Final Report: Pilot-Scale X-Flow Filtration Test - Env C + Entrained Solids + Sr/TRU

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by
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Final Report: Pilot-scale Cross-flow Ultrafiltration Test Using a Hanford Site Tank 241-AN-107 Waste Simulant – Envelope C + Entrained Solids + Strontium-Transuranic Precipitation

March 24, 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 was made of seven 316 stainless steel sintered metal tubes. Each was a nominal-rated 0.1-micron filter with an inside diameter of 0.375 inch, an outside diameter of 0.5 inch, and a porous length of 40 inches. 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. [However, prior to the issuance of this report, the dimensions of the filter elements were changed to an inside diameter of 0.5 inch and a porous length of 90 inches. Therefore, the results presented herein must be considered in light of those changes.]

The filter was tested with a simulated nuclear waste of Tank 241-AN-107, which is referred to as an envelope C waste. The recipe for the simulant was developed by the Waste Process Technology section of SRTC and the simulant was made by TFL personnel specifically for this task. The supernatant portion of the simulant contained soluble organics, had a pH $\approx$ 12, and had molarities of sodium, nitrates, and nitrites, of approximately 6.8 M, 3.0 M, and 1.1 M, respectively. To the supernatant were added insoluble solids to simulate entrained solids in the real waste. The particle size distribution was designed to be bimodal; one group ranged from 1 to 2 microns and the other ranged from 5 to 10 microns. Finally, to this slurry three precipitating agents were added: Sodium Hydroxide, Strontium Nitrate, and Sodium Permanganate, which raised the pH to approximately 14. After all the additions, the insoluble solids loading started at 2 wt% and then was eventually raised to about 38 wt% during the test. The total solids ranged from as low as 19 wt% for post-washed slurry to as high as 50 wt% for the pre-washed slurry. At 25°C and a solids loading of 2 wt%, this slurry had a density of approximately 1.27 g/mL, a viscosity of 4 cP, and Newtonian rheological characteristics. However, as the solids loading increased a yield stress was present. At the highest loading the slurry rheology showed time dependent characteristics of a thixotropic fluid, e.g., certain paints, inks, and foods like ketchup. The flow conditions for the test varied as follows: Axial slurry velocities ranged from 9 ft/s to 15 ft/s (2.7 m/s to 4.6 m/s) and transmembrane pressures ranged from 30 psid to 70 psid (207 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 11.6 ft/s and a transmembrane pressure of 56 psid (3.5 m/s and 386 kPa), the observed filtrate flux was consistently greater than 0.05 gpm/ft^2 (2 lpm/m^2). However, only a filtrate flux between 0.01 gpm/ ft^2 and 0.02 gpm/ ft^2 could be maintained as the insoluble solids loading increased above 14 wt%; at no time did the filter plug from a slurry cake build up. To free the filter surface of the slurry cake, a backpulse volume of only 0.036 gal/ft^2 (1.17 liters/m^2) was needed. This filtrate 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 in the filtrate was insignificant.

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. Thanks to Russell Eibling for his simulant development work and rheology assistance, and to Tommy Edwards' statistical expertise. 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. Finally, I would like to thank both my SRS customers, Steve Wach and Harold Sturm, and my BNFL customers, Paul Townson and Mike Johnson, for their support and insight, which made this work possible.

NOMENCLATURE

AN107	Department of Energy Hanford Site Tank 241-AN-107
BNFL	BNFL, Inc. (Design Authority)
DF	Decontamination Factor: (Slurry Molarity / Filtrate Molarity)$_{ionX}$
DIF	Deionized and Filtered (0.2 micron) Water
DOE	United States Department of Energy
γ	Shear Rate, sec^{-1} (Rheology Parameter)
i.d.	Inside Diameter
LAW	Low Activity Waste
μ	Dynamic Viscosity, cP, (Rheology Parameter)
μ_0	Consistency or Plastic Viscosity, cP, (Rheology Parameter)
nominal	The word "nominal" for a filter rating is a vague term because its meaning is manufacturer dependent. 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 (Design Agency – part of WSRC)
Sr/TRU	Strontium/Transuranic
τ	Shear Stress, dynes/cm^2, (Rheology Parameter)
τ_0	Yield Stress (Shear Stress at Shear Rate = 0), dynes/ cm^2, (Rheology Parameter)
TFL	Experimental Thermal Fluids Laboratory
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 (Design Agency – part of WSRC/SRTC)
WSRC	Westinghouse Savannah River Company (Design Agency)
XF	Cross-flow Filter

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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 specification (2, 3, 4) to design and test a pilot scale cross-flow filtration system. With initial documentation in place (5, 6, 7) 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 (WPT) section of SRTC to represent the waste in Hanford Tank 241-AN-107 (8, 9, 10). This waste, along with other complexant containing wastes, is referred to as Envelope C. Even though the simulant was made during this task, the recipe was taken only as input. How well this simulant matched the actual waste is beyond the scope of this task and not addressed. Finally, to this simulant several compounds were added to simulate the step of precipitating Strontium and Transuranic constituents (11). At the beginning of this task the total make-up of the complex slurry was not totally known, however, enough information did exist to begin work by modifying an existing test rig and getting the appropriate approvals to insure its safe operation (12, 13, 14). Previous work (15, 16, 17) assisted in guiding the plan of this task. With the test rig modifications complete a test procedure (18) was written, and due to last minute changes to the slurry makeup and equipment changes, additional operational instructions (19) were issued to keep the task running smoothly. On completion of this test a preliminary set of results (20, 21) were sent to BNFL in advance of this final report.

Envelope C simulant was the second in a series of two that would be used in this task. This report deals solely with this second simulant to evaluate a cross-flow filter. The first evaluation (22) was for a simulant representing the waste in Hanford Tank 241-AN-105, called Envelope A.

The chosen filter was manufactured by the Mott Metallurgical Corporation to meet the required specification (2, 3, 4):

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 as follows:

Arrival of the filter from Mott - February 19, 1999.
Shakedown activities began – March 1, 1999
Envelope A simulant test was done – May 12 to July 26, 1999
Entrained solids recipe for the envelope C simulant was approved – July 26, 1999.
Precipitant recipe was approved and issued – August 17, 1999
Simulant supernate was made on Sept. 3, 1999
Permission was received from BNFL to begin testing – Sept. 28, 1999.
Simulant with entrained solids and precipitants was made – Oct. 5, 1999.
Test was completed – Dec. 16, 1999.

EXPERIMENTAL

Equipment

In general, the equipment assembled for this task was done to conform to the Test Specification (2, 3, 4). 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 (15). 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.

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. It was made of primarily* 1.5-inch sch40 pipe, which has an inside diameter of 1.610 inches.
   [*Some sch10 pipe was used, which has an inside diameter of 1.682 inches.]
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. It was made of primarily* 0.5-inch tubing with an inside diameter of 0.43 inch.
   [*The pipe from the filter housing to the backpulse piston was 1.0 sch40 pipe, which has an inside diameter of 1.049 inch.]
3. Cleaning loop, which enables the cleaning of the filter in place without having to remove the slurry from the test rig by correctly orienting two 3-way valves (V7 and V12). This loop has an internal volume of approximately 15 liters. It was made of 1.5-inch sch40 pipe, which has an inside diameter of 1.610 inches.

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/ ft^2 (the filter inside surface area was 2.29 ft^2), as was found in a previous filtration test (15). However, during the test with Envelope A simulant (22), starting with test run 2.09 on 5/20/99, the injection volume was doubled to 0.036 gal/ft^2 because it showed a considerable improvement in the filtrate flux recovery.

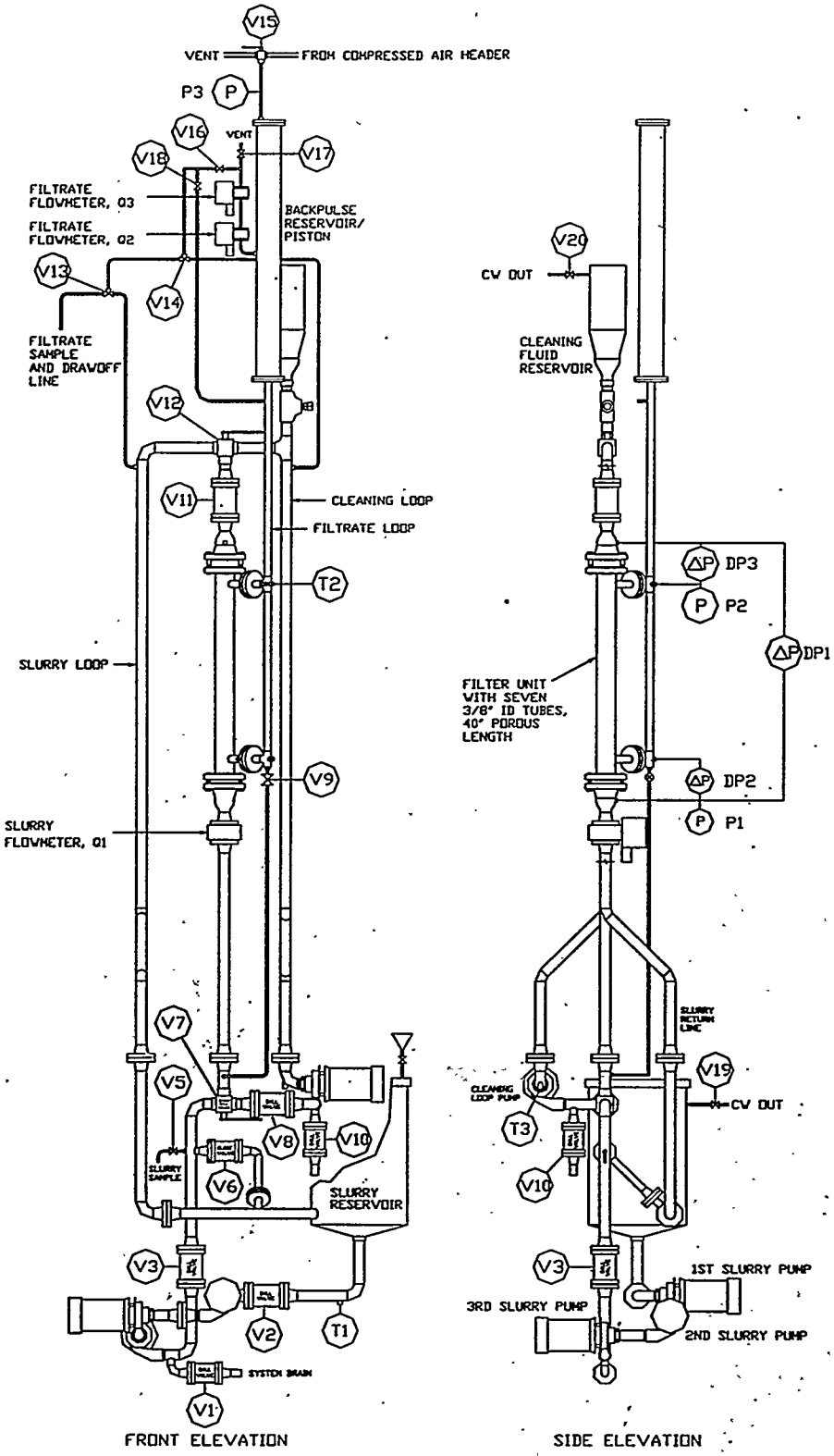


Figure 1. Schematic of the Pilot-scale Cross Flow Ultrafiltration Test Facility

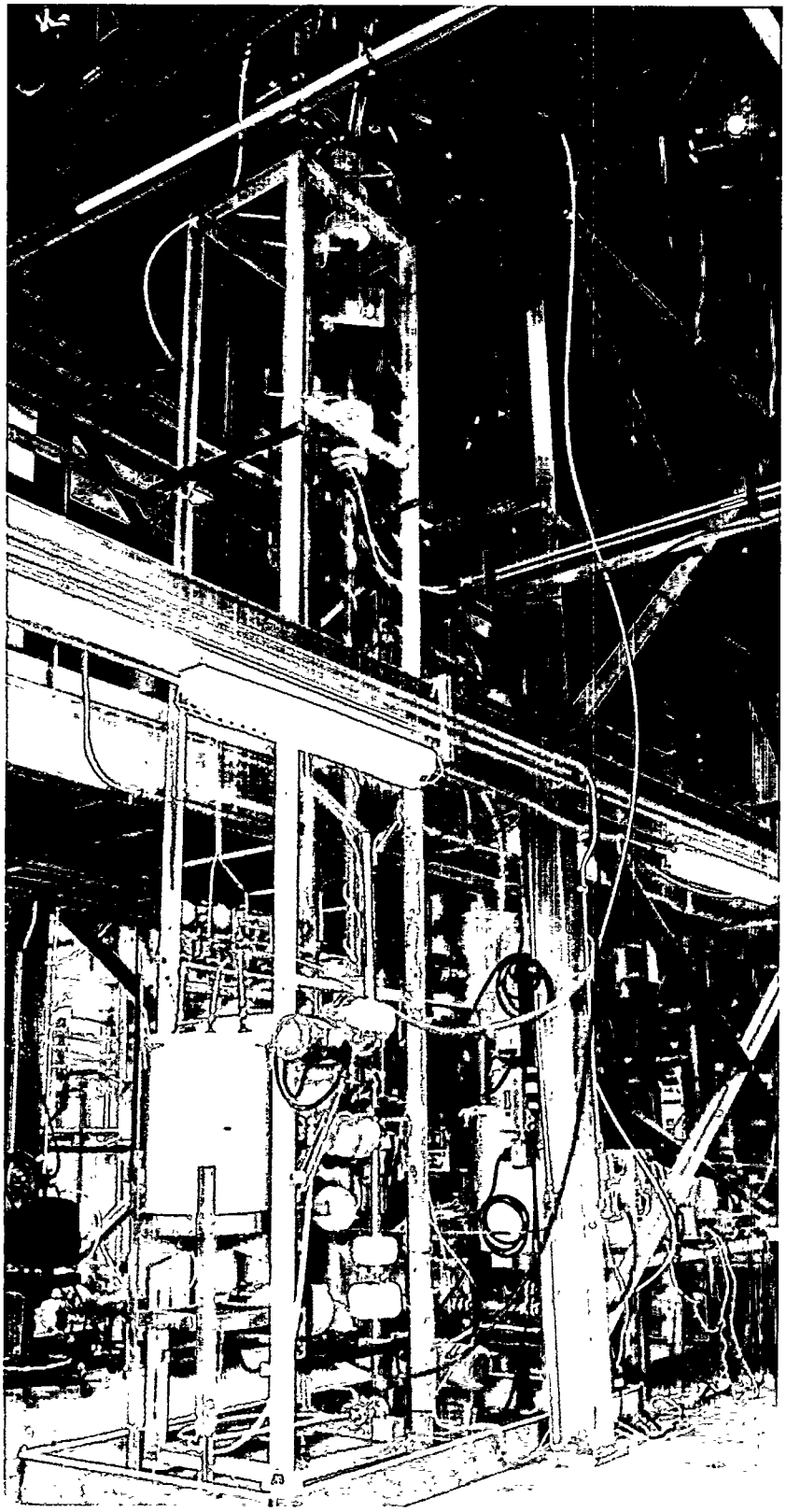


Figure 2. Pilot-scale Cross Flow Ultrafiltration Test Facility

Even with this volume a backpulse frequency of 30 minutes would cause an insignificant reduction in mean filtrate flux of 0.0012 gpm/ft^2.]

2. The recirculation loop is part of the slurry loop (by using valve V6) and is used to better control the slurry flow. The recirculation loop helps to increase mixing and to maintain the slurry well mixed when 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 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 with 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 a head of 80 psig at 40 gpm (~5 m/s in each filter tube), 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 when using the Sr/TRU precipitation simulant. 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., 1/2-inch O.D.
Number:	7 tubes

The unit which was received from Mott met the requirements, see Figs. 3, 4, 5, and 6. 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. Besides, the stainless steel sintered surface has a fairly robust construction. Figure 4 shows an enlargement of two different pore-size filter elements, 0.5 and 100 microns. (Mott did not have a picture of a nominal rated 0.1 micron filter but stated that the appearance is identical to the larger sizes.) The tube housing, Figs. 5 and 6, 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 6. 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.

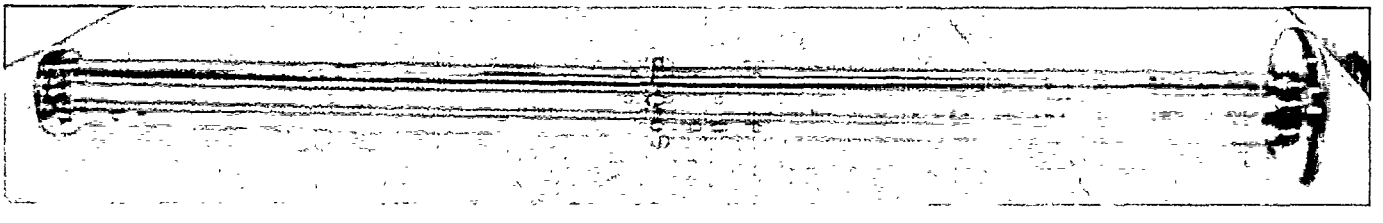


Figure 3a. 7-tube bundle of a nominal rated 0.1 micron filter, 3/8" i.d., ½" o.d., 40" long

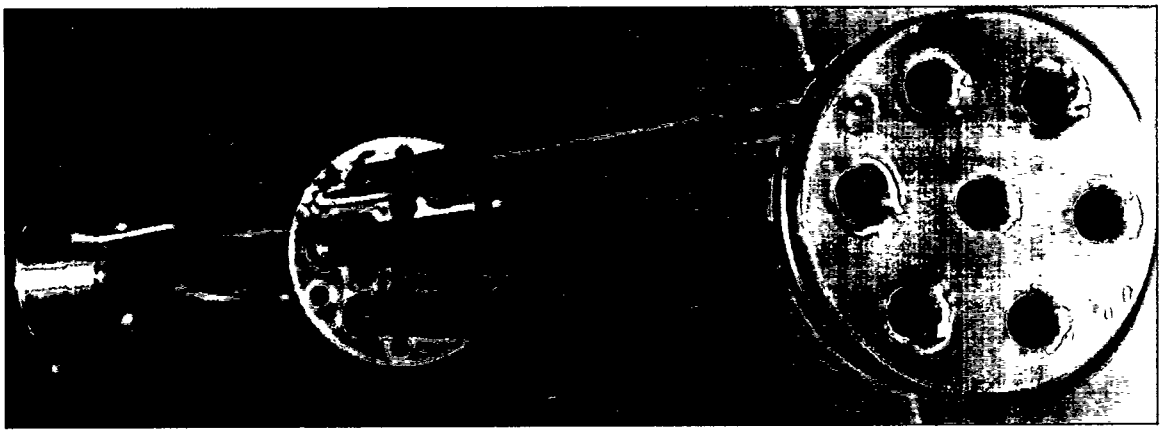


Figure 3b. Upstream view of the seven-tube bundle

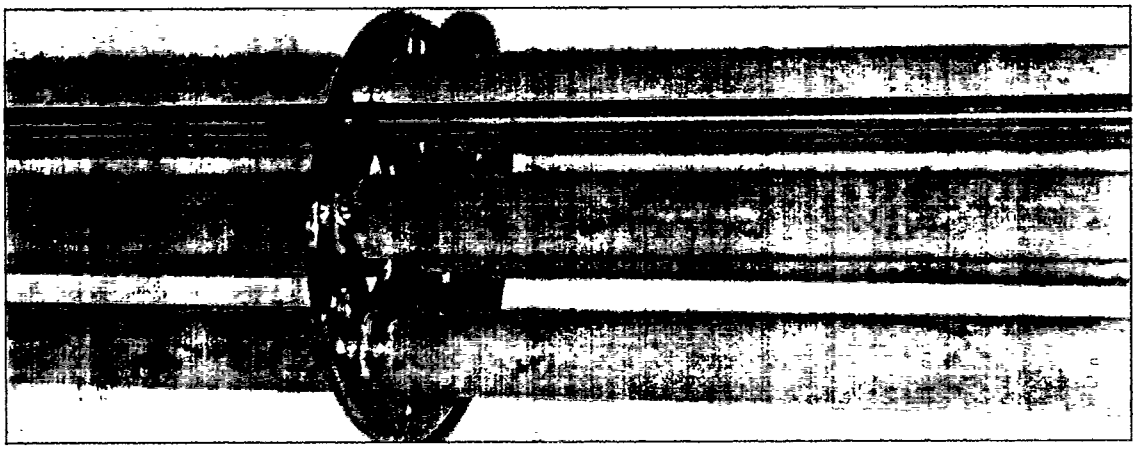


Figure 3c. Support plate at the mid-section of the seven-tube bundle

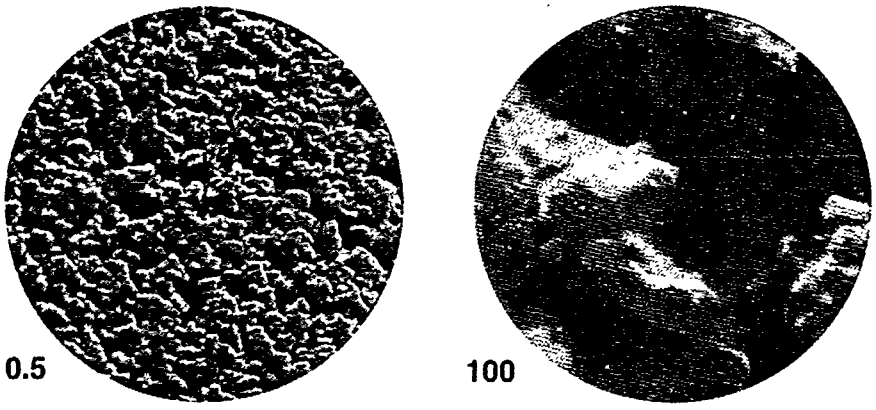


Figure 4. Magnified views (approximately 150X) of surfaces of two different pore-size rated Mott filters (the number to the left of each figure is the pore-size rating in microns)

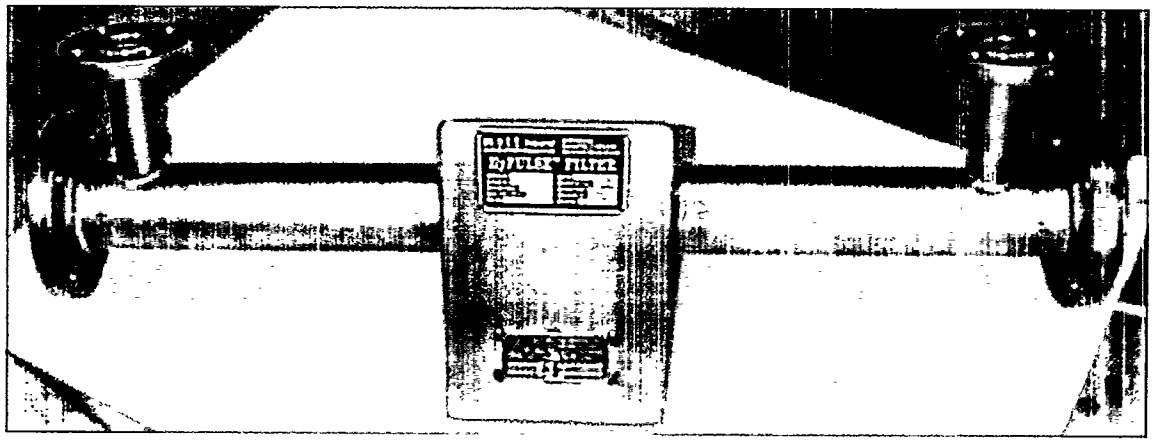


Figure 5. Cross-flow Filter Housing

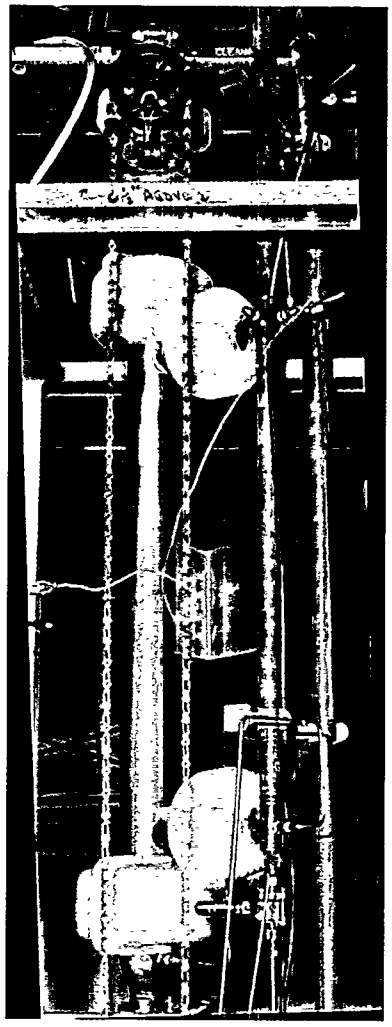


Figure 6. Cross-flow Filter in Test Rig

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 7 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.]

[*a separate 340-liter tank, with its own agitator and heater, was used when the 618-liter batch of simulant had to be made.]

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

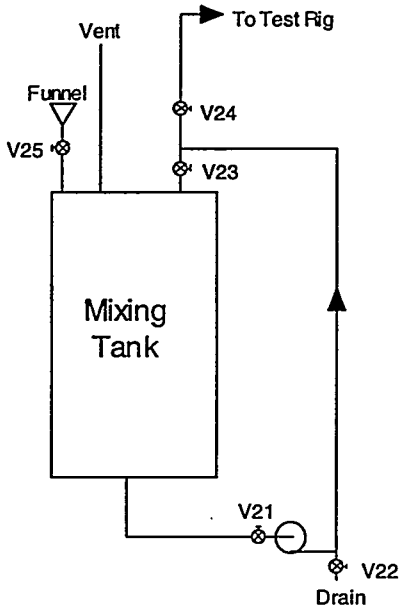


Figure 7. Main Mixing Tank for the Experiment

Instrumentation
The measurement equipment used for this experiment was:

5 Type E thermocouples with accuracies* from 1.2 to 1.3°C,
6 Variable capacitance pressure transducers with accuracies* from 0.05 to 0.40 psi, and
3 Magnetic flow meters with accuracies* from 0.012 to 0.26 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 those 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 Envelope C test did not begin until September 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. Near the end of the Envelope A test (22), and before the Envelope C test, on 7/14/99, another filtrate flowmeter was added (Q3; No. TR-03562). 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. This new range is above the expected flux range for the simulant slurry, however, it is useful to measure the higher fluxes with just water and for the slurry fluxes immediately after a backpulse.

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 indicate 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 (0 to 1.2 gpm).
Q3 – A magnetic flowmeter located at the filtrate line between the exit of the backpulse piston and valve V16 to measure the filtrate flowrate (0 to 5 gpm).

Measurement Uncertainty

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

Slurry Velocity in a Filter Tube	=	V	± 8.09 %
Transmembrane Pressure	=	TMP	± 1.10 %
Temperature Corrected Filtrate Flux	=	Fc	± 11.69 %
Permeability	=	P	± 11.74 %

These number are based on a pre- and post-test calibration 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 C + ES. Envelope C are radioactive wastes that include that of tank 241-AN-107 from the Handford Site, which is made up of organic and other complexants. The ES refers to the Entrained Solids contained in that tank. The simulant used for this task was cold (non-radioactive), but chemically it was made as close as was known to actual waste. The actual simulant development is beyond the scope of this task and not elaborated here. However, the following information was used to make the simulant.

Complete Envelope C Supernate Recipe at 7 Molar Na+

(valid as of 6/22/99)

Volume of Feed			Need, g
1000	mL	Fill the container with water	200

Transition Metals and Complexing agents

Compounds	Formula	Conc., PPM	M	Need Mass, g
Calcium Nitrate	Ca(NO3)2.4H2O	2083	1.18E-02	2.779
Cerium Nitrate	Ce(NO3)3.6H2O	98	3.01E-04	0.131
Cesium Nitrate	CsNO3	14	9.58E-05	0.019
Copper Nitrate	Cu(NO3)2.2.5H2O	66	3.78E-04	0.088
Ferric Nitrate	Fe(NO3)3.9H2O	7315	2.42E-02	9.758
Lanthanum Nitrate	La(NO3)3.6H2O	85	2.61E-04	0.113
Magnesium Nitrate	Mg(NO3)2.6H2O	158	8.21E-04	0.211
Manganous Chloride	MnCl2.4H2O	1213	8.18E-03	1.619
Neodymium Nitrate	Nd(NO3)3.6H2O	174	5.31E-04	0.233
Nickel Nitrate	Ni(NO3)2.6H2O	1571	7.21E-03	2.096
Potassium Nitrate	KNO3	2755	3.64E-02	3.675
Strontium Nitrate	Sr(NO3)2	8	5.16E-05	0.011
Zinc Nitrate	Zn(NO3)2.6H2O	123	5.53E-04	0.165
Zirconyl Nitrate		114	6.13E-04	0.153
EDTA*	Na2EDTA	4343	1.56E-02	5.794
HEDTA*	HEDTA	1294	6.21E-03	1.727
Sodium Gluconate		2349	1.44E-02	3.134
Glycolic Acid		16112	1.98E-01	21.494
Citric Acid		5648	3.59E-02	7.535
Nitrilotriacetic Acid		341	2.38E-03	0.455
Iminodiacetic Acid		3613	3.62E-02	4.820
Boric acid	H3BO3	120	2.58E-03	0.160
Sodium Chloride	NaCl	1088	2.48E-02	1.452
Sodium Fluoride	NaF	176	5.59E-03	0.235
Sodium Sulfate	Na2SO4	7299	6.86E-02	9.737
Potassium Molybdate	K2MoO4	53	2.98E-04	0.071

In separate container mix the following:	Fill the container with water	Need, g 200

Add	Formula	Conc., PPM	M	Need, g
Sodium Hydroxide	NaOH	15047	5.02E-01	20.073
Aluminum Nitrate	Al(NO3)3.9H2O	3211	1.14E-02	4.284
Sodium Phosphate	Na3PO4.12H2O	2658	9.33E-03	3.546
Sodium Formate	NaHCOO	9401	1.84E-01	12.541
Sodium Acetate	NaCH3COO.3H2O	1418	1.39E-02	1.891
Sodium Oxalate	Na2C2O4	752	7.49E-03	1.004

*(EDTA=Ethylenediaminetetraacetic Acid Disodium Salt Dihydrate)

*(HETDA=N-(2-Hydroxyethyl)ethylenediaminetriacetic Acid))

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

Add	Formula	Conc., PPM	M	Need, g
Sodium Carbonate	Na2CO3	88703	1.12E+00	118.330

Mix thoroughly. Then

Add	Formula	Conc., PPM	M	Need, g
Sodium Nitrate	NaNO3	178069	2.79E+00	237.544
Sodium Nitrite	NaNO2	54741	1.06E+00	73.024

Mix thoroughly and dilute to the mark.

The final addition of water would be = 385.02 grams
(grams based upon a density of 1.334 g/mL)

Final Weight, grams	1334.00	(2.93 lbs.)

Figure 8. Envelope C Simulant: Supernate Only

A recipe for the simulant supernate, Fig. 8, and one for the simulant solids, Fig. 9, were obtained from the WSRC Waste Processing Technology group. Each recipe is shown on a per-liter basis. The test was to use a batch of approximately 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.)

Envelope C Entained Solids

Approximate Supernate Volume	1000.0	mL
Approximate Supernate Density	1.334	g/mL
Approximate Supernate Mass	1334.0	grams
At 0.5 wt% solids loading	6.70	grams
Total Mass Supernate + Solids	1340.7	grams

Compound Name	Compound Formula	Concentration g/100g solids	Needed grams
Alumina	Al2O3	5.10%	0.34
Calcium Phosphate, tribasic	Ca3(PO4)2	0.10%	0.01
Chromium Oxide	Cr2O3	0.40%	0.03
Ferric Oxide	Fe3O2: 1-2 micron	2.40%	0.16
Ferric Oxide	Fe3O2: 5-10 micron	2.40%	0.16
Manganese Oxide	MnO2: 1-2 micron	1.55%	0.10
Manganese Oxide	MnO2: 5-10 micon	1.55%	0.10
Sodium Aluminosilicate	Na2OAl2O3(SiO2).2.5H2O	1.60%	0.11
Sodium Oxalate	Na2C2O4	34.20%	2.29
Sodium Carbonate Monohydrate	Na2CO3.H2O	32.30%	2.17
Sodium Fluoride	NaF	5.00%	0.34
Sodium Sulfate Decahydrate	Na2SO4.10H2O	4.10%	0.27
Sodium Phosphate Dodecahydrate	Na3PO4.12H2O	9.30%	0.62
	Total	100.00%	6.70

Figure 9. Envelope C Simulant: Solids Only – 0.5 wt%
[Combined with the Sr/TRU precipitants the total insoluble solids began at 2 wt%]

Along with the recipe for the solids, Fig. 9, the particle size distribution was specified: the particles were to have a bimodal distribution, with the small-size range from 1-2 microns and the large-size range from 5-10 microns, Fig. 10. Therefore, all the solids indicated in Fig. 9 were purchased to that specification. [The last six compounds in Fig. 9 do not indicate size because they were all expected to dissolve to some degree, where the size would have changed anyway. They were purchased at the smallest size commercially available without special grinding requirements. The first three

compounds had been previously purchased for the Envelope A test (22) and had a size of 0.5 to 5 microns that was deemed acceptable for this test.] Before adding the solids to make the slurry, BNFL 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 9/27/99, a slurry was made of distilled and filtered water with the appropriate solids, in the proportions shown in Fig. 9; the sample was submitted to determine the solids distribution. A volume distribution, Fig. 10a, and a number distributions, Fig 10b, were obtained by Microtrac on 9/28/99 and sent to the customer by facsimile transmission. On the same day the approval to begin testing was obtained.

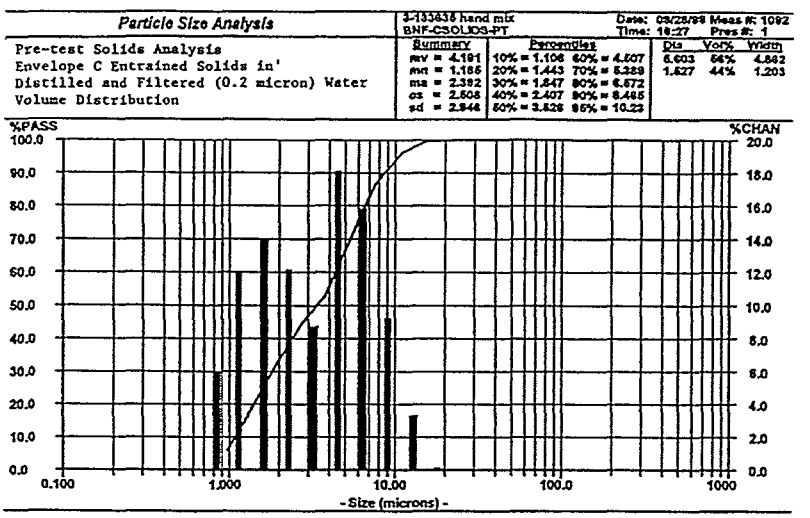


Figure 10a. Pre-test Insoluble Solids Distribution by Volume

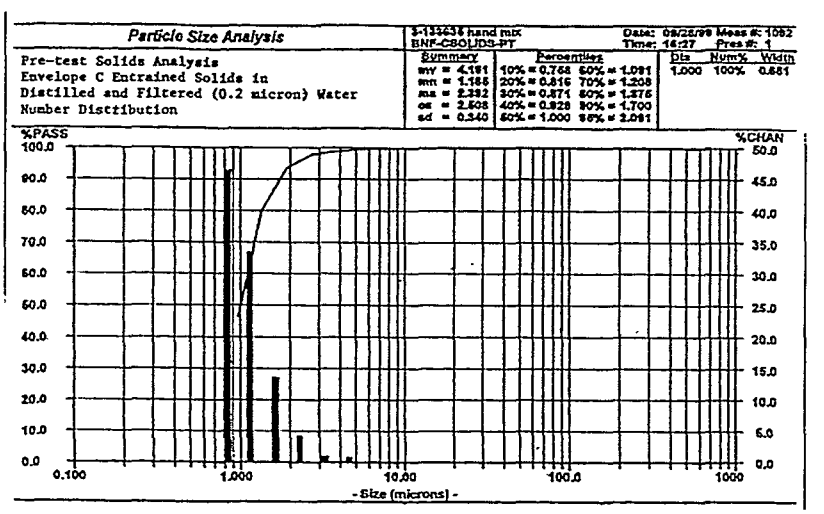


Figure 10b. Pre-test Insoluble Solids Distribution by Volume

An important feature in preparing the simulant used in this experiment is the creation of precipitants, which will also be part of the treatment of the real waste. With this addition the simulant is referred to as Envelope C + ES + Sr/TRU. The general steps in making the precipitants were as follows:

1. A fixed amount of Envelope C supernate (7 M Na^+) was made ready, as listed in Fig. 8.
2. The supernate was agitated and its temperature was increased to 50°C±5°C. These conditions were maintained while all additions were made.
3. The appropriate amount of insolube solids, Fig. 9, was added and the mixture was allowed to mix for 10 to15 minutes before the next addition.
4. 166.7 ml of deionized and filtered water per liter of the 7 M Na^+ supernate were added. (This was done to reduce the sodium molarity to 6 M) The mixture was allowed to mix for 10 to 15 minutes before making the next addition.
5. 55.6 mL of 19 M NaOH solution per liter of 6 M Na^+ supernate were slowly added and then the mixture was allowed to mix for 10 to 15 minutes before making the next addition.
6. 90.5 mL of 1 M $Sr(NO_3)_2$ solution per liter of 6 M Na^+ supernate were slowly added and then the mixture was allowed to mix for 10 to 15 minutes before making the next addition.
7. 60.3 mL of 1 M $NaMnO_4$ solution per liter of 6 M Na^+ supernate were slowly added.
8. The agitated mixture was then maintained at 50°C±5°C for 4 hours.
9. Finally, the mixture was cooled to 25°C for the test to begin.

The above mixing procedure was followed, as per the test specification (4, 11). However, there was one deviation made. Because of expected difficulties in handling and fully incorporating the 19 M NaOH solution into the mixture, the water addition of step 4 was used to make a more dilute mixture of NaOH. That is, steps 4 and 5 were combined to make 216.2 mL of 5.3 M NaOH solution per liter of the 7 M Na^+ supernate. This solution was then added to the 7 M Na^+ supernate before doing step 6. [The developer of the slurry simulant, WPT, believed that this deviation would still result in the targeted Sr/TRU mixture.] The resulting mixture was estimated to have 5.89 M, 0.075M, and 0.05 M, of sodium, strontium, and manganese, respectively. Subsequent measurements of those quantities confirmed those values. (See the filled square symbols on Figs. E16, E17, and E10 in Appendix E). Note that the color of the mixture changed while making the solution. The supernate started at a deep caramel color, a color similar to a cola drink. The addition of the clear NaOH solution did not seem to have any effect on the color but the clear strontium nitrate solution caused the mixture to turn a light brown. When the deep purple sodium permanganate solution was added, the mixture turned a dark brown once again, but not as dark as the original supernate color.

Because of the important interactions among the solids particles and the different precipitants, solids could not be simply added to the slurry to increase the solids

concentrations. Therefore, when the time came to run the test with a higher concentration of insoluble solids and precipitants, i.e., near 20 wt%, a large batch (618 liters) of slurry had to be made. This batch was then reduced to approximately 50 liters by dewatering through the filter, and had a measured insoluble solids content of 22 wt%. The volume was subsequently increased to 75 liters by returning some of the filtrate, reducing the solids content to 14 wt%, because the thick slurry caused pump and temperature problems in the test rig.

In general, the resulting slurry had significant precipitants, and depending on the level of dewatering, the precipitants occupied considerable volume. After the filtration test the heights of settled solids in several samples were measured. Figure 11 shows the approximate volume occupied by the insoluble solids and precipitants.

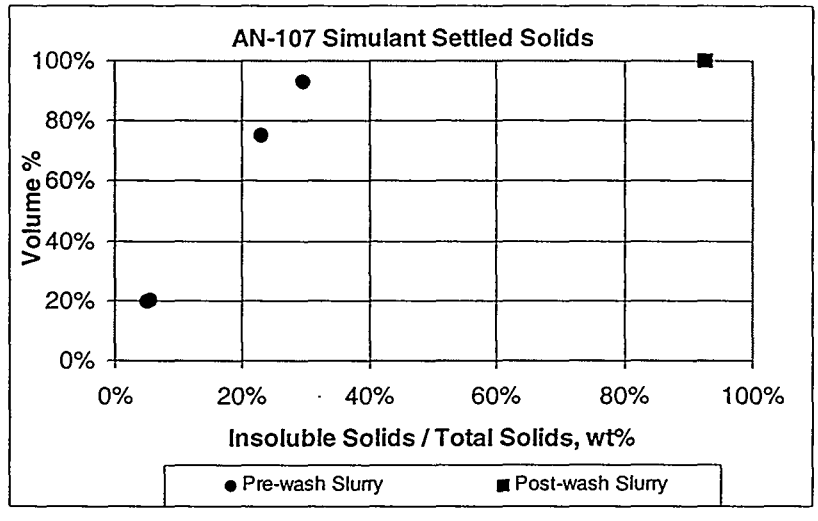


Figure 11. Long-term settling volumes of insoluble solids and precipitants

The ordinate of Fig. 11 is simply the height of the solid/supernate interface in a straight-walled container multiplied by the cross sectional area of that container. The abscissa is the wt% of insoluble solids divided by the wt% of the total solids in a sample. It must be noted that the measurement was made on samples that were sitting around for a couple of months. A similar test (23), with fresh simulant, indicated that the settling volume is larger, but reduces to the volumes indicated in Fig. 11 within several days of fabrication.

Figure 12 shows several samples of the slurry in Nalgene containers that were drawn during the test. (Note: the solids concentrations indicated in the figure were estimated when the picture was taken. Subsequently, the actual amounts were measured; they were: 1.9 wt% -> 1.8 wt%, 9 wt% -> 8.75 wt%, the 15 wt% -> 14.3 wt%, the 20 wt% -> 22.1 wt%) With the centimeter scale in the center of the figure, the numbers in Fig. 11 can be roughly verified, once the total solids loading is known. Those, and other pertinent numbers, are shown below.

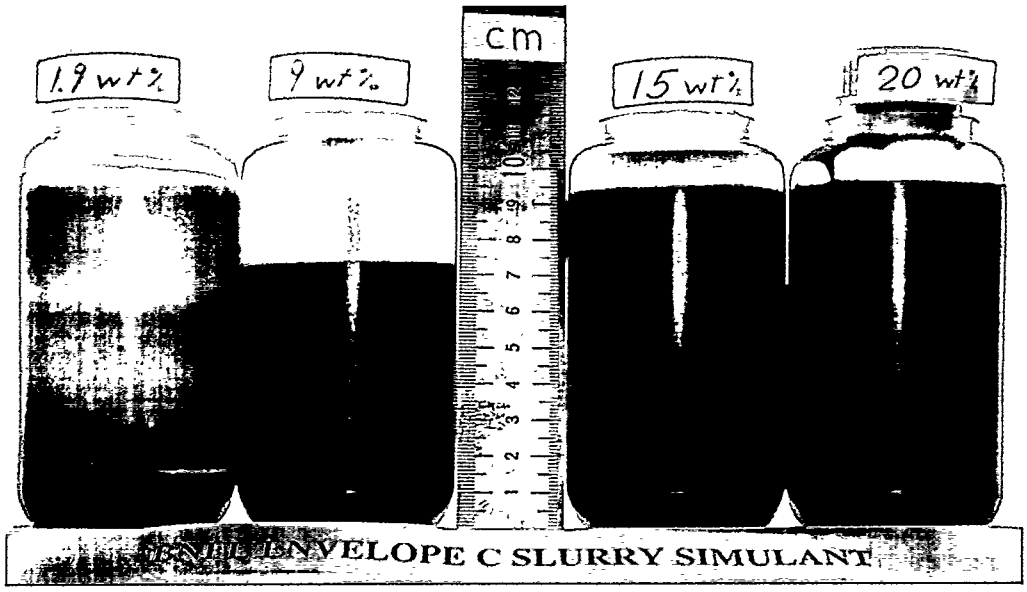


Figure 12. Settled solids in simulant: Envelope C+ES+Sr/TRU precipitants
[Photograph was taken on 12/7/1999]

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

Slurry Density:

Pre-washed ~1.29 g/mL at 2 wt% insoluble solids, 36 wt% total solids
Pre-washed ~1.36 g/mL at 9 wt% insoluble solids, 41 wt% total solids
Pre-washed ~1.39 g/mL at 14 wt% insoluble solids, 44 wt% total solids
Pre-washed ~1.47 g/mL at 22 wt% insoluble solids, 49 wt% total solids
Post-washed ~1.15 g/mL at 18 wt% insoluble solids, 19 wt% total solids
Post-washed ~N/A g/mL at 38 wt% insoluble solids, 41 wt% total solids

Slurry Rheology

~Newtonian* at the lowest insoluble solids concentration (2 wt%) and changes to a pseudoplastic* at the higher solids concentrations. (See Figs, E1 and E2 and the explanation below on Bingham* fluids)

Slurry Viscosity/Consistency* (Yield Stress* is in parentheses):

Pre-washed ~ $\mu = 4$ cP at 2 wt% insoluble solids
Pre-washed ~ $\mu_0 = 7.4$ cP at 9 wt% insoluble solids ($\tau_0 = 3.4$ dynes/cm^2)
Pre-washed ~ $\mu_0 = 11.6$ cP at 14 wt% insoluble solids ($\tau_0 = 9.2$ dynes/cm^2)
Pre-washed ~ $\mu_0 = 23.4$ cP at 22 wt% insoluble solids ($\tau_0 = 55.4$ dynes cm^2)

*See the discussion on the next page of the rheological terms

Post-washed ~ μ_0 = 4.1 cP at 18 wt% insoluble solids and 19 wt% total solids
(τ_0 = 22.0 dynes/cm^2)
Post-washed ~ μ_0 = 24.0 cP at 38 wt% insoluble solids and 41 wt% total solids
(τ_0 = 684.0 dynes/cm^2)

Filtrate at 34 wt% soluble solids:
Density ~1.27 g/mL, μ = ~3.2 cP, Sodium [Na^+] Conc ~5.9 M

[Discussion of rheology terms (24): For the 5 out of the 6 slurry solids loadings show above, the slurry did not behave as a Newtonian fluid and therefore the concept of viscosity changes. The bottom curve in Fig. 13 represents the characteristics of a Newtonian fluid model. That is, the fluid shear stress, τ, is directly proportional to the fluid shear rate, γ.

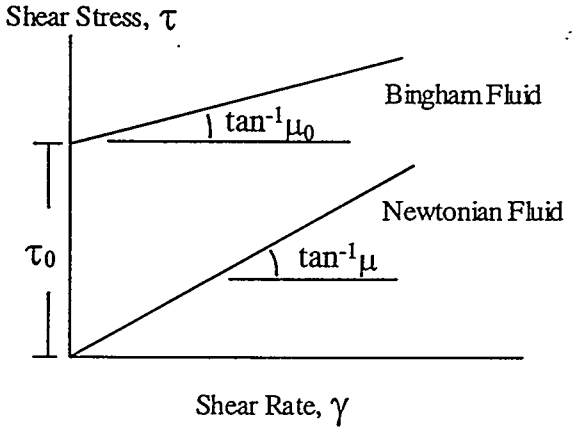


Figure 13. Flow curves for Newtonian and Bingham fluids

Generally the quotient of the ratio of τ/γ, in simple shear flow, is a constant defined as the dynamic viscosity, μ. Fluids that do not follow this model are referred to as non-Newtonian. The simulant used is this task, at elevated insoluble solids loadings, has the rheological properties of a thixotropic fluid, or a pseudoplastic fluid where the properties are time dependent. A pseudoplastic fluid in known for its shear-thinning properties which means that there is a reduction in viscosity as the rate of shear increases in a steady shear flow. For certain pseudoplastics the rheological properties change with time. A close look at the curves in Figs. E1 and E2 (in Appendix E) show hysteresis, which indicates the time dependence. However, for engineering purposes the rheological Bingham fluid model captures most of the salient features of the slurries. The top curve in Fig. 13 shows the Bingham fluid model. The model, $\mu_0=(\dot{\tau}- \tau_0)/\gamma$, is the same as for a Newtonian fluid except that there is a yield stress; a finite shear stress when the shear rate is zero. That is, a finite stress, τ_0, needs to be overcome before a fluid begins to move.
A Bingham model has two constants, τ_0 and μ_0, instead of the single dynamic viscosity, μ, of a Newtonian fluid. The shear stress at zero shear rate is τ_0, and μ_0 is referred to as

consistency, or plastic viscosity. These two constants completely define a Bingham fluid and these are the values given above for the slurries above 2 wt% in insoluble solids.

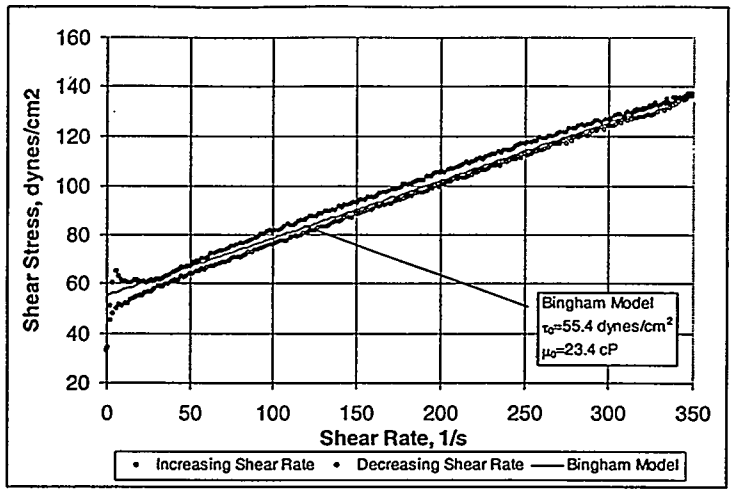


Figure 14. Fitting a Bingham rheological model to data from the end of run 1.08

To see how well the Bingham model fits one slurry sample, Fig. 14 shows the results of sample taken just as run 1.08 was completed. It had an insoluble solids loading of 22 wt% and a total solids loading of 49 wt%.]

Finally, a question was raised as to how fast the precipitants settles (25, 26). Several slurry samples were mixed well and placed in straight-walled glass vials to obtain a more accurate measurement of the settling volumes. Figure 15 shows the change in the volume of the space occupied by solids with time under the action of gravity alone. Once again, that volume is determined by the height of the slurry/supernate interface multiplied by the cross-sectional area of the container; therefore, the volume is really a mixture of the solid particles, the liquid within the particles, and the liquid between the particles.

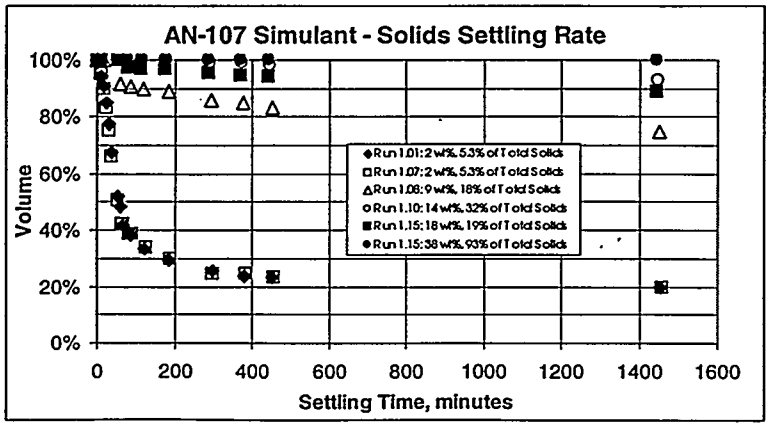


Figure 15. Solids settling rate in simulant: Envelope C+ES+Sr/TRU precipitants

Test Procedure/Matrix

Details of the test matrix and procedure that were carried out can be found in the Test Procedure (18) and the accompanying Operational Instructions (19), which are also listed in the task notebook (5). However, to facilitate understanding the general operation of the test, the procedural steps are summarized below (see Fig. 1 for valve locations):

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 V11.
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.

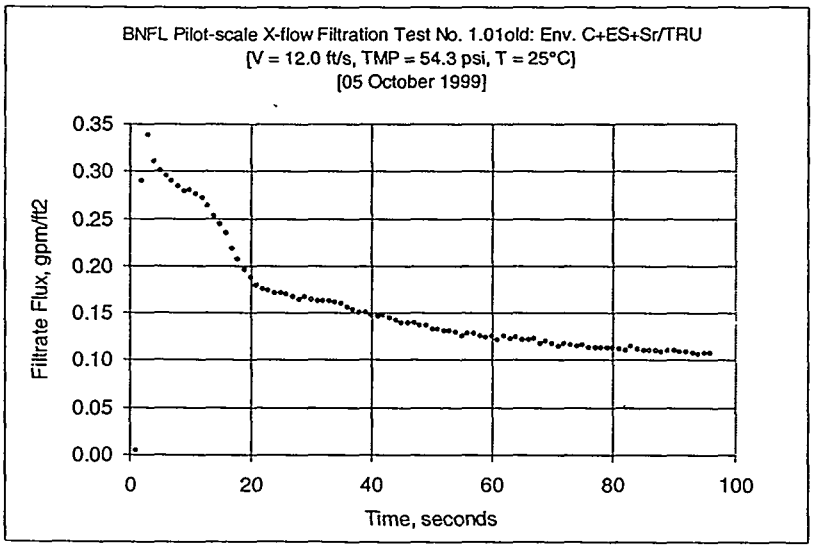


Figure 16. Filtrate flux immediately following a backpulse

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 item 1 of the *Test Rig* description, the volume of plenum was 0.036 gallon/ ft^2; therefore, the recovery time at 0.3 gpm/ft^2 was approximately 0.036 / 0.3 x 60 = 7 seconds. A flux of 0.3 gpm/ ft^2 was taken because that was close to the filtrate flux right after a backpulse, Fig. 16.]
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 (with 0.01 M NaOH), equal to the volume in the test rig (~75 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

Part of the test matrix of the Envelope A test, which was completed in July 1999, was to clean the filter, and the test rig, with 1 M nitric acid, followed by a water rinse (22). This was the state of the test rig and filter to begin the Envelope C test. However, before beginning any test with any simulant, 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 flow rushes past (crosses) 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 17 shows 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 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 was. The calculation was not straight forward because to determine an accurate pressure drop involves knowing the several contributions to that drop.

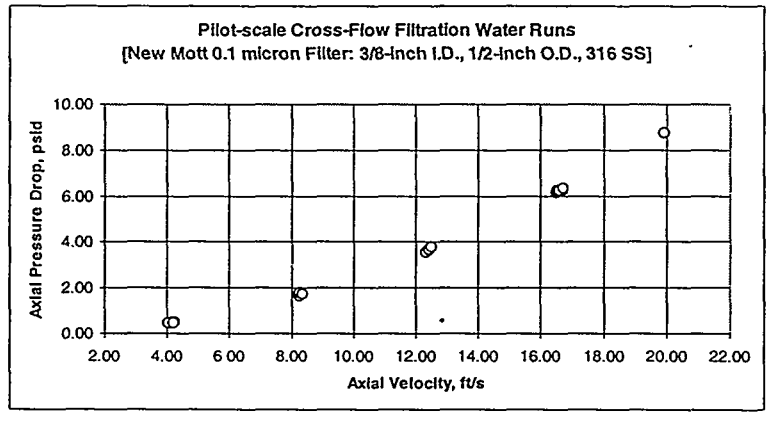


Figure 17. Axial pressure drop vs. axial velocity of water in the cross-flow filter

Figures 1 and 6 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. 17 is the grouping

of several data points for each combination of pressure drop and velocity. For example, nine points make up the group at 4 ft/s of axial velocity. Likewise, the groups of points at 8, 12.5, 16.5, and 20 ft/s of axial velocity are made up of 5, 4, 7, and 1 point, respectively. The different points within a group correspond to a changing system pressure at the filter. That pressure was increased three fold from approximately 5 to 16 psig, which resulted in filtrate fluxes from approximately 0.1 gpm/ft^2 to 0.5 gpm/ft^2. This result means that the changing system pressure had an insignificant effect on the axial pressure drop.

The effect of system pressure on filtrate flux at a fixed axial velocity is apparent in Fig. 18. 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 0.52 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 Envelope A test (22) another meter was installed to measure up to 2.2 gpm/ft^2 but it wasn't available during shakedown.

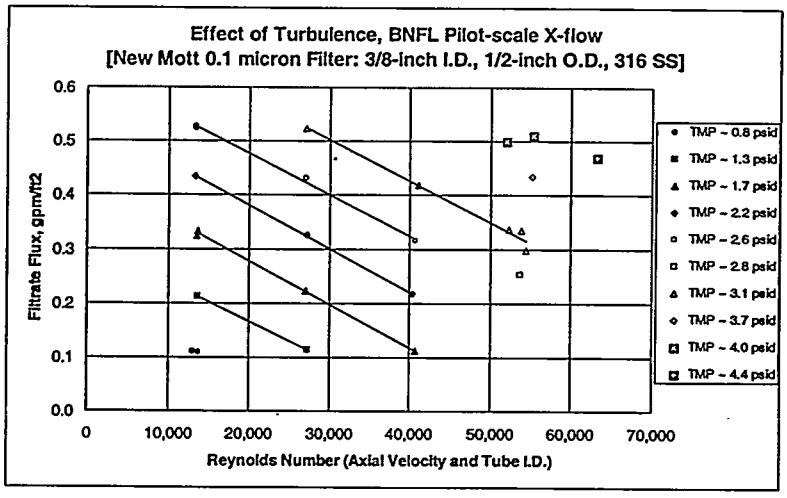


Figure 18. Filtrate flux vs. axial velocity of water in the cross-flow filter

What is interesting in Fig. 18 is that for a constant TMP the filtrate flux decreases as the velocity increases. This is understood when considering that a cross-flow filter is really only useful when there is something to filter. That is, when filtering a slurry, solids form a filter cake, which creates resistance to filtrate flow. As the slurry velocity increases more cake is sheared from the surface, thus allowing more filtrate to flow. However, when no solids exist in the liquid only the fluid dynamics affect the flow. As can be seen in Fig. 19 the increase axial velocity leads to an increase in the Reynolds number.

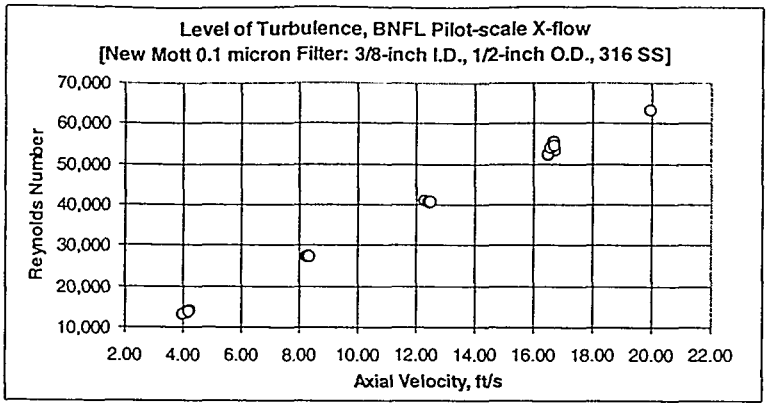


Figure 19. Reynolds vs. axial velocity of water in the cross-flow filter

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. 19 is to show the intensity of turbulence. As turbulence increases the laminar sublayer decreases, the inertial sublayer is created and then increases, and the scale of energy dissipating eddies become increasingly smaller (27). 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. 18. However, an attempt was made to collapse those curves into a single curve to be more useful by normalizing TMP with the axial pressure drop versus normalizing filtrate velocity with the axial velocity . Figure 20 show the results of that attempt.

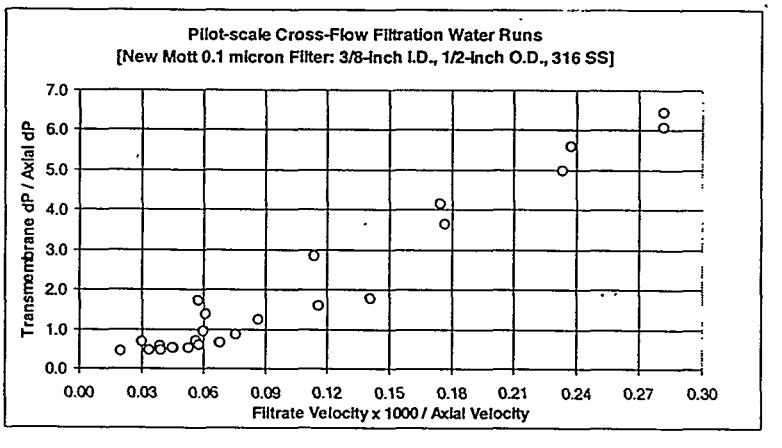


Figure 20. Normalized TMP vs. filtrate velocity in the cross-flow filter

RESULTS AND DISCUSSION

General

The different phases of the test matrix that we shall discuss are: initial water baseline, low solids concentration, pre-wash dewatering, high solids concentration, slurry wash, plugging, water rinse, final water baseline (without chemical cleaning), cleaning, and final water baseline. After a discussion on some of the analytical and washing results, a discussion of the hydraulic results will follow that chronological order with the exception of the water and cleaning runs. Those runs will be given together in order to show any lasting effect of the slurry on the filter medium and thereby have a clear perspective of the test runs. The test matrix (4) was:

	Test Specification Target Values			
Run(1)	Duration minutes	Slurry Velocity ft/s	TMP psid	Condition
1.00	120	12.2	10,20,&30	Water
1.01	120	12.2	50	Low Solids Concentration
1.02	120	9.1	30	Low Solids Concentration
1.03	120	15.2	70	Low Solids Concentration
1.04	120	15.2	30	Low Solids Concentration
1.05	120	9.1	70	Low Solids Concentration
1.06	120	12.2	50	Low Solids Concentration
1.07	120	best(2)	best	Low Solids Concentration
1.08	time needed	best	best	Dewater
1.09	120	12.2	50	High Solids Concentration
1.10	120	9.1	30	High Solids Concentration
1.11	120	15.2	70	High Solids Concentration
1.12	120	15.2	30	High Solids Concentration
1.13	120	9.1	70	High Solids Concentration
1.14	120	12.2	50	High Solids Concentration
wash 1	n/a	n/a	n/a	Wash 0.01 M NaOH (3)
wash 2	n/a	n/a	n/a	Wash
wash 3	n/a	n/a	n/a	Wash
wash 4	n/a	n/a	n/a	Wash
1.15	time needed	best	best	Plugging
1.16	time needed	n/a	n/a	Water Rinse
1.17	120	12.2	20	Water
1.18	18->24 hrs	n/a	n/a	Cleaning 1 M NaOH (3)
1.19	120	12.2	10,20,&30	Water

(1) This is the matrix as it was modified on 10/18/99 by BNFL
(2) The word "best" refers to the best filtrate flux obtained in the preceding runs
(3) Distilled and filtered (0.2 micron) water was used

Figure 21. Test matrix as stated in a modification to the test specification (4)

Test Run Sequence and Nomenclature

As will be explained in the following sections there were some deviations from the Fig. 21. The largest change was the modification to the test matrix made on 10/18/99 by BNFL, as requested by DOE. By that date, all of the low concentration runs were already done. However, those runs, i.e., 1.01 to 1.07, were repeated before run 1.08 began. The

runs that were made before the mid-test change are referred to as (old), e.g., 1.01(old). All other deviations that occurred were to better understand the filter operation during the test. For example run 1.01a(old) was done to have three data points at the same flow conditions to determine if the filter performance was degrading as the slurry aged in the test rig. Test runs 1.04(old), 1.05(old), and 1.07 were repeated to better evaluate "best" conditions. The repeat runs numbers are followed by the letter "a", e.g., run 1.01a(old).

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

Filter Effectiveness

One goal of this task 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 10 compounds and 6 metals (Al, Ca, Cr, Fe, Mn, and Na), with Sodium being the quantity largest by mass, and Sodium Oxalate, which was the largest compound by mass (Fig. 9). Based on a sample analysis (Fig. 10), the particle sizes purchased for the solids ranged from approximately 1 to 10 microns. From the filtrate results in Fig. 22 it is apparent that the filter removed all the solids.

	Total Solids, wt%	Insoluble Solids, wt%	
Test Run	Slurry	Slurry (1)	Filtrate
1.00 (water)	not measured	<0.002	
Pre-wash	44.1	14.3	
Wash 1	32	15.3	0.015 (2)
Wash 2	24	16.4	<0.0001
Wash 3	20	17.5	not available
Wash 4	19	18.5	<0.0001
1.19 (water)	0.014	<0.0001	

(1) Wash values were estimated from pre- and post-wash values
(2) No solids were visible when the sample was drawn. However, during the 1 month before the sample was tested a small amount of precipitants formed causing this non-zero result

Figure 22. Insoluble solids in the slurry and the filtrate throughout the test

The insoluble solids filtrate value for Wash 3 is not shown because the sample became contaminated. The amount of solids that was measured for the water runs is shown to indicate the state of the test rig before and after the test. All measured quantities can be found in Appendix E. 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 23 shows that the particle diameter (by a volume distribution analysis) remained at approximately the same size throughout the test, i.e., a bimodal distributions with averages of 1.5 microns, for the small-size, and 5.5 microns, for the large-size. The

standard deviations from these averages were on the same order of magnitude as the particle diameters. This was expected since the two different particle sizes were purchased to be between 1-2 microns and 5-10 microns. However, the largest number particles were closer to 1 micron. When analyzing the particles by a number distribution, Fig. 24, the mean particle size is very close to 1 micron, with one standard deviation being 0.3 micron. In general, the particle sizes did conform to the required sizes and those particle sizes remained basically intact throughout the experiment. The complete set of Volume and Number distributions can be found as Figs. E24-E30 in Appendix E.

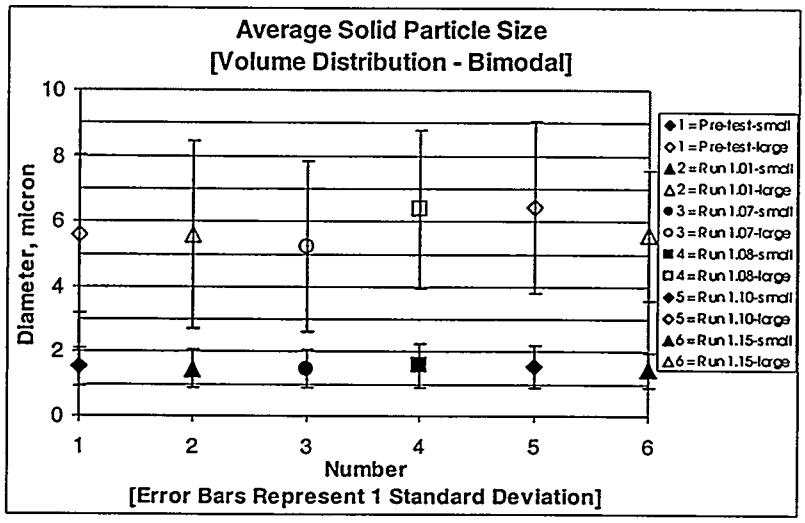


Figure 23. Particle size based on a volume distribution

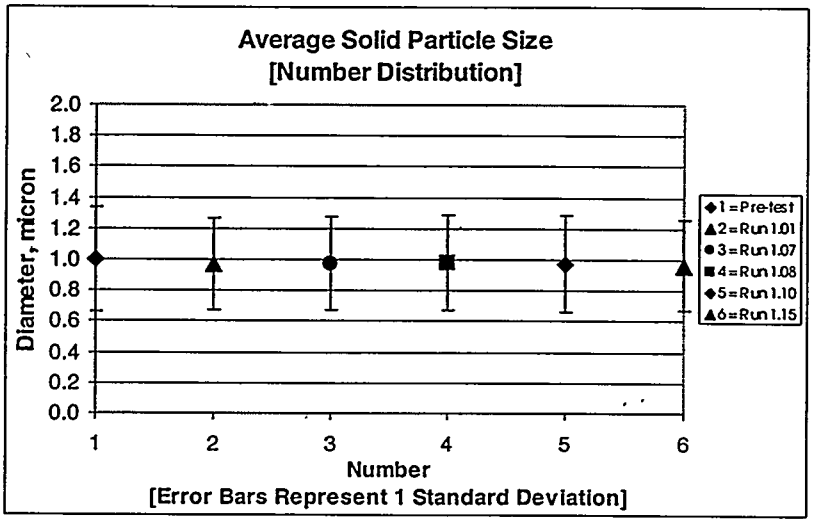


Figure 24. Particle size based on a number distribution

Washed Slurry

After all steady state test runs, the slurry was ready to be washed. At the end of run 1.14 there were approximately 75 liters of slurry in the test rig, containing about 14 wt% of insoluble solids and 44 wt% of total solids, see Fig. 22 (pre-wash). The wash runs were done in four 75-liter batches. However, the full 75 liters could not be put in the slurry reservoir all at once. (A completely full reservoir and test rig holds approximately 136 liters.) The slurry reservoir was filled with 40 to 50 liters of wash solution to start and as the filtrate was removed from the test rig the remaining solution was added. Samples were drawn when the washed slurry was with 5 liters of the original 75 liters. The wash solution was distilled and filtered (0.2 micron) water with a little bit of sodium hydroxide added, i.e., 0.01 M NaOH, as per BNFL direction. This process was repeated until 300 liters of wash solution were used.

* Sodium *
One of the major reasons for washing is to reduce sodium content. Figure 25 shows the Na^+ reduction. Point number 1 was the sodium concentration, 6.5 M, of the pre-washed slurry (containing 14.3 wt% of insoluble solids). Point number 2 shows the sodium concentration, 5.5 M, of the pre-washed filtrate. Numbers 3 to 6 show the sodium level after each batch of 75 liters of water was added to the slurry reservoir that held approximately 75 liters of slurry.

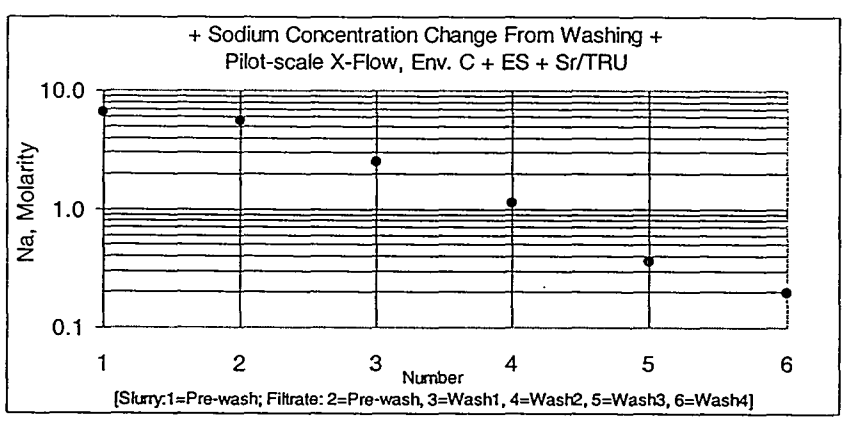


Figure 25. Reduction of sodium with successive washings

The line of points in Fig. 25 from number 2 to 6 is fairly straight on the semi-log scale, which was not unexpected. Figs. 26 and 27 show how the filtrate density and viscosity changed as the sodium level decreased from approximately 6 M to 0.2 M.

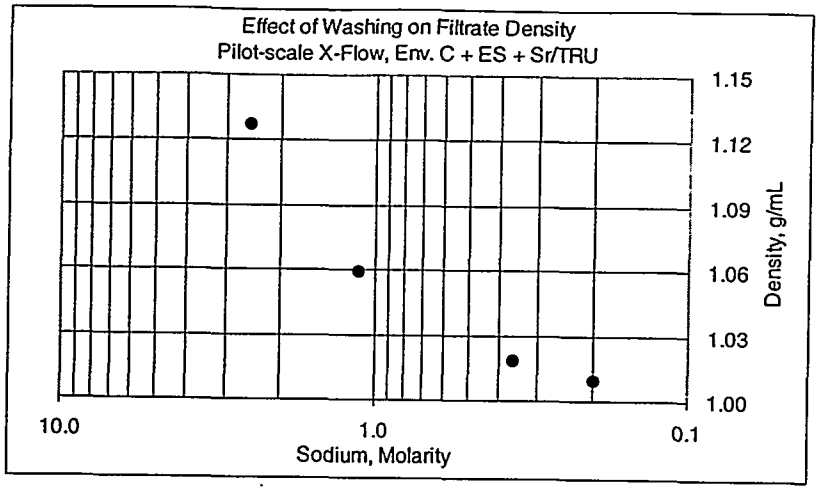


Figure 26. Filtrate density vs. sodium during washing

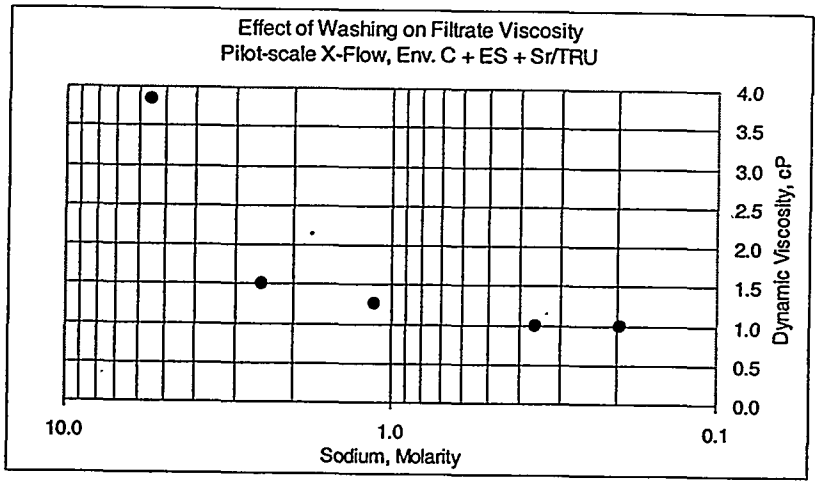


Figure 27. Filtrate viscosity vs. sodium during washing

* 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. 9, approximately 34% 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. The simulant was designed such that the added oxalate would remain in an undissolved form. To do this the liquid portion of the simulant, the supernate, was to be saturated with sodium oxalate before adding the solids.

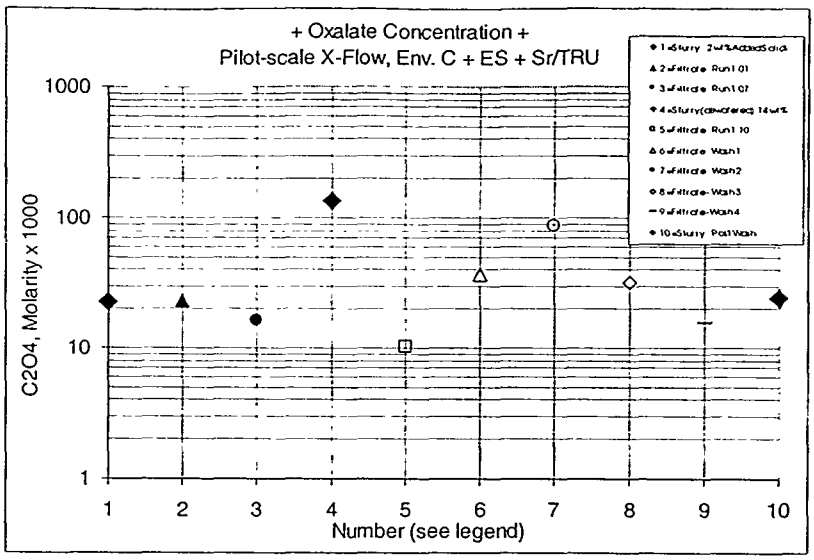


Figure 28. Oxalate changes in the filtrate during the test
[Note: Except for nos. 1, 4, and 10 all oxalate values are from the filtrate]

However, Fig. 28 implies that for the low solids concentration slurry (Numbers 2 and 3 in the Fig. 28) most of the oxalates in solid form dissolved. The oxalate concentration in the filtrate was between 0.017 M and 0.023 M; the sodium concentration was 5.9 M. Number 1 is the value of the oxalate concentration from all its sources in the slurry, 0.023 M, and of this amount 0.005 was already included in the supernate. Therefore, it seems that the supernate was not fully saturated with oxalate. The value of number 4, i.e., 0.14 M, is the amount of oxalate in the slurry for all test runs starting with run 1.09. The oxalate values for numbers 5 through 9 are from the filtrate samples that came from the slurry with this higher oxalate concentration before washing. However, the supernate of the slurry before washing should have still been saturated at the 0.023 M level; the saturation level may have been a little different because in concentrating the slurry the sodium level increased to 6.5 M. 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 (numbers 6 to 9), the oxalate in the supernate does increase as more and more water is added, but it showed a maximum of 0.087 M on the second wash. Afterwards, the concentration decreased on the third and fourth wash runs. Note that all 4 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., 6 to 9, may not be from a mixture in equilibrium. The oxalate value in the slurry at the beginning of run 1.15 was 0.024 M, shown as No. 10 in Fig. 28. (After 4 washes, this slurry was basically water and insoluble solids. In fact, Fig. 22 shows that the total solids in the wash 4 slurry only differed from the insoluble solids by about 1 wt%.). The slurry sample that gave the result as number 10 was taken the day after washing; just before run 1.15, the plugging run. This may indicate that the slurry was not at equilibrium on the preceding day. Sitting overnight may have allowed the slurry to come to equilibrium. On the other hand,

it is more likely that most of the oxalate was removed from the slurry during the wash and a small amount of oxalate remained, which dissolved overnight.

Decontamination
As already mentioned, the simulant for this test was made to represent the radioactive waste. Whenever possible non-radioactive isotopes of radioactive elements were used. It is of interest to see how well the precipitation and filtration separated various chemical species. Figure 29 shows a composite of several chemical species in the slurry and in the filtrate. The ordinate is a ratio of the slurry molarity to the filtrate molarity for selected ions, and will be called a decontamination factor (DF). The results came from one filtrate sample and one slurry sample. The filtrate sample was from run 1.07(old); the final steady-state run with the low concentration of insoluble solids, 2 wt%. The slurry sample was from the slurry used just before the dewatering, run, 1.08; that is, it was taken just before the simulant at 2 wt% of insoluble solids was concentrated.

The slurry simulant had many components and complexant interactions. It is beyond the scope of this task to explain the chemical interactions of the slurry but some observations of the chemical and mechanical separations are possible. From Fig. 29 it is immediately obvious that the main contributors to the precipitation have the highest DFs, i.e., DF = 69 for Sr and DF = 187 for Mn. Iron, which was 5% of the mass of the solids, Fig. 9, had a DF of 22. Lanthanum, representing the TRU waste, had a DF = 20. Calcium and copper had DFs close to 2. Finally, phosphate, sulfate, nickel, and aluminum remained in soluble forms and therefore little or no separation was measured, DF $\approx$ 1.

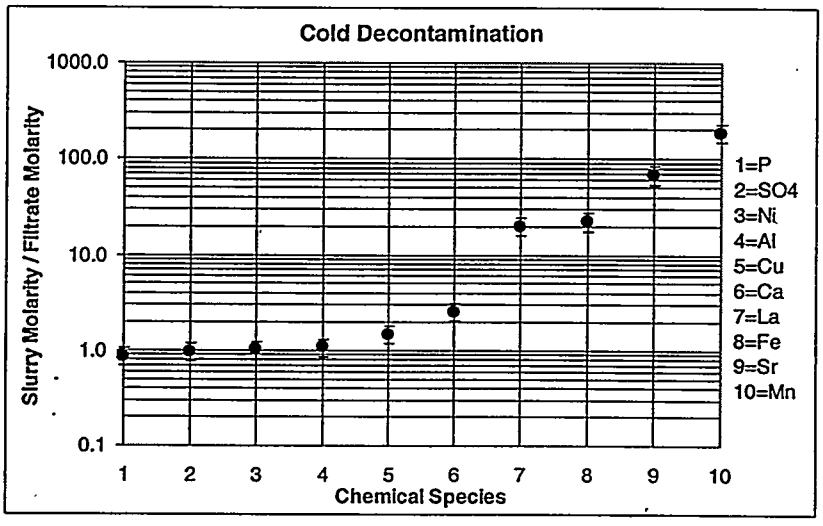


Figure 29. Separation of several ions from the slurry

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 1.00, 1.17, and 1.19 and the Cleaning Run 1.18
[See Appendix A for the entire set of data sheets.]

Permission to start the test was received on 9/28/99 and testing began on the same day with the first required test: water, run 1.00. As explained in the shakedown section, the added filtrate flowmeter allowed fluxes above 0.5 gpm/ft^2 to be measured. However, the two highest TMPs indicated in the test matrix, Fig. 21, could not be obtained, i.e., 20 and 30 psid. With a clean filter and all three pumps operating, and with the axial filter velocity of 12.3 ft/s, the highest TMP obtainable was approximately 18 psid. Figure 30 shows the results for run 1.00. Five runs were made from 3 to 17.7 psid. At highest flowrate attainable the TMP was 17.7 psid, which may be the reason the filter flux fluctuated. These results are compared to the final water runs to determine if the filter could be returned to its initial condition.

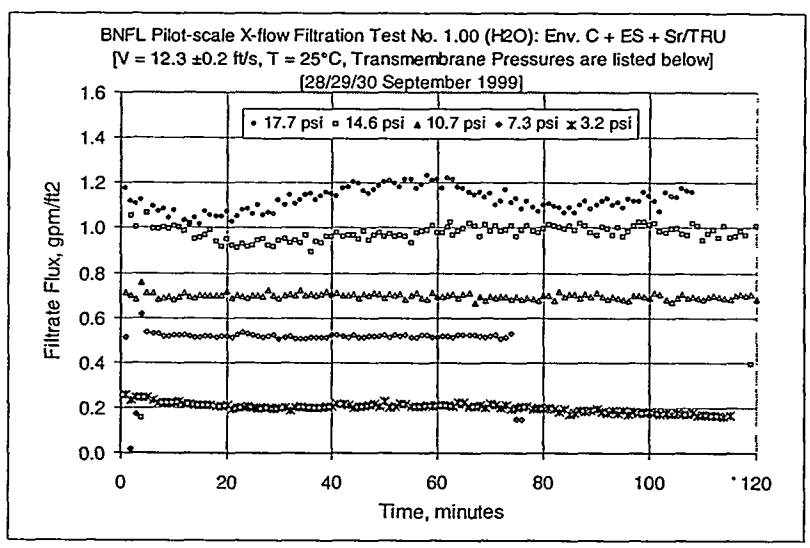


Figure 30. Initial water runs

Figure 31 shows the results of the water run, 1.17, just after the slurry test. Run 1.16 was done to rinse the filter and test rig with distilled and filtered water. To make sure that it was rinsed well, eight batches of 50 liters of water were used at several different flow conditions. Each batch was run for approximately 30 minutes. However, the 400 liters water did not return the filter filtrate flux back to its initial values. Both water test runs (1.00 and 1.17) had the same axial velocity of 12 ft/s. Comparing Fig. 31 data to the high TMP data set in Fig. 30 there was an order of magnitude difference in the filtrate fluxes. Run 1.17 was then followed with a cleaning run of 1 M NaOH, run 1.18.

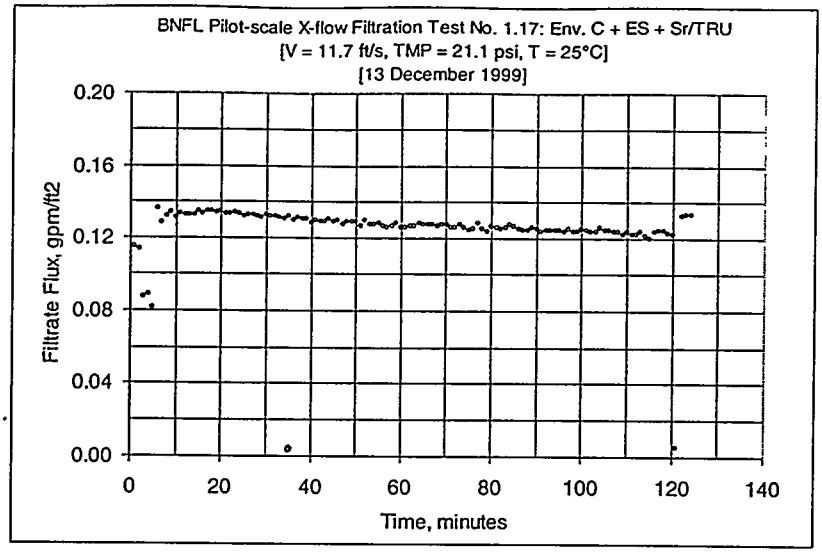


Figure 31. Final water run 1.17 before chemical cleaning

Figure 32 show the results of the cleaning run. To explain the data in the figure the filtrate flux curve can be broken down into different phases of active cleaning, when the cleaning solution was circulated through the filter. The cleaning was done over three days. During the first two days the 1 M NaOH cleaning solution was isolated in the cleaning loop, which limits cleaning to the filter and its immediate filter leg, Fig. 1. Cleaning began at the end of the day on 12/13/99 and the solution was circulated for about 4 hours. The tight cluster of data on the left-hand side of the graph, from 0 to 250 minutes, were taken at 1 minute intervals.

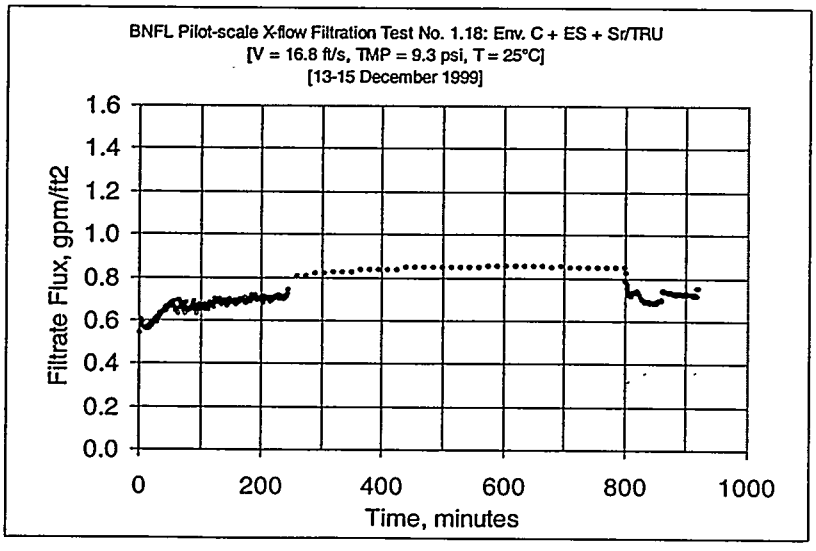


Figure 32. Cleaning run 1.18 with 1 M NaOH

The entire next day, 12/14/99, was dedicated to cleaning. The large jump in filtrate flux at the 250-minute mark was probably due to "passive" cleaning which may have occurred from the filter being submerged in the cleaning solution overnight for approximately 15 hours. The cleaning continued on that day for about 9 hours and the data were acquired at a frequency of 15 minutes, from 250 to 800 minutes. At about 600-minute mark the filtrate flux no longer increased with time and therefore it was assumed no further filter cleaning would occur. Therefore, on the final day, 12/15/99, the cleaning solution was allowed to circulate throughout the entire test rig. The immediate drop in filtrate flux on this last day was probably due to the solids that remained in the entire test rig, i.e., pumps, slurry reservoir tank, recirculation loop, valves, etc. After two backpulses the filtrate flux began to return. The cleaning was stopped and the rig was readied for the final water run 1.19. Figure 22 shows that the test rig was free of solids from a sample taken during the final water run.

Acid cleaning was effective but after approximately 95 hours of Envelope C slurry circulation there seemed to be some permanent losses of filtrate flux. Figure 33 shows the results from the final water run 1.19. Once again, as for run 1.00, at an axial filter velocity of 12 ft/s with water, the highest TMP indicated in the test matrix, Fig. 21, could not be attained, even with all three pumps running. To have three data sets with water, a TMP midpoint between 10 and 20 psid was chosen; it turned out to be 15.9 psid. A comparison between the two final water runs, run 1.17 and 1.19, Figs 31 and 33, indicate that at a TMP of 21 to 22 psid the filtrate flux increased from 0.13 gpm/ft^2, to 1.1 gpm/ft^2. However, comparing the final water result to the initial water result indicates a loss in filter performance. At a TMP of 11 psid, Fig. 33 shows a filtrate flux of about 0.42 gpm/ft^2, which is only 60% of the initial water result of 0.7 gpm/ft^2 from run 1.00. At a TMP of 16 psid, Fig. 33 shows a filtrate flux of about 0.7 gpm/ft^2, which is 70% of the initial water result of 1.0 gpm/ft^2 at a TMP of 15 psid from run 1.00.

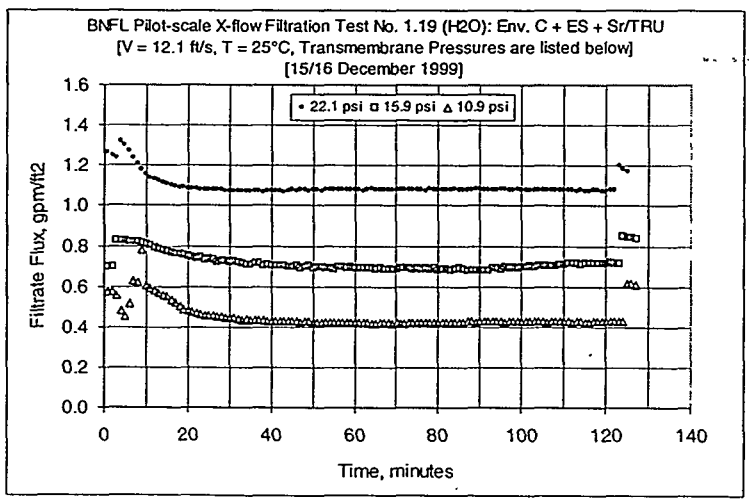


Figure 33. Final Water Run 1.19, after chemical cleaning

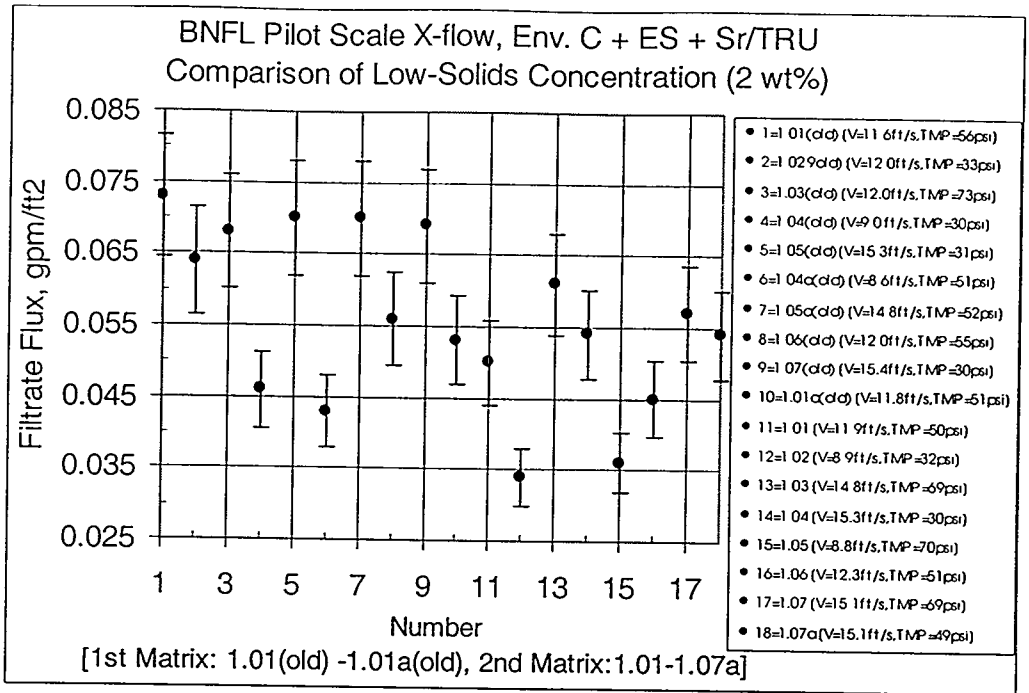
Low Solids Concentration Test Runs 1.00 to 1.07
[See Appendix B for the entire set of data sheets.]

Included in this series of test runs were 14 planned and 4 unplanned runs [1.04a(old), 1.05a(old), 1.01a(old), and 1.07a]. This series of runs comprised the largest amount of data taken. The reason why there were 14 planned runs [1.01(old) to 1.07(old) and 1.01 to 1.07] is because just as the low concentrations runs were being completed BNFL requested a change of the test matrix order, as requested by DOE, to improve the statistical design of the matrix. Therefore, the first 7 runs were repeated and both sets were planned.

Figure 34 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 since run times differed because of many reasons. In general, the values for the filtrate flux given in the graph are averages over the time of the test. Note that the there is a "Duration" time and a "Backpulse" time, shown in the table. The former is the total time for which the specific test was run. The latter is the approximate time between successive backpulses. The average filtrate fluxes given in table are based on the time between backpulses, which usually was close to the two hours requested by the test specification (3, 4).

Also included in Fig. 34 is the measured solids loading. For these runs, samples were only taken during run 1.01(old) and 1.07(old). The numbers in the table are the measured results. For the other 16 runs those two measurements were simply rounded off and repeated since the solids loading should not have changed between run 1.01 and 1.07. This is the reason why the "~" symbol is shown before all of those numbers. Even though runs 1.01(old) through 1.07(old) were repeated, new samples were not taken.

From Fig. 34 it would appear that the flow conditions of number 1 [run 1.01(old)], i.e., V=12 ft/s and TMP=56 psid, gave the highest filtrate flux. (These same conditions gave close to the highest filtrate flux in a previous test, with a different simulant, when the filter was new and relatively clean. See Fig. 25 of Ref. 22.) A close second are the runs of numbers 5, 7, and 9, with an axial velocity of 15 ft/s and TMP=31 to 55 psid. They all had a filtrate flux of 0.07 gpm/ft^2, or better. Note, the error bars that bound each data point on the graph are based on the measurement uncertainty determined in Appendix F. Further, as was shown from the Envelope A test (22), the filtrate flux is not as strongly affected by TMP as it is by the slurry velocity. However, direct comparisons are made difficult by the effect of filter, or slurry, degradation with time. From the database several examples could be used to study degradation, but the test runs done at an average set of flow conditions of V=12 ft/s and TMP = 52 psid, had the largest number of data points.



			Test Specification Target Values				Actual Flow Conditions Obtained				Solids Loading		
			Duration	Slurry V	TMP	Solids	Duration	Backpulse	Avg Slurry V	Avg TMP	Insoluble	Dissolved	Total
No.	Date	Run	minutes	ft/s	psid	wt% insol.	minutes	minutes	ft/s	psid	wt%	Tot-Insol.wt%	wt%
1	05-Oct-99	1.01(old)	120	12.2	50	N/A	124	120	11.6	55.9	1.9	33.9	35.8
2	05-Oct-99	1.02(old)	120	12.2	30	N/A	128	114	12.0	33.4	~2	~34	~36
3	05-Oct-99	1.03(old)	120	12.2	70	N/A	123	120	12.0	73.1	~2	~34	~36
4	05-Oct-99	1.04(old)	120	9.1	best	N/A	126	118	9.0	29.7	~2	~34	~36
5	06-Oct-99	1.05(old)	120	15.2	best	N/A	128	124	15.3	31.4	~2	~34	~36
6	06-Oct-99	1.04a(old)	120	9.1	best	N/A	120	112	8.6	51.3	~2	~34	~36
7	06-Oct-99	1.05a(old)	120	15.2	best	N/A	126	119	14.8	51.6	~2	~34	~36
8	06-Oct-99	1.06(old)	120	12.2	50	N/A	130	119	12.0	55.3	~2	~34	~36
9	07-Oct-99	1.07(old)	120	best	best	N/A	129	119	15.4	30.0	2	33.8	35.8
10	07-Oct-99	1.01a(old)	120	12.2	50	N/A	127	121	11.8	51.0	~2	~34	~36
11	20-Oct-99	1.01	120	12.2	50	N/A	131	121	11.9	50.1	~2	~34	~36
12	20-Oct-99	1.02	120	9.1	30	N/A	130	119	8.9	32.1	~2	~34	~36
13	20-Oct-99	1.03	120	15.2	70	N/A	140	120	14.8	69.3	~2	~34	~36
14	20-Oct-99	1.04	120	15.2	30	N/A	128	120	15.3	29.6	~2	~34	~36
15	21-Oct-99	1.05	120	9.1	70	N/A	126	121	8.8	70.3	~2	~34	~36
16	21-Oct-99	1.06	120	12.2	50	N/A	127	119	12.3	51.1	~2	~34	~36
17	21-Oct-99	1.07	120	best	best	N/A	129	121	15.1	68.8	~2	~34	~36
18	21-Oct-99	1.07a	120	best	best	N/A	130	120	15.1	48.5	~2	~34	~36

Figure 34. Composite of all 18 low solids concentration test runs

Figure 35 shows the average filtrate fluxes from five test runs [i.e., 1.01(old), 1.06(old), 1.01a(old), 1.01, and 1.06]. The curve and equation in Fig 35 are from a least squares best fit of the data. Over the 35 hours of slurry circulation through the filter the filtrate flux decreased by approximately 60%. Therefore, during the period of each test, which had durations of approximately 2 hours, the filtrate flux would degrade by approximately [1-exp(-0.0151 x 2 hours)] x 100% = 3% (see the relation on Fig. 35). This 3% is a permanent loss of filter performance until it can be cleaned. The time shown in Fig. 35 is from the end of each completed test. That is reason the first data point begins just after 2 hours.

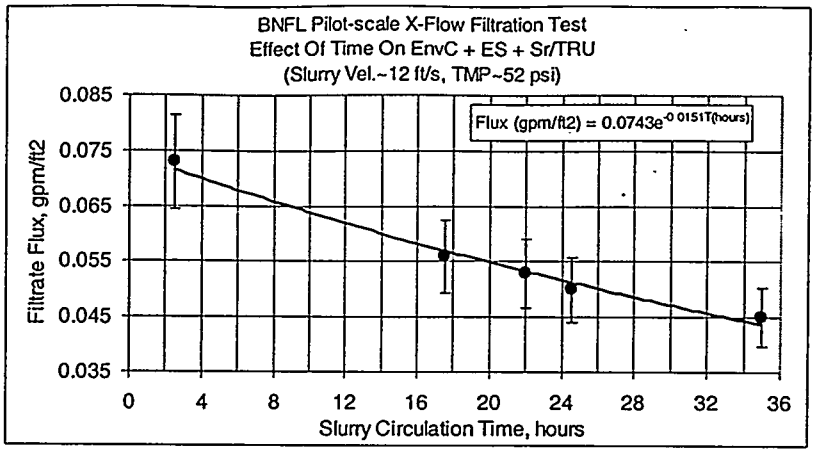


Figure 35. Effect of slurry circulation time on filter flux performance

Considering the effect shown in Fig. 35, then the general trend shown in the graph of Fig 34 makes sense. That is, independent of the flow condition, the overall trend of the filtrate flux data is to decrease with time. The data shown in Fig. 34 are in chronological order, as can be verified from the table shown below the graph. The conclusion here is that results can only be compared which are close to each other in time, if statements of superior flow conditions are to make sense. To reiterate, due to the 3% filtrate flux degradation, time must be considered when making comparison among the test runs. The test was designed to have a 2-level, 2-factor, full-factorial 2-centerpoint matrix, but this is confounded by a degradation time factor. However, because of repeat runs there is sufficient information to perform a meaningful statistical analysis of the data (e.g. using a linear model, Filtrate Flux = f[V, TMP, (V)(TMP)]). Unfortunately, because of the measurement uncertainty in the factors, the analysis is complicated by the errors-in-variables and is beyond the scope of this report. In lieu of a statistical analysis, quantitative statements can be made on test runs that are in chronological close proximity. That is, since the measurement uncertainty for the temperature corrected filtrate flux is 11. 7%, which is mentioned in the Experimental section of this report (also in Appendix F), the 3% filtrate flux degradation is insignificant between runs that are less than 8 hours apart.

Figure 34 implies that the highest slurry velocities were the best for obtaining the highest filtrate flux and the TMP played a much smaller role. For number 1, 2, and 3, within measurement uncertainty, all TMP values for a slurry velocity of 12 ft/s were the same. The same result is seen when comparing numbers 13 and 14 at 15 ft/s. Comparing numbers 7 and 8 at an average TMP of 54 psid, the reduction of slurry velocity from 15 ft/s to 12 ft/s had a significant reduction in filtrate flux. The same can be stated for numbers 6, 7, and 8 at an average TMP of 53 psid where the filtrate flux increased with increased slurry velocity; the largest increase occurring when the velocity increased from 6.8 ft/s to 14.8 ft/s. The trend in clear: the higher the slurry velocity the higher the filtrate flux. An increase in TMP also leads to increased filter performance but the increase is

barely significant. It appears that good performance can be achieved if the slurry velocity is maximized while keeping the TMP at low to moderate levels, i.e., ~30 to 50 psid.

Concentrating (Dewatering) Test Run 1.08 (Pre-wash)
[See Appendix C for the entire set of data sheets.]

Before the seven (pre-wash) steady-state high solids-concentration test runs were to be done, the slurry had to be dewatered to obtain the desired solids concentration. Because of the Sr/TRU precipitants, the slurry solids concentration could not be increased by simply adding more solids. That is, a large slurry volume of 2 wt% insoluble solids slurry was needed to be dewatered to a concentration of 20 wt%. Therefore, run 1.08 started with a batch of 618 liters of fresh simulant with a 2 wt% insoluble solids concentration. That batch was then dewatered for approximately 29 hours to a volume of 50 liters, resulting in a concentration of 22 wt% of insoluble solids. (The total solids increased from 36 wt% to 49 wt%.)

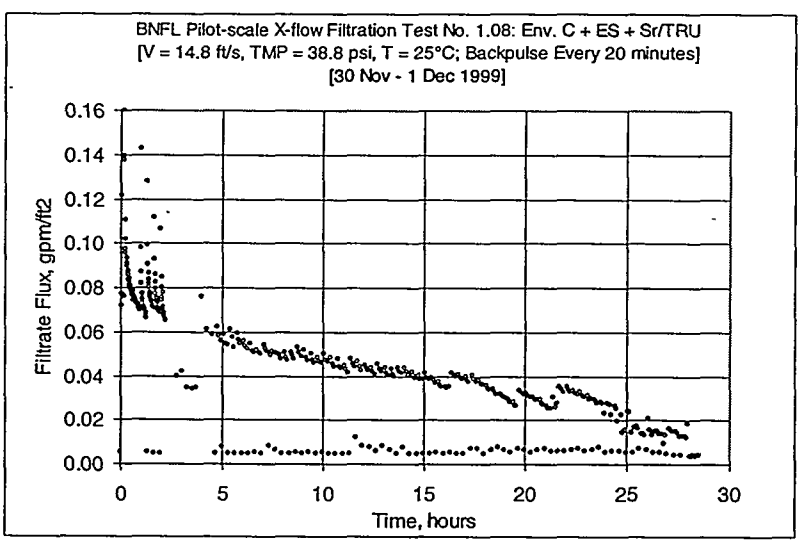


Figure 36. Pre-wash dewatering from 2 to 22 wt% insoluble solids
[Data points near 0 gpm/ft^2 are when the flux was interrupted during backpulsing]

Figure 36 shows the operation of the test rig throughout the dewatering process. On 11/30/99 from 03:40 to 09:30 hours a batch of 618 liters of simulant was made. After preliminary checks on the test rig were made, and after approximately 100 liters of this new simulant were placed in the rig, the dewatering test run began at 09:53 hours that same morning. The rest of the 500 liters of simulant was kept well mixed in a large separate tank and was periodically added to the test rig as the dewatering allowed. The backpulse overpressure was set to 40 psid and then the test began with an initial backpulse. The flow settings were: slurry velocity of 15 ft/s and a TMP of 48 psid. After approximately 1 hour the filtrate flux dropped to 0.07 gpm/ft^2; therefore, another backpulse was made. At that point the backpulse frequency was set to every 1300

seconds (~21.7 minutes), with a 10 second hold time, in order to maintain the flux high. A high flux was desired to minimize the dewatering time. At 12:30 hours the data acquisition was slowed from 1 reading per minute to once every 15 minutes, and it continued at that rate until 14:30 hours, when the rate was increased to once every 5 minutes so that the backpulse data point could be captured. During most of the run the flow conditions were maintained at a slurry velocity of 15 ft/s and a TMP of 48 psid. However from about 12:30 to 14:00 hours the conditions dropped to 10 ft/s and 16 psid, which caused the filtrate flux to drop to 0.04 gpm/ft^2. At 14:00 hours the original flow conditions were reestablished and the flux increased to 0.06 gpm/ft^2. (Note: the lower TMP shown in Fig. 36, i.e., 38 psid, was the result of all the backpulse data points lowering the average.) By 07:00 hours the following morning, on 12/1/99, the slurry volume was reduced to approximately 130 liters and therefore was completely contained within test rig, which had a capacity of 135 liters. It took another 5 hours to reduce those 130 liters to 50 liters, when the slurry reached an insoluble solids concentration of 22 wt%. At that point the filtrate flux was close to 0.01 gpm/ft^2.

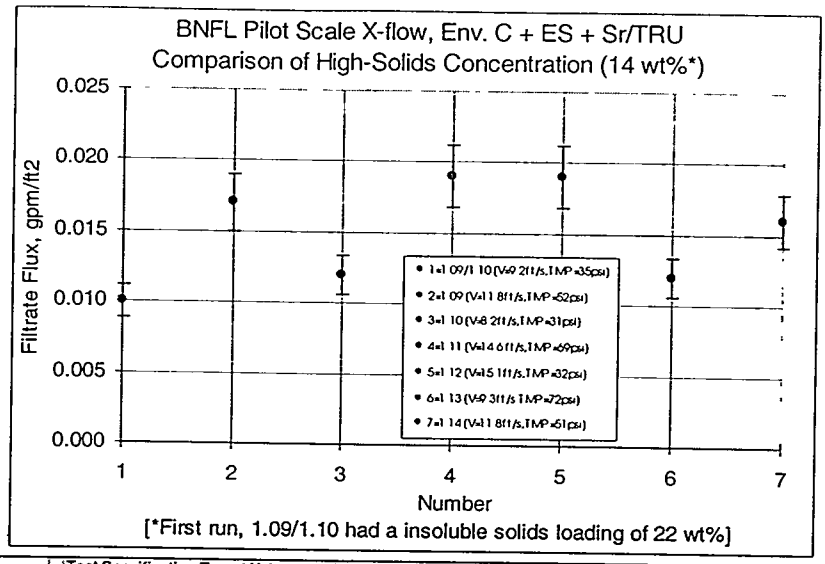
The magnitude of this highest solids concentration was good, but the test runs could not be sustained. As will be explained in the next section, the thick slurry created problems in the test rig. The pumps developed leaks because of seal failure and the thick slurry prevented good mixing in the reservoir tank, causing large temperature gradients. The slurry temperature slowly increased and eventually exceeded the test specification of a maximum of 30°C.

High Solids Concentration Test Runs 1.09 to 1.14 (Pre-wash)
[See Appendix C for the entire set of data sheets.]

After the dewatering test run, 1.08, there were seven steady-state runs, 1.09/1.10, and 1.09 to 1.14, that were to have a concentration as close to 20 wt% of insoluble solids as attainable. Run 1.09 immediately began at the end of the test run 1.08 when reaching 50 liters because the test rig was showing signs of not being able to handle the thick slurry for a significant time period, as explained above. The first high-solids concentration steady-state slurry run was 1.09, but the flow conditions of run 1.10 were used because they were less challenging to the pumps and only two pumps were needed. Therefore, that run was called 1.09/1.10. Unfortunately, the test rig had to be stopped after about 35 minutes due to the pump and temperature problems. The flow conditions for that run and the others are in Fig. 37.

Figure 37 is an overall comparison of the all the test runs with the pre-washed dewatered slurry and the structure of the table is similar to that shown as Fig. 34. The results of 1.09/1.10 are show in Fig. 38. Even though the slurry had a high insoluble solids concentration of 22 wt%, there was measurable filtrate flux, albeit very low. The flux of 0.01 gpm/ft^2 appeared to be maintainable, if the test did not have to be stopped because of pump leaks. After the test was stopped, the seals in the pumps were changed so that the next run could begin. However, before beginning again, the slurry was diluted with filtrate to reduce the solids concentration. The slurry reservoir was filled to approximately the 75-liter level, where the estimated solids concentration was 15 wt%.

Subsequently, an analytical measurement showed the insoluble solids concentration to be 14.3 wt%. With this solids loading the remaining steady-state slurry runs, i. e, 1.09 to 1.14, were done.



			Test Specification Target Values				Actual Flow Conditions Obtained				Solids Loading		
			Duration	Slurry V	TMP	Solids	Duration	Backpulse	Avg Slurry V	Avg TMP	Insoluble	Dissolved	Total
No.	Date	Run	minutes	ft/s	psid	wt% insol.	minutes	minutes	ft/s	psid	wt%	Tot-Insol.wt%	wt%
1	01-Dec-99	1.09/1.10	n/a	n/a	n/a	>20	36	36	9.2	34.6	22.1	27.3	49.4
2	02-Dec-99	1.09	120	12.2	50	>20	122	20	11.8	51.9	14.3	29.8	44.1
3	02-Dec-99	1.10	120	9.1	30	>20	134	125	8.2	31.3	~14	~30	~44
4	02-Dec-99	1.11	120	15.2	70	>20	133	119	14.6	69.2	~14	~30	~44
5	02-Dec-99	1.12	120	15.2	30	>20	128	119	15.1	31.8	~14	~30	~44
6	03-Dec-99	1.13	120	9.1	70	>20	123	118	9.3	71.5	~14	~30	~44
7	03-Dec-99	1.14	120	12.2	50	>20	127	121	11.8	51.2	~14	~30	~44

Figure 37. Composite of all 7 high solids concentration test runs

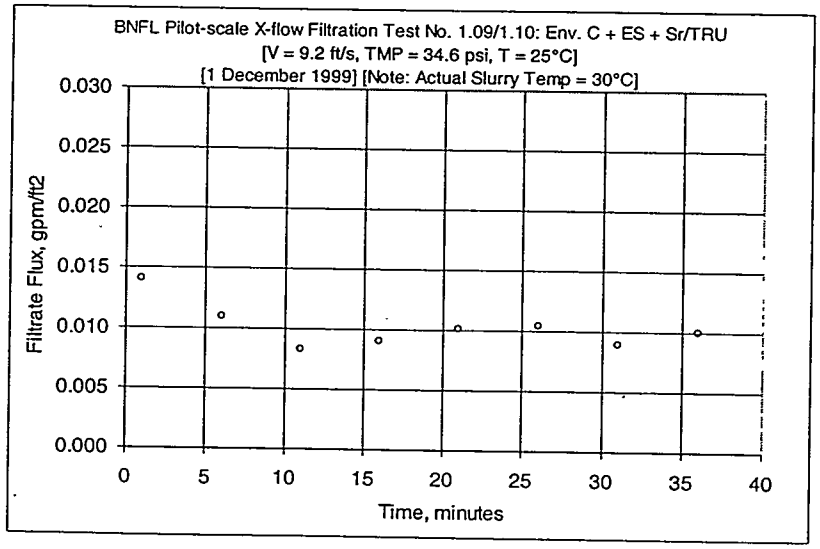


Figure 38. Pre-wash steady state slurry run at 22 wt% insoluble solids

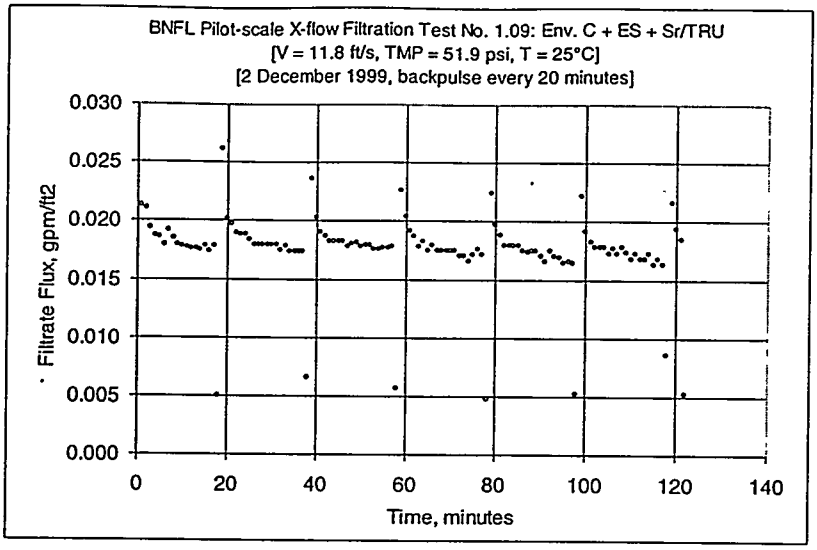


Figure 39. Pre-wash steady state slurry run at 14 wt% insoluble solids

Figure 39 shows results for run 1.09, with a backpulse frequency of 15-minutes. The interval was arbitrary but the backpulsing was found not to be effective because the filtrate flux decreased within minutes to the value the filter had just before the backpulse. Therefore, the remaining high concentration runs where done without backpulsing, except at the start and finish of each run, like all preceding test runs. All the high concentration runs show similar results and can be found in Appendix C. However, the best of all the runs, with respect of the filtrate flux, is shown below, run 1.12, Fig. 40.

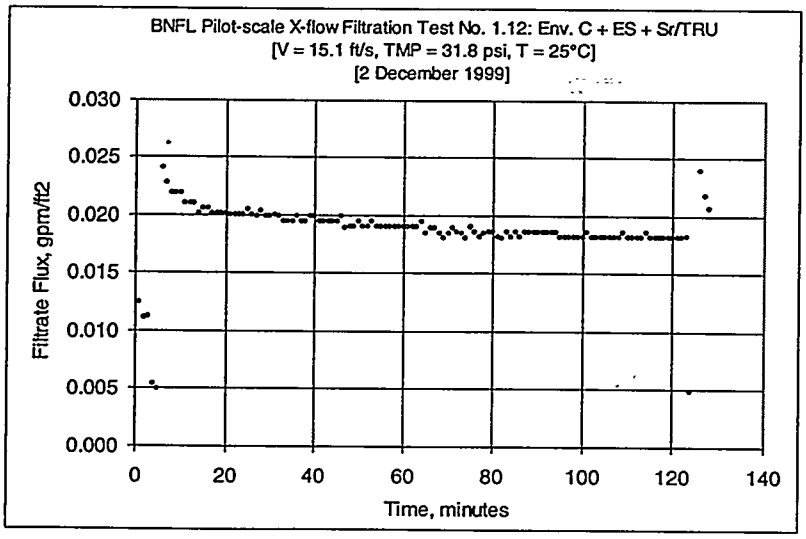


Figure 40. Pre-wash steady state slurry run at 14 wt% insoluble solids: Run 1.12

From Fig. 37 it can be seen that run 1.11 also had the same filtrate flux, but since it had a TMP of 69 psid, instead of the 32 psid of run 1.12, then the latter was considered better. In general, the conclusions of the low solids concentration runs hold here. That is, higher slurry velocities cause a significant increase in filter performance, while increasing TMP has a much less significant impact.

Dewatering/Plugging Test Run 1.15
[See Appendix C for the entire set of data sheets.]

After the high solids concentration runs were completed, the slurry was washed with four equal volumes of water, each equal to the volume of slurry to be washed, 75 liter, as already explained. For the pre- to post-washed slurry the solids concentration changed from 14 wt% of insoluble solids and 44 wt% of total solids to 18 wt% and 19 wt%, respectively. Run 1.15 used the washed slurry to increase the solids concentration until the test rig could not concentrate further. The intention was to determine if the filter would become plugged, and then try to recover from the pluggage. The plugging run began on 12/9/99 and continued for just over two hours. Figure 41 shows that even with a relatively high value of insoluble solids, i.e., 18 wt%, the filter performance was very good. The filtrate flux of 0.08 gpm/ft^2 was better than any run thus far. This improved filter performance is attributable to the very low concentration of soluble solids, i.e., 19 wt% - 18 wt% = 1 wt%.

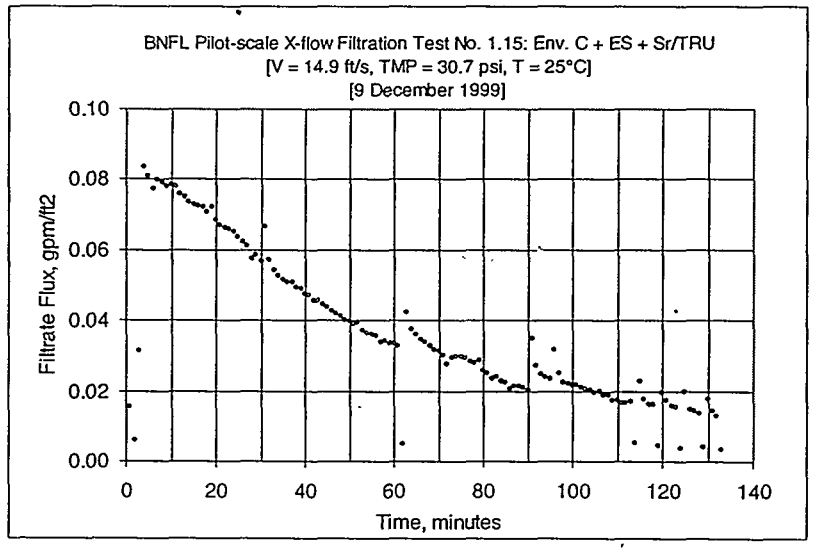


Figure 41. Post-wash plugging run from 18 wt% to 38 wt% of insoluble solids

Basically, the slurry was a mass of hard solids in water. In fact, the filtrate density was 1.009 g/cc at 25°C. However, after the two hours of dewatering and several backpulses the slurry became very viscous and the temperature was close to 40°C. At that point the slurry volume was approximately 31 liters. The entire test rig itself takes about 26 liters

to be filled. That left only a small amount of slurry in the slurry reservoir, which just covered the suction opening to the pumps. Finally, the slurry became so thick that it could not drain fast enough into the bottom of the reservoir and the pump suction began to ingest air, which stopped the filter flow and the test. At no time did filtrate flow stop. During the dewatering the Bingham plastic rheological properties of the slurry changed from a consistency of 4 cP and a yield stress of 22 dynes/cm^2, to a consistency of 24 cP to a yield stress of 684 dyns/cm^2. The final solids concentration was 38 wt% of insoluble solids and 41 wt% of total solids.

The run would have been stopped in any case because of the increasing temperature and leaking pumps. At the end, all three pump seals had failed, but because the slurry was so thick the leaks were almost self contained. Figure 42 shows the slurry just before beginning the run.

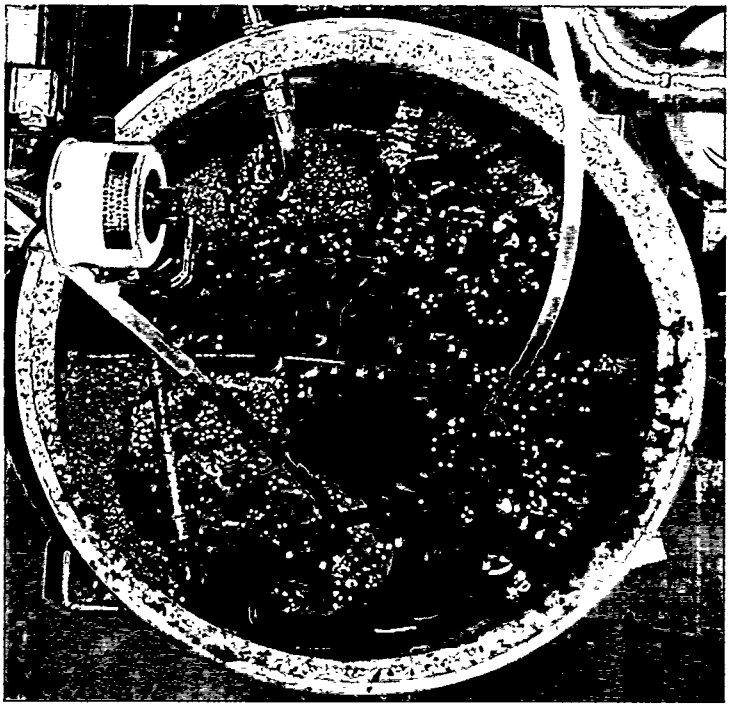


Figure 42. Beginning of the post-wash plugging run: 18 wt% of insoluble solids

Notice the portable mixer and two plastic lines entering the top of the reservoir. Both of these items were added to help keep the slurry mixed and cool. Unfortunately, these last-minute additions had little effect because of the very thick slurry. Figure 43 is a picture of the slurry that leaked out of one of the pumps. The slurry was basically sludge at that point. It was rigid enough to stand up by itself as can be seen by the layers in the photograph. The sludge had a ketchup-like characteristic. When poured, the sludge remains intact and needs some agitation to flow, e.g., a 250-mL sample was taken and it

would not flow out of the bottle without a lot of shaking. However, once the sludge began to move it flowed relatively free.



Figure 43. End of the post-wash plugging run: 38 wt% of insoluble solids

Backpulse Frequency and Filter Fouling

The main focus of this test was to determine an optimum filtrate flow for different slurry-flow parameters and solids loadings. Therefore the effect of backpulse frequency was not addressed. For the steady-state solids loading test runs (low-and high-solids concentrations), backpulsing was specified (3) to be done only at the beginning and end of each test run (usually 2 hours in length), so that the filter always started from the same condition. More frequent backpulsing was allowed during the dewatering runs but those runs were not conducive to optimizing backpulse frequency because of the changing slurry solids loading. However, the frequency used, 2 hours, is within the manufacturer's, Mott, recommendation of not more than once an hour. Since the filter is made from sintered metal with a thickness of 0.0625 inch (1.6 mm), there is a concern of depth fouling of the filter wall. Once a filter cake is established on the filter wall, the cake itself does the filtering, preventing particles from entering into the porous-tube pores. When a backpulse is done, the cake is cleared from the wall, exposing the pores to the smallest particles in the slurry. Therefore, surface fouling (the filter cake) mitigates depth fouling. The effect of backpulse frequency was investigated in a preceding test, which used an envelope A slurry simulant (see Fig. 30 of reference 22). In that test,

increasing the backpulse frequency by a factor of 90 only doubled the filtrate flux. (The test compared several backpulse frequencies between 7.5 hours and 5 minutes). It was found (22) that increasing the backpulse frequency increased the filtrate flux. However, the amount of increase many not compensate the increased frequency of filter cleaning due to depth fouling. In fact, that test showed that for the 7.5-hour run the filtrate flux was still above that requiring a backpulse. Therefore, backpulsing only one or twice a day may be be sufficient for adequate operation. Finally, Figure 35 of this report implies that with time, even a 2-hour backpulse frequency leads to some depth fouling. However, since at the end of each 2-hour test the filtrate flux returns to approximately its original value (e.g. Fig. 39), the predominant mode of fouling is surface fouling.

CONCLUSIONS

The following conclusions are for the nominal rated 0.1 micron MOTT cross-flow filter that 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 2 wt% to greater than 38 wt% and for particle sizes measured as small as 0.75 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 6 M to 0.2 M, while the dynamic viscosity decreased from 4 cP to 1 cP and the density decreased from 1.28 g/mL to 1.01 g/mL.

Hydraulic Characteristics

3. Filter can be cleaned with 1 M NaOH such that the water flux before and after use returns to 60 to 70% of the initial filtrate flux.
4. Simple water rinsing is not sufficient to clean the filter.
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 30 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.
8. For a low concentrations of insoluble solids (2 wt%), run 1.01(old), shown in Fig. 34, gave the best overall filtrate flux of 0.07 gpm/ft^2 at the conditions of a slurry velocity of 11.6 ft/s and a TMP of 56 psid. This flux is an average taken over the two hours of that test. However, run 1.05(old) gave a similar performance at a velocity of 15 ft/s and a TMP of 31 psid.

9. When the insoluble solids of the pre-wash slurry was increased to 14 wt% the filtrate flux decreased to between 0.01 gpm/ft^2 and 0.02 gpm/ft^2. The best flux was 0.018 gpm/ft^2 at a slurry velocity of 15 ft/s and a TMP of 31 psid.
10. For the single test run (1.09/1.10) with an insoluble solids concentration of 22 wt%, the filtrate flux was maintained at 0.01 gpm/ft2 for approximately 35 minutes. (The run was stopped due to a pump seal failure and not from a filter pluggage.)
11. The cross-flow filter still functions for the post-washed slurry with an insoluble solids loading of up to 38 wt%. At that loading the filtrate flux of was approximately 0.02 gpm/ft^2.
12. Surface fouling of the filter is dominant mechanism of fouling.
13. A backpulse filtrate volume of 0.036 gal/ft^2 with a filter overpressure of 31 psi was found to be sufficient to knock the filter cake off the filter element. At 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, 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 C 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 30 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 0.05 gpm/ft^2 and to minimize filter cleaning.
4. Investigations into other types of cleaning methods may lead to a method that returns the filter flux to better than 60 to 70% of the initial filter flux.
5. Use a backpulse of 0.036 gal/ft^2 to minimize the loss of filtrate flux.

APPROVALS

H. N. Guerrero, Technical Reviewer, WSRC/SRTC — Date 5/25/00

M. A. Kyle, Experimental Thermal Fluids Group Manager, WSRC/SRTC — Date 5/25/00

M. A. Ebra, Level 3 Manager, WSRC/SRTC — Date 5/31/00

S. T. Wach, Waste Processing Technology Manager, WSRC/SRTC — Date 5/30/00

Signature not required as per BNF-003-98-0239, April 24,
P. S. Townson, Ultrafiltration Development Manager, BNFL — 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	1.00	Initial Water	9/28-30/99
A2	1.17	Final Water(before cleaning)	12/13/99
A3	1.19	Final Water	12/15-16/99
A4	1.18	1 M NaOH Cleaning	12/13-15/99

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 those columns, 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 the preceding item, 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. Note that the cleaning run, Fig. A4: Run 1.18, which was done over 3 days, was performed in different parts of the test rig. From December 13 and 14, only the cleaning loop was used, Fig. 1, to direct all the cleaning solution to clean the filter. On December 15 all the cleaning solutions was drained into the test rig proper, (that is, out of the cleaning loop) to clean the lower portion of the test rig, which includes the pumps. This is the reason why the filtrate flux drops. On that last day the entire test rig was operated for two hours with a backpulse made after 60 minutes of operation. As usual, a backpulse began and ended the test.

Nomenclature For Data Sheets

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

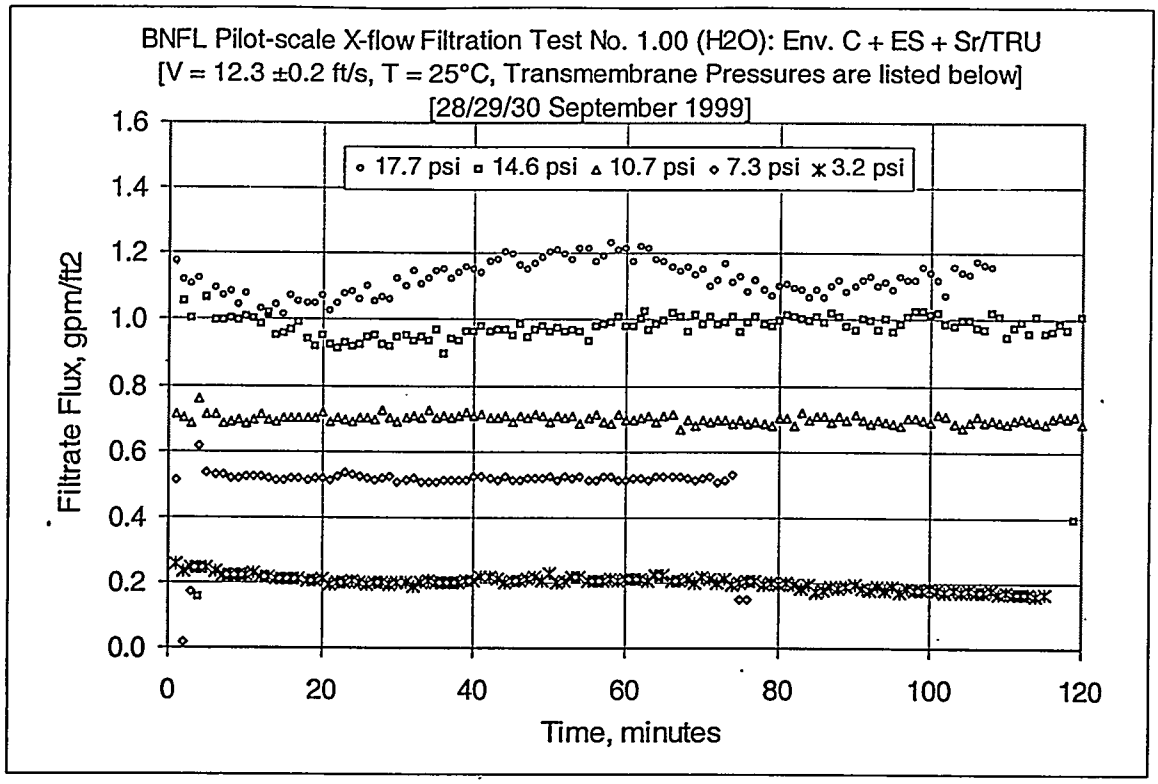
Column	Heading		Full Heading	Explanation
A =	DATE	=	DATE	Day the test was done
B =	TIME	=	TIME	Time data entry was made
C =	SOLENOID	=	SOLENOID	1=yes, 0=no: for the pressure to the backpulse piston
D =	FLTRT (deg	=	FLTRT (deg C) T2	Filtrate Temperature in Filter at exit of the Filter Housing
E =	CL LOOP (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 (d	=	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 =	Q2,FLTR Fl	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow from 0 to 1.2 gpm .
R =	Q3,FLTR Fl	=	FLTR FLOW (gpm) Q3	Flow Rate of the Filtrate Flow from 0 to 5 gpm

The following columns are calculated results based on the appropriate columns

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



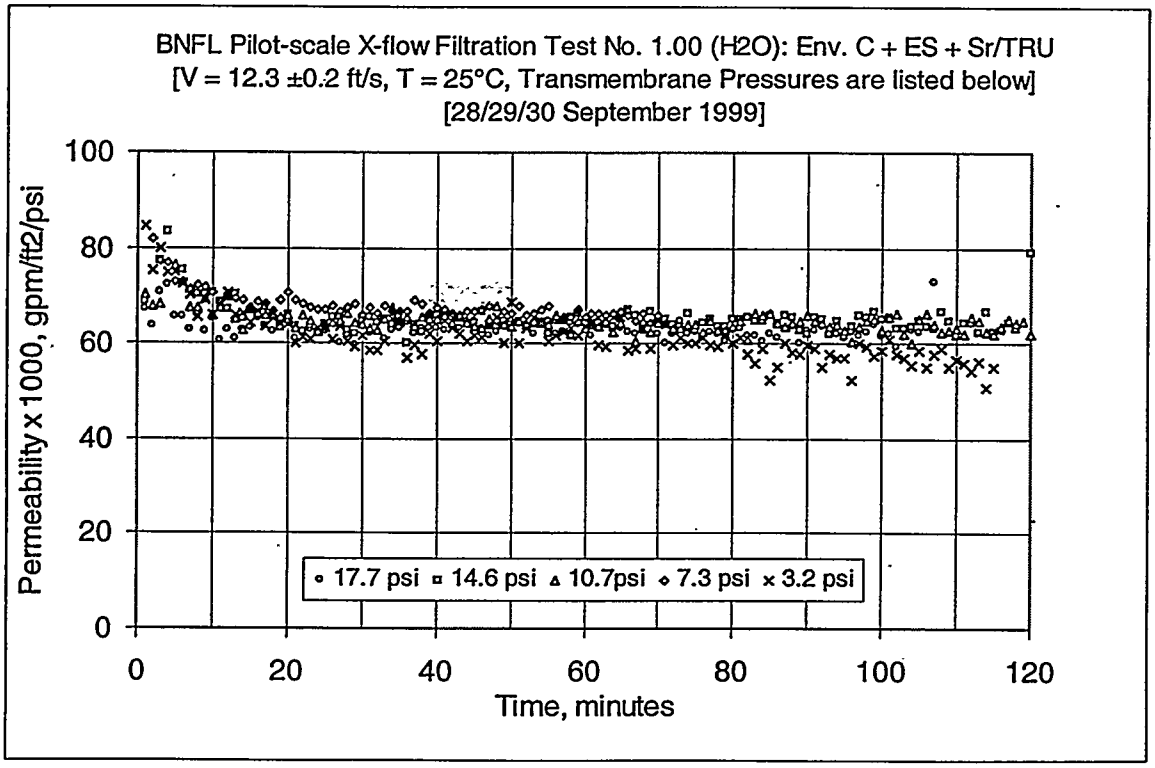


Figure A1: Test Run 1.00, Initial Water

Run 1.00: Initial Water Run

	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	T6 (deg C)	BOT DP (p	FLTA (pa	FLTR DP (	TOP DP (p	FLTRATE (pstg)	PISTON (pstg)	SL FLOW	O2,FLTR	O3,FLTR	FLOW (gpm)		Filter Surface Area		2.29	FT2				
2	Zeros																				Conversion		851.0145	m3/m2/day/bar	g / gpm/ft2/barg			
3	9/28/1999	2:27:10 PM	0	21.778	21.669	21.604	23.166	20.855	30.506	0.001	-0.067	-0.016	-0.045	-0.066	0.018	-0.079	0.011	-0.018										
4	9/28/1999	2:29:58 PM	0	21.778	21.669	21.604	23.166	20.855	30.506	0.001	-0.067	-0.015	-0.045	-0.066	0.018	-0.079	0.011	-0.018										
5	9/28/1999	2:30:58 PM	0	21.811	21.624	21.559	23.121	20.81	30.461	0.001	-0.066	-0.023	-0.011	-0.066	0.018	-0.079	0.011	-0.018										
6	9/28/1999	2:31:58 PM	0	21.811	21.624	21.559	23.121	20.81	30.382	0.001	-0.066	-0.015	-0.045	-0.066	0.018	-0.079	0.011	-0.015										
7	Data																								at 25C	PERMABILITY	x1000	
8	9/28/1999	2:57:55 PM	0	24.27	21.752	24.178	23.651	21.341	30.905	19.156	78.352	3.392	15.811	58.867	-0.028	29.672	1.218	2.628	1	1	12.3	17.5	1.205	1.147	1.174	0.067	67.158	57.2
9	9/28/1999	2:58:56 PM	0	24.716	21.678	24.624	23.695	21.467	30.95	19.032	78.474	3.152	15.947	58.99	-0.028	29.795	1.218	2.525	2	2	12.4	17.5	1.206	1.102	1.114	0.064	63.696	54.3
10	9/28/1999	2:59:56 PM	0	25.037	21.797	25.025	23.776	21.547	30.87	17.11	76.106	3.184	14.256	60.532	0.018	30.026	1.218	2.634	3	3	12.5	15.7	1.081	1.106	1.105	0.070	70.485	60.0
11	9/28/1999	3:00:56 PM	0	25.357	21.878	25.345	23.776	21.467	30.95	17.296	79.084	3.623	13.884	60.84	0.018	29.811	1.218	2.595	4	4	12.4	15.6	1.075	1.133	1.122	0.072	71.962	61.2
12	9/28/1999	3:01:57 PM	0	25.758	21.676	25.745	23.695	21.547	31.029	17.916	78.23	3.416	14.594	59.792	0.018	29.98	1.218	2.494	5	5	12.4	16.3	1.121	1.089	1.066	0.066	65.591	55.8
13	9/28/1999	3:02:57 PM	0	26.078	21.797	26.065	23.776	21.547	31.029	18.35	78.596	3.432	16.101	59.638	-0.028	29.934	1.218	2.583	6	6	12.4	16.7	1.153	1.128	1.094	0.065	65.433	55.7
14	9/28/1999	3:03:57 PM	0	26.476	21.878	26.385	23.695	21.467	31.029	18.784	79.145	3.296	15.372	59.854	0.018	29.803	1.218	2.552	7	7	12.4	17.1	1.177	1.114	1.072	0.063	62.750	53.4
15	9/28/1999	3:04:58 PM	0	26.842	21.842	26.749	23.621	21.512	31.153	17.668	77.651	2.921	15.203	59.823	0.018	29.949	1.218	2.604	8	8	12.4	16.4	1.133	1.137	1.082	0.066	65.860	56.0
16	9/28/1999	3:05:59 PM	0	27.162	21.842	27.149	23.74	21.512	31.153	18.288	78.352	3.453	15.034	59.391	-0.028	30.041	1.218	2.631	9	9	12.5	16.7	1.149	1.105	1.040	0.062	62.449	53.1
17	9/28/1999	3:06:58 PM	0	27.437	21.878	27.423	23.695	21.547	31.109	17.854	77.742	3.104	15.338	59.792	0.018	29.857	1.218	2.644	10	10	12.4	16.6	1.144	1.154	1.079	0.065	64.997	55.3
18	9/28/1999	3:07:59 PM	0	27.86	21.923	27.867	23.66	21.592	31.153	18.102	78.657	3.296	15.068	60.008	0.018	30.026	1.218	2.482	11	11	12.5	16.6	1.143	1.083	1.000	0.060	60.310	51.3
19	9/28/1999	3:09:00 PM	0	28.2	21.923	28.186	23.66	21.512	31.153	17.654	77.803	3.28	14.966	59.484	0.018	30.133	1.218	2.58	12	12	12.5	16.4	1.131	1.126	1.033	0.063	62.944	53.6
20	9/28/1999	3:09:59 PM	0	28.519	21.923	28.505	23.74	21.592	31.153	18.536	79.084	3.4	14.662	59.73	-0.028	30.026	1.218	2.549	13	13	12.5	16.6	1.144	1.113	1.009	0.061	60.807	51.7
21	9/28/1999	3:11:00 PM	0	28.758	21.923	28.505	23.74	21.592	30.994	18.288	78.657	3.392	14.729	59.576	-0.028	30.026	1.218	2.625	14	14	12.5	16.5	1.138	1.146	1.039	0.063	62.964	53.6
22	9/28/1999	3:12:00 PM	0	28.758	21.923	28.423	23.901	21.512	30.904	17.854	76.106	3.336	14.324	59.761	-0.028	30.072	1.218	2.561	15	15	12.5	16.1	1.109	1.118	1.016	0.063	63.169	53.8
23	9/28/1999	3:13:00 PM	0	28.633	21.878	28.301	24.097	21.467	30.751	18.04	78.23	3.256	14.696	59.515	0.018	29.949	1.218	2.683	16	16	12.4	16.4	1.129	1.171	1.068	0.065	65.273	55.5
24	9/28/1999	3:14:01 PM	0	28.596	21.923	28.266	24.222	21.673	30.833	18.04	78.352	3.272	15.068	59.638	-0.028	30.01	1.218	2.647	17	17	12.5	16.6	1.141	1.156	1.055	0.064	63.735	54.2
25	9/28/1999	3:15:02 PM	0	28.439	21.923	28.106	24.383	21.754	30.636	18.288	78.474	3.312	15.372	59.73	0.018	30.026	1.218	2.616	18	18	12.5	16.6	1.160	1.142	1.047	0.062	62.229	53.0
26	9/28/1999	3:16:01 PM	0	28.279	21.923	27.887	24.483	21.754	30.536	17.668	77.681	3.224	15.135	59.669	0.018	30.026	1.218	2.604	19	19	12.5	16.4	1.151	1.137	1.049	0.064	63.983	54.5
27	9/28/1999	3:17:02 PM	0	28.165	21.988	27.752	24.588	21.879	30.88	18.164	79.23	3.352	15.101	59.299	0.018	29.888	1.218	2.641	20	20	12.4	16.6	1.147	1.153	1.068	0.064	64.194	54.6
28	9/28/1999	3:18:03 PM	0	27.925	21.968	27.513	24.588	21.879	30.88	18.35	78.291	3.344	15.439	59.299	0.018	30.026	1.218	2.519	21	21	12.5	16.9	1.183	1.100	1.025	0.061	60.679	51.6
29	9/28/1999	3:19:02 PM	0	27.686	21.968	27.273	24.588	21.879	30.88	18.288	78.169	3.24	15.439	59.268	-0.028	29.841	1.218	2.561	22	22	12.4	16.9	1.163	1.118	1.049	0.062	62.216	52.9
30	9/28/1999	3:20:03 PM	0	27.526	21.968	26.954	24.668	21.96	30.88	18.596	78.718	3.264	15.71	59.515	0.018	30.026	1.218	2.601	23	23	12.5	17.2	1.183	1.135	1.075	0.063	62.671	53.3
31	9/28/1999	3:21:04 PM	0	27.207	21.968	26.794	24.668	21.879	30.88	18.848	78.535	3.376	15.744	58.991	0.018	29.888	1.218	2.601	24	24	12.4	17.3	1.192	1.135	1.080	0.062	62.437	53.1
32	9/28/1999	3:22:03 PM	0	27.047	21.968	26.555	24.668	21.96	30.801	18.66	78.047	3.304	15.27	58.96	0.018	29.934	1.218	2.54	25	25	12.4	17.0	1.170	1.109	1.062	0.063	62.573	53.3
33	9/28/1999	3:23:04 PM	0	26.772	22.013	26.28	24.713	22.168	30.843	18.596	77.498	3.312	15.237	58.405	0.018	29.995	1.218	2.61	26	26	12.4	16.9	1.166	1.139	1.099	0.065	64.975	55.3
34	9/28/1999	3:24:05 PM	0	26.532	22.013	26.12	24.713	22.168	30.845	19.032	78.23	3.32	15.014	58.59	0.018	30.026	1.218	2.491	27	27	12.5	17.5	1.208	1.087	1.054	0.060	60.138	51.2
35	9/28/1999	3:25:04 PM	0	26.292	22.013	25.8	24.633	22.055	31.004	19.032	78.352	3.312	15.641	58.837	0.018	30.041	1.218	2.496	28	28	12.5	17.3	1.192	1.090	1.066	0.062	61.681	52.5
36	9/28/1999	3:26:05 PM	0	26.052	21.933	25.58	24.633	21.924	30.925	18.341	78.474	3.352	15.98	58.621	-0.028	29.949	1.218	2.481	29	29	12.4	17.7	1.218	1.074	1.058	0.060	59.882	51.0
37	9/28/1999	3:27:06 PM	0	25.812	22.013	25.319	24.633	21.924	31.004	19.216	78.352	3.471	15.947	58.436	0.018	29.841	1.218	2.596	30	30	12.4	17.6	1.212	1.134	1.124	0.064	63.927	54.4
38	9/28/1999	3:28:06 PM	0	25.617	22.058	25.204	24.678	21.889	31.049	19.094	77.864	3.208	16.352	58.313	0.018	29.488	1.218	2.534	31	31	12.2	17.7	1.222	1.106	1.100	0.062	62.058	52.8
39	9/28/1999	3:29:06 PM	0	25.457	22.058	24.964	24.678	22.05	30.89	19.403	78.474	3.312	16.014	58.498	-0.028	29.903	1.218	2.613	32	32	12.4	17.7	1.221	1.141	1.142	0.064	64.479	54.9
40	9/28/1999	3:30:07 PM	0	25.297	22.058	24.804	24.678	22.05	31.049	20.023	79.084	3.535	16.163	58.374	0.018	29.995	1.218	2.516	33	33	12.4	18.1	1.248	1.098	1.104	0.061	61.007	51.9
41	9/28/1999	3:31:06 PM	0	25.056	22.058	24.643	24.678	21.889	31.049	19.279	77.968	3.328	16.487	58.528	-0.028	29.98	1.218	2.549	34	34	12.4	17.9	1.233	1.113	1.124	0.063	62.853	53.5
42	9/28/1999	3:32:07 PM	0	24.896	22.058	24.403	24.598	22.05	31.049	19.775	78.596	3.432	16.487	59.005	0.018	29.719	1.218	2.574	35	35	12.3	18.1	1.250	1.124	1.143	0.063	63.027	53.6
43	9/28/1999	3:33:08 PM	0	24.655	22.058	24.323	24.517	21.808	30.969	19.589	77.968	3.408	16.163	57.881	0.018	29.995	1.218	2.586	36	36	12.4	17.9	1.233	1.129	1.151	0.064	64.333	54.7
44	9/28/1999	3:34:08 PM	0	24.54	22.103	24.127	24.643	21.934	31.093	19.651	78.108	3.527	16.623	57.912	0.018	29.872	1.218	2.513	37	37	12.4	18.1	1.250	1.097	1.124	0.062	61.995	52.8
45	9/28/1999	3:35:08 PM	0	24.379	22.103	23.886	24.562	21.854	31.093	19.837	78.352	3.607	16.183	57.974	0.018	29.834	1.218	2.528	38	38	12.4	18.0	1.242	1.104	1.139	0.063	63.235	53.8
46	9/28/1999	3:36:09 PM	0	24.174	22.058	23.761	24.517	21.808	31.128	20.065	78.596	3.511	16.555	57.727	0.018	29.811	1.218	2.555	39	39	12.4	18.3	1.263	1.115	1.155	0.063	63.052	53.7
47	9/28/1999	3:37:09 PM	0	24.059	22.103	23.646	24.562	21.934	31.172	19.699	78.23	3.328	16.623	57.974	0.018	30.01	1.218	2.54	40	40	12.5	18.3	1.259	1.109	1.152	0.063	63.090	53.7
48	9/28/1999	3:38:09 PM	0	23.896	22.103	23.485	24.562	21.934	31.172	19.837	78.291	3.296	16.487	58.159	0.018	29.795	1.218	2.496	41	41	12.4	18.2	1.252	1.090	1.138	0.063	62.671	53.3
49	9/28/1999	3:39:10 PM	0	23.692	22.058	23.279	24.517	21.728	31.049	20.065	78.657	3.463	16.826	57.943	0.018	29.857	1.218	2.555	42	42	12.4	18.5	1.272	1.115	1.171	0.063	63.453	54.0
50	9/28/1999	3:40:10 PM	0	23.657	22.103	23.164	24.562	21.693	31.172	20.395	78.84	3.543	16.961	57.635	0.018	29.749	1.218	2.561	43	43	12.3	18.7	1.288	1.118	1.178	0.063	63.051	53.7
51	9/28/1999	3:41:10 PM	0	23.496	22.103	23.084	24.562	21.773	31.252	19.961	78.291	3.408	17.197	57.727	0.018	29.949	1.218	2.607	44	44	12.4	18.6	1.281	1.138	1.202	0.065	64.672	55.0
52	9/28/1999	3:42:11 PM	0	23.336	22.184	22.923	24.562	21.773	31.172	20.209	78.413	3.487	16.826	57.573	0.018	29.964	1.218	2.566	45	45	12.4	18.5	1.277	1.129	1.197	0.065	64.661	55.0
53	9/28/1999	3:43:11 PM	0	23.255	22.103	22.843	24.482	21.693	31.172	19.837	77.742	3.432	16.792	57.542	0.018	29.811	1.218	2.498	46	46	12.4	18.3	1.263	1.090	1.159	0.063	63.297	53.9
54	9/28/1999	3:44:11 PM	0	23.095	22.184	22.762	24.482	21.693	31.172	20.333	78.779	3.447	16.893	57.758	0.018	29.78	1.218	2.473	47	47	12.4	18.6	1.283	1.080	1.150	0.062	61.802	52.6
55	9/28/1999	3:45:11 PM	0	23.059	22.149	22.647	24.527	21.738	31.217	19.961	77.956	3.344	17.502	57.635	0.018	29.934	1.218	2.498	48	48	12.4	18.7	1.291	1.090	1.166	0.062	62.236	53.0
56	9/28/1999	3:46:12 PM	0	22.934	22.103	22.521	24.482	21.612	31.252	20.333	78.535	3.352	18.724	57.635	0.018	29.765	1.218	2.534	49	49	12.4	18.5	1.277	1.106	1.187	0.064	64.055	54.5
57	9/28/1999	3:47:12 PM	0	22.773	22.103	22.441	24.482	21.612	31.331	20.147	77.864	3.487	17.062	57.357	0.018	29.934	1.218	2.565	50	50	12.4	18.6	1.283	1.120	1.204	0.065	64.722	55.1
58	9/28/1999	3:48:12 PM	0	22.773	22.103	22.36	24.482	21.693	31.252	20.333	78.291	3.304	17.367	57.327	0.018	29.964	1.218	2.561	51	51	12.4	18.9	1.300	1.118	1.205	0.064	63.927	54.4
59	9/28/1999	3:49:13 PM	0	22.657	22.149	22.325	24.527	21.677	31.376	20.271	77.968	3.248	17.231	57.234	0.018	29.934	1.218	2.54	52	52	12.4	18.8	1.285	1.109	1.196	0.064	63.802	54.3
60	9/28/1999	3:50:13 PM	0	22.577	22.149	22.164	24.527	21.657	30.741	20.333	78.535	3.28	17.603	57.758	0.018	29.719	1.218	2.485	53	53	12.3	19.0	1.308	1.085	1.178	0.062	61.992	52.8
61	9/28/1999	3:51:14 PM	0	22.497	22.149	22.084	24.447	21.677	31.376	20.395	77.803	3.535	17.367	56.957	0.018	30.149	1.218	2.552	54	54	12.5	18.9	1.302	1.114	1.210	0.064	64.104	54.6
62	9/28/1999	3:52:14 PM	0	22.371	22.184	21.958	24.402	21.532	31.331	20.209	77.559	3.24	17.197	56.864	0.018	29.841	1.218	2.543	55	55	12.4	18.7	1.290	1.110	1.210	0.065	64.719	55.1
63	9/28/1999	3:53:14 PM	0	22.336	22.229	21.923	24.447	21.657	31.376	20.705	78.23	3.408	17.15	56.957	0.018	29.918	1.218	2.456	56	56	12.4	18.9	1.304	1.073	1.171	0.062	61.909	52.7
64	9/28/1999	3:54:14 PM	0	22.255	22.229	21.842	24.527	21.657	31.138	20.581	78.413	3.599	17.569	57.357	0.018	29.78	1.218	2.491	57	57	12.4	19.1	1.315	1.087	1.190	0.062	62.367	53.1
65	9/28/1999	3:55:15 PM	0	22.175	22.149	21.762	24.447	21.738	31.138	20.705	78.84	3.463	17.637	57.511	-0.028	29.734	1.218	2.571	58	58	12.3	19.2	1.322	1.122	1.231	0.064	64.195	54.6
66	9/28/1999	3:56:15 PM	0	22.094	22.149	21.681	24.447	21.899	30.899	20.271	77.559	3.312	17.367	56.895	0.018	29.949	1.218	2.513	59	59	12.4	18.8	1.298	1.097	1.206	0.064	64.070	54.5
67	9/28/1999	3:57:15 PM	0	22.094	22.229	21.842	24.447	21.979	30.82	20.705	78.352	3.503	17.299	57.142	0.018	29.888	1.218	2.537	60	60	12.4	19.0	1.310	1.108	1.212	0.064	63.783	54.3
68	9/28/1999	3:58:16 PM	0	22.3	22.194	22.209	24.492	22.105	30.785	20.457	78.291	3.384	17.468	57.203	0.018	29.734	1.218	2.479	61	61	12.3	19.0	1.307	1.082	1.172	0.062	61.780	52.6
69	9/28/1999	3:59:16 PM	0	22.542	22.194	22.37	24.492	22.186	30.908	20.333	78.047	3.352	17.197	57.203	0.018	30.056	1.218	2.586	62	62	12.5	18.8	1.294	1.129	1.216	0.065	64.825	55.2
70	9/28/1999	4:00:16 PM	0	22.783	22.194	22.611	24.572	22.346	30.647	20.829	78.84	3.599	17.026	57.203	0.018	29.918	1.218	2.601	63	63	12.4	18.9	1.305	1.135	1.215	0.064	64.194	54.6
71	9/28/1999	4:01:17 PM	0	23.024	22.194	22.852	24.492	22.346	29.752	20.519	79.084	3.32	17.164	57.758	0.018	30.21	1.218	2.546	64	64	12.5	18.8	1.299	1.111	1.181	0.062	62.693	53.4
72	9/28/1999	4:02:17 PM	0	23.23	22.239	23.058	24.537	22.472	30.432	20.333	78.596	3.535	16.893	57.481	0.018	29.849	1.218	2.543	65	1	12.4	18.6	1.283	1.110	1.173	0.063	63.016	53.6
73	9/28/1999	4:03:17 PM	0	23.436	22.284	23.344	24.662	22.598	30.557	20.085	78.291	3.232	16.927	57.666	0.018	29.872	1.218	2.531	66	2	12.4	18.5	1.276	1.105	1.158	0.063	62.569	53.2
74	9/28/1999	4:04:18 PM	0	23.677	22.204	23.503	24.582	22.678	30.477	20.147	78.779	3.408	16.724	57.974	0.018	29.826	1.218	2.516	67	3	12.4	18.4	1.271	1.096	1.146	0.062	62.151	52.8
75	9/28/1999	4:05:18 PM	0	23.883	22.249	23.711	24.707	22.723	30.76	20.085	79.023	3.551	16.521	58.436	0.018	29.795	1.218	2.553	68	4	12.4	18.3	1.262	1.115	1.157	0.063	63.200	53.8
76	9/28/1999	4:06:18 PM	0	24.088	22.294	23.997	24.752	22.608	30.884	19.279	77.316	3.248	16.285	57.789	0.018	29.995	1.218	2.526	69	5	12.4	17.8	1.226	1.104	1.135	0.064	63.845	54.3
77	9/28/1999	4:07:19 PM	0	24.329	22.294	24.157	24.752	22.447	31.123	19.837	78.291	3.575	17.164	58.159	0.018	29.795	1.218	2.574	70	6	12.4	18.5	1.276	1.124	1.151	0.062	62.199	52.9
78	9/28/1999	4:08:19 PM	0	24.409	22.294	24.317	24.752	22.288	31.281	19.961	78.779	3.328	16.521	58.097	0.018	29.657	1.218	2.464	71	7	12.3	18.2	1.258	1.076	1.097	0.060	60.115	51.2
79	9/28/1999	4:09:19 PM	0	24.695	22.259	24.523	24.717	22.251	31.485	19.589	77.956	3.447	16.386	58.066	0.018	29.995	1.218	2.526	72	8	12.4	18.0	1.240	1.104	1.119	0.062	62.183	52.9
80	9/28/1999	4:10:20 PM	0	24.853	22.259	24.763	24.717	22.17	31.485	19.589	78.23	3.511	16.386	57.85	0.018	29.826	1.218	2.656	73	9	12.4	18.0	1.240	1.159	1.167	0.065	64.890	55.2
81	9/28/1999	4:11:20 PM	0	25.018	22.259	24.843	24.637	22.17	31.564	19.651	78.901	3.352	16.217	58.683	0.018	30.026	1.218	2.534	74	10	12.5	17.9	1.236	1.106	1.111	0.062	61.955	52.7
82	9/28/1999	4:12:20 PM	0	25.178	22.259	25.064	24.637	22.009	31.564	19.651	78.108	3.4	16.42	57.604	0.018	29.995	1.218	2.586	75	11	12.4	18.0	1.243	1.129	1.126	0.062	62.445	53.1
83	9/28/1999	4:13:21 PM	0	25.416	22.259	25.244	24.637	21.929	31.643	19.218	77.925	3.352	16.082	58.374	0.018	29.98	1.218	2.491	76	12	12.4	17.7	1.217	1.087	1.080	0.061	61.189	52.1
84	9/28/1999	4:14:21 PM	0	25.621	22.304	25.449	24.682	21.974	31.688	19.465	78.657	3.368	16.454	58.496	0.018	29.641	1.218	2.592	77	13	12.4	18.0	1.238	1.132	1.117	0.062	62.213	52.9
85	9/28/1999	4:15:21 PM	0	25.782	22.304	25.609	24.682	21.974	31.609	19.032	78.23	3.288	16.183	58.652	0.018	29.841	1.218	2.54	78	14	12.4	17.6	1.214	1.109	1.090	0.062	61.905	52.7

