.368			
ma = 2.029	30% = 1.663	80% = 4.463			
cs = 2.958	40% = 1.993	90% = 6.381			
sd = 1.932	50% = 2.321	95% = 8.141			



SIZE	%PASS	%CHAN
704.0	100.00	0.00
497.8	100.00	0.00
352.0	100.00	0.00
248.9	100.00	0.00
176.0	100.00	0.00
124.5	100.00	0.00
88.00	100.00	0.00
62.23	100.00	0.00
44.00	100.00	0.00
31.11	100.00	0.00
22.00	100.00	0.09
15.56	99.91	1.59
11.00	98.32	4.06
7.778	94.26	8.15
5.500	86.11	10.72
3.889	75.39	14.76
2.750	60.63	22.15
1.945	38.48	17.56
1.375	20.92	14.33
0.972	6.59	6.59

Distribution: Volume
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 30 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A

Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0139
Transmission: 0.94
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E24A.Envelope A+ES Insoluble Solids Volume Distribution: Run 2.13
(Low-solids-concentation slurry experienced about 24 hours of circulation)

06/10/99 THU 13:00 FAX 003

MICROTRAC - SRA150

Particle Size Analysis

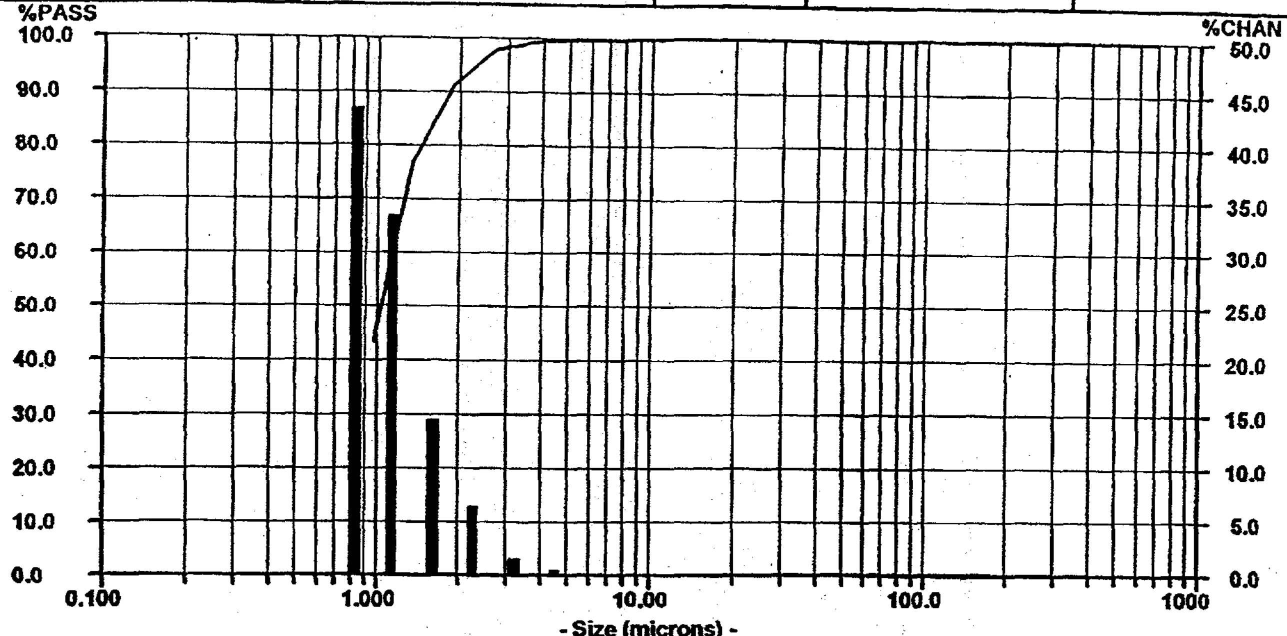
Mark Duignan

Envelope A + Entrained Solids
Run 2.13
Number Distribution

3-128290
BNF-SXF2066-A+ES 02b

Date: 06/10/99 Meas #: 662
Time: 13:46 Pres #: 1
Ver:7.01

Summary	Percentiles		Dia	Num%	Width
mv = 3.117	10% = 0.763	60% = 1.126	1.027	100%	0.762
mn = 1.213	20% = 0.824	70% = 1.255			
ma = 2.029	30% = 0.884	80% = 1.446			
cs = 2.958	40% = 0.948	90% = 1.844			
sd = 0.381	50% = 1.027	95% = 2.258			



SIZE	%PASS	%CHAN
704.0	100.00	0.00
497.8	100.00	0.00
352.0	100.00	0.00
248.9	100.00	0.00
176.0	100.00	0.00
124.5	100.00	0.00
88.00	100.00	0.00
62.23	100.00	0.00
44.00	100.00	0.00
31.11	100.00	0.00
22.00	100.00	0.00
15.56	100.00	0.00
11.00	100.00	0.02
7.778	99.98	0.11
5.500	99.87	0.39
3.889	99.48	1.52
2.750	97.96	6.47
1.945	91.49	14.51
1.375	76.98	33.50
0.972	43.48	43.48

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 30 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0139
Transmission: 0.94
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E24B.Envelope A+ES Insoluble Solids Number Distribution: Run 2.13
(Low-solids-concentation slurry experienced about 24 hours of circulation)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

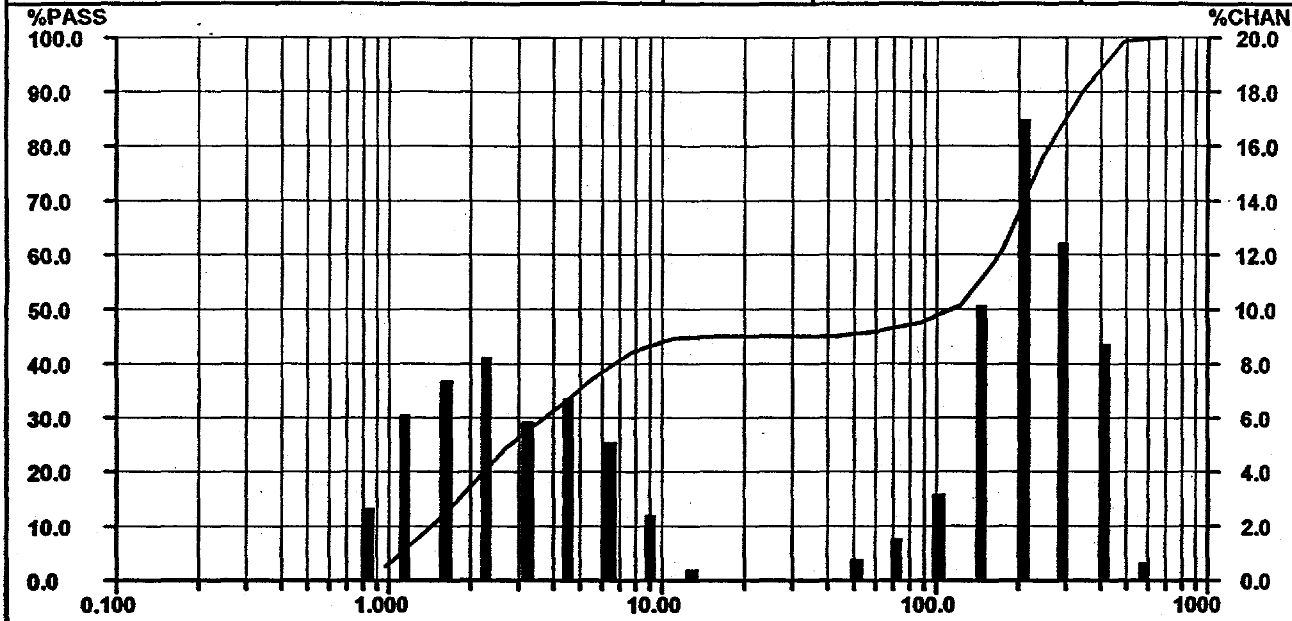
3-129261
bnf-sxf2055-a+es_05

Date: 10/20/99 Meas #: 1188
Time: 14:15 Pres #: 1

Duignan

Envelope A + Entrained Solids
Run 2.14
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 134.7	10% = 1.459	60% = 171.6	222.6	55%	217.3
mn = 1.218	20% = 2.266	70% = 211.8	4.886	21%	4.199
ma = 4.702	30% = 3.817	80% = 260.6	1.630	24%	1.265
cs = 1.276	40% = 6.561	90% = 346.7			
sd = 143.6	50% = 118.0	95% = 407.9			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.68									
497.8	99.32	8.84									
352.0	90.48	12.41									
248.9	78.07	17.07									
176.0	61.00	10.21									
124.5	50.79	3.19									
88.00	47.60	1.59									
62.23	46.01	0.78									
44.00	45.23	0.08									
31.11	45.15	0.00									
22.00	45.15	0.01									
15.56	45.14	0.41									
11.00	44.73	2.51									
7.778	42.22	5.12									
5.500	37.10	6.78									
3.889	30.32	5.84									
2.750	24.48	8.23									
1.945	16.25	7.44									
1.375	8.81	6.10									
0.972	2.71	2.71									

Distribution: Volume
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0192
Transmission: 0.93
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E25A.Envelope A+ES Insoluble Solids Volume Distribution: Run 2.14
(Slurry after new solids were added: Concentration approximately 9 wt%)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

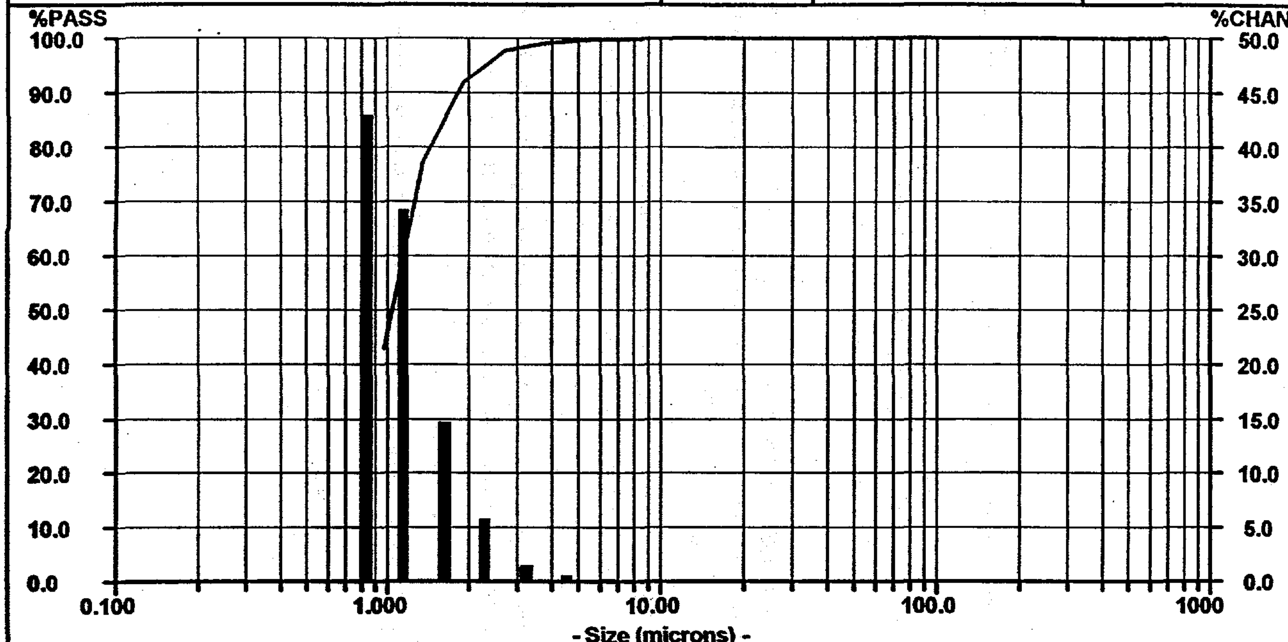
3-129261
bnf-sxf2065-a+es_05

Date: 10/20/99 Meas #: 1188
Time: 14:15 Pres #: 1

Duignan

Envelope A + Entrained Solids
Run 2.14
Number Distribution

Summary	Percentiles		Dia	Num%	Width
mv = 134.7	10% = 0.764	60% = 1.129	1.031	100%	0.746
mn = 1.218	20% = 0.826	70% = 1.266			
ma = 4.702	30% = 0.887	80% = 1.437			
cs = 1.276	40% = 0.952	90% = 1.812			
sd = 0.373	50% = 1.031	95% = 2.230			



SIZE	%PASS	%CHAN
704.0	100.00	0.00
497.8	100.00	0.00
352.0	100.00	0.00
248.9	100.00	0.00
176.0	100.00	0.00
124.5	100.00	0.00
88.00	100.00	0.00
62.23	100.00	0.00
44.00	100.00	0.00
31.11	100.00	0.00
22.00	100.00	0.00
15.56	100.00	0.00
11.00	100.00	0.03
7.778	99.97	0.16
5.500	99.81	0.59
3.889	99.22	1.45
2.750	97.77	5.78
1.945	91.99	14.77
1.375	77.22	34.26
0.972	42.96	42.96

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0192
Transmission: 0.93
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E25B.Envelope A+ES Insoluble Solids Number Distribution: Run 2.14
(Slurry after new solids were added: Concentration approximately 9 wt%)