Run 1.00: Initial Water Run

	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	9/29/1999	4:16:22 PM	0	25.862	22.304	25.609	24.602	21.974	31.809	19.485	78.596	3.416	15.96	58.59	0.018	29.96	1.218	2.491	79	15	12.4	17.7	1.222	1.087	1.069	0.060	60.317	51.3
87	9/29/1999	4:17:23 PM	0	25.862	22.304	25.689	24.682	21.894	31.688	19.87	77.742	3.28	15.947	58.282	0.018	29.995	1.218	2.565	80	16	12.4	17.5	1.204	1.120	1.098	0.063	62.907	53.5
88	9/29/1999	4:18:22 PM	0	25.942	22.304	25.689	24.682	22.055	31.688	19.341	78.108	3.455	15.507	58.22	0.018	29.995	1.218	2.577	81	17	12.4	17.4	1.201	1.125	1.103	0.063	63.326	53.9
89	9/29/1999	4:19:23 PM	0	25.967	22.35	25.734	24.727	22.019	31.733	19.403	78.596	3.416	16.048	58.313	0.018	29.949	1.218	2.561	82	18	12.4	17.7	1.222	1.118	1.095	0.062	61.785	52.6
90	9/29/1999	4:20:24 PM	0	25.967	22.35	25.734	24.806	22.019	31.812	19.218	78.047	3.328	16.082	58.159	0.018	30.041	1.218	2.54	83	19	12.5	17.7	1.217	1.109	1.086	0.062	61.540	52.4
91	9/29/1999	4:21:23 PM	0	26.067	22.35	25.814	24.727	22.1	31.653	19.403	78.657	3.408	15.96	58.467	0.018	30.026	1.218	2.501	84	20	12.5	17.7	1.220	1.092	1.067	0.060	60.318	51.3
92	9/29/1999	4:22:24 PM	0	26.067	22.35	25.814	24.727	22.019	31.812	19.87	77.884	3.447	15.947	58.313	0.018	30.041	1.218	2.543	85	21	12.5	17.5	1.204	1.110	1.085	0.062	62.150	52.9
93	9/29/1999	4:23:24 PM	0	26.147	22.35	25.894	24.727	22.019	31.891	19.908	78.047	3.208	15.845	58.621	0.018	29.841	1.218	2.501	86	22	12.4	17.4	1.196	1.092	1.065	0.061	61.274	52.1
94	9/29/1999	4:24:24 PM	0	26.147	22.35	25.894	24.727	21.939	31.891	18.908	77.742	3.344	15.845	58.282	0.018	29.872	1.218	2.58	87	23	12.4	17.4	1.196	1.126	1.098	0.063	63.210	53.8
95	9/29/1999	4:25:25 PM	0	26.227	22.43	25.894	24.647	21.858	31.891	19.341	78.474	3.559	15.642	58.097	0.018	29.949	1.218	2.619	88	24	12.4	17.5	1.206	1.143	1.115	0.064	63.743	54.2
96	9/29/1999	4:26:26 PM	0	26.067	22.43	25.734	24.647	22.019	31.812	19.627	78.718	3.495	16.555	58.251	0.018	30.041	1.218	2.534	89	25	12.5	18.0	1.244	1.106	1.084	0.060	60.064	51.1
97	9/29/1999	4:27:25 PM	0	25.967	22.43	25.574	24.727	22.019	31.812	19.403	78.596	3.352	15.841	58.837	0.018	30.072	1.218	2.558	90	26	12.5	17.5	1.205	1.117	1.099	0.063	62.889	53.5
98	9/29/1999	4:28:26 PM	0	25.827	22.43	25.494	24.727	22.019	31.812	19.485	78.413	3.455	16.116	58.066	0.018	29.888	1.218	2.592	91	27	12.4	17.8	1.227	1.132	1.116	0.063	62.725	53.4
99	9/29/1999	4:29:27 PM	0	25.701	22.304	25.269	24.763	21.974	31.688	19.341	78.169	3.424	16.217	58.189	0.018	29.888	1.218	2.61	92	28	12.4	17.8	1.226	1.139	1.120	0.064	63.566	54.1
100	9/29/1999	4:30:26 PM	0	25.621	22.385	25.209	24.763	21.974	31.767	19.156	77.742	3.376	16.251	58.097	0.018	29.995	1.218	2.537	93	29	12.4	17.7	1.221	1.108	1.101	0.062	62.192	52.9
101	9/29/1999	4:31:27 PM	0	25.586	22.43	25.174	24.806	22.019	31.733	19.218	77.884	3.447	16.623	58.467	0.018	29.888	1.218	2.561	94	30	12.4	17.9	1.236	1.118	1.113	0.062	62.081	52.8
102	9/29/1999	4:32:28 PM	0	25.381	22.385	24.969	24.763	21.813	31.847	19.341	77.603	3.256	16.116	58.282	0.018	29.949	1.218	2.491	95	31	12.4	17.7	1.222	1.087	1.068	0.061	61.391	52.2
103	9/29/1999	4:33:28 PM	0	25.346	22.43	24.834	24.806	21.939	31.812	19.651	78.001	3.447	16.487	58.467	0.018	29.888	1.218	2.58	96	32	12.4	18.1	1.246	1.126	1.108	0.062	62.448	53.1
104	9/29/1999	4:34:28 PM	0	25.221	22.385	24.808	24.843	21.813	31.847	19.589	78.535	3.264	16.69	57.912	0.018	29.903	1.218	2.548	97	33	12.4	18.1	1.251	1.111	1.117	0.062	61.803	52.4
105	9/29/1999	4:35:29 PM	0	25.061	22.465	24.726	24.843	21.894	31.847	19.341	78.108	3.328	16.42	58.313	0.018	30.01	1.218	2.537	98	34	12.5	17.9	1.233	1.108	1.118	0.062	62.418	53.1
106	9/29/1999	4:36:28 PM	0	24.981	22.465	24.648	24.843	21.974	31.767	19.465	78.352	3.352	16.589	58.22	0.018	29.949	1.218	2.619	99	35	12.4	18.0	1.243	1.143	1.155	0.064	64.054	54.5
107	9/29/1999	4:37:29 PM	0	24.981	22.465	24.568	24.763	21.974	31.688	20.023	78.84	3.543	16.893	57.758	0.018	29.995	1.218	2.574	100	36	12.4	18.5	1.273	1.124	1.137	0.063	61.622	52.4
108	9/29/1999	4:38:30 PM	0	24.82	22.465	24.488	24.763	21.894	31.767	19.465	77.742	3.336	16.521	57.974	0.018	29.96	1.218	2.525	101	37	12.4	18.0	1.241	1.102	1.118	0.062	62.152	52.9
109	9/29/1999	4:39:30 PM	0	24.74	22.385	24.408	24.763	21.813	31.767	19.589	78.23	3.304	16.42	58.035	0.018	29.811	1.218	2.412	102	38	12.4	18.0	1.241	1.053	1.071	0.059	59.466	50.6
110	9/29/1999	4:40:30 PM	0	24.66	22.465	24.247	24.763	21.894	31.847	19.899	78.596	3.416	16.724	57.481	0.018	30.041	1.218	2.596	103	39	12.5	18.3	1.263	1.134	1.158	0.063	63.266	53.8
111	9/29/1999	4:41:31 PM	0	24.58	22.465	24.247	24.763	21.894	31.767	19.651	78.047	3.288	16.69	57.727	0.018	30.041	1.218	2.558	104	40	12.5	18.2	1.253	1.117	1.141	0.063	62.775	53.4
112	9/29/1999	4:42:30 PM	0	24.535	22.42	24.122	24.796	21.687	31.802	19.699	78.413	3.463	16.42	58.097	0.018	30.103	1.218	2.537	105	41	12.5	18.2	1.252	1.108	1.135	0.063	62.518	53.2
113	9/29/1999	4:43:31 PM	0	24.454	22.42	24.042	24.717	21.768	31.802	12.337	78.352	3.32	9.05	65.308	0.064	30.502	0.673	2.61	106	42	12.7	10.7	0.737	1.139	1.171	0.109	109.470	93.2
114	9/29/1999	4:44:32 PM	0	24.374	22.5	24.042	24.796	21.848	31.802	17.606	78.352	3.248	14.324	60.285	0.064	29.964	1.218	2.595	107	43	12.4	18.0	1.101	1.133	1.164	0.073	72.902	62.0
115	9/29/1999	4:45:32 PM	0	24.294	22.42	23.962	24.796	21.848	31.843	18.288	78.474	3.368	14.831	59.361	0.018	29.949	1.218	2.577	108	44	12.4	18.6	1.142	1.125	1.158	0.070	69.956	59.5
116																												
117		Averages		25.1	22.2	24.8	24.6	21.9	31.2	19.3	78.3	3.4	16.1	58.4	0.0	29.9	1.213	2.553			12.4	17.7	1.220	1.115	1.121	0.064	63.6	54.1
118		Maximum		26.8	22.5	25.5	24.8	22.7	31.9	20.8	79.1	3.6	17.6	65.3	0.1	30.5	1.218	2.683			12.7	19.2	1.322	1.171	1.231	0.109	109.5	93.2
119		Median		25.1	22.2	24.8	24.6	21.9	31.2	19.4	78.3	3.4	16.2	58.3	0.0	29.9	1.218	2.552			12.4	17.9	1.233	1.114	1.118	0.063	62.9	53.5
120		Minimum		22.1	21.8	21.7	23.7	21.3	29.8	12.3	77.3	2.9	9.1	56.9	0.0	29.5	0.673	2.412			12.2	10.7	0.737	1.053	1.000	0.059	59.5	50.6
121		Std Deviation		1.7	0.2	1.8	0.3	0.3	0.4	1.1	0.4	0.1	1.1	1.1	0.0	0.1	0.052	0.048			0.1	1.1	0.073	0.021	0.052	0.003	4.9	4.2
122		Number of Points Used		108	108	108	108	108	108	108	108	108	108	108	108	108	108	108			108	108	108	108	108	108	108	108
123																												
124	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (pai	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR F	O3,FLTR FLOW (ppm)											
125	Zeros																											
126	9/29/1999	8:16:32 AM	0	21.514	20.936	20.623	21.243	20.812	29.725	0	0.05	-0.016	-0.051	-0.088	-0.089	-0.095	0.011	-0.015										
127	9/29/1999	8:17:43 AM	0	21.514	20.936	20.623	21.243	20.812	29.725	0	0.05	-0.016	-0.051	-0.088	-0.089	-0.095	0.011	-0.015										
128	9/29/1999	8:18:43 AM	0	21.514	20.936	20.623	21.243	20.892	29.805	0	0.05	-0.016	-0.017	-0.088	-0.089	-0.06	0.011	-0.018										
129	9/29/1999	8:19:43 AM	0	21.514	20.936	20.623	21.243	20.892	29.646	0	0.05	-0.024	-0.017	-0.088	-0.135	-0.06	0.011	-0.018										
130	Data																		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	at 25C GPM/FT2/psi	PERMABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
131	9/29/1999	8:24:28 AM	0	23.257	20.99	23.091	22.344	21.349	29.619	16.551	60.054	3.418	13.233	43.025	-0.089	29.58	1.218	2.22	1	1	12.3	14.9	1.027	0.969	1.023	0.069	68.689	58.5
132	9/29/1999	8:27:28 AM	1	23.418	20.99	23.332	22.585	21.43	29.48	3.347	63.103	3.391	-2.384	59.235	91.783	27.137	1.218	2.305	2	2	11.3	0.5	0.033	1.006	1.055	2.191	2190.617	1864.4
133	9/29/1999	8:28:28 AM	0	23.784	20.954	23.538	22.701	21.655	29.504	14.567	60.724	3.367	11.41	45.614	-0.089	29.718	1.218	2.205	3	3	12.3	13.0	0.896	0.963	1.003	0.077	77.239	65.7
134	9/29/1999	8:29:29 AM	1	23.969	20.999	23.903	23.077	21.681	29.39	3.595	62.737	3.463	0.118	58.681	92.293	28.059	0.343	0.344	4	4	11.6	1.9	0.128	0.150	0.155	0.083	83.435	71.0
135	9/29/1999	8:30:29 AM	0	24.195	21.044	24.109	23.122	21.726	29.434	11.406	59.81	3.343	8.196	47.74	-0.042	29.871	0.994	2.382	5	5	12.4	9.8	0.676	1.040	1.066	0.109	108.787	92.6
136	9/29/1999	8:31:29 AM	0	24.596	20.963	24.269	23.122	21.806	29.434	14.939	60.724	3.479	11.845	45.09	-0.089	29.764	1.218	2.235	6	6	12.4	13.2	0.913	0.976	0.996	0.075	75.215	64.0
137	9/29/1999	8:32:30 AM	0	24.801	21.009	24.474	23.327	21.932	29.478	15.559	60.296	3.279	12.456	44.269	-0.089	29.595	1.218	2.244	7	7	12.3	14.0	0.968	0.980	0.994	0.071	70.974	60.4
138	9/29/1999	8:33:30 AM	0	25.006	21.053	24.679	23.452	21.977	29.823	15.621	60.296	3.267	12.897	44.35	-0.089	29.411	1.218	2.269	8	8	12.2	14.3	0.983	0.991	1.000	0.070	70.097	59.7
139	9/29/1999	8:34:30 AM	0	25.211	21.018	24.804	23.417	22.022	29.56	15.497	59.81	3.271	12.864	43.868	-0.089	29.457	1.218	2.272	9	9	12.2	14.2	0.978	0.992	0.997	0.070	70.330	59.9
140	9/29/1999	8:35:31 AM	0	25.291	21.018	25.044	23.417	22.022	29.647	15.621	59.993	3.335	12.897	43.827	-0.089	29.426	1.218	2.311	10	10	12.2	14.3	0.983	1.009	1.008	0.071	70.664	60.1
141	9/29/1999	8:36:31 AM	0	25.496	21.063	25.169	23.561	21.966	29.612	15.993	60.418	3.271	13.269	44.011	-0.089	29.411	1.218	2.305	11	11	12.2	14.6	1.009	1.006	1.001	0.068	68.447	58.2
142	9/29/1999	8:37:31 AM	0	25.578	20.982	25.329	23.301	21.744	30.089	16.241	60.968	3.271	13.1	44.227	-0.089	29.441	1.218	2.275	12	12	12.2	14.7	1.011	0.993	0.984	0.067	67.072	57.1
143	9/29/1999	8:38:32 AM	0	25.661	21.027	25.534	23.265	21.789	30.292	16.055	59.932	3.327	12.965	43.364	-0.089	29.487	1.218	2.269	13	13	12.2	14.5	1.000	1.034	1.019	0.070	70.211	59.8
144	9/29/1999	8:39:32 AM	0	25.965	21.153	25.739	23.31	21.675	30.337	15.993	60.418	3.303	13.202	43.642	-0.089	29.595	1.218	2.223	14	14	12.3	14.6	1.006	0.970	0.950	0.065	65.114	55.4
145	9/29/1999	8:40:32 AM	0	26.148	21.072	25.819	23.23	21.673	30.498	15.807	60.418	3.263	12.965	44.135	-0.089	29.457	1.218	2.248	15	15	12.2	14.4	0.992	0.981	0.959	0.067	66.684	56.7
146	9/29/1999	8:41:33 AM	0	26.306	21.072	25.979	23.23	21.512	30.678	16.117	60.237	3.279	12.999	43.919	-0.089	29.457	1.218	2.275	16	16	12.2	14.6	1.004	0.993	0.968	0.066	66.370	56.5
147	9/29/1999	8:42:33 AM	0	26.465	21.153	26.059	23.069	21.432	30.658	15.993	60.296	3.184	13.371	43.961	-0.089	29.411	1.218	2.342	17	17	12.2	14.7	1.012	1.022	0.992	0.068	67.596	57.5
148	9/29/1999	8:43:33 AM	0	26.59	21.117	26.264	23.195	21.477	30.779	15.683	60.237	3.303	12.931	43.95	-0.089	29.472	1.218	2.226	18	18	12.2	14.3	0.966	0.972	0.938	0.066	65.556	55.8
149	9/29/1999	8:44:34 AM	0	26.75	21.117	26.423	23.114	21.516	30.658	15.993	60.785	3.303	12.999	45.657	-0.089	29.38	1.218	2.187	19	19	12.2	14.5	0.999	0.955	0.917	0.063	63.266	53.9
150	9/29/1999	8:45:34 AM	0	26.91	21.117	26.503	23.114	21.235	30.658	15.745	60.237	3.247	13.202	44.135	-0.089	29.487	1.218	2.275	20	20	12.2	14.5	0.998	0.993	0.952	0.066	65.788	56.0
151	9/29/1999	8:46:34 AM	0	27.07	21.117	26.663	23.034	21.235	30.937	15.993	60.846	3.207	12.965	44.135	-0.089	29.211	1.218	2.214	21	21	12.1	14.5	0.998	0.958	0.923	0.064	63.715	54.2
152	9/29/1999	8:47:35 AM	0	27.15	21.196	26.823	23.034	21.235	31.017	16.427	61.151	3.223	12.63	43.919	-0.089	29.257	1.218	2.202	22	22	12.1	14.6	1.009	0.961	0.913	0.062	62.444	53.1
153	9/29/1999	8:48:35 AM	0	27.309	21.117	26.983	23.114	21.154	31.017	15.931	60.846	3.223	13.235	44.289	-0.089	29.411	1.218	2.248	23	23	12.2	14.6	1.005	0.981	0.928	0.064	63.663	54.2
154	9/29/1999	8:49:35 AM	0	27.469	21.117	27.063	23.034	21.154	30.937	16.241	61.029	3.192	13.337	44.258	-0.089	29.303	1.218	2.223	24	24	12.2	14.8	1.020	0.970	0.916	0.062	61.941	52.7
155	9/29/1999	8:50:36 AM	0	27.549	21.196	27.222	23.034	21.154	31.017	15.869	60.541	3.223	12.965	44.381	-0.089	29.457	1.218	2.244	25	25	12.2	14.4	0.994	0.980	0.921	0.064	63.857	54.3
156	9/29/1999	8:51:36 AM	0	27.629	21.196	27.143	22.953	21.154	31.096	15.745	60.237	3.271	12.965	43.827	-0.089	29.365	1.218	2.293	26	26	12.2	14.4	0.990	1.001	0.943	0.066	65.677	55.9
157	9/29/1999	8:52:36 AM	0	27.549	21.196	27.063	23.034	21.154	31.017	16.055	61.09	3.2	12.965	44.474	-0.089	29.288	1.218	2.302	27	27	12.2	14.5	1.000	1.005	0.949	0.065	65.375	55.6
158	9/29/1999	8:53:37 AM	0	27.424	21.153	26.858	22.808	21.109	30.972	16.241	61.09	3.2	13.168	44.474	-0.089	29.257	1.218	2.226	28	28	12.1	14.7	1.014	0.972	0.923	0.063	62.737	53.4
159	9/29/1999	8:54:37 AM	0	27.343	21.153	26.778	22.969	21.029	31.052	16.459	62.005	3.287	13.1	44.566	-0.089	29.564	1.218	2.211	29	29	12.3	14.6	1.020	0.965	0.918	0.062	62.073	52.8
160	9/29/1999	8:55:37 AM	0	27.265	21.233	26.696	22.808	21.029	31.052	16.117	60.683	3.327	13.134	43.688	-0.089	29.426	1.218	2.275	30	30	12.2	14.6	1.008	0.993	0.947	0.065	64.752	55.1
161	9/29/1999	8:56:38 AM	0	27.105	21.233	26.619	22.969	21.029	30.893	15.807	60.296	3.247	13.202	43.703	-0.089	29.318	1.218	2.278	31	31	12.2	14.5	1.000	0.994	0.950	0.066	65.522	55.8
162	9/29/1999	8:57:38 AM	0	27.025	21.153	26.459	22.969	21.19	30.658	15.807	60.054	3.247	13.066	43.611	-0.089	29.334	1.218	2.223	32	32	12.2	14.4	0.995	0.970	0.932	0.065	64.528	54.9
163	9/29/1999	8:58:38 AM	0	26.845	21.153	26.379	23.069	21.351	30.498	16.117	60.418	3.327	12.897	43.649	-0.089	29.503	1.218	2.254	33	33	12.2	14.5	1.000	0.984	0.947	0.065	65.256	55.5
164	9/29/1999	8:59:39 AM	0	26.665	21.233	26.379	23.15	21.432	30.498	16.241	60.683	3.247	-13.068	43.611	-0.089	29.457	1.218	2.226	34	34	12.2	14.7	1.010	0.972	0.935	0.064	63.601	54.3
165	9/29/1999	9:00:39 AM	0	26.785	21.233	26.219	23.15	21.432	30.418	16.055	60.418	3.207	13.269	44.135	-0.089	29.303	1.218	2.28	35	35	12.2	14.7	1.011	1.000	0.966	0.066	65.890	56.1
166	9/29/1999	9:01:39 AM	0	26.78	21.278	26.184	23.195	21.557	30.581	16.459	61.029	3.231	13.404	43.95	-0.042	29.318	1.218	2.12	36	36	12.2	14.9	1.031	0.923	0.895	0.060	59.896	51.0
167	9/29/1999	9:02:40 AM	0	26.67	21.278	26.104	23.275	21.638	30.361	16.179	60.237	3.239	13.269	43.734	-0.089	29.303	1.218	2.226	37	37	12.2	14.7	1.015	0.972	0.942	0.064	63.984	54.5
168	9/29/1999	9:03:40 AM	0	26.51	21.196	26.024	23.195	21.718	30.361	16.737	61.273	3.335	13.134	43.688	-0.089	29.303	1.218	2.199	38	38	12.2	14.9	1.030	0.950	0.933	0.062	62.453	53.1
169	9/29/1999	9:04:40 AM	0	26.51	21.278	25.944	23.275	21.718	30.222	16.241	60.115	3.271	13.168	43.364	-0.089	29.272	1.218	2.26	39	39	12.1	14.7	1.014	0.987	0.961	0.065	65.340	55.6
170	9/29/1999	9:05:41 AM	0	26.35	21.278	25.784	23.275	21.799	30.222	15.993	59.322	3.231	13.168	42.933	-0.089	29.457	1.218	2.254	40	40	12.2	14.6	1.005	0.984	0.963	0.066	66.015	56.2

Run 1.00: Initial Water Run

	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	9/29/1999	9:06:41 AM	0	26 318	21 324	25 626	23 52	21,924	30,187	16 365	60 48	3,192	13 371	43 688	-0 089	29 027	1 218	2 293	41	41	12 0	14 9	1 001	1 001	0 978	0 066	65 776	56 0
172	9/29/1999	9:07:41 AM	0	26 19	21 278	25 704	23 355	21,879	30,143	16,179	59 871	3,152	13,168	43 334	-0 089	29 211	1 218	2 244	42	42	12 1	14,7	1,012	0 980	0 960	0 065	65 452	55 7
173	9/29/1999	9:08:42 AM	0	26,11	21,196	25 624	23 436	21 879	30 063	16,179	59 993	3,192	13 607	43 364	-0 089	29 226	1,218	2,26	43	43	12 1	14 9	1 027	0 987	0 969	0 065	65 093	55 4
174	9/29/1999	9:09:42 AM	0	26 075	21,324	25 508	23 481	22 005	30 108	16 613	61 09	3 255	13 641	43,672	-0 089	29 257	1 218	2 251	44	44	12 1	15 1	1 043	0 983	0 969	0 064	64 039	54 5
175	9/29/1999	9:10:42 AM	0	26 04	21,369	25,473	23 525	22 05	30,075	16,241	60 337	3,279	13 202	43 334	-0 089	29 365	1 218	2 205	45	45	12 2	14 7	1 015	0 963	0 950	0 065	64 322	54 9
176	9/29/1999	9:11:43 AM	0	25 995	21 324	25 348	23 481	22 065	30 028	16,055	59 871	3 271	13 54	43 334	-0 089	29 365	1 218	2 264	46	46	12 2	14 6	1 020	0 997	0 967	0 067	66 724	55 8
177	9/29/1999	9:12 43 AM	0	25 88	21 268	25 393	23 606	22 211	29,993	16 241	60 116	3 247	13 506	43 395	-0 089	29 288	1 218	2,184	47	47	12 2	14 9	1 025	0 953	0 943	0 063	63 396	54 0
178	9/29/1999	9:13:43 AM	0	25 8	21,288	25 313	23 606	22 211	29 993	16 675	60,296	3 239	13 675	43,149	-0 089	29 365	1,218	2 235	48	48	12 2	15 2	1 046	0 976	0 967	0 064	63 731	54 2
179	9/29/1999	9:14:44 AM	0	25 844	21 414	25 278	23 731	22 256	30,038	16 675	60 846	3 239	13 641	43 549	-0 089	29,318	1 218	2 26	49	49	12 2	15,2	1 045	0 987	0 979	0 065	64 579	55 0
180	9/29/1999	9:15:44 AM	0	25 809	21,378	25 323	23 778	22 361	30 003	16 613	60 296	3,2	13 54	43 21	-0 089	29 288	1 218	2 223	50	50	12 2	15 1	1 039	0 970	0 962	0 064	63 765	54 3
181	9/29/1999	9:16:45 AM	0	25 729	21 378	25,182	23 776	22,361	30,082	16 489	60 602	3 259	13 506	43 395	-0 089	29 211	1 218	2 238	51	51	12,1	15 0	1 034	0 977	0 973	0 065	64 846	55 2
182	9/29/1999	9:17:45 AM	0	25 649	21,378	25,182	23 856	22 221	30 321	16,861	60 602	3 263	13 506	43 087	-0 089	29 196	1 218	2 22	52	52	12 1	15 2	1 047	0 969	0 965	0 064	63 537	54 1
183	9/29/1999	9:18 45 AM	0	25 614	21 343	25 047	23 901	22,105	30 604	16 675	60 359	3 247	13 573	42 964	-0 089	29 226	1 218	2 217	53	53	12 1	15,1	1 043	0 968	0 967	0 064	63 907	54 4
184	9/29/1999	9:19:46 AM	0	25 614	21,343	25 047	23 821	21,944	30,783	16 303	59 993	3,2	13 61	43 241	-0 089	29,149	1 218	2,211	54	54	12 1	15 1	1 038	0 965	0 964	0 064	64 020	54 5
185	9/29/1999	9:20:46 AM	0	25 454	21 343	25 047	23 821	21,944	30 842	16 813	60 054	3 263	13 506	43 118	-0 089	29,134	1 218	2,138	55	55	12 1	15 1	1 038	0 933	0 932	0 062	61 894	52 7
186	9/29/1999	9:21:46 AM	0	25 454	21,423	24 887	23,741	21,883	30,921	16 861	60,602	3 287	13,472	43 179	-0 089	29,149	1 218	2,238	56	56	12 1	15 2	1 048	0 977	0 960	0 065	64 622	55 0
187	9/29/1999	9:22:47 AM	0	25 418	21 468	24 932	23,786	21,747	31,045	16,737	60 602	3 223	13,675	43,364	-0 042	29 103	1 218	2 257	57	57	12 1	15 2	1 048	0 985	0 967	0 065	64 919	55 2
188	9/29/1999	9:23:47 AM	0	25 418	21,388	24,852	23 705	21 667	31,045	16 737	60 237	3 207	13 472	43 025	-0 089	29 088	1 218	2 263	58	58	12,1	15 1	1 041	0 988	0 992	0 066	65 677	55 9
189	9/29/1999	9:24:47 AM	0	25 293	21,423	24 807	23 66	21,622	31,08	16 613	60,359	3 239	13 776	42,903	-0 089	29 073	1 218	2,293	59	59	12,1	15 2	1 048	1 001	1 008	0 066	66 237	56 4
190	9/29/1999	9:25 48 AM	0	25 338	21,468	24 852	23 705	21,506	31,125	16,737	60,359	3,247	13 675	42,902	-0 089	29 211	1,218	2,229	60	60	12 1	15 2	1 048	0 973	0 977	0 064	64 258	54 7
191	9/29/1999	9:26:48 AM	0	25,258	21,468	24 772	23 625	21,506	31,263	16 861	60,541	3,231	13 743	43 21	-0 089	29 226	1,218	2 235	61	61	12 1	15 3	1,055	0 976	0 962	0 064	64 172	54 6
192	9/29/1999	9:27:48 AM	0	25 258	21,468	24 611	23 705	21 425	31,125	17,233	60,907	3 255	13,945	43 21	-0 089	29 149	1,218	2,259	62	62	12,1	15 6	1 075	0 991	1 001	0 064	64 239	54 7
193	9/29/1999	9:28:49 AM	0	25,133	21,423	24 646	23 56	21,36	31,239	16 675	60,419	3 231	13 675	42,964	-0 089	29 196	1 218	2 196	63	63	12 1	15 2	1 046	0 959	0 968	0 064	63 606	54 3
194	9/29/1999	9:29:49 AM	0	25 096	21 468	24 611	23 545	21,425	31,283	17,047	60,602	3 239	13 81	42 995	-0 089	29,196	1 218	2,226	64	64	12,1	15 4	1 064	0 972	0 982	0 064	63 678	54 2
195	9/29/1999	9:30:49 AM	0	25,096	21,468	24 611	23 545	21,506	31,363	16 675	60 115	3,215	13 844	43 087	-0 089	29,165	1,218	2 257	65	65	12 1	15 3	1,052	0 985	0 996	0 065	65 279	55 6
196	9/29/1999	9:31:50 AM	0	25 096	21,549	24 611	23 625	21,344	31,363	17,047	60,359	3 303	13 337	42,717	-0 089	29 38	1 218	2,306	66	66	12 2	15 2	1 047	1,008	1 018	0 067	67 051	57 1
197	9/29/1999	9:32:50 AM	0	25 053	21,504	24 486	23 5	21,38	31,396	16 861	60,724	3,279	13 878	43,426	-0 042	29 272	1,218	2,281	67	67	12 1	15 4	1 060	0 996	1 010	0 066	65,733	55 9
198	9/29/1999	9:33:50 AM	0	24 973	21,504	24,486	23 5	21,299	31,318	16,985	60 663	3 247	13 675	43 241	-0 089	29 027	1 218	2,168	68	68	12 0	15 3	1 057	0 946	0 960	0 063	62 636	53 3
199	9/29/1999	9:34:51 AM	0	24,973	21,504	24,406	23 5	21,299	31,318	16,923	60 541	3 255	13 607	43 056	-0 089	29 242	1,218	2 287	69	69	12 1	15 3	1 052	0 998	1,015	0 067	66 507	56 6
200	9/29/1999	9:35:51 AM	0	24 973	21,504	24 406	23 5	21,299	31,318	16,737	59,993	3 223	13,912	43 056	-0 089	29 057	1 218	2,22	70	70	12,1	15 3	1,057	0 969	0 965	0 064	64 308	54 7
201	9/29/1999	9:36 51 AM	0	24,893	21,504	24,326	23 5	21,299	31,318	16 985	60 602	3 279	13 844	42,995	-0 089	29 196	1,218	2 26	71	71	12 1	15 4	1,063	0 987	1 006	0 065	65 232	55 5
202	9/29/1999	9:37:52 AM	0	24,893	21,585	24,406	23 5	21,299	31,08	16,799	60 359	3,271	13 878	42 686	-0 089	29,165	1,218	2,214	72	72	12,1	15 3	1 058	0 966	0 983	0 064	64 076	54 5
203	9/29/1999	9:38:52 AM	0	24 893	21,504	24,326	23 5	21,541	30 921	17,109	60,765	3,319	14,114	43,118	-0 089	29 318	1,218	2,232	73	73	12 2	15,6	1 076	0 974	0 993	0 064	63 611	54 1
204	9/29/1999	9:39:52 AM	0	24 813	21,504	24,246	23,56	21,622	30,763	16 551	60,237	3 2	14,013	43 179	-0 089	29 149	1,218	2 266	74	74	12 1	15 3	1,054	0 989	1 010	0 066	66 122	56 3
205	9/29/1999	9:40:53 AM	0	24,813	21,585	24,326	23,5	21,702	30 683	16 861	60,176	3,192	13 844	42 717	-0 089	29 027	1,218	2,165	75	75	12 0	15 4	1 059	0 945	0 963	0 063	62 742	53 4
206	9/29/1999	9:41:53 AM	0	24 813	21,504	24 246	23 66	21,783	30 683	17,109	60,419	3,303	13 641	42,471	-0 042	29 272	1,218	2,217	76	76	12 1	15,4	1,060	0 968	0 989	0 064	64 301	54,7
207	9/29/1999	9:42:53 AM	0	24,732	21,585	24,165	23,66	21,863	30,604	17,047	60 054	3 223	13 81	42 656	-0 089	29 042	1,218	2 251	77	77	12 1	15 4	1,064	0 983	1 006	0 065	65 210	55 3
208	9/29/1999	9:43:54 AM	0	24,732	21,585	24,165	23 66	21,944	30,524	17,109	60,968	3,279	13,945	43 179	-0 089	29,18	1,218	2 205	78	78	12 1	15 5	1 071	0 963	0 986	0 063	63 472	54 0
209	9/29/1999	9:44:54 AM	0	24 652	21,504	24,165	23 741	22 024	30,445	16 675	59,932	3 223	14,081	42,995	-0 089	29 365	1,218	2,167	79	79	12 2	15 4	1 060	0 955	0 977	0 064	63 564	54,1
210	9/29/1999	9:45:54 AM	0	24 652	21,585	24,165	23,741	22,024	30,445	16,965	60 419	3,176	13,641	43 241	-0 089	29,103	1,218	2,229	80	80	12 1	15 3	1,056	0 973	0 996	0 065	65 059	55 4
211	9/29/1999	9:46:55 AM	0	24 697	21,63	24 21	23 866	22,15	30,41	17,233	61 09	3 239	13 945	43 21	-0 042	29,165	1,218	2 269	81	81	12 1	15 6	1 075	0 991	1 013	0 065	64 972	55 3
212	9/29/1999	9:47:55 AM	0	24 617	21,549	24,21	23 866	22 23	30 33	16 861	60 296	3 271	13 912	42 995	-0 089	29,165	1 218	2,254	82	82	12 1	15 4	1 081	0 984	1 006	0 065	65 392	55 6
213	9/29/1999	9:48:55 AM	0	24 617	21,63	24 05	23 866	22,23	30,33	17,047	60 237	3 207	13,878	42,933	-0 089	29 088	1,218	2 238	83	83	12 1	15 5	1 066	0 977	1 004	0 065	64 902	55 2
214	9/29/1999	9:49:56 AM	0	24,582	21,675	24 095	23 911	22,356	30,295	16 923	60 115	3 247	13 979	42 81	-0 042	29,272	1,218	2,229	84	84	12 1	15 5	1 065	0 973	0 998	0 065	64 606	55 0
215	9/29/1999	9:50:56 AM	0	24 582	21,594	24 018	23 911	22,436	30 295	16,737	60,054	3 215	13,912	42 81	-0 089	29 211	1,218	2,251	85	85	12,1	15 3	1 057	0 983	1 010	0 066	65 932	56 1
216	9/29/1999	9:51:56 AM	0	24,582	21,594	24,018	23 911	22 436	30,295	16,799	60,176	3 271	14 013	42 902	-0 089	29 088	1 218	2,208	86	86	12 1	15 4	1 062	0 964	0 991	0 064	64 330	54,7
217	9/29/1999	9:52:57 AM	0	24 548	21,639	24,06	24 036	22 481	30,34	17,109	60,359	3 231	13,878	42,563	-0 042	29 268	1,218	2,272	87	87	12 2	15 5	1 068	0 992	1 018	0 066	65 737	55 9
218	9/29/1999	9:53:57 AM	0	24 548	21,639	24 06	24,116	22,481	30,419	16 923	60,541	3 247	13 844	43 025	-0 042	29,119	1,218	2,248	88	88	12,1	15 4	1,061	0 981	1 008	0 066	65 508	55 7
219	9/29/1999	9:54:57 AM	0	24,511	21,585	24 105	24 242	22,568	30 823	17,171	60,359	3,279	14,047	42 625	-0 042	29,226	1,218	2,187	89	89	12,1	15 6	1 076	0 955	0 979	0 063	62,730	53 4
220	9/29/1999	9:55:58 AM	0	24 511	21,604	23,944	24 242	22,285	30,782	17,109	60 48	3,207	14 047	43 149	-0 089	29 242	1,218	2,15	90	90	12 1	15 6	1,074	0 939	0 967	0 062	62 074	52 8
221	9/29/1999	9:56:58 AM	0	24 511	21,604	23,944	24 181	22,124	30,941	16 861	60,115	3,279	13,776	42,686	-0 042	29 226	1,218	2 229	91	91	12 1	15 3	1 056	0 973	1 003	0 065	65 445	55 7
222	9/29/1999	9:57:58 AM	0	24,431	21,585	23,944	24,181	22,044	31,02	16,965	59 81	3,223	13 607	42 625	-0 089	29 349	1,218	2,217	92	92	12 2	15 3	1,055	0 968	0 997	0 065	65 188	55 5
223	9/29/1999	9:58:59 AM	0	24,431	21,604	23,944	24,181	22,044	31,02	16 965	60,48	3 247	14,148	43 025	-0 089	29 027	1,218	2,153	93	93	12 0	15 6	1,073	0 940	0,968	0 062	62 206	52 9
224	9/29/1999	9:59:59 AM	0	24,478	21,73	23,969	24,206	21,928	31,144	16 861	60 296	3 239	14 013	43,149	-0 089	29 257	1,218	2,229	94	94	12 1	15 4	1 064	0 973	1 001	0 065	64 859	55 2
225	9/29/1999	10:00:59 AM	0	24,396	21,649	23 909	24,126	21,847	31,223	16 861	60,48	3,231	14,466	43,025	-0 042	28 961	1,218	2,141	95	95	12 0	15 7	1 081	0 935	0 964	0 061	61 498	52 3
226	9/29/1999	10:02:00 AM	0	24,396	21,73	23,969	24,126	21,847	31,303	16,923	60,296	3,223	14,114	42 84	-0 042	29 211	1,218	2,193	96	96	12,1	15 5	1,070	0 957	0 985	0 063	63 477	54 0
227	9/29/1999	10:03:00 AM	0	24,478	21,73	23,909	24,126	21,787	31,303	17,047	60,48	3,271	13,675	42 971	-0 042	29 15	1,218	2,244	97	97	12 1	15 4	1,059	0 980	1 010	0 066	65,768	56 0
228	9/29/1999	10:04:00 AM	0	24,361	21,775	23,874	24,091	21,812	31,427	17,357	61,029	3,287	13,912	42,893	-0 042	29,149	1,218	2,275	98	98	12 1	15 6	1,078	0 993	1 025	0 066	65 575	55 6
229	9/29/1999	10:05:01 AM	0	24,396	21,73	23,909	24,126	21,886	31,382	16,799	59,871	3 215	13,979	42,563	-0 042	29 119	1,218	2,275	99	99	12,1	15,4	1,061	0 993	1 024	0 067	66 555	56 6
230	9/29/1999	10:06:01 AM	0	24 396	21,849	23 909	24 046	21,886	31,382	16,965	59 932	3,271	14,081	42,409	-0 042	29 272	1,218	2,251	100	100	12 1	15 5	1,071	0,983	1 013	0 065	65 243	55 5
231	9/29/1999	10:07:01 AM	0	24,318	21,73	23 829	24 046	21,886	31,461	17,047	60 663	3,239	14,013	43 025	-0 042	29,119	1,218	2,257	101	101	12,1	15 3	1,071	0 985	1 016	0 066	65 578	55 8
232	9/29/1999	10:08:02 AM	0	24,396	21,73	23,829	24,046	21,806	31,461	17,171	60,785	3 247	14,081	42,656	-0 042	28 888	1,218	2,187	102	102	12 0	15 6	1,077	0 955	0 987	0 063	63 154	53 7
233	9/29/1999	10:09:02 AM	0	24,318	21,73	23,829	24,046	21,606	31,541	17,109	60,176	3,263	13,878	42,574	-0 042	29 257	1,218	2,165	103	103	12 1	15 5	1,068	0 945	0 977	0 063	63 053	53 7
234	9/29/1999	10:10:02 AM	0	24,318	21,73	23,829	24,046	21,606	31,461	17,295	60 846	3,239	14,013	43,025	-0 042	29,042	1,218	2,205	104	104	12 1	15 7	1,079	0 963	0 995	0 064	63 559	54 1
235	9/29/1999	10:11:03 AM	0	24,396	21,73	23,969	23,966	21,606	31,541	16 923	59,993	3,223	13,945	42,563	-0 042	29 257	1,218	2,223	105	105	12,1	15 4	1,064	0 970	0 999	0 065	64 697	55,1
236	9/29/1999	10:12:03 AM	0	24 478	21,81	24,069	23,966	21,825	31,541	16 551	59 749	3,16	14 081	42 971	-0 042	29 257	1,218	2,174	106	106	12 1	15 3	1,056	0 949	0 974	0 064	63 614	54,1
237	9/29/1999	10:13:03 AM	0	24,591	21,765	24,185	24,001	21,46	31,496	16,861	59,993	3 239	13,776	42,532	-0 042	29,149	1,218	2,165	107	107	12 1	15 3	1,058	0 945	0 967	0 063	63 133	53 7
238	9/29/1999	10:14:04 AM	0	24,717	21,81	24,39	24,046	21,825	31,541	16 737	59 993	3,215	13,776	42 841	-0 042	29 226	1,218	2,283	108	108	12 1	15 3	1,052	1,001	1 018	0 067	66 749	56,8
239	9/29/1999	10:15:04 AM	0	24 832	21,765	24,425	24 001	21 561	31,578	17,109	60,724	3,279	13,979	42,902	-0 042	29,196	1,218	2,269	109	109	12 1	15 5	1,072	0 991	1 007	0 065	64 765	55 1
240	9/29/1999	10:16:04 AM	0	24,912	21,765	24,585	24,001	21,48	31,496	16,799	60,359	3,263	13 912	42 902	-0 042	29,305	1,218	2,138	110	110	12 2	15 4	1,059	0 933	0 944	0 061	61 494	52 3
241	9/29/1999	10:17:05 AM	0	25 072	21,846	24 666	23,921	21,399	31,578	16,488	59 749	3,263	13,776	42,779	-0 089	29 303	1,218	2,211	111	111	12 2	15 1	1,043	0 965	0 974	0 064	64 386	54 8
242	9/29/1999	10:18:05 AM	0	25,106	21 8	24,701	23,876	21,354	31,631	17,109	60,602	3 287	13,709	42,748	-0 042	29,119	1,218	2,248	112	112	12 1	15 4	1,062	0 981	0 990	0 064	64 225	54,7
243	9/29/1999	10:19:05 AM	0	25 233	21,846	24 826	23,921	21,48	31,578	16,799	60 541	3,255	13,878	42 671	-0 042	29 395	1,218	2,187	113	113	12 2	15 3	1,058	0 955	0 959	0 063	62 549	53 2
244	9/29/1999	10:20:06 AM	0	25,268	21,8	24 942	23,876	21,435	31,631	16,241	59,383	3,255	13 676	42,501	-0 042	29,334	1,218	2,302	114	114	12 2	15 1	1,038	1,005	1 007	0 067	66 839	56 9
245	9/29/1999	10:21:06 AM	0	25,428	21 8	25 022	23,876	21,354	31,61	16,799	60 054	3,271	13,878	42,501	-0 042	29,149	1,218	2,193	115	115	12,1	15 3	1,058	0 957	0 957	0 062	62 375	53 1
246	9/29/1999	10:22:06 AM	0	25 568	21,881	25,102	23,876	21,435	31,263	16,737	60,176	3,247	13,844	43 087	-0 042	29,165	1,218	2,211	116	116	12 1	15 3	1,054	0 965	0 962	0 063	62 942	53 6
247	9/29/1999	10:23:07 AM	0	25,588	21,881	25,262	23,876	21,596	31,134	16,799	60 602	3,287	13 878	43,303	-0 042	29 288	1,218	2,275	117	117	12 2	15 3	1,058	0 993	0 966	0 064	64 272	54 7
248	9/29/1999	10:24:07 AM	0	25,703	21,755	25,297	23 631	21,631	30 651	16 737	60,724	3,223	13,979	43,303	-0 042	29,119	1,218	2,235	118	118	12 1	15 4	1,059	0 978	0 968	0 063	63 000	53 6
249	9/29/1999	10:25:07 AM	1	24 902	21,836	25,377	23,911	21,792	30 772	4,463	62,493	3,239	0 963	57,602	112 945	27,858	0 152	0 91	119	119	11 6	2 7	0 187	0 397	0 393	0 145	144 881	123 3
250	9/29/1999	10:26:08 AM	0	25 828	21,881	25 422	23,956	21,999	30,651	14,257	60,359	3,223	11,207	45,645	-0 042	29 242	1,218	2 339	120	120	12,1	12,7	0 878	1 021	1 009	0 079	79 251	67 4
251	9/29/1999	10:27:08 AM	0	25 968	21,881	25 582	24,116	22,079	30 737	14 877	60,237	3 239	11,748	44 996	-0 042	29 288	1,218	2,278	121	121	12 2	13 3	0 916	0 994	0 978	0 073	73 468	62 5
252																												
253		Averages		25,4	21 4	25 0	23,6	21,7	30,7	16,2	60,6	3,3	13,1	43,8	2,4	29 2	1,200	2,212			12 1	14 6	1 009	0 968	0 967	0 084	83 9	71 4
254		Maximum		27,6	21,9	27,2	24 2	22,5	31,6	17,4	63,1	3 5	14,5	59,2	112,9	29 9	1,218	2,382			12 4	15 7	1,081	1 040	1 066	2 191	2190 8	1864 4
255		Median		25 2	21,5	24 8	23 6	21,7	30 8	16 7	60 4	3 2	13,6	43 2	-0 1	29 3	1 218	2 235			12 1	15 2	1 046	0 976	0 979	0 065	64 6	55 2

Run 1.00: Initial Water Run

	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
256		Minimum		23.3	21.0	23.1	22.3	21.0	29.4	3.3	58.5	3.2	-2.4	42.2	-0.1	27.1	0.152	0.344			11.3	0.5	0.033	0.150	0.155	0.060	59.9	51.0
257		Std Deviation		1.0	0.3	1.0	0.4	0.4	0.6	2.1	0.5	0.1	2.3	2.5	18.5	0.3	0.126	0.214			0.1	2.2	0.151	0.093	0.096	0.193	192.5	183.6
258		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
259																												
260	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (pa	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2_FLTR F	O3_FLTR FLOW (ppm)										
261	Data																											
262	8/29/1999	10:28:24 AM	0	25 906	21 881	25.502	24.036	22.159	30.578	12 068	32.30	3 247	8.232	20 036	-0 042	29.272	1.218	1.657	1	1	12.1	10.2	0 700	0 723	0 713	0 070	70 196	59 7
263	8/29/1999	10:29:24 AM	0	25 906	21 881	25.422	24.118	22.159	30 658	11.964	32.43	3.303	8.705	20 066	-0 089	29 088	1.218	1 623	2	2	12.1	10.3	0 713	0 709	0 700	0 068	67.749	57.7
264	8/29/1999	10:30:24 AM	0	25 873	21.926	25.367	24.161	22.265	30 484	11.84	31.272	3.518	8.268	19 142	-0 089	29 902	1.218	1.587	3	3	12 4	10.1	0 693	0 693	0 685	0 068	68 168	58 0
265	8/29/1999	10:31:25 AM	0	25.748	21.8	25.342	24.197	22.24	30 419	9 05	31.578	3.495	8 595	22.224	-0 042	29 671	1.218	1.748	4	4	12 4	7.3	0 505	0 763	0 758	0 103	103 212	87 8
266	8/29/1999	10:32:25 AM	0	25 793	21.848	25 307	24.242	22.366	30 543	11.158	31.62	3.483	7.42	20.282	-0 089	29 994	1.218	1.841	5	5	12.4	9.3	0 640	0 716	0 710	0 076	76 456	65 1
267	8/29/1999	10:33:25 AM	0	25.713	21.848	25.307	24.242	22.366	30.543	11.406	31.593	3.527	8.097	19 642	-0 042	29.718	1.218	1.841	6	6	12.3	9.8	0 672	0 716	0 710	0 073	72 630	62 0
268	8/29/1999	10:34:26 AM	0	25.758	21.891	25.272	24.287	22.491	30.508	11.84	31.637	3.439	8.401	19 419	-0.089	29.784	1.218	1.574	7	7	12 4	10.1	0 696	0 687	0 682	0 067	67.378	57.3
269	8/29/1999	10:35:26 AM	0	25.596	21.891	25 272	24.367	22.491	30.588	12.15	31.576	3.527	8.401	19 234	-0 089	29 626	1.218	1.596	8	8	12 3	10 3	0 708	0 697	0 691	0 067	67 287	57.3
270	8/29/1999	10:36:26 AM	0	25 678	21.891	25.192	24.367	22.491	30 429	11.592	31.028	3.495	8 502	19.142	-0.089	29.584	1.218	1.602	9	9	12.3	10.0	0 683	0 699	0 696	0 069	69 231	58 9
271	8/29/1999	10:37:27 AM	0	25 643	21.936	-25.237	24.492	22.456	30.718	12.212	31.637	3.487	8 536	19 08	-0 042	29 785	1 218	1.577	10	10	12 4	10 4	0 715	0 688	0 684	0 066	65 919	56.1
272	8/29/1999	10:38:27 AM	0	25 643	21.936	25.187	24.492	22.375	30 671	11.902	31.18	3.439	8.739	18.957	-0 042	29 994	1.218	1.602	11	11	12 4	10 3	0 712	0 699	0 696	0 067	67 463	57.4
273	8/29/1999	10:39:27 AM	0	25.563	21.855	25.167	24.492	22.214	31.03	11 84	30 967	3.447	8 604	18 926	-0 042	29 964	1.218	1.641	12	12	12 4	10 2	0 705	0 716	0 713	0 070	69 771	59 4
274	8/29/1999	10:40:28 AM	0	25 526	21.961	25.121	24.457	22.178	31.233	12 212	31.333	3.455	9 111	18 895	-0 042	29 979	1.218	1.596	13	13	12 4	10.7	0 735	0 687	0 694	0 065	65.127	55 4
275	8/29/1999	10:41:28 AM	0	25 526	21.961	25.121	24.457	22.018	31.233	12.584	31.676	3.479	9 28	18 834	-0 042	29 549	1.218	1.581	14	14	12 3	10 9	0 754	0 688	0 688	0 063	62 918	53 5
276	8/29/1999	10:42:28 AM	0	25 526	21.901	25.121	24.377	22.018	31.318	12.15	31.211	3.455	8.705	18 864	-0 042	29 917	1.218	1.608	15	15	12 4	10 4	0 719	0 702	0 700	0 067	67.089	57.1
277	8/29/1999	10:43:29 AM	0	25.448	21.901	25 041	24 457	21.936	31.312	12.336	31.454	3.463	8 807	18 864	-0 042	29 825	1.218	1.608	16	16	12 4	10 6	0 729	0 702	0 701	0 066	66 324	56 4
278	8/29/1999	10:44:29 AM	0	25 483	21.946	25 068	24.342	21.902	31.436	12.15	31.089	3.471	9 043	18 71	-0 089	29 81	1.218	1.605	17	17	12 4	10 6	0 731	0 701	0 699	0 066	65 961	56.1
279	8/29/1999	10:45:29 AM	0	25 448	21.961	25 041	24.377	21.936	31.392	12.336	31.272	3.455	8.908	18 772	-0 042	29.795	1.218	1 605	18	18	12 4	10 6	0 732	0 701	0 700	0 066	65 866	56.1
280	8/29/1999	10:46:30 AM	0	25.412	22.026	25 006	24.342	21.902	31.516	12.212	31.15	3.399	9.145	18.741	-0 042	29 933	1.218	1.602	19	19	12.4	10 7	0 736	0 699	0 699	0 065	65 479	55.7
281	8/29/1999	10:47:30 AM	0	25.367	21.961	24 961	24.296	21.777	31.471	12.336	31.333	3.391	9.347	18 68	-0 042	29 764	1.218	1 638	20	20	12 4	10 8	0 747	0 715	0 716	0 066	66 027	56 2
282	8/29/1999	10:48:30 AM	0	25.332	22.026	25 006	24.342	21.902	31.516	12.522	31.515	3.527	9.347	18 68	-0 042	29 871	1.218	1.584	21	21	12 4	10 9	0 754	0 691	0 691	0 063	63 228	53 8
283	8/29/1999	10:49:31 AM	0	25 287	21.961	24 881	24 216	21.696	31.551	12.212	31.333	3.495	9 009	18 649	-0 042	29 749	1.218	1.596	22	22	12.3	10 6	0 732	0 697	0 699	0 068	65 883	56.1
284	8/29/1999	10:50:31 AM	0	25.332	22.026	24.926	24.281	21.741	31.595	12.396	31.454	3.415	9.111	18 649	-0 042	29 503	1.218	1.59	23	23	12 2	10 8	0 741	0 694	0 696	0 065	64 675	55 0
285	8/29/1999	10:51:31 AM	0	25.287	21.961	24 801	24.216	21.777	31.551	12 594	31.942	3.447	9 212	18 68	-0 042	29.764	1.218	1.571	24	24	12 4	11.1	0.762	0 686	0 690	0 062	62 396	53 1
286	8/29/1999	10:52:32 AM	0	25.207	22.062	24 881	24.296	21.777	31.63	12 832	31.82	3.455	9.178	18 649	-0 042	29.764	1.218	1.596	25	25	12.4	11 0	0 759	0 697	0 699	0 064	63 522	54.1
287	8/29/1999	10:53:32 AM	0	25.207	22.062	24 801	24.216	21.616	31.551	12 522	31.637	3.551	9 314	18.71	-0 042	29 81	1.218	1.596	26	26	12 3	10 9	0 753	0 697	0 701	0 064	64.172	54 6
288	8/29/1999	10:54:32 AM	0	25.207	22.062	24 801	24.296	21.616	31.551	12 274	30 967	3.431	9.145	18 556	-0.042	29 858	1.218	1.581	27	27	12 4	10 7	0 738	0 690	0 694	0 065	64 807	55 2
289	8/29/1999	10:55:33 AM	0	25.207	21.961	24 801	24 216	21.616	31.709	12.584	31.393	3.495	9 246	18.526	-0 042	29 825	1.218	1 651	28	28	12 4	10.9	0.753	0 721	0 725	0 066	66.402	56 5
290	8/29/1999	10:56:33 AM	0	25.207	21.961	24 801	24 296	21.616	31.63	12.522	31.393	3.463	9.111	18 649	-0 042	29.917	1.218	1.59	29	29	12.4	10 8	0 748	0 694	0 696	0 065	64 531	54.9
291	8/29/1999	10:57:33 AM	0	25.162	22.017	24.756	24.171	21.651	31.427	12 46	31.333	3.367	9 043	18 526	-0 042	29 795	1.218	1.562	30	30	12.4	10 8	0 741	0 662	0 687	0 064	63 859	54 3
292	8/29/1999	10:58:34 AM	0	25.162	22.017	24 678	24.171	21.651	31.506	12.708	31.576	3.471	9 516	18.68	-0 042	29.733	1.218	1.59	31	31	12.3	11.1	0 766	0 694	0 700	0 065	63 037	53 6
293	8/29/1999	10:59:34 AM	0	25 062	22.017	24 678	24.251	21.651	31.585	13 08	32.084	3.559	9 314	18 618	-0.042	29 641	1 218	1.599	32	32	12 3	11.2	0 772	0 698	0 704	0 063	62 912	53 5
294	8/29/1999	11:00:34 AM	0	25 062	22 097	24.676	24 251	21.651	31.585	12 396	31.272	3.471	9.077	18 526	-0 042	29.718	1.218	1.584	33	33	12.3	10.7	0.740	0 691	0 698	0 065	64 566	55.3
295	8/29/1999	11:01:35 AM	0	25 062	21.936	24 678	24 251	21.57	31.585	12 646	31.393	3.487	9 607	18 433	-0 042	29 749	1.218	1.641	34	34	12 3	10 7	0 740	0 716	0 723	0 067	67.397	57.4
296	8/29/1999	11:02:35 AM	0	25 062	22 097	24.596	24.251	21.49	31.665	12.708	31.516	3.535	9 043	18.526	-0 042	29 595	1.218	1.59	35	35	12.3	10.9	0.750	0 694	0 702	0 065	64 553	54 9
297	8/29/1999	11:03:35 AM	0	25 062	22 097	24 596	24.332	21.49	31.585	12 522	31.454	3.455	8 976	18 556	-0 042	29.795	1.218	1.593	36	36	12.4	10.7	0 741	0 695	0 703	0 065	65 436	55.7
298	8/29/1999	11:04:36 AM	0	25 037	22 052	24.631	24 287	21.525	31.541	12.708	31.516	3.503	9 212	18 495	-0 042	29 749	1.218	1.584	37	37	12 3	11.0	0.756	0 691	0 699	0 064	63 751	54 3
299	8/29/1999	11:05:36 AM	0	24 957	22 052	24.551	24 287	21.443	31.541	12 584	31.393	3.463	9 077	18 495	-0 042	29.687	1.218	1.602	38	38	12.3	10.8	0.747	0 699	0 708	0 065	65 334	55.7
300	8/29/1999	11:06:36 AM	0	24.957	22 052	24 551	24 287	21.525	31.541	12 708	31.333	3.471	9 449	18 464	-0.042	29 81	1 218	1.629	39	39	12.4	11.1	0 784	0 711	0 720	0 065	65 007	55 3
301	8/29/1999	11:07:37 AM	0	25 037	21.971	24.551	24.287	21.525	31.541	12 336	31.028	3.479	9 314	18 526	-0 089	29 656	1.218	1.593	40	40	12 4	10 8	0.748	0 695	0 704	0 065	65 059	55 4
302	8/29/1999	11:08:37 AM	0	25 037	22 052	24.631	24 206	21.525	31.541	12 336	31.272	3.415	9.178	18 464	-0 042	29.764	1.218	1.608	41	41	12.4	10 8	0.742	0 702	0 709	0 066	65 938	56.1
303	8/29/1999	11:09:37 AM	0	24.957	22.132	24 631	24 287	21.606	31.461	12 46	31.272	3.447	9 314	18 526	-0.042	29.733	1.218	1.59	42	42	12.3	10.9	0.751	0 694	0 701	0 064	64 421	54.8
304	8/29/1999	11:10:38 AM	0	25 072	22 007	24 668	24 242	21.561	31.336	12.336	31.089	3.399	8 874	18.556	-0 042	29 687	1.218	1.584	43	43	12 3	10 6	0 731	0 691	0 698	0 066	65 820	56 0
305	8/29/1999	11:11:38 AM	0	24 992	22 007	24.668	24 242	21.641	31 099	12 46	31.454	3.479	9.381	18 526	-0 042	29 856	1.218	1.599	44	44	12 4	10 9	0 753	0.698	0 705	0 065	64 523	54 9
306	8/29/1999	11:12:38 AM	0	25 072	22.087	24 668	24 242	21.602	30 941	12 46	31.333	3.471	9 212	18 495	-0.042	29.964	1.218	1.565	45	45	12.4	10 8	0 747	0 663	0 690	0 064	63 644	54 2
307	8/29/1999	11:13:39 AM	0	25 072	22 007	24 668	24 242	21.683	30 861	12.833	31.696	3.535	9 516	18 464	-0 042	29.718	1.218	1.603	46	46	12.3	11.2	0.770	0 701	0 707	0 063	63 296	53 9
308	8/29/1999	11:14:39 AM	0	25.117	22 052	24.711	24 367	22.006	30 826	12.336	31.15	3.415	9.178	18 495	-0 042	29 857	1.218	1.59	47	47	12.4	10.8	0.742	0 694	0 700	0 065	65 055	55.4
309	8/29/1999	11:15:39 AM	0	25.117	22 052	24.791	24 367	22.169	30.747	12.088	30 906	3.431	8.042	18.433	-0 042	29 733	1.218	1.62	48	48	12 3	10 5	0 725	0 707	0 711	0 068	67.653	57.6
310	8/29/1999	11:16:40 AM	0	25.197	22.052	24.791	24 447	22.25	30 667	12 646	31.333	3.463	9.483	18.495	-0 042	29 81	1.218	1.606	49	49	12 4	11.1	0 763	0 702	0 706	0 064	63 817	54 3
311	8/29/1999	11:17:40 AM	0	25.197	22.052	24 791	24 447	22.25	30 588	12.77	31.676	3.479	8 976	18 464	-0.042	29.795	1.218	1.574	50	50	12 4	10 9	0 750	0 687	0 691	0 064	63 568	54.1
312	8/29/1999	11:18:40 AM	0	25.117	22.052	24.791	24.527	22.33	30 588	12 646	31.333	3.463	9 043	18 464	-0.042	29.749	1.218	1.602	51	51	12.3	10 6	0.748	0 699	0 703	0 065	64 868	55 2
313	8/29/1999	11:19:41 AM	0	25 242	22 097	24 836	24 653	22.456	30 633	12 708	31.454	3.423	9.111	18 556	-0 042	29 749	1.218	1.593	52	52	12.3	10 9	0 752	0 695	0 699	0 064	64 038	54 5
314	8/29/1999	11:20:41 AM	0	25.242	22.097	24 836	24 572	22.536	30 633	12.77	31.696	3.582	9 009	18 526	-0.042	30 01	1.218	1.608	53	53	12.5	10 9	0 751	0 702	0 705	0 065	64 760	55.1
315	8/29/1999	11:21:41 AM	0	25 242	22.097	24 836	24 653	22.536	30 653	12.088	30.784	3.407	9 043	18 556	-0.042	29 549	1.218	1 559	54	54	12 3	10 6	0 728	0 681	0 684	0 065	64 712	55.1
316	8/29/1999	11:22:42 AM	0	25.287	22.062	24.881	24 696	22.581	30.618	12.77	31.516	3.455	9.145	18 433	-0 042	29.964	1.218	1.596	55	55	12 4	11 0	0 755	0 697	0 699	0 064	63 797	54.3
317	8/29/1999	11:23:42 AM	0	25.007	22 062	24 881	24.778	22.501	30 677	12.46	31.393	3.479	9.178	18 526	-0 042	29 841	1.218	1.623	56	56	12 4	10 8	0 746	0 709	0 711	0 065	65 707	55 8
318	8/29/1999	11:24:43 AM	0	25 332	22.187	24.926	24 823	22.646	30.96	12.336	30 967	3.439	8.942	18 433	-0 042	29 81	1.218	1.581	57	57	12 4	10 6	0 734	0 690	0 692	0 065	65 007	55 3
319	8/29/1999	11:25:43 AM	0	25.332	22.187	24.926	24.823	22.365	31.039	12.708	31.333	3 511	9.314	18 402	-0 042	29.795	1.218	1 562	58	58	12.4	11 0	0.759	0 682	0 683	0 062	62 056	52 8
320	8/29/1999	11:26:44 AM	0	25.332	22.107	24 926	24.743	22 305	31.118	12.584	31.272	3.367	9 483	18 526	-0 042	29.749	1.218	1.629	59	59	12.3	11.0	0 761	0 711	0 713	0 065	64 566	55 0
321	8/29/1999	11:27:44 AM	0	25.377	22.152	24 971	24.765	22.27	31.243	12.77	31.758	3.495	9 212	18 618	-0 042	29 81	1.218	1.587	60	60	12.4	11.0	0.758	0 693	0 693	0 063	63 064	53 7
322	8/29/1999	11:28:44 AM	0	25.377	22.152	24 971	24.765	22.27	31.322	12.708	31.576	3.423	9.145	18.526	-0 042	29 841	1.218	1 596	61	61	12 4	10 9	0 753	0 697	0 697	0 064	63 816	54.3
323	8/29/1999	11:29:45 AM	0	25.377	22.152	25.051	24.707	22.189	31.322	12.77	31.516	3.407	9 212	18 587	-0 089	29 764	1.218	1.602	62	62	12 4	11 0	0 758	0 699	0 698	0 064	63 537	54.1
324	8/29/1999	11:30:45 AM	0	25 377	22.152	24 971	24 627	22.109	31.402	12.46	31.211	3.471	9 314	18 495	-0 042	29 841	1.218	1.611	63	63	12 4	10 9	0 751	0 705	0 704	0 065	64 650	55 0
325	8/29/1999	11:31:45 AM	0	25.377	22.152	24.971	24 627	22.109	31.322	12.708	31.676	3 535	9 28	18 556	-0 042	29 871	1.218	1 571	64	64	12.4	11.0	0.758	0 686	0 686	0 062	62 431	53 1
326	8/29/1999	11:32:46 AM	0	25 457	22.152	25 051	24 627	22.028	31.56	12 584	31.393	3.423	9 246	18 556	-0 042	29.702	1.218	1.614	65	65	12 3	10 9	0.753	0 705	0 704	0 064	64 458	54 9
327	8/29/1999	11:33:46 AM	0	25 457	22.152	25 051	24.627	22.028	31.402	12 212	31.028	3.447	9.145	18 587	-0 042	29 61	1.218	1.636	66	66	12 3	10.7	0.736	0 715	0 714	0 067	66 865	56 9
328	8/29/1999	11:34:46 AM	0	25 457	22.152	25.131	24 547	22 026	31.56	12 832	31.676	3.471	9 314	18 495	-0 042	29.795	1.218	1.536	67	67	12 4	11.1	0 783	0 671	0 669	0 060	60 411	51 4
329	8/29/1999	11:35:47 AM	0	25 457	22.152	25 051	24 547	21.848	31.56	12.396	31.211	3.447	9 077	18 464	-0 089	29 61	1.218	1.59	68	68	12 3	10 7	0 740	0 694	0 693	0 065	64 550	54 9
330	8/29/1999	11:36 47 AM	0	25 502	22.197	25.176	24 672	21.993	31.826	12.77	31.637	3.551	9 009	18 433	-0 042	29 795	1.218	1.565	69	69	12.4	10 9	0.751	0 663	0 680	0 062	62 428	53 1
331	8/29/1999	11:37:47 AM	0	25 538	22.152	25.131	24 547	21.848	31.461	12.522	31.089	3.423	9 077	18 464	-0 042	29 81	1.218	1.596	70	70	12 4	10 8	0.745	0 697	0 694	0 064	64 276	54 7
332	8/29/1999	11:38:48 AM	0	25 538	22.233	25.131	24.547	21.867	31.64	12.708	31.516	3.463	8 671	18 556	-0 042	29 656	1.218	1.581	71	71	12 3	10.7	0.737	0 690	0 688	0 064	64 328	54 7
333	8/29/1999	11:39:48 AM	0	25 538	22.233	25.131	24.467	21.867	31.64	12 832	31.637	3.407	9.145	18 556	-0 042	29 887	1.218	1.599	72	72	12.4	11.0	0.758	0 698	0 695	0 063	63 200	53 9
334	8/29/1999	11:40:48 AM	0	25 502	22.197	25.176	24 592	21.912	31.684	12 956	31.696	3 495	9 077	18 464	-0 042	29 641	1.218	1.605	73	73	12 4	11 0	0 760	0 701	0 697	0 063	63 285	53 9
335	8/29/1999	11:41:49 AM	0	25 538	22.233	25.131	24.467	21.867	31.56	12 46	31.272	3.487	8 874	18 495	-0 042	29 749	1.218	1.571	74	74	12 3	10 7	0 735	0 686	0 683	0 064	64 055	54 5
336	8/29/1999	11:42:49 AM	0	25 538	22.152	25.131	24.387	21.787	31.64	12 522	31.211	3.487	9 246	18 433	-0 042	29 672	1.218	1.599	75	75	12 3	10 9	0 750	0 696	0 695	0 064	63 897	54.4
337	8/29/1999	11:43:49 AM	0	25 538	22.313	25.211	24 467	21.867	31.796	12.584	31.676	3.503	9 246	18 556	-0 042	29 779	1.218	1 571	76	76	12.4	10 9	0 753	0 686	0 682	0 062	62 459	53 2
338	8/29/1999	11:44 50 AM	0	25 618	22.233	25 211	24.467	21.867	31.719	12.396	31.089	3.391	8 874	18 495	0 004	29 564	1.218	1.564	77	77	12 3	10 6	0 733	0 691	0 687	0 065	64 628	55 0
339	8/29/1999	11:45 50 AM	0	25 618	22.233	25 211	24.387	21.787	31.719	12.77	31.516	3.407	9 043	18 556	-0.042	29 564	1.218	1 581	78	78	12.3	10 9	0 752	0 690	0 686	0 063	62 906	53 5
340	8/29/1999	11:46 51 AM	0	25 573	22 268	25.166	24 422	21 681	31.674	12 584	31.393	3 415	9 077	18 526	-0 042	29 626	1 218	1 565	79	79	12 3	10 8	0 747	0 683	0 680	0 063	62 786	53 4

Run 1.00: Initial Water Run

	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
341	9/29/1999	11:47:51 AM	0	25 573	22 268	25 246	24,422	21 56	31,674	12 832	31,82	3,582	9 246	18 495	-0 042	30 025	1,216	1,62	80	80	12 5	11 0	0 781	0 707	0 702	0 064	63 621	54 1
342	9/29/1999	11:48:51 AM	0	25 653	22 268	25 246	24,422	21,681	31,695	12,336	31,028	3,439	9 314	18,495	-0 042	30,066	1,218	1,614	81	81	12 5	10 8	0 746	0 705	0 700	0 065	64 639	55 0
343	9/29/1999	11:49:52 AM	0	25 653	22,187	25 246	24 422	21,681	31,695	12,832	31,637	3 603	9 381	18 526	-0 042	29 841	1 218	1,559	82	82	12 4	11 1	0 766	0 681	0 676	0 061	60 554	51 6
344	9/29/1999	11:50:52 AM	0	25 653	22,187	25 246	24 422	21,822	31,695	12,584	31,272	3,447	8 976	18,433	-0,042	29,795	1,218	1,651	83	83	12 4	10 8	0 743	0 721	0 716	0 066	66 397	56 5
345	9/29/1999	11:51:52 AM	0	25 653	22 268	25 246	24,342	21,822	31,674	12,15	30 967	3 463	8,976	18 402	-0 042	29 902	1,218	1 602	84	84	12 4	10 6	0 728	0 699	0 695	0 066	65 750	56 0
346	9/29/1999	11:52:53 AM	0	25 653	22 268	25 246	24 342	21,741	31,595	12,46	31,333	3 651	8 64	18 495	-0 042	29 626	1,218	1,626	85	85	12 3	10 7	0 734	0 710	0 705	0 066	66 189	56 3
347	9/29/1999	11:53:53 AM	0	25,733	22,268	25 327	24 422	21,741	31,754	12,832	31,696	3 503	9,111	18,526	-0 042	30,01	1,218	1,632	86	86	12 5	11 0	0 758	0 712	0 706	0 064	64 340	54 8
348	9/29/1999	11:54:53 AM	0	25 653	22,268	25 327	24 422	21,741	31,595	12 584	31,211	3 415	9,145	18 464	-0 042	29,749	1,218	1,596	87	87	12 3	10 9	0 749	0 697	0 690	0 064	63 541	54 1
349	9/29/1999	11:55:53 AM	0	25 688	22 223	25 282	24 377	21,696	31,83	12 832	31,759	3,471	9,178	18,618	-0,042	29,764	1,218	1 635	88	88	12 4	11 0	0 759	0 714	0 708	0 064	64 344	54 8
350	9/29/1999	11:56:54 AM	0	25 688	22,223	25,362	24,377	21,777	31,709	12,15	30 845	3 455	9 415	18 556	0 004	29 841	1,218	1,611	89	89	12 4	10 8	0,743	0 703	0 696	0 065	64 562	54 9
351	9/29/1999	11:57:54 AM	0	25,768	22,303	25 282	24,377	21,696	31,651	12,396	31,15	3,423	9,111	18,556	-0 042	29,687	1,218	1,641	90	90	12 3	10 8	0 741	0 716	0 711	0 066	66 084	56 2
352	9/29/1999	11:58:54 AM	0	25,643	22,258	25 237	24,332	21,651	31,585	12,396	31,333	3,447	9 111	18,587	-0 042	29 872	1,218	1,602	91	91	12 3	10 8	0,741	0 699	0 695	0 065	64 595	55 0
353	9/29/1999	11:59:55 AM	0	25,768	22 223	25 362	24,457	21,616	31,63	12,274	31,028	3,471	9 077	18 526	-0,042	29 81	1,218	1,587	92	92	12 4	10 7	0 736	0 693	0 688	0 064	64 238	54 7
354	9/29/1999	12:00:55 PM	0	25,768	22 303	25,362	24,457	21,696	31,63	12,584	31,518	3,439	9 212	18 587	-0 042	30 071	1,218	1,605	93	93	12 5	10 9	0 751	0 701	0 694	0 064	63 640	54 2
355	9/29/1999	12:01:56 PM	0	25,768	22,303	25 362	24 537	21 696	31,651	12 584	31,333	3 439	9 077	18,526	-0 042	29,749	1,218	1,599	94	94	12 3	10 8	0 747	0 698	0 691	0 064	63 797	54 3
356	9/29/1999	12:02:56 PM	0	25,723	22 258	25 317	24 412	21,651	31,585	12,648	31,637	3,567	9 043	18 526	-0 042	29 779	1,218	1,577	95	95	12 4	10 8	0 748	0 688	0 682	0 063	62 918	53 5
357	9/29/1999	12:03:56 PM	0	25 723	22,258	25,317	24,492	21,651	31,606	12 832	31,881	3 439	9,818	18,587	-0 042	29,946	1,218	1,671	96	96	12 4	11 2	0 774	0 686	0 680	0 061	60 554	51 6
358	9/29/1999	12:04:56 PM	0	25 803	22 258	25 397	24 492	21,651	31,606	12,956	31,82	3,495	8,976	18 433	-0 042	29 56	1,218	1,617	97	97	12 3	11,0	0 756	0 706	0 698	0 064	63 656	54 2
359	9/29/1999	12:05:57 PM	0	25,758	22 213	25,352	24,367	21,606	31,461	12,522	31,333	3,467	9,212	18,556	-0 042	29,702	1,218	1,623	98	98	12 3	10 9	0 749	0 709	0 702	0 065	64 556	54 9
360	9/29/1999	12:06:57 PM	0	25 803	22 258	25,397	24 492	21 812	31,268	12,274	30 967	3,391	9,111	18,556	-0,042	29 671	1,218	1,611	99	99	12 4	10 7	0,737	0,703	0 695	0 065	65 042	55 4
361	9/29/1999	12:07:58 PM	0	25,803	22,258	25,397	24 492	21,893	31,03	12 648	31,454	3 447	9 212	18 526	-0 042	29 718	1,218	1,593	100	100	12 3	10 9	0,754	0 695	0 688	0 063	62,923	53 5
362	9/29/1999	12:08:58 PM	0	25 803	22,258	25,397	24,572	21,973	30,95	12,522	31,15	3 367	9,145	18 556	-0 042	29,626	1,218	1,644	101	101	12 3	10 8	0 747	0 718	0 710	0 066	65 510	55 8
363	9/29/1999	12:09:58 PM	0	25 803	22,339	25 397	24 572	22,134	30 671	12,336	31,089	3,359	8 874	18 526	-0,042	29 81	1,218	1,632	102	102	12 4	10 6	0,731	0,712	0,705	0 066	66 433	56 5
364	9/29/1999	12:10:59 PM	0	25 803	22 258	25 397	24 653	22 214	30,791	12,708	31,454	3 439	9 347	18 556	-0 042	29 656	1,218	1,581	103	103	12 3	11,0	0 760	0 690	0 683	0 062	61 891	52 7
365	9/29/1999	12:11:59 PM	0	25 803	22,258	25,397	24,733	22,295	30,712	13 016	31,881	3,471	9,418	18,556	-0 042	29 702	1,218	1,556	104	104	12 3	11 2	0,773	0 679	0 672	0 060	59 886	51 0
366	9/29/1999	12:12:59 PM	0	25 803	22,258	25,397	24,733	22,375	30,474	12,212	30,906	3,367	9 009	18,556	-0 042	29 625	1,218	1,596	105	105	12 4	10 6	0 732	0 697	0 689	0 065	64 934	55 3
367	9/29/1999	12:14:00 PM	0	25 848	22,303	25 362	24,778	22,501	30,439	12,274	31,15	3,399	9 077	18,587	-0,042	29,779	1,218	1,638	106	106	12 4	10 7	0,736	0 715	0 708	0 066	66 302	56 4
368	9/29/1999	12:15:00 PM	0	25 848	22,303	25,442	24 858	22,581	30 518	12,46	31,333	3,447	9,111	18 587	-0 042	29 841	1,218	1,596	107	107	12 4	10 8	0 744	0 697	0 688	0 064	63 600	54,3
369	9/29/1999	12:16:00 PM	0	25 893	22,348	25,487	24,903	22 627	30,563	12,77	31,82	3,598	9 381	18,556	-0,042	29 856	1,218	1,608	108	108	12 4	11 1	0,764	0 702	0 692	0 063	62 517	53 2
370	9/29/1999	12:17:01 PM	0	25 613	22 268	25 487	24 903	22,707	30 642	12,646	31,454	3 519	9,176	18 556	-0 042	29,779	1,218	1,596	109	109	12 4	10,9	0 752	0 697	0 687	0 063	62 981	53 6
371	9/29/1999	12:18:01 PM	0	25 858	22,313	25,532	25,028	22,691	30,925	12 584	32 003	3,423	8,976	18 895	-0,042	29 411	1,218	1,587	110	110	12 2	10 8	0 743	0 693	0 683	0 063	63 312	53 9
372	9/29/1999	12:19:01 PM	0	25 858	22,313	25,532	25,028	22,511	31,005	12,77	32,064	3,439	9 55	19 019	-0 042	29 334	1,218	1,614	111	111	12 2	11,2	0,769	0,705	0 694	0 062	62,197	52 9
373	9/29/1999	12:20:02 PM	0	25,858	22 313	25 532	24 948	22,33	31,164	11 84	30 967	3,271	9 55	18 926	-0 042	29,672	1,218	1,626	112	112	12 3	10 7	0,737	0 710	0 699	0 065	65 384	55 6
374	9/29/1999	12:21:02 PM	0	25 903	22,358	25 577	24 993	22 315	31,208	12 648	31,842	3,359	8 773	18 968	-0 042	29 457	1,218	1,614	113	113	12 2	10 7	0,738	0,705	0 693	0 065	64 732	55 1
375	9/29/1999	12:22:02 PM	0	25 858	22 313	25 452	24 948	22 189	31,322	12 584	31,82	3 343	9 618	19 019	-0 042	29,441	1,218	1 605	114	114	12 2	11,1	0 765	0 701	0 692	0 062	62 319	53 0
376	9/29/1999	12:23:03 PM	0	25 903	22,358	25 497	24 913	22,234	31,367	12,632	32,125	3,359	9 347	18 957	-0 042	29 467	1,218	1,593	115	115	12 2	11,1	0,765	0 695	0 686	0 062	61 839	52 6
377	9/29/1999	12:24:03 PM	0	25 903	22,353	25 577	24 913	22,154	31,367	12,956	32,247	3,367	9,145	18,957	-0 042	29,395	1,218	1,632	116	116	12 2	11,1	0,762	0 712	0 701	0 063	63 434	54 0
378	9/29/1999	12:25:03 PM	0	25 903	22,358	25,577	24 833	22,154	31,367	12,522	31,696	3,363	9 077	18 864	-0 042	29 318	1,218	1,638	117	117	12 2	10 8	0 745	0 715	0 704	0 065	65 147	55 4
379	9/29/1999	12:26:04 PM	0	25 948	22 404	25 542	24,878	22,199	31,491	12,46	31,759	3,359	9 246	19 019	-0 042	29 365	1,218	1,626	118	118	12 2	10 9	0 748	0 710	0 699	0 064	64 414	54 8
380	9/29/1999	12:27:04 PM	0	25 903	22 358	25 577	24 833	22,073	31,526	12 648	32,064	3,375	9,178	19 049	-0 042	29 334	1,218	1,644	119	119	12 2	10 9	0 752	0 718	0 706	0 065	64 711	55 1
381	9/29/1999	12:28:04 PM	0	25 963	22,358	25 577	24 913	22 073	31,448	12,632	32,064	3 359	9 246	18 988	-0 042	29 426	1,218	1,596	120	120	12 2	11 0	0 761	0 697	0 686	0 062	62 099	52 8
382	9/29/1999	12:29:05 PM	0	25 903	22,358	25 497	24 913	21,993	31,526	12 212	31,454	3 351	9 246	18 957	-0 042	29 334	1,218	1,581	121	121	12 2	10 7	0 740	0 690	0 681	0 063	63 435	54 0
383	9/29/1999	12:30:05 PM	0	25 963	22 358	25 577	24 913	22,073	31,526	12,522	31 942	3,407	9 449	19 111	-0 042	29 303	1,218	1,577	122	122	12 2	11,0	0 757	0 688	0 677	0 062	61 659	52 5
384	9/29/1999	12:31:05 PM	0	25 903	22 358	25,497	24 913	22,073	31,448	12 336	31,576	3 391	9,26	18,957	-0 042	29 641	1,218	1,581	123	123	12 3	10 8	0,745	0 690	0 681	0 063	62 971	53 6
385	9/29/1999	12:32:06 PM	0	26 028	22,404	25 622	24 958	22,199	31,49	9 484	32 064	3 367	6,102	22,1	-0 042	29 272	1,218	1,666	124	124	12 1	7 8	0 537	0,727	0 715	0 092	91 707	78 0
386	9/29/1999	12:33:06 PM	0	25 848	22,404	25 542	24 878	22 199	31,412	10,414	31 576	3,327	7,454	20,775	-0 042	29 316	1,218	1,629	125	125	12 2	8 9	0 616	0 711	0 700	0 078	78 394	66 7
387	9/29/1999	12:34:06 PM	0	26 028	22 404	25 622	24 958	22,199	31,491	11 282	31,942	3,391	7,758	20,344	-0,042	29 334	1,218	1,718	126	126	12 2	9 5	0 656	0 750	0 737	0 077	77 414	65 9
388																												
389		Averages		25 5	22,1	25,1	24 5	22 0	31,3	12 4	31 5	3 4	9 0	18 8	0 0	29 7	1,218	1,604			12 3	10 7	0 738	0 700	0 696	0 065	65 4	55 6
390		Maximum		26 0	22,4	25 8	25,0	22 7	31,8	13,1	32,4	3 6	9 6	22 2	0,0	30,1	1,218	1,746			12 5	11 2	0,774	0,763	0 756	0 103	103 2	87 8
391		Median		25 5	22,2	25 2	24 5	22 0	31,4	12,5	31 5	3 5	9 1	18 6	0 0	29 8	1,218	1,599			12 4	10 8	0,747	0 698	0 693	0 065	64 6	54 9
392		Minimum		25 0	21 8	24 8	24 0	21,4	30,4	9 1	30 8	3,2	6 6	18,4	-0 1	29 1	1,218	1,538			12 1	7 3	0 503	0 671	0 669	0 060	59 9	51 0
393		Std Deviation		0 3	0 2	0,3	0 2	0,3	0 4	0 8	0,3	0,1	0 5	0 6	0,0	0,2	0,000	0 029			0,1	0 5	0 036	0 013	0 012	0 005	5 0	4 2
394		Number of Points Used		126	126	126	126	126	126	126	126	126	126	126	126	126	126	126			126	126	126	126	126	126	126	126
395																												
396	DATE	TIME	Solenoid C	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTA (pa	FLTR DP (	TOP DP (p	FLTRATE (pslg)	PISTON (pslg)	FSL FLOW	FLTR FLO	HI FLTR FLOW (ppm)	O3										
397	zeroes - lines connected																											
398	9/30/1999	8:15:20 AM	0	20,504	19 926	19 45	19 587	18 508	29 604	-0 124	-1,108	-0,247	0,118	-1,105	-0 181	-0 095	0 011	-0 018										
399	9/30/1999	8:16:21 AM	0	20,48	19 801	19 406	19 543	18,706	29,163	-0,124	-1,108	-0,247	0,118	-1,074	-0,181	-0 08	0 011	-0 018										
400	9/30/1999	8:17:21 AM	0	20,48	19 882	19,406	19 543	18,849	29,163	-0,124	-1,108	-0,247	0,152	-1,074	-0 228	-0 08	0 011	-0 018										
401	9/30/1999	8:18:21 AM	0	20,48	19 801	19 406	19 543	18,949	29 083	-0,124	-1,108	-0,247	0,118	-1 074	-0,228	-0,095	0 011	-0,018										
402	zeroes - lines not connected																											
403	9/30/1999	8:21:00 AM	0	20,48	19,631	19,406	19 543	18,787	29 163	0,000	-0,072	-0,024	-0 051	-0 088	-0,181	-0 08	0 011	-0 018										
404	9/30/1999	8:22:00 AM	0	20 418	19 707	19,361	19 496	18 904	28,96	0,000	-0,072	-0 016	-0 017	-0 088	-0,181	-0,08	0 011	-0,018										
405	9/30/1999	8:23:01 AM	0	20 48	19 801	19,406	19 462	19 272	28 685	0 000	-0 072	-0 024	-0 051	-0 088	-0 181	-0 08	0 011	-0 018										
406	9/30/1999	8:24:01 AM	0	20 48	19 651	19 406	19 543	19,191	28,784	0 000	-0 072	-0,016	-0 017	-0 088	-0,181	-0 095	0,011	-0,018										
407	data																											
408	9/30/1999	8:25:57 AM	0	20,379	19 882	19 406	19 543	19 11	29 083	-1,426	-2 633	-1,476	-0 051	-1,136	-0,181	-0 08	0 011	-0,018	1	1	0 0	-0 7	-0 051	-0 008	-0 009	0 012	12 492	10 6
409	9/30/1999	8:26:57 AM	0	20 335	19 837	19 361	19 496	19,147	29,119	-1,426	-2 633	-1,466	-0 051	-1,136	-0 181	-0 08	0 011	-0 018	2	2	0 0	-0 7	-0 051	-0 008	-0 009	0 013	12 509	10 6
410	9/30/1999	8:27:58 AM	0	20 418	19 837	20 491	19 496	19,147	27,923	12,832	13,71	0,716	13 607	0 99	-0 181	-0 08	0 011	-0 018	3	3	0 0	13 2	0 911	-0 008	-0 009	-0 001	-0 676	-0 6
411	9/30/1999	8:28:58 AM	0	21,545	19 837	21,459	19 496	19 369	27,843	20 642	75,766	7,308	13,573	54 828	-0,181	44,647	1,218	2 488	4	4	18 5	17 1	1,180	1 086	1 201	0 070	70 226	59 8
412	9/30/1999	8:29:59 AM	0	22 028	19,757	21,942	19 496	19 551	27,365	21,262	76 03	7,197	14 081	54 243	-0 181	44,74	1,218	2,391	5	5	18 6	17 7	1 218	1 044	1 139	0 064	64 432	54 8
413	9/30/1999	8:30:59 AM	0	22,43	19 757	22,424	19 579	19,793	26,965	21,882	74 689	8,026	13 878	52,394	-0,181	47,352	1,218	2,385	6	6	19 7	17 9	1 233	1 041	1 120	0 063	62 649	53 3
414	9/30/1999	8:32:00 AM	0	22,957	19 882	22 87	19 624	19 838	28 685	21 882	74 628	8,106	13 844	52,332	-0,181	47,197	1,218	2 43	7	7	19 6	17,9	1 232	1 061	1 127	0 063	63 082	53 7
415	9/30/1999	8:33:00 AM	0	23,359	19 801	23,192	19 543	19 918	27,089	18,473	78 042	2,992	16 075	59,143	-0 181	28,75	1,218	2 647	8	8	11 9	17 3	1 191	1 156	1 216	0 070	70 408	59 9
416	9/30/1999	8:34:00 AM	0	23,68	19 801	23,593	19 624	19 918	27,408	18,721	78,184	3	16,346	58 896	-0,181	29 817	1,218	2,566	9	9	12 4	17,5	1 209	1 129	1 175	0 067	66 999	57 0
417	9/30/1999	8:35:01 AM	0	24,126	19 845	23,958	19 668	20 045	27,771	18,783	78,469	3	16 413	59 297	-0 181	29 318	1,218	2 522	10	10	12 2	17 6	1 213	1 101	1 134	0 064	64 430	54 8
418	9/30/1999	8:36:01 AM	0	24 411	19 809	24 323	19 712	20 088	28,453	18,907	79 201	2,705	16 276	59 515	-0 181	29 073	1,218	2 677	11	11	12 1	17 6	1 213	1 169	1 191	0 068	67 708	57 6
419	9/30/1999	8:37:01 AM	0	24 651	19 69	24,564	19 712	20 007	27,815	10 476	20 539	2,944	7 42	10 02	-0 181	29 902	1,218	1,265	12	12	12 4	8 9	0 617	0 561	0 568	0 063	63 466	54 0
420	9/30/1999	8:38:02 AM	0	24,731	19 69	24 644	19 712	19 848	27,735	9 606	17,063	2,713	6 778	7,277	-0 181	29 595	1,168	1,157	13	1	12 3	8 2	0 565	0 505	0 510	0 062	62 269	53 0
421	9/30/1999	8:39:02 AM	1	24,758	19 845	24 68	19 587	19,72	26,489	2 355	17,053	2,912	-0,491	14 643	45 384	28 735	0 09	0 042	14	2	11 9	0 9	0 084	0 016	0 019	0 020	19 851	16 9
422	9/30/1999	8:40:02 AM	0	24 765	19 845	24 84	19 668	19 64	26,569	3,161	16 32	2,681	0,368	13,441	-0,181	29 011	0 4	0,387	15	3	12 0	1 8	0 122	0 169	0 170	0 096	95 635	81 4
423	9/30/1999	8:41:03 AM	0	25 008	19 845	24 84	19 668	19 72	26,973	8 943	20,295	1 588	5,155	13,287	-0,181	22 376	1 218	1 401	16	4	9 3	8 0	0 417	0 612	0 614	0 102	101 563	86 4
424	9/30/1999	8:42:03 AM	0	25 168	19 845	24 921	19,749	19 963	27,372	7,934	16 696	2,681	5,189	8 602	-0 181	29 395	1,218	1,227	17	5	12 2	6 6	0 452	0 536	0 537	0 082	81 813	69 6
425	9/30/1999	8:43:03 AM	0	25 245	19 784	25 001	19 749	19 882	27 812	8 244	18 837	2 737	5 426	8 325	-0 181	29 61	1 21	1 209	18	6	12 3	6 8	0 471	0 528	0 528	0 077	77 215	65 7

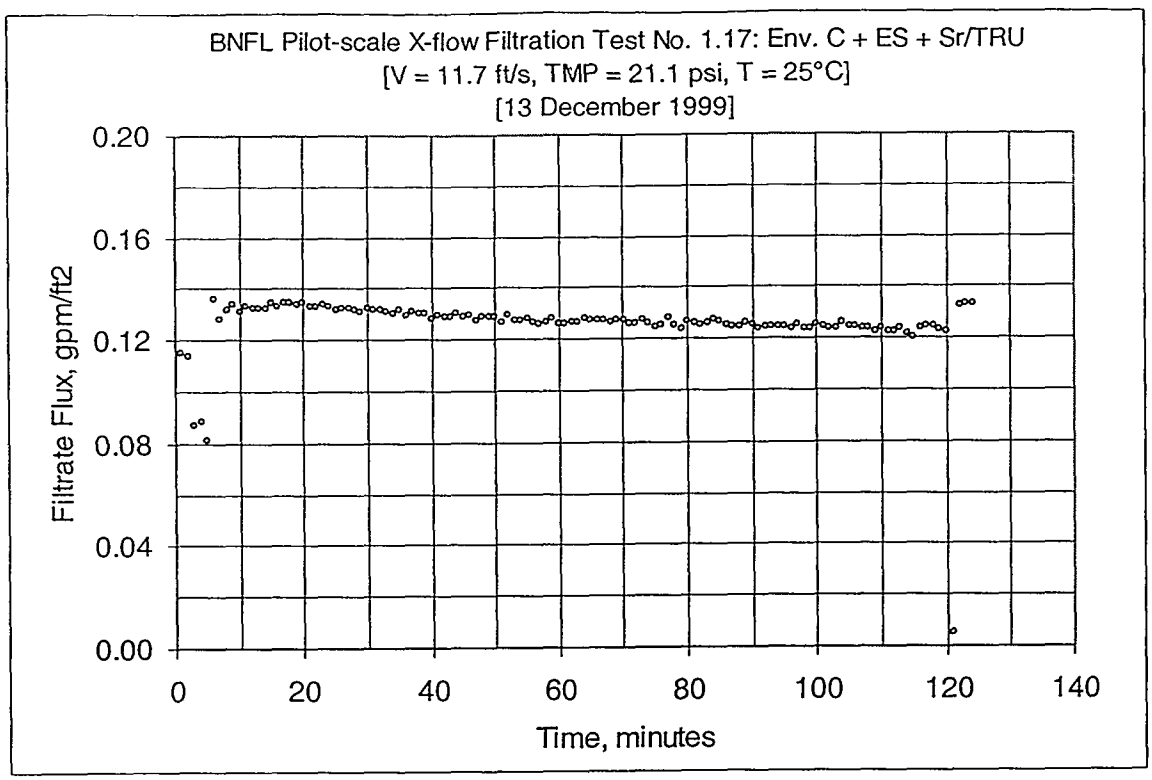
Run 1.00: Initial Water Run

	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
426	9/30/1999	8:44:04 AM		0	25.328	19.845	25.181	19.829	19.801	27.851	8.182	18.454	2.681	8.595	8.14	-0.228	29.457	1.218	1.215	19	7	12.2	6.9	0.475	0.530	0.528	0.077	76.849	65.2
427	9/30/1999	8:45:04 AM		0	25.453	19.89	25.285	19.783	19.765	27.418	8.368	18.515	2.761	8.885	8.048	-0.181	29.426	1.218	1.2	20	8	12.2	7.1	0.491	0.524	0.520	0.073	73.023	62.1
428	9/30/1999	8:46:04 AM		0	25.533	19.809	25.365	19.874	19.765	27.256	8.306	18.332	2.681	8.699	7.955	-0.181	29.38	1.173	1.197	21	9	12.2	7.1	0.490	0.523	0.517	0.073	72.820	62.0
429	9/30/1999	8:47:05 AM		0	25.533	19.809	25.445	19.874	19.846	26.777	8.078	18.696	2.745	8.967	7.924	-0.181	29.288	1.165	1.209	22	10	12.2	7.3	0.505	0.528	0.521	0.071	71.180	60.8
430	9/30/1999	8:48:05 AM		0	25.657	19.853	25.489	19.837	19.971	27.36	8.618	18.515	2.753	8.899	7.852	-0.181	29.349	1.201	1.215	23	11	12.2	7.3	0.500	0.530	0.523	0.072	72.065	61.3
431	9/30/1999	8:49:05 AM		0	25.737	19.853	25.569	19.837	19.728	27.939	8.492	18.454	2.593	8.136	7.863	-0.181	29.395	1.218	1.224	24	12	12.2	7.3	0.504	0.534	0.526	0.072	71.896	61.2
432	9/30/1999	8:50:06 AM		0	25.861	19.897	25.613	19.962	19.773	27.105	8.554	18.515	2.849	8.102	7.852	-0.181	29.257	1.218	1.206	25	13	12.1	7.3	0.505	0.526	0.517	0.071	70.618	60.1
433	9/30/1999	8:51:06 AM		0	25.861	19.817	25.533	19.882	19.854	27.903	8.802	18.696	2.713	8.136	7.77	-0.228	29.472	1.204	1.191	26	14	12.2	7.5	0.515	0.520	0.512	0.069	68.575	58.4
434	9/30/1999	8:52:06 AM		0	25.625	19.661	25.417	20.007	19.979	27.308	8.618	18.515	2.705	8.034	7.77	-0.181	29.303	1.217	1.191	27	15	12.2	7.3	0.505	0.520	0.514	0.070	70.151	59.7
435	9/30/1999	8:53:07 AM		0	25.584	19.942	25.177	20.007	20.059	27.468	8.74	18.637	2.545	8.136	7.739	-0.181	29.272	1.218	1.188	28	16	12.1	7.4	0.513	0.519	0.516	0.069	69.378	59.0
436	9/30/1999	8:54:07 AM		0	25.488	19.825	25.141	20.051	20.104	27.592	8.802	18.637	2.681	8.169	7.678	-0.181	29.518	1.15	1.168	29	17	12.3	7.5	0.518	0.519	0.517	0.069	69.007	58.7
437	9/30/1999	8:55:07 AM		0	25.388	19.905	24.9	20.051	20.023	27.991	8.74	18.515	2.697	8.44	7.678	-0.181	29.38	1.176	1.172	30	18	12.2	7.6	0.523	0.512	0.513	0.068	67.596	57.5
438	9/30/1999	8:56:08 AM		0	25.228	19.825	24.82	20.051	20.023	26.553	8.926	18.696	2.633	8.136	7.616	-0.181	29.318	1.218	1.175	31	19	12.2	7.5	0.519	0.513	0.516	0.068	68.456	58.3
439	9/30/1999	8:57:08 AM		0	25.112	19.869	24.704	20.096	20.309	26.517	8.802	18.576	2.721	8.339	7.616	-0.181	29.349	1.203	1.172	32	20	12.2	7.6	0.522	0.512	0.516	0.068	68.147	58.0
440	9/30/1999	8:58:08 AM		0	24.996	19.913	24.748	20.14	20.273	26.801	8.174	18.88	2.785	8.203	7.585	-0.181	29.395	1.218	1.166	33	21	12.2	7.7	0.530	0.509	0.513	0.067	68.675	58.7
441	9/30/1999	8:59:09 AM		0	24.959	19.877	24.712	20.184	20.318	27.184	8.864	18.515	2.745	8.271	7.555	-0.181	29.318	1.195	1.188	34	22	12.2	7.6	0.522	0.519	0.523	0.069	69.089	58.8
442	9/30/1999	9:00:09 AM		0	24.959	19.796	24.632	20.184	19.268	28.521	9.05	18.759	2.705	8.169	7.524	-0.181	29.318	1.211	1.215	35	23	12.2	7.6	0.525	0.530	0.536	0.070	70.428	59.9
443	9/30/1999	9:01:09 AM		0	24.923	19.921	24.676	20.229	19.393	28.325	8.988	18.696	2.681	8.305	7.524	-0.181	29.134	1.176	1.197	36	24	12.1	7.6	0.527	0.523	0.527	0.069	68.964	58.7
444	9/30/1999	9:02:10 AM		0	24.923	19.921	24.676	20.309	19.958	27.128	9.05	18.82	2.609	8.305	7.524	-0.181	29.165	1.148	1.191	37	25	12.1	7.7	0.529	0.520	0.525	0.068	68.341	58.2
445	9/30/1999	9:03:10 AM		0	24.923	19.921	24.756	20.229	20.201	26.809	9.112	18.759	2.88	8.305	7.555	-0.181	29.349	1.205	1.182	38	26	12.2	7.7	0.531	0.516	0.520	0.067	67.399	57.4
446	9/30/1999	9:04:11 AM		0	25.092	19.93	24.924	20.318	20.37	26.977	8.988	18.637	2.809	8.305	7.524	-0.181	29.303	1.213	1.172	39	27	12.2	7.6	0.527	0.512	0.513	0.067	67.053	57.1
447	9/30/1999	9:05:11 AM		0	25.092	19.849	25.004	20.237	20.37	27.295	9.174	18.88	2.737	8.305	7.524	-0.181	29.272	1.218	1.188	40	28	12.1	7.7	0.534	0.519	0.519	0.067	67.000	57.0
448	9/30/1999	9:06:12 AM		0	25.296	19.893	25.049	20.362	20.253	28.058	9.05	18.82	2.657	8.339	7.555	-0.181	29.149	1.169	1.197	41	29	12.1	7.7	0.531	0.523	0.522	0.068	67.817	57.7
449	9/30/1999	9:07:12 AM		0	25.42	19.936	25.253	20.406	20.459	27.783	8.988	18.759	2.641	8.271	7.555	-0.181	29.349	1.218	1.175	42	30	12.2	7.6	0.526	0.513	0.509	0.067	66.754	56.8
450	9/30/1999	9:08:12 AM		0	25.484	19.982	25.297	20.451	20.261	27.967	8.802	18.293	2.753	8.339	7.555	-0.181	29.334	1.201	1.182	43	31	12.2	7.6	0.522	0.516	0.512	0.068	67.591	57.5
451	9/30/1999	9:09:13 AM		0	25.544	19.982	25.377	20.37	19.615	28.385	8.802	18.454	2.665	8.339	7.524	-0.181	29.395	1.148	1.197	44	32	12.2	7.6	0.522	0.523	0.517	0.068	68.295	58.1
452	9/30/1999	9:10:13 AM		0	25.58	19.938	25.493	20.326	19.813	27.863	9.174	18.82	2.793	8.169	7.555	-0.181	29.533	1.215	1.172	45	33	12.3	7.7	0.529	0.512	0.505	0.066	65.774	55.0
453	9/30/1999	9:11:13 AM		0	25.705	19.982	25.457	20.37	19.938	27.827	8.802	18.454	2.713	8.305	7.585	-0.181	29.303	1.162	1.182	46	34	12.2	7.6	0.521	0.516	0.509	0.067	67.439	57.4
454	9/30/1999	9:12:14 AM		0	25.705	19.982	25.457	20.37	20.342	27.188	9.112	18.941	2.697	8.203	7.585	-0.181	29.472	1.161	1.178	47	35	12.2	7.7	0.528	0.514	0.508	0.066	66.296	56.4
455	9/30/1999	9:13:14 AM		0	25.749	19.946	25.421	20.415	20.548	27.312	8.864	18.454	2.817	8.305	7.555	-0.181	29.226	1.208	1.194	48	36	12.1	7.6	0.523	0.521	0.515	0.068	67.914	57.8
456	9/30/1999	9:14:14 AM		0	25.669	19.946	25.341	20.415	20.144	28.27	9.112	18.941	2.657	8.237	7.555	-0.181	29.457	1.218	1.185	49	37	12.2	7.7	0.529	0.517	0.512	0.067	66.782	56.8
457	9/30/1999	9:15:15 AM		0	25.589	19.946	25.261	20.495	20.225	27.791	9.112	18.637	2.944	8.237	7.524	-0.181	29.349	1.218	1.182	50	38	12.2	7.7	0.529	0.516	0.512	0.067	66.742	56.8
458	9/30/1999	9:16:15 AM		0	25.553	19.99	25.303	20.459	20.35	28.394	8.988	18.637	2.721	8.372	7.493	-0.181	29.196	1.159	1.185	51	39	12.1	7.7	0.530	0.517	0.513	0.067	66.781	56.8
459	9/30/1999	9:17:15 AM		0	25.473	19.99	25.145	20.459	20.431	27.596	8.988	18.576	2.888	8.237	7.493	-0.181	29.595	1.204	1.206	52	40	12.3	7.6	0.525	0.526	0.524	0.069	68.677	58.6
460	9/30/1999	9:18:16 AM		0	25.517	19.954	25.189	20.504	20.395	28.358	8.864	18.515	2.713	8.406	7.493	-0.181	29.196	1.218	1.2	53	41	12.1	7.6	0.526	0.524	0.521	0.068	68.247	58.1
461	9/30/1999	9:19:16 AM		0	25.437	19.954	25.109	20.504	20.395	27.72	9.174	18.82	2.832	8.44	7.493	-0.181	29.257	1.139	1.188	54	42	12.1	7.8	0.538	0.519	0.517	0.068	68.225	58.4
462	9/30/1999	9:20:16 AM		0	25.401	19.999	25.073	20.467	20.6	27.205	8.926	18.515	2.633	8.372	7.462	-0.181	29.288	1.17	1.182	55	43	12.2	7.6	0.527	0.516	0.515	0.067	67.320	57.3
463	9/30/1999	9:21:17 AM		0	25.401	19.999	24.993	20.548	20.52	27.364	9.36	17.063	2.689	8.339	7.462	-0.181	29.318	1.218	1.203	56	44	12.2	7.6	0.541	0.525	0.525	0.067	66.916	56.9
464	9/30/1999	9:22:17 AM		0	25.285	19.962	24.957	20.593	20.645	27.009	8.988	18.576	2.785	8.508	7.431	-0.228	29.38	1.218	1.172	57	45	12.2	7.7	0.534	0.512	0.512	0.066	66.113	56.3
465	9/30/1999	9:23:17 AM		0	25.204	19.962	24.877	20.593	20.645	27.887	9.174	18.759	2.801	8.474	7.431	-0.181	29.457	1.214	1.178	58	46	12.2	7.8	0.539	0.513	0.515	0.066	65.787	56.0
466	9/30/1999	9:24:18 AM		0	25.169	20.007	24.921	20.637	20.77	27.612	9.112	18.696	2.761	8.372	7.462	-0.181	29.349	1.218	1.182	59	47	12.2	7.7	0.534	0.516	0.517	0.067	66.797	56.8
467	9/30/1999	9:25:18 AM		0	25.133	20.052	24.885	20.601	20.815	28.055	9.174	18.759	2.801	8.372	7.431	-0.181	29.36	1.148	1.185	60	48	12.2	7.8	0.536	0.517	0.519	0.067	66.767	56.8
468	9/30/1999	9:26:18 AM		0	25.097	20.015	24.769	20.563	20.617	28.496	9.296	18.941	2.697	8.237	7.4	-0.228	29.334	1.161	1.185	61	49	12.2	7.8	0.536	0.517	0.521	0.067	67.033	57.0
469	9/30/1999	9:27:19 AM		0	25.097	20.015	24.769	20.645	20.617	28.019	8.988	18.454	2.753	8.508	7.4	-0.181	29.257	1.218	1.194	62	50	12.1	7.7	0.534	0.521	0.525	0.068	67.712	57.6
470	9/30/1999	9:28:19 AM		0	25.061	20.06	24.733	20.609	20.742	28.542	9.174	18.759	2.753	8.609	7.4	-0.181	29.318	1.218	1.163	63	51	12.2	7.9	0.544	0.508	0.512	0.065	64.820	55.2
471	9/30/1999	9:29:19 AM		0	24.961	19.979	24.653	20.69	20.662	28.303	9.236	18.759	2.705	8.406	7.339	-0.181	29.211	1.169	1.182	64	52	12.1	7.8	0.539	0.516	0.521	0.067	66.623	56.7
472	9/30/1999	9:30:20 AM		0	24.9	19.979	24.653	20.609	20.662	28.223	9.174	18.759	2.705	8.474	7.37	-0.181	29.18	1.218	1.178	65	53	12.1	7.8	0.539	0.514	0.519	0.066	66.372	56.5
473	9/30/1999	9:31:20 AM		0	24.9	19.979	24.673	20.69	20.581	28.362	8.988	18.454	2.737	8.406	7.4	-0.181	29.272	1.17	1.182	66	54	12.1	7.7	0.531	0.516	0.522	0.068	67.650	57.7
474	9/30/1999	9:32:20 AM		0	24.865	20.024	24.617	20.734	20.626	28.586	9.112	18.696	2.737	8.508	7.4	-0.181	29.18	1.187	1.163	67	55	12.1	7.8	0.536	0.508	0.513	0.066	65.711	55.9
475	9/30/1999	9:33:21 AM		0	24.82	19.979	24.493	20.771	20.5	28.781	8.864	18.393	2.689	8.575	7.37	-0.181	29.349	1.192	1.154	68	56	12.2	7.7	0.532	0.504	0.511	0.066	66.199	56.3
476	9/30/1999	9:34:21 AM		0	24.82	20.06	24.493	20.69	20.581	27.425	9.236	18.759	2.657	8.474	7.37	-0.181	29.318	1.218	1.168	69	57	12.2	7.9	0.542	0.519	0.526	0.067	66.973	57.0
477	9/30/1999	9:35:21 AM		0	24.865	20.104	24.537	20.734	20.706	28.187	8.864	18.332	2.769	8.609	7.339	-0.181	29.242	1.126	1.188	70	58	12.1	7.7	0.533	0.519	0.525	0.068	67.915	57.8
478	9/30/1999	9:36:22 AM		0	24.829	20.149	24.582	20.779	20.832	27.753	9.174	18.637	2.777	8.474	7.37	-0.135	29.257	1.218	1.163	71	59	12.1	7.8	0.539	0.508	0.514	0.066	65.659	55.9
479	9/30/1999	9:37:22 AM		0	24.749	20.068	24.501	20.779	20.912	27.753	9.296	18.696	2.696	8.44	7.37	-0.181	29.242	1.218	1.163	72	60	12.1	7.9	0.543	0.508	0.515	0.065	65.433	55.7
480	9/30/1999	9:38:22 AM		0	24.783	20.113	24.466	20.743	20.795	27.787	9.296	18.82	2.785	8.44	7.308	-0.181	29.119	1.19	1.166	73	61	12.1	7.9	0.543	0.509	0.517	0.066	65.686	55.9
481	9/30/1999	9:39:23 AM		0	24.757	20.077	24.51	20.868	20.921	27.622	9.112	18.637	2.641	8.372	7.37	-0.181	29.257	1.175	1.172	74	62	12.1	7.7	0.534	0.512	0.519	0.067	67.004	57.0
482	9/30/1999	9:40:23 AM		0	24.801	20.121	24.474	21.074	20.883	27.566	8.926	18.332	2.745	8.609	7.339	-0.161	29.334	1.145	1.151	75	63	12.2	7.8	0.536	0.502	0.510	0.066	65.654	55.9
483	9/30/1999	9:41:23 AM		0	24.765	20.166	24.518	21.119	20.929	27.45	9.236	18.82	2.777	8.609	7.37	-0.161	29.272	1.175	1.188	76	64	12.1	7.8	0.548	0.519	0.526	0.066	66.356	56.5
484	9/30/1999	9:42:24 AM		0	24.73	20.13	24.453	21.244	20.974	27.494	9.296	18.759	2.777	8.474	7.339	-0.161	29.242	1.191	1.178	77	65	12.1	7.9	0.544	0.514	0.522	0.066	66.167	56.3
485	9/30/1999	9:43:24 AM		0	24.774	20.175	24.577	21.288	21.018	27.539	9.296	18.759	2.801	8.575	7.339	-0.181	29.134	1.218	1.182	78	66	12.1	7.9	0.547	0.516	0.523	0.066	65.888	56.1
486	9/30/1999	9:44:24 AM		0	24.738	20.139	24.571	21.414	21.063	27.962	9.36	18.941	2.753	8.44	7.37	-0.161	29.257	1.168	1.188	79	67	12.1	7.8	0.545	0.519	0.525	0.066	66.445	56.5
487	9/30/1999	9:45:25 AM		0	24.702	20.183	24.455	21.458	21.108	27.787	8.988	18.515	2.697	8.643	7.339	-0.181	29.288	1.141	1.172	80	68	12.2	7.8	0.539	0.512	0.520	0.066	66.477	56.6
488	9/30/1999	9:46:25 AM		0	24.747	20.228	24.5	21.422	21.072	28.309	9.112	18.576	2.729	8.508	7.308	-0.181	29.011	1.218	1.16	81	69	12.0	7.8	0.538	0.506	0.514	0.066	65.759	56.0
489	9/30/1999	9:47:25 AM		0	24.781	20.192	24.544	21.548	21.118	27.955	9.484	17.002	2.697	8.541	7.339	-0.181	29.533	1.218	1.175	82	70	12.0	8.0	0.552	0.513	0.520	0.065	64.845	55.2
490	9/30/1999	9:48:26 AM		0	24.711	20.111	24.484	21.467	21.116	28.114	9.36	18.759	2.856	8.44	7.339	-0.135	29.042	1.218	1.182	83	71	12.1	7.9	0.545	0.516	0.524	0.066	66.310	56.4
491	9/30/1999	9:49:26 AM		0	24.6	20.201	24.553	21.536	21.286	28.043	9.236	18.759	2.681	8.575	7.339	-0.181	29.242	1.176	1.151	84	72	12.1	7.9	0.545	0.502	0.509	0.064	64.364	54.8
492	9/30/1999	9:50:26 AM		0	24.72	20.201	24.473	21.476	21.206	28.123	9.112	18.515	2.761	8.508	7.308	-0.181	29.395	1.218	1.16	85	73	12.2	7.8	0.536	0.506	0.514	0.066	65.609	56.0
493	9/30/1999	9:51:27 AM		0	24.764	20.165	24.517	21.52	21.251	28.068	9.236	18.696	2.832	8.339	7.308	-0.181	29.134	1.148	1.191	86	74	12.1	7.8	0.537	0.520	0.527	0.068	67.679	57.6
494	9/30/1999	9:52:27 AM		0	24.809	20.21	24.562	21.565	21.376	28.132	9.113	18.88	2.665	8.354	7.308	-0.181	28.704	0.378	0.329	87	75	11.9	1.6	0.113	0.144	0.145	0.089	69.015	75.8
495	9/30/1999	9:53:27 AM		0	24.773	20.174	24.526	21.449	21.34	28.256	3.223	18.941	2.848	0.118	13.593	-0.181	28.566	0.373	0.332	88	76	11.9	1.7	0.115	0.145	0.147	0.088	67.926	74.8
496																												
497		Averages			25.2	20.0	24.9	20.8	20.4	27.9	8.8	18.7	2.7	8.0	7.9	0.4	29.2	1.146	1.139			12.1	7.3	0.503	0.497	0.499	0.069	68.6	58.4
498		Maximum			25.9	20.2	25.6	21.6	21.4	28.6	9.6	20.3	2.9	8.8	14.6	43.4	29.6	1.218	1.401			12.3	8.2	0.565	0.612	0.614	0.102	101.6	86.4
499		Median			25.1	20.0	24.8	20.8	20.4	27.9	9.0	18.7	2.7	8.3	7.8	-0.2	29.3	1.204	1.182			12.2	7.7	0.529	0.516	0.517	0.067	67.0	57.1
500		Minimum			24.7	19.8	24.5	19.6	19.3	26.5	8.4	16.3	1.8	-0.5	7.3	-0.2	22.4	0.090	0.042			9.3	0.9	0.064	0.016	0.019	0.020	19.9	16.9
501		Std Deviation			0.4	0.1	0.4	0.5	0.5	0.5	1.4	0.4	0.2	1.4	1.6	8.2	0.8	0.201	0.209			0.3	1.4	0.097	0.091	0.091	0.009	8.6	7.3
502		Number of Points Used			76	76	76	76	76	76	76	76	76	76	76	76	76	76	76			76	76	76	76	76	76	76	76
503																												
504	DATE	TIME	SOLENOID	FLTRT (de	GL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2 FLTR	O3 FLTR	FLOW (cpm)										
505	Data																											
506	9/30/1999	12:34:02 PM		0	22.667	20.64	22.964	21.753	21.241	28.955	1.963	10.844	1.939	-0.163	8.664	-0.135	22.176	0.221	0.195	1	1	9.2	0.9	0.063	0.096	0.102	0.112	111.638	95.0
507	9/30/1999	12:35:02 PM		0	23.034	20.685	23.109	21.959	21.266	29.716	6.365	20.763	1.62	4.58	14.119	-0.135	20.625	1.218	1.446	2	2	8.6	5.5	0.378	0.532	0.561	0.102	102.329	87.1
508	9/30/1999	12:36:03 PM		0	23.48	20.73	23.234	22.245	21.089	30.079	6.819	12.368	3.319	3.397	5.459	-0.135	28.764	0.929	0.917	3	3	12.4	5.1	0.352	0.406	0.426	0.083	83.468	71.0
509	9/30/1999	12:37:03 PM		0	23.48	20.73	23.234	22.326	21.009	30.158	6.757	12.002	3.239	3.634	5.12	-0.135	28.042	0.909	0.892	4	4	12.1	5.2	0.358	0.397	0.417	0.080	80.293	68.3
510	9/30/1999	12:38:03 PM		0	23.48	20.73	23.314	22.408	20.847	30.476	6.819	11.941	3.399	3.769	4.997	-0.135	29.365	0.8911	0.883	5	5	12.2	5.3	0.365	0.389	0.408	0.077	77.063	65.6

Run 1.00: Initial Water Run

	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
511	9/30/1999	12:39:04 PM	0	23.56	20.649	23.394	22.466	20.668	30.635	6.943	12.002	3.239	3.735	4.935	-0.135	29.334	0.652	0.868	6	6	12.2	5.3	0.368	0.372	0.389	0.073	72.903	62.0
512	9/30/1999	12:40:04 PM	0	23.665	20.694	23.6	22.631	20.65	30.679	7.129	12.248	3.223	3.637	4.904	-0.135	29.272	0.685	0.877	7	7	12.1	5.5	0.378	0.366	0.402	0.073	73.307	62.4
513	9/30/1999	12:41:05 PM	0	23.766	20.694	23.76	22.37	20.65	30.62	3.409	12.49	3.423	-0.186	9.003	-0.135	29.411	0.216	0.213	8	8	12.2	1.6	0.111	0.094	0.097	0.060	60.319	51.3
514	9/30/1999	12:42:05 PM	0	23.962	20.73	23.876	22.326	20.444	30.794	6.137	12.246	3.144	2.89	5.921	-0.135	29.042	0.951	0.95	9	9	12.1	4.5	0.311	0.415	0.429	0.095	94.948	80.8
515	9/30/1999	12:43:05 PM	0	24.122	20.73	23.956	22.243	20.325	30.714	6.819	12.429	3.407	3.33	5.459	-0.135	29.472	0.937	0.904	10	10	12.2	5.1	0.350	0.409	0.421	0.083	83.019	70.7
516	9/30/1999	12:44:06 PM	0	24.158	20.685	23.992	22.12	20.399	30.829	6.819	12.307	3.447	3.6	5.305	-0.135	29.349	0.916	0.889	11	11	12.2	5.2	0.359	0.400	0.411	0.079	78.975	67.2
517	9/30/1999	12:45:06 PM	0	24.319	20.765	24.152	22.039	20.399	30.75	7.067	12.368	3.319	3.465	5.12	-0.135	29.441	0.892	0.874	12	12	12.2	5.3	0.363	0.389	0.399	0.076	75.736	64.5
518	9/30/1999	12:46:06 PM	0	24.319	20.765	24.313	22.039	20.48	30.829	6.757	11.941	3.383	4.175	5.12	-0.135	29.057	0.838	0.871	13	13	12.1	5.5	0.377	0.366	0.373	0.068	68.236	58.1
519	9/30/1999	12:47:07 PM	0	24.515	20.721	24.348	21.995	20.354	30.864	7.067	12.246	3.367	3.735	5.027	-0.135	29.472	0.873	0.874	14	14	12.2	5.4	0.372	0.381	0.388	0.072	71.871	61.2
520	9/30/1999	12:48:07 PM	0	24.595	20.721	24.428	21.995	20.193	30.944	7.005	12.124	3.263	3.769	4.966	-0.089	29.395	0.868	0.853	15	15	12.2	5.4	0.371	0.378	0.384	0.071	71.318	60.7
521	9/30/1999	12:49:07 PM	0	24.711	20.676	24.544	21.869	20.229	30.82	7.129	12.185	3.359	3.871	4.935	-0.135	29.334	0.875	0.862	16	16	12.2	5.5	0.379	0.382	0.387	0.070	70.348	59.9
522	9/30/1999	12:50:08 PM	0	24.871	20.756	24.624	21.869	20.309	30.82	7.129	12.185	3.383	4.006	4.904	-0.135	29.503	0.872	0.856	17	17	12.2	5.6	0.384	0.381	0.385	0.069	69.101	58.8
523	9/30/1999	12:51:08 PM	0	24.907	20.712	24.74	21.905	20.426	30.299	7.129	12.185	3.271	4.04	4.843	-0.135	29.428	0.88	0.837	18	18	12.2	5.6	0.385	0.375	0.378	0.068	67.720	57.6
524	9/30/1999	12:52:08 PM	0	24.987	20.712	24.9	21.825	20.587	29.804	6.851	11.88	3.383	3.972	4.673	-0.135	29.272	0.875	0.853	19	19	12.1	5.4	0.374	0.382	0.383	0.071	70.589	60.1
525	9/30/1999	12:53:09 PM	0	25.102	20.748	24.936	21.66	20.765	29.93	7.191	12.185	3.343	4.04	4.673	-0.135	29.242	0.87	0.862	20	20	12.1	5.6	0.387	0.380	0.380	0.068	67.754	57.7
526	9/30/1999	12:54:09 PM	0	25.227	20.792	25.141	21.966	20.91	29.185	7.129	12.065	3.407	3.972	4.812	-0.135	29.088	0.833	0.853	21	21	12.1	5.6	0.383	0.364	0.362	0.065	65.255	55.5
527	9/30/1999	12:55:09 PM	0	25.343	20.748	25.178	21.941	21.188	28.823	5.641	8.039	3.048	2.417	2.316	-0.135	27.813	0.597	0.568	22	22	11.5	4.0	0.278	0.261	0.259	0.064	64.365	54.8
528	9/30/1999	12:56:10 PM	0	25.343	20.748	25.336	22.021	21.349	28.743	5.021	6.392	3.606	1.639	1.36	-0.135	29.917	0.472	0.444	23	23	12.4	3.3	0.230	0.206	0.204	0.061	61.294	52.2
529	9/30/1999	12:57:10 PM	0	25.548	20.792	25.461	22.147	21.394	28.468	5.145	6.88	3.59	2.011	1.699	-0.135	29.641	0.468	0.472	24	24	12.3	3.6	0.247	0.213	0.210	0.059	58.773	50.0
530	9/30/1999	12:58:10 PM	0	25.548	20.792	25.541	22.147	21.474	28.229	4.525	18.222	1.293	3.803	13.749	-0.135	20.072	0.166	0.152	25	25	8.3	4.2	0.287	0.072	0.071	0.017	17.140	14.6
531	9/30/1999	12:59:11 PM	0	25.752	20.837	25.663	22.332	21.599	28.672	4.711	7.063	3.447	1.403	2.285	-0.135	29.564	0.604	0.582	26	11	12.3	3.1	0.211	0.264	0.259	0.065	64.655	72.0
532	9/30/1999	1:00:11 PM	0	25.832	20.756	25.745	22.352	21.599	28.433	4.773	7.124	3.335	1.403	2.223	-0.135	29.334	0.544	0.575	27	2	12.2	3.1	0.213	0.237	0.233	0.075	75.311	64.1
533	9/30/1999	1:01:11 PM	0	25.957	20.801	25.87	22.397	21.725	28.637	4.711	7.002	3.327	1.47	2.161	-0.135	29.18	0.58	0.554	28	3	12.1	3.1	0.213	0.253	0.247	0.080	78.930	68.0
534	9/30/1999	1:02:12 PM	0	25.957	20.801	25.95	22.477	21.725	28.318	4.959	7.185	3.375	1.572	2.131	-0.135	29.503	0.575	0.557	29	4	12.2	3.3	0.225	0.251	0.244	0.075	74.845	63.7
535	9/30/1999	1:03:12 PM	0	26.061	20.846	26.074	22.522	21.85	28.442	4.897	7.124	3.327	1.639	2.161	-0.135	29.119	0.576	0.542	30	5	12.1	3.3	0.225	0.251	0.244	0.075	74.659	63.5
536	9/30/1999	1:04:12 PM	0	26.206	20.81	26.199	22.567	21.734	28.805	5.021	7.248	3.351	1.403	2.1	-0.089	29.365	0.553	0.536	31	6	12.2	3.2	0.221	0.241	0.233	0.073	72.573	61.8
537	9/30/1999	1:05:13 PM	0	26.266	20.81	26.279	22.567	21.814	28.646	4.897	7.185	3.343	1.47	2.131	-0.135	29.687	0.529	0.533	32	7	12.3	3.2	0.219	0.231	0.223	0.070	69.985	59.6
538	9/30/1999	1:06:13 PM	0	26.455	20.819	26.368	22.737	21.904	28.734	5.145	7.307	3.559	1.639	2.1	-0.135	29.626	0.53	0.516	33	8	12.3	3.4	0.234	0.231	0.223	0.068	65.644	55.9
539	9/30/1999	1:07:13 PM	0	26.455	20.819	26.528	22.656	21.823	28.653	4.897	7.063	3.407	1.572	2.069	-0.135	29.718	0.535	0.502	34	9	12.3	3.2	0.223	0.234	0.224	0.069	69.180	58.9
540	9/30/1999	1:08:14 PM	0	26.659	20.864	26.632	22.701	21.788	29.495	5.083	7.248	3.471	1.673	2.069	-0.135	29.549	0.533	0.506	35	10	12.3	3.4	0.233	0.233	0.222	0.068	65.766	56.0
541	9/30/1999	1:09:14 PM	0	26.784	20.909	26.697	22.746	21.591	30.017	4.959	7.185	3.303	1.639	2.069	-0.135	29.549	0.541	0.481	36	11	12.3	3.3	0.227	0.236	0.225	0.068	66.267	56.1
542	9/30/1999	1:10:14 PM	0	26.784	20.829	26.777	22.746	21.349	30.256	4.587	6.758	3.327	1.504	2.069	-0.135	29.38	0.516	0.496	37	12	12.2	3.0	0.210	0.226	0.215	0.071	70.648	60.1
543	9/30/1999	1:11:15 PM	0	26.968	20.874	26.901	22.71	21.314	30.777	5.083	7.307	3.391	1.538	2.131	-0.135	29.487	0.526	0.502	38	13	12.2	3.3	0.228	0.230	0.218	0.066	65.769	56.0
544	9/30/1999	1:12:15 PM	0	27.068	20.874	26.961	22.71	20.991	30.856	5.021	7.248	3.391	1.403	2.069	-0.135	29.549	0.514	0.499	39	14	12.3	3.2	0.221	0.224	0.212	0.066	66.092	56.2
545	9/30/1999	1:13:15 PM	0	27.068	20.874	27.061	22.63	20.991	30.856	5.083	7.248	3.423	1.504	2.1	-0.135	29.687	0.514	0.496	40	15	12.3	3.3	0.227	0.224	0.212	0.064	64.314	54.7
546	9/30/1999	1:14:16 PM	0	27.103	20.829	27.096	22.505	20.785	30.891	4.835	7.063	3.407	1.47	2.069	-0.135	29.503	0.511	0.49	41	16	12.2	3.2	0.217	0.223	0.210	0.067	66.733	56.8
547	9/30/1999	1:15:16 PM	0	27.307	20.874	27.3	22.63	20.588	31.094	4.959	7.185	3.375	1.572	2.1	-0.135	29.533	0.508	0.484	42	17	12.3	3.3	0.225	0.222	0.208	0.064	63.684	54.2
548	9/30/1999	1:16:17 PM	0	27.423	20.829	27.336	22.505	20.543	30.971	4.897	7.063	3.375	1.569	2.069	-0.135	29.533	0.5	0.487	43	18	12.3	3.1	0.218	0.218	0.204	0.065	65.267	55.5
549	9/30/1999	1:17:17 PM	0	27.423	20.909	27.415	22.424	20.704	30.971	4.897	7.124	3.375	1.504	2.069	-0.135	29.426	0.501	0.472	44	19	12.2	3.2	0.221	0.219	0.204	0.064	63.678	54.4
550	9/30/1999	1:18:18 PM	0	27.582	20.909	27.575	22.505	20.624	31.05	4.835	7.002	3.375	1.673	2.1	-0.135	29.564	0.512	0.468	45	20	12.3	3.3	0.224	0.224	0.208	0.064	63.924	54.4
551	9/30/1999	1:19:18 PM	0	27.662	20.909	27.655	22.424	20.543	31.13	4.897	7.124	3.327	1.538	2.069	-0.135	29.441	0.477	0.484	46	21	12.2	3.2	0.222	0.208	0.193	0.060	60.097	51.1
552	9/30/1999	1:20:18 PM	0	27.742	20.909	27.735	22.424	20.543	31.209	4.959	7.063	3.471	1.605	2.069	-0.135	29.457	0.497	0.463	47	22	12.2	3.3	0.226	0.217	0.201	0.061	61.250	52.1
553	9/30/1999	1:21:19 PM	0	27.657	20.945	27.65	22.379	20.498	30.927	5.021	7.185	3.335	1.605	2.131	-0.135	29.426	0.501	0.484	48	23	12.2	3.3	0.228	0.219	0.202	0.061	60.971	51.9
554	9/30/1999	1:22:19 PM	0	27.837	20.945	27.85	22.379	20.579	31.006	4.959	7.185	3.343	1.47	2.069	-0.135	29.472	0.503	0.469	49	24	12.2	3.2	0.222	0.220	0.203	0.063	63.090	53.7
555	9/30/1999	1:23:19 PM	0	28.097	20.945	28.009	22.299	20.498	31.085	4.711	6.819	3.431	1.605	2.069	-0.135	29.411	0.497	0.481	50	25	12.2	3.2	0.218	0.217	0.200	0.063	63.175	53.8
556	9/30/1999	1:24:20 PM	0	28.052	20.961	28.044	22.535	20.453	30.962	4.835	7.002	3.455	1.538	2.069	-0.135	29.487	0.485	0.475	51	26	12.2	3.2	0.220	0.212	0.195	0.061	61.039	51.9
557	9/30/1999	1:25:20 PM	0	28.167	21.017	28.16	22.37	20.731	30.678	4.835	7.063	3.383	1.47	2.131	-0.135	29.764	0.501	0.478	52	27	12.4	3.2	0.217	0.219	0.200	0.064	63.530	54.1
558	9/30/1999	1:26:20 PM	0	28.247	20.936	28.239	22.37	20.731	30.123	4.959	7.124	3.391	1.605	2.1	-0.135	29.272	0.496	0.478	53	28	12.1	3.3	0.226	0.217	0.198	0.060	60.283	51.3
559	9/30/1999	1:27:21 PM	0	28.327	20.936	28.399	22.37	21.054	29.805	4.835	7.063	3.375	1.605	2.1	-0.135	29.303	0.481	0.49	54	29	12.2	3.2	0.222	0.210	0.191	0.059	59.323	50.5
560	9/30/1999	1:28:21 PM	0	28.407	21.017	28.399	22.451	21.215	29.527	4.959	7.124	3.399	1.47	2.038	-0.135	29.226	0.496	0.466	55	30	12.1	3.2	0.222	0.217	0.198	0.062	61.525	52.4
561	9/30/1999	1:29:21 PM	0	28.362	20.972	28.514	22.466	21.331	29.362	5.145	7.429	3.431	1.673	2.161	-0.089	29.472	0.505	0.481	56	31	12.2	3.4	0.235	0.220	0.200	0.059	58.644	49.9
562	9/30/1999	1:30:22 PM	0	28.646	21.017	28.717	22.692	21.456	29.327	5.021	7.368	3.207	1.335	2.1	-0.089	29.457	0.473	0.481	57	32	12.2	3.2	0.218	0.206	0.188	0.059	58.593	49.9
563	9/30/1999	1:31:22 PM	0	28.725	21.017	28.819	22.692	21.618	28.929	4.897	7.063	3.335	1.605	2.069	-0.089	29.303	0.495	0.469	58	33	12.2	3.3	0.224	0.216	0.197	0.061	60.601	51.6
564	9/30/1999	1:32:22 PM	0	28.486	20.936	27.841	22.773	21.618	29.068	4.897	7.124	3.351	1.639	2.069	-0.135	29.518	0.505	0.475	59	34	12.3	3.1	0.216	0.220	0.204	0.065	65.005	55.3
565	9/30/1999	1:33:23 PM	0	28.247	21.017	27.962	23.014	21.779	29.168	4.835	6.941	3.351	1.456	2.038	-0.135	29.518	0.494	0.481	60	35	12.3	3.1	0.216	0.216	0.202	0.064	64.386	54.8
566	9/30/1999	1:34:23 PM	0	27.972	21.061	26.927	23.139	21.823	29.133	5.207	7.429	3.367	1.572	2.007	-0.135	29.365	0.475	0.457	61	36	12.2	3.5	0.238	0.207	0.196	0.057	56.834	48.4
567	9/30/1999	1:35:23 PM	0	27.696	21.106	26.572	23.264	21.949	29.097	4.959	7.124	3.335	1.741	2.069	-0.135	29.365	0.478	0.478	62	37	12.2	3.4	0.231	0.209	0.200	0.060	59.606	50.7
568	9/30/1999	1:36:24 PM	0	27.343	21.071	26.137	23.389	21.994	29.142	5.083	7.248	3.375	1.741	2.069	-0.135	29.457	0.465	0.463	63	38	12.2	3.4	0.235	0.203	0.197	0.058	57.626	49.0
569	9/30/1999	1:37:24 PM	0	26.943	21.071	25.737	23.389	21.994	29.062	5.083	7.248	3.359	1.504	2.007	-0.135	29.487	0.477	0.448	64	39	12.2	3.3	0.227	0.208	0.204	0.062	61.929	52.7
570	9/30/1999	1:38:24 PM	0	26.508	21.115	25.462	23.514	22.038	29.106	5.145	7.307	3.351	1.639	2.038	-0.135	29.672	0.478	0.457	65	40	12.3	3.4	0.234	0.207	0.205	0.060	60.342	51.4
571	9/30/1999	1:39:25 PM	0	26.393	21.08	25.106	23.639	22.164	28.991	5.145	7.307	3.263	1.504	2.038	-0.089	29.395	0.495	0.454	66	41	12.2	3.3	0.229	0.216	0.215	0.065	64.605	55.1
572	9/30/1999	1:40:25 PM	0	25.958	21.125	24.75	23.684	22.048	29.434	5.207	7.307	3.343	1.605	2.007	-0.135	29.242	0.489	0.451	67	42	12.1	3.4	0.235	0.213	0.215	0.063	63.117	53.7
573	9/30/1999	1:41:25 PM	0	25.717	21.044	24.429	23.684	21.887	29.832	5.145	7.307	3.311	1.639	2.038	-0.135	29.487	0.473	0.46	68	43	12.2	3.4	0.234	0.206	0.210	0.062	61.882	52.6
574	9/30/1999	1:42:26 PM	0	25.442	21.089	24.073	23.648	21.69	30.115	5.021	7.124	3.567	1.572	2.007	-0.135	29.288	0.445	0.448	69	44	12.2	3.3	0.227	0.194	0.199	0.060	60.492	51.5
575	9/30/1999	1:43:26 PM	0	25.041	21.008	23.832	23.648	21.629	30.612	5.021	7.124	3.431	1.605	1.977	-0.135	29.272	0.452	0.448	70	45	12.1	3.3	0.228	0.197	0.204	0.062	61.557	52.4
576	9/30/1999	1:44:26 PM	0	24.926	21.053	23.476	23.613	21.332	30.557	5.083	7.124	3.391	1.639	1.977	-0.135	29.349	0.452	0.432	71	46	12.2	3.4	0.232	0.197	0.206	0.061	61.295	52.2
577	9/30/1999	1:45:27 PM	0	24.444	21.134	23.235	23.533	21.332	30.795	5.083	7.185	3.351	1.504	1.977	-0.135	29.211	0.458	0.435	72	47	12.1	3.3	0.227	0.200	0.210	0.064	63.817	54.3
578	9/30/1999	1:46:27 PM	0	24.329	21.098	22.958	23.497	21.216	30.839	5.021	7.185	3.351	1.538	1.977	-0.135	29.641	0.464	0.441	73	48	12.3	3.3	0.226	0.203	0.215	0.065	65.444	55.7
579	9/30/1999	1:47:27 PM	0	23.928	21.098	22.717	23.497	21.055	30.996	5.269	7.307	3.391	1.639	1.977	-0.135	29.18	0.446	0.429	74	49	12.1	3.5	0.238	0.195	0.208	0.060	60.140	51.2
580	9/30/1999	1:48:28 PM	0	23.722	21.053	22.551	23.452	21.171	30.954	5.021	7.185	3.431	1.639	2.007	-0.135	29.211	0.485	0.429	75	50	12.1	3.3	0.230	0.212	0.228	0.069	68.549	58.3
581	9/30/1999	1:49:28 PM	0	23.446	21.179	22.154	23.497	20.974	30.996	5.021	7.124	3.391	1.639	1.946	-0.089	29.303	0.424	0.408	76	51	12.2	3.3	0.230	0.185	0.201	0.060	60.267	51.3
582	9/30/1999	1:50:29 PM	0	23.16	21.134	21.868	23.372	20.849	31.033	5.021	7.124	3.383	1.504	1.815	-0.135	29.303	0.433	0.414	77	52	12.2	3.3	0.225	0.189	0.207	0.063	63.337	53.9
583	9/30/1999	1:51:29 PM	0	22.964	21.179	21.671	23.336	20.694	31.078	4.959	7.002	3.611	1.639	1.977	-0.135	29.318	0.449	0.42	78	53	12.2	3.3	0.227	0.196	0.215	0.065	65.320	55.6
584	9/30/1999	1:52:29 PM	0	22.642	21.179	21.51	23.336	20.974	31.078	5.145	7.124	3.471	1.605	1.946	-0.089	29.288	0.453	0.423	79	54	12.2	3.4	0.233	0.198	0.218	0.065	64.718	55.1
585	9/30/1999	1:53:29 PM	0	22.456	21.134	21.224	23.292	20.929	30.954	5.269	7.307	3.447	1.538	1.977	-0.135	29.272	0.423	0.417	80	55	12.1	3.4	0.235	0.185	0.206	0.060	60.422	51.4
586	9/30/1999	1:54:30 PM	0	22.195	21.134	20.962	23.372	21.01	30.795	5.083	7.124	3.471	1.673	1.915	-0.089	29.441	0.424	0.408	81	56	12.2	3.4	0.233	0.185	0.208	0.061	61.451	52.3
587	9/30/1999	1:55:30 PM	0	21.953	21.215	20.74	23.372	21.091	30.318	5.083	7.185	3.479	1.572	1.977	-0.089	29.119	0.42	0.417	82	57	12.1	3.3	0.229	0.183	0.207	0.062	62.229	53.0
588	9/30/1999	1:56:30 PM	0	21.586	21.089	20.534	23.327	21.207	29.956	5.145	7.248	3.439	1.572	1.915	-0.089	29.487	0.427	0.414	83	58	12.2	3.4	0.232	0.186	0.212	0.063	63.058	53.7
589	9/30/1999	1:57:31 PM	0	21.369	21.215	20.337	23.452	21.413	29.921	5.083	7.124	3.447	1.504	1.915	-0.135	29.119	0.407	0.411	84	59	12.1	3.3	0.227	0.178	0.203	0.062	61.642	52.5
590	9/30/1999	1:58:31 PM	0	21.147	21.134	20.176	23.533	21.574	29.882	5.021	7.063	3.503	1.707	1.915	-0.089	29.303	0.426	0.405	85	60	12.2	3.4	0.232	0.186	0.213	0.063	63.464	54.0
591	9/30/1999	1:59:31 PM	0	20.906	21.134	20.014	23.533	21.735	29.882	5.021	7.002	3.447	1.605	1.915	-0.089	29.303	0.421	0.411	86	61	12.2	3.3	0.228	0.184	0.212	0.064	63.985	54.5
592	9/30/1999	2:00:32 PM	0	20.744	21.215	19.772	23.533	21.816	29.882	5.207	7.248	3.455	1.741	1.915	-0.135	29.103	0.41	0.408	87	62	12.1	3.5	0.240	0.179	0.206	0.060	59.846	50.9
593	9/30/1999	2:01:32 PM	0	20.547	21.26	19.736	23.818	21.941	29.488	5.331	7.368	3.439	1.639	1.915	-0.089	29.349	0.407	0.411	88	63	12.2	3.5	0.240	0.178	0.207	0.059	59.283	50.5
594	9/30/1999	2:02:32 PM	0	20.512	21.224	19.701	23.783	22.147	29.453	5.083	7.124	3.455	1.673	1.946	-0.135	29.027	0.435	0.414	89	64	12.0	3.4	0.233	0.190	0.221	0.065	65.435	55.7
595	9/30/1999	2:03:33 PM	0	20.269	21.224	19.781	23.943	22.147	29.453	4.959	7.002	3.551	1.774	1.946	-0.135	29.18	0.434	0.393	90	65	12.1	3.4	0.232	0.189	0.220	0.065	65.355	55.6

Run 1.00: Initial Water Run



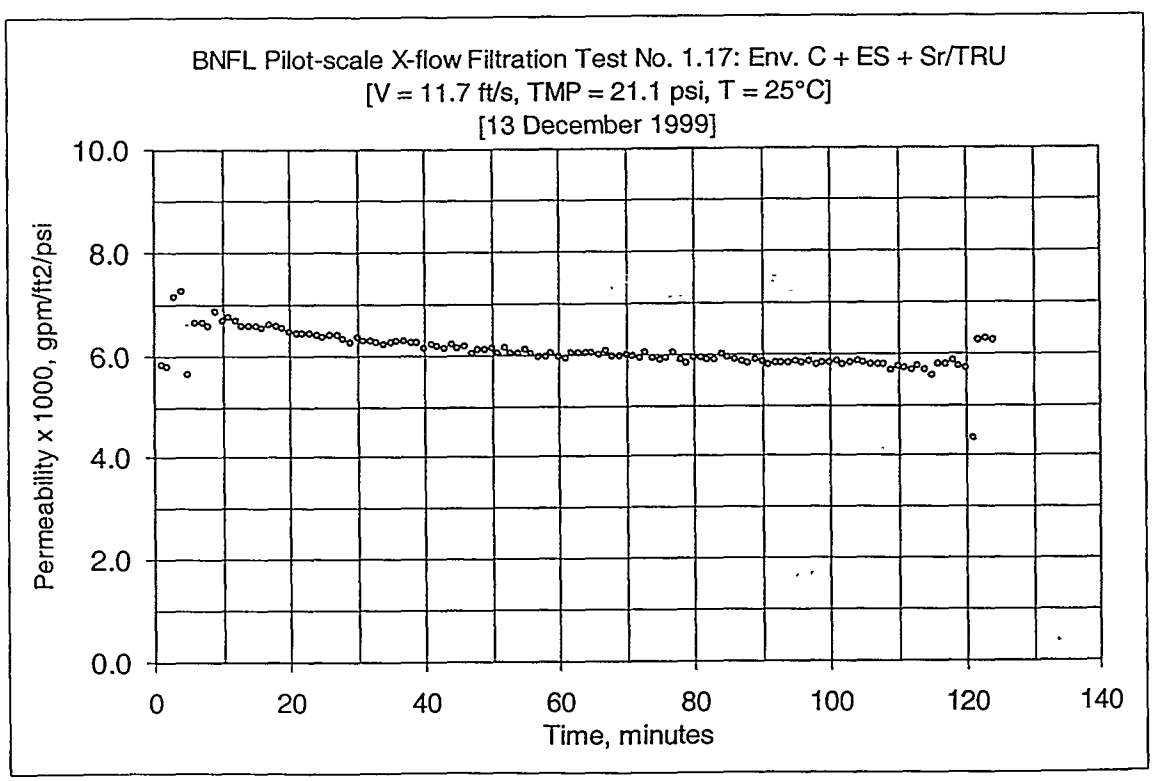


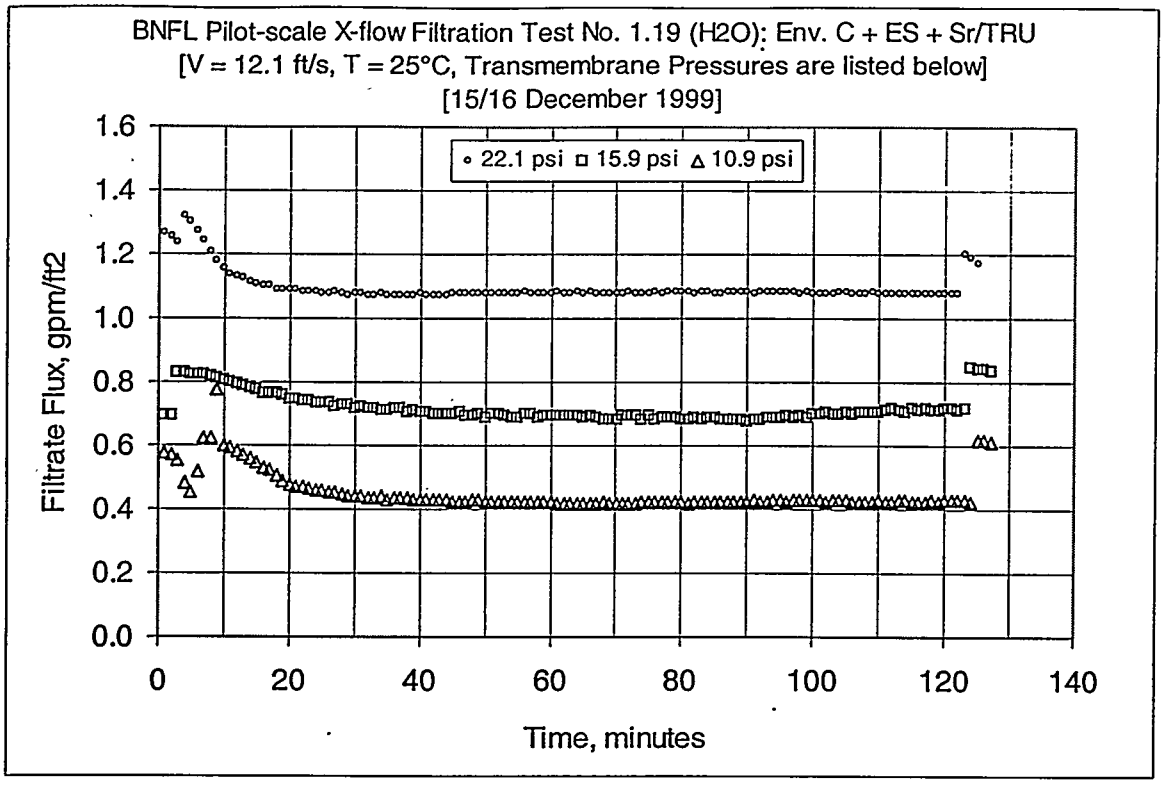
Figure A2: Test Run 1.17, Final Water (before chemical cleaning)