MICROTRAC - SRA150

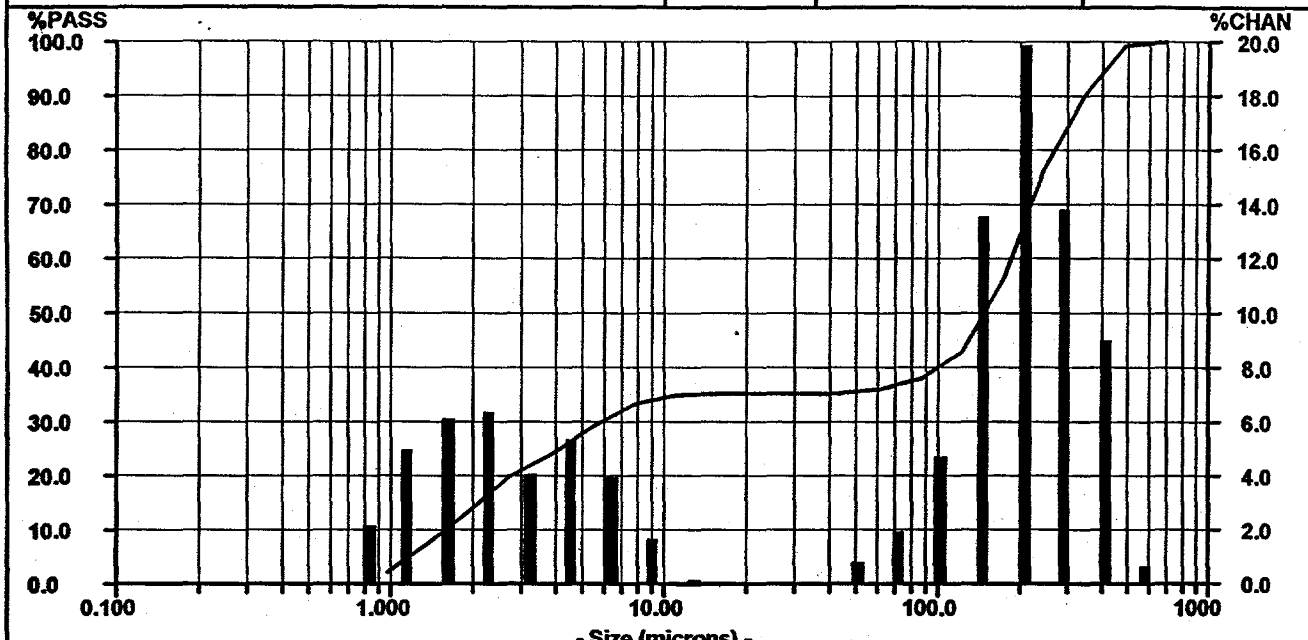
Ver:7.01

Particle Size Analysis	3-129262 bnf-sxf2055-a+es_08	Date: 10/20/99 Meas #: 1196 Time: 14:34 Pres #: 1

Duignan

Envelope A + Entrained Solids
Run 2.16
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 152.3	10% = 1.617	60% = 187.5	213.3	65%	209.4
mn = 1.209	20% = 2.802	70% = 222.1	4.909	15%	4.009
ma = 5.846	30% = 5.818	80% = 268.5	1.612	20%	1.240
cs = 1.026	40% = 105.8	90% = 349.3			
sd = 146.6	50% = 153.2	95% = 408.4			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.67									
497.8	99.33	9.07									
352.0	90.26	13.82									
248.9	76.44	19.95									
176.0	56.49	13.55									
124.5	42.94	4.78									
88.00	38.16	1.99									
62.23	36.17	0.85									
44.00	35.32	0.10									
31.11	35.22	0.00									
22.00	35.22	0.00									
15.56	35.22	0.23									
11.00	34.99	1.77									
7.778	33.22	3.99									
5.500	29.23	5.32									
3.889	23.91	4.16									
2.750	19.75	6.42									
1.945	13.33	6.08									
1.375	7.25	5.03									
0.972	2.22	2.22									

Distribution: Volume	RunTime: 45 seconds	Fluid: N/A	ASVR Flow Rate: 60
Progression: Standard	Run Number Avg of 3 runs	Fluid Refractive Index: N/A	Ultrasonic Power: N/Awatts
Upper Edge: 704.0	Particle: N/A	Loading Factor: 0.0198	Ultrasonic Time: N/A seconds
Lower Edge: 0.688	Particle Transparency: N/A	Transmission: 0.95	
Residuals: Disabled	Particle Refractive Index: N/A	Above Residual: 0.00	
Number Of Channels: 20	Particle Shape: N/A	Below Residual: 0.00	
High Resolution: No			
Filter On: N/A	Database Path: C:\MTWIN\PDPSD.DB		

Figure E26A.Envelope A+ES Insoluble Solids Volume Distribution: Run 2.16
(Slurry after 2nd Wash)

MICROTRAC - SRA150 Ver:7.01

Particle Size Analysis

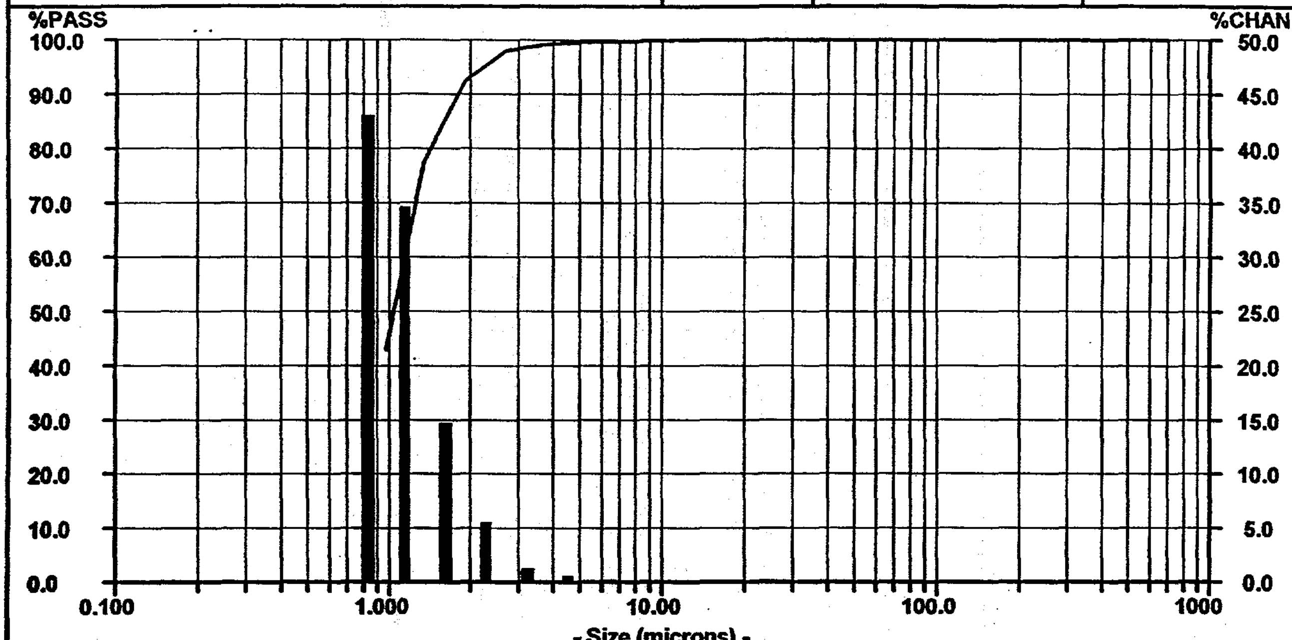
3-129262
bnf-sxf2055-a+es_08

Date: 10/20/99 Meas #: 1196
Time: 14:34 Pres #: 1

Duignan

Envelope A + Entrained Solids
Run 2.16
Number Distribution

Summary	Percentiles		Dia	Num%	Width
mv = 152.3	10% = 0.764	60% = 1.126	1.029	100%	0.731
mn = 1.209	20% = 0.826	70% = 1.249			
ma = 5.846	30% = 0.886	80% = 1.426			
cs = 1.026	40% = 0.951	90% = 1.782			
sd = 0.365	50% = 1.029	95% = 2.183			



SIZE	%PASS	%CHAN
704.0	100.00	0.00
497.8	100.00	0.00
352.0	100.00	0.00
248.9	100.00	0.00
176.0	100.00	0.00
124.5	100.00	0.00
88.00	100.00	0.00
62.23	100.00	0.00
44.00	100.00	0.00
31.11	100.00	0.00
22.00	100.00	0.00
15.56	100.00	0.00
11.00	100.00	0.02
7.778	99.98	0.15
5.500	99.83	0.57
3.889	99.26	1.26
2.750	98.00	5.52
1.945	92.48	14.78
1.375	77.70	34.60
0.972	43.10	43.10

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0198
Transmission: 0.95
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E26B.Envelope A+ES Insoluble Solids Number Distribution: Run 2.16
(Slurry after 2nd Wash)

MICROTRAC - SRA150

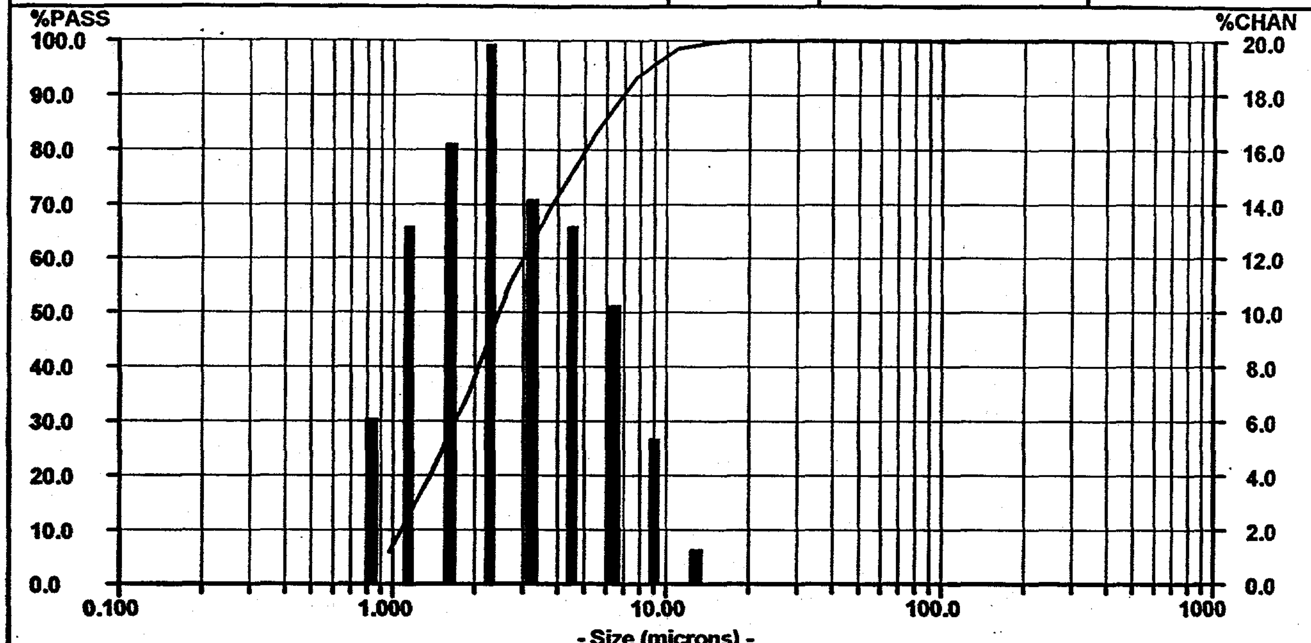
Ver:7.01

Particle Size Analysis	3-129114 BNF-SXF2055-A+ES_05B		Date: 07/13/99 Meas #: 723 Time: 16:32 Pres #: 1

DUIGNAN

Envelope A + Entrained Solids
Run 2.14b
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 3.345	10% = 1.095	60% = 3.043	2.493	100%	4.396
mn = 1.220	20% = 1.398	70% = 3.923			
ma = 2.138	30% = 1.744	80% = 5.072			
cs = 2.806	40% = 2.104	90% = 6.847			
sd = 2.198	50% = 2.493	95% = 8.442			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
352.0	100.00	0.00									
248.9	100.00	0.00									
176.0	100.00	0.00									
124.5	100.00	0.00									
88.00	100.00	0.00									
62.23	100.00	0.00									
44.00	100.00	0.00									
31.11	100.00	0.00									
22.00	100.00	0.04									
15.56	99.96	1.32									
11.00	98.64	5.34									
7.778	93.30	10.35									
5.500	82.95	13.29									
3.889	69.66	14.26									
2.750	55.40	19.88									
1.945	35.52	16.22									
1.375	19.30	13.22									
0.972	6.08	6.08									

Distribution: Volume	RunTime: 45 seconds	Fluid: N/A	ASVR Flow Rate: 60
Progression: Standard	Run Number Avg of 3 runs	Fluid Refractive Index: N/A	Ultrasonic Power: N/Awatts
Upper Edge: 704.0	Particle: N/A	Loading Factor: 0.0223	Ultrasonic Time: N/A seconds
Lower Edge: 0.688	Particle Transparency: N/A	Transmission: 0.90	
Residuals: Disabled	Particle Refractive Index: N/A	Above Residual: 0.00	
Number Of Channels: 20	Particle Shape: N/A	Below Residual: 0.00	
High Resolution: No			
Filter On: N/A	Database Path: C:\MTWIN\PDPSD.DB		

Figure E27A.Envelope A+ES Insoluble Solids Volume Distribution: Run 2.14b
(Run 2.14 was redone after the slurry Na^+ concentration was raised above 5 M)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

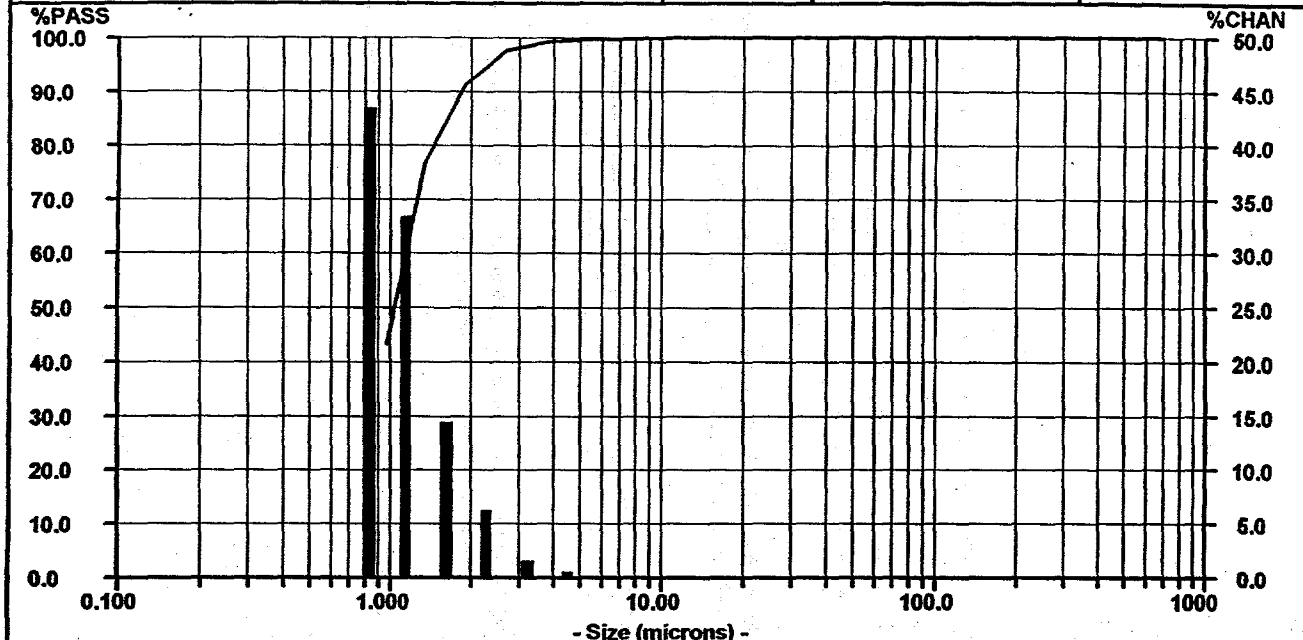
3-129114
BNF-SXF2055-A+ES 05B

Date: 07/13/99 Meas #: 723
Time: 16:32 Pres #: 1

DUIGNAN

Envelope A + Entrained Solids
Run 2.14b
Number Distribution

Summary	Percentiles		Dia	Num%	Width
mv = 3.345	10% = 0.763	60% = 1.127	1.028	100%	0.764
mn = 1.220	20% = 0.825	70% = 1.256			
ma = 2.138	30% = 0.884	80% = 1.447			
cs = 2.806	40% = 0.948	90% = 1.848			
sd = 0.382	50% = 1.028	95% = 2.276			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
352.0	100.00	0.00									
248.9	100.00	0.00									
176.0	100.00	0.00									
124.5	100.00	0.00									
88.00	100.00	0.00									
62.23	100.00	0.00									
44.00	100.00	0.00									
31.11	100.00	0.00									
22.00	100.00	0.00									
15.56	100.00	0.00									
11.00	100.00	0.03									
7.778	99.97	0.14									
5.500	99.83	0.53									
3.889	99.30	1.59									
2.750	97.71	6.29									
1.945	91.42	14.51									
1.375	76.91	33.47									
0.972	43.44	43.44									

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0223
Transmission: 0.90
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: 20 watts
Ultrasonic Time: 1 seconds

Figure E27B.Envelope A+ES Insoluble Solids Number Distribution: Run 2.14b
(Run 2.14 was redone after the slurry Na^{+} concentration was raised above 5 M)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

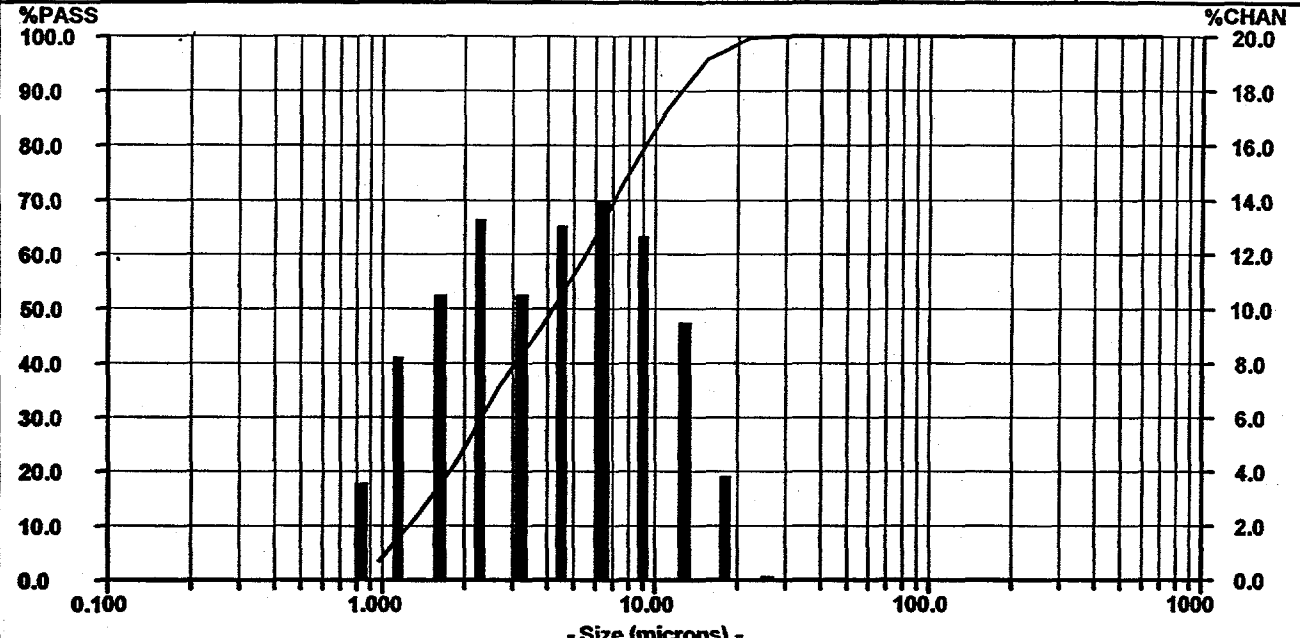
3-129115
BNF-SXF2055-A+ES 08B

Date: 07/13/99 Meas #: 727
Time: 16:42 Pres #: 1

DUIGNAN

Envelope A + Entrained Solids
Run 2.16b
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 5.656	10% = 1.280	60% = 5.556	6.758	64%	8.380
mn = 1.271	20% = 1.806	70% = 7.109	1.699	36%	1.282
ma = 2.913	30% = 2.358	80% = 9.162			
cs = 2.060	40% = 3.135	90% = 12.33			
sd = 4.336	50% = 4.294	95% = 14.91			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
352.0	100.00	0.00									
248.9	100.00	0.00									
176.0	100.00	0.00									
124.5	100.00	0.00									
88.00	100.00	0.00									
62.23	100.00	0.00									
44.00	100.00	0.00									
31.11	100.00	0.20									
22.00	99.80	3.91									
15.56	95.89	9.50									
11.00	86.39	12.78									
7.778	73.61	14.01									
5.500	59.60	13.09									
3.889	46.51	10.63									
2.750	35.88	13.39									
1.945	22.49	10.51									
1.375	11.98	8.33									
0.972	3.65	3.65									

Distribution: Volume
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0331
Transmission: 0.89
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E28A.Envelope A+ES Insoluble Solids Volume Distribution: Run 2.16b
(Slurry after 2nd Wash; 2nd attempt)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

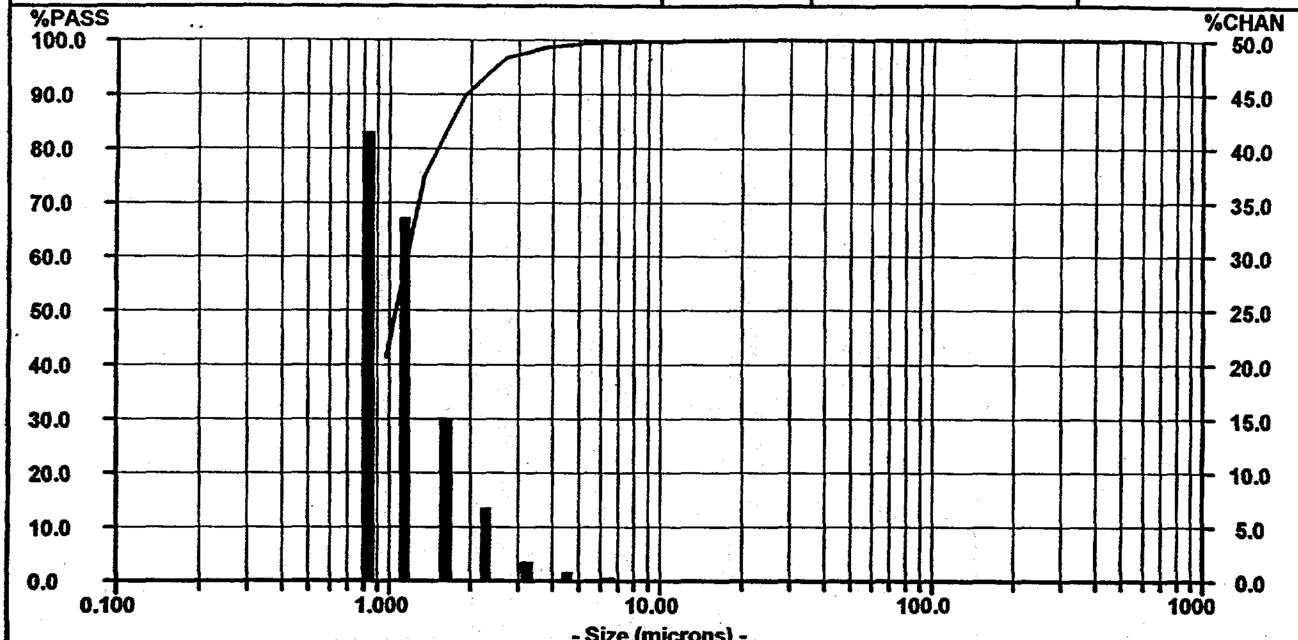
3-129116
BNF-SXF2055-A+ES 08B

Date: 07/13/99 Meas #: 727
Time: 16:42 Pres #: 1

DUIGNAN

Envelope A + Entrained Solids
Run 2.16b
Number Distribution

Summary	Percentiles		Dia	Num%	Width
mv = 5.656	10% = 0.767	60% = 1.150	1.046	100%	0.818
mn = 1.271	20% = 0.831	70% = 1.286			
ma = 2.913	30% = 0.893	80% = 1.492			
cs = 2.060	40% = 0.961	90% = 1.939			
sd = 0.409	50% = 1.046	95% = 2.413			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
352.0	100.00	0.00									
248.9	100.00	0.00									
176.0	100.00	0.00									
124.5	100.00	0.00									
88.00	100.00	0.00									
62.23	100.00	0.00									
44.00	100.00	0.00									
31.11	100.00	0.00									
22.00	100.00	0.00									
15.56	100.00	0.03									
11.00	99.97	0.10									
7.778	99.87	0.31									
5.500	99.56	0.82									
3.889	98.74	1.89									
2.750	96.85	6.75									
1.945	90.10	14.98									
1.375	75.12	33.58									
0.972	41.54	41.54									

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0331
Transmission: 0.89
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: 20 watts
Ultrasonic Time: 1 seconds

Figure E28B.Envelope A+ES Insoluble Solids Number Distribution: Run 2.16b
(Slurry after 2nd Wash; 2nd attempt)

MICROTRAC - SRA150 Ver:7.01

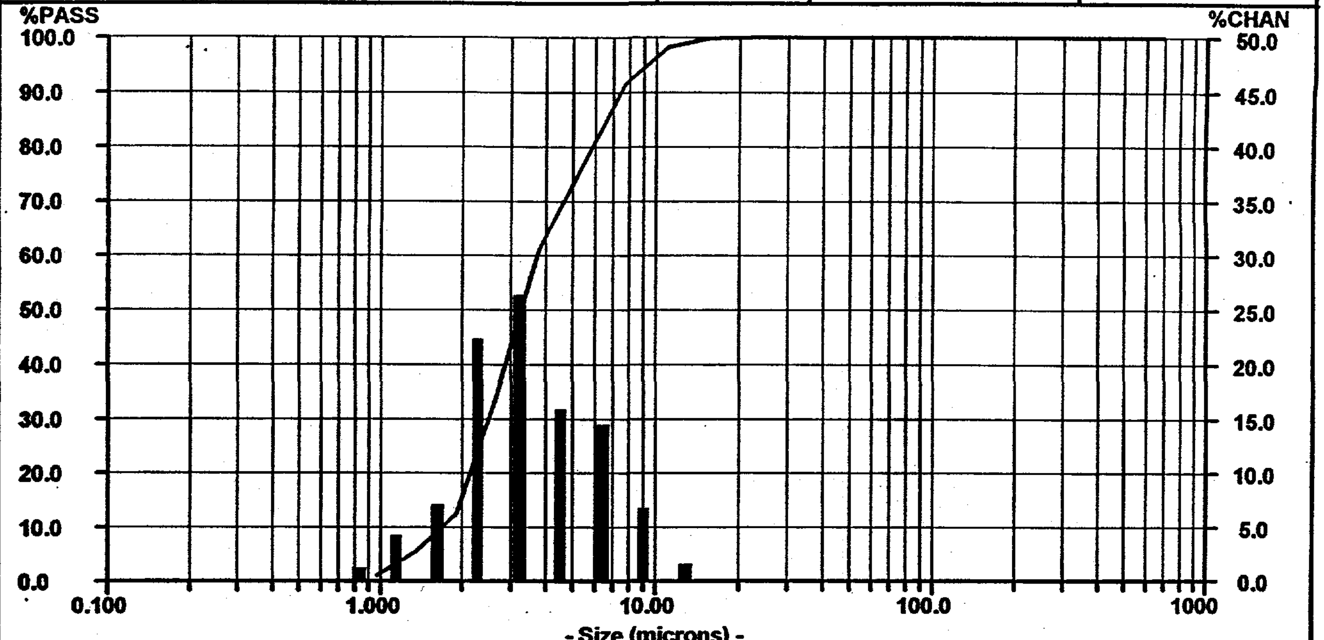
Particle Size Analysis

3-129116 Date: 07/13/99 Meas #: 731
BNF-SXF2055-A+ES 14B Time: 16:49 Pres #: 1

DUIGNAN

Envelope A + Entrained Solids
Run 2.20b
Volume Distribution

Summary	Percentiles		Dia	Vol%	Width
mv = 4.060	10% = 1.793	60% = 3.816	3.325	100%	4.320
mn = 1.674	20% = 2.233	70% = 4.624			
ma = 2.977	30% = 2.579	80% = 5.858			
cs = 2.016	40% = 2.934	90% = 7.421			
sd = 2.160	50% = 3.325	95% = 8.871			



SIZE	%PASS	%CHAN
704.0	100.00	0.00
497.8	100.00	0.00
352.0	100.00	0.00
248.9	100.00	0.00
176.0	100.00	0.00
124.5	100.00	0.00
88.00	100.00	0.00
62.23	100.00	0.00
44.00	100.00	0.00
31.11	100.00	0.00
22.00	100.00	0.08
15.56	99.92	1.59
11.00	98.33	6.71
7.778	91.62	14.45
5.500	77.17	15.87
3.889	61.30	26.39
2.750	34.91	22.34
1.945	12.57	7.10
1.375	5.47	4.27
0.972	1.20	1.20

Distribution: Volume
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0230
Transmission: 0.93
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: N/Awatts
Ultrasonic Time: N/A seconds