Run 1.17: Final Water Run Before Chemical Cleaning

	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	FLTAT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (pai	FLTR DP (i	TOP DP (p	FLTRATE	PISTON (psig)	FSL FLOW	O2,FLTR	O3,FLTR	FLOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	12/13/1999	8:25:58 AM	0	20 241	19 905	19 349	19 97	20 023	173 365	0	-1 108	0 048	-0 153	-1 074	-0 228	-0 08	0 011	-0 018										
4	12/13/1999	8:27:04 AM	0	20 241	19 905	19 349	19 97	20 023	173 365	0	-1 108	0 048	-0 153	-1 074	-0 228	-0 08	0 011	-0 018										
5	12/13/1999	8:28:04 AM	0	20 288	19 95	19 475	20 015	20 068	173 403	0	-1 189	0 056	-0 188	-1 074	-0 228	-0 095	0 011	-0 018										
6	12/13/1999	8:29:04 AM	0	20 288	19 95	19 394	19 834	20 068	173 403	0	-1 108	0 048	-0 188	-1 074	-0 228	-0 08	0 011	-0 018										
7	12/13/1999	8:30:05 AM	0	20 288	19 95	19 394	20 015	20 148	173 403	0	-1 108	0 048	-0 186	-1 074	-0 228	-0 08	0 011	-0 018										
8	Zeros - Lines Not Connected																											
9	12/13/1999	8:31:05 AM	0	20 25	19 994	19 439	19 979	20 183	173 44	-0 062	-0 072	-0 008	-0 017	-0 088	-0 228	-0 095	0 011	-0 018										
10	12/13/1999	8:32:05 AM	0	20 288	19 95	19 313	19 934	20 068	173 403	-0 062	-0 072	-0 008	-0 017	-0 088	-0 228	-0 08	0 012	-0 018										
11	12/13/1999	8:33:06 AM	0	20 331	19 994	19 439	19 979	20 112	173 44	-0 062	-0 072	-0 016	-0 017	-0 088	-0 228	-0 08	0 011	-0 018										
12	12/13/1999	8:34:06 AM	0	20 331	19 994	19 439	19 979	20 112	173 44	-0 062	-0 072	-0 008	-0 017	-0 088	-0 228	-0 08	0 011	-0 018										
13	(Note: This is a water run after rinsing the test rig with 400 liters of deionized and filtered water; Run 1,16 which was not recorded)																											
14	Data - Per Minute																								at 25C	PERMABILITY	x1000	
15	12/13/1999	8:52:55 AM	0	22 544	20 1	23 496	19 906	20 334	173 509	21 821	24 63	3 894	17 84	2 626	-0 214	29 273	0 253	0 235	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
16	12/13/1999	8:53:55 AM	0	22 868	20 019	23 818	19 987	20 334	173 509	21 835	24 569	3 918	17 907	2 687	-0 214	29 319	0 252	0 228	1	1	12 1	19 8	1 367	0 110	0 115	0 00581	5 812	4 95
17	12/13/1999	8:54:55 AM	0	23 107	20 019	24 136	20 471	20 334	173 509	14 072	24 325	3 926	10 233	10 114	-0 214	29 304	0 104	0 168	2	2	12 2	19 8	1,363	0.110	0 114	0 00575	5,753	4 90
18	12/13/1999	8:55:56 AM	0	23 473	20 143	24 504	20 839	20 379	173 546	14 134	24 508	3 91	10 301	10 207	-0 214	29 283	0 2	0 171	3	3	12 2	12 2	0 838	0 085	0 087	0 00714	7,141	6 08
19	12/13/1999	8:56:56 AM	0	23 955	20 064	24 824	21 081	20 84	173 546	15 994	25 422	3,843	12 904	9 313	-0 214	27 63	0 165	0 155	4	4	12 2	12 2	0 842	0 087	0 089	0 00725	7,247	6 17
20	12/13/1999	8:57:57 AM	0	24,115	20 064	25,145	21,081	20 821	173,546	22,193	33 655	3,851	18 753	11,265	-0 214	27,875	0 313	0 266	5	5	11 5	14 4	0 996	0 081	0 081	0 00562	5 617	4 78
21	12/13/1999	8:58:57 AM	0	24 516	20,145	25 845	21	20,701	173,546	21,325	32 069	4,253	17,265	10 515	-0 214	31 07	0 296	0 271	6	6	11 8	20 5	1 412	0 137	0 136	0 00665	6 647	5 66
22	12/13/1999	8:59:57 AM	0	24 917	20 064	25 705	20,758	20,701	173,546	22,069	33,472	3,854	18 078	11,131	-0 214	28,196	0 308	0 286	6	6	12 9	19 3	1,330	0,130	0 128	0 00664	6 640	5 65
23	12/13/1999	9:00:56 AM	0	25,122	20,109	25 89	20 964	20 885	173,583	21,325	33,289	3,807	17,671	11,748	-0 214	29 227	0 311	0 28	7	7	12 1	20 1	1,384	0,134	0 132	0 00657	6 567	5 59
24	12/13/1999	9:01:56 AM	0	25,122	20,109	25 268	21,126	20 585	173,583	21,511	33,411	3,799	17,772	11,748	-0 214	28,997	0,302	0 277	8	8	12 1	19 5	1,344	0 136	0 134	0 00685	6 848	5 83
25	12/13/1999	9:02:56 AM	0	25,122	20,109	24,949	21,287	20 885	173,583	21,449	33,228	3,751	17,941	11,655	-0 167	28,797	0,304	0 26	9	9	12 0	19 6	1,354	0,132	0 131	0 00666	6 661	5 67
26	12/13/1999	9:03:39 AM	0	25 042	20,109	24 709	21,287	20 885	173,583	21,635	33,411	3,791	17,975	11 563	-0 214	28,736	0,3	0 271	10	10	12 0	19 7	1 358	0 133	0 133	0 00675	6 748	5 74
27	12/13/1999	9:04:39 AM	0	24 801	20,109	24,468	21,367	20 885	173,583	22,069	33,777	3,791	18,313	11,409	-0 214	28 674	0,299	0 274	11	11	11 9	19 8	1,365	0 131	0 132	0 00667	6 667	5 67
28	12/13/1999	9:05:39 AM	0	24 685	20 154	24,192	21,412	20,71	173,621	22,007	33,655	3,687	18,415	11,563	-0 214	28 474	0 297	0 274	12	12	12 0	20 2	1,392	0 131	0 132	0 00658	6,562	5 58
29	12/13/1999	9:06:40 AM	0	24,365	20,154	24 031	21,332	20,791	173 621	22,379	33,899	3,743	18 617	11,378	-0 214	28 52	0,3	0 274	13	13	11 8	20 2	1,393	0,130	0 133	0 00656	6,563	5 59
30	12/13/1999	9:07:40 AM	0	24,409	20,196	23,996	21,296	20 836	173 658	22,131	33,594	3,687	18 685	11,316	-0 214	28,505	0 297	0 274	14	14	11 8	20 5	1,413	0 131	0 133	0 00657	6 568	5 59
31	12/13/1999	9:08:40 AM	0	24,169	20 196	23,755	21,378	20 836	173,658	22,317	33,716	3,703	18,584	11,316	-0 214	28 52	0,296	0 274	15	15	11 8	20 4	1,407	0,130	0 133	0 00654	6 536	5 56
32	12/13/1999	9:09:41 AM	0	24,169	20,118	23 595	21,296	20 836	173,658	22,317	33,655	3,703	18 753	11,193	-0 214	28,474	0,296	0 274	16	16	11 8	20 5	1,410	0,130	0 135	0 00659	6 589	5 61
33	12/13/1999	9:10:41 AM	0	24 053	20,162	23,639	21,179	20 691	173 696	22,379	33,718	3,683	18 685	11,162	-0 214	28,367	0,295	0 274	17	19	11 8	20 5	1,416	0,129	0 134	0 00655	6 548	5 57
34	12/13/1999	9:11:41 AM	0	23 812	20,162	23,639	21,018	20 881	173,696	22,565	34 081	3,583	19 26	11,285	-0 167	27,983	0,297	0 274	20	20	11 6	20 9	1,442	0,130	0 135	0 00644	6 443	5 48
35	12/13/1999	9:12:42 AM	0	23,812	20,162	23,639	21,179	20 8	173 696	22,503	33,777	3,671	18,969	11,1	-0 214	28,413	0 294	0 271	21	21	11 8	20 7	1,430	0,128	0 133	0 00643	6 429	5 47
36	12/13/1999	9:13:42 AM	0	23 856	20,207	23,684	21,305	20 845	173,733	22 503	33 838	3 839	18 969	11,1	-0 214	28 352	0 293	0 268	22	22	11 8	20,7	1,430	0 128	0 133	0 00640	6 399	5 45
37	12/13/1999	9:14:42 AM	0	23 776	20,207	23,684	21,144	20 845	173,733	22 627	33 899	3 655	19,125	11,039	-0 214	28 305	0 296	0 277	23	23	11,7	20 9	1,439	0,129	0 134	0 00642	6 424	5 47
38	12/13/1999	9:15:43 AM	0	23,776	20,207	23,764	20,962	20,784	173,733	22,565	33 838	3 687	19 057	11,039	-0 214	28,459	0,294	0 268	24	24	11 8	20 8	1,435	0,128	0 133	0 00639	6 388	5 43
39	12/13/1999	9:16:43 AM	0	23 621	20,252	23,689	21,35	20 809	173,77	22,565	33,716	3 679	19,057	11,008	-0 214	28,321	0,293	0 271	25	25	11 8	20 8	1,435	0,128	0 132	0 00634	6 342	5 40
40	12/13/1999	9:17:43 AM	0	23 901	20,252	23,969	21,188	20 809	173,77	22 503	33,716	3 647	18 969	11,008	-0 167	28,396	0,294	0 271	26	26	11 6	20,7	1,430	0,128	0 132	0 00637	6 369	5 42
41	12/13/1999	9:18:44 AM	0	23,961	20,252	24 049	21,43	20,809	173,77	22 441	33,777	3 607	19,091	11 039	-0 214	28,152	0,295	0 271	27	27	11,7	20 8	1,432	0,129	0 132	0 00637	6 370	5 42
42	12/13/1999	9:19:44 AM	0	24,106	20,297	24 094	21,394	20 854	173,806	22,751	33,699	3,663	19 023	10,977	-0 214	28,398	0,294	0 271	28	28	11,8	20 9	1,440	0,128	0 132	0 00630	6 304	5 36
43	12/13/1999	9:20:44 AM	0	24 062	20 252	24,13	21,511	20 809	173,77	22,751	33,959	3,711	19 057	10 946	-0 214	28,567	0,292	0 271	29	29	11 9	20,8	1,441	0,127	0 131	0 00625	6 249	5 32
44	12/13/1999	9:21:45 AM	0	24,186	20 297	24,174	21,475	20,854	173,806	22 565	33,959	3,667	19,361	11,224	-0 214	27,968	0,297	0 268	30	30	11,6	21 0	1,445	0 130	0 133	0 00633	6 331	5 39
45	12/13/1999	9:22:45 AM	0	24 267	20 297	24,174	21,556	20 854	173 806	22 689	33,959	3 583	19 327	11,193	-0,214	27,968	0 295	0 268	31	31	11 6	21,0	1,446	0,129	0 132	0 00627	6 275	5 34
46	12/13/1999	9:23:45 AM	0	24,186	20,216	24 254	21,556	20,934	173,806	22 813	34,203	3 583	19 327	11,131	-0,167	27,983	0 296	0 271	32	32	11,6	21,1	1,453	0,129	0 132	0 00626	6 263	5 33
47	12/13/1999	9:24:46 AM	0	24,186	20 216	24,254	21,556	20 854	173 806	22 813	34 02	3 599	19 294	11,131	-0,167	27,906	0 294	0 268	33	33	11 6	21,1	1,452	0,128	0 131	0 00623	6 226	5 30
48	12/13/1999	9:25:46 AM	0	24,311	20 342	24,379	21,681	20,979	173,845	22,751	34 02	3 591	19 294	11,131	-0,167	27,983	0 293	0 274	34	34	11,6	21 0	1,449	0,128	0 130	0 00619	6,192	5 27
49	12/13/1999	9:26:46 AM	0	24 392	20 261	24,378	21,8	20,979	173,845	22 813	34,142	3 599	19 294	11,131	-0 214	27,921	0,296	0 268	35	35	11,6	21,1	1,452	0,129	0 131	0 00625	6 246	5 32
50	12/13/1999	9:27:47 AM	0	24,472	20,342	24,378	21,681	20 979	173,845	22,565	33,838	3 687	18 854	11,008	-0 214	28,428	0,292	0,271	36	36	11,8	20,7	1,426	0,127	0 130	0 00626	6 264	5 33
51	12/13/1999	9:28:47 AM	0	24,311	20,342	24,459	21,8	20,979	173 845	22,813	33,899	3,671	18,956	10,916	-0 214	28 396	0,295	0 268	37	37	11 8	20,8	1,440	0,129	0 131	0 00626	6 261	5 33
52	12/13/1999	9:29:47 AM	0	24 516	20,306	24,504	21,806	21,024	173,883	22,565	33,655	3 663	19 091	10 946	-0,214	28 413	0 294	0,263	38	38	11,8	20 8	1,436	0,128	0,130	0 00625	6 249	5 32
53	12/13/1999	9:30:48 AM	0	24,436	20,306	24,584	21,845	21,024	173,883	22,565	33,655	3 647	19,057	10,916	-0,167	28,396	0 294	0,271	39	39	11,6	20 8	1,435	0,128	0,130	0 00624	6 240	5 31
54	12/13/1999	9:31:48 AM	0	24,597	20,306	24,584	21,806	21,024	173,883	22,689	33 838	3,687	19,158	10,946	-0,167	28 396	0,29	0 268	40	40	11,8	20 9	1,443	0,127	0 128	0 00612	6 122	5 21
55	12/13/1999	9:32:48 AM	0	24,516	20,306	24,504	21,806	21,024	173,883	22,689	33,777	3 655	19 226	10 916	-0,167	28,321	0,293	0 265	41	41	11 8	21,0	1,445	0,128	0,130	0 00619	6 189	5 27
56	12/13/1999	9:33:49 AM	0	24,597	20,306	24,584	21,887	21,024	173,883	22,689	33,716	3,667	19 091	10 916	-0,167	28,428	0,291	0,271	42	42	11,8	20,9	1,440	0,127	0,129	0 00615	6,153	5 24
57	12/13/1999	9:34:49 AM	0	24,516	20,306	24,584	21,806	21,024	173,883	22,751	33,959	3 647	19,192	10,916	-0,214	28,367	0,291	0 271	43	43	11,8	21,0	1,446	0,127	0,129	0 00613	6,129	5 22
58	12/13/1999	9:35:49 AM	0	24,721	20,351	24,629	21,932	21,15	173,92	22,875	34,081	3 663	19 226	10,946	-0 214	28,244	0 296	0,268	44	44	11,7	21,1	1,451	0,129	0 131	0 00620	6 203	5 26
59	12/13/1999	9:36:50 AM	0	24 841	20,351	24,629	21,771	21,15	173,92	22,875	34 02	3,647	19,192	10,946	-0 214	28,305	0,292	0,268	45	45	11,7	21,0	1,450	0,127	0 129	0 00612	6,124	5 21
60	12/13/1999	9:37:50 AM	0	24,721	20,351	24,709	21,851	21,15	173,92	22,813	34 02	3 639	19,192	10 916	-0,214	28,152	0,294	0 268	46	46	11,7	21,0	1,448	0,128	0 129	0 00616	6 161	5 24
61	12/13/1999	9:38:50 AM	0	24 641	20,351	24,749	21,932	21,069	173,92	22,937	34,081	3 631	19,395	10,916	-0,214	28,229	0,29	0 268	47	47	11,7	21,2	1,459	0,127	0 127	0 00602	6 017	5 12
62	12/13/1999	9:39:51 AM	0	24,646	20,396	24,834	21,815	21,195	173,958	22 813	34 02	3 607	19 294	10 946	-0,167	28,198	0,293	0,268	48	48	11,7	21,1	1,452	0,128	0,129	0 00610	6,104	5,19
63	12/13/1999	9:40:51 AM	0	24,766	20,396	24,834	21,896	21,195	173,958	22,751	33,777	3,551	19,327	10,916	-0,167	28,305	0,293	0,274	49	49	11,7	21,0	1,451	0,128	0,129	0 00611	6,108	5 20
64	12/13/1999	9:41:51 AM	0	24,766	20,396	24,834	21,896	21,195	173,958	22,689	33,636	3,615	19,361	10,946	-0,167	28,213	0,293	0,268	50	50	11,7	21,0	1,450	0,128	0 129	0 00611	6,112	5 20
65	12/13/1999	9:42:52 AM	0	24 611	20,441	24,878	22,021	21,32	173,995	22 689	33 636	3,631	19 294	10 946	-0 214	28,275	0 269	0,274	51	51	11,7	21,0	1,447	0,126	0,127	0 00603	6 031	5 13
66	12/13/1999	9:43:52 AM	0	24 681	20,441	24,878	21,941	21,32	173,995	22,813	33 699	3,639	19 429	10 916	-0,167	28,167	0,295	0,271	52	52	11,7	21,1	1,458	0,129	0,129	0 00612	6,118	5 21
67	12/13/1999	9:44:52 AM	0	24 681	20,441	24 878	22,102	21,401	173,995	22,937	34,081	3,687	19,158	10 885	-0 214	28 275	0,29	0,271	53	53	11,7	21,0	1,451	0,127	0,127	0 00604	6 035	5,14
68	12/13/1999	9:45:53 AM	0	24 936	20 405	25 003	22,066	21,365	174 033	22,813	33,959	3,623	19 26	10,916	-0,167	28,167	0 291	0 268	54	54	11,7	21 0	1,450	0,127	0,127	0 00604	6 038	5,14
69	12/13/1999	9:46:53 AM	0	25 018	20 486	24,923	22,066	21,365	174 033	22,689	33,836	3,623	19 226	10,916	-0,167	28,196	0,292	0,268	55	55	11,7	21 0	1,445	0,127	0,128	0 00610	6 095	5 19
70	12/13/1999	9:47:53 AM	0	24,96	20,531	25 048	22,111	21,41	174,07	22,813	33 699	3,663	19 395	10 854	-0,167	28 259	0,291	0,271	56	56	11,7	21,1	1,455	0,127	0,127	0 00601	6 011	5 12
71	12/13/1999	9:48:54 AM	0	25,06	20,531	25,048	22,111	21,329	174,07	22 875	34 02	3 691	19 395	10 885	-0 214	28,167	0 289	0,268	57	57	11,7	21,1	1,457	0,126	0,126	0 00596	5 961	5 07
72	12/13/1999	9:49:54 AM	0	24,96	20,531	25 048	22,111	21,329	174,07	22,937	34,142	3 635	19 564	10,916	-0,167	27,921	0,29	0,265	58	58	11,6	21,3	1,465	0,127	0,126	0 00595	5 949	5 06
73	12/13/1999	9:50:54 AM	0	24,96	20,531	25 048	22 031	21,329	174,07	22,875	34 02	3,651	19 632	11,008	-0,167	27,921	0 294	0,271	59	59	11,6	21,3	1,465	0,128	0 128	0 00603	6 031	5,13
74	12/13/1999	9:51:55 AM	0	25 185	20,578	25 013	22,237	21,374	174,108	22 875	34 081	3,651	19 564	11,008	-0,167	27,952	0,289	0 271	60	60	11,6	21,2	1,463	0,126	0 126	0 00594	5 943	5 06
75	12/13/1999	9:52:55 AM	0	25,105	20 578	25 093	22,078	21,374	174,108	22,999	34,264	3,575	19 485	11,039	-0,167	27,891	0,289	0 271	61	61	11,6	21,2	1,464	0,126	0,126	0 00593	5 927	5 04
76	12/13/1999	9:53:55 AM	0	25,185	20,495	25 093	22,237	21,374	174,108	22,813	33,959	3,691	19 395	10,946	-0,167	27,996	0,291	0 268	62	62	11,6	21,1	1,455	0,127	0,127	0 00600	6 004	5 11
77	12/13/1999	9:54:56 AM	0	25,185	20,578	25,173	22,159	21,374	174,108	22,751	33,899	3,575	19 496	10 946	-0,167	28 06	0,292	0 271	63	63	11,6	21,1	1,456	0,127	0 127	0 00601	6 005	5,11
78	12/13/1999	9:55:56 AM	0	25,23	20 54	25,137	22,201	21,419	174,145	22,999	34,142	3,607	19 361	10,946	-0,167	28 06	0,284	0 265	64	64	11 6	21,2	1,460	0,128	0,128	0 00604	6 036	5 14
79	12/13/1999	9:56:56 AM	0	25,15	20 621	25,137	22,201	21,419	174,145	22,751	33 699	3,575	19,496	10 977	-0,167	28 014	0 293	0 268	65	65	11,6	21,1	1,456	0 128	0 127	0 00603	6 032	5 13
80	12/13/1999	9:57:57 AM	0	25,23	20 621	25 137	22,281	21,339	174,145	22 999	34,142	3,651	19 53	10 977	-0 214	27,908	0,292	0,271	66	66	11 6	21,3	1,466	0 127	0 127	0 00597	5 971	5 08
81	12/13/1999	9:58:57 AM	0	25,23	20 621	25,137	22,281	21,339	174,145	22,813	33 699	3,667	19,327	10,946	-0,167	27,968	0,293	0,271	67	67	11,6	21,1	1,453	0 128	0 127	0 00605	6 047	5,15
82	12/13/1999	9:59:57 AM	0	25,23	20 54	25,137	22,281	21,339	174,145	22,937	34,081	3,643	19 53	10 977	-0,167	27,908	0,291	0 268	68	68	11 6	21,2	1,464	0 127	0 127	0 00596	5 960	5 07
83	12/13/1999	10:00:58 AM	0	25,275	20 585	25,182	22,246	21,384	174,183	23,123	34,325	3,659	19 564	10,977	-0,167	27,891	0 293	0 268	69	69	11,6	21,3	1,472	0 128	0 127	0 00596	5 962	5 07
84	12/13/1999	10:01:58 AM	0	25,275	20,666	25,182	22,326	21,464	174,183	22,999	34,203	3 599	19,429	10 946	-0,167	28,167	0,293	0,265	70	70	11 7	21,2	1,463	0 128	0,127	0 00600	5 999	5,10
85	12/13/1999	10:02:58 AM	0	25,239	20 711	25,227	22,371	21 429	174 22	22 875	34 081	3 559	19 53	10 916	-0 167	28 044	0 29	0 271	71	71	11 6	21,2	1 462	0 127	0 126	0 00593	5 933	5 05

Run 1.17: Final Water Run Before Chemical Cleaning

	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	12/13/1999	10:03:59 AM	0	25 319	20 63	25 227	22 291	21,509	174,22	22 875	34 02	3,535	19 586	10 948	-0 167	27,906	0 29	0 265	72	72	11.6	21 2	1 464	0 127	0 126	0 00592	5 923	5 04
87	12/13/1999	10:04:59 AM	0	25 319	20 63	25 227	22 371	21,429	174,22	22 875	34 02	3 591	19 385	10 948	-0 167	28 09	0 293	0 271	73	73	11 7	21.1	1 457	0 126	0 127	0 00601	6 013	5 12
88	12/13/1999	10 05 59 AM	0	25 319	20 63	25 227	22 21	21,509	174 22	23 061	34 264	3 599	19 632	10 948	-0,167	28 09	0 291	0 271	74	74	11.7	21 3	1 472	0 127	0 126	0 00591	5 913	5 03
89	12/13/1999	10:07 00 AM	0	25 239	20 711	25 227	22 371	21,429	174 22	22,937	34 081	3 591	19,490	10 916	-0,167	28 06	0 287	0 266	75	75	11 6	21 2	1 463	0 125	0 124	0 00587	5 886	4 99
90	12/13/1999	10:08 00 AM	0	25 364	20 675	25 352	22 336	21,474	174,258	22 875	34 02	3 627	19 429	10,946	-0 167	27,921	0 289	0 262	76	76	11 6	21 2	1 456	0 126	0 125	0 00591	5 906	5 03
91	12/13/1999	10:09:01 AM	0	25 364	20 675	25 272	22 497	21,554	174,258	23 061	34 203	3 559	19 599	10,916	-0 167	27,066	0 296	0 268	77	77	11 6	21 3	1 471	0 129	0 128	0 00601	6 012	5 12
92	12/13/1999	10:10:01 AM	0	25 364	20 675	25 272	22 336	21,474	174 258	23,123	34,264	3,519	19,496	10 916	-0,167	27,906	0 289	0 271	78	78	11.6	21,3	1 469	0 126	0 125	0 00588	5 875	5 00
93	12/13/1999	10:11:02 AM	0	25,364	20,675	25,352	22,416	21,474	174 250	22,937	34 081	3,663	19 564	10,854	-0 167	27,852	0 286	0 259	79	79	11 6	21,3	1 465	0 125	0 124	0 00582	5 817	4 95
94	12/13/1999	10:12:02 AM	0	25,364	20 756	25 272	22 336	21,474	174,258	23,185	34,325	3,575	19 63	10 854	-0 167	28,029	0 292	0 268	80	80	11.6	21 4	1,473	0,127	0 126	0 00592	5 923	5 04
95	12/13/1999	10:13:02 AM	0	25 409	20,721	25,316	22,461	21,519	174,295	22,999	34,142	3 643	19,564	10 885	-0,167	27,891	0 291	0 274	81	81	11.6	21 3	1 467	0 127	0 126	0 00592	5 916	5 03
96	12/13/1999	10:14:03 AM	0	25 329	20,721	25 316	22 461	21,599	174,295	23 061	34,203	3,659	19 596	10,885	-0,167	27,891	0 29	0,274	82	82	11 6	21,3	1 471	0 127	0 125	0 00588	5 883	5 01
97	12/13/1999	10:15:03 AM	0	25 409	20 801	25,316	22,461	21,599	174,295	23,185	34,264	3,675	19 632	10 854	-0 167	27,906	0,291	0 265	83	83	11 6	21 4	1 476	0 127	0 126	0 00588	5 881	5 01
98	12/13/1999	10:16:03 AM	0	25 329	20 721	25,316	22,461	21,599	174,295	22,937	34,02	3 599	19,632	10 854	-0,167	28,121	0 294	0 265	84	84	11,7	21 3	1 467	0 128	0 127	0 00598	5 977	5 09
99	12/13/1999	10:17:04 AM	0	25 454	20 766	25 441	22 426	21,564	174 333	22,999	34 081	3,567	19 665	10,854	-0 167	27,921	0 293	0 268	85	85	11 6	21 3	1 471	0 128	0 126	0 00592	5 922	5 04
100	12/13/1999	10:18:04 AM	0	25 454	20 766	25,361	22 506	21,644	174,333	22 999	34,02	3 535	19,596	10,792	-0,167	27 891	0 29	0 265	86	86	11.6	21 3	1 468	0 127	0 125	0 00588	5 884	5 01
101	12/13/1999	10:19:04 AM	0	25 373	20,766	25,441	22,426	21,644	174,333	22,999	34 081	3,527	19 733	10,792	-0 167	27,875	0 289	0 265	87	87	11,6	21,4	1,473	0 128	0 125	0 00583	5 832	4 96
102	12/13/1999	10:20:05 AM	0	25 418	20 811	25,406	22 551	21,609	174,37	23,185	34,203	3 683	19 632	10 792	-0,167	27 845	0 288	0 262	88	88	11 6	21 4	1 476	0 126	0 124	0 00581	5 806	4 94
103	12/13/1999	10:21:05 AM	0	25 418	20 811	25 406	22,471	21,609	174 37	23,123	34 081	3,659	19 733	10 823	-0 167	28 029	0 291	0 259	89	89	11,6	21 4	1 477	0 127	0 126	0 00586	5 861	4 99
104	12/13/1999	10:22:05 AM	0	25 498	20 891	25,406	22,551	21,689	174 37	23 061	34 081	3,535	19,733	10 823	-0,167	27,921	0 29	0 271	90	90	11 6	21,4	1 475	0 127	0 125	0 00585	5 849	4 98
105	12/13/1999	10:23:06 AM	0	25 496	20 891	25 406	22 471	21,669	174,37	23,185	34,203	3 615	19 699	10,761	-0,167	28 06	0 286	0 271	91	91	11.6	21 4	1 478	0 123	0 123	0 00578	5 757	4 90
106	12/13/1999	10:24:06 AM	0	25 463	20 856	25 451	22,596	21,734	174,408	23,061	34 081	3 643	19,767	10,792	-0 167	27,906	0 289	0 268	92	92	11 6	21 4	1,476	0 126	0 123	0 00582	5 817	4 95
107	12/13/1999	10:25:06 AM	0	25,496	20 811	25 406	22,471	21,669	174 37	23,123	34 081	3,535	19,733	10,761	-0,167	27,921	0,288	0 271	93	93	11 6	21 4	1 477	0 128	0 124	0 00580	5 801	4 94
108	12/13/1999	10:26:07 AM	0	25 543	20 856	25 451	22 677	21,654	174,408	23,123	34 081	3,667	19 564	10,761	-0 167	28 06	0,288	0,266	94	94	11 6	21 3	1,472	0,126	0 124	0 00582	5 818	4 95
109	12/13/1999	10:27:07 AM	0	25 543	20,937	25 531	22,596	21,654	174,408	23,123	34,081	3,667	19 699	10,731	-0,167	27,937	0,29	0,262	95	95	11,6	21 4	1 476	0 127	0,125	0 00583	5 825	4 96
110	12/13/1999	10:28:07 AM	0	25 463	20 856	25,451	22,677	21,654	174,408	22,999	33 959	3,643	19,596	10,761	-0,167	27,86	0 287	0 265	96	96	11 6	21 3	1 468	0,125	0 124	0 00581	5 808	4 94
111	12/13/1999	10:29:08 AM	0	25 588	20 901	25 495	22 641	21,699	174,446	23,123	34 081	3,559	19,632	10,731	-0,167	27,875	0 29	0,265	97	97	11,6	21,4	1,474	0,127	0,125	0 00584	5 840	4 97
112	12/13/1999	10:30:08 AM	0	25 588	20 901	25 495	22,641	21 618	174,446	23,123	34 02	3,607	19 699	10 669	-0,167	28,075	0,287	0 265	98	98	11,7	21 4	1 476	0,125	0 124	0 00577	5 771	4 91
113	12/13/1999	10:31:08 AM	0	25 588	21,224	25 495	22,641	21,618	174 446	23,123	34 02	3,551	19 596	10 669	-0,167	27,983	0 288	0 268	99	99	11 6	21,4	1 473	0 126	0,124	0 00580	5 804	4 94
114	12/13/1999	10:32:09 AM	0	25 588	21,224	25 495	22,641	21 699	174,446	23 247	34,142	3,575	19 699	10,669	-0 167	28,06	0 29	0 265	100	100	11 6	21 5	1,480	0,127	0 125	0 00581	5 814	4 95
115	12/13/1999	10:33:09 AM	0	25 633	21,269	25 54	22,767	21,744	174,483	22,999	33 838	3,551	19 665	10 7	-0,167	27,891	0,29	0,268	101	101	11 6	21 3	1,471	0 127	0,125	0 00585	5 845	4 97
116	12/13/1999	10:34:09 AM	0	25 633	21,269	25,54	22 686	21,744	174,483	23,185	34,081	3,591	19,699	10 669	-0,167	28 075	0,287	0,265	102	102	11 7	21,4	1 478	0,125	0 123	0 00576	5 755	4 90
117	12/13/1999	10:35:10 AM	0	25 553	21,188	25,62	22,686	21,744	174,483	23,185	34 02	3,575	19 564	10,638	-0,167	28,121	0,289	0,265	103	103	11,7	21,4	1,474	0,126	0 124	0 00580	5 800	4 94
118	12/13/1999	10:36:10 AM	0	25 633	21,107	25 54	22,606	21,744	174,483	23,309	34 203	3,563	19 665	10 669	-0,167	27,891	0,292	0 256	104	104	11,6	21 5	1,481	0,127	0 126	0 00584	5 843	4 97
119	12/13/1999	10:37:10 AM	0	25 633	21,188	25 54	22,767	21,624	174,483	23,061	33,899	3 607	19 632	10,669	-0,121	28 014	0 289	0,265	105	105	11 6	21 3	1 472	0 126	0,124	0 00582	5 821	4 93
120	12/13/1999	10:38:11 AM	0	25,596	21,233	25 565	22,651	21,789	174,521	23,309	34,203	3,591	19,733	10 638	-0,167	27,998	0,289	0,271	106	106	11 6	21 5	1,484	0 126	0 124	0 00577	5 767	4 91
121	12/13/1999	10:39:11 AM	0	25 678	21,233	25,565	22 612	21,789	174 521	23,123	34 02	3,607	19 699	10,7	-0,167	27,921	0,288	0 265	107	107	11,6	21 4	1,476	0 126	0 124	0 00578	5 778	4 92
122	12/13/1999	10:40:11 AM	0	25,596	21,314	25 505	22,731	21,708	174,521	23,165	34 02	3,583	19 596	10 577	-0,167	28,09	0 287	0,265	108	108	11,7	21,4	1,475	0,125	0 124	0 00577	5 774	4 91
123	12/13/1999	10:41:12 AM	0	25,722	21,359	25 63	22 657	21,634	174,559	23,309	34,142	3,575	19 835	10 638	-0,167	27,921	0 285	0 265	109	109	11 6	21,6	1 467	0,124	0 122	0 00567	5 668	4 82
124	12/13/1999	10:42:12 AM	0	25 678	21,233	25,585	22,731	21,706	174,521	23,309	34,203	3,575	19 835	10 669	-0,167	27,906	0 288	0 265	110	110	11,6	21 6	1 487	0 126	0 124	0 00573	5 733	4 88
125	12/13/1999	10:43:13 AM	0	25,722	21,278	25 63	22,937	21,754	174 559	23 061	34 02	3,591	19,733	10 669	-0,121	27,998	0 285	0,259	111	111	11,6	21,4	1,475	0,124	0 122	0 00571	5 713	4 86
126	12/13/1999	10:44:13 AM	0	25 722	21,278	25 63	22,776	21,634	174 559	23,309	34,081	3,543	19 868	10 638	-0,167	27,906	0,285	0 268	112	112	11 6	21 6	1,488	0,124	0 122	0 00566	5 682	4 82
127	12/13/1999	10:45:13 AM	0	25 642	21,278	25 63	22,937	21,754	174,559	23,185	34 02	3,567	19 835	10,638	-0,167	27,937	0 288	0,262	113	113	11 6	21 5	1,483	0 126	0 124	0 00574	5 742	4 89
128	12/13/1999	10:46:14 AM	0	25 642	21,278	25 63	22 857	21,754	174,559	23,185	33,959	3,519	19,733	10 546	-0,121	27,906	0 283	0,268	114	114	11 6	21 5	1,480	0,124	0 121	0 00566	5 656	4 81
129	12/13/1999	10:47:14 AM	0	25 687	21,243	25 675	22 902	21,789	174 596	23,247	34 081	3,543	19 97	10,638	-0,167	27,921	0 281	0,253	115	115	11,6	21 6	1,490	0 123	0 120	0 00557	5 570	4 74
130	12/13/1999	10:48:14 AM	0	25 687	21,323	25 595	22,902	21,789	174,596	23,123	33,899	3 575	19,668	10 577	-0,167	28 121	0 289	0 268	116	116	11,7	21,5	1,482	0 126	0 124	0 00577	5 772	4 91
131	12/13/1999	10:49:15 AM	0	25 687	21,243	25 675	22 902	21,789	174,596	23,123	33 899	3,551	19 936	10 577	-0 167	27,952	0 29	0 268	117	117	11.6	21 5	1 484	0 127	0 124	0 00577	5 770	4 91
132	12/13/1999	10:50:16 AM	0	25 687	21,243	25,595	22,962	21,799	174,596	22,999	33,777	3 551	19,733	10 546	-0,167	27,921	0 29	0 262	118	118	11 6	21,4	1,473	0 127	0 124	0 00583	5 827	4 96
133	12/13/1999	10:51:16 AM	0	25 732	21,288	25 72	22 947	21,924	174 634	23,309	34,142	3,527	19,767	10 546	-0 167	27,875	0 288	0 262	119	119	11,6	21,5	1 465	0,126	0 123	0 00572	5 720	4 87
134	12/13/1999	10:52:16 AM	0	25,812	21,288	25,64	23 027	21,924	174 634	23,309	34 081	3 559	19 835	10 577	-0,167	27,937	0 288	0 262	120	120	11,6	21,6	1 487	0 125	0,123	0 00568	5 684	4 84
135	12/13/1999	10:53:16 AM	1	25 732	21,288	25 72	22,947	21,924	174 634	2,852	34 02	3,543	-0 667	30,978	59,363	27,691	0,011	-0 015	121	121	11,5	1,1	0 075	0 005	0 005	0 00435	4 347	3 70
136	12/13/1999	10:54:16 AM	0	25 812	21 207	25,72	23,107	21,924	174 634	22,751	34 02	3 559	19,53	11 07	-0,167	27,996	0 309	0,266	122	122	11,6	21 1	1,458	0,135	0 132	0 00625	6 253	5,32
137	12/13/1999	10:55:17 AM	0	25,732	21,288	25,64	22,947	21,924	174 634	22 937	34,081	3 599	19,429	10,916	-0,167	28,029	0 31	0,266	123	123	11,6	21,2	1,460	0 135	0 133	0 00627	6 275	5 34
138	12/13/1999	10:56:17 AM	0	25 777	21,333	25 685	23,153	21,969	174 672	22,999	34,142	3,567	19 596	10 685	-0,167	27,996	0,311	0 283	124	124	11 6	21 3	1 468	0,136	0 133	0 00625	6 253	5 32
139																												
140		Averages		25 0	20 6	25 0	22,1	21,3	174,1	22 8	34,0	3 6	19,4	10 9	-0,2	28,1	0,292	0 268			11 7	21,1	1,5	0 127	0 126	0 00605	6 050	5 1
141		Maximum		25 8	21,4	25 7	23 0	21,9	174 6	23 3	34 3	3 8	20 0	11,7	-0 1	29 2	0 311	0 280			12,1	21,6	1,5	0,136	0 135	0 00685	6 848	5 8
142		Median		25 2	20 6	25,1	22,2	21,4	174,1	22 9	34,0	3 6	19 5	10 9	-0,2	28 1	0 291	0 268			11 6	21,2	1,5	0,127	0 127	0 00600	6 001	5 1
143		Minimum		23 8	20 1	23 6	21,0	20 6	173 6	21,3	33,2	3 5	17,7	10 5	-0,2	27,8	0,281	0 253			11 6	19 5	1 3	0 123	0 120	0 00557	5 570	4 7
144		Std Deviation		0 574	0 378	0 595	0 552	0 368	0,309	0,379	0 202	0,064	0 439	0 242	0 023	0,262	0 004	0 004			0,109	0 404	0 028	0 002	0 004	0 000274	0 274	0 233
145		Number of Points Used		112	112	112	112	112	112	112	112	112	112	112	112	112	112	112			112	112	112	112	112	112	112	112



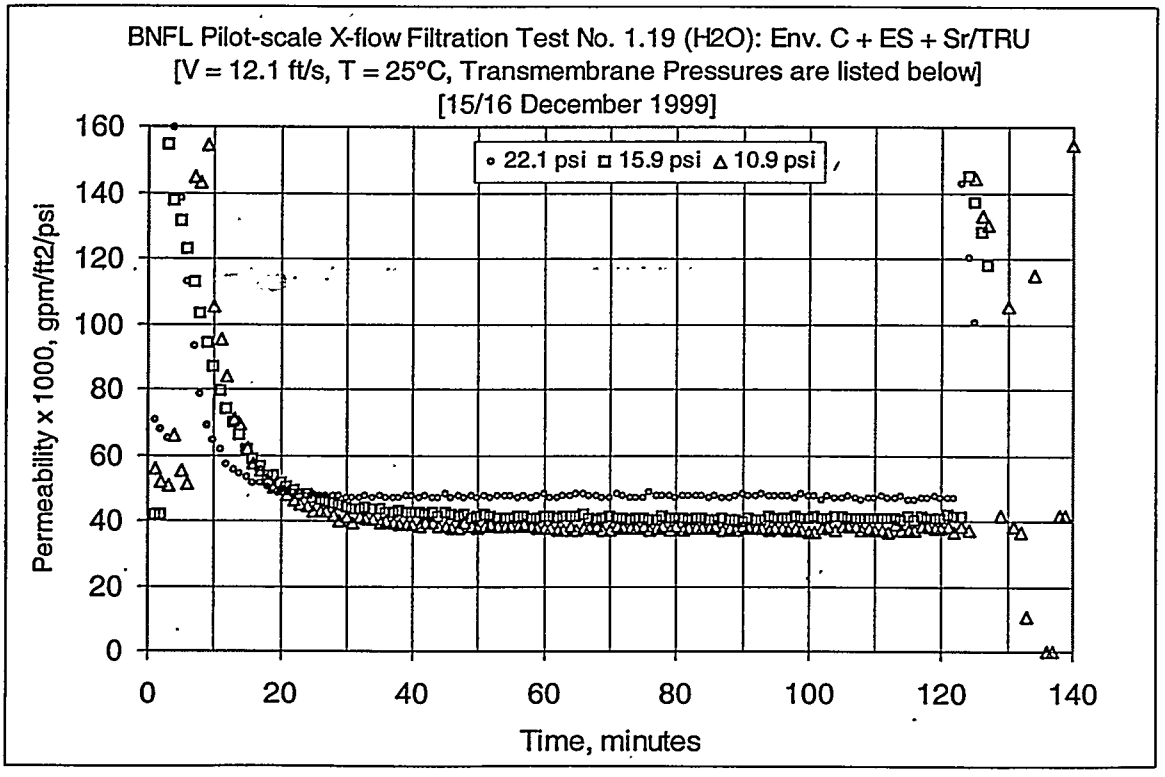


Figure A3: Test Run 1.19, Final Water

Run 1.19: Final Water Run

	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	T6 (deg C)	BOT DP (p	FLTR (ps	FLTR DP (p	TOP DP (p	FLTRATE	PISTON (psig)	FSL FLOW	O2,FLTR	O3,FLTR	FLOW (ppm)									
2	Zeroe - Lines Connected																				Filter Surface Area		2 29	FT2				
3	12/16/1999	8 19:27 AM	0	18 576	17 821	15 401	18 193	15 783	170 329	0 001	0 116	0 041	-0 146	0 253	-0 167	-0 095	0 012	-0 018			Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
4	12/16/1999	8:20:33 AM	0	18 576	17 821	15 401	18 193	15 783	170 329	0 001	0 116	0 041	-0 146	0 253	-0 167	-0 095	0 012	-0 018										
5	12/16/1999	8:21:33 AM	0	18 657	17 74	15 401	18 355	15 783	170 329	-0 061	0 777	0 041	-0 18	0 284	-0 167	-0 095	0 012	-0 018										
6	12/16/1999	8:22:34 AM	0	18 701	17 865	15 364	18 318	15 909	170 366	0 001	0 177	0 049	-0 146	0 284	-0 167	-0 079	0 012	-0 018										
7	12/16/1999	8:23:34 AM	0	18 62	17 865	15 364	18 48	15 99	170 366	-0 061	0 177	0 025	-0 146	0 253	-0 167	-0 079	0 013	-0 018										
8	Zeroe - Lines Not Connected																											
9	12/16/1999	8:25:35 AM	0	18 62	17 784	15 364	18 561	16 234	170 366	-0 061	-0 189	-0 007	-0 011	-0 066	-0 167	-0 095	0 012	-0 018										
10	12/16/1999	8:26:35 AM	0	18 62	17 784	15 364	18 561	16 234	170 366	-0 061	-0 189	-0 007	-0 011	-0 066	-0 167	-0 095	0 013	-0 018										
11	12/16/1999	8:27:36 AM	0	18 62	17 784	15 364	18 48	16 234	170 366	-0 061	-0 189	-0 007	-0 045	-0 066	-0 167	-0 079	0 012	-0 018										
12	12/16/1999	8:28:36 AM	0	18 664	17 828	15 408	18 524	16 278	170 403	-0 061	-0 128	-0 007	-0 011	-0 066	-0 167	-0 079	0 012	-0 018										
13																												
14	Data - Per Minute																								at 25C	PERMABILITY	x1000	
15	12/15/1999	12:33:28 PM	0	20 96	21 82	20 668	21 669	21 248	173 733	19 631	80 486	3 424	16 318	60 408	-0 121	29 504	1 218	2 574		Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
16	12/15/1999	12:34:29 PM	0	21 202	21 82	21 11	21 949	21 187	173 733	20 147	79 755	3 36	16 792	59 206	-0 121	29 135	1 218	2 565		1	1	12 2	18 0	1 240	1 124	1 264	0 07030	70 301	59 63
17	12/15/1999	12:35:29 PM	0	21 524	21 74	21 352	21 949	21 328	173 733	20 643	79 816	3 392	17 333	58 637	-0 121	29 181	1 218	2 549		2	2	12 1	18 5	1 273	1 120	1 251	0 06774	67 740	57 65
18	12/15/1999	12:36:29 PM	0	21 649	21 865	21 638	21 994	21 373	173 77	10 043	80 304	3 296	8 48	59 664	-0 121	29 012	1 218	2 744		3	3	12 1	19 0	1 309	1 113	1 235	0 06502	65 023	55 34
19	12/15/1999	12:37:30 PM	0	21 971	21 784	21 96	22 075	21 293	173 77	11 097	80 425	3 312	7 697	58 821	-0 167	28 889	1 218	2 729		4	4	12 0	9 4	0 648	1 191	1 299	0 13823	138 226	117 63
20	12/15/1999	12:38:30 PM	0	22 419	21 829	22 327	22 2	21 499	173 808	12 709	79 936	3 256	9 827	60 972	-0 121	28 812	1 218	2 702		5	5	12 0	11 3	0 777	1 160	1 273	0 11294	112 938	96 11
21	12/15/1999	12:39:30 PM	0	22 74	21 829	22 729	22 119	21 499	173 808	15 188	80 425	3 256	11 484	64 63	-0 121	28 874	1 218	2 662		6	6	12 0	13 3	0 919	1 162	1 239	0 09294	92 936	79 09
22	12/15/1999	12:40:31 PM	0	23 187	21 874	23 175	22 164	21 643	173 845	16 8	79 369	3 336	14 053	62 196	-0 121	29 335	1 218	2 622		7	7	12 0	15 4	1 064	1 145	1 205	0 07813	78 134	66 49
23	12/15/1999	12:41:31 PM	0	23 509	21 784	23 497	22 164	21 643	173 845	18 908	80 304	3 4	15 304	60 747	-0 121	29 288	1 218	2 586		8	8	12 2	17 1	1 179	1 129	1 178	0 06866	68 661	58 60
24	12/15/1999	12:42:31 PM	0	23 955	21 838	23 943	22 209	21 808	173 883	19 341	79 084	3 328	16 724	59 299	-0 121	29 304	1 218	2 565		9	9	12 2	18 0	1 243	1 120	1 154	0 06398	63 977	54 45
25	12/15/1999	12:43:32 PM	0	24 278	21 838	24 183	22 128	21 508	173 883	20 023	79 145	3 328	16 927	58 837	-0 121	29 256	1 218	2 548		10	10	12 2	18 0	1 243	1 120	1 154	0 06398	63 977	54 45
26	12/15/1999	12:44:32 PM	0	24 401	21 803	24 308	22 254	21 553	173 92	21 201	80 243	3 36	18 516	58 59	-0 121	29 242	1 218	2 54		11	11	12 1	18 5	1 274	1 111	1 137	0 06156	61 562	52 39
27	12/15/1999	12:45 32 PM	0	24 561	21 803	24 388	22 173	21 553	173 92	21 945	80 243	3 336	18 62	57 65	-0 121	29 212	1 218	2 528		12	12	12 1	19 9	1 369	1 109	1 131	0 05694	56 937	48 45
28	12/15/1999	12:46:33 PM	0	24 686	21 848	24 593	22 379	21 517	173 958	22 193	79 938	3 336	19 023	57 45	-0 121	29 227	1 218	2 516		14	14	12 1	20 6	1 421	1 098	1 111	0 05391	53 911	45 88
29	12/15/1999	12:47:33 PM	0	24 766	21 767	24 593	22 459	21 517	173 958	22 379	79 389	3 336	19 361	56 656	-0 121	29 15	1 218	2 51		15	15	12 1	20 9	1 439	1 096	1 108	0 05311	53 106	45 20
30	12/15/1999	12:48:33 PM	0	24 891	21 812	24 796	22 424	21 642	173 995	23 123	80 243	3 336	19 767	56 618	-0 121	29 104	1 218	2 504		16	16	12 1	21 4	1 479	1 093	1 099	0 05126	51 263	43 63
31	12/15/1999	12:49:34 PM	0	25 051	21 812	24 796	22 504	21 562	173 995	23 123	79 694	3 288	19 665	56 125	-0 121	29 058	1 218	2 501		17	17	12 1	21 4	1 475	1 092	1 098	0 05132	51 324	43 68
32	12/15/1999	12:50:34 PM	0	25 131	21 812	24 959	22 504	21 562	173 995	23 247	79 999	3 328	20 206	56 125	-0 121	29 15	1 218	2 494		18	18	12 1	21 7	1 498	1 089	1 090	0 05017	50 169	42 69
33	12/15/1999	12:51:34 PM	0	25 256	21 857	25 003	22 71	21 607	174 033	23 371	79 45	3 304	20 308	55 693	-0 121	29 058	1 218	2 491		19	19	12 1	21 8	1 506	1 087	1 087	0 04979	49 787	42 37
34	12/15/1999	12:52:35 PM	0	25 256	21 776	25 003	22 871	21 607	174 033	23 495	79 816	3 328	20 883	55 971	-0 121	28 966	1 218	2 488		20	20	12 0	22 2	1 530	1 086	1 086	0 04894	48 944	41 65
35	12/15/1999	12:53:35 PM	0	25 256	21 696	25 003	22 79	21 526	174 033	23 743	79 694	3 304	20 477	55 662	-0 121	29 027	1 218	2 488		21	21	12 0	22 1	1 524	1 086	1 086	0 04912	49 119	41 80
36	12/15/1999	12:54:35 PM	0	25 221	21 821	25 048	22 835	21 652	174 07	23 743	79 694	3 352	20 815	55 508	-0 121	29 242	1 218	2 485		22	22	12 1	22 3	1 536	1 085	1 083	0 04663	48 626	41 36
37	12/15/1999	12:55:36 PM	0	25 301	21 821	25 048	22 674	21 652	174 07	23 619	79 206	3 36	21 119	55 293	-0 121	29 365	1 218	2 479		23	23	12 2	22 4	1 542	1 082	1 081	0 04631	48 313	41 12
38	12/15/1999	12:56:36 PM	0	25 426	21 785	25 093	22 8	21 777	174 108	24 673	80 913	3 368	21 153	55 662	-0 121	29 227	1 218	2 482		24	24	12 1	22 9	1 580	1 083	1 081	0 04716	47 164	40 14
39	12/15/1999	12:57:36 PM	0	25 345	21 785	25 093	22 88	21 696	174 108	24 177	79 877	3 344	20 95	55 046	-0 121	29 212	1 218	2 479		25	25	12 1	22 6	1 558	1 082	1 079	0 04784	47 836	40 71
40	12/15/1999	12:58 37 PM	0	25 39	21 83	25 137	22 845	21 741	174 145	24 301	80 304	3 36	21 085	55 478	-0 075	29 212	1 218	2 476		26	26	12 1	22 7	1 565	1 081	1 077	0 04745	47 447	40 38
41	12/15/1999	12:59:37 PM	0	25 345	21 785	25 093	22 8	21 696	174 108	24 611	80 608	3 352	21 153	55 601	-0 121	29 166	1 218	2 482		27	27	12 1	22 9	1 576	1 083	1 081	0 04723	47 227	40 19
42	12/15/1999	1:00:38 PM	0	25 39	21 83	25 217	22 925	21 822	174 145	23 991	79 389	3 288	21 322	54 984	-0 121	29 027	1 218	2 479		28	28	12 0	22 7	1 562	1 082	1 076	0 04747	47 474	40 40
43	12/15/1999	1:01:38 PM	0	25 435	21 795	25 182	23 03	21 887	174 183	24 116	79 389	3 272	21 424	54 984	-0 121	29 012	1 218	2 47		29	29	12 0	22 8	1 570	1 078	1 073	0 04711	47 113	40 09
44	12/15/1999	1:02:38 PM	0	25 435	21 795	25 182	22 97	21 786	174 183	24 425	80 182	3 28	21 356	55 323	-0 121	28 997	1 218	2 473		30	30	12 0	22 9	1 578	1 080	1 074	0 04692	46 921	39 93
45	12/15/1999	1:03:39 PM	0	25 515	21 795	25 182	22 97	21 786	174 183	24 301	80 06	3 296	21 66	55 447	-0 121	29 043	1 218	2 473		31	31	12 1	23 0	1 584	1 080	1 074	0 04674	46 737	39 77
46	12/15/1999	1:04:39 PM	0	25 435	21 795	25 182	22 888	21 786	174 183	24 301	79 633	3 288	21 322	55 015	-0 167	28 92	1 218	2 47		32	32	12 0	22 8	1 573	1 078	1 073	0 04703	47 026	40 02
47	12/15/1999	1:05:39 PM	0	25 56	21 759	25 307	23 095	21 831	174 22	24 487	79 677	3 304	20 781	54 861	-0 121	28 935	1 218	2 473		33	33	12 0	22 8	1 561	1 080	1 070	0 04729	47 285	40 24
48	12/15/1999	1:06:40 PM	0	25 56	21 759	25 227	23 015	21 831	174 22	24 549	80 425	3 288	21 356	55 262	-0 121	29 027	1 218	2 479		34	34	12 0	23 0	1 582	1 082	1 075	0 04685	46 849	39 87
49	12/15/1999	1:07:40 PM	0	25 48	21 759	25 307	23 095	21 751	174 22	24 177	79 389	3 26	21 221	54 707	-0 121	29 058	1 218	2 476		35	35	12 1	22 7	1 565	1 081	1 072	0 04721	47 208	40 17
50	12/15/1999	1:08:40 PM	0	25 604	21 885	25 352	22 979	21 474	174 258	24 611	80 182	3 304	21 052	55 169	-0 121	29 027	1 218	2 476		36	36	12 0	22 8	1 574	1 081	1 070	0 04667	46 675	39 89
51	12/15/1999	1:09:41 PM	0	25 604	21 885	25 352	22 979	21 654	174 258	24 673	80 182	3 26	20 984	54 861	-0 121	28 966	1 218	2 476		37	37	12 0	22 8	1 574	1 081	1 070	0 04668	46 681	39 90
52	12/15/1999	1:10:41 PM	0	25 56	21 84	25 307	22 934	21 751	174 22	24 425	79 877	3 288	21 491	54 892	-0 121	28 966	1 218	2 47		38	38	12 0	23 0	1 583	1 078	1 069	0 04656	46 563	39 63
53	12/15/1999	1:11:41 PM	0	25 684	21 885	25 352	23 06	21 715	174 258	24 177	79 511	3 272	21 187	54 861	-0 121	29 058	1 218	2 479		39	39	12 1	22 7	1 564	1 082	1 072	0 04724	47 241	40 20
54	12/15/1999	1:12:42 PM	0	25 604	21 804	25 272	23 22	21 554	174 258	23 991	79 45	3 28	21 187	55 323	-0 121	29 104	1 218	2 479		40	40	12 1	22 8	1 557	1 082	1 074	0 04754	47 542	40 46
55	12/15/1999	1:13:42 PM	0	25 604	21 804	25 352	23 06	21 232	174 258	24 116	79 389	3 288	21 726	55 077	-0 121	29 089	1 218	2 476		41	41	12 1	22 9	1 580	1 081	1 070	0 04669	46 691	39 73
56	12/15/1999	1:14:42 PM	0	25 524	21 804	25 272	22 979	21 071	174 258	24 116	79 616	3 304	21 39	55 231	-0 121	29 043	1 218	2 476		42	42	12 1	22 8	1 569	1 081	1 073	0 04714	47 144	40 12
57	12/15/1999	1:15:43 PM	0	25 524	21 804	25 272	22 899	20 749	174 258	24 425	79 755	3 272	21 39	54 892	-0 121	28 981	1 218	2 467		43	43	12 0	22 9	1 579	1 077	1 069	0 04665	46 654	39 70
58	12/15/1999	1:16:43 PM	0	25 524	21 885	25 272	22 818	20 587	174 258	23 867	79 267	3 24	21 795	54 984	-0 121	28 92	1 218	2 47		44	44	12 0	22 8	1 574	1 078	1 070	0 04687	46 868	39 89
59	12/15/1999	1:17:43 PM	0	25 48	21 84	25 147	22 692	20 35	174 22	24 116	78 962	3 288	20 649	54 738	-0 121	29 104	1 218	2 479		45	45	12 1	22 5	1 550	1 082	1 078	0 04794	47 937	40 79
60	12/15/1999	1:18:44 PM	0	25 435	21 795	25 182	22 648	20 416	174 183	24 301	79 877	3 28	21 457	54 984	-0 121	28 981	1 218	2 476		46	46	12 0	22 9	1 577	1 081	1 075	0 04700	47 002	40 00
61	12/15/1999	1:19:44 PM	0	25 435	21 875	25 102	22 648	20 577	174 183	23 805	79 206	3 248	21 762	55 262	-0 121	29 027	1 218	2 473		47	47	12 0	22 8	1 571	1 080	1 076	0 04725	47 248	40 21
62	12/15/1999	1:20:44 PM	0	25 39	21 83	25 137	22 603	20 774	174 145	24 363	79 999	3 264	21 625	55 323	-0 121	29 043	1 218	2 476		48	48	12 1	22 9	1 582	1 081	1 077	0 04693	46 928	39 94
63	12/15/1999	1:21:45 PM	0	25 31	21 75	25 137	22 603	20 921	174 145	24 611	79 999	3 304	21 052	54 892	-0 121	29 012	1 218	2 473		49	49	12 0	22 8	1 574	1 080	1 075	0 04710	47 102	40 08
64	12/15/1999	1:22:45 PM	0	25 435	21 875	25 102	22 648	21 142	174 183	24 673	80 243	3 32	21 221	55 015	-0 121	29 012	1 218	2 476		50	50	12 0	22 9	1 582	1 081	1 078	0 04697	46 968	39 97
65	12/15/1999	1:23:45 PM	0	25 31	21 75	25 057	22 654	21 258	174 145	24 239	79 633	3 268	21 153	55 015	-0 121	28 966	1 218	2 473		51	51	12 0	22 7	1 565	1 080	1 078	0 04749	47 490	40 41
66	12/15/1999	1:24:46 PM	0	25 435	21 875	25 102	22 729	21 384	174 183	24 425	79 999	3 272	21 694	55 139	-0 121	29 043	1 218	2 47		52	52	12 1	23 1	1 590	1 078	1 075	0 04663	46 626	39 68
67	12/15/1999	1:25 46 PM	0	25 39	21 83	25 057	22 845	21 419	174 145	24 177	79 267	3 264	21 221	54 738	-0 121	28 997	1 218	2 473		53	53	12 0	22 7	1 565	1 080	1 078	0 04748	47 484	40 41
68	12/15/1999	1:26:46 PM	0	25 355	21 875	25 102	22 889	21 384	174 183	24 116	79 694	3 288	21 593	55 108	-0 121	29 012	1 218	2 473		54	54	12 0	22 9	1 576	1 080	1 076	0 04710	47 102	40 08
69	12/15/1999	1:27:47 PM	0	25 355	21 875	25 102	22 97	21 545	174 183	23 991	79 145	3 256	21 559	54 707	-0 121	28 981	1 218	2 479		55	55	12 0	22 8	1 570	1 082	1 079	0 04738	47 380	40 32
70	12/15/1999	1:28:47 PM	0	25 275	21 795	25 022	22 97	21 625	174 183	24 673	80 304	3 296	21 525	55 139	-0 121	29 043	1 218	2 478		56	56	12 1	23 1	1 593	1 081	1 080	0 04676	46 764	39 80
71	12/15/1999	1:29:47 PM	0	25 399	21 84	25 067	23 095	21 751	174 22	24 735	80 243	3 32	20 915	55 169	-0 121	29 043	1 218	2 473		57	57	12 1	22 8	1 570	1 080	1 078	0 04731	47 312	40 26
72	12/15/1999	1:30:48 PM	0	25 319	21 84	25 067	23 175	21 751	174 22	24 611	80 304	3 296	21 424	55 293	-0 121	28 966	1 218	2 476		58	58	12 0	23 0	1 587	1 081	1 079	0 04667	46 670	39 89
73	12/15/1999	1:31:48 PM	0	25 319	21 84	25 067	23 095	21 751	174 22	24 487	79 755	3 272	21 254	54 769	-0 121	28 889	1 218	2 47		59	59	12 0	22 9	1 577	1 078	1 076	0 04706	47 057	40 05
74	12/15/1999	1:32:49 PM	0	25 364	21 885	25 031	23 22	21 676	174 258	23 929	79 084	3 26	21 322	54 861	-0 121	28 997	1 218	2 47		60	60	12 0	22 8	1 560	1 078	1 077	0 04761	47 615	40 52
75	12/15/1999	1:33:49 PM	0	25 284	21 885	25 031	23 22	21 957	174 258	24 487	80 06	3 26	21 525	55 046	-0 121	28 92	1 218	2 476		61	61	12 0	23 0	1 586	1 081	1 080	0 04694	46 941	39 95
76	12/15/1999	1:34 50 PM	0	25 364	21 885	25 031	23 301	21 957	174 258	24 549	79 616	3 288	21 254	54 645	-0 121	28 966	1 218	2 464		62	62	12 0	22 9	1 579	1 076	1 075	0 04693	46 927	39 94
77	12/15/1999	1:35:50 PM	0	25 284	21 885	25 031	23 22	21 957	174 258	23 867	79 206	3 272	21 593	55 169	-0 121	29 027	1 218	2 473		63	63	12 0	22 7	1 567	1 080	1 079	0 04745	47 454	40 38
78	12/15/1999	1:36:50 PM	0	25 284	21 804	24 951	23 351	21 957	174 258	24 177	79 389	3 248	21 322	54 923	-0 121	29 012	1 218	2 476		64	64	12 0	22 7	1 568	1 081	1 082	0 04756	47 577	40 49
79	12/15/1999	1:37:51 PM	0	25 249	21 849	25 078	23 348	22 002	174 295	24 425	79 326	3 288	20 815	54 43	-0 121	28 966	1 218	2 473		65	65	12 0	22 8	1 560	1 080	1 077	0 04782	47 624	40 53
80	12/15/1999	1:38:51 PM	0	25 329	21 849	24 996	23 426	22 002	174 295	24 425	79 633	3 288	20 883	54 707	-0 121	28 966	1 218	2 473		66	66	12 0	22 7	1 562	1 080	1 080	0 04766	47 660	40 56
81	12/15/1999	1:39:51 PM	0	25 293	21 894	25 041	23 551	22 047	174 333	24 487	79 816	3 288	20 883	54 954	-0 121	28 966	1 218	2 473		67	67	12 0	22 7	1 564	1 080	1 078	0 04753	47 534	40 45
82	12/15/1999	1:40:52 PM	0	25 338	21 939	25 088	23 596	22 092	174 37	24 301	79 45	3 288	21 221	54 954	-0 075	28 966	1 218	2 47		68	68	12 0	22 8	1 569	1 078	1 078	0 04726	47 258	40 22
83	12/15/1999	1:41:52 PM	0	25 338	21 939	25 086	23 616	22 092	174 37	24 735	80 547	3 304	21 085	55 231	-0 121	28 951	1 218	2 47		69	69	12 0	22 9	1 580	1 078	1 076	0 04695	46 951	39 96
84	12/15/1999	1:42:52 PM	0	25 338	21 859	25 005	23 435	22 092	174 37	24 859	80 304	3 328	21 356	55 077	-0 121	28 92	1 218	2 467		70	70	12 0	23 1	1 593	1 077	1 077	0 04660	46 599	39 66
85	12/15/1999	1:43 53 PM	0	25 303	21 904	25 05	23 48	22 137	174 408	23 991	78 962	3 256	21 322	54 43	-0 121	29 073	1 218	2 476		71	71	12 1	22 7	1 562	1 081	1 079	0 04764	47 640	40 54

Run 1.19: Final Water Run

	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	12/15/1999	1:44.53 PM	0	25.303	21.904	25.05	23.48	22.217	174.408	24.425	80.06	3.304	21.322	55.2	-0.121	29.058	1.218	2.479	72	72	12.1	22.9	1.577	1.082	1.081	0.04725	47.245	40.21
87	12/15/1999	1:45.53 PM	0	25.348	21.949	25.095	23.606	22.182	174.448	24.921	80.547	3.328	21.153	54.954	-0.121	28.966	1.218	2.476	73	73	12.0	23.0	1.588	1.081	1.078	0.04679	46.794	39.82
88	12/15/1999	1:46.54 PM	0	25.268	21.949	25.095	23.525	22.182	174.448	24.487	79.938	3.264	21.525	54.789	-0.121	29.012	1.218	2.476	74	74	12.0	23.0	1.586	1.081	1.078	0.04686	46.857	39.88
89	12/15/1999	1:47:54 PM	0	25.383	21.994	25.08	23.651	22.227	174.483	24.673	79.938	3.28	21.153	54.615	-0.121	28.966	1.218	2.473	75	75	12.0	22.9	1.580	1.080	1.078	0.04704	47.036	40.03
90	12/15/1999	1:48.54 PM	0	25.312	21.813	24.98	23.57	22.227	174.483	24.053	79.589	3.256	20.68	54.881	-0.121	29.043	1.218	2.473	76	76	12.1	22.4	1.549	1.080	1.080	0.04829	48.294	41.10
91	12/15/1999	1:49:55 PM	0	25.357	21.958	25.105	23.615	22.272	174.521	24.301	79.816	-3.312	21.356	54.881	-0.075	29.012	1.218	2.47	77	77	12.0	22.8	1.574	1.078	1.075	0.04709	47.093	40.08
92	12/15/1999	1:50:55 PM	0	25.277	21.958	25.025	23.695	22.272	174.521	24.673	80.182	3.312	21.187	54.954	-0.121	29.043	1.218	2.482	78	78	12.1	22.9	1.581	1.083	1.083	0.04722	47.219	40.18
93	12/15/1999	1:51:55 PM	0	25.277	21.958	25.025	23.615	22.03	174.521	23.743	79.145	3.24	21.795	54.923	-0.121	28.904	1.218	2.476	79	79	12.0	22.8	1.570	1.081	1.080	0.04744	47.438	40.37
94	12/15/1999	1:52:56 PM	0	25.277	21.878	25.025	23.535	21.706	174.521	24.673	80.608	3.32	21.288	55.354	-0.121	29.058	1.218	2.476	80	80	12.1	23.0	1.584	1.081	1.080	0.04700	47.001	40.00
95	12/15/1999	1:53:56 PM	0	25.322	22.003	24.969	23.5	21.431	174.559	24.859	80.486	3.312	21.018	54.769	-0.121	29.058	1.218	2.476	81	81	12.1	22.9	1.582	1.081	1.081	0.04713	47.135	40.11
96	12/15/1999	1:54:56 PM	0	25.367	22.049	25.034	23.464	21.315	174.596	24.239	79.816	3.272	21.356	55.139	-0.121	29.027	1.218	2.473	82	82	12.0	22.8	1.572	1.080	1.079	0.04731	47.309	40.26
97	12/15/1999	1:55:57 PM	0	25.322	21.923	24.969	23.339	21.028	174.559	24.239	79.572	3.304	21.424	54.954	-0.121	28.966	1.218	2.473	83	83	12.0	22.8	1.574	1.080	1.080	0.04730	47.299	40.25
98	12/15/1999	1:56:57 PM	0	25.277	21.958	24.945	23.294	20.822	174.521	24.425	79.694	3.304	21.119	54.8	-0.121	29.12	1.218	2.476	84	84	12.1	22.8	1.570	1.081	1.083	0.04754	47.538	40.46
99	12/15/1999	1:57:57 PM	0	25.277	21.958	24.945	23.133	20.741	174.521	24.797	80.669	3.32	21.491	55.416	-0.121	29.027	1.218	2.464	85	85	12.0	23.1	1.596	1.078	1.077	0.04655	46.548	39.61
100	12/15/1999	1:58.58 PM	0	25.277	22.039	25.025	23.133	20.681	174.521	24.239	79.694	3.296	21.39	55.169	-0.121	29.043	1.218	2.47	86	86	12.1	22.8	1.573	1.078	1.077	0.04723	47.228	40.18
101	12/15/1999	1:59:58 PM	0	25.232	21.994	24.98	23.088	20.618	174.483	24.859	80.363	3.304	21.525	54.923	-0.121	28.935	1.218	2.473	87	87	12.0	23.2	1.599	1.080	1.080	0.04658	46.573	39.64
102	12/15/1999	2:00:58 PM	0	25.312	21.994	24.98	23.068	20.777	174.483	24.797	80.791	3.304	21.491	55.478	-0.121	28.966	1.218	2.473	88	88	12.0	23.1	1.596	1.080	1.080	0.04667	46.672	39.72
103	12/15/1999	2:01:59 PM	0	25.268	21.949	24.935	23.043	21.054	174.448	24.425	80.121	3.272	21.525	55.139	-0.121	29.043	1.218	2.479	89	89	12.1	23.0	1.584	1.082	1.084	0.04719	47.189	40.16
104	12/15/1999	2:02:59 PM	0	25.268	22.029	24.935	23.043	21.215	174.446	24.116	79.084	3.256	21.221	54.615	-0.121	28.951	1.218	2.476	90	90	12.0	22.7	1.563	1.081	1.083	0.04777	47.770	40.65
105	12/15/1999	2:03:59 PM	0	25.268	21.949	25.015	23.124	21.377	174.446	24.177	79.694	3.288	21.288	55.139	-0.121	28.966	1.218	2.473	91	91	12.0	22.7	1.567	1.080	1.079	0.04747	47.470	40.40
106	12/15/1999	2:05:00 PM	0	25.268	21.949	25.015	23.124	21.536	174.446	24.053	79.633	3.264	21.525	55.108	-0.121	29.027	1.218	2.476	92	92	12.0	22.8	1.571	1.081	1.080	0.04741	47.409	40.35
107	12/15/1999	2:06:00 PM	0	25.268	22.029	25.015	23.204	21.618	174.446	24.301	79.511	3.272	21.018	54.769	-0.121	29.027	1.218	2.476	93	93	12.0	22.7	1.562	1.081	1.080	0.04768	47.680	40.58
108	12/15/1999	2:07:00 PM	0	25.268	22.029	25.015	23.284	21.699	174.446	24.611	79.999	3.304	21.119	54.892	-0.121	29.073	1.218	2.476	94	94	12.1	22.9	1.576	1.081	1.080	0.04725	47.252	40.21
109	12/15/1999	2:08:01 PM	0	25.268	21.949	24.935	23.363	21.779	174.446	24.673	79.999	3.312	21.119	54.645	-0.121	28.997	1.218	2.476	95	95	12.0	22.9	1.579	1.081	1.083	0.04729	47.294	40.25
110	12/15/1999	2:09:01 PM	0	25.312	21.994	24.98	23.41	21.905	174.483	24.673	80.121	3.288	21.153	54.954	-0.121	29.058	1.218	2.476	96	96	12.1	22.9	1.580	1.081	1.081	0.04720	47.199	40.17
111	12/15/1999	2:10:01 PM	0	25.232	21.994	24.98	23.49	21.905	174.483	24.549	79.694	3.272	21.085	54.522	-0.121	29.012	1.218	2.473	97	97	12.0	22.8	1.573	1.080	1.080	0.04734	47.341	40.29
112	12/15/1999	2:11:02 PM	0	25.312	21.994	24.98	23.49	21.963	174.483	24.425	79.816	3.288	21.626	55.108	-0.121	29.012	1.218	2.487	98	98	12.0	23.0	1.588	1.077	1.078	0.04680	46.798	39.83
113	12/15/1999	2:12:02 PM	0	25.232	21.994	24.98	23.57	22.068	174.483	24.053	79.267	3.256	21.052	54.954	-0.121	28.997	1.218	2.479	99	99	12.0	22.6	1.555	1.082	1.083	0.04801	48.012	40.86
114	12/15/1999	2:13:02 PM	0	25.277	22.039	25.025	23.615	22.111	174.521	24.611	80.182	3.28	21.085	55.108	-0.121	28.966	1.218	2.473	100	100	12.0	22.8	1.575	1.080	1.079	0.04722	47.218	40.18
115	12/15/1999	2:14:03 PM	0	25.277	22.039	25.025	23.615	22.111	174.521	24.797	79.877	3.272	20.916	54.399	-0.121	28.951	1.218	2.467	101	101	12.0	22.9	1.576	1.077	1.076	0.04708	47.084	40.07
116	12/15/1999	2:15:03 PM	0	25.277	22.039	25.025	23.695	22.111	174.521	24.487	79.877	3.288	21.964	54.892	-0.121	29.012	1.218	2.47	102	102	12.0	23.2	1.601	1.078	1.077	0.04639	46.393	39.48
117	12/15/1999	2:16:03 PM	0	25.197	22.039	25.025	23.615	22.191	174.521	24.239	79.511	3.272	21.254	54.8	-0.121	29.027	1.218	2.47	103	103	12.0	22.7	1.568	1.078	1.077	0.04737	47.370	40.31
118	12/15/1999	2:17:04 PM	0	25.322	22.003	24.969	23.821	22.237	174.559	24.735	79.938	3.296	21.187	54.584	-0.121	29.012	1.218	2.473	104	104	12.0	23.0	1.583	1.080	1.080	0.04703	47.032	40.02
119	12/15/1999	2:18:04 PM	0	25.242	22.084	24.969	23.74	22.237	174.559	24.797	80.182	3.272	21.288	54.8	-0.121	29.027	1.218	2.473	105	105	12.0	23.0	1.589	1.080	1.080	0.04687	46.865	39.88
120	12/15/1999	2:19:04 PM	0	25.267	22.049	25.034	23.866	22.362	174.596	24.363	79.811	3.304	21.254	54.738	-0.075	29.012	1.218	2.47	106	106	12.0	22.8	1.573	1.078	1.077	0.04723	47.229	40.19
121	12/15/1999	2:20:05 PM	0	25.332	22.094	25.079	23.83	22.488	174.634	24.797	80.121	3.312	21.153	54.738	-0.121	29.043	1.218	2.476	107	107	12.1	23.0	1.584	1.081	1.078	0.04694	46.941	39.95
122	12/15/1999	2:21:05 PM	0	25.287	22.049	25.034	23.866	22.443	174.596	24.797	80.637	3.32	21.728	55.447	-0.121	28.997	1.218	2.473	108	108	12.0	23.3	1.604	1.080	1.079	0.04638	46.383	39.46
123	12/15/1999	2:22:05 PM	0	25.252	22.013	24.999	23.811	22.488	174.634	24.611	79.999	3.28	21.356	54.676	-0.121	29.012	1.218	2.473	109	109	12.0	23.0	1.583	1.080	1.080	0.04697	46.972	39.97
124	12/15/1999	2:23:06 PM	0	25.297	22.139	25.124	23.958	22.482	174.672	24.425	79.633	3.28	21.66	54.769	-0.121	29.027	1.218	2.473	110	110	12.0	23.0	1.589	1.080	1.076	0.04669	46.688	39.73
125	12/15/1999	2:24:06 PM	0	25.297	22.058	25.044	24.036	22.533	174.672	24.116	79.145	3.272	21.356	54.769	-0.121	28.966	1.218	2.467	111	111	12.0	22.7	1.568	1.077	1.076	0.04731	47.310	40.26
126	12/15/1999	2:25:06 PM	0	25.297	22.058	25.044	23.958	22.533	174.672	24.487	80.06	3.288	21.728	55.139	-0.121	28.997	1.218	2.47	112	112	12.0	23.1	1.593	1.078	1.077	0.04660	46.605	39.66
127	12/15/1999	2:26:07 PM	0	25.366	22.149	25.134	24.126	22.623	174.747	24.797	80.486	3.304	21.424	55.2	-0.121	28.997	1.218	2.47	113	113	12.0	23.1	1.593	1.078	1.074	0.04648	46.481	39.56
128	12/15/1999	2:27:07 PM	0	25.306	22.149	25.054	24.048	22.482	174.747	24.425	79.572	3.248	21.254	54.522	-0.121	28.981	1.218	2.47	114	114	12.0	22.8	1.575	1.078	1.077	0.04714	47.138	40.12
129	12/15/1999	2:28:08 PM	0	25.306	22.068	25.054	24.048	22.221	174.747	25.107	80.547	3.32	21.457	54.83	-0.121	28.935	1.218	2.467	115	115	12.0	23.3	1.605	1.077	1.075	0.04619	46.186	39.31
130	12/15/1999	2:29:08 PM	0	25.226	22.149	25.054	23.966	21.736	174.747	24.921	80.182	3.304	21.626	54.8	-0.121	28.951	1.218	2.467	116	116	12.0	23.3	1.605	1.077	1.075	0.04620	46.203	39.32
131	12/15/1999	2:30:09 PM	0	25.351	22.113	25.099	24.011	21.622	174.785	24.301	79.633	3.304	21.897	55.016	-0.121	29.104	1.218	2.473	117	117	12.1	23.1	1.593	1.080	1.077	0.04661	46.606	39.66
132	12/15/1999	2:31:09 PM	0	25.306	22.149	25.054	23.905	21.254	174.747	24.611	79.816	3.312	21.457	54.8	-0.075	29.027	1.218	2.473	118	118	12.0	23.0	1.588	1.080	1.078	0.04680	46.797	39.82
133	12/15/1999	2:32:09 PM	0	25.431	22.194	25.099	23.77	21.3	174.785	24.735	80.06	3.312	20.95	54.645	-0.121	29.027	1.218	2.47	119	119	12.0	22.8	1.575	1.078	1.075	0.04707	47.072	40.06
134	12/15/1999	2:33:10 PM	0	25.306	22.149	25.054	23.644	21.015	174.747	24.363	79.511	3.312	21.795	54.8	-0.075	29.073	1.218	2.467	120	120	12.1	23.1	1.591	1.077	1.075	0.04659	46.592	39.65
135	12/15/1999	2:34:10 PM	0	25.306	22.149	25.054	23.664	20.831	174.747	24.611	79.877	3.272	21.457	54.8	-0.121	28.951	1.218	2.47	121	121	12.0	23.0	1.588	1.078	1.077	0.04674	46.740	39.78
136	12/15/1999	2:35:10 PM	0	25.341	22.103	25.089	23.619	20.808	174.709	24.921	80.73	3.328	21.39	55.354	-0.075	29.027	1.218	2.476	122	122	12.0	23.2	1.596	1.081	1.078	0.04656	46.562	39.62
137	12/15/1999	2:36:11 PM	0	25.216	22.219	24.964	23.394	20.842	174.672	10.229	80.121	3.336	6.582	68.945	-0.121	29.258	1.218	2.744	123	123	12.1	8.4	0.580	1.196	1.199	0.14265	142.654	121.40
138	12/15/1999	2:37:11 PM	0	25.297	22.219	25.044	23.474	21.063	174.672	11.469	80.121	3.296	8.272	68.145	-0.121	29.258	1.218	2.72	124	124	12.1	9.9	0.681	1.187	1.186	0.12015	120.148	102.25
139	12/15/1999	2:38.11 PM	0	25.252	22.174	24.999	23.549	21.28	174.634	13.39	79.511	3.288	9.963	65.616	-0.121	29.181	1.218	2.683	125	125	12.1	11.7	0.805	1.171	1.171	0.10031	100.310	85.37
140																												
141		Averages		25.2	21.9	24.9	23.2	21.7	174.5	23.7	79.9	3.3	20.8	55.7	-0.1	29.0	1.218	2.488			12.0	22.1	1.525	1.088	1.089	0.051	50.9	43.3
142		Maximum		25.7	22.2	25.4	24.1	22.6	174.8	25.1	80.9	5.4	22.0	69.7	-0.1	29.4	1.218	2.744			12.2	23.3	1.605	1.196	1.318	0.160	159.6	135.6
143		Median		25.3	21.9	25.0	23.1	21.7	174.5	24.4	79.9	3.3	21.3	55.0	-0.1	29.0	1.218	2.476			12.0	22.8	1.574	1.081	1.078	0.047	47.2	40.2
144		Minimum		21.6	21.7	21.6	22.0	20.4	173.8	10.0	79.0	3.2	6.6	54.4	-0.2	28.8	1.218	2.464			12.0	8.3	0.570	1.078	1.069	0.046	46.2	39.3
145		Std Deviation		0.654	0.114	0.596	0.511	0.500	0.253	2.455	0.444	0.029	2.466	2.496	0.013	0.096	0.000	0.047			0.040	2.462	0.170	0.021	0.041	0.015	15.320	13.038
146		Number of Points Used		119																								
147																												
148	DATE	TIME	SOLENOID	FLTAT (de	GL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg. C)	BOT DP (p	FLTA (psi	FLTR DP (p	TOP DP (p	FLTRATE	PISTON (psig)	SL FLOW	O2,FLTR F	O3,FLTR	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMEABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
149	12/15/1999	2:41:47 PM	0	25.252	22.174	24.759	23.509	21.844	174.634	12.213	22.008	3.535	8.441	9.498	-0.075	29.196	1.218	1.31	1	1	12.1	10.3	0.712	0.572	0.576	0.05575	55.753	47.45
150	12/15/1999	2:42:47 PM	0	25.056	22.219	24.663	23.635	21.889	174.672	13.019	22.454	3.599	9.083	9.159	-0.121	29.227	1.218	1.294	2	2	12.1	11.1	0.762	0.565	0.572	0.05175	51.750	44.04
151	12/15/1999	2:43:48 PM	0	24.816	22.139	24.323	23.635	21.889	174.672	12.771	20.971	3.559	9.117	8.05	-0.121	29.135	1.218	1.246	3	3	12.1	10.9	0.755	0.544	0.554	0.05066	50.660	43.11
152	12/15/1999	2:44:48 PM	0	24.575	22.218	24.062	23.635	21.889	174.672	8.679	14.568	2.961	5.906	5.736	-0.121	26.186	1.135	1.075	4	4	10.9	7.3	0.503	0.469	0.482	0.06604	66.041	56.20
153	12/15/1999	2:45:48 PM	0	24.495	22.218	24.243	23.635	21.969	174.672	9.919	15.239	3.727	6.413	5.245	-0.075	29.888	1.075	1.014	5	5	12.4	8.2	0.563	0.443	0.452	0.05538	55.377	47.13
154	12/15/1999	2:46:48 PM	0	24.45	22.174	24.358	23.69	22.083	174.634	12.151	19.507	3.727	8.069	7.033	-0.121	29.642	1.218	1.16	6	6	12.3	10.1	0.697	0.506	0.518	0.05100	51.003	43.40
155	12/15/1999	2:47:48 PM	0	24.575	22.218	24.643	23.554	22.03	174.672	8.076	18.592	3.623	2.658	12.333	-0.121	29.619	1.218	1.413	7	7	12.3	4.3	0.296	0.617	0.624	0.14466	144.655	123.10
156	12/15/1999	2:48:48 PM	0	24.655	22.218	24.643	23.474	22.05	174.672	8.2	18.41	3.616	2.491	12.148	-0.121	29.626	1.218	1.41	8	8	12.3	4.3	0.300	0.616	0.622	0.14306	143.078	121.76
157	12/15/1999	2:49:50 PM	0	24.816	22.218	24.604	23.474	22.211	174.672	8.022	30.179	0.104	8.08	24.907	-0.075	8.233	1.218	1.773	9	9	2.2	5.0	0.348	0.774	0.778	0.15439	154.388	131.39
158	12/15/1999	2:50:50 PM	0	24.896	22.219	24.644	23.394	22.211	174.672	7.601	18.654	3.681	3.811	11.131	-0.121	29.795	1.218	1.374	10	10	12.4	5.7	0.393	0.600	0.602	0.10546	105.462	89.75
159	12/15/1999	2:51:50 PM	0	24.976	22.139	24.964	23.474	22.291	174.672	8.059	19.02	3.643	4.418	10.669	-0.121	29.427	1.218	1.361	11	11	12.2	6.2	0.430	0.594	0.595	0.09533	95.333	81.13
160	12/15/1999	2:52:51 PM	0	25.181	22.264	25.169	23.599	22.337	174.709	8.927	19.203	3.663	4.925	10.114	-0.121	29.457	1.218	1.337	12	12	12.2	6.9	0.478	0.584	0.581	0.08387	83.870	71.37
161	12/15/1999	2:53:51 PM	0	25.261	22.184	25.169	23.699	22.256	174.709	8.733	19.568	3.631	6.277	9.652	-0.121	29.365	1.218	1.313	13	13	12.2	8.0	0.552	0.573	0.570	0.07128	71.283	60.65
162	12/15/1999	2:54:51 PM	0	25.181	22.184	25.009	23.519	22.256	174.709	9.919	19.959	3.511	6.176	8.851	-0.075	29.381	1.218	1.279	14	14	12.2	8.0	0.555	0.558	0.558	0.06936	69.362	59.03
163	12/15/1999	2:55:52 PM	0	25.226	22.229	24.974	23.644	22.301	174.747	10.973	19.568	3.687	6.765	8.327	-0.075	29.212	1.218	1.258	15	15	12.1	8.9	0.612	0.549	0.550	0.06190	61.895	52.67
164	12/15/1999	2:56:52 PM	0	25.066	22.229	24.894	23.725	22.301	174.747	11.159	19.388	3.639	7.393	7.926	-0.075	29.35	1.218	1.215	16	16	12.2	9.3	0.640	0.530	0.532	0.05735	57.350	48.81
165	12/15/1999	2:57:52 PM	0	24.986	22.229	24.814	23.644	22.14	174.747	11.035	18.696	3.675	7.9	7.68	-0.121	29.288	1.218	1.194	17	17	12.2	9.5	0.653	0.521	0.524	0.05534	55.344	47.10
166	12/15/1999	2:58.53 PM	0	24.906	22.229	24.814	23.644	21.818	174.747	11.097	18.959	3.487	8.137	7.556	-0.121	29.242	1.218	1.148	18	18	12.1	9.6	0.663	0.501	0.504	0.05236	52.364	44.58
167	12/15/1999	2:59:53 PM	0	24.966	22.149	24.814	23.484	21.577	174.747	11.469	19.264	3.639	8.103	7.556	-0.121	29.181	1.175	1.112	19	19	12.1	9.8	0.675	0.485	0.488	0.04967	49.665	42.44
168	12/15/1999	3:00:53 PM	0	24.986	22.229	24.894	23.403	21.254	174.747	11.469	18.637	3.583	7.731	7.248	-0.121	29.242	1.152	1.093	20	20	12.1	9.6	0.662	0.477	0.479	0.04965	49.650	42.42
169	12/15/1999	3:01:54 PM	0	25.066	22.229	24.974	23.323	21.013	174.747	11.531	18.959	3.432	8.137	7.187	-0.121	29.166	1.145	1.081	21	21	12.1	9.8	0.676	0.472	0.472	0.04802	48.022	40.87
170	12/15/1999	3:02:54 PM	0	25.021	22.264	25.009	23.196	20.967	174.709	11.841	19.142	3.535	8.306	7.063	-0.075	29.273	1.133	1.072	22	22	12.1	10.1	0.695	0.468	0.468	0.04644	46.444	39.52

Run 1.19: Final Water Run

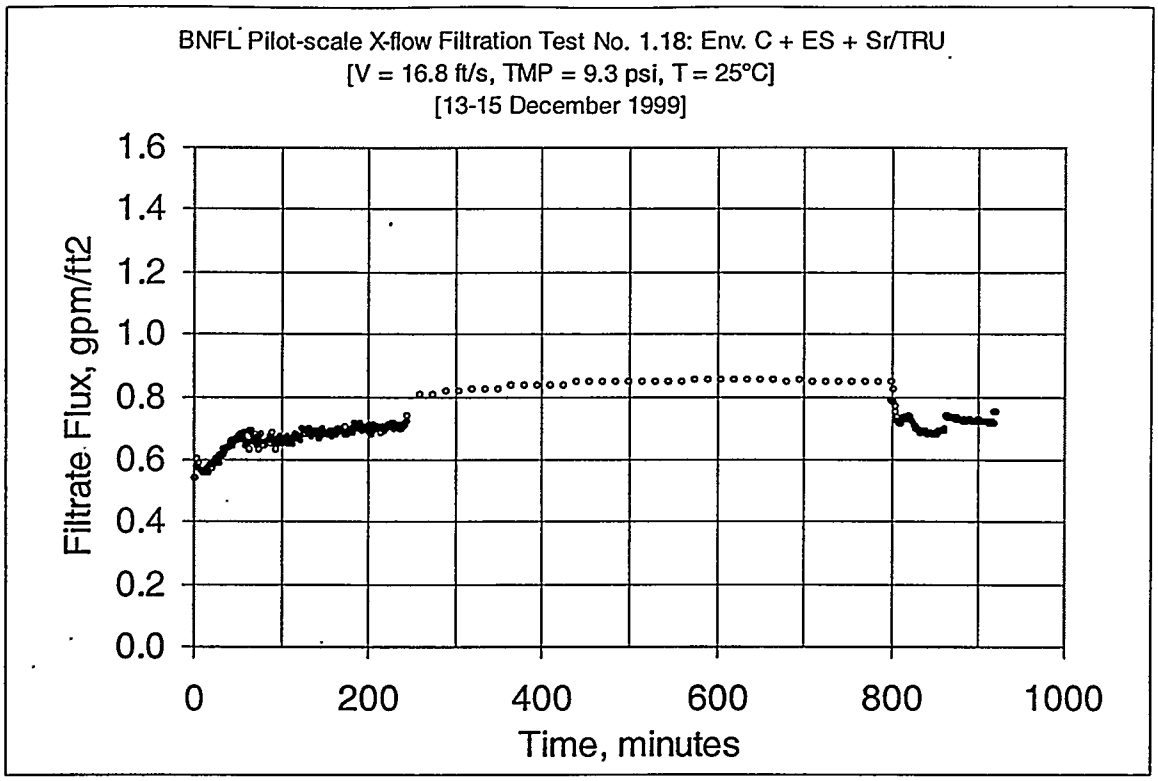
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
171	12/15/1999	3:03:54 PM	0	25.136	22.219	24.964	23.233	20.68	174.672	11.963	19.081	3.575	8.576	6.909	-0.075	29.304	1.127	1.063	23	23	12.2	10.3	0.706	0.464	0.465	0.04523	45.228	36.49
172	12/15/1999	3:04:55 PM	0	25.136	22.219	25.044	23.153	20.6	174.61	12.151	19.142	3.639	8.407	6.817	-0.121	29.212	1.108	1.051	24	24	12.1	10.3	0.709	0.459	0.458	0.04458	44.580	37.04
173	12/15/1999	3:05:55 PM	0	25.171	22.255	25.079	23.027	20.474	174.634	12.647	19.629	3.599	8.712	6.786	-0.121	29.288	1.111	1.046	25	25	12.2	10.7	0.736	0.457	0.456	0.04274	42.743	36.36
174	12/15/1999	3:06:55 PM	0	25.267	22.21	25.034	23.062	20.59	174.596	12.523	19.446	3.647	8.779	6.724	-0.121	29.273	1.108	1.045	26	26	12.1	10.7	0.734	0.456	0.456	0.04279	42.789	36.41
175	12/15/1999	3:07:56 PM	0	25.207	22.29	25.114	22.962	20.532	174.596	12.213	19.02	3.583	8.712	6.683	-0.075	29.256	1.097	1.036	27	27	12.1	10.5	0.721	0.452	0.451	0.04309	43.088	36.67
176	12/15/1999	3:08:56 PM	0	25.242	22.245	25.15	22.937	21.028	174.559	12.461	19.325	3.607	9.117	6.683	-0.121	29.15	1.091	1.033	28	28	12.1	10.6	0.744	0.451	0.449	0.04162	41.621	35.42
177	12/15/1999	3:09:56 PM	0	25.402	22.245	25.23	23.096	21.19	174.559	13.081	19.873	3.559	9.185	6.57	-0.121	29.212	1.086	1.023	29	29	12.1	11.1	0.765	0.447	0.444	0.03965	39.654	33.92
178	12/15/1999	3:10:57 PM	0	25.367	22.29	25.273	23.223	21.396	174.596	12.709	19.388	3.607	8.779	6.478	-0.075	29.027	1.084	1.023	30	30	12.0	10.7	0.741	0.447	0.443	0.04125	41.245	35.10
179	12/15/1999	3:11:57 PM	0	25.402	22.245	25.31	23.176	21.431	174.559	13.081	19.69	3.575	9.219	6.54	-0.121	29.196	1.086	1.023	31	31	12.1	11.2	0.769	0.447	0.443	0.03970	39.704	33.79
180	12/15/1999	3:12:57 PM	0	25.357	22.2	25.265	23.213	21.647	174.521	12.213	18.715	3.575	9.117	6.447	-0.121	29.288	1.072	1.011	32	32	12.2	10.7	0.735	0.441	0.438	0.04107	41.075	34.96
181	12/15/1999	3:13:58 PM	0	25.482	22.245	25.31	23.258	21.673	174.559	12.523	18.959	3.591	8.914	6.355	-0.121	29.12	1.069	1.008	33	33	12.1	10.7	0.739	0.440	0.436	0.04070	40.697	34.63
182	12/15/1999	3:14:58 PM	0	25.402	22.245	25.31	23.339	21.634	174.559	12.523	19.081	3.603	9.253	6.385	-0.121	29.043	1.073	1.014	34	34	12.1	10.9	0.751	0.443	0.439	0.04030	40.302	34.30
183	12/15/1999	3:15:58 PM	0	25.482	22.245	25.47	23.339	21.915	174.559	12.585	19.142	3.567	9.185	6.293	-0.121	29.166	1.061	1.002	35	35	12.1	10.9	0.750	0.437	0.432	0.03965	39.656	33.75
184	12/15/1999	3:16:59 PM	0	25.482	22.245	25.39	23.419	21.915	174.559	12.585	18.959	3.575	9.117	6.324	-0.121	29.288	1.066	1.005	36	36	12.2	10.9	0.748	0.439	0.434	0.03999	39.991	34.03
185	12/15/1999	3:17:59 PM	0	25.562	22.245	25.39	23.339	21.995	174.559	12.895	19.507	3.583	9.117	6.324	-0.075	29.135	1.061	1.002	37	37	12.1	11.0	0.759	0.437	0.433	0.03931	39.310	33.45
186	12/15/1999	3:18:59 PM	0	25.527	22.29	25.516	23.384	22.121	174.596	13.205	19.751	3.575	9.185	6.416	-0.121	29.012	1.072	1.011	38	38	12.0	11.2	0.772	0.441	0.435	0.03866	38.657	33.07
187	12/15/1999	3:20:00 PM	0	25.607	22.29	25.435	23.545	22.121	174.596	12.833	19.264	3.567	9.219	6.293	-0.121	29.056	1.056	0.996	39	39	12.1	11.0	0.760	0.435	0.430	0.03895	38.954	33.15
188	12/15/1999	3:21:00 PM	0	25.607	22.21	25.516	23.545	22.121	174.596	13.143	19.507	3.663	9.05	6.262	-0.075	29.227	1.057	0.999	40	40	12.1	11.1	0.765	0.436	0.430	0.03874	38.736	32.97
189	12/15/1999	3:22:00 PM	0	25.607	22.29	25.516	23.464	22.201	174.596	13.081	19.568	3.623	9.32	6.293	-0.075	29.089	1.057	0.999	41	41	12.1	11.2	0.772	0.436	0.430	0.03838	38.377	32.66
190	12/15/1999	3:23:01 PM	0	25.652	22.255	25.56	23.59	22.246	174.634	12.709	19.02	3.583	9.117	6.262	-0.121	29.319	1.06	0.996	42	42	12.2	10.9	0.752	0.435	0.428	0.03922	39.220	33.38
191	12/15/1999	3:24:01 PM	0	25.652	22.255	25.56	23.59	22.246	174.634	12.523	18.837	3.591	9.083	6.231	-0.121	29.043	1.059	0.996	43	43	12.1	10.8	0.745	0.435	0.428	0.03962	39.619	33.72
192	12/15/1999	3:25:01 PM	0	25.652	22.255	25.56	23.59	22.246	174.634	12.957	19.388	3.559	9.288	6.262	-0.121	29.12	1.058	0.996	44	44	12.1	11.1	0.767	0.435	0.428	0.03848	38.484	32.75
193	12/15/1999	3:26:02 PM	0	25.697	22.3	25.665	23.635	22.291	174.672	12.833	19.264	3.567	9.455	6.231	-0.121	29.181	1.054	0.993	45	45	12.1	11.1	0.766	0.433	0.425	0.03816	38.157	32.47
194	12/15/1999	3:27:02 PM	0	25.697	22.3	25.605	23.715	22.372	174.672	13.267	19.69	3.615	9.354	6.201	-0.075	29.227	1.055	0.993	46	46	12.1	11.3	0.780	0.433	0.426	0.03768	37.680	32.07
195	12/15/1999	3:28:02 PM	0	25.742	22.345	25.649	23.68	22.337	174.709	13.081	19.446	3.575	9.354	6.139	-0.121	29.135	1.053	0.99	47	47	12.1	11.2	0.773	0.432	0.424	0.03783	37.831	32.19
196	12/15/1999	3:29:03 PM	0	25.742	22.264	25.649	23.68	22.417	174.709	12.399	18.715	3.519	9.388	6.231	-0.121	29.135	1.057	0.996	48	48	12.1	10.9	0.751	0.435	0.427	0.03919	39.192	33.35
197	12/15/1999	3:30:03 PM	0	25.822	22.264	25.649	23.76	22.497	174.709	12.647	19.142	3.599	9.489	6.231	-0.075	29.227	1.052	0.996	49	49	12.1	11.1	0.763	0.435	0.427	0.03857	38.574	32.83
198	12/15/1999	3:31:03 PM	0	25.822	22.264	25.649	23.68	22.337	174.709	12.957	19.325	3.631	9.354	6.139	-0.075	29.242	1.048	0.987	50	50	12.1	11.2	0.769	0.431	0.423	0.03793	37.926	32.28
199	12/15/1999	3:32:04 PM	0	25.887	22.31	25.694	23.725	22.06	174.747	12.771	19.003	3.583	9.286	6.139	-0.075	29.319	1.046	0.987	51	51	12.2	11.0	0.760	0.431	0.423	0.03831	38.314	32.61
200	12/15/1999	3:33:04 PM	0	25.887	22.31	25.694	23.725	21.657	174.747	12.523	19.02	3.543	9.388	6.17	-0.121	29.058	1.046	0.99	52	52	12.1	11.0	0.755	0.432	0.424	0.03869	38.687	32.92
201	12/15/1999	3:34:05 PM	0	25.742	22.264	25.649	23.66	21.37	174.709	12.957	19.388	3.599	9.288	6.201	-0.075	29.12	1.052	0.99	53	53	12.1	11.1	0.767	0.432	0.424	0.03816	38.157	32.47
202	12/15/1999	3:35:05 PM	0	25.822	22.264	25.729	23.519	21.129	174.709	12.771	19.203	3.583	9.489	6.139	-0.121	29.181	1.049	0.99	54	54	12.0	11.1	0.767	0.432	0.423	0.03804	38.043	32.37
203	12/15/1999	3:36:05 PM	0	25.902	22.264	25.729	23.439	21.048	174.709	12.895	19.325	3.503	9.253	6.108	-0.075	29.15	1.05	0.987	55	55	12.1	11.1	0.764	0.431	0.422	0.03812	38.119	32.44
204	12/15/1999	3:37:05 PM	0	25.822	22.345	25.729	23.439	20.987	174.709	12.647	18.837	3.575	9.32	6.077	-0.075	29.181	1.045	0.984	56	56	12.1	11.0	0.757	0.430	0.421	0.03832	38.317	32.61
205	12/15/1999	3:38:06 PM	0	25.857	22.3	25.765	23.319	20.781	174.672	12.523	18.898	3.519	9.151	6.139	-0.121	29.166	1.042	0.987	57	57	12.1	10.8	0.747	0.431	0.422	0.03691	36.914	33.12
206	12/15/1999	3:39:06 PM	0	25.892	22.335	25.72	23.268	20.554	174.634	12.647	18.959	3.535	9.32	6.108	-0.121	29.089	1.046	0.984	58	58	12.1	11.0	0.757	0.430	0.421	0.03833	38.326	32.82
207	12/15/1999	3:40:06 PM	0	25.847	22.29	25.675	23.143	20.67	174.596	12.957	19.388	3.599	9.489	6.17	-0.075	29.12	1.047	0.99	59	59	12.1	11.2	0.774	0.432	0.424	0.03778	37.785	32.16
208	12/15/1999	3:41:07 PM	0	25.927	22.29	25.835	23.143	20.632	174.596	12.833	19.264	3.623	9.523	6.17	-0.121	29.12	1.045	0.987	60	60	12.1	11.2	0.771	0.431	0.421	0.03765	37.653	32.04
209	12/15/1999	3:42:07 PM	0	25.883	22.245	25.79	23.096	21.026	174.559	12.833	19.142	3.583	9.288	6.108	-0.075	29.104	1.047	0.984	61	61	12.1	11.1	0.763	0.430	0.420	0.03799	37.998	32.33
210	12/15/1999	3:43:07 PM	0	25.883	22.325	25.79	23.178	21.351	174.559	13.143	19.386	3.543	9.455	6.108	-0.075	29.242	1.046	0.984	62	62	12.1	11.3	0.779	0.430	0.420	0.03718	37.183	31.64
211	12/15/1999	3:44:08 PM	0	25.883	22.325	25.79	23.096	21.431	174.559	13.081	19.264	3.623	9.455	6.108	-0.121	29.196	1.042	0.984	63	63	12.1	11.3	0.777	0.430	0.420	0.03729	37.285	31.73
212	12/15/1999	3:45:08 PM	0	25.963	22.325	25.67	23.258	21.592	174.559	12.585	18.715	3.432	9.288	6.077	-0.075	29.12	1.043	0.981	64	64	12.1	10.9	0.754	0.428	0.418	0.03822	38.216	32.52
213	12/15/1999	3:46:08 PM	0	25.963	22.325	25.79	23.258	21.754	174.559	12.833	19.081	3.543	9.557	6.077	-0.075	29.196	1.042	0.981	65	65	12.1	11.2	0.772	0.428	0.419	0.03741	37.414	31.84
214	12/15/1999	3:47:09 PM	0	25.963	22.325	25.79	23.339	21.634	174.559	12.771	19.081	3.591	9.455	6.077	-0.075	29.273	1.042	0.984	66	66	12.1	11.1	0.766	0.430	0.420	0.03781	37.805	32.17
215	12/15/1999	3:48:09 PM	0	25.883	22.325	25.67	23.339	21.915	174.559	12.647	18.837	3.527	9.422	6.108	-0.121	29.166	1.044	0.984	67	67	12.1	11.0	0.761	0.430	0.419	0.03799	37.989	32.33
216	12/15/1999	3:49:09 PM	0	26.007	22.29	25.835	23.464	21.99	174.596	12.337	18.715	3.503	9.557	6.17	-0.075	29.073	1.051	0.99	68	68	12.1	10.9	0.755	0.432	0.422	0.03856	38.564	32.82
217	12/15/1999	3:50:10 PM	0	26.007	22.371	25.915	23.464	22.121	174.596	12.833	19.02	3.607	9.557	6.108	-0.121	29.365	1.044	0.981	69	69	12.2	11.2	0.772	0.428	0.417	0.03728	37.283	31.73
218	12/15/1999	3:51:10 PM	0	26.007	22.371	25.915	23.384	22.121	174.596	12.833	19.203	3.583	9.658	6.139	-0.075	29.242	1.047	0.987	70	70	12.1	11.2	0.775	0.431	0.420	0.03734	37.343	31.78
219	12/15/1999	3:52:11 PM	0	26.007	22.371	25.835	23.545	22.201	174.596	12.585	18.837	3.559	9.253	6.077	-0.121	29.227	1.041	0.981	71	71	12.1	10.9	0.753	0.428	0.418	0.03831	38.311	32.60
220	12/15/1999	3:53:11 PM	0	25.927	22.29	25.835	23.545	22.201	174.596	12.771	18.837	3.575	9.185	6.046	-0.075	29.273	1.038	0.978	72	72	12.1	11.0	0.757	0.427	0.417	0.03799	37.989	32.33
221	12/15/1999	3:54:11 PM	0	25.972	22.335	25.88	23.509	22.065	174.634	12.895	19.325	3.583	9.388	6.17	-0.075	29.12	1.048	0.987	73	73	12.1	11.1	0.766	0.431	0.420	0.03773	37.728	32.11
222	12/15/1999	3:55:12 PM	0	25.972	22.335	25.8	23.75	22.246	174.634	12.833	19.142	3.495	9.489	6.17	-0.121	29.104	1.051	0.99	74	74	12.1	11.2	0.770	0.432	0.423	0.03786	37.862	32.22
223	12/15/1999	3:56:12 PM	0	25.937	22.38	25.765	23.956	22.291	174.672	12.833	19.264	3.607	9.32	6.139	-0.075	29.15	1.045	0.967	75	75	12.1	11.1	0.764	0.431	0.422	0.03807	38.072	32.40
224	12/15/1999	3:57:12 PM	0	25.857	22.38	25.685	23.875	22.372	174.672	12.957	19.388	3.519	9.591	6.077	-0.121	29.104	1.044	0.984	76	76	12.1	11.3	0.777	0.430	0.421	0.03736	37.375	31.81
225	12/15/1999	3:58:13 PM	0	25.777	22.3	25.605	23.875	22.452	174.672	12.957	19.264	3.655	9.388	6.077	-0.075	29.273	1.042	0.981	77	77	12.1	11.2	0.770	0.428	0.421	0.03768	37.684	32.07
226	12/15/1999	3:59:13 PM	0	25.697	22.3	25.524	23.795	22.291	174.672	12.585	18.898	3.527	9.489	6.108	-0.121	29.12	1.045	0.984	78	78	12.1	11.0	0.761	0.430	0.423	0.03835	38.351	32.64
227	12/15/1999	4:00:13 PM	0	25.742	22.345	25.569	23.84	22.417	174.709	13.081	19.446	3.599	9.692	6.046	-0.075	29.089	1.038	0.981	79	79	12.1	11.4	0.785	0.428	0.421	0.03701	37.013	31.50
228	12/15/1999	4:01:14 PM	0	25.662	22.425	25.409	23.921	22.417	174.709	13.081	19.142	3.471	9.083	6.046	-0.121	28.997	1.037	0.981	80	80	12.0	11.1	0.764	0.428	0.423	0.03820	38.202	32.51
229	12/15/1999	4:02:14 PM	0	25.627	22.39	25.454	23.885	22.301	174.747	13.010	19.386	3.639	9.624	6.016	-0.121	29.335	1.035	0.975	81	81	12.2	11.3	0.781	0.428	0.420	0.03712	37.118	31.59
230	12/15/1999	4:03:14 PM	0	25.547	22.39	25.294	23.885	21.899	174.747	12.895	19.02	3.535	9.624	6.016	-0.075	29.196	1.034	0.978	82	82	12.1	11.3	0.776	0.427	0.423	0.03761	37.608	32.00
231	12/15/1999	4:04:15 PM	0	25.467	22.31	25.294	23.805	21.577	174.747	13.081	19.264	3.615	9.354	5.954	-0.075	29.12	1.031	0.972	83	83	12.1	11.2	0.773	0.424	0.421	0.03751	37.515	31.93
232	12/15/1999	4:05:15 PM	0	25.467	22.39	25.294	23.725	21.254	174.747	13.143	19.446	3.615	9.288	5.985	-0.075	29.212	1.033	0.972	84	84	12.1	11.2	0.773	0.424	0.421	0.03752	37.525	31.93
233	12/15/1999	4:06:15 PM	0	25.341	22.345	25.169	23.599	21.129	174.709	12.833	18.959	3.599	9.591	5.954	-0.121	29.15	1.03	0.969	85	85	12.1	11.2	0.773	0.423	0.421	0.03755	37.549	31.95
234	12/15/1999	4:07:16 PM	0	25.341	22.345	25.089	23.519	20.967	174.709	12.709	18.898	3.567	9.32	5.954	-0.121	28.997	1.033	0.972	86	86	12.0	11.0	0.759	0.424	0.423	0.03843	38.427	32.70
235	12/15/1999	4:08:16 PM	0	25.297	22.38	25.124	23.394	20.781	174.672	13.328	19.629	3.623	9.523	6.016	-0.075	29.043	1.036	0.978	87	87	12.1	11.4	0.788	0.427	0.425	0.03724	37.237	31.69
236	12/15/1999	4:09:16 PM	0	25.297	22.38	24.964	23.394	20.68	174.672	13.205	19.446	3.647	9.422	5.985	-0.121	29.333	1.033	0.975	88	88	12.2	11.3	0.780	0.426	0.426	0.03766	37.659	32.05
237	12/15/1999	4:10:17 PM	0	25.127	22.371	24.954	23.223	20.509	174.596	13.39	19.629	3.695	9.422	6.016	-0.121	28.997	1.033	0.972	89	89	12.0	11.4	0.788	0.424	0.425	0.03725	37.249	31.70
238	12/15/1999	4:11:17 PM	0	25.207	22.371	24.954	23.143	20.59	174.596	12.833	19.142	3.551	9.32	5.985	-0.075	29.273	1.037	0.975	90	90	12.1	11.1	0.764	0.426	0.426	0.03848	38.478	32.74
239	12/15/1999	4:12:17 PM	0	25.162	22.325	24.909	23.096	20.787	174.559	13.205	19.386	3.663	9.354	5.985	-0.075	29.089	1.033	0.975	91	91	12.1	11.3	0.778	0.426	0.427	0.03783	37.831	32.19
240	12/15/1999	4:13:18 PM	0	25.117	22.361	24.864	23.053	20.822	174.521	12.895	19.142	3.527	9.726	6.016	-0.075	29.027	1.026	0.972	92	92	12.0	11.3	0.780	0.424	0.426	0.03766	37.659	32.05
241	12/15/1999	4:14:18 PM	0	25.082	22.406	24.829	23.096	20.667	174.559	13.019	19.142	3.583	9.489	5.985	-0.121	28.951	1.031	0.972	93	93	12.0	11.3	0.776	0.424	0.426	0.03789	37.888	32.24
242	12/15/1999	4:15:18 PM	0	25.037	22.361	24.784	23.053	20.903	174.521	13.638	19.812	3.623	9.523	6.046	-0.075	29.135	1.037	0.975	94	94	12.1	11.6	0.798	0.426	0.426	0.03696	36.958	31.47
243	12/15/1999	4:16:19 PM	0	24.957	22.361	24.784	23.053	21.225	174.521	13.514	19.69	3.647	9.253	6.046	-0.075	28.997	1.036	0.978	95	95	12.0	11.4	0.785	0.427	0.430	0.03773	37.734	32.11
244	12/15/1999	4:17:19 PM	0	24.957	22.361	24.784	23.133	21.467	174.521	13.328	19.448	3.647	9.286	5.923	-0.121	29.104	1.03	0.966	96	96	12.1	11.3	0.780	0.422	0.424	0.03752	37.523	31.93
245	12/15/1999	4:18:19 PM	0	24.957	22.361	24.704	23.213	21.628	174.521	13.328	19.386	3.655	9.523	5.923	-0.075	28.966	1.026	0.969	97	97	12.0	11.4	0.788	0.423	0.427	0.03733	37.333	31.77
246	12/15/1999	4:19:20 PM	0	24.876	22.361	24.704	23.133	21.708	174.521	13.205	19.386	3.623	9.624	5.985	-0.121	29.012	1.031	0.972	98	98	12.0	11.4	0.787	0.424	0.428	0.03748	37.485	31.90
247	12/15/1999	4:20:20 PM	0	24.876	22.361	24.704	23.213	21.789	174.521	13.328	19.446	3.615	9.692	5.954	-0.075	29.058	1.03	0.972	99	99	12.1	11.5	0.794	0.424	0.428	0.03717	37.174	31.64
248	12/15/1999	4:21:20 PM	0	24.796	22.361	24.704	23.213	21.869	174.521	13.514	19.873	3.599	9.793	5.923	-0.075	29.027	1.03	0.972	100	100	12.0	11.7	0.803	0.424	0.428	0.03672	36.718	31.25
249	12/15/1999	4:22:21 PM	0	24.796	22.441	24.704	23.213	21.869	174.521	13.576	19.934	3.583	9.76	6.016	-0.121	28.997	1.033	0.975	101	101	12.0	11.7	0.804	0.426	0.429	0.03676	36.764	31.30
250	12/15/1999	4:23:21 PM	0	24.921	22.406	24.829	23.258	21.995	174.559	12.771	18.898	3.575	9.692	5.985	-0.075	29.043	1.031	0.972	102	102	12.1	11.2	0.774	0.424	0.426	0.03796	37.962	32.31
251	12/15/1999	4:24:21 PM	0	24.841	22.406	24.749	23.339	22.076	174.559	12.709	18.837	3.583	9.591	5.985	-0.075	29.258	1.033	0.972	103	103	12.1	11.2	0.769	0.424	0.427	0.03833	38.325	32.62
252	12/15/1999	4:25:22 PM	0	24.841	22.406	24.749	23.339	22.076	174.559	13.143	19.264	3.583	9.881	5.985	-0.121	29.012	1.033	0.975	104	104	12.0	11.5	0.793	0.426	0.429	0.03727	37.267	31.71
253	12/15/1999	4:26:22 PM	0	24.841	22.325	24.749	23.258	22.076	174.559	12.895	18.959	3.631	9.624	6.046	-0.121	29.196	1.031	0.975	105	105	12.1	11.3	0.776	0.426	0.429	0.03807	38.070	32.40
254	12/15/1999	4:27:22 PM	0	24.886	22.371	24.874	23.464	22.201	174.596	12.957	19.02	3.543	9.288	5.923	-0.075	29.089	1.027	0.969	106	106	12.1	11.1	0.767	0.423	0.425	0.03817	38.170	32.48
255	12/15/1999	4:28:23 PM	0	24.886	22.371	24.794	23.384	22.201	174.596	12.895	18.959	3.543	9.32	5.892	-0.121	28.997	1.03	0.969	107	107	12.0	11.1	0.766	0.423	0.425	0.03830	38.305	32.60

Run 1.19: Final Water Run

	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
256	12/15/1999	4:29:23 PM		0	25.011	22.416	24.918	23.429	22.166	174.634	12.695	19.203	3.607	9.895	6.016	-0.075	29.058	1.033	0.972	108	108	12.1	11.4	0.786	0.424	0.425	0.03732	37.322	31.76
257	12/15/1999	4:30:23 PM		0	24.851	22.416	24.839	23.509	22.248	174.634	13.143	19.264	3.603	9.591	5.965	-0.075	29.073	1.029	0.972	109	109	12.1	11.4	0.784	0.424	0.426	0.03750	37.498	31.91
258	12/15/1999	4:31:24 PM		0	24.851	22.416	24.839	23.509	22.166	174.634	13.205	19.446	3.575	9.682	6.046	-0.075	29.104	1.034	0.978	110	110	12.1	11.4	0.789	0.427	0.429	0.03746	37.461	31.88
259	12/15/1999	4:32:24 PM		0	24.851	22.335	24.839	23.429	22.248	174.634	12.957	19.203	3.583	9.929	6.016	-0.121	29.858	1.032	0.972	111	111	12.0	11.4	0.789	0.424	0.426	0.03725	37.249	31.70
260	12/15/1999	4:33:24 PM		0	25.056	22.36	24.884	23.554	22.291	174.672	13.267	19.507	3.559	9.783	5.985	-0.075	29.196	1.027	0.966	112	112	12.1	11.5	0.795	0.422	0.423	0.03669	36.694	31.23
261	12/15/1999	4:34:25 PM		0	25.021	22.425	24.849	23.519	22.337	174.709	12.647	18.634	3.519	9.266	5.965	-0.075	29.227	1.035	0.975	113	113	12.1	11.0	0.756	0.426	0.427	0.03698	36.977	33.17
262	12/15/1999	4:35:25 PM		0	25.021	22.345	24.929	23.519	22.095	174.709	13.39	19.629	3.551	9.523	5.965	-0.075	28.951	1.034	0.975	114	114	12.0	11.5	0.790	0.426	0.426	0.03723	37.226	31.68
263	12/15/1999	4:36:25 PM		0	25.021	22.425	24.929	23.519	21.773	174.709	13.143	19.366	3.591	9.557	5.954	-0.121	28.968	1.028	0.969	115	115	12.0	11.4	0.783	0.423	0.424	0.03734	37.344	31.78
264	12/15/1999	4:37:26 PM		0	25.021	22.425	24.929	23.439	21.532	174.709	13.019	19.081	3.607	9.726	5.965	-0.121	29.15	1.027	0.969	116	116	12.1	11.4	0.784	0.423	0.424	0.03727	37.270	31.72
265	12/15/1999	4:38:26 PM		0	25.021	22.345	24.929	23.278	21.29	174.709	12.709	18.778	3.543	9.368	6.016	-0.075	29.043	1.031	0.972	117	117	12.1	11.0	0.762	0.424	0.425	0.03848	38.482	32.75
266	12/15/1999	4:39:26 PM		0	25.056	22.36	24.884	23.233	21.003	174.672	12.895	19.142	3.575	9.523	6.046	-0.121	29.242	1.037	0.978	118	118	12.1	11.2	0.773	0.427	0.428	0.03821	38.213	32.52
267	12/15/1999	4:40:27 PM		0	25.011	22.335	24.839	23.027	20.796	174.634	13.205	19.366	3.631	9.489	5.954	-0.075	29.135	1.028	0.972	119	119	12.1	11.3	0.782	0.424	0.426	0.03756	37.565	31.97
268	12/15/1999	4:41:27 PM		0	25.011	22.418	24.919	22.947	20.796	174.634	12.647	18.896	3.535	9.895	6.016	-0.075	29.089	1.033	0.975	120	120	12.1	11.3	0.777	0.426	0.427	0.03785	37.849	32.21
269	12/15/1999	4:42:27 PM		0	25.046	22.371	24.874	22.962	20.67	174.596	12.895	19.203	3.607	9.557	6.016	-0.075	29.135	1.039	0.978	121	121	12.1	11.2	0.774	0.427	0.428	0.03817	38.166	32.48
270	12/15/1999	4:43:28 PM		0	25.002	22.325	24.909	22.857	20.625	174.559	13.638	19.873	3.599	9.658	5.965	-0.121	29.043	1.033	0.975	122	122	12.1	11.6	0.803	0.426	0.427	0.03663	36.634	31.18
271	12/15/1999	4:44:28 PM		0	25.037	22.361	24.884	22.731	20.741	174.521	12.895	19.081	3.487	9.523	6.016	-0.075	29.12	1.033	0.975	123	123	12.1	11.2	0.773	0.426	0.427	0.03812	38.118	32.44
272	12/15/1999	4:45:28 PM		0	25.037	22.361	24.884	22.651	20.963	174.521	13.267	19.386	3.519	9.624	6.016	-0.121	28.997	1.034	0.972	124	124	12.0	11.4	0.789	0.424	0.426	0.03722	37.215	31.67
273	12/15/1999	4:46:28 PM		0	25.072	22.396	24.9	22.606	21.099	174.483	5.69	18.959	3.551	2.66	13.073	-0.121	29.304	1.218	1.407	125	125	12.2	4.3	0.295	0.614	0.616	0.14408	144.080	122.61
274	12/15/1999	4:47:30 PM		0	25.117	22.361	25.025	22.731	21.306	174.521	8.448	19.507	3.519	2.863	12.765	-0.075	29.396	1.218	1.416	126	126	12.2	4.7	0.321	0.618	0.618	0.13268	132.683	112.91
275	12/15/1999	4:48:30 PM		0	25.072	22.396	25.06	22.787	21.261	174.483	8.386	18.837	3.519	3.032	12.487	-0.075	29.227	1.218	1.404	127	127	12.1	4.7	0.325	0.613	0.612	0.12994	129.936	110.58
276																												
277		Averages			25.4	22.3	25.2	23.4	21.6	174.6	12.6	19.2	3.6	9.1	6.4	-0.1	29.2	1.064	1.013			12.1	10.9	0.748	0.442	0.439	0.041	41.4	35.2
278		Maximum			26.0	22.4	25.9	24.0	22.5	174.7	13.6	19.9	3.7	9.9	11.1	-0.1	29.8	1.218	1.374			12.4	11.7	0.804	0.600	0.602	0.105	105.5	89.7
279		Median			25.3	22.3	25.2	23.4	21.8	174.6	12.8	19.2	3.6	9.4	6.1	-0.1	29.1	1.045	0.984			12.1	11.1	0.768	0.430	0.428	0.038	38.2	32.5
280		Minimum			24.8	22.1	24.7	22.7	20.5	174.5	7.8	18.7	3.4	3.9	5.9	-0.1	28.9	1.026	0.966			12.0	5.7	0.350	0.422	0.417	0.037	36.6	31.2
281		Std Deviation			0.388	0.067	0.390	0.266	0.614	0.073	0.973	0.292	0.049	0.995	0.906	0.023	0.129	0.052	0.083			0.053	0.973	0.067	0.036	0.038	0.011	10.574	8.999
282		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
283																												
284																												
285	DATE	TIME	Solenoid C	FLTRT (de	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	Tē (deg C)	BOT DP (d	FLTR (psi	FLTR DP (	TOP DP (d	FLTRATE	PISTON (psig)	SL FLOW	FLTR FLO	HI FLTR F	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2		at 25C GPM/FT2	PERMABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
286	12/16/1999	9:10:25 AM		0	26.188	17.849	25.833	18.06	17.354	170.623	18.288	38.045	3.535	14.932	19.637	-0.167	29.365	1.218	1.629	1	1	12.2	16.6	1.145	0.711	0.695	0.04182	41.823	35.59
287	12/16/1999	9:11:26 AM		0	26.008	17.849	25.753	17.979	17.273	170.623	18.412	38.167	3.535	14.899	19.606	-0.167	29.335	1.218	1.629	2	2	12.2	16.7	1.148	0.711	0.696	0.04180	41.803	35.57
288	12/16/1999	9:12:26 AM		0	25.928	17.849	25.593	18.06	17.354	170.623	6.882	37.618	3.483	3.877	30.423	-0.167	29.642	1.218	1.931	3	3	12.3	5.4	0.371	0.843	0.829	0.15411	154.109	131.15
289	12/16/1999	9:13:27 AM		0	25.731	17.893	25.476	18.023	17.155	170.66	7.811	38.167	3.527	4.215	30.207	-0.167	29.519	1.218	1.919	4	4	12.3	6.0	0.415	0.838	0.827	0.13747	137.466	116.99
290	12/16/1999	9:14:27 AM		0	25.851	17.893	25.316	18.104	17.236	170.66	7.811	37.618	3.495	4.756	29.745	-0.167	29.58	1.218	1.907	5	5	12.3	6.3	0.433	0.832	0.825	0.13131	131.315	111.75
291	12/16/1999	9:15:28 AM		0	25.491	17.893	25.236	17.942	17.074	170.66	8.369	37.557	3.503	5.026	29.098	-0.167	29.596	1.218	1.894	6	6	12.3	6.7	0.462	0.827	0.821	0.12263	122.633	104.36
292	12/16/1999	9:16:28 AM		0	25.411	17.812	25.078	18.023	17.236	170.66	8.969	37.964	3.319	5.567	28.636	-0.167	29.626	1.218	1.885	7	7	12.3	7.3	0.502	0.823	0.821	0.11282	112.822	96.01
293	12/16/1999	9:17:28 AM		0	25.207	17.849	24.952	17.817	17.192	170.623	9.795	38.106	3.519	6.108	28.143	-0.167	29.473	1.218	1.873	8	8	12.2	8.0	0.548	0.818	0.819	0.10297	102.967	87.63
294	12/16/1999	9:18:29 AM		0	25.127	17.788	24.792	17.698	17.354	170.623	10.477	38.106	3.519	6.818	27.619	-0.167	29.457	1.218	1.855	9	9	12.2	8.6	0.596	0.810	0.815	0.09419	94.194	80.16
295	12/16/1999	9:19:29 AM		0	25.091	17.893	24.756	18.023	17.561	170.66	11.097	37.964	3.519	7.526	26.817	-0.167	29.488	1.218	1.834	10	10	12.2	9.3	0.642	0.801	0.808	0.08656	86.565	73.67
296	12/16/1999	9:20:29 AM		0	24.93	17.893	24.675	18.185	17.723	170.66	11.841	38.289	3.511	8.34	26.324	-0.167	29.381	1.218	1.821	11	11	12.2	10.1	0.696	0.795	0.802	0.07951	79.506	67.66
297	12/16/1999	9:21:30 AM		0	24.85	17.893	24.595	18.266	17.804	170.66	12.523	38.228	3.583	9.016	25.4	-0.167	29.565	1.218	1.794	12	12	12.3	10.6	0.743	0.783	0.792	0.07355	73.554	62.60
298	12/16/1999	9:22:30 AM		0	24.77	17.812	24.515	18.347	17.804	170.66	13.205	38.045	3.511	9.388	24.753	-0.121	29.488	1.218	1.779	13	13	12.2	11.3	0.779	0.777	0.787	0.06969	69.694	59.31
299	12/16/1999	9:23:30 AM		0	24.61	17.812	24.435	18.428	17.804	170.66	13.452	37.801	3.487	10.368	24.229	-0.167	29.396	1.218	1.763	14	14	12.2	11.9	0.821	0.770	0.782	0.06568	65.658	55.88
300	12/16/1999	9:24:31 AM		0	24.653	17.856	24.399	18.472	17.929	170.697	14.258	38.228	3.519	10.909	23.828	-0.167	29.365	1.218	1.748	15	15	12.2	12.6	0.868	0.763	0.776	0.06168	61.677	52.49
301	12/16/1999	9:25:31 AM		0	24.573	17.856	24.399	18.553	17.686	170.697	14.94	38.35	3.559	11.349	23.088	-0.167	29.427	1.218	1.727	16	16	12.2	13.1	0.906	0.754	0.767	0.05834	58.336	49.64
302	12/16/1999	9:26:31 AM		0	24.573	17.775	24.399	18.472	17.848	170.697	15.312	38.35	3.567	11.788	22.668	-0.121	29.442	1.218	1.718	17	17	12.2	13.6	0.934	0.750	0.763	0.05630	56.295	47.91
303	12/16/1999	9:27:32 AM		0	24.573	17.856	24.318	18.472	17.929	170.697	15.932	38.777	3.567	12.464	22.441	-0.167	29.473	1.218	1.712	18	18	12.2	14.2	0.979	0.747	0.762	0.05368	53.681	45.67
304	12/16/1999	9:28:32 AM		0	24.493	17.775	24.318	18.472	17.929	170.697	15.808	37.74	3.535	12.532	21.978	-0.167	29.427	1.218	1.7	19	19	12.2	14.2	0.977	0.742	0.757	0.05339	53.390	45.44
305	12/16/1999	9:29:32 AM		0	24.537	17.819	24.362	18.597	18.135	170.733	16.304	38.045	3.543	13.039	21.702	-0.121	29.396	1.218	1.684	20	20	12.2	14.7	1.012	0.735	0.748	0.05102	51.016	43.42
306	12/16/1999	9:30:33 AM		0	24.537	17.819	24.362	18.597	17.892	170.733	16.552	38.167	3.559	13.208	21.455	-0.121	29.381	1.218	1.681	21	21	12.2	14.9	1.026	0.734	0.747	0.05021	50.212	42.73
307	12/16/1999	9:31:33 AM		0	24.58	17.864	24.486	18.641	17.974	170.77	16.662	37.862	3.527	13.276	21.024	-0.167	29.273	1.218	1.669	22	22	12.1	15.1	1.039	0.729	0.739	0.04906	49.056	41.75
308	12/16/1999	9:32:33 AM		0	24.66	17.864	24.566	18.56	17.812	170.77	17.234	38.045	3.535	13.614	20.839	-0.121	29.335	1.218	1.678	23	23	12.2	15.4	1.063	0.733	0.742	0.04808	48.076	40.91
309	12/16/1999	9:33:34 AM		0	24.741	17.864	24.566	18.56	17.693	170.77	17.172	38.043	3.495	13.58	20.839	-0.167	29.335	1.218	1.66	24	24	12.2	15.4	1.060	0.725	0.734	0.04771	47.709	40.60
310	12/16/1999	9:34:34 AM		0	24.784	17.908	24.69	18.685	17.656	170.807	17.482	38.106	3.487	13.884	20.469	-0.167	29.365	1.218	1.675	25	25	12.2	15.7	1.081	0.731	0.738	0.04703	47.033	40.03
311	12/16/1999	9:35:34 AM		0	24.664	17.827	24.77	18.685	17.575	170.807	17.296	38.045	3.479	14.459	20.531	-0.121	29.411	1.218	1.672	26	26	12.2	15.9	1.095	0.730	0.735	0.04627	46.269	39.38
312	12/16/1999	9:36:35 AM		0	24.945	17.827	24.85	18.685	17.656	170.807	17.668	38.35	3.543	14.165	20.5	-0.167	29.411	1.218	1.651	27	27	12.2	15.9	1.097	0.721	0.724	0.04548	45.488	38.71
313	12/16/1999	9:37:35 AM		0	24.945	17.827	24.85	18.685	17.699	170.807	18.04	38.411	3.511	14.222	20.192	-0.121	29.365	1.218	1.663	28	28	12.2	16.1	1.112	0.726	0.729	0.04519	45.195	38.46
314	12/16/1999	9:38:35 AM		0	25.025	17.827	24.85	18.685	17.699	170.807	17.978	38.289	3.543	14.626	20.192	-0.167	29.365	1.218	1.663	29	29	12.2	16.3	1.124	0.726	0.729	0.04472	44.718	38.06
315	12/16/1999	9:39:36 AM		0	25.149	17.871	24.974	18.729	18.105	170.844	18.288	38.777	3.543	14.527	20.284	-0.167	29.335	1.218	1.645	30	30	12.2	16.4	1.131	0.718	0.719	0.04380	43.799	37.27
316	12/16/1999	9:40:36 AM		0	25.149	17.79	24.974	18.81	18.267	170.844	18.161	38.472	3.519	15	20.13	-0.121	29.35	1.218	1.657	31	31	12.2	16.6	1.143	0.723	0.724	0.04365	43.654	37.15
317	12/16/1999	9:41:36 AM		0	25.192	17.834	25.096	18.854	18.311	170.88	18.226	38.289	3.527	14.956	19.853	-0.167	29.258	1.218	1.654	32	32	12.1	16.6	1.144	0.722	0.720	0.04339	43.387	36.92
318	12/16/1999	9:42:37 AM		0	25.272	17.834	25.178	18.854	18.392	170.88	18.102	38.045	3.487	14.696	19.822	-0.167	29.361	1.218	1.651	33	33	12.2	16.4	1.131	0.721	0.717	0.04373	43.730	37.21
319	12/16/1999	9:43:37 AM		0	25.316	17.949	25.222	18.899	18.517	170.917	17.918	37.801	3.511	14.729	19.914	-0.121	29.288	1.218	1.636	34	34	12.2	16.3	1.125	0.714	0.710	0.04348	43.482	37.00
320	12/16/1999	9:44:37 AM		0	25.316	17.878	25.222	18.816	18.184	170.917	18.102	38.045	3.487	14.696	19.822	-0.121	29.288	1.218	1.636	35	35	12.2	16.4	1.131	0.714	0.710	0.04328	43.279	36.83
321	12/16/1999	9:45:38 AM		0	25.352	17.834	25.258	18.612	17.907	170.88	18.764	38.777	3.559	15.101	19.668	-0.167	29.396	1.218	1.651	36	36	12.2	16.9	1.168	0.721	0.716	0.04223	42.232	35.94
322	12/16/1999	9:46:38 AM		0	25.476	17.878	25.222	18.737	17.87	170.917	18.722	38.594	3.519	14.932	19.668	-0.167	29.288	1.218	1.648	37	37	12.2	16.8	1.160	0.719	0.715	0.04249	42.488	36.16
323	12/16/1999	9:47:38 AM		0	25.476	17.878	25.302	18.656	17.789	170.917	17.976	37.923	3.463	15.135	19.976	-0.167	29.35	1.218	1.629	38	38	12.2	16.6	1.142	0.711	0.705	0.04259	42.588	36.24
324	12/16/1999	9:48:39 AM		0	25.6	17.922	25.425	18.619	18.941	170.954	18.102	37.601	3.503	15.27	19.675	-0.121	29.504	1.218	1.645	39	39	12.2	16.7	1.150	0.716	0.710	0.04253	42.525	36.19
325	12/16/1999	9:49:39 AM		0	25.513	17.834	25.338	18.45	18.122	170.88	18.102	38.043	3.471	15.034	19.853	-0.121	29.304	1.218	1.629	40	40	12.2	16.6	1.142	0.711	0.704	0.04252	42.515	36.18
326	12/16/1999	9:50:39 AM		0	25.593	17.834	25.418	18.45	18.447	170.88	18.536	38.472	3.567	14.932	19.729	-0.121	29.288	1.218	1.633	41	41	12.2	16.7	1.154	0.713	0.705	0.04210	42.102	35.83
327	12/16/1999	9:51:40 AM		0	25.673	17.915	25.498	18.369	18.69	170.88	18.66	38.594	3.519	14.932	19.791	-0.121	29.288	1.218	1.629	42	42	12.2	16.8	1.158	0.711	0.701	0.04175	41.750	35.53
328	12/16/1999	9:52:40 AM		0	25.629	17.871	25.454	18.325	17.052	170.844	18.226	37.923	3.495	14.956	19.606	-0.121	29.304	1.218	1.629	43	43	12.2	16.6	1.144	0.711	0.702	0.04231	42.306	36.00
329	12/16/1999	9:53:40 AM		0	25.629	17.871	25.534	18.406	17.214	170.844	18.908	38.838	3.535	14.932	19.668	-0.167	29.335	1.218	1.623	44	44	12.2	16.9	1.167	0.709	0.698	0.04125	41.250	35.10
330	12/16/1999	9:54:41 AM		0	25.709	17.871	25.534	18.487	17.536	170.844	18.102	37.984	3.463	15.034	19.78	-0.167	29.365	1.218	1.626	45	45	12.2	16.6	1.142	0.710	0.699	0.04220	42.204	35.92
331	12/16/1999	9:55:41 AM		0	25.709	17.871	25.534	18.487	17.7	170.844	18.596	38.167	3.503	15.27	19.39	-0.121	29.411	1.218	1.639	46	46	12.2	16.9	1.168	0.715	0.705	0.04162	41.622	35.42
332	12/16/1999	9:56:41 AM		0	25.709	17.871	25.615	18.568	17.862	170.844	18.722	38.289	3.575	15.135	19.452	-0.121	29.519	1.218	1.617	47	47	12.3	16.9	1.167	0.706	0.694	0.04098	40.984	34.88
333	12/16/1999	9:57:42 AM		0	25.833	17.834	25.658	18.693	18.23	170.88	18.35	37.862	3.503	15.034	19.483	-0.121	29.396	1.218	1.623	48	48	12.2	16.7	1.151	0.709	0.696	0.04167	41.668	35.46
334	12/16/1999	9:58:42 AM		0	25.833	17.834	25.658	18.774	18.473	170.88	19.032	38.472	3.535	15.439	19.929	-0.121	29.411	1.218	1.636	49	49	12.2	17.2	1.188	0.714	0.701	0.04068	40.678	34.62
335	12/16/1999	9:59:42 AM		0	25.877	17.878	25.782	18.979	18.596	170.917	18.35	37.862	3.535	15.27	19.39	-0.121	29.442	1.218	1.617	50	50	12.2	16.8	1.159	0.706	0.691	0.04108	41.080	34.96
336	12/16/1999	10:00:43 AM		0	25.877	17.878	25.782	19.06	18.76	170.917	18.474	37.74	3.519	15.203	19.236	-0.167	29.565	1.218	1.633	51	51	12.3	16.8	1.161	0.713	0.697	0.04142	41.418	35.25
337	12/16/1999	10:01:45 AM		0	25.877	17.878	25.702	19.222	18.922	170.917	19.156	38.533	3.575	14.966	19.236	-0.121	29.442	1.218	1.633	52	52	12.2	17.1	1.176	0.713	0.699	0.04097	40.968	34.86
338	12/16/1999	10:02:43 AM		0	25.92	17.922	25.625	19.347	18.804	170.954	18.846	38.533	3.575	15.203	19.421	-0.121	29.519	1.218	1.623	53	53	12.3	17.0	1.174	0.709	0.692	0.04066	40.664	34.61
339	12/16/1999	10:03:44 AM		0	26.044	17.886	25.789	19.472	19.091	170.991	18.784	38.411	3.559	15.203	19.452	-0.121	29.488	1.218	1.617	54	54	12.2	17.0	1.172	0.706	0.690	0.04063	40.628	34.58
340	12/16/1999	10:04:44 AM		0	25.964	17.886	25.869	19.472	19.091	170.991	18.722	38.167	3.583	15	19.267	-0.167	29.427	1.218	1.614	55	55	12.2	16.9	1.163	0.705	0.688	0.04078	40.780	34.70

Run 1.19: Final Water Run

	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
341	12/16/1999	10:05:44 AM	0	26.007	17.93	25.833	19.516	18.973	171.027	18.722	38.106	3.511	15.406	19.296	-0.121	29.396	1.218	1.636	56	56	12.2	17.1	1.177	0.714	0.696	0.04089	40.686	34.79
342	12/16/1999	10:06:45 AM	0	26.007	17.89	25.833	19.435	19.054	171.027	18.846	38.35	3.583	15.237	19.267	-0.167	29.468	1.218	1.636	57	57	12.2	17.0	1.175	0.714	0.698	0.04094	40.940	34.84
343	12/16/1999	10:07:45 AM	0	26.007	17.93	25.833	19.435	18.812	171.027	18.536	38.228	3.519	15.304	19.675	-0.121	29.468	1.218	1.62	58	58	12.2	16.9	1.167	0.707	0.691	0.04083	40.830	34.75
344	12/16/1999	10:08:45 AM	0	26.007	17.849	25.913	19.435	18.65	171.027	18.722	38.045	3.551	15.841	19.205	-0.167	29.519	1.218	1.636	59	59	12.3	17.1	1.181	0.714	0.696	0.04063	40.633	34.58
345	12/16/1999	10:09:46 AM	0	26.131	17.974	25.956	19.479	18.937	171.064	18.722	38.045	3.543	15.101	19.236	-0.167	29.473	1.218	1.633	60	60	12.2	16.9	1.166	0.713	0.694	0.04104	41.037	34.92
346	12/16/1999	10:10:46 AM	0	26.051	17.893	25.956	19.479	18.656	171.064	18.596	37.984	3.519	14.932	19.144	-0.121	29.55	1.218	1.633	61	61	12.3	16.8	1.156	0.713	0.694	0.04140	41.396	35.23
347	12/16/1999	10:11:46 AM	0	26.175	17.937	26	19.443	18.657	171.101	18.722	37.923	3.575	15.27	19.175	-0.121	29.55	1.218	1.629	62	62	12.3	17.0	1.172	0.711	0.691	0.04068	40.683	34.62
348	12/16/1999	10:12:47 AM	0	26.095	17.937	26	19.362	18.657	171.101	18.412	37.882	3.519	15.372	19.205	-0.167	29.468	1.218	1.633	63	63	12.2	16.9	1.165	0.713	0.693	0.04103	41.034	34.92
349	12/16/1999	10:13:47 AM	0	26.175	17.937	26	19.2	18.495	171.101	18.412	37.923	3.623	15.27	19.236	-0.167	29.442	1.218	1.633	64	64	12.2	16.8	1.161	0.713	0.693	0.04116	41.158	35.03
350	12/16/1999	10:14:48 AM	0	26.218	17.981	26.044	19.244	18.378	171.138	18.226	37.879	3.511	14.899	19.36	-0.121	29.468	1.218	1.617	65	65	12.2	16.6	1.142	0.706	0.686	0.04139	41.389	35.22
351	12/16/1999	10:15:48 AM	0	26.218	17.981	26.044	19.244	18.297	171.138	18.226	37.879	3.503	15.27	19.236	-0.121	29.427	1.218	1.636	66	66	12.2	16.7	1.155	0.714	0.694	0.04141	41.412	35.24
352	12/16/1999	10:16:49 AM	0	26.138	17.901	26.044	19.163	18.216	171.138	18.474	37.984	3.495	15.101	19.36	-0.121	29.35	1.218	1.617	67	67	12.2	16.6	1.157	0.706	0.686	0.04063	40.635	34.75
353	12/16/1999	10:17:49 AM	0	26.262	18.025	26.067	19.127	18.422	171.175	18.97	38.655	3.583	15.406	19.483	-0.121	29.411	1.218	1.617	68	68	12.2	17.2	1.185	0.706	0.685	0.03984	39.835	33.90
354	12/16/1999	10:18:49 AM	0	26.262	18.025	26.067	19.127	18.422	171.175	18.722	38.228	3.527	14.932	19.298	-0.167	29.442	1.218	1.614	69	69	12.2	16.6	1.160	0.705	0.683	0.04061	40.614	34.56
355	12/16/1999	10:19:50 AM	0	26.182	18.025	26.067	18.965	18.096	171.175	18.226	37.618	3.535	15.034	19.236	-0.167	29.58	1.218	1.617	70	70	12.3	16.6	1.147	0.706	0.685	0.04117	41.172	35.04
356	12/16/1999	10:20:50 AM	0	26.262	18.025	26.067	19.046	18.26	171.175	18.722	38.289	3.551	15.439	19.329	-0.121	29.504	1.218	1.636	71	71	12.2	17.1	1.178	0.714	0.693	0.04056	40.557	34.51
357	12/16/1999	10:21:50 AM	0	26.262	18.025	26.067	18.965	18.26	171.175	18.56	38.167	3.567	15.372	19.236	-0.121	29.55	1.218	1.633	72	72	12.3	17.0	1.173	0.713	0.691	0.04064	40.636	34.58
358	12/16/1999	10:22:51 AM	0	26.182	18.025	26.067	18.965	18.179	171.175	18.97	38.716	3.535	15.573	19.514	-0.121	29.457	1.218	1.639	73	73	12.2	17.3	1.191	0.715	0.694	0.04018	40.180	34.19
359	12/16/1999	10:23:51 AM	0	26.262	18.025	26.067	18.884	18.341	171.175	18.536	37.923	3.511	15.034	19.36	-0.167	29.468	1.218	1.617	74	74	12.2	16.8	1.157	0.706	0.685	0.04079	40.792	34.71
360	12/16/1999	10:24:51 AM	0	26.306	17.969	26.131	18.928	18.385	171.211	18.846	38.411	3.551	15.439	19.329	-0.121	29.519	1.218	1.636	75	75	12.3	17.1	1.182	0.714	0.692	0.04036	40.361	34.35
361	12/16/1999	10:25:52 AM	0	26.306	18.07	26.211	18.928	18.466	171.211	18.97	38.899	3.599	15.169	19.514	-0.167	29.466	1.218	1.62	76	76	12.2	17.1	1.177	0.707	0.684	0.04005	40.047	34.08
362	12/16/1999	10:26:52 AM	0	26.306	17.969	26.131	18.847	18.547	171.211	19.156	38.655	3.583	15.169	19.267	-0.121	29.466	1.218	1.633	77	77	12.2	17.2	1.163	0.713	0.691	0.04024	40.240	34.24
363	12/16/1999	10:27:52 AM	0	26.349	18.033	26.175	18.891	18.61	171.248	18.226	37.496	3.495	15.27	19.082	-0.121	29.519	1.218	1.629	78	78	12.3	16.7	1.155	0.711	0.688	0.04108	41.084	34.96
364	12/16/1999	10:28:53 AM	0	26.306	17.969	26.211	18.847	18.304	171.211	18.722	38.228	3.527	15.439	19.329	-0.121	29.519	1.218	1.633	79	79	12.3	17.1	1.176	0.713	0.689	0.04034	40.343	34.33
365	12/16/1999	10:29:53 AM	0	26.349	18.033	26.175	18.81	18.187	171.248	18.784	38.472	3.543	15	19.36	-0.121	29.427	1.218	1.614	80	80	12.2	16.9	1.165	0.705	0.682	0.04036	40.359	34.35
366	12/16/1999	10:30:53 AM	0	26.349	18.033	26.175	18.729	17.944	171.248	18.536	37.862	3.51	15.135	19.329	-0.167	29.381	1.218	1.617	81	81	12.2	16.8	1.161	0.706	0.683	0.04057	40.569	34.53
367	12/16/1999	10:31:54 AM	0	26.429	18.033	26.255	18.81	18.025	171.248	18.908	38.228	3.599	15.372	19.144	-0.121	29.534	1.218	1.629	82	82	12.3	17.1	1.182	0.711	0.687	0.04005	40.055	34.09
368	12/16/1999	10:32:54 AM	0	26.349	18.033	26.175	18.729	17.944	171.248	18.412	37.862	3.527	15.135	19.39	-0.167	29.58	1.218	1.614	83	83	12.3	16.8	1.156	0.705	0.682	0.04064	40.644	34.59
369	12/16/1999	10:33:54 AM	0	26.349	18.033	26.255	18.729	18.106	171.248	18.784	38.045	3.527	15.203	19.082	-0.121	29.466	1.218	1.629	84	84	12.2	17.0	1.172	0.711	0.687	0.04040	40.400	34.38
370	12/16/1999	10:34:55 AM	0	26.349	18.033	26.175	18.729	18.348	171.248	18.97	38.472	3.559	15.372	19.329	-0.121	29.396	1.218	1.633	85	85	12.2	17.2	1.184	0.713	0.690	0.04017	40.170	34.19
371	12/16/1999	10:35:55 AM	0	26.393	18.077	26.219	18.693	18.393	171.285	18.598	38.289	3.519	15.439	19.483	-0.167	29.473	1.218	1.623	86	86	12.2	17.0	1.173	0.709	0.685	0.04023	40.233	34.24
372	12/16/1999	10:36:55 AM	0	26.393	18.077	26.219	18.693	18.393	171.285	18.412	37.801	3.487	15.203	19.329	-0.121	29.596	1.218	1.614	87	87	12.3	16.8	1.159	0.705	0.681	0.04051	40.512	34.48
373	12/16/1999	10:37:56 AM	0	26.393	18.077	26.219	18.693	18.555	171.285	18.784	38.228	3.567	15.135	19.329	-0.121	29.473	1.218	1.614	88	88	12.2	17.0	1.169	0.705	0.681	0.04015	40.149	34.17
374	12/16/1999	10:38:56 AM	0	26.437	18.121	26.262	18.737	18.356	171.322	18.722	38.411	3.567	15.135	19.329	-0.167	29.488	1.218	1.614	89	89	12.2	16.9	1.167	0.705	0.680	0.04017	40.174	34.19
375	12/16/1999	10:39:56 AM	0	26.393	18.077	26.296	18.612	18.231	171.285	19.156	38.716	3.591	15.135	19.329	-0.121	29.55	1.218	1.611	90	90	12.3	17.1	1.182	0.703	0.678	0.03955	39.552	33.66
376	12/16/1999	10:40:57 AM	0	26.437	18.04	26.262	18.656	18.275	171.322	18.846	38.35	3.551	14.932	19.39	-0.121	29.442	1.218	1.617	91	91	12.2	16.9	1.164	0.705	0.681	0.04034	40.343	34.33
377	12/16/1999	10:41:57 AM	0	26.437	18.121	26.262	18.656	18.032	171.322	18.784	38.228	3.527	15.27	19.267	-0.167	29.55	1.218	1.614	92	92	12.3	17.0	1.174	0.705	0.680	0.03994	39.941	33.99
378	12/16/1999	10:42:58 AM	0	26.437	18.121	26.262	18.575	18.113	171.322	18.846	38.35	3.575	15.473	19.267	-0.121	29.611	1.218	1.636	93	93	12.3	17.2	1.183	0.714	0.689	0.04017	40.173	34.19
379	12/16/1999	10:43:58 AM	0	26.437	18.121	26.182	18.818	17.87	171.322	18.536	37.679	3.471	15	18.99	-0.121	29.396	1.218	1.633	94	94	12.2	16.8	1.156	0.713	0.690	0.04113	41.128	35.00
380	12/16/1999	10:44:58 AM	0	26.357	18.121	26.022	18.98	18.032	171.322	18.722	38.228	3.543	15.101	19.205	-0.121	29.504	1.218	1.62	95	95	12.2	16.9	1.166	0.707	0.687	0.04064	40.635	34.58
381	12/16/1999	10:45:58 AM	0	26.197	18.121	25.862	18.98	18.275	171.322	18.784	38.167	3.535	15.372	19.082	-0.121	29.55	1.218	1.633	96	96	12.3	17.1	1.177	0.713	0.686	0.04074	40.744	34.67
382	12/16/1999	10:46:59 AM	0	26.081	18.085	25.746	18.862	18.4	171.359	18.784	38.106	3.519	15.237	19.267	-0.121	29.396	1.218	1.614	97	97	12.2	17.0	1.173	0.705	0.680	0.04056	40.561	34.52
383	12/16/1999	10:47:59 AM	0	25.921	18.166	25.666	18.781	18.238	171.359	18.596	37.862	3.487	15.406	19.021	-0.121	29.396	1.218	1.626	98	98	12.2	17.0	1.172	0.710	0.697	0.04098	40.975	34.87
384	12/16/1999	10:48:59 AM	0	25.84	18.085	25.586	18.781	18.157	171.359	19.032	38.228	3.583	15.101	19.082	-0.121	29.427	1.218	1.608	99	99	12.2	17.1	1.177	0.702	0.680	0.04046	40.459	34.43
385	12/16/1999	10:50:00 AM	0	25.68	18.085	25.426	18.662	18.157	171.359	18.66	37.74	3.527	15.71	18.666	-0.167	29.488	1.218	1.623	100	100	12.2	17.2	1.185	0.709	0.700	0.04074	40.737	34.67
386	12/16/1999	10:51:00 AM	0	25.6	18.166	25.266	18.7	18.157	171.359	18.596	37.679	3.527	15.135	19.144	-0.121	29.488	1.218	1.611	101	101	12.2	16.9	1.163	0.703	0.698	0.04139	41.385	35.22
387	12/16/1999	10:52:01 AM	0	25.52	18.085	25.186	18.7	18.157	171.359	18.97	38.045	3.527	15.744	18.666	-0.121	29.596	1.218	1.623	102	102	12.3	17.4	1.197	0.709	0.705	0.04061	40.606	34.56
388	12/16/1999	10:53:01 AM	0	25.36	18.166	25.106	18.619	18.157	171.359	19.094	38.289	3.591	15.406	18.897	-0.121	29.442	1.218	1.605	103	103	12.2	17.3	1.189	0.701	0.699	0.04050	40.496	34.46
389	12/16/1999	10:54:01 AM	0	25.28	18.166	24.945	18.7	18.076	171.359	18.784	37.862	3.527	15.578	19.051	-0.121	29.473	1.218	1.605	104	104	12.2	17.2	1.184	0.701	0.702	0.04065	40.647	34.78
390	12/16/1999	10:55:02 AM	0	25.2	18.085	24.865	18.619	18.238	171.359	18.722	37.923	3.535	15.338	19.021	-0.121	29.457	1.218	1.608	105	105	12.2	17.0	1.174	0.702	0.705	0.04138	41.378	35.21
391	12/16/1999	10:56:02 AM	0	25.164	18.129	24.829	18.744	18.283	171.396	19.279	38.289	3.567	15.338	18.99	-0.121	29.319	1.218	1.602	106	106	12.2	17.3	1.193	0.699	0.703	0.04060	40.599	34.55
392	12/16/1999	10:57:02 AM	0	24.959	18.085	24.703	18.7	18.157	171.359	19.032	37.964	3.535	15.642	18.836	-0.121	29.473	1.218	1.599	107	107	12.2	17.3	1.195	0.696	0.704	0.04060	40.598	34.55
393	12/16/1999	10:58:03 AM	0	24.923	18.129	24.669	18.664	18.283	171.396	19.094	38.228	3.551	15.606	18.959	-0.121	29.427	1.218	1.602	108	108	12.2	17.4	1.196	0.699	0.706	0.04068	40.683	34.62
394	12/16/1999	10:59:03 AM	0	24.843	18.129	24.589	18.664	18.202	171.396	18.784	37.74	3.527	15.879	18.928	-0.121	29.473	1.218	1.602	109	109	12.2	17.3	1.195	0.699	0.707	0.04082	40.821	34.74
395	12/16/1999	11:00:03 AM	0	24.763	18.048	24.589	18.664	18.444	171.396	19.032	38.228	3.567	15.845	18.99	-0.121	29.427	1.218	1.605	110	110	12.2	17.4	1.202	0.701	0.709	0.04065	40.648	34.59
396	12/16/1999	11:01:04 AM	0	24.763	18.21	24.589	18.664	18.283	171.396	19.403	38.289	3.591	15.541	18.712	-0.121	29.427	1.218	1.614	111	111	12.2	17.5	1.205	0.705	0.713	0.04080	40.796	34.72
397	12/16/1999	11:02:04 AM	0	24.763	18.129	24.508	18.664	18.444	171.396	19.463	38.533	3.551	15.779	18.636	-0.121	29.442	1.218	1.62	112	112	12.2	17.6	1.215	0.707	0.717	0.04069	40.693	34.63
398	12/16/1999	11:03:04 AM	0	24.683	18.129	24.508	18.744	18.606	171.396	18.908	37.862	3.511	16.082	18.743	-0.121	29.411	1.218	1.614	113	113	12.2	17.5	1.206	0.705	0.714	0.04084	40.836	34.75
399	12/16/1999	11:04:05 AM	0	24.726	18.173	24.552	18.769	18.65	171.432	19.403	38.472	3.559	15.778	18.805	-0.121	29.427	1.218	1.599	114	114	12.2	17.6	1.213	0.698	0.707	0.04019	40.186	34.20
400	12/16/1999	11:05:05 AM	0	24.683	18.129	24.508	18.825	18.849	171.396	19.156	38.045	3.535	15.642	18.558	-0.121	29.304	1.218	1.617	115	115	12.2	17.4	1.200	0.706	0.716	0.04114	41.137	35.01
401	12/16/1999	11:06:05 AM	0	24.726	18.173	24.552	18.951	19.055	171.432	19.651	38.411	3.583	15.913	18.62	-0.121	29.427	1.218	1.614	116	116	12.2	17.8	1.226	0.705	0.714	0.04013	40.127	34.15
402	12/16/1999	11:07:06 AM	0	24.77	18.136	24.516	19.076	19.099	171.469	19.032	37.862	3.583	15.947	18.682	-0.167	29.442	1.218	1.617	117	117	12.2	17.5	1.206	0.706	0.716	0.04092	40.915	34.82
403	12/16/1999	11:08:06 AM	0	24.77	18.217	24.516	19.156	19.18	171.469	19.279	38.289	3.583	15.811	18.743	-0.121	29.534	1.218	1.614	118	118	12.3	17.5	1.210	0.705	0.714	0.04071	40.710	34.64
404	12/16/1999	11:09:06 AM	0	24.69	18.217	24.516	19.237	19.261	171.469	19.465	38.35	3.543	15.947	18.682	-0.121	29.427	1.218	1.614	119	119	12.2	17.7	1.221	0.705	0.714	0.04034	40.340	34.33
405	12/16/1999	11:10:07 AM	0	24.77	18.217	24.516	19.318	19.261	171.469	19.218	38.106	3.535	16.014	18.774	-0.121	29.411	1.218	1.617	120	120	12.2	17.6	1.215	0.706	0.716	0.04062	40.621	34.57
406	12/16/1999	11:11:07 AM	0	24.734	18.181	24.56	19.362	19.305	171.506	18.848	37.74	3.479	15.642	18.712	-0.121	29.35	1.218	1.626	121	121	12.2	17.2	1.189	0.710	0.719	0.04168	41.677	35.47
407	12/16/1999	11:12:07 AM	0	24.734	18.181	24.56	19.443	19.305	171.506	19.218	38.045	3.503	15.676	18.651	-0.121	29.319	1.218	1.617	122	122	12.2	17.4	1.203	0.706	0.715	0.04096	40.964	34.86
408	12/16/1999	11:13:08 AM	0	24.778	18.225	24.623	19.568	19.43	171.543	19.094	38.045	3.511	15.98	18.774	-0.167	29.381	1.218	1.62	123	123	12.2	17.5	1.209	0.707	0.717	0.04087	40.872	34.78
409	12/16/1999	11:14:08 AM	0	24.741	18.188	24.587	19.612	19.393	171.58	7.583	38.167	3.551	4.181	30.022	-0.121	29.672	1.218	1.922	124	124	12.3	5.9	0.405	0.839	0.849	0.14464	144.641	123.09
410	12/16/1999	11:15:08 AM	0	24.741	18.188	24.587	19.532	19.393	171.58	7.935	37.923	3.559	4.384	29.622	-0.121	29.657	1.218	1.907	125	125	12.3	6.2	0.425	0.832	0.843	0.13681	136.814	116.43
411	12/16/1999	11:16:09 AM	0	24.741	18.188	24.587	19.532	19.393	171.58	8.307	38.106	3.471	4.624	29.807	-0.121	29.365	1.218	1.904	126	126	12.2	6.6	0.453	0.831	0.841	0.12815	128.152	109.06
412	12/16/1999	11:17:09 AM	0	24.785	18.233	24.631	19.414	19.276	171.617	8.503	38.289	3.487	5.432	29.314	-0.121	29.427	1.218	1.891	127	127	12.2	7.1	0.491	0.825	0.836	0.11753	117.525	100.02
413																												
414		Averages		25.6	18.0	25.4	18.8	18.2	171.1	17.6	38.1	3.5	14.2	20.4	-0.1	29.4	1.218	1.655			12.2	15.9	1.096	0.722	0.715	0.048	48.3	41.1
415		Maximum		26.4	18.2	26.3	19.6	19.4	171.5	19.7	38.9	3.8	16.1	30.4	-0.1	29.6	1.218	1.931			12.3	17.8	1.226	0.843	0.829	0.154	154.1	131.1
416		Median		25.6	18.0	25.4	18.7	18.2	171.1	18.7	38.1	3.5	15.1	19.3	-0.1	29.4	1.218	1.629			12.2	16.9	1.165	0.711	0.702	0.041	41.0	34.9
417		Minimum		24.5	17.8	24.3	17.8	16.1	170.6	8.9	37.5	3.5	3.9	18.6	-0.2	29.3	1.218	1.599			12.1	5.4	0.371	0.696	0.678	0.040	39.6	33.7
418		Std Deviation		0.639	0.126	0.653	0.372	0.592	0.268	2.696	0.302	0.034	2.689	2.637	0.022	0.084	0.000	0.073			0.035	2.690	0.165	0.032	0.037	0.020	20.353	17.321
419		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	121