Figure E29A.Envelope A+ES Insoluble Solids Volume Distribution: Run 2.20b
(Dewatering after wash test runs: sample was taken before dewatering)

MICROTRAC - SRA150

Ver:7.01

Particle Size Analysis

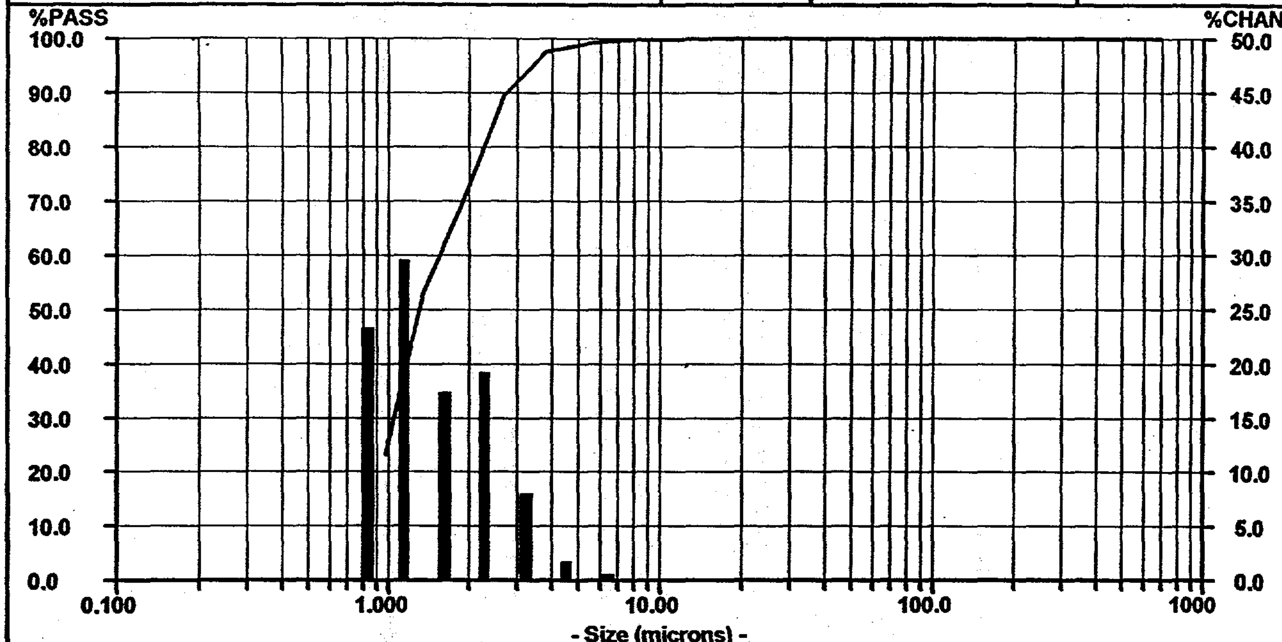
3-129116
BNF-SXF2055-A+ES_14B

Date: 07/13/99 Meas #: 731
Time: 16:49 Pres #: 1

DUIGNAN

Envelope A + Entrained Solids
Run 2.20b
Number Distribution

Summary	Percentiles		Dia	Num%	Width
mv = 4.060	10% = 0.825	60% = 1.561	2.164	47%	1.416
mn = 1.674	20% = 0.935	70% = 1.934	1.016	53%	0.414
ma = 2.977	30% = 1.048	80% = 2.295			
cs = 2.016	40% = 1.171	90% = 2.783			
sd = 0.784	50% = 1.322	95% = 3.303			



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
352.0	100.00	0.00									
248.9	100.00	0.00									
176.0	100.00	0.00									
124.5	100.00	0.00									
88.00	100.00	0.00									
62.23	100.00	0.00									
44.00	100.00	0.00									
31.11	100.00	0.00									
22.00	100.00	0.00									
15.56	100.00	0.01									
11.00	99.99	0.09									
7.778	99.90	0.55									
5.500	99.35	1.71									
3.889	97.64	8.06									
2.750	89.58	19.30									
1.945	70.28	17.35									
1.375	52.93	29.52									
0.972	23.41	23.41									

Distribution: Number
Progression: Standard
Upper Edge: 704.0
Lower Edge: 0.688
Residuals: Disabled
Number Of Channels: 20
High Resolution: No
Filter On: N/A

RunTime: 45 seconds
Run Number Avg of 3 runs
Particle: N/A
Particle Transparency: N/A
Particle Refractive Index: N/A
Particle Shape: N/A
Database Path: C:\MTWIN\PDPSD.DB

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0230
Transmission: 0.93
Above Residual: 0.00
Below Residual: 0.00

ASVR Flow Rate: 60
Ultrasonic Power: 20 watts
Ultrasonic Time: 1 seconds

Figure E29B.Envelope A+ES Insoluble Solids Number Distribution: Run 2.20b
(Dewatering after wash test runs: sample was taken before dewatering)

APPENDIX F

INSTRUMENTATION AND MEASUREMENT UNCERTAINTY

Appendix Contents

1. Experimental measurement uncertainty
2. Figure F1. Instrumentation used with their transfer functions
3. Figure F2. Pressure transducer locations
3. Figures F3 to F16. Calibration sheet for the 14 instruments

Special Note:
As mentioned in Appendix E, there are no measurement uncertainties listed for the analytical data they are beyond the scope and control of this task. There is reason to believe that all analytical data can be at least 15% accurate but no quantitative data are given to this effect.

EXPERIMENTAL MEASUREMENT UNCERTAINTY

As always, any measurement made has an attributed error which must be known before a level of confidence can be attained for the results obtained. This error may come from one or all of the following: the measurement instrument, the way an instrument is set up to make a measurement in relation to the experimental phenomenon to be measured, and the person using the instrument. It is not the purpose of this section to exhaust all possible avenues of measurement uncertainty, but rather to illustrate the level of measurement uncertainty in the results presented in Appendices A, B, C, D. (Outside of density and capillary viscometer measurements taken, the measurement uncertainty of the analytical data in Appendix E is beyond the scope of this task.) In general, the measurement uncertainties present here are for a reading or calculation at any instant. That is, the fluctuations that occur during experimentation are not addressed here. The magnitude of measurement fluctuations with time that occur during an experimental run can be seen at the bottom of each data table from the preceding appendices. Each column of data includes the average value of those data and their standard deviation.

In all the data sheets included in Appendices A, B, C, D there are raw data columns (all columns to the left of the Number column, which is usually column S) and there are calculated data columns to the right of the Number column. The uncertainty of a raw data measurement is the calibrated uncertainty of the individual instrument.

Example to find the measurement uncertainty of a raw data point:

1. Find the data column D in any Appendix A through D.
2. Check the column heading against the Nomenclature, included in the beginning of each Appendix, to find that the data in column D were obtained by Thermocouple T2.
3. Look up Thermocouple T2 on Fig. F1 in this Appendix to see that the average* calibrated uncertainty is 1.2°C (95% confidence level**). If a closer look on how that specific systematic error was obtained is desired, then check the appropriate calibration sheet. Thermocouple T2 is shown as Fig. F4. (The calibration sheets are in order of the fourteen instruments that are listed in Fig. F1, with the first instrument T1 shown in Fig. F3 and the last instrument Q3 shown in Fig. F16.)
   [*A pre- and post-test calibration was done on each instrument. For this example, the measurement uncertainties for T2 were 1.3°C and 1.1°C respectively, see Fig. F1. The true instrument uncertainty was somewhere between the pre- and post-test results. For this task each uncertainty was given equal weight, therefore an "average" of the two numbers was used, i.e., 1.2°C.
   **The confidence level comes from the Student's *t* distribution function used in determining an instrument uncertainty.]
4. The magnitude of the random error can be obtained from the standard deviation shown at the bottom of each column of raw data. The standard deviation from the average value, obtained from a specific instrument for a specific test run, will be a good indication of random error for all but the filtrate flowrates, Q2 and Q3. Temperatures, pressures, and slurry flowrates were maintained constant, therefore the fluctuations around the mean should be normally distributed. The filtrate flowrates decreased with time, due to the nature of the experiment. Therefore, the random error for Q2 and Q3 should only be obtained when the filtrate flowrates reach some

asymptote. (In some rare cases, like on Run 2.20b when the goal was to dewater the slurry until pluggage occurred the temperature could not be held constant, but increased with time. In these cases the standard deviation will not properly represent random fluctuations. To facilitate the evaluation of such occurrences each column of data also has the maximum, minimum, and median values along with the average and standard deviation. Note that the number of points used to determine these values is also given. Extreme points, like when backpulsing occurs were excluded. With the number of data points known the standard error of the mean may be obtained (i.e. standard error = standard deviation / square root (number of points)) [Ref. 16].

Measurement uncertainties for the calculated results can be obtained by the general method of the Law of Propagation of Errors (section 4.7 of Ref. 23). The derivation will not be given here and the following is just one example for one type of relation, albeit a common relation.

For example, a calculated entity has an uncertainty of δa. The entity a is a function of three measured quantities: b, c, and d by the following relationship: a = b x c / d and these quantities have measurement uncertainties of δb, δc, and δd, respectively. The uncertainty can be shown as:

$$(\delta a)^2 = [(\partial a/\partial b)\delta b]^2 + [(\partial a/\partial c)\delta c]^2 + [(\partial a/\partial d)\delta d]^2,$$

if the error terms are independent and symmetrical. The term δa is squared to capture both the negative and positive error terms.

Then for the relation a = bc/d the relative uncertainty can be shown to be:

$$\delta a/a = [(\delta b/b)^2 + (\delta c/c)^2 + (\delta d/d)^2]^{1/2}. \qquad (1)$$

Using the above the relation (1) an uncertainty for velocity, transmembrane pressure, filtrate flux, and permeability are determined. The method of determining the measurement uncertainty of any of the calculated results will the same as the following analyses. However, only one example of each calculated result is shown below. To show an example, any specific calculated quantity is sufficient. An arbitrary choice of a representative group of results is: Run 2.01 at the 120th minute [The data for Run 2.01 can be found in Appendix B in the first table and the 120th minute is row 135.]

The measurement uncertainty for the following values will be shown:

V, ft/s	TMP, psi	Fc (at 25°C), gpm/ft2,	P, gpm/ft2/psi
6.4	31.8	0.085*	0.00267

*actual temperature was 30.6°C but was adjusted to 25°C as per the customer specification, Ref. 3, therefore Fc means the corrected filtrate flux.

The results of the measurement uncertainties found below at the 95% confidence level are:

Slurry Velocity	=	**V**	**± 8.16 %**
Transmembrane Pressure	=	**TMP**	**± 1.07 %**
Temperature Corrected Filtrate Flux	=	**Fc**	**± 6.72 %**
Permeability	=	**P**	**± 6.80 %**

F.1 Velocity [$V = Q1 / A_{cross\text{-}section}$]

This uncertainty is combination of the instrument, Q1, uncertainty and from the lack of knowledge of the exact inside diameters of the filter tubes. The instrument uncertainty is obtained for that instrument's calibrated uncertainty. An accurate measurement of the average inside diameter of the filtrate tubes was impossible since it may vary down the length for each filter tube and may vary from tube to tube. Even measuring the diameter at the filter tube ends is difficult because of the weldments to the tube sheets. What will be used is the manufacturer's tolerances. For a Mott 3/8-inch tube the diameter tolerances are stated by the vendor to be +0.025 inch and -0.005 inch. The diameter of the filter tubes can presumably vary anywhere between those tolerances therefore for this task the diameter uncertainty will be taken as the average tolerance, i.e., ±0.015 inch.

The measurement uncertainty estimate:

Calibrated uncertainty (Figs. F1 and F14): $\delta Q1 = \pm 0.25$ gpm
Slurry flow rate: Q1 = 15.54 gpm [Run 2.01, Row 135, Column P: Appendix B]
Filter tube inside diameter: $\delta d = \pm 0.015$ inch
Filter tube inside diameter: d = 0.375 inch

$V = Q / A = Q1 / (\pi d^2/2)$

In the form of Eq. (1): $\delta V/V = [(\delta Q1/Q1)^2 + 4(\delta d/d)^2]^{1/2}$

[Note the multiplier 4. This results from the derivation $\partial V/\partial d$ because of the exponent]

Therefore, $[(0.25/15.54)^2 + 4(0.015/0.375)^2]^{1/2} \times 100\% = \pm$**8.16 %**

The uncertainty of the example **V** is: **6.4 ±0.6 ft/s**

[since 6.4 x 0.0816 ~ 0.52]

F.2 Transmembrane Pressure [TMP = (dP2 + dP3) / 2]

This uncertainty is will come from two instruments, dP2 and dP3. Also, there is another uncertainty do to location of the pressure taps. As seen in Figs. 1 and F2, dP2 is located at the bottom to the filter housing (upstream to the filter) and dP3 is located at the top of the filter housing (downstream to the filter). Due to the same fluid being in the pressure lines (water) a liquid-filled system will give the corrected pressure drops, however, the slurry pressures lost upstream to the filter and gained downstream of the filter are not symmetrical and therefore do not cancel out. With this said, this addition to the uncertainty is small compared to the assumption that true TMP is represented by the average of two pressures at the ends of a filter. Because the filter is oriented perpendicular to gravity and the flow causes a pressure and concentration gradient along the entire tube wall it is not clear what TMP would be representative of the entire filter unit. On the other hand, the way measurements were taken probably will be similar to the field use of this filter and therefore a good measurement for design purposes. The uncertainty is actually the uncertainty of two measurement devices, and nothing more. Finally, the Law of Propogation of Errors by Eq. (1) does not lend itself to additive contributions to uncertainties. Fortunately, the two quantities are similar in magnitude and calibrated uncertainty. Equation (1) will be used as long as it give an uncertainty larger than the largest calibrated uncertainty for the two pressure transducers.