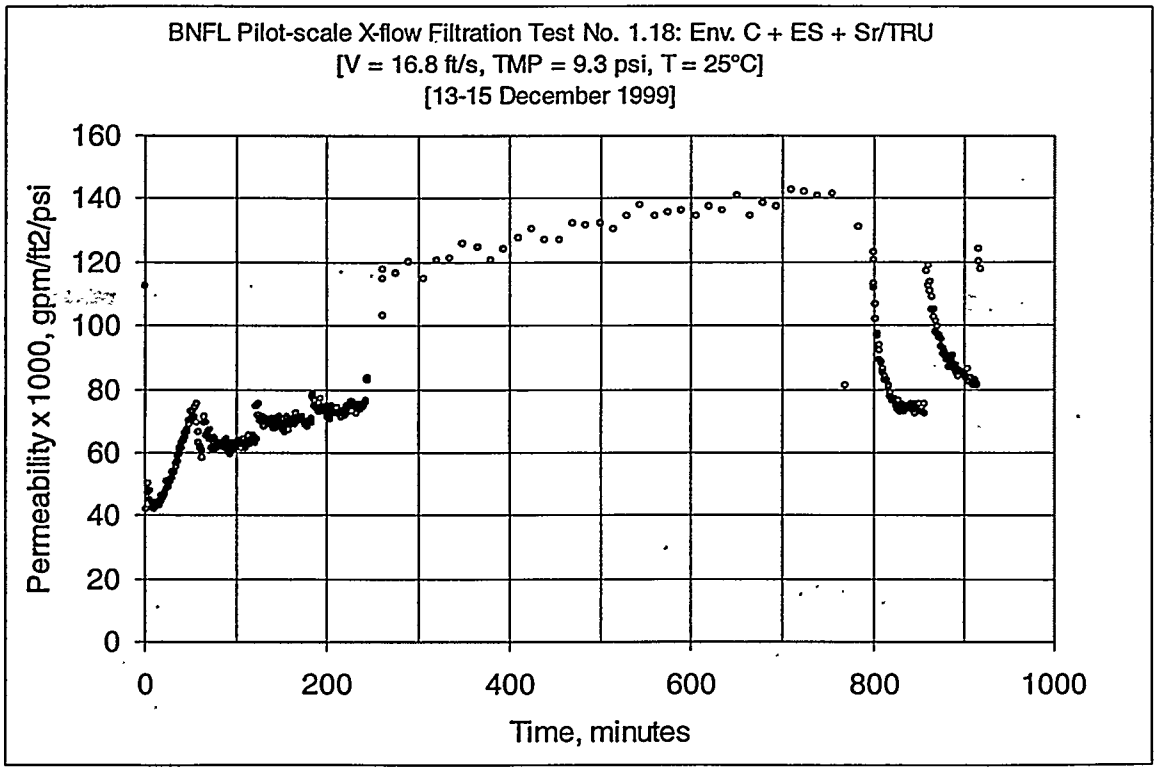


Figure A4: Test Run 1.18, 1 M NaOH Cleaning

Run 1.18: 1 Molar Nitric Acid Cleaning

	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	Tb (deg C)	BOT DP (p	FLTR (pa	FLTR DP (p	TOP DP (p	FLTRATE	PISTON (psig)	SL FLOW	O2,FLTR	RO3,FLTR	FLOW (ppm)		Filter Surface Area		2.29	FT2				
2	Zeroe - Lines Connected																				Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	12/13/1999	12:47:59 PM	0	26.363	26.977	23.947	21.649	21.673	174.559	-0.061	6.783	0.097	-0.148	6.663	-0.167	-0.079	0.011	-0.018										
4	12/13/1999	12:49:00 PM	0	26.283	26.897	23.867	21.649	21.592	174.559	0.001	6.783	0.104	-0.148	6.663	-0.167	-0.079	0.011	-0.018										
5	12/13/1999	12:50:00 PM	0	26.123	26.897	23.867	21.73	21.512	174.559	-0.061	6.824	0.104	-0.148	6.663	-0.167	-0.079	0.011	-0.018										
6	12/13/1999	12:51:00 PM	0	26.043	26.817	23.867	21.649	21.431	174.559	-0.123	0.055	-0.007	-0.045	6.663	-0.167	-0.095	0.045	-0.018										
7	Zeroe - Lines Not Connected																											
8	12/13/1999	12:52:01 PM	0	25.803	26.817	23.787	21.73	21.512	174.559	-0.123	-0.006	-0.007	-0.011	-0.117	-0.214	-0.079	0.011	-0.018										
9	12/13/1999	12:53:01 PM	0	25.803	26.817	23.867	21.649	21.431	174.559	-0.061	0.055	-0.007	-0.045	-0.117	-0.167	-0.079	0.011	-0.018										
10																												
11	Data - Per Minute																								at 25C	PERMEABILITY	x1000	
12	12/13/1999	12:54:19 PM	0	25.642	26.737	23.787	21.649	21.431	174.559	0.001	6.824	0.12	-0.148	6.694	-0.167	-0.079	0.011	-0.018	1	1	0.0	-0.1	-0.005	-0.008	-0.008	0.11216	112.163	85.45
13	12/13/1999	12:55:19 PM	0	26.123	26.417	23.787	21.649	21.431	174.559	18.49	30.434	7.205	9.354	13.72	-0.167	41.085	1.218	1.194	2	2	17.1	12.9	0.891	0.521	0.539	0.04174	41.744	35.52
14	12/13/1999	12:56:20 PM	1	26.283	26.897	23.706	21.569	21.512	174.559	5.518	30.728	7.078	-1.499	24.814	59.522	40.04	0.016	-0.015	3	3	16.9	12.0	0.139	-0.007	-0.007	-0.00338	-3.380	-2.88
15	12/13/1999	12:57:20 PM	0	26.922	27.456	23.706	21.569	21.512	174.559	15.56	30.484	6.759	9.05	14.675	-0.167	40.776	1.218	1.276	4	4	16.9	12.3	0.848	0.557	0.578	0.04696	46.955	39.96
16	12/13/1999	12:58:20 PM	0	27.446	27.9	23.751	21.614	21.557	174.596	15.002	30.484	6.32	8.779	15.384	-0.167	39.748	1.218	1.319	5	5	16.5	11.9	0.820	0.576	0.596	0.05017	50.165	42.69
17	12/13/1999	12:59:21 PM	0	27.721	28.254	23.706	21.569	21.431	174.559	15.374	30.484	6.671	9.063	14.88	-0.167	39.887	1.218	1.291	6	6	16.6	12.2	0.843	0.564	0.585	0.04780	47.804	40.68
18	12/13/1999	1:00:21 PM	0	26.085	26.777	23.751	21.614	21.557	174.596	15.67	30.667	6.607	9.489	14.614	-0.167	39.518	1.218	1.255	7	7	16.4	12.7	0.874	0.548	0.568	0.04478	44.781	38.09
19	12/13/1999	1:01:21 PM	0	26.643	29.176	23.671	21.533	21.638	174.596	15.808	30.423	6.543	9.76	14.367	-0.167	40.163	1.218	1.24	8	8	16.7	12.8	0.881	0.541	0.562	0.04396	43.964	37.41
20	12/13/1999	1:02:22 PM	0	29.041	29.574	23.751	21.533	21.638	174.596	16.056	30.545	6.423	9.827	14.244	-0.214	39.702	1.218	1.243	9	9	16.5	12.9	0.892	0.543	0.562	0.04344	43.438	36.96
21	12/13/1999	1:03:22 PM	0	29.36	29.892	23.671	21.614	21.638	174.596	16.18	30.606	6.607	9.895	14.151	-0.214	39.902	1.218	1.23	10	10	16.6	13.0	0.899	0.537	0.558	0.04276	42.762	36.39
22	12/13/1999	1:04:23 PM	0	29.758	30.29	23.671	21.614	21.638	174.596	16.49	30.911	6.479	9.929	14.121	-0.167	39.718	1.218	1.227	11	11	16.5	13.2	0.911	0.536	0.556	0.04210	42.102	35.83
23	12/13/1999	1:05:23 PM	0	29.917	30.606	23.591	21.614	21.718	174.596	16.366	30.85	6.647	10.03	14.09	-0.167	39.833	1.218	1.227	12	12	16.6	13.2	0.910	0.536	0.557	0.04223	42.235	35.94
24	12/13/1999	1:06:24 PM	0	30.553	31.005	23.591	21.694	21.718	174.596	16.056	30.606	6.439	9.783	14.151	-0.167	39.672	1.218	1.237	13	13	16.5	12.9	0.891	0.540	0.562	0.04348	43.480	37.00
25	12/13/1999	1:07:24 PM	0	30.792	31.323	23.591	21.614	21.638	174.596	16.49	30.972	6.535	9.824	14.151	-0.167	39.871	1.218	1.243	14	14	16.5	13.1	0.900	0.543	0.565	0.04325	43.247	36.80
26	12/13/1999	1:08:24 PM	0	31.109	31.72	23.591	21.614	21.638	174.596	16.18	30.667	6.663	9.658	14.213	-0.167	40.071	1.218	1.255	15	15	16.6	12.9	0.891	0.548	0.570	0.04413	44.131	37.56
27	12/13/1999	1:09:25 PM	0	31.471	32.002	23.636	21.659	21.683	174.634	16.552	31.093	6.527	9.469	14.244	-0.167	40.266	1.218	1.23	16	16	16.7	13.0	0.899	0.537	0.558	0.04288	42.880	36.47
28	12/13/1999	1:10:25 PM	0	31.868	32.399	23.636	21.74	21.683	174.634	15.808	30.484	6.479	9.726	14.429	-0.167	39.917	1.218	1.23	17	17	16.6	12.8	0.880	0.537	0.558	0.04371	43.711	37.20
29	12/13/1999	1:11:25 PM	0	32.141	32.592	23.511	21.614	21.718	174.596	15.87	30.606	6.415	9.661	14.49	-0.167	39.933	1.218	1.249	18	18	16.6	12.9	0.887	0.545	0.569	0.04420	44.203	37.62
30	12/13/1999	1:12:26 PM	0	32.502	32.953	23.556	21.74	21.683	174.634	15.746	30.728	6.439	9.624	14.614	-0.214	39.964	1.218	1.262	19	19	16.6	12.7	0.875	0.560	0.583	0.04596	45.958	39.11
31	12/13/1999	1:13:26 PM	0	32.819	33.27	23.475	21.659	21.683	174.634	15.994	30.911	6.687	9.588	14.614	-0.167	40.179	1.218	1.276	20	20	16.7	12.7	0.875	0.557	0.582	0.04583	45.827	39.00
32	12/13/1999	1:14:26 PM	0	33.215	33.666	23.556	21.74	21.683	174.634	15.684	30.911	6.503	9.354	14.737	-0.167	39.948	1.218	1.255	21	21	16.6	12.5	0.863	0.548	0.571	0.04559	45.587	38.79
33	12/13/1999	1:15:27 PM	0	33.452	33.903	23.475	21.659	21.683	174.634	15.436	30.728	6.447	9.219	14.891	-0.167	40.363	1.218	1.282	22	22	16.6	12.3	0.850	0.560	0.584	0.04740	47.400	40.34
34	12/13/1999	1:16:27 PM	0	33.769	34.219	23.556	21.62	21.602	174.634	15.498	30.728	6.392	9.253	14.953	-0.167	40.179	1.218	1.273	23	23	16.7	12.4	0.853	0.556	0.579	0.04678	46.777	39.81
35	12/13/1999	1:17:27 PM	0	33.927	34.456	23.475	21.74	21.602	174.634	15.126	30.24	6.503	9.219	14.768	-0.167	40.225	1.218	1.265	24	24	16.7	12.2	0.839	0.561	0.586	0.04612	46.116	40.95
36	12/13/1999	1:18:28 PM	0	34.322	34.772	23.475	21.74	21.683	174.634	15.002	30.179	6.447	8.644	14.891	-0.167	39.994	1.218	1.31	25	25	16.6	11.8	0.815	0.572	0.597	0.05050	50.502	42.98
37	12/13/1999	1:19:28 PM	0	34.638	35.088	23.475	21.74	21.602	174.634	14.878	29.996	6.415	9.018	14.953	-0.167	40.317	1.218	1.282	26	26	16.7	11.9	0.824	0.560	0.584	0.04891	48.910	41.62
38	12/13/1999	1:20:28 PM	0	34.841	35.369	23.52	21.785	21.647	174.672	15.374	30.667	6.423	8.779	15.045	-0.167	40.286	1.218	1.291	27	27	16.7	12.1	0.833	0.564	0.588	0.04866	48.662	41.41
39	12/13/1999	1:21:29 PM	0	35.112	35.72	23.395	21.74	21.602	174.634	14.816	30.179	6.575	8.576	15.076	-0.167	40.516	1.218	1.304	28	28	16.8	11.7	0.806	0.569	0.596	0.05093	50.932	43.34
40	12/13/1999	1:22:29 PM	0	35.593	36	23.44	21.785	21.647	174.672	14.816	30.118	6.687	8.407	15.138	-0.167	40.655	1.218	1.291	29	29	16.9	11.6	0.801	0.564	0.589	0.05073	50.726	43.17
41	12/13/1999	1:23:29 PM	0	35.788	36.257	23.44	21.885	21.647	174.672	14.816	30.423	6.384	8.441	15.322	-0.167	40.424	1.218	1.319	30	30	16.8	11.6	0.802	0.576	0.602	0.05175	51.751	44.04
42	12/13/1999	1:24:30 PM	0	36.059	36.429	23.395	21.82	21.763	174.634	14.506	30.24	6.455	8.374	15.538	-0.167	40.04	1.218	1.343	31	31	16.8	11.4	0.789	0.586	0.614	0.05363	53.629	45.64
43	12/13/1999	1:25:30 PM	0	36.339	36.788	23.44	21.885	21.808	174.672	14.568	30.362	6.384	8.035	15.631	-0.214	40.516	1.218	1.331	32	32	16.8	11.3	0.779	0.581	0.607	0.05373	53.733	45.73
44	12/13/1999	1:26:30 PM	0	36.578	37.025	23.36	21.885	21.726	174.672	14.568	30.606	6.519	8.002	15.692	-0.214	40.317	1.218	1.328	33	33	16.7	11.3	0.778	0.580	0.607	0.05381	53.812	45.80
45	12/13/1999	1:27:31 PM	0	36.812	37.339	23.36	21.885	21.728	174.672	14.444	30.545	6.639	7.864	15.723	-0.214	40.255	1.218	1.343	34	34	16.7	11.1	0.782	0.588	0.614	0.05558	55.557	47.28
46	12/13/1999	1:28:31 PM	0	37.127	37.576	23.36	21.885	21.647	174.672	14.196	30.423	6.423	8.069	15.639	-0.214	40.179	1.218	1.374	35	35	16.7	11.1	0.788	0.600	0.628	0.05644	56.439	48.00
47	12/13/1999	1:29:31 PM	0	37.363	37.89	23.36	21.885	21.647	174.672	13.888	30.179	6.4	7.799	16.031	-0.167	40.486	1.218	1.358	36	36	16.8	10.8	0.748	0.593	0.621	0.05727	57.274	48.74
48	12/13/1999	1:30:32 PM	0	37.599	38.126	23.36	21.885	21.647	174.672	13.576	29.752	6.256	7.765	16.062	-0.167	40.655	1.218	1.371	37	37	16.9	10.7	0.736	0.598	0.627	0.05875	58.754	50.00
49	12/13/1999	1:31:32 PM	0	37.835	38.362	23.36	21.885	21.647	174.672	13.576	30.118	6.352	7.897	16.218	-0.167	40.378	1.218	1.368	38	38	16.8	10.8	0.733	0.605	0.634	0.05959	59.587	50.71
50	12/13/1999	1:32:32 PM	0	38.071	38.597	23.278	21.885	21.647	174.672	13.576	30.057	6.591	7.224	16.185	-0.167	40.655	1.218	1.366	39	39	16.9	10.4	0.717	0.605	0.635	0.06108	61.082	51.98
51	12/13/1999	1:33:33 PM	0	38.464	38.833	23.36	21.885	21.808	174.672	13.824	30.362	6.423	7.393	16.339	-0.167	40.701	1.218	1.395	40	40	16.9	10.6	0.731	0.609	0.638	0.06013	60.132	51.17
52	12/13/1999	1:34:33 PM	0	38.542	39.068	23.278	21.885	21.808	174.672	13.638	30.484	6.455	7.256	16.524	-0.167	40.301	1.218	1.389	41	41	16.7	10.4	0.720	0.606	0.637	0.06093	60.933	51.86
53	12/13/1999	1:35:34 PM	0	39.822	39.348	23.325	21.83	21.854	174.709	13.452	30.179	6.527	7.123	16.555	-0.167	40.486	1.218	1.416	42	42	16.8	10.3	0.709	0.618	0.648	0.06300	63.004	53.62
54	12/13/1999	1:36:34 PM	0	39.092	39.639	23.279	21.865	21.728	174.672	13.39	30.423	6.535	6.92	16.617	-0.167	40.67	1.218	1.422	43	43	16.9	10.2	0.700	0.621	0.652	0.06418	64.181	54.62
55	12/13/1999	1:37:34 PM	0	39.371	39.818	23.325	21.91	21.854	174.709	13.267	30.118	6.543	6.954	16.646	-0.167	41.115	1.218	1.404	44	44	17.1	10.1	0.697	0.613	0.643	0.06356	63.564	54.09
56	12/13/1999	1:38:35 PM	0	39.542	40.01	23.199	21.765	21.728	174.672	13.452	30.667	6.467	6.785	16.771	-0.167	40.977	1.218	1.419	45	45	17.0	10.1	0.698	0.619	0.652	0.06442	64.423	54.83
57	12/13/1999	1:39:35 PM	0	39.842	40.21	23.244	21.83	21.693	174.709	13.081	30.423	6.304	6.886	16.956	-0.214	40.639	1.218	1.432	46	46	16.9	10.0	0.686	0.625	0.657	0.06561	65.608	56.00
58	12/13/1999	1:40:35 PM	0	39.998	40.445	23.244	21.83	21.693	174.709	13.143	30.423	6.583	6.683	16.925	-0.167	41.023	1.218	1.438	47	47	17.0	9.9	0.683	0.628	0.660	0.06655	66.554	56.64
59	12/13/1999	1:41:36 PM	0	40.233	40.602	23.244	21.83	21.773	174.709	13.019	30.362	6.551	6.46	16.956	-0.167	40.931	1.218	1.428	48	48	17.0	9.7	0.672	0.623	0.655	0.06720	67.199	57.19
60	12/13/1999	1:42:36 PM	0	40.39	40.915	23.164	21.83	21.773	174.709	12.709	30.118	6.328	6.648	17.264	-0.167	40.854	1.218	1.441	49	49	17.0	9.7	0.667	0.629	0.663	0.06846	68.461	58.28
61	12/13/1999	1:43:36 PM	0	40.747	41.116	23.289	21.875	21.899	174.747	12.771	30.301	6.503	6.21	17.141	-0.214	40.808	1.218	1.45	50	50	16.9	9.5	0.654	0.633	0.664	0.07001	70.007	59.58
62	12/13/1999	1:44:37 PM	0	40.826	41.35	23.289	21.956	21.899	174.747	12.633	30.606	6.479	6.075	17.326	-0.167	40.808	1.218	1.441	51	51	16.9	9.5	0.652	0.629	0.660	0.06984	69.841	59.44
63	12/13/1999	1:45:37 PM	0	41.139	41.507	23.209	21.956	21.979	174.747	12.275	29.935	6.36	6.214	17.449	-0.167	40.731	1.218	1.452	52	52	16.9	9.3	0.638	0.638	0.671	0.07251	72.512	61.71
64	12/13/1999	1:46:37 PM	0	41.295	41.741	23.209	21.956	21.979	174.747	12.647	30.179	6.559	5.939	17.356	-0.167	41.1	1.218	1.471	53	53	17.1	9.3	0.641	0.642	0.676	0.07270	72.696	61.87
65	12/13/1999	1:47:38 PM	0	41.451	41.896	23.209	21.956	21.979	174.747	12.709	30.606	6.519	6.176	17.48	-0.167	40.916	1.218	1.459	54	54	17.0	9.4	0.651	0.637	0.670	0.07096	70.961	60.39
66	12/13/1999	1:48:38 PM	0	41.686	42.132	23.209	21.956	21.979	174.747	12.771	30.667	6.471	6.108	17.511	-0.214	41.054	1.218	1.462	55	55	17.0	9.4	0.651	0.638	0.671	0.07113	71.130	60.53
67	12/13/1999	1:49:38 PM	0	41.92	42.268	23.129	21.956	21.979	174.747	12.399	30.301	6.535	5.906	17.603	-0.214	40.885	1.218	1.471	56	56	17.0	9.2	0.631	0.642	0.677	0.07398	73.980	62.96
68	12/13/1999	1:50:39 PM	0	42.077	42.445	23.209	21.956	21.979	174.747	12.523	30.728	6.407	5.839	17.788	-0.167	40.839	1.218	1.483	57	57	16.9	9.1	0.626	0.647	0.681	0.07502	75.016	63.84
69	12/13/1999	1:51:39 PM	0	39.566	35.831	23.129	21.956	21.979	174.747	12.895	30.362	6.647	6.379	17.141	-0.167	40.563	1.218	1.45	58	58	16.8	9.6	0.664	0.633	0.667	0.06926	69.258	58.94
70	12/13/1999	1:52:39 PM	0	36.27	32.532	23.129	21.875	21.899	174.747	13.143	30.118	6.503	6.683	16.633	-0.214	40.04	1.218	1.432	59	59	16.9	9.9	0.683	0.625	0.659	0.06849	68.494	58.29
71	12/13/1999	1:53:40 PM	0	33.314	30.354	23.174	21.92	21.944	174.785	13.7	30.667	6.431	7.156	16.646	-0.167	39.917	1.218	1.425	60	60	16.8	10.4	0.719	0.622	0.655	0.06782	67.820	53.48
72	12/13/1999	1:54:40 PM	0	31.094	28.762	23.174	21.92	21.944	174.785	13.7	30.301	6.503	7.258	16.339	-0.214	39.518	1.218	1.401	61	61	16.4	10.5	0.727	0.612	0.644	0.06146	61.462	52.30
73	12/13/1999	1:55:40 PM	0	29.061	27.441	23.129	21.875	21.818	174.747	13.762	30.24	6.631	7.461	16.124	-0.167	39.564	1.218	1.404	62	62	16.4	10.6	0.732	0.613	0.648	0.06090	60.902	51.83
74	12/13/1999	1:56:41 PM	0	27.865	26.642	23.129	21.875	21.899	174.747	14.072	30.301	6.559	7.494	16	-0.214	39.902	1.218	1.416	63	63	16.6	10.8	0.743	0.618	0.652	0.06045	60.448	51.44
75	12/13/1999	1:57:41 PM	0	27.031	25.966	23.174	21.84	21.944	174.785	14.072	30.118	6.583	7.596	15.816	-0.214	39.902	1.218	1.371	64	64	16.8	10.8	0.747	0.598	0.630	0.05817	58.175	49.51
76	12/13/1999	1:58:41 PM	0	26.232	25.868	23.093	21.92	21.944	174.785	12.771	30.24	6.519	6.582	17.202	-0.167	39.902	1.218	1.492	65	65	16.6	9.7	0.667	0.651	0.687	0.07105	71.048	60.48
77	12/13/1999	1:59:42 PM	0	25.992	25.566	23.093	21.84	21.864	174.785	13.081	30.362	6.647	6.648	16.956	-0.214	40.148	1.218	1.477	66	66	16.7	9.8	0.677	0.645	0.681	0.06934	69.343	59.01
78	12/13/1999	2:00:42 PM	0	25.556	25.291	23.139	21.885	21.969	174.823	13.081	30.423	6.471	6.652	16.987	-0.214	39.165	1.218	1.502	67	67	16.3	10.0	0.687	0.656	0.691	0.06935	69.350	59.02
79	12/13/1999	2:01:42 PM	0	25.556	25.611	23.139	21.885	21.969	174.823	12.957	30.057	6.551	7.055	16.802	-0.214	39.61	1.218	1.419	68	68	16.4	10.0	0.690	0.619	0.653	0.06526	65.259	55.54
80	12/13/1999	2:02:43 PM	0	25.637	25.851	23.139	21.885	21.969	174.823	13.267	30.301	6.471	6.92	16.802	-0.214	39.472	1.218	1.456	69	69	16.4	10.1	0.696	0.636	0.670	0.06638	66.380	56.49
81	12/13/1999	2:03:43 PM	0	25.732	25.666	23.093	21.84	21.944	174.785	13.39	30.301	6.479	6.852	16.709	-0.214	39.533	1.218	1.435	70	70	16.4	10.1	0.696	0.626	0.661	0.06533	65.331	55.60
82	12/13/1999	2:04:43 PM	0	25.912	26.048	23.013	21.92	21.944	174.785	13.39	30.24	6.503	6.852	16.709	-0.167	39.503	1.218	1.465	71	71	16.4	10.1	0.698	0.640	0.677	0.06885	68.849	58.59
83	12/13/1999	2:05:44 PM	0	25.957	25.931	23.139	21.968	21.969	174.823	13.452	30.179	6.687	6.818	16.432	-0.167	39.964	1.218	1.407	72	72	16.6	10.1	0.699	0.614	0.647	0.06388	63.884	54.37
84	12/13/1999	2:06:44 PM	0	25.797	25.691	23.058	21.968	22.07	174.823	13.576	30.301	6.679	6.886	16.483	-0.214	39.656	1.218	1.422	73	73	16.5	10.2	0.705	0.621	0.656	0.06411	64.107	54.56
85	12/13/1999	2:07:44 PM	0	25.558	25.531	23.058	21.968	22.07	174.823	13.638	30.362	6.511	7.359	16.483	-0.214	39.641	1.218	1.388	74	74	16.5	10.5	0.724	0.605	0.639	0.06089	60.892	51.82

Run 1.18: 1 Molar Nitric Acid Cleaning

	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	12/31/1999	2:08:45 PM	0	25.396	25.371	23.056	21.966	21.969	174.823	13.824	30.423	6.906	6.92	18.276	-0.214	40.025	1.218	1.456	75	75	18.6	10.4	0.715	0.636	0.672	0.06475	44.747	55.19
87	12/31/1999	2:09:43 PM	0	25.316	25.311	23.056	22.048	22.047	174.823	13.7	30.24	6.751	7.053	18.247	-0.167	39.949	1.218	1.365	76	76	18.6	10.4	0.715	0.596	0.630	0.06067	39.440	51.83
88	12/31/1999	2:10:43 PM	0	25.156	25.05	23.056	21.966	21.969	174.823	13.7	30.24	6.853	7.123	18.216	-0.167	40.046	1.218	1.419	77	77	18.6	10.4	0.715	0.596	0.630	0.06067	39.668	51.83
89	12/31/1999	2:11:48 PM	0	25.076	24.97	22.978	21.966	21.969	174.823	13.943	30.508	6.967	7.19	18.309	-0.214	39.441	1.218	1.459	78	78	18.6	10.4	0.715	0.619	0.654	0.06286	42.862	53.50
90	12/31/1999	2:12:48 PM	0	24.991	24.933	23.023	22.091	22.183	174.86	13.839	30.118	6.573	7.224	18.309	-0.214	39.656	1.218	1.392	79	79	18.6	10.4	0.729	0.637	0.674	0.06382	43.617	54.31
91	12/31/1999	2:13:48 PM	0	24.991	24.933	23.023	22.091	22.115	174.86	13.7	30.24	6.437	7.19	18.276	-0.167	39.516	1.218	1.419	80	80	18.6	10.4	0.729	0.648	0.443	0.06161	41.613	52.43
92	12/31/1999	2:14:47 PM	0	24.88	24.833	23.023	22.091	22.115	174.86	13.824	30.423	6.487	7.392	18.309	-0.167	39.533	1.218	1.407	81	81	18.6	10.4	0.729	0.619	0.655	0.06272	42.723	53.36
93	12/31/1999	2:15:47 PM	0	24.8	24.833	23.023	22.091	22.115	174.86	13.432	29.935	6.511	7.292	18.247	-0.214	39.38	1.218	1.398	82	82	18.3	10.4	0.729	0.604	0.651	0.06137	41.374	52.23
94	12/31/1999	2:16:47 PM	0	24.843	24.82	22.968	22.157	22.16	174.896	13.824	30.179	6.631	7.021	18.124	-0.214	39.58	1.218	1.407	83	83	18.4	10.4	0.715	0.619	0.654	0.06170	41.696	52.50
95	12/31/1999	2:17:48 PM	0	24.785	24.82	22.968	22.157	22.16	174.896	13.886	30.484	6.447	7.393	18.216	-0.214	39.304	1.218	1.418	84	84	18.3	10.5	0.734	0.619	0.654	0.06239	42.390	53.09
96	12/31/1999	2:18:48 PM	0	24.685	24.74	22.968	22.157	22.16	174.896	13.782	30.057	6.751	7.19	16	-0.214	40.025	1.218	1.422	85	85	18.6	10.5	0.721	0.651	0.654	0.06151	41.508	52.34
97	12/31/1999	2:19:48 PM	0	24.685	24.74	22.968	22.217	22.241	174.974	13.782	30.24	6.671	7.393	18.062	-0.167	39.779	1.218	1.428	86	86	18.5	10.6	0.729	0.637	0.667	0.06273	42.733	53.39
98	12/31/1999	2:20:48 PM	0	24.685	24.74	22.968	22.217	22.16	174.896	13.782	30.24	6.703	7.528	18.124	-0.167	39.429	1.218	1.444	87	87	18.4	10.6	0.729	0.630	0.660	0.06239	42.393	53.10
99	12/31/1999	2:21:48 PM	0	24.685	24.74	22.968	22.217	22.241	174.974	13.886	30.179	6.653	7.224	18.031	-0.167	39.984	1.218	1.398	88	88	18.6	10.6	0.729	0.646	0.646	0.06121	41.212	52.09
100	12/31/1999	2:22:48 PM	0	24.63	24.783	22.943	22.282	22.125	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.395	1.218	1.438	89	89	18.3	10.6	0.729	0.619	0.669	0.06332	43.318	53.86
101	12/31/1999	2:23:48 PM	0	24.63	24.783	22.943	22.282	22.203	174.858	14.134	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	90	90	18.6	10.6	0.743	0.619	0.669	0.06332	43.318	53.86
102	12/31/1999	2:24:48 PM	0	24.57	24.704	22.872	22.282	22.203	174.858	14.01	30.484	6.967	7.325	18.247	-0.214	39.549	1.218	1.468	91	91	18.4	10.7	0.735	0.641	0.669	0.06171	41.798	52.51
103	12/31/1999	2:25:48 PM	0	24.57	24.704	22.872	22.282	22.203	174.858	14.072	30.545	6.967	7.697	18.185	-0.167	39.641	1.218	1.422	92	92	18.5	10.9	0.750	0.621	0.659	0.06238	42.460	53.09
104	12/31/1999	2:26:48 PM	0	24.63	24.704	22.872	22.182	22.125	174.858	14.134	30.606	6.943	7.696	18.216	-0.214	39.58	1.218	1.41	93	93	18.4	10.9	0.743	0.616	0.654	0.06151	41.508	52.34
105	12/31/1999	2:27:48 PM	0	24.63	24.785	22.872	22.182	22.125	174.858	14.196	30.118	6.619	7.359	18.216	-0.214	39.457	1.218	1.41	94	94	18.4	10.5	0.724	0.616	0.654	0.06216	42.085	52.91
106	12/31/1999	2:28:48 PM	0	24.685	24.74	22.872	22.182	22.125	174.858	14.196	30.118	6.703	7.123	18.124	-0.167	39.429	1.218	1.395	95	95	18.4	10.6	0.729	0.626	0.654	0.06228	42.276	53.00
107	12/31/1999	2:29:48 PM	0	24.685	24.74	22.872	22.182	22.125	174.858	14.01	30.362	6.703	7.123	18.124	-0.167	39.429	1.218	1.438	96	96	18.5	10.6	0.729	0.626	0.661	0.06302	42.960	53.45
108	12/31/1999	2:30:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	14.01	30.362	6.703	7.123	18.124	-0.167	39.709	1.218	1.441	97	97	18.5	10.6	0.729	0.626	0.661	0.06302	42.960	53.45
109	12/31/1999	2:31:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.886	30.362	6.703	7.123	18.124	-0.167	39.709	1.218	1.441	98	98	18.5	10.6	0.729	0.626	0.661	0.06302	42.960	53.45
110	12/31/1999	2:32:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.886	30.179	6.653	7.528	18.247	-0.167	39.395	1.218	1.444	99	99	18.3	10.7	0.743	0.619	0.669	0.06332	43.318	53.86
111	12/31/1999	2:33:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	100	100	18.4	10.6	0.731	0.610	0.647	0.06106	41.057	51.90
112	12/31/1999	2:34:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	101	101	18.5	10.6	0.729	0.626	0.654	0.06216	42.085	52.91
113	12/31/1999	2:35:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	102	102	18.4	10.5	0.723	0.626	0.654	0.06216	42.085	52.91
114	12/31/1999	2:36:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	103	103	18.5	10.6	0.729	0.626	0.654	0.06216	42.085	52.91
115	12/31/1999	2:37:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	104	104	18.5	10.6	0.729	0.626	0.654	0.06216	42.085	52.91
116	12/31/1999	2:38:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	105	105	18.5	10.5	0.722	0.626	0.654	0.06332	43.318	53.86
117	12/31/1999	2:39:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	106	106	18.6	10.4	0.729	0.618	0.657	0.06227	42.201	52.84
118	12/31/1999	2:40:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	107	107	18.6	10.6	0.729	0.612	0.650	0.06112	41.119	52.05
119	12/31/1999	2:41:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	108	108	18.6	10.6	0.729	0.612	0.650	0.06112	41.119	52.05
120	12/31/1999	2:42:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	109	109	18.6	10.6	0.729	0.612	0.650	0.06112	41.119	52.05
121	12/31/1999	2:43:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	110	110	18.6	10.6	0.729	0.612	0.650	0.06112	41.119	52.05
122	12/31/1999	2:44:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	111	111	18.6	10.6	0.729	0.612	0.650	0.06112	41.119	52.05
123	12/31/1999	2:45:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	112	112	18.4	10.4	0.717	0.618	0.657	0.06227	42.201	52.84
124	12/31/1999	2:46:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	113	113	18.5	10.6	0.729	0.626	0.666	0.06332	43.289	53.67
125	12/31/1999	2:47:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	114	114	18.6	10.4	0.729	0.618	0.649	0.06235	42.354	53.06
126	12/31/1999	2:48:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	115	115	18.4	10.5	0.729	0.626	0.667	0.06342	43.410	53.67
127	12/31/1999	2:49:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	116	116	18.5	10.4	0.715	0.634	0.675	0.06507	45.069	55.37
128	12/31/1999	2:50:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	117	117	18.6	10.4	0.715	0.625	0.666	0.06393	43.932	54.42
129	12/31/1999	2:51:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	118	118	18.5	10.6	0.732	0.623	0.666	0.06272	42.715	53.37
130	12/31/1999	2:52:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	119	119	18.5	10.3	0.713	0.634	0.675	0.06530	45.302	55.57
131	12/31/1999	2:53:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	120	120	18.4	10.6	0.732	0.625	0.667	0.06279	42.792	53.44
132	12/31/1999	2:54:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	121	121	18.5	10.7	0.735	0.629	0.671	0.06289	42.858	53.52
133	12/31/1999	2:55:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	122	122	18.6	10.4	0.715	0.630	0.672	0.06465	44.032	55.16
134	12/31/1999	2:56:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	123	123	18.4	10.5	0.729	0.618	0.659	0.06384	43.837	54.53
135	12/31/1999	2:57:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	124	124	18.5	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
136	12/31/1999	2:58:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	125	125	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
137	12/31/1999	2:59:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	126	126	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
138	12/31/1999	3:00:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	127	127	18.6	10.7	0.735	0.629	0.671	0.06289	42.858	53.52
139	12/31/1999	3:01:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	128	128	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
140	12/31/1999	3:02:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	129	129	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
141	12/31/1999	3:03:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	130	130	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
142	12/31/1999	3:04:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	131	131	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
143	12/31/1999	3:05:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	132	132	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
144	12/31/1999	3:06:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	133	133	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
145	12/31/1999	3:07:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	134	134	18.4	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
146	12/31/1999	3:08:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	135	135	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
147	12/31/1999	3:09:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	136	136	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
148	12/31/1999	3:10:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	137	137	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
149	12/31/1999	3:11:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	138	138	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
150	12/31/1999	3:12:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	139	139	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
151	12/31/1999	3:13:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	140	140	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
152	12/31/1999	3:14:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	141	141	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
153	12/31/1999	3:15:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	142	142	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
154	12/31/1999	3:16:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	143	143	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
155	12/31/1999	3:17:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	144	144	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
156	12/31/1999	3:18:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	145	145	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
157	12/31/1999	3:19:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	146	146	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
158	12/31/1999	3:20:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	147	147	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
159	12/31/1999	3:21:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	148	148	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
160	12/31/1999	3:22:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	149	149	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
161	12/31/1999	3:23:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	150	150	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
162	12/31/1999	3:24:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	151	151	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
163	12/31/1999	3:25:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	152	152	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
164	12/31/1999	3:26:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	153	153	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
165	12/31/1999	3:27:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	154	154	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
166	12/31/1999	3:28:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	155	155	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
167	12/31/1999	3:29:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	156	156	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
168	12/31/1999	3:30:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	157	157	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
169	12/31/1999	3:31:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	158	158	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
170	12/31/1999	3:32:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	159	159	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
171	12/31/1999	3:33:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	160	160	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
172	12/31/1999	3:34:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	161	161	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
173	12/31/1999	3:35:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	162	162	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
174	12/31/1999	3:36:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.438	163	163	18.6	10.6	0.729	0.626	0.667	0.06459	44.344	54.98
175	12/31/1999	3:37:48 PM	0	24.685	24.74	22.872	22.227	22.241	174.974	13.824	30.423	6.551	7.427	18.124	-0.214	39.964	1.218	1.

Run 1.18: 1 Molar Nitric Acid Cleaning

	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	12/13/1999	3:34:14 PM	0	24.75	24.885	22.491	22.122	22.145	175.087	13.267	31.215	6.711	6.615	17.695	-0.214	40.132	1.218	1.459	160	160	167	9.9	0.685	0.637	0.684	0.06880	69.799	58.55
172	12/13/1999	3:35:14 PM	0	24.795	24.93	22.536	22.086	22.191	175.125	13.143	31.215	6.775	6.446	17.726	-0.214	40.01	1.218	1.477	161	161	168	9.8	0.675	0.645	0.691	0.07060	70.599	60.06
173	12/13/1999	3:36:15 PM	0	24.795	24.93	22.536	22.086	22.191	175.125	12.895	31.154	6.819	6.816	17.911	-0.214	39.91	1.218	1.468	162	162	164	9.9	0.680	0.641	0.687	0.06973	69.727	59.34
174	12/13/1999	3:37:15 PM	0	24.795	24.85	22.536	22.086	22.191	175.125	13.143	31.337	6.551	6.785	17.911	-0.214	39.81	1.218	1.465	163	163	164	10.0	0.687	0.640	0.686	0.06883	68.834	58.56
175	12/13/1999	3:38:15 PM	0	24.795	24.85	22.536	22.086	22.191	175.125	13.143	31.337	6.551	6.785	17.911	-0.214	39.994	1.218	1.441	164	164	166	9.9	0.680	0.629	0.675	0.06844	68.445	58.25
176	12/13/1999	3:39:16 PM	0	24.795	24.93	22.536	22.086	22.191	175.125	13.267	31.276	6.743	6.446	17.665	-0.214	39.994	1.218	1.462	165	165	164	9.9	0.683	0.636	0.683	0.06859	68.594	58.36
177	12/13/1999	3:40:16 PM	0	24.795	24.85	22.536	22.086	22.191	175.125	13.143	31.396	6.631	6.683	17.849	-0.214	39.564	1.218	1.441	164	164	166	9.9	0.680	0.629	0.675	0.06844	68.445	58.25
178	12/13/1999	3:41:16 PM	0	24.795	24.85	22.536	22.086	22.11	175.125	12.895	30.972	6.543	6.345	17.911	-0.214	39.457	1.218	1.462	165	165	164	9.9	0.683	0.636	0.683	0.06859	68.589	58.37
179	12/13/1999	3:42:17 PM	0	24.795	24.85	22.536	22.086	22.11	175.125	13.328	31.337	6.751	6.882	17.665	-0.167	40.025	1.218	1.474	167	167	166	10.0	0.686	0.643	0.690	0.06932	69.320	58.99
180	12/13/1999	3:43:17 PM	0	24.715	24.77	22.536	22.086	22.11	175.125	13.019	31.154	6.703	6.48	17.849	-0.214	39.687	1.218	1.483	168	168	165	9.7	0.672	0.647	0.694	0.07121	71.213	60.60
181	12/13/1999	3:44:17 PM	0	24.67	24.805	22.491	22.041	22.065	175.087	13.019	31.093	6.663	6.514	17.819	-0.214	39.58	1.218	1.471	169	169	164	9.7	0.671	0.642	0.689	0.07074	70.738	60.20
182	12/13/1999	3:45:18 PM	0	24.75	24.805	22.491	22.041	22.065	175.087	13.019	31.215	6.679	6.765	17.942	-0.214	39.533	1.218	1.466	170	170	164	9.9	0.683	0.649	0.697	0.07035	70.349	59.87
183	12/13/1999	3:46:18 PM	0	24.715	24.77	22.456	22.006	22.11	175.125	13.205	31.215	6.743	6.48	17.726	-0.214	40.01	1.218	1.468	171	171	166	9.9	0.679	0.641	0.688	0.06968	69.656	59.45
184	12/13/1999	3:47:18 PM	0	24.715	24.77	22.456	22.006	22.11	175.125	13.143	31.337	6.695	6.48	17.911	-0.214	40.025	1.218	1.471	172	172	166	9.8	0.679	0.642	0.690	0.07013	70.130	59.68
185	12/13/1999	3:48:19 PM	0	24.715	24.85	22.536	22.086	22.11	175.125	13.019	31.032	6.719	6.379	17.695	-0.214	40.086	1.218	1.459	173	173	165	9.6	0.676	0.630	0.699	0.07121	71.212	60.60
186	12/13/1999	3:49:19 PM	0	24.715	24.77	22.456	22.086	22.191	175.125	13.019	31.215	6.599	6.649	17.88	-0.214	39.516	1.218	1.459	174	174	166	9.7	0.669	0.633	0.679	0.06999	69.991	59.56
187	12/13/1999	3:50:19 PM	0	24.715	24.77	22.536	22.086	22.191	175.125	13.081	31.154	6.743	6.548	17.757	-0.214	39.902	1.218	1.447	175	175	164	9.8	0.678	0.637	0.685	0.06962	69.618	59.25
188	12/13/1999	3:51:20 PM	0	24.715	24.77	22.456	22.086	22.11	175.125	13.267	31.396	6.743	6.514	17.788	-0.214	39.795	1.218	1.45	176	176	166	9.8	0.677	0.632	0.677	0.06902	69.024	58.74
189	12/13/1999	3:52:20 PM	0	24.59	24.725	22.41	21.961	21.984	175.087	13.328	31.459	6.719	6.649	17.788	-0.214	39.856	1.218	1.465	177	177	165	9.9	0.682	0.633	0.680	0.06879	68.793	58.54
190	12/13/1999	3:53:20 PM	0	24.635	24.77	22.456	22.006	22.11	175.125	13.328	31.52	6.575	6.785	17.88	-0.214	39.902	1.218	1.456	178	178	165	10.0	0.689	0.640	0.688	0.06891	68.913	58.65
191	12/13/1999	3:54:21 PM	0	24.59	24.644	22.491	21.961	22.065	175.087	13.081	31.459	6.599	6.683	18.034	-0.214	39.81	1.218	1.468	179	179	166	10.1	0.693	0.636	0.683	0.06794	67.937	57.82
192	12/13/1999	3:55:21 PM	0	24.59	24.644	22.41	21.961	22.065	175.087	13.328	31.703	6.703	6.649	18.004	-0.214	39.626	1.218	1.463	180	180	165	9.9	0.681	0.641	0.688	0.06964	69.637	59.26
193	12/13/1999	3:56:21 PM	0	24.59	24.644	22.41	22.041	22.065	175.087	13.081	31.336	6.519	6.717	17.911	-0.214	39.503	1.218	1.483	181	181	164	10.0	0.689	0.647	0.697	0.06976	69.760	59.37
194	12/13/1999	3:57:22 PM	0	24.51	24.644	22.41	22.041	22.145	175.087	12.895	31.032	6.431	6.666	18.034	-0.214	39.516	1.218	1.456	182	182	164	9.9	0.683	0.647	0.697	0.07039	70.391	59.90
195	12/13/1999	3:58:22 PM	0	24.59	24.644	22.41	21.961	22.065	175.087	12.461	31.459	6.479	6.736	18.743	-0.214	39.702	1.218	1.514	183	183	164	9.9	0.682	0.636	0.684	0.06917	69.169	58.86
196	12/13/1999	3:59:22 PM	0	24.59	24.644	22.41	22.041	22.145	175.087	12.399	31.337	6.511	6.872	18.605	-0.214	39.503	1.218	1.499	184	184	165	9.1	0.627	0.661	0.711	0.07818	78.185	66.54
197	12/13/1999	4:00:23 PM	0	24.555	24.69	22.456	22.006	22.191	175.125	12.399	31.053	6.727	5.939	18.373	-0.214	39.994	1.218	1.466	185	185	164	9.1	0.630	0.654	0.704	0.07710	77.097	65.61
198	12/13/1999	4:01:23 PM	0	24.51	24.644	22.41	22.041	22.065	175.087	12.833	31.459	6.455	6.007	18.404	-0.214	40.025	1.218	1.492	186	186	166	9.2	0.632	0.649	0.697	0.07605	76.049	64.72
199	12/13/1999	4:02:23 PM	0	24.51	24.644	22.41	21.961	22.145	175.087	12.585	31.276	6.663	6.176	18.343	-0.214	40.025	1.218	1.48	187	187	166	9.4	0.649	0.651	0.701	0.07442	74.419	63.33
200	12/13/1999	4:03:24 PM	0	24.51	24.564	22.41	22.041	22.145	175.087	12.895	31.459	6.735	6.108	18.281	-0.214	39.964	1.218	1.499	188	188	166	9.4	0.647	0.646	0.695	0.07413	74.131	63.09
201	12/13/1999	4:04:24 PM	0	24.429	24.564	22.41	21.961	22.065	175.087	12.895	31.52	6.759	6.176	18.343	-0.214	39.795	1.218	1.48	189	189	166	9.5	0.655	0.654	0.704	0.07413	74.127	63.08
202	12/13/1999	4:05:24 PM	0	24.429	24.484	22.41	22.041	22.145	175.087	12.771	31.52	6.543	5.939	18.373	-0.214	39.533	1.218	1.502	190	190	165	9.5	0.657	0.646	0.695	0.07293	72.926	62.06
203	12/13/1999	4:06:25 PM	0	24.429	24.484	22.41	22.041	22.145	175.087	12.647	31.215	6.663	5.973	18.25	-0.214	39.533	1.218	1.523	191	191	164	9.4	0.645	0.656	0.706	0.07544	75.438	64.20
204	12/13/1999	4:07:25 PM	0	24.429	24.484	22.33	22.041	22.145	175.087	12.771	31.396	6.727	6.142	18.25	-0.214	39.516	1.218	1.456	192	192	164	9.3	0.642	0.665	0.716	0.07686	76.863	65.41
205	12/13/1999	4:08:25 PM	0	24.349	24.484	22.41	21.961	22.145	175.087	12.771	31.154	6.711	6.075	18.096	-0.214	39.702	1.218	1.483	193	193	165	9.5	0.652	0.640	0.690	0.07296	72.957	62.09
206	12/13/1999	4:09:26 PM	0	24.349	24.484	22.33	22.041	22.145	175.087	12.709	31.154	6.759	6.108	18.096	-0.214	39.979	1.218	1.483	194	194	166	9.4	0.650	0.647	0.697	0.07395	73.947	62.93
207	12/13/1999	4:10:26 PM	0	24.349	24.404	22.41	22.041	22.065	175.087	12.709	31.093	6.719	6.075	18.034	-0.214	40.163	1.218	1.477	195	195	167	9.4	0.649	0.645	0.696	0.07393	73.930	62.92
208	12/13/1999	4:11:26 PM	0	24.349	24.404	22.41	22.041	22.145	175.087	12.957	31.581	6.559	6.345	18.281	-0.214	39.948	1.218	1.488	196	196	166	9.4	0.648	0.649	0.698	0.07434	74.341	63.27
209	12/13/1999	4:12:27 PM	0	24.269	24.404	22.33	22.041	22.065	175.087	12.709	31.154	6.495	6.311	18.188	-0.167	39.687	1.218	1.495	197	197	165	9.7	0.663	0.653	0.702	0.07278	72.784	61.94
210	12/13/1999	4:13:27 PM	0	24.349	24.404	22.41	22.041	22.065	175.087	12.709	31.459	6.671	6.041	18.343	-0.167	39.964	1.218	1.474	198	198	166	9.5	0.656	0.643	0.694	0.07299	72.993	62.12
211	12/13/1999	4:14:27 PM	0	24.304	24.359	22.365	21.996	22.1	175.05	12.709	31.215	6.543	6.345	18.281	-0.214	39.533	1.218	1.489	199	199	164	9.4	0.646	0.650	0.700	0.07463	74.626	63.51
212	12/13/1999	4:15:28 PM	0	24.269	24.404	22.33	22.041	22.145	175.087	13.019	31.396	6.719	6.345	18.004	-0.214	39.441	1.218	1.466	200	200	164	9.5	0.657	0.649	0.699	0.07338	73.382	62.45
213	12/13/1999	4:16:28 PM	0	24.269	24.323	22.33	21.961	22.145	175.087	12.709	31.52	6.559	6.277	18.188	-0.214	40.025	1.218	1.456	201	201	166	9.7	0.668	0.636	0.686	0.07062	70.620	60.27
214	12/13/1999	4:17:28 PM	0	24.224	24.278	22.285	21.996	22.1	175.05	13.019	31.396	6.806	6.277	18.034	-0.214	39.58	1.218	1.502	202	202	164	9.5	0.655	0.656	0.707	0.07451	74.512	63.41
215	12/13/1999	4:18:29 PM	0	24.143	24.278	22.285	21.996	22.1	175.05	12.647	31.276	6.575	6.21	18.158	-0.214	40.01	1.218	1.441	203	203	166	9.6	0.665	0.629	0.679	0.07043	70.429	59.94
216	12/13/1999	4:19:29 PM	0	24.189	24.243	22.33	22.041	22.065	175.087	12.647	31.032	6.687	6.277	18.127	-0.214	39.472	1.218	1.466	204	204	164	9.4	0.650	0.649	0.701	0.07432	74.319	63.25
217	12/13/1999	4:20:30 PM	0	24.063	24.118	22.285	21.996	22.019	175.05	13.019	31.337	6.814	6.176	17.942	-0.214	39.748	1.218	1.502	205	205	165	9.5	0.652	0.658	0.707	0.07476	74.757	63.62
218	12/13/1999	4:21:30 PM	0	24.028	24.163	22.33	22.041	22.065	175.087	12.895	31.276	6.735	6.21	18.034	-0.214	40.025	1.218	1.465	206	206	166	9.6	0.662	0.640	0.691	0.07195	71.978	61.25
219	12/13/1999	4:22:30 PM	0	24.028	24.083	22.33	22.041	22.145	175.087	13.143	31.459	6.798	6.176	18.096	-0.214	39.733	1.218	1.468	207	207	165	9.6	0.659	0.641	0.691	0.07237	72.372	61.59
220	12/13/1999	4:23:31 PM	0	24.028	24.083	22.33	22.041	22.065	175.087	12.585	31.032	6.463	6.582	18.219	-0.214	40.071	1.218	1.477	208	208	166	9.7	0.666	0.645	0.696	0.07201	72.009	61.28
221	12/13/1999	4:24:31 PM	0	23.993	23.957	22.285	21.996	22.019	175.05	12.957	31.52	6.599	6.446	18.127	-0.167	39.626	1.218	1.48	209	209	164	9.6	0.661	0.648	0.697	0.07273	72.728	61.89
222	12/13/1999	4:25:31 PM	0	23.948	24.002	22.33	22.041	22.065	175.087	12.647	31.032	6.631	6.21	18.034	-0.167	39.58	1.218	1.486	210	210	164	9.7	0.669	0.649	0.701	0.07223	72.228	61.47
223	12/13/1999	4:26:32 PM	0	23.868	23.922	22.33	22.041	22.065	175.087	12.833	31.276	6.471	6.446	18.25	-0.214	39.58	1.218	1.474	211	211	164	9.4	0.650	0.643	0.694	0.07362	73.624	62.65
224	12/13/1999	4:27:32 PM	0	23.822	23.877	22.285	21.996	22.019	175.05	12.771	31.032	6.495	6.582	18.096	-0.214	39.871	1.218	1.474	212	212	164	9.6	0.665	0.643	0.694	0.07201	72.012	61.26
225	12/13/1999	4:28:32 PM	0	23.822	23.877	22.285	21.996	22.1	175.05	12.833	31.154	6.663	6.379	18.004	-0.167	40.025	1.218	1.486	213	213	165	9.7	0.667	0.649	0.701	0.07241	72.414	61.63
226	12/13/1999	4:29:33 PM	0	23.868	23.922	22.33	22.041	22.065	175.087	13.081	31.459	6.751	6.277	17.973	-0.214	39.656	1.218	1.48	214	214	166	9.6	0.662	0.646	0.698	0.07265	72.651	61.83
227	12/13/1999	4:30:33 PM	0	23.742	23.797	22.285	22.076	21.939	175.05	12.709	30.972	6.711	6.48	17.973	-0.214	39.825	1.218	1.463	215	215	165	9.7	0.667	0.636	0.688	0.07084	70.842	60.29
228	12/13/1999	4:31:33 PM	0	23.767	24.002	22.249	22.122	21.984	175.087	12.895	31.396	6.543	6.413	18.065	-0.214	39.411	1.218	1.477	216	216	165	9.6	0.662	0.647	0.699	0.07289	72.886	62.03
229	12/13/1999	4:32:33 PM	0	24.028	24.243	22.249	22.122	22.065	175.087	12.895	31.396	6.782	6.345	18.096	-0.214	39.687	1.218	1.474	217	217	164	9.7	0.666	0.645	0.697	0.07222	72.218	61.46
230	12/13/1999	4:33:34 PM	0	24.109	24.404	22.33	22.122	22.145	175.087	12.957	31.215	6.671	6.345	18.065	-0.214	39.779	1.218	1.462	218	218	165	9.6	0.663	0.643	0.696	0.07233	72.326	61.55
231	12/13/1999	4:34:34 PM	0	24.304	24.459	22.285	21.996	22.1	175.05	12.771	31.093	6.679	6.311	17.973	-0.214	40.01	1.218	1.489	219	219	165	9.7	0.665	0.638	0.689	0.07134	71.341	60.71
232	12/13/1999	4:35:35 PM	0	24.429	24.644	22.249	22.122	22.145	175.087	12.771	31.032	6.679	6.379	18.004	-0.167	39.964	1.218	1.466	220	220	166	9.5	0.658	0.650	0.702	0.07359	73.591	62.63
233	12/13/1999	4:36:35 PM	0	24.464	24.679	22.285	22.076	22.019	175.05	12.709	31.215	6.503	6.142	18.188	-0.214	39.441	1.218	1.492	221	221	166	9.6	0.660	0.641	0.693	0.07237	72.370	61.59
234	12/13/1999	4:37:35 PM	0	24.625	24.76	22.204	21.996	22.019	175.05	12.585	31.154	6.663	6.548	18.281	-0.214	39.656	1.218	1.492	222	222	164	9.4	0.650	0.651	0.704	0.07464	74.643	63.52
235	12/13/1999	4:38:36 PM	0	24.67	24.885	22.249	22.041	22.065	175.087	12.709	31.154	6.575	6.176	18.158	-0.167	39.334	1.218	1.486	223	223	165	9.6	0.660	0.651	0.705	0.07371	73.714	62.73
236	12/13/1999	4:39:36 PM	0	24.83	24.965	22.249	22.041	21.984	175.087	12.585	31.032	6.743	6.142	18.158	-0.167	39.626	1.218	1.486	224	224	163	9.4	0.651	0.649	0.701	0.07429	74.285	63.22
237	12/13/1999	4:40:36 PM	0	24.785	25	22.204	21.996	22.019	175.05	12.647	31.154	6.751	6.075	18.158	-0.167	39.626	1.218	1.499	225	225	165	9.4	0.646	0.654	0.708	0.07557	75.567	64.31
238	12/13/1999	4:41:37 PM	0	24.945	25.06	22.204	21.996	21.939	175.05	12.833	31.215	6.695	6.007	18.065	-0.167	40.01	1.218	1.489	226	226	164	9.4	0.645	0.650	0.704	0.07518	75.180	63.99
239	12/13/1999	4:42:37 PM	0	24.945	25.16	22.204	21.996	21.939	175.05	12.957	31.642	6.591	6.311	18.219	-0.214	39.851	1.218	1.508	227	227	166	9.4	0.649	0.658	0.713	0.07566	75.663	64.39
240	12/13/1999	4:43:37 PM	0	24.945	25.16	22.204	22.076	21.939	175.05	12.647	31.276	6.415	6.48	18.312	-0.214	39.779	1.218	1.463	228	228	164	9.6	0.664	0.647	0.701	0.07276	72.758	61.92
241	12/13/1999	4:44:38 PM	0	25.026	25.16	22.204	22.076	21.858	175.05	12.585	30.972	6.719	6.041	18.127	-0.167	40.025	1.218	1.514	229	229	165	9.6	0.659	0.661	0.716	0.07482	74.824	63.68
242	12/13/1999	4:45:38 PM	0	25.026	25.16	22.204	21.996	21.939	175.05	12.647	31.337	6.511	6.244	18.373	-0.167	39.487	1.218	1.471	230	230	166	9.3	0.642	0.642	0.695	0.07465	74.654	63.53
243	12/13/1999	4:46:38 PM	0	25.106	25.241	22.204	22.076	21.939	175.05	12.957	31.52	6.495	6.446	18.404	-0.167	39.902	1.218	1.495	231	231	164	9.4	0.651	0.653	0.707	0.07481	74.808	63.66
244	12/13/1999	4:47:39 PM	0	25.106	25.241	22.204	21.996	21.939	175.05	12.647	31.093	6.679	6.21	18.127	-0.214	39.994	1.218	1.483	232	232	166	9.7	0.669	0.647	0.701	0.07225	72.249	61.49
245	12/13/1999	4:48:39 PM	0	25.186	25.241	22.204	22.076	21.939	175.05	12.709	31.154	6.782	6.041	18.25	-0.214	39.516	1.218	1.492	233	233	166	9.4	0.650	0.651	0.705	0.07479	74.792	63.65
246	12/13/1999	4:49:39 PM	0	25.106	25.321	22.204	22.076	21.939	175.05	12.585	31.215	6.623	6.446	18.281	-0.214	39.58	1.218	1.474	234	234	165	9.4	0.646	0.650	0.704	0.07507	75.066	63.88
247	12/13/1999	4:50:40 PM	0	25.186	25.241	22.204	22.076	21.939	175.05	12.461	30.972	6.487	5.973	18.219	-0.214	39.656	1.218	1.465	235	235	164	9.5	0.656	0.643	0.697	0.07321	73.215	62.31
248	12/13/1999	4:51:40 PM	0	25.186	25.321	22.204	22.076	21.939	175.05	12.957	31.459	6.767	6.176	18.127	-0.167	40.117	1.218	1.483	236	236	165	9.2	0.635	0.640	0.692	0.07512	75.124	63.93
249	12/13/1999	4:52:40 PM	0	25.186	25.401	22.204	22.157	22.019	175.05	12.647	31.215	6.471	6.176	18.261	-0.214	39.964	1.218	1.477	237	237	166	9.6	0.660	0.647	0.701	0.07327	73.269	62.35
250	12/13/1999	4:53:41 PM	0	25.186	25.321	22.204	22.157	21.858	175.05	12.647	31.032	6.583	6.311	18.127	-0.167	40.025	1.218	1.502	238	238	166	9.4	0.649	0.645	0.698	0.07417	74.174	63.12
251	12/13/1999	4:54:41 PM	0	25.266	25.321	22.204	22.157	21.858	175.05	12.633	31.215	6.703	5.973	18.096	-0.167	40.01	1.218	1.489	239	239	166	9.5	0.654	0.658	0.710	0.07489	74.893	63.73
252	12/13/1999	4:55:41 PM	0	25.266	25.321	22.204	22.157	21.858	175.05	12.771	31.337	6.735	6.108	18.188	-0.167	40.025	1.218	1.466	240	240	166	9.4	0.648	0.650	0.704	0.07464	74.644	63.69
253	12/13/1999	4:56:42 PM	0	25.186	25.401	22.204	22.157	21.939	175.05	12.461	31.093	6.392	6.21	18.373	-0.214	39.641	1.218	1.492	241	241	166	9.4	0.651	0.649	0.702	0.07440	74.405	63.32
254	12/13/1999	4:57:42 PM	0	25.266	25.321	22.204	22.157	21.858	175.05	12.709	31.215	6.711	5.973	18.25	-0.214	39.733	1.218	1.511	242	242	165	9.3	0.644	0.651	0.705	0.07554	75.538	64.28
255	12/13/1999	4:58:42 PM	0	25.221	25.356	22.159	22.111	21.813	175.012	12.151	31.276	6.743	5.196	18.774	-0.214	40.132	1.218	1.514	244	244	167	8.7	0.598	0.651	0.717	0.08281	82.808	70.30

Run 1.18: 1 Molar Nitric Acid Cleaning

	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
256	12/13/1999	4:58:43 PM	0	25.268	25.321	22.204	22.078	21.939	175.05	12.151	31.52	6.599	5.534	18.928	-0.214	39.641	1.218	1.559	245	245	18.5		8.8	0.610	0.681	0.737	0.08333	83.330	70.92
257																													
258		Averages		27.4	27.5	22.8	22.0	22.0	175.0	13.5	30.9	6.6	7.0	17.1	-0.2	39.9	1.218	1.431			16.6	10.2	0.706	0.625	0.668	0.066	85.8	58.0
259		Maximum		42.1	42.4	23.8	22.4	22.4	175.1	16.6	31.9	6.8	10.0	18.9	-0.2	41.1	1.218	1.559			17.1	13.2	0.911	0.681	0.737	0.083	83.3	70.9
260		Median		25.0	25.1	22.7	22.0	22.1	175.1	13.2	31.1	6.6	6.7	17.7	-0.2	39.9	1.218	1.453			16.5	9.9	0.683	0.634	0.678	0.068	88.5	58.3
261		Minimum		23.7	23.8	22.2	21.5	21.4	174.8	12.2	29.8	6.3	5.2	14.1	-0.2	39.2	1.218	1.227			16.3	8.7	0.598	0.536	0.556	0.042	42.11	35.8
262		Std Deviation		5.795	5.889	0.313	0.226	0.256	0.184	0.963	0.482	0.117	1.037	1.106	0.023	0.451	0.000	0.073			0.187	1.003	0.069	0.032	0.038	0.008	8.4311	7.175
263		Number of Points Used		242	242	242	242	242	242	242	242	242	242	242	242	242	242	242			242	242	242	242	242	242	242	242
264																												
265																												
266	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE	PISTON (psig)	SL FLOW	O2,FLTR	O3,FLTR	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
267	12/14/1999	7:43:12 AM	0	22.759	23.296	19.847	21.091	20.63	173.285	11.035	31.276	6.527	4.567	20.068	-0.214	39.626	1.218	1.587	260	260	16.4	7.6	0.539	0.693	0.803	0.10280	102.803	87.49
268	12/14/1999	7:58:12 AM	0	27.256	27.71	19.836	21.341	20.72	173.359	10.477	30.85	6.663	3.978	20.13	-0.214	40.424	1.218	1.596	275	275	16.8	7.2	0.498	0.697	0.805	0.11144	111.443	94.84
269	12/14/1999	8:13:12 AM	0	29.966	30.18	19.836	20.857	19.428	173.359	10.229	31.032	6.483	3.674	20.654	-0.214	40.132	1.218	1.614	290	290	16.7	7.0	0.479	0.705	0.816	0.11745	117.448	99.95
270	12/14/1999	8:28:13 AM	0	29.807	29.941	19.694	20.777	20.236	173.359	10.291	31.154	6.583	3.945	20.469	-0.214	40.332	1.218	1.608	305	305	16.7	7.1	0.491	0.702	0.817	0.11482	114.815	97.71
271	12/14/1999	8:43:13 AM	0	29.771	29.906	19.739	21.366	20.603	173.397	10.353	30.972	6.703	3.776	20.377	-0.214	40.424	1.218	1.617	320	320	16.8	7.1	0.487	0.706	0.821	0.11818	118.180	98.87
272	12/14/1999	8:58:13 AM	0	29.851	29.985	19.739	20.963	19.069	173.397	10.229	31.215	6.663	3.471	20.623	-0.167	39.979	1.218	1.614	335	335	16.6	6.9	0.472	0.705	0.819	0.11960	119.595	101.78
273	12/14/1999	9:13:13 AM	0	29.878	30.012	19.605	20.445	19.338	173.285	10.601	31.52	6.551	3.776	20.718	-0.167	40.547	1.218	1.617	350	350	16.8	7.2	0.496	0.706	0.824	0.11462	114.623	97.55
274	12/14/1999	9:28:13 AM	0	29.881	29.916	19.426	20.024	18.512	173.136	10.167	30.972	6.655	3.607	20.592	-0.167	40.593	1.218	1.623	365	365	16.8	6.9	0.475	0.709	0.831	0.12071	120.715	102.73
275	12/14/1999	9:43:14 AM	0	29.817	29.951	19.381	20.867	19.68	173.099	10.105	30.972	6.559	3.674	20.718	-0.167	40.088	1.218	1.623	380	380	16.6	6.9	0.475	0.709	0.832	0.12083	120.830	102.83
276	12/14/1999	9:58:14 AM	0	29.913	30.048	19.479	21.207	19.696	173.248	9.961	31.093	6.663	3.336	20.982	-0.167	40.209	1.218	1.633	395	395	16.7	6.7	0.459	0.713	0.835	0.12543	125.432	106.74
277	12/14/1999	10:13:14 AM	0	29.889	30.004	19.334	20.356	19.006	173.21	8.795	30.972	6.439	3.573	21.178	-0.167	40.04	1.218	1.623	410	410	16.6	6.7	0.461	0.709	0.833	0.12464	124.643	106.07
278	12/14/1999	10:28:14 AM	0	29.825	29.96	19.228	20.23	19.042	173.173	10.167	31.093	6.687	3.64	20.718	-0.167	40.47	1.218	1.614	425	425	16.8	6.9	0.476	0.705	0.832	0.12045	120.454	102.51
279	12/14/1999	10:43:15 AM	0	29.787	29.902	18.845	20.978	18.147	172.653	10.043	31.154	6.599	3.573	20.9	-0.167	40.394	1.218	1.623	440	440	16.8	6.8	0.469	0.709	0.838	0.12421	124.211	105.71
280	12/14/1999	10:58:15 AM	0	29.834	30.069	18.935	21.551	20.042	172.727	9.961	31.276	6.679	3.268	21.054	-0.167	40.44	1.218	1.626	455	455	16.8	6.6	0.457	0.710	0.845	0.12755	127.551	108.55
281	12/14/1999	11:13:15 AM	0	29.858	30.173	18.679	20.931	19.502	172.95	9.609	31.093	6.599	3.37	21.178	-0.167	40.132	1.218	1.626	470	470	16.7	6.5	0.447	0.710	0.848	0.13042	130.418	110.99
282	12/14/1999	11:28:15 AM	0	30.055	30.19	18.826	20.787	19.519	173.099	10.105	31.215	6.687	3.235	20.839	-0.167	40.655	1.218	1.623	485	485	16.9	6.7	0.460	0.709	0.844	0.12659	126.592	107.73
283	12/14/1999	11:43:15 AM	0	30.106	30.242	18.949	20.759	19.41	173.21	9.961	31.215	6.647	3.336	20.962	-0.167	40.609	1.218	1.629	500	500	16.9	6.7	0.459	0.711	0.846	0.12708	127.081	108.15
284	12/14/1999	11:58:16 AM	0	30.169	30.304	19.093	21.869	20.28	173.397	9.733	31.032	6.727	3.066	21.085	-0.167	40.225	1.218	1.636	515	515	16.7	6.4	0.441	0.714	0.846	0.13223	132.233	112.53
285	12/14/1999	12:13:16 PM	0	30.178	30.312	19.101	21.072	19.643	173.471	9.795	31.093	6.695	3.066	21.054	-0.167	40.317	1.218	1.633	530	530	16.7	6.4	0.443	0.715	0.844	0.13132	131.324	111.76
286	12/14/1999	12:28:16 PM	0	30.089	30.224	19.093	20.983	19.23	173.397	9.671	30.911	6.647	3.099	21.178	-0.167	40.609	1.218	1.629	545	545	16.9	6.4	0.440	0.711	0.843	0.13197	131.967	112.31
287	12/14/1999	12:43:16 PM	0	30.045	30.18	18.967	20.857	19.509	173.359	9.795	31.215	6.495	3.167	21.116	-0.167	40.547	1.218	1.629	560	560	16.8	6.5	0.447	0.711	0.846	0.13049	130.493	111.05
288	12/14/1999	12:58:17 PM	0	30.081	30.215	19.003	20.893	19.221	173.322	9.671	31.093	6.687	2.964	21.209	-0.167	40.683	1.218	1.636	575	575	16.9	6.3	0.436	0.714	0.848	0.13430	134.304	114.29
289	12/14/1999	1:13:17 PM	0	30.037	30.171	18.958	20.849	19.338	173.285	9.609	31.154	6.631	2.761	21.455	-0.167	40.225	1.218	1.639	590	590	16.7	6.2	0.426	0.715	0.851	0.13781	137.814	117.11
290	12/14/1999	1:28:17 PM	0	30.001	30.215	19.003	20.974	19.141	173.322	9.609	30.972	6.615	3.066	21.178	-0.167	40.578	1.218	1.639	605	605	16.8	6.3	0.437	0.715	0.850	0.13419	134.125	114.14
291	12/14/1999	1:43:17 PM	0	30.001	30.136	18.922	20.893	19.302	173.322	9.671	31.154	6.703	2.897	21.301	-0.167	40.163	1.218	1.639	620	620	16.7	6.3	0.433	0.715	0.852	0.13559	135.589	115.39
292	12/14/1999	1:58:17 PM	0	30.01	30.224	19.012	21.063	19.553	173.397	9.671	31.154	6.703	2.795	21.27	-0.167	40.624	1.218	1.639	635	635	16.9	6.2	0.430	0.715	0.850	0.13634	136.338	116.03
293	12/14/1999	2:13:18 PM	0	30.054	30.189	18.978	21.109	19.841	173.434	9.609	31.276	6.639	3.066	21.548	-0.167	40.01	1.218	1.642	650	650	16.6	6.3	0.437	0.717	0.852	0.13448	134.477	114.44
294	12/14/1999	2:28:18 PM	0	30.019	30.233	19.021	21.233	20.047	173.471	9.299	31.032	6.463	3.066	21.609	-0.167	40.47	1.218	1.639	665	665	16.8	6.2	0.426	0.715	0.850	0.13742	137.415	116.94
295	12/14/1999	2:43:18 PM	0	30.107	30.241	19.11	21.242	19.879	173.546	9.485	31.093	6.679	2.964	21.332	-0.167	40.593	1.218	1.636	680	680	16.8	6.2	0.429	0.714	0.848	0.13588	135.883	115.64
296	12/14/1999	2:58:18 PM	0	30.071	30.206	19.074	21.528	20.423	173.583	9.299	31.032	6.407	2.726	21.64	-0.167	40.455	1.218	1.639	695	695	16.8	6.0	0.415	0.715	0.848	0.14106	141.058	120.04
297	12/14/1999	3:13:18 PM	0	30.124	30.338	19.209	21.421	19.993	173.696	9.485	31.215	6.447	3.066	21.548	-0.167	40.624	1.218	1.639	710	710	16.9	6.3	0.433	0.715	0.845	0.13484	134.835	114.58
298	12/14/1999	3:28:19 PM	0	30.169	30.303	19.254	21.627	20.522	173.733	9.423	31.032	6.615	2.761	21.455	-0.167	40.44	1.218	1.642	725	725	16.8	6.1	0.420	0.717	0.845	0.13576	135.762	115.09
299	12/14/1999	3:43:19 PM	0	30.257	30.471	19.344	21.475	20.288	173.808	9.423	31.276	6.519	2.863	21.486	-0.167	39.902	1.218	1.645	740	740	16.6	6.1	0.424	0.718	0.845	0.13750	137.499	117.01
300	12/14/1999	3:58:19 PM	0	30.178	30.392	19.344	21.394	20.128	173.808	9.299	30.972	6.615	2.592	21.578	-0.167	40.409	1.218	1.648	755	755	16.8	5.9	0.410	0.719	0.846	0.14233	142.325	121.12
301	12/14/1999	4:13:19 PM	0	30.222	30.356	19.369	21.359	20.253	173.845	9.175	31.032	6.423	2.726	21.763	-0.167	40.163	1.218	1.651	770	770	16.7	6.0	0.410	0.721	0.847	0.14225	142.253	121.06
302	12/14/1999	4:28:20 PM	0	30.222	30.436	19.47	21.439	20.173	173.845	9.237	31.276	6.471	2.761	21.702	-0.167	39.902	1.218	1.651	785	785	16.6	6.0	0.414	0.721	0.845	0.14079	140.793	119.82
303	12/14/1999	4:43:20 PM	0	30.222	30.356	19.369	21.278	19.85	173.845	9.175	31.154	6.567	2.761	21.702	-0.167	40.44	1.218	1.648	800	800	16.8	6.0	0.411	0.719	0.845	0.14160	141.602	120.51
304																												
305		Averages		29.7	29.9	19.3	21.1	19.7	173.4	9.8	31.1	6.6	3.2	21.1	-0.2	40.3	1.218	1.630			16.7	6.5	0.450	0.711	0.839	0.129	129.1	109.8
306		Maximum		30.3	30.5	19.9	21.9	20.7	173.6	11.0	31.5	6.7	4.6	21.8	-0.2	40.7	1.218	1.651			16.9	7.8	0.539	0.721	0.852	0.142	142.3	121.1
307		Median		30.0	30.2	19.2	21.1	19.7	173.4	9.7	31.1	6.6	3.1	21.2	-0.2	40.4	1.218	1.633			16.8	6.4	0.443	0.713	0.845	0.131	131.3	111.8
308		Minimum		22.8	23.3	18.8	20.0	18.1	172.7	9.2	30.9	6.4	2.6	20.1	-0.2	39.6	1.218	1.587			16.4	5.9	0.410	0.693	0.803	0.103	102.8	87.5
309		Std Deviation		1.255	1.184	0.309	0.387	0.785	0.277	0.425	0.131	0.092	0.438	0.439	0.016	0.253	0.000	0.014			0.105	0.423	0.029	0.006	0.013	0.010	9.673	8.232
310		Number of Points Used		37	37	37	37	37	37	37	37	37	37	37	37	37	37	37			37	37	37	37	37	37	37	37
311																												
312																												
313	DATE	TIME	Solenoid C	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE	PISTON (psig)	SL FLOW	FLTR FLO	HI FLTR F	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
314	12/15/1999	9:40:51 AM	0	21.165	20.252	21.556	20.462	19.839	172.356	13.019	33.638	6.743	6.277	20.561	-0.121	39.964	1.218	1.626	801	801	16.6	9.6	0.665	0.710	0.783	0.08115	81.153	69.06
315	12/15/1999	9:41:51 AM	0	21.774	20.296	22.245	20.587	19.884	172.393	9.361	33.899	6.36	3.133	24.352	-0.121	39.057	1.218	1.736	802	802	16.2	6.2	0.431	0.758	0.820	0.13119	131.189	111.64
316	12/15/1999	9:42:51 AM	0	22.418	20.296	22.888	20.587	19.965	172.393	9.857	32.74	7.213	2.795	22.626	-0.121	41.745	1.218	1.675	803	803	17.3	6.3	0.436	0.731	0.776	0.12272	122.720	104.44
317	12/15/1999	9:43:52 AM	0	23.061	20.377	23.53	20.426	19.803	172.393	9.919	32.679	7.205	2.629	22.626	-0.121	41.622	1.218	1.684	804	804	17.3	6.4	0.439	0.735	0.766	0.12023	120.231	102.32
318	12/15/1999	9:44:52 AM	0	23.784	20.377	24.172	20.345	19.642	172.393	10.229	33.228	7.07	3.066	22.811	-0.121	41.991	1.218	1.675	805	805	17.4	6.6	0.458	0.731	0.748	0.11260	112.596	95.82
319	12/15/1999	9:45:52 AM	0	24.266	20.296	24.814	20.426	19.642	172.393	10.229	32.964	6.966	3.539	22.76	-0.075	41.653	1.218	1.672	806	806	17.3	6.9	0.475	0.730	0.734	0.10658	106.585	90.70
320	12/15/1999	9:46:53 AM	0	25.031	20.341	25.496	20.309	19.686	172.43	10.725	33.228	7.134	3.37	22.133	-0.121	41.745	1.218	1.666	807	807	17.3	7.0	0.486	0.727	0.717	0.10176	101.762	86.60
321	12/15/1999	9:47:53 AM	0	25.432	20.341	25.739	20.228	19.605	172.43	10.787	33.228	7.054	3.843	22.133	-0.075	41.73	1.218	1.663	808	808	17.3	7.3	0.504	0.726	0.711	0.09720	97.205	82.72
322	12/15/1999	9:48:53 AM	0	25.592	20.341	25.418	20.228	19.787	172.43	11.097	33.269	7.181	3.776	21.917	-0.121	41.807	1.218	1.66	809	809	17.4	7.4	0.513	0.725	0.716	0.09631	96.307	81.96
323	12/15/1999	9:49:54 AM	0	25.432	20.26	25.178	20.47	19.648	172.43	11.221	33.106	7.134	4.265	21.578	-0.075	41.684	1.218	1.645	810	810	17.3	7.6	0.534	0.718	0.715	0.09217	92.172	78.44
324	12/15/1999	9:50:54 AM	0	25.316	20.385	24.982	20.676	19.892	172.467	11.345	32.862	7.078	4.79	21.27	-0.121	42.267	1.218	1.639	811	811	17.5	8.1	0.556	0.715	0.716	0.08873	88.733	75.51
325	12/15/1999	9:51:54 AM	0	24.995	20.385	24.681	20.837	19.973	172.467	11.345	32.801	7.237	4.114	21.147	-0.121	41.846	1.218	1.642	812	812	17.2	7.7	0.533	0.717	0.724	0.09363	93.626	79.66
326	12/15/1999	9:52:55 AM	0	24.755	20.385	24.421	20.837	19.973	172.467	11.778	32.74	7.237	4.655	20.777	-0.121	41.73	1.218	1.633	813	813	17.3	8.2	0.567	0.713	0.725	0.08818	88.184	75.05
327	12/15/1999	9:53:55 AM	0	24.514	20.304	24.1	20.758	19.692	172.467	11.903	32.74	7.197	4.756	20.623	-0.121	41.761	1.218	1.629	814	814	17.3	8.3	0.574	0.711	0.729	0.08757	87.571	74.52
328	12/15/1999	9:54:55 AM	0	24.396	20.429	24.064	20.559	19.936	172.504	12.089	33.269	7.118	4.657	20.931	-0.121	41.264	1.218	1.629	815	815	17.1	8.5	0.584	0.711	0.730	0.08618	86.176	73.34
329	12/15/1999	9:55:56 AM	0	24.157	20.349	23.904	20.639	19.936	172.504	11.965	32.679	7.014	5.297	20.561	-0.121	41.453	1.218	1.623	816	816	17.2	8.6	0.595	0.709	0.731	0.08467	84.670	72.06
330	12/15/1999	9:56:56 AM	0	24.081	20.304	23.779	20.595	20.054	172.467	12.275	32.618	7.309	5.06	20.15	-0.121	41.637	1.218	1.611	817	817	17.4	8.7	0.596	0.703	0.728	0.08399	83.987	71.47
331	12/15/1999	9:57:56 AM	0	23.917	20.349	23.743	20.639	20.34	172.504	12.461	32.984	7.317	5.196	20.222	-0.121	42.099	1.218	1.614	818	818	17.5	8.8	0.609	0.705	0.730	0.08269	82.694	70.37
332	12/15/1999	9:58:57 AM	0	23.88	20.393	23.707	20.765	20.365	172.541	12.599	32.984	7.229	5.331	20.407	-0.121	41.73	1.218	1.617	819	819	17.3	8.9	0.611	0.706	0.732	0.08259	82.591	70.29
333	12/15/1999	9:59:57 AM	0	23.72	20.393	23.647	20.684	20.548	172.541	12.599	32.801	7.134	5.365	20.253	-0.121	41.607	1.218	1.614	820	820	17.3	8.9	0.612	0.705	0.734	0.08265	82.655	70.34
334	12/15/1999	10:00:57 AM	0	23.764	20.357	23.591	20.809	20.61	172.578	12.647	32.923	7.173	5.432	19.945	-0.121	41.638	1.218	1.605	821	821	17.3	9.0	0.623	0.701	0.729	0.08066	80.661	68.64
335	12/15/1999	10:01:58 AM	0	23.684	20.357	23.591	20.809	20.59	172.578	12.708	32.679	7.269	5.365	19.729	-0.121	40.747	1.218	1.602	822	822	16.9	9.0	0.623	0.699	0.726	0.08053	80.532	68.53
336	12/15/1999	10:02:58 AM	0	23.764	20.357	23.632	20.809	20.671	172.578	12.771	32.74	7.245	5.534	19.699	-0.121	42.006	1.218	1.593	823	823	17.4	9.2	0.631	0.695	0.719	0.07853	78.530	66.83
337	12/15/1999	10:03:59 AM	0	23.969	20.321	23.956	20.853	20.715	172.615	12.895	33.167	7.078	5.604	20.007	-0.121	41.407	1.218	1.605	824	824	17.2	9.3	0.645	0.701	0.722	0.07718	77.183	65.68
338	12/15/1999	10:04:59 AM	0	24.174	20.365	24.241	20.896	20.76	172.653	12.771	33.411	7.03	5.906	20.348	-0.121	40.394	1.218	1.614	825	825	16.8	9.3	0.641	0.705	0.720	0.07708	77.082	65.60
339	12/15/1999	10:06:00 AM	0	24.414	20.365	24.482	20.896	20.841	172.653	13.019	33.045	7.169	5.534	19.699	-0.121	41.668	1.218	1.602	826	826	17.4	9.3	0.640	0.699	0.710	0.07650	76.497	65.10
340	12/15/1999	10:07:00 AM	0	24.699	20.41	24.656	20.942	20.885	172.69	12.771	33.045	7.046	5.77	20.068	-0.121	41.348	1.218	1.611	827	827	17.2	9.3	0.639	0.703	0.710	0.07653	76.535	65.13

Run 1.18: 1 Molar Nitric Acid Cleaning

Run 1.18: 1 Molar Nitric Acid Cleaning

	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
426	12/15/1999	11:33:30 AM	0	24.437	20.63	24.344	21.404	20.299	173.21	12.275	32.557	7.261	5.128	20.099	-0.121	41.837	1.218	1.608	913	913	17.4	8.7	0.600	0.702	0.715	0.08218	82.178	69.93
427	12/15/1999	11:34:30 AM	0	24.481	20.675	24.308	21.61	20.505	173.248	12.399	32.923	7.07	5.297	20.222	-0.121	41.858	1.218	1.608	914	914	17.4	8.8	0.610	0.702	0.716	0.08090	80.899	68.85
428	12/15/1999	11:35:30 AM	0	24.481	20.675	24.308	21.61	20.505	173.248	12.213	32.557	7.277	5.094	20.038	-0.121	41.73	1.218	1.611	915	915	17.3	8.7	0.597	0.703	0.717	0.08287	82.872	70.53
429	12/15/1999	11:36:31 AM	0	24.481	20.675	24.369	21.61	20.586	173.248	12.151	32.618	7.07	5.601	20.469	-0.121	41.515	1.218	1.611	916	916	17.2	8.9	0.612	0.703	0.715	0.08061	80.610	68.60
430	12/15/1999	11:37:31 AM	0	24.401	20.675	24.308	21.61	20.586	173.248	12.523	32.862	7.245	5.094	20.038	-0.121	41.899	1.218	1.611	917	917	17.4	8.8	0.607	0.703	0.717	0.08141	81.414	69.28
431	12/15/1999	11:38:31 AM	0	24.401	20.675	24.308	21.53	20.586	173.248	12.399	32.679	7.283	5.331	20.068	-0.075	41.653	1.218	1.608	918	918	17.3	8.9	0.611	0.702	0.716	0.08074	80.744	68.71
432	12/15/1999	11:39:32 AM	0	24.526	20.719	24.273	21.735	20.63	173.285	9.547	32.74	7.07	2.558	22.996	-0.121	41.607	1.218	1.587	919	919	17.3	8.1	0.417	0.736	0.752	0.12420	124.196	105.69
433	12/15/1999	11:40:32 AM	0	24.448	20.719	24.353	21.655	20.63	173.285	9.733	32.496	7.07	2.795	22.657	-0.121	41.576	1.218	1.69	920	920	17.3	8.3	0.432	0.738	0.751	0.11995	119.946	102.06
434	12/15/1999	11:41:32 AM	0	24.448	20.639	24.353	21.816	20.63	173.285	10.105	32.862	7.134	2.626	22.503	-0.121	41.607	1.218	1.681	921	921	17.3	8.4	0.439	0.734	0.747	0.11740	117.405	99.91
435																												
436		Averages		24.8	20.8	24.7	21.3	20.4	172.9	11.9	32.8	7.2	4.7	20.7	0.4	41.7	1.208	1.612			17.3	8.3	0.572	0.704	0.709	0.086	85.4	73.5
437		Maximum		26.1	20.7	26.0	21.8	21.3	173.3	13.2	33.9	7.4	6.3	27.5	59.9	42.5	1.218	1.736			17.6	9.6	0.665	0.758	0.820	0.131	131.2	111.6
438		Median		24.7	20.6	24.6	21.4	20.4	172.9	12.2	32.7	7.1	5.0	20.4	-0.1	41.7	1.218	1.617			17.3	8.5	0.589	0.706	-0.719	0.084	84.2	71.6
439		Minimum		21.2	20.3	21.6	20.2	19.8	172.4	5.4	32.3	6.4	-1.9	19.4	-0.1	39.1	0.013	-0.016			16.2	1.7	0.120	-0.007	-0.007	-0.004	-3.7	-3.2
440		Std Deviation		0.812	0.126	0.765	0.379	0.385	0.259	1.118	0.260	0.133	1.143	1.148	5.433	0.409	0.109	0.151			0.170	1.124	0.078	0.066	0.069	0.018	15.867	13.503
441		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
442																												
443	Overall	Averages		26.8	25.6	23.1	21.7	21.3	174.2	12.7	31.5	6.8	6.0	18.8	0.0	40.6	1.215	1.504			16.8	9.3	0.642	0.657	0.695	0.078	77.9	66.3
444	Overall	Maximum		42.1	42.4	26.0	22.4	22.4	175.1	16.6	33.9	7.4	10.0	27.5	59.9	42.5	1.218	1.736			17.6	13.2	0.911	0.758	0.852	0.142	142.3	121.1
445	Overall	Median		25.0	24.9	23.0	21.9	21.8	174.7	12.8	31.3	6.7	6.2	18.1	-0.2	40.1	1.218	1.485			16.6	9.5	0.655	0.648	0.691	0.073	72.8	61.9
446	Overall	Minimum		21.2	20.3	18.8	20.0	18.1	172.4	5.4	29.8	6.3	-1.9	14.1	-0.2	39.1	0.013	-0.015			16.2	1.7	0.120	-0.007	-0.007	-0.004	-3.7	-3.2
447	Overall	Std Deviation		4.212	5.239	1.588	0.487	0.971	0.969	1.505	0.951	0.284	1.667	2.110	3.000	0.889	0.060	0.134			0.369	1.577	0.109	0.059	0.070	0.022	21.992	18.715
448	Overall	Number of Points Used		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400			400	400	400	400	400	400	400	400

APPENDIX B

EXPERIMENTAL DATA: LOW SOLIDS CONCENTRATION

Appendix Contents

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

Fig.	Run	Solution	Done on
B1	1.01	2 wt% Solids	10/20/99
B2	1.02	2 wt% Solids	10/20/99
B3	1.03	2 wt% Solids	10/20/99
B4	1.04	2 wt% Solids	10/20/99
B5	1.05	2 wt% Solids	10/21/99
B6	1.06	2 wt% Solids	10/21/99
B7	1.07	2 wt% Solids	10/21/99
B8	1.07a	2 wt% Solids	10/21/99

On 10/18/99 the customer changed the Test Matrix to further randomize the flow conditions of the test runs. The 10 test runs below were already complete when the change was received. Those runs are indicated by the word "old" in the run number and are included for completeness.

B9a	1.01	(old)	2 wt% Solids	10/05/99 (time in seconds)
B9b	1.01	(old)	2 wt% Solids	10/05/99 (time in minutes)
B10	1.02	(old)	2 wt% Solids	10/05/99
B11	1.03	(old)	2 wt% Solids	10/05/99
B12	1.04	(old)	2 wt% Solids	10/05/99
B13	1.05	(old)	2 wt% Solids	10/06/99
B14	1.04a	(old)	2 wt% Solids	10/06/99
B15	1.05a	(old)	2 wt% Solids	10/06/99
B16	1.06	(old)	2 wt% Solids	10/06/99
B17	1.07	(old)	2 wt% Solids	10/07/99
B18	1.01a	(old)	2 wt% Solids	10/07/99

General Note: For measurement uncertainties see Appendix F

Special Notes:

a. Run 1.07a was done at the end of the day on 10/21/99 to obtain one more data point with the slurry axial velocity of 15 ft/s. Run 1.04 was 15 ft/s at a TMP = 30 psid and run 1.07 was 15 ft/s at a TMP = 70 psid. Previously experience indicated that increasing the TMP to 70 psid was generally not necessary since most of the benefit of the high pressure appear to taper off as the pressure goes higher. Three data points would be needed to facilitate the analysis.
b. 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.

c. 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.
d. 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.
e. To calculate those quantities mentioned in the preceding item, 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.
f. The data for the graphs, and all the data taken for the individual test run that the graphs represent, immediately follow the specific figure.

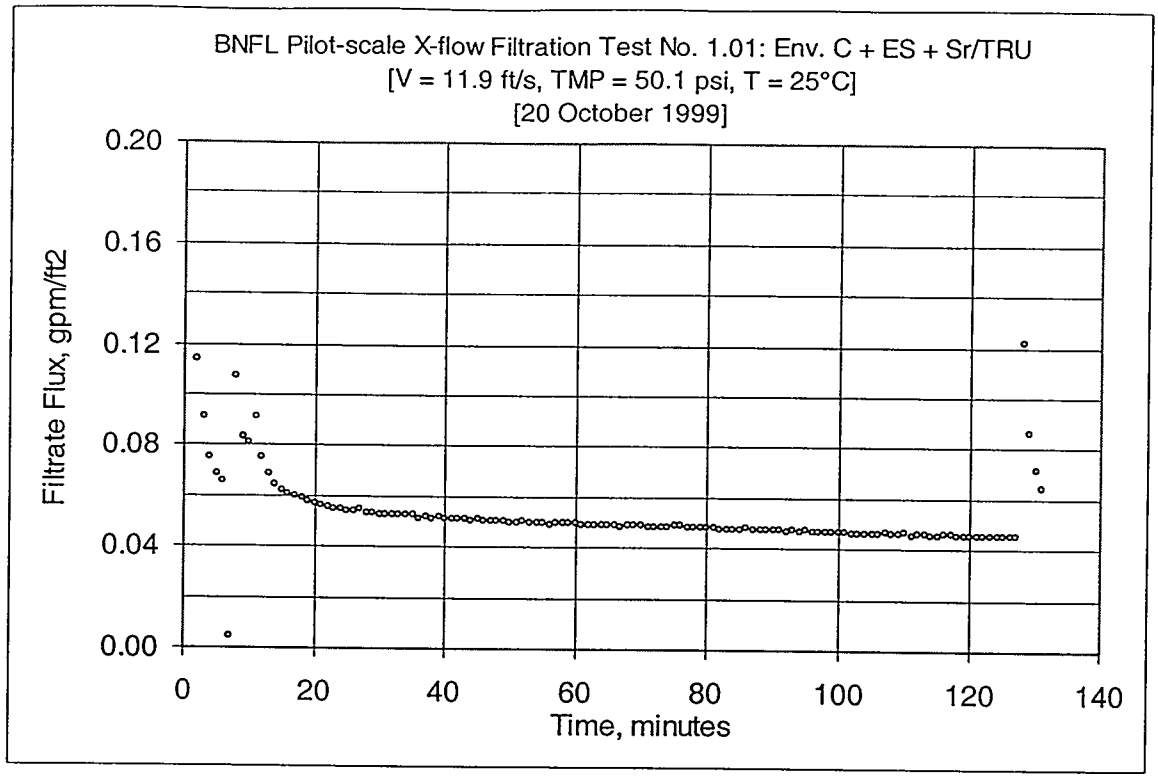
Nomenclature For Data Sheets
(See Figure 1: Main Test Rig - Pilot Scale Cross Flow for the Instrument Location)

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 =	Q2,FLTR FL	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow from 0 to 1.2 gpm
R =	Q3,FLTR FL	=	FLTR FLOW (gpm) Q3	Flow Rate of the Filtrate Flow from 0 to 5 gpm

The following columns are calculated results based on the appropriate columns

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



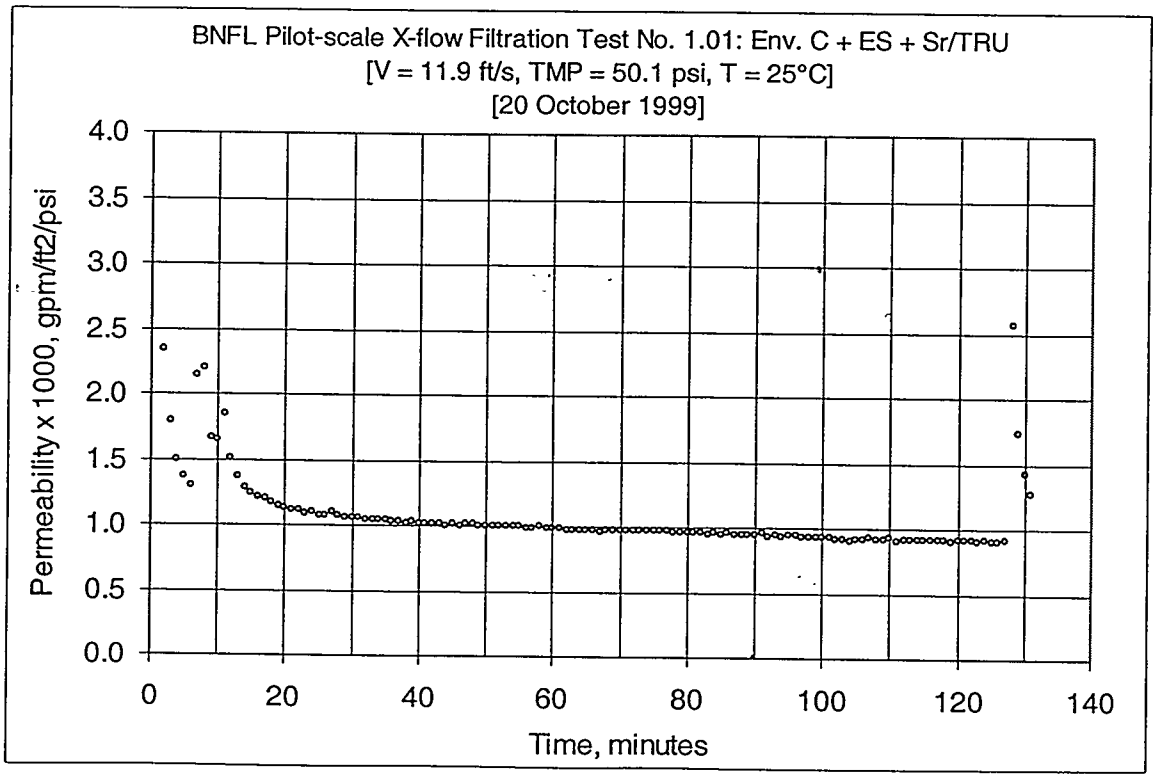


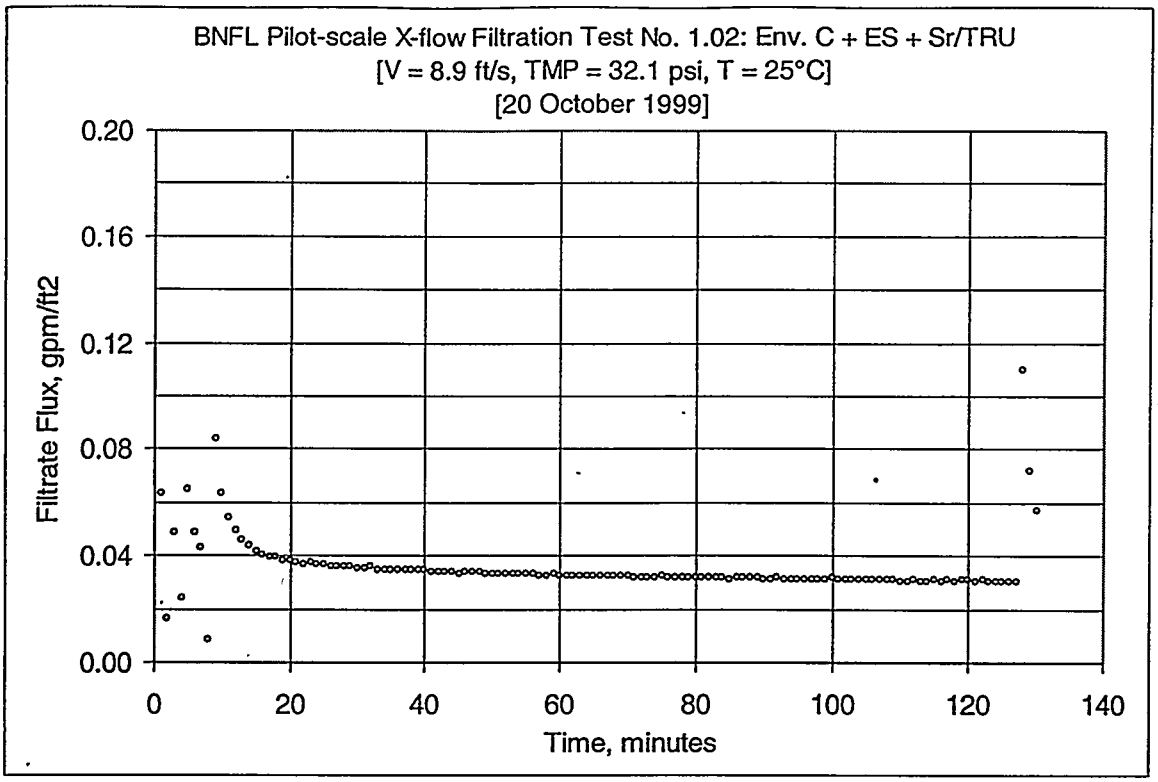
Figure B1: Test Run 1.01, 2 wt% Insoluble Solids Concentration

Run 1.01: 2 wt% Concentration of Insoluble Solids

	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 (psi	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	Q2,FLTR	Q3,FLTR	FLOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/20/1999	8:11:12 AM	0	20 861	20 686	20 615	20 67	20 884	30 433	0 186	-2 023	0 726	-0 22	-2 584	-0 089	-0 095	0 011	-0 015										
4	10/20/1999	8:12:12 AM	0	20 78	20 605	20 534	20 67	20 884	30 353	0 124	-2 023	0 726	-0 254	-2 584	-0 089	-0 095	0 011	-0 018										
5	10/20/1999	8:13:13 AM	0	20 825	20 731	20 579	20 715	21 01	30 396	0 124	-2 023	0 726	-0 22	-2 584	-0 089	-0 08	0 011	-0 018										
6	Zeros - Lines Not Connected																											
7	10/20/1999	8:15:29 AM	0	20 906	20 731	20 579	20 634	21 01	30 396	-0 062	-0 011	-0 008	-0 017	-0 089	-0 089	-0 08	0 011	-0 018										
8	10/20/1999	8:16:30 AM	0	20 825	20 65	20 579	20 634	20 929	30 477	-0 062	-0 011	-0 008	-0 017	-0 068	-0 089	-0 08	0 011	-0 018										
9	10/20/1999	8:17:30 AM	0	20 825	20 65	20 579	20 634	20 849	30 557	-0 062	-0 011	-0 008	0 016	-0 119	-0 089	-0 08	0 011	-0 018										
10																												
11	Data - Per Minute																								±1 25C	PERMABILITY	±1000	
12	10/20/1999	8:21:15 AM	0	23,365	20 695	24,243	20,68	21,136	30 442	52,195	58,59	10,237	42,615	5 66	-0 089	38,058	0,548	0 521	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
13	10/20/1999	8:22:15 AM	0	23,448	20 695	24,564	20 68	21,055	30,522	51,327	60,724	6,957	46 063	9 003	-0 089	29 595	0 258	0,234	1	1	15 8	47.4	3 268	0 238	0 243	0 005	5,137	4 37
14	10/20/1999	8:23:15 AM	0	24 008	20 695	24 964	20 68	21,136	30,363	54,365	62,737	7,077	48 058	7 832	-0 089	29 487	0 209	0,189	2	2	12,3	48 7	3,357	0 113	0 114	0 002	2 342	1 99
15	10/20/1999	8:24:18 AM	0	24 068	20 695	25,283	20 68	21,136	30,442	53,373	61,334	7,021	47,179	7,339	-0 089	29,38	0,174	0,152	3	3	12 2	51,2	3 531	0 091	0 091	0 002	1,783	1 52
16	10/20/1999	8:25:18 AM	0	24,329	20,778	25 445	20 68	21,218	29 406	53 559	61,151	7,125	47,348	7,165	-0 089	29 487	0,16	0,137	4	4	12 2	50 3	3 466	0 078	0 075	0 001	1 499	1 28
17	10/20/1999	8:26:18 AM	0	24 81	20 695	25 605	20 922	21,297	29 886	53,683	61,273	7 069	47,179	7,123	-0 089	29 411	0,153	0,131	5	5	12 2	50 5	3 479	0 070	0 069	0 001	1 367	1,16
18	10/20/1999	8:27:17 AM	1	25 05	20 695	25 685	21,486	21,297	29,965	5 269	61,151	6 622	-0 883	55,414	79 512	29 211	0 011	-0 018	6	6	12 2	50 4	3 477	0 067	0 066	0 001	1 302	1,11
19	10/20/1999	8:28:17 AM	0	25 578	20,74	25 65	21 692	21,342	29 681	51,823	60,968	6 975	45 962	8 695	-0,089	29 318	0 23	0 218	7	7	12,1	2 2	0,152	0 005	0 005	0 002	2,138	1 82
20	10/20/1999	8:29:17 AM	0	25 496	20,74	25 65	21,853	21,422	29 63	53 063	60 907	7,053	46,908	7,4	-0 089	29 272	0,194	0,161	8	8	12 2	48 9	3 371	0 109	0 107	0 002	2,192	1 87
21	10/20/1999	8:30:18 AM	0	25,576	20 74	25,73	21,853	21,422	29,532	52,133	61,212	6 878	45,928	8 51	-0 089	29,272	0,169	0,158	9	9	12,1	50 0	3 448	0 085	0 083	0 002	1 664	1,42
22	10/20/1999	8:31:18 AM	0	25,736	20,74	25,73	21,934	21,422	29 453	52,753	61,029	7,021	46 131	7,77	-0 089	29 242	0,213	0,183	10	10	12,1	49 4	3 409	0 093	0 091	0 002	1 642	1 40
23	10/20/1999	8:32:18 AM	0	25,736	20,74	25 81	21,934	21,422	29 263	53,249	60 802	7,037	47,382	7,154	-0 089	28,996	0,177	0,146	11	11	12,1	49 4	3 409	0 093	0 091	0 002	1 642	1 57
24	10/20/1999	8:33:19 AM	0	25,736	20,74	25 81	21,934	21,503	29 463	53,745	61,151	7,133	46,976	6,969	-0 089	29 334	0,161	0,134	12	12	12 0	50 3	3 468	0 077	0 076	0 002	1 501	1,28
25	10/20/1999	8:34:19 AM	0	25 861	20,785	25 854	21,978	21,628	29 815	53 621	60,968	7,221	46 706	7	-0 089	29 349	0,151	0,125	14	14	12 2	50 2	3 459	0 068	0 064	0 001	1 264	1,16
26	10/20/1999	8:35:19 AM	0	25 941	20,785	25 854	22 059	21,628	29,179	53,683	61,273	7,173	47,044	7,061	-0,089	29 38	0,146	0,122	15	15	12,2	50 4	3 472	0 064	0 062	0 001	1 283	1 09
27	10/20/1999	8:36:20 AM	0	25,941	20,785	25 854	22,139	21,548	29 656	53,311	60,907	7,149	46 607	7,092	-0 089	29 242	0,142	0,122	16	16	12,1	50,1	3 451	0 062	0 061	0 001	1 209	1 03
28	10/20/1999	8:37:20 AM	0	25,941	20,785	25 854	22 059	21,628	29 656	52,939	60,541	7 069	46 675	7,092	-0 089	29 134	0,14	0,122	17	17	12,1	49 9	3 441	0 061	0 060	0 001	1,196	1,02
29	10/20/1999	8:38:20 AM	0	26 021	20,785	25 854	22,059	21,709	29,656	53 807	61,456	7,029	47,01	7,123	-0 089	28,965	0,138	0,122	18	18	12 0	50 4	3 475	0 060	0 059	0 001	1,167	0 99
30	10/20/1999	8:39:21 AM	0	26 021	20,785	26 014	21,978	21,709	29 577	53 621	61,273	7,045	47,044	7,123	-0 089	29 011	0,136	0,119	19	19	12 0	50 3	3 470	0 059	0 058	0 001	1,146	0 96
31	10/20/1999	8:40:21 AM	0	26 021	20,785	25,934	22,139	21,709	29 417	53,621	61,334	7,045	47,314	7,154	-0 089	28 886	0,134	0,118	20	20	12 0	50 5	3 480	0 058	0 057	0 001	1,129	0 96
32	10/20/1999	8:41:21 AM	0	26,146	20 83	26 059	22,184	21,754	29,821	53,497	61,273	6,961	47,145	7,154	-0 089	28,934	0,132	0,116	21	21	12 0	50 3	3 469	0 058	0 056	0 001	1,112	0 95
33	10/20/1999	8:42:22 AM	0	26,146	20,83	25 979	22,184	21,784	29 841	53,125	60,724	7,005	46 841	7,154	-0 089	28,95	0,131	0,112	22	22	12 0	50 0	3 446	0 057	0 056	0 001	1,113	0 95
34	10/20/1999	8:43:22 AM	0	26 226	20 83	26 059	22,104	21,593	29,86	53 373	61 09	7,045	46,908	7,154	-0 089	28,904	0,129	0,109	23	23	12 0	50,1	3 457	0 056	0 055	0 001	1 090	0 93
35	10/20/1999	8:44:22 AM	0	26 226	20,83	26 059	22,184	21,673	29 541	53,001	60 541	7,005	46 675	7,185	-0 089	28 858	0,129	0,109	24	24	12 0	49 9	3 443	0 056	0 055	0 001	1 095	0 93
36	10/20/1999	8:45:23 AM	0	26,27	20 875	26,104	22 229	21,718	29 904	53 559	61,151	7 053	47,044	7,216	-0 089	28 873	0,128	0,106	25	25	12 0	50 3	3 468	0 056	0 054	0 001	1 077	0 92
37	10/20/1999	8:46:23 AM	0	26 27	20 956	26,104	22,31	21,838	29 427	53,187	60 907	7,005	47,077	7,216	-0 089	28 873	0,127	0,103	26	26	12 0	50,1	3 456	0 055	0 054	0 001	1 072	0 91
38	10/20/1999	8:47:23 AM	0	26 35	20 875	26,104	22,229	21,838	29 984	53 001	60 541	7,029	46 942	7,216	-0 089	28 963	0,129	0,106	27	27	12 0	50 0	3 445	0 056	0 055	0 001	1 093	0 93
39	10/20/1999	8:48:24 AM	0	26 27	20,875	26,104	22,229	21,838	29 825	53,249	61,028	7,021	47,01	7,216	-0 089	29 027	0,126	0,106	28	28	12 0	50,1	3 456	0 055	0 053	0 001	1 064	0 91
40	10/20/1999	8:49:24 AM	0	26 35	20 875	26,184	22,149	21,718	30,143	53 683	61,578	7,029	47,01	7,216	-0 089	28 991	0,126	0,106	29	29	12 0	50 3	3 471	0 055	0 053	0 001	1 064	0 91
41	10/20/1999	8:50:24 AM	0	26 35	20,875	26,184	22 31	21,838	29,745	53 001	60 663	7,021	46 672	7,216	-0 089	28,965	0,125	0,106	30	30	12 0	49 8	3 436	0 055	0 053	0 001	1 059	0 90
42	10/20/1999	8:51:25 AM	0	26,35	20 875	26,184	22,31	21,838	29 825	53,187	60,785	7,037	46 942	7,216	-0 089	28 904	0,125	0,106	31	31	12 0	50,1	3 452	0 055	0 053	0 001	1 054	0 90
43	10/20/1999	8:52:25 AM	0	26 475	20,92	26 228	22,355	21,683	29,651	53 683	61,578	7,013	46,942	7,246	-0 089	28 888	0,124	0,106	32	32	12,0	50 3	3 469	0 054	0 052	0 001	1 039	0 88
44	10/20/1999	8:53:25 AM	0	26 475	20,92	26 228	22,355	21,683	29,71	53 435	61,09	7,005	46 841	7,246	-0 089	28,842	0,124	0,106	33	33	12 0	50 1	3 457	0 054	0 052	0 001	1 043	0 89
45	10/20/1999	8:54:26 AM	0	26 475	20 92	26,228	22 435	21,683	29,471	53 559	61,09	7,013	46 675	7,246	-0 089	28 781	0,124	0,106	34	34	11,9	50,2	3 462	0 054	0 052	0 001	1 041	0 89
46	10/20/1999	8:55:26 AM	0	26 475	20,92	26 228	22 516	21,763	29,392	53,187	60 907	6,917	46 607	7,216	-0 089	28,704	0,124	0,103	35	35	11,9	50,0	3 447	0 054	0 052	0 001	1 046	0 89
47	10/20/1999	8:56:26 AM	26 475	21,001	26 308	22,516	21,763	29 631	53,249	61,09	6,949	46,773	7,246	-0 089	28,781	0,122	0,106	36	36	11,9	50,0	3 448	0 053	0 051	0 001	1 027	0 87
48	10/20/1999	8:57:27 AM	26,52	20,966	26,353	22,561	21,728	29,754	53,311	61,029	6 917	47,077	7,246	-0 089	28,796	0,123	0 097	37	37	12 0	50 2	3 461	0 054	0 052	0 001	1,030	0 88
49	10/20/1999	8:58:27 AM	26 475	21,001	26,308	22 435	21,683	29 651	53 311	61,029	6,965	47,314	7,246	-0 089	28 689	0,122	0 097	38	38	11,9	50 3	3 469	0 053	0 051	0 001	1 020	0 87
50	10/20/1999	8:59:28 AM	26,52	21,046	26,353	22,561	21,808	29 595	53 807	61,517	6 965	46 942	7,246	-0,089	28,719	0,123	0,103	39	39	11,9	50 4	3 473	0 054	0 052	0 001	1 020	0 87
51	10/20/1999	9:00:28 AM	26 52	20 966	26 353	22 48	21,808	29 834	53 869	61,639	6,933	46,773	7,246	-0 089	28,735	0,122	0,103	40	40	11,9	50 3	3 469	0 053	0 051	0 001	1 019	0 87
52	10/20/1999	9:01:28 AM	26 6	21,046	26,353	22,48	21,808	30,252	53 559	61 273	6 957	46 976	7,246	-0,089	28 643	0,121	0,103	41	41	11 9	50 3	3 468	0 053	0 051	0 001	1 012	0 86
53	10/20/1999	9:02:29 AM	26 644	21,011	26,318	22 669	21,854	30,356	53 435	61,273	6,941	46 875	7,246	-0 089	28,766	0,121	0 097	42	42	11,9	50 2	3 458	0 053	0 051	0 001	1 013	0 86
54	10/20/1999	9:03:29 AM	26 564	21,011	26,238	22 928	21,854	29,56	53 373	61,09	6 925	47,01	7,216	-0 089	28,735	0,121	0 097	43	43	11,9	50 2	3 461	0 053	0 051	0 001	1 015	0 86
55	10/20/1999	9:04:29 AM	26 564	21,011	26,158	22,787	21,854	30 036	53,311	61,029	7,013	46,908	7,165	-0 089	28,666	0,119	0,1	44	44	12 0	50,1	3 455	0 052	0 050	0 001	1 004	0 85
56	10/20/1999	9:05:30 AM	26 564	21,091	26 078	22 847	21,854	29,242	52,939	60,663	6 969	46 672	7,216	-0,135	28 642	0,12	0,1	45	45	12 0	49 8	3 434	0 052	0 051	0 001	1,020	0 87
57	10/20/1999	9:06:30 AM	26,629	21,056	26,123	22,592	21,899	29 923	53,435	61,151	6 965	46 607	7,216	-0 089	28 627	0,119	0 097	46	46	12 0	50 1	3 456	0 052	0 050	0 001	1 004	0 85
58	10/20/1999	9:07:30 AM	26 574	21,101	26 068	22,837	21,663	29 809	52,877	60,48	6,973	47,044	7,185	-0 089	28,75	0,119	0,1	47	47	11,9	50 0	3 445	0 052	0 050	0 001	1,009	0 86
59	10/20/1999	9:08:31 AM	26,529	21,056	25,963	22,812	21,899	30,241	53,063	60,785	6,796	46 976	7,216	-0 089	28,766	0,119	0 097	48	48	11,9	50 0	3 449	0 052	0 051	0 001	1,011	0 86
60	10/20/1999	9:09:31 AM	26,494	21,101	26 008	22 937	21,944	30,127	53,125	60 846	6,961	47,044	7,216	-0 089	28 658	0,118	0 097	49	49	12 0	50,1	3 453	0 052	0 050	0 001	1,000	0 85
61	10/20/1999	9:10:31 AM	26,414	21,101	25 848	23 018	21,944	30,266	53 621	61,517	6 957	46,807	7,216	-0 089	28 761	0,117	0 097	50	50	11,9	50 2	3 462	0 051	0 050	0 001	0 993	0 85
62	10/20/1999	9:11:32 AM	26,334	21,101	25,768	23 018	21,944	30,266	53 621	61,456	7,013	46,435	7,216	-0 089	28 627	0,117	0 094	51	51	12 0	50 0	3 449	0 051	0 050	0 001	0 999	0 85
63	10/20/1999	9:12:32 AM	26,334	21,101	25,688	23 018	21,944	29 809	53,311	61,151	6 87	47,213	7,216	-0 089	28,75	0,118	0 097	52	52	11,9	50 3	3 465	0 052	0 051	0 001	1,005	0 86
64	10/20/1999	9:13:32 AM	26,299	21,146	25 572	23,143	21,969	30 065	53 249	61,029	6 961	46,841	7,216	-0 089	28 627	0,116	0 094	53	53	11,9	50 0	3 450	0 051	0 050	0 001	0 996	0 85
65	10/20/1999	9:14:33 AM	26,219	21,146	25,572	23 063	21,969	29 833	53 249	60 907	7,006	46 638	7,216	-0 089	28,781	0,116	0 094	54	54	11,9	49 9	3 443	0 051	0 050	0 001	0 996	0 85
66	10/20/1999	9:15:33 AM	26 059	21,146	25 492	23,143	21,969	30 092	52,939	60,48	6 969	46 942	7,216	-0 089	28,796	0,116	0 097	55	55	12 0	49 9	3 443	0 051	0 050	0 001	1,000	0 85
67	10/20/1999	9:16:33 AM	26,104	21,191	25,372	22 947	22 034	30,218	53,187	60 968	6 925	46 672	7,216	-0,089	28,735	0,114	0 097	56	56	11,9	49,9	3 442	0 050	0 049	0 001	0 988	0 84
68	10/20/1999	9:17:34 AM	25 944	21,191	25,297	23 027	22 034	29,8	53,373	61,029	6 969	47,044	7,216	-0 089	28 658	0,115	0 097	57	57	11,9	50,2	3 462	0 050	0 050	0 001	0 992	0 84
69	10/20/1999	9:18:34 AM	25 944	21,191	25,297	23 027	22 034	30 316	53,125	60,846	6,933	46,638	7,216	-0 089	28 643	0,115	0 097	58	58	11,9	49 9	3 439	0 050	0 050	0 001	0 996	0 85
70	10/20/1999	9:19:34 AM	25 908	21,236	25,262	23 072	22 079	29 644	53 373	61,151	6 917	47,111	7,216	-0 089	28 689	0,114	0 094	59	59	11,9	50 2	3 464	0 050	0 049	0 001	0 983	0 84
71	10/20/1999	9:20:35 AM	25 828	21,236	25 182	23,153	22 079	28,942	53 373	60 968	6 981	46 841	7,216	-0 089	28 689	0,114	0 091	60	60	11,9	50,1	3 455	0 050	0 050	0 001	0 988	0 84
72	10/20/1999	9:21:35 AM	25 748	21,236	25,182	23,153	22 079	28,465	52 877	60 541	6 949	46 875	7,246	-0 089	28 658	0,113	0 091	61	61	11,9	49 9	3 439	0 049	0 049	0 001	0 984	0 84
73	10/20/1999	9:22:35 AM	25,783	21,282	25 067	23 117	22,205	30,464	53,435	61,09	6 981	47,01	7,216	-0 089	28,75	0,112	0 091	62	62	11,9	50 2	3 463	0 049	0 049	0 001	0 972	0 83
74	10/20/1999	9:23:36 AM	25 668	21,236	25 022	23 072	22,159	29 465	53 559	61,334	7,029	46,773	7,246	-0 089	28 658	0 112	0 091	63	63	11,9	50 2	3 459	0 049	0 049	0 001	0 974	0 83
75	10/20/1999	9:24:36 AM	25 633	21,282	24,966	23 037	22,205	30,225	53 559	61,334	6 961	46 976	7,246	-0 042	28 612	0,112	0 091	64	64	11,9	50,3	3 466	0 049	0 049	0 001	0 973	0 83
76	10/20/1999	9:25:36 AM	25,596	21,327	25 031	23,162	22,159	29 554	53 621	61,395	6 894	46 942	7,246	-0,089	28 612	0 112	0 091	65	65	11 9	50 3	3 467	0 049	0 049	0 001	0 972	0 83
77	10/20/1999	9:26:37 AM	25 553	21,282	24,906	23,196	21,963	30,782	53 373	60 907	6,742	47,382	7,246	-0,089	28 597	0,112	0 094	66	66	11,9	50 4	3 473	0 049	0 049	0 001	0 972	0 83
78	10/20/1999	9:27:37 AM	25,473	21,201	24 906	23,196	21 641	31,338	53,373	61,273	6 997	46,739	7,246	-0,089	28,75	0,11	0 091	67	67	11,9	50 1	3 451	0 048	0 048	0 001	0 962	0 82
79	10/20/1999	9:28:37 AM	25,393	21,282	24 826	23,117	21,48	31,576	53 621	61,334	7,021	46 907	7,216	-0 089	28,704	0,111	0 091	68	68	11,9	50 2	3 462	0 048	0 049	0 001	0 970	0 83
80	10/20/1999	9:29:38 AM	25,393	21,282	24,746	23,117	21,399	30,861	53 001	60 602	6,997	47,044	7,216	-0 089	28,704	0 111	0 091	69	69	11,9	50 0	3 449	0 048	0 049	0 001	0 976	0 83
81	10/20/1999	9:30:38 AM	25,393	21,282	24 746	22,957	21,236	31,179	53 311	60 968	6 973	46,739	7,246	-0 089	28 673	0,111	0 088	70	70	11,9	50 0	3 449	0 048	0 049	0 001	0 976	0 83
82	10/20/1999	9:31:38 AM	25,348	21,317	24,701	22,992	21,112	31,293	53,311	61,151	6 981	46,739	7,216	-0 089	28,719	0,11	0 091	71	71	11,9	50 0	3 449	0 048	0 048	0 001	0 968	0 82
83	10/20/1999	9:32:39 AM	25,268	21,317	24,701	22 831	21,112	31,769	53,187	61,09	6 965	46 638	7,246	-0 089	28 735	0,11	0 091	72	72	11,9	49 9	3 441	0 048	0 048	0 001	0 970	0 83
84	10/20/1999	9:33:39 AM	25,303	21,272	24 656	22 866	20,906	31,883	53,373	61 09	7,005	46 739	7,246	-0,089	28,719	0 11	0 091	73	73	11 9	50,1	3 451	0 048	0 048	0 001	0 969	0 82
85	10/20/1999	9:34:39 AM	0	25 223	21,272	24 656	22,788	20 906	31,883	53,373	61,151	6 949	46 672	7 246	-0 089	28 504	0,11	0 088	74	74	11 8	50 0	3 449	0 048	0 048	0 001	0 969	0 82

Run 1.01: 2 wt% Concentration of Insoluble Solids

	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	10/20/1999	9:35:40 AM	0	25 258	21 307	24 811	22 821	20 861	30 966	53 311	61,151	6 917	47,044	7,246	-0.089	28 581	0 11	0 088	75	75	11 9	50 2	3 460	0 046	0 049	0 001	0 958	0 82
87	10/20/1999	9:36:40 AM	0	25 176	21 307	24 811	22 741	21 103	30 251	53 187	60 968	6 894	47,01	7,246	-0 089	28 412	0 11	0 091	76	76	11 8	50 1	3 454	0 046	0 049	0 001	0 969	0 82
88	10/20/1999	9:37:40 AM	0	25 258	21 307	24 772	22 58	21 103	30 251	53 249	61,029	6 838	46 838	7,277	-0 089	28 382	0,11	0 085	77	77	11 6	49 9	3 443	0 046	0 048	0 001	0 958	0 82
89	10/20/1999	9:38:41 AM	0	25 258	21 388	24,772	22,741	21,183	30,30	53 663	61,639	6 79	46 841	7 277	-0,089	28 382	0 11	0 088	78	78	11 8	50 3	3 465	0 048	0 048	0 001	0 962	0 82
90	10/20/1999	9:39:41 AM	0	25 293	21 343	24 807	22 896	21 138	29 968	53 435	61,334	6 876	47 01	7 277	-0 089	28 428	0 109	0 088	79	79	11 8	50 2	3 463	0 048	0 048	0 001	0 953	0 81
91	10/20/1999	9:40:41 AM	0	25 213	21 343	24 807	22 776	21 219	30,763	53 373	61,151	6 894	46 908	7,308	-0,089	28 474	0 11	0 091	80	80	11 8	50 1	3 457	0 048	0 048	0 001	0 963	0 82
92	10/20/1999	9:41:42 AM	0	25 168	21 296	24,762	22 731	21 254	30 003	53 435	61 395	6 894	47,01	7 277	-0 042	28 428	0 109	0 088	81	81	11 8	50 2	3 463	0 048	0 048	0 001	0 954	0 81
93	10/20/1999	9:42:42 AM	0	25 293	21,423	24 887	22,776	21 38	30 624	53 435	61,334	6 862	46 942	7,277	-0 089	28 397	0 109	0 085	82	82	11 8	50 2	3 460	0 048	0 048	0 001	0 951	0 81
94	10/20/1999	9:43:42 AM	0	25 249	21,378	24 842	22,731	21,496	29 923	53,249	60,846	6 91	47 077	7,277	-0,089	28 382	0 108	0 085	83	83	11 6	50 2	3 459	0 047	0 047	0 001	0 944	0 80
95	10/20/1999	9:44:43 AM	0	25 249	21,378	24 842	22,812	21,496	30 4	53,125	60,785	6,894	47,01	7,277	-0 089	28 382	0 109	0 088	84	84	11 8	50 1	3 452	0 048	0 048	0 001	0 955	0 81
96	10/20/1999	9:45:43 AM	0	25 329	21 296	24 842	22 692	21 678	29 605	53,063	60,724	6,846	47,044	7,308	-0 089	28 382	0 108	0 088	85	85	11 8	50 1	3 451	0 047	0 047	0 001	0 946	0 81
97	10/20/1999	9:46:43 AM	0	25 329	21,378	24 922	22 692	21,657	30 241	53 063	60,785	6 854	46,942	7,308	-0 089	28 351	0,11	0 088	86	86	11 8	50 0	3 447	0 048	0 048	0 001	0 962	0 82
98	10/20/1999	9:47:44 AM	0	25 329	21,378	24 922	22,973	21,738	29 525	53,311	61,029	6 854	47,179	7 308	-0 042	28,289	0 108	0 088	87	87	11,7	50 2	3 464	0 047	0 047	0 001	0 940	0 80
99	10/20/1999	9:48:44 AM	0	25 249	21,378	24 922	22 692	21,738	30,182	53,497	61,273	6 925	46,976	7,277	-0,042	28 428	0,108	0,091	88	88	11 8	50 2	3 464	0 047	0 047	0 001	0 941	0 80
100	10/20/1999	9:49:44 AM	0	25 329	21,378	24 922	22 973	21,818	29 844	53 001	60 846	6 806	47 213	7 308	-0 089	28 362	0 108	0 088	89	89	11 8	50,1	3 455	0 047	0 047	0 001	0 943	0 80
101	10/20/1999	9:50:45 AM	0	25 329	21,378	24 922	22 692	21,899	30 321	53 559	61,334	6 933	47,01	7,308	-0 089	28 397	0 108	0 088	90	90	11 8	50 3	3 467	0 047	0 047	0 001	0 940	0 80
102	10/20/1999	9:51:45 AM	0	25 329	21,458	24 922	23 053	21,899	29 366	53 311	61,273	6,933	46 636	7,277	-0 089	28 581	0,109	0 088	91	91	11,9	50 0	3 448	0 048	0 048	0 001	0 954	0 81
103	10/20/1999	9:52:45 AM	0	25 329	21 378	25,002	22,973	21,899	30 082	53,497	61,395	6 91	47,077	7,246	-0 042	28 658	0 107	0,085	92	92	11 9	50 3	3 467	0 047	0 047	0 001	0 929	0 79
104	10/20/1999	9:53:46 AM	0	25 329	21,378	24 922	23 053	21,899	29 446	53 559	61 334	6,91	46 773	7,277	-0 089	28,55	0,108	0 085	93	93	11 8	50 2	3 459	0 047	0 047	0 001	0 942	0 80
105	10/20/1999	9:54:46 AM	0	25 373	21,423	25 047	23 096	22 024	29 968	53 249	61,029	6 925	46 976	7,277	-0 089	28 504	0 107	0 088	94	94	11,8	50 1	3 455	0 047	0 047	0 001	0 931	0 79
106	10/20/1999	9:55:46 AM	0	25 454	21,504	25 047	23 259	22 024	29,649	53 063	60 724	6,902	46,908	7 277	-0 042	28 597	0,106	0 088	95	95	11 9	50 0	3 446	0 047	0 047	0 001	0 942	0 80
107	10/20/1999	9:56:47 AM	0	25 373	21,423	25 127	23 096	22 024	29 968	52,939	60,785	6 91	46 706	7,308	-0,089	28 581	0 108	0 091	96	96	11 9	49 8	3 433	0 047	0 047	0 001	0 943	0 80
108	10/20/1999	9:57:47 AM	0	25,454	21,423	25 047	23 178	22 024	29 868	53,001	60 907	6 894	46 773	7 277	-0 042	28 55	0,107	0 088	97	97	11 8	49 9	3 440	0 047	0 047	0 001	0 935	0 80
109	10/20/1999	9:58:47 AM	0	25 418	21,468	25,092	23,143	22 15	30 012	53 249	61 09	6 933	46 841	7,277	-0,042	28 643	0 107	0,088	98	98	-11 9	50 0	3 450	0 047	0 047	0 001	0 931	0 79
110	10/20/1999	9:59:48 AM	0	25 418	21,468	25 092	23 304	22,23	29 853	53 373	61,273	6,91	46 841	7 277	-0 089	28 504	0,107	0 088	99	99	11 6	50 1	3 455	0 047	0 047	0 001	0 930	0 79
111	10/20/1999	10:00:48 AM	0	25 418	21,468	25 092	23 223	22 23	30 092	53 063	60,646	6 894	46 976	7,308	-0 042	28 443	0 107	0,088	100	100	11 8	50 0	3 449	0 047	0 047	0 001	0 931	0 79
112	10/20/1999	10:01:48 AM	0	25,463	21,514	25,137	23 268	22,275	30,216	53,249	61 212	6 894	47,179	7,277	-0 042	28 504	0,107	0 088	101	101	11 8	50 2	3 462	0 047	0 047	0 001	0 927	0 79
113	10/20/1999	10:02:49 AM	0	25,463	21,514	25,137	23 268	22,356	29 696	53 063	60,907	6 878	47 213	7,308	-0 042	28,351	0 106	0 085	102	102	11 8	50 1	3 457	0 046	0 046	0 001	0 919	0 78
114	10/20/1999	10:03:49 AM	0	25 463	21,514	25,137	23,268	22,275	30,216	53,435	61 212	6,782	47 01	7,308	-0 089	28 504	0,106	0 088	103	103	11 6	50 2	3 463	0 046	0 046	0 001	0 918	0 78
115	10/20/1999	10:04:49 AM	0	25 463	21,433	25 137	23,188	22 275	29 977	53,311	61,151	6 91	47 247	7,308	-0 042	28 55	0 105	0 088	104	104	11 8	50 3	3 467	0 048	0 048	0 001	0 908	0 77
116	10/20/1999	10:05:50 AM	0	25 463	21,514	25,137	23 268	22 278	30,136	52,939	60,783	6 91	47,145	7,277	-0 042	28 597	0,106	0 088	105	105	11 9	50 0	3 450	0 048	0 048	0 001	0 921	0 78
117	10/20/1999	10:06:50 AM	0	25 463	21,514	25,137	23 268	22,275	29 977	53,497	61,395	6 917	46 976	7 308	-0 042	28,52	0,106	0 085	106	106	11 8	50 2	3 464	0 046	0 046	0 001	0 916	0 78
118	10/20/1999	10:07:50 AM	0	25 508	21,559	25,102	23,313	22,32	30,34	53,373	61,273	6 965	46 807	7,308	-0 042	28 612	0,107	0 085	107	107	11 9	50 1	3 454	0 047	0 047	0 001	0 930	0 79
119	10/20/1999	10:08:51 AM	0	25 508	21,559	25,102	23 233	22,401	29,783	53,063	60 846	6 91	47,111	7,277	-0 042	28 627	0,105	0 085	108	108	11,9	50 1	3 453	0 046	0 046	0 001	0 913	0 78
120	10/20/1999	10:09:51 AM	0	25,553	21,604	25,147	23 278	22 368	30,225	53,125	60 968	6 894	47 213	7,308	-0 089	28,673	0 106	0,085	109	109	11 9	50 2	3 459	0 046	0 046	0 001	0 919	0 78
121	10/20/1999	10:10:52 AM	0	25 508	21,559	25,182	23 313	22 401	30,181	53 311	61,334	6 902	46,773	7,308	-0,042	28 566	0 107	0 085	110	110	11 9	50 0	3 450	0 047	0 046	0 001	0 929	0 79
122	10/20/1999	10:11:52 AM	0	25 553	21,523	25 227	23,196	22,526	30,384	53 497	61,395	6,933	46 807	7 300	-0 042	28 581	0,105	0 085	111	111	11,9	50 2	3 458	0 046	0 046	0 001	0 908	0 77
123	10/20/1999	10:12:52 AM	0	25,473	21,604	25,147	23,278	22 446	30 066	53,187	61,09	6 917	46,773	7,308	-0 042	28,612	0,106	0,085	112	112	11 9	50 0	3 448	0 046	0 046	0 001	0 922	0,78
124	10/20/1999	10:13:53 AM	0	25 553	21,523	25,147	23,196	22 446	30 384	53,187	61,029	6 902	47,111	7,308	-0,042	28,597	0,105	0 082	113	113	11 9	50,1	3 458	0 048	0 045	0 001	0 910	0 77
125	10/20/1999	10:14:53 AM	0	25 596	21,569	25,192	23,243	22 491	30,35	53,187	61,151	6 862	46,706	7,308	-0 042	28 52	0,105	0 085	114	114	11 8	49 9	3 444	0 046	0 046	0 001	0 913	0 78
126	10/20/1999	10:15:53 AM	0	25 518	21,569	25,192	23 062	22,491	30,588	53,125	60,968	6,917	46 675	7 277	-0 042	28,597	0 105	0,082	115	115	11 9	50 0	3 447	0 046	0 046	0 001	0 912	0 78
127	10/20/1999	10:16:54 AM	0	25 563	21,614	25 237	23,288	22,456	30,394	53 249	60 907	6 846	47,145	7,308	-0,042	28 474	0,106	0 085	116	116	11 6	50 2	3 461	0 046	0 046	0 001	0 916	0 78
128	10/20/1999	10:17:54 AM	0	25 643	21,614	25 317	23 208	22 456	30,553	52,939	60 663	6,917	46 976	7,308	-0 042	28 32	0,106	0 085	117	117	11 8	50 0	3 444	0 046	0 046	0 001	0 918	0 78
129	10/20/1999	10:18:54 AM	0	25 563	21,614	25 237	23,368	22,214	30,474	53,063	60,785	6 886	47,044	7 308	-0 042	28 597	0 105	0,088	118	118	11 9	50 1	3 451	0 046	0 046	0 001	0 910	0 77
130	10/20/1999	10:19:55 AM	0	25 608	21,659	25 282	23,253	22 018	31,154	53,125	61,09	6 878	47,044	7,308	-0,042	28,52	0,105	0 085	119	119	11,8	50 1	3 453	0 046	0 045	0 001	0 908	0 77
131	10/20/1999	10:20:55 AM	0	25 643	21,614	25 237	23 208	21,812	31,427	53,001	60 846	6,886	46 841	7,308	-0 042	28,469	0,105	0,085	120	120	11 8	49 9	3 442	0 046	0 046	0 001	0 912	0 78
132	10/20/1999	10:21:55 AM	0	25 643	21,614	25 237	23,127	21,651	31,585	52,629	60,339	6,87	46,672	7,308	-0,042	28,52	0,105	0,085	121	121	11 8	49 7	3,423	0 046	0 046	0 001	0 917	0 78
133	10/20/1999	10:22:56 AM	0	25 643	21,614	25 237	23,127	21,49	31,347	53,001	60,968	6 846	46,739	7,308	-0,042	28 474	0,105	0 085	122	122	11 8	49 9	3 436	0 046	0 046	0 001	0 913	0 78
134	10/20/1999	10:23:56 AM	0	25 643	21,694	25,317	23 047	21,409	31,585	53,187	60,968	6,894	47,247	7,308	-0 042	28,443	0,105	0 085	123	123	11 8	50 2	3 462	0 046	0 045	0 001	0 905	0,77
135	10/20/1999	10:24:56 AM	0	25 678	21,569	25 192	23 002	21,203	31,699	52,818	60,602	6 838	46,841	7 308	-0 042	28,428	0,105	0 085	124	124	11 8	49 8	3 435	0 046	0 046	0 001	0 915	0 78
136	10/20/1999	10:25:57 AM	0	25 678	21,649	25,272	23,002	21,203	31,699	53,125	60,968	6,862	47,044	7 308	-0 042	28,474	0 105	0 082	125	125	11,8	50 1	3 453	0 046	0 045	0 001	0 908	0 77
137	10/20/1999	10:26:57 AM	0	25 633	21,665	25,227	22,957	21,077	31,872	53,311	61,273	6,846	46,807	7,308	-0,042	28,566	0,104	0 082	126	126	11 8	50 1	3 451	0 045	0 045	0 001	0 901	0 77
138	10/20/1999	10:27:57 AM	0	25,713	21 665	25,227	22,957	21,158	30 623	53 001	61,029	6,846	46 841	7 339	-0 042	28,458	0,105	0 085	127	127	11 8	49 9	3 442	0 046	0 046	0 001	0 912	0 78
139	10/20/1999	10:28:58 AM	0	25 668	21,639	25,262	22,911	21,112	31,055	51,017	61,334	6 614	44 542	6 804	-0 042	28 673	0,252	0 256	128	128	11,9	47 8	3 294	0 123	0 122	0 003	2 556	2 18
140	10/20/1999	10:29:58 AM	0	25,748	21 639	25 262	22,911	21,334	30,858	52 877	61,029	6,75	46,942	7,678	-0 042	28,333	0,199	0,17	129	129	11 8	49 9	3 441	0 087	0 086	0 002	1 728	1,47
141	10/20/1999	10:30:58 AM	0	25 748	21,72	25,262	22 831	21,354	30,817	53,187	60,846	6,798	47,247	7,123	-0 042	28 533	0,165	0,14	130	130	11 8	50 2	3 462	0 072	0 072	0 001	1 424	1 21
142	10/20/1999	10:31:59 AM	0	25,703	21 673	25 297	22,786	21,47	30,295	53 807	61,395	6 854	46,942	7 031	-0,042	28 566	0,148	0,125	131	131	11 9	50 4	3 473	0 065	0 064	0 001	1 272	1 08
143																												
144		Averages		25,8	21,2	25,4	22 8	21 8	30,2	53,3	61,0	6 9	46 9	7,2	-0 1	28,7	0,116	0 096			11 9	50 1	3 455	0 051	0 050	0 00100	1 0	0 9
145		Maximum		26 8	21,7	26 4	23,4	22,5	32,0	53,9	61,8	7,2	47,4	7,8	0,0	29 4	0,213	0,183			12,2	50 5	3 460	0 093	0 091	0 00184	1 8	1 6
146		Median		25 6	21,3	25 2	23 0	21,8	30,0	53,3	61 0	6 9	46 9	7,2	-0 1	28,7	0 111	0,091			11,9	50 1	3 455	0 048	0 049	0 00097	1 0	0 8
147		Minimum		25 2	20,7	24 6	21,9	20 9	29 2	52,8	60 4	6,7	46,1	7,0	-0 1	28 3	0,104	0 082			11 7	49 4	3 409	0 045	0 045	0 00090	0 9	0 8
148		Std Deviatic .		0 449	0 274	0,530	0 400	0,390	0 653	0 244	0,271	0,078	0 191	0,260	0 022	0 227	0 015	0 014			0 094	0 163	0 011	0 007	0 005	0 000122	0 122	0 104
149		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



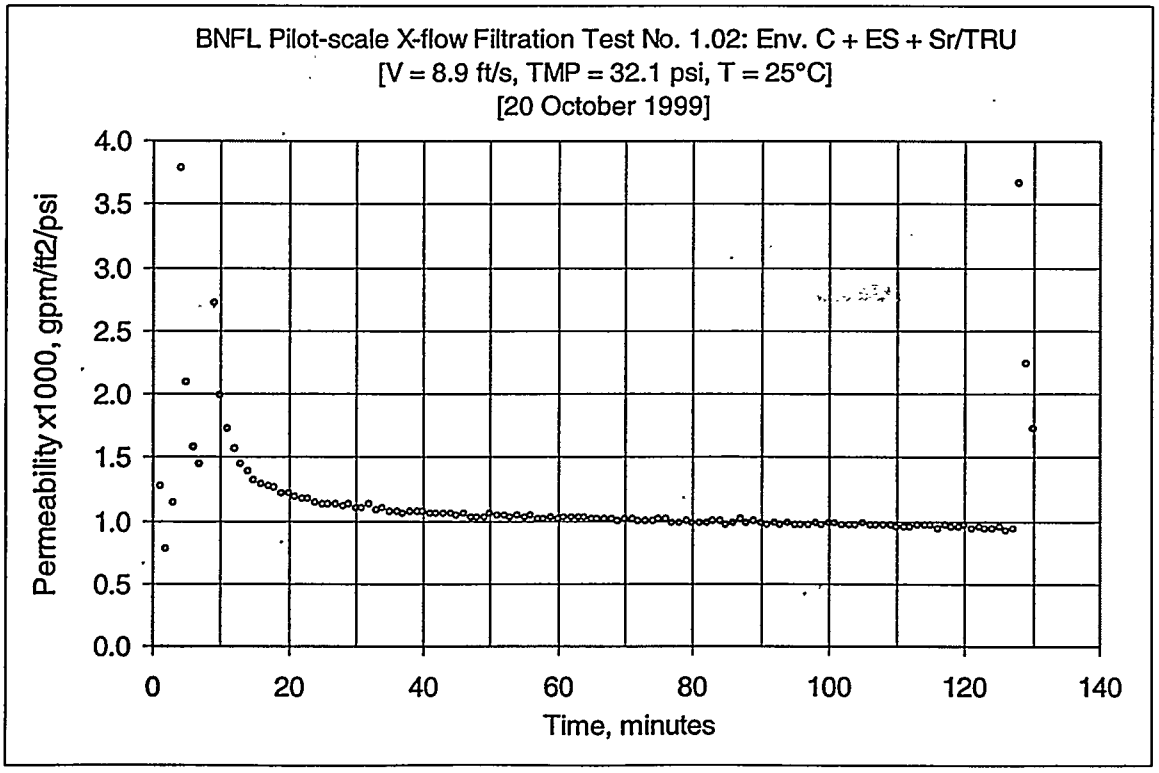


Figure B2: Test Run 1.02, 2 wt% Insoluble Solids Concentration

Run 1.02: 2 wt% Concentration of Insoluble Solids

	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	T6 (deg C)	BOT DP (p	FLTR (pai	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	ASL FLOW	O2,FLTR	RO3,FLTR	FLOW (gpm)		Filter Surface Area		2.29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/20/1999	8:11:12 AM	0	20 681	20 686	20 615	20 67	20 884	30 433	0 166	-2 023	0 726	-0 22	-2 584	-0 089	-0 095	0 011	-0 015										
4	10/20/1999	8:12:12 AM	0	20.78	20 605	20 534	20 67	20 884	30 353	0 124	-2 023	0.726	-0 254	-2 584	-0 089	-0 095	0 011	-0 016										
5	10/20/1999	8:13:13 AM	0	20 825	20 731	20 579	20.715	21.01	30 396	0.124	-2 023	0 726	-0 22	-2 584	-0 089	-0 08	0 011	-0 016										
6	Zeros - Lines Not Connected																											
7	10/20/1999	8:15:29 AM	0	20 906	20 731	20 579	20 634	21.01	30,396	-0 062	-0 011	-0 008	-0 017	-0 088	-0 089	-0 08	0 011	-0 018										
8	10/20/1999	8:16:30 AM	0	20 825	20 65	20 579	20 634	20 929	30 477	-0 062	-0 011	-0 008	-0.017	-0 088	-0 089	-0 08	0 011	-0 018										
9	10/20/1999	8:17:30 AM	0	20 825	20 65	20 579	20 634	20 849	30 557	-0 062	-0 011	-0 008	0 016	-0 119	-0 089	-0 08	0 011	-0 018										
10																												
11	Data - Per Minute																			Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMEABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
12	10/20/1999	10:32:10 AM	0	25 623	21 675	25 297	22 786	21.47	30.375	53 187	60.785	6 83	47.111	7 061	-0 042	28 535	0.147	0 122		1	1	11 8	50 1	3 458	0 064	0 064	0 001	1 269	1 08
13	10/20/1999	10:33:10 AM	0	25,703	21,675	25 217	22 666	21,47	30 931	22.316	29 076	3 957	18 949	6 383	-0 042	19 78	0 037	-0 018		2	2	8 2	20 8	1 423	0 016	0 016	0 001	0 778	0 66
14	10/20/1999	10:34:11 AM	0	25 623	21 675	25 137	22 786	21,712	30 613	48 042	58 224	10 667	37.81	9 619	-0 042	32 513	0 112	0 091		3	3	13 5	42 8	2 949	0 049	0 049	0 001	1.139	0 97
15	10/20/1999	10:35:11 AM	0	25 623	21,755	25 057	22,947	21,792	30 772	8.12	15,478	3 81	4 58	7 031	-0 042	19 565	0 055	0.03		4	4	8 1	8 4	0 438	0 024	0 024	0 004	3 775	3 21
16	10/20/1999	10:36.11 AM	0	25 623	21,755	25,137	22 947	21,953	30 852	33 226	43 04	4 699	26,753	9 342	-0 089	21,961	0 149	0 131		5	5	9 1	31,0	2 137	0 065	0 065	0 002	2 091	1 78
17	10/20/1999	10:37:12 AM	0	25 623	21,755	25 137	22 947	22 034	30,852	32,854	41,943	4,476	28 787	8 602	-0 042	21 654	0,112	0 094		6	6	9 0	30 8	2,125	0 049	0 049	0 002	1 580	1 34
18	10/20/1999	10 38.12 AM	0	25 623	21,755	25,137	22,947	21,953	30 693	31,968	40,723	4,66	27,739	8 263	-0 042	22 084	0 099	0 078		7	7	9 2	29 9	2 059	0 043	0 043	0 001	1 442	1 23
19	10/20/1999	10:39:12 AM	1	25,703	21,675	25,137	22,947	22,034	30,693	2,975	40 845	4,285	-1,167	37 201	60 665	21,976	0,02	0 024		8	8	9 1	0 9	0 062	0 009	0 009	0 010	9 621	8 19
20	10/20/1999	10:40:13 AM	0	25 623	21,755	25,137	22,947	22 034	30 613	32 544	40 54	4 444	29 024	7.4	-0 042	21,946	0 192	0 161		9	9	9 1	30 8	2 122	0 084	0 083	0 003	2 712	2 31
21	10/20/1999	10:41:13 AM	0	25 623	21,675	25 137	22,947	22 034	30,634	33,784	41,394	4 532	29 7	7	-0 042	21,946	0,145	0 119		10	10	9 1	31.7	2 188	0 063	0 063	0 002	1 966	1 69
22	10/20/1999	10:42:13 AM	0	25 623	21,755	25,137	22 947	22,034	30 534	33 412	40 906	4 572	29 396	7	-0 042	21,961	0 124	0 097		11	11	9 1	31 4	2 165	0 054	0 054	0 002	1 717	1 48
23	10/20/1999	10:43:14 AM	0	25 668	21,72	25,102	22,911	22 079	30 499	33 846	41,333	4 644	29 091	7 061	-0 042	21 854	0 113	0 085		12	12	9 1	31 5	2 170	0 049	0 049	0 002	1 563	1 33
24	10/20/1999	10:44:14 AM	0	25 668	21 8	25 182	23,072	22 079	30 578	33 536	41,272	4 62	29 396	7 061	-0 042	21 869	0 105	0 079		13	13	9 1	31.5	2 169	0 048	0 048	0 001	1 449	1 23
25	10/20/1999	10:45.14 AM	0	25 668	21,72	25,182	22,992	22,079	30 499	33 596	41 089	4 691	29 261	7 092	-0 042	21,854	0 1	0 073		14	14	9 1	31 4	2 167	0 044	0 043	0 001	1 382	1 18
26	10/20/1999	10:46:15 AM	0	25 586	21,72	25,102	23,153	22 079	30 578	33,784	41,333	4,684	29 601	7,123	-0,042	21,838	0 096	0 073		15	15	9 1	31 8	2 192	0 042	0 042	0 001	1 314	1 12
27	10/20/1999	10:47:15 AM	0	25 633	21,765	25,227	23,037	22,205	30 623	33 412	40 906	4,707	29 531	7,123	-0 042	21,669	0 093	0 067		16	16	9 1	31 5	2 170	0 041	0 040	0 001	1 262	1 09
28	10/20/1999	10:48.15 AM	0	25 633	21,765	25 147	23,196	22,124	30,843	33,102	40 601	4 684	29 396	7,123	-0 089	21 854	0 091	0 067		17	17	9,1	31,2	2 155	0 040	0 040	0 001	1 266	1,08
29	10/20/1999	10:49:16 AM	0	25 633	21,685	25,147	23,117	22,205	30 464	33 102	40,784	4 707	29 463	7,123	-0 042	21,838	0 09	0 067		18	18	9 1	31 3	2 157	0 039	0 039	0 001	1 251	1 06
30	10/20/1999	10:50:16 AM	0	25 633	21,765	25 067	23,196	22,205	30,464	33 412	41,15	4 636	29 659	7,154	-0 089	21,792	0,088	0 067		19	19	9 0	31,6	2 182	0 038	0 038	0 001	1 212	1 03
31	10/20/1999	10:51:16 AM	0	25 678	21,73	25,192	23,162	22 25	30 687	33,184	40 906	4 668	29 261	7,154	-0 042	21,669	0 087	0 067		20	20	9 1	31 2	2 152	0 038	0 038	0 001	1 210	1,03
32	10/20/1999	10:52:17 AM	0	25 678	21 61	25 112	23,323	22,25	30 508	33 722	41,516	4 66	29 497	7,185	-0 042	21,777	0,086	0 067		21	21	9 0	31 6	2 179	0 038	0 037	0 001	1 184	1 01
33	10/20/1999	10:53:17 AM	0	25 643	21,655	25,237	23 288	22 214	30,712	33,722	41,394	4 668	29 666	7,185	-0 042	21,792	0 085	0 067		22	22	9 0	31,7	2,185	0 037	0 037	0 001	1 163	0 99
34	10/20/1999	10:54:17 AM	0	25 723	21,775	25 157	23 288	22,295	30 633	34 032	41,943	4 604	29 601	7,216	-0 042	21 592	0 086	0 07		23	23	9 0	31 9	2 201	0 038	0 037	0 001	1 171	1 00
35	10/20/1999	10:55:18 AM	0	25 643	21,655	25,157	23 288	22 295	30 633	34 218	41,821	4 604	29 869	7,216	-0,042	21,516	0 084	0 067		24	24	8 9	32,0	2 209	0 037	0 037	0 001	1 139	0 97
36	10/20/1999	10:56:18 AM	0	25 643	21,775	25,157	23,288	22 375	30 474	34,156	41,821	4,58	30 444	7,185	-0,042	21,516	0 084	0 067		25	25	8 9	32 3	2 227	0 037	0 037	0 001	1 130	0 96
37	10/20/1999	10:57.18 AM	0	25 723	21,775	25 157	23,288	22,295	30 553	33 97	41,516	4 628	30,004	7,165	-0 042	21,639	0 083	0 064		26	26	9 0	32 0	2 205	0 036	0 036	0 001	1 128	0 96
38	10/20/1999	10:58:19 AM	0	25 688	21,82	25 201	23,253	22 421	30 518	34 218	41,943	4 644	29 497	7,216	-0 042	21 577	0 083	0 064		27	27	9 0	31 9	2 196	0 036	0 036	0 001	1 131	0 96
39	10/20/1999	10:59:19 AM	0	25 688	21 82	25 201	23 253	22 421	30 596	34 094	41,699	4,636	30 072	7,165	-0 042	21 562	0 082	0 056		28	28	8 9	32 1	2 212	0 036	0 036	0 001	1 109	0 94
40	10/20/1999	11:00:19 AM	0	25 668	21 82	25 201	23,333	22,421	30,596	33 596	41,15	4 628	30 004	7,165	0 042	21,562	0 082	0 061		29	29	8 9	31,6	2 193	0 036	0 036	0 001	1 119	0 95
41	10/20/1999	11:01:20 AM	0	25 606	21 62	25 201	23 333	22,421	30 596	34 156	41,682	4 628	30 004	7,165	-0 042	21,577	0 081	0 061		30	30	9 0	32 1	2 212	0 035	0 035	0 001	1 096	0 93
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43	10/20/1999	11:03:20 AM	0	25 653	21,785	25,166	23 378	22 585	30,722	33 596	41,333	4 648	29 599	7,185	-0 042	21,516	0 082	0 064		32	32	8 9	31,6	2 179	0 036	0 036	0 001	1 128	0 96
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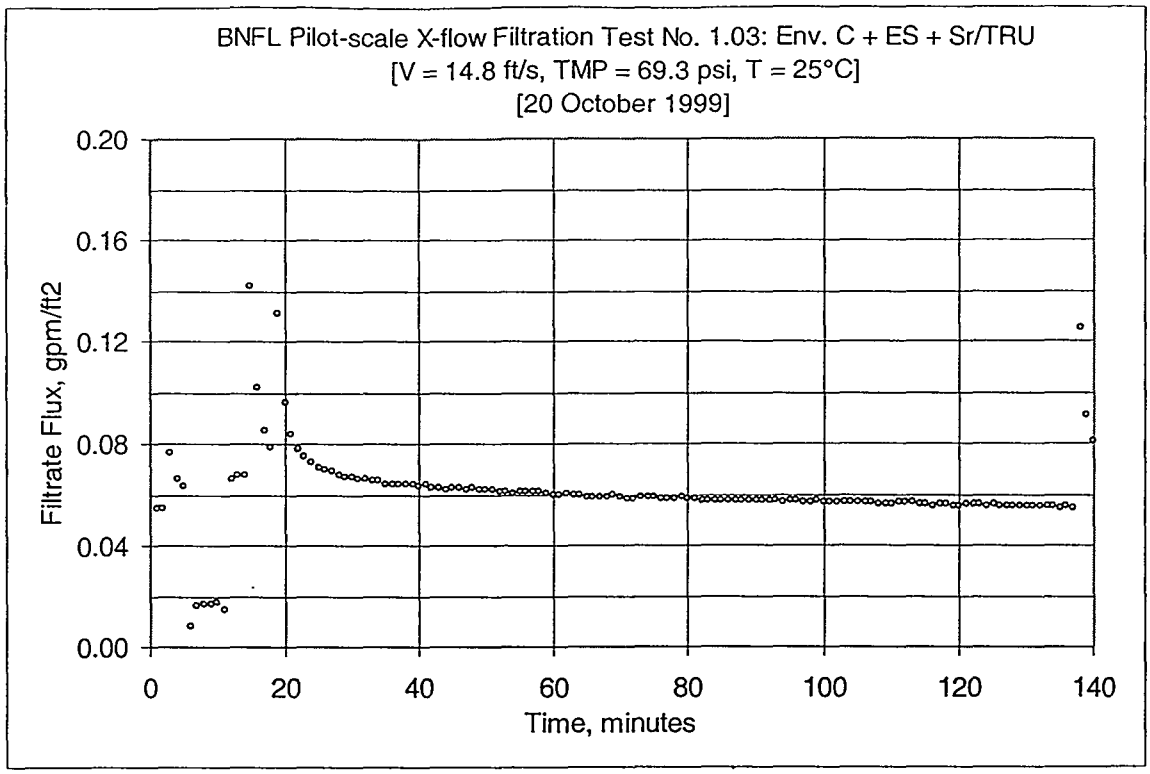
46	10/20/1999	11:06:21 AM	0	25 573	21 665	25 166	23,217	22,466	30,722	34 28	41,943	4,596	30,207	7,216	-0,042	21 592	0 079	0 055		35	35	9 0	32 2	2 223	0 034	0 034	0 001	1 065	0 91
47	10/20/1999	11:07:22 AM	0	25 618	21,83	25,211	23,343	22,511	30 608	34,032	41,636	4 636	29 903	7 216	-0 042	21,531	0 079	0 055		36	36	8 9	32 0	2 204	0 034	0 034	0 001	1 072	0 91
48	10/20/1999	11:08:22 AM	0	25 743	21,956	25 336	23,308	22,556	30 811	34 466	42,126	4 62	30,173	7,246	-0 042	21 5	0 079	0 058		37	37	8 9	32 3	2 228	0 034	0 034	0 001	1 057	0 90
49	10/20/1999	11:09:22 AM	0	25 618	21,83	25,131	23 343	22 27	31,184	34,342	42,065	4 636	30,106	7 216	-0 042	21,531	0 079	0 058		38	38	8 9	32 2	2 222	0 034	0 034	0 001	1 066	0 91
50	10/20/1999	11:10:23 AM	0	25 663	21,875	25 256	23,308	22,073	31,626	34 156	41 821	4 612	29,937	7,216	-0 042	21,454	0 079	0 055		39	39	8 9	32 0	2 209	0 034	0 034	0 001	1 068	0 91
51	10/20/1999	11:11:23 AM	0	25 663	21,875	25 256	23 308	21,912	31,843	33 846	41,453	4 636	30 036	7 216	-0 042	21,546	0 079	0 055		40	40	8 9	31,9	2 202	0 034	0 034	0 001	1 072	0 91
52	10/20/1999	11:12:23 AM	0	25 663	21,875	25 256	23,227	21,871	31,843	34 218	41,682	4,596	30 207	7 216	-0 042	21,47	0 078	0 055		41	41	8 9	32 2	2 221	0 034	0 034	0 001	1 049	0 89
53	10/20/1999	11:13:24 AM	0	25 618	21,83	25,211	23,182	21,545	31,957	34 652	42,37	4,628	29,937	7,246	-0 042	21,424	0 078	0 055		42	42	8 9	32 3	2 227	0 034	0 034	0 001	1 046	0 89
54	10/20/1999	11:14:24 AM	0	25 696	21,911	25,211	23,102	21,384	32,056	34 094	41,78	4 548	30,14	7,246	-0 042	21,47	0 078	0 055		43	43	8 9	32 1	2 214	0 034	0 034	0 001	1 054	0 90
55	10/20/1999	11:15:24 AM	0	25 696	21,911	25,211	23,102	21,223	32,195	34,156	41,943	4 588	30 275	7,216	-0 042	21 516	0 078	0,055		44	44	8 9	32 2	2 221	0 034	0 034	0 001	1 051	0 89
56	10/20/1999	11:16:25 AM	0	25 653	21,865	25,246	23 057	21,097	32,15	34,466	42,187	4,588	30 342	7,246	-0 042	21,47	0 077	0 058		45	45	8 9	32 4	2 234	0 034	0 033	0 001	1 030	0 88
57	10/20/1999	11:17:25 AM	0	25,733	21 865	25 166	22 876	21,097	32,15	34,466	42,126	4 628	29,903	7,216	-0 042	21,439	0 078	0 058		46	46	8 9	32,2	2 219	0 034	0 034	0 001	1 053	0 90
58	10/20/1999	11:18:25 AM	0	25,723	21,855	25,157	22 966	20 926	32,141	34,59	42,309	4,596	30 511	7 246	-0 042	21,485	0 077	0 058		47	47	8 9	32 6	2 244	0 034	0 033	0 001	1 028	0 87
59	10/20/1999	11:19:26 AM	0	25 643	21,855	25,157	22,886	20 926	32,141	34,778	42 309	4,652	30 679	7,246	-0,042	21,393	0,077	0 055		48	48	8 9	32 7	2 253	0 034	0 033	0 001	1 024	0 87
60	10/20/1999	11:20:26 AM	0	25 643	21 855	25 157	22,966	21,087	31,823	34,778	42,492	4 596	30,275	7,246	-0,042	21,454	0 076	0 052		49	49	8 9	32 5	2 243	0 033	0 033	0 001	1 016	0 86
61	10/20/1999	11:21:27 AM	0	25 678	21,891	25,192	22,76	21,203	31,82	33 97	41,78	4 572	30,004	7 246	-0 042	21,408	0 077	0,055		50	50	8 9	32 0	2 205	0 034	0 033	0 001	1 045	0 89
62	10/20/1999	11:22:27 AM	0	25 633	21,926	25 067	22,957	21,319	31,496	33 908	41,516	4,604	30,241	7,216	-0 042	21 424	0 076	0 052		51	51	8 9	32 1	2 211	0 033	0 033	0 001	1 032	0 88
63	10/20/1999	11:23:27 AM	0	25 713	21,926	25 227	22 876	21,319	31,417	34,59	42,431	4 588	30,275	7,216	-0 042	21,439	0 077	0,055		52	52	8 9	32 4	2 236	0 034	0 033	0 001	1 030	0 88
64	10/20/1999	11:24:28 AM	0	25,713	21,926	25,147	23 037	21,399	31,338	34,466	42,248	4,596	30 038	7 246	-0 042	21 393	0 076	0 052		53	53	8 9	32 3	2 224	0 033	0 033	0 001	1 024	0 87
65	10/20/1999	11:25:28 AM	0	25 668	21 8	25 182	22 911	21,435	31,214	34 466	42,187	4 628	30,173	7,216	-0 042	21,439	0 077	0 055		54	54	8 9	32 3	2 228	0 034	0 033	0 001	1 035	0 88
66	10/20/1999	11:26:28 AM	0	25,713	21,926	25,227	23 037	21,581	31,069	33 97	41,516	4 664	30 241	7 246	-0 042	21,408	0 076	0 055		55	55	8 9	32 1	2 214	0 033	0 033	0 001	1 027	0 87
67	10/20/1999	11:27:29 AM	0	25 668	21,881	25,182	22 992	21,596	31,134	34 094	41 577	4 636	30 038	7 216	-0 042	21 454	0 076	0 055		56	56	8 9	32 1	2 211	0 033	0 033	0 001	1 029	0 88
68	10/20/1999	11:28:29 AM	0	25,748	21,962	25,262	23,072	21,757	30 898	34,342	42 065	4 62	30 241	7,216	-0,042	21,516	0 075	0 055		57	57	8 9	32 3	2 226	0 033	0 033	0 001	1 006	0 86
69	10/20/1999	11:29:29 AM	0	25 623	21,836	25,137	23,027	21,631	30,852	34 28	41 882	4 628	30 342	7 216	-0 042	21,516	0 075	0 055		58	58	8 9	32,3	2 226	0 033	0 033	0 001	1 009	0 86
70	10/20/1999	11:30:30 AM	0	25,748	21,962	25 262	23,153	21,838	30 898	34,404	42,37	4,612	29,734	7,216	-0 042	21,5	0 076	0 055		59	59	8 9	32 1	2 211	0 033	0 033	0 001	1 027	0 87
71	10/20/1999	11:31:30 AM	0	25,748	21,962	25 262	23,153	21 838	30 898	34 59	42 248	4 668	30,14	7,246	-0 042	21,377	0 075	0 055		60	60	9 0	32 4	2 231	0 033	0 033	0 001	1 004	0 85
72	10/20/1999	11:32:30 AM	0	25,703	21,836	25 217	23 027	21,873	30,613	34,156	41 882	4 604	29 801	7,246	-0 042	21,577	0 075	0 049		61	61	9 0	32 0	2 205	0 033	0 033	0 001	1 018	0 87
73	10/20/1999	11:33:31 AM	0	25 703	21,916	25 217	23,188	21,873	30 613	33,784	41,516	4,564	29,734	7 216	-0 042	21,562	0 075	0 052		62	62	8 9	31 8	2 190	0 033	0 033	0 001	1 025	0 87
74	10/20/1999	11:34:31 AM	0	25,703	21,916	25,217	23,108	21,953	30,454	33,97	41,636	4 628	29 666	7,216	-0 042	21,577	0 075	0 052		63	63	9 0	31 8	2 194	0 033	0 033	0 001	1 023	0 87
75	10/20/1999	11:35.31 AM	0	25 703	21,916	25,217	23,268	21,953	30,375	34 466	42,187	4 644	29,632	7,216	-0 042	21,531	0 075	0 052		64	64	8 9	32 0	2 210	0 033	0 033	0 001	1 015	0 86
76	10/20/1999	11:36.32 AM	0	25,703	21,916	25 217	23,268	22,114	30,375	34,094	41,699	4 68	29 869	7 216	-0 042	21,546	0 074	0 055		65	65	8 9	32 0	2 205	0 032	0 032	0 001	1 004	0 85
77	10/20/1999	11:37:32 AM	0	25 703	21,916	25,217	23,268	22 034	30,136	34,156	41,821	4 636	30 072	7 246	-0 042	21,562	0 075	0 052		66	66	8 9	32 1	2 214	0 033	0 033	0 001	1 013	0 86
78	10/20/1999	11:38:32 AM	0	25 748	21,962	25 262	23,313	22,159	30 499	33,906	41,699	4 612	30 004	7,246	-0 042	21,531	0 074	0 055		67	67	8 9	32 0	2 205	0 032	0 032	0 001	1 003	0 85
79	10/20/1999	11:39:33 AM	0	25,748	21,962	25,262	23,313	22 079	30,499	33,722	41,455	4 596	29 869	7 216	-0 042	21 516	0 074	0 049		68	68	8 9	31 8	2 192	0 032	0 032	0 001	1 009	0 86
80	10/20/1999	11:40:33 AM	0	25 748	21,962	25,262	23,313	22 159	30,499	34 094	41,78	4 62	30 072	7 246	-0 042	21,531	0 074	0 052		69	69	8 9	32 1	2 212	0 032	0 032	0 001	0 999	0 85
81	10/20/1999	11:41:33 AM	0	25 748	21 962	25,182	23,474	22,159	30,578	33 66	41,333	4 604	29 835	7,246	-0 042	21,5	0 074	0 052		70	70	8 9	31 7	2 189	0 032	0 032	0 001	1 012	0 86
82	10/20/1999	11:42:34 AM	0	25,748	21 881	25,342	23,233	22,159	30,578	34 032	41,78	4 644	29,768	7,246	-0 042	21,531	0 074	0 052		71	71	8 9	31,9	2 199	0 032	0 032	0 001	1 003	0 85
83	10/20/1999	11:43:34 AM	0	25,793	21,926	25 307	23,519	22,265	30,066	34 156	41,76	4 652	29 768	7,246	-0 042	21,5	0 073	0 052		72	72	8 9	32 0	2 204	0 032	0 032	0 001	0 988	0 84
84	10/20/1999	11:44.34 AM	0	25 793	22,007	25 307	23,439	22,265	30,543	34,714	42,37	4 652	30,275	7,277	-0 042	21 485	0 074	0 055		73	73	8 9	32 5	2 240	0 032	0 032	0 001	0 986	0 84
85	10/20/1999	11:45.35 AM	0	25 793	22 007	25 307	23,599	22 205	30 464	34 032	41 699	4 58	30 004	7 246	-0 089	21 5	0 073	0 052		74	74	8 9	32 0	2 208	0 032	0 032	0 001	0 967	0 84

Run 1.02: 2 wt% Concentration of Insoluble Solids

	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	10/20/1999	11:46:33 AM	0	25,713	22 007	25,307	23,439	22,265	30 464	34,218	41,943	4 636	29 601	7,246	-0 042	21,439	0 075	0 053	75	75	8 9	32 0	2 207	0 033	0 032	0 001	1 014	0 66
87	10/20/1999	11:47:35 AM	0	25 836	22 052	25 352	23 564	22 411	30 508	34 094	41,882	4,596	29 835	7,246	-0 042	21,454	0 074	0 055	76	76	8 9	32 0	2,204	0 032	0 032	0 001	1 001	0 65
88	10/20/1999	11:48:36 AM	0	25 838	21,971	25,272	23,484	22 411	30 429	34,342	42,187	4 644	30,275	7,246	-0 042	21,518	0 073	0 049	77	77	8 9	32 3	2 228	0 032	0 032	0 001	0 979	0 63
89	10/20/1999	11:49:36 AM	0	25,758	21 971	25,272	23,484	22,411	30,508	34,28	42,128	4 612	29 971	7,246	-0 042	21,485	0 073	0 052	78	78	8 9	32 1	2 215	0 032	0 032	0 001	0 984	0 64
90	10/20/1999	11:50:36 AM	0	25,883	22 017	25,397	23,449	22,456	30,474	33,722	41,516	4,596	29 903	7,246	-0,042	21,439	0 073	0 052	79	79	8 9	31 9	2 193	0 032	0 032	0 001	0 991	0 64
91	10/20/1999	11:51:37 AM	0	25 803	22,017	25,317	23 529	22,456	30 633	34 094	41,943	4,564	30,275	7,246	-0 042	21 47	0 073	0 049	80	80	8 9	32 2	2 219	0 032	0 032	0 001	0 981	0 64
92	10/20/1999	11:52:37 AM	0	25 803	22 017	25,317	23 529	22,373	30,394	34 404	42,248	4,596	29 835	7,246	-0 042	21,485	0 073	0 049	81	81	8 9	32 1	2 215	0 032	0 032	0 001	0 983	0 64
93	10/20/1999	11:53:37 AM	0	25,723	22 017	25,317	23,529	22,375	30 553	34 094	41,8[illegible]	4,588	30,376	7,246	-0 042	21,516	0 073	0 052	82	82	8 9	32 2	2 222	0 032	0 032	0 001	0 980	0 63
94	10/20/1999	11:54:38 AM	0	25 803	22 017	25 317	23,609	22,375	30,474	33,784	41,455	4 604	30,207	7,246	-0 042	21,485	0 073	0 049	83	83	8 9	32 0	2 206	0 032	0 032	0 001	0 987	0 64
95	10/20/1999	11:55 38 AM	0	25 848	21,961	25,362	23 574	22,421	30,598	33,784	41,394	4 62	29 835	7,246	-0 042	21,47	0 073	0 049	84	84	8 9	31,8	2,193	0 032	0 032	0 001	0 992	0 64
96	10/20/1999	11:56:38 AM	0	25 848	21,961	25,362	23,735	22,421	30,518	34 094	41,882	4,58	30,309	7,246	-0 042	21,439	0 072	0 049	85	85	8 9	32,2	2 220	0 031	0 031	0 001	0 968	0 62
97	10/20/1999	11:57:39 AM	0	25 848	21,961	25,362	23,654	22,421	30 598	33,97	41,638	4 648	30 241	7,246	-0 042	21,47	0 073	0 052	86	86	8 9	32 1	2 214	0 032	0 032	0 001	0 983	0 64
98	10/20/1999	11:58:39 AM	0	25 813	22,026	25,327	23,78	22,466	30 642	33,784	41,516	4 62	29 869	7,246	-0 042	21,454	0 074	0 052	87	87	8 9	31,8	2,194	0 032	0 032	0 001	1 006	0 66
99	10/20/1999	11:59:39 AM	0	25 813	22 026	25,327	23 619	22,224	31,196	34 652	42 492	4 628	30 004	7,246	-0 042	21,424	0 073	0 055	88	88	8 9	32,3	2 229	0 032	0 032	0 001	0 977	0 63
100	10/20/1999	12:00:40 PM	0	25 893	22,026	25,327	23,699	21,963	31,357	33,97	41,699	4 572	29 734	7,246	-0 042	21,47	0,073	0 052	89	89	8 9	31,9	2 196	0 032	0 032	0 001	0 991	0 64
101	10/20/1999	12:01:40 PM	0	25 813	22 026	25,327	23,539	21,902	31,754	33,66	41,272	4,596	30 072	7,246	-0 042	21,47	0 072	0 049	90	90	8 9	31 9	2,197	0 031	0 031	0 001	0 977	0 63
102	10/20/1999	12:02:40 PM	0	25 813	22 026	25 327	23 619	21 661	31,633	34 032	41,76	4 564	30,342	7,246	-0 042	21,485	0 072	0 045	91	91	8 9	32 2	2 219	0 031	0 031	0 001	0 968	0 62
103	10/20/1999	12:03:41 PM	0	25 893	22 026	25 407	23 539	21,661	31,912	34 714	42,492	4 644	30,14	7,246	-0 042	21,47	0 073	0 049	92	92	8 9	32 4	2 236	0 032	0 032	0 001	0 972	0 63
104	10/20/1999	12:04 41 PM	0	25 893	22,026	25,327	23 539	21,8	31,992	34,156	41,943	4 572	30 511	7,246	-0 042	21,485	0 072	0,045	93	93	8 9	32 3	2 229	0 031	0 031	0 001	0 963	0 62
105	10/20/1999	12:05 41 PM	0	25 848	22,062	25 282	23 413	21,455	32,026	34 094	41,638	4 62	29 937	7,246	-0 042	21,454	0 072	0 052	94	94	8 9	32 0	2 207	0 031	0 031	0 001	0 974	0 63
106	10/20/1999	12:06:42 PM	0	25 848	22 062	25 362	23,494	21,293	32,106	34,342	42 004	4 62	30 342	7,246	-0 042	21,485	0 072	0 049	95	95	8 9	32 3	2 230	0 031	0 031	0 001	0 982	0 62
107	10/20/1999	12:07:42 PM	0	25 803	22,017	25 317	23 368	21,248	32,061	34 28	41,943	4,588	29 937	7,246	-0 042	21,454	0 072	0 052	96	96	8 9	32,1	2 214	0 031	0 031	0 001	0 970	0 63
108	10/20/1999	12:08:42 PM	0	25 883	22 097	25,317	23,368	21,067	32,141	34 342	42 004	4 612	30 14	7,246	-0 042	21,408	0 072	0 045	97	97	8 9	32 2	2 223	0 031	0 031	0 001	0 964	0 62
109	10/20/1999	12:09:43 PM	0	25 838	22 052	25,352	23 323	21,042	32,096	33,66	41,089	4 612	30 072	7,246	-0 042	21,408	0 072	0 049	98	98	8 9	31 9	2,197	0 031	0 031	0 001	0 977	0 63
110	10/20/1999	12:10:43 PM	0	25 838	22 052	25 352	23 323	21,122	31,699	34,156	41,943	4 58	30 072	7 246	-0 042	21,439	0 072	0 049	99	99	8 9	32,1	2 214	0 031	0 031	0 001	0 969	0 62
111	10/20/1999	12:11:43 PM	0	25 873	22 007	25,307	23 278	21,158	31,578	34,59	42,309	4 596	30,14	7,246	-0 042	21,393	0 073	0 049	100	100	8 9	32 4	2 231	0 032	0 032	0 001	0 976	0 63
112	10/20/1999	12:12:44 PM	0	25 873	22 087	25 387	23 278	21,319	31,417	33,784	41,577	4 656	30 173	7,246	-0 042	21,454	0 072	0 049	101	101	8 9	32 0	2 205	0 031	0 031	0 001	0 972	0 63
113	10/20/1999	12:13:44 PM	0	25 953	22,087	25 387	23 278	21,399	31,338	34,59	42,309	4 572	29 903	7,246	-0 042	21,424	0 072	0 052	102	102	8 9	32,2	2 223	0 031	0 031	0 001	0 964	0 62
114	10/20/1999	12:14:44 PM	0	25 873	22 087	25,387	23,278	21,399	31,258	33,97	41,699	4,58	30,173	7,246	-0 042	21 439	0 072	0 052	103	103	8 9	32,1	2 211	0 031	0 031	0 001	0 969	0 62
115	10/20/1999	12:15:45 PM	0	25 873	22,087	25 387	23,358	21,48	31,099	34 652	42,309	4 572	30,14	7,246	-0 042	21,439	0,072	0 052	104	104	8 9	32 4	2 234	0 031	0 031	0 001	0 960	0 62
116	10/20/1999	12:16:45 PM	0	25 828	22,042	25 262	23,153	21,515	31,055	34,032	41,76	4,588	30 072	7,246	-0 042	21,362	0 072	0 052	105	105	8,9	32,1	2 210	0 031	0 031	0 001	0 973	0 63
117	10/20/1999	12:17:45 PM	0	25 828	22 042	25,342	23,313	21,515	30 817	33,97	41,821	4 54	30,173	7,246	-0 042	21,408	0 072	0 052	106	106	8 9	32,1	2 211	0 031	0 031	0 001	0 971	0 63
118	10/20/1999	12:18:46 PM	0	25 908	22 042	25 342	23 313	21,676	30,975	34,59	42,431	4 596	30 072	7,246	-0 042	21,408	0,072	0 049	107	107	8,9	32,3	2 229	0 031	0 031	0 001	0 963	0 62
119	10/20/1999	12:19:46 PM	0	25 906	22,042	25,342	23,394	21,676	30 617	34 28	42,187	4,556	30 207	7,246	-0 042	21,408	0 072	0 049	108	108	8 9	32 2	2 223	0 031	0 031	0 001	0 965	0 62
120	10/20/1999	12:20:46 PM	0	25 908	22,123	25 342	23,313	21,757	30,737	34,528	42,37	4 588	30,207	7,246	-0 042	21,454	0 072	0 042	109	109	8 9	32,4	2,232	0 031	0 031	0 001	0 962	0 62
121	10/20/1999	12:21:47 PM	0	25,908	22,123	25,422	23,394	21,818	30,737	34 528	42,37	4,656	30,342	7,246	-0 042	21,439	0 071	0 045	110	110	8,9	32,4	2 236	0 031	0 031	0 001	0 944	0 60
122	10/20/1999	12:22:47 PM	0	25,908	22,123	25,422	23,313	21,818	30 658	34,628	42,126	4 604	30,14	7,246	-0 042	21,424	0 071	0 042	111	111	8 9	32,3	2 229	0 031	0 031	0 001	0 947	0 61
123	10/20/1999	12:23:47 PM	0	25 828	22,123	25,342	23,474	22,079	30 658	34,094	41,76	4 572	30 41	7,246	-0,042	21,439	0 071	0 042	112	112	8 9	32 3	2 224	0 031	0 031	0 001	0 952	0 61
124	10/20/1999	12:24:48 PM	0	25 908	22,123	25,422	23,394	22,079	30,578	34,032	41,943	4,58	29 734	7,246	-0,042	21,347	0,071	0 045	113	113	8 9	31,9	2,196	0 031	0 031	0 001	0 961	0 62
125	10/20/1999	12:25:48 PM	0	25,908	22,042	25 422	23,554	22,079	30,499	33,784	41,394	4,58	30 207	7,246	-0 042	21,408	0 071	0 049	114	114	8 9	32 0	2 206	0 031	0 031	0 001	0 957	0 61
126	10/20/1999	12:26:48 PM	0	25 828	22,123	25 422	23,474	22,079	30 658	34,778	42,492	4 628	30,106	7,246	-0,042	21,393	0 072	0 049	115	115	8,9	32,4	2 237	0 031	0 031	0 001	0 957	0 61
127	10/20/1999	12:27:49 PM	0	25 906	22,123	25 342	23,554	22,24	30,499	34,342	42 004	4,588	30,173	7,246	-0 042	21,393	0 07	0 049	116	116	8 9	32 3	2 224	0 031	0 030	0 001	0 936	0 60
128	10/20/1999	12:28:49 PM	0	25,828	22 042	25,342	23,554	22,159	30 418	34,342	41,882	4 596	30,173	7,246	-0 042	21,362	0 072	0 049	117	117	8 9	32 3	2 224	0,031	0 031	0 001	0 965	0 62
129	10/20/1999	12:29:49 PM	0	25 873	22,087	25,467	23,599	22,285	30,843	34 218	42 004	4,548	30 241	7,246	-0 042	21,393	0,071	0 049	118	118	8 9	32,2	2 222	0 031	0 031	0 001	0 949	0 61
130	10/20/1999	12:30:50 PM	0	25,953	22 087	25 387	23,68	22 205	30 843	34,156	41,882	4 54	30 275	7,246	-0 042	21,362	0 071	0 049	119	119	8 9	32,2	2 221	0 031	0 031	0 001	0 952	0 61
131	10/20/1999	12:31:50 PM	0	25 873	22,168	25,387	23,68	22,285	30 464	34 342	42,187	4 548	30,241	7,246	-0,042	21,393	0,072	0 049	120	120	8 9	32 3	2 226	0 031	0 031	0 001	0 963	0 62
132	10/20/1999	12:32:51 PM	0	25,953	22,087	25,387	23,68	22 366	30,305	34,218	42,004	4,596	30 41	7,246	-0,042	21,377	0 07	0 042	121	121	8,9	32 3	2 228	0 031	0 030	0 001	0 935	0 60
133	10/20/1999	12:33:51 PM	0	25 918	22,132	25 512	23,725	22,572	30 429	34,466	42,187	4,564	30 613	7,216	-0 042	21,454	0,072	0,042	122	122	8 9	32 5	2 243	0,031	0 031	0 001	0 952	0 61
134	10/20/1999	12:34 51 PM	0	25 918	22,132	25 432	23,725	22,572	30,508	34,778	42,431	4 62	30,309	7,246	-0,042	21,362	0 071	0 049	123	123	8 9	32 6	2,244	0 031	0 031	0 001	0 941	0 60
135	10/20/1999	12:35 52 PM	0	25 918	22,132	25,352	23 644	22,572	30 508	34 59	42,37	4,572	30,578	7,246	-0 042	21,377	0 07	0 042	124	124	8 9	32 6	2 247	0 031	0 030	0 001	0 929	0,79
136	10/20/1999	12:36:52 PM	0	25,963	22,097	25 397	23,85	22 617	30,653	33 908	41,76	4 564	30 036	7,246	-0,042	21,377	0 07	0 045	125	125	8 9	32 0	2 204	0 031	0 030	0 001	0 945	0 60
137	10/20/1999	12:37:52 PM	0	25 883	22,178	25,477	23,77	22 617	30,394	34,652	42,37	4 62	30,545	7,246	-0 042	21,408	0 07	0 045	126	126	8,9	32 6	2 248	0 031	0 030	0 001	0 925	0,79
138	10/20/1999	12:38:53 PM	0	25 928	22,142	25,442	23,975	22,662	30,28	34,218	42 065	4,556	30 241	7,246	-0 042	21,362	0 07	0 045	127	127	8,9	32,2	2 222	0 031	0 030	0 001	0 936	0 60
139	10/20/1999	12:39:53 PM	0	25,928	22,142	25 442	23,735	22,742	30 618	31,738	41,943	4,237	28 01	9,527	-0,042	21,548	0 234	0 225	128	128	8 9	29,9	2 060	0,111	0,110	0 004	3 666	3,12
140	10/20/1999	12:40:53 PM	0	25 928	22,142	25,442	23 816	22,742	30,359	34,094	41,455	4,364	30,309	8 938	-0 042	21,454	0,167	0,14	129	129	8 9	32,2	2,220	0 073	0 072	0 002	2,236	1,90
141	10/20/1999	12:41:54 PM	0	25,973	22,187	25,487	23,78	22,707	30,404	34 962	42,37	4,436	30,782	6,936	-0 042	21,454	0,132	0,106	130	130	8,9	32,9	2 266	0 058	0 057	0 002	1,729	1 47
142																												
143		Averages		25 8	21 9	25,3	23 3	22 0	30 0	34,1	41,8	4 6	30,0	7,2	0,0	21,5	0 079	0 056			8 9	32,1	2 211	0 034	0 034	0 00106	1,1	0 9
144		Maximum		26 0	22,2	25,6	24,0	22,7	32,2	34,8	42,5	4,7	30 6	7,4	0 0	22,0	0,192	0,161			9 1	32,7	2,253	0 084	0 083	0 00271	2,7	2 3
145		Median		25,7	22 0	25,3	23,3	22,1	30,8	34,2	41,9	4 6	30,1	7,2	0 0	21,5	0 074	0 052			8 9	32,1	2 212	0 032	0 032	0 00101	1,0	0 9
146		Minimum		25 6	21,7	25,1	22,8	20 9	30,1	32,8	40,6	4 4	29 0	7,0	-0,1	21,3	0 070	0 042			8 9	30 8	2,122	0 031	0 030	0 00092	0 9	0 8
147		Std Deviation		0,104	0,125	0 099	0,240	0 454	0,571	0 392	0,426	0 040	0,309	0 051	0 007	0,141	0 015	0 014			8 9	30 8	2,122	0 031	0 030	0 00092	0 9	0 8
148		Number of Points *2sd		119	119	119	119	119	119	119	119	119	119	119	119	119	119	119			0,058	0,317	0 022	0 006	0 006	0 000213	0 213	0,181
																					119	119	119	119	119	119	119	119



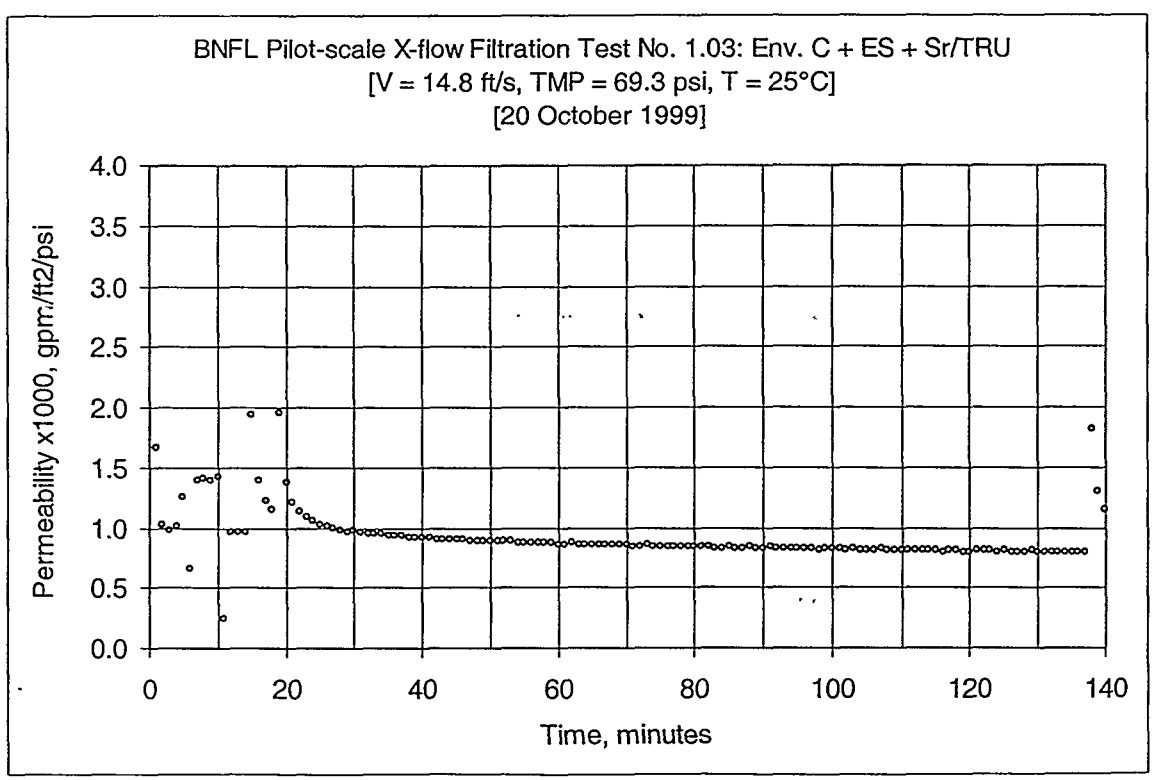


Figure B3: Test Run 1.03, 2 wt% Insoluble Solids Concentration

Run 1.03: 2 wt% Concentration of Insoluble Solids

	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	T6 (deg C	PVT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	RSL FLOW	O2_FLTR FLOW (sccm)	O3_FLTR FLOW (sccm)										
2	Zeros - No Flow - Lines Connected																				Filter Surface Area Conversion		2 29 851.0145	FT2 m3/m2/day/barg / gpm/ft2/barg				
3	10/20/1999	8:11:12 AM	0	20 851	20 686	20 615	20 67	20 884	30 433	0 188	-2 023	0 726	-0 22	-2 584	-0 089	-0 095	0 011	-0 015										
4	10/20/1999	8:12:12 AM	0	20 78	20 605	20 534	20 67	20 884	30 353	0 124	-2 023	0 726	-0 254	-2 584	-0 089	-0 095	0 011	-0 018										
5	10/20/1999	8:13:13 AM	0	20 825	20 731	20 579	20 715	21 01	30 396	0 124	-2 023	0 726	-0 22	-2 584	-0 089	-0 08	0 011	-0 018										
6	Zeros - Lines Not Connected																											
7	10/20/1999	8:15:29 AM	0	20 906	20 731	20 579	20 634	21 01	30 396	-0 062	-0 011	-0 008	-0 017	-0 088	-0 089	-0 08	0 011	-0 018										
8	10/20/1999	8:16:30 AM	0	20 825	20 65	20 579	20 634	20 929	30 477	-0 062	-0 011	-0 008	-0 017	-0 088	-0 089	-0 08	0 011	-0 018										
9	10/20/1999	8:17:30 AM	0	20 825	20 65	20 579	20 634	20 849	30 557	-0 062	-0 011	-0 008	0 016	-0 119	-0 089	-0 08	0 011	-0 018										
10																												
11	Data - Per Minute																								at 25C	PERMABILITY	x1000	
12	10/20/1999	12:42:10 PM	0	25 973	22 187	25 487	23 78	22 787	30 404	34 778	42 187	4 444	30 748	6 938	-0 042	21 408	0 127	0 1	Number 1	Number 1	Vel., ft/s 8 9	TMP,psi 32 8	TMP, bar 2 259	GPM/FT2 0 055	GPM/FT2 0 055	GPM/FT2/psi 0 002	GPM/FT2/psi 1 669	m/day/bar 1 42
13	10/20/1999	12:43:11 PM	0	25 973	22 107	25 487	23 94	22 787	30 404	55 542	64 2	6 024	50 019	7 968	-0 042	26 354	0 126	0 103	2	2	10 9	52 8	3 639	0 055	0 054	0 001	1 028	0 87
14	10/20/1999	12:44:11 PM	0	25 936	22 152	25 772	23 825	22 915	30 449	64 12	83 47	15 221	71 656	8 726	-0 042	42 881	0 178	0 155	3	3	17 7	77 9	5 370	0 076	0 076	0 001	0 978	0 83
15	10/20/1999	12:45:11 PM	0	25 838	22 152	25 832	23 905	22 833	30 449	71 164	79 323	10 243	89 958	7 616	-0 042	38 427	0 156	0 137	4	4	15 9	65 6	4 520	0 068	0 068	0 001	1 012	0 86
16	10/20/1999	12:46:12 PM	0	26 018	22 152	26 092	23 905	22 833	30 369	47 298	54 687	7 667	84 348	7 824	-0 042	34 817	0 15	0 134	5	5	14 4	50 8	3 504	0 065	0 064	0 001	1 230	1 06
17	10/20/1999	12:47:12 PM	0	26 223	22 197	25 897	24 111	22 958	30 414	13 575	24 196	3 942	9 956	10 174	-0 042	19 55	0 018	-0 018	6	6	8 1	11 8	0 811	0 008	0 008	0 001	0 851	0 55
18	10/20/1999	12:48:12 PM	0	26 268	22 243	25 622	24 236	22 923	30 538	13 513	24 015	3 934	9 99	10 051	-0 042	19 457	0 038	-0 018	7	7	8 1	11 8	0 810	0 017	0 016	0 001	1 387	1 18
19	10/20/1999	12:49:13 PM	0	26 188	22 182	25 382	24 236	23 003	30 538	13 451	23 893	3 91	9 922	10 02	-0 042	19 427	0 038	-0 018	8	8	8 1	11 7	0 806	0 017	0 016	0 001	1 404	1 20
20	10/20/1999	12:50:13 PM	0	26 108	22 182	25 061	24 316	22 843	30 656	13 637	24 076	3 918	10 125	9 969	-0 042	19 411	0 038	-0 018	9	9	8 1	11 9	0 819	0 017	0 017	0 001	1 394	1 19
21	10/20/1999	12:51:13 PM	0	26 118	22 253	24 831	24 407	22 692	31 263	13 853	24 442	3 882	10 226	9 969	-0 042	19 15	0 039	-0 018	10	10	7 9	12 1	0 831	0 017	0 017	0 001	1 419	1 21
22	10/20/1999	12:52:14 PM	0	25 993	22 207	24 585	24 291	22 566	31 536	64 407	76 03	9 383	85 428	11 191	-0 042	33 604	0 032	-0 018	11	11	13 9	59 9	4 131	0 014	0 014	0 000	0 237	0 20
23	10/20/1999	12:53:14 PM	0	25 798	22 253	24 61	24 186	22 451	31 739	73 519	84 018	10 564	63 339	10 02	-0 042	36 722	0 149	0 131	12	12	15 2	68 4	4 718	0 065	0 066	0 001	0 964	0 82
24	10/20/1999	12:54:14 PM	0	25 593	22 207	24 629	24 121	22 244	31 774	75 007	85 604	10 324	65 3	10 082	-0 042	36 538	0 154	0 134	13	13	15 2	70 2	4 837	0 067	0 068	0 001	0 968	0 82
25	10/20/1999	12:55:15 PM	0	25 432	22 207	24 706	24 041	22 003	31 853	75 255	85 909	10 348	65 435	9 969	-0 042	36 63	0 154	0 137	14	14	15 2	70 3	4 850	0 067	0 068	0 001	0 964	0 82
26	10/20/1999	12:56:15 PM	0	25 352	22 207	24 786	24 041	21 923	31 894	77 921	85 787	9 734	68 56	7 246	-0 042	36 68	0 323	0 292	15	15	15 2	73 3	5 050	0 141	0 142	0 002	1 937	1 65
27	10/20/1999	12:57:16 PM	0	25 272	22 207	24 866	23 68	21 842	31 932	78 355	85 726	9 941	69 154	6 907	-0 042	36 568	0 233	0 204	16	16	15 2	73 8	5 085	0 102	0 102	0 001	1 384	1 18
28	10/20/1999	12:58:16 PM	0	25 432	22 207	24 946	23 68	21 842	32 091	74 139	81 554	9 622	64 952	7 031	-0 042	35 8	0 194	0 164	17	17	14 9	69 6	4 795	0 085	0 085	0 001	1 220	1 04
29	10/20/1999	12:59:17 PM	0	25 432	22 288	25 026	23 8	21 781	31 615	73 333	80 786	9 901	63 613	7 031	-0 042	36 399	0 18	0 152	18	18	15 1	68 6	4 728	0 079	0 079	0 001	1 145	0 97
30	10/20/1999	1:00:17 PM	0	25 547	22 243	25 061	23 754	21 636	31 808	71 35	80 786	9 678	62 257	8 756	-0 042	36 415	0 3	0 271	19	19	15 1	68 8	4 606	0 131	0 131	0 002	1 957	1 67
31	10/20/1999	1:01:17 PM	0	25 502	22 278	25 096	23 629	21 59	31 208	74 077	81 579	9 702	64 996	8 877	-0 042	36 23	0 22	0 195	20	20	15 0	69 5	4 794	0 096	0 096	0 001	1 377	1 17
32	10/20/1999	1:02:17 PM	0	25 583	22 278	25 176	23 549	21 751	31 605	73 953	81 457	9 796	64 554	6 969	-0 042	36 138	0 192	0 17	21	21	15 0	69 2	4 768	0 084	0 083	0 001	1 206	1 03
33	10/20/1999	1:03:18 PM	0	25 683	22 278	25 256	23 549	21 751	31 049	72 899	80 296	9 83	64 063	7	-0 042	36 307	0 179	0 153	22	22	15 1	68 5	4 722	0 078	0 078	0 001	1 133	0 96
34	10/20/1999	1:04:18 PM	0	25 696	22 233	25 291	23 504	21 787	31 402	73 819	81 213	9 742	64 252	7 031	-0 042	36 154	0 173	0 152	23	23	15 0	68 9	4 749	0 076	0 075	0 001	1 087	0 93
35	10/20/1999	1:05:18 PM	0	25 778	22 233	25 372	23 504	21 787	31 243	73 581	81 335	9 694	64 556	7 092	-0 042	36 046	0 169	0 149	24	24	15 0	69 1	4 762	0 074	0 073	0 001	1 057	0 90
36	10/20/1999	1:06:19 PM	0	25 778	22 313	25 452	23 504	21 887	31 243	73 891	81 518	9 78	64 556	7 092	0 004	36 046	0 164	0 146	25	25	15 0	69 2	4 773	0 072	0 071	0 001	1 021	0 87
37	10/20/1999	1:07:19 PM	0	25 858	22 313	25 452	23 584	21 887	31 243	74 077	81 64	9 638	64 523	7 061	-0 042	35 862	0 162	0 146	26	26	14 9	69 3	4 778	0 071	0 070	0 001	1 008	0 86
38	10/20/1999	1:08:20 PM	0	25 858	22 313	25 532	23 664	22 028	31 243	73 457	81 152	9 782	64 421	7 061	-0 042	36 031	0 16	0 143	27	27	15 0	68 9	4 753	0 070	0 069	0 001	0 996	0 85
39	10/20/1999	1:09:20 PM	0	25 858	22 313	25 532	23 584	22 028	31 164	73 829	81 578	9 662	64 266	7 123	-0 042	35 923	0 158	0 14	28	28	14 9	69 1	4 761	0 069	0 068	0 001	0 984	0 84
40	10/20/1999	1:10:20 PM	0	25 938	22 313	25 532	23 584	22 189	31 084	73 891	81 701	9 678	64 750	7 123	-0 042	35 954	0 156	0 14	29	29	14 9	69 3	4 760	0 068	0 067	0 001	0 968	0 82
41	10/20/1999	1:11:21 PM	0	25 938	22 313	25 612	23 584	22 109	31 005	73 581	81 396	9 718	64 184	7 154	-0 042	36	0 156	0 137	30	30	14 9	68 9	4 749	0 068	0 067	0 001	0 972	0 83
42	10/20/1999	1:12:21 PM	0	25 938	22 313	25 612	23 664	22 189	31 005	73 395	81 081	9 71	64 32	7 184	-0 042	36 031	0 154	0 134	31	31	15 0	68 9	4 747	0 067	0 066	0 001	0 960	0 82
43	10/20/1999	1:13:21 PM	0	25 938	22 313	25 612	23 745	22 27	30 925	74 139	82 067	9 622	64 725	7 185	-0 042	35 77	0 154	0 131	32	32	14 8	69 4	4 787	0 067	0 066	0 001	0 952	0 81
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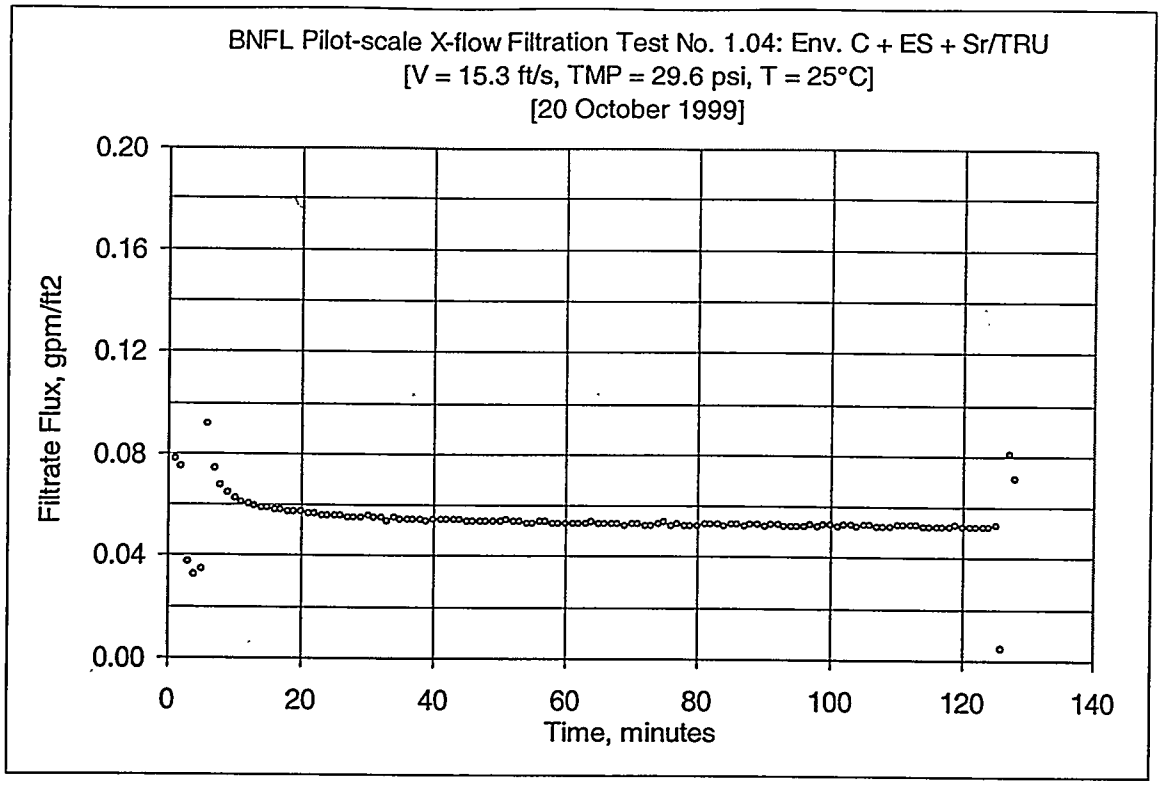
45	10/20/1999	1:15:22 PM	0	26 063	22 278	25 657	23 709	22 315	31 049	73 457	81 213	9 574	64 658	7 185	-0 042	35 682	0 153	0 134	34	34	14 8	69 1	4 761	0 067	0 066	0 001	0 949	0 81
46	10/20/1999	1:16:22 PM	0	26 063	22 278	25 657	23 79	22 395	30 891	73 643	81 518	9 574	64 59	7 185	-0 042	35 708	0 15	0 131	35	35	14 8	69 1	4 765	0 065	0 064	0 001	0 930	0 79
47	10/20/1999	1:17:23 PM	0	26 063	22 278	25 657	23 709	22 395	30 891	73 333	81 03	9 59	65 03	7 185	-0 042	35 806	0 15	0 131	36	36	14 9	69 2	4 770	0 065	0 064	0 001	0 929	0 79
48	10/20/1999	1:18:23 PM	0	26 018	22 233	25 612	23 745	22 431	30 846	73 271	81 03	9 558	64 759	7 185	-0 042	35 77	0 149	0 131	37	37	14 8	69 0	4 758	0 065	0 064	0 001	0 928	0 79
49	10/20/1999	1:19:23 PM	0	26 063	22 358	25 737	23 95	22 395	30 652	73 643	81 518	9 614	64 489	7 216	-0 042	35 77	0 149	0 131	38	38	14 8	69 1	4 762	0 065	0 064	0 001	0 922	0 79
50	10/20/1999	1:20:24 PM	0	26 143	22 278	25 657	23 79	22 478	30 811	73 767	81 518	9 686	64 725	7 185	-0 042	35 816	0 149	0 128	39	39	14 9	69 2	4 774	0 065	0 064	0 001	0 922	0 78
51	10/20/1999	1:21:24 PM	0	26 188	22 323	25 702	23 674	22 601	30 856	73 519	81 274	9 638	64 692	7 185	-0 042	35 831	0 148	0 128	40	40	14 9	69 1	4 765	0 065	0 063	0 001	0 917	0 78
52	10/20/1999	1:22:24 PM	0	26 188	22 323	25 702	23 674	22 521	30 776	73 457	81 213	9 606	64 692	7 216	0 004	35 831	0 149	0 128	41	41	14 9	69 1	4 762	0 065	0 064	0 001	0 923	0 79
53	10/20/1999	1:23:25 PM	0	26 188	22 323	25 782	23 674	22 521	30 776	73 955	81 64	9 622	64 523	7 154	-0 042	35 816	0 146	0 125	42	42	14 9	69 2	4 774	0 064	0 062	0 001	0 901	0 77
54	10/20/1999	1:24:25 PM	0	26 106	22 323	25 702	23 674	22 521	30 935	74 015	81 782	9 67	64 455	7 154	-0 042	35 677	0 146	0 125	43	43	14 9	69 2	4 774	0 064	0 062	0 001	0 903	0 77
55	10/20/1999	1:25:25 PM	0	26 188	22 323	25 782	23 754	22 601	30 697	73 457	81 213	9 598	64 759	7 185	0 004	35 677	0 145	0 125	44	44	14 9	69 1	4 765	0 063	0 062	0 001	0 896	0 76
56	10/20/1999	1:26:26 PM	0	26 188	22 243	25 782	23 754	22 601	30 697	73 519	81 335	9 518	64 627	7 246	-0 042	35 708	0 147	0 125	45	45	14 8	69 2	4 769	0 064	0 063	0 001	0 908	0 77
57	10/20/1999	1:27:26 PM	0	26 153	22 368	25 827	23 639	22 556	30 9	74 139	82 067	9 471	65 31	7 246	-0 042	35 478	0 146	0 125	46	46	14 7	69 7	4 807	0 064	0 062	0 001	0 893	0 76
58	10/20/1999	1:28:26 PM	0	26 233	22 268	25 747	23 639	22 647	31 059	73 829	81 762	9 596	64 759	7 246	-0 042	35 8	0 144	0 125	47	47	14 9	69 3	4 776	0 063	0 062	0 001	0 888	0 76
59	10/20/1999	1:29:27 PM	0	26 278	22 333	25 872	23 765	22 611	31 025	74 263	82 128	9 447	65 3	7 185	-0 042	35 416	0 146	0 128	48	48	14 7	69 8	4 811	0 064	0 062	0 001	0 891	0 76
60	10/20/1999	1:30:27 PM	0	26 278	22 333	25 872	23 925	22 611	31 104	74 263	82 128	9 463	65 264	7 246	-0 042	35 309	0 145	0 125	49	49	14 7	69 6	4 810	0 063	0 062	0 001	0 885	0 75
61	10/20/1999	1:31:27 PM	0	26 196	22 333	25 712	23 845	22 451	31 68	74 139	82 006	9 431	65 571	7 246	-0 042	35 247	0 145	0 126	50	50	14 6	69 9	4 816	0 063	0 062	0 001	0 888	0 76
62	10/20/1999	1:32:28 PM	0	26 196	22 333	25 792	23 925	22 209	31 58	74 263	82 128	9 407	65 435	7 246	-0 042	35 366	0 145	0 122	51	51	14 7	69 8	4 816	0 063	0 062	0 001	0 866	0 75
63	10/20/1999	1:33:28 PM	0	26 278	22 414	25 712	23 925	22 048	31 977	74 263	82 189	9 391	64 66	7 216	-0 042	35 355	0 143	0 125	52	52	14 7	69 6	4 796	0 062	0 061	0 001	0 880	0 75
64	10/20/1999	1:34:28 PM	0	26 196	22 333	25 712	23 845	21 887	32 135	73 953	81 762	9 359	65 199	7 216	-0 042	35 524	0 145	0 125	53	53	14 7	69 6	4 797	0 062	0 061	0 001	0 879	0 75
65	10/20/1999	1:35:29 PM	0	26 233	22 268	25 747	23 719	21 781	32 091	74 077	81 823	9 399	65 097	7 216	-0 042	35 293	0 142	0 125	54	54	14 6	69 6	4 796	0 062	0 061	0 001	0 872	0 74
66	10/20/1999	1:36:29 PM	0	26 233	22 368	25 667	23 719	21 6	32 329	74 077	81 945	9 439	65 368	7 154	-0 042	35 482	0 142	0 122	55	55	14 7	69 7	4 807	0 062	0 061	0 001	0 873	0 74
67	10/20/1999	1:37:29 PM	0	26 188	22 323	25 702	23 674	21 475	31 967	74 325	82 067	9 487	65 3	7 154	-0 042	35 506	0 142	0 122	56	56	14 7	69 8	4 813	0 062	0 061	0 001	0 871	0 74
68	10/20/1999	1:38:30 PM	0	26 188	22 323	25 702	23 674	21 394	31 729	74 263	82 006	9 391	65 402	7 185	-0 042	35 263	0 142	0 122	57	57	14 6	69 8	4 815	0 062	0 061	0 001	0 870	0 74
69	10/20/1999	1:39:30 PM	0	26 188	22 323	25 702	23 594	21 394	32 205	73 705	81 396	9 335	65 604	7 216	-0 042	35 217	0 142	0 122	58	58	14 6	69 7	4 802	0 062	0 061	0 001	0 873	0 74
70	10/20/1995	1:40:30 PM	0	26 223	22 358	25 657	23 549	21 268	32 18	74 077	81 945	9 359	65 199	7 185	-0 042	35 232	0 141	0 122	59	59	14 6	69 6	4 801	0 062	0 060	0 001	0 868	0 74
71	10/20/1999	1:41:31 PM	0	26 303	22 358	25 657	23 549	21 268	32 002	74 263	82 128	9 487	64 962	7 185	-0 042	35 401	0 14	0 118	60	60	14 7	69 6	4 800	0 061	0 060	0 001	0 882	0 73
72	10/20/1999	1:42:31 PM	0	26 178	22 384	25 692	23 423	21 223	32 433	74 449	82 372	9 439	65 151	7 185	-0 042	35 401	0 139	0 118	61	61	14 7	69 6	4 812	0 061	0 060	0 001	0 853	0 73
73	10/20/1999	1:43:31 PM	0	26 213	22 348	25 647	23 378	21 258	32 368	74 201	82 067	9 447	64 759	7 185	-0 042	35 478	0 14	0 118	62	62	14 7	69 5	4 790	0 061	0 060	0 001	0 864	0 74
74	10/20/1999	1:44 32 PM	0	26 248	22 384	25 602	23 413	21 293	31 233	74 015	81 884	9 455	64 962	7 246	-0 042	35 506	0 139	0 118	63	63	14 7	69 5	4 791	0 061	0 060	0 001	0 859	0 73
75	10/20/1999	1:45:32 PM	0	26 168	22 384	25 602	23 333	21 453	30 818	74 015	81 823	9 463	65 131	7 246	-0 042	35 482	0 139	0 118	64	64	14 7	69 6	4 797	0 061	0 060	0 001	0 858	0 73
76	10/20/1999	1:46:32 PM	0	26 123	22 339	25 637	23 449	21 49	30 518	74 015	82 006	9 566	64 556	7 216	-0 042	35 677	0 136	0 116	65	65	14 6	69 3	4 777	0 060	0 059	0 001	0 854	0 73
77	10/20/1999	1:47:33 PM	0	26 203	22 419	25 637	23 629	21 651	30 235	73 643	81 518	9 542	64 387	7 246	-0 089	35 723	0 136	0 118	66	66	14 8	69 0	4 758	0 060	0 059	0 001	0 857	0 73
78	10/20/1999	1:48:33 PM	0	26 203	22 339	25 637	23 529	21 812	30 394	74 139	82 006	9 558	64 928	7 216	-0 042	35 601	0 136	0 119	67	67	14 8	69 5	4 794	0 060	0 059	0 001	0 851	0 72
79	10/20/1999	1:49:33 PM	0	26 158	22 374	25 672	23 484	21 767	31 065	73 457	81 091	9 518	64 759	7 216	-0 042	35 601	0 136	0 122	68	68	14 8	69 1	4 785	0 060	0 059	0 001	0 855	0 73
80	10/20/1999	1:50:34 PM	0	26 238	22 293	25 672	23 564	21 767	30 588	73 643	81 335	9 463	64 759	7 185	-0 042	35 539	0 139	0 122	69	69	14 7	69 2	4 771	0 061	0 060	0 001	0 860	0 73
81	10/20/1999	1:51:34 PM	0	26 158	22 374	25 672	23 564	21 928	29 872	73 519	81 274	9 463	64 928	7 216	-0 042	35 482	0 139	0 122	70	70	14 7	69 2	4 773	0 060	0 059	0 001	0 854	0 73
82	10/20/1999	1:52:34 PM	0	26 238	22 374	25 672	23 644	21 928	29 872	74 077	81 884	9 558	64 996	7 185	-0 042	35 585	0 136	0 116	71	71	14 6	69 5	4 794	0 059	0 058	0 001	0 854	0 73
83	10/20/1999	1:53:35 PM	0	26 238	22 374	25 672	23 644	22 008	29 872	73 643	81 396	9 518	64 759	7 185	-0 042	35 585	0 136	0 116	72	72	14 6	69 2	4 771	0 059	0 058	0 001	0 836	0 71
84	10/20/1999	1:54:35 PM	0	26 193	22 329	25 627	23 68	21 963	29 31	73 767	81 701	9 495	64 996	7 246	-0 042	35 57	0 136	0 119	73	73	14 8	69 4	4 784	0 060	0 059	0 001	0 842	0 72
85	10/20/1999	1:55:35 PM	0	26 158	22 374	25 672	23 644	22 089	29 315	74 077	81 945	9 51	64 725	7 246	-0 042	35 493	0 137	0 116	74	74	14 7	69 4	4 765	0 060	0 059	0 001	0 846	0 72

Run 1.03: 2 wt% Concentration of Insoluble Solids

	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	10/20/1999	1:56:36 PM	0	26.158	22.374	25.672	23.644	22.169	29.156	73.581	81.274	9.479	64.962	7.246	-0.042	35.524	0.137	0.116	75	75	14.7	69.3	4.776	0.060	0.059	0.001	0.847	0.72
87	10/20/1999	1:57:36 PM	0	26.158	22.293	25.672	23.644	22.089	29.315	74.015	81.823	9.518	65.063	7.246	-0.042	35.493	0.136	0.116	76	76	14.7	69.5	4.794	0.059	0.058	0.001	0.838	0.71
88	10/20/1999	1:58:36 PM	0	26.158	22.293	25.672	23.644	22.169	29.554	73.705	81.457	9.51	64.996	7.246	-0.042	35.555	0.136	0.116	77	77	14.8	69.4	4.781	0.059	0.058	0.001	0.840	0.71
89	10/20/1999	1:59:37 PM	0	26.158	22.293	25.672	23.644	22.169	29.672	73.581	81.396	9.455	64.858	7.246	-0.042	35.539	0.136	0.116	78	78	14.7	69.1	4.782	0.059	0.058	0.001	0.843	0.72
90	10/20/1999	2:00:37 PM	0	26.203	22.339	25.637	23.69	22.214	29.836	74.449	82.311	9.463	65.131	7.246	-0.042	35.585	0.137	0.116	79	79	14.8	69.8	4.812	0.060	0.059	0.001	0.842	0.72
91	10/20/1999	2:01:38 PM	0	26.158	22.293	25.672	23.644	22.169	29.672	73.705	81.457	9.463	64.962	7.246	-0.042	35.508	0.136	0.116	80	80	14.7	69.3	4.780	0.059	0.058	0.001	0.840	0.72
92	10/20/1999	2:02:38 PM	0	26.203	22.339	25.717	23.69	22.134	30.394	73.271	81.152	9.447	64.725	7.277	-0.042	35.524	0.136	0.119	81	81	14.7	69.0	4.757	0.059	0.058	0.001	0.843	0.72
93	10/20/1999	2:03:39 PM	0	26.203	22.339	25.717	23.69	22.134	30.712	73.519	81.396	9.487	64.992	7.246	-0.042	35.601	0.135	0.119	82	82	14.8	69.1	4.765	0.059	0.058	0.001	0.836	0.71
94	10/20/1999	2:04:39 PM	0	26.123	22.339	25.717	23.69	22.214	30.474	74.263	82.128	9.55	65.131	7.246	-0.042	35.565	0.135	0.119	83	83	14.8	69.7	4.805	0.059	0.058	0.001	0.829	0.71
95	10/20/1999	2:05:39 PM	0	26.203	22.339	25.717	23.609	22.214	29.997	74.201	82.006	9.542	64.793	7.246	-0.042	35.57	0.135	0.119	84	84	14.8	69.5	4.792	0.059	0.058	0.001	0.831	0.71
96	10/20/1999	2:06:40 PM	0	26.248	22.384	25.762	23.654	22.26	30.757	73.457	81.274	9.487	64.861	7.246	-0.042	35.524	0.135	0.119	85	85	14.7	69.2	4.768	0.059	0.058	0.001	0.834	0.71
97	10/20/1999	2:07:40 PM	0	26.123	22.339	25.717	23.609	22.134	30.653	73.271	80.969	9.407	64.692	7.246	-0.042	35.476	0.134	0.112	86	86	14.7	69.0	4.756	0.058	0.057	0.001	0.831	0.71
98	10/20/1999	2:08:40 PM	0	26.248	22.384	25.762	23.574	22.179	30.618	73.891	81.762	9.447	65.03	7.246	-0.042	35.462	0.135	0.109	87	87	14.7	69.5	4.769	0.059	0.058	0.001	0.830	0.71
99	10/20/1999	2:09:41 PM	0	26.168	22.303	25.682	23.654	22.179	30.815	73.457	81.274	9.487	64.928	7.246	-0.042	35.483	0.135	0.112	88	88	14.7	69.2	4.771	0.059	0.058	0.001	0.836	0.71
100	10/20/1999	2:10:41 PM	0	26.168	22.303	25.682	23.654	22.179	30.757	73.891	81.701	9.439	65.165	7.246	-0.042	35.476	0.135	0.116	89	89	14.7	69.5	4.794	0.059	0.058	0.001	0.832	0.71
101	10/20/1999	2:11:41 PM	0	26.248	22.303	25.762	23.654	22.26	29.962	73.829	81.64	9.439	64.469	7.246	-0.042	35.432	0.134	0.112	90	90	14.7	69.2	4.768	0.058	0.057	0.001	0.828	0.70
102	10/20/1999	2:12:42 PM	0	26.168	22.384	25.762	23.574	22.26	30.815	73.643	81.579	9.439	64.725	7.277	-0.042	35.476	0.135	0.112	91	91	14.7	69.2	4.770	0.059	0.058	0.001	0.834	0.71
103	10/20/1999	2:13:42 PM	0	26.293	22.348	25.727	23.619	22.305	29.827	73.767	81.457	9.455	65.131	7.246	-0.042	35.462	0.134	0.109	92	92	14.7	69.4	4.788	0.058	0.057	0.001	0.825	0.70
104	10/20/1999	2:14:42 PM	0	26.168	22.303	25.682	23.654	22.26	30.041	73.457	81.274	9.479	64.926	7.246	-0.089	35.476	0.134	0.109	93	93	14.7	69.2	4.771	0.058	0.057	0.001	0.829	0.71
105	10/20/1999	2:15:43 PM	0	26.213	22.348	25.727	23.619	22.305	30.722	73.271	80.908	9.431	64.523	7.277	-0.042	35.478	0.133	0.116	94	94	14.7	68.9	4.750	0.058	0.057	0.001	0.826	0.70
106	10/20/1999	2:16:43 PM	0	26.213	22.268	25.727	23.699	22.305	30.583	73.457	81.152	9.399	64.992	7.277	-0.042	35.586	0.134	0.112	95	95	14.7	69.2	4.772	0.058	0.057	0.001	0.828	0.70
107	10/20/1999	2:17:43 PM	0	26.133	22.348	25.727	23.78	22.305	29.927	73.953	81.884	9.431	64.996	7.246	-0.042	35.432	0.134	0.116	96	96	14.7	69.5	4.790	0.058	0.057	0.001	0.825	0.70
108	10/20/1999	2:18:44 PM	0	26.258	22.313	25.772	23.825	22.35	29.653	73.457	81.213	9.423	64.928	7.246	-0.042	35.401	0.133	0.112	97	97	14.7	69.2	4.771	0.058	0.057	0.001	0.821	0.70
109	10/20/1999	2:19:44 PM	0	26.213	22.348	25.727	23.78	22.305	30.801	73.395	81.152	9.431	65.03	7.277	-0.042	35.508	0.132	0.112	98	98	14.7	69.2	4.772	0.058	0.056	0.001	0.816	0.69
110	10/20/1999	2:20:44 PM	0	26.258	22.394	25.772	23.825	22.431	30.21	73.581	81.395	9.431	64.421	7.246	-0.042	35.416	0.134	0.112	99	99	14.7	69.0	4.757	0.058	0.057	0.001	0.830	0.71
111	10/20/1999	2:21:45 PM	0	26.258	22.394	25.692	23.825	22.431	29.574	73.891	81.762	9.439	65.266	7.246	-0.042	35.462	0.133	0.109	100	100	14.7	69.6	4.797	0.058	0.057	0.001	0.818	0.70
112	10/20/1999	2:22:45 PM	0	26.223	22.439	25.737	23.78	22.478	30.018	73.705	81.518	9.439	64.996	7.277	-0.042	35.586	0.133	0.112	101	101	14.7	69.4	4.781	0.058	0.057	0.001	0.820	0.70
113	10/20/1999	2:23:45 PM	0	26.223	22.358	25.737	23.78	22.478	29.776	74.139	82.067	9.495	64.725	7.277	-0.042	35.462	0.132	0.112	102	102	14.7	69.4	4.787	0.058	0.056	0.001	0.813	0.69
114	10/20/1999	2:24:46 PM	0	26.143	22.358	25.737	23.79	22.395	30.573	73.891	81.64	9.479	64.962	7.277	-0.042	35.478	0.133	0.112	103	103	14.7	69.4	4.787	0.058	0.057	0.001	0.819	0.70
115	10/20/1999	2:25:46 PM	0	26.223	22.358	25.657	23.709	22.395	30.573	73.705	81.579	9.439	64.894	7.246	-0.042	35.447	0.132	0.112	104	104	14.7	69.3	4.776	0.058	0.057	0.001	0.816	0.69
116	10/20/1999	2:26:46 PM	0	26.223	22.358	25.657	23.709	22.395	30.334	74.015	81.884	9.479	64.861	7.246	-0.042	35.493	0.132	0.112	105	105	14.7	69.4	4.788	0.058	0.057	0.001	0.815	0.69
117	10/20/1999	2:27:47 PM	0	26.268	22.404	25.702	23.754	22.521	31.094	74.573	82.433	9.503	65.03	7.277	-0.042	35.508	0.132	0.116	106	106	14.7	69.8	4.813	0.058	0.056	0.001	0.809	0.69
118	10/20/1999	2:28:47 PM	0	26.268	22.404	25.702	23.835	22.441	30.299	73.767	81.701	9.479	64.523	7.246	-0.042	35.462	0.132	0.112	107	107	14.7	69.1	4.767	0.058	0.056	0.001	0.817	0.70
119	10/20/1999	2:29:47 PM	0	26.188	22.323	25.702	23.835	22.441	30.458	73.643	81.518	9.423	64.928	7.277	-0.042	35.386	0.131	0.116	108	108	14.7	69.3	4.777	0.057	0.056	0.001	0.809	0.69
120	10/20/1999	2:30:48 PM	0	26.233	22.368	25.747	23.88	22.486	30.821	73.581	81.396	9.423	65.233	7.277	-0.042	35.386	0.131	0.109	109	109	14.7	69.4	4.785	0.057	0.056	0.001	0.807	0.69
121	10/20/1999	2:31:48 PM	0	26.233	22.368	25.747	23.8	22.486	29.867	74.015	81.823	9.471	65.233	7.246	-0.042	35.432	0.131	0.109	110	110	14.7	69.6	4.800	0.057	0.056	0.001	0.804	0.68
122	10/20/1999	2:32:49 PM	0	26.233	22.368	25.667	23.719	22.486	30.344	74.139	82.006	9.439	64.793	7.277	-0.042	35.401	0.132	0.112	111	111	14.7	69.5	4.789	0.058	0.057	0.001	0.814	0.69
123	10/20/1999	2:33:49 PM	0	26.233	22.368	25.747	23.719	22.486	30.9	73.581	81.396	9.463	65.097	7.277	-0.042	35.493	0.132	0.109	112	112	14.7	69.3	4.781	0.058	0.056	0.001	0.814	0.69
124	10/20/1999	2:34:50 PM	0	26.233	22.368	25.667	23.719	22.486	30.026	74.015	81.823	9.455	65.199	7.246	-0.042	35.416	0.132	0.109	113	113	14.7	69.6	4.799	0.058	0.057	0.001	0.812	0.69
125	10/20/1999	2:35:50 PM	0	26.196	22.414	25.792	23.765	22.451	29.912	73.643	81.579	9.423	64.793	7.246	-0.042	35.416	0.132	0.109	114	114	14.7	69.2	4.772	0.058	0.056	0.001	0.814	0.69
126	10/20/1999	2:36:50 PM	0	26.278	22.414	25.712	23.765	22.451	30.15	73.643	81.457	9.431	65.097	7.277	-0.042	35.478	0.131	0.109	115	115	14.7	69.4	4.783	0.057	0.056	0.001	0.808	0.69
127	10/20/1999	2:37:51 PM	0	26.196	22.333	25.712	23.645	22.531	30.627	73.829	81.701	9.447	64.996	7.277	-0.042	35.401	0.129	0.109	116	116	14.7	69.4	4.786	0.056	0.055	0.001	0.795	0.68
128	10/20/1999	2:38:51 PM	0	26.196	22.414	25.712	23.645	22.451	30.071	73.643	81.518	9.367	65.063	7.277	-0.042	35.447	0.131	0.106	117	117	14.7	69.4	4.782	0.057	0.056	0.001	0.808	0.69
129	10/20/1999	2:39:51 PM	0	26.196	22.414	25.712	23.645	22.451	31.104	73.953	81.823	9.423	64.692	7.246	-0.042	35.416	0.131	0.106	118	118	14.7	69.3	4.780	0.057	0.056	0.001	0.809	0.69
130	10/20/1999	2:40:52 PM	0	26.243	22.379	25.757	23.69	22.496	30.752	73.643	81.518	9.415	64.996	7.246	-0.042	35.37	0.13	0.109	119	119	14.7	69.3	4.779	0.057	0.056	0.001	0.801	0.68
131	10/20/1999	2:41:52 PM	0	26.243	22.459	25.757	23.97	22.576	30.434	74.449	82.311	9.471	65.063	7.246	-0.042	35.416	0.13	0.109	120	120	14.7	69.8	4.809	0.057	0.056	0.001	0.798	0.68
132	10/20/1999	2:42:52 PM	0	26.243	22.459	25.757	23.81	22.657	30.91	73.705	81.457	9.439	65.233	7.277	-0.042	35.555	0.131	0.112	121	121	14.7	69.5	4.790	0.057	0.056	0.001	0.806	0.69
133	10/20/1999	2:43:53 PM	0	26.243	22.459	25.757	23.69	22.657	31.149	73.705	81.518	9.415	65.03	7.246	-0.042	35.462	0.131	0.116	122	122	14.7	69.4	4.783	0.057	0.056	0.001	0.807	0.69
134	10/20/1999	2:44:53 PM	0	26.243	22.459	25.677	23.81	22.657	31.149	73.829	81.701	9.423	64.658	7.246	-0.042	35.447	0.13	0.112	123	123	14.7	69.2	4.774	0.057	0.056	0.001	0.804	0.68
135	10/20/1999	2:45:53 PM	0	26.243	22.379	25.757	23.81	22.576	29.716	73.953	81.823	9.391	64.996	7.277	-0.089	35.309	0.13	0.112	124	124	14.7	69.5	4.790	0.057	0.056	0.001	0.800	0.68
136	10/20/1999	2:46:54 PM	0	26.243	22.379	25.677	23.81	22.657	30.116	73.829	81.64	9.407	64.827	7.246	-0.042	35.493	0.13	0.112	125	125	14.7	69.3	4.780	0.057	0.056	0.001	0.803	0.68
137	10/20/1999	2:47:54 PM	0	26.268	22.424	25.722	23.835	22.702	30.001	73.829	81.701	9.471	64.894	7.277	-0.042	35.462	0.129	0.112	126	126	14.7	69.4	4.782	0.056	0.055	0.001	0.795	0.68
138	10/20/1999	2:48:54 PM	0	26.268	22.424	25.722	23.835	22.622	30.24	74.077	81.945	9.431	65.063	7.246	-0.042	35.416	0.129	0.106	127	127	14.7	69.6	4.797	0.056	0.055	0.001	0.793	0.68
139	10/20/1999	2:49:55 PM	0	26.268	22.424	25.802	23.835	22.622	30.399	73.829	81.701	9.383	64.996	7.277	-0.042	35.401	0.13	0.106	128	128	14.7	69.4	4.788	0.057	0.055	0.001	0.799	0.68
140	10/20/1999	2:50:55 PM	0	26.268	22.504	25.722	23.835	22.622	30.717	73.705	81.457	9.423	64.624	7.277	-0.042	35.416	0.13	0.109	129	129	14.7	69.2	4.769	0.057	0.056	0.001	0.799	0.68
141	10/20/1999	2:51:55 PM	0	26.208	22.424	25.722	23.835	22.541	31.431	73.953	81.884	9.495	64.928	7.277	-0.042	35.416	0.129	0.109	130	130	14.7	69.4	4.788	0.056	0.055	0.001	0.804	0.68
142	10/20/1999	2:52:56 PM	0	26.208	22.424	25.802	23.775	22.139	33.096	73.643	81.396	9.431	65.199	7.246	-0.042	35.401	0.13	0.109	131	131	14.7	69.4	4.788	0.057	0.055	0.001	0.795	0.68
143	10/20/1999	2:53:56 PM	0	26.268	22.424	25.802	23.694	21.253	33.65	73.395	81.213	9.423	64.861	7.246	-0.042	35.401	0.129	0.109	132	132	14.7	69.1	4.766	0.058	0.055	0.001	0.796	0.68
144	10/20/1999	2:54:57 PM	0	26.243	22.379	25.677	23.649	21.369	32.893	73.953	81.762	9.431	65.063	7.277	-0.042	35.416	0.129	0.106	133	133	14.7	69.5	4.702	0.056	0.055	0.001	0.795	0.68
145	10/20/1999	2:55:57 PM	0	26.243	22.459	25.757	23.569	21.772	30.275	73.953	81.762	9.359	65.334	7.277	-0.089	35.401	0.13	0.109	134	134	14.7	69.6	4.802	0.057	0.056	0.001	0.798	0.68
146	10/20/1999	2:56:57 PM	0	26.243	22.459	25.757	23.649	22.094	31.149	74.139	81.884	9.439	64.962	7.277	-0.042	35.401	0.128	0.106	135	135	14.7	69.6	4.795	0.056	0.055	0.001	0.787	0.67
147	10/20/1999	2:57:57 PM	0	26.243	22.379	25.757	23.649	22.255	31.466	74.449	82.494	9.447	65.03	7.277	-0.089	35.432	0.129	0.109	136	136	14.7	69.7	4.808	0.056	0.055	0.001	0.791	0.67
148	10/20/1999	2:58:58 PM	0	26.278	22.494	25.712	23.684	22.335	30.434	73.767	81.518	9.399	65.334	7.277	-0.042	35.493	0.128	0.109	137	137	14.7	69.6	4.795	0.056	0.055	0.001	0.787	0.67
149	10/20/1999	3:00:59 PM	0	26.323	22.459	25.677	23.81	22.415	30.752	74.573	82.006	9.439	65.3	6.846	-0.042	35.555	0.213	0.183	139	139	14.8	69.9	4.822	0.093	0.091	0.001	1.304	1.11
150	10/20/1999	3:01:59 PM	0	26.278	22.414	25.632	23.765	22.451	29.912	74.387	81.762	9.431	65.671	6.877	-0.042	35.493	0.188	0.158	140	140	14.7	70.0	4.825	0.087	0.081	0.001	1.152	0.98
151																												
152		Averages		26.2	22.4	25.7	23.7	22.2	30.6	73.8	81.6	9.5	64.9	7.2	0.0	35.6	0.1	0.1	78.0	78.0	14.8	69.3	4.780	0.069	0.061	0.00088	0.9	0.7
153		Maximum		26.3	22.5	25.9	24.0	22.7	33.7	74.8	82.5	9.8	65.6	8.6	0.0	36.4	0.3	0.3	137.0	137.0	15.1	69.9	4.816	0.131	0.131	0.00196	2.0	1.7
154		Median		26.2	22.3	25.7	23.7	22.3	30.6	73.8	81.6	9.5	64.9	7.2	0.0	35.5	0.1	0.1	78.0	78.0	14.7	69.4	4.781	0.058	0.058	0.00084	0.8	0.7
155		Minimum		25.5	22.2	25.1	23.3	21.2	29.2	71.4	80.3	9.3	62.3	6.9	-0.1	35.2	0.1	0.1	19.0	19.0	14.6	68.8	4.606	0.056	0.055	0.00079	0.8	0.7
156		Std Deviation		0.156	0.055	0.129	0.125	0.388	0.807	0.582	0.367	0.104	0.378	0.155	0.012	0.234	0.020	0.019	34.351	34.351	0.097	0.344	0.024	0.009	0.009	0.000131	0.131	0.112
157		Number of Points Used		119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119



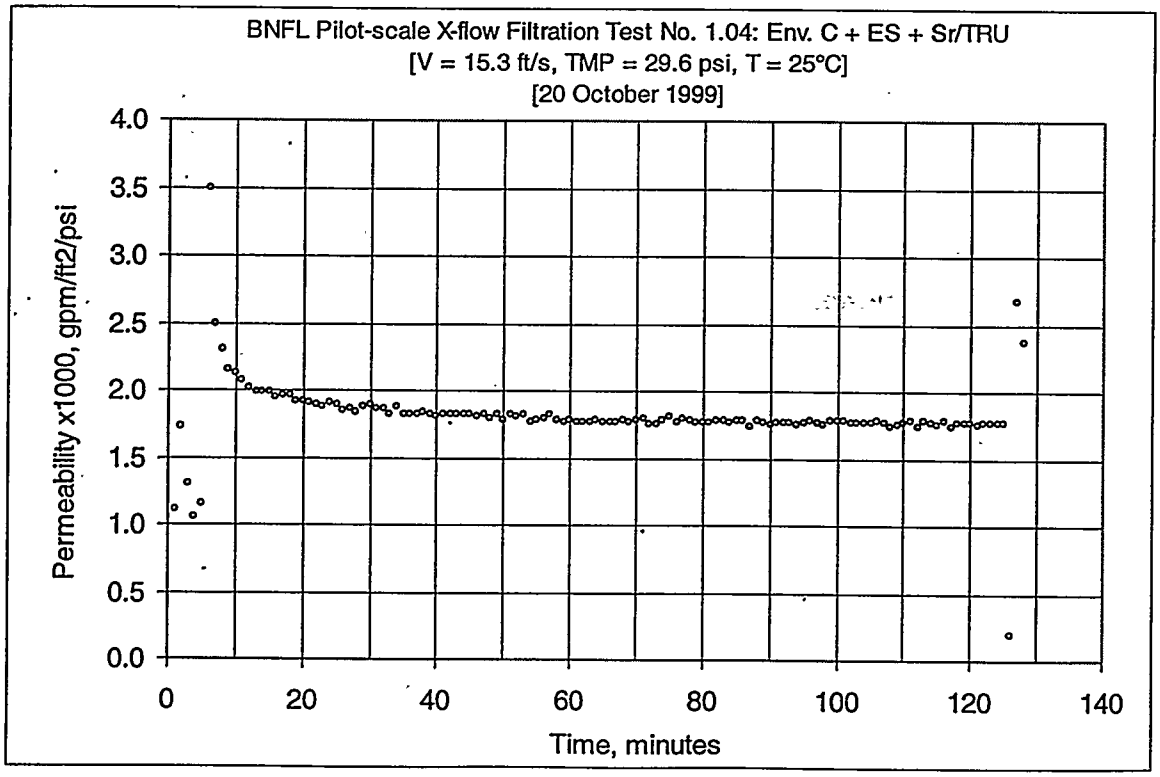


Figure B4: Test Run 1.04, 2 wt% Insoluble Solids Concentration

Run 1.04: 2 wt% Concentration of Insoluble Solids

	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	TS (deg C)	BOT DP (p	FLTR (psi	FLTR DP (j	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR	O3,FLTR	FLOW (ppm)									
2	Zeros - No Flow - Lines Connected																				Filter Surface Area		2 29	FT2				
3	10/20/1999	8:11:12 AM	0	20 881	20 686	20 615	20 67	20 884	30,433	0 166	-2 023	0,726	-0 22	-2 584	-0 089	-0 095	0 011	-0 015			Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
4	10/20/1999	8:12:12 AM	0	20 78	20 605	20 534	20 67	20 884	30 353	0 124	-2 023	0,726	-0 254	-2 584	-0 089	-0 095	0 011	-0 018										
5	10/20/1999	8:13 13 AM	0	20 825	20 731	20 579	20 715	21 01	30,396	0,124	-2 023	0 726	-0 22	-2 584	-0 089	-0 08	0 011	-0 018										
6	Zeros - Lines Not Connected																											
7	10/20/1999	8 15:29 AM	0	20 906	20 731	20 579	20 634	21 01	30 396	-0 062	-0 011	-0 008	-0 017	-0 088	-0 089	-0 08	0 011	-0 018										
8	10/20/1999	8:16:30 AM	0	20 825	20 65	20 579	20 634	20 929	30 477	-0 062	-0 011	-0 008	-0 017	-0 088	-0 089	-0 08	0 011	-0 018										
9	10/20/1999	8:17 30 AM	0	20 825	20 65	20 579	20 634	20 849	30 557	-0 062	-0 011	-0 008	0 016	-0 119	-0 089	-0 08	0 011	-0 018										
10																												
11	Data - Per Minute																								at 25C	PERMABILITY	x 1000	
12	10/20/1999	3 02 22 PM	0	26 323	22 459	25 757	23 69	22 495	30,434	74 325	81,823	9 471	65 334	6 938	-0,042	35 493	0,161	0,152		1	1	14 7	69 8	4 614	0 079	0 077	0 001	1 108	0 94
13	10/20/1999	3 03 22 PM	0	26 323	22 459	25,757	23 81	22,415	31,149	46 492	53 529	6 782	39 572	6 568	-0 042	29 027	0 174	0,146		2	2	12 0	43 0	2 967	0 078	0 074	0 002	1 726	1 47
14	10/20/1999	3 04 23 PM	0	26,118	22,414	25 472	23 765	22 451	31,025	32,978	40,723	9 311	23 851	7 246	-0,089	34,94	0 066	0,081		3	3	14 5	28 4	1 959	0 038	0 037	0 001	1 304	1 11
15	10/20/1999	3 05 23 PM	0	26 163	22 539	25 357	23 729	22 576	30,195	35,148	42,797	10 126	25 643	7 154	-0 042	36 753	0 074	0 042		4	4	15 3	30 4	2 096	0 032	0 032	0 001	1 052	0 90
16	10/20/1999	3 06 23 PM	0	26 083	22 539	25 277	23 649	22 496	30 434	34 59	42 553	10 065	24 798	7 493	-0 042	36 691	0 079	0 052		5	5	15 2	29 7	2 047	0 034	0 034	0 001	1 152	0 98
17	10/20/1999	3 07 24 PM	0	25 958	22 494	25,151	23 443	22,451	30,707	31,119	42 658	9 782	21,363	11 222	-0 042	37,029	0 211	0,186		6	6	15 4	26 3	1 810	0 092	0 092	0 003	3 494	2 97
18	10/20/1999	3 08 24 PM	0	25 923	22 459	25,118	23 408	22 496	30,752	33 908	42,492	9 487	25,406	8 14	-0 042	36 908	0,17	0 146		7	7	15 3	29 7	2 045	0 074	0 074	0 002	2 494	2 12
19	10/20/1999	3 09 24 PM	0	25 843	22 459	25,196	23 328	22,496	30 593	34 032	42 37	9 758	24,665	7 955	-0 042	36 998	0 156	0,134		8	8	15 4	29 4	2 030	0 068	0 068	0 002	2 300	1 96
20	10/20/1999	3 10:25 PM	0	25,718	22,414	25,151	23 202	22 37	30 648	34 59	42,919	9,726	25 136	7 894	-0 042	36 968	0 148	0 128		9	9	15 3	29 9	2 059	0 065	0 064	0 002	2 154	1 83
21	10/20/1999	3:11:25 PM	0	25 763	22 459	25,196	23 328	22,415	30,752	33 97	42,187	9 75	24 663	7,863	-0 042	37,044	0,143	0,125		10	10	15 4	29 3	2 021	0 062	0 062	0 002	2 118	1 80
22	10/20/1999	3:12:25 PM	0	25 683	22 459	25,196	23 247	22 333	30 434	33 97	42,37	9,734	24 629	7,863	-0 042	36 968	0 14	0,122		11	11	15 3	29 3	2 020	0 061	0 061	0 002	2 074	1 77
23	10/20/1999	3:13:26 PM	0	25 683	22 539	25,196	23 408	22,535	30,275	34,466	42,919	9 71	24 599	7,863	-0 042	36 968	0,136	0,122		12	12	15 3	29 7	2 047	0 060	0 060	0 002	2 018	1 72
24	10/20/1999	3:14:26 PM	0	25 683	22,539	25 277	23,408	22 415	30 434	34 528	43,162	9,622	25 035	7,894	-0,042	36 891	0 137	0,122		13	13	15 3	29 8	2 053	0 060	0 059	0 002	1 993	1 70
25	10/20/1999	3:15:26 PM	0	25 683	22 459	25 196	23 489	22 333	30,195	34 218	42 492	9 566	24 865	7,894	-0,042	37,014	0,135	0,122		14	14	15 4	29 5	2 037	0 059	0 059	0 002	1 984	1 69
26	10/20/1999	3:16:27 PM	0	25 683	22 459	25,357	23 489	22 415	30,116	33 97	42 248	9 67	24,595	7 894	-0 042	37,06	0 135	0 122		15	15	15 4	29 3	2 019	0 059	0 058	0 002	1 992	1 70
27	10/20/1999	3:17:27 PM	0	25 683	22 459	25 277	23 569	22 415	30,195	34 342	42,736	9 75	24 632	7 863	-0 042	36 963	0,133	0,116		16	16	15 3	29 6	2 040	0 058	0 058	0 002	1 947	1 66
28	10/20/1999	3:18:27 PM	0	25 683	22 459	25,277	23 569	22 335	30,275	34 156	42,614	9 63	24,798	7 863	-0 042	36 937	0 133	0 112		17	17	15 3	29 5	2 032	0 058	0 058	0 002	1 954	1 66
29	10/20/1999	3:19:28 PM	0	25 683	22 459	25 277	23 569	22 335	30,116	33 412	41 577	9 622	24,764	7,863	-0 042	36 906	0,132	0,109		18	18	15 3	29 1	2 006	0 058	0 057	0 002	1 966	1 67
30	10/20/1999	3:20:28 PM	0	25,728	22 504	25 322	23 534	22 38	30 478	34,714	43,101	9 65	24 798	7,863	-0 042	36 968	0 132	0,112		19	19	15 3	29 8	2 052	0 058	0 057	0 002	1 919	1 63
31	10/20/1999	3:21:28 PM	0	25,763	22,459	25,196	23 489	22 335	31,228	34 28	42 614	9 542	25,136	7 863	-0,089	36 952	0 131	0 112		20	20	15 3	29,7	2 048	0 057	0 057	0 002	1 914	1 63
32	10/20/1999	3:22:29 PM	0	25 728	22 504	25,322	23 534	22 38	30,16	34 652	42 919	9 596	24,798	7,863	-0 089	36 922	0 131	0,109		21	21	15 3	29 7	2 049	0 057	0 057	0 002	1 907	1 62
33	10/20/1999	3 23 29 PM	0	25,728	22 504	25 322	23 614	22 38	30,676	34 652	43,162	9,67	25 102	7,832	-0 042	37 029	0,131	0 109		22	22	15 4	29 9	2 060	0 057	0 057	0 002	1 897	1 61
34	10/20/1999	3:24:29 PM	0	25 683	22 459	25,277	23,408	22 415	30,593	34 404	42 658	9,766	24 933	7 863	-0 042	36 891	0,129	0,106		23	23	15 3	29 7	2 046	0 056	0 056	0 002	1 883	1 60
35	10/20/1999	3 25:30 PM	0	25 728	22,504	25 322	23 453	22,38	31,352	34,032	42,309	9,566	24,73	7 832	-0 042	36 952	0 129	0,106		24	24	15 3	29 4	2 025	0 056	0 056	0 002	1 899	1 62
36	10/20/1999	3:26 30 PM	0	25,728	22 504	25,322	23 534	22 38	30,717	34,342	42 675	9 606	24,784	7 832	-0 042	36 814	0 129	0,106		25	25	15 3	29 6	2 038	0 056	0 056	0 002	1 888	1 61
37	10/20/1999	3:27:31 PM	0	25 728	22 504	25 322	23 534	22,38	31,69	34 9	43 162	9 646	24,798	7 863	-0 042	36 968	0,128	0,106		26	26	15 3	29 8	2 058	0 056	0 055	0 002	1 855	1 58
38	10/20/1999	3 28:31 PM	0	25 728	22 504	25 402	23 534	22 461	30,676	34 218	42,492	9 606	25,136	7,832	-0 042	37 06	0,126	0,106		27	27	15 4	29 7	2 048	0 056	0 055	0 002	1 862	1 58
39	10/20/1999	3 29:31 PM	0	25,728	22,504	25,322	23,534	22 461	30,955	34,778	43 284	9,69	25,136	7 832	-0 042	36,952	0,127	0,106		28	28	15 3	30 0	2 065	0 055	0 055	0 002	1 834	1 56
40	10/20/1999	3 30 31 PM	0	25 728	22 504	25,402	23 534	22 461	30 955	33 784	42 248	9 75	25 102	7,832	-0 042	37,014	0 126	0,106		29	29	15 4	29 4	2 030	0 056	0 055	0 002	1 876	1 60
41	10/20/1999	3 31 32 PM	0	25 728	22 504	25 322	23 614	22 3	31,114	34,404	42 736	9 686	24 595	7,832	-0 042	36 937	0 129	0,109		30	30	15 3	29 5	2 034	0 056	0 056	0 002	1 892	1 61
42	10/20/1999	3:32:32 PM	0	25,763	22 459	25 277	23 569	22,335	30 613	34 342	42,675	9,698	24,665	7 832	-0,042	37,029	0,127	0,109		31	31	15 4	29 6	2 041	0 055	0 055	0 002	1 858	1 58
43	10/20/1999	3,33 32 PM	0	25 808	22,504	25 322	23 694	22,38	31,352	34 218	42 553	9 774	24 798	7 863	-0 042	36 952	0 127	0 109		32	32	15 3	29 5	2 034	0 055	0 055	0 002	1 862	1 58
44	10/20/1999	3:34,33 PM	0	25 728	22 504	25 322	23 614	22 3	30,717	33 97	42,004	9 582	25 001	7 832	-0 042	36 922	0,124	0,103		33	33	15 3	29 5	2 033	0 054	0 054	0 002	1 819	1 55
45	10/20/1999	3 35 33 PM	0	25 808	22 504	25 322	23 614	22 38	30,599	34 094	42 309	9 622	24 527	7,832	-0 042	37,014	0 127	0 109		34	34	15 4	29 3	2 021	0 055	0 055	0 002	1 874	1 60
46	10/20/1999	3:36:34 PM	0	25 728	22 504	25 402	23 534	22 38	30,16	34 59	43,101	9 678	25 102	7,832	-0 042	36 875	0,126	0,109		35	35	15 3	29 8	2 058	0 055	0 054	0 002	1 822	1 55
47	10/20/1999	3 37 34 PM	0	25,728	22,504	25,402	23 694	22 38	30 24	34 28	42 553	9 742	24 798	7,832	-0 042	36 86	0,125	0 109		36	36	15 3	29 5	2 037	0 055	0 054	0 002	1 827	1 55
48	10/20/1999	3:38:34 PM	0	25 728	22 504	25 402	23 614	22 38	30,16	34,156	42,431	9 582	25 339	7 832	-0 042	36 845	0,126	0,109		37	37	15 3	29 7	2 051	0 055	0 054	0 002	1 828	1 56
49	10/20/1999	3:39:35 PM	0	25 728	22 504	25 402	23 534	22 38	30 24	33 97	42 37	9,718	24,933	7,832	-0 042	36 875	0 125	0 109		38	38	15 3	29 5	2 031	0 055	0 054	0 002	1 832	1 56
50	10/20/1999	3:40:35 PM	0	25 728	22 504	25 322	23 534	22 38	30,16	34,156	42,492	9,596	24,73	7 801	-0 089	36,983	0,124	0,106		39	39	15 3	29 4	2 030	0 054	0 054	0 002	1 822	1 55
51	10/20/1999	3 41:35 PM	0	25 808	22 504	25 402	23 614	22,38	30,717	34,218	42 614	9 471	25 406	7 832	-0,089	36,875	0,125	0,106		40	40	15 3	29 8	2 055	0 055	0 054	0 002	1 810	1 54
52	10/20/1999	3 42:36 PM	0	25 808	22 504	25,402	23 614	22 3	30 24	34 28	42 431	9 646	25 068	7,832	-0 042	36 86	0 125	0,106		41	41	15 3	29 7	2 046	0 055	0 054	0 002	1 818	1 55
53	10/20/1999	3:43:36 PM	0	25 808	22 504	25 402	23 534	22,3	31,749	34,342	42,614	9,718	24,933	7,832	-0 042	36 983	0,125	0,103		42	42	15 3	29 6	2 043	0 055	0 054	0 002	1 820	1 55
54	10/20/1999	3:44,36 PM	0	25 808	22,504	25,402	23 614	22,3	30 081	34,28	42 553	9 702	25,001	7,832	-0 089	36 968	0,125	0,106		43	43	15 3	29 6	2 044	0 055	0 054	0 002	1 820	1 55
55	10/20/1999	3:45:37 PM	0	25 808	22 504	25 402	23 614	22 3	30,24	34,468	42,736	9 67	25,102	7,832	-0 089	36,968	0,126	0,103		44	44	15 3	29 8	2 054	0 055	0 054	0 002	1 826	1 55
56	10/20/1999	3:46 37 PM	0	25 688	22,504	25,402	23,534	22,38	30 081	34,094	42,431	9 798	24 527	7,832	-0 042	36 906	0 124	0 1		45	45	15 3	29 3	2 021	0 054	0 054	0 002	1 826	1 55
57	10/20/1999	3:47:37 PM	0	25 808	22 585	25,402	23 614	22 3	31,114	34 342	42,553	9,75	25 001	7 832	-0 042	37,075	0,124	0 1		46	46	15 4	29 7	2 046	0 054	0 054	0 002	1 804	1 54
58	10/20/1999	3:48:38 PM	0	25 808	22,504	25,322	23,534	22,219	31,511	34 342	42,858	9 678	25,271	7,832	-0 042	36 952	0 124	0,1		47	47	15 3	29 4	2 025	0 054	0 054	0 002	1 822	1,55
59	10/20/1999	3:49:38 PM	0	25 808	22,504	25,402	23,534	22,3	30,319	34,218	42,675	9,79	24,696	7,832	-0 042	37,321	0,124	0 103		48	48	15 3	29 8	2 055	0 054	0 054	0 002	1 800	1 53
60	10/20/1999	3:50:38 PM	0	25 808	22,504	25,402	23,534	22,3	30,319	34,218	42,675	9,79	24,696	7,832	-0 042	36 875	0,124	0,106		49	49	15 5	29 5	2 031	0 054	0 054	0 002	1 817	1 55
61	10/20/1999	3:51:39 PM	0	25 808	22,585	25,402	23,534	22,38	30,955	34,528	42 736	9 582	25 575	7,832	-0 042	36 875	0,124	0,106		50	50	15 3	30,1	2 072	0 054	0 054	0 002	1 781	1 52
62	10/20/1999	3:52:39 PM	0	25,728	22,585	25,402	23,534	22,3	30,399	33 846	42,187	9 694	25,271	7,832	-0 042	36 875	0,125	0,106		51	51	15 3	29 6	2 038	0 055	0 054	0 002	1 825	1 55
63	10/20/1999	3:53:39 PM	0	25 808	22 504	25,402	23,614	22,3	30,796	34,404	42,736	9 678	25 001	7,832	-0 042	36,983	0,124	0,106		52	52	15 3	29 7	2 048	0 054	0 054	0 002	1 802	1 53
64	10/20/1999	3:54:40 PM	0	25 808	22,504	25,402	23,534	22 3	30,637	34 218	42,431	9 782	24 629	7,801	-0 042	37,029	0,124	0,103		53	53	15 4	29 4	2 029	0 054	0 054	0 002	1 819	1 55
65	10/20/1999	3:55:40 PM	0	25 808	22,585	25,402	23,534	22 3	30 717	34,714	43 04	9,702	25,068	7,832	-0,042	36,998	0,122	0,103		54	54	15 4	29 9	2 061	0 053	0 053	0 002	1 762	1 50
66	10/20/1999	3:56:40 PM	0	25 808	22 504	25,402	23 534	22,38	30,676	34,342	42,675	9 67	24 629	7,832	-0 042	36 952	0,124	0,103		55	55	15 3	29 5	2 033	0 053	0 053	0 002	1 786	1 52
67	10/20/1999	3:57:41 PM	0	25 808	22,585	25,402	23,614	22,3	30,676	34 652	42,979	9 662	24,832	7,832	-0 042	36 875	0 124	0,106		56	56	15 3	29 7	2 051	0 054	0 054	0 002	1 806	1 53
68	10/20/1999	3:58:41 PM	0	25 808	22,504	25,402	23,534	22 3	30 478	33 722	41,943	9 646	25,17	7,832	-0 042	36 922	0,124	0,106		57	57	15 3	29 4	2 030	0 054	0 054	0 002	1 818	1 55
69	10/20/1999	3:59:41 PM	0	25 808	22 585	25,402	23,534	22 3	31,114	34,404	42,797	9,75	24,865	7,801	-0 042	36,906	0 122	0,106		58	58	15 3	29 6	2 043	0 053	0 053	0 002	1 777	1 51
70	10/20/1999	4:00:42 PM	0	25 808	22 504	25,402	23,534	22,3	30 24	34,404	42,797	9 67	25 237	7 832	-0 042	36,937	0 122	0 103		59	59	15 3	29 8	2 058	0 053	0 053	0 002	1 766	1 50
71	10/20/1999	4:01:42 PM	0	25 808	22,504	25,402	23 534	22,3	31,035	34,59	43,04	9 574	25,17	7,832	-0 042	36,937	0,123	0 103		60	60	15 3	29 9	2 060	0 054	0 053	0 002	1 777	1 51
72	10/20/1999	4:02:42 PM	0	25 808	22,504	25,482	23,534	22,3	30,399	34 218	42,492	9,71	25 033	7 832	-0 042	36 998	0,122	0,103		61	61	15 4	29 6	2 043	0 053	0 053	0 002	1 773	1 51
73	10/20/1999	4:03:43 PM	0	25,763	22,459	25,357	23,489	22,255	31,228	34 28	42,553	9 734	25 17	7,801	-0 042	36 998	0,122	0,103		62	62	15 4	29 7	2 049	0 053	0 053	0 002	1 774	1 51
74	10/20/1999	4:04:43 PM	0	25 858	22,504	25,402	23,534	22 3	30,399	34,838	43,284	9 59	25 035	7,832	-0 089	36 891	0 123	0,1		63	63	15 3	29 9	2 064	0 054	0 053	0 002	1 773	1 51
75	10/20/1999	4:05:43 PM	0	25 843	22,539	25,357	23,489	22,174	30,752	34 466	42,919	9,758	25,17	7 832	-0 042	36 875	0,123	0,103		64	64	15 3	29 8	2 056	0 054	0 053	0 002	1 783	1 52
76	10/20/1999	4:06 44 PM	0	25 808	22 585	25 402	23,453	22 219	30,319	34 652	43,04	9 636	25 373	7 832	-0 042	36 963	0 123	0,103		65	65	15 3	30 0	2 069	0 054	0 053	0 002	1 783	1 52
77	10/20/1999	4:07:44 PM	0	25 808	22,585	25,402	23,534	22,219	30 955	34 652	43,04	9 636	25 035	7,832	-0 042	37,029	0 122	0 103		66	66	15 4	29 8	2 058	0 053	0 053	0 002	1 769	1 51
78	10/20/1999	4:08:44 PM	0	25 858	22,585	25 482	23,534	22 3	30,599	34 838	43,162	9 702	25,136	7,801	-0 042	37,044	0 123	0 103		67	67	15 4	30 0	2 067	0 054	0 053	0 002	1 785	1 50
79	10/20/1999	4:09:45 PM	0	25 843	22,539	25 357	23,408	22 255	30 434	34 218	42,553	9 558	24 699	7,801	-0 042	36 908	0,122	0 103		68	68	15 3	29 6	2 038	0 053	0 053	0 002	1 766	1 50
80	10/20/1999	4:10:45 PM	0	25 843	22,539	25 437	23,489	22,255	30 91	34,466	42,797	9 67	24 764	7,801	-0 042	36 968	0 121	0 103		69	69	15 3	29 6	2 042	0 053	0 052	0 002	1 784	1 52
81	10/20/1999	4:11:45 PM	0	25 843	22,539	25 437	23,489	22,174	31,367	34,094	42,431	9,604	25,17	7 801	-0 042	36 922	0 122	0 103		70	70	15 3	29 6	2 043	0 053	0 053	0 002	1 762	1 50
82	10/20/1999	4:12:46 PM	0	25,796	22,494	25 392	23,443	22,29	30 656	34 094	42,431	9,734	24 527	7 801	-0 042	36 891	0 122	0 103		71	71	15 3	29 3	2 021	0 053	0 053	0 002	1 775	1 51
83	10/20/1999	4:13:46 PM	0	25,923	22,539	25 437	23,489	22,255	31,367	34 28	42,553	9,758	25 17	7,801	-0,042	37,06	0,121	0 103		72	72	15 4	29 7	2 049	0 053	0 052	0 002	1 797	1 53
84	10/20/1999	4:14:46 PM	0	25 796	22,494	25,392	23,524	22,209	30,707	34,528	42,819	9 716	24 933	7,801	-0 042	37,014	0,121	0,106		73	73	15 4	29 7	2 050	0 053	0 052	0 002	1 755	1 49
85	10/20/1999	4:15 47 PM	0	25 796	22 494	25,392	23,443	22 209	31,183	34 466	42 858	9 606	24 73	7 801	-0 042	36 86	0 122	0 1		74	74	15 3	29 6	2 041	0 053	0 053	0 002	1 780	1 51

Run 1.04: 2 wt% Concentration of Insoluble Solids

	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	10/20/1999	4:18:47 PM	0	25 843	22 539	25 437	23 408	22 335	30 672	34 094	42 37	9 654	24 967	7 801	-0 042	36 799	0 124	0,103	75	75	15 3	29 5	2 036	0 054	0 053	0 002	1 811	1 54
87	10/20/1999	4:17:47 PM	0	25 796	22 575	25 392	23 443	22 29	30 707	34 156	42 37	9 782	24 832	7 801	-0 042	37 029	0 121	0,103	76	76	15 4	29 5	2 034	0 053	0 052	0 002	1 771	1 51
88	10/20/1999	4:19:48 PM	0	25 843	22 539	25 437	23 459	22 255	31 089	34 032	42 309	9 716	24 784	7 801	-0 042	36 963	0 122	0 103	77	77	15 3	29 3	2 021	0 053	0 053	0 002	1 795	1 53
89	10/20/1999	4:20:48 PM	0	25 878	22 575	25 472	23 524	22 209	30 23	33 906	42 309	9 67	25 001	7 832	-0 089	37 029	0 121	0 097	79	79	15 4	29 5	2 031	0 053	0 052	0 002	1 775	1 51
90	10/20/1999	4:21:49 PM	0	25 878	22 494	25 392	23 443	22 209	30 18	34 342	42 673	9 63	25 001	7 801	-0 042	36 952	0 121	0,1	80	80	15 3	29 7	2 048	0 053	0 052	0 002	1 770	1 51
91	10/20/1999	4:22:49 PM	0	25 796	22 575	25 472	23 443	22 209	30 707	34 094	42 309	9 654	25 237	7 832	-0 042	36 891	0 122	0 097	81	81	15 3	29 7	2 045	0 053	0 053	0 002	1 772	1 51
92	10/20/1999	4:23:48 PM	0	25 878	22 575	25 472	23 443	22 209	30 707	33 97	42 431	9 662	25 068	7 832	-0 042	36 829	0 122	0 097	82	82	15 3	29 5	2 035	0 053	0 053	0 002	1 780	1 52
93	10/20/1999	4:24:50 PM	0	25 878	22 494	25 472	23 443	22 209	30 468	34 218	42 553	9 686	24 73	7 801	-0 042	36 963	0 122	0,1	83	83	15 3	29 5	2 032	0 053	0 053	0 002	1 780	1 52
94	10/20/1999	4:25:50 PM	0	25 878	22 494	25 472	23 443	22 129	30 309	33 846	42 004	9 694	-24 933	7 801	-0 089	36 922	0 121	0,1	84	84	15 3	29 4	2 026	0 053	0 052	0 002	1 783	1 52
95	10/20/1999	4:26:50 PM	0	25 923	22 62	25 517	23 489	22 174	30 752	34 156	42 431	9 67	24 967	7 801	-0 042	36 968	0 122	0,103	85	85	15 3	29 6	2 038	0 053	0 052	0 002	1 774	1 51
96	10/20/1999	4:27:51 PM	0	25 923	22 62	25 517	23 408	22 174	30 99	33 97	42 187	9 726	24 784	7 832	-0 042	36 998	0 122	0,1	86	86	15 4	29 4	2 025	0 053	0 052	0 002	1 778	1 51
97	10/20/1999	4:28:51 PM	0	25 923	22 62	25 517	23 489	22 255	30 434	34 652	43 04	9 686	25 035	7 801	-0 042	36 968	0 121	0 1	87	87	15 3	29 8	2 058	0 053	0 052	0 002	1 787	1 52
98	10/20/1999	4:29:51 PM	0	25 878	22 575	25 552	23 443	22 209	30 868	33 846	42 126	9 734	24 865	7 832	-0 042	37 014	0 122	0 1	88	88	15 4	29 4	2 024	0 053	0 052	0 002	1 744	1 48
99	10/20/1999	4:30:52 PM	0	25 923	22 62	25 517	23 489	22 255	31 069	34 466	42 797	9 55	24 933	7 801	-0 042	36 963	0 122	0,103	89	89	15 3	29 7	2 048	0 053	0 052	0 002	1 786	1 52
100	10/20/1999	4:31:52 PM	0	25 878	22 575	25 472	23 363	22 209	31 501	34 218	42 309	9 814	25 408	7 832	-0 042	36 906	0 121	0,106	90	90	15 3	29 8	2 055	0 053	0 052	0 002	1 787	1 50
101	10/20/1999	4:32:52 PM	0	25 878	22 494	25 472	23 443	22 209	30 309	34 28	42 553	9 774	25 136	7 801	-0 042	36 845	0 122	0,103	91	91	15 3	29 7	2 048	0 053	0 053	0 002	1 748	1 49
102	10/20/1999	4:33:53 PM	0	25 878	22 575	25 472	23 363	22 209	30 868	33 66	41 943	9 638	25 711	7 832	-0 089	36 829	0 122	0 108	92	92	15 3	29 7	2 047	0 053	0 053	0 002	1 769	1 51
103	10/20/1999	4:34:53 PM	0	26 003	22 62	25 597	23 489	22 174	30 752	34 28	42 736	9 574	24 865	7 832	-0 042	36 86	0 122	0,103	93	93	15 3	29 6	2 039	0 053	0 052	0 002	1 770	1 51
104	10/20/1999	4:35:53 PM	0	25 878	22 494	25 472	23 363	22 129	31 739	34 342	42 553	9 622	24 553	7 832	-0 042	36 952	0 12	0,1	94	94	15 3	29 5	2 034	0 052	0 052	0 002	1 771	1 51
105	10/20/1999	4:36:54 PM	0	25 923	22 62	25 597	23 408	22 174	30 99	33 908	42 248	9 742	24 553	7 832	-0 089	37 014	0 121	0,103	95	95	15 4	29 3	2 019	0 053	0 053	0 002	1 752	1 49
106	10/20/1999	4:37:54 PM	0	25 878	22 575	25 472	23 283	22 129	31 263	33 906	42 126	9 798	24 629	7 832	-0 042	36 952	0 121	0,1	96	96	15 3	29 3	2 018	0 053	0 052	0 002	1 761	1 51
107	10/20/1999	4:38:54 PM	0	25 958	22 494	25 552	23 443	22 209	30 548	33 97	42 248	9 606	25 17	7 832	-0 042	37 044	0 122	0,1	97	97	15 4	29 6	2 039	0 053	0 052	0 002	1 781	1 52
108	10/20/1999	4:39:55 PM	0	25 958	22 575	25 552	23 363	22 209	31 739	34 342	42 553	9 734	24 865	7 832	-0 042	36 906	0 121	0,1	98	98	15 3	29 6	2 041	0 053	0 052	0 002	1 773	1 51
109	10/20/1999	4:40:55 PM	0	25 913	22 529	25 507	23 396	22 164	30 344	34 218	42 492	9 686	24 957	7 832	-0 042	36 952	0 122	0 097	99	99	15 3	29 6	2 040	0 053	0 053	0 002	1 757	1 50
110	10/20/1999	4 41:55 PM	0	25 913	22 529	25 507	23 318	22 084	31 377	34 218	42 431	9 734	24 899	7 832	-0 042	36 998	0 122	0,1	100	100	15 4	29 6	2 038	0 053	0 053	0 002	1 774	1 51
111	10/20/1999	4:42:56 PM	0	25 913	22 529	25 507	23 396	22 244	30 662	33 846	42 187	9 71	24 629	7 663	-0 042	36 875	0 121	0,1	101	101	15 3	29 2	2 018	0 053	0 052	0 002	1 761	1 52
112	10/20/1999	4:43:56 PM	0	25 913	22 529	25 507	23 396	22 244	30 96	34 404	42 736	9 774	24 899	7 832	-0 042	36 922	0 122	0,1	102	102	15 3	29 7	2 044	0 053	0 053	0 002	1 771	1 51
113	10/20/1999	4:44:56 PM	0	25 913	22 529	25 507	23 478	22 244	31 218	34 528	42 797	9 686	24 764	7 832	-0 042	36 968	0 122	0,1	103	103	15 3	29 6	2 044	0 053	0 053	0 002	1 771	1 51
114	10/20/1999	4:45:57 PM	0	25 913	22 529	25 507	23 396	22 244	30 662	34 032	42 309	9 734	24 696	7 832	-0 089	36 937	0 121	0,1	104	104	15 3	29 4	2 025	0 053	0 052	0 002	1 773	1 51
115	10/20/1999	4:46:57 PM	0	25 913	22 529	25 587	23 478	22 244	30 265	34 652	43 04	9 574	24 832	7 832	-0 042	36 952	0 122	0,1	105	105	15 3	29 7	2 051	0 053	0 052	0 002	1 761	1 50
116	10/20/1999	4:47:57 PM	0	25 913	22 529	25 507	23 396	22 244	31 456	33 846	42 248	9 734	25 17	7 832	-0 042	36 937	0 122	0,1	106	106	15 3	29 5	2 034	0 053	0 053	0 002	1 779	1 51
117	10/20/1999	4:48:58 PM	0	25 913	22 529	25 507	23 396	22 244	30 583	33 908	42 187	9 71	24 665	7 832	0 004	36 922	0 121	0,1	107	107	15 3	29 4	2 026	0 053	0 052	0 002	1 772	1 51
118	10/20/1999	4:49:58 PM	0	25 868	22 484	25 462	23 353	22 119	31 253	34 218	42 614	9 75	25 204	7 832	-0 042	36 983	0 12	0 097	108	108	15 3	29 7	2 048	0 052	0 052	0 002	1 740	1 48
119	10/20/1999	4:50:58 PM	0	25 913	22 61	25 507	23 396	22 164	31 377	34 404	42 675	9 718	25 001	7 832	-0 042	37 121	0 121	0,1	109	109	15 4	29 7	2 048	0 053	0 052	0 002	1 753	1 49
120	10/20/1999	4:51:59 PM	0	25 913	22 61	25 587	23 396	22 164	31 377	34 218	42 614	9 646	25 373	7 832	-0 042	36 845	0 123	0,1	110	110	15 3	29 8	2 054	0 054	0 053	0 002	1 773	1 51
121	10/20/1999	4 52:59 PM	0	25 948	22 685	25 542	23 433	22 119	30 776	34 342	42 553	9 638	24 494	7 832	-0 042	36 968	0 122	0,1	111	111	15 3	29 4	2 026	0 053	0 052	0 002	1 783	1 52
122	10/20/1999	4:54:00 PM	0	25 948	22 565	25 542	23 433	22 199	31 173	34 652	42 979	9 606	25 542	7 832	-0 042	36 845	0 122	0,103	112	112	15 3	30 1	2 075	0 053	0 052	0 002	1 743	1 48
123	10/20/1999	4:55:00 PM	0	25 948	22 565	25 542	23 514	22 199	31 094	33 846	42 187	9 71	24 967	7 832	-0 089	36 937	0 122	0,1	113	113	15 3	29 4	2 027	0 053	0 052	0 002	1 784	1 52
124	10/20/1999	4:56:00 PM	0	25 948	22 565	25 462	23 433	22 199	31 253	34 032	42 37	9 606	25 136	7 832	-0 042	36 952	0 121	0,1	114	114	15 3	29 6	2 040	0 053	0 052	0 002	1 782	1 50
125	10/20/1999	4:57:01 PM	0	25 868	22 565	25 462	23 514	22 28	31 094	34 342	42 797	9 702	24 696	7 832	-0 042	36 998	0 12	0,1	115	115	15 4	29 5	2 035	0 052	0 052	0 002	1 752	1 49
126	10/20/1999	4:58:01 PM	0	25 948	22 565	25 462	23 353	22 28	31 57	33 722	41 943	9 638	24 933	7 832	-0 042	36 952	0 121	0 097	116	116	15 3	29 3	2 022	0 053	0 052	0 002	1 778	1 51
127	10/20/1999	4:59:01 PM	0	25 868	22 565	25 462	23 433	22 28	31 491	34 838	43 162	9 686	24 967	7 832	-0 042	37 029	0 121	0,103	117	117	15 4	29 9	2 062	0 053	0 052	0 002	1 744	1 48
128	10/20/1999	5:00:02 PM	0	25 948	22 565	25 542	23 273	22 199	31 412	34 342	42 614	9 702	24 595	7 832	-0 042	36 891	0 121	0,103	118	118	15 3	29 5	2 032	0 053	0 052	0 002	1 765	1 50
129	10/20/1999	5:01:02 PM	0	25 868	22 565	25 542	23 353	22 28	31 094	34 156	42 675	9 622	25 001	7 832	-0 042	36 802	0 122	0,103	119	119	15 3	29 6	2 039	0 053	0 052	0 002	1 773	1 51
130	10/20/1999	5:02:02 PM	0	25 948	22 565	25 462	23 433	22 28	31 412	34 59	42 797	9 574	24 629	7 832	-0 042	37 06	0 121	0,1	120	120	15 4	29 8	2 041	0 053	0 052	0 002	1 781	1 50
131	10/20/1999	5:03:03 PM	0	25 948	22 565	25 462	23 433	22 28	31 332	34 28	42 553	9 71	25 068	7 832	-0 042	37 014	0 121	0,103	121	121	15 4	29 7	2 046	0 053	0 052	0 002	1 757	1 50
132	10/20/1999	5:04:03 PM	0	25 868	22 565	25 462	23 353	22 28	31 491	34 032	42 248	9 67	24 967	7 832	-0 042	37 029	0 121	0,103	122	122	15 4	29 5	2 034	0 053	0 052	0 002	1 787	1 50
133	10/20/1999	5:05:03 PM	0	25 868	22 565	25 462	23 433	22 199	31 173	34 094	42 492	9 782	24 325	7 832	-0 042	37 014	0 12	0,1	123	123	15 4	29 2	2 014	0 052	0 052	0 002	1 770	1 51
134	10/20/1999	5:06:04 PM	0	25 948	22 645	25 462	23 433	22 28	31 412	34 156	42 431	9 782	25 035	7 832	-0 042	37 029	0 121	0,103	124	124	15 4	29 6	2 041	0 053	0 052	0 002	1 782	1 50
135	10/20/1999	5:07:04 PM	0	25 948	22 565	25 462	23 433	22 28	30 697	34 032	42 248	9 662	25 339	7 832	-0 042	36 937	0 122	0,1	125	125	15 3	29 7	2 047	0 053	0 053	0 002	1 771	1 51
136	10/20/1999	5:08:04 PM	0	25 823	22 519	25 417	23 388	22 234	31 129	29 569	42 919	9 542	20 301	12 824	-0 042	37 106	0 011	-0 018	126	126	15 4	24 9	1 719	0 005	0 005	0 000	0 190	0 16
137	10/20/1999	5:09:05 PM	0	25 903	22 6	25 497	23 388	22 234	31 208	35 21	43 162	9 686	25 305	7 4	-0 042	37 09	0 188	0 156	127	127	15 4	30 3	2 086	0 062	0 061	0 003	2 675	2 28
138	10/20/1999	5:10:05 PM	0	25 903	22 519	25 417	23 388	22 315	31 367	34 466	42 431	9 846	25 643	7 37	-0 042	36 968	0 165	0 134	128	128	15 3	30 1	2 072	0 072	0 071	0 002	2 369	2 02
139																												
140																												
141		Averages		25 8	22 5	25 4	23 5	22 3	30 8	34 2	42 6	9 7	24 9	7 9	0 0	37 0	0 126	0,106										
142		Maximum		26 0	22 6	25 6	23 7	22 5	31 7	34 8	43 3	9 8	25 7	11 2	0 0	37 3	0 211	0 186										
143		Median		25 8	22 5	25 4	23 5	22 3	30 6	34 2	42 6	9 7	24 9	7 8	0 0	37 0	0 122	0 103										
144		Minimum		25 7	22 4	25 1	23 2	22 1	30 1	31 1	41 6	9 5	21 4	7 8	-0 1	35 6	0 120	0 097										
145		Std Deviation		0 063	0 046	0 100	0 090	0 068	0 445	0 403	0 327	0 072	0 406	0 310	0 018	0 072	0 010	0 011										
146		Number of Points Used		120	120	120	120	120	120	120	120	120	120	120	120	120	120	120										

	U	V	W	X	Y	Z	AA	AB
	15 3	29 5	2 036	0 054	0 053	0 002	1 811	1 54
	15 4	29 5	2 034	0 053	0 052	0 002	1 771	1 51
	15 3	29 3	2 021	0 053	0 053	0 002	1 795	1 53
	15 4	29 5	2 031	0 053	0 052	0 002	1 775	1 51
	15 3	29 7	2 048	0 053	0 052	0 002	1 770	1 51
	15 3	29 7	2 045	0 053	0 053	0 002	1 781	1 50
	15 3	29 5	2 035	0 053	0 053	0 002	1 772	1 51
	15 3	29 5	2 032	0 053	0 053	0 002	1 780	1 52
	15 3	29 4	2 026	0 053	0 052	0 002	1 783	1 52
	15 3	29 6	2 038	0 053	0 052	0 002	1 774	1 51
	15 4	29 4	2 025	0 053	0 052	0 002	1 778	1 51
	15 3	29 8	2 058	0 053	0 052	0 002	1 787	1 52
	15 4	29 4	2 024	0 053	0 052	0 002	1 744	1 48
	15 3	29 7	2 048	0 053	0 052	0 002	1 786	1 52
	15 3	29 8	2 055	0 053	0 052	0 002	1 787	1 50
	15 3	29 7	2 048	0 053	0 053	0 002	1 748	1 49
	15 3	29 7	2 047	0 053	0 053	0 002	1 769	1 51
	15 3	29 6	2 039	0 053	0 052	0 002	1 770	1 51
	15 3	29 5	2 034	0 052	0 052	0 002	1 771	1 51
	15 4	29 3	2 019	0 053	0 053	0 002	1 752	1 49
	15 3	29 3	2 018	0 053	0 052	0 002	1 761	1 51
	15 4	29 6	2 039	0 053	0 052	0 002	1 773	1 51
	15 3	29 6	2 041	0 053	0 052	0 002	1 757	1 50
	15 4	29 6	2 040	0 053	0 053	0 002	1 774	1 51
	15 4	29 6	2 038	0 053	0 053	0 002	1 776	1 51
	15 3	29 2	2 018	0 053	0 052	0 002	1 761	1 52
	15 3	29 7	2 044	0 053	0 053	0 002	1 771	1 51
	15 3	29 6	2 044	0 053	0 053	0 002	1 771	1 51
	15 3	29 4	2 025	0 053	0 052	0 002	1 773	1 51
	15 3	29 7	2 051	0 053	0 052	0 002	1 761	1 50
	15 3	29 5	2 034	0 053	0 053	0 002	1 779	1 51
	15 3	29 4	2 026	0 053	0 052	0 002	1 772	1 51
	15 3	29 7	2 048	0 052	0 052	0 002	1 740	1 48
	15 4	29 7	2 048	0 053	0 052	0 002	1 753	1 49
	15 3	29 8	2 054	0 054	0 053	0 002	1 773	1 51
	15 3	29 4	2 026	0 053	0 052	0 002	1 783	1 52
	15 3	30 1	2 075	0 053	0 052	0 002	1 743	1 48
	15 3	29 4	2 027	0 053	0 052	0 002	1 784	1 52
	15 3	29 6	2 040	0 053	0 052	0 002	1 782	1 50
	15 4	29 5	2 035	0 052	0 052	0 002	1 752	1 49
	15 3	29 3	2 022	0 053	0 052	0 002	1 778	1 51
	15 4	29 9	2 062	0 053	0 052	0 002	1 744	1 48
	15 3	29 5	2 032	0 053	0 052	0 002	1 765	1 50
	15 3	29 6	2 039	0 053	0 052	0 002	1 773	1 51
	15 4	29 8	2 041	0 053	0 052	0 002	1 781	1 50
	15 4	29 7	2 046	0 053	0 052	0 002	1 757	1 50
	15 4	29 5	2 034	0 053	0 052	0 002	1 787	1 50
	15 4	29 2	2 014	0 052	0 052	0 002	1 770	1 51
	15 4	29 6	2 041	0 053	0 052	0 002	1 782	1 50
	15 3	29 7	2 047	0 053	0 053	0 002	1 771	1 51
	15 4	24 9	1 719	0 005	0 005	0 000	0 190	0 16
	15 4	30 3	2 086	0 062	0 061	0 003	2 675	2 28
	15 4	30 1	2 072	0 072	0 071	0 002	2 369	2 02
	15 3	29 6	2 039	0 055	0 054	0 00184	1 8	1 6
	15 5	30 1	2 075	0 092	0 092	0 00349	3 5	3 0
	15 3	29 6	2 041	0 053	0 053	0 00178	1 8	1 5
	15 3	26 3	1 810	0 052	0 052	0 00174	1 7	1 5
	0 030	0 361	0 025	0 005	0 005	0 000166	0 185	0 158
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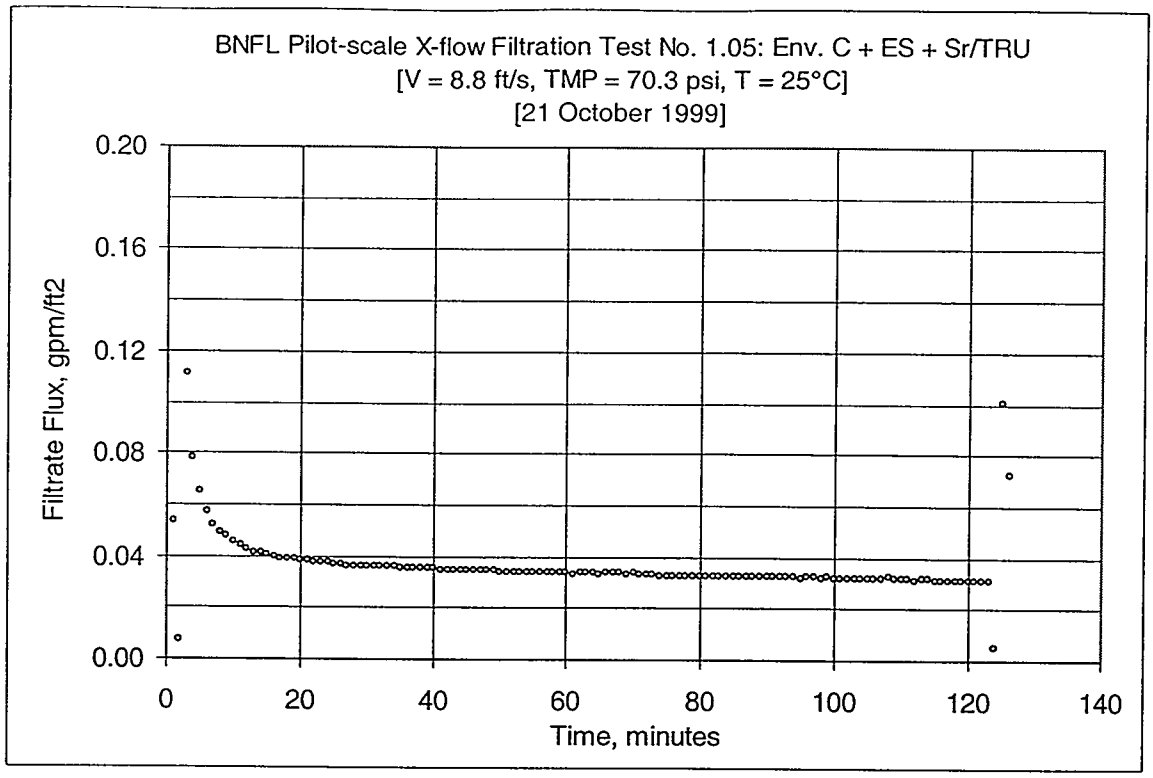


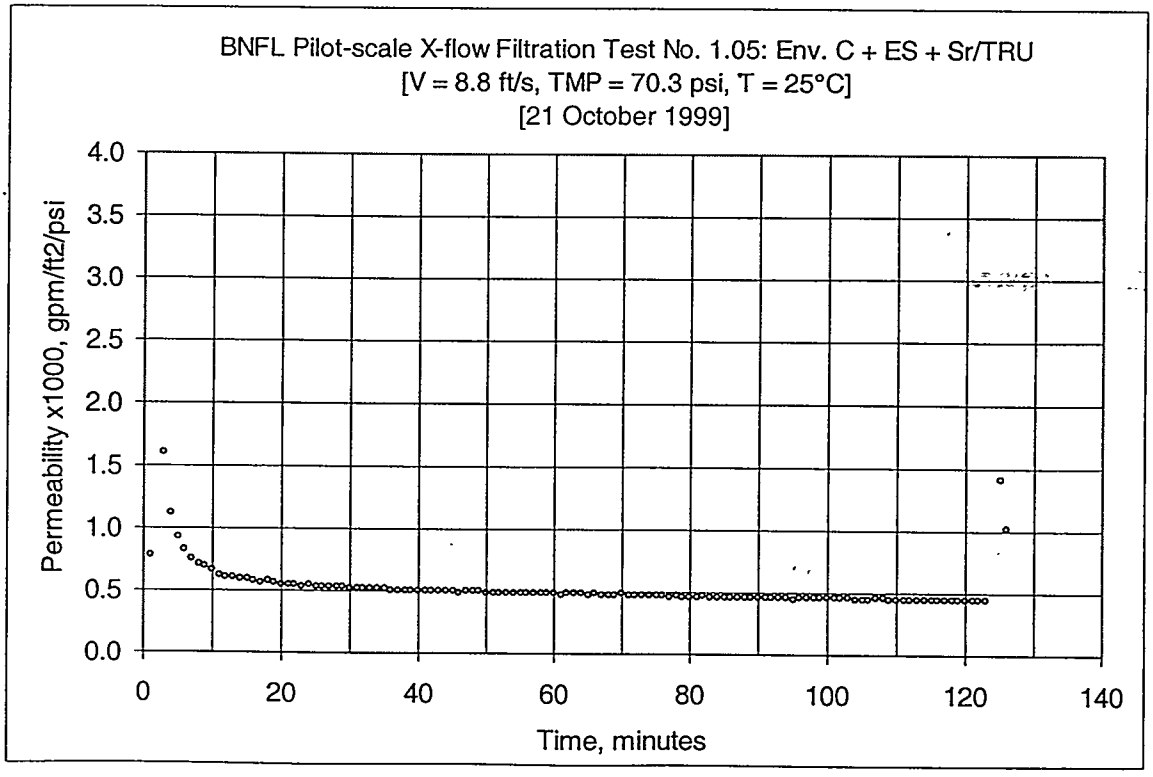


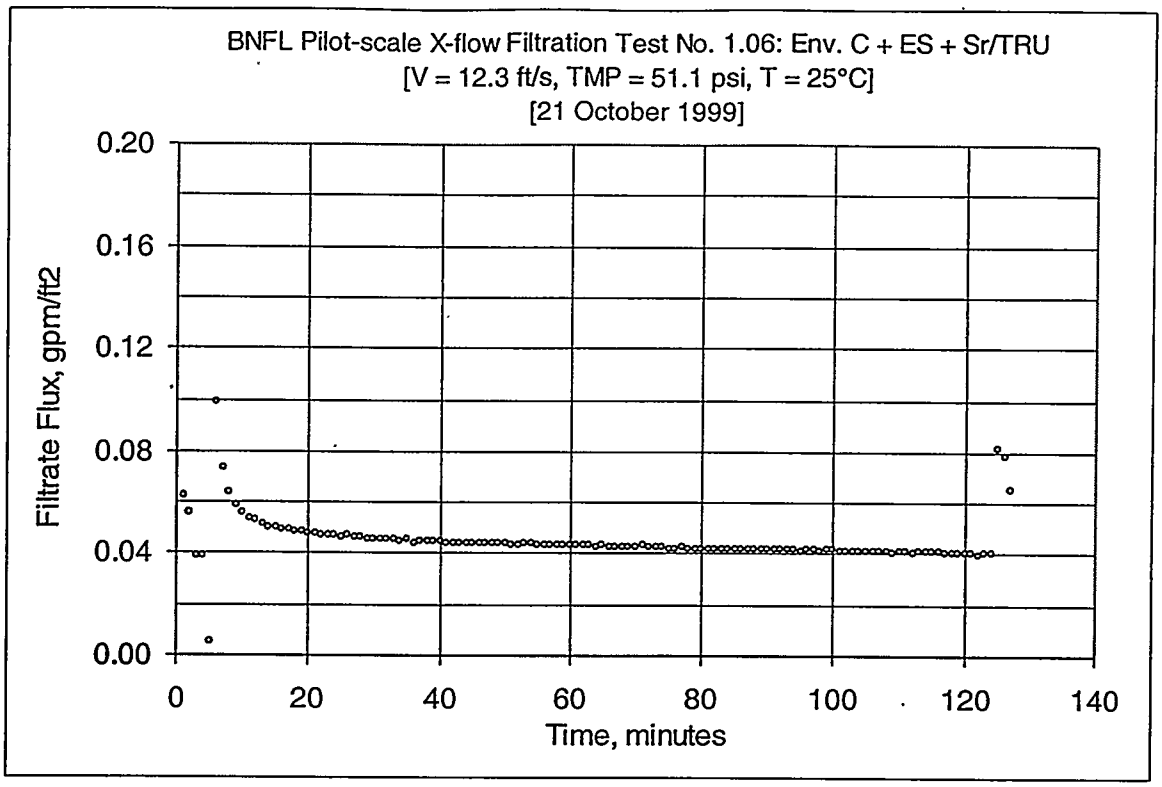
Figure B5: Test Run 1.05, 2 wt% Insoluble Solids Concentration

Run 1.05: 2 wt% Concentration of Insoluble Solids

	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 (pel	FLTR DP (p	TOP DP (p	FLTRATE (pslg)	PISTON (pslg)	FSL FLOW	O2,FLTR	FG3,FLTR	FLOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/21/1999	7:18 44 AM	0	19.29	18 535	17,741	17,774	17,312	27,893	-0 061	-0 128	-0 007	-0 011	-0 088	-0,167	-0 095	0 011	-0 018										
4	10/21/1999	7:20:10 AM	0	19.29	18 535	17,741	17,774	17,312	27,893	-0 061	-0,128	-0 007	-0 011	-0 088	-0,167	-0 095	0 011	-0 018										
5	10/21/1999	7:21:10 AM	0	19.29	18 535	17,66	17,693	17,393	27,733	-0 061	-0 128	-0 007	-0 011	-0 088	-0 167	-0 095	0 011	-0 018										
6	10/21/1999	7:22:11 AM	0	19 184	18 491	17 616	17,649	17,268	27,849	-0 061	-0,128	-0 007	-0 045	-0 088	-0,167	-0 079	0 011	-0 018										
7	Zeros - Lines Not Connected																											
8	10/21/1999	7:24 42 AM	0	19 128	18 535	17 66	17,774	17,393	27,853	-0 061	-0,128	-0 007	-0 011	-0 088	-0,167	-0 095	0 011	-0 018										
9	10/21/1999	7:25 42 AM	0	19,128	18 535	17,66	17,774	17,393	27,893	-0 061	-0,128	-0 007	-0 011	-0 086	-0 167	-0 095	0 011	-0 018										
10	10/21/1999	7:26:43 AM	0	19 047	18 535	17,66	17,774	17,393	27,973	-0 061	-0,128	0 001	-0 011	-0 088	-0 167	-0 095	0 011	-0 018										
11																												
12	Data - Per Minute																								at 25C	PERMABILITY	x1000	
13	10/21/1999	7:34:19 AM	0	21 63	18 454	23,066	17,774	18 041	27,334	70 917	78 474	5,019	68 662	7,217	-0,167	21,885	0 116	0 094		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
14	10/21/1999	7:35.19 AM	1	22.194	18 454	23,828	17,774	18 041	27,334	3,472	79 633	4,389	-0 924	75 663	103 683	21 885	0 016	-0 018		1	1	9 1	68 9	4 750	0 051	0 053	0 001	0 778	0 66
15	10/21/1999	7:36:19 AM	0	22.676	18.535	24,109	17,774	18 041	27,414	71,165	78 84	4,708	68 896	7,433	-0,167	21 87	0 248	0 222		2	2	9 1	1,3	0 088	0 007	0 007	0 006	5 699	4 85
16	10/21/1999	7:37:19 AM	0	23.159	18,454	24 43	17,774	18 041	27,015	71,971	79 267	4,812	67,47	7,002	-0 167	21,854	0,175	0,149		3	3	9 1	69 0	4 759	0 108	0 111	0 002	1 608	1 37
17	10/21/1999	7:38:20 AM	0	23 524	18 499	24,714	17,9	17,924	27,857	72 033	79 45	4 939	67,504	7,033	-0 167	21,762	0 147	0,122		4	4	9 1	69 7	4 807	0 076	0 078	0 001	1,113	0 95
18	10/21/1999	7:39:20 AM	0	23.845	18 499	24 875	18 305	17,843	27,777	72,095	79 45	4 9	67,606	7,094	-0 167	21,639	0,131	0,11		5	5	9 0	69 8	4 810	0 064	0 065	0 001	0 927	0 79
19	10/21/1999	7:40:21 AM	0	24,167	18 499	25 035	18 648	17 843	27,667	71,765	79 206	4,931	67,268	7,094	-0,167	21,655	0,12	0,097		6	6	9 0	70 0	4 823	0 057	0 057	0 001	0 820	0 70
20	10/21/1999	7:41:21 AM	0	24,327	18 499	25,115	18,79	17,843	27,538	72,219	79,755	4,971	67,47	7,125	-0 167	21,578	0,113	0 091		7	7	9 0	69 5	4,794	0 052	0 052	0 001	0 753	0 64
21	10/21/1999	7:42:21 AM	0	24 531	18,462	25,159	18 997	17,968	27,661	71,227	78,718	4,947	67,132	7,156	-0 167	21,593	0,109	0,088		8	8	9 0	69 8	4 816	0 049	0 049	0 001	0 704	0 60
22	10/21/1999	7:43:22 AM	0	24 648	18,418	25,115	18 952	18 086	27,458	71,909	79 45	4,987	67,234	7,156	-0 167	21,593	0 105	0 082		9	9	9 0	69 2	4,770	0 048	0 047	0 001	0 685	0 58
23	10/21/1999	7:44:22 AM	0	24 696	18 506	25 283	19 203	18,174	27,785	72,467	79,936	5,011	67,606	7,217	-0 167	21,47	0,101	0,082		10	10	9 0	69 6	4,797	0 046	0 046	0 001	0 657	0 56
24	10/21/1999	7:45:22 AM	0	24 976	18 426	25 283	19 203	18,255	27,386	71,909	79 328	5,003	67,2	7,217	-0 167	21,516	0 096	0 079		11	11	8 9	70 1	4 836	0 044	0 044	0 001	0 624	0 53
25	10/21/1999	7:46:23 AM	0	25 056	18,426	25,363	19,122	18,255	27,306	71,537	79,145	4,979	67,572	7,217	-0 167	21,501	0 096	0 078		12	12	8 9	69 6	4,796	0 043	0 042	0 001	0 610	0 52
26	10/21/1999	7:47:23 AM	0	25 217	18,426	25,283	19,122	18,174	27,226	71,971	79 511	5,035	67,335	7,217	-0 167	21,639	0 095	0 073		13	13	8 9	69 6	4,796	0 042	0 041	0 001	0 596	0 51
27	10/21/1999	7:48:23 AM	0	25,217	18,426	25,363	19 041	18,255	27,625	71,765	79 353	5,019	67,707	7,248	-0 167	21,609	0 094	0 073		14	14	9 0	69 7	4 802	0 041	0 041	0 001	0 591	0 50
28	10/21/1999	7:49:24 AM	0	25,297	18 426	25,443	19,122	18,255	27,066	72 095	79 633	5 027	67,978	7,248	-0,121	21,532	0 092	0 07		15	15	9 0	69 7	4 809	0 041	0 041	0 001	0 582	0 50
29	10/21/1999	7:50:24 AM	0	25,377	18,506	25,443	19,122	18,255	27,146	72,467	80 06	5,019	67,707	7,248	-0 167	21,501	0 091	0 07		16	16	8 9	70 0	4,829	0 040	0 040	0 001	0 566	0 48
30	10/21/1999	7:51:24 AM	0	25 457	18 426	25 523	19,122	18,255	26 968	71,475	78,962	5,035	68,727	7,248	-0 167	21,516	0,091	0 07		17	17	8 9	70,1	4 832	0 040	0,039	0 001	0 560	0 48
31	10/21/1999	7:52:25 AM	0	25 537	18 426	25 523	19 041	18 336	27,306	71,765	79 45	5 035	68,186	7,279	-0 167	21,486	0 09	0 07		18	18	8 9	69 1	4,784	0 040	0 039	0 001	0 566	0 48
32	10/21/1999	7:53:25 AM	0	25 581	18,47	25 647	19,166	18,3	27,19	72,095	79,816	5,011	67,403	7,279	-0 167	21,486	0 089	0 067		19	19	8 9	69,0	4,756	0 039	0 039	0 001	0 561	0 46
33	10/21/1999	7:54:25 AM	0	25 661	18 47	25 647	19 085	18,361	27,509	72 095	79,753	5,003	67,335	7,279	-0 167	21,44	0 089	0 067		20	20	8 9	69 7	4 809	0 039	0 038	0 001	0 548	0 47
34	10/21/1999	7:55:26 AM	0	25 661	18 47	25 647	19 247	18,361	27,509	71,537	79 206	4,955	67,369	7,279	-0 167	21,44	0 087	0 067		21	21	8 9	69 7	4 807	0 039	0 038	0 001	0 547	0 47
35	10/21/1999	7:56:26 AM	0	25,741	18 47	25,667	19,247	18,462	27,11	71,847	79,45	4,987	68 043	7,279	-0 167	21,409	0 087	0 067		22	22	8,9	69 5	4,789	0 038	0 037	0 001	0 537	0 46
36	10/21/1999	7:57:26 AM	0	25 741	18 47	25 647	19,166	18,361	27,349	71,537	79,145	4,955	67,369	7,31	-0 167	21,347	0 087	0 064		23	23	8 9	69 9	4,823	0 038	0 037	0 001	0 534	0 45
37	10/21/1999	7:58:27 AM	0	25 821	18 47	25 667	19 328	18 462	27,19	71,847	79,572	4,939	67,096	7,279	-0 167	21,332	0 086	0 064		24	24	8 9	69 5	4,789	0 038	0 037	0 001	0 537	0 46
38	10/21/1999	7:59:27 AM	0	25 821	18 47	25 647	19 328	18,462	27,429	71,475	79 064	4,947	67,639	7,31	-0 167	21,363	0 086	0 064		25	25	8 9	69 5	4,790	0 038	0 037	0 001	0 532	0 45
39	10/21/1999	8:00:27 AM	0	25,821	18 47	25 647	19,247	18,462	27,19	71,351	78,901	4 971	67,606	7,31	-0,121	21,378	0 085	0 061		26	26	8 9	69 6	4,796	0 036	0 037	0 001	0 530	0 45
40	10/21/1999	8:01:28 AM	0	25 901	18 47	25 647	19 247	18,462	27,349	72,095	79,694	4,963	67,369	7,31	-0 167	21,378	0 085	0 061		27	27	8 9	69 6	4,790	0 037	0 036	0 001	0 524	0 45
41	10/21/1999	8:02:28 AM	0	25 821	18 47	25 647	19,328	18 543	27,349	71,765	79 572	4 923	67,437	7,31	-0 167	21,301	0 085	0 061		28	28	8 8	69 7	4,808	0 037	0 036	0,001	0 523	0 44
42	10/21/1999	8:03:28 AM	0	25 901	18 47	25 647	19,247	18,543	27,27	72,467	80,121	4,971	67,437	7,31	-0 167	21,301	0 085	0 061		29	29	8 8	69 6	4,799	0 037	0 036	0 001	0 523	0 45
43	10/21/1999	8:04:29 AM	0	25,901	18 47	25 647	19,328	18 543	27,11	72,9	80 608	4 955	67,944	7,31	-0 167	21,347	0 084	0 058		30	30	8,9	70 0	4 823	0 037	0 036	0 001	0 515	0,44
44	10/21/1999	8:05:29 AM	0	25 961	18 47	25 667	19,328	18 624	27,509	72,095	79 633	4,955	67,673	7,31	-0 167	21,209	0 085	0 061		31	31	8 8	70 4	4 855	0 037	0 036	0 001	0 517	0 44
45	10/21/1999	8:06:29 AM	0	25 901	18 47	25,727	19,328	18,462	27,509	71,971	79,755	4,923	67,536	7,31	-0 167	21,378	0 084	0 058		32	32	8 9	69 9	4 818	0 037	0 036	0 001	0 515	0 44
46	10/21/1999	8:07:30 AM	0	25,945	18,514	25 681	19,291	18 506	27,473	72,467	80 06	4,939	67,741	7,31	-0 167	21,301	0 084	0 061		33	33	8 8	69 8	4 809	0 037	0 036	0 001	0 515	0 44
47	10/21/1999	8:08:30 AM	0	25 961	18,47	25,727	19,328	18,543	27,509	71,847	79,572	4,908	68 079	7,31	-0 167	21,347	0,083	0,061		34	34	8 8	70,1	4 833	0 037	0 036	0 001	0 513	0 44
48	10/21/1999	8:09:30 AM	0	26 025	18 514	25,771	19 291	18 587	27,393	72,157	79 877	4,923	67,876	7,341	-0 167	21,301	0 083	0 061		35	35	8 9	70 0	4 824	0 036	0 036	0 001	0 507	0,43
49	10/21/1999	8:10:31 AM	0	26 025	18,514	25,771	19 372	18,587	27,792	72 281	79 938	4,923	67,673	7,341	-0 167	21,271	0 083	0 061		36	36	8 8	70 0	4 827	0 036	0 035	0 001	0 506	0,43
50	10/21/1999	8:11:31 AM	0	26 025	18 514	25 611	19,453	18 506	27,792	72,095	79 816	4,955	67,2	7,31	-0 167	21,286	0 082	0 061		37	37	8 8	70 4	4,825	0 036	0 035	0 001	0 507	0 43
51	10/21/1999	8:12:31 AM	0	26 025	18 514	25 611	19 534	18,587	27,553	71,837	79 064	4 9	67,504	7,31	-0 167	21,271	0 082	0 061		38	38	8 8	69 8	4 802	0 036	0 035	0 001	0 505	0 43
52	10/21/1999	8:13:32 AM	0	26 069	18 559	25 655	19 578	18,712	27,196	72,776	80,608	4,892	67,572	7,341	-0 167	21,194	0 082	0 058		39	39	8 8	69 5	4,790	0 036	0 035	0 001	0 506	0 43
53	10/21/1999	8:14:32 AM	0	25 945	18,514	25,531	19,534	18,668	27,853	72 653	80 304	4 931	67,876	7,31	-0,167	21,209	0 081	0 058		40	40	8 8	70 2	4 838	0 036	0 035	0 001	0 501	0 43
54	10/21/1999	8:15:32 AM	0	25 969	18 64	25,575	19,578	18,712	27,313	72,157	79,755	4,884	67,775	7,31	-0,167	21,286	0 081	0 058		41	41	8 8	70 3	4 844	0 035	0 035	0 000	0 496	0 42
55	10/21/1999	8:16:33 AM	0	25,969	18,559	25,496	19,578	18,712	27,277	72,219	79,755	4 955	68,248	7,341	-0,167	21,286	0 081	0 055		42	42	8 8	69 9	4 817	0 035	0 035	0 000	0 498	0 42
56	10/21/1999	8:17:33 AM	0	25 909	18 559	25,496	19,497	18,712	27,756	71,971	79 694	4,892	67,775	7,341	-0 167	21,24	0 081	0 058		44	44	8 8	69 9	4 817	0 035	0 035	0 000	0 497	0 42
57	10/21/1999	8:18:33 AM	0	25,909	18,559	25,496	19,497	18,712	27,677	72,157	79 816	4,892	68,18	7,31	-0 167	21,194	0 081	0 058		45	45	8 8	70 2	4 838	0 035	0 035	0 000	0 499	0 42
58	10/21/1999	8:19:34 AM	0	25,909	18,559	25,496	19 578	18,712	27,597	72,467	80,121	4,923	68,485	7,31	-0 167	21,179	0 08	0 055		46	46	8 8	70 5	4 859	0 035	0 034	0 000	0 497	0 42
59	10/21/1999	8:20:34 AM	0	25 953	18 603	25,459	19 542	18 838	27,002	71,765	79 572	4,86	67,842	7,31	-0 121	21,209	0 08	0 058		47	47	8,8	69 8	4 813	0 035	0 034	0 000	0 489	0 42
60	10/21/1999	8:21:34 AM	0	25,953	18 603	25,459	19,542	18,838	27,401	71,415	79,023	4,852	67,639	7,31	-0 167	21,163	0 08	0 058		48	48	8 8	69 5	4,794	0 035	0 034	0 000	0 494	0 42
61	10/21/1999	8:22:35 AM	0	25 953	18 603	25 459	19 542	18,838	27,561	71,785	79 511	4,876	67,673	7,341	-0 167	21,132	0 08	0 058		49	49	8 8	69 7	4 808	0 035	0 034	0 000	0 496	0 41
62	10/21/1999	8:23:35 AM	0	25 873	18 603	25 379	19 542	18,838	27,72	72,653	80,547	4,892	67,606	7,31	-0 167	21,179	0 079	0 058		50	50	8 8	70 1	4 835	0 034	0 034	0 000	0 494	0 42
63	10/21/1999	8:24:35 AM	0	25 917	18,648	25,503	19 667	18 801	27,684	71,909	79 633	4 884	68 383	7,31	-0 167	21,148	0 079	0 055		51	51	8 8	70 1	4 836	0 034	0 034	0 000	0 487	0 41
64	10/21/1999	8:25:36 AM	0	25 917	18 648	25,503	19 586	18,882	27,764	71,599	79,328	4,908	67,91	7,31	-0 167	21,179	0 079	0 058		52	52	8 8	69 8	4 809	0 034	0 034	0 000	0 485	0 41
65	10/21/1999	8:26:36 AM	0	25,917	18 648	25,423	19 667	18 882	27,764	72 691	80 304	4 916	67,572	7,31	-0 167	21,117	0 079	0 055		53	53	8 8	70 1	4 832	0 034	0 034	0 000	0 487	0 41
66	10/21/1999	8:27:36 AM	0	25 837	18 648	25,343	19 667	18 801	27,445	71,723	79 511	4 868	68 214	7,31	-0 167	21,148	0 079	0 055		54	54	8 8	70 0	4 824	0 034	0 034	0 000	0 486	0 41
67	10/21/1999	8:28:37 AM	0	25 881	18 692	25,467	19 63	18,926	27,726	72,715	80 547	4,908	68,045	7,341	-0 167	21,117	0 079	0 058		55	55	8 8	70 4	4 852	0 034	0 034	0 000	0 488	0 42
68	10/21/1999	8:29:37 AM	0	25 881	18 692	25,346	19 63	18 846	27,409	72,095	79 633	4 931	68 316	7,341	-0 167	21,179	0 079	0 058		56	56	8 8	70 2	4 840	0 034	0 034	0 000	0 484	0 41
69	10/21/1999	8:30:37 AM	0	25 881	18 692	25 467	19 63	18 846	27,888	71,413	79 023	4 844	67,504	7,31	-0 167	21,132	0 078	0 055		57	57	8 8	69 5	4,769	0 034	0 034	0 000	0 486	0 41
70	10/21/1999	8 31:38 AM	0	25 925	18,736	25 43	19 675	18 809	27,852	72,219	79 938	4 908	67,538	7,341	-0 167	21,179	0 078	0 055		58	58	8 8	69 9	4 818	0 034	0 034	0 000	0 484	0 41
71	10/21/1999	8:32:38 AM	0	25 901	18 692	25,467	19 65	18,765	27,848	72,405	80,121	4,916	67,741	7,31	-0 167	21,148	0 078	0 055		59	59	8 8	70,1	4 831	0 034	0 034	0 000	0 481	0 41
72	10/21/1999	8:33:39 AM	0	25 845	18 655	25,35	19 675	18 971	27,692	71,971	79 694	4 884	67,842	7,31	-0,121	21,225	0 078	0 055		60	60	8 8	69 8	4,820	0 034	0 034	0 000	0 480	0 41
73	10/21/1999	8:34:39 AM	0	25 845	18 736	25 51	19,755	18,89	27,453	72,157	78,755	4 931	68,316	7,341	-0,167	21,194	0 078	0 055		61	61	8 8	70 2	4 843	0 034	0 034	0 000	0 482	0 41
74	10/21/1999	8 35 40 AM	0	25 845	18 655	25 43	19 675	18 971	27,852	71,971	79 694	4 868	67,876	7,31	-0 167	21,163	0 078	0 055		62	62	8 8	69 9	4 821	0 034	0 034	0 000	0 478	0 41
75	10/21/1999	8:36:40 AM	0	25 845	18 655	25,43	19 636	18 971	27,892	72,405	80,121	4 923	68 011	7,31	-0 167	21,163	0 078	0 052		63	63	8 8	70 2	4 841	0 034	0 034	0 000	0 481	0 41
76	10/21/1999	8 37:40 AM	0	25 889	18 7	25,394	19 8	19 015	27,576	71,971	79 755	4 884	67,639	7,31	-0 167	21,132	0 078	0 055		64	64	8 8	69 8	4 813	0 034	0 034	0 000	0 479	0 41
77	10/21/1999	8:38:41 AM	0	25 808	18,7	25,474	19 8	18 934	27,496	72,529	80 182	4 892	67,741	7,31	-0,121	21,102	0 077	0 055		65	65	8 8	70 0	4 825	0 034	0 033	0 000	0 482	0 41
78	10/21/1999	8,39:41 AM	0	25,808	18 781	25,394	19 8	19 015	27,417	72,715	80 425	4 8	67,504	7,341	-0 167	21,132	0 078	0 055		66	66	8 8	70,1	4 834	0 034	0 034	0 000	0 474	0 40
79	10/21/1999	8,40:41 AM	0	25 889	18,781	25 474	19,719	18 934	27,896	72 529	80 182	4,796	68,518	7,372	-0 167	20,948	0 076	0 055		67	67	8 7	70 5	4 862	0 034	0 034	0 000	0 480	0 41
80	10/21/1999	8:41:42 AM	0	25 652	18,744	25,436	19 844	19 06	27,62	72,776	80 608	4 844	68,383	7,372	-0 167	20 979	0 078	0 055		68	68	8 7	70 6	4 866	0 034	0 034	0 000	0 476	0 41
81	10/21/1999	8 42:42 AM	0	25 808	18 7	25 474	19 8	19 015	27,497	72,776	80,547	4,836	68,451	7,372	-0 167	20,994	0 077	0 055		69	69	8 7	70 6	4 869	0 034	0 033	0 000	0 477	0 41
82	10/21/1999	8:43:42 AM	0	25 808	18,781	25,314	19 8	18 934	27,896	72,529	80 182	4 828	68,115	7,372	-0,167	20,994	0 078	0 052		70	70	8 7	70 3	4 846	0 034	0 033	0 000	0 470	0 40
83	10/21/1999	8:44:43 AM	0	25 808	18,7	25,394	19 719	19 015	27,656	72 653	80 365	4 812	68 586	7,341	-0,121	20 933	0 077	0 052		71	71	8 7	70 6	4 869	0 034	0 033	0 000	0 480	0 41
84	10/21/1999	8 45:43 AM	0	25 652	18 744	25 436	19 763	19 141	27,7	73 086	80,791	4,828	68 518	7,341	-0,121	20 933	0 077	0 055		72	72	8 7	70 8	4 882	0 034	0 033	0 000	0 471	0 40
85	10/21/1999	8 46 43 AM	0	25 652	18 744	25 358	19 844	19 06	27,301	72 343	80,182	4 768	68 518	7,341	-0,167	20 948	0 077	0 052		73	73	8 7	70 4	4 858	0 034	0 033	0 000	0 472	0 40