The measurement uncertainty estimate:

Calibrated uncertainty (Figs. F1 and F12): $\delta dP2 = \pm 0.23$ psi
Pressure drop: dP2 = 33.13 psid [Run 2.01, Row 135, Column J: Appendix B]
Calibrated uncertainty (Figs. F1 and F13): $\delta dP3 = \pm 0.25$ psi
Pressure drop: dP3 = 30.49 psid [Run 2.01, Row 135, Column M: Appendix B]

$TMP = (dP2 + dP3) / 2$

In the form of Eq. (1): $\delta TMP/TMP = [(\delta dP2/dP2)^2 + (\delta dP3/dP3)^2]^{1/2}$

Therefore, $[(0.23/33.13)^2 + (0.25/30.49)^2]^{1/2} \times 100\% = \pm$**1.07 %**

The uncertainty of the example **TMP** is: **31.8 ±0.4 psid**

[since 31.8 x 0.0107 ~ 0.34]

F.3 Filtrate Flux [$F = Q2 / A_{inner\text{-}surface}$]

This uncertainty is combination of the instrument, Q2, uncertainty and from the lack of knowledge of the exact inside diameters and length of the filter tubes. The instrument uncertainty is obtained for that instruments calibrated uncertainty. The uncertainty of the inside diameter of the filter tubes has already been addressed in section F.1 and it was estimated at 0.015 inch. The uncertainty of the length of the filter tubes was estimate from in-house measurements. The requested tube length from the manufacturer was 40 inches. Because of weldments at the ends and the center (the 40-inch length was made of two 20-inch tube sections) the active length seemed closer to 39 7/8 inches. However, since it was difficult to get an exact measurement, not being able to measure inside, the 40-inch length was used to determine the inner surface area and the 1/8-inch difference will be used for the length uncertainty.

The measurement uncertainty estimate:

Calibrated uncertainty (Figs. F1 and F15): $\delta Q2 = \pm 0.009$ gpm
Filtrate flow rate: Q2 = 0.227 gpm [Run 2.01, Row 135, Column Q: Appendix B]
Tube inside diameter uncertainty: $\delta d = \pm 0.015$ inch (from manufacturer)
Tube inside diameter: d = 0.375 inch
Tube length uncertainty: $\delta L = \pm 0.125$ inch
Tube length: L = 40 inches

$F = Q/A = Q2 / \pi d L$

In the form of Eq. (1): $\delta F/F = [(\delta Q2/dQ2)^2 + (\delta d/d)^2 + (\delta L/L)^2]^{1/2}$

Therefore, $[(0.009/0.227)^2 + (0.015/0.375)^2 + (0.125/40)^2]^{1/2} \times 100\% =$ **±5.64 %**

The uncertainty of the example **F** is: **0.085 ±0.005 gpm/ft2**

[since 0.085 x 0.0564 ~ 0.0048]

F.3.1 Effect of Temperature on the Measurement Uncertainty on F

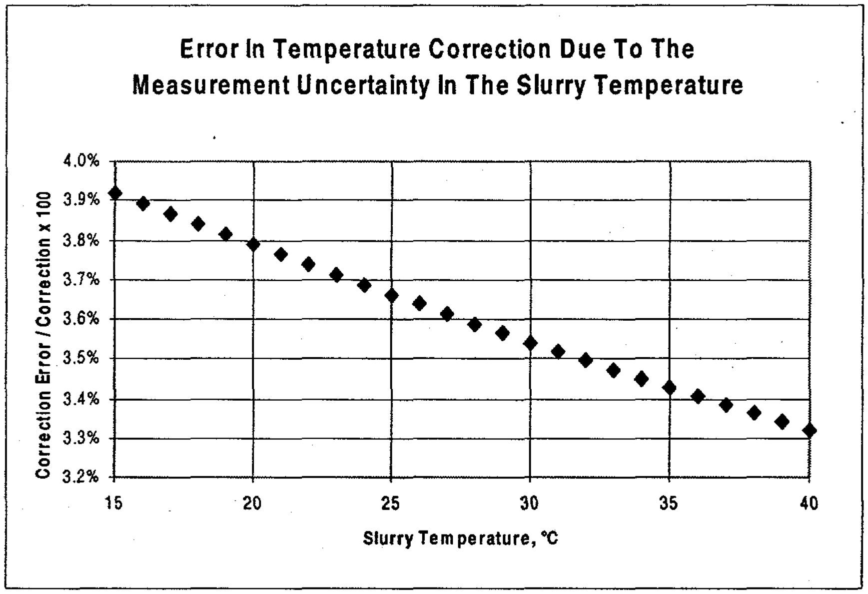
As per the customer specification the filtrate flux was to adjusted such that it would give a result at 25°C. The equation as was stated is:

$$F = Q2(\text{Temperature}) / \text{Area} = Q2 \times \text{Correction Factor} / \text{Area}$$

$$CF = e^{[2500((1/273+\text{Slurry Temperature}))-(1/298))]}$$

Only the correction factor's effect on measurement uncertainty is dealt with here. The equation is accepted as error free, i.e., method, constants, etc. Only the uncertainty of the temperature measurement which leads to the correction will be addressed.

Generally, the adjustment to **F** is small because, whenever possible, the slurry's operational temperature was maintained at 25°C which would result in a zero adjustment. However, the example chosen to show measurement uncertainty had a temperature difference of 5.6°C. That is, for Run 2.01 at the 120th minute the slurry temperature was 30.6°C [Initial test runs were only cooled with water cooling coils which were not sufficient. The temperature was better maintained after the coolant was changed to ethylene glycol.]. Unfortunately, the fact that a temperature correction is applied means the temperature uncertainty will effect the calculated result at any temperature. That is, even if the slurry temperature were 25°C, which would make the correction = 1.0, the uncertainty of that temperature and thereby the correction, leads to an inherent uncertainty of value that is being corrected, i.e, **F**. For this task the slurry temperature was measured with thermocouple T1, which had a calibrated measurement uncertainty of ±1.3°C [see Fig. F1]. If at 25°C the temperature has an uncertainty of ±1.3°C, then the correction can be either 0.9642 to 1.0374, or approximately ±3.66% [i.e., ((1-.9642)+(1.0374-1))/2 / 1.00 = 0.0366]. To show the measurement uncertainty mathematically from the correction equation is beyond the scope of this task, however it can be shown graphically. For a range of slurry temperatures from 15°C to 40°C, then the correction can be shown to change from 1.34 to 0.67, respectively. However, with a measurement uncertainty of ±1.3°C this factor can be in error from approximately 3.9% to 3.3%, respectively, see the Figure below:



Therefore, for the sake of this example the relative uncertainty of the correction factor do to the temperature will be assumed to be 3.7% since most of the data were obtained at 25°C. Using this constant value is not a bad assumption because between 20°C and 30°C this uncertainty only fluctuates by approximately 0.1%.

This increased uncertainty to the filtrate flux is then a combination of two uncertainties already calculated above for F and the correction factor. The analyses still follows Eq. (1) therefore:

The measurement uncertainty estimate:

Filtrate flux relative uncertainty: $\delta F/F = \pm 5.64\%$ [section F.3]
Correction factor relative uncertainty: $\delta CF/CF = \pm 3.66\%$ [section F.2]

Fcorrected = F x CF

In the form of Eq. (1): $\delta Fc/Fc = [(\delta F/F)^2 + (\delta CF/CF)^2]^{1/2}$

Therefore, $[(5.64)^2 + (3.66)^2]^{1/2}$ = **±6.72 %**

The uncertainty of the example Fc is: **0.085 ±0.006 gpm/ft2**

[since 0.085 x 0.0672 ~ 0.0057]

F.4 Permeability [P = F / TMP]

This uncertainty is combination of two uncertainties already calculated above, in section F.2 and F.3. The analyses still follows Eq. (1) therefore:

The measurement uncertainty estimate:

Filtrate flux relative uncertainty: $\delta Fc/Fc = \pm 6.72\%$ [section F.3]
TMP relative uncertainty: $\delta TMP/TMP = \pm 1.07\%$ [section F.2]

$P = Fc / TMP$

In the form of Eq. (1): $\delta P/P = [(\delta Fc/Fc)^2 + (\delta TMP/TMP)^2]^{1/2}$

Therefore, $[(6.72)^2 + (1.07)^2]^{1/2}$ = **±6.80 %**

The uncertainty of the example **F** is: **0.00267 ±0.00018 gpm/ft2/psi**

[since 0.00267 x 0.0680 ~ 0.000182]

F.5 Second-Order Effects to Measurement Uncertainty

There were other effects on the measurement uncertainty which are not included because they are thought to be of second order. For example, since the test rig was very tall, approximately 30 feet, it was subjected an ambient temperature gradient. Ambient temperatures at the bottom of the rig were usually less than at the top. For the example used in this section, [Run 2.01, Row 135, Columns G and H: Appendix B], the temperatures were 26.1°C and 27.3°C, respectively. This gradient varied hourly and daily for several reasons and it larger or smaller. Most importantly, the 1.2°C temperature variation shown in this example is on the same order of magnitude as the calibrated uncertainties for the thermocouples. Further, the slurry in the loop generally flowed fast, so the residence time in any one section of the rig was small. For Run 2.01 the flow rate was, Q1 = 15.5 gpm. The loop volume was approximately 5 gallons so a fluid particle traversed the loop every 5/15.5 x 60 ~ 19 seconds. [Note that the slurry flow rate for Run 2.01 was one of the slowest.] In this example, the slurry temperature was measured to be 30.6°C, from one thermocouple located in the suction line of the pumps. While it is certain that the ambient temperatures had an effect on the slurry temperature it was small and at steady state the effect is incorporated in the slurry temperature. The same is true for the ambient temperature gradient but to a lesser extent and therefore not considered.

INSTRUMENTS USED ON THE BNFL PILOT-SCALE CROSS-FLOW FILTRATION TEST (PRINTED: March 9, 2000)

Test Rig No.	Instrument	M&TE #	Make	Model	Calibrated Range	Uncertainty (pre-test)	Uncertainty (post-test*)	Uncertainty Average**	Curve Fit
T1	Thermocouple	TR-02925	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1.2C	1.4C	1.3C	= 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x m
T2	Thermocouple	TR-02926	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1.3C	1.1C	1.2C	= 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x m
T3	Thermocouple	TR-02929	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1.5C	1.2C	1.3C	= 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x m
T4	Thermocouple	TR-02930	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1.2C	1.4C	1.3C	= 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x m
T5	Thermocouple	TR-02927	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1.0C	1.4C	1.2C	= 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x m
P1	Pres. Transducer	TR-02917	Rosemount	1151GPE2AT0086B2L4	0 to 100 PSIG	0.13 PSIG	0.21 PSIG	0.17 PSIG	P(PSIG) = 6.211 x mA - 24.895
P2	Pres. Transducer	TR-03109	Rosemount	1151DP6E22	-10 to 90 PSIG	0.09 PSIG	0.17 PSIG	0.13 PSIG	P(PSIG) = 6.293 x mA - 35.524
P3	Pres. Transducer	TR-02145	Rosemount	1144G-0200A22	0 to 150 PSIG	0.38 PSIG	0.41 PSIG	0.40 PSIG	P(PSIG) = 9.422 x mA - 37.712
dP1	Pres. Transducer	TR-03495	Rosemount	1151DP5E22	0 to 26 PSID	0.02 PSID	0.088 PSID	0.056 PSID	P(PSID) = 1.6249 x mA - 6.4930
dP2	Pres. Transducer	TR-00532	Rosemount	1151AP6E22M3B1P1	0 to 250 PSIG	0.42 PSID	NA	0.42 PSID	P(PSID) = 15.648 x mA - 62.400
dP2 (after 3/25/99)	Pres. Transducer	TR-00532	Rosemount	1151AP6E22M3B1P1	0 to 100 PSIG	0.13 PSID	0.33 PSID	0.23 PSID	P(PSID) = 6.314 x mA - 25.227
dP3	Pres. Transducer	TR-03115	Rosemount	1151DP7E22M3B1	-10 to 100 PSIG	0.19 PSID	0.30 PSID	0.25 PSID	P(PSID) = 6.898 x mA - 37.854
Q1	Mag. Flowmeter	TR-20350	Fischer-Porter	10D1475DK11PL29KD11CAC	0 TO 50 GPM	0.19 GPM	0.33 GPM	0.26 GPM	Q(GPM) = 3.137 x mA - 12.509
Q2	Mag. Flowmeter	TR-20353	Fischer-Porter	10D1475EN01PF29KW12CAC2	0 to 1.2 GPM	0.005 GPM	0.019 GPM	0.012 GPM	Q(GPM) = 0.075 x mA - 0.299
Q3	Mag. Flowmeter	TR-03562	Fischer-Porter	10D1475CNB11B6L1	0 to 5 GPM	0.02 GPM	0.01 GPM	0.015 GPM	Q(GPM) = 0.311 x mA - 1.237

DAS Channel	Instrument		DAS Calibration	Notes	Transfer Functions Used with the DAS Conversion from mA to Volts
6	P1		Chan06 = 0.4975mA - 5E-15	*post-test uncertainty includes, and	P(PSIG) = 12.4844 x V - 24.895
7	P2		Chan07 = 0.4988mA + 0.003	is depended upon, the pre-test	P(PSIG) = 12.616 x V - 35.561
8	P3		Chan08 = 0.498mA + 0.002	uncertainty analyses.	P(PSIG) = 18.960 x V - 37.750
9	dP1		Chan 09 = 0.4988mA + 0.003	**The true instrument measurement	P(PSID) = 3.267 x V - 6.503
10	dP2		Chan10 = 0.4975mA + 0.002	uncertainty on any data point taken	P(PSID) = 31.453 x V - 62.463
10	dP2(valid after 3/25;recalibrated on 3/24/99)		Chan10 = 0.4975mA + 0.002	during this experiment is between	P(PSID) = 12.691 x V - 25.231
11	dP3		Chan11 = 0.4983mA + 0.005	the pre- and post-calibration	P(PSID) = 13.843 x V - 37.923
12	Q1		Chan12 = 0.4988mA + 0.007	uncertainty. Therefore, the overall	Q(GPM) = 6.289 x V - 12.553
13	Q2		Chan13 = 0.4975mA + 0.01	uncertainty was taked as the average	Q(GPM) = 0.1508 x V - 0.2905
14	Q3	Added on 7/14/1999	Chan14 = 0.4988mA + 0.003	value between the pre and post results	Q(GPM) = 0.6235 x V - 1.2553

Current mA	Channel 6 V, meas.	Channel 6 V, calc.	Channel 7 V, meas.	Channel 7 V, calc.	Channel 8 V, meas.	Channel 8 V, calc.	Channel 9 V, meas.	Channel 9 V, calc.	Channel 10 V, meas.	Channel 10 V, calc.
4	1.99	1.99	2	2.00	1.99	1.99	2	2.00	1.99	1.99
8	3.98	3.98	3.99	3.99	3.99	3.99	3.99	3.99	3.98	3.98
12	5.97	5.97	5.99	5.99	5.98	5.98	5.99	5.99	5.98	5.97
16	7.96	7.96	7.98	7.98	7.97	7.97	7.98	7.98	7.96	7.96
20	9.95	9.95	9.98	9.98	9.96	9.96	9.98	9.98	9.95	9.95