Run 1.05: 2 wt% Concentration of Insoluble Solids

	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	10/21/1999	8:47:44 AM	0	25.816	18.87	25.402	19.889	19.023	27.584	73.024	80.791	4.844	68.113	7.341	-0.167	20.948	0.076	0.052	74	74	8.7	70.6	4.865	0.033	0.033	0.000	0.465	0.40
87	10/21/1999	8:48:44 AM	0	25.896	18.789	25.402	19.889	19.023	27.683	72.529	80.182	4.812	68.721	7.341	-0.167	20.994	0.076	0.052	75	75	8.7	70.6	4.859	0.033	0.033	0.000	0.464	0.40
88	10/21/1999	8:49:44 AM	0	25.816	18.789	25.482	19.808	19.023	27.744	72.591	80.182	4.836	68.516	7.372	-0.167	20.963	0.076	0.055	76	76	8.7	70.6	4.864	0.033	0.033	0.000	0.464	0.39
89	10/21/1999	8:50:45 AM	0	25.816	18.789	25.402	19.808	19.104	27.983	72.9	80.547	4.852	68.755	7.341	-0.167	20.917	0.076	0.052	77	77	8.7	70.6	4.863	0.033	0.033	0.000	0.463	0.39
90	10/21/1999	8:51:45 AM	0	25.86	18.833	25.366	19.852	19.068	27.648	72.591	80.304	4.796	68.417	7.341	-0.167	20.948	0.076	0.055	78	78	8.7	70.5	4.861	0.033	0.033	0.000	0.466	0.40
91	10/21/1999	8:52:45 AM	0	25.86	18.833	25.366	19.852	19.068	27.788	73.62	81.279	4.868	68.383	7.341	-0.121	20.994	0.076	0.055	79	79	8.7	71.0	4.892	0.033	0.033	0.000	0.463	0.39
92	10/21/1999	8:53:46 AM	0	25.86	18.833	25.366	19.852	19.068	27.868	73.024	80.73	4.804	68.89	7.341	-0.167	20.948	0.076	0.055	80	80	8.7	71.0	4.892	0.033	0.033	0.000	0.463	0.39
93	10/21/1999	8:54:46 AM	0	25.78	18.833	25.446	19.933	19.149	27.706	73.334	81.035	4.836	69.127	7.341	-0.167	20.979	0.076	0.055	81	81	8.7	71.2	4.911	0.033	0.033	0.000	0.463	0.39
94	10/21/1999	8:55:46 AM	0	25.86	18.833	25.446	19.933	19.149	28.027	72.9	80.669	4.82	68.451	7.341	-0.121	20.933	0.076	0.055	82	82	8.7	70.7	4.875	0.033	0.033	0.000	0.460	0.39
95	10/21/1999	8:56:47 AM	0	25.86	18.833	25.446	19.933	19.068	27.309	73.456	81.34	4.852	69.161	7.341	-0.167	20.994	0.076	0.055	83	83	8.7	71.3	4.917	0.033	0.033	0.000	0.464	0.39
96	10/21/1999	8:57:47 AM	0	25.86	18.833	25.446	19.933	19.229	27.788	72.718	80.304	4.852	68.485	7.341	-0.167	20.994	0.075	0.055	84	84	8.7	70.6	4.866	0.033	0.032	0.000	0.459	0.39
97	10/21/1999	8:58:47 AM	0	25.904	18.876	25.41	20.056	19.274	27.512	72.776	80.608	4.82	68.282	7.341	-0.167	20.994	0.075	0.055	85	85	8.7	70.5	4.863	0.033	0.032	0.000	0.458	0.39
98	10/21/1999	8:59:48 AM	0	25.904	18.878	25.49	19.977	19.274	27.592	72.9	80.669	4.852	68.721	7.341	-0.167	20.948	0.075	0.055	86	86	8.7	70.6	4.882	0.033	0.032	0.000	0.459	0.39
99	10/21/1999	9:00:48 AM	0	25.904	18.878	25.49	19.977	19.274	27.832	71.971	79.572	4.828	68.349	7.31	-0.121	20.979	0.075	0.052	87	87	8.7	70.2	4.837	0.033	0.032	0.000	0.456	0.39
100	10/21/1999	9:01:48 AM	0	25.904	18.876	25.41	19.977	19.193	27.991	72.962	80.73	4.804	68.789	7.341	-0.121	21.01	0.076	0.052	88	88	8.7	70.9	4.887	0.033	0.033	0.000	0.460	0.39
101	10/21/1999	9:02:49 AM	0	25.888	18.922	25.454	20.103	19.238	28.354	72.962	80.852	4.812	68.687	7.341	-0.167	20.963	0.075	0.049	89	89	8.7	70.8	4.883	0.033	0.032	0.000	0.463	0.39
102	10/21/1999	9:03:49 AM	0	25.948	18.841	25.534	20.103	19.238	27.856	72.838	80.608	4.82	68.485	7.341	-0.167	20.948	0.075	0.049	90	90	8.7	70.7	4.872	0.033	0.032	0.000	0.456	0.39
103	10/21/1999	9:04:50 AM	0	25.868	18.841	25.454	20.022	19.238	28.116	72.715	80.535	4.812	68.62	7.341	-0.121	20.979	0.075	0.052	91	91	8.7	70.7	4.872	0.033	0.032	0.000	0.457	0.39
104	10/21/1999	9:05:50 AM	0	25.868	18.922	25.454	20.103	19.238	28.195	72.776	80.486	4.804	68.451	7.341	-0.167	20.963	0.075	0.052	92	92	8.7	70.6	4.869	0.033	0.032	0.000	0.458	0.39
105	10/21/1999	9:06:50 AM	0	25.868	18.922	25.454	20.022	19.157	27.636	72.962	80.669	4.812	69.026	7.341	-0.167	20.948	0.075	0.049	93	93	8.7	71.0	4.895	0.033	0.032	0.000	0.455	0.39
106	10/21/1999	9:07:51 AM	0	25.912	18.967	25.496	20.147	19.12	28.316	72.838	80.547	4.836	68.789	7.341	-0.167	20.948	0.075	0.052	94	94	8.7	70.8	4.882	0.033	0.032	0.000	0.456	0.39
107	10/21/1999	9:08:51 AM	0	25.912	18.886	25.496	20.066	19.12	28.079	73.582	81.34	4.812	69.161	7.372	-0.121	20.902	0.074	0.052	95	95	8.7	71.4	4.921	0.032	0.032	0.000	0.456	0.39
108	10/21/1999	9:09:51 AM	0	25.912	18.886	25.418	19.986	19.12	28.159	72.838	80.608	4.788	68.789	7.341	-0.121	20.948	0.075	0.052	96	96	8.7	70.6	4.882	0.033	0.032	0.000	0.446	0.38
109	10/21/1999	9:10:52 AM	0	25.912	18.886	25.418	20.066	19.12	28.318	73.272	81.096	4.844	68.652	7.341	-0.121	20.933	0.075	0.052	97	97	8.7	70.9	4.889	0.033	0.032	0.000	0.456	0.39
110	10/21/1999	9:11:52 AM	0	25.912	18.967	25.418	19.986	19.12	28.159	73.334	81.096	4.844	68.687	7.341	-0.167	20.917	0.074	0.049	98	98	8.7	71.0	4.896	0.032	0.032	0.000	0.458	0.39
111	10/21/1999	9:12:52 AM	0	25.912	18.886	25.418	19.986	19.201	28.079	73.456	81.218	4.844	68.18	7.341	-0.121	20.902	0.075	0.052	99	99	8.7	70.8	4.883	0.033	0.032	0.000	0.450	0.38
112	10/21/1999	9:13:53 AM	0	25.912	18.886	25.418	20.066	19.201	27.441	72.962	80.73	4.796	68.721	7.341	-0.121	20.933	0.074	0.049	100	100	8.7	70.8	4.884	0.032	0.032	0.000	0.457	0.39
113	10/21/1999	9:14:53 AM	0	25.876	18.93	25.462	20.03	19.165	28.123	72.9	80.547	4.812	68.992	7.341	-0.121	20.933	0.074	0.049	100	100	8.7	70.8	4.884	0.032	0.032	0.000	0.451	0.38
114	10/21/1999	9:15:53 AM	0	25.876	18.93	25.462	20.111	19.165	28.282	73.024	80.73	4.812	68.485	7.31	-0.167	20.902	0.074	0.048	101	101	8.7	70.9	4.891	0.032	0.032	0.000	0.449	0.38
115	10/21/1999	9:16:54 AM	0	25.876	18.93	25.462	20.03	19.246	28.203	72.838	80.791	4.772	68.147	7.341	-0.167	20.902	0.074	0.049	102	102	8.7	70.8	4.878	0.032	0.032	0.000	0.451	0.38
116	10/21/1999	9:17:54 AM	0	25.956	18.93	25.542	20.03	19.246	28.282	72.838	80.486	4.828	68.195	7.372	-0.121	20.887	0.074	0.049	103	103	8.7	70.5	4.860	0.032	0.032	0.000	0.452	0.38
117	10/21/1999	9:18:54 AM	0	25.876	18.93	25.462	20.03	19.326	28.043	72.838	80.608	4.78	68.857	7.372	-0.121	20.948	0.074	0.048	104	104	8.7	71.0	4.896	0.032	0.032	0.000	0.448	0.38
118	10/21/1999	9:19:55 AM	0	25.92	18.975	25.507	20.074	19.29	28.486	73.21	81.096	4.804	69.026	7.372	-0.121	20.902	0.073	0.052	105	105	8.7	70.8	4.885	0.032	0.031	0.000	0.444	0.38
119	10/21/1999	9:20:55 AM	0	26	18.975	25.507	20.074	19.128	28.565	72.838	80.547	4.796	68.113	7.341	-0.121	20.902	0.074	0.049	106	106	8.7	71.1	4.903	0.032	0.032	0.000	0.448	0.38
120	10/21/1999	9:21:55 AM	0	25.92	18.975	25.587	19.994	19.209	28.326	72.838	80.608	4.82	68.516	7.341	-0.121	20.917	0.074	0.052	107	107	8.7	70.5	4.859	0.032	0.032	0.000	0.452	0.38
121	10/21/1999	9:22:56 AM	0	25.876	19.011	25.462	20.111	19.248	27.963	73.024	80.791	4.844	68.687	7.372	-0.121	20.963	0.075	0.049	108	108	8.7	70.7	4.873	0.033	0.032	0.000	0.456	0.39
122	10/21/1999	9:23:56 AM	0	25.92	19.056	25.507	20.074	19.209	28.247	73.272	81.096	4.82	67.776	7.341	-0.167	20.917	0.073	0.049	109	109	8.7	70.9	4.885	0.032	0.031	0.000	0.444	0.38
123	10/21/1999	9:24:56 AM	0	25.92	18.975	25.507	20.074	19.371	28.167	73.456	81.218	4.836	68.687	7.341	-0.121	20.933	0.074	0.052	110	110	8.7	70.5	4.862	0.032	0.031	0.000	0.445	0.38
124	10/21/1999	9:25:57 AM	0	25.92	19.056	25.587	20.155	19.371	27.768	73.024	80.852	4.812	68.485	7.341	-0.121	20.963	0.073	0.049	111	111	8.7	71.1	4.900	0.032	0.032	0.000	0.448	0.38
125	10/21/1999	9:26:57 AM	0	25.92	19.056	25.587	20.155	19.371	28.326	72.962	80.73	4.804	68.789	7.341	-0.121	20.917	0.074	0.052	112	112	8.7	70.8	4.878	0.032	0.031	0.000	0.443	0.38
126	10/21/1999	9:27:57 AM	0	25.92	19.056	25.507	20.236	19.371	27.848	72.962	80.73	4.828	68.586	7.341	-0.121	20.948	0.075	0.052	113	113	8.7	70.9	4.887	0.032	0.032	0.000	0.448	0.38
127	10/21/1999	9:28:58 AM	0	26	18.975	25.507	20.236	19.371	27.648	72.653	80.486	4.82	68.262	7.341	-0.121	20.933	0.072	0.049	114	114	8.7	70.8	4.880	0.032	0.031	0.000	0.444	0.38
128	10/21/1999	9:29:58 AM	0	26.045	19.019	25.551	20.28	19.415	28.211	73.21	80.974	4.836	68.62	7.341	-0.121	20.963	0.073	0.046	115	115	8.7	70.5	4.858	0.031	0.031	0.000	0.440	0.37
129	10/21/1999	9:30:58 AM	0	25.964	19.019	25.551	20.361	19.496	27.493	72.962	80.73	4.844	68.552	7.341	-0.167	20.963	0.073	0.046	116	116	8.7	70.9	4.869	0.032	0.031	0.000	0.442	0.38
130	10/21/1999	9:31:59 AM	0	25.964	19.1	25.551	20.361	19.496	27.173	72.653	80.486	4.796	68.789	7.341	-0.121	20.963	0.072	0.046	117	117	8.7	70.8	4.878	0.032	0.031	0.000	0.443	0.38
131	10/21/1999	9:32:59 AM	0	25.964	19.1	25.551	20.442	19.577	27.253	72.776	80.608	4.78	68.721	7.372	-0.121	20.948	0.073	0.046	118	118	8.7	70.7	4.876	0.031	0.031	0.000	0.438	0.37
132	10/21/1999	9:33:59 AM	0	25.964	19.1	25.551	20.361	19.577	27.812	73.272	81.035	4.836	68.113	7.341	-0.121	20.917	0.073	0.052	119	119	8.7	70.7	4.878	0.032	0.031	0.000	0.444	0.38
133	10/21/1999	9:35:00 AM	0	26.009	19.064	25.595	20.405	19.541	28.065	72.962	80.791	4.788	68.349	7.341	-0.121	20.948	0.072	0.049	120	120	8.7	70.7	4.874	0.032	0.031	0.000	0.444	0.38
134	10/21/1999	9:36:00 AM	0	26.009	19.064	25.595	20.405	19.622	27.457	73.334	81.096	4.852	68.721	7.372	-0.121	20.994	0.073	0.046	121	121	8.7	70.7	4.871	0.031	0.031	0.000	0.437	0.37
135	10/21/1999	9:37:00 AM	0	26.009	19.064	25.595	20.323	19.541	28.334	72.9	80.669	4.828	68.316	7.372	-0.121	20.902	0.073	0.049	122	122	8.7	71.0	4.897	0.032	0.031	0.000	0.441	0.38
136	10/21/1999	9:38:01 AM	1	26.009	19.064	25.515	20.405	19.46	29.018	2.914	80.304	3.962	-1.16	76.834	108.097	20.871	0.011	-0.018	123	124	8.7	70.6	4.868	0.032	0.031	0.000	0.444	0.38
137	10/21/1999	9:39:01 AM	0	26.133	19.109	25.559	20.369	19.505	28.059	72.638	79.755	4.397	69.195	6.663	-0.121	21.01	0.234	0.204	124	125	8.7	0.9	0.060	0.005	0.005	0.003	5.397	4.59
138	10/21/1999	9:40:02 AM	0	26.133	19.109	25.559	20.369	19.505	28.458	73.52	80.913	4.509	69.397	6.94	-0.121	20.994	0.168	0.137	125	126	8.7	71.0	4.896	0.102	0.101	0.001	1.416	1.21
139																			126	126	8.7	71.5	4.927	0.073	0.072	0.001	1.010	0.86
140		Averages		25.7	18.7	25.5	19.6	18.9	27.7	72.5	80.1	4.9	68.1	7.3	-0.2	21.2	0.083	0.060			8.6	70.3	4.845	0.036	0.036	0.00051	0.5	0.4
141		Maximum		26.1	19.1	25.6	20.4	19.6	28.6	73.6	81.3	5.0	69.2	7.4	-0.1	21.9	0.248	0.222			9.1	71.4	4.921	0.108	0.111	0.00161	1.6	1.4
142		Median		25.9	18.7	25.5	19.7	18.9	27.7	72.5	80.2	4.9	68.1	7.3	-0.2	21.1	0.078	0.055			8.6	70.2	4.843	0.034	0.034	0.00048	0.5	0.4
143		Minimum		22.7	18.4	24.1	17.8	17.8	27.0	71.2	78.7	4.7	66.2	7.0	-0.2	20.9	0.072	0.046			8.7	69.0	4.756	0.031	0.031	0.00044	0.4	0.4
144		Std Deviation		0.556	0.209	0.215	0.504	0.429	0.359	0.676	0.645	0.071	0.585	0.065	0.021	0.242	0.021	0.021			0.100	0.642	0.037	0.009	0.009	0.000136	0.136	0.116
145		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



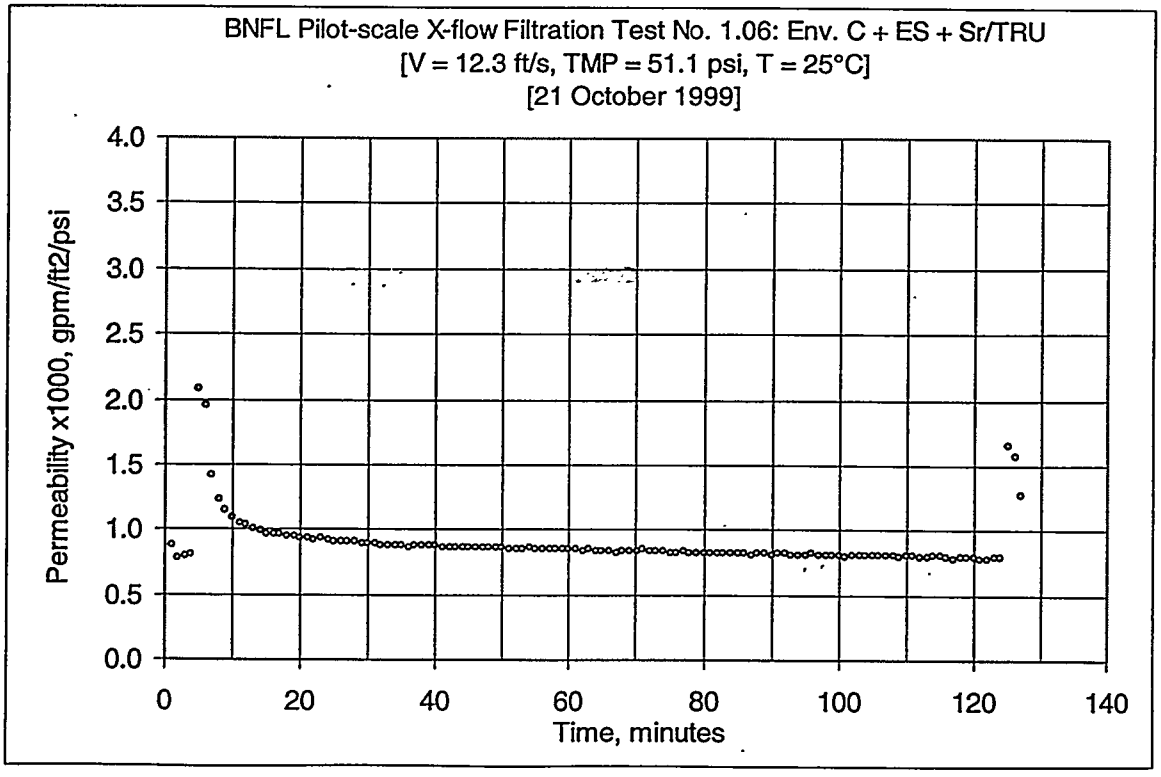


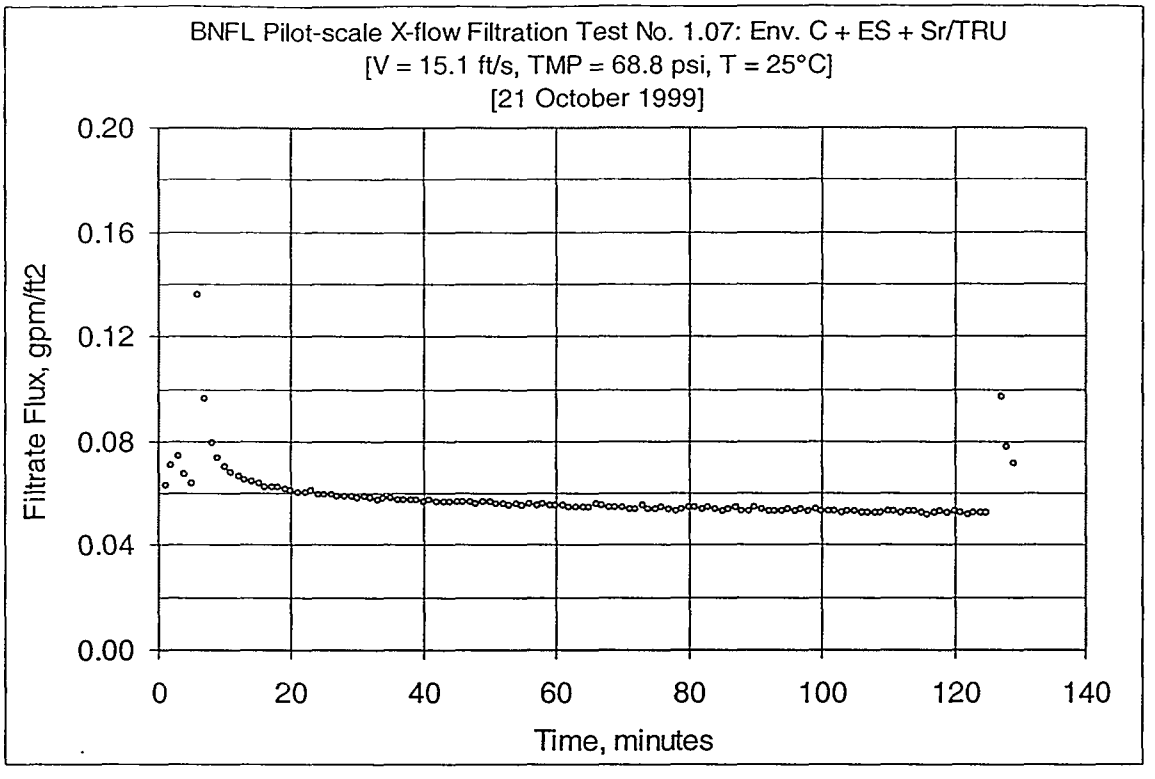
Figure B6: Test Run 1.06, 2 wt% Insoluble Solids Concentration

Run 1.06: 2 wt% Concentration of Insoluble Soluds

	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	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	RSL FLOW	O2,FLTR	RO3,FLTR	FLOW (ppm)		Filter Surface Area		2 29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/bar-g / ppm/ft2/barg				
3	10/21/1999	7:18:44 AM	0	19 29	18 535	17 741	17,774	17,312	27,893	-0 061	-0,128	-0 007	-0 011	-0 086	-0,167	-0 095	0 011	-0 018										
4	10/21/1999	7:20:10 AM	0	19 29	18 535	17,741	17 774	17 312	27,893	-0 061	-0,128	-0 007	-0 011	-0 086	-0 167	-0 095	0 011	-0 018										
5	10/21/1999	7:21:10 AM	0	19 29	18 535	17 66	17,693	17,393	27,733	-0 061	-0,128	-0 007	-0 011	-0 086	-0 167	-0 095	0 011	-0 018										
6	10/21/1999	7:22:11 AM	0	19 164	18 491	17,616	17 649	17 268	27,849	-0 061	-0,128	-0 007	-0 045	-0 086	-0 167	-0 079	0 011	-0 018										
7	Zeros - Lines Not Connected																											
8	10/21/1999	7 24 42 AM	0	19 128	18 535	17,66	17 774	17,393	27 853	-0 061	-0,128	-0 007	-0 011	-0 086	-0,167	-0 095	0 011	-0 018										
9	10/21/1999	7:25 42 AM	0	19 128	18 535	17 66	17,774	17 393	27,893	-0 061	-0 128	-0,007	-0 011	-0 086	-0 167	-0 095	0 011	-0 018										
10	10/21/1999	7 26 43 AM	0	19 047	18 535	17,66	17 774	17,393	27,973	-0 061	-0 128	0 001	-0,011	-0 086	-0,167	-0 095	0 011	-0 018										
11																												
12	Data - Per Minute																								at 25C	PERMEABILITY	x1000	
13	10/21/1999	9:40 55 AM	0	26 053	19 109	25 559	20 369	19 424	28 219	73 024	60 486	4,572	68 789	7 002	-0,121	20 933	0,145	0,116	Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
14	10/21/1999	9:41 55 AM	0	26 053	19 028	25,559	20 289	19 505	28 299	73 068	60,547	4 604	68 958	7,063	-0,121	20 933	0 129	0,104	1	1	8 7	70 9	4 889	0 063	0 062	0 001	0 679	0 75
15	10/21/1999	9:42 56 AM	0	26 017	19 153	25 443	20 414	19 63	28 661	52,878	62 681	7,788	45 225	9 375	-0 121	29 749	0 09	0 064	2	2	8 7	71 0	4 897	0 056	0 055	0 001	0 761	0 66
16	10/21/1999	9:43 56 AM	0	25 937	19,153	25 203	20 414	19 63	28 263	52 506	61,888	7 844	45,256	9,128	-0,121	29 626	0 09	0 061	3	3	12 3	49 1	3 382	0 039	0 039	0 001	0 791	0 67
17	10/21/1999	9:44:57 AM	1	25,777	19 153	24 962	20 414	19 63	28,103	5 518	62 498	6,79	-0 69	56 495	61,749	29 826	0 011	-0 018	4	4	12 3	48 9	3 370	0 039	0 039	0 001	0 799	0 68
18	10/21/1999	9:45:57 AM	0	25 536	19 153	24 682	20 414	19 63	28,183	53,746	62 437	7,11	47,253	8 296	-0,121	29 872	0,225	0,196	5	5	12 4	2 3	0 160	0 005	0 005	0 002	2 077	1 77
19	10/21/1999	9:46:57 AM	0	25 536	19 153	24 722	20 252	19 63	28,183	54,738	61,949	7,181	48 2	6 94	-0 121	29 868	0 166	0,14	6	6	12 4	50 5	3 482	0 098	0 099	0 002	1 951	1 66
20	10/21/1999	9:47:58 AM	0	25 376	19 153	24 642	20,01	19 711	28,502	55,109	62,498	7 221	48 301	7 033	-0,121	29 857	0,145	0,122	7	7	12 4	51,7	3 565	0 063	0 064	0 001	1 237	1 05
21	10/21/1999	9:48:58 AM	0	25 296	19,153	24 722	19 849	19 63	28,183	54 862	62,315	7,237	48 267	7 094	-0,121	29,795	0 134	0,11	8	8	12 4	51 6	3 555	0 058	0 059	0 001	1 143	0 97
22	10/21/1999	9:49:58 AM	0	25 136	19 153	24 642	19 768	19 63	28,422	54 923	62,437	7,245	48 031	7,156	-0,121	29 841	0,127	0,104	9	9	12 4	51,5	3 549	0 055	0 056	0 001	1 086	0 93
23	10/21/1999	9:50:59 AM	0	25,136	19 153	24,722	19 687	19 63	28,183	54,965	62 559	7,293	48 064	7 187	-0,121	29,795	0,122	0,101	10	10	12 4	51,5	3 549	0 055	0 056	0 001	1 086	0 93
24	10/21/1999	9:51:59 AM	0	25 056	19 153	24,722	19 687	19 549	28,582	54 738	62,254	7,245	47,726	7,217	-0,121	29,734	0 12	0,101	11	11	12 4	51,5	3 552	0 053	0 054	0 001	1 042	0 89
25	10/21/1999	9:52:59 AM	0	25 056	19,153	24 722	19 768	19 468	28 661	54 49	62,071	7,285	47,862	7 217	-0 121	29 765	0 117	0 097	12	12	12 3	51 2	3 532	0 052	0 053	0 001	1 031	0 88
26	10/21/1999	9:54:00 AM	0	25 056	19,153	24,722	19 768	19 468	28 502	54 242	61,786	7 253	47,794	7,217	-0,121	29 734	0 114	0,094	13	13	12 4	51,2	3 528	0 051	0 051	0 001	1 006	0 86
27	10/21/1999	9:55:00 AM	0	24 976	19 234	24,722	19 929	19 549	28,342	54 552	62,193	7,269	48 166	7 246	-0 121	29,749	0 113	0 091	14	14	12 3	51 0	3 516	0 050	0 050	0 001	0 983	0 84
28	10/21/1999	9:56:00 AM	0	25 1	19 196	24,768	19 974	19 594	28 548	54 242	62 01	7,213	47,929	7,246	-0,121	29 749	0,112	0 091	15	15	12 3	51,4	3 541	0 049	0 050	0 001	0 968	0 82
29	10/21/1999	9:57:01 AM	0	24 976	19 234	24 722	20,01	19 549	28,661	54 614	62,132	7,293	47 693	7 279	-0 121	29 734	0 111	0 091	16	16	12 3	51,1	3,522	0 049	0 049	0 001	0 963	0 82
30	10/21/1999	9:58:01 AM	0	24,976	19 234	24 602	19 929	19 549	28 661	54 552	62,316	7,237	47,726	7,31	-0 121	29 749	0,11	0 085	17	17	12 3	51 2	3 527	0 048	0 049	0 001	0 955	0 81
31	10/21/1999	9:59:01 AM	0	25 02	19 279	24 768	20 055	19 513	28 067	54 242	61,888	7 245	47 693	7 31	-0 121	29 749	0 11	0 088	18	18	12 3	51 1	3 526	0 048	0 048	0 001	0 944	0 80
32	10/21/1999	10:00:02 AM	0	25 02	19,196	24,768	20,135	19 594	28,147	54,49	62,254	7,317	47,456	7 31	-0 121	29 749	0,109	0 085	19	19	12 3	51 0	3 514	0 048	0 048	0 001	0 948	0 81
33	10/21/1999	10:01:02 AM	0	25 02	19 279	24,768	20 216	19 513	28 466	54,49	62,132	7,285	47,794	7 31	-0,121	29 765	0,108	0 085	20	20	12 3	51 0	3 514	0 048	0 048	0 001	0 940	0 80
34	10/21/1999	10:02:02 AM	0	25 02	19 279	24 848	20 216	19 594	28 147	54,965	62 633	7,325	47,929	7,31	-0,121	29 78	0,107	0 082	21	21	12 4	51,1	3 526	0 047	0 047	0 001	0 926	0 79
35	10/21/1999	10:03:03 AM	0	25 02	19 279	24,768	20 297	19 594	28 466	53 994	61,583	7,253	47,456	7,341	-0 121	29 703	0,107	0 085	22	22	12 4	51 5	3 548	0 047	0 047	0 001	0 912	0 78
36	10/21/1999	10:04 03 AM	0	24 984	19 323	24 81	20 422	19 719	28,191	54 366	62,132	7,285	47,78	7,341	-0,121	29,795	0 107	0 085	23	23	12 3	50 7	3 497	0 047	0 047	0 001	0 927	0 79
37	10/21/1999	10 05,04 AM	0	25 02	19 279	24 768	20 377	19 594	28,307	54,49	62,132	7,325	47,659	7 341	-0 121	29 734	0,105	0 085	24	24	12 4	51,1	3 521	0 047	0 047	0 001	0 920	0 78
38	10/21/1999	10:06 04 AM	0	24,94	19 279	24,768	20 377	19 594	28 067	54 49	62,193	7,277	47,862	7,341	-0 121	29,765	0,106	0 088	25	25	12 3	51,1	3 521	0 046	0 046	0 001	0 903	0 77
39	10/21/1999	10:07:05 AM	0	24 94	19 279	24,768	20 377	19 594	28 307	54 736	62,498	7,325	47 862	7,341	-0 121	29,749	0,105	0 082	26	26	12 4	51 2	3 528	0 046	0 047	0 001	0 910	0 77
40	10/21/1999	10:08 05 AM	0	24 964	19 323	24 81	20 503	19 719	28 271	54 428	62,01	7,181	47 929	7 341	-0 121	29,734	0,105	0 079	27	27	12 3	51 3	3 537	0 046	0 046	0 001	0 899	0 77
41	10/21/1999	10:09:05 AM	0	24,964	19 323	24 81	20 422	19,719	27,872	54 18	61,949	7,269	48 031	7 341	-0 075	29 795	0,104	0 082	28	28	12 3	51 2	3 529	0 046	0 046	0 001	0 900	0 77
42	10/21/1999	10:10:06 AM	0	24,964	19 323	24 81	20 503	19 719	28,111	54 614	62 315	7,301	47,557	7,341	-0 121	29 719	0,104	0 082	29	29	12 4	51,1	3 524	0 045	0 046	0 001	0 893	0 76
43	10/21/1999	10:11:06 AM	0	25,028	19 368	24 855	20 466	19,763	28,395	54,738	62,498	7,253	47,828	7,341	-0 121	29 765	0,104	0 082	30	30	12 3	51,1	3 522	0 045	0 046	0 001	0 893	0 76
44	10/21/1999	10:12:06 AM	0	25 028	19 368	24 855	20 547	19 683	28,713	54,8	62 498	7,325	48,2	7,341	-0,121	29 811	0 103	0 079	31	31	12 4	51 3	3 536	0 045	0 046	0 001	0 889	0 76
45	10/21/1999	10:13:07 AM	0	25 028	19 287	24 855	20 547	19 683	28,155	54,923	62 681	7,309	47,963	7 341	-0 121	29 765	0,103	0,079	32	32	12 4	51,5	3 551	0 045	0 045	0 001	0 877	0 75
46	10/21/1999	10:14 07 AM	0	25 028	19 368	24,935	20 628	19 683	28 315	54,428	62 071	7,301	47,78	7,341	-0,121	29,749	0 103	0 079	33	33	12 4	51,4	3 547	0 045	0 045	0 001	0 878	0 75
47	10/21/1999	10:15:07 AM	0	25 028	19 368	24 855	20 547	19 763	28,315	54,8	62,62	7,325	47,693	7 372	-0 121	29 765	0 103	0,079	34	34	12 3	51 1	3 523	0 045	0 045	0 001	0 882	0 75
48	10/21/1999	10:16:08 AM	0	25 072	19 412	24 899	20,511	19 727	28 637	54 49	62,193	7,309	47,823	7 372	-0 121	29,749	0,101	0 079	35	35	12 4	51,2	3 533	0 045	0 045	0 001	0 881	0 75
49	10/21/1999	10:17:08 AM	0	25 072	19 412	24 899	20 592	19,727	28,559	54,614	62,254	7,269	47,895	7,341	-0,121	29 826	0,102	0 079	36	36	12 3	51 0	3 517	0 044	0 044	0 001	0 867	0 74
50	10/21/1999	10:18:08 AM	0	25 072	19 331	24 819	20 592	19 808	28,767	54,614	62,376	7,301	47,929	7,372	-0,121	29 734	0,102	0 079	37	37	12 4	51 3	3 534	0 045	0 045	0 001	0 871	0 74
51	10/21/1999	10:19:09 AM	0	25,072	19 331	24,899	20 672	19,727	28 559	54 614	62,437	7,285	47,659	7 372	-0,121	29,765	0,102	0 082	38	38	12 3	51,3	3 535	0 045	0 045	0 001	0 873	0 74
52	10/21/1999	10:20:09 AM	0	25 072	19 412	24 819	20,511	19,727	28 359	54,923	62 62	7,325	47,963	7,372	-0,121	29,795	0 102	0 079	39	39	12 4	51 1	3 526	0 045	0 045	0 001	0 873	0 74
53	10/21/1999	10:21:09 AM	0	24,992	19 412	24,819	20 753	19 808	28,199	54,738	62,498	7,309	47,591	7 372	-0 121	29 749	0 101	0 079	40	40	12 4	51 4	3 547	0 045	0 045	0 001	0 870	0 74
54	10/21/1999	10:22:10 AM	0	24 992	19 412	24 899	20 672	19,808	28,199	54,242	61,688	7,301	47,895	7,372	-0,121	29,78	0,1	0 079	41	41	12 3	51,2	3 528	0 044	0 044	0 001	0 866	0 74
55	10/21/1999	10:23:10 AM	0	25,116	19 457	24 863	20 796	19 772	27,924	54 8	62 496	7,325	48,064	7,372	-0 075	29 749	0,101	0 079	42	42	12 4	51,1	3 521	0 044	0 044	0 001	0 857	0,73
56	10/21/1999	10:24:10 AM	0	25,036	19 457	24,863	20,717	19 853	28 084	54,428	62,193	7,301	47,625	7,372	-0,121	29 841	0,1	0 079	43	43	12 3	51,4	3 548	0 044	0 044	0 001	0 861	0 73
57	10/21/1999	10:25:11 AM	0	25 036	19,457	24 863	20,796	19 853	28,463	54,428	62 071	7,269	47,625	7,372	-0 121	29,765	0 1	0 079	44	44	12 4	51,0	3 518	0 044	0 044	0 001	0 859	0 73
58	10/21/1999	10:26:11 AM	0	25,036	19 457	24,863	20 717	19 853	28 562	54 8	62,496	7,317	47,456	7 372	-0 121	29 703	0,1	0 079	45	45	12 4	51,0	3 518	0 044	0 044	0 001	0 859	0 73
59	10/21/1999	10:27:11 AM	0	25 081	19 501	24,907	20 761	19,816	28 645	54,118	61 888	7,253	48,064	7,372	-0 121	29,795	0,1	0 079	46	46	12 3	51,1	3 525	0 044	0 044	0 001	0 857	0 73
60	10/21/1999	10:28:12 AM	0	25 081	19,421	24 907	20,761	19 897	28,527	54,676	62,437	7,341	47,557	7 372	-0,121	29 811	0 1	0 079	47	47	12 4	51 1	3 523	0 044	0 044	0 001	0 857	0 73
61	10/21/1999	10:29:12 AM	0	25	19 501	24 907	20 681	19 897	28,686	54,304	62 01	7,269	47,794	7,402	-0,121	29 749	0,101	0,079	48	48	12 4	51,1	3 524	0 044	0 044	0 001	0 858	0,73
62	10/21/1999	10:30:12 AM	0	25	19 501	24,907	20 761	19 816	28 686	54,242	62,01	7,229	47,929	7,372	-0,121	29,749	0,1	0,079	49	49	12 3	51,0	3 520	0 044	0 044	0 001	0 866	0 74
63	10/21/1999	10:31:13 AM	0	25 081	19 501	24 907	20 681	19 816	28 686	54,552	62,315	7,269	47,693	7,372	-0,121	29,78	0 099	0,079	50	50	12 3	51,1	3 522	0 044	0 044	0 001	0 857	0 73
64	10/21/1999	10:32:13 AM	0	25	19 501	24 827	20,842	19 816	28,686	54 614	62,437	7,309	47,794	7 372	-0 121	29 749	0 099	0,076	51	51	12 4	51,1	3 525	0 043	0 043	0 001	0 846	0,72
65	10/21/1999	10:33:13 AM	0	25	19 421	24,907	20 681	19 816	28 606	54,614	62,376	7,285	47,895	7,402	-0,121	29,765	0,1	0 076	52	52	12 3	51,2	3 530	0 043	0 043	0 001	0 848	0,72
66	10/21/1999	10:34:14 AM	0	25,125	19 546	24 871	20 806	19 661	28,491	54 428	62,132	7,333	47,625	7 372	-0 121	29 78	0,1	0 073	53	53	12 4	51 3	3 534	0 044	0 044	0 001	0 854	0,73
67	10/21/1999	10:35:14 AM	0	25,045	19 465	24 871	20 725	19,942	28 491	54 552	62 376	7,277	47,557	7,372	-0,121	29,688	0 096	0 073	54	54	12 4	51,0	3 518	0 044	0 044	0 001	0 859	0,73
68	10/21/1999	10:36:14 AM	0	25 045	19 465	24 871	20 806	19 661	28 859	54 366	62,193	7,245	47,591	7,372	-0 121	29,749	0 096	0 073	55	55	12,3	51 1	3 520	0 043	0 043	0 001	0 841	0,72
69	10/21/1999	10:37:15 AM	0	25 045	19 546	24,871	20 806	19 942	28 252	54,18	62 071	7,301	47,794	7,372	-0,121	29 826	0 099	0 073	56	56	12 3	51,0	3 515	0 043	0 043	0 001	0 842	0,72
70	10/21/1999	10:38:15 AM	0	25 089	19 591	24 916	20 85	19,966	28,774	54,862	62,559	7,333	47,76	7 372	-0 121	29 78	0 099	0 076	57	57	12 4	51 0	3 515	0 043	0 043	0 001	0 851	0,72
71	10/21/1999	10:39:15 AM	0	25 089	19 591	24,916	20,931	19,966	28,136	54 8	62 62	7,301	47,997	7,372	-0 121	29,765	0 099	0,076	58	58	12 4	51,3	3 538	0 043	0 043	0 001	0 844	0,72
72	10/21/1999	10:40:16 AM	0	25 089	19 591	24 916	20 85	19 966	28,774	54 614	62,498	7 301	47,557	7,372	-0 121	29 78	0 099	0 076	59	59	12 4	51 4	3 544	0 043	0 043	0 001	0 843	0,72
73	10/21/1999	10:41:16 AM	0	25 089	19 51	24 835	20 85	19 966	28 694	54 614	62 437	7,293	47,659	7 372	-0 121	29 734	0 099	0 076	60	60	12 4	51,1	3 522	0 043	0 043	0 001	0 848	0,72
74	10/21/1999	10:42:16 AM	0	25 089	19 591	24 916	20 85	19 966	28 694	54 428	62,132	7,309	47,997	7,402	-0,121	29 811	0 098	0 076	61	61	12 3	51,1	3 526	0 043	0 043	0 001	0 849	0,72
75	10/21/1999	10:43:17 AM	0	25 053	19 555	24 88	20 976	20 112	28,579	53,67	61,822	7,205	47,726	7,372	-0 075	29 672	0 096	0 076	62	62	12 4	51 2	3 531	0 043	0 043	0 001	0 837	0,71
76	10/21/1999	10:44:17 AM	0	25 053	19 555	24 88	20 895	20 031	28,730	54,366	62 254	7,293	47 862	7,372	-0 075	29 719	0 097	0 076	63	63	12 3	50 8	3 502	0 043	0 043	0 001	0 845	0,72
77	10/21/1999	10:45:17 AM	0	25 053	19 555	24 88	20 976	20 031	29 057	54 676	62,376	7,301	47,726	7 372	-0 121	29,78	0 096	0 076	64	64	12 3	51,1	3 524	0 042	0 042	0 001	0 831	0,71
78	10/21/1999	10:46:18 AM	0	25 053	19 555	24 88	20 976	20 031	27,941	54,614	62,376	7,301	47,625	7,372	-0 075	29,749	0 097	0 076	65	65	12 4	51 2	3 530	0 043	0 043	0 001	0 838	0,71
79	10/21/1999	10:47:18 AM	0	25 097	19 68	24,924	21,02	19 995	28,782	54,923	62,803	7,325	47,794	7 402	-0 075	29 811	0 097	0 073	66	66	12 3	51,1	3 525	0 042	0 042	0 001	0 831	0,71
80	10/21/1999	10:48:18 AM	0	25 097	19 68	24 924	20 94	20 078	28 464	54 49	62,315	7,301	47,523	7,372	-0 121	29,734	0 097	0,076	67	67	12 4	51,4	3 541	0 042	0 042	0 001	0 826	0,70
81	10/21/1999	10:49:19 AM	0	25 097	19 68	24 924	21 02	20 078	28 782	54 49	62,132	7,277	47,591	7,372	-0,121	29 719	0 097	0 076	68	68	12,3	51,0	3 517	0 042	0 042	0 001	0 832	0,71
82	10/21/1999	10:50:19 AM	0	25 017	19 68	24,844	21,02	20 078	28,464	54 923	62,681	7,325	47,862	7,402	-0,121	29,765	0 097	0 076	69	69	12 3	51 0	3 519	0 042	0 042	0 001	0 831	0,71
83	10/21/1999	10:51:19 AM	0	25 097	19 68	24,924	21 02	20 078	28,703	54 428	62,254	7,197	47,422	7,372	-0 121	29 78	0 098	0 076	70	70	12 4	51 4	3 543	0 042	0 043	0 001	0 828	0,70
84	10/21/1999	10:52:20 AM	0	25,097	19 68	24 924	21,181	20,156	28,703	54,366	62,132	7,245	47,726	7 402	-0 075	29 78	0 097	0 076	71	71	12 4	50 8	3 511	0 043	0 043	0 001	0 842	0,72
85	10/21/1999	10:53:20 AM	0	25 061	19 725	24 968	21,145	20 12	28 826	54 242	62 01	7,229	47,76	7 372	-0 121	29 672	0 097	0 076	72	72	12 4	51 0	3 519	0 042	0 042	0 001	0 831	0,71
																			73	73	12 3	51 0	3 516	0 042	0 042	0 001	0 831	0 71

Run 7.06: 2 wt% Concentration of Insoluble Solids

	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	10/21/1999	10:54:20 AM	0	25 061	19 644	24 968	21 065	20.12	28.747	54.304	62 01	7.269	47.929	7.402	-0.121	29 749	0 097	0 073	74	74	12.3	51 1	3 524	0 042	0 042	0 001	0 829	0.71
87	10/21/1999	10:55:21 AM	0	25.142	19 644	24 888	21.065	20.12	28.587	54 552	62.254	7.301	47.693	7.402	-0.121	29 811	0 096	0 073	75	75	12 3	51.1	3 525	0 042	0 042	0 001	0 822	0 70
88	10/21/1999	10:56:21 AM	0	25 142	19 725	24 888	21,145	20 12	28.667	54,428	62.193	7.261	47.49	7.402	-0.121	29 795	0 096	0 073	76	76	12 4	51 0	3 513	0 042	0 042	0 001	0 825	0 70
89	10/21/1999	10:57:21 AM	0	25,142	19.725	24 968	21,145	20.12	28,109	54.49	62.254	7.277	47.388	7.372	-0.121	29 703	0.097	0 076	77	77	12.3	50 9	3 512	0 042	0 042	0 001	0 832	0 71
90	10/21/1999	10:58:22 AM	0	25,106	19 688	24 932	21,271	20.165	28.95	54 49	62,132	7.293	47.625	7.402	-0.121	29.78	0 096	0 073	78	78	12 4	51.1	3 520	0 042	0 042	0 001	0 822	0 70
91	10/21/1999	10 59 22 AM	0	25,106	19 688	24 932	21,271	20 165	28 631	54,242	62 01	7.301	47.76	7.402	-0 121	29 749	0 096	0 078	79	79	12 3	51 0	3 518	0 042	0 042	0 001	0 823	0 70
92	10/21/1999	11:00:22 AM	0	25 106	19 688	24 932	21,19	20 248	29 03	54,368	62,193	7,293	47 591	7.402	-0 121	29 703	0 096	0 078	80	80	12.3	51 0	3 515	0 042	0 042	0 001	0 824	0 70
93	10/21/1999	11:01:23 AM	0	25 15	19 733	24 977	21,315	20.21	28.596	54 614	62.315	7,142	47.828	7.402	-0,121	29 411	0 096	0 078	81	81	12 2	51 2	3 532	0 042	0 042	0 001	0 819	0.70
94	10/21/1999	11:02:23 AM	0	25,168	19 769	24 932	21,19	20 165	29 03	54.552	62,437	7,301	47.726	7.372	-0,121	29 657	0 096	0 079	82	82	12 3	51.1	3 526	0 042	0 042	0 001	0 821	0 70
95	10/21/1999	11:03:23 AM	0	25 106	19 688	24,932	21,271	20.248	28,552	54 614	62,376	7,317	47,456	7.402	-0,121	29 703	0 096	0 073	83	83	12 3	51 0	3 519	0 042	0 042	0 001	0 823	0 70
96	10/21/1999	11:04:24 AM	0	25 15	19,733	24 977	21,235	20.21	28 635	54,304	62.01	7.293	47.625	7.372	-0.121	29 734	0 095	0 073	84	84	12 3	51 0	3 514	0 041	0 041	0 001	0 814	0 69
97	10/21/1999	11:05:24 AM	0	25,15	19 814	24,977	21 235	20.21	28 635	54.49	62.376	7,301	47,523	7.372	-0.121	29 749	0 095	0 07	85	85	12 3	51 0	3 517	0 041	0 041	0 001	0 814	0 69
98	10/21/1999	11:06:24 AM	0	25 194	19 778	24 941	21,199	20.335	28.72	54.49	62,437	7,269	47,456	7.372	-0,121	29 719	0 096	0 07	86	86	12 3	51 0	3 514	0 042	0 042	0 001	0 824	0 70
99	10/21/1999	11:07:25 AM	0	25 07	19 733	24 977	21,315	20.29	28.675	54 614	62,437	7,134	47,794	7.402	-0,121	29 396	0 095	0 07	87	87	12 2	51.2	3 530	0 041	0 041	0 001	0 810	0 69
100	10/21/1999	11:08:25 AM	0	25,194	19 659	24 941	21,279	20 335	28.48	54 49	62,254	7,197	47,523	7.402	-0,121	29 488	0 095	0 07	88	88	12 2	51 0	3 517	0 041	0 042	0 001	0 814	0 69
101	10/21/1999	11:09:26 AM	0	25 194	19 778	24 941	21,36	20 335	29 036	54,118	61,888	7,197	47,591	7.402	-0,121	29 534	0 095	0 07	89	89	12 3	50 9	3 506	0 041	0 042	0 001	0 817	0 70
102	10/21/1999	11:10:26 AM	0	25,194	19,778	25 021	21,36	20 335	28.64	54,738	62 376	7,221	47,78	7.402	-0,121	29 534	0 095	0 073	90	90	12 3	51.2	3 533	0 041	0 041	0 001	0 809	0 69
103	10/21/1999	11:11:27 AM	0	25,239	19,903	25 065	21,324	20.36	29.242	54 242	62 071	7,173	48,168	7.402	-0,121	29 58	0 096	0 073	91	91	12 3	51 2	3 530	0 042	0 042	0 001	0 817	0 70
104	10/21/1999	11:12:27 AM	0	25,159	19 823	24 965	21,404	20.36	28 365	54 304	62 071	7,142	47,726	7.402	-0,121	29 519	0 096	0 073	92	92	12 3	51 0	3 517	0 042	0 042	0 001	0 822	0 70
105	10/21/1999	11:13:27 AM	0	25 194	19 859	24 941	21,36	20 335	28,799	54,678	62,62	7,173	47,591	7.402	-0,121	29 504	0 095	0 075	93	93	12 2	51.1	3 525	0 041	0 042	0 001	0 812	0 69
106	10/21/1999	11:14:28 AM	0	25,159	19 823	24,965	21,485	20,46	28 525	54 678	62,376	7,229	47,794	7.372	-0 121	29 55	0 095	0 073	94	94	12 3	51,2	3 532	0 041	0 041	0 001	0 810	0 69
107	10/21/1999	11:15:28 AM	0	25,159	19 903	24 965	21 404	20 46	28 923	54 428	62.254	7,173	47,683	7.402	-0 075	29 565	0 094	0 076	95	95	12 3	51.1	3,520	0 041	0 041	0 001	0 804	0 68
108	10/21/1999	11:16:28 AM	0	25,159	19 903	24 965	21,485	20.46	29 242	54 552	62,437	7,189	47,823	7.402	-0 075	29 504	0 095	0 076	96	96	12 2	51 0	3 518	0 041	0 041	0 001	0 813	0 69
109	10/21/1999	11:17:29 AM	0	25,203	19 867	25 03	21,53	20 424	28 887	54 49	62,254	7,149	47,625	7.402	-0,121	29 519	0 095	0 078	97	97	12 3	51,1	3 520	0 041	0 041	0 001	0 812	0 69
110	10/21/1999	11:18:29 AM	0	25,203	19 867	25 03	21,449	20,424	28,967	54 8	62 742	7,181	47,794	7.372	-0,121	29 519	0 094	0 073	98	98	12 3	51,1	3 520	0 041	0 041	0 001	0 812	0 69
111	10/21/1999	11:19:29 AM	0	25,203	19 948	25 03	21,449	20 424	28,569	54,552	62,376	7,173	47,828	7 402	-0,075	29 519	0,095	0 073	99	99	12 3	51 2	3 529	0 041	0 041	0 001	0 809	0 69
112	10/21/1999	11:20:30 AM	0	25,203	19 867	25 03	21,449	20,424	29 524	54,368	62,132	7,205	47,76	7.402	-0,121	29 504	0 095	0 073	100	100	12 2	51,1	3 521	0 041	0 041	0 001	0 811	0 69
113	10/21/1999	11:21:30 AM	0	25,203	19 867	25,03	21,449	20 424	28 967	54 862	62,803	7,205	47,963	7,402	-0,121	29 457	0 094	0 073	101	101	12 2	51.4	3 545	0 041	0 041	0 001	0 797	0 68
114	10/21/1999	11:22:30 AM	0	25,247	19 993	25 074	21,332	20,469	29 489	54 552	62,498	7,181	47,625	7.402	-0,121	29,565	0 095	0 073	102	102	12 3	51,1	3 522	0 041	0 041	0 001	0 799	0 68
115	10/21/1999	11:23:31 AM	0	25 247	19 993	25 074	21,413	20,388	28 615	54 678	62,681	7,205	47,862	7.402	-0 121	29 519	0 094	0 067	103	103	12 3	51,3	3 535	0 041	0 041	0 001	0 810	0 69
116	10/21/1999	11:24:31 AM	0	25,187	19 912	25 074	21,413	20 469	29,25	54 242	62,01	7,189	47,422	7.402	-0,121	29 519	0 094	0 07	104	104	12.3	50 8	3 505	0 041	0 041	0 001	0 799	0 68
117	10/21/1999	11:25:31 AM	0	25,292	20 038	25,118	21,619	20 514	28 976	54 614	62,376	7,181	47,456	7.402	-0,121	29 519	0 094	0 067	105	105	12 3	51.0	3 519	0 041	0 041	0 001	0 801	0 68
118	10/21/1999	11:26:32 AM	0	25,187	19 912	25 074	21,413	20,469	29,25	54,738	62,498	7,213	47,794	7.402	-0,121	29 519	0,094	0 067	106	106	12 3	51,3	3 535	0 041	0 041	0 001	0 799	0 68
119	10/21/1999	11:27:32 AM	0	25,247	19,993	25,074	21,574	20,469	28,932	54 678	62,498	7,213	47,591	7.402	-0 075	29 519	0 095	0 07	107	107	12.3	51,1	3 525	0 041	0 041	0 001	0 809	0 69
120	10/21/1999	11:28:32 AM	0	25,247	19 993	25 074	21,494	20 469	29 25	54,242	62,01	7,165	48,064	7.402	-0,121	29 58	0 094	0 07	108	108	12 3	51,2	3 527	0 041	0 041	0 001	0 801	0 68
121	10/21/1999	11:29:33 AM	0	25,212	19,957	25 038	21,538	20,514	29 692	54,49	62,254	7,038	47,76	7.402	-0 075	29 488	0,093	0 07	109	109	12 2	51,1	3 525	0 041	0 041	0 001	0 793	0 68
122	10/21/1999	11:30:33 AM	0	25 212	20 038	25,038	21,538	20 514	29 055	54 614	62,437	7,221	47,726	7.402	-0,121	29 519	0 094	0 07	110	110	12 3	51,2	3 528	0 041	0 041	0 001	0 801	0 68
123	10/21/1999	11:31:34 AM	0	25,256	20 001	25 083	21,502	20 639	29,577	54,18	61 827	7,197	47,929	7.402	-0,121	29 504	0,094	0 07	111	111	12 2	51,1	3 520	0 041	0 041	0 001	0 802	0 68
124	10/21/1999	11:32:34 AM	0	25,256	20 001	25 083	21,583	20 558	29 099	54 428	62,132	7,181	47,828	7.402	-0 075	29 488	0 093	0 07	112	112	12 2	51,1	3 525	0 041	0 041	0 001	0 792	0 67
125	10/21/1999	11:33:35 AM	0	25,256	20 001	25,163	21,422	20,558	29,657	55,171	63,046	7,205	47,591	7.402	-0,121	29,504	0 094	0 07	113	113	12 2	51,4	3 543	0 041	0 041	0 001	0 795	0 68
126	10/21/1999	11:34:35 AM	0	25 256	20 082	25 083	21,583	20 558	29 099	54 676	62,437	7,221	47,828	7.402	-0,121	29 504	0 094	0 073	114	114	12 2	51,3	3 534	0 041	0 041	0 001	0 799	0 68
127	10/21/1999	11:35:35 AM	0	25,256	20 082	25 083	21,502	20,558	29,259	54,428	62,254	7,181	47,591	7.402	-0,121	29 58	0 094	0 073	115	115	12 3	51,0	3 517	0 041	0 041	0 001	0 803	0 68
128	10/21/1999	11:36:36 AM	0	25 3	20 046	25,127	21,706	20 684	28 964	54 676	62 62	7,181	47,726	7.402	-0 121	29 473	0 094	0 073	116	116	12 2	51,2	3 530	0 041	0 041	0 001	0 799	0 68
129	10/21/1999	11:37:36 AM	0	25 3	20 046	25,127	21,627	20 603	29 462	54,366	62,254	7,157	48 031	7.402	-0 075	29 504	0 092	0 067	117	117	12 2	51,2	3 530	0 040	0 040	0 001	0 782	0 67
130	10/21/1999	11:38:36 AM	0	25 22	20,127	25 047	21 547	20 522	29 66	54 676	62 559	7,173	47,659	7.402	-0,121	29,519	0 093	0 07	118	118	12.3	51,2	3 528	0 041	0 041	0 001	0 792	0 67
131	10/21/1999	11:39:37 AM	0	25 3	20,127	25,127	21,627	20,522	29,303	54,614	62 315	7,197	47,693	7.402	-0,121	29,504	0 093	0 07	119	119	12 2	51,2	3 527	0 041	0 040	0 001	0 791	0 67
132	10/21/1999	11:40:37 AM	0	25,265	20 091	25 092	21,672	20 648	29 665	54,304	62 01	7,205	47,693	7.402	-0,121	29,55	0 093	0 073	120	120	12 3	51,0	3 518	0 041	0 040	0 001	0 784	0 66
133	10/21/1999	11:41:37 AM	0	25,265	20 091	25 092	21,672	20,648	29,106	54,965	62,864	7,245	47,693	7.402	-0,075	29 488	0,092	0 073	121	121	12 2	51,3	3 540	0 040	0 040	0 001	0 780	0 66
134	10/21/1999	11:42:38 AM	0	25,265	20 091	25 092	21,672	20 648	29 665	54 738	62 559	7,205	48 096	7.402	-0 075	29,55	0 091	0 07	122	122	12 3	51,4	3 545	0 040	0 040	0 001	0 780	0 66
135	10/21/1999	11:43:38 AM	0	25,265	20,172	25,172	21,753	20,728	28,471	53,994	61,786	7,165	47,726	7.402	-0 075	29 534	0 093	0 07	123	123	12.3	50 9	3 507	0 041	0 040	0 001	0 771	0 66
136	10/21/1999	11:44:38 AM	0	25 265	20 091	25 092	21,672	20,728	29 547	53,994	61,583	7,149	47,929	7.402	-0,121	29 488	0 093	0 07	124	124	12 2	51,0	3 514	0 041	0 040	0 001	0 794	0 68
137	10/21/1999	11:45:39 AM	0	25,369	20,136	25 056	21,717	20 692	29,312	52 444	62,254	6 87	48,137	9 406	-0 075	29,534	0,187	0,158	125	125	12 3	49 3	3 398	0 082	0 082	0 002	0 795	0 68
138	10/21/1999	11:46:39 AM	0	25,369	20,136	25,136	21,636	20 692	29,71	53 56	62,254	7,014	47,152	8,142	-0,121	29 611	0,181	0,149	126	126	12 3	50 4	3 472	0 079	0 079	0 002	1 654	1,41
139	10/21/1999	11:47:39 AM	0	25 369	20,136	25,136	21,717	20 692	29,759	54 552	62,496	7,118	47,862	7.495	-0,121	29 519	0,15	0,122	127	127	12.3	51 2	3 531	0 065	0 065	0 001	1 274	1,08
140																												
141		Averages		25,1	19 6	24 9	20 9	20,1	28,7	54 5	62,3	7,2	47,8	7,4	-0,1	29,7	0 102	0 079			12.3	51,1	3 526	0 044	0 045	0 00087	0 9	0 7
142		Maximum		25 5	20,2	25,2	21,8	20,7	29,8	55,2	63 0	7,5	48 3	8,3	-0,1	29,9	0,225	0,196			12 4	51,7	3 565	0 098	0 099	0 00195	2 0	1,7
143		Median		25,1	19 6	24,9	21,0	20 0	28,7	54 6	62,3	7,3	47,7	7,4	-0,1	29,7	0,096	0 076			12,3	51,1	3 525	0 043	0 043	0 00084	0 8	0,7
144		Minimum		24 9	19 2	24 6	19 7	19 5	27,9	53,7	61,8	7,0	47,3	6 9	-0,1	29 4	0 091	0 067			12 2	50 5	3 482	0 040	0 040	0 00077	0 8	0,7
145		Std Deviation		0,111	0 292	0,118	0 537	0 358	0,427	0,253	0,271	0 060	0 200	0,112	0 016	0,123	0 015	0 015			0 051	0,178	0 012	0 007	0 007	0 000133	0,133	0 113
146		Number of Points Used		119	119	119	119	119	119	119	119	119	119	119	119	119	119	119			119	119	119	119	119	119	119	119



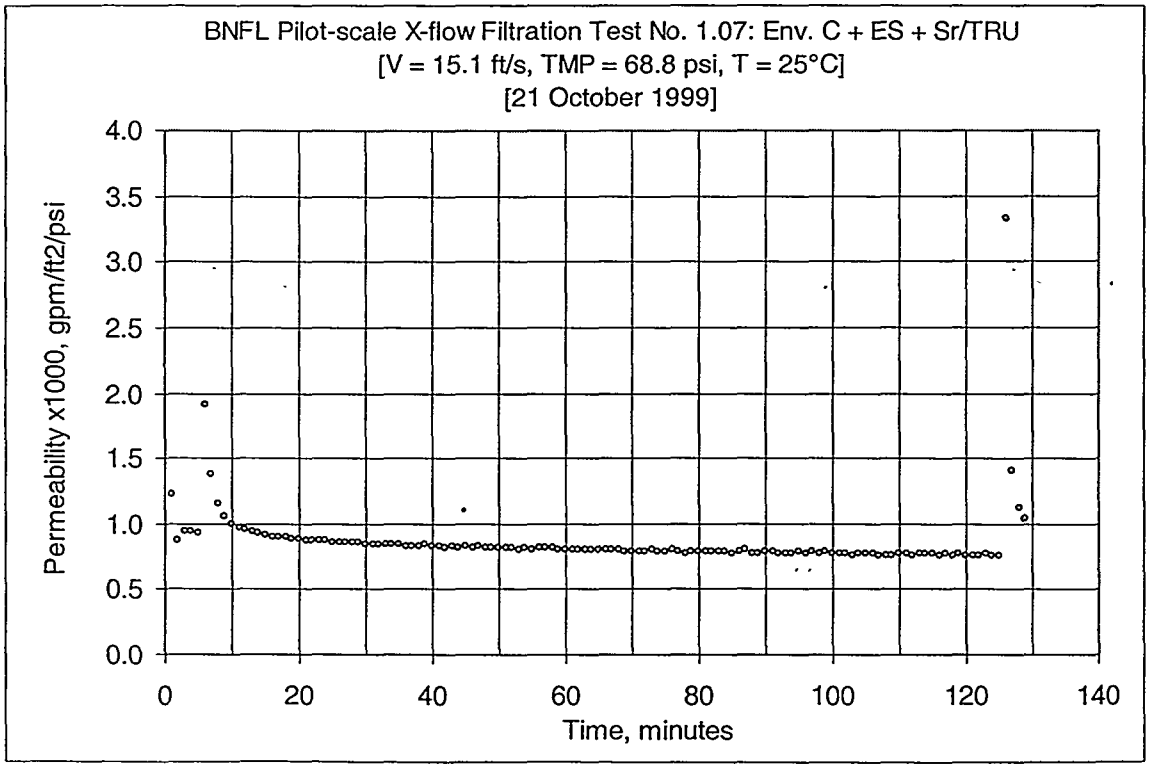


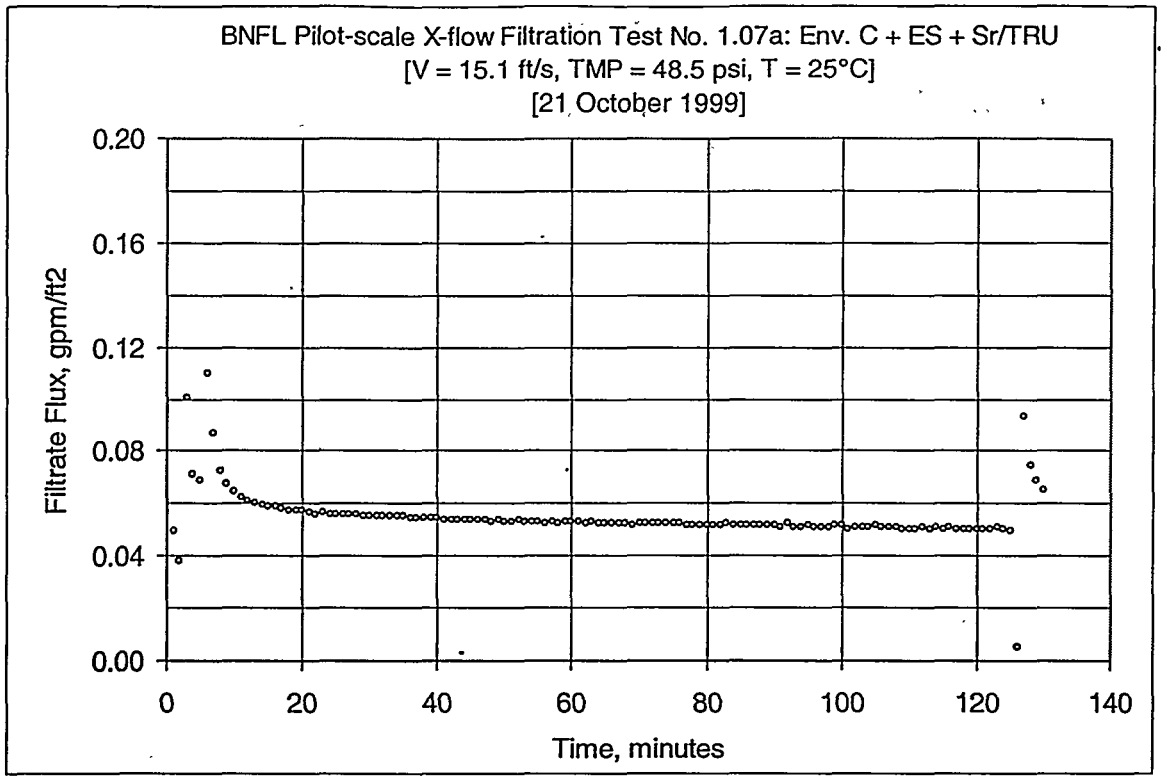
Figure B7: Test Run 1.07, 2 wt% Insoluble Solids Concentration

Run 1.07: 2 wt% Concentration of Insoluble Solids

	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 (dm	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (pel	FLTR DP (	TOP DP (p	FLTRATE (pelg)	PISTON (pelg)	SL FLOW	O2,FLTR F	O3,FLTR F	LOW (ppm)		Filter Surface Area		2.29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/21/1999	7:18:44 AM	0	19.29	18 535	17.741	17.774	17.312	27.893	-0 081	-0.128	-0 007	-0 011	-0 086	-0.167	-0 095	0 011	-0 018										
4	10/21/1999	7:20:10 AM	0	19 29	18 535	17.741	17.774	17.312	27.893	-0 081	-0.128	-0 007	-0 011	-0 086	-0.167	-0 095	0 011	-0 018										
5	10/21/1999	7:21:10 AM	0	19.29	18 535	17.66	17.693	17.393	27.733	-0 081	-0.128	-0 007	-0 011	-0 086	-0.167	-0 095	0 011	-0 018										
6	10/21/1999	7:22:11 AM	0	19 184	18 491	17 618	17.649	17.268	27.849	-0 081	-0.128	-0 007	-0 045	-0 088	-0.167	-0 079	0 011	-0 018										
7	Zeros - Lines Not Connected																											
8	10/21/1999	7:24:42 AM	0	19 128	18 535	17.66	17.774	17.393	27.853	-0 081	-0.128	-0 007	-0 011	-0 088	-0.167	-0 095	0 011	-0 018										
9	10/21/1999	7:25:42 AM	0	19 128	18 535	17 66	17.774	17.393	27 893	-0 081	-0.128	-0 007	-0 011	-0 088	-0.167	-0 095	0 011	-0 018										
10	10/21/1999	7:26:43 AM	0	19 047	18 535	17 66	17.774	17.393	27.973	-0 081	-0 128	0 001	-0 011	-0 088	-0.167	-0 095	0 011	-0 018										
11																												
12	Data - Per Minute																		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMABILITY GPM/FT2/psi	x 1000 GPM/FT2/psi	m/day/bar
13	10/21/1999	11:48:05 AM	0	25 309	20.136	25.136	21,717	20 692	29 312	84.366	82 01	7,134	47,625	7.372	-0 075	29 55	0,144	0,118	1	1	12 3	51 0	3 516	0 063	0 063	0 001	1 226	1 05
14	10/21/1999	11:49:05 AM	0	25.309	20.136	25.136	21.636	20.775	29.391	86.29	95.731	9 966	76 835	8 943	-0.121	36 477	0 163	0.137	2	2	15 1	61.6	5 623	0 071	0 071	0 001	0 869	0 74
15	10/21/1999	11:50:05 AM	0	25.309	20.136	25.376	21.717	20 692	29 83	82.447	91.341	8.721	74.503	8.419	-0.121	35 079	0.172	0.14	3	3	14 6	78 5	5 411	0 075	0 074	0 001	0 947	0 81
16	10/21/1999	11:51:06 AM	0	25 353	20.181	25 661	21,761	20 818	29 674	77,178	85,731	10 628	66.727	8,111	-0.121	37.921	0.157	0.128	4	4	15 7	72 0	4 961	0 069	0 067	0 001	0 935	0 80
17	10/21/1999	11:52:06 AM	0	25 349	20 136	25.776	21,717	20 692	29 55	72.9	81.157	9 966	63.785	7.634	-0 075	36 508	0.149	0.122	5	5	15 2	69 3	4 712	0 065	0 064	0 001	0 931	0 79
18	10/21/1999	11:53:06 AM	0	25 834	20.181	25.901	21,923	20 818	29 674	75 568	81.645	9 815	66 456	5 677	-0 075	36.646	0 319	0 274	6	6	15 2	71 0	4 896	0 139	0 136	0 002	1 912	1 63
19	10/21/1999	11:54:07 AM	0	26 038	20 225	26 025	22,048	20,701	29,716	74 078	81,279	9 671	65,104	6 94	-0.121	36 646	0.226	0.196	7	7	15 2	69 6	4,798	0 099	0 098	0 001	1 377	1.17
20	10/21/1999	11:55:07 AM	0	25 878	20 225	26 025	22 048	20,701	29,796	73,892	81,279	9 822	64 597	6 971	-0 075	36 677	0.187	0.158	8	8	15 2	69 2	4 774	0 082	0 079	0 001	1 145	0 97
21	10/21/1999	11:56:07 AM	0	26 003	20 169	26 07	22,092	20 627	29 762	74 078	81,645	9 862	64,495	7,033	-0 075	36 538	0.173	0.149	9	9	15 2	69 3	4,777	0 075	0 073	0 001	1 058	0 90
22	10/21/1999	11:57:08 AM	0	26,127	20 234	26,114	22,218	20,952	29 886	74 574	82,133	9 846	64 684	7,063	-0.121	36 8	0.165	0,14	10	10	15 2	69 6	4 800	0 072	0 070	0 001	1,003	0 85
23	10/21/1999	11:58:08 AM	0	26 172	20 279	26,158	22,262	20 997	30 01	74 078	81,787	9 862	64 684	7,125	-0 075	36 538	0,18	0 137	11	11	15 2	69 4	4 783	0 070	0 068	0 001	0 973	0 83
24	10/21/1999	11:59:08 AM	0	26,172	20 279	26 078	22,343	20,997	29 93	74,326	81,828	9,727	64 696	7,156	-0,121	36 523	0,157	0,134	12	12	15 2	69 5	4,793	0 069	0 068	0 001	0 957	0 81
25	10/21/1999	12:00:09 PM	0	26,218	20 243	26,123	22,387	20 961	30 054	73,788	81,401	9 878	64 833	7,156	-0 075	36 523	0,153	0,134	13	13	15 2	69 3	4 778	0 067	0 065	0 001	0 934	0 79
26	10/21/1999	12:01:09 PM	0	26 296	20 243	26 043	22,387	21,042	29 895	73,582	81,157	9 878	64,157	7,187	-0 075	36 615	0,151	0,131	14	14	15 2	68 9	4 748	0 068	0 064	0 001	0 930	0 79
27	10/21/1999	12:02:09 PM	0	26,136	20 324	25 963	22,468	21,122	29 815	73,788	81,401	9 846	64,394	7,187	-0 075	36 523	0,149	0,131	15	15	15 2	69 1	4 763	0 065	0 063	0 001	0 916	0 78
28	10/21/1999	12:03:10 PM	0	26 218	20 243	25 963	22 468	21,122	29 895	74,202	81,828	9 958	64 597	7,217	-0,121	36,753	0 147	0,128	16	16	15 3	69 4	4,785	0 064	0 062	0 001	0 900	0 77
29	10/21/1999	12:04:10 PM	0	26 261	20 288	26 007	22 593	21,087	30 019	73,644	81,218	9 894	64,36	7,217	-0 075	36 538	0,146	0,125	17	17	15 2	69 0	4 757	0 064	0 062	0 001	0 898	0 76
30	10/21/1999	12:05:10 PM	0	26,181	20,288	25 847	22,593	21,087	29,382	73,582	81,279	9 87	64 63	7,217	-0 075	36,446	0 146	0,125	18	18	15 1	69,1	4 765	0 064	0 062	0 001	0 901	0 77
31	10/21/1999	12:06:11 PM	0	26 223	20 333	25 972	22 557	21,131	30 063	73,83	81,584	9 878	64,901	7,248	-0,121	36 431	0,144	0,125	19	19	15,1	69 4	4,783	0 063	0 061	0 001	0 882	0 75
32	10/21/1999	12:07:11 PM	0	26 225	20,333	25 892	22,557	20 97	30,381	73,52	81,157	9,91	64 225	7,248	-0 075	36,538	0,143	0,125	20	20	15 2	68 9	4 749	0 062	0 061	0 001	0 884	0 75
33	10/21/1999	12:08:12 PM	0	26,19	20 378	25 936	22,602	21,096	30,346	74,202	81,95	9 926	64,495	7,248	-0,075	36 6	0,142	0,125	21	21	15 2	69 3	4,781	0 062	0 060	0 001	0 871	0 74
34	10/21/1999	12:09:12 PM	0	26,19	20 378	25 856	22 602	21,015	29,789	73,52	81,34	9 894	64 326	7,248	-0 075	36,6	0,141	0,122	22	22	15 2	68 9	4,752	0 062	0 060	0 001	0 872	0 74
35	10/21/1999	12:10:12 PM	0	26,11	20,378	25 856	22,441	21,096	30,268	74 018	81,828	9 854	64,123	7,279	-0 075	36 584	0,142	0,122	23	23	15 2	69,1	4,762	0 062	0 061	0 001	0 876	0 75
36	10/21/1999	12:11:13 PM	0	26,11	20 378	25 856	22,522	21,176	30,268	74,14	81,95	9,886	63 968	7,279	-0 075	36,508	0,14	0,122	24	24	15 2	69,1	4,782	0 061	0 060	0 001	0 864	0 74
37	10/21/1999	12:12:13 PM	0	26,154	20,423	25 901	22 647	21,221	29 674	73 644	81,34	9 91	64 597	7,279	-0 075	36 646	0,139	0,119	25	25	15 2	69 1	4 766	0 061	0 059	0 001	0 856	0 73
38	10/21/1999	12:13:13 PM	0	26,199	20 387	25 866	22 611	21,266	29 002	74 018	81,828	9,79	63 853	7,279	-0 075	36 554	0,139	0,116	26	26	15 2	68 9	4,753	0 061	0 059	0 001	0 859	0 73
39	10/21/1999	12:14:14 PM	0	26,119	20 387	25 866	22 692	21,347	30 355	73,458	81,157	9 894	64,259	7,279	-0,075	36 6	0,138	0,116	27	27	15 2	68 9	4 748	0 060	0 059	0 001	0 854	0 73
40	10/21/1999	12:15:14 PM	0	26,199	20,387	25 866	22,611	21,185	30 355	74,018	81,706	9 926	64,326	7,279	-0 075	36,461	0,138	0,119	28	28	15,1	69 2	4,769	0 060	0 059	0 001	0 850	0 72
41	10/21/1999	12:16:14 PM	0	26,163	20,432	25 83	22,736	21,23	29,922	73,396	81,096	9 878	64,191	7,279	-0 075	36,477	0,137	0,119	29	29	15,1	68 8	4,743	0 060	0 058	0 001	0 849	0 72
42	10/21/1999	12:17:15 PM	0	26,163	20 432	25 83	22,656	21,311	30,399	73 63	81,645	9,918	64 495	7,279	-0 075	36 554	0,136	0,113	30	30	15 2	69,2	4 769	0 059	0 058	0 001	0 839	0 71
43	10/21/1999	12:18:15 PM	0	26,163	20,432	25 83	22,736	21,311	30,319	73 83	81,523	9 854	63,954	7,31	-0 075	36,277	0,137	0,116	31	31	15 1	68 9	4,750	0 060	0 058	0 001	0 848	0 72
44	10/21/1999	12:19:15 PM	0	26 083	20 432	25,75	22 656	21,311	29,285	73 272	80,913	9 862	64,225	7,279	-0,121	36 523	0,136	0,113	32	32	15 2	68,7	4 740	0 059	0 058	0 001	0 846	0 72
45	10/21/1999	12:20:16 PM	0	26,128	20 538	25 875	22 701	21,275	30 523	73 396	81,035	9 87	64 292	7,31	-0 075	36,538	0,135	0,11	33	33	15 2	68 6	4,747	0 059	0 058	0 001	0 835	0 71
46	10/21/1999	12:21:16 PM	0	26,128	20 477	25 875	22,701	21,275	30 602	73,706	81,401	9 894	64,428	7,31	-0 075	36 477	0,136	0,113	34	34	15 1	69,1	4,762	0 059	0 056	0 001	0 839	0 71
47	10/21/1999	12:22:16 PM	0	26,128	20,477	25,795	22,781	21,356	30 602	73 21	80,974	9 83	64,63	7,31	-0 075	36,369	0,135	0,113	35	35	15,1	68 9	4,752	0 059	0 058	0 001	0 836	0 71
48	10/21/1999	12:23:17 PM	0	26 092	20 522	25 819	22,746	21,401	29 692	73 396	81,157	9 862	64 225	7,31	-0 075	36 523	0,135	0,113	36	36	15 2	68 8	4,744	0 059	0 057	0 001	0 835	0 71
49	10/21/1999	12:24:17 PM	0	26 092	20 522	25 839	22 826	21,481	30,567	74 018	81,889	9 862	64,191	7,31	-0,121	36 569	0,135	0,113	37	37	15 2	69 1	4,764	0 059	0 058	0 001	0 833	0 71
50	10/21/1999	12:25:17 PM	0	26,092	20 522	25,759	22 826	21,481	30,408	73,706	81,401	9 878	64 428	7,31	-0 075	36 6	0,134	0,113	38	38	15 2	69 1	4 762	0 058	0 057	0 001	0 829	0 71
51	10/21/1999	12:26:18 PM	0	26 057	20 567	25,804	22 951	21,526	29,816	73 024	80,73	9 806	63 853	7,31	-0 075	36,508	0,134	0,113	39	39	15 2	68 4	4,719	0 058	0 057	0 001	0 836	0 71
52	10/21/1999	12:27:18 PM	0	26,137	20,567	25 804	22 951	21,526	30,373	73,768	81,564	9,87	64 056	7,31	-0 075	36 448	0,133	0,11	40	40	15,1	68,9	4 751	0 058	0 057	0 001	0 824	0 70
53	10/21/1999	12:28:18 PM	0	26,137	20,567	25,724	22 871	21,526	30 691	74 264	82 072	9,745	64,629	7,31	-0,121	36,4	0,134	0,113	41	41	15,1	69 4	4,785	0 058	0 057	0 001	0 826	0 70
54	10/21/1999	12:29:18 PM	0	26,101	20 612	25 768	22,996	21,49	29 363	73 692	81,706	9 894	63,968	7,31	-0 075	36 538	0,132	0,113	42	42	15 2	68 9	4,753	0 058	0 056	0 001	0 818	0 70
55	10/21/1999	12:30:19 PM	0	26,101	20 612	25,768	22 916	21,49	30,179	73,706	81,645	9 854	64,461	7,31	-0 075	36,569	0,133	0,113	43	43	15 2	69,1	4,763	0 058	0 057	0 001	0 822	0 70
56	10/21/1999	12:31:19 PM	0	26,101	20,612	25,768	22 996	21,49	30,497	73,582	81,462	9 894	63,968	7,31	-0 075	36,062	0,132	0,11	44	44	15 0	68 6	4,742	0 058	0 056	0 001	0 820	0 70
57	10/21/1999	12:32:20 PM	0	26 066	20 578	25,733	22,96	21,555	30,854	73,458	81,218	9 894	64 022	7,31	-0 075	36,446	0,132	0,113	45	45	15,1	68,7	4,739	0 058	0 056	0 001	0 821	0 70
58	10/21/1999	12:33:20 PM	0	26 066	20,578	25 813	22,96	21,555	30,302	73,21	80,974	9 878	64,167	7,341	-0,121	36,523	0,132	0,113	46	46	15 2	68 7	4,735	0 058	0 056	0 001	0 820	0 70
59	10/21/1999	12:34:20 PM	0	26,111	20 621	25,778	23 005	21,58	30 903	73 458	81,279	9,87	64,461	7,31	-0 075	36 538	0,133	0,11	47	47	15 2	69 0	4,755	0 058	0 057	0 001	0 824	0 70
60	10/21/1999	12:35:21 PM	0	26,111	20,702	25,778	23 066	21,58	30 665	73 396	81,035	9 926	64,36	7,31	-0 075	36,554	0,131	0,11	48	48	15 2	68 9	4,749	0 057	0 058	0 001	0 812	0 69
61	10/21/1999	12:36:21 PM	0	26,111	20 621	25,778	23 066	21,58	30 029	74 018	81,828	9 836	64,259	7,341	-0 075	36 508	0,132	0,113	49	49	15 2	69,1	4 767	0 058	0 056	0 001	0 815	0 69
62	10/21/1999	12:37:21 PM	0	26,111	20 621	25,778	23 005	21,5	30,744	73,396	81,096	9 854	64,495	7,341	-0 075	36,508	0,132	0,113	50	50	15 2	68 9	4,754	0 058	0 056	0 001	0 818	0 70
63	10/21/1999	12:38:22 PM	0	26 075	20 666	25 822	23,05	21,625	30,471	73 892	81,767	9 958	63,954	7,341	-0 075	36,415	0,131	0,11	51	51	15,1	68 9	4,752	0 057	0 056	0 001	0 811	0 69
64	10/21/1999	12:39:22 PM	0	26 075	20 666	25,742	23,05	21,625	29,994	72,9	80 669	9,836	64 529	7,31	-0,075	36 415	0,13	0,107	52	52	15,1	68 7	4,738	0 057	0 056	0 001	0 809	0 69
65	10/21/1999	12:40:23 PM	0	26,12	20,711	25 857	23,018	21,67	30,197	73,644	81,401	9 918	63,718	7,341	-0 075	36,538	0,13	0,11	53	53	15 2	68,7	4,735	0 057	0 055	0 001	0 806	0 69
66	10/21/1999	12:41:23 PM	0	26,12	20,711	25 857	23,173	21,751	30 618	73,272	80,913	9 878	64 09	7,341	-0 075	36 461	0,131	0,11	54	54	15,1	68 7	4,735	0 057	0 056	0 001	0 813	0 69
67	10/21/1999	12:42:23 PM	0	26,12	20,711	25 857	23 256	21,751	30 674	73,148	81,033	9 836	64 225	7,341	-0 075	36 554	0,13	0,11	55	55	15 2	68 7	4,736	0 057	0 055	0 001	0 808	0 69
68	10/21/1999	12:43:24 PM	0	26,12	20,711	25,747	23,178	21,67	30 695	73,52	81,279	9 854	64,022	7,341	-0 075	36,508	0,13	0,107	56	56	15 2	68 8	4,742	0 057	0 056	0 001	0 807	0 69
69	10/21/1998	12:44:24 PM	0	26,163	20,756	25 832	23,32	21,718	31,118	73 458	81,279	9 902	63,751	7,341	-0 075	36,4	0,13	0,11	57	57	15,1	68 6	4,730	0 057	0 055	0 001	0 808	0 69
70	10/21/1999	12:45:25 PM	0	26 065	20,756	25,752	23 301	21,835	31,196	73 334	81,218	9 862	63 887	7,341	-0 075	36,385	0,13	0,107	58	58	15,1	68 6	4 730	0 057	0 056	0 001	0 810	0 69
71	10/21/1999	12:46:25 PM	0	26,129	20 801	25 877	23 265	21,76	30,127	73,458	81,218	9 836	64,191	7,341	-0 075	36 354	0,129	0,107	59	59	15,1	68 6	4,745	0 056	0 055	0 001	0 798	0 68
72	10/21/1999	12:47:25 PM	0	26,129	20 801	25 877	23 348	21 641	30 583	73 644	81,584	9 878	63,954	7,341	-0 075	36 536	0,13	0,11	60	60	15,2	68 8	4,743	0 057	0 055	0 001	0 805	0 68
73	10/21/1999	12:48:26 PM	0	26 049	20 801	25 797	23 426	21,76	31 001	73,334	81,096	9 878	64 428	7,341	-0 075	36,554	0,129	0,107	61	61	15 2	68 9	4,749	0 056	0 055	0 001	0 799	0 68
74	10/21/1999	12:49:26 PM	0	26 094	20 846	25 841	23,39	21,805	30,728	72 9	80 608	9 854	63 968	7,341	-0,075	36 506	0,128	0,107	62	62	15 2	68 4	4 719	0 056	0 055	0 001	0 797	0 68
75	10/21/1999	12:50:26 PM	0	26 094	20 846	25 841	23,31	21,805	30,966	73,21	81,035	9 87	63 684	7,341	-0 075	36 554	0,128	0,107	63	63	15 2	68 4	4,719	0 056	0 055	0 001	0 797	0 68
76	10/21/1999	12:51:27 PM	0	26 094	20,786	25 841	23,31	21,805	31,363	73 52	81,34	9 862	64 056	7,341	-0 075	36 446	0,128	0,107	64	64	15,1	68 8	4 743	0 056	0 055	0 001	0 793	0 68
77	10/21/1999	12:52:27 PM	0	26,139	20 811	25 806	23,435	21,831	30 931	73 21	81,096	9 854	64,191	7,341	-0 075	36,431	0,128	0,11	65	65	15 1	68 7	4,737	0 056	0 055	0 001	0 795	0 68
78	10/21/1999	12:53:27 PM	0	26,139	20 811	25 806	23,435	21,85	30,534	73,21	80,791	9 768	64 292	7,341	-0 075	36,339	0,13	0,11	66	66	15,1	68 8	4 740	0 057	0 055	0 001	0 807	0 69
79	10/21/1999	12:54:28 PM	0	26,139	20 691	25 806	23,435	21,85	31,09	72,836	80 547	9 836	63,751	7,341	-0 075	36 554	0,129	0,107	67	67	15 2	68 3	4,709	0 056	0 055	0 001	0 806	0 69
80	10/21/1999	12:55:28 PM	0	26,163	20 856	25 931	23,48	21 815	31,293	73 21	80 913	9 862	63,687	7,341	-0 075	36 538	0,128	0,107	68	68	15 2	68 5	4 726	0 056	0 054	0 001	0 794	0 68
81	10/21/1999	12:56:28 PM	0	26,183	20 937	25 651	23,4	21,815	31,214	74,368	82,255	9,782	63 684	7,341	-0,121	36,538	0,126	0,107	69	69	15 2	69 0	4 760	0 056	0 055	0 001	0 790	0 67
82	10/21/1999	12:57:29 PM	0	26,148	20 901	25 976	23 365	21,779	31,496	73 52	81,279	9 862	64 461	7,372	-0 075	36,538	0,128	0,107	70	70	15 2	69 0	4 757	0 056	0 054	0 001	0 788	0 67
83	10/21/1999	12:58:29 PM	0	26 226	20 962	25,978	23 445	21,86	31,099	73 52	81,402	9 846	64 056	7,372	-0 075	36 508	0,127	0,104	71	71	15 2	68 8	4 745	0 055	0 054	0 001	0 784	0 67
84	10/21/1999	12:59:29 PM	0	26,193	20 946	25 94	23,49	21 905	31,461	73 024	80,852	9 774	64,191	7,341	-0 075	36 477	0,127	0,11	72	72	15 1	68 6	4 730	0 055	0 054	0 001	0 787	0 67
85	10/21/1999	1:00:30 PM	0	26,193	20 946	25 94	23 41	21,905	31,223	72 836	80 608	9 846	64 022	7,341	-0 075	36 461	0,129	0 107	73	73	15 1	68 4	4 718	0 056	0 055	0 001	0 802	0 68

Run 1.07: 2 wt% Concentration of Insoluble Solids

	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	10/21/1999	1:01:30 PM	0	26 193	20 648	25 94	23.41	21.624	31.382	73 52	81.401	9 862	64.123	7.372	-0.075	36 523	0.127	0 104	74	74	15 2	68 8	4 745	0 055	0 054	0 0001	0 785	0 67
87	10/21/1999	1:02:31 PM	0	26 238	20 991	25 905	23.455	21.669	31.506	73.272	81.096	9 822	63 954	7.341	-0 075	36 492	0.126	0.107	75	75	15 1	68 6	4 731	0 055	0 054	0 001	0 782	0 67
88	10/21/1999	1:03:31 PM	0	26.158	20.991	25 905	23 455	21 669	31.109	73 272	81.096	9 878	63.954	7.372	-0 075	36 431	0 126	0.107	76	76	15 1	68 6	4,731	0 056	0 054	0 001	0 794	0 68
89	10/21/1999	1:04 32 PM	0	26 158	20 991	25 905	23 455	21.65	31.347	73 066	80 913	9 83	64.191	7 372	-0 075	36 6	0.126	0 107	77	77	15 2	68 6	4 732	0 055	0 054	0 001	0 781	0 66
90	10/21/1999	1:05:32 PM	0	26 238	21 072	25 905	23 455	21 65	31.426	73 662	81.523	9 886	63 819	7 372	-0 075	36.508	0.125	0 107	78	78	15 2	68 7	4,737	0 055	0 053	0 001	0 774	0 66
91	10/21/1999	1:06:32 PM	0	26 238	20 991	25 905	23 535	22 03	30.394	73.458	81.218	9 886	64 225	7.372	-0 075	36 492	0.127	0.107	79	79	15 1	68 8	4 746	0 055	0 054	0 001	0 785	0 67
92	10/21/1999	1:07:33 PM	0	26.158	20 991	25 925	23 535	22.111	31.029	73 892	81.628	9.942	64 09	7.372	-0 075	36 538	0.127	0.107	80	80	15 2	69 0	4,757	0 055	0 054	0 001	0 785	0 67
93	10/21/1999	1:08:33 PM	0	26 283	21 036	25 95	23 66	22,156	31.074	73 21	80.974	9 878	64 426	7.372	-0 075	36 538	0 126	0,11	81	81	15 2	68 8	4,745	0 056	0 054	0 001	0 791	0 67
94	10/21/1999	1:09:33 PM	0	26 247	21 082	25 915	23.765	22 282	31.358	73 458	81.157	9 878	64.056	7.372	-0.121	36 477	0 127	0,11	82	82	15 1	68 8	4 741	0 055	0 054	0 001	0 785	0 67
95	10/21/1999	1:10:34 PM	0	26 203	21.036	25 87	23.74	22.156	29 563	73 272	81.035	9,758	64 259	7.372	-0 075	36 385	0.128	0.104	83	83	15 1	68 8	4 741	0 056	0 055	0 001	0 793	0 67
96	10/21/1999	1:11:34 PM	0	26 167	21 082	25 915	23.765	22 201	30.453	73 52	81.401	9 87	64.123	7 372	-0 075	36 323	0 126	0.107	84	84	15,1	68 8	4,745	0 055	0 054	0 001	0 779	0 66
97	10/21/1999	1:12:34 PM	0	26.167	21.082	25 835	23 866	22.282	31.196	73.334	81.035	9 814	63.616	7.372	-0 075	36.354	0.124	0 097	85	85	15 1	68 5	4 721	0 054	0 053	0 001	0 772	0 66
98	10/21/1999	1:13:35 PM	0	26 212	21.127	25 88	23 83	22 246	31.242	73 458	81.34	9 806	63.718	7.372	-0 075	36 415	0 126	0.104	86	86	15 1	68 6	4 729	0 055	0 054	0 001	0 782	0 67
99	10/21/1999	1:14 35 PM	0	26 257	21.172	25 925	23.875	22.291	31.366	72 962	80.791	9 806	63.921	7.372	-0 075	36 477	0 126	0.104	87	87	15 1	68 4	4 719	0 056	0 054	0 001	0 795	0 68
100	10/21/1999	1:15:35 PM	0	26 257	21.172	25.925	23.795	22.211	31.604	73.768	81.645	9.862	63 65	7.372	-0.121	36 492	0.125	0.104	88	88	15 1	68 7	4 737	0 055	0 053	0 001	0 774	0 66
101	10/21/1999	1:16:36 PM	0	26.177	21 091	25 925	23.795	22.13	31.604	73 21	81.096	9 648	64 056	7.372	-0.075	36.492	0.125	0.104	89	89	15 1	68 6	4 732	0 055	0 053	0 001	0 775	0 66
102	10/21/1999	1:17:36 PM	0	26 177	21.172	25 845	23.795	22,13	31.049	73 21	81.096	9.894	64.056	7.341	-0 075	36 538	0.127	0.101	90	90	15 2	68 6	4 732	0 055	0 054	0 001	0 789	0 67
103	10/21/1999	1:18:36 PM	0	26.222	21.137	25 969	23 84	22 256	31.411	73 066	80.852	9 846	64 292	7.341	-0 075	36.492	0.126	0 104	91	91	15,1	68 7	4 736	0 055	0 054	0 001	0 779	0 66
104	10/21/1999	1:19:37 PM	0	26 222	21 217	25 889	23.78	22 256	31 569	73 458	81.279	9 894	64.022	7.372	-0 075	36 385	0.125	0.104	92	92	15 1	68 7	4 739	0 055	0 053	0 001	0 774	0 66
105	10/21/1999	1:20:37 PM	0	26.222	21.217	25 889	23 84	22.256	31.569	73.21	81.096	9 782	63.616	7.372	-0 075	36.446	0.125	0.104	93	93	15,1	68 4	4,717	0 055	0 053	0 001	0 778	0 66
106	10/21/1999	1:21:37 PM	0	26 267	21.262	25 934	23 885	22.301	30.979	73 644	81.564	9.806	63.921	7.372	-0 075	36 523	0.124	0.104	94	94	15 2	68 8	4 742	0 054	0 053	0 001	0 767	0 65
107	10/21/1999	1:22:38 PM	0	26.187	21.262	25 934	23 966	22.301	31.455	73.148	80.974	9 862	63.968	7.372	-0.075	36.369	0.127	0.104	95	95	15,1	68 6	4,728	0 055	0 054	0 001	0 788	0 67
108	10/21/1999	1:23:38 PM	0	26.187	21.262	25 854	23.885	22.362	30 82	73.024	80.852	9 814	64 056	7.372	-0 075	36 492	0.125	0.104	96	96	15 1	68 5	4 726	0 055	0 053	0 001	0 777	0 66
109	10/21/1999	1:24:38 PM	0	26.232	21.227	25 899	24 011	22.427	31.023	73 272	81.157	9 83	63.447	7.341	-0 075	36 492	0.127	0.104	97	97	15 1	68 4	4 713	0 055	0 054	0 001	0 791	0 67
110	10/21/1999	1:25:39 PM	0	26 232	21.227	25 899	23 93	22.546	31.617	73 334	81.218	9 87	63.954	7.372	-0 075	36 569	0.124	0.101	98	98	15 2	68 6	4,733	0 054	0 053	0 001	0 769	0 65
111	10/21/1999	1:26:39 PM	0	26 232	21.227	25 899	24 011	22.427	31.617	73 024	80 974	9 814	64.09	7 372	-0 075	36 554	0.126	0.104	99	99	15 2	68 6	4 727	0 055	0 054	0 001	0 782	0 67
112	10/21/1999	1:27:39 PM	0	26 277	21.272	25 944	24 056	22.392	31.544	72.962	80.852	9.814	63 921	7.372	-0 075	36 339	0 124	0.101	100	100	15 1	68 4	4 719	0 054	0 053	0 001	0 770	0 66
113	10/21/1999	1:28:40 PM	0	26.197	21.353	25 944	24 056	22.392	31.662	72.9	80.73	9 822	63 887	7.372	-0 075	36 477	0.125	0.104	101	101	15 1	68 4	4 715	0 055	0 053	0 001	0 777	0 66
114	10/21/1999	1:29:40 PM	0	26 277	21 272	25 944	24 056	22.472	31.544	73.768	81.706	9.894	63.616	7.372	-0 075	36 584	0.124	0.104	102	102	15 2	68 7	4 736	0 054	0 053	0 001	0 767	0 65
115	10/21/1999	1:30:40 PM	0	26.242	21.396	25 969	24,181	22.596	31.748	73.706	81.584	9 846	64 056	7.372	-0 075	36 446	0.124	0 104	103	103	15.1	68 9	4,749	0 054	0 053	0 001	0 764	0 65
116	10/21/1999	1:31:41 PM	0	26 242	21.318	25.969	24,181	22 598	31.589	73 024	80.913	9,822	63.65	7.372	-0 075	36.492	0.125	0.104	104	104	15 1	68 3	4,712	0 055	0 053	0 001	0 777	0 66
117	10/21/1999	1:32:41 PM	0	26.242	21.318	25.909	24,181	22,517	31.965	73.272	81.157	9 886	63.751	7.372	-0.075	36.431	0.125	0.104	105	105	15.1	68 5	4 724	0 055	0 053	0 001	0 776	0 66
118	10/21/1999	1:33:42 PM	0	26 242	21.396	25.969	24 101	22 517	31.827	73.272	80.974	9.838	64.123	7.372	-0 075	36 415	0 124	0.101	106	106	15 1	68 7	4 736	0 054	0 053	0 001	0 766	0 65
119	10/21/1999	1:34:42 PM	0	26.287	21.444	25 954	24,148	22 582	31.554	73 692	81.828	9.75	64.056	7.372	-0 075	36 569	0 123	0,101	107	107	15 2	69 0	4,756	0 054	0 052	0 001	0 758	0 64
120	10/21/1999	1:35:43 PM	0	26 332	21.489	25 999	24,191	22,527	31.202	73,458	81,401	9 83	64,191	7.372	-0.075	36.461	0.123	0,101	108	108	15 1	68 8	4 745	0 054	0 052	0 001	0 759	0 65
121	10/21/1999	1:36:43 PM	0	26 252	21.408	25 999	24,111	22,527	31.916	73,148	80 852	9,854	63.785	7.372	-0 075	36 492	0 123	0,104	109	109	15,1	68 5	4,721	0 054	0 052	0 001	0 763	0 65
122	10/21/1999	1:37:43 PM	0	26,252	21.408	25.919	24,191	22,527	31.995	72,962	80,852	9,766	64.36	7.341	-0.028	36.308	0.125	0.104	110	110	15,1	68 7	4 734	0 055	0 053	0 001	0 775	0 66
123	10/21/1999	1:38:44 PM	0	26.297	21.454	25.964	24,156	22,573	31.564	73.334	81.218	9 846	63 684	7.341	-0 075	36.461	0.124	0.104	111	111	15 1	68 5	4 723	0 054	0 053	0 001	0 769	0 65
124	10/21/1999	1:39:44 PM	0	26,252	21.489	25 919	24,111	22,527	31.837	73.334	81.34	9 854	63.954	7.372	-0 075	36 461	0.123	0.101	112	112	15,1	68 6	4 733	0 054	0 052	0 001	0 762	0 65
125	10/21/1999	1:40:44 PM	0	26.297	21.454	25 964	24,236	22,653	30,929	73 396	81 279	9,862	64 225	7.372	-0.075	36 4	0.125	0.104	113	113	15 1	68 8	4 744	0 055	0 053	0 001	0 772	0 66
126	10/21/1999	1:41:45 PM	0	26,297	21.454	25.964	24,307	22,733	30,929	73 334	81,218	9 822	64,123	7.372	-0 075	36.385	0.124	0 101	114	114	15 1	68 7	4,739	0 054	0 053	0 001	0 767	0 65
127	10/21/1999	1:42:45 PM	0	26 297	21.534	25 884	24,397	22,733	30 611	73 024	80,913	9,862	63,819	7.372	-0 075	36.477	0.123	0,101	115	115	15,1	68 4	4 717	0 054	0 052	0 001	0 766	0 65
128	10/21/1999	1:43:45 PM	0	26 262	21.499	25,929	24,442	22,779	32,005	73,644	81 645	9 87	63,968	7.372	-0.028	36.461	0.122	0 101	116	116	15 1	68 6	4 745	0 053	0 052	0 001	0 754	0 64
129	10/21/1999	1:44:46 PM	0	26 262	21 499	26,009	24,442	22,779	31,926	72,838	80,669	9 814	63,921	7.372	-0 075	36 492	0.124	0,101	117	117	15,1	68 4	4,715	0 054	0 053	0 001	0 770	0 65
130	10/21/1999	1:45:46 PM	0	26.387	21.544	25 974	24 407	22,743	31,495	73,582	81,462	9,91	64,326	7.402	-0 075	36.492	0.124	0 097	118	118	15 1	69 0	4 754	0 054	0 053	0 001	0 784	0 65
131	10/21/1999	1:46:46 PM	0	26.307	21.544	26 054	24,407	22,743	31,971	73 21	81,096	9 83	63 887	7.372	-0 075	36 492	0.124	0.101	119	119	15,1	68 5	4 726	0 054	0 053	0 001	0 767	0 65
132	10/21/1999	1:47:47 PM	0	26.307	21.544	25 974	24,407	22,743	32,288	74,016	82,011	9 887	64.63	7.372	-0 075	36 369	0.124	0,104	120	120	15 1	69 3	4 760	0 054	0 053	0 001	0 760	0 65
133	10/21/1999	1:48:47 PM	0	26.352	21.59	26,019	24,452	22,628	32,332	73 066	80 852	9 862	63,819	7.372	-0 075	36 538	0.123	0,101	121	121	15 2	68 5	4,720	0 054	0 052	0 001	0 762	0 65
134	10/21/1999	1:49:47 PM	0	26,352	21.59	26 019	24 532	22,708	32,253	73,456	81,279	9 87	63,968	7 372	-0.075	36.523	0.122	0,101	122	122	15 2	68 7	4,738	0 053	0 052	0 001	0 753	0 64
135	10/21/1999	1:50:48 PM	0	26 397	21.635	26 064	24,497	22,673	31,961	73,086	80,913	9 862	63,954	7.372	-0 075	36 216	0.124	0,104	123	123	15 0	68 5	4 724	0 054	0 053	0 001	0 767	0 65
136	10/21/1999	1:51:48 PM	0	26,317	21,635	26,064	24,497	22 673	32,456	73,458	81,279	9,902	63,954	7.372	-0.075	36 523	0.124	0,104	124	124	15 2	68 7	4,737	0 054	0 053	0 001	0 765	0 65
137	10/21/1999	1:52:48 PM	0	26,317	21,554	25,964	24,577	22,754	31,901	73 334	81,157	9,862	63 954	7.372	-0 075	36 523	0.123	0,104	125	125	15 2	68 6	4 733	0 054	0 052	0 001	0,761	0 65
138	10/21/1999	1:53:49 PM	0	26,317	21,635	25 964	24,577	22,634	30 552	74,016	80,73	9 575	65,34	6 201	-0 075	36,738	0 545	0,518	126	126	15 2	69 7	4,604	0 238	0 231	0 003	3 321	2 83
139	10/21/1999	1:54:49 PM	0	26,317	21,635	25,964	24,577	22,634	31,901	73,334	80 852	9,711	63,968	7,002	-0 075	36,615	0 228	0,196	127	127	15 2	68 7	4,734	0 100	0 097	0 001	1 410	1 20
140	10/21/1999	1:55 50 PM	0	26,442	21,68	26 03	24 622	22,879	32,263	73 892	81,523	9,798	64,36	7,033	-0 075	36 6	0 184	0,155	128	128	15 2	69,1	4 766	0 080	0 078	0 001	1,129	0 96
141	10/21/1999	1:56:50 PM	0	26 487	21,726	26,075	24,668	22 925	32 229	72,962	80,547	9 806	64 597	7,125	-0,028	36 6	0 169	0,143	129	129	15 2	68 8	4,742	0 074	0 072	0 001	1,041	0 89
142																												
143		Averages		26 2	20 9	25 9	23.4	21 8	30 8	73 5	81,3	9,9	64,2	7,3	-0,1	36,5	0,134	0,113			15,1	68 8	4,748	0 059	0 057	0 00063	0 8	0 7
144		Maximum		26 4	21,6	26,2	24 8	22 8	32,5	75 6	82,3	10,0	65,5	7,4	0 0	36 8	0,319	0,274			15,3	71 0	4 896	0,139	0 136	0 00191	1 9	1 6
145		Median		26 2	20 8	25 9	23,4	21,8	30 9	73,5	81,2	9,9	64,1	7,3	-0,1	36,5	0,128	0,107			15 2	68,8	4,743	0 056	0 055	0 00080	0 8	0 7
146		Minimum		25 8	20,2	25,7	21,9	20 7	29 0	72,8	80,5	9 6	63,4	5,7	-0 1	36 1	0,122	0,097			15 0	68 3	4 709	0 053	0 052	0 00075	0 8	0 6
147		Std Deviation		0 090	0 423	0 068	0,678	0,571	0,771	0,414	0,362	0 053	0,369	0,169	0 015	0 092	0 022	0,020			0 038	0 345	0 024	0 009	0 009	0 000127	0 127	0,108
148		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



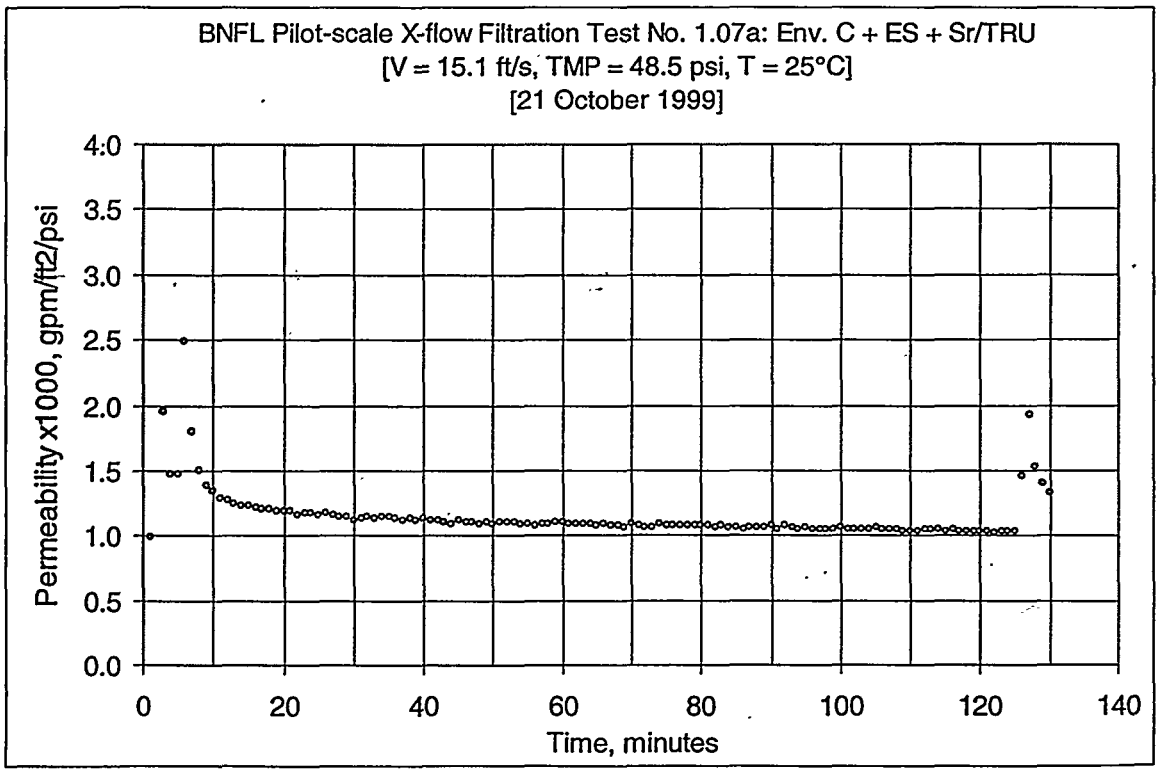


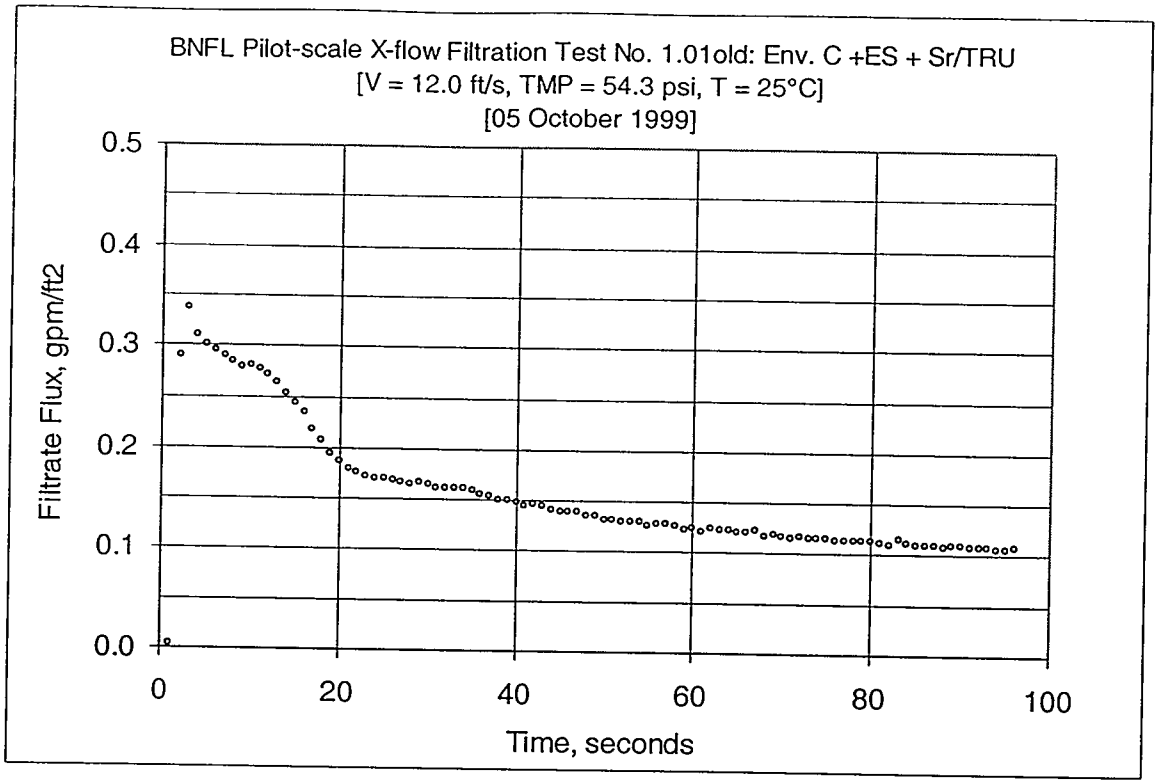
Figure B8: Test Run 1.07a, 2 wt% Insoluble Solids Concentration

Run 1.07a: 2 wt% Concentration of Insoluble Solids

	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	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	RSL FLOW	Q2,FLTR	RQ3,FLTR	FLOW (gpm)		Filter Surface Area		2.29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851.0145	m3/m2/day/barg	/ gpm/ft2/barg			
3	10/21/1999	7:18:44 AM	0	19.29	18.535	17.741	17.774	17.312	27.893	-0.061	-0.126	-0.007	-0.011	-0.088	-0.167	-0.095	0.011	-0.018										
4	10/21/1999	7:20:10 AM	0	19.29	18.535	17.741	17.774	17.312	27.893	-0.061	-0.126	-0.007	-0.011	-0.088	-0.167	-0.095	0.011	-0.018										
5	10/21/1999	7:21:10 AM	0	19.29	18.535	17.66	17.693	17.393	27.733	-0.061	-0.126	-0.007	-0.011	-0.088	-0.167	-0.095	0.011	-0.018										
6	10/21/1999	7:22:11 AM	0	19.164	18.491	17.616	17.649	17.268	27.849	-0.061	-0.126	-0.007	-0.045	-0.088	-0.167	-0.079	0.011	-0.018										
7	Zeros - Lines Not Connected																											
8	10/21/1999	7:24:42 AM	0	19.128	18.535	17.66	17.774	17.393	27.653	-0.061	-0.126	-0.007	-0.011	-0.088	-0.167	-0.095	0.011	-0.018										
9	10/21/1999	7:25:42 AM	0	19.128	18.535	17.66	17.774	17.393	27.893	-0.061	-0.126	-0.007	-0.011	-0.088	-0.167	-0.095	0.011	-0.018										
10	10/21/1999	7:26:43 AM	0	19.047	18.535	17.66	17.774	17.393	27.973	-0.061	-0.126	0.001	-0.011	-0.088	-0.167	-0.095	0.011	-0.018										
11																												
12	Data - Per Minute																								at 25C	PERMABILITY	x 1000	PERMABILITY
13	10/21/1999	2:03:42 PM	0	26.337	21.736	26.065	24.678	23.176	31.842	55.171	65.181	9.966	45.225	9.529	-0.075	36.615	0.117	0.091	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
14	10/21/1999	2:04:43 PM	1	26.462	21.862	26.05	24.803	23.222	31.411	-6.384	67.966	9.487	-0.656	90.64	106.569	36.016	0.069	0.07	2	2	14.9	-3.6	-0.250	0.039	0.038	-0.010	-10.421	-8.67
15	10/21/1999	2:05:43 PM	0	26.462	21.862	26.05	24.803	23.141	32.048	58.101	64.51	9.631	46.577	7.895	-0.028	36.554	0.237	0.21	3	3	15.2	51.3	3.540	0.103	0.100	0.002	1.957	1.67
16	10/21/1999	2:06:43 PM	0	26.462	21.782	26.05	24.723	23.141	32.601	53.25	60.729	10.485	43.196	6.94	-0.028	36.812	0.166	0.143	4	4	16.1	48.2	3.325	0.073	0.071	0.001	1.477	1.26
17	10/21/1999	2:07:44 PM	0	26.508	21.906	26.178	24.929	23.187	32.568	52.072	59.632	9.782	41.844	7.002	-0.075	37.245	0.163	0.137	5	5	15.5	47.0	3.238	0.071	0.069	0.001	1.468	1.25
18	10/21/1999	2:08:44 PM	0	26.382	21.882	26.05	24.803	22.96	32.636	48.167	60.668	9.423	39.579	12.087	-0.028	36.6	0.258	0.238	6	6	15.2	43.9	3.025	0.113	0.109	0.002	2.493	2.12
19	10/21/1999	2:09:44 PM	0	26.473	21.873	26.141	24.814	23.071	32.648	52.816	60.18	9.583	43.669	7.033	-0.028	36.492	0.205	0.177	7	7	15.1	48.2	3.328	0.089	0.087	0.002	1.797	1.53
20	10/21/1999	2:10:45 PM	0	26.473	21.873	26.141	24.734	23.071	32.294	52.816	60.363	9.663	44.075	7.002	-0.028	36.446	0.171	0.146	8	8	15.1	48.4	3.340	0.075	0.073	0.001	1.492	1.27
21	10/21/1999	2:11:45 PM	0	26.473	21.953	26.061	24.814	23.152	32.452	53.188	60.912	9.631	43.906	7.063	-0.028	36.4	0.159	0.134	9	9	15.1	48.5	3.347	0.069	0.067	0.001	1.386	1.18
22	10/21/1999	2:12:45 PM	0	26.438	21.999	26.106	24.939	23.117	32.497	52.568	60.241	9.591	43.365	7.125	-0.075	36.446	0.152	0.128	10	10	15.1	48.0	3.307	0.066	0.064	0.001	1.341	1.14
23	10/21/1999	2:13:46 PM	0	26.463	22.044	26.151	24.904	23.082	32.671	53.002	60.607	9.631	44.109	7.187	-0.028	36.492	0.147	0.125	11	11	15.1	48.6	3.348	0.064	0.062	0.001	1.260	1.09
24	10/21/1999	2:14:46 PM	0	26.483	21.964	26.071	24.904	23.001	32.78	52.506	60.18	9.567	43.771	7.217	-0.028	36.431	0.144	0.122	12	12	15.1	48.1	3.319	0.063	0.061	0.001	1.267	1.08
25	10/21/1999	2:15:46 PM	0	26.403	21.964	25.991	24.824	22.921	33.178	53.188	61.034	9.647	43.5	7.217	-0.028	36.415	0.142	0.122	13	13	15.1	48.3	3.333	0.062	0.060	0.001	1.247	1.06
26	10/21/1999	2:16:47 PM	0	26.448	22.009	26.036	24.82	23.047	33.22	52.268	60.302	9.415	43.838	7.246	-0.075	36.385	0.14	0.122	14	14	15.1	48.0	3.313	0.061	0.059	0.001	1.236	1.05
27	10/21/1999	2:17:47 PM	0	26.414	22.055	26.002	24.915	23.092	33.107	52.754	60.729	9.607	43.602	7.248	-0.075	36.446	0.139	0.122	15	15	15.1	48.2	3.322	0.061	0.059	0.001	1.225	1.04
28	10/21/1999	2:18:47 PM	0	26.414	22.055	25.922	24.915	23.173	32.79	52.63	60.241	9.639	43.453	7.279	-0.028	36.461	0.138	0.119	16	16	15.1	48.0	3.312	0.060	0.059	0.001	1.222	1.04
29	10/21/1999	2:19:48 PM	0	26.414	21.974	25.922	24.995	23.173	32.79	52.754	60.485	9.623	43.672	7.279	-0.028	36.615	0.136	0.116	17	17	15.2	48.3	3.331	0.059	0.058	0.001	1.197	1.02
30	10/21/1999	2:20:48 PM	0	26.334	21.974	25.842	24.995	23.173	32.316	52.816	60.607	9.623	43.5	7.31	-0.028	36.415	0.135	0.116	18	18	15.1	48.2	3.320	0.059	0.058	0.001	1.195	1.02
31	10/21/1999	2:21:48 PM	0	26.334	22.055	25.842	25.078	23.173	32.79	52.754	60.546	9.575	43.94	7.31	-0.028	36.585	0.135	0.116	19	19	15.1	48.3	3.333	0.059	0.058	0.001	1.190	1.01
32	10/21/1999	2:22:49 PM	0	26.299	22.1	25.807	25.121	23.299	33.231	52.32	60.056	9.639	43.487	7.31	-0.028	36.415	0.134	0.113	20	20	15.1	47.9	3.302	0.058	0.057	0.001	1.194	1.02
33	10/21/1999	2:23:49 PM	0	26.344	22.146	25.852	25.166	23.344	32.721	52.63	60.485	9.663	43.264	7.31	-0.075	36.4	0.133	0.113	21	21	15.1	47.9	3.306	0.058	0.057	0.001	1.182	1.01
34	10/21/1999	2:24:49 PM	0	26.344	22.146	25.852	25.088	23.344	33.355	53.496	61.217	9.719	44.041	7.341	-0.028	36.492	0.132	0.11	22	22	15.1	48.0	3.362	0.058	0.056	0.001	1.154	0.98
35	10/21/1999	2:25:50 PM	0	26.284	22.148	25.772	25.166	23.103	33.276	53.002	61.034	9.687	43.568	7.31	-0.075	36.461	0.132	0.11	23	23	15.1	48.3	3.329	0.058	0.056	0.001	1.168	0.99
36	10/21/1999	2:26:50 PM	0	26.264	22.148	25.692	25.086	25.103	33.355	51.7	59.266	9.615	43.534	7.341	-0.028	36.477	0.131	0.107	24	24	15.1	47.6	3.283	0.057	0.056	0.001	1.178	1.00
37	10/21/1999	2:27:50 PM	0	26.23	22.192	25.736	25.131	23.229	33.063	52.754	60.507	9.687	43.636	7.341	-0.028	36.369	0.131	0.107	25	25	15.1	48.2	3.323	0.057	0.056	0.001	1.162	0.99
38	10/21/1999	2:28:51 PM	0	26.15	22.192	25.658	25.131	23.39	32.925	52.692	60.546	9.695	43.365	7.372	-0.028	36.523	0.131	0.107	26	26	15.2	48.0	3.311	0.057	0.056	0.001	1.169	0.99
39	10/21/1999	2:29:51 PM	0	26.15	22.192	25.658	25.131	23.39	32.449	52.816	60.729	9.671	43.568	7.372	-0.028	36.523	0.131	0.11	27	27	15.2	48.2	3.323	0.057	0.056	0.001	1.165	0.99
40	10/21/1999	2:30:51 PM	0	26.195	22.237	25.703	25.257	23.515	32.573	53.498	61.461	9.703	44.007	7.372	-0.028	36.523	0.13	0.11	28	28	15.2	48.8	3.361	0.057	0.056	0.001	1.141	0.97
41	10/21/1999	2:31:52 PM	0	26.115	22.157	25.623	25.257	23.515	32.89	52.94	60.912	9.743	43.94	7.341	-0.028	36.431	0.129	0.11	29	29	15.1	48.4	3.340	0.056	0.055	0.001	1.142	0.97
42	10/21/1999	2:32:52 PM	0	26.08	22.202	25.668	25.302	23.561	33.489	53.994	61.949	9.591	44.481	7.372	-0.028	36.431	0.129	0.107	30	30	15.1	49.2	3.395	0.056	0.055	0.001	1.122	0.96
43	10/21/1999	2:33:52 PM	0	26.08	22.283	25.588	25.302	23.4	32.935	53.188	60.912	9.543	44.312	7.372	-0.075	36.538	0.129	0.11	31	31	15.2	48.8	3.361	0.056	0.055	0.001	1.136	0.97
44	10/21/1999	2:34:53 PM	0	26.08	22.283	25.508	25.302	23.4	33.489	52.382	60.119	9.679	43.771	7.372	-0.028	36.477	0.128	0.107	32	32	15.1	48.1	3.315	0.056	0.055	0.001	1.146	0.98
45	10/21/1999	2:35:53 PM	0	26.048	22.329	25.554	25.348	23.368	33.692	53.25	61.156	9.75	44.041	7.372	-0.028	36.6	0.128	0.107	33	33	15.2	48.6	3.354	0.056	0.055	0.001	1.131	0.96
46	10/21/1999	2:36:53 PM	0	26.048	22.248	25.474	25.348	23.368	33.297	53.002	61.156	9.671	43.906	7.372	-0.075	36.523	0.128	0.107	34	34	15.2	48.5	3.341	0.056	0.055	0.001	1.138	0.97
47	10/21/1999	2:37:54 PM	0	26.011	22.294	25.519	25.473	23.572	33.104	53.002	60.973	9.703	43.365	7.372	-0.028	36.477	0.128	0.107	35	35	15.1	48.2	3.322	0.056	0.055	0.001	1.143	0.97
48	10/21/1999	2:38:54 PM	0	26.011	22.374	25.519	25.473	23.572	33.183	53.126	61.034	9.735	43.771	7.402	-0.028	36.538	0.127	0.107	36	36	15.2	48.4	3.340	0.055	0.055	0.001	1.128	0.96
49	10/21/1999	2:39:55 PM	0	26.011	22.294	25.519	25.473	23.732	32.946	52.878	60.912	9.647	43.906	7.372	-0.028	36.523	0.126	0.107	37	37	15.2	48.4	3.336	0.055	0.054	0.001	1.120	0.95
50	10/21/1999	2:40:55 PM	0	25.931	22.294	25.439	25.473	23.732	33.023	52.94	60.973	9.711	43.602	7.372	-0.028	36.538	0.126	0.107	38	38	15.2	48.3	3.328	0.055	0.054	0.001	1.126	0.96
51	10/21/1999	2:41:56 PM	0	25.851	22.374	25.359	25.553	23.732	33.5	53.684	61.705	9.831	44.143	7.372	-0.028	36.446	0.126	0.107	39	39	15.1	48.9	3.372	0.055	0.054	0.001	1.113	0.95
52	10/21/1999	2:42:56 PM	0	25.897	22.42	25.405	25.518	23.696	33.308	52.94	60.79	9.766	43.703	7.372	-0.028	36.461	0.127	0.107	40	40	15.1	48.3	3.332	0.055	0.055	0.001	1.134	0.97
53	10/21/1999	2:43:56 PM	0	25.897	22.42	25.405	25.599	23.696	32.833	53.25	61.278	9.647	43.974	7.372	-0.028	36.554	0.125	0.104	41	41	15.2	48.6	3.352	0.055	0.054	0.001	1.110	0.94
54	10/21/1999	2:44:57 PM	0	25.897	22.339	25.405	25.599	23.778	32.436	53.188	61.095	9.798	43.669	7.372	-0.028	36.461	0.125	0.104	42	42	15.1	48.4	3.339	0.055	0.054	0.001	1.114	0.95
55	10/21/1999	2:45:57 PM	0	25.862	22.466	25.37	25.644	23.624	32.878	53.436	61.461	9.766	43.838	7.402	-0.028	36.584	0.124	0.104	43	43	15.2	48.6	3.353	0.054	0.054	0.001	1.101	0.94
56	10/21/1999	2:46:57 PM	0	25.862	22.466	25.37	25.724	23.904	33.432	53.374	61.4	9.719	44.616	7.372	-0.028	36.492	0.124	0.104	44	44	15.1	49.0	3.378	0.054	0.054	0.001	1.093	0.93
57	10/21/1999	2:47:58 PM	0	25.782	22.466	25.29	25.724	23.743	33.432	52.568	60.607	9.671	44.176	7.372	-0.028	36.508	0.124	0.104	45	45	15.2	48.4	3.335	0.054	0.054	0.001	1.110	0.94
58	10/21/1999	2:48:58 PM	0	25.828	22.431	25.336	25.77	23.709	33.672	53.188	61.217	9.703	44.176	7.372	-0.028	36.569	0.124	0.104	46	46	15.2	48.7	3.356	0.054	0.054	0.001	1.101	0.94
59	10/21/1999	2:49:58 PM	0	25.747	22.431	25.336	25.69	23.709	33.714	53.002	60.851	9.679	43.906	7.402	-0.028	36.446	0.124	0.101	47	47	15.1	48.5	3.341	0.054	0.054	0.001	1.107	0.94
60	10/21/1999	2:50:59 PM	0	25.747	22.511	25.336	25.61	23.629	34.109	53.374	61.461	9.695	44.007	7.402	-0.028	36.4	0.123	0.101	48	48	15.1	48.7	3.357	0.054	0.053	0.001	1.092	0.93
61	10/21/1999	2:51:59 PM	0	25.793	22.477	25.301	25.653	23.674	34.233	53.064	60.851	9.687	43.805	7.372	-0.028	36.538	0.124	0.104	49	49	15.2	48.4	3.339	0.054	0.054	0.001	1.108	0.94
62	10/21/1999	2:52:59 PM	0	25.793	22.557	25.301	25.653	23.754	34.075	53.25	61.217	9.719	44.346	7.402	-0.028	36.339	0.123	0.104	50	50	15.1	48.6	3.364	0.054	0.053	0.001	1.091	0.93
63	10/21/1999	2:54:00 PM	0	25.713	22.477	25.221	25.575	23.674	33.442	53.064	60.973	9.727	44.041	7.402	-0.028	36.538	0.123	0.101	51	51	15.2	48.6	3.348	0.054	0.053	0.001	1.099	0.94
64	10/21/1999	2:55:00 PM	0	25.758	22.522	25.267	25.621	23.72	33.883	53.002	60.729	9.695	43.94	7.402	-0.028	36.508	0.124	0.101	52	52	15.2	48.5	3.342	0.054	0.054	0.001	1.108	0.94
65	10/21/1999	2:56:00 PM	0	25.758	22.603	25.267	25.621	23.8	34.041	52.754	60.729	9.663	44.041	7.402	-0.028	36.492	0.123	0.097	53	53	15.1	48.4	3.337	0.054	0.053	0.001	1.101	0.94
66	10/21/1999	2:57:01 PM	0	25.758	22.603	25.267	25.701	23.72	33.962	53.436	61.4	9.703	43.906	7.402	-0.028	36.492	0.122	0.101	54	54	15.1	48.7	3.356	0.053	0.053	0.001	1.086	0.92
67	10/21/1999	2:58:01 PM	0	25.724	22.649	25.312	25.666	23.846	33.691	53.312	61.217	9.679	44.278	7.402	-0.028	36.477	0.122	0.101	55	55	15.1	48.8	3.364	0.053	0.053	0.001	1.082	0.92
68	10/21/1999	2:59:01 PM	0	25.724	22.649	25.312	25.629	23.846	33.691	53.188	61.095	9.719	44.379	7.402	-0.028	36.415	0.121	0.101	56	56	15.1	48.8	3.363	0.053	0.052	0.001	1.073	0.91
69	10/21/1999	3:00:02 PM	0	25.644	22.649	25.152	25.748	23.846	33.137	53.374	61.339	9.758	44.244	7.402	-0.028	36.538	0.122	0.101	57	57	15.2	48.6	3.365	0.053	0.053	0.001	1.086	0.92
70	10/21/1999	3:01:02 PM	0	25.724	22.649	25.232	25.748	23.846	34.066	52.816	60.912	9.623	44.109	7.402	-0.028	36.461	0.121	0.101	58	58	15.1	48.5	3.341	0.053	0.052	0.001	1.063	0.92
71	10/21/1999	3:02:02 PM	0	25.644	22.649	25.152	25.686	23.848	33.691	53.002	61.034	9.647	43.5	7.402	-0.075	36.523	0.122	0.104	59	59	15.2	48.3	3.327	0.053	0.053	0.001	1.099	0.94
72	10/21/1999	3:03:03 PM	0	25.77	22.694	25.196	25.792	23.892	33.894	53.436	61.583	9.703	44.041	7.402	-0.028	36.339	0.123	0.104	60	60	15.1	48.7	3.360	0.054	0.053	0.001	1.096	0.93
73	10/21/1999	3:04:03 PM	0	25.689	22.694	25.196	25.792	23.972	33.498	53.126	61.095	9.727	43.703	7.402	-0.028	36.385	0.122	0.101	61	61	15.1	48.4	3.338	0.053	0.053	0.001	1.094	0.93
74	10/21/1999	3:05:03 PM	0	25.689	22.694	25.196	25.872	23.972	34.052	53.188	61.095	9.727	43.669	7.402	-0.028	36.569	0.121	0.101	62	62	15.2	48.4	3.339	0.053	0.053	0.001	1.085	0.92
75	10/21/1999	3:06:04 PM	0	25.689	22.694	25.196	25.792	24.052	33.894	52.878	60.912	9.727	43.838	7.402	-0.028	36.492	0.122	0.104	63	63	15.1	48.4	3.334	0.053	0.053	0.001	1.095	0.93
76	10/21/1999	3:07:04 PM	0	25.609	22.694	25.196	25.872	23.972	33.815	53.25	61.095	9.79	43.838	7.402	-0.028	36.554	0.121	0.101	64	64	15.2	48.5	3.347	0.053	0.053	0.001	1.082	0.92
77	10/21/1999	3:08:04 PM	0	25.655	22.74	25.243	25.918	24.096	33.544	52.878	60.668	9.679	43.757	7.433	-0.028	36.431	0.12	0.104	65	65	15.1	48.3	3.331	0.052	0.052	0.001	1.077	0.92
78	10/21/1999	3:09:05 PM	0	25.655	22.74	25.163	25.918	23.937	34.235	52.878	60.729	9.735	43.703	7.433	-0.028	36.554	0.121	0.104	66	66	15.2	48.3	3.329	0.053	0.053	0.001	1.089	0.93
79	10/21/1999	3:10:05 PM	0	25.655	22.74	25.163	25.918	24.016	34.018	53.436	61.339	9.758	43.672	7.402	-0.028	36.584	0.121	0.104	67	67	15.2	48.7	3.355	0.053	0.053	0.001	1.081	0.92
80	10/21/1999	3:11:06 PM	0	25.621	22.866	25.209	25.963	24.063	34.063	53.25	61.156	9.703	43.974	7.402	-0.028	36.554	0.12	0.101	68	68	15.2	48.6	3.352	0.052	0.052	0.001	1.071	0.91
81	10/21/1999	3:12:06 PM	0	25.621	22.786	25.129	25.883	24.063	34.142	53.374	61.278	9.782	44.176	7.433	-0.028	36.492	0.119	0.104	69	69	15.1	48.8	3.363	0.052	0.052	0.001	1.061	0.90
82	10/21/1999	3:13:07 PM	0	25.621	22.786	25.129	25.963	23.963	33.826	52.258	60.18	9.615	43.838	7.402	-0.028	36.354	0.121	0.104	70	70	15.1	48.0	3.313	0.053	0.053	0.001	1.095	0.93
83	10/21/1999	3:14:07 PM	0	25.586	22.832	25.174	26.009	24.029	34.266	53.436	61.4	9.647	44.007	7.433	-0.028	36.339	0.12	0.101	71	71	15.1	48.7	3.359	0.052	0.052	0.001	1.070	0.91
84	10/21/1999	3:15:07 PM	0	25.586	22.832	25.174	25.929	23.949	34.266	53.25	61.095	9.671	44.582	7.433	-0.075	36.538	0.12	0.097	72	72	15.2	48.9	3.373	0.052	0.052	0.001	1.066	0.91
85	10/21/1999	3:16:08 PM	0	25.586	22.912	25.094	25.929	23.949	34.266	53.684	61.844	9.543	44.886	7.495	-0.028	36.17	0.12	0.097	73	73	15.0	49.3	3.398	0.052	0.052	0.001	1.060	0.90

Run 1.07a: 2 wt% Concentration of Insoluble Solids

	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	10/21/1999	3:17:06 PM	0	25.566	22 832	25 094	25 929	23 949	34.345	52.94	60 851	9.719	43.568	7.433	-0.028	36.584	0 121	0 097	74	74	15 2	48.3	3.327	0 053	0 053	0 001	1 092	0 93
87	10/21/1999	3:18:08 PM	0	25 632	22 958	25 14	25 975	23.994	33.837	53 064	61 095	9.768	44.278	7.433	-0.028	36.508	0 12	0 101	75	75	15.2	48 7	3.356	0 052	0 052	0 001	1 072	0 91
88	10/21/1999	3:19:09 PM	0	25 552	22.878	25 06	25.975	24 075	33.362	53.312	61.461	9.711	43.974	7.402	-0.075	36.477	0,12	0 097	76	76	15 1	48 6	3 354	0 052	0 052	0 001	1 075	0 91
89	10/21/1999	3:20:09 PM	0	25.552	22.878	25.06	25 975	24 075	33.362	52.94	60 729	9 735	44 075	7.402	-0 028	36 477	0.119	0 097	77	77	15.1	48 5	3 344	0 052	0 052	0 001	1 069	0 91
90	10/21/1999	3:21:09 PM	0	25 552	22 958	25 06	25 975	24,155	32.967	53 002	61.034	9.719	43.737	7.402	-0 028	36 523	0.119	0 097	78	78	15.2	48 4	3 335	0 052	0 052	0 001	1 072	0 91
91	10/21/1999	3:22:10 PM	0	25.517	22.924	25 026	26 02	24,201	33.487	53 312	61.339	9.719	43.672	7.433	-0 028	36.554	0.119	0 097	79	79	15 2	48 6	3.350	0 052	0 052	0 001	1 068	0 91
92	10/21/1999	3:23:10 PM	0	25 517	22 924	25 026	26 1	24.201	33.328	53 064	61.034	9 735	44.21	7.402	-0 028	36 4	0.119	0,101	80	80	15.1	48 6	3 355	0 052	0 052	0 001	1 067	0 91
93	10/21/1999	3:24:10 PM	0	25.563	22 87	25 071	26.226	24,248	33.69	53.064	61 034	9 719	43 672	7.402	-0 028	36.554	0.119	0 097	81	81	15.2	48 5	3.342	0 052	0 052	0 001	1 070	0 91
94	10/21/1999	3:25:11 PM	0	25.563	22.87	25 071	26.226	24,166	34.402	53.25	61.278	9.774	43.672	7.402	-0 028	36 477	0 118	0 097	82	82	15 1	48 6	3 348	0 052	0 051	0 001	1 059	0 90
95	10/21/1999	3:26:11 PM	0	25 529	23 015	25 037	26,192	24,212	33.814	53 56	61.583	9 727	43.974	7.402	-0 028	36 63	0,12	0 094	83	83	15 2	48 8	3 362	0 052	0 052	0 001	1 073	0 91
96	10/21/1999	3:27:11 PM	0	25 529	23 015	24 957	26,192	24,212	34.269	53 002	60 851	9.711	44.041	7.433	-0.028	36.124	0.118	0 094	84	84	15 0	48 5	3 345	0 052	0 052	0 001	1 063	0 90
97	10/21/1999	3:28:12 PM	0	25 483	23 05	24,991	26,148	24,246	34,323	53,126	61,095	9.758	44 075	7.402	-0 028	36.569	0.118	0 094	85	85	15 2	48 6	3 351	0 052	0 052	0 001	1 060	0 90
98	10/21/1999	3:29:12 PM	0	25 529	23.015	24 957	26,272	24,292	34,447	53,746	61,768	9 559	44,278	7.433	-0 028	36.477	0 118	0,094	86	86	15,1	49 0	3 379	0 052	0 052	0 001	1 052	0 90
99	10/21/1999	3:30:12 PM	0	25 414	23 061	25 003	26,237	24 258	34,176	53,188	61,156	9 695	44,348	7.402	-0 028	36 339	0.118	0 094	87	87	15 1	48 8	3.362	0 052	0 052	0 001	1 056	0 90
100	10/21/1999	3:31:13 PM	0	25 494	23 061	24,923	26,237	24,258	34 492	53,126	61,278	9,703	44,109	7.402	-0 028	36 481	0.118	0 097	88	88	15,1	48 6	3 352	0 052	0 052	0 001	1 062	0 90
101	10/21/1999	3:32:13 PM	0	25,414	23,142	24 923	26,157	24,338	33,701	53 002	60 912	9 655	44 312	7.433	-0 028	36,385	0.118	0 097	89	89	15 1	48,7	3 355	0 052	0 052	0 001	1 061	0 90
102	10/21/1999	3:33:14 PM	0	25 414	23 061	24 923	26,237	24 258	33,639	52 506	60 485	9 679	44,244	7.402	-0 028	36 481	0 118	0 097	90	90	15,1	48 4	3 335	0 052	0 052	0 001	1 067	0 91
103	10/21/1999	3:34:14 PM	0	25 414	23,142	24 923	26,237	24,178	34 571	52,878	60.79	9 655	44,379	7.402	-0 028	36.6	0.117	0 094	91	91	15 2	48.6	3 353	0 051	0 051	0 001	1 053	0 90
104	10/21/1999	3:35:15 PM	0	25 48	23.107	24,968	26,283	24 224	34,221	53,126	61,156	9 75	43,838	7.402	-0,028	36 415	0,119	0 094	92	92	15,1	48 5	3 343	0 052	0 052	0 001	1 072	0 91
105	10/21/1999	3:36:15 PM	0	25.38	23,188	24 688	26,283	24,304	34,853	52 94	60.912	9 782	43.737	7.402	-0 028	36,477	0 117	0 094	93	93	15,1	48 3	3 333	0 051	0 051	0 001	1 060	0 90
106	10/21/1999	3:37:15 PM	0	25 38	23,188	24 688	26,283	24,384	33,809	53 064	61,095	9,703	44 075	7.402	-0 028	37 014	0.116	0 097	94	94	15 4	48 6	3 349	0 051	0 051	0 001	1 046	0 89
107	10/21/1999	3:38:16 PM	0	25 426	23,234	25 014	26,249	24,269	33 634	53,188	61,217	9 671	44,143	7.433	-0 028	36,385	0.118	0 097	95	95	15,1	48 7	3 355	0 052	0 051	0 001	1 058	0 90
108	10/21/1999	3:39:16 PM	0	25 426	23,153	25 014	26 249	24 269	34 74	53 436	61,522	9,782	44 041	7.433	-0 028	36 523	0.117	0 097	96	96	15 2	48.7	3 360	0 051	0 051	0 001	1 048	0 89
109	10/21/1999	3:40:16 PM	0	25 426	23 234	25 014	26,159	24,269	34 819	53,312	61,278	9 75	43 838	7.433	-0 028	36.646	0 117	0,097	97	97	15 2	48 6	3 349	0 051	0 051	0 001	1 051	0 89
110	10/21/1999	3:41:17 PM	0	25 392	23,199	25 06	26,295	24 315	33 263	53,188	61,461	9,703	43,672	7.433	-0 028	36 569	0,117	0 094	98	98	15 2	48 5	3 348	0 051	0 051	0 001	1 051	0 89
111	10/21/1999	3:42:17 PM	0	25 426	23,234	25 084	26 249	24 269	34,424	53 994	61,888	9 647	43 838	7.464	-0 028	36 584	0,116	0 094	99	99	15 2	48 9	3,373	0 052	0 051	0 001	1 050	0 89
112	10/21/1999	3:43:17 PM	0	25 392	23,199	25,14	26,375	24,315	34,706	53,188	61,278	9,774	43,838	7.464	-0 028	36 508	0,116	0 094	100	100	15 2	48 5	3 345	0 052	0 051	0 001	1 058	0 90
113	10/21/1999	3:44:18 PM	0	25 518	23,326	25,186	26 34	24 361	33,803	52,94	60 851	9,75	43,94	7.433	-0 028	36 569	0,118	0 094	101	101	15 2	48,4	3 340	0 051	0 050	0 001	1 040	0 88
114	10/21/1999	3:45:18 PM	0	25 518	23,245	25,186	26 34	24,281	34,12	53,188	61,156	9,798	43,568	7.433	-0 028	36,523	0,117	0,094	102	102	15 2	48 4	3 335	0 051	0 051	0 001	1 050	0 89
115	10/21/1999	3:46:18 PM	0	25 518	23 326	25,186	26 34	24,361	34 831	53,126	61,217	9 671	44 447	7.464	-0 028	36 554	0,117	0 094	103	103	15 2	48 8	3 364	0 051	0 051	0 001	1 041	0 89
116	10/21/1999	3:47:19 PM	0	25 563	23,372	25,232	26,466	24 407	34,955	53,126	61,217	9,758	44 041	7.464	-0 028	36 554	0,117	0 094	104	104	15 2	48 6	3 350	0 051	0 051	0 001	1 044	0 89
117	10/21/1999	3:48:19 PM	0	25 644	23 372	25 312	26,368	24,327	34,402	53 312	61,278	9,703	43,94	7.464	-0 028	36 477	0,119	0 097	105	105	15,1	48 6	3 353	0 052	0,051	0 001	1 059	0 90
118	10/21/1999	3:49:19 PM	0	25 644	23 291	25 312	26,368	24,327	34,955	52 568	60 607	9 639	43,838	7.464	-0 028	36 569	0,117	0 094	106	106	15 2	48 2	3 323	0 051	0 051	0 001	1 050	0 89
119	10/21/1999	3:50:20 PM	0	25 644	23,372	25,312	26,368	24 247	34 481	53 312	61,278	9,719	43,672	7.464	-0,028	36 508	0,117	0 094	107	107	15 2	48 6	3 350	0 051	0 051	0 001	1 042	0 89
120	10/21/1999	3:51:20 PM	0	25 689	23 418	25,358	26 432	24,215	35,237	52,94	61,034	9,711	43,703	7.464	-0 028	36 584	0,117	0 097	108	108	15,2	48 3	3 332	0 051	0 051	0 001	1 046	0 89
121	10/21/1999	3:52:20 PM	0	25 689	23,418	25,438	26,432	24,283	34 626	53,188	61,461	9,719	44,109	7.495	0,018	36 492	0,117	0 097	109	109	15,1	48 6	3 354	0 051	0 050	0 001	1 037	0 88
122	10/21/1999	3:53:21 PM	0	25 689	23,418	25 433	26,432	24 373	34,684	53 436	61,768	9 806	43,737	7.484	0 018	36,431	0,117	0 097	110	110	15,1	48 6	3 350	0 051	0 050	0 001	1 038	0 88
123	10/21/1999	3 54:21 PM	0	25,77	23,418	25 358	26,432	24,373	35,158	53,126	61,278	9,703	43,8	7.495	0 018	36,538	0,116	0,097	111	111	15 2	48 3	3 331	0 051	0 050	0 001	1 038	0 88
124	10/21/1999	3:55:21 PM	0	25 77	23,418	25,358	26,512	24,533	34,921	53,436	61,644	9,75	43,703	7.495	0,018	36,584	0,117	0,101	112	112	15 2	48 6	3 349	0 051	0 051	0 001	1 041	0 89
125	10/21/1999	3:56:22 PM	0	25,735	23,464	25,484	26,478	24 578	33,702	53,126	61,339	9 695	43,672	7.484	-0 028	36 646	0,117	0 097	113	113	15 2	48 5	3 344	0 051	0 050	0 001	1 039	0 88
126	10/21/1999	3:57:22 PM	0	25 77	23 418	25,438	26,512	24,614	35 079	52 678	61,034	9,766	43,94	7.495	-0 028	36 554	0,118	0 097	114	114	15,2	48 4	3 338	0 052	0 051	0 001	1 051	0 89
127	10/21/1999	3:58:22 PM	0	25 815	23,464	25,484	26,558	24,579	35,203	53,496	61,583	9 758	43,771	7.495	0 018	36 569	0,117	0 097	115	115	15 2	48 6	3 353	0 051	0 050	0 001	1 036	0 88
128	10/21/1999	3:59:23 PM	0	25 695	23,464	25,484	26,558	24 499	35,045	53 56	61,705	9,743	43,605	7.495	-0 028	36 538	0,118	0,101	116	116	15 2	48.7	3,356	0 052	0 051	0 001	1 044	0 89
129	10/21/1999	4:00:23 PM	0	25 815	23,464	25,484	26,478	24,499	34 572	53 56	61,644	9,75	44,21	7.495	-0,028	36 649	0,117	0,101	117	117	15,2	48 9	3 370	0,051	0 050	0 001	1,031	0,88
130	10/21/1999	4:01:23 PM	0	25 815	23,544	25,564	26,478	24 578	35 203	53,064	61,034	9,719	43,672	7.464	-0 028	36,508	0,117	0,101	118	118	15 2	48,5	3 342	0 051	0 050	0 001	1,037	0 88
131	10/21/1999	4:02:24 PM	0	25 861	23,51	25 53	26 604	24,545	34 636	53,374	61,522	9,703	43,974	7.495	0,018	36,6	0,117	0 097	119	119	15 2	48,7	3 356	0 051	0 050	0 001	1 034	0 88
132	10/21/1999	4:03:24 PM	0	25,941	23,51	25,61	26 604	24 625	34,38	53,126	61,217	9 679	44,007	7.495	-0,028	36 477	0,117	0 097	120	120	15,1	48 6	3 348	0 051	0 050	0 001	1 034	0 88
133	10/21/1999	4:04:25 PM	0	25 967	23,656	25 676	26 65	24,591	33,872	53,312	61,278	9,727	43,94	7.495	0,018	36 6	0,117	0 091	121	121	15,2	48 6	3 353	0 051	0,050	0 001	1 034	0 88
134	10/21/1999	4:05:25 PM	0	25 967	23,656	25 576	26,65	24,671	34,504	53,312	61,339	9,75	44,007	7.495	-0 028	36 63	0,118	0 091	122	122	15 2	48,7	3 355	0 051	0 050	0 001	1 024	0 87
135	10/21/1999	4:06:25 PM	0	25 907	23 656	25,656	26,73	24,752	34,741	53,496	61,827	9 615	43,906	7.495	0 018	36,615	0,116	0 091	123	123	15 2	48,7	3 358	0 052	0 051	0 001	1,038	0 88
136	10/21/1999	4:07:25 PM	0	25 967	23 636	25 656	26 609	24,752	34,346	52 616	60 851	9,719	43 672	7.464	0 018	36 63	0,117	0 094	124	124	15 2	48 3	3 333	0 051	0 050	0 001	1,037	0 88
137	10/21/1999	4:08:26 PM	0	26 033	23 683	25 622	26,775	24 717	33,996	53,002	61,034	9 687	43,771	7.495	-0 028	36 569	0,118	0 094	125	125	15 2	48 4	3 336	0 051	0 050	0 001	1 028	0 88
138	10/21/1999	4:09:26 PM	1	26 033	23,602	25 702	26,775	24 637	34 944	7,997	61,4	9,248	-1,499	52,642	115,378	36 692	0 011	-0 018	126	126	15,3	3 2	0 224	0 005	0 005	0 001	1,449	1,23
139	10/21/1999	4:10:27 PM	0	26 033	23 602	25 622	26 690	24,717	35 497	53 064	60 973	9 535	44 075	7.31	0 018	36 615	0,218	0,186	127	127	15,2	48 6	3 349	0 095	0 094	0 002	1,925	1,64
140	10/21/1999	4:11:27 PM	0	26 079	23,648	25 668	26,741	24 683	35 621	53,496	61,217	9 623	44,007	7.094	0 018	36,446	0,174	0,143	128	128	15 1	48 8	3 361	0 076	0 075	0 002	1 529	1 30
141	10/21/1999	4:12:27 PM	0	26,159	23,729	25 668	26 662	24,764	34,595	53,374	61,156	9 655	44,109	7.187	0 018	36,538	0,16	0,131	129	129	15 2	48,7	3 361	0 070	0 069	0 001	1 406	1 20
142	10/21/1999	4:13:28 PM	0	26 079	23 648	25,748	26,662	24 683	35 542	53 622	61,022	9,703	44,143	7.217	0 018	36,538	0,152	0,122	130	130	15 2	48,9	3 370	0 066	0 065	0 001	1,329	1,13
143																												
144		Averages		25 8	22 8	25,4	25 8	23,9	33,8	53 0	61,0	9,7	43 9	7,4	0 0	36 6	0,126	0,105			15,1	48 5	3 342	0 055	0 054	0 001 12	1,1	1,0
145		Maximum		26.5	23,7	26,2	26 8	24,8	35,2	54,0	61,9	9 8	44 9	12,1	0,0	37,0	0,258	0,238			15,4	49 3	3 398	0,113	0 109	0 00249	2 5	2,1
146		Median		25 8	22,7	25,3	25,9	24 0	33,8	53,1	61,1	9,7	43,9	7,4	0,0	36 5	0,121	0 101			15 2	48 5	3 346	0 053	0 053	0 00108	1,1	0 9
147		Minimum		25 4	21,9	24 8	24,7	22 8	32,3	48,2	59,3	9,4	39 6	7,0	-0,1	36,1	0,110	0 091			15 0	43,9	3 025	0 051	0 050	0 00102	1 0	0,9
148		Std Deviation		0,315	0,508	0,425	0 542	0,476	0,734	0,565	0 433	0 067	0 482	0,436	0 019	0 099	0,017	0 017			0 041	0 496	0 034	0 007	0 007	0 000159	0 159	0,135
149		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



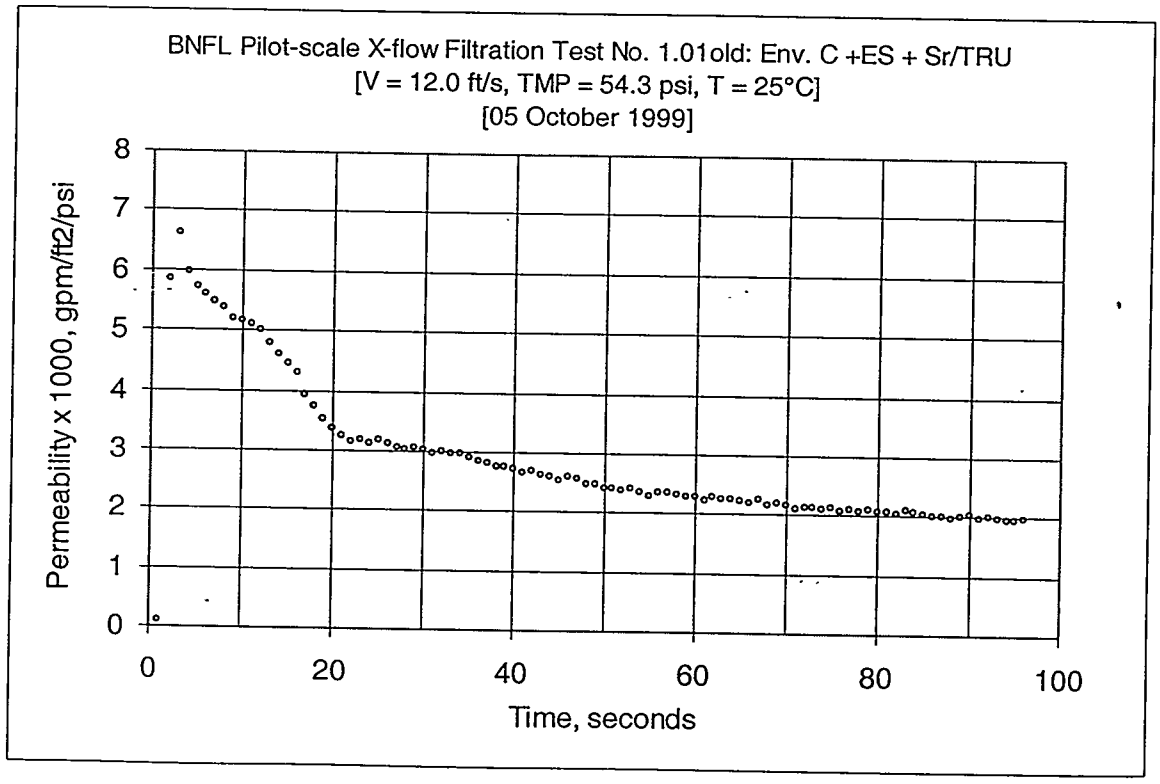
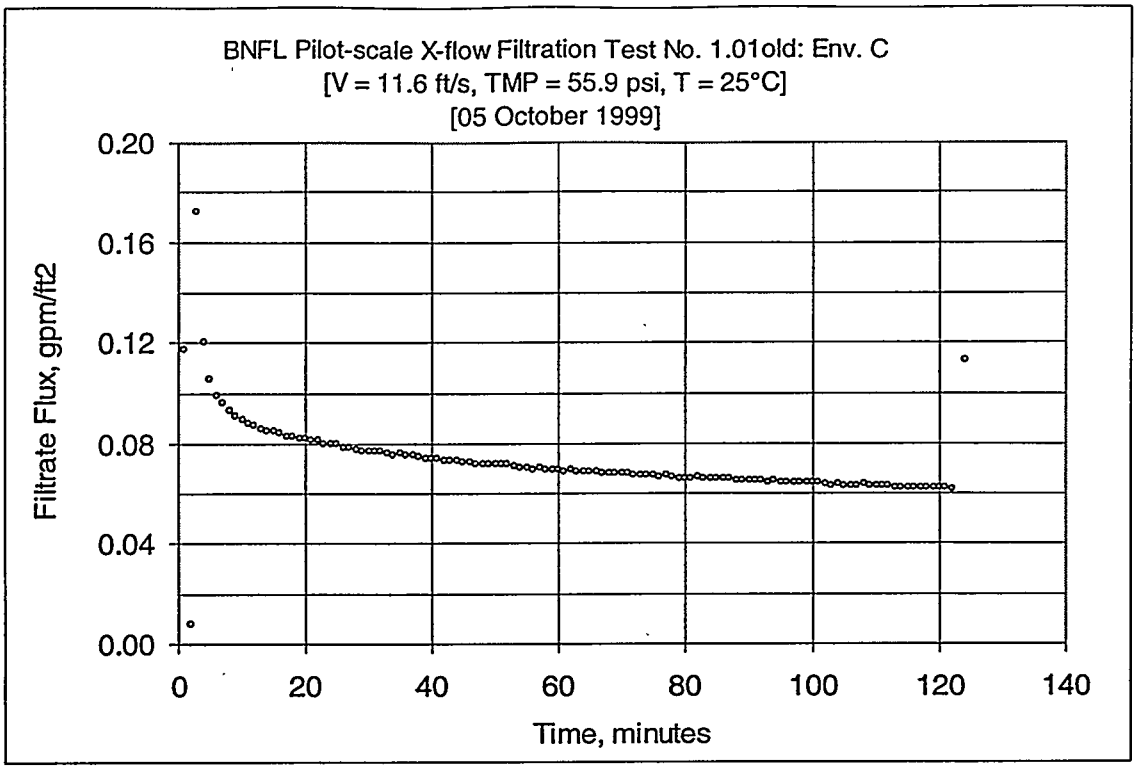


Figure B9a: Test Run 1.01(old), 2 wt% Insoluble Solids Concentration (in seconds)



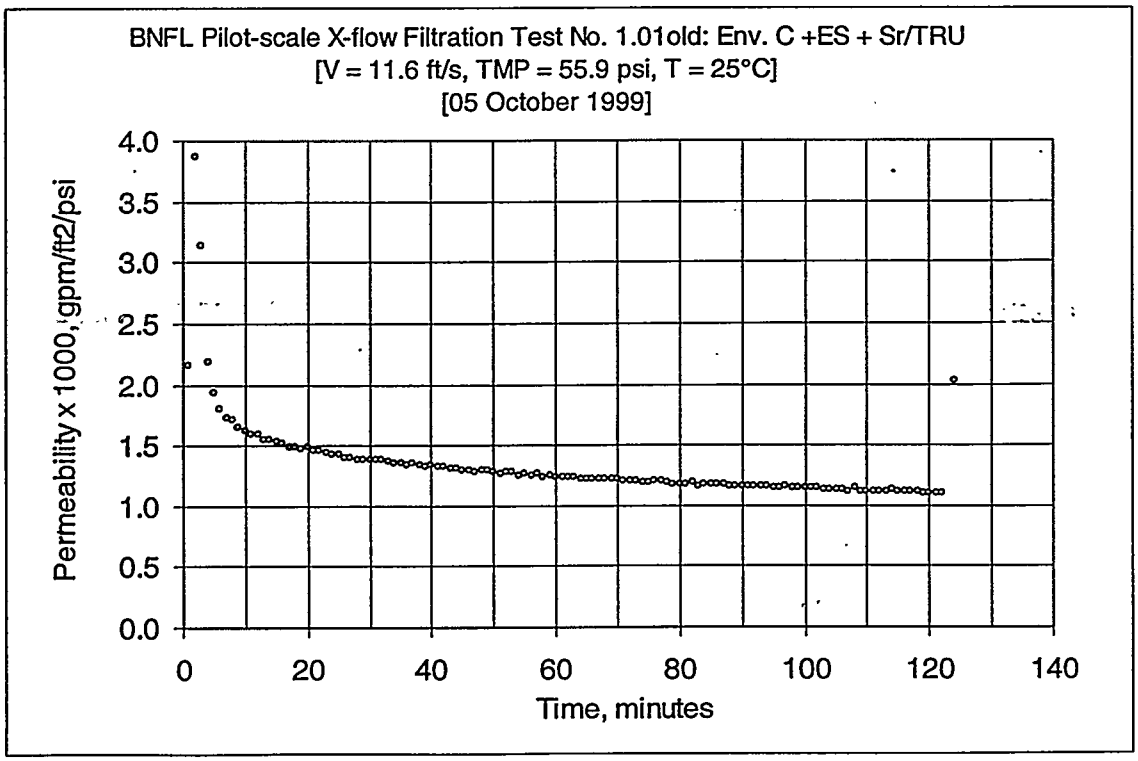


Figure B9b: Test Run 1.01(old), 2 wt% Insoluble Solids Concentration (in minutes)

Run 1.01(old): 2 wt% Concentration of Insoluble Solids

	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	Tb (deg C)	BOT DP (p	FLTR (psi	FLTR DP	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR	O3,FLTR	FLOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		8510145	m3/m2/day/barg / gpm/ft2/barg				
3	10/5/1999	12:39:50 PM	0	27 976	21,778	25 326	22 712	20 603	31,326	-0 061	-2 384	0 503	-0 281	-2 737	-0 075	-0 079	0 011	-0,018										
4	10/5/1999	12 40 31 PM	0	27,932	21,733	25 121	22 587	20,758	31,363	0 001	-2 384	0 503	-0 281	-2 767	-0 075	-0 079	0 011	-0 018										
5	10/5/1999	12 41:31 PM	0	27 852	21,733	24 961	22 667	20 758	31,363	0 001	-2 384	0 503	-0 246	-2 767	-0 075	-0 079	0 011	-0 018										
6	10/5/1999	12 42 32 PM	0	27 728	21 688	24 875	22 542	20 713	31 08	0 001	-2 384	0 511	-0 281	-2 767	-0 075	-0 079	0 011	-0 018										
7	Zeros - Lines Not Connected																											
8	10/5/1999	12:45 15 PM	0	27,408	21,686	23 873	22 622	21,116	29 85	-0 061	-0 067	-0 023	-0 011	-0 148	-0 075	1,902	0 132	0 101										
9	10/5/1999	12,46:15 PM	0	27 089	21,769	23 713	22,702	21 277	30 445	0 001	-0 067	-0 023	-0 011	-0 148	-0 075	1 579	0 119	0 091										
10	10/5/1999	12:47:15 PM	0	26,724	21,724	23 508	22,738	21 312	29 685	0 001	-0 067	-0 023	-0 011	-0 148	-0 075	1,288	0,108	0 079										
11	10/5/1999	12:48 15 PM	0	26 405	21 604	23 267	22,738	21 353	30 241	0 001	-0 067	-0 023	-0 011	-0,148	-0 075	1 057	0,1	0 073										
12	10/5/1999	12:49:16 PM	0	26 129	21,769	23 151	22 783	21,519	29 809	0 001	-0 067	-0 023	-0 045	-0 148	-0 075	0 965	0 093	0 064										
13																												
14	Data - First couple of minutes by SECONDS																											
15	10/5/1999	1:07:35 PM	0	27 871	21 833	27,458	23 41	22 307	29 952	57,527	64 815	6 695	51 445	6 817	-0 028	28 766	0 329	0 305										
16	10/5/1999	1:07:54 PM	0	27 871	21,833	27,458	23 41	22 307	29,952	57,527	64 815	6 695	51,445	6 817	-0 028	28,766	0,329	0 305										
17	10/5/1999	1:07:56 PM	0	27,791	21 833	27 458	23 41	22,307	30 031	58 085	63 547	6,695	51,75	6 848	-0 028	28,782	0 304	0 277										
18	10/5/1999	1:07:57 PM	0	27,791	21 833	27,458	23,329	22 307	30 031	57,403	64,754	6 727	51,31	6,878	-0 028	28,751	0,303	0 274										
19	10/5/1999	1:07:58 PM	0	27,791	21,833	27,458	23 41	22,307	30 031	57,715	65,12	6,759	51,411	6 878	-0 075	28,72	0 303	0 277										
20	10/5/1999	1:07:58 PM	0	27,791	21,833	27,379	23 41	22,388	30 031	58 085	63 547	6 727	51 31	6,878	-0 075	28 72	0 301	0 274										
21	10/5/1999	1:07:59 PM	0	27 791	21 833	27,379	23 41	22 388	29,952	57,651	64 996	6,79	51,617	6 878	-0 028	28 705	0 3	0 28										
22	10/5/1999	1:08 00 PM	0	27,791	21 833	27,379	23 41	22 307	29 952	57,341	64,615	6,735	51,107	6 878	-0 028	28,736	0 3	0 271										
23	10/5/1999	1:08:02 PM	0	27,791	21 833	27,379	23 41	22 307	30,031	57,217	64 81	6 719	51,141	6 909	-0 075	28 643	0,299	0 271										
24	10/5/1999	1:08:03 PM	0	27,791	21 833	27,379	23 41	22 307	30 031	56 721	64,266	6 671	50 938	6 909	-0 028	28,613	0 297	0 271										
25	10/5/1999	1:08:04 PM	1	27 711	21,833	27,379	23 41	22,307	30,031	0,373	65 059	6,176	-10,965	64,353	66 287	27,66	0 315	0 277		11	11 5	-5 3	-0 365	0 121	0 113	-0 021	-21 365	-18 2
26	10/5/1999	1:08:05 PM	1	27,756	21 678	27,423	23,455	22,433	30 076	4,712	64,876	6,152	-1 603	59 361	66,842	28,305	0 31	0 28		12	11 7	1,5	0 100	0 122	0 114	0 079	78 538	66 8
27	10/5/1999	1:08:06 PM	1	27 631	21,833	27,379	23,41	22,307	30 031	4,774	65 669	6 096	-0 991	59 654	66 935	28 643	0,251	0 219		13	11 9	1 9	0 130	0 096	0 089	0 047	47 294	40 2
28	10/5/1999	1:08:07 PM	1	27,711	21 833	27,379	23 41	22,388	29 952	5 022	65,73	6,184	-1,025	60,039	66,935	28 669	0 173	0 238		14	11 9	2 0	0 138	0 104	0 097	0 049	48 645	41 4
29	10/5/1999	1:08:08 PM	1	27 711	21,833	27,379	23,41	22,307	29,952	5 022	65,73	6,184	-1,194	59 884	66,935	28 674	0,1	0 122		15	11,9	1 9	0 132	0 053	0 050	0 026	26 037	22 2
30	10/5/1999	1:08:10 PM	1	27,711	21 833	27,458	23,41	22,307	30 031	4,34	64 815	6 096	-1 262	59,7	66 961	28 705	0 031	-0 012		16	11 9	1 5	0 106	-0 005	-0 005	-0 003	-3 178	-2 7
31	10/5/1999	1:08:11 PM	1	27,631	21,833	27,458	23 41	22,307	29 952	4,96	65,466	6,112	-1,296	59 669	67 028	28 674	0 013	-0 018		17	11 9	1 8	0 126	-0 008	-0 007	-0 004	-4 005	-3 4
32	10/5/1999	1:08:12 PM	1	27,631	21 833	27,379	23 41	22 388	29 952	5 084	66,034	6 128	-0 789	60,254	67,028	28 659	0 011	-0 018		18	11 9	2 1	0 148	-0 008	-0 007	-0 003	-3 424	-2 9
33	10/5/1999	1:08:12 PM	1	27,711	21,833	27,379	23,329	22,307	30 031	4 402	64 327	6 096	-1,431	59 361	67 028	28,628	0 011	-0,015		19	11 9	1 5	0,102	-0 007	-0 006	-0 004	-4 125	-3 5
34	10/5/1999	1:08:13 PM	1	27,631	21 833	27,379	23 41	22,307	30 031	4 836	65,12	6 056	-1,194	59,484	67,074	28 659	0 011	-0 018		20	11,9	1 8	0 125	-0 008	-0 007	-0 004	-4 038	-3 4
35	10/5/1999	1:08:14 PM	1	27 631	21 833	27,379	23 41	22,307	29,952	4 96	65 608	6,112	-1,228	59 846	67,074	28 659	0 011	-0 018		21	11 9	1 9	0 129	-0 008	-0 007	-0 004	-3 940	-3 4
36	10/5/1999	1:08:16 PM	1	27,711	21 833	27 458	23 41	22,307	29 952	5 084	65,466	6,136	-1,329	59 7	67,074	28 628	0 011	-0 018		22	11,9	1,9	0 129	-0 008	-0 007	-0 004	-3 808	-3 3
37	10/5/1999	1:08:17 PM	1	27,631	21 833	27,379	23,41	22 388	29,952	4,774	64 815	6 136	-1,127	59 422	67,12	28 659	0,011	-0 018		23	11 9	1 8	0 126	-0 008	-0 007	-0 004	-4 032	-3 4
38	10/5/1999	1:08:18 PM	1	27,631	21 833	27,458	23,41	22 388	29 952	4 712	64 998	6,152	-1,194	59 576	67,12	28 659	0,011	-0 015		24	11,9	1 8	0 121	-0 007	-0 006	-0 003	-3 476	-3 0
39	10/5/1999	1:08:19 PM	1	27 631	21 833	27,379	23 41	22 388	29,952	5 084	65 466	6,128	-0,653	59 576	67,12	28,613	0,011	-0 015		25	11 9	2 2	0 153	-0 007	-0 006	-0 003	-2 766	-2 4
40	10/5/1999	1:08:20 PM	1	27,631	21 833	27 379	23 41	22,388	29 952	5,27	65 669	6 208	-1,16	59,484	67,167	28 613	0,011	-0 015		26	11 9	2 1	0 142	-0 007	-0 006	-0 003	-2 682	-2 5
41	10/5/1999	1:08 21 PM	1	27,711	21 833	27,379	23 49	22 388	29 952	4 276	64 693	6 072	-1,127	59 515	67,167	28 628	0 011	-0 018		27	11 9	1,8	0 109	-0 008	-0 007	-0 005	-4 667	-4 0
42	10/5/1999	1:08:22 PM	1	27,711	21 833	27,379	23,49	22,307	29 952	4,402	64 449	6,144	-1,16	59 361	67,213	28 643	0,011	-0 018		28	11 9	1 6	0 112	-0 008	-0 007	-0 005	-4 536	-3 9
43	10/5/1999	1:08 23 PM	1	27,711	21 833	27 379	23,41	22,388	29,952	4 588	65 242	6,064	-0 924	60,1	67 167	28,705	0 011	-0 018		29	11,9	1 8	0 126	-0 008	-0 007	-0 004	-4 013	-3 4
44	10/5/1999	1:08:25 PM	1	27,711	21 833	27,379	23,41	22 307	30 031	5,084	65,364	6,136	-1,127	59 484	67,167	28 705	0 011	-0 018		30	11 9	2 0	0 136	-0 008	-0 007	-0 004	-3 716	-3 2
45	10/5/1999	1:08 26 PM	1	27,756	21,878	27,423	23 455	22,352	30 076	4 96	65,466	6,128	-1 025	59 638	67,213	28,705	0 011	-0 018		31	11 9	2,0	0,136	-0 008	-0 007	-0 004	-3 732	-3 2
46	10/5/1999	1:08:26 PM	1	27 631	21,833	27,379	23,41	22 388	30,031	4,898	65,466	6,184	-0 687	59 823	67,167	28 674	0 011	-0 018		32	11,9	2 1	0 145	-0 008	-0 007	-0 003	-3 492	-3 0
47	10/5/1999	1:08:27 PM	1	27,676	21 878	27,423	23 535	22 352	30,076	4,526	64 571	6 168	-1,059	59 484	67,213	28,628	0 011	-0 018		33	11,9	1 7	0 120	-0 008	-0 007	-0 004	-4 236	-3 6
48	10/5/1999	1:08:28 PM	1	27,676	21,878	27,423	23,455	22,352	30 076	4,96	65,181	6,136	-1,194	59 237	67,213	28,72	0 011	-0 018		34	11 9	1 9	0 130	-0 008	-0 007	-0 004	-3 900	-3 3
49	10/5/1999	1:08:30 PM	1	27,631	21,833	27,379	23 41	22 307	30 031	5 084	65,547	6,176	-1 093	59 607	67 213	28 751	0 011	-0 015		35	11 9	2 0	0 138	-0 007	-0 006	-0 003	-3 070	-2 6
50	10/5/1999	1:08:31 PM	1	27 631	21,913	27,379	23,41	22 307	30 031	4 896	65 466	6,168	-0 687	59 792	67,213	28 705	0,011	-0 018		36	11,9	2 1	0 145	-0 008	-0 007	-0 003	-3 492	-3 0
51	10/5/1999	1:08 32 PM	0	27,631	21 833	27,379	23 41	22 307	30,031	49 096	63 351	6 176	43 433	12 857	0 111	29,166	0 019	-0 018		37	37	12 1	46 3	3 190	-0 008	-0 007	0 000	-0 159	-0 1
52	10/5/1999	1:08,33 PM	0	27,631	21 833	27,299	23,49	22 307	30 031	49 53	63 412	6 248	44,041	13 011	0 064	29 335	0 067	-0 018		38	38	12,2	46 8	3 226	-0 008	-0 007	0 000	-0 158	-0,1
53	10/5/1999	1:08 34 PM	0	27,631	21,833	27,299	23,49	22,307	30 031	49,716	63 046	6 296	43,974	12,857	0 018	29 273	0 073	-0 018		39	39	12 1	46 8	3 230	-0 008	-0 007	0 000	-0 157	-0 1
54	10/5/1999	1:08,35 PM	0	27,631	21,833	27,379	23,41	22,307	30 031	50 088	63,595	6,36	44 582	12 826	-0 028	29 273	0,188	0 009		40	1	12 1	47,3	3 264	0 004	0 004	0 000	0 078	0,1
55	10/5/1999	1:08:36 PM	0	27,711	21 833	27,379	23 49	22,307	30,031	52 63	64 022	6,32	46,611	10,7	-0 028	29 212	0 568	0 71		41	2	12 1	49 6	3 421	0 310	0 290	0 006	5 845	5 0
56	10/5/1999	1:08 38 PM	0	27,756	21,958	27,423	23,455	22,352	30 076	54,366	64,266	6 312	47,862	9 251	-0 028	29 15	0 871	0,828		42	3	12 1	51 1	3 524	0 361	0 338	0 007	6 609	5 6
57	10/5/1999	1:08:39 PM	0	27,631	21 833	27,379	23,41	22,307	30 031	54 862	63 839	6 4	49,148	8 512	-0 028	29 135	0 62	0,758		43	4	12,1	52 0	3 585	0 331	0 310	0 006	5 954	5,1
58	10/5/1999	1:08:40 PM	0	27,711	21,833	27,299	23,41	22,307	30 031	55 419	64 022	6,392	49 585	8 204	-0 028	29 15	0,789	0 734		44	5	12 1	52 5	3 620	0 320	0 300	0 006	5 723	4 9
59	10/5/1999	1:08:41 PM	0	27,631	21,833	27,299	23,49	22 307	30,031	55,791	64,327	6 455	49 484	7 865	-0 028	29 12	0 774	0,719		45	6	12,1	52 6	3 629	0 314	0 294	0 006	5 592	4 8
60	10/5/1999	1:08:42 PM	0	27,711	21 833	27,379	23 41	22 388	30,111	55 853	64 022	6 384	49 552	7,711	-0 028	29 043	0,758	0,707		46	7	12,1	52 7	3 634	0 309	0 289	0 005	5 460	4 7
61	10/5/1999	1:08 43 PM	0	27,756	21,878	27 344	23,455	22,352	30,155	56 039	64,083	6,479	49 315	7,495	-0,028	29 012	0,745	0 694		47	8	12 0	52 7	3 632	0 303	0 284	0 005	5 367	4 6
62	10/5/1999	1:08:44 PM	0	27,756	21,678	27,423	23 455	22,352	30,076	56 907	64 676	6,487	50 6	7 279	-0,028	29 058	0,735	0 682		48	9	12 1	53 8	3 706	0 298	0 278	0 005	5 176	4 4
63	10/5/1999	1:08:46 PM	0	27 756	21 878	27,344	23 455	22 352	30,155	57,217	64 693	6 431	51,31	6 848	-0 075	29 043	0 734	0 685		49	10	12 1	54 3	3 741	0 299	0 280	0 005	5 161	4 4
64	10/5/1999	1:08 47 PM	0	27 88	21,923	27,388	23,58	22 397	30,12	57,155	64,388	6,495	51,276	6,54	-0 075	28 997	0 73	0 676		50	11	12 0	54 2	3 738	0 295	0 276	0 005	5 092	4 3
65	10/5/1999	1:08:48 PM	0	27 756	21,878	27,344	23,455	22,352	30,155	57,279	64 205	6,455	51,175	6 262	-0 028	29 027	0 715	0 664		51	12	12 0	54 2	3 739	0 290	0 271	0 005	5 007	4 3
66	10/5/1999	1:08:48 PM	0	27,711	21 833	27 299	23 49	22 307	30 111	58 333	65 12	6,511	51,763	6 077	-0 028	29 027	0 696	0 643		52	13	12 0	55 1	3 795	0 281	0 263	0 005	4 761	4 1
67	10/5/1999	1:08,50 PM	0	27 836	21,878	27,344	23,455	22 352	30,155	57,589	63,778	6,543	51 851	5 923	-0 028	28 966	0 675	0 618		53	14	12 0	54 7	3 773	0 270	0 253	0 005	4 618	3 9
68	10/5/1999	1:08:51 PM	0	27,756	21,878	27,344	23,455	22 352	30,155	57,699	64,449	6 519	52 121	5 8	-0 028	28 92	0 65	0 597		54	15	12 0	55 0	3 793	0 261	0 244	0 004	4 437	3 8
69	10/5/1999	1:08 52 PM	0	27 711	21,833	27,299	23,41	22 227	30,111	57,527	63 9	6 543	51,716	5 738	-0 028	28 92	0 626	0 573		55	16	12 0	54 8	3 768	0 250	0 235	0 004	4 295	3 7
70	10/5/1999	1:08 53 PM	0	27,711	21,833	27,299	23 41	22 307	30,111	58 333	64,815	6 527	52 527	5 769	-0 075	28 961	0 582	0 533		56	17	12 0	55 4	3 822	0 233	0 216	0 004	3 937	3 4
71	10/5/1999	1:08 54 PM	0	27,791	21,752	27 299	23 49	22,307	30,111	59 077	65,364	6 583	52 068	5 831	-0 028	29 027	0 552	0 506		57	18	12 0	55 6	3 832	0 221	0 207	0 004	3 727	3 2
72	10/5/1999	1:08 55 PM	0	27,756	21 878	27 423	23 455	22 352	30 155	58,457	64,876	6 599	52 392	5 923	-0 028	28 961	0 527	0 478		58	19	12 0	55 4	3 821	0 209	0 195	0 004	3 519	3 0
73	10/5/1999	1:08:56 PM	0	27 836	21 878	27,344	23,455	22 272	30,155	58 519	65,364	6 575	52,155	6 046	-0 028	28 961	0 503	0,457		59	20	12 0	55 3	3 815	0 199	0 187	0 003	3 377	2 9
74	10/5/1999	1:08 57 PM	0	27,756	21 878	27,344	23 535	22 272	30,155	57 837	64 51	6 567	52 358	6 201	-0,028	28,997	0 486	0 439		60	21	12 0	55 1	3 799	0 192	0 179	0 003	3 256	2 8
75	10/5/1999	1:08,59 PM	0	27,836	21 878	27,344	23,455	22 352	30,155	58,333	65 303	6 583	52,493	6 365	-0 028	28 843	0,469	0 429		61	22	12 0	55 4	3 821	0 187	0 175	0 003	3 165	2 7
76	10/5/1999	1:09:00 PM	0	27,756	21 878	27,344	23 535	22 272	30,155	57,651	64,693	6 643	51 276	6 509	-0 028	28 828	0 463	0 423		62	23	12 0	54 5	3 755	0 185	0 173	0 003	3 176	2 7
77	10/5/1999	1:09:01 PM	0	27,756	21 878	27,344	23 535	22 272	30,155	57,465	64 632	6 631	51,547	6 601	-0 075	28 812	0 46	0 417		63	24	12 0	54 5	3 758	0 182	0 171	0 003	3 128	2 7
78	10/5/1999	1:09:01 PM	0	27 836	21 878	27,344	23,535	22,272	30,155	57 977	63,166	6 527	50,936	6 632	-0 028	28 843	0 457	0 417		64	25	12 0	53 5	3 686	0 182	0 171	0 003	3 189	2 7
79	10/5/1999	1:09:02 PM	0	27,756	21 878	27,344	23,455	22 272	30,155	57,403	64,632	6,567	51 547	6 694	-0 075	28 858	0 454	0 414		65	26	12 0	54 5	3 756	0 181	0 169	0 003	3 107	2 6
80	10/5/1999	1:09:04 PM	0	27 711	21,833	27 379	23,49	22 227	30,111	57,527	64 876	6 607	51,952	6 753	-0 028	28 843	0 451	0 406		66	27	12 0	54 7	3 774	0 178	0 167	0 003	3 045	2 6
81	10/5/1999	1:09:05 PM	0	27 836	21 878	27 423	23,455	22 272	30,155	57 341	64 693	6 615	51,276	6 755	-0 028	28 935	0 449	0 402		67	28	12 0	54 3	3 744	0 175	0 164	0 003	3 020	2 6
82	10/5/1999	1:09:06 PM	0	27 836	21,878	27,344	23,535	22 272	30,155	57 589	64,754	6 519	51,883	6 755	-0 028	28 812	0 446	0 408		68	29	12 0	54 7	3 774	0 178	0 167	0 003	3 048	2 6
83	10/5/1999	1:09:07 PM	0	27 836	21,878	27,344	23,455	22 272	30,155	57 031	64,322	6 615	51,141	6 755	-0 075	28 843	0 444	0 402		69	30	12 0	54 1	3 729	0 175	0 164	0 003	3 039	2 6
84	10/5/1999	1:09:08 PM	0	27,756	21 878	27,344	23,455	22 272	30,155	57,589	64,754	6 679	51,58	6 724	-0 028	28,797	0 44	0,396		70	31	12 0	54 6	3 763	0 173	0 162	0 003	2 966	2 5
85	10/5/1999	1:09:09 PM	0	27 836	21 878	27,344	23 455	22 272	30 235	57 465	64 51	6 655	50 972	6 724	-0 028	28 828	0 434	0 396		71	32	12 0	54 2	3 738	0 173	0 162	0 003	2 985	2 5

Run 1.01(old): 2 wt% Concentration of Insoluble Solids

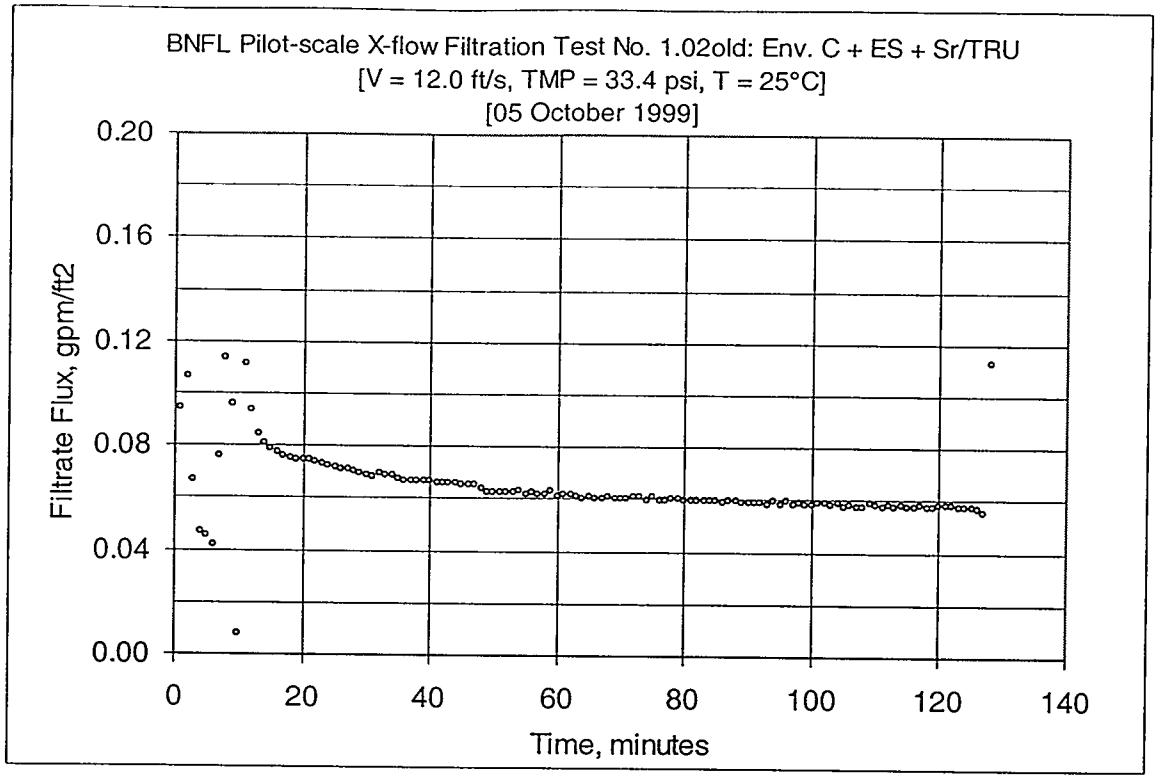
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
86	10/5/1999	1:09:10 PM	0	27,756	21,878	27,344	23,535	22,272	30,235	57,485	64 632	6,663	51,344	6,724	-0 028	28 689	0.43	0.395	72	33	12 0	54 4	3 751	0.173	0 162	0.003	2 978	2 5
87	10/5/1999	1:09:11 PM	0	27,756	21,878	27,344	23,535	22,272	30,155	57,155	64,327	6 599	51,75	6 694	-0 028	28 828	0 427	0 393	73	34	12 0	54 5	3 754	0 172	0 161	0 003	2 951	2 5
88	10/5/1999	1:09:12 PM	0	27,756	21,878	27,344	23,535	22,272	30,235	58,209	65,364	6 647	51,175	6 663	-0 075	28 828	0 424	0.39	74	35	12 0	54 7	3 771	0 170	0 159	0 003	2 918	2 5
89	10/5/1999	1:09:14 PM	0	27,711	21 833	27,379	23 41	22,227	30,19	57,403	64 51	6,719	51,919	6 663	-0 028	28 812	0,417	0,381	75	36	12 0	54,7	3 769	0,166	0 156	0 003	2 847	2 4
90	10/5/1999	1:09:15 PM	0	27,756	21 878	27,423	23,535	22,272	30,235	57,279	64,449	6 679	51,445	6 632	-0 028	28 874	0 413	0,375	76	37	12 0	54 4	3 748	0,164	0 153	0 003	2 814	2 4
91	10/5/1999	1:09:15 PM	0	27,756	21 878	27,423	23 455	22,191	30,235	57,651	64,876	6,599	51,648	6 632	-0 028	28 858	0 409	0,369	77	38	12 0	54 6	3 766	0,161	0,151	0 003	2 755	2 3
92	10/5/1999	1:09:16 PM	0	27 836	21,797	27,344	23,455	22,272	30,235	57,465	64,327	6 679	51,817	6 632	-0 028	28 828	0 404	0,368	78	39	12 0	54 6	3,767	0,160	0,150	0 003	2 739	2 3
93	10/5/1999	1:09:18 PM	0	27,756	21 878	27,344	23,455	22,272	30,235	57,403	64,51	6 687	51,378	6 632	-0 075	28 828	0 401	0,362	79	40	12 0	54 4	3 750	0,158	0,148	0 003	2 721	2 3
94	10/5/1999	1:09:19 PM	0	27,756	21,878	27,344	23,455	22,272	30,314	57,775	65,12	6,671	51,513	6 663	-0 028	28,786	0,397	0,358	80	41	11,9	54 6	3,768	0,155	0 146	0 003	2 684	2 3
95	10/5/1999	1:09:20 PM	0	27,756	21,878	27,344	23,455	22,191	30,155	57,961	65,242	6,655	51,547	6 632	-0 075	28,766	0 393	0,359	81	42	11 9	54 8	3 775	0 157	0 147	0 003	2 681	2 3
96	10/5/1999	1:09:21 PM	0	27,756	21,797	27,344	23,455	22,272	30,235	57,837	65 059	6 695	51,648	6 663	-0,028	28,812	0,388	0,353	82	43	12 0	54,7	3,774	0,154	0 144	0 003	2 637	2 2
97	10/5/1999	1:09:22 PM	0	27,756	21,878	27,423	23,455	22,191	30,314	57,527	64,632	6 679	51,411	6 663	-0 075	28 874	0,364	0,347	83	44	12 0	54,5	3 755	0 151	0 142	0 003	2 599	2 2
98	10/5/1999	1:09:23 PM	0	27,756	21 878	27,344	23,455	22,272	30,235	58,147	65 486	6,711	52,29	6 663	-0 028	28 828	0,38	0 341	84	45	12 0	55 2	3 807	0,149	0,139	0 003	2 525	2 1
99	10/5/1999	1:09:24 PM	0	27,756	21 878	27,344	23,455	22,191	30,314	58 659	63,656	6,695	51,107	6 663	-0 075	28,997	0,377	0 341	85	46	12 0	53,9	3 715	0,149	0,139	0 003	2 588	2 2
100	10/5/1999	1:09:25 PM	0	27,756	21,878	27,344	23,455	22,191	30,314	57,465	64 693	6,727	51,445	6 663	-0 028	28 843	0,374	0,341	86	47	12 0	54 5	3,754	0,149	0,139	0 003	2 560	2 2
101	10/5/1999	1:09:26 PM	0	27,756	21,878	27,344	23,455	22,191	30,314	58,147	65 486	6,671	51,783	6 694	-0 075	28 858	0 371	0,332	87	48	12 0	55 0	3 790	0,145	0 136	0 002	2 470	2 1
102	10/5/1999	1:09:28 PM	0	27,756	21,878	27,344	23,535	22,191	30,314	58,333	65 669	6,663	51,682	6 694	-0 028	28 828	0 366	0 332	88	49	12 0	55 0	3,793	0 145	0 136	0 002	2 468	2 1
103	10/5/1999	1:09:29 PM	0	27,756	21,878	27,344	23,453	22,191	30,314	57,899	65,364	6,735	51,479	6,694	-0 075	28 812	0,364	0,323	89	50	12 0	54 7	3,771	0,141	0,132	0 002	2 415	2 1
104	10/5/1999	1:09:29 PM	0	27,756	21 878	27,344	23,453	22,191	30,314	58,147	65,425	6,759	51,648	6,724	-0 075	28 843	0,361	0 323	90	51	12 0	54,9	3,785	0 141	0 132	0 002	2 406	2 0
105	10/5/1999	1:09:30 PM	0	27,756	21 878	27,423	23,455	22,272	30,394	58,333	65 608	6,655	52 02	6,724	-0 075	28 828	0,36	0,32	91	52	12 0	55 2	3 804	0,140	0,131	0 002	2 366	2 0
106	10/5/1999	1:09:32 PM	0	27,756	21 878	27,344	23,455	22,191	30,314	57,713	64,998	6,639	51,547	6,724	-0 075	28 768	0 357	0 32	92	53	11,9	54 6	3 767	0,140	0,131	0 002	2 395	2 0
107	10/5/1999	1:09:33 PM	0	27,756	21,878	27,344	23,535	22,191	30,314	58 581	66 034	6,599	52,121	6 724	-0 028	28 674	0 354	0 317	93	54	11,9	55 4	3 816	0,138	0,130	0 002	2 342	2 0
108	10/5/1999	1:09:34 PM	0	27,756	21,878	27 344	23,455	22,191	30 394	57,961	65,242	6,687	51,513	6,724	-0 075	28,72	0 348	0 308	94	55	11,9	54,7	3,774	0,134	0,126	0 002	2 301	2 0
109	10/5/1999	1:09:35 PM	0	27,756	21,878	27,344	23,455	22,191	30,314	57,527	64 815	6 639	51,682	6,753	-0 075	28 797	0 348	0 314	95	56	12 0	54 6	3,785	0 137	0 128	0 002	2 351	2 0
110	10/5/1999	1:09:36 PM	0	27,756	21,878	27,344	23,455	22,191	30 394	57,527	64,693	6,719	51,479	6,753	-0 075	28,797	0 348	0 314	96	57	12 0	54 5	3 758	0 137	0 128	0 002	2 356	2 0
111	10/5/1999	1:09:37 PM	0	27,756	21,797	27,344	23,455	22,191	30,394	57,403	64,754	6,735	51,445	6 753	-0 028	28,812	0 341	0 308	97	58	12 0	54 4	3 752	0,134	0 126	0 002	2 314	2 0
112	10/5/1999	1:09:38 PM	0	27,756	21,878	27,344	23,455	22,191	30,394	57,775	65 059	6,711	50 871	6,755	-0 028	28,797	0 336	0 302	98	59	12 0	54,3	3 745	0 132	0 123	0 002	2 273	1 9
113	10/5/1999	1:09:39 PM	0	27,756	21,878	27,344	23,453	22,191	30,394	57,713	65 059	6 687	51,141	6 786	-0 028	28,797	0 336	0 305	99	60	12 0	54 4	3,753	0,133	0,125	0 002	2 291	1 9
114	10/5/1999	1:09:40 PM	0	27,756	21,878	27,344	23,455	22,191	30,394	57,651	64 876	6,743	51,073	6,786	-0 075	28,768	0 334	0 295	100	61	11,9	54,4	3,748	0,129	0,121	0 002	2 219	1 9
115	10/5/1999	1:09:42 PM	0	27,756	21,878	27,344	23,535	22,191	30,394	58 085	65 486	6 663	51,378	6,786	-0 028	28 828	0,334	0,305	101	62	12,0	54 7	3 774	0 133	0,125	0 002	2 279	1 9
116	10/5/1999	1:09:42 PM	0	27,836	21,878	27,344	23,455	22,191	30,394	57,589	64,937	6,759	51,479	6,786	-0,075	28 812	0,334	0 299	102	63	12,0	54 5	3,780	0,131	0,122	0 002	2 242	1 9
117	10/5/1999	1:09:43 PM	0	27,756	21,878	27,344	23,455	22,191	30 473	57,341	64,754	6,727	51,445	6,786	-0 028	28,736	0,332	0 302	103	64	11,9	54,4	3 750	0,132	0 123	0 002	2 270	1 9
118	10/5/1999	1:09:44 PM	0	27,756	21 878	27,344	23,455	22,191	30,394	57,279	64 571	6,767	51,31	6 786	-0 028	28,797	0 332	0 295	104	65	12,0	54,3	3 743	0,129	0,121	0 002	2 222	1 9
119	10/5/1999	1:09:46 PM	0	27,676	21,878	27,344	23,455	22,191	30,394	57,589	64,937	6,775	51,966	6,786	-0 028	28,736	0 329	0 295	105	66	11,9	54 8	3,777	0,129	0 121	0 002	2 202	1,9
120	10/5/1999	1:09:47 PM	0	27,756	21,878	27,344	23,455	22,191	30,394	57,465	64,998	6 687	51,682	6,786	-0 075	28 812	0 328	0 299	106	67	12 0	54,6	3,763	0,131	0,122	0 002	2 240	1 9
121	10/5/1999	1:09:48 PM	0	27,756	21,878	27,344	23,455	22,191	30 473	57,651	64,998	6,799	51,175	6,786	-0 028	28 858	0,325	0 298	107	68	12 0	54 4	3 752	0 125	0 117	0 002	2 149	1 8
122	10/5/1999	1:09:49 PM	0	27,756	21,878	27,344	23,455	22,191	30 473	57,713	64,937	6,806	51,547	6,786	-0 028	28,812	0 323	0,292	108	69	12 0	54 6	3 767	0 127	0,119	0 002	2 185	1 9
123	10/5/1999	1:09:50 PM	0	27,756	21,878	27,344	23,455	22,191	30,473	57,403	64,815	6,727	50,871	6,786	-0 028	28,751	0,321	0 286	109	70	11 9	54 1	3 733	0,125	0 117	0 002	2,160	1 8
124	10/5/1999	1:09:51 PM	0	27,756	21,878	27,344	23,455	22,191	30 473	57,899	65 364	6,719	51,648	6,817	-0,028	28,751	0 32	0 28	110	71	11,9	54 8	3,776	0,122	0,114	0 002	2 090	1 8
125	10/5/1999	1:09:52 PM	0	27,756	21,878	27,344	23,455	22,191	30,473	57,899	65,12	6,782	51,547	6,786	-0 075	28 828	0 319	0 286	111	72	12 0	54,7	3 773	0,125	0 117	0 002	2 137	1 8
126	10/5/1999	1:09:53 PM	0	27,756	21,878	27,344	23 455	22,191	30,394	57,217	64,51	6 703	50,904	6 817	-0 028	28,751	0,318	0 283	112	73	11,9	54 1	3,727	0,124	0 116	0 002	2,140	1,8
127	10/5/1999	1:09:54 PM	0	27,756	21,878	27,344	23,455	22,191	30 473	57,403	64 632	6,79	51,006	6 817	-0 028	28 628	0 316	0 28	113	74	11,9	54 2	3 737	0,122	0 114	0 002	2 112	1 8
128	10/5/1999	1:09:56 PM	0	27,601	21,923	27,368	23 5	22,156	30 518	57,403	64,754	6 655	51,445	6 817	-0 028	28,782	0 314	0 283	114	75	11,9	54 4	3 752	0,124	0 116	0 002	2 124	1 8
129	10/5/1999	1:09:57 PM	0	27,601	21,923	27,368	23 5	22,156	30 518	57,527	64 937	6,782	51,783	6 817	-0 028	28 751	0 312	0 277	115	76	11,9	54,7	3 766	0,121	0 113	0 002	2 074	1 8
130	10/5/1999	1:09:57 PM	0	27,756	21,878	27,264	23 455	22,111	30,473	57,465	64,754	6,727	51,344	6 817	-0 028	28 812	0 311	0 277	116	77	12 0	54 4	3 751	0,121	0,114	0 002	2 088	1 8
131	10/5/1999	1:09:58 PM	0	27,756	21,797	27,344	23 455	22,111	30,473	57,589	64,937	6,743	51,073	6 848	-0,028	28,766	0 311	0 277	117	78	11 9	54 3	3,746	0,121	0,113	0 002	2 085	1,8
132	10/5/1999	1:10:00 PM	0	27,601	21,842	27,308	23 5	22,156	30 518	56 845	64 205	6 695	51,445	6 848	-0 028	28 751	0,308	0 277	118	79	11,9	54 1	3 733	0 121	0 113	0 002	2 094	1 8
133	10/5/1999	1:10:01 PM	0	27 676	21,797	27 264	23,455	22,111	30,473	57,899	65,303	6,735	51,378	6,848	-0 028	28,782	0 307	0 277	119	80	11,9	54 6	3,767	0 121	0,114	0 002	2 077	1,8
134	10/5/1999	1:10:02 PM	0	27,756	21,878	27,264	23,455	22,111	30 473	57,341	64,937	6,79	51,276	6 848	-0 075	28,782	0,306	0 274	120	81	11,9	54 3	3 744	0 120	0 112	0 002	2 067	1,8
135	10/5/1999	1:10:03 PM	0	27,601	21,923	27,368	23 5	22,156	30 518	57,279	64,815	6,671	51,31	6 848	-0 075	28,766	0 304	0 271	121	82	11,9	54 3	3 743	0,118	0 111	0 002	2 038	1,7
136	10/5/1999	1:10:04 PM	0	27,756	21,878	27,344	23,455	22,111	30,473	57,589	65,059	6,751	51,411	6 878	-0 028	28,766	0 304	0 28	122	83	11,9	54 5	3 758	0,122	0 114	0 002	2 101	1 8
137	10/5/1999	1:10:05 PM	0	27,721	21,842	27,368	23 5	22,156	30 518	57,279	64 632	6,751	51,141	6 878	-0 028	28 751	0,302	0 274	123	84	11,9	54 2	3 738	0,120	0 112	0 002	2 064	1,8
138	10/5/1999	1:10:06 PM	0	27,756	21,878	27,264	23 455	22 111	30,473	56,783	64,144	6 719	50 938	6 878	-0 028	28,751	0,301	0 268	124	85	11,9	53 9	3 713	0,117	0 110	0 002	2 039	1,7
139	10/5/1999	1:10:07 PM	0	27,756	21,878	27,344	23,455	22,111	30,473	57,837	65,303	6 814	51,242	6,878	-0 075	28,797	0,3	0 268	125	86	12 0	54 5	3 780	0,117	0 110	0 002	2 009	1,7
140	10/5/1999	1:10:09 PM	0	27,756	21,878	27,264	23,455	22,111	30,473	57,589	65 242	6 806	51,479	6 878	-0 075	28 797	0 299	0 268	126	87	12 0	54 5	3,760	0,117	0,110	0 002	2 014	1,7
141	10/5/1999	1:10:10 PM	0	27,601	21,923	27,368	23,5	22,156	30,597	57,465	64,937	6,751	51,175	6,909	-0 028	28,766	0,299	0,265	127	88	11,9	54,3	3 745	0,116	0,108	0 002	1,992	1,7
142	10/5/1999	1:10:10 PM	0	27,756	21,797	27,264	23,455	22,111	30,553	57,403	64,876	6 775	51,378	6,909	-0 075	28,689	0 297	0 268	128	89	11,9	54,4	3 750	0,117	0,110	0 002	2 019	1,7
143	10/5/1999	1:10:11 PM	0	27,756	21,878	27,264	23,455	22,111	30,553	57,341	64,632	6,79	51,006	6,909	-0 028	28 689	0 297	0 268	129	90	11,9	54 2	3 735	0 117	0 110	0 002	2 027	1,7
144	10/5/1999	1:10:12 PM	0	27,756	21,878	27,264	23,455	22,111	30 553	58 085	65,486	6,727	51,478	6,909	-0 075	28,705	0 296	0,265	130	91	11,9	54 8	3 777	0,116	0,109	0 002	1,982	1,7
145	10/5/1999	1:10:14 PM	0	27,676	21,797	27,264	23,455	22,111	30,553	57,403	64,876	6,743	51,073	6,909	-0 028	28,766	0 294	0 265	131	92	11,9	54 2	3,740	0,116	0,109	0 002	2 002	1,7
146	10/5/1999	1:10:15 PM	0	27,676	21,878	27,264	23,455	22,111	30 553	57,403	64 998	6,798	51,107	6 909	-0 028	28 782	0 293	0 262	132	93	11,9	54 3	3,741	0,114	0 107	0 002	1,979	1,7
147	10/5/1999	1:10:16 PM	0	27,756	21,797	27,264	23,455	22,111	30 553	57,279	64,754	6,759	51,141	6,909	-0 028	28 797	0 293	0 258	133	94	12 0	54 2	3,738	0,113	0 106	0 002	1,956	1,7
148	10/5/1999	1:10:17 PM	0	27,601	21,842	27,368	23 5	22,156	30 597	57,715	65,242	6,759	51,919	6 909	-0 075	28,782	0 292	0 262	134	95	11 9	54 8	3,779	0,114	0,107	0 002	1,952	1,7
149	10/5/1999	1:10:18 PM	0	27,601	21,923	27,308	23 5	22,156	30,597	57,837	65 059	6,79	51,107	6,909	-0 075	28,751	0 292	0,262	135	96	11 9	54 5	3,756	0,114	0,107	0 002	1,969	1,7
150																												
151		Averages		27,8	21,8	27,3	23,5	22,2	30,3	57,3	64,8	6,7	51,2	6 9	0 0	28 9	0,422	0,384			12 0	54 3	3 7	0 168	0,127	0 003	2 896	2 5
152		Maximum		27,9	22 0	27,4	23 5	22,4	30,8	59,1	66 0	6 8	52,6	12,8	0 0	29,3	0 671	0 628			12,1	55 4	3 8	0 361	0 338	0 007	6 609	5 6
153		Median		27 8	21,9	27,3	23 5	22 2	30,3	57,5	64 9	6,7	51,4	6 9	0 0	28 8	0,365	0,328			12 0	54 5	3 8	0,143	0 134	0 002	2 441	2,1
154		Minimum		27,6	21,8	27,3	23,4	22,1	30 0	50,1	63 2	6,3	44 6	5 7	-0 1	28 6	0,188	0 009			11,9	47,3	3 3	0 004	0 004	0 000	0 078	0,1
155		Std Deviation		0 0	0 0	0 0	0 0	0,1	0 2	1,1	0 5	0 1	1,1	0 9	0 0	0 1	0,149	0,148			0 1	1,1	0 1	0 065	0 060	0 001	1,180	1 0
156		Number of Points Used		96	96	96	96	96	96	96	96	96	96	96	96	96	96	96			96	96	96	96	96	96	96	96
157																												
158	Data - Per Minute																											
159	10/5/1999	1:10:25 PM	0	27,676	21,797	27,264	23,455	22,111	30 632	57,527	64 998	6 848	51,445	6 909	-0 028	28,766	0 286	0 256	1	1	11,9	54,5	3 757	0 125	0 117	0 002	2,151	1,8
160	10/5/1999	1:11:25 PM	1	27,561	21,842	27,308	23,419	21,834	30,756	4,774	64,998	8 088	-0,755	59,391	67,259	28 689	0 019	-0 018	2	2	11,9	2 0	0 139	0 009	0 005	0 004	3 670	3 3
161	10/5/1999	1:12:26 PM	0	27,841	21,923	27,149	23,419	21,673	30 636	57,589	65 059	6 623	51 617	6,766	-0 028	28,782	0 418	0,381	3	1	11,9	54,7	3,772	0,182	0 172	0 003	3 141	2,7
162	10/5/1999	1:13:26 PM	0	27 606	21,888	27,194	23 384	21 557	31,118	58 209	65,791	6 655	51,851	6 971	-0 028	28 426	0 293	0 268	4	2	11 8	55 0	3 794	0,128	0 120	0 002	2,186	1 9
163	10/5/1999	1:14:26 PM	0	27,606	21,888	27,034	23,304	21,557	31,277	57,527	65,12	6 711	51,58	7,063	-0,028	28,382	0,255	0,231	5	3	11 8	54 6	3 781	0 111	0 103	0 002	1,928	1,6
164	10/5/1999	1:15:27 PM	0	27,526	21,888	27,034	23 223	21,477	31,356	57,899	65 669	6,711	52,088	7,156	-0 075	28 382	0 24	0 222	6	4	11 6	55 0	3 792	0,105	0 099	0 002	1,800	1,5
165	10/5/1999	1:16:27 PM	0	27,526	21,888	27,034	23,223	21,396	31,436	58,147	65 912	6 631	52,493	7,248	-0 075	28 336	0 232	0 21	7	5	11 6	55 3	3 814	0,101	0 096	0 002	1,730	1,5
166	10/5/1999	1:17:27 PM	0	27,446	21,888	26,954	23,223	21,315	31,277	57,775	65,547	6 667	51,344	7,248	-0 028	28 229	0 225	0 204	8	6	11 7	54 6	3 762	0 096	0 093	0 002	1,705	1,5
167	10/5/1999	1:18:28 PM	0	27,446	21,888	26 874	23 223	21,396	31,436	57,961	65,73	6 679	52,358	7,279	-0 028	28 29	0,22	0 201	9	7	11,7	55 2	3 803	0 096	0 091	0 002	1 652	1,4
168	10/5/1999	1:19:28 PM	0	27,446	21,888	26 874	23,223	21,235	31,595	58 085	66 095	6,575	51 651	7,279	-0 028	28 29	0,215	0 195	10	8	11,7	55 0	3 790	0 094	0 089	0 002	1 620	1,4
169	10/5/1999	1:20:28 PM	0	27,366	21,888	26 874	23,143	21,235	31,515	58 023	65 791	6 671	52,223	7,31	-0 075	28,275	0,212	0,192	11	9	11,7	55 1	3 801	0 093	0 088	0 002	1 593	1,4
170	10/5/1999	1:21:29 PM	0	27,322	21 923	26 829	23 096	21,026	31,55	57 837	65 547	6 615	51,919	7,31	-0 075	28 244	0 21	0 189	12	10	11 7	54 9	3 784	0 092	0 087	0 002	1 587	1 4

Run 1.01(old): 2 wt% Concentration of Insoluble Solids

	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	10/5/1999	1:22:29 PM	0	27.366	21.958	26.794	23.143	21.154	31.674	58.581	66.522	6.703	52.155	7.31	-0.075	28.196	0.206	0.186	13	11	11.7	55.4	3.817	0.090	0.086	0.002	1.545	1.3
172	10/5/1999	1:23:29 PM	0	27.322	21.923	26.749	23.017	21.028	31.471	58.457	66.339	6.691	52.054	7.31	-0.028	28.213	0.205	0.186	14	12	11.7	55.3	3.810	0.089	0.085	0.002	1.542	1.3
173	10/5/1999	1:24:30 PM	0	27.242	21.923	26.67	23.017	21.028	31.55	57.899	65.647	6.659	52.899	7.31	-0.028	28.136	0.204	0.183	15	13	11.7	55.4	3.820	0.089	0.085	0.002	1.534	1.3
174	10/5/1999	1:25:30 PM	0	27.242	21.923	26.749	23.017	20.948	31.471	58.705	66.461	6.691	52.324	7.31	-0.075	28.075	0.202	0.186	16	14	11.7	55.5	3.828	0.088	0.084	0.002	1.513	1.3
175	10/5/1999	1:26:30 PM	0	27.197	21.878	26.705	23.053	20.903	31.664	58.829	66.705	6.691	52.527	7.279	-0.075	28.06	0.199	0.177	17	15	11.6	55.7	3.839	0.087	0.083	0.001	1.488	1.3
176	10/5/1999	1:27:31 PM	0	27.117	21.958	26.625	22.972	20.963	31.188	58.953	66.627	6.487	52.561	7.279	-0.075	28.014	0.198	0.174	18	16	11.6	55.8	3.844	0.086	0.083	0.001	1.481	1.3
177	10/5/1999	1:28:31 PM	0	27.072	21.913	26.58	23.088	21.18	30.965	58.829	66.644	6.583	52.493	7.248	-0.075	28.121	0.196	0.177	19	17	11.7	55.7	3.838	0.086	0.082	0.001	1.471	1.3
178	10/5/1999	1:29:31 PM	0	27.072	21.913	26.58	23.088	21.261	30.965	57.899	65.791	6.423	52.561	7.279	-0.075	28.075	0.196	0.177	20	18	11.7	55.2	3.808	0.086	0.082	0.001	1.462	1.3
179	10/5/1999	1:30:32 PM	0	27.197	21.958	26.625	23.294	21.386	30.95	58.395	66.034	6.583	52.831	7.279	-0.075	28.075	0.195	0.177	21	19	11.7	55.6	3.834	0.085	0.081	0.001	1.463	1.2
180	10/5/1999	1:31:32 PM	0	27.072	21.913	26.58	23.249	21.502	30.826	58.519	66.4	6.559	52.121	7.279	-0.075	28.06	0.194	0.174	22	20	11.6	55.3	3.814	0.085	0.081	0.001	1.453	1.2
181	10/5/1999	1:32:32 PM	0	26.993	21.913	26.58	23.329	21.583	30.667	58.953	66.766	6.583	52.561	7.248	-0.075	28.075	0.192	0.171	23	21	11.7	55.6	3.844	0.084	0.080	0.001	1.438	1.2
182	10/5/1999	1:33:33 PM	0	26.993	21.994	26.58	23.41	21.583	30.588	58.705	66.044	6.583	52.629	7.279	-0.028	28.044	0.191	0.168	24	22	11.6	55.7	3.838	0.083	0.080	0.001	1.433	1.2
183	10/5/1999	1:34:33 PM	0	26.993	21.913	26.5	23.41	21.663	30.588	58.581	66.4	6.599	52.73	7.279	-0.075	28.136	0.19	0.168	25	23	11.7	55.7	3.837	0.083	0.080	0.001	1.429	1.2
184	10/5/1999	1:35:33 PM	0	26.993	21.913	26.5	23.41	21.744	30.429	59.449	67.437	6.551	52.764	7.248	-0.075	28.09	0.188	0.168	26	24	11.7	56.1	3.868	0.082	0.079	0.001	1.403	1.2
185	10/5/1999	1:36:34 PM	0	27.037	22.039	26.465	23.615	21.95	30.473	59.077	66.886	6.551	52.629	7.248	-0.028	28.121	0.187	0.168	27	25	11.7	55.9	3.851	0.082	0.078	0.001	1.403	1.2
186	10/5/1999	1:37:34 PM	0	26.957	21.958	26.545	23.615	22.03	30.394	58.953	66.827	6.511	52.933	7.248	-0.075	28.09	0.185	0.164	28	26	11.7	55.9	3.857	0.081	0.077	0.001	1.382	1.2
187	10/5/1999	1:38:34 PM	0	26.957	21.958	26.465	23.776	22.111	30.235	58.767	66.644	6.559	53	7.248	-0.075	28.136	0.184	0.161	29	27	11.7	55.9	3.853	0.080	0.077	0.001	1.380	1.2
188	10/5/1999	1:39:35 PM	0	26.957	21.958	26.465	23.776	22.111	29.996	58.643	66.217	6.567	52.324	7.217	-0.028	28.09	0.184	0.164	30	28	11.7	55.5	3.825	0.080	0.077	0.001	1.369	1.2
189	10/5/1999	1:40:35 PM	0	26.877	21.958	26.385	23.856	22.191	30.155	58.457	66.156	6.559	52.561	7.217	-0.028	28.152	0.183	0.164	31	29	11.7	55.5	3.827	0.080	0.077	0.001	1.364	1.2
190	10/5/1999	1:41:35 PM	0	26.922	22.003	26.43	23.961	22.317	30.2	58.147	65.791	6.479	52.493	7.217	-0.075	28.106	0.183	0.164	32	30	11.7	55.3	3.814	0.080	0.077	0.001	1.367	1.2
191	10/5/1999	1:42:36 PM	0	26.842	21.923	26.43	23.961	22.397	30.12	59.077	66.827	6.495	52.73	7.248	-0.075	28.075	0.182	0.158	33	31	11.7	55.9	3.854	0.079	0.076	0.001	1.365	1.2
192	10/5/1999	1:43:36 PM	0	26.887	21.968	26.475	24.107	22.523	30.006	59.139	66.827	6.535	52.831	7.217	-0.075	27.983	0.181	0.158	34	32	11.6	56.0	3.860	0.079	0.076	0.001	1.354	1.2
193	10/5/1999	1:44:36 PM	0	26.887	21.968	26.395	24.107	22.523	30.006	58.953	66.705	6.543	52.796	7.248	-0.075	27.963	0.181	0.161	35	33	11.6	55.9	3.852	0.079	0.076	0.001	1.360	1.2
194	10/5/1999	1:45:37 PM	0	26.852	22.013	26.439	24.232	22.648	30.05	59.077	66.522	6.519	53.541	7.217	-0.075	27.921	0.18	0.161	36	34	11.6	56.3	3.882	0.079	0.075	0.001	1.340	1.1
195	10/5/1999	1:46:37 PM	0	26.852	22.013	26.36	24.232	22.568	29.971	59.077	66.949	6.559	52.324	7.217	-0.075	27.998	0.179	0.158	37	35	11.6	55.7	3.840	0.078	0.075	0.001	1.350	1.1
196	10/5/1999	1:47:37 PM	0	26.817	22.058	26.404	24.357	22.613	30.254	58.395	66.217	6.447	53.034	7.217	-0.075	28.06	0.178	0.155	38	36	11.6	55.7	3.841	0.078	0.075	0.001	1.341	1.1
197	10/5/1999	1:48:38 PM	0	26.817	21.978	26.404	24.277	22.533	30.572	59.263	66.949	6.511	52.967	7.217	-0.075	27.968	0.177	0.155	39	37	11.6	56.1	3.869	0.077	0.074	0.001	1.324	1.1
198	10/5/1999	1:49:38 PM	0	26.862	22.103	26.369	24.242	22.417	30.775	58.767	66.766	6.503	51.986	7.217	-0.028	28.014	0.176	0.155	40	38	11.6	55.4	3.816	0.077	0.074	0.001	1.335	1.1
199	10/5/1999	1:50:38 PM	0	26.827	22.149	26.414	24.206	22.301	30.979	58.643	66.156	6.567	53.271	7.187	-0.075	27.998	0.176	0.155	41	39	11.6	56.0	3.858	0.077	0.074	0.001	1.320	1.1
200	10/5/1999	1:51:39 PM	0	26.827	22.068	26.414	24.206	22.14	31.058	58.147	65.852	6.519	52.933	7.187	-0.075	28.029	0.175	0.155	42	40	11.6	55.5	3.829	0.076	0.073	0.001	1.322	1.1
201	10/5/1999	1:52:39 PM	0	26.827	22.068	26.334	24.126	21.979	31.376	59.263	66.949	6.591	53.034	7.187	-0.028	28.136	0.174	0.152	43	41	11.7	56.1	3.871	0.076	0.073	0.001	1.303	1.1
202	10/5/1999	1:53:39 PM	0	26.747	22.068	26.334	24.126	21.979	31.376	59.325	67.183	6.591	52.865	7.187	-0.028	28.06	0.174	0.152	44	42	11.6	56.1	3.868	0.076	0.073	0.001	1.304	1.1
203	10/5/1999	1:54:40 PM	0	26.792	22.113	26.299	24.081	21.884	31.579	58.705	66.461	6.447	53	7.156	-0.075	28.06	0.172	0.152	45	43	11.6	55.9	3.851	0.075	0.072	0.001	1.296	1.1
204	10/5/1999	1:55:40 PM	0	26.792	22.113	26.379	24.081	21.884	31.579	59.139	66.766	6.543	53	7.187	-0.028	28.044	0.172	0.149	46	44	11.6	56.1	3.866	0.075	0.072	0.001	1.288	1.1
205	10/5/1999	1:56:40 PM	0	26.792	22.113	26.299	24.011	21.783	31.658	59.139	66.888	6.535	52.796	7.156	-0.075	28.014	0.171	0.152	47	45	11.6	56.0	3.859	0.075	0.072	0.001	1.288	1.1
206	10/5/1999	1:57:41 PM	0	26.747	22.068	26.334	23.968	21.738	31.614	58.705	66.522	6.559	52.392	7.187	-0.028	28.121	0.171	0.149	48	46	11.7	55.5	3.830	0.075	0.072	0.001	1.295	1.1
207	10/5/1999	1:58:41 PM	0	26.792	22.113	26.299	24.011	21.783	31.738	58.643	66.583	6.519	53.068	7.156	-0.075	28.014	0.171	0.152	49	47	11.6	55.9	3.851	0.075	0.072	0.001	1.289	1.1
208	10/5/1999	1:59:41 PM	0	26.747	22.068	26.334	23.885	21.496	31.852	58.891	66.583	6.583	53	7.156	-0.075	28.075	0.17	0.149	50	48	11.7	55.9	3.857	0.074	0.071	0.001	1.278	1.1
209	10/5/1999	2:00:42 PM	0	26.792	22.194	26.299	23.93	21.622	31.656	59.201	66.827	6.495	53.372	7.187	-0.075	28.014	0.17	0.149	51	49	11.6	56.3	3.881	0.074	0.072	0.001	1.271	1.1
210	10/5/1999	2:01:42 PM	0	26.792	22.194	26.299	23.93	21.622	31.738	58.643	66.522	6.527	52.899	7.187	-0.075	28.029	0.17	0.149	52	50	11.6	55.8	3.845	0.074	0.072	0.001	1.283	1.1
211	10/5/1999	2:02:42 PM	0	26.747	22.149	26.254	23.885	21.496	31.693	59.016	66.766	6.455	52.629	7.156	-0.028	27.998	0.169	0.149	53	51	11.6	55.8	3.849	0.074	0.071	0.001	1.276	1.1
212	10/5/1999	2:03:43 PM	0	26.747	22.149	26.334	23.885	21.496	31.852	59.201	67.62	6.575	53.136	7.156	-0.028	27.952	0.168	0.149	54	52	11.6	56.5	3.894	0.073	0.071	0.001	1.251	1.1
213	10/5/1999	2:04:43 PM	0	26.747	22.149	26.254	23.885	21.496	31.773	58.953	66.644	6.567	53	7.156	-0.028	28.014	0.167	0.146	55	53	11.6	56.0	3.859	0.073	0.070	0.001	1.257	1.1
214	10/5/1999	2:05:43 PM	0	26.747	22.229	26.254	23.885	21.496	31.852	58.767	66.461	6.487	53.271	7.125	-0.075	28.044	0.166	0.143	56	54	11.6	56.0	3.862	0.072	0.070	0.001	1.249	1.1
215	10/5/1999	2:06:44 PM	0	26.702	22.184	26.269	23.921	21.37	31.807	58.581	66.095	6.479	52.899	7.125	-0.028	27.968	0.167	0.146	57	55	11.6	55.7	3.843	0.073	0.070	0.001	1.261	1.1
216	10/5/1999	2:07:44 PM	0	26.702	22.184	26.269	23.921	21.451	31.849	58.511	67.315	6.511	53.372	7.125	-0.075	27.968	0.166	0.143	58	56	11.6	56.4	3.891	0.072	0.070	0.001	1.238	1.1
217	10/5/1999	2:08:44 PM	0	26.702	22.184	26.269	23.84	21.37	31.849	58.519	66.095	6.535	53	7.125	-0.075	27.998	0.166	0.143	59	57	11.6	55.8	3.844	0.072	0.070	0.001	1.253	1.1
218	10/5/1999	2:09:45 PM	0	26.737	22.139	26.244	23.795	21.406	31.823	59.449	67.193	6.479	53.169	7.125	-0.028	27.998	0.165	0.143	60	58	11.6	56.3	3.882	0.072	0.070	0.001	1.235	1.1
219	10/5/1999	2:10:45 PM	0	26.737	22.219	26.244	23.795	21.486	31.287	58.891	66.766	6.479	52.831	7.125	-0.075	27.968	0.164	0.143	61	59	11.6	55.9	3.851	0.072	0.069	0.001	1.238	1.1
220	10/5/1999	2:11:45 PM	0	26.737	22.219	26.244	23.875	21.567	31.128	59.021	67.559	6.543	53.034	7.094	-0.075	27.998	0.163	0.146	62	60	11.6	56.4	3.890	0.072	0.070	0.001	1.233	1.0
221	10/5/1999	2:12:46 PM	0	26.692	22.174	26.2	23.83	21.683	30.925	58.891	66.583	6.535	53.237	7.125	-0.028	28.029	0.164	0.14	63	61	11.6	56.1	3.865	0.072	0.069	0.001	1.235	1.1
222	10/5/1999	2:13:47 PM	0	26.692	22.174	26.2	23.911	21.763	30.845	59.015	66.766	6.455	53.541	7.094	-0.075	27.937	0.163	0.14	64	62	11.6	56.3	3.880	0.071	0.069	0.001	1.223	1.0
223	10/5/1999	2:14:48 PM	0	26.692	22.174	26.2	23.911	21.924	30.688	59.387	67.132	6.567	53.271	7.125	-0.028	27.952	0.163	0.14	65	63	11.6	56.3	3.884	0.071	0.069	0.001	1.221	1.0
224	10/5/1999	2:15:47 PM	0	26.612	22.174	26.2	24.071	22.085	30.607	59.139	66.827	6.519	53.474	7.094	-0.075	28.06	0.163	0.14	66	64	11.6	56.3	3.882	0.071	0.069	0.001	1.222	1.0
225	10/5/1999	2:16:47 PM	0	26.692	22.255	26.2	24.071	22.166	30.607	58.891	66.461	6.495	53.271	7.063	-0.028	28.014	0.162	0.14	67	65	11.6	56.1	3.867	0.071	0.068	0.001	1.219	1.0
226	10/5/1999	2:17:48 PM	0	26.692	22.174	26.2	24.071	22.166	30.448	59.263	66.827	6.535	53.541	7.063	-0.028	27.998	0.162	0.143	68	66	11.6	56.4	3.889	0.071	0.068	0.001	1.212	1.0
227	10/5/1999	2:18:48 PM	0	26.657	22.219	26.244	24.197	22.291	30.254	58.643	66.278	6.511	53.677	7.094	-0.075	27.998	0.162	0.14	69	67	11.6	56.2	3.872	0.071	0.068	0.001	1.216	1.0
228	10/5/1999	2:19:48 PM	0	26.577	22.219	26.165	24.277	22.372	30.254	59.015	66.522	6.479	53.203	7.094	-0.028	27.998	0.161	0.143	70	68	11.6	56.1	3.869	0.070	0.068	0.001	1.212	1.0
229	10/5/1999	2:20:48 PM	0	26.577	22.219	26.165	24.357	22.452	30.015	59.387	67.071	6.559	53.136	7.063	-0.075	28.029	0.161	0.14	71	69	11.6	56.3	3.879	0.070	0.068	0.001	1.209	1.0
230	10/5/1999	2:21:49 PM	0	26.702	22.264	26.209	24.402	22.578	30.14	59.015	66.844	6.423	53.305	7.094	-0.028	28.014	0.16	0.137	72	70	11.6	56.2	3.872	0.070	0.068	0.001	1.202	1.0
231	10/5/1999	2:22:49 PM	0	26.667	22.31	26.254	24.527	22.623	29.866	59.139	66.949	6.479	53.508	7.094	-0.028	28.06	0.16	0.14	73	71	11.6	56.3	3.883	0.070	0.067	0.001	1.197	1.0
232	10/5/1999	2:23:50 PM	0	26.587	22.229	26.254	24.447	22.703	30.105	59.697	67.254	6.479	53.034	7.094	-0.075	28.014	0.16	0.14	74	72	11.6	56.4	3.886	0.070	0.067	0.001	1.196	1.0
233	10/5/1999	2:24:50 PM	0	26.632	22.274	26.219	24.572	22.749	30.07	59.673	67.193	6.543	53.339	7.094	-0.028	27.998	0.16	0.137	75	73	11.6	56.5	3.892	0.070	0.067	0.001	1.196	1.0
234	10/5/1999	2:25:50 PM	0	26.677	22.319	26.264	24.617	22.794	30.591	58.705	66.156	6.543	52.933	7.063	-0.075	28.09	0.159	0.137	76	74	11.7	55.8	3.849	0.069	0.067	0.001	1.200	1.0
235	10/5/1999	2:26:51 PM	0	26.597	22.239	26.184	24.617	22.713	30.83	58.581	66.156	6.487	53.508	7.063	-0.075	28.044	0.159	0.137	77	75	11.6	56.0	3.864	0.069	0.067	0.001	1.198	1.0
236	10/5/1999	2:27:51 PM	0	26.642	22.363	26.309	24.582	22.598	31.192	59.201	66.766	6.551	52.967	7.063	-0.075	28.09	0.159	0.137	78	76	11.7	56.1	3.867	0.069	0.066	0.001	1.188	1.0
237	10/5/1999	2:28:51 PM	0	26.562	22.284	26.229	24.582	22.518	31.351	59.263	66.888	6.551	53.034	7.063	-0.028	27.998	0.157	0.134	79	77	11.6	56.1	3.871	0.069	0.066	0.001	1.179	1.0
238	10/5/1999	2:29:52 PM	0	26.642	22.284	26.229	24.502	22.115	31.271	59.449	67.01	6.591	53.643	7.063	-0.075	27.998	0.157	0.137	80	78	11.6	56.5	3.889	0.069	0.066	0.001	1.171	1.0
239	10/5/1999	2:30:52 PM	0	26.686	22.329	26.274	24.547	22.16	31.237	58.705	66.4	6.439	53.237	7.063	-0.028	28.106	0.157	0.137	81	79	11.7	56.0	3.859	0.069	0.066	0.001	1.182	1.0
240	10/5/1999	2:31:52 PM	0	26.607	22.329	26.274	24.467	22.08	31.475	59.325	67.071	6.487	52.527	7.063	-0.075	28.029	0.156	0.134	82	80	11.6	55.9	3.856	0.069	0.067	0.001	1.190	1.0
241	10/5/1999	2:32:53 PM	0	26.686	22.329	26.194	24.387	21.919	31.792	59.139	66.644	6.519	53.961	7.033	-0.028	28.029	0.156	0.134	83	81	11.6	56.6	3.900	0.068	0.066	0.001	1.164	1.0
242	10/5/1999	2:33:53 PM	0	26.607	22.329	26.194	24.387	21.999	31.792	60.069	67.966	6.431	52.933	7.063	-0.075	28.09	0.157	0.137	84	82	11.7	56.5	3.896	0.069	0.066	0.001	1.173	1.0
243	10/5/1999	2:34:53 PM	0	26.607	22.329	26.194	24.387	21.999	31.792	59.015	66.583	6.511	53.339	7.033	-0.075	28.029	0.156	0.137	85	83	11.6	56.2	3.873	0.068	0.066	0.001	1.172	1.0
244	10/5/1999	2:35:54 PM	0	26.607	22.329	26.194	24.306	21.919	31.792	59.077	66.766	6.471	53.102	7.063	-0.028	28.029	0.156	0.134	86	84	11.6	56.1	3.867	0.068	0.066	0.001	1.174	1.0
245	10/5/1999	2:36:54 PM	0	26.731	22.455	26.239	24.351	21.964	31.995	59.015	66.583	6.551	52.796	7.033	-0.075	28.06	0.156	0.131	87	85	11.6	55.9	3.855	0.068	0.066	0.001	1.177	1.0
246	10/5/1999	2:37:54 PM	0	26.607	22.329	26.194	24.226	21.758	31.951	59.697	67.437	6.583	53.102	7.033	-0.028	28.075	0.155	0.131	88	86	11.7	56.4	3.889	0.068	0.065	0.001	1.160	1.0
247	10/5/1999	2:38:55 PM	0	26.607	22.41	26.194	24.226	21.677	31.951	58.891	66.339	6.495	53.372	7.033	-0.028	28.044	0.155	0.134	89	87	11.6	56.1	3.870	0.068	0.065	0.001	1.166	1.0
248	10/5/1999	2:39:55 PM	0	26.686	22.41	26.194	24.226	21.597	32.03	58.891	66.461	6.463	53.744	7.063	-0.075	28.014	0.155	0.134	90	88	11.6	56.3	3.883	0.068	0.065	0.001	1.162	1.0
249	10/5/1999	2:40:55 PM	0	26.686	22.41	26.194	24.226	21.758	32.109	59.077	66.705	6.535	53.406	7.033	-0.075	28.029	0.154	0.134	91	89	11.6	56.2	3.878	0.067	0.065	0.001	1.156	1.0
250	10/5/1999	2:41:56 PM	0	26.686	22.41	26.194	24.226	21.677	31.951	59.077	66.705	6.479	53.339	7.033	-0.028	27.998	0.154	0.134	92	90	11.6	56.2	3.875	0.067	0.065	0.001	1.157	1.0
251	10/5/1999	2:42:56 PM	0	26.642	22.365	26.229	24.181	21.763	32.065	58.581	65.912	6.463	53.305	7.033	-0.075	28.014	0.153	0.131	93	91	11.6	55.9	3.857	0.067	0.065	0.001	1.153	1.0
252	10/5/1999	2:43:56 PM	0	26.642	22.445	26.149	24.261	21.632	32.144	58.953	66.522	6.495	53.136	7.002	-0.028	28.044	0.154	0.134	94	92	11.6	56.0	3.864	0.067	0.065	0.001	1.161	1.0
253	10/5/1999	2:44:57 PM	0	26.597	22.4	26.184	24.136	21.667	32.02	58.891	66.461	6.535	53.305	7.033	-0.028	28.075	0.153	0.134	95	93	11.7	56.1	3.868	0.067	0.065	0.001	1.152	1.0
254	10/5/1999	2:45:57 PM	0	26.677	22.4	26.184	24.136	21.506	32.11	59.635	67.193	6.559	53.203	7.002	-0.028	27.983	0.153	0.131	96	94	11.6	56.4	3.890	0.067	0.065	0.001	1.145	1.0
255	10/5/1999	2:46:57 PM	0	26.677	22.4	26.184	24.136	21.587	32.02	58.829	66.217	6.463	53.169	7.002	-0.028	27.983	0.153	0.128	97	95	11.6	56.0	3.861	0.067	0.065	0.001	1.154	1.0

Run 1.01(old): 2 wt% Concentration of Insoluble Solids

	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
256	10/5/1999	2:47:58 PM	0	26.632	22.355	26.219	24.091	21.461	31.976	59.449	67.254	6.479	52.784	7.033	-0.028	27.963	0.153	0.131	96	96	11.6	56.1	3.866	0.067	0.065	0.001	1.150	1.0
257	10/5/1999	2:48:58 PM	0	26.632	22.355	26.219	24.091	21.622	32.055	58.581	65.973	6.439	53.474	7.033	-0.028	27.952	0.152	0.128	99	97	11.6	56.0	3.863	0.068	0.064	0.001	1.145	1.0
258	10/5/1999	2:49:58 PM	0	26.632	22.435	26.219	24.171	21.541	31.976	59.139	66.705	6.455	53.474	7.033	-0.028	28.06	0.152	0.128	100	98	11.6	56.3	3.882	0.068	0.064	0.001	1.139	1.0
259	10/5/1999	2:50:59 PM	0	26.712	22.435	26.219	24.091	21.541	31.896	59.387	67.193	6.527	52.865	7.002	-0.028	28.06	0.152	0.134	101	99	11.6	56.1	3.870	0.068	0.064	0.001	1.143	1.0
260	10/5/1999	2:51:59 PM	0	26.542	22.345	26.209	24.001	21.451	31.887	58.705	66.4	6.519	52.527	7.002	-0.028	28.044	0.151	0.131	102	100	11.6	55.6	3.835	0.068	0.064	0.001	1.145	1.0
261	10/5/1999	2:52:59 PM	0	26.667	22.471	26.254	23.968	21.577	31.852	58.705	66.217	6.487	53.508	7.002	-0.028	28.06	0.15	0.131	103	101	11.6	56.1	3.868	0.065	0.063	0.001	1.127	1.0
262	10/5/1999	2:54:00 PM	0	26.622	22.425	26.129	24.001	21.612	31.807	59.263	66.827	6.559	52.796	7.002	-0.075	28.136	0.15	0.131	104	102	11.7	56.0	3.863	0.065	0.063	0.001	1.132	1.0
263	10/5/1999	2:55:00 PM	0	26.622	22.425	26.209	24.001	21.532	31.728	59.449	67.193	6.487	52.629	7.002	-0.028	28.044	0.15	0.131	105	103	11.6	56.0	3.864	0.065	0.063	0.001	1.130	1.0
264	10/5/1999	2:56:00 PM	0	26.702	22.425	26.209	24.001	21.693	31.728	58.457	65.912	6.559	53.169	7.002	-0.028	28.06	0.15	0.125	106	104	11.6	55.8	3.848	0.065	0.063	0.001	1.134	1.0
265	10/5/1999	2:57:01 PM	0	26.577	22.481	26.185	23.956	21.406	31.683	59.387	68.049	6.615	53.136	7.002	-0.075	28.106	0.149	0.125	107	105	11.7	56.3	3.879	0.065	0.063	0.001	1.119	1.0
266	10/5/1999	2:58:01 PM	0	26.657	22.481	26.185	24.036	21.486	31.763	58.767	66.4	6.527	52.595	7.002	-0.028	28.075	0.15	0.128	108	106	11.7	55.7	3.839	0.065	0.063	0.001	1.138	1.0
267	10/5/1999	2:59:01 PM	0	26.612	22.416	26.2	23.991	21.441	31.639	59.325	66.949	6.479	53.406	7.002	-0.075	27.906	0.149	0.128	109	107	11.6	56.4	3.886	0.065	0.063	0.001	1.116	0.9
268	10/5/1999	3:00:02 PM	0	26.612	22.416	26.2	24.071	21.441	31.718	59.325	66.827	6.487	52.865	7.002	-0.028	27.968	0.149	0.128	110	108	11.6	56.1	3.868	0.065	0.063	0.001	1.121	1.0
269	10/5/1999	3:01:02 PM	0	26.612	22.496	26.2	24.071	21.361	31.56	59.263	66.688	6.583	53.102	7.002	-0.028	28.029	0.149	0.128	111	109	11.6	56.2	3.874	0.065	0.063	0.001	1.119	1.0
270	10/5/1999	3:02:02 PM	0	26.692	22.496	26.2	24.071	21.361	31.718	59.697	67.315	6.463	53.237	7.033	-0.028	28.014	0.149	0.128	112	110	11.6	56.5	3.893	0.065	0.063	0.001	1.114	0.9
271	10/5/1999	3:03:03 PM	0	26.567	22.451	26.155	24.107	21.315	31.674	59.077	66.705	6.511	53.068	7.002	-0.028	28.044	0.148	0.131	113	111	11.6	56.1	3.868	0.065	0.063	0.001	1.115	0.9
272	10/5/1999	3:04:03 PM	0	26.647	22.451	26.155	24.107	21.396	31.356	58.705	66.034	6.551	52.662	7.002	-0.028	27.996	0.148	0.128	114	112	11.6	55.7	3.839	0.065	0.063	0.001	1.123	1.0
273	10/5/1999	3:05:03 PM	0	26.647	22.451	26.155	24.107	21.636	31.059	59.325	66.949	6.479	53.305	7.002	-0.028	28.014	0.148	0.128	115	113	11.6	56.3	3.883	0.065	0.063	0.001	1.111	0.9
274	10/5/1999	3:06:04 PM	0	26.603	22.406	26.19	24.142	21.834	30.836	59.018	66.705	6.551	53.71	6.971	-0.028	28.06	0.148	0.125	116	114	11.6	56.4	3.886	0.065	0.062	0.001	1.109	0.9
275	10/5/1999	3:07:04 PM	0	26.603	22.406	26.11	24.142	21.913	30.677	59.077	66.705	6.378	53.068	7.002	-0.028	28.014	0.148	0.125	117	115	11.6	56.1	3.866	0.065	0.063	0.001	1.117	1.0
276	10/5/1999	3:08:04 PM	0	26.647	22.451	26.235	24.267	22.04	30.842	59.387	66.827	6.511	53.068	7.002	-0.028	27.968	0.148	0.128	118	116	11.6	56.2	3.877	0.065	0.062	0.001	1.110	0.9
277	10/5/1999	3:09:05 PM	0	26.603	22.406	26.19	24.302	22.078	30.518	59.139	66.583	6.463	52.933	7.002	-0.028	28.029	0.147	0.128	119	117	11.6	56.0	3.863	0.064	0.062	0.001	1.108	0.9
278	10/5/1999	3:10:05 PM	0	26.603	22.486	26.11	24.302	22.156	30.2	59.635	67.193	6.527	53.271	6.971	-0.028	28.075	0.147	0.125	120	118	11.7	56.5	3.892	0.064	0.062	0.001	1.102	0.9
279	10/5/1999	3:11:05 PM	0	26.647	22.451	26.235	24.347	22.362	30.324	58.829	66.461	6.527	53.102	6.971	-0.028	28.06	0.147	0.125	121	119	11.6	56.0	3.859	0.064	0.062	0.001	1.108	0.9
280	10/5/1999	3:12:06 PM	0	26.647	22.451	26.235	24.428	22.523	30.165	59.201	66.705	6.551	52.483	6.971	-0.028	28.075	0.148	0.125	122	120	11.7	55.8	3.850	0.064	0.062	0.001	1.102	0.9
281	10/5/1999	3:13:06 PM	0	26.567	22.451	26.155	24.428	22.603	30.165	59.573	66.339	6.2	53.947	6.985	-0.028	28.367	0.663	0.615	123	121	11.8	56.8	3.913	0.289	0.260	0.005	4.837	4.2
282	10/5/1999	3:14:06 PM	0	26.692	22.418	26.2	24.653	22.729	30.13	58.829	66.278	6.527	52.967	6.878	-0.028	28.121	0.267	0.238	124	122	11.7	55.9	3.854	0.117	0.113	0.002	2.016	1.7
283																												
284		Average		26.6	22.2	26.4	23.9	21.8	31.2	58.8	66.6	6.5	52.9	7.1	-0.1	28.1	0.173	0.152			11.6	55.9	3.9	0.076	0.073	0.001	1.303	1.1
285		Maximum		27.6	22.5	27.2	24.6	22.6	32.1	60.1	68.0	6.7	54.0	7.3	0.0	28.8	0.418	0.381			11.9	56.8	3.9	0.182	0.172	0.003	3.141	2.7
286		Median		26.7	22.2	26.3	24.1	21.7	31.4	59.0	66.6	6.5	53.0	7.1	0.0	28.0	0.164	0.143			11.6	56.0	3.9	0.072	0.069	0.001	1.234	1.0
287		Minimum		26.5	21.9	26.1	23.0	20.9	29.9	57.5	65.1	6.4	51.3	6.8	-0.1	27.9	0.148	0.125			11.6	54.9	3.8	0.064	0.062	0.001	1.102	0.9
288		Std Deviation		0.266	0.199	0.241	0.425	0.451	0.655	0.469	0.503	0.062	0.479	0.108	0.023	0.113	0.033	0.032			0.047	0.428	0.029	0.014	0.013	0.000	0.248	0.211
289		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



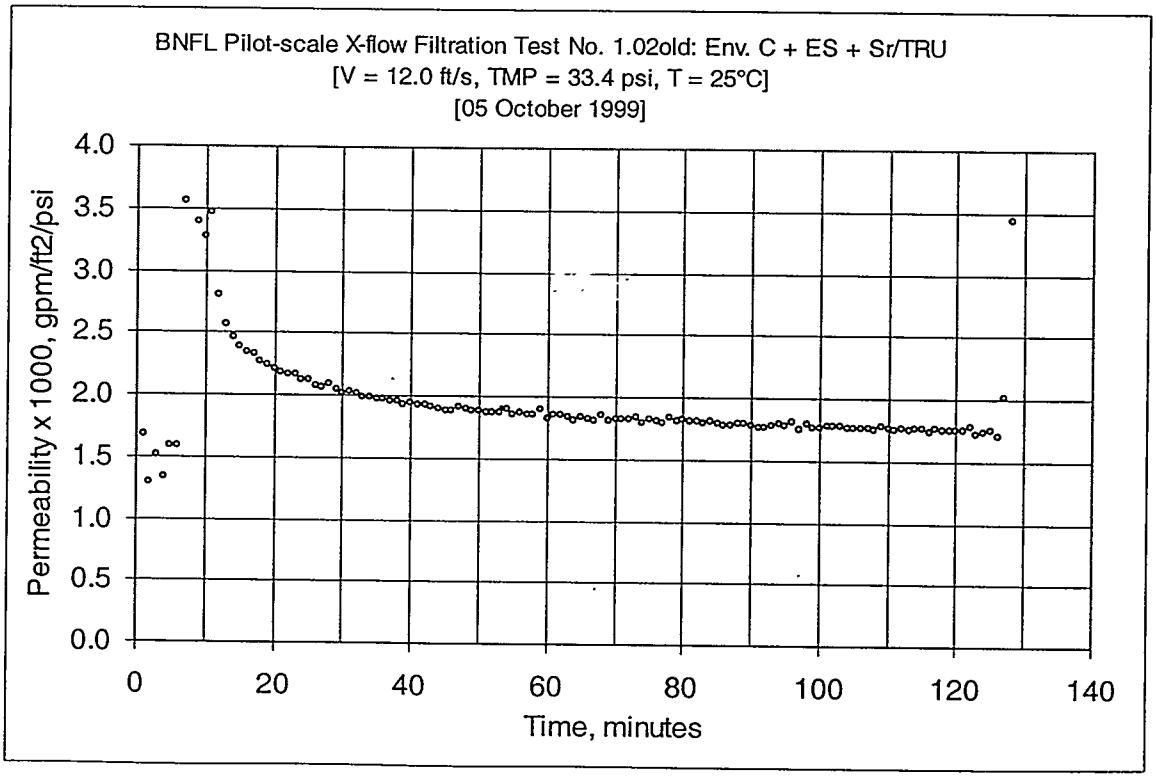


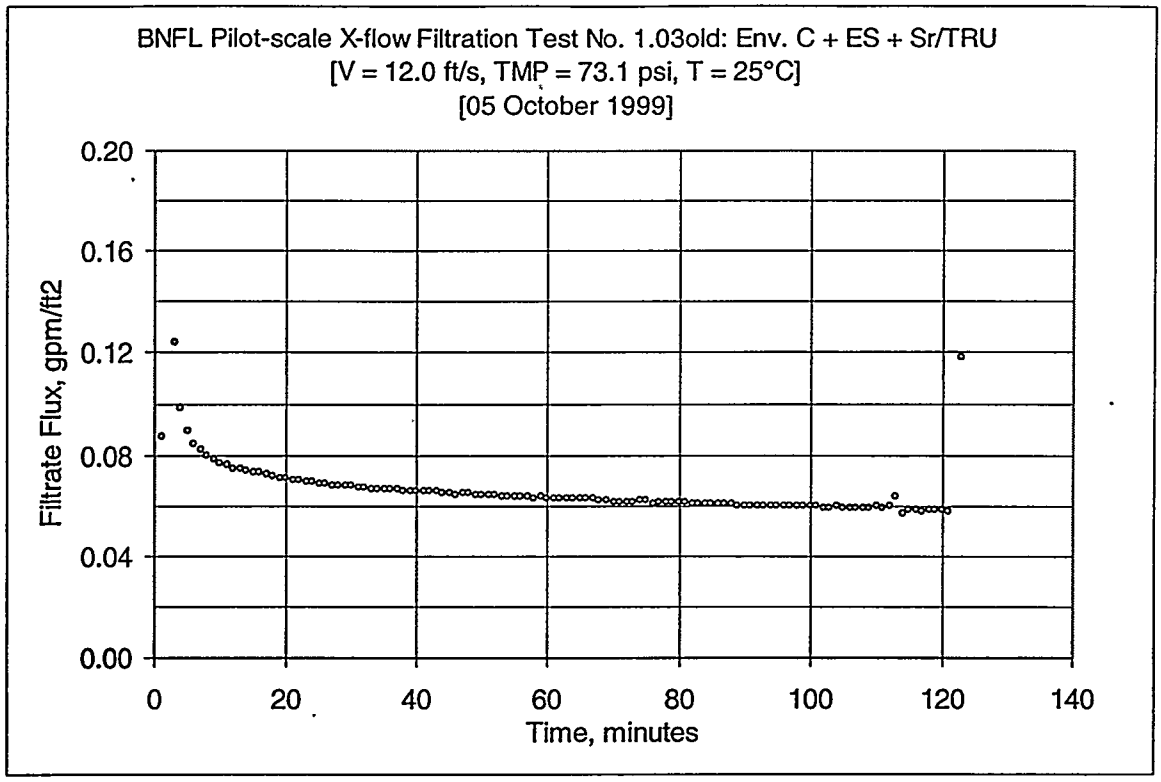
Figure B10: Test Run 1.02(old), 2 wt% Insoluble Solids Concentration

Run 1.02(old): 2 wt% Concentration on Insoluble Solids

	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	T6 (deg C)	BOT DP (p	FLTR (pa	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR	O3,FLTR	FLOW (gpm)										
2	Zeros - No Flow - Lines Connected																				Filter Surface Area		2.29	FT2					
3	10/5/1999	12:39:30 PM	0	27.978	21.778	25.326	22.712	20.803	31.329	-0.061	-2.384	0.503	-0.281	-2.737	-0.075	-0.079	0.011	-0.015			Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg					
4	10/5/1999	12:40:31 PM	0	27.932	21.733	25.121	22.587	20.758	31.361	0.001	-2.384	0.503	-0.281	-2.787	-0.075	-0.079	0.011	-0.015											
5	10/5/1999	12:41:31 PM	0	27.852	21.753	24.961	22.667	20.758	31.361	0.001	-2.384	0.503	-0.248	-2.787	-0.075	-0.079	0.011	-0.018											
6	10/5/1999	12:42:32 PM	0	27.728	21.688	24.675	22.542	20.713	31.06	0.001	-2.384	0.511	-0.281	-2.787	-0.075	-0.079	0.011	-0.018											
7	Zeros - Lines Not Connected																												
8	10/5/1999	12:45:15 PM	0	27.406	21.688	23.673	22.622	21.116	29.65	-0.061	-0.067	-0.023	-0.011	-0.148	-0.075	1.902	0.132	0.101											
9	10/5/1999	12:46:15 PM	0	27.089	21.769	23.713	22.702	21.277	30.443	0.001	-0.067	-0.023	-0.011	-0.148	-0.075	1.579	0.119	0.091											
10	10/5/1999	12:47:15 PM	0	26.724	21.724	23.506	22.736	21.312	29.685	0.001	-0.067	-0.023	-0.011	-0.148	-0.075	1.288	0.108	0.079											
11	10/5/1999	12:48:15 PM	0	26.405	21.804	23.267	22.736	21.393	30.241	0.001	-0.067	-0.023	-0.011	-0.148	-0.075	1.057	0.1	0.073											
12	10/5/1999	12:49:16 PM	0	26.129	21.769	23.151	22.783	21.519	29.809	0.001	-0.067	-0.023	-0.045	-0.148	-0.075	0.965	0.093	0.064											
13																													
14	Data - Per Minute																			Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
15	10/5/1999	3:15:00 PM	0	28.612	22.496	26.2	24.635	22.809	30.05	59.511	67.132	6.519	53.034	7.002	-0.028	28.167	0.224	0.195	1	1	11.7	56.3	3.880	0.096	0.095	0.002	1.680	1.43
16	10/5/1999	3:16:01 PM	0	26.737	22.481	26.244	24.596	22.935	30.095	88.786	95.975	8.777	77.965	8.512	-0.028	33.512	0.253	0.225	2	2	13.9	82.4	5.680	0.110	0.107	0.001	1.295	1.10
17	10/5/1999	3:17:01 PM	0	26.657	22.481	26.324	24.678	23.015	29.936	50.212	56.949	12.607	38.057	6.17	-0.028	41.653	0.158	0.134	3	3	17.3	44.1	3.043	0.069	0.068	0.002	1.506	1.28
18	10/5/1999	3:18:01 PM	0	26.622	22.506	26.129	24.803	23.141	30.06	38.062	46.765	6.711	31.431	8.06	-0.028	28.459	0.11	0.068	4	4	11.8	34.7	2.395	0.048	0.047	0.001	1.339	1.14
19	10/5/1999	3:19:02 PM	0	26.462	22.506	25.889	24.883	23.141	29.981	31.663	39.752	7.134	25.244	7.341	-0.028	29.611	0.106	0.085	5	5	12.3	28.6	1.969	0.046	0.045	0.002	1.581	1.35
20	10/5/1999	3:20:02 PM	0	26.427	22.551	25.774	24.928	23.186	30.264	30.004	36.947	7.684	22.607	6.601	-0.028	31.116	0.098	0.076	6	6	12.9	28.3	1.814	0.043	0.042	0.002	1.591	1.35
21	10/5/1999	3:21:03 PM	0	26.392	22.516	25.579	25.053	23.07	30.547	24.673	37.801	6.926	18.043	12.395	-0.028	30.855	0.177	0.155	7	7	12.8	21.4	1.473	0.077	0.076	0.004	3.559	3.03
22	10/5/1999	3:22:03 PM	0	26.312	22.516	25.419	24.973	22.99	30.885	28.392	37.679	7.126	22.235	8.943	-0.028	30.671	0.263	0.236	8	8	12.7	25.3	1.745	0.115	0.113	0.004	4.482	3.81
23	10/5/1999	3:23:03 PM	0	26.197	22.561	25.304	25.018	22.713	31.147	31.058	40.728	6.495	25.413	9.067	-0.028	28.92	0.221	0.198	9	9	12.0	26.2	1.947	0.096	0.096	0.003	3.388	2.88
24	10/5/1999	3:24:03 PM	0	26.037	22.561	25.144	24.938	22.652	31.227	5.394	43.411	6.4	-0.619	37.295	59.614	29.534	0.018	-0.018	10	10	12.3	2.4	0.165	0.008	0.008	0.003	3.278	2.79
25	10/5/1999	3:25:04 PM	0	25.762	22.606	24.949	24.963	22.517	31.271	35.335	43.269	6.606	28.963	7.187	-0.028	29.475	0.255	0.225	11	11	12.2	32.1	2.217	0.111	0.111	0.003	3.468	2.95
26	10/5/1999	3:26:04 PM	0	25.762	22.606	24.868	24.903	22.356	31.43	36.369	43.899	6.823	30.687	6.971	-0.028	29.089	0.214	0.189	12	12	12.1	33.5	2.312	0.093	0.094	0.003	2.796	2.38
27	10/5/1999	3:27:04 PM	0	25.682	22.526	24.788	24.903	22.276	31.43	36.203	43.655	6.83	29.74	7.002	-0.028	29.288	0.192	0.171	13	13	12.2	33.0	2.273	0.084	0.084	0.003	2.557	2.18
28	10/5/1999	3:28:05 PM	0	25.521	22.606	24.628	24.743	22.195	31.51	36.017	43.777	6.814	29.806	7.094	-0.028	29.268	0.184	0.154	14	14	12.2	32.9	2.269	0.080	0.081	0.002	2.466	2.10
29	10/5/1999	3:29:05 PM	0	25.486	22.571	24.513	24.788	22.08	31.713	36.141	43.838	6.822	29.943	7.156	-0.028	29.335	0.178	0.156	15	15	12.2	33.0	2.278	0.078	0.079	0.002	2.364	2.03
30	10/5/1999	3:30:05 PM	0	25.361	22.526	24.468	24.662	21.874	31.668	36.513	44.448	6.878	29.605	7.187	-0.028	29.273	0.175	0.152	16	16	12.1	33.1	2.279	0.078	0.078	0.002	2.346	2.00
31	10/5/1999	3:31:06 PM	0	25.246	22.571	24.753	24.788	21.919	31.792	35.621	43.106	6.751	29.876	7.217	-0.028	29.242	0.173	0.152	17	17	12.1	32.7	2.254	0.078	0.078	0.002	2.326	1.98
32	10/5/1999	3:32:06 PM	0	25.166	22.571	24.914	24.707	21.838	31.713	36.078	43.777	6.703	29.808	7.248	-0.028	29.212	0.171	0.152	18	18	12.1	32.9	2.271	0.075	0.075	0.002	2.271	1.93
33	10/5/1999	3:33:06 PM	0	25.166	22.651	25.074	24.707	21.838	31.713	36.368	44.265	6.711	30.011	7.31	-0.028	29.012	0.171	0.149	19	19	12.0	33.2	2.289	0.075	0.074	0.002	2.244	1.91
34	10/5/1999	3:34:07 PM	0	25.246	22.571	24.994	24.627	21.999	31.713	37.009	44.936	6.823	30.484	7.341	-0.028	28.766	0.171	0.152	20	20	11.9	33.7	2.327	0.075	0.075	0.002	2.212	1.88
35	10/5/1999	3:35:07 PM	0	25.246	22.651	24.914	24.467	21.999	31.713	37.009	44.975	6.535	31.194	7.341	-0.028	28.582	0.17	0.149	21	21	11.9	34.1	2.351	0.074	0.074	0.002	2.181	1.86
36	10/5/1999	3:36:07 PM	0	25.246	22.651	24.914	24.587	21.999	31.871	37.071	44.892	6.623	30.856	7.279	-0.028	28.643	0.168	0.143	22	22	11.9	34.0	2.342	0.073	0.074	0.002	2.165	1.84
37	10/5/1999	3:37:08 PM	0	25.246	22.651	24.833	24.226	21.919	31.871	36.845	44.814	6.535	30.785	7.248	-0.028	28.597	0.167	0.146	23	23	11.9	33.8	2.333	0.073	0.073	0.002	2.165	1.84
38	10/5/1999	3:38:08 PM	0	25.246	22.651	24.914	24.148	21.919	31.951	37.504	45.485	6.591	30.957	7.279	-0.028	28.597	0.166	0.143	24	24	11.9	34.2	2.360	0.072	0.073	0.002	2.122	1.81
39	10/5/1999	3:39:08 PM	0	25.281	22.606	24.949	24.021	21.793	31.965	36.885	44.57	6.511	30.924	7.279	-0.028	28.52	0.164	0.14	25	25	11.8	33.9	2.338	0.072	0.072	0.002	2.119	1.80
40	10/5/1999	3:40:09 PM	0	25.281	22.687	25.029	23.94	21.874	32.065	37.071	44.875	6.511	31.262	7.31	-0.028	28.444	0.163	0.14	26	26	11.8	34.2	2.356	0.071	0.071	0.002	2.081	1.77
41	10/5/1999	3:41:09 PM	0	25.281	22.687	25.189	23.86	21.874	32.144	37.566	45.485	6.575	31.093	7.279	-0.028	28.444	0.163	0.14	27	27	11.8	34.3	2.367	0.071	0.071	0.002	2.062	1.75
42	10/5/1999	3:42:09 PM	0	25.316	22.641	25.224	23.815	21.909	32.1	36.513	44.265	6.479	30.991	7.279	-0.028	28.444	0.162	0.143	28	28	11.8	33.8	2.327	0.071	0.070	0.002	2.082	1.77
43	10/5/1999	3:43:10 PM	0	25.476	22.641	25.364	23.735	21.828	32.02	36.761	44.631	6.471	31.059	7.31	-0.028	28.582	0.161	0.137	29	29	11.9	33.9	2.338	0.070	0.070	0.002	2.050	1.74
44	10/5/1999	3:44:11 PM	0	25.511	22.596	25.579	23.689	21.703	32.055	37.132	45.119	6.527	31.16	7.31	-0.028	28.52	0.16	0.14	30	30	11.8	34.1	2.354	0.070	0.069	0.002	2.013	1.71
45	10/5/1999	3:45:10 PM	0	25.592	22.596	25.739	23.609	21.703	32.134	36.699	44.631	6.479	30.788	7.31	-0.028	28.597	0.16	0.14	31	31	11.9	33.7	2.326	0.070	0.068	0.002	2.027	1.73
46	10/5/1999	3:46:11 PM	0	25.627	22.631	25.854	23.484	21.657	32.01	37.69	45.726	6.384	31.363	7.464	-0.028	28.196	0.163	0.14	32	32	11.7	34.5	2.360	0.071	0.069	0.002	2.012	1.71
47	10/5/1999	3:47:11 PM	0	25.787	22.712	26.094	23.564	21.818	31.931	37.566	45.667	6.376	31.296	7.402	-0.028	28.29	0.162	0.143	33	33	11.7	34.4	2.374	0.071	0.069	0.002	1.992	1.70
48	10/5/1999	3:48:11 PM	0	25.902	22.667	26.269	23.439	21.812	32.045	37.318	45.424	6.407	31.667	7.433	-0.028	28.229	0.163	0.143	34	34	11.7	34.5	2.378	0.071	0.069	0.002	1.990	1.69
49	10/5/1999	3:49:12 PM	0	26.097	22.622	26.324	23.474	21.245	31.842	37.628	45.606	6.423	31.194	7.372	-0.028	28.459	0.161	0.14	35	35	11.8	34.4	2.373	0.070	0.068	0.002	1.968	1.67
50	10/5/1999	3:50:12 PM	0	26.257	22.622	26.484	23.474	21.325	31.763	36.885	44.875	6.344	31.059	7.372	-0.028	28.382	0.16	0.14	36	36	11.8	34.0	2.342	0.070	0.067	0.002	1.972	1.68
51	10/5/1999	3:51:12 PM	0	26.417	22.702	26.644	23.795	21.406	31.825	36.885	44.692	6.431	31.194	7.341	-0.028	28.505	0.16	0.137	37	37	11.8	34.0	2.347	0.070	0.067	0.002	1.960	1.67
52	10/5/1999	3:52:13 PM	0	26.452	22.657	26.699	23.991	21.361	31.56	37.256	45.058	6.407	31.194	7.372	-0.028	28.428	0.16	0.14	38	38	11.8	34.2	2.360	0.070	0.067	0.002	1.953	1.66
53	10/5/1999	3:53:13 PM	0	26.532	22.657	26.819	24.071	21.199	31.56	37.318	45.058	6.384	31.832	7.31	-0.028	28.474	0.159	0.137	39	39	11.8	34.4	2.373	0.069	0.067	0.002	1.932	1.64
54	10/5/1999	3:54:14 PM	0	26.612	22.657	26.899	24.152	21.361	31.48	36.947	44.814	6.36	31.363	7.31	-0.028	28.428	0.159	0.134	40	40	11.8	34.2	2.355	0.069	0.068	0.002	1.943	1.65
55	10/5/1999	3:55:14 PM	0	26.647	22.692	26.553	24.107	21.318	31.595	37.256	45.119	6.376	31.262	7.31	-0.028	28.428	0.159	0.137	41	41	11.8	34.3	2.362	0.069	0.068	0.002	1.927	1.64
56	10/5/1999	3:56:15 PM	0	26.502	22.692	26.553	24.187	21.396	31.356	36.885	44.509	6.407	31.431	7.279	-0.028	28.428	0.157	0.137	42	42	11.8	34.2	2.355	0.069	0.068	0.002	1.921	1.63
57	10/5/1999	3:57:14 PM	0	26.727	22.692	26.553	24.107	21.477	31.118	37.566	45.424	6.407	31.226	7.279	-0.028	28.413	0.157	0.137	43	43	11.8	34.4	2.372	0.069	0.068	0.002	1.908	1.62
58	10/5/1999	3:58:15 PM	0	26.727	22.692	26.475	24.187	21.557	30.96	37.38	45.241	6.312	32.006	7.279	-0.028	28.29	0.157	0.134	44	44	11.7	34.7	2.392	0.069	0.068	0.002	1.896	1.61
59	10/5/1999	3:59:15 PM	0	26.727	22.692	26.475	24.267	21.799	30.801	37.69	45.728	6.32	31.634	7.248	-0.028	28.29	0.156	0.137	45	45	11.7	34.7	2.390	0.068	0.068	0.002	1.885	1.60
60	10/5/1999	4:00:16 PM	0	26.727	22.692	26.395	24.347	21.96	30.642	37.814	45.606	6.368	31.667	7.248	-0.028	28.244	0.156	0.137	46	46	11.7	34.7	2.395	0.068	0.065	0.002	1.885	1.60
61	10/5/1999	4:01:16 PM	0	26.727	22.612	26.395	24.347	22.04	30.562	37.256	45.058	6.4	31.329	7.248	-0.028	28.29	0.156	0.134	47	47	11.7	34.3	2.364	0.068	0.065	0.002	1.910	1.63
62	10/5/1999	4:02:16 PM	0	26.727	22.692	26.316	24.508	22.04	30.483	36.527	43.777	6.607	30.653	7.094	-0.028	28.981	0.151	0.131	48	48	12.0	33.5	2.309	0.066	0.064	0.002	1.897	1.61
63	10/5/1999	4:03:17 PM	0	26.647	22.612	26.316	24.508	22.201	30.403	36.451	44.082	6.655	30.417	7.156	-0.028	28.997	0.149	0.128	49	49	12.0	33.4	2.305	0.065	0.063	0.002	1.875	1.60
64	10/5/1999	4:04:17 PM	0	26.647	22.612	26.316	24.508	22.282	30.324	36.017	43.655	6.567	30.856	7.187	-0.028	29.012	0.149	0.125	50	50	12.0	33.4	2.305	0.065	0.063	0.002	1.875	1.60
65	10/5/1999	4:05:17 PM	0	26.567	22.692	26.235	24.588	22.362	30.244	36.451	44.265	6.583	30.484	7.248	-0.028	28.951	0.148	0.125	51	51	12.0	33.5	2.307	0.065	0.062	0.002	1.865	1.59
66	10/5/1999	4:06:18 PM	0	26.567	22.612	26.235	24.668	22.443	30.165	36.761	44.692	6.607	30.315	7.248	-0.028	28.92	0.148	0.128	52	52	12.0	33.5	2.312	0.065	0.062	0.002	1.851	1.58
67	10/5/1999	4:07:18 PM	0	26.567	22.692	26.155	24.668	22.443	30.085	36.837	44.57	6.615	30.247	7.248	-0.028	28.951	0.148	0.128	53	53	12.0	33.4	2.306	0.065	0.063	0.002	1.870	1.59
68	10/5/1999	4:08:18 PM	0	26.532	22.657	26.2	24.783	22.566	30.05	36.203	43.899	6.527	30.586	7.248	-0.028	28.889	0.15	0.128	54	54	12.0	33.4	2.302	0.065	0.063	0.002	1.696	1.61
69	10/5/1999	4:09:19 PM	0	26.577	22.783	26.185	24.918	22.694	30.018	36.451	44.265	6.679	30.417	7.248	-0.028	28.961	0.146	0.122	55	55	12.0	33.4	2.305	0.064	0.062	0.002	1.645	1.57
70	10/5/1999	4:10:19 PM	0	26.497	22.702	26.185	24.838	22.774	30.018	36.265	43.836	6.535	30.112	7.279	-0.028	28.951	0.147	0.125	56	56	12.0	33.2	2.288	0.064	0.062	0.002	1.671	1.59
71	10/5/1999	4:11:19 PM	0	26.543	22.667	26.209	24.943	22.819	30.06	36.451	44.265	6.639	30.18	7.31	-0.028	28.935	0.146	0.125	57	57	12.0	33.3	2.297	0.064	0.062	0.002	1.649	1.57
72	10/5/1999	4:12:20 PM	0	26.462	22.667	26.048	24.883	22.739	30.378	35.831	43.716	6.615	30.315	7.278	-0.028	29.027	0.145	0.122	58	58	12.0	33.1	2.280	0.063	0.061	0.002	1.656	1.58
73	10/5/1999	4:13:20 PM	0	26.382	22.667	25.969	24.883	22.497	30.698	36.141	44.082	6.607	30.078	7.278	-0.028	28.951	0.148	0.125	59	59	12.0	33.1	2.283	0.065	0.063	0.002	1.699	1.62
74	10/5/1999	4:14:20 PM	0	26.427	22.712	26.014	24.928	22.382	30.979	36.203	44.143	6.639	30.247	7.341	-0.028	28.961	0.143	0.122	60	60	12.0	33.2	2.291	0.062	0.061	0.002	1.626	1.55
75	10/5/1999	4:15:21 PM	0	26.472	22.757	26.059	24.883	22.346	31.023	36.265	44.082	6.575	29.842	7.31	-0.028	28.935	0.145	0.125	61	61	12.0	33.1	2.279	0.063	0.061	0.002	1.659	1.58
76	10/5/1999	4:16:21 PM	0	26.392	22.757	26.059	24.823	22.427	31.182	36.079	43.96	6.639	30.349	7.31	-0.028	28.935	0.145	0.125	62	62	12.0	33.2	2.290	0.063	0.061	0.002	1.650	1.57
77	10/5/1999	4:17:21 PM	0	26.392	22.757	25.978	24.813	22.427	31.242	36.327	44.448	6.655	30.281	7.31	0.018	28.966	0.144	0.125	63	63	12.0	33.3	2.296	0.063	0.061	0.002	1.636	1.56
78	10/5/1999	4:18:22 PM	0	26.312	22.757	25.978	24.813	21.844	31.42	36.327	44.082	6.543	30.383	7.31	0.018	28.92	0.142	0.119	64	64	12.0	33.4	2.300	0.062	0.060	0.002	1.606	1.54
79	10/5/1999	4:19:22 PM	0	26.312	22.677	25.899	24.733	21.664	31.578	36.079	44.082	6.615	30.247	7.341	-0.028	28.966	0.143	0.122	65	65	12.0	33.2	2.286	0.062	0.061	0.002	1.635	1.56
80	10/5/1999	4:20:22 PM	0	26.312	22.677	25.899	24.652	21.944	31.578	36.141	44.021	6.615	30.349	7.31	-0.028	28.966	0.142	0.119	66	66	12.0	33.2	2.292	0.062	0.060	0.002	1.818	1.55
81	10/5/1999	4:21:23 PM	0	26.312	22.677	25.818	24.572	21.664	31.578	36.513	44.509	6.663	30.281	7.341	-0.028	29.027	0.142	0.122	67	67	12.0	33.4	2.303	0.062	0.061	0.002	1.614	1.54
82	10/5/1999	4:22:23 PM	0	26.277	22.802	25.944	24.537	21.828	31.782	36.141	44.021	6.655	29.943	7.31	-0.028	29.027	0.144	0.119	68	68	12.0	33.0	2.278	0.063	0.061	0.002	1.853	1.58
83	10/5/1999	4:23:23 PM	0	26.277	22.802	25.864	24.537	21.667	31.703	36.575	44.57	6.607	30.315	7.31	-0.028	28.997	0.142	0.119	69	69	12.0	33.4	2.306	0.062	0.061	0.002	1.609	1.54
84	10/5/1999	4:24:24 PM	0	26.232	22.757	25.819	24.412	21.703	31.658	36.389	44.326	6.671	30.247	7.31	-0.028	29.043	0.142	0.116	70	70	12.1	33.3	2.297	0.062	0.061	0.002	1.818	1.55
85	10/5/1999	4:25:24 PM	0	26.232	22.757	25.819	24.492	21.622	31.658	36.079	44.021	6.639	29.943	7.341	-0.028	28.951	0.141	0.116	71	71	12.0	33.0	2.276	0.062	0.060	0.002	1.822	1.55

Run 1.02(old): 2 wt% Concentration on Insoluble Solids

	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	10/5/1999	4:26:24 PM	0	26 232	22.757	25 819	24 412	21 622	31,738	36 575	44 509	6 583	30 383	7,372	-0 028	28 828	0 143	0 116	72	72	12 0	33 5	2 308	0 062	0 061	0 002	1 822	1 55
87	10/5/1999	4:27:25 PM	0	26 152	22,757	25 819	24 412	21 841	31,738	36 203	44,143	6,599	30 112	7 372	-0 028	28 961	0,143	0 122	73	73	12 0	33 2	2 286	0 062	0 061	0 002	1 840	1 57
88	10/5/1999	4:28:25 PM	0	26 232	22 637	25 819	24,412	21 622	31,817	36,141	43,899	6 623	30,417	7,402	-0 028	28 92	0,14	0 119	74	74	12 0	33 3	2 294	0 061	0 060	0 002	1 795	1 53
89	10/5/1999	4:29:25 PM	0	26 107	22,792	25,774	24 367	21,496	31,773	36 623	44,936	6 599	30 011	7 372	-0 028	28 997	0 142	0,119	75	75	12 0	33 4	2 304	0 062	0 061	0 002	1 815	1 54
90	10/5/1999	4:30:26 PM	0	26 107	22,712	25,774	24 447	21,577	31,773	36 203	44 143	6 663	30 078	7,402	-0 028	28 851	0 14	0,116	76	76	12 0	33 1	2 285	0 061	0 060	0 002	1 804	1 54
91	10/5/1999	4:31:26 PM	0	26 107	22,792	25 774	24 447	21,416	31 693	36 513	44 509	6 647	30,078	7 372	-0 028	28 835	0 14	0,116	77	77	12 0	33 3	2 296	0 061	0 060	0 002	1 795	1 53
92	10/5/1999	4:32:26 PM	0	26 082	22,747	25 649	24,402	21,451	31,687	35 831	43,838	6 647	30 214	7,402	-0 028	28 851	0,141	0,116	78	78	12,0	33 0	2 277	0 062	0 060	0 002	1 796	1 53
93	10/5/1999	4:33:27 PM	0	26,107	22,792	25 694	24 447	21,335	31,773	36,141	44,143	6 583	30 247	7,372	-0 028	28 935	0 14	0,116	79	79	12 0	33 2	2 289	0 061	0 060	0 002	1 806	1 54
94	10/5/1999	4:34:27 PM	0	26 082	22,747	25 729	24 402	21,451	31,728	35 893	43 716	6 647	29,943	7,372	-0 028	29 027	0 14	0,116	80	80	12 0	32,9	2 270	0 061	0 060	0 002	1 819	1 55
95	10/5/1999	4:35:27 PM	0	26 082	22,747	25 649	24 402	21 451	31,649	36 203	44,326	6 591	29 74	7,372	-0 028	29,012	0,139	0,119	81	81	12 0	33 0	2 273	0 061	0 060	0 002	1 807	1 54
96	10/5/1999	4:36:28 PM	0	26 017	22,783	25 605	24,357	21,406	31,683	35,693	43,699	6 647	30,045	7,402	-0 028	28 904	0,139	0 116	82	82	12 0	33 0	2 273	0 061	0 060	0 002	1 807	1 54
97	10/5/1999	4:37:28 PM	0	26 017	22,783	25 685	24 357	21,486	31,604	36 327	44,265	6 671	30 045	7,402	-0 028	29,027	0,139	0,116	83	83	12 0	33 2	2 288	0 061	0 060	0 002	1 809	1 54
98	10/5/1999	4:38:28 PM	0	25 972	22 657	25 64	24 312	21,441	31,639	35 831	43 899	6 655	30,146	7,433	-0 028	29 012	0 139	0,113	84	84	12 0	33 2	2 274	0 061	0 060	0 002	1 794	1 53
99	10/5/1999	4:39:29 PM	0	26,052	22,737	25,56	24 312	21,441	31,56	36 327	44,387	6,615	29 909	7,372	-0 028	28,997	0 138	0,113	85	85	12 0	33 0	2 274	0 061	0 060	0 002	1 807	1 54
100	10/5/1999	4:40:29 PM	0	25 972	22,737	25,72	24 312	21,361	31,56	36,141	44,143	6,663	30 315	7,433	-0 028	28 961	0,138	0,113	86	86	12 0	33 1	2 283	0 060	0 059	0 002	1 791	1 52
101	10/5/1999	4:41:29 PM	0	25 972	22,737	25 56	24,312	21,26	31,639	36,513	44 509	6 679	30 078	7,433	-0 028	28 961	0 138	0,113	87	87	12,0	33 3	2 296	0 060	0 059	0 002	1 777	1 51
102	10/5/1999	4:42:30 PM	0	25 972	22,818	25 64	24,312	21,441	31,56	36 327	44,265	6 639	30 011	7 402	-0 028	28 904	0,139	0,116	88	88	12 0	33 3	2 296	0 060	0 059	0 002	1 781	1 52
103	10/5/1999	4:43:30 PM	0	25 927	22,773	25 515	24,187	21,396	31,515	36 203	44 082	6,591	30 146	7,402	-0 028	28 997	0,137	0,113	89	89	12 0	33 0	2 276	0 060	0 059	0 002	1 786	1 52
104	10/5/1999	4:44:30 PM	0	25 927	22,773	25 515	24 187	21,316	31,595	36 079	44,021	6 591	29 943	7,433	-0 028	28 997	0,137	0,113	90	90	12 0	33 2	2 287	0 061	0 060	0 002	1 797	1 53
105	10/5/1999	4:45:31 PM	0	25 927	22 773	25 595	24,187	21,396	31,515	36 203	44 082	6,591	30 146	7,402	-0 075	29,043	0 137	0,113	90	90	12 1	33 2	2 287	0 060	0 059	0 002	1 777	1 51
106	10/5/1999	4:46:31 PM	0	25 927	22,773	25 595	24,187	21,396	31,595	36 327	44,265	6 639	30 247	7,433	-0 075	28 997	0,137	0,116	91	91	12 0	33 4	2 301	0 060	0 059	0 002	1 762	1 50
107	10/5/1999	4:47:31 PM	0	25,883	22,728	25 55	24,142	21,431	31,581	36,017	44 265	6,647	29 876	7,433	-0 028	29,027	0,137	0,116	92	92	12 0	33 2	2 292	0 060	0 059	0 002	1 770	1 51
108	10/5/1999	4:48:32 PM	0	25 838	22 683	25 503	24,177	21,467	31,109	36 017	44 082	6 655	30,011	7,433	-0 028	29,056	0,136	0,113	93	93	12 1	32 9	2 272	0 059	0 058	0 002	1 774	1 51
109	10/5/1999	4:49:33 PM	0	25 883	22,728	25 55	24,222	21 592	30,918	35 935	44,082	6,655	29,909	7,433	-0 028	29,135	0,138	0,116	94	94	12,1	33 0	2 278	0 060	0 059	0 002	1 799	1 53
110	10/5/1999	4:50:32 PM	0	25 883	22,608	25 55	24,142	21,634	30,756	36,203	44,265	6 671	29 876	7,433	-0 028	29 027	0,136	0,113	95	95	12 0	32 9	2 271	0 059	0 058	0 002	1 775	1 51
111	10/5/1999	4:51:33 PM	0	25 883	22,728	25 47	24,222	21,634	30,597	36 079	43 96	6 607	30,315	7,433	-0 028	29 058	0,139	0,116	96	96	12 1	33 0	2 278	0 061	0 060	0 002	1 808	1 54
112	10/5/1999	4:52:34 PM	0	25 883	22,728	25 55	24,222	21,915	30,518	35 893	43 838	6 671	29 639	7,433	-0 028	29,12	0,135	0,113	97	97	12 1	33 2	2 289	0 059	0 058	0 002	1 752	1 49
113	10/5/1999	4:53:33 PM	0	25,883	22,728	25,55	24 302	22 078	30,438	36 265	44,387	6 695	29 876	7 402	-0 028	29,043	0,137	0,116	98	98	12,1	32 8	2 259	0 060	0 059	0 002	1 797	1 53
114	10/5/1999	4:54:34 PM	0	25 883	22,728	25 55	24,302	22,156	30,359	35 893	43 96	6 663	29 876	7,464	-0 028	29,104	0,136	0,113	99	99	12 1	33 1	2 280	0 059	0 058	0 002	1 768	1 50
115	10/5/1999	4:55:34 PM	0	25 883	22,728	25,55	24 483	22,397	30,279	36 203	44,387	6,671	30,112	7,433	-0 028	28 997	0,135	0,113	100	100	12 0	32,9	2 267	0 059	0 058	0 002	1 765	1 50
116	10/5/1999	4:56:34 PM	0	25 803	22,728	25 47	24,483	22,478	30,2	36 079	44,082	6 695	30,078	7,433	-0 028	29,056	0,137	0,113	101	101	12,1	33 2	2 288	0 060	0 059	0 002	1 778	1 51
117	10/5/1999	4:57:35 PM	0	25 847	22,773	25 515	24 588	22 523	30,041	35 845	43,899	6,639	29 943	7,464	-0 028	29,027	0,136	0,113	102	102	12 0	33 1	2 281	0 059	0 058	0 002	1 771	1 51
118	10/5/1999	4:58:35 PM	0	25 847	22,773	25 515	24,588	22,523	30,083	36 389	44,692	6 671	30,045	7,464	-0 028	29,043	0,135	0,11	103	103	12,1	32 6	2 261	0 058	0 058	0 002	1 771	1 51
119	10/5/1999	4:59:35 PM	0	25 847	22,773	25 515	24 688	22 684	30,006	36,141	44,204	6,719	29 537	7,464	-0 028	29 073	0,136	0 113	104	104	12 1	33 2	2 290	0 059	0 059	0 002	1 762	1 50
120	10/5/1999	5:00:36 PM	0	25,767	22,773	25 515	24,746	22 684	29,926	36,017	44 082	6 607	29 842	7,464	-0,028	28 961	0,134	0,113	105	105	12 0	32 8	2 264	0 058	0 058	0 002	1 756	1 49
121	10/5/1999	5:01:36 PM	0	25 812	22,737	25 48	24,793	22,729	30 05	35,845	43,594	6 663	29 707	7,464	-0,028	29,027	0,135	0,113	106	106	12 0	32 9	2 270	0 059	0 058	0 002	1 764	1 50
122	10/5/1999	5:02:36 PM	0	25 777	22,783	25 524	24 636	22,774	30 018	35 893	43 838	6 671	29,977	7,402	-0 075	29,12	0,134	0,11	107	107	12 1	32,7	2 253	0 058	0 058	0 002	1 766	1 50
123	10/5/1999	5:03:37 PM	0	25 777	22,783	25 444	24,636	22 654	30,018	35,769	43,655	6,671	30,112	7,433	-0 028	29 12	0,134	0,11	108	108	12,1	32 9	2 271	0 058	0 058	0 002	1 750	1 49
124	10/5/1999	5:04:37 PM	0	25 822	22,747	25,489	24,963	22,739	30,458	35,893	44 021	6,631	30,18	7,433	-0 028	29,027	0,136	0,113	109	109	12,0	32,9	2 271	0 059	0 059	0 002	1 760	1 51
125	10/5/1999	5:05:38 PM	0	25,767	22,792	25 534	25,006	22,643	30,741	36 079	44,021	6,735	29,774	7,433	-0 028	29 073	0,135	0,113	110	110	12,1	33 0	2 278	0 058	0 058	0 002	1 760	1 50
126	10/5/1999	5:06:38 PM	0	25,767	22,712	25 534	24,928	22 301	31,058	35 955	43,96	6 663	29 673	7,464	-0,028	29 043	0,135	0,113	111	111	12,1	32 9	2 270	0 058	0 058	0 002	1 750	1 49
127	10/5/1999	5:07:39 PM	0	25 832	22,757	25,499	24 893	22,188	31,182	36,141	43,96	6,695	29 878	7,464	-0 028	29 027	0,134	0,11	112	112	12,1	32,8	2 262	0 059	0 058	0 002	1 769	1 51
128	10/5/1999	5:08:38 PM	0	25,832	22,837	25 499	24 893	22,105	31,341	36 079	43,96	6 671	30 078	7,464	-0 028	29 043	0,135	0,113	113	113	12 0	33 0	2 276	0 058	0 058	0 002	1 747	1 49
129	10/5/1999	5:09:39 PM	0	25 752	22,837	25 499	24,813	22,105	31,42	35 955	43,899	6 607	29,74	7,464	-0 028	29 043	0,135	0,113	114	114	12,1	33 1	2 281	0 059	0 058	0 002	1 757	1 50
130	10/5/1999	5:10:39 PM	0	25 832	22,757	25,499	24,733	21,944	31,5	36,203	44,387	6,719	30,011	7,464	-0 028	28,997	0,134	0,11	115	115	12 0	32 8	2 265	0 058	0 058	0 002	1 756	1 49
131	10/5/1999	5:11:40 PM	0	25,752	22,757	25 419	24,733	21,944	31,42	35 831	43,777	6 655	29,774	7,464	-0,028	29 012	0,133	0,11	116	116	12,0	33,1	2 283	0 058	0 057	0 002	1 729	1 47
132	10/5/1999	5:12:40 PM	0	25,752	22,837	25,499	24 733	21,944	31,579	35,893	44 021	6,615	29 943	7,464	-0 028	29,104	0,134	0 11	117	117	12 1	32 8	2 262	0 058	0 058	0 002	1 762	1 50
133	10/5/1999	5:13:40 PM	0	25,752	22,837	25,339	24,652	21,783	31,736	35 955	43 899	6,599	29,606	7,402	-0 028	28 961	0,134	0,11	118	118	12 0	32,9	2 270	0 058	0 058	0 002	1 752	1 49
134	10/5/1999	5:14:41 PM	0	25,752	22,837	25,419	24,652	21,783	31,658	36,265	44,265	6,631	29 876	7,433	-0 028	29 059	0,133	0,107	119	119	12,1	32,9	2 267	0 058	0 058	0 002	1 749	1 49
135	10/5/1999	5:15:41 PM	0	25,752	22,837	25,419	24 652	21,783	31,579	36 079	44 021	6,655	29,842	7,433	-0 028	28,997	0,134	0,11	120	120	12 0	33 1	2,280	0 058	0 058	0 002	1 748	1 49
136	10/5/1999	5:16:41 PM	0	25,752	22,737	25,419	24 652	21,783	31,817	35 893	44 082	6,655	29 679	7,433	-0 028	29 027	0,134	0,11	121	121	12 0	33 0	2 273	0 058	0 058	0 002	1 754	1 49
137	10/5/1999	5:17:42 PM	0	25,752	22 637	25 419	24 652	21,703	31,738	36 389	44,448	6 687	30,45	7 433	-0 028	28 961	0,135	0,113	122	122	12,0	32 8	2 260	0 059	0 058	0 002	1 777	1 51
138	10/5/1999	5:18:42 PM	0	25,752	22,837	25,419	24 652	21,703	31,817	36 017	43,96	6,695	30 011	7,433	-0,028	29,058	0,133	0,11	123	123	12 1	33 4	2 304	0 058	0 057	0 002	1 717	1 46
139	10/5/1999	5:19:42 PM	0	25 832	22,837	25,419	24 652	21,641	31,817	35 955	43,838	6,695	29,707	7,372	-0 028	29,12	0,133	0,11	124	124	12,1	33 0	2,276	0 058	0 057	0 002	1 738	1 48
140	10/5/1999	5:20:43 PM	0	25 707	22,792	25 374	24 607	21,496	31,773	36,578	44 509	6,671	30,078	7,372	-0 028	29 043	0,132	0,11	125	125	12,1	32 8	2 264	0 058	0 057	0 002	1 748	1 49
141	10/5/1999	5:21:43 PM	0	25,707	22,792	25 374	24 527	21,577	31,852	30,314	43,411	6,439	24,669	12 611	-0 028	29,335	0,126	0 091	126	126	12,1	33 3	2 296	0 058	0 057	0 002	1 711	1 46
142	10/5/1999	5:22:43 PM	0	25,787	22,673	25 454	24 607	21,657	31,852	36,141	43,838	6,663	29 639	7,033	-0 028	29,196	0,262	0,228	127	127	12 2	27 5	1 695	0 056	0 055	0 002	2 011	1 71
143																			128	128	12,1	32,9	2 268	0 114	0 113	0 003	3 435	2 92
144		Averages		26 0	22.7	25 7	24,4	21,9	31,3	36 4	44,3	6 6	30 3	7,3	0 0	28,9	0,149	0,126										
145		Maximum		26,7	22,8	26 8	25 0	22,9	32,1	37,8	45,7	6 9	32,0	7,5	0 0	29,5	0,255	0 225										
146		Median		25,9	22,7	25,6	24 5	21,9	31,6	36,3	44 2	6 6	30,1	7 4	0 0	29 0	0,142	0,119			12 0	33 4	2 301	0 065	0 064	0 002	1 9	1 6
147		Minimum		25 2	22,5	24 5	23,4	21,2	29,9	35,3	43,1	6,3	29 0	7,0	-0,1	28 2	0,132	0,107			12 2	34 7	2 395	0 111	0 111	0 003	3 5	3 0
148		Std Deviation		0,417	0 078	0 486	0 370	0,434	0 643	0,627	0,533	0,111	0,574	0,099	0 010	0,273	0 018	0 018			12,0	33 2	2 289	0 062	0 061	0 002	1 8	1 6
149		Number of Points Used		116	116	116	116	116	116	116	116	116	116	116	116	116	116	116			11,7	32 1	2,217	0 058	0 057	0 002	1 7	1 5
																					0,113	0,530	0,037	0 008	0 008	0 000	0 236	0 201
																					116	116	116	116	116	116	116	116



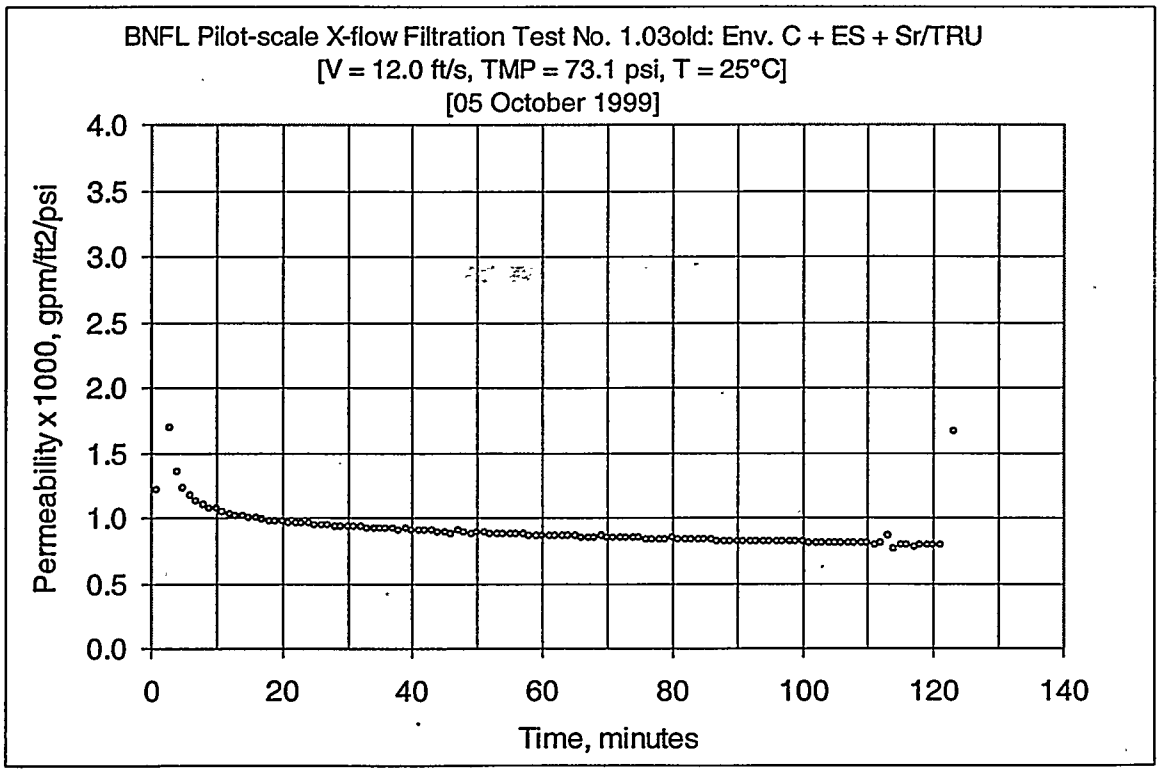


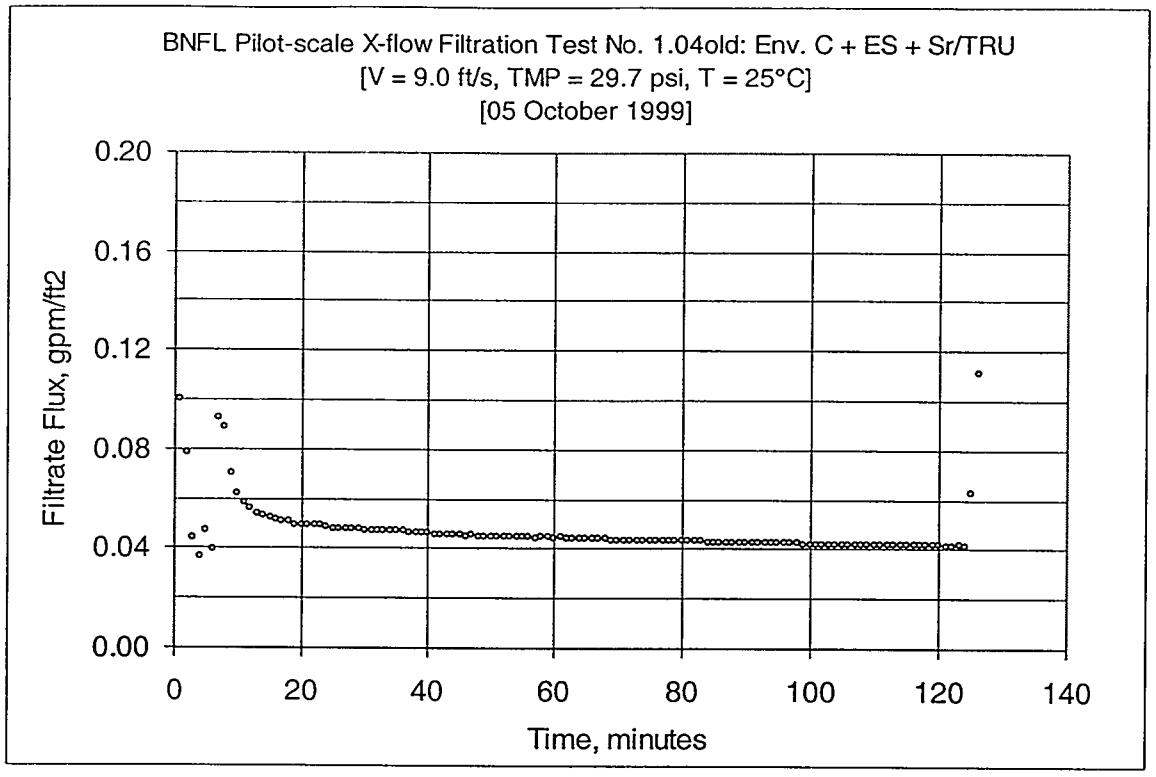
Figure B11: Test Run 1.03(old), 2 wt% Insoluble Solids Concentration