Current mA	Channel 11 V, meas.	Channel 11 V, calc.	Channel 12 V, meas.	Channel 12 V, calc.	Channel 13 V, meas.	Channel 13 V, calc.	Channel 14 V, meas.	Channel 14 V, calc.
4	2	2.00	2	2.00	2	2.00	2	2.00
8	3.99	3.99	4	4.00	3.99	3.99	3.99	3.99
12	5.98	5.98	5.99	5.99	5.98	5.98	5.99	5.99
16	7.98	7.98	7.99	7.99	7.97	7.97	7.98	7.98
20	9.97	9.97	9.98	9.98	9.96	9.96	9.98	9.98

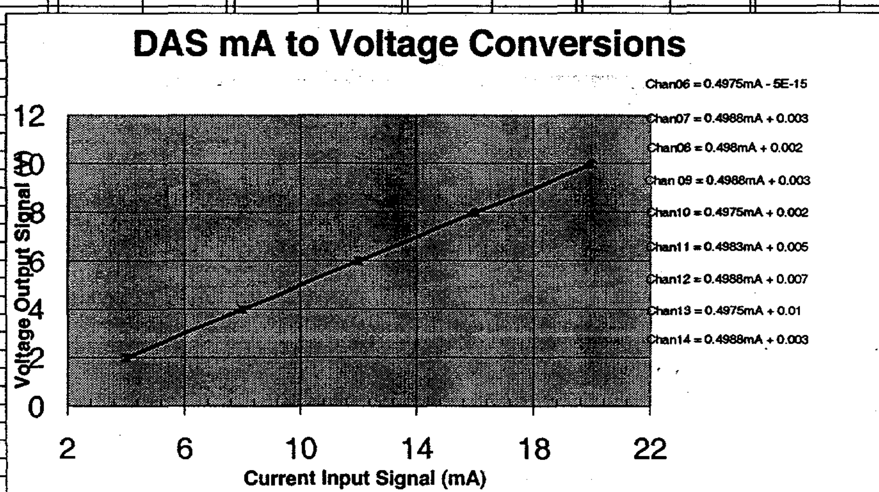


Figure F1. Instrumentation Used with their Transfer Functions

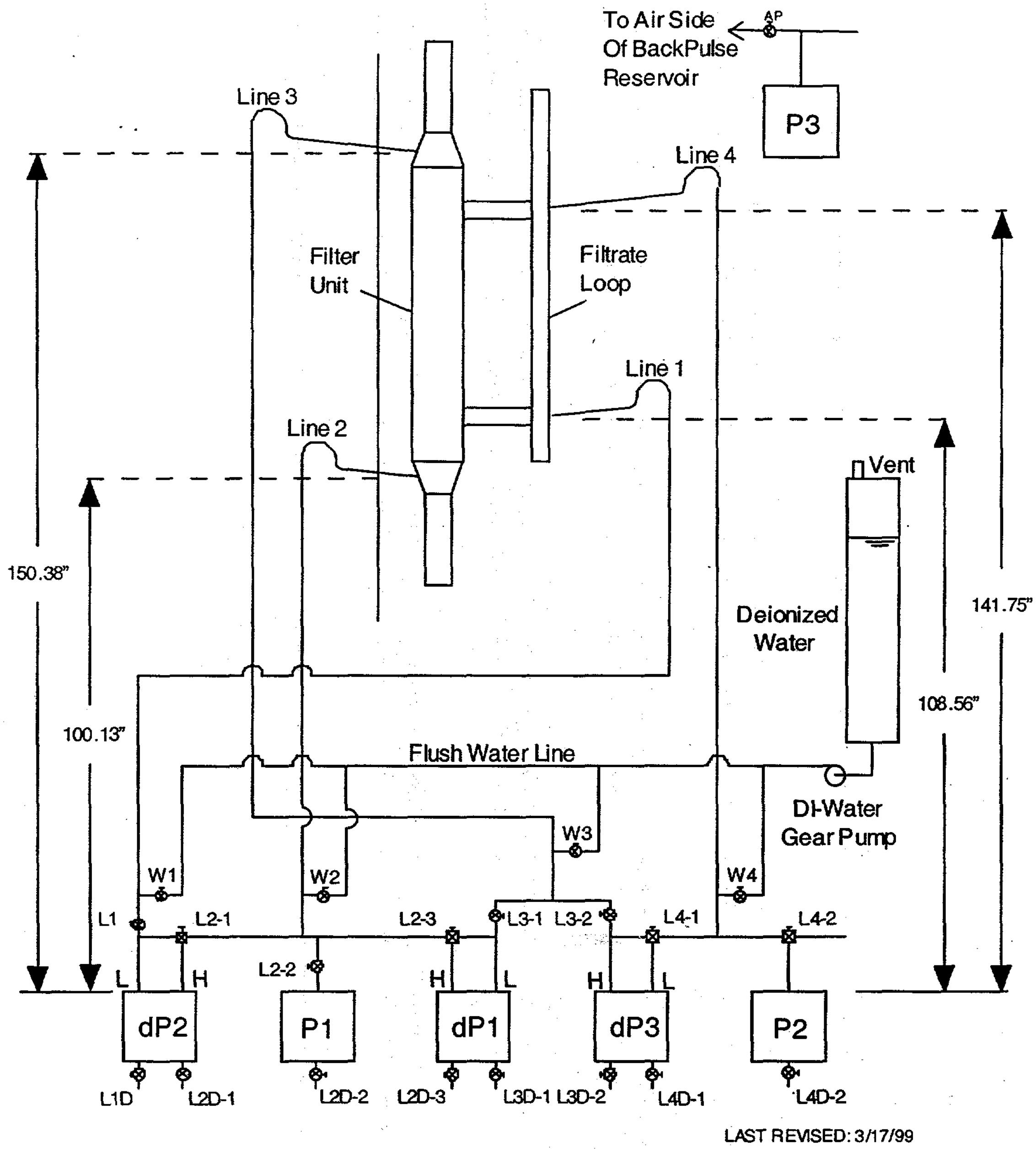


Figure F2. Pressure Transducer Locations

UNCERTAINTY ANALYSIS **TR-2925** page ____ of ____
REF. WSRC-TR-91-106 calibration date__________

Calibration Data

Temperature Medium	Standard Temperature (C)	Voltage Output (mV)	Calculated Temperature (eq. 1) (C)	Error (C)
Boiling Water	100.70	6.338	100.28	-0.4
Boiling Water	100.70	6.357	100.56	-0.1
Boiling Water	100.70	6.345	100.39	-0.3
Boiling Water	100.70	6.340	100.31	-0.4
Ice Point	0.00	-0.023	-0.39	-0.4
Ice Point	0.00	-0.017	-0.28	-0.3
Ice Point	0.00	-0.009	-0.15	-0.1
Ice Point	0.00	-0.018	-0.30	-0.3
Room Temp	23.80	1.404	23.50	-0.3
Room Temp	23.80	1.428	23.90	0.1
Room Temp	23.90	1.495	25.00	1.1
Room Temp	23.90	1.466	24.52	0.6

T (C) =0.00483 + 17.040918*mV - 0.224284*mV^2 + 0.005038*mV^3 (eq. 1)
(Limited Curve Fit, 0-100 C. From N.I.S.T. Reference Tables)

Uncertainty of the Standards:					
Temperature Curve Fit: +/-	0.010	C		
Thermometer: +/-	0.40	C		
Ice Bath: +/-	0.10	C		
Multimeter: +/- (	0.0045	% RDG +	0.0005	mV)
= +/-	0.012	C @	6.36	mV

Accepted Tolerance: +/- 1.7 C

Statistical Info.

a	b	n	T	Xbar (C)	Sxx (C^2)	SEE (C^2)	MSE (C^2)
-0.05	1.00	11.00	2.262	43.12	21815.1	1.809	0.2010

Calculated Uncertainties:

standard uncertainty (C)	curve-fit uncertainty (C)	fixed uncertainty (C)	total uncertainty (C)
0.41	1.13	0.24	1.2

PASS CALIBRATION? **YES**

Figure F3. Pre-test Calibration Data of Thermocouple T1

UNCERTAINTY ANALYSIS
REF. WSRC-TR-91-106

TR-2926

page ____ of ____
calibration date__________

Calibration Data

Temperature Medium	Standard Temperature (C)	Voltage Output (mV)	Calculated Temperature (eq. 1) (C)	Error (C)
Boiling Water	100.70	6.350	100.46	-0.2
Boiling Water	100.70	6.349	100.45	-0.3
Boiling Water	100.70	6.345	100.39	-0.3
Boiling Water	100.70	6.348	100.43	-0.3
Ice Point	0.00	-0.026	-0.44	-0.4
Ice Point	0.00	-0.012	-0.20	-0.2
Ice Point	0.00	-0.022	-0.37	-0.4
Ice Point	0.00	-0.015	-0.25	-0.3
Room Temp	24.50	1.466	24.52	0.0
Room Temp	24.40	1.448	24.23	-0.2
Room Temp	24.70	1.555	25.98	1.3
Room Temp	24.70	1.498	25.05	0.3

T (C) =0.00483 + 17.040918*mV - 0.224284*mV^2 + 0.005038*mV^3 (eq. 1)
(Limited Curve Fit, 0-100 C. From N.I.S.T. Reference Tables)

Uncertainty of the Standards:	Temperature Curve Fit: +/-	0.010	C			
	Thermometer: +/-	0.40	C			
	Ice Bath: +/-	0.10	C			
	Multimeter: +/- (	0.0045	% RDG +		0.0005	mV)
	= +/-	0.012	C	@	6.35	mV

Accepted Tolerance: +/- 1.7 C

Statistical Info.

a	b	n	T	Xbar (C)	Sxx (C^2)	SEE (C^2)	MSE (C^2)
-0.05	1.00	11.00	2.262	43.31	21735.2	2.225	0.2472

Calculated Uncertainties:

standard uncertainty (C)	curve-fit uncertainty (C)	fixed uncertainty (C)	total uncertainty (C)
0.41	1.26	0.18	1.3

PASS CALIBRATION? **YES**

Figure F4. Pre-test Calibration Data of Thermocouple T2

UNCERTAINTY ANALYSIS **TR-2929** page ____ of ____
REF. WSRC-TR-91-106 calibration date__________

Calibration Data

Temperature Medium	Standard Temperature (C)	Voltage Output (mV)	Calculated Temperature (eq. 1) (C)	Error (C)
Boiling Water	100.70	6.350	100.46	-0.2
Boiling Water	100.70	6.352	100.49	-0.2
Boiling Water	100.70	6.349	100.45	-0.3
Boiling Water	100.70	6.350	100.46	-0.2
Ice Point	0.00	-0.026	-0.44	-0.4
Ice Point	0.00	-0.023	-0.39	-0.4
Ice Point	0.00	-0.019	-0.32	-0.3
Ice Point	0.00	-0.021	-0.35	-0.4
Room Temp	21.10	1.211	20.32	-0.8
Room Temp	21.30	1.178	19.78	-1.5
Room Temp	21.30	1.182	19.84	-1.5
Room Temp	21.30	1.188	19.94	-1.4

T (C) =0.00483 + 17.040918*mV - 0.224284*mV^2 + 0.005038*mV^3 (eq. 1)
(Limited Curve Fit, 0-100 C. From N.I.S.T. Reference Tables)

Uncertainty of the Standards:

Temperature Curve Fit: +/-	0.010	C			
Thermometer: +/-	0.40	C			
Ice Bath: +/-	0.10	C			
Multimeter: +/- (	0.0045	% RDG +		0.0005	mV)
= +/-	0.012	C	@	6.35	mV

Accepted Tolerance: +/- 1.7 C

Statistical Info.

a	b	n	T	Xbar (C)	Sxx (C^2)	SEE (C^2)	MSE (C^2)
-0.73	1.00	11.00	2.262	42.41	22130.7	2.000	0.2222

Calculated Uncertainties:

standard uncertainty (C)	curve-fit uncertainty (C)	fixed uncertainty (C)	total uncertainty (C)
0.41	1.18	0.73	1.5

PASS CALIBRATION? **YES**

Figure F5. Pre-test Calibration Data of Thermocouple T3

UNCERTAINTY ANALYSIS **TR-2930** page ____ of ____
REF. WSRC-TR-91-106 calibration date__________

Calibration Data

Temperature Medium	Standard Temperature (C)	Voltage Output (mV)	Calculated Temperature (eq. 1) (C)	Error (C)
Boiling Water	100.70	6.350	100.46	-0.2
Boiling Water	100.70	6.360	100.61	-0.1
Boiling Water	100.70	6.365	100.68	0.0
Boiling Water	100.70	6.348	100.43	-0.3
Ice Point	0.00	-0.015	-0.25	-0.3
Ice Point	0.00	-0.009	-0.15	-0.1
Ice Point	0.00	-0.003	-0.05	0.0
Ice Point	0.00	-0.009	-0.15	-0.1
Room Temp	23.80	1.416	23.70	-0.1
Room Temp	23.80	1.442	24.13	0.3
Room Temp	23.90	1.501	25.09	1.2
Room Temp	23.90	1.475	24.67	0.8

T (C) =0.00483 + 17.040918*mV - 0.224284*mV^2 + 0.005038*mV^3 (eq. 1)
(Limited Curve Fit, 0-100 C. From N.I.S.T. Reference Tables)

Uncertainty of the Standards:					
Temperature Curve Fit: +/-	0.010	C			
Thermometer: +/-	0.40	C			
Ice Bath: +/-	0.10	C			
Multimeter: +/- (	0.0045	% RDG +	0.0005	mV)	
= +/-	0.012	C @	6.37	mV	

Accepted Tolerance: +/- 1.7 C

Statistical Info.

a	b	n	T	Xbar (C)	Sxx (C^2)	SEE (C^2)	MSE (C^2)
0.09	1.00	11.00	2.262	43.12	21815.1	1.724	0.1916

Calculated Uncertainties:

standard uncertainty (C)	curve-fit uncertainty (C)	fixed uncertainty (C)	total uncertainty (C)
0.41	1.11	0.09	1.2

PASS CALIBRATION? **YES**

Figure F6. Pre-test Calibration Data of Thermocouple T4

UNCERTAINTY ANALYSIS **TR-2927** page ____ of ____
REF. WSRC-TR-91-106 calibration date__________

Calibration Data

Temperature Medium	Standard Temperature (C)	Voltage Output (mV)	Calculated Temperature (eq. 1) (C)	Error (C)
Boiling Water	100.70	6.348	100.43	-0.27
Boiling Water	100.70	6.351	100.48	-0.22
Boiling Water	100.70	6.352	100.49	-0.21
Boiling Water	100.70	6.349	100.45	-0.25
Ice Point	0.00	-0.011	-0.18	-0.18
Ice Point	0.00	-0.001	-0.01	-0.01
Ice Point	0.00	-0.006	-0.10	-0.10
Ice Point	0.00	-0.002	-0.03	-0.03
Room Temp	24.50	1.465	24.50	0.00
Room Temp	24.40	1.460	24.42	0.02
Room Temp	24.70	1.547	25.85	1.15
Room Temp	24.70	1.511	25.26	0.56

T (C) =0.00483 + 17.040918*mV - 0.224284*mV^2 + 0.005038*mV^3 (eq. 1)
(Limited Curve Fit, 0-100 C. From N.I.S.T. Reference Tables)

Uncertainty of the Standards:	Temperature Curve Fit: +/-	0.010	C		
	Thermometer: +/-	0.40	C		
	Ice Bath: +/-	0.10	C		
	Multimeter: +/- (	0.0045	% RDG +	0.0005	mV)
	= +/-	0.012	C @	6.35	mV

Accepted Tolerance: +/- 1.70 C

Statistical Info.

a	b	n	T	Xbar (C)	Sxx (C^2)	SEE (C^2)	MSE (C^2)
0.12	1.00	11.00	2.262	43.31	21735.2	1.413	0.1570

Calculated Uncertainties:

standard uncertainty (C)	curve-fit uncertainty (C)	fixed uncertainty (C)	total uncertainty (C)
0.41	1.00	0.18	1.10

PASS CALIBRATION? **YES**

Figure F7. Pre-test Calibration Data of Thermocouple T5

UNCERTAINTY ANALYSIS **TR-2917** page___of___
REF. WSRC-TR-91-106, REV. 0 cal. date:

Calibration Data

Nominal Pressure (psig)	Correction (psig)	Applied Pressure (psig)	Gage Reading (mADC)	Curve Fit (mADC)	Error (mADC)	Error (psig)
0.00	0	0.00	4.01	4.01	-0.002	-0.01
21.00	-0.71	20.29	7.28	7.28	-0.005	-0.03
41.00	-0.71	40.29	10.49	10.50	0.005	0.03
61.00	-0.71	60.29	13.71	13.72	0.006	0.03
81.00	-0.71	80.29	16.93	16.94	0.006	0.04
100.00	-0.71	99.29	20.00	19.99	-0.005	-0.03
0.00	0	0.00	4.01	4.01	-0.002	-0.01
21.00	-0.71	20.29	7.28	7.28	-0.005	-0.03
41.00	-0.71	40.29	10.49	10.50	0.005	0.03
61.00	-0.71	60.29	13.71	13.72	0.006	0.03
81.00	-0.71	80.29	16.93	16.94	0.006	0.04
100.00	-0.71	99.29	20.00	19.99	-0.005	-0.03
0.00	0	0.00	4.01	4.01	-0.002	-0.01
21.00	-0.71	20.29	7.28	7.28	-0.005	-0.03
41.00	-0.71	40.29	10.49	10.50	0.005	0.03
61.00	-0.71	60.29	13.71	13.72	0.006	0.03
81.00	-0.71	80.29	16.94	16.94	-0.004	-0.03
100.00	-0.71	99.29	20.00	19.99	-0.005	-0.03
0.00	0	0.00	4.01	4.01	-0.002	-0.01
21.00	-0.71	20.29	7.28	7.28	-0.005	-0.03
41.00	-0.71	40.29	10.49	10.50	0.005	0.03
61.00	-0.71	60.29	13.71	13.72	0.006	0.03
81.00	-0.71	80.29	16.94	16.94	-0.004	-0.03
100.00	-0.71	99.29	20.00	19.99	-0.005	-0.03

Standard Uncertainties: Multimeter: +/- (0.04 % RDG + 0.0001 mADC)
Dead Weight Tester: +/- 0.1 psig

Statistical Info:

a	b	n	T	Xbar psig	Sxx $psig^2$	SEE $mADC^2$	MSE $mADC^2$
4.0083	0.1610	24.00	2.07	50.08	27719.23	0.0005	0.0000

Calculated Uncertainties:

standard psig	curve-fit psig	fixed psig	Total Uncertainty psig
0.11	0.07	0.00	0.13

Accepted Tolerance: +/- 2 psig

PASS CALIBRATION? YES
TRANSFER EQUATION PSIG = 6.211 *mA -24.895

Figure F8. Pre-test Calibration Data of Gauge Pressure Transducer P1

UNCERTAINTY ANALYSIS **TR-3109** page___of___
REF. WSRC-TR-91-106, REV. 0 cal. date:

Calibration Data

Nominal Pressure (psid)	Correction (psid)	Applied Pressure (psid)	Gage Reading (mADC)	Curve Fit (mADC)	Error (mADC)	Error (psid)
-11.00	0.71	-10.29	4.01	4.01	0.000	0.00
0.00	0	0.00	5.65	5.65	-0.005	-0.03
11.00	-0.71	10.29	7.28	7.28	0.001	0.00
31.00	-0.71	30.29	10.46	10.46	-0.001	-0.01
51.00	-0.71	50.29	13.63	13.64	0.007	0.05
71.00	-0.71	70.29	16.81	16.82	0.006	0.04
91.00	-0.71	90.29	20.00	19.99	-0.006	-0.04
-11.00	0.71	-10.29	4.01	4.01	0.000	0.00
0.00	0	0.00	5.65	5.65	-0.005	-0.03
11.00	-0.71	10.29	7.28	7.28	0.001	0.00
31.00	-0.71	30.29	10.46	10.46	-0.001	-0.01
51.00	-0.71	50.29	13.63	13.64	0.007	0.05
71.00	-0.71	70.29	16.81	16.82	0.006	0.04
91.00	-0.71	90.29	20.00	19.99	-0.006	-0.04
-11.00	0.71	-10.29	4.01	4.01	0.000	0.00
0.00	0	0.00	5.65	5.65	-0.005	-0.03
11.00	-0.71	10.29	7.28	7.28	0.001	0.00
31.00	-0.71	30.29	10.46	10.46	-0.001	-0.01
51.00	-0.71	50.29	13.63	13.64	0.007	0.05
71.00	-0.71	70.29	16.81	16.82	0.006	0.04
91.00	-0.71	90.29	20.00	19.99	-0.006	-0.04
-11.00	0.71	-10.29	4.01	4.01	0.000	0.00
0.00	0	0.00	5.65	5.65	-0.005	-0.03
11.00	-0.71	10.29	7.28	7.28	0.001	0.00
31.00	-0.71	30.29	10.46	10.46	-0.001	-0.01
51.00	-0.71	50.29	13.63	13.64	0.007	0.05
71.00	-0.71	70.29	16.81	16.82	0.006	0.04
91.00	-0.71	90.29	20.01	19.99	-0.016	-0.10

Standard Uncertainties: Multimeter: +/- (0.04 % RDG + 0.0001 mADC)
Dead Weight Tester: +/- 0.01 psid

Statistical Info:

a	b	n	T	Xbar psid	Sxx psid²	SEE mADC²	MSE mADC²
5.6454	0.1589	28.00	2.12	34.45	33771.99	0.0008	0.0000

Calculated Uncertainties:

standard psid	curve-fit psid	fixed psid	Total Uncertainty psid
0.05	0.08	0.00	0.09

Accepted Tolerance: +/- 2 psid

PASS CALIBRATION? YES
TRANSFER EQUATION: PSIG = 6.293 *mA -35.524

Figure F9. Pre-test Calibration Data of Gauge Pressure Transducer P2

UNCERTAINTY ANALYSIS **TR-2145** page___of___
REF. WSRC-TR-91-106, REV. 0 cal. date:

Calibration Data

Nominal Pressure (psig)	Applied Pressure (psig)	Gage Reading (mADC)	Curve Fit (mADC)	Error (mADC)	Error (psig)
0.00	0.00	4.01	3.99	-0.016	-0.15
31.00	31.00	7.28	7.28	-0.003	-0.03
61.00	61.00	10.44	10.45	0.014	0.13
91.00	91.00	13.61	13.63	0.021	0.20
121.00	121.00	16.80	16.81	0.008	0.08
151.00	151.00	20.01	19.99	-0.025	-0.23
0.00	0.00	4.01	3.99	-0.016	-0.15
31.00	31.00	7.28	7.28	-0.003	-0.03
61.00	61.00	10.44	10.45	0.014	0.13
91.00	91.00	13.61	13.63	0.021	0.20
121.00	121.00	16.80	16.81	0.008	0.08
151.00	151.00	20.01	19.99	-0.025	-0.23
0.00	0.00	4.01	3.99	-0.016	-0.15
31.00	31.00	7.28	7.28	-0.003	-0.03
61.00	61.00	10.44	10.45	0.014	0.13
91.00	91.00	13.61	13.63	0.021	0.20
121.00	121.00	16.80	16.81	0.008	0.08
151.00	151.00	20.01	19.99	-0.025	-0.23
0.00	0.00	4.01	3.99	-0.016	-0.15
31.00	31.00	7.28	7.28	-0.003	-0.03
61.00	61.00	10.44	10.45	0.014	0.13
91.00	91.00	13.61	13.63	0.021	0.20
121.00	121.00	16.80	16.81	0.008	0.08
151.00	151.00	20.01	19.99	-0.025	-0.23

Standard Uncertainties:

Multimeter: +/- (	0.04	% RDG +	0.0001	mADC)
Dead Weight Tester: +/-	0.1	psig		

Statistical Info:

a	b	n	T	Xbar psig	Sxx psig2	SEE mADC2	MSE mADC2
3.9939	0.1059	24.00	2.07	75.83	63603.33	0.0063	0.0003

Calculated Uncertainties:

standard psig	curve-fit psig	fixed psig	Total Uncertainty psig
0.13	0.35	0.00	0.38

Accepted Tolerance: +/- 3 psig

PASS CALIBRATION? YES
TRANSFER EQUATION PSIG = 9.442 *mA -37.712

Figure F10. Pre-test Calibration Data of Gauge Pressure Transducer P3

UNCERTAINTY ANALYSIS **TR-3495** page___of___
REF. WSRC-TR-91-106, REV. 0 cal. date:

Calibration Data

Nominal Pressure (psid)	Applied Pressure (psid)	Gage Reading (mADC)	Curve Fit (mADC)	Error (mADC)	Error (psid)
0.00	0.00	4.00	4.00	-0.004	-0.01
1.00	1.00	4.61	4.61	0.001	0.00
6.00	6.00	7.69	7.69	-0.002	0.00
11.00	11.00	10.76	10.77	0.005	0.01
16.00	16.00	13.84	13.84	0.003	0.00
21.00	21.00	16.92	16.92	0.000	0.00
26.00	26.00	20.00	20.00	-0.003	-0.01
0.00	0.00	4.00	4.00	-0.004	-0.01
1.00	1.00	4.61	4.61	0.001	0.00
6.00	6.00	7.69	7.69	-0.002	0.00
11.00	11.00	10.76	10.77	0.005	0.01
16.00	16.00	13.84	13.84	0.003	0.00
21.00	21.00	16.92	16.92	0.000	0.00
26.00	26.00	20.00	20.00	-0.003	-0.01
0.00	0.00	4.00	4.00	-0.004	-0.01
1.00	1.00	4.61	4.61	0.001	0.00
6.00	6.00	7.69	7.69	-0.002	0.00
11.00	11.00	10.76	10.77	0.005	0.01
16.00	16.00	13.84	13.84	0.003	0.00
21.00	21.00	16.92	16.92	0.000	0.00
26.00	26.00	20.00	20.00	-0.003	-0.01
0.00	0.00	4.00	4.00	-0.004	-0.01
1.00	1.00	4.61	4.61	0.001	0.00
6.00	6.00	7.69	7.69	-0.002	0.00
11.00	11.00	10.76	10.77	0.005	0.01
16.00	16.00	13.84	13.84	0.003	0.00
21.00	21.00	16.92	16.92	0.000	0.00
26.00	26.00	20.00	20.00	-0.003	-0.01

Standard Uncertainties: Multimeter: +/- (0.04 % RDG + 0.0001 mADC)
Dead Weight Tester: +/- 0.01 psid

Statistical Info:

a	b	n	T	Xbar psid	Sxx psid²	SEE mADC²	MSE mADC²
3.9959	0.6154	28.00	2.06	11.57	2374.86	0.0003	0.0000

Calculated Uncertainties:

standard psid	curve-fit psid	fixed psid	Total Uncertainty psid
0.017	0.011	0.000	0.020

Accepted Tolerance: +/- 0.500 psid

PASS CALIBRATION? YES
TRANSFER EQUATION: PSID = 1.6249 *mA -6.4930

Figure F11. Pre-test Calibration Data of Differential Pressure Transducer dP1

UNCERTAINTY ANALYSIS **TR-532** page___of___
REF. WSRC-TR-91-106, REV. 0 cal. date:

Calibration Data

Nominal Pressure (psid)	Applied Pressure (psid)	Gage Reading (mADC)	Curve Fit (mADC)	Error (mADC)	Error (psid)
0.00	0.00	4.00	4.00	-0.004	-0.03
21.00	21.00	7.32	7.32	0.002	0.01
41.00	41.00	10.49	10.49	-0.001	0.00
61.00	61.00	13.65	13.66	0.007	0.04
81.00	81.00	16.82	16.82	0.005	0.03
101.00	101.00	20.00	19.99	-0.008	-0.05
0.00	0.00	4.00	4.00	-0.004	-0.03
21.00	21.00	7.32	7.32	0.002	0.01
41.00	41.00	10.49	10.49	-0.001	0.00
61.00	61.00	13.65	13.66	0.007	0.04
81.00	81.00	16.82	16.82	0.005	0.03
101.00	101.00	20.00	19.99	-0.008	-0.05
0.00	0.00	4.00	4.00	-0.004	-0.03
21.00	21.00	7.32	7.32	0.002	0.01
41.00	41.00	10.49	10.49	-0.001	0.00
61.00	61.00	13.65	13.66	0.007	0.04
81.00	81.00	16.82	16.82	0.005	0.03
101.00	101.00	20.00	19.99	-0.008	-0.05
0.00	0.00	4.00	4.00	-0.004	-0.03
21.00	21.00	7.32	7.32	0.002	0.01
41.00	41.00	10.49	10.49	-0.001	0.00
61.00	61.00	13.65	13.66	0.007	0.04
81.00	81.00	16.82	16.82	0.005	0.03
101.00	101.00	20.00	19.99	-0.008	-0.05

Standard Uncertainties: Multimeter: +/- (0.04 % RDG + 0.0001 mADC)
Dead Weight Tester: +/- 0.1 psig

Statistical Info:

a	b	n	T	Xbar psid	Sxx $psid^2$	SEE $mADC^2$	MSE $mADC^2$
3.9956	0.1584	24.00	2.07	50.83	28403.33	0.0006	0.0000

Calculated Uncertainties:

standard psid	curve-fit psid	fixed psid	Total Uncertainty psid
0.11	0.07	0.00	0.13

Accepted Tolerance: +/- 2 psid

PASS CALIBRATION? YES
TRANSFER EQUATION: PSID = 6.314 *mA -25.227

Figure F12. Pre-test Calibration Data of Differential Pressure Transducer dP2

UNCERTAINTY ANALYSIS **TR-3115** page___of___
REF. WSRC-TR-91-106, REV. 0 cal. date:

Calibration Data

Nominal Pressure (psid)	Correction (psid)	Applied Pressure (psid)	Gage Reading (mADC)	Curve Fit (mADC)	Error (mADC)	Error (psid)
-11.00	0.71	-10.29	3.99	4.00	0.006	0.04
0.00	0	0.00	5.48	5.49	0.007	0.05
21.00	-0.71	20.29	8.43	8.43	-0.001	-0.01
41.00	-0.71	40.29	11.34	11.33	-0.012	-0.08
61.00	-0.71	60.29	14.24	14.23	-0.013	-0.09
81.00	-0.71	80.29	17.13	17.13	-0.003	-0.02
101.00	-0.71	100.29	20.01	20.03	0.016	0.11
-11.00	0.71	-10.29	3.99	4.00	0.006	0.04
0.00	0	0.00	5.48	5.49	0.007	0.05
21.00	-0.71	20.29	8.43	8.43	-0.001	-0.01
41.00	-0.71	40.29	11.34	11.33	-0.012	-0.08
61.00	-0.71	60.29	14.24	14.23	-0.013	-0.09
81.00	-0.71	80.29	17.13	17.13	-0.003	-0.02
101.00	-0.71	100.29	20.01	20.03	0.016	0.11
-11.00	0.71	-10.29	3.99	4.00	0.006	0.04
0.00	0	0.00	5.48	5.49	0.007	0.05
21.00	-0.71	20.29	8.43	8.43	-0.001	-0.01
41.00	-0.71	40.29	11.34	11.33	-0.012	-0.08
61.00	-0.71	60.29	14.24	14.23	-0.013	-0.09
81.00	-0.71	80.29	17.13	17.13	-0.003	-0.02
101.00	-0.71	100.29	20.01	20.03	0.016	0.11
-11.00	0.71	-10.29	3.99	4.00	0.006	0.04
0.00	0	0.00	5.48	5.49	0.007	0.05
21.00	-0.71	20.29	8.43	8.43	-0.001	-0.01
41.00	-0.71	40.29	11.34	11.33	-0.012	-0.08
61.00	-0.71	60.29	14.24	14.23	-0.013	-0.09
81.00	-0.71	80.29	17.13	17.13	-0.003	-0.02
101.00	-0.71	100.29	20.01	20.03	0.016	0.11

Standard Uncertainties: Multimeter: +/- (0.04 % RDG + 0.0001 mADC)
Dead Weight Tester: +/- 0.1 psid

Statistical Info:

a	b	n	T	Xbar psid	Sxx psid^2	SEE mADC^2	MSE mADC^2
5.4875	0.1450	28.00	2.12	41.59	40678.85	0.0026	0.0001

Calculated Uncertainties:

standard psid	curve-fit psid	fixed psid	Total Uncertainty psid
0.11	0.16	0.00	0.19

Accepted Tolerance: +/- 2 psid

PASS CALIBRATION? YES
TRANSFER EQUATION: PSID = 6.898 *mA -37.854

Figure F13. Pre-test Calibration Data of Differential Pressure Transducer dP3

UNCERTAINTY ANALYSIS **TR-20350** page ____ of ____
REF. WSRC-TR-91-106 calibration date__________

Calibration Data				Calculated Data				
Meter Output (mA)	Water Temp (C)	Water Weight (lbs)	Time Duration (min)	Mass Flow (lbs/min)	Water Density (lb/ft^3)	Volume Flow (ft^3/min)	Volume Flow (GPM)	Curve Fit Ouput (mA)
3.977	21.40	0	0.50	0.0	62.29	0.00	0.00	3.99
7.115	21.40	1228	15.00	81.9	62.28	1.31	9.83	7.12
10.434	21.80	1682	10.01	168.1	62.28	2.70	20.19	10.42
13.535	22.00	1246	5.00	249.0	62.28	4.00	29.91	13.52
16.807	22.00	1679	5.01	335.3	62.29	5.38	40.27	16.83
19.889	21.50	2078	5.00	415.5	62.29	6.67	49.90	19.90
19.887	21.40	2079	5.00	415.6	62.29	6.67	49.90	19.90
16.740	21.00	1664	5.00	332.6	62.30	5.34	39.94	16.72
13.594	20.90	1254	5.00	250.6	62.30	4.02	30.09	13.58
10.325	20.80	1652	10.00	165.2	62.30	2.65	19.83	10.31
7.194	20.70	1257	15.01	83.8	62.30	1.34	10.06	7.19
3.978	20.70	0	0.50	0.0	62.30	0.00	0.00	3.99
7.216	20.80	1264	15.00	84.3	62.29	1.35	10.12	7.21
10.379	21.30	1669	10.01	166.8	62.29	2.68	20.03	10.37
13.628	21.90	1258	5.00	251.5	62.28	4.04	30.21	13.62
16.724	21.70	1663	5.00	332.6	62.29	5.34	39.95	16.72
19.813	20.90	2070	5.00	413.9	62.30	6.64	49.70	19.83
3.979	20.90	0	0.50	0.0	62.30	0.00	0.00	3.99

Density: □ = 62.441-1.374E-3*T - 271.818E-6*T^2 + 194.093E-9*T^3
7.4805 gallons = 1 ft^3

Uncertainty of the Standards:

Weight:+/-	7.0	lbs		
Temperature: +/-	0.40	C		
Density: +/-	0.06	lbm/ft^3		
Time: +/- (	0.20	sec +	500.00	□sec/sec)

Accepted Tolerance: +/- 0.50 GPM

Statistical Info.

a	b	n	T	Xbar (GPM)	Sxx (GPM^2)	SEE (mA^2)	MSE (mA^2)
3.988	0.319	18.00	2.120	25.00	5231.96	0.0023	0.0001

Calculated Uncertainties:

standard uncertainty (GPM)	curve-fit uncertainty (GPM)	fixed uncertainty (GPM)	total uncertainty (GPM)
0.17	0.09	0.00	0.19

PASS CALIBRATION? **YES**
TRANSFER EQUATION **GPM = 3.137 mA -12.509**

Figure F14. Pre-test Calibration Data of Magnetic Flowmeter Q1

UNCERTAINTY ANALYSIS TR-20353 page ____ of ____
REF. WSRC-TR-91-106 calibration date__________

Calibration Data				Calculated Data						
Meter Output (mA)	Water Temp (C)	Water Weight (lbs)	Time Duration (min)	Mass Flow (lbs/min)	Water Density (lb/ft^3)	Volume Flow (ft^3/min)	Volume Flow (GPM)	Curve Fit Ouput (mA)	Error (mA)	Error (GPM)
4.00	15.50	0.00	0.00	0.00	62.36	0.00	0.00	3.99	-0.01	-0.001
8.21	15.50	13.25	5.03	2.64	62.36	0.04	0.32	8.21	0.01	0.000
12.18	16.30	25.48	5.00	5.09	62.35	0.08	0.61	12.16	-0.03	-0.002
16.17	19.50	37.83	5.00	7.56	62.31	0.12	0.91	16.13	-0.04	-0.003
20.18	22.50	50.38	5.00	10.07	62.27	0.16	1.21	20.15	-0.03	-0.002
20.18	23.00	50.44	5.00	10.08	62.27	0.16	1.21	20.18	0.00	0.000
16.12	23.10	37.94	5.01	7.58	62.27	0.12	0.91	16.16	0.04	0.003
12.28	22.80	25.95	5.00	5.19	62.27	0.08	0.62	12.31	0.04	0.003
8.09	22.90	12.83	5.00	2.56	62.27	0.04	0.31	8.10	0.01	0.001
4.00	22.90	0.00	0.00	0.00	62.27	0.00	0.00	3.99	-0.01	-0.001
4.00	22.90	0.00	0.00	0.00	62.27	0.00	0.00	3.99	-0.01	-0.001
8.15	22.90	12.95	5.00	2.59	62.27	0.04	0.31	8.14	-0.01	-0.001
12.02	23.00	25.12	5.00	5.02	62.27	0.08	0.60	12.05	0.03	0.003
16.05	25.20	37.63	5.00	7.52	62.24	0.12	0.90	16.07	0.03	0.002
20.05	25.20	49.98	5.00	9.99	62.24	0.16	1.20	20.03	-0.01	-0.001

Density: □= 62.441-1.374E-3*T - 271.818E-6*T^2 + 194.093E-9*T^3
7.4805 gallons = 1 ft^3

Uncertainty of the Standards:				
Weight:+/-	0.1	lbs		
Temperature: +/-	0.40	C		
Density: +/-	0.06	lbm/ft^3		
Time: +/- (	0.20	sec +	500.00	□sec/sec)

Accepted Tolerance: +/- 0.01 GPM

Statistical Info.							
a	b	n	T	Xbar (GPM)	Sxx (GPM^2)	SEE (mA^2)	MSE (mA^2)
3.987	13.366	15.00	2.160	0.61	2.72	0.0087	0.0007

Calculated Uncertainties:	standard uncertainty (GPM)	curve-fit uncertainty (GPM)	fixed uncertainty (GPM)	total uncertainty (GPM)
	0.003	0.005	0.000	0.005

PASS CALIBRATION? **YES**
TRANSFER EQUATION: **GPM = 0.075 mA -0.298**

Figure F15. Pre-test Calibration Data of Magnetic Flowmeter Q2

UNCERTAINTY ANALYSIS **TR-3562** page ____ of ____
REF. WSRC-TR-91-106 calibration date__________

Calibration Data				Calculated Data						
Meter Output (mA)	Water Temp (C)	Water Weight (lbs)	Time Duration (min)	Mass Flow (lbs/min)	Water Density (lb/ft^3)	Volume Flow (ft^3/min)	Volume Flow (GPM)	Curve Fit Ouput (mA)	Error (mA)	Error (GPM)
3.97	24.60	0.00	0.00	0.00	62.25	0.00	0.00	3.98	0.01	0.004
7.97	25.60	51.79	5.00	10.36	62.23	0.17	1.25	7.98	0.01	0.002
11.96	25.20	103.40	5.00	20.67	62.24	0.33	2.48	11.95	-0.01	-0.002
16.08	25.40	125.52	4.00	31.36	62.23	0.50	3.77	16.07	-0.01	-0.002
19.98	25.70	124.58	3.00	41.48	62.23	0.67	4.99	19.98	0.00	-0.001
3.98	25.90	0.00	0.00	0.00	62.23	0.00	0.00	3.98	0.00	0.001
8.01	25.90	52.35	5.00	10.47	62.23	0.17	1.26	8.02	0.01	0.003
12.00	25.90	103.82	5.00	20.75	62.23	0.33	2.49	11.99	-0.01	-0.004
15.97	25.90	124.28	4.00	31.05	62.23	0.50	3.73	15.96	-0.01	-0.005
20.03	25.90	124.64	3.00	41.55	62.23	0.67	4.99	20.01	-0.02	-0.008
3.98	25.70	0.00	0.00	0.00	62.23	0.00	0.00	3.98	0.00	0.001
8.11	25.70	53.48	5.00	10.69	62.23	0.17	1.29	8.11	0.00	-0.001
12.04	25.80	104.44	5.00	20.87	62.23	0.34	2.51	12.03	-0.01	-0.002
15.99	25.80	124.75	4.01	31.13	62.23	0.50	3.74	15.98	-0.01	-0.004
20.05	21.70	125.64	3.00	41.87	62.29	0.67	5.03	20.11	0.06	0.020
3.98	23.00	0.00	0.00	0.00	62.27	0.00	0.00	3.98	0.00	0.001
7.97	23.00	51.92	5.00	10.37	62.27	0.17	1.25	7.98	0.01	0.003
11.96	22.90	103.69	5.00	20.73	62.27	0.33	2.49	11.97	0.01	0.004
15.97	22.70	124.62	4.00	31.13	62.27	0.50	3.74	15.98	0.01	0.003
19.92	22.70	124.36	3.00	41.43	62.27	0.67	4.98	19.95	0.03	0.009

Density: □= 62.441-1.374E-3*T - 271.818E-6*T^2 + 194.093E-9*T^3
7.4805 gallons = 1 ft^3

Uncertainty of the Standards:				
	Weight:+/-	0.1	lbs	
	Temperature: +/-	0.40	C	
	Density: +/-	0.06	lbm/ft^3	
	Time: +/- (	0.20	sec +	500.00 □sec/sec)

Accepted Tolerance: +/- 0.05 GPM

Statistical Info.

a	b	n	T	Xbar (GPM)	Sxx (GPM^2)	SEE (mA^2)	MSE (mA^2)
3.982	3.208	15.00	2.160	2.50	46.80	0.0056	0.0004

Calculated Uncertainties:	standard uncertainty (GPM)	curve-fit uncertainty (GPM)	fixed uncertainty (GPM)	total uncertainty (GPM)
	0.007	0.02	0.00	0.02

PASS CALIBRATION? **YES**
TRANSFER EQUATION: **GPM = 0.3113 mA -1.2370**

Figure F16. Pre-test Calibration Data of Magnetic Flowmeter Q3

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