Run 1.03(old): 2 wt% Concentration of Insoluble Solids

	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	T6 (deg C)	BOT DP (p	FLTR (pe	FLTR DP (	TOP DP (p	FLTRATE (pslg)	PISTON (psig)	SL FLOW	O2,FLTR	RO3,FLTR	FLOW (ppm)		Filter Surface Area		2 29	FT2				
2	Zeroe - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/berg / gpm/ft2/berg				
3	10/5/1999	12:39:30 PM	0	27,978	21,778	25 326	22,712	20 803	31,326	-0 061	-2,384	0 503	-0 281	-2 737	-0 075	-0 079	0 011	-0 015										
4	10/5/1999	12:40:31 PM	0	27,932	21 733	25.121	22 587	20 756	31,363	0 001	-2 384	0,503	-0 281	-2 767	-0 075	-0 079	0 011	-0 015										
5	10/5/1999	12:41:31 PM	0	27 852	21 733	24 961	22 667	20 758	31 363	0 001	-2 384	0 503	-0 248	-2 767	-0 075	-0 079	0 011	-0 016										
6	10/5/1999	12:42:32 PM	0	27,728	21,688	24 675	22 542	20 713	31 08	0 001	-2 384	0 511	-0 281	-2 767	-0 075	-0 079	0 011	-0 018										
7	Zeroe - Lines Not Connected																											
8	10/5/1999	12:45:15 PM	0	27,408	21,688	23 873	22 622	21,116	29 85	-0 061	-0 067	-0 023	-0 011	-0 148	-0 075	1,902	0 132	0 101										
9	10/5/1999	12:46:15 PM	0	27,089	21,769	23,713	22,702	21,277	30 445	0 001	-0 067	-0 023	-0 011	-0 148	-0 075	1,579	0 119	0 091										
10	10/5/1999	12:47:15 PM	0	26,724	21,724	23 508	22,738	21,312	29 685	0 001	-0,067	-0 023	-0 011	-0 148	-0 075	1 288	0 108	0,079										
11	10/5/1999	12:48:15 PM	0	26 405	21,804	23 267	22,736	21,393	30,241	0 001	-0,067	-0 023	-0 011	-0 148	-0 075	1 057	0,1	0 073										
12	10/5/1999	12:49:16 PM	0	26,129	21 769	23,151	22,763	21,519	29 609	0 001	-0,067	-0 023	-0,045	-0 148	-0 075	0 965	0 093	0 064										
13																												
14																												
15	Data - Per Minute																								at 25C	PERMABILITY	x1000	
16	10/5/1999	5:27:01 PM	0	25 902	22,828	25 809	24 402	21,612	31,569	75,318	83,779	6,966	68 89	7,834	-0 028	29 365	0 204	0,177			Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
17	10/5/1999	5:28:01 PM	0	25 962	22 906	25,969	24 402	21,632	31,649	72 219	83,201	6 643	65 881	10 392	-0 028	29 826	0 845	0,841			1	1	12 2	72 1	4 971	0 069	0 067	0 001	1 207	1 03
18	10/5/1999	5:29:01 PM	0	26 257	22,783	26 085	24,357	21,726	31,625	76 668	84,633	6,902	70 31	6 94	-0 028	29,12	0 293	0,259			2	2	12 4	69 1	4 761	0 369	0 359	0 005	5 199	4 42
19	10/5/1999	5:30:02 PM	0	26 337	22 863	26 324	24,357	21,889	31,287	75,752	83 596	7,11	69,228	7,063	-0 028	29 365	0 233	0,201			3	3	12 1	73 6	5 074	0 128	0 124	0 002	1 666	1 43
20	10/5/1999	5 31:02 PM	0	26 337	22,763	26 404	24 357	21,969	31,049	76,31	84 206	7,173	68 924	7,125	-0 028	29 365	0 212	0,183			4	4	12 2	72 5	4 998	0 102	0 098	0 001	1 352	1,15
21	10/5/1999	5:32:02 PM	0	26 417	22 863	26 564	24 437	21,889	30 69	75,07	82,865	7,173	69,127	7,156	-0 028	29 411	0 202	0,174			5	5	12 2	72 6	5 007	0 093	0 089	0 001	1 225	1 04
22	10/5/1999	5 33:02 PM	0	26,497	22,863	26 644	24,617	22 05	30,731	76,248	84 023	7,086	69 226	7,217	-0 028	29 396	0,196	0,171			6	6	12 2	72 1	4 971	0 088	0 084	0 001	1 171	1 00
23	10/5/1999	5,34:03 PM	0	26 657	22,863	26 804	24 457	22,13	30 672	76,31	84,328	7 213	69 093	7 248	-0 028	29 304	0,192	0,168			7	7	12 2	72 7	5 015	0 086	0 082	0 001	1 123	0 96
24	10/5/1999	5 35:03 PM	0	26,737	22,863	26,964	24,598	22,291	30,672	75 678	83,779	7,086	69 533	7,248	-0 028	29 35	0,189	0,168			8	8	12 2	72 7	5 013	0 084	0 080	0 001	1 096	0 93
25	10/5/1999	5:36:03 PM	0	26 897	22 863	27,044	24,598	22,291	30,413	75 008	82,926	7,054	69 228	7,248	-0 028	29 365	0,187	0,164			9	9	12 2	72,7	5 013	0 083	0 078	0 001	1 074	0 91
26	10/5/1999	5:37:04 PM	0	26 977	22 863	27,123	24 678	22,452	30,413	75,676	83 901	7,07	69 905	7,31	-0 028	29 227	0,185	0,164			10	10	12 2	72,1	4 972	0 082	0 077	0 001	1 069	0 91
27	10/5/1999	5 38:04 PM	0	27,181	22 906	27,326	24 723	22,497	30,299	76,31	84,328	7,142	70 04	7 31	-0 028	29,196	0 183	0,158			11	11	12 1	72 9	5 026	0 081	0 076	0 001	1 044	0 89
28	10/5/1999	5 39:05 PM	0	27,261	22,828	27,408	24,803	22,576	30,299	75 938	83,901	7,03	70 615	7,341	0 018	29 073	0,183	0,158			12	12	12 1	73 2	5 045	0 080	0 075	0 001	1 023	0 87
29	10/5/1999	5:40:05 PM	0	27,341	22,828	27,487	24,883	22 658	30 14	76,744	84,755	6 902	69 33	7,341	-0,028	28 997	0 182	0,158			13	13	12 1	73 3	5 052	0 080	0 075	0 001	1 019	0 87
30	10/5/1999	5:41:05 PM	0	27,466	22,792	27,532	24,928	22,784	30,264	75,69	83,596	7,006	70,276	7,341	-0 028	29 043	0 18	0,156			14	14	12 0	73 0	5 036	0 079	0 074	0 001	1 015	0 86
31	10/5/1999	5 42:05 PM	0	27 546	22 873	27,692	24 928	22 864	30,184	75 814	83 84	6,91	69 6	7,31	-0 028	29 043	0,18	0,156			15	15	12,1	73 0	5 032	0 079	0 073	0 001	1 003	0 85
32	10/5/1999	5:43:06 PM	0	27,75	22 918	27,737	24,973	22,749	30,626	76,248	84 328	6,998	69 837	7,341	-0,028	28 966	0,178	0,155			16	16	12,1	72,7	5 013	0 079	0 073	0 001	1 003	0 85
33	10/5/1999	5:44:06 PM	0	27,75	22 837	27,737	24,893	22 585	31,023	76 682	84,755	6 95	69,702	7,31	-0 028	29 166	0,177	0,155			17	17	12 0	73 0	5 036	0 078	0 072	0 001	0 988	0 84
34	10/5/1999	5:45:06 PM	0	27,675	22,883	27 861	25 096	22,392	31,306	76,372	84 511	6 99	70,107	7,31	-0 028	29 058	0 176	0,155			18	18	12 1	73 2	5 046	0 077	0 072	0 001	0 978	0 83
35	10/5/1999	5 46:07 PM	0	27 675	22 883	27,782	25 018	22,231	31,386	76 668	84,816	6 958	69,702	7,31	-0 028	29 073	0,176	0,152			19	19	12 1	73 2	5 050	0 077	0 071	0 001	0 969	0 82
36	10/5/1999	5,47:07 PM	0	27,675	22,883	27,702	24,938	22 231	31,306	76 434	84,572	6,958	69 296	7,341	-0,028	29 012	0,173	0,152			20	20	12 1	73 3	5 053	0 077	0 071	0 001	0 970	0 83
37	10/5/1999	5:48:07 PM	0	27 954	22,883	27 622	24 938	22,15	31,544	76 248	84,389	7,038	69,533	7,341	-0 028	29 089	0 173	0,152			21	21	12 0	72 9	5 024	0 076	0 070	0 001	0 961	0 82
38	10/5/1999	5:49:08 PM	0	27,875	22,883	27,542	24,938	22,15	31,624	75 628	83,718	6 99	70 344	7,341	-0 028	28 997	0,171	0,149			22	22	12 1	72 9	5 026	0 076	0 070	0 001	0 963	0 82
39	10/5/1999	5,50:08 PM	0	27,875	22 883	27 462	24,938	22 07	31,624	76 124	84 206	7,054	68,958	7,402	-0 028	28 843	0,171	0,152			23	23	12 0	73 0	5 032	0 075	0 070	0 001	0 961	0 81
40	10/5/1999	5:51:08 PM	0	27,919	22 928	27,507	24,903	22,035	31,668	76 124	84,145	6,99	69,769	7 31	-0 028	29 104	0 169	0,149			24	24	12 0	72 5	5 001	0 075	0 070	0 001	0 961	0 82
41	10/5/1999	5 52:09 PM	0	27,795	22 883	27,383	24,778	21,828	31,782	76,31	84 389	6 95	69 364	7,31	-0,028	29 043	0,168	0,149			25	25	12 1	72 9	5 029	0 074	0 069	0 001	0 943	0 80
42	10/5/1999	5:53:09 PM	0	27 84	22 928	27,427	24 823	21,954	31,827	75 938	84,084	7,022	69 364	7,341	-0 028	29,15	0 167	0,146			26	26	12 1	72 8	5 022	0 073	0 069	0 001	0 942	0 80
43	10/5/1999	5 54:09 PM	0	27,795	22 883	27 383	24 697	21,748	31,782	76,434	84 511	6,926	69 6	7,341	-0,028	29,12	0,167	0,146			27	27	12 1	72,7	5 009	0 073	0 068	0 001	0 938	0 80
44	10/5/1999	5:55:10 PM	0	27 84	22,928	27,348	24 743	21,793	31,906	76,186	84,023	7,014	69 668	7,341	-0 028	28 966	0 166	0,143			28	28	12,1	73,0	5 034	0 073	0 068	0 001	0 934	0 79
45	10/5/1999	5 56:10 PM	0	27,795	22,963	27,303	24 617	21,748	31,782	75 442	83,474	7,062	69 668	7 341	-0 028	29,196	0 166	0,146			29	29	12 0	72 9	5 028	0 072	0 068	0 001	0 931	0 79
46	10/5/1999	5 57:10 PM	0	27,715	22,963	27,223	24,617	21,748	31,782	75 876	83,84	7,102	69 059	7,341	0 018	29 196	0,164	0,143			30	30	12 1	72 6	5 002	0 072	0 068	0 001	0 937	0 80
47	10/5/1999	5 58:11 PM	0	27,715	22 963	27,223	24 617	21,748	31,862	75 938	83 962	7,102	68 687	7,341	-0 028	29,242	0 163	0,14			31	31	12 1	72,5	4 996	0 072	0 067	0 001	0 928	0 79
48	10/5/1999	5:58:11 PM	0	27 715	22,963	27,303	24 617	21,667	31,862	76,31	84 328	7,006	69 33	7,341	-0 028	29 15	0,163	0,14			32	32	12 1	72 3	4 988	0 071	0 067	0 001	0 925	0 79
49	10/5/1999	6:00:11 PM	0	27,59	22 918	27,178	24 572	21,703	31,617	76,186	84,389	7,046	69 499	7 341	-0 028	29 058	0 162	0,14			33	33	12 1	72 8	5 021	0 071	0 067	0 001	0 916	0 78
50	10/5/1999	6:01:12 PM	0	27,59	22 996	27,178	24,492	21,783	31,696	75,876	83,962	6,998	69 769	7,341	-0 028	29 043	0 162	0,14			34	34	12 1	72 8	5 022	0 071	0 067	0 001	0 914	0 78
51	10/5/1999	6:02:12 PM	0	27,59	22 996	27,178	24 492	21,841	31,976	76	84,145	7,014	70 04	7,372	-0 028	29 043	0,162	0,14			35	35	12 1	72 8	5 021	0 071	0 067	0 001	0 914	0,78
52	10/5/1999	6:03 12 PM	0	27 59	22 996	27,096	24 492	21,461	32,055	75,752	83,779	7 022	69,6	7,341	-0 026	29 012	0,161	0,14			36	36	12 1	73 0	5 034	0 071	0 067	0 001	0 911	0 78
53	10/5/1999	6:04:13 PM	0	27,546	22 953	27,133	24,447	21 577	31,652	75 69	83,657	6,942	69 431	7,341	-0 026	29 027	0,16	0,137			37	37	12 0	72,7	5 011	0 070	0 066	0 001	0 912	0 78
54	10/5/1999	6 05:13 PM	0	27,546	22,953	27,053	24 447	21,577	31,931	75 442	83 352	6,974	69 465	7,341	-0 026	29 027	0 16	0,14			38	38	12 0	72,6	5 003	0 070	0 066	0 001	0 907	0 77
55	10/5/1999	6:06:13 PM	0	27,421	22 908	27,088	24 402	21,451	31 887	76	83 962	7 006	69,972	7,341	-0 026	29 058	0,159	0,137			39	39	12 0	72 5	4 995	0 070	0 066	0 001	0 910	0 77
56	10/5/1999	6 07:14 PM	0	27,501	22 908	27,009	24,402	21,451	31,807	75 566	83,596	6 958	69 938	7 341	-0 026	29 073	0,159	0,134			40	40	12 1	73 0	5 032	0 069	0 065	0 001	0 897	0 76
57	10/5/1999	6 08:14 PM	0	27,456	22 883	-26 964	24,437	21,406	31,525	75 442	83 474	6,998	69 634	7 341	-0 026	28,92	0 159	0,137			41	41	12 1	72 8	5 016	0 069	0 066	0 001	0 902	0 77
58	10/5/1999	6:09 14 PM	0	27,456	22,943	-26,964	24 557	21 567	31,287	75 938	83 84	6,998	70 074	7,341	-0 026	28 904	0 159	0,137			42	42	12 0	72 5	5 001	0 069	0 066	0 001	0 906	0 77
59	10/5/1999	6:10:15 PM	0	27,456	22 943	26,964	24,557	21,647	31,049	76,124	84,145	6 99	69,736	7,341	-0 028	29 058	0,157	0,137			43	43	12 0	73 0	5 034	0 069	0 066	0 001	0 900	0 77
60	10/5/1999	6:11:15 PM	0	27,456	22 943	26,964	24 557	21 969	30,966	76 372	84,45	7,054	69,296	7 31	-0 028	29 043	0,157	0,134			44	44	12 1	72 8	5 028	0 069	0 065	0 001	0 890	0 76
61	10/5/1999	6:12:15 PM	0	27,378	22,943	26 964	24,437	22 05	30,81	76 248	84 206	6,998	70 344	7 31	-0 026	28 889	0,156	0,131			45	45	12 1	72 8	5 022	0 069	0 065	0 001	0 891	0 76
62	10/5/1999	6:13:16 PM	0	27,378	22,943	26 884	24 517	22,13	30,731	75,938	83,901	6,966	69 397	7 341	-0 026	28,904	0 157	0,131			46	46	12 0	73 3	5 054	0 068	0 064	0 001	0 879	0 75
63	10/5/1999	6:14:16 PM	0	27,296	22 943	26 884	24 617	22,211	30 651	76,124	84,206	6 958	69,769	7,31	-0,026	28 981	0 156	0,137			47	47	12 0	72 7	5 010	0 069	0 065	0 001	0 895	0 76
64	10/5/1999	6:15:16 PM	0	27,296	22 943	26 804	24 598	22 372	30,492	76,744	84,755	6,91	69 634	7,31	-0,028	29 027	0,155	0 134			48	48	12 0	72 9	5 029	0 068	0 065	0 001	0 886	0 75
65	10/5/1999	6:16:17 PM	0	27,296	22,943	26 804	24 598	22 372	30,413	75 752	83,901	6 962	69 33	7 31	-0 028	28,997	0 155	0,131			49	49	12 0	73 2	5 046	0 068	0 064	0 001	0 879	0 75
66	10/5/1999	6:17:18 PM	0	27 341	22 968	26 849	24 723	22 578	30 378	76	83 962	7,014	69,603	7 31	-0 028	28 935	0 155	0,131			50	50	12 0	72 5	5 001	0 068	0 064	0 001	0 887	0 75
67	10/5/1999	6:18:18 PM	0	27 261	22 908	26 849	24,723	22 578	30,219	76,31	84,328	6 998	69,499	7 31	-0 028	28 997	0 154	0,131			51	51	12 0	72 9	5 026	0 068	0 064	0 001	0 881	0 75
68	10/5/1999	6:19:18 PM	0	27,181	22,968	26 789	24,803	22 658	30,299	75 876	83 901	6 974	69 6	7,31	-0 026	29 012	0,153	0,131			52	52	12 0	72 9	5 027	0 067	0 064	0 001	0 876	0 75
69	10/5/1999	6:20:19 PM	0	27,306	22,953	26 814	24 848	22,703	30,164	76 186	84 206	6 998	69 769	7 31	-0 026	28 812	0 153	0,126			53	53	12 0	72 7	5 015	0 067	0 064	0 001	0 874	0,74
70	10/5/1999	6 21:19 PM	0	27 271	22 998	26 859	24 973	22,749	30,229	75,566	83,413	6,926	70,141	7,31	-0,028	28 889	0,153	0,131			54	54	12 0	73 0	5 032	0 067	0 063	0 001	0 870	0 74
71	10/5/1999	6:22:19 PM	0	27,226	22,953	26 814	24,848	22 784	30,105	76 682	84 677	6 974	68 789	7,31	-0 028	28 889	0 153	0,128			55	55	12 0	72 9	5 023	0 067	0 063	0 001	0 870	0 74
72	10/5/1999	6:23:20 PM	0	27,271	22 998	26 779	24 893	22 909	30,149	75,938	83 84	6,966	69 972	7,31	-0 028	28 874	0,153	0,131			56	56	12 0	72 7	5 015	0 067	0 063	0 001	0 873	0 74
73	10/5/1999	6:24:20 PM	0	27,236	22 953	26,824	25 018	22,653	30 432	75 814	83,84	6 942	69 803	7,31	0 018	28 904	0,152	0,131			57	57	12 0	73 0	5 030	0 067	0 064	0 001	0 871	0 74
74	10/5/1999	6:25:20 PM	0	27,156	23,043	26 744	25 018	22,794	30,75	76,31	84,328	6 838	69 938	7,31	-0 028	28 92	0 152	0,131			58	58	12 0	72 8	5 020	0 066	0 063	0 001	0 868	0 74
75	10/5/1999	6:26:21 PM	0	27,156	22 953	26,744	24,938	22,552	31,068	76	84,023	6 95	70,107	7 31	-0 026	28,782	0 151	0,131			59	59	12 0	73 1	5 042	0 066	0 063	0 001	0 864	0 74
76	10/5/1999	6:27:21 PM	0	27,201	23,008	26,789	24,963	22,617	31,351	76 806	84,938	6 91	69 972	7,31	-0 028	28 812	0 151	0 128			60	60	11 9	73 1	5 037	0 066	0 063	0 001	0 859	0 73
77	10/5/1999	6:28:21 PM	0	27,201	23,008	26,789	24 903	22,276	31,43	76,434	84,389	6,926	70 378	7,31	-0 028	28 889	0 151	0,128			61	61	12 0	73 4	5 060	0 066	0 063	0 001	0 854	0,73
78	10/5/1999	6:29:22 PM	0	27,201	22 928	26,709	24,743	22,195	31,589	76	83,962	6 918	69 671	7,31	0 018	28,782	0 151	0,128			62	62	12 0	73 4	5 061	0 066	0 063	0 001	0 854	0 73
79	10/5/1999	6:30:22 PM	0	27,166	23 053	26,754	24,707	22 06	31,713	76 806	84 816	6,966	69 702	7,31	-0 028	28,782	0 151	0,128			63	63	11 9	72 9	5 029	0 066	0 063	0 001	0 862	0 73
80	10/5/1999	6:31:22 PM	0	27,121	23,008	26,709	24 662	22 035	31,748	76 682	84,633	6 878	69 972	7 31	-0 028	28 889	0 151	0 131			64	64	11 9	73 3	5 051	0 066	0 063	0 001	0 857	0 73
81	10/5/1999	6:32:23 PM	0	27,121	23,008	26,709	24,582	21,874	31,827	76 682	84 694	6 966	70 074	7 31	-0 026	28 843	0 15	0 128			65	65	11 9	73 3	5 056	0 066	0 063	0 001	0 857	0 73
82	10/5/1999	6 33:23 PM	0	27,121	23,008	26,709	24 602	21,712	31,906	76	83,718	6,958	70 615	7,279	-0 026	28 812	0,15	0,128			66	66	12 0	73 4	5 059	0 065	0 062	0 001	0 851	0 72
83	10/5/1999	6 34:23 PM	0	27,166	23,053	26,754	24,547	21,758	31,871	76	83,962	6 87	69 871	7,279	-0 026	28 874	0,149	0,128			67	67	12 0	73 3	5 054	0 065	0 062	0 001	0 852	0 72
84	10/5/1999	6:35:24 PM	0	27,121	23 008	26 629	24 422	21 632	31 965	76 062	84 084	6 942	69 769	7,279	-0 028	28 874	0,149	0,125			68	68	12 0	72 9	5 029	0 065	0 062	0 001	0 849	0 72
85	10/5/1999	6 36:25 PM	0	27 041	23 008	26 709	24 422	21 551	31,965	76 062	83,962	6 958	69 938	7 279	-0 028	28 843	0 148	0,125			69	69	12 0	72 9	5 027	0 065	0 062	0 001	0 852	0 73
																					70	70	12 0	73 0	5 033	0 065	0 062	0 001	0 844	0 72

Run 1.03(old): 2 wt% Concentration of Insoluble Solids

	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	10/5/1999	6:37:25 PM	0	27.121	23.008	26.709	24.422	21.712	32.065	75.568	83.596	6.926	70.107	7.279	-0.028	28.874	0.148	0.125	71	71	12.0	72.8	5.022	0.065	0.062	0.001	0.845	0.72
87	10/5/1999	6:38:25 PM	0	27.121	23.089	26.709	24.422	21.551	32.063	76.188	84.267	6.854	69.566	7.31	-0.028	28.826	0.148	0.128	72	72	12.0	72.8	5.025	0.065	0.062	0.001	0.845	0.72
88	10/5/1999	6:39:26 PM	0	27.121	23.008	26.709	24.542	21.551	32.003	75.814	83.84	6.856	69.228	7.279	0.018	28.797	0.148	0.125	73	73	12.0	72.5	5.000	0.065	0.062	0.001	0.849	0.72
89	10/5/1999	6:40:26 PM	0	27.076	23.043	26.684	24.296	21.506	32.02	76.372	84.45	6.918	70.04	7.279	-0.028	28.812	0.148	0.125	74	74	12.0	73.2	5.047	0.065	0.062	0.001	0.842	0.72
90	10/5/1999	6:41:27 PM	0	27.076	23.043	26.684	24.296	21.506	32.02	76.558	84.45	6.918	69.972	7.279	-0.028	28.768	0.148	0.128	75	75	11.9	73.3	5.051	0.065	0.062	0.001	0.842	0.72
91	10/5/1999	6:42:27 PM	0	27.076	23.043	26.684	24.296	21.506	32.02	76.062	84.044	6.942	69.803	7.279	-0.028	28.92	0.146	0.125	76	76	12.0	72.9	5.028	0.064	0.061	0.001	0.834	0.71
92	10/5/1999	6:43:27 PM	0	27.076	23.124	26.684	24.218	21.587	32.02	76.248	84.145	6.862	70.006	7.248	-0.028	28.843	0.147	0.122	77	77	12.0	73.1	5.042	0.064	0.061	0.001	0.838	0.71
93	10/5/1999	6:44:27 PM	0	27.031	22.996	26.619	24.171	21.541	31.978	76.434	84.511	6.958	69.597	7.279	-0.028	28.812	0.146	0.125	78	78	12.0	72.8	5.027	0.064	0.061	0.001	0.835	0.71
94	10/5/1999	6:45:28 PM	0	27.031	23.079	26.539	24.091	21.38	32.134	75.638	83.901	6.966	70.311	7.279	-0.028	28.835	0.148	0.125	79	79	12.0	73.1	5.042	0.064	0.061	0.001	0.835	0.71
95	10/5/1999	6:46:28 PM	0	27.031	23.079	26.619	24.091	21.38	32.134	75.07	82.967	6.91	69.668	7.279	0.018	28.904	0.148	0.122	80	80	12.0	72.4	4.990	0.064	0.061	0.001	0.842	0.72
96	10/5/1999	6:47:28 PM	0	27.068	22.953	26.574	24.048	21.254	32.09	76.744	84.755	6.926	69.905	7.279	-0.028	28.859	0.148	0.122	81	81	12.0	73.3	5.055	0.064	0.061	0.001	0.832	0.71
97	10/5/1999	6:48:29 PM	0	26.986	23.034	26.574	23.968	21.254	32.01	76.062	83.901	6.966	70.378	7.279	-0.028	28.856	0.145	0.122	82	82	12.0	73.2	5.048	0.063	0.061	0.001	0.827	0.70
98	10/5/1999	6:49:29 PM	0	27.068	23.034	26.494	23.968	21.335	32.09	75.69	83.657	6.974	69.81	7.248	-0.028	28.92	0.145	0.122	83	83	12.0	72.8	5.009	0.063	0.061	0.001	0.836	0.71
99	10/5/1999	6:50:29 PM	0	27.022	23.089	26.529	24.001	21.29	32.204	76.372	84.328	6.974	69.736	7.248	-0.028	28.92	0.145	0.122	84	84	12.0	73.1	5.037	0.063	0.061	0.001	0.830	0.71
100	10/5/1999	6:51:30 PM	0	27.022	23.089	26.529	24.001	21.209	31.726	76.62	84.633	6.846	69.803	7.248	-0.028	28.797	0.145	0.122	85	85	12.0	73.2	5.048	0.063	0.061	0.001	0.828	0.70
101	10/5/1999	6:52:30 PM	0	26.977	23.024	26.564	24.036	21.406	31.825	75.936	83.901	6.99	69.837	7.248	-0.028	28.856	0.144	0.122	86	86	12.0	72.9	5.025	0.063	0.060	0.001	0.825	0.70
102	10/5/1999	6:53:30 PM	0	26.977	23.024	26.564	24.036	21.466	31.207	76.744	84.694	6.942	69.972	7.279	-0.028	28.812	0.144	0.119	87	87	12.0	73.4	5.058	0.063	0.060	0.001	0.820	0.70
103	10/5/1999	6:54:31 PM	0	26.977	23.024	26.564	24.036	21.587	31.128	76.558	84.511	6.974	70.378	7.279	-0.028	28.856	0.144	0.122	88	88	12.0	73.5	5.065	0.063	0.060	0.001	0.819	0.70
104	10/5/1999	6:55:31 PM	0	26.977	23.024	26.564	24.118	21.728	31.049	76.558	84.572	6.962	69.905	7.248	0.018	28.92	0.143	0.119	89	89	12.0	73.2	5.049	0.062	0.060	0.001	0.818	0.69
105	10/5/1999	6:56:31 PM	0	26.977	23.024	26.564	24.118	21.808	30.89	75.876	83.718	6.958	70.446	7.248	0.018	28.828	0.143	0.122	90	90	12.0	73.2	5.044	0.062	0.060	0.001	0.817	0.70
106	10/5/1999	6:57:32 PM	0	27.057	23.024	26.564	24.118	21.969	30.731	76.62	84.633	6.99	70.479	7.248	-0.028	28.92	0.143	0.122	91	91	12.0	73.5	5.071	0.062	0.060	0.001	0.812	0.69
107	10/5/1999	6:58:32 PM	0	26.932	22.978	26.519	24.152	22.005	30.607	76.062	83.962	6.958	70.107	7.248	-0.028	28.951	0.143	0.122	92	92	12.0	73.1	5.039	0.062	0.060	0.001	0.819	0.70
108	10/5/1999	6:59:32 PM	0	26.932	22.978	26.519	24.152	22.083	30.527	76.868	84.838	6.878	69.803	7.248	-0.028	28.951	0.143	0.125	93	93	12.0	73.3	5.058	0.062	0.060	0.001	0.816	0.69
109	10/5/1999	7:00:33 PM	0	26.932	22.978	26.519	24.232	22.246	30.607	76.558	84.511	6.926	69.938	7.248	-0.028	28.889	0.143	0.122	94	94	12.0	73.2	5.050	0.062	0.060	0.001	0.817	0.70
110	10/5/1999	7:01:33 PM	0	26.977	23.024	26.564	24.277	22.291	30.492	76.558	84.45	6.894	70.479	7.248	0.018	28.674	0.143	0.119	95	95	11.9	73.5	5.069	0.062	0.060	0.001	0.813	0.69
111	10/5/1999	7:02:33 PM	0	26.932	22.978	26.519	24.232	22.327	30.368	76.806	84.616	6.878	70.75	7.279	-0.028	28.52	0.143	0.122	96	96	11.8	73.8	5.087	0.062	0.060	0.001	0.811	0.69
112	10/5/1999	7:03:34 PM	0	26.897	23.024	26.564	24.277	22.452	30.333	76.186	84.084	6.87	70.581	7.279	0.018	28.736	0.143	0.119	97	97	11.9	73.4	5.060	0.062	0.060	0.001	0.814	0.69
113	10/5/1999	7:04:34 PM	0	26.977	23.024	26.564	24.357	22.452	30.413	76.496	84.389	6.806	70.513	7.279	-0.028	28.628	0.143	0.122	98	98	11.9	73.5	5.068	0.062	0.060	0.001	0.813	0.69
114	10/5/1999	7:05:34 PM	0	26.897	23.024	26.564	24.277	22.533	30.254	76.992	84.938	6.846	70.344	7.279	-0.028	28.551	0.143	0.122	99	99	11.8	73.7	5.079	0.062	0.060	0.001	0.811	0.69
115	10/5/1999	7:06:35 PM	0	26.942	22.968	26.609	24.402	22.658	30.219	76.992	84.877	6.727	70.378	7.217	0.018	28.474	0.144	0.122	100	100	11.8	73.7	5.080	0.063	0.060	0.001	0.816	0.69
116	10/5/1999	7:07:36 PM	0	26.942	22.968	26.529	24.322	22.658	30.299	76.992	84.938	6.806	71.054	7.217	-0.028	28.52	0.143	0.119	101	101	11.8	74.0	5.104	0.062	0.060	0.001	0.808	0.69
117	10/5/1999	7:08:36 PM	0	26.862	22.968	26.529	24.402	22.658	30.219	76.372	84.023	6.838	70.919	7.217	0.018	28.551	0.142	0.125	102	102	11.8	73.6	5.078	0.062	0.059	0.001	0.806	0.68
118	10/5/1999	7:09:36 PM	0	26.907	22.953	26.574	24.447	22.784	30.264	76.744	84.694	6.838	70.581	7.187	0.018	28.567	0.142	0.119	103	103	11.9	73.7	5.079	0.062	0.059	0.001	0.805	0.69
119	10/5/1999	7:10:37 PM	0	26.951	22.996	26.459	24.492	22.829	30.306	77.116	84.999	6.751	70.107	7.156	-0.028	28.536	0.142	0.122	104	104	11.8	73.6	5.075	0.062	0.060	0.001	0.808	0.69
120	10/5/1999	7:11:37 PM	0	26.871	22.996	26.539	24.412	22.829	30.487	76.558	84.328	6.814	71.088	7.125	-0.028	28.628	0.141	0.119	105	105	11.9	73.8	5.090	0.062	0.059	0.001	0.799	0.68
121	10/5/1999	7:12:37 PM	0	26.996	23.043	26.504	24.617	22.713	30.909	76.93	84.694	6.814	70.446	7.125	0.018	28.597	0.141	0.119	106	106	11.9	73.7	5.081	0.062	0.059	0.001	0.801	0.68
122	10/5/1999	7:13:38 PM	0	26.916	23.043	26.504	24.457	22.472	31.147	76.806	84.694	6.79	70.953	7.094	0.018	28.628	0.141	0.119	107	107	11.9	73.9	5.094	0.062	0.059	0.001	0.799	0.68
123	10/5/1999	7:14:38 PM	0	26.916	23.043	26.504	24.377	22.231	31.465	76.806	84.45	6.902	70.953	7.033	-0.028	28.505	0.141	0.122	108	108	11.8	73.9	5.094	0.062	0.059	0.001	0.799	0.68
124	10/5/1999	7:15:38 PM	0	26.916	22.963	26.504	24.296	22.15	31.544	76.372	84.023	6.838	71.155	7.002	0.018	28.659	0.141	0.122	109	109	11.9	73.8	5.088	0.062	0.059	0.001	0.800	0.68
125	10/5/1999	7:16:39 PM	0	26.916	23.043	26.504	24.216	21.969	31.624	77.302	84.999	6.782	70.784	6.94	0.018	28.567	0.142	0.119	110	110	11.9	74.0	5.105	0.062	0.059	0.001	0.803	0.68
126	10/5/1999	7:17:39 PM	0	26.881	23.008	26.549	24.181	21.954	31.827	77.364	84.999	6.798	71.46	6.909	-0.028	28.536	0.141	0.119	111	111	11.8	74.4	5.130	0.062	0.059	0.001	0.792	0.67
127	10/5/1999	7:18:39 PM	0	26.881	23.008	26.549	24.101	21.793	31.906	77.55	85.121	6.711	71.426	6.878	-0.028	28.428	0.143	0.122	112	112	11.8	74.5	5.136	0.062	0.060	0.001	0.802	0.68
128	10/5/1999	7:19:40 PM	0	26.836	22.963	26.504	24.056	21.587	31.941	77.612	84.877	6.838	71.696	6.863	-0.028	28.674	0.182	0.128	113	113	11.9	74.7	5.147	0.066	0.064	0.001	0.852	0.73
129	10/5/1999	7:20:40 PM	0	26.836	22.963	26.504	23.895	21.587	32.02	76.682	84.694	6.854	70.615	7.31	0.018	28.459	0.135	0.113	114	114	11.8	73.6	5.078	0.059	0.057	0.001	0.767	0.65
130	10/5/1999	7:21:40 PM	0	26.916	22.963	26.504	23.895	21.506	32.02	76.124	84.145	6.767	70.784	7.402	-0.028	28.551	0.139	0.119	115	115	11.8	73.5	5.064	0.061	0.058	0.001	0.792	0.67
131	10/5/1999	7:22:41 PM	0	26.916	23.043	26.504	23.895	21.506	32.1	76.682	84.616	6.798	70.006	7.402	-0.028	28.582	0.139	0.122	116	116	11.9	73.3	5.057	0.061	0.058	0.001	0.793	0.68
132	10/5/1999	7:23:41 PM	0	26.916	23.043	26.504	23.895	21.426	32.1	76.806	84.938	6.87	70.75	7.372	0.018	28.659	0.137	0.119	117	117	11.9	73.6	5.067	0.060	0.057	0.001	0.777	0.66
133	10/5/1999	7:24:41 PM	0	26.871	22.996	26.379	23.77	21.36	32.035	76.682	84.755	6.878	70.581	7.372	-0.028	28.597	0.138	0.122	118	118	11.9	73.6	5.077	0.060	0.058	0.001	0.787	0.67
134	10/5/1999	7:25:42 PM	0	26.871	22.996	26.459	23.77	21.36	32.214	77.116	85.121	6.838	70.784	7.372	0.018	28.582	0.139	0.119	119	119	11.9	74.0	5.099	0.061	0.058	0.001	0.788	0.67
135	10/5/1999	7:26:42 PM	0	26.871	22.996	26.379	23.77	21.3	32.055	76.806	84.616	6.87	70.276	7.402	-0.028	28.628	0.138	0.118	120	120	11.9	73.5	5.070	0.060	0.058	0.001	0.788	0.67
136	10/5/1999	7:27:42 PM	0	26.907	22.953	26.494	23.644	21.174	32.189	76.868	84.938	6.694	69.803	7.372	-0.028	28.643	0.138	0.116	121	121	11.9	73.3	5.056	0.060	0.058	0.001	0.788	0.67
137	10/5/1999	7:28:43 PM	0	26.827	23.034	26.414	23.644	21.254	32.01	72.529	81.706	6.902	66.017	6.419	-0.028	30.625	0.778	0.719	122	122	12.7	69.3	4.776	0.340	0.326	0.005	4.712	4.01
138	10/5/1999	7:29:44 PM	0	26.907	23.034	26.414	23.644	21.254	32.189	74.636	82.072	7.269	67.876	6.788	-0.028	30.287	0.282	0.25	123	123	12.6	71.3	4.913	0.123	0.118	0.002	1.661	1.41
139																												
140		Averages		27.2	23.0	26.8	24.5	22.0	31.3	76.3	84.2	6.9	69.9	7.3	0.0	28.9	0.163	0.141			12.0	73.1	5.040	0.071	0.068	0.001	0.9	0.8
141		Maximum		28.0	23.1	27.9	25.1	23.0	32.3	77.6	85.1	7.2	71.7	10.4	0.0	29.8	0.845	0.841			12.4	74.7	5.147	0.369	0.359	0.005	5.2	4.4
142		Median		27.1	23.0	26.7	24.4	22.0	31.5	76.2	84.2	7.0	69.9	7.3	0.0	28.9	0.151	0.128			12.0	73.0	5.036	0.068	0.063	0.001	0.9	0.7
143		Minimum		26.0	22.8	26.0	23.6	21.2	30.1	72.2	82.9	6.5	65.9	6.7	0.0	28.4	0.135	0.113			11.8	69.1	4.761	0.059	0.057	0.001	0.8	0.7
144		Std Deviation		0.376	0.069	0.365	0.330	0.462	0.691	0.618	0.487	0.099	0.682	0.305	0.017	0.238	0.066	0.067			0.099	0.593	0.041	0.029	0.028	0.000	0.409	0.348
145		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



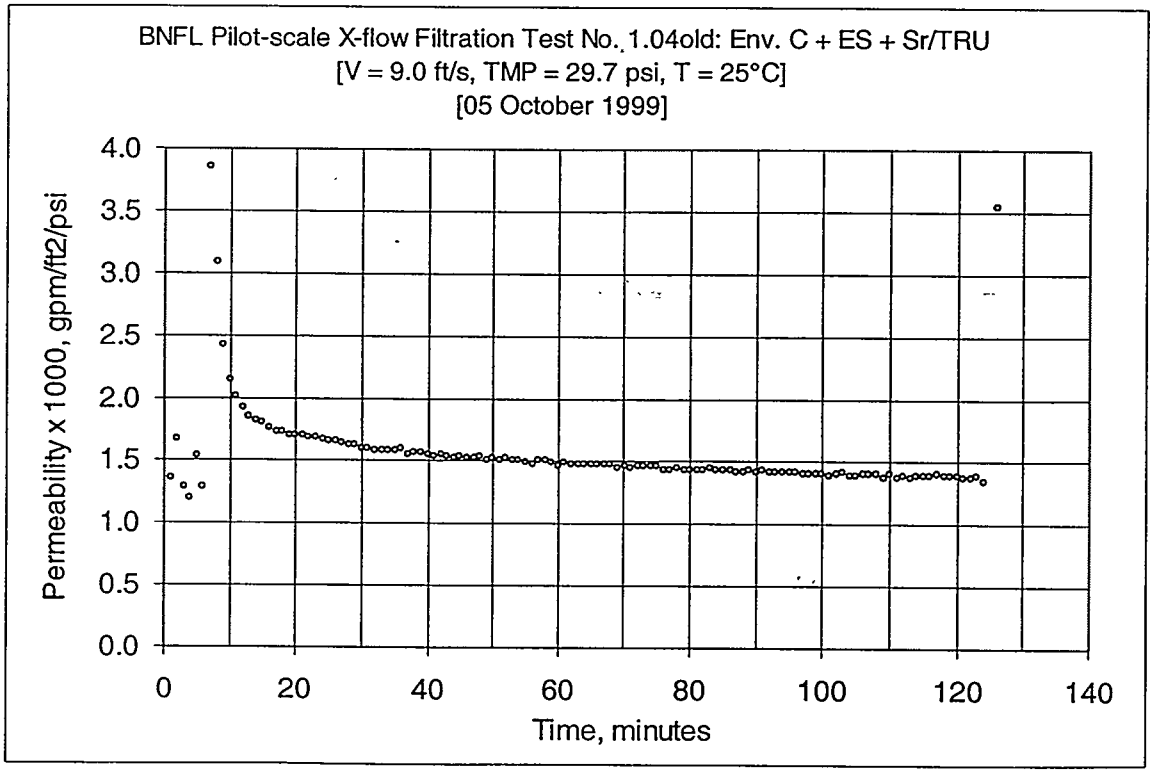


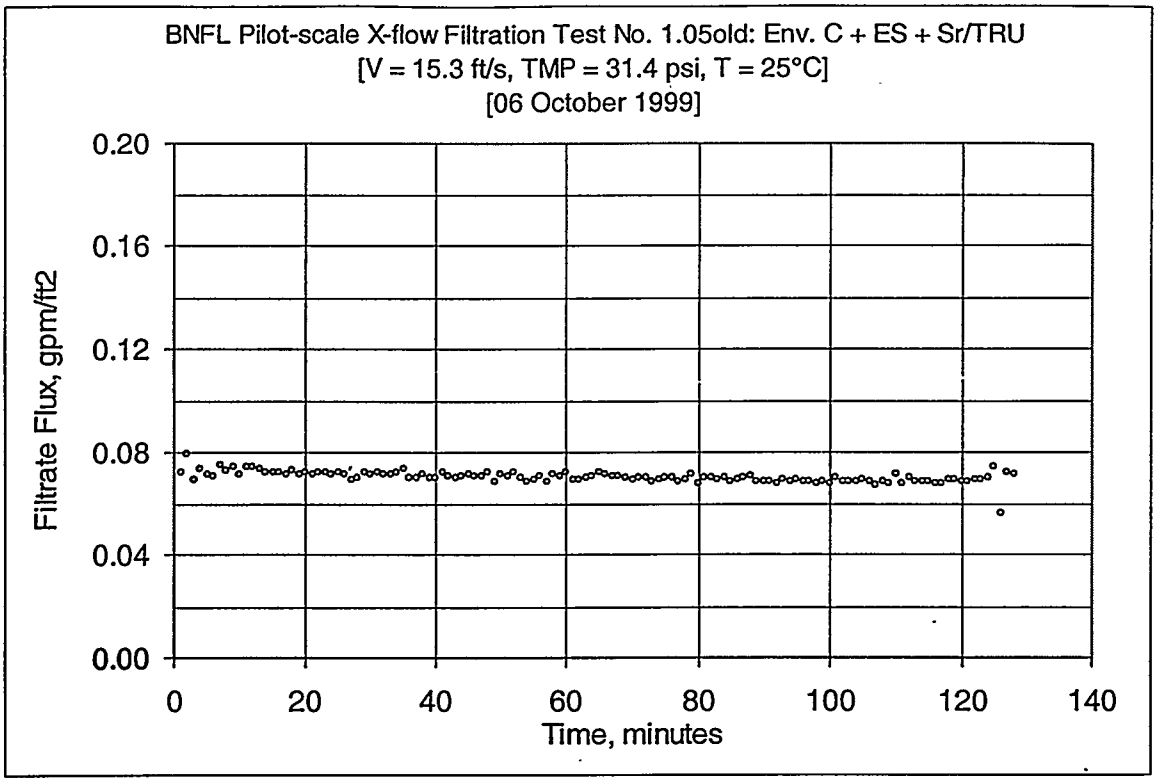
Figure B12: Test Run 1.04(old), 2 wt% Insoluble Solids Concentration

Run 1.04(old): 2 wt% Concentration of Insoluble Solids

	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	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR DP (p	FLTR DP (j	TOP DP (p	FLTRATE (peg)	PISTON (peg)	SL FLOW	O2,FLTR	O3,FLTR	FLOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/5/1999	12:39:30 PM	0	27.976	21.778	25 326	22,712	20 803	31,328	-0 061	-2,384	0,503	-0,281	-2,737	-0 075	-0 079	0 011	-0 015										
4	10/5/1999	12:40:31 PM	0	27,932	21,733	25 121	22,587	20,758	31,363	0 001	-2,384	0,503	-0,281	-2,767	-0 075	-0 079	0 011	-0 015										
5	10/5/1999	12:41:31 PM	0	27,852	21,733	24 961	22 687	20 758	31,363	0 001	-2,384	0 503	-0 248	-2,767	-0 075	-0 079	0 011	-0 018										
6	10/5/1999	12:42:32 PM	0	27,728	21 688	24 675	22,542	20 713	31 08	0 001	-2,384	0 511	-0,281	-2 767	-0 075	-0 079	0 011	-0 016										
7	Zeros - Lines Not Connected																											
8	10/5/1999	12:45 15 PM	0	27,408	21,688	23,873	22 672	21,118	29 65	-0 061	-0 067	-0 023	-0 011	-0,148	-0 075	1,902	0 132	0 101										
9	10/5/1999	12:48:15 PM	0	27 089	21 769	23,713	22,702	21,277	30 445	0 001	-0 067	-0 023	-0 011	-0,148	-0 075	1,579	0,119	0 091										
10	10/5/1999	12:47:15 PM	0	26,724	21,724	23,508	22,736	21,312	29 685	0 001	-0 067	-0 023	-0 011	-0,148	-0 075	1,288	0 108	0 079										
11	10/5/1999	12:48:15 PM	0	26 405	21,804	23,267	22,736	21,393	30,241	0 001	-0 067	-0 023	-0 011	-0,148	-0 075	1,057	0,1	0 073										
12	10/5/1999	12:49:16 PM	0	26 129	21,769	23 151	22,783	21,519	29 809	0 001	-0 067	-0 023	-0 045	-0,148	-0 075	0 965	0 093	0 064										
13																												
14																												
15	Data - Per Minute																								a1 25C	PERMABILITY	a1000	
16	10/5/1999	7:30:29 PM	0	26 862	22,958	26,369	23,599	21,209	32 045	77,24	84 694	6 814	70 617	6 817	-0,028	28 812	0,238	0 207			Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
17	10/5/1999	7:31:30 PM	0	26 862	22 958	26 449	23,519	21,129	32,204	49,158	56,095	4,939	44,515	5 965	-0,028	23 39	0,187	0 158			1	1	12 0	74 0	5 104	0,104	0 100	0 001	1 351	1,15
18	10/5/1999	7:32:30 PM	0	26 817	23,024	26,244	23,554	21,245	32,08	35,769	42 862	4 062	32 952	6 663	-0 028	20 672	0,105	0,078			2	2	9 7	48 8	3 229	0 082	0 078	0 002	1 674	1 42
19	10/5/1999	7:33:30 PM	0	26 817	23 024	26 063	23,554	21,408	31,842	32,793	39,752	4 421	29 064	6,231	-0 028	21,916	0 087	0 061			3	3	8 6	34,4	2,369	0 046	0 044	0 001	1,288	1 10
20	10/5/1999	7:34:30 PM	0	26 692	22,979	26,04	23,59	21,28	31,56	32,421	39,326	4 509	28 625	6,363	0,018	21,916	0,111	0 088			4	4	9,1	30 9	2,132	0 038	0 037	0 001	1,191	1 01
21	10/5/1999	7:35:31 PM	0	26 612	22,979	25 8	23,59	21,361	31,401	32 917	39,752	4,483	28,76	6 355	-0 028	21,9	0 093	0 067			5	5	9 1	30 5	2,104	0 048	0 047	0 002	1 542	1,31
22	10/5/1999	7:36 31 PM	0	26 532	22,979	25 72	23,59	21 602	31,242	25 602	36,777	4 054	22 303	12 516	0 018	22 085	0 216	0 189			6	6	9 1	30 8	2,126	0 041	0 040	0 001	1,287	1,10
23	10/5/1999	7:37:31 PM	0	26 327	22 934	25 515	23,625	21,638	31,198	30 688	39 57	4,309	26,9	8,142	0 018	21,993	0 206	0,18			7	7	9 2	24 0	1,651	0 094	0 092	0 004	3 858	3 28
24	10/5/1999	7:38:32 PM	0	26 327	22,934	25,433	23,643	21,718	31,118	30,748	39,387	4,477	26 867	8 142	-0 028	21,977	0,162	0,14			8	8	9 1	28 8	1,986	0 071	0 070	0 002	2 425	2 06
25	10/5/1999	7:39:32 PM	0	26 247	22,934	25 335	23,643	21,799	30 88	31,181	39 874	4 509	27,171	8 08	0 018	21,931	0,144	0,122			9	9	9 1	28 6	1,965	0 090	0 089	0 003	3 078	2 62
26	10/5/1999	7,40:32 PM	0	26,123	22 889	25,23	23,5	21,834	30,758	31,058	39,67	4 541	27,34	8 05	-0 028	21,916	0 135	0 113			10	10	9,1	29 2	2 012	0 063	0 062	0 002	2,133	1 62
27	10/5/1999	7:41:33 PM	0	26 043	22,969	25,31	23,539	21 834	30 597	31,12	39 874	4,485	27,137	8 05	-0 026	21,947	0,129	0,11			11	11	9,1	29 2	2 008	0 056	0 056	0 002	1 916	1,63
28	10/5/1999	7:42:33 PM	0	26 043	22,889	25,31	23,539	21,915	29 961	31,553	40,118	4,564	27,103	8 019	-0,028	21 9	0,125	0,107			12	12	9,1	29 1	2,009	0 054	0 053	0 002	1 844	1 57
29	10/5/1999	7:43:33 PM	0	25 963	22 889	25,39	23,258	21,915	30,359	31,305	39 874	4,564	26,968	8 019	-0 026	21,854	0,123	0,101			13	13	9 1	29 3	2 022	0 055	0 054	0 002	1 923	1,55
30	10/5/1999	7:44:34 PM	0	25,963	22,889	25,39	23,178	21,995	30,438	31,058	39 692	4,517	27,205	7,968	-0,028	21,947	0,121	0 097			14	14	9,1	29 1	2 009	0 053	0 052	0 002	1,793	1,53
31	10/5/1999	7:45 34 PM	0	25 883	22,969	25 47	23,258	21,995	30,436	31,429	39 996	4 501	27,408	8 019	-0 026	21,931	0,12	0 097			15	15	9,1	29,4	2 028	0 052	0 052	0 002	1 757	1 50
32	10/5/1999	7,46 34 PM	0	25 883	22 969	25,47	23,339	21,995	30,359	31,12	39,752	4,501	27,543	8 019	-0 026	21,854	0,118	0 094			16	16	9,1	29 3	2 022	0 052	0 051	0 002	1,733	1,47
33	10/5/1999	7:47:35 PM	0	25 883	22 889	25,39	23,419	21,995	30,359	31,181	39 692	4 633	27,103	7,968	-0,026	21,916	0,117	0 094			17	17	9,1	29,1	2,009	0 051	0 051	0 002	1 734	1,48
34	10/5/1999	7:48:35 PM	0	25 883	22 969	25,47	23,419	21,995	30,359	31,367	39,874	4,617	27,205	8 019	0 018	21,931	0,115	0 094			18	18	9,1	29 3	2 019	0 050	0 050	0 002	1,692	1,44
35	10/5/1999	7:49:35 PM	0	25 927	22 934	25 515	23,643	22,121	30,324	31,12	39 631	4 525	27,036	7,968	0 018	21,916	0,115	0 091			19	19	9,1	29 3	2 022	0 050	0 049	0 002	1,702	1,45
36	10/5/1999	7:50:36 PM	0	25 927	22 934	25,433	23,643	22,201	30,244	31,181	39 874	4,485	27,475	8 019	-0 026	21,808	0,115	0 094			20	20	9,1	29 1	2 009	0 050	0 050	0 002	1 691	1,44
37	10/5/1999	7:51:36 PM	0	25 847	22,934	25 515	23,643	22,201	30,165	31,243	40,118	4,461	27,171	8 019	-0 026	21,9	0,114	0 094			21	21	9 1	29 3	2 022	0 050	0 049	0 002	1,679	1,43
38	10/5/1999	7:52:36 PM	0	25 847	22,934	25,515	23,625	22 201	30,244	31,429	39 996	4,501	27,103	8 019	-0 026	21,885	0,114	0 088			22	22	9 1	29 2	2 014	0 050	0 049	0 002	1 678	1,43
39	10/5/1999	7:53:37 PM	0	25 892	22,898	25 56	23,67	22,327	30,289	31,305	39 874	4 493	27,171	8 019	-0 026	21,854	0,113	0 091			23	23	9 1	29 3	2 018	0 050	0 049	0 002	1,681	1,41
40	10/5/1999	7:54 37 PM	0	25 892	22,898	25 56	23,75	22,327	30,368	30 996	39,752	4,453	27,441	8 019	-0 026	21,793	0,112	0 091			24	24	9,1	29 2	2 016	0 049	0 049	0 002	1 647	1,40
41	10/5/1999	7,55 37 PM	0	25 892	22,898	25 56	23,67	22,327	30,209	30 81	39 265	4 501	27,272	8 019	0 018	21,839	0,112	0 088			25	25	9 0	29 2	2 015	0 049	0 048	0 002	1 657	1,41
42	10/5/1999	7:56:38 PM	0	25 937	22,843	25,524	23,785	22,372	30,333	31,181	39,752	4,453	27,272	8 019	-0,028	21,824	0,111	0 088			26	26	9,1	29 2	2 002	0 049	0 048	0 002	1,702	1,45
43	10/5/1999	7:57:38 PM	0	25,982	22,908	25 649	23,84	22,417	30 06	31,243	40 057	4,461	27,205	8 019	-0 028	21,808	0,111	0 088			27	27	9,1	29 2	2 015	0 048	0 048	0 002	1 634	1,39
44	10/5/1999	7:58 38 PM	0	25 902	22,908	25,649	23,84	22,417	30,219	31,243	39 933	4,469	27,475	8 019	-0 028	21,824	0,111	0 088			28	28	9,1	29 2	2 015	0 048	0 048	0 002	1 628	1,39
45	10/5/1999	7:59:39 PM	0	25 947	22,953	25 614	23,883	22,382	30 502	31,616	40,179	4,477	27,577	8 019	-0 028	21,808	0,11	0 091			29	29	9,1	29,4	2 024	0 048	0 048	0 002	1,621	1,38
46	10/5/1999	8:00:39 PM	0	25 947	22 953	25 614	23,805	22 301	30,679	31,429	39,835	4,485	27,543	8 05	0 018	21,778	0,11	0 088			30	30	9 1	29 6	2 041	0 048	0 047	0 002	1,595	1,36
47	10/5/1999	8:01:39 PM	0	25,992	22,818	25,659	23,65	22,105	31,341	31,367	39 996	4,461	27,543	8 019	-0 028	21,793	0,109	0 085			31	31	9 0	29,5	2 033	0 048	0 047	0 002	1 601	1,36
48	10/5/1999	8:02:40 PM	0	25 992	22,818	25,659	23,77	21,944	31,5	31,987	40 545	4,493	27,915	8 05	-0 028	21,824	0,11	0 085			32	32	9 0	29 5	2 031	0 048	0 047	0 002	1 586	1,35
49	10/5/1999	8:03:40 PM	0	25,992	22,818	25 659	23,77	21,783	31,736	31,925	40 606	4,397	27,103	8 019	-0 028	21,701	0,109	0 085			33	33	9,1	30 0	2,065	0 048	0 047	0 002	1,574	1,34
50	10/5/1999	8:04:40 PM	0	25,992	22 637	25,659	23 608	21,622	31,658	31,677	40,362	4,483	27,509	8 019	-0 028	21,824	0,109	0 085			34	34	9 0	29,5	2 035	0 048	0 047	0 002	1 583	1,35
51	10/5/1999	8:05:41 PM	0	25 847	22 873	25 614	23,564	21,657	31,773	31,553	40,118	4,461	27,171	8 019	-0 028	21,824	0,109	0 085			35	35	9,1	29 6	2 040	0 048	0 047	0 002	1,578	1,34
52	10/5/1999	8:06:41 PM	0	25 992	22 918	25 659	23 609	21,481	31,896	31,801	40,545	4,461	27,712	8 019	-0 028	21,778	0,109	0 085			36	36	9 1	29,4	2 024	0 048	0 047	0 002	1 593	1,36
53	10/5/1999	8:07:41 PM	0	25 847	22 873	25 614	23,484	21,335	32,01	31,491	40,179	4,445	27,881	8 019	-0 028	21,793	0,108	0 088			37	37	9 0	29 6	2 052	0 047	0 046	0 002	1,555	1,32
54	10/5/1999	8:08:42 PM	0	25 847	22,873	25 614	23,484	21,254	31,831	31,429	40,057	4 437	27,441	8 019	-0 028	21,793	0,107	0 085			38	38	9 0	29,7	2 047	0 047	0 046	0 002	1,561	1,33
55	10/5/1999	8:09:42 PM	0	25 847	22 873	25 614	23,403	21,254	32,09	31,553	40,118	4,461	27,678	8 019	-0 028	21,731	0,107	0 085			39	39	9 0	29,4	2 029	0 047	0 046	0 002	1,560	1,33
56	10/5/1999	8:10:42 PM	0	26 027	22,873	25 694	23,484	21,335	32 09	31,677	40,362	4,501	27,779	8 019	0 018	21,762	0,107	0 082			40	40	9 0	29,6	2 042	0 047	0 046	0 002	1,550	1,32
57	10/5/1999	8:11:43 PM	0	26,027	22,873	25 614	23,484	21,254	32,189	31,181	39,87	4,509	27,441	8 019	0 018	21,747	0,106	0 085			41	41	9 0	29,7	2 050	0 047	0 046	0 002	1 541	1,31
58	10/5/1999	8:12:43 PM	0	25 962	22 906	25 648	23,358	21,209	32,043	31,243	39 752	4,461	27,576	8 019	-0 028	21,778	0,106	0 085			42	42	9 0	29,3	2 021	0 046	0 045	0 002	1 552	1,32
59	10/5/1999	8:13:43 PM	0	25 962	22 828	25,648	23,358	21,209	32,125	31,925	40,484	4,469	27,949	8 05	-0 028	21,701	0,106	0 085			43	43	9 0	29,5	2 031	0 048	0 045	0 002	1,542	1,31
60	10/5/1999	8:14 44 PM	0	26,017	22,863	25,605	23,313	21,184	32,158	31,739	40,423	4,485	27,746	8,019	-0 028	21,762	0,106	0 085			44	44	9 0	29 9	2 064	0 048	0 045	0 002	1 518	1,29
61	10/5/1999	8,15 44 PM	0	25 972	22 818	25,56	23,268	21,199	32,115	31,367	40,118	4,413	27,881	8 019	-0 028	21,824	0,105	0 082			45	45	9 0	29,7	2 051	0 048	0 045	0 002	1 630	1,30
62	10/5/1999	8:16:44 PM	0	25 972	22,818	25 64	23,268	21,038	32,115	31,863	40 484	4,493	27,678	8 019	-0 028	21,731	0,106	0 085			46	46	9,1	29 6	2,042	0 048	0 045	0 002	1 523	1,30
63	10/5/1999	8:17:45 PM	0	25,927	22 853	25 595	23,223	20 912	31,991	31,491	40,179	4,445	27,74	7,968	-0 028	21,778	0,105	0 085			47	47	9 0	29 6	2 053	0 048	0 045	0 002	1,527	1,30
64	10/5/1999	8:18:45 PM	0	26 007	22,853	25 595	23,223	20 912	32,07	31,305	39,874	4,437	27,779	7,968	-0 028	21,747	0,104	0 082			48	48	9 0	29,4	2 026	0 046	0 045	0 002	1,532	1,30
65	10/5/1999	8:19:45 PM	0	26 043	22,889	25,65	23,178	21,028	31,929	31,491	40,118	4,453	27,779	7,968	-0 028	21,778	0,105	0 082			49	49	9 0	29 5	2 037	0 045	0 045	0 002	1,511	1,29
66	10/5/1999	8:20:46 PM	0	26 043	22,808	25 53	23,258	21,109	31,471	31,739	40,362	4,469	27,847	8 019	-0 028	21,747	0,104	0 082			50	50	9 0	29 6	2 043	0 048	0 045	0 002	1 523	1,30
67	10/5/1999	8:21:47 PM	0	25 998	22,844	25,425	23,294	21,225	31,188	31,367	39,933	4,461	27,881	8 019	-0 028	21,793	0,104	0 082			51	51	9 0	29 8	2 054	0 048	0 045	0 002	1,500	1,28
68	10/5/1999	8:22:46 PM	0	25,953	22,718	25,48	23,248	21,261	31,064	31,801	40,362	4 509	27,746	7,968	-0 028	21,685	0,104	0 079			52	52	9 0	29 6	2 042	0 045	0 045	0 002	1,514	1,29
69	10/5/1999	8:23:47 PM	0	25 953	22,718	25,38	23,248	21,341	30,963	31,801	40 24	4,445	27,915	8 019	-0 028	21,731	0,104	0 079			53	53	9 0	29 8	2 053	0 048	0 045	0 002	1,505	1,28
70	10/5/1999	8:24:48 PM	0	25 953	22,799	25,48	23,329	21,502	30,905	31,801	40 423	4,461	28 05	8 019	-0 028	21,716	0,104	0 082			54	54	9 0	29 0	2 059	0 045	0 045	0 002	1 504	1,28
71	10/5/1999	8:25 47 PM	0	25 953	22,799	25,36	23,329	21,502	30,747	31,967	40,606	4,445	28,185	8 019	-0 028	21,762	0,103	0 082			55	55	9 0	29 9	2 063	0 045	0 045	0 001	1,496	1,27
72	10/5/1999	8:26:48 PM	0	25 953	22,799	25 46	23,329	21,583	30 687	31,367	39,813	4,461	27,779	7,968	-0 028	21,778	0,103	0 079			56	56	9 0	30,1	2 074	0 045	0 044	0 001	1,479	1,26
73	10/5/1999	8:27:48 PM	0	25 826	22,754	25 335	23,264	21,638	30,543	31,616	40,179	4 469	27,779	8 019	-0 028	21,731	0,103	0 079			57	57	9 0	29 6	2 039	0 045	0 044	0 002	1,501	1,28
74	10/5/1999	8:28:48 PM	0	25 873	22,799	25,36	23,41	21,663	30 508	31,863	40 545	4,445	27,881	8 019	-0 028	21,67	0,103	0 079			58	58	9 0	29 7	2 048	0 045	0 045	0 001	1 500	1,28
75	10/5/1999	8:29:49 PM	0	25 828	22,754	25,335	23,365	21,699	30,364	32 421	40,911	4,493	28,219	8 019	-0 028	21,716	0,102	0 079			59	59	9 0	29 9	2 060	0 045	0 044	0 001	1,489	1,27
76	10/5/1999	8:30:49 PM	0	25 748	22,754	25,335	23,445	21,699	30,364	31,677	40,24	4,445	27,915	8 019	-0 028	21,685	0,103	0 079			60	60	9 0	30,3	2 090	0 045	0 044	0 001	1 455	1,24
77	10/5/1999	8:31:50 PM	0	25,748	22,754	25,255	23,443	21,66	30,305	32 049	40 606	4,453	28 05	7,968	-0 028	21 624	0,102	0 079			61	61	9 0	29 8	2 054	0 045	0 045	0 001	1,495	1,27
78	10/5/1999	8:32:50 PM	0	25 793	22,799	25 3	23,57	21,905	30,111	31,739	40 301	4,405	28,253	7,968	-0 028	21,716	0,102	0 079			62	62	9 0	30 0	2 072	0 045	0 044	0 001	1,471	1,25
79	10/5/1999	8:33:50 PM	0	25,793	22,799	25,3	23,57	21,965	30,18	31,801	40,301	4,437	27,881	7,968	-0 028	21,67	0,102	0 078			63	63	9 0	30 0	2 068	0 045	0 044	0 001	1,472	1,25
80	10/5/1999	8:34 50 PM	0	25 668	22 673	25 255	23,625	22 021	30,146	31,615	40,24	4,421	28,151	7,968	-0 028	21,778	0,102	0 078			64	64	9 0	29 8	2 057	0 045	0 044	0 001	1 480	1,26
81	10/5/1999	8:35 51 PM	0	25,713	22,718	25,22	23,57	22,068	30,111	31,863	40,484	4,461	27,949	7,968	-0 028	21,716	0,102	0 078			65	65	9 0	29 9	2 060	0 045	0 044	0 001	1,479	1,26
82	10/5/1999	8:36:51 PM	0	25 758	22,763	25,263	23,695	22,191	29 678	31,925	40,423	4,485	28 016	7,968	-0 028	21,701	0,102	0 078			66	66	9 0	29 9	2,062	0 045	0 044	0 001	1 480	1,26
83	10/5/1999	8:37:52 PM	0	25 678	22 763	25,263	23,695	22,191	30 076	31,616	40 057	4,485	27,712	7,968	-0 028	21,67	0,101	0 078			67	67	9 0	30 0	2 066	0 045	0 044	0 001	1 475	1,25
84	10/5/1999	8:38:52 PM	0	25 678	22,763	25,263	23 695	22,191	29,438	32,049	40 667	4 469	28 05	7,968	-0 028	21,747	0,1	0 079			68	68	9 0	29 7	2 045	0 044	0 044	0 001	1,475	1,26
85	10/5/1999	8 39 52 PM	0	25 642	22,728	25,23	23,74	22,317	29 961	31,429	39 935	4 461	27,962	7,968	-0 028	21,731	0 1	0 079			69	69	9 0	30 0	2 072	0 044	0 043	0 001	1,442	1,23
																					70	70	9 0	29 7	2 048	0 044	0 043	0 001	1 460	1 24

Run 1.04(old): 2 wt% Concentration of Insoluble Solids

	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	10/5/1999	8:40:53 PM	0	25.642	22.728	25.15	23.74	22.237	29.961	32.111	40.667	4.501	28.016	7.968	-0.028	21.793	0.1	0.079	71	71	9.0	30.1	2.073	0.044	0.043	0.001	1.446	1.23
87	10/5/1999	8:41:53 PM	0	25.642	22.728	25.15	23.74	22.237	30.12	31.429	39.813	4.461	27.813	7.968	-0.028	21.685	0.1	0.079	72	72	9.0	29.6	2.042	0.044	0.043	0.001	1.468	1.25
88	10/5/1999	8:42:53 PM	0	25.607	22.692	25.195	23.765	22.282	29.847	31.429	39.674	4.445	28.267	7.968	-0.028	21.716	0.1	0.076	73	73	9.0	29.9	2.059	0.044	0.043	0.001	1.454	1.24
89	10/5/1999	8:43:54 PM	0	25.652	22.737	25.159	23.83	22.407	30.209	32.049	40.728	4.461	27.712	7.968	0.018	21.731	0.1	0.076	74	74	9.0	29.9	2.060	0.044	0.043	0.001	1.454	1.24
90	10/5/1999	8:44:54 PM	0	25.372	22.737	25.159	23.911	22.327	29.971	31.663	40.362	4.469	27.915	7.968	-0.028	21.701	0.1	0.076	75	75	9.0	29.9	2.061	0.044	0.043	0.001	1.454	1.24
91	10/5/1999	8:45:54 PM	0	25.617	22.783	25.204	23.875	22.372	30.254	32.111	40.484	4.477	27.915	7.968	-0.028	21.685	0.099	0.073	76	76	9.0	30.0	2.069	0.043	0.043	0.001	1.432	1.22
92	10/5/1999	8:46:55 PM	0	25.537	22.783	25.124	23.795	22.291	30.572	31.967	40.606	4.481	28.05	7.968	-0.028	21.701	0.099	0.076	77	77	9.0	30.0	2.070	0.043	0.043	0.001	1.435	1.22
93	10/5/1999	8:47:55 PM	0	25.537	22.702	25.124	23.795	22.13	31.049	31.739	40.423	4.397	27.813	7.968	-0.028	21.67	0.099	0.076	78	78	9.0	29.8	2.053	0.043	0.043	0.001	1.446	1.23
94	10/5/1999	8:48:55 PM	0	25.582	22.747	25.069	23.76	21.934	31.331	32.049	40.545	4.477	27.881	7.968	-0.028	21.685	0.099	0.076	79	79	9.0	30.0	2.068	0.043	0.043	0.001	1.439	1.22
95	10/5/1999	8:49:56 PM	0	25.502	22.747	25.069	23.68	21.854	31.331	32.297	40.972	4.469	28.151	7.957	-0.028	21.731	0.099	0.076	80	80	9.0	30.2	2.084	0.043	0.043	0.001	1.426	1.21
96	10/5/1999	8:50:56 PM	0	25.582	22.747	25.069	23.599	21.693	31.569	32.111	40.667	4.461	27.949	7.968	-0.028	21.67	0.099	0.076	81	81	9.0	30.0	2.070	0.043	0.043	0.001	1.436	1.22
97	10/5/1999	8:51:56 PM	0	25.502	22.747	25.069	23.599	21.532	31.649	32.173	40.911	4.437	27.915	7.968	-0.028	21.67	0.099	0.076	82	82	9.0	30.0	2.071	0.043	0.043	0.001	1.435	1.22
98	10/5/1999	8:52:57 PM	0	25.547	22.792	25.054	23.564	21.657	32.01	31.677	40.179	4.421	27.915	7.968	-0.028	21.655	0.099	0.076	83	83	9.0	29.8	2.054	0.043	0.043	0.001	1.446	1.23
99	10/5/1999	8:53:57 PM	0	25.502	22.747	25.009	23.439	21.37	31.887	31.739	40.301	4.445	27.746	7.968	-0.028	21.67	0.098	0.076	84	84	9.0	29.7	2.051	0.043	0.043	0.001	1.438	1.22
100	10/5/1999	8:54:57 PM	0	25.502	22.747	25.089	23.439	21.209	31.966	31.925	40.362	4.445	27.949	7.968	-0.028	21.655	0.098	0.073	85	85	9.0	29.9	2.064	0.043	0.043	0.001	1.425	1.21
101	10/5/1999	8:55:58 PM	0	25.502	22.667	25.089	23.439	21.29	31.966	31.801	40.484	4.413	27.982	7.968	-0.028	21.685	0.098	0.073	86	86	9.0	29.9	2.061	0.043	0.043	0.001	1.428	1.21
102	10/5/1999	8:56:58 PM	0	25.502	22.747	25.089	23.278	21.29	32.045	32.111	40.606	4.381	27.949	7.968	-0.028	21.685	0.098	0.073	87	87	9.0	30.0	2.070	0.043	0.043	0.001	1.421	1.21
103	10/5/1999	8:57:58 PM	0	25.457	22.702	24.964	23.313	21.164	32.001	32.049	40.484	4.469	28.219	7.957	-0.028	21.685	0.098	0.076	88	88	9.0	30.1	2.078	0.043	0.043	0.001	1.421	1.21
104	10/5/1999	8:58:59 PM	0	25.457	22.702	24.964	23.233	21.164	32.08	31.863	40.667	4.389	27.881	7.968	-0.028	21.67	0.098	0.076	89	89	9.0	29.9	2.060	0.043	0.043	0.001	1.434	1.22
105	10/5/1999	8:59:59 PM	0	25.412	22.657	24.919	23.188	21.119	31.956	31.801	40.362	4.421	27.982	7.957	-0.028	21.655	0.097	0.076	90	90	9.0	29.9	2.061	0.042	0.042	0.001	1.420	1.21
106	10/5/1999	9:00:59 PM	0	25.492	22.737	24.999	23.268	21.038	32.036	32.173	40.728	4.485	27.779	7.968	0.018	21.701	0.098	0.073	91	91	9.0	30.0	2.067	0.043	0.043	0.001	1.427	1.21
107	10/5/1999	9:02:00 PM	0	25.447	22.692	24.954	23.143	20.993	31.991	31.863	40.423	4.461	27.915	7.957	-0.028	21.639	0.097	0.076	92	92	9.0	29.9	2.061	0.042	0.042	0.001	1.419	1.21
108	10/5/1999	9:03:00 PM	0	25.447	22.692	24.954	23.143	20.993	31.991	31.677	40.301	4.429	28.253	7.968	-0.028	21.624	0.097	0.073	93	93	9.0	30.0	2.068	0.042	0.042	0.001	1.415	1.20
109	10/5/1999	9:04:00 PM	0	25.402	22.728	24.989	23.096	20.887	31.947	31.815	40.24	4.421	28.219	7.957	0.018	21.639	0.097	0.07	94	94	9.0	29.9	2.063	0.042	0.042	0.001	1.418	1.20
110	10/5/1999	9:05:01 PM	0	25.357	22.683	24.945	23.053	20.903	31.744	31.739	40.362	4.421	28.253	7.968	-0.028	21.609	0.097	0.073	95	95	9.0	30.0	2.068	0.042	0.042	0.001	1.414	1.20
111	10/5/1999	9:06:01 PM	0	25.357	22.683	24.945	23.053	20.983	31.806	32.049	40.606	4.421	28.016	7.957	0.018	21.685	0.097	0.073	96	96	9.0	30.0	2.071	0.042	0.042	0.001	1.412	1.20
112	10/5/1999	9:07:01 PM	0	25.357	22.683	24.945	23.053	21.064	31.268	32.297	40.911	4.477	27.915	7.968	-0.028	21.716	0.097	0.073	97	97	9.0	30.1	2.076	0.042	0.042	0.001	1.409	1.20
113	10/5/1999	9:08:02 PM	0	25.312	22.638	24.9	23.008	21.099	31.144	32.545	41.216	4.429	28.016	7.968	-0.028	21.609	0.097	0.073	98	98	9.0	30.3	2.088	0.042	0.042	0.001	1.402	1.19
114	10/5/1999	9:09:02 PM	0	25.268	22.593	24.855	23.043	21.296	30.94	31.967	40.606	4.469	27.949	7.957	-0.028	21.67	0.096	0.073	99	99	9.0	30.0	2.066	0.042	0.042	0.001	1.404	1.19
115	10/5/1999	9:10:02 PM	0	25.393	22.638	24.9	23.088	21.341	30.905	32.049	40.423	4.453	28.185	7.968	-0.028	21.655	0.096	0.073	100	100	9.0	30.1	2.078	0.042	0.042	0.001	1.395	1.19
116	10/5/1999	9:11:03 PM	0	25.348	22.673	24.835	23.124	21.377	30.861	32.297	40.972	4.437	27.915	7.968	0.018	21.593	0.096	0.073	101	101	9.0	30.1	2.078	0.042	0.042	0.001	1.395	1.19
117	10/5/1999	9:12:03 PM	0	25.303	22.628	24.81	23.079	21.412	30.658	31.863	40.423	4.421	28.05	7.968	-0.028	21.639	0.096	0.073	102	102	9.0	30.0	2.065	0.042	0.042	0.001	1.406	1.20
118	10/5/1999	9:13:03 PM	0	25.303	22.628	24.89	23.159	21.412	30.578	31.615	40.24	4.429	27.678	7.968	-0.028	21.639	0.096	0.07	103	103	9.0	29.6	2.044	0.042	0.042	0.001	1.418	1.21
119	10/5/1999	9:14:04 PM	0	25.303	22.628	24.89	23.079	21.573	30.419	32.483	41.155	4.461	28.219	7.968	-0.028	21.655	0.096	0.073	104	104	9.0	30.4	2.093	0.042	0.042	0.001	1.385	1.18
120	10/5/1999	9:15:04 PM	0	25.303	22.628	24.89	23.159	21.573	30.34	31.967	40.362	4.469	28.388	7.968	-0.028	21.639	0.096	0.073	105	105	9.0	30.2	2.081	0.042	0.042	0.001	1.393	1.19
121	10/5/1999	9:16:04 PM	0	25.383	22.628	24.89	23.159	21.654	30.26	31.925	40.545	4.421	28.151	7.957	-0.028	21.624	0.096	0.073	106	106	9.0	30.0	2.071	0.042	0.042	0.001	1.399	1.19
122	10/5/1999	9:17:05 PM	0	25.303	22.628	24.89	23.239	21.734	30.26	31.967	40.423	4.461	28.118	7.957	-0.028	21.655	0.096	0.073	107	107	9.0	30.1	2.072	0.042	0.042	0.001	1.399	1.19
123	10/5/1999	9:18:05 PM	0	25.303	22.628	24.89	23.239	21.815	30.181	31.925	40.484	4.461	27.746	7.957	-0.028	21.701	0.096	0.073	108	108	9.0	29.8	2.057	0.042	0.042	0.001	1.409	1.20
124	10/5/1999	9:19:05 PM	0	25.303	22.628	24.81	23.239	21.815	29.942	32.173	40.728	4.477	28.523	7.968	-0.028	21.747	0.095	0.073	109	109	9.0	30.3	2.092	0.041	0.042	0.001	1.374	1.17
125	10/5/1999	9:20:06 PM	0	25.223	22.548	24.89	23.239	21.895	30.022	31.491	39.692	4.461	28.084	7.957	-0.028	21.639	0.095	0.073	110	110	9.0	29.8	2.054	0.041	0.042	0.001	1.397	1.19
126	10/5/1999	9:21:06 PM	0	25.268	22.593	24.835	23.365	22.021	30.148	32.235	40.85	4.429	28.32	7.957	-0.028	21.685	0.095	0.073	111	111	9.0	30.3	2.088	0.041	0.042	0.001	1.372	1.17
127	10/5/1999	9:22:06 PM	0	25.268	22.593	24.835	23.284	22.101	29.907	32.297	40.911	4.469	27.881	7.957	-0.028	21.593	0.095	0.07	112	112	9.0	30.1	2.075	0.041	0.042	0.001	1.381	1.18
128	10/5/1999	9:23:07 PM	0	25.268	22.673	24.835	23.365	22.182	30.148	32.235	40.85	4.461	28.32	7.957	0.018	21.653	0.095	0.07	113	113	9.0	30.3	2.088	0.041	0.042	0.001	1.375	1.17
129	10/5/1999	9:24:07 PM	0	25.268	22.593	24.835	23.365	22.182	29.828	32.049	40.667	4.445	28.118	7.957	-0.028	21.701	0.095	0.07	114	114	9.0	30.1	2.074	0.041	0.042	0.001	1.381	1.18
130	10/5/1999	9:25:07 PM	0	25.312	22.557	24.9	23.41	22.227	30.111	32.297	40.972	4.493	27.847	7.957	-0.028	21.67	0.095	0.07	115	115	9.0	30.1	2.073	0.041	0.042	0.001	1.383	1.18
131	10/5/1999	9:26:06 PM	0	25.232	22.557	24.9	23.41	22.227	30.111	31.925	40.423	4.461	27.813	7.957	-0.028	21.624	0.095	0.07	116	116	9.0	29.9	2.059	0.041	0.042	0.001	1.392	1.18
132	10/5/1999	9:27:06 PM	0	25.277	22.602	24.864	23.374	22.272	29.878	31.739	40.179	4.445	27.746	7.957	-0.028	21.685	0.095	0.07	117	117	9.0	29.7	2.051	0.041	0.042	0.001	1.400	1.19
133	10/5/1999	9:28:06 PM	0	25.322	22.647	24.909	23.419	22.397	29.643	31.863	40.545	4.413	28.185	7.957	-0.028	21.685	0.095	0.07	118	118	9.0	30.0	2.070	0.041	0.042	0.001	1.385	1.18
134	10/5/1999	9:29:10 PM	0	25.242	22.647	24.909	23.5	22.317	30.12	31.677	40.24	4.413	28.05	7.957	-0.028	21.655	0.095	0.07	119	119	9.0	29.9	2.059	0.041	0.042	0.001	1.392	1.18
135	10/5/1999	9:30:10 PM	0	25.287	22.612	24.874	23.545	22.362	30.065	31.967	40.362	4.469	28.219	7.957	-0.028	21.655	0.095	0.067	120	120	9.0	30.1	2.075	0.041	0.042	0.001	1.383	1.18
136	10/5/1999	9:31:10 PM	0	25.287	22.612	24.874	23.545	22.362	30.165	32.173	40.911	4.413	27.915	7.926	-0.028	21.578	0.094	0.07	121	121	9.0	30.0	2.071	0.041	0.041	0.001	1.371	1.17
137	10/5/1999	9:32:10 PM	0	25.252	22.657	24.839	23.509	22.407	30.05	31.925	40.545	4.421	28.05	7.957	-0.028	21.593	0.094	0.07	122	122	9.0	30.0	2.068	0.041	0.041	0.001	1.375	1.17
138	10/5/1999	9:33:11 PM	0	25.252	22.577	24.839	23.59	22.407	29.612	32.297	40.789	4.461	28.016	7.957	-0.028	21.593	0.095	0.07	123	123	9.0	30.2	2.079	0.041	0.042	0.001	1.381	1.18
139	10/5/1999	9:34:11 PM	0	25.297	22.622	24.884	23.554	22.452	30.015	31.925	40.484	4.429	28.456	7.957	-0.028	21.639	0.093	0.07	124	124	9.0	30.2	2.082	0.041	0.041	0.001	1.349	1.15
140	10/5/1999	9:35:11 PM	1	25.261	22.586	24.929	23.599	22.256	30.655	-6.67	43.228	4.7	4.06	62.627	59.661	21.301	0.143	0.155	125	8.8	-1.2	-0.086	0.062	0.063	-0.050	-50.241	-42.76
141	10/5/1999	9:36:12 PM	0	25.261	22.586	24.849	23.599	22.095	31.252	33.227	40.911	4.245	29.402	6.909	-0.028	21.624	0.253	0.219	126	126	9.1	31.3	2.159	0.110	0.111	0.004	3.542	3.01
142																												
143		Averages		25.7	22.8	25.2	23.4	21.8	30.8	31.7	40.3	4.6	27.7	8.0	0.0	21.7	0.106	0.083			9.0	29.7	2.048	0.046	0.046	0.002	1.5	1.3
144		Maximum		26.5	23.0	25.7	23.9	22.5	32.2	32.5	41.2	4.6	28.5	12.5	0.0	22.1	0.216	0.189			9.2	30.4	2.093	0.094	0.092	0.004	3.9	3.3
145		Median		25.7	22.8	25.3	23.4	21.8	30.6	31.7	40.4	4.6	27.9	8.0	0.0	21.7	0.102	0.079			9.0	29.8	2.058	0.045	0.044	0.001	1.5	1.3
146		Minimum		25.2	22.5	24.8	23.0	20.9	29.4	25.6	36.8	4.1	22.3	7.9	0.0	21.6	0.093	0.067			9.0	24.0	1.651	0.041	0.041	0.001	1.3	1.1
147		Std Deviation		0.304	0.116	0.286	0.228	0.466	0.793	0.680	0.413	0.052	0.623	0.416	0.015	0.099	0.017	0.017			0.041	0.636	0.044	0.008	0.007	0.000	0.302	0.257
148		Number of Points Used		118	118	118	118	118	118	118	118	118	118	118	118	118	118	118			118	118	118	118	118	118	118	118



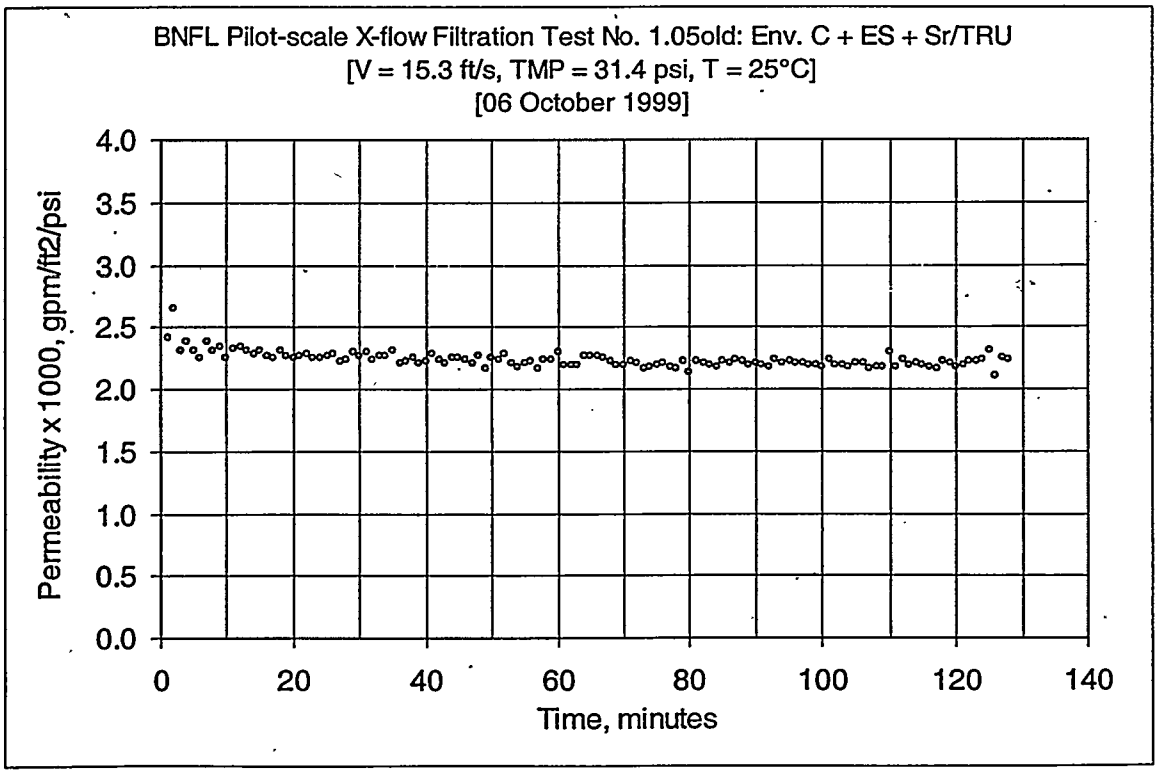


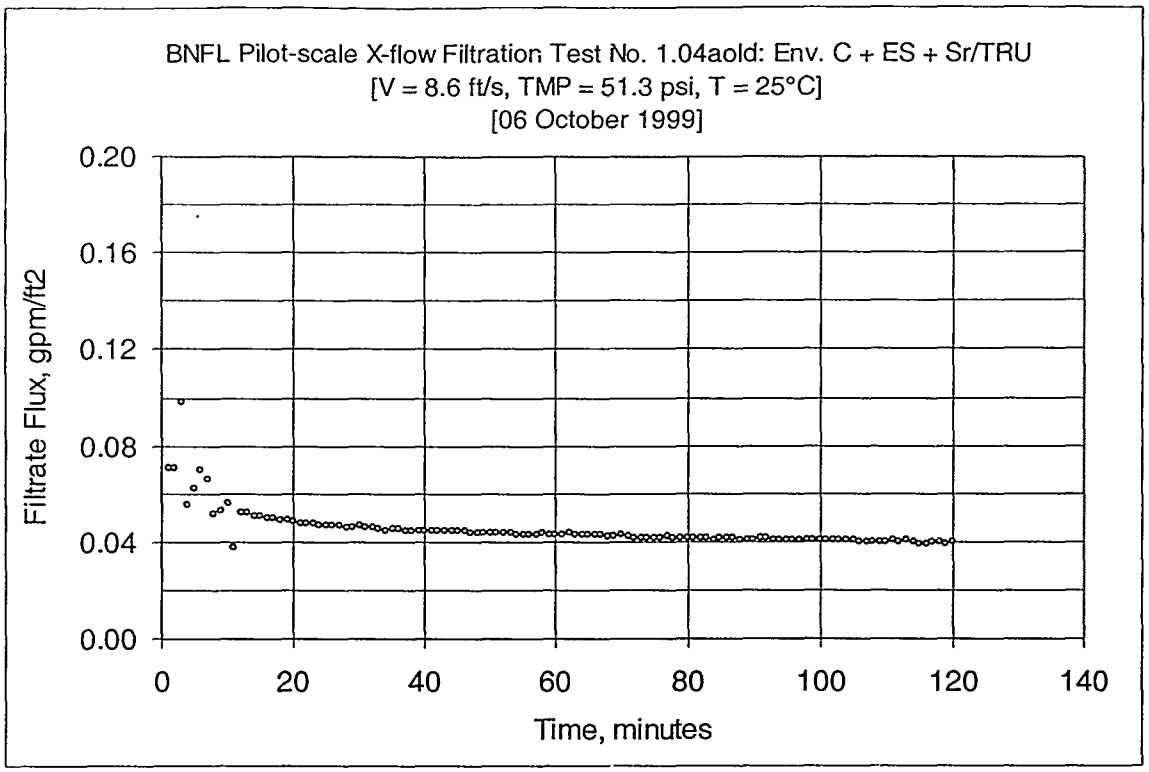
Figure B13: Test Run 1.05(old), 2 wt% Insoluble Solids Concentration

Run 1.05(old): 2 wt% Concentration of Insluble Solids

	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	SOLENOI	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	RSL FLOW	O2,FLTR	O3,FLTR	FLOW (ppm)		Filter Surface Area		2 29	FT2				
2	Zeroe - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/6/1999	8 15:29 AM	0	20 692	20 262	19 713	20 23	19 77	28 959	0 001	-5 311	-0 015	-0,045	-2 829	-0 075	-0 095	0 011	-0 018										
4	10/6/1999	8:16:29 AM	0	20 775	20 343	19 632	20 473	19 77	29 038	-0 061	-5 311	-0 015	-0 011	-2 829	-0 075	-0 095	0 011	-0 018										
5	10/6/1999	8:17:30 AM	0	20 775	20 262	19 713	20 473	19 85	28 959	0 001	-5 25	-0 015	-0 045	-2 798	-0 075	-0 079	0 011	-0 018										
6	10/6/1999	8:18 30 AM	0	20 692	20 343	19 713	20 392	19 931	28 959	-0 061	-5 311	-0 015	-0 011	-2 798	-0 075	-0 079	0 011	-0 018										
7	Zeroe - Lines Not Connected																											
8	10/6/1999	8 20 53 AM	0	20 289	20 343	19 632	20 311	20 012	28 799	-0 061	-0 067	-0 015	-0 011	-0 117	-0 075	-0 095	0 011	-0 018										
9	10/6/1999	8:21:53 AM	0	20 333	20 307	19 677	20 356	19 976	28 784	0 001	-0 067	-0 015	-0 011	-0 066	-0 075	-0 079	0 011	-0 018										
10	10/6/1999	8 22:53 AM	0	20 333	20 307	19 757	20 275	19 976	28 604	0 001	-0 067	-0 015	-0 011	-0 066	-0 075	-0 079	0 011	-0 015										
11	10/6/1999	8 23 54 AM	0	20 369	20 262	19 713	20 15	19 931	28 72	0 001	-0 067	-0 015	-0 011	-0 066	-0 075	-0 079	0 011	-0 018										
12																												
13																												
14	Data - Per Minute																								at 25C	PERMEABILITY	x1000	
15	10/6/1999	8:30:34 AM	0	22 545	20 343	23 658	20 23	20 254	28 082	34 639	44,631	10 706	24 5	9 251	-0 075	36 769	0,158	0,125	#1	1	15 3	29 7	2 046	0 069	0 072	0 002	2 415	2 05
16	10/6/1999	8 31:34 AM	0	22,631	20 388	24 023	20,194	20 38	28 365	34,001	44 753	11,011	24,737	9 251	-0,075	36,707	0,178	0 143	2	2	15 2	29 8	2 056	0 077	0 079	0 003	2 649	2 25
17	10/6/1999	8 32:35 AM	0	23,233	20 307	24 344	20 356	20 299	28,365	35 521	45 241	11,116	24 486	9 19	-0 075	36 83	0 156	0 125	3	3	15 3	30 0	2 065	0 068	0 069	0 002	2 313	1 97
18	10/6/1999	8 33:35 AM	0	23 474	20 307	24 745	20 275	20 38	27,966	36,017	46 033	10 668	25,548	9 375	-0 075	36,738	0,167	0 137	4	4	15 2	30 8	2 122	0 073	0 073	0 002	2 385	2 03
19	10/6/1999	8 34:35 AM	0	23 795	20 388	25 065	20,275	20 38	28,365	35 845	45,485	10,907	25 883	9 375	-0,075	37,107	0,163	0 131	5	5	15 4	30,7	2 114	0 071	0 071	0 002	2 316	1 97
20	10/6/1999	8 35:36 AM	0	24,116	20 307	25 468	20 356	20 38	28 265	36 513	45 058	11,171	26,19	8 05	-0 075	37 337	0 164	0,131	6	6	15 5	31 4	2 162	0 072	0 071	0 002	2 254	1 92
21	10/6/1999	8:36:36 AM	0	24 642	20,352	25 51	20 32	20,424	28 011	36 203	44 875	10 668	26 596	8,173	-0 075	36 984	0,174	0,143	7	7	15 3	31,4	2 165	0 076	0 075	0 002	2 385	2 03
22	10/6/1999	8 37:36 AM	0	24,678	20 307	25 468	20,194	20 38	27,807	36 513	45,241	10 628	26 562	8 204	-0 075	36,984	0 169	0 137	8	8	15 3	31 5	2 174	0 074	0 073	0 002	2 309	1 96
23	10/6/1999	8:38:37 AM	0	24 839	20,307	25,386	20 275	20 38	28,525	36 947	45,728	10,78	26,157	8 142	-0 075	36 938	0,171	0,14	9	9	15 3	31 6	2 175	0 075	0 074	0 002	2 340	1 99
24	10/6/1999	8,39:37 AM	0	24,962	20 352	25 51	20 401	20 505	28 09	36,947	45 606	11,011	26 326	8,173	-0 075	36,892	0,166	0 134	10	10	15 3	31,6	2 181	0 072	0 071	0 002	2 258	1 92
25	10/6/1999	8 40:37 AM	0	25 087	20 397	25 394	20 526	20 388	28 693	37,132	45 85	10,748	26 502	8 173	-0 075	36 677	0 172	0 143	11	11	15 2	31 8	2 196	0 075	0 074	0 002	2 332	1 98
26	10/6/1999	8:41:38 AM	0	25,167	20,397	25 394	20 607	20 469	28 613	36 823	45 606	10 628	26 427	8 173	-0 075	37,061	0,171	0 146	12	12	15 4	31,6	2 180	0 075	0 074	0 002	2 334	1 99
27	10/6/1999	8:42:38 AM	0	25,167	20 316	25 314	20 687	20,469	28 533	36 575	45 302	10,716	26 53	8,173	-0,075	36 938	0,169	0 14	13	13	15 3	31 6	2 179	0 074	0 073	0 002	2 314	1 97
28	10/6/1999	8:43:38 AM	0	25 212	20 36	25 359	20 651	20 514	28,737	36,761	45,545	10 532	26 427	8 142	-0 075	36 876	0,167	0,137	14	14	15 3	31,6	2 178	0 073	0 072	0 002	2 284	1 94
29	10/6/1999	8:44:39 AM	0	25 212	20 36	25 279	20 893	20 514	28 818	36,399	45 119	10 532	26,19	8 142	-0 075	36 815	0 167	0,14	15	15	15 3	31 3	2 157	0 073	0 072	0 002	2 312	1 97
30	10/6/1999	8 45:39 AM	0	25,256	20 405	25 323	20 657	20 478	28,66	36 637	45 363	10 62	26 664	8,173	-0 075	36,799	0 166	0,14	16	16	15 3	31 7	2 182	0 072	0 072	0 002	2 269	1 93
31	10/6/1999	8:46 39 AM	0	25 3	20 369	25 367	20 963	20,603	28 428	36,513	45 302	10,78	26 765	8 173	-0 075	36 784	0 165	0 131	17	17	15 3	31 6	2 181	0 072	0 071	0 002	2 253	1 92
32	10/6/1999	8 47:40 AM	0	25 3	20 369	25,367	20,963	20 522	28 586	36 451	45,18	10 636	26 596	8 173	-0 075	36 999	0 169	0,14	18	18	15 4	31,5	2 173	0 074	0 073	0 002	2 316	1 97
33	10/6/1999	8:48:40 AM	0	25 345	20 414	25,412	21,108	20 648	28 072	37,009	45 606	10 724	26,19	8 142	-0 075	36 845	0 168	0 137	19	19	15 3	31,6	2 179	0 072	0 072	0 002	2 267	1,93
34	10/6/1999	8 49:40 AM	0	25 345	20 414	25 332	21,108	20 648	28 869	36 699	45 485	10 469	26 867	8,142	-0 075	36,723	0,166	0,134	20	20	15 2	31 6	2 191	0 072	0 072	0 002	2 259	1 92
35	10/6/1999	8:50:41 AM	0	25 389	20,378	25 376	21,153	20 692	28 874	36,513	45 302	10 5	26 427	8,142	-0 075	36 938	0,165	0 134	21	21	15 3	31,5	2 170	0 072	0 071	0 002	2 265	1 93
36	10/6/1999	8 51:41 AM	0	25 389	20 378	25 296	21,233	20 692	28,993	36 265	45 058	10,453	26 664	8 142	-0 075	36 646	0 166	0 137	22	22	15 2	31 5	2 169	0 072	0 072	0 002	2 284	1 94
37	10/6/1999	8 52:41 AM	0	25,389	20,378	25 296	21,153	20 692	28 595	37,009	45 728	10 548	26 833	8,142	-0 075	36 53	0,166	0 134	23	23	15 2	31 9	2 201	0 072	0 072	0 002	2 251	1 92
38	10/6/1999	8 53 42 AM	0	25 398	20 468	25 385	21,323	20 782	28,842	36 389	45 058	10 54	26 696	8,173	-0 075	36 707	0,165	0 134	24	24	15 2	31 5	2 175	0 072	0 071	0 002	2 259	1 92
39	10/6/1999	8 54:42 AM	0	25 398	20 468	25 385	21,242	20,701	28 842	36 823	45 424	10 604	26 833	8,173	-0 075	36 784	0 167	0,137	25	25	15 3	31 8	2 194	0 073	0 072	0 002	2 266	1 93
40	10/6/1999	8 55 42 AM	0	25 478	20 387	25 305	21,323	20 782	29 002	36 637	45 485	10 492	26 157	8 142	-0 075	36 784	0 165	0 134	26	26	15 3	31 4	2 165	0 072	0 071	0 002	2 275	1 94
41	10/6/1999	8:56:43 AM	0	25 396	20 387	25 305	21 242	20,701	28 842	36 327	44 997	10 684	26,157	8,142	-0 075	36,753	0,16	0,128	27	27	15 3	31 2	2 154	0 070	0 069	0 002	2 217	1 89
42	10/6/1999	8 57:43 AM	0	25 442	20,432	25 349	21 287	20 746	28,727	36 203	44,753	10,756	26 562	8 142	-0 075	36 769	0 162	0 131	28	28	15 3	31 4	2 164	0 071	0 070	0 002	2 231	1 90
43	10/6/1999	8 58 43 AM	0	25 442	20 432	25 269	21,367	20 746	28 968	36 203	44 936	10,389	26 393	8 142	-0 075	36 753	0 166	0 134	29	29	15 3	31 3	2 158	0 072	0 072	0 002	2 298	1,96
44	10/6/1999	8 59:44 AM	0	25 487	20 396	25 314	21 412	20 791	28 532	36,141	44 753	10 668	26 495	8,142	-0 075	36 922	0,164	0,134	30	30	15 3	31 3	2 159	0 072	0 071	0 002	2 266	1 93
45	10/6/1999	9:00 44 AM	0	25 407	20 396	25,314	21 412	20 791	29,17	36 575	45 363	10 485	26,529	8,142	-0 075	36 815	0 167	0 137	31	31	15 3	31,6	2 175	0 073	0 072	0 002	2 290	1 95
46	10/6/1999	9:01 44 AM	0	25 407	20 396	25 314	21,412	20 791	29 09	37 071	45,769	10 62	26 698	8 142	-0 075	36,769	0 165	0 134	32	32	15 3	31,9	2 198	0 072	0 071	0 002	2 239	1 91
47	10/6/1999	9:02:45 AM	0	25 451	20,441	25,278	21 457	20,916	29,134	36,327	45 058	10 572	26 529	8,142	-0 075	36,784	0 165	0 134	33	33	15 3	31 4	2 167	0 072	0 071	0 002	2 274	1 94
48	10/6/1999	9:03 46 AM	0	25 496	20 485	25 323	21,502	20 881	28,701	36 637	45 424	10,373	27,103	8,142	-0 075	36 769	0 167	0,137	34	34	15 3	31,9	2 197	0 073	0 072	0 002	2 267	1 93
49	10/6/1999	9:04:46 AM	0	25 496	20 405	25 403	21,421	20 881	29 019	36,761	45 363	10 612	26 667	8,142	-0 075	36 922	0 17	0 14	35	35	15 3	31 8	2 193	0 074	0 073	0 002	2 306	1 96
50	10/6/1999	9:05 46 AM	0	25 496	20 405	25 323	21,502	20 881	28 86	36 513	45 241	10 58	26 427	8,142	-0 075	36,799	0,161	0,131	36	36	15 3	31,5	2 170	0 070	0 070	0 002	2 213	1 88
51	10/6/1999	9:06 47 AM	0	25 48	20 45	25 367	21,547	20,925	29 303	36 327	44 997	10 628	26 224	8,142	-0 075	36 677	0 161	0 131	37	37	15 2	31 3	2,156	0 070	0 070	0 002	2 224	1 89
52	10/6/1999	9:07 48 AM	0	25,505	20 494	25 412	21,591	20 89	29,267	36,637	45 302	10 628	26,799	8,142	-0 075	36 661	0 166	0 137	38	38	15 2	31,7	2 187	0 072	0 072	0 002	2 258	1 92
53	10/6/1999	9:08 47 AM	0	25 505	20 494	25,412	21,591	20 97	29 586	36,761	45,545	10 628	26 63	8,142	-0 075	36,661	0,162	0 131	39	39	15 2	31,7	2 185	0 071	0 070	0 002	2 206	1 88
54	10/6/1999	9:09 48 AM	0	25 549	20,539	25 456	21,636	21,015	29,471	36 017	44,631	10 556	26 731	8 142	-0,075	36,83	0,162	0,134	40	40	15 3	31,4	2 163	0 071	0 070	0 002	2 225	1 89
55	10/6/1999	9:10:48 AM	0	25 549	20,459	25 376	21,636	20 934	29,152	36,451	45,119	10 588	26,731	8 142	-0 075	36,753	0,167	0,137	41	41	15 3	31 6	2 178	0 073	0 072	0 002	2 263	1 94
56	10/6/1999	9:11:48 AM	0	25 549	20,459	25 456	21 636	21,015	29,232	36 265	44,997	10 461	26 9	8,142	-0,075	36,692	0,164	0,134	42	42	15 2	31 6	2 178	0 072	0 071	0 002	2 238	1 90
57	10/6/1999	9:12:49 AM	0	25 594	20 503	25 341	21,681	21,06	29 595	36 685	45,728	10 349	26,731	8 142	-0 028	36 692	0,162	0 131	43	43	15 2	31 8	2 193	0 071	0 070	0 002	2 202	1 87
58	10/6/1999	9:13:49 AM	0	25 514	20 503	25,421	21,6	21,06	29,754	36 265	45 056	10 405	26 596	8 142	-0 075	36 692	0 164	0 137	44	44	15 2	31,4	2 167	0 072	0 071	0 002	2 251	1 92
59	10/6/1999	9:14 49 AM	0	25 514	20,503	25 341	21,681	20 979	29 276	36,637	45,363	10,58	26,596	8 142	-0 028	36 677	0 165	0 137	45	45	15 2	31,6	2 180	0 072	0 071	0 002	2 256	1,92
60	10/6/1999	9:15:50 AM	0	25 558	20,548	25,465	21,726	21 024	29,718	36,637	45 302	10,558	26 664	8 142	-0 028	36,769	0 164	0,134	46	46	15 3	31 7	2,182	0 072	0 071	0 002	2 233	1,90
61	10/6/1999	9:16:50 AM	0	25,558	20 548	25,465	21,806	21 024	29,241	36,823	45,545	10,389	26 696	8,142	-0 075	36 646	0,163	0 131	47	47	15 2	31,8	2,190	0 071	0 070	0 002	2 211	1 88
62	10/6/1999	9:17:50 AM	0	25 558	20 548	25 465	21,726	21,105	29 559	36,761	45,545	10,485	26 529	8 142	-0 028	36,615	0,167	0,137	48	48	15 2	31 6	2 182	0 073	0 072	0 002	2 274	1 94
63	10/6/1999	9:18:51 AM	0	25,558	20 548	25 385	21,806	21,105	29 082	36,947	45 789	10 524	26,731	8 142	-0 075	36 615	0 159	0,131	49	49	15 2	31 6	2 195	0 069	0 067	0 002	2 157	1 84
64	10/6/1999	9:19:51 AM	0	25 603	20,513	25,43	21,851	21,15	29 683	36 451	45,119	10 62	26 833	8,173	-0 028	36 723	0 165	0 137	50	50	15 2	31 6	2 182	0 072	0 071	0 002	2 249	1 91
65	10/6/1999	9:20:51 AM	0	25 603	20,513	25 43	21 851	21,15	29 048	36 513	45 241	10 54	26 529	8 142	-0 075	37,045	0 164	0 134	51	51	15 4	31 5	2 173	0 072	0 071	0 002	2 244	1 91
66	10/6/1999	9:21:52 AM	0	25 647	20 636	25,395	21,896	21,195	29,489	36 513	45 363	10,429	26 326	8,201	-0 075	36,707	0,166	0,137	52	52	15 2	31,4	2 166	0 072	0 072	0 002	2 244	1 91
67	10/6/1999	9:22:52 AM	0	25 612	20 602	25 519	22 021	21,239	29 135	36 699	45 302	10 532	26 596	8 142	-0 075	36 646	0 162	0 131	53	53	15 2	31 6	2 182	0 071	0 070	0 002	2 281	1 94
68	10/6/1999	9:23:52 AM	0	25 612	20 602	25 439	21,941	21,239	29,294	36 513	45 241	10 612	26 461	8 142	-0 028	36 692	0,159	0 131	54	54	15 2	31 5	2 171	0 069	0 069	0 002	2 202	1 87
69	10/6/1999	9:24:52 AM	0	25 612	20 602	25 439	22,021	21,239	29,374	36,513	45 18	10 62	26,596	8,111	-0 075	36,769	0 161	0 131	55	55	15 3	31,6	2 176	0 070	0 069	0 002	2 177	1 85
70	10/6/1999	9:25:53 AM	0	25 657	20 647	25 484	22,066	21,365	29 577	36,575	45,241	10 636	26 562	8 142	-0 028	36 738	0 163	0 134	56	56	15 2	31 6	2 177	0 071	0 070	0 002	2 200	1 87
71	10/6/1999	9:26:53 AM	0	25 657	20 647	25 484	22 066	21,264	29 418	36,761	45,424	10 636	26 664	8 142	-0 028	36 661	0 159	0 128	57	57	15 2	31 7	2 188	0 069	0 068	0 002	2 224	1 89
72	10/6/1999	9:27:54 AM	0	25 621	20 612	25 528	22 031	21,41	29,701	36 575	45,302	10 508	26 664	8,173	-0 028	36 692	0 165	0 134	58	58	15 2	31 6	2 180	0 072	0 071	0 002	2 159	1 84
73	10/6/1999	9:28:54 AM	0	25,701	20 612	25 448	21,95	21,329	29 383	36 451	45,119	10 341	26 562	8 142	-0 075	36 692	0 164	0,134	59	59	15 2	31 5	2 172	0 072	0 071	0 002	2 244	1 91
74	10/6/1999	9:29:54 AM	0	25,621	20 612	25 448	22 031	21 329	28,781	36 389	45 056	10,492	26 36	8,142	-0 075	36,646	0,167	0,14	60	60	15 2	31,4	2 163	0 073	0 072	0 002	2 244	1 91
75	10/6/1999	9:30:54 AM	0	25,666	20 657	25 493	22,078	21 374	29 268	36,575	45,241	10 429	26,731	8,142	-0 075	36 784	0 161	0 131	61	61	15 3	31,7	2 182	0 070	0 069	0 002	2 295	1 95
76	10/6/1999	9:31:55 AM	0	25 666	20 657	25 413	22,156	21,455	29 587	36 513	45 241	10 628	26 427	8 142	-0 075	36 677	0 16	0 131	62	62	15 2	31,5	2 170	0 070	0 069	0 002	2 190	1 86
77	10/6/1999	9:32:55 AM	0	25 586	20,576	25,413	22,156	21,374	29 587	36 947	45,606	10 644	26 529	8 142	-0 028	36,707	0,161	0,131	63	63	15 2	31,7	2 188	0 070	0 069	0 002	2 194	1 87
78	10/6/1999	9:33:56 AM	0	25 63	20,702	25,378	22,2811	21,419	29,551	36 203	44,896	10 389	26,19	8,142	-0,075	36,769	0,164	0,134	64	64	15 3	31 2	2 151	0 072	0 071	0 002	2 271	1 93
79	10/6/1999	9:34:56 AM	0	25 53	20 621	25 378	22 2011	21,339	29,711	36,513	45,302	10,437	26 696	8 142	-0 075	36 784	0 166	0 137	65	65	15 3	31 6	2 179	0 072	0 072	0 002	2 269	1 93
80	10/6/1999	9:35:58 AM	0	25,595	20 747	25 422	22,326	21 464	29,755	36,761	45,483	10 508	26,562	8 142	-0 028	36 554	0 166	0,137	66	66	15 2	31,7	2 183	0 072	0 072	0 002	2 262	1 92
81	10/6/1999	9:36:58 AM	0	25,595	20 686	25 342	22 246	21 464	29 675	36,327	45 058	10 556	26 461	8 142	-0 075	36 661	0,164	0,134	67	67	15 2	31 4	2 165	0 072	0 071	0 002	2 259	1 92
82	10/6/1999	9:37:57 AM	0	25 64	20,711	25 307	22,371	21 59	29,959	36 947	45,728	10 301	26 596	8 142	-0 028	36 354	0,163	0,134	68	68	15 1	31 8	2 191	0 071	0 071	0 002	2 220	1 69
83	10/6/1999	9:38:57 AM	0	25 56	20 792	25 387	22,291	21,59	29,561	36 947	45 728	10,461	26 833	8 142	-0 075	36 615	0,162	0 134	69	69	15 2	31 9	2 199	0 071	0 070	0 002	2 194	1 87
84	10/6/1999	9:39:57 AM	0	25,56	20,711	25,307	22,13	21,509	29 84	36 451	45,18	10 469	26 833	8,142	-0 028	36 415	0 16	0 128	70	70	15 1	31 6	2 182	0 070	0 069	0 002	2 188	1 86
85	10/6/1999	9:40:58 AM	0	25 604	20 758	25 352	22,255	21 635	30 082	36 513	45 241	10 564	26 63	8 142	-0 028	36 63	0 162	0 131	71	71	15 2	31 6	2 177	0 071	0 070	0 002	2 218	1 89

Run 1.05(old): 2 wt% Concentration of Insluble Solids

	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	10/6/1999	9:41:58 AM	0	25.58	20.711	25.307	22.291	21.59	29 959	36 513	45.18	10.492	26 664	8.142	-0 028	36 677	0 161	0.131	72	72	15 2	31 6	2.178	0 070	0 070	0 002	2 206	1 88
87	10/6/1999	9:42:58 AM	0	25.569	20.801	25.306	22.381	21.68	30.127	36 883	45 667	10 429	26.765	8.142	-0.075	36 677	0.159	0 131	73	73	15 2	31 8	2 194	0 069	0 069	0 002	2 157	1 84
88	10/6/1999	9:43:59 AM	0	25.569	20 801	25.316	22.481	21.599	29 868	36 885	45 667	10.437	26.529	8.142	-0 028	36.753	0 16	0.131	74	74	15.3	31.7	2 186	0 070	0 069	0 002	2 183	1 86
89	10/6/1999	9:44:59 AM	0	25.569	20 801	25.316	22.381	21.519	29 888	36 451	45.241	10.341	27.171	8.142	-0 028	36 648	0.161	0.131	75	75	15.2	31.8	2.193	0 070	0 070	0 002	2 190	1 86
90	10/6/1999	9:45:59 AM	0	25 614	20 848	25.361	22.587	21.644	29.774	36.203	43 058	10 357	29 833	8.142	-0 028	36 564	0 161	0.131	76	76	15 2	31 5	2.173	0 070	0 070	0 002	2 207	1 88
91	10/6/1999	9:47:00 AM	0	25.534	20 768	25.281	22.506	21.564	30.251	36.327	44.997	10 612	26.461	8.142	-0 028	36 63	0.158	0.129	77	77	15 2	31.4	2.165	0 069	0 068	0 002	2 180	1 85
92	10/6/1999	9:48:00 AM	0	25.534	20 848	25.281	22.587	21.644	29 694	36.823	43.545	10.429	27.036	8.142	-0 075	36 615	0 16	0.131	78	78	15 2	31 9	2.201	0 070	0 069	0 002	2 170	1 85
93	10/6/1999	9:49:00 AM	0	25.496	20 811	25.326	22.551	21.689	30.136	36 699	43.363	10 548	27.002	8.142	-0.028	36.723	0.164	0.137	79	79	15 2	31.9	2.196	0 072	0 071	0 002	2 227	1 90
94	10/6/1999	9:50:01 AM	0	25 496	20 891	25.326	22 551	21.689	29.739	36 883	45.424	10 848	26 596	8.111	-0 075	36.799	0.157	0.128	80	80	15.3	31.7	2.188	0 069	0 068	0 002	2.140	1.82
95	10/6/1999	9:51:01 AM	0	25.543	20 856	25.291	22.596	21.573	30 499	36 637	45.302	10.369	26.529	8.142	-0 028	36 692	0.162	0.134	81	81	15 2	31.6	2.178	0 071	0 070	0 002	2 221	1 89
96	10/6/1999	9:52:01 AM	0	25 543	20 856	25.291	22 596	21.412	30 975	36 451	45.119	10.413	26 696	8.142	-0 028	36 677	0.161	0.131	82	82	15 2	31.6	2.177	0 070	0 070	0 002	2 208	1 88
97	10/6/1999	9:53:02 AM	0	25.543	20 856	25.291	22.618	21.17	31.055	36.141	44.875	10.317	26.461	8.142	-0 028	36 6	0.159	0.131	83	83	15.2	31.3	2.158	0 069	0 069	0 002	2.199	1 87
98	10/6/1999	9:54:02 AM	0	25.543	20 856	25.291	22.355	21 009	31.372	37.009	45.911	10.213	27.103	8.142	-0 028	36.584	0.161	0.131	84	84	15 2	32.1	2 210	0 070	0 070	0 002	2.175	1 85
99	10/6/1999	9:55:02 AM	0	25 543	20 937	25.21	22.355	20.787	31.531	36 265	44.753	10.804	25 85	8 05	-0 028	37.137	0 158	0.131	85	85	15.4	31 0	2.134	0 069	0 069	0 002	2 215	1 88
100	10/6/1999	9:56:03 AM	0	25 543	20.856	25.21	22.274	20 687	31.769	36 575	45.363	10 453	26 427	8.111	-0 075	36 723	0.16	0.131	86	86	15 2	31 5	2.172	0 070	0 069	0 002	2 204	1 88
101	10/6/1999	9:57:03 AM	0	25 463	20 937	25.21	22.274	20.445	31.848	35.955	44.509	10.485	26 427	8.142	-0 028	36 723	0.161	0.134	87	87	15 2	31.2	2.151	0 070	0 070	0 002	2 240	1 91
102	10/6/1999	9:58:03 AM	0	25 496	20 911	25.246	22.149	20 561	31.683	36.575	45.363	10.221	27.002	8 142	-0 028	36 677	0.163	0.134	88	88	15 2	31.6	2.192	0 071	0 071	0 002	2 223	1.89
103	10/6/1999	9:59:04 AM	0	25 496	20 891	25.166	22.149	20.48	31.804	36 017	44.892	10 692	26.123	8.08	-0 028	37.061	0.157	0.131	89	89	15 4	31.1	2.142	0 069	0 068	0 002	2 196	1 87
104	10/6/1999	10:00:04 AM	0	25.496	20 891	25.246	22.068	20 561	31.804	36.203	44 875	10 68	25 968	8 08	-0 028	37.091	0.158	0.128	90	90	15 4	31.1	2.144	0 069	0 068	0 002	2 203	1 87
105	10/6/1999	10:01:04 AM	0	25.454	20 927	25.201	22.104	20 596	31.363	36 327	44.997	10 5	25 92	8 08	-0 028	37.278	0.157	0.128	91	91	15 5	31.1	2.146	0 069	0 068	0 002	2.190	1 86
106	10/6/1999	10:02:05 AM	0	25.454	20 927	25.281	22.104	20 638	31.204	36.389	45.119	10.588	25 954	8.142	-0.028	37.076	0.157	0.128	92	92	15 4	31.2	2.149	0 069	0 068	0 002	2.181	1 86
107	10/6/1999	10:03:05 AM	0	25 489	20 882	25.156	22.059	20 674	30 922	35 893	44.387	10 852	25 954	8.08	-0 028	37.183	0.159	0.131	93	93	15 4	30.9	2.132	0 069	0 069	0 002	2 235	1 90
108	10/6/1999	10:04:05 AM	0	25.444	20 918	25.191	22 094	20 809	30.4	36 203	44 875	10 668	25 92	8.111	-0 028	37.137	0.158	0.131	94	94	15 4	31.1	2.142	0 069	0 069	0 002	2 209	1 88
109	10/6/1999	10:05:06 AM	0	25.444	20 918	25 191	22.175	20 809	30.48	35 831	44.387	10 84	26.326	8 08	-0 028	37.061	0.159	0.131	95	95	15 4	31.1	2 143	0 069	0 069	0 002	2 221	1 89
110	10/6/1999	10:06:06 AM	0	25 444	20.996	25.191	22.175	21.071	30 082	35 693	44 448	10 684	25 683	8 08	-0 028	37.122	0.157	0.128	96	96	15 4	30 8	2.123	0 069	0 068	0 002	2 214	1 88
111	10/6/1999	10:07:06 AM	0	25 48	20 953	25.227	22.21	21.106	30.277	36.327	44 936	10 804	25 683	8 08	-0 028	36.922	0.158	0.128	97	97	15 3	31 0	2.136	0 069	0 069	0 002	2 210	1 88
112	10/6/1999	10:08:07 AM	0	25 399	20 953	25.147	22.21	21.106	29 879	35.707	44 387	10.548	25 988	8.142	-0 028	37.168	0.156	0.125	98	98	15 4	30 8	2.127	0 068	0 068	0 002	2.199	1 87
113	10/6/1999	10:09:07 AM	0	25 399	20.953	25.227	22.371	21.267	30.197	36 203	44.936	10 508	26.258	8 08	-0 028	37.076	0.158	0.128	99	99	15 4	31.2	2.153	0 069	0 069	0 002	2 194	1 87
114	10/6/1999	10:10:07 AM	0	25 48	20.953	25.227	22.371	21.267	30 038	36 079	44.753	10 672	26.157	8.111	-0 028	37.045	0.156	0.128	100	100	15 4	31.1	2.145	0 068	0 068	0 002	2.175	1 85
115	10/6/1999	10:11:08 AM	0	25.48	20 953	25.147	22.532	21.348	30.118	36.265	44.936	10.772	25 852	8.08	-0 028	37.137	0.16	0.128	101	101	15 4	31.1	2.141	0 070	0 070	0 002	2 240	1 91
116	10/6/1999	10:12:08 AM	0	25 48	20 953	25.227	22.452	21.429	29.799	36.265	44.997	10 532	26.258	8 08	-0 028	37.137	0.158	0.131	102	102	15 4	31.3	2.155	0 069	0 069	0 002	2 192	1 87
117	10/6/1999	10:13:08 AM	0	25.355	20 969	25.182	22.487	21.384	29.596	36.389	44.936	10.708	25 92	8.111	-0.028	37.107	0.157	0.128	103	103	15 4	31.2	2 148	0 069	0 068	0 002	2.189	1 86
118	10/6/1999	10:14:09 AM	0	25.355	20 908	25.102	22.407	21.464	29 835	36.265	45 058	10 548	26.36	8 08	-0 028	36.968	0.157	0.128	104	104	15 3	31.3	2.159	0 069	0 068	0 002	2 183	1.86
119	10/6/1999	10:15:10 AM	0	25 399	21.034	25.227	22.532	21.509	29 959	35 955	44.57	10.612	26.393	8 111	-0 028	37.045	0.159	0.131	105	105	15 4	31 2	2.149	0 069	0 069	0 002	2 212	1.88
120	10/6/1999	10:16:10 AM	0	25.399	20 953	25.227	22.532	21.509	29.879	36.203	44 814	10.676	26 055	8.111	-0.028	37.076	0.158	0.131	106	106	15 4	31.1	2.146	0 069	0 069	0 002	2 202	1 87
121	10/6/1999	10:17:10 AM	0	25.399	21.034	25.227	22.613	21.59	29.481	36.079	44.448	10 836	25.968	8.111	-0 028	37.383	0 155	0.125	107	107	15 5	31.0	2.140	0 068	0 067	0 002	2.186	1.84
122	10/6/1999	10:18:11 AM	0	25.444	20 996	25.191	22.738	21.554	30 003	36 513	45.302	10.58	25 886	8.111	-0 028	37.122	0.157	0.128	108	108	15 4	31.2	2.151	0 069	0 068	0 002	2.185	1 86
123	10/6/1999	10:19:10 AM	0	25 444	20.996	25.111	22.738	21.635	29 526	36.265	44.936	10 628	26.258	8.111	-0 026	37.137	0.156	0.125	109	109	15 4	31 3	2.155	0 068	0 068	0 002	2.172	1 85
124	10/6/1999	10:20:11 AM	0	25.444	20 996	25.191	22.738	21 635	29 923	36.265	44 875	10.7	25 954	8.111	-0 028	37.061	0.164	0.137	110	110	15 4	31.1	2.145	0 072	0 071	0 002	2 269	1.95
125	10/6/1999	10:21:12 AM	0	25 409	21.043	25.236	22.663	21.76	29 411	36.513	45 302	10.532	25.751	8.111	-0 026	37.122	0.156	0.128	111	111	15 4	31.1	2.148	0 068	0 068	0 002	2.173	1.85
126	10/6/1999	10:22:12 AM	0	25 409	21.043	25.156	22.783	21.76	29 868	36 203	44.814	10 804	26.055	8.142	-0 026	37.091	0.16	0.131	112	112	15.4	31.1	2.148	0 070	0 070	0 002	2.234	1.90
127	10/6/1999	10:23:12 AM	0	25.409	21.043	25.156	22.663	21.76	29.331	36 265	45 119	10.481	26 021	8.111	-0.075	37.122	0.157	0.128	113	113	15 4	31.1	2.147	0 069	0 068	0 002	2.191	1.86
128	10/6/1999	10:24:13 AM	0	25.454	21.088	25.201	22.828	21.805	30 092	35 831	44 [illegible]	10 429	26.157	8.142	-0 028	36.984	0.158	0.131	114	114	15 3	31 0	2.137	0 069	0 069	0 002	2 213	1.88
129	10/6/1999	10:25:13 AM	0	25.373	21.088	25.201	22.828	21.725	29 853	36 017	44 87	10.7	26.19	8.142	-0 026	37.153	0.157	0.128	115	115	15 4	31.1	2.144	0 069	0 068	0 002	2.181	1 86
130	10/6/1999	10:26:13 AM	0	25 373	21.088	25 201	22.908	21.725	29.774	36.265	44 875	10 644	26.055	8.111	-0.026	36 936	0.156	0.125	116	116	15 3	31.2	2.148	0 068	0 068	0 002	2.191	1 86
131	10/6/1999	10:27:14 AM	0	25.418	21.133	25.166	22.953	21.77	29.578	36 575	45.465	10 469	26.258	8.111	-0 026	37.045	0.156	0.126	117	117	15 4	31.4	2.166	0 068	0 068	0 002	2.173	1 85
132	10/6/1999	10:28:14 AM	0	25 418	21.133	25 246	22.953	21.85	30.216	36.141	44 814	10.58	26 461	8.111	-0 028	37.137	0 16	0.131	118	118	15 4	31.3	2.158	0 070	0 069	0 002	2.158	1 84
133	10/6/1999	10:29:14 AM	0	25 383	21.178	25.21	22.996	21.976	29 863	36 575	45.18	10.748	26.19	8.111	-0.028	37.076	0.16	0.131	119	119	15.4	31.4	2.164	0 070	0 069	0 002	2 216	1 89
134	10/6/1999	10:30:15 AM	0	25 463	21.096	25.21	23.079	21.976	30.181	36 513	45.119	10.748	26.055	8.142	-0 028	36.968	0.157	0.126	120	120	15 3	31.3	2.157	0 069	0 068	0 002	2 213	1.88
135	10/6/1999	10:31:15 AM	0	25 428	21.145	25.175	23.043	22.182	30 225	36 203	45 058	10 564	26 021	8.111	-0 028	37.091	0 157	0.128	121	121	15 4	31.1	2.145	0 069	0 068	0 002	2.178	1.85
136	10/6/1999	10:32:15 AM	0	25.393	21.188	25.14	23 008	21.965	30 588	36 017	44.753	10 469	26.258	8.142	-0 028	37.061	0.159	0.131	122	122	15 4	31.1	2 147	0 069	0 069	0 002	2.192	1 87
137	10/6/1999	10:33:16 AM	0	25 473	21.188	25 22	23 008	21.824	30.965	35 955	44 631	10 5	25.988	8.142	-0.028	37.045	0.159	0.128	123	123	15 4	31.0	2.135	0 069	0 069	0 002	2 220	1 89
138	10/6/1999	10:34:16 AM	0	25 393	21.107	25.14	22.927	21.583	31.223	36 265	45.058	10.481	26.123	8.142	-0 028	36 984	0.16	0.131	124	124	15 3	31 2	2.151	0 070	0 070	0 002	2 227	1 90
139	10/6/1999	10:35:16 AM	0	25.393	21.188	25.14	22.847	21.341	31.481	37.318	45.241	10.596	26 934	7.341	-0 028	36.999	0.171	0.143	125	125	15.4	32.1	2.215	0 075	0 074	0 002	2 314	1 97
140	10/6/1999	10:36:17 AM	1	25.393	21.188	25.14	22.847	21.019	31.481	31.863	45 058	10 572	21.491	12 672	98 419	37.045	0.129	0.101	126	126	15.4	26.7	1.839	0 058	0 058	0 002	2.103	1.79
141	10/6/1999	10:37:18 AM	0	25 393	21.188	25.14	22.767	21.019	31.82	36.947	44 997	10 62	26 63	7.526	0 018	37.091	0.165	0.137	127	127	15 4	31 8	2.192	0 072	0 072	0 002	2 257	1 92
142	10/6/1999	10:38:19 AM	0	25.428	21.224	25.095	22.722	20.732	31.813	36 685	44 875	10.732	26 427	7.495	0 018	37.091	0 163	0.134	128	128	15 4	31.7	2.163	0 071	0 071	0 002	2 242	1 91
143																												
144		Averages		25 4	20.7	25.3	21.8	21.1	29 6	36.4	45.2	10.6	26.4	8 2	-0.1	36 9	0.162	0.133			15 3	31.4	2.166	0 071	0 070	0 00224	2 2	1.8
145		Maximum		25 7	21.2	25 6	23.1	22.2	31.9	37.1	46.0	11.2	27.2	9.4	0 0	37.4	0.178	0.146			15 5	32.1	2 210	0 077	0 079	0 00265	2 6	2 3
146		Median		25 5	20.7	25.3	22.1	21.1	29 8	36 5	45 2	10 6	26.5	8.1	0.0	36 8	0.162	0.131			15 3	31.5	2 170	0 071	0 070	0 00222	2 2	1.8
147		Minimum		22 8	20.3	24 0	20.2	20.3	27.8	34 9	44.4	10.2	24.5	8.1	-0.1	36 4	0.155	0.125			15.1	29 6	2 056	0 068	0 067	0 00214	2.1	1.8
148		Std Deviation		0 431	0.262	0.185	0.745	0 483	0.882	0.350	0.353	0 184	0.414	0 209	0 023	0 203	0.004	0 004			0 084	0.345	0 024	0 002	0 002	0.000061	0 061	0 052
149		Number of Points Used		123	123	123	123	123	123	123	123	123	123	123	123	123	123	123			123	123	123	123	123	123	123	123



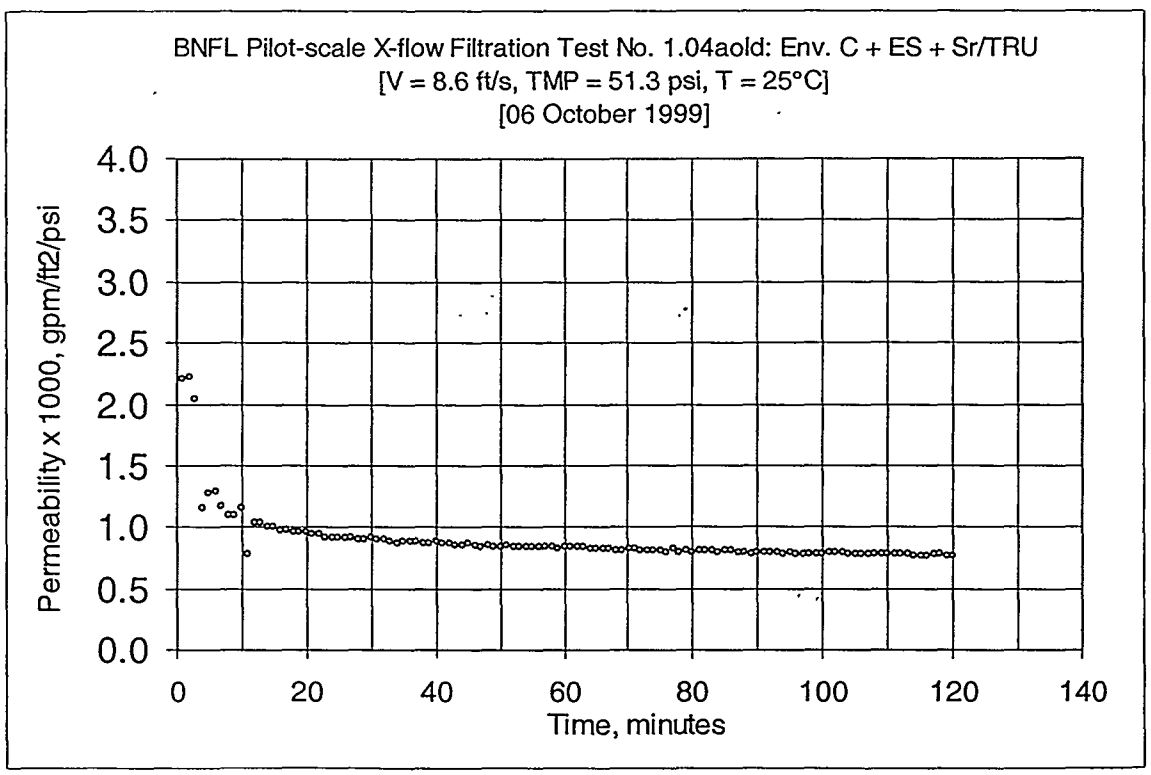


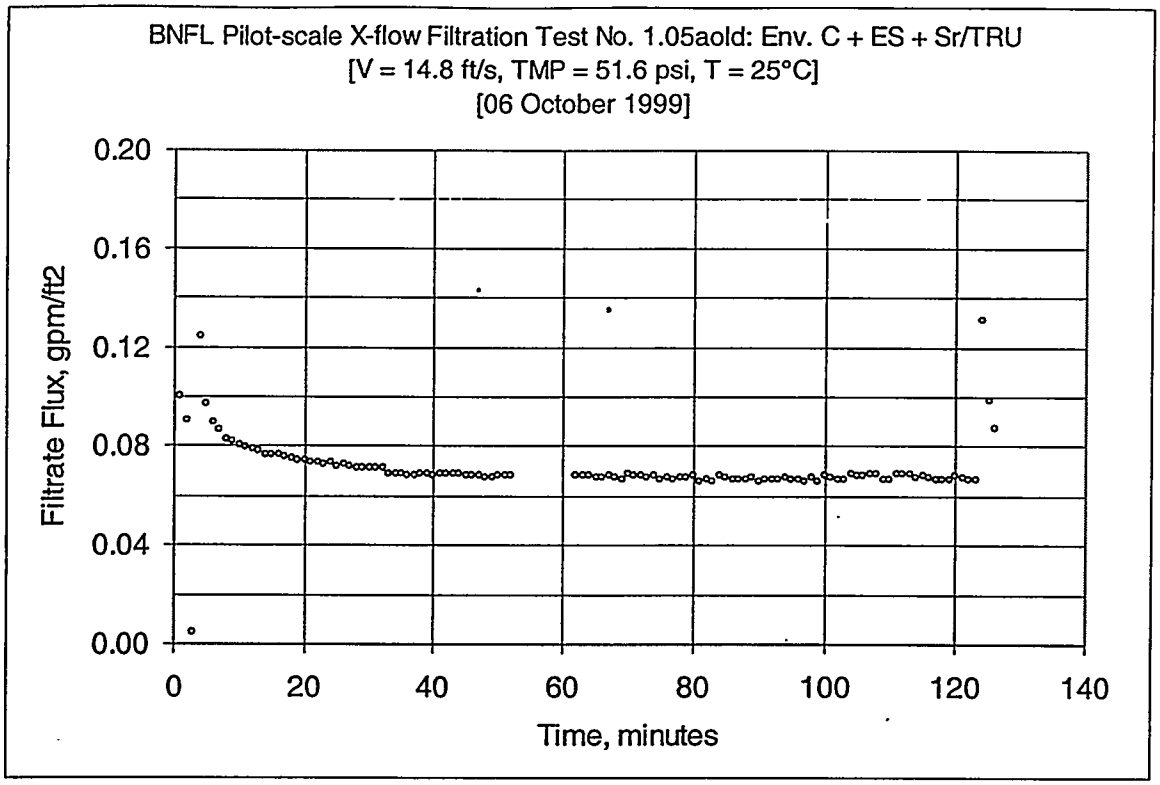
Figure B14: Test Run 1.04a(old) 2 wt% Insoluble Solids Concentration

Run 1.04a(old): 2 wt% Concentration of Insoluble Solids

DATE	TIME	SOLENOID	FLTAT (deg C)	CL LOOP (deg C)	SL LOOP (deg C)	UP AMB (deg C)	BOT AMB (deg C)	T8 (deg C)	BOT DP (psig)	FLTR (psig)	FLTR DP (psig)	TOP DP (psig)	FLTRATE (psig)	PISTON (psig)	SL FLOW	Q2,FLTR FLOW (gpm)	Q3,FLTR FLOW (gpm)			Filter Surface Area		2 29	FT2				
Zeros - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / ppm/ft2/barg				
10/6/1999	8:15:29 AM	0	20 692	20 262	19 713	20 23	19 77	28 959	0 001	-5 311	-0 015	-0 045	-2 829	-0 075	-0 095	0 011	-0 018										
10/6/1999	8:16:29 AM	0	20 773	20 343	19 632	20 473	19 77	29 038	-0 061	-5 311	-0 015	-0 011	-2 829	-0 075	-0 095	0 011	-0 018										
10/6/1999	8:17:30 AM	0	20 773	20 262	19 713	20 473	19 85	28 959	0 001	-5 25	-0 015	-0 045	-2 798	-0 075	-0 079	0 011	-0 018										
10/6/1999	8:18:30 AM	0	20 692	20 343	19 713	20 392	19 931	28 959	-0 061	-5 311	-0 015	-0 011	-2 798	-0 075	-0 079	0 011	-0 018										
Zeros - Lines Not Connected																											
10/6/1999	8:20:53 AM	0	20 289	20 343	19 632	20 311	20 012	28 799	-0 061	-0 067	-0 015	-0 011	-0 117	-0 075	-0 095	0 011	-0 018										
10/6/1999	8:21:53 AM	0	20 333	20 307	19 677	20 356	19 978	28 784	0 001	-0 067	-0 015	-0 011	-0 088	-0 075	-0 079	0 011	-0 018										
10/6/1999	8:22:53 AM	0	20 333	20 307	19 757	20 275	19 978	28 804	0 001	-0 067	-0 015	-0 011	-0 086	-0 075	-0 079	0 011	-0 015										
10/6/1999	8:23:54 AM	0	20 369	20 262	19 713	20 15	19 931	28 72	0 001	-0 067	-0 015	-0 011	-0 086	-0 075	-0 079	0 011	-0 018										
Data - Per Minute																		Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMEABILITY GPM/FT2/psi	x 1000 GPM/FT2/psi	m/day/bar
10/6/1999	10:39:42 AM	0	25 303	21,178	25,13	22,596	20 848	31,69	37,071	45,18	10 485	26 833	7,484	-0 028	37,014	0,182	0 134	1	1	15 4	32 0	2 203	0 071	0 070	0 002	2 205	1 68
10/6/1999	10:40:42 AM	0	25 383	21,178	25,13	22 596	20,787	31 69	36 823	44 631	10,784	26 765	7,433	-0 028	36,968	0 182	0,137	2	2	15 3	31 8	2,192	0 071	0 070	0 002	2 216	1 69
10/6/1999	10:41:43 AM	0	25 418	21,214	25 068	22 551	20 883	31,249	50 088	59 937	4,772	48 239	9 282	0 018	21,993	0 226	0 192	3	3	9,1	46 2	3 321	0 099	0 098	0 002	2 043	1 74
10/6/1999	10:42:43 AM	1	25 418	21,214	25 068	22 551	20 964	31,249	50 088	60 546	4,923	45 63	9 637	98,188	21,716	0,127	0 094	4	4	9 0	47,8	3 300	0 053	0 055	0 001	1 156	0 98
10/6/1999	10:43:43 AM	1	25 454	21,25	25 041	22,587	21,08	30 966	50,46	60 607	5 019	48,273	9 621	98,28	21 624	0,142	0,113	5	5	9 0	48 4	3,335	0 062	0 062	0 001	1,280	1,09
10/6/1999	10:44:44 AM	0	25 454	21,25	25,121	22 587	21,322	30 807	56 039	60,912	4 931	51,547	4,197	-0,028	21,547	0,16	0,131	6	6	8 9	53 8	3,709	0 070	0 070	0 001	1,294	1,10
10/6/1999	10:45 44 AM	0	25 409	21 204	25 076	22 622	21,357	30 604	57,899	61,461	3 814	55 097	3 088	0 018	18,229	0,151	0,119	7	7	7,6	56 5	3 895	0 068	0 068	0 001	1,164	0 99
10/6/1999	10:46,44 AM	0	25 409	21,285	25 076	22 622	21,519	30 524	48 291	50,485	3,958	45,191	1,784	0 018	17,892	0,117	0 085	8	8	7,4	46 7	3 223	0 051	0 051	0 001	1,090	0 93
10/6/1999	10:47:45 AM	0	25 409	21,285	25 076	22 702	21,599	30,365	50 522	53 29	5,123	46,577	2 318	-0 028	21,609	0,122	0 094	9	9	9 0	48 5	3 347	0 053	0 053	0 001	1,035	0 93
10/6/1999	10:48:45 AM	0	25 489	21,285	25 076	22,783	21,78	30,206	51,204	53 839	5 267	48,171	2,194	-0 028	21 578	0,129	0,101	10	10	9 0	48 7	3 357	0 056	0 056	0 001	1 154	0 98
10/6/1999	10:49:45 AM	1	25 444	21,321	25 111	22 818	21,796	30,062	50,77	53,961	4,995	48,137	2,472	114 534	21,624	0,088	0 058	11	11	9 0	48,5	3 341	0 038	0 037	0 001	0 772	0 66
10/6/1999	10:50:46 AM	0	25 444	21,321	25,111	22 818	21,796	30 062	82,94	84,936	5 059	48 301	1,547	0 018	21,286	0,12	0,094	12	12	8 8	50 6	3 490	0 052	0 052	0 001	1 032	0 88
10/6/1999	10:51:46 AM	0	25 489	21,368	25 076	22,944	21 841	30,127	52,568	54 57	4 82	48,369	1,455	-0 026	20 917	0,119	0 094	13	13	8,7	50 5	3 480	0 052	0 052	0 001	1 027	0 87
10/6/1999	10:52:46 AM	0	25 489	21,368	25,156	22 944	21,921	30 047	52,582	54,326	4,908	48 064	1,362	0 018	21,163	0,116	0 091	14	14	8 8	50 2	3 463	0 051	0 050	0 001	1,004	0 85
10/6/1999	10:53:47 AM	0	25 489	21,368	25,156	22 944	21,921	30 047	52,582	54,448	4,716	47,929	1,331	0 018	21,102	0,116	0 091	15	15	8 8	50,2	3,458	0 051	0 050	0 001	1 005	0 86
10/6/1999	10:54:47 AM	0	25 409	21,368	25,236	23 024	22 002	30,047	52,582	54,083	4 884	48,403	1,301	0 018	21,071	0,114	0 088	16	16	8,7	50,4	3 474	0 050	0 049	0 001	0 9611	0 83
10/6/1999	10:55:47 AM	0	25 409	21,368	25,156	23,024	22 002	30 047	52 63	54,367	4 852	48 504	1 27	0 018	20 917	0,114	0 091	17	17	8,7	50 6	3 486	0 050	0 050	0 001	0 960	0 83
10/6/1999	10:56:48 AM	0	25,489	21,368	25 076	23 024	22 082	29,968	53,436	55,302	4 939	48,707	1,239	0 018	20 979	0,112	0,085	18	18	8 7	51,1	3 521	0 049	0 049	0 001	0 955	0 81
10/6/1999	10:57:48 AM	0	25,489	21,368	25,076	23,104	22,082	29 968	52,692	54,587	4,804	48 808	1,208	0 018	20 963	0,112	0,088	19	19	8,7	50 8	3,499	0 049	0 049	0 001	0 961	0 82
10/6/1999	10:58:48 AM	0	25,454	21,33	25 201	23,149	22,127	30 092	52,692	54,387	4 604	48 233	1,177	-0 028	20 979	0,112	0 088	20	20	8 7	50 5	3 479	0 049	0 049	0 001	0 963	0 82
10/6/1999	10:59:49 AM	0	25,534	21,411	25,121	23,23	22,127	30 012	53 064	54 997	4 684	49 011	1,177	-0,028	20,963	0,11	0 085	21	21	8,7	51 0	3 519	0,048	0 048	0 001	0 938	0 80
10/6/1999	11:00:49 AM	0	25,454	21,411	25,121	23,23	22,127	29,933	52,754	54,57	4,756	48,842	1,148	0 018	20 948	0,11	0 085	22	22	8,7	50 8	3 502	0 048	0 048	0 001	0 942	0 80
10/6/1999	11:01,50 AM	0	25,496	21,375	25 246	23,275	22,172	30 057	53,374	55,119	4,612	49 214	1,116	-0 026	20,979	0,109	0 085	23	23	8 7	51,3	3 537	0 048	0 047	0 001	0 921	0 78
10/6/1999	11:02:50 AM	0	25 496	21,375	25 166	23,275	22,172	29,977	53,188	54,814	4 636	49 045	1,116	-0,028	21,01	0,107	0,082	24	24	8,7	51,1	3 524	0 047	0 046	0 001	0 910	0 77
10/6/1999	11:03:51 AM	0	25 463	21,42	25 21	23,32	22,217	30,26	52,878	54,57	4,74	48,943	1,085	-0 028	20,994	0,108	0 082	25	25	8,7	50 9	3 510	0,047	0 047	0 001	0 921	0,78
10/6/1999	11:04:50 AM	0	25 418	21,375	25,166	23 365	21,931	30,772	52,878	54,509	4,756	49 079	1,065	0,018	21,01	0,107	0 082	26	26	8,7	51,0	3,515	0 047	0 046	0 001	0 912	0 78
10/6/1999	11:05:51 AM	0	25,543	21,501	25,21	23,32	21,634	31,058	53,436	55,302	4,724	48,808	1,065	0,018	20 979	0,107	0 082	27	27	8,7	51,1	3 525	0,047	0 046	0 001	0 908	0 77
10/6/1999	11:06:51 AM	0	25,543	21,42	25,21	23,239	21,412	31,372	53,188	54,753	4 684	49 011	1,065	0 018	20,979	0,106	0,079	28	28	8 7	51,1	3 523	0 046	0,046	0 001	0 900	0,77
10/6/1999	11:07:52 AM	0	25 543	21,501	25 21	23,159	21,251	31,372	52 878	54,448	4,868	48,774	1,054	0,018	20 948	0,106	0 082	29	29	8,7	50 8	3 504	0 046	0 046	0 001	0 905	0,77
10/6/1999	11:08:52 AM	0	25 543	21,501	25,21	23,076	21,17	31,531	52,258	53,717	4,772	48,707	1,054	0,018	20 994	0,107	0 082	30	30	8,7	50 5	3 481	0,047	0 046	0 001	0 920	0,78
10/6/1999	11:09:52 AM	0	25,496	21,456	25,166	23,034	20 883	31,645	53 064	54,631	4 884	48,977	1,023	0,018	20,963	0,105	0 079	31	31	8,7	51,0	3 518	0 046	0 046	0 001	0 894	0,76
10/6/1999	11:10:53 AM	0	25 578	21,456	25 246	22 953	20,964	31,804	53 496	55 241	4,772	48 808	1,054	0 018	20 933	0,106	0 079	32	32	8,7	51,2	3 527	0 046	0 046	0 001	0 898	0,76
10/6/1999	11:11:53 AM	0	25 534	21,491	25,121	22,906	20,677	31,76	53,932	55 668	4,78	49,18	1,023	0 018	20 994	0,104	0,079	33	33	8,7	51,6	3 555	0 045	0 045	0 001	0 878	0,75
10/6/1999	11:12:53 AM	0	25 489	21,448	25,156	22,863	20,715	31,716	53,622	55,18	4 812	49 248	1,023	0 018	20,963	0,103	0 076	34	34	8 7	51,4	3 546	0 045	0 045	0 001	0 870	0,74
10/6/1999	11:13:54 AM	0	25 489	21,527	25,156	22 863	20,551	31,716	53,064	54 509	4 812	49,315	1,023	0 018	20 948	0,104	0,079	35	35	8,7	51,2	3 529	0 045	0 045	0 001	0 883	0,75
10/6/1999	11:14:54 AM	0	25 444	21,482	25,111	22,818	20 506	31,909	53,25	54,936	4,708	48 838	1,023	0 018	20 933	0,104	0,079	36	36	8,7	50,9	3 509	0 045	0 045	0 001	0 889	0,76
10/6/1999	11:15:54 AM	0	25 524	21,562	25,111	22,818	20 425	31,83	53,188	54,814	4,756	48,707	1,023	0 018	20,933	0,103	0 079	37	37	8,7	50 9	3 513	0 045	0 045	0 001	0 880	0 75
10/6/1999	11:16:55 AM	0	25 48	21,517	25,227	22,773	20,461	31,865	53,56	55,18	4,78	49,112	1,023	0 018	20 917	0,103	0 079	38	38	8,7	51,3	3 539	0 045	0 045	0 001	0 870	0,74
10/6/1999	11:17:55 AM	0	25 435	21,553	25,182	22,728	20 416	31,344	53,746	55 363	4,676	49 417	1,023	-0 028	20 841	0,103	0 079	39	39	8 6	51,6	3 556	0 045	0 045	0 001	0 867	0,74
10/6/1999	11:18:55 AM	0	25 518	21,553	25,182	22,728	20,577	31,027	52,94	54,448	4 692	48,943	1,023	-0 028	20 825	0,103	0 079	40	40	8 6	50 9	3 512	0 045	0 045	0 001	0 878	0,75
10/6/1999	11:19:56 AM	0	25 47	21,508	25,157	22,784	20 653	30,585	53,064	54,57	4,7	49,214	0,992	-0 028	20,795	0,102	0,076	41	41	8 6	51,1	3 526	0 045	0 044	0 001	0 867	0,74
10/6/1999	11:20:56 AM	0	25 508	21,483	25,173	22,719	20,971	30,302	53,684	55,363	4,572	49,721	0,992	0 018	20 61	0,103	0,076	42	42	8 6	51,7	3 565	0 045	0 045	0 001	0 865	0,74
10/6/1999	11:21:56 AM	0	25,426	21,544	25,173	22,8	21,132	30,143	53,746	55,846	4,556	49,755	0,992	0 018	20 579	0,102	0,076	43	43	8 5	51,8	3 568	0,045	0 044	0 001	0 856	0 73
10/6/1999	11:22:57 AM	0	25,508	21,544	25,173	22,88	21,294	30,064	53,994	55,485	4 692	49 822	1,023	-0,026	20 672	0,102	0,076	44	44	8 6	51,9	3 579	0 045	0 044	0 001	0 854	0,75
10/6/1999	11:23:57 AM	0	25,508	21,544	25,173	22,96	21,455	29,903	53,436	55,058	4,509	49 045	1 023	-0 026	20 626	0,103	0,076	45	45	8 6	51,2	3 533	0 045	0 045	0 001	0 873	0 74
10/6/1999	11:24:57 AM	0	25,508	21,544	25,173	23 041	21,696	29,903	53,436	54,997	4,62	49 586	0,992	0 018	20,764	0,102	0 076	46	46	8 6	51,5	3 552	0 045	0 044	0 001	0 860	0,73
10/6/1999	11:25:58 AM	0	25,508	21,544	25,253	23,041	21,696	29 825	53,374	54,814	4,772	49 248	0 992	0 018	20,779	0,1	0 076	47	47	8 6	51,3	3 538	0 044	0,043	0 001	0 845	0,72
10/6/1999	11:26:58 AM	0	25,588	21,544	25,173	23,121	21,777	29 666	53,064	54,631	4 628	49,18	0 992	0 018	20,841	0,101	0 076	48	48	8 6	51,1	3 525	0 044	0 044	0 001	0 858	0,73
10/6/1999	11:27:58 AM	0	25,508	21,544	25,173	23,121	21,696	29 666	53,746	55,424	4,68	49,687	0,992	0 018	20,764	0,1	0 076	49	49	8 6	51,7	3 566	0 044	0 043	0 001	0 840	0,71
10/6/1999	11:28:58 AM	0	25,588	21,544	25,253	23,202	21,657	29,587	53,496	54,875	4,788	49 586	0 992	-0 026	20,779	0,1	0 076	50	50	8 6	51,5	3 554	0 044	0 043	0 001	0 841	0,72
10/6/1999	11:30:00 AM	0	25,508	21,544	25,173	23,121	21,936	29 607	53 622	55,18	4,74	49,349	0 992	0 018	20 841	0,101	0 076	51	51	8 6	51,5	3 550	0 044	0 044	0 001	0 852	0,73
10/6/1999	11:31:00 AM	0	25 58	21,589	25,217	23,248	22,063	29 631	53,374	54,753	4 692	49,18	0 992	-0 026	20,81	0,1	0 076	52	52	8,6	51,3	3 535	0 044	0 045	0 001	0 846	0,72
10/6/1999	11:32:00 AM	0	25 58	21,589	25,217	23,327	22,063	29 631	53,622	55,18	4 692	49,653	0 992	0 018	20 841	0,1	0,076	53	53	8 6	51,6	3 560	0 044	0 043	0 001	0 840	0,72
10/6/1999	11:33:00 AM	0	25 63	21,589	25,217	23 327	22,144	29 551	53,126	54 448	4 628	49 62	0 992	0 018	20 81	0 099	0 073	54	54	8 6	51,4	3 542	0 043	0 043	0 001	0 836	0,71
10/6/1999	11:34:01 AM	0	25,515	21,634	25,262	23 452	22,108	29 516	53,496	55 241	4 596	49,248	0 992	0 018	20,825	0 099	0,073	55	55	8 6	51,4	3 542	0 043	0 043	0 001	0 835	0,71
10/6/1999	11:35:01 AM	0	25,595	21,653	25,262	23,452	22,108	29 596	53 312	54,753	4 636	49 282	0,992	0 018	20,764	0 099	0,073	56	56	8 6	51 3	3 537	0 043	0 043	0 001	0 836	0,71
10/6/1999	11:36:02 AM	0	25 515	21,553	25,162	23 372	22,108	29 596	53 684	55,18	4,772	49 248	0 992	0 018	20 841	0 099	0 076	57	57	8 6	51,5	3 548	0 043	0 043	0 001	0 835	0 71
10/6/1999	11:37:02 AM	0	25,48	21,679	25,227	23,497	22,314	29,72	53,56	54,936	4,796	49,146	0,992	0 018	20,81	0,1	0 073	58	58	8 6	51,4	3 541	0 044	0,043	0 001	0 845	0,72
10/6/1999	11:38:03 AM	0	25 56	21,696	25,147	23 417	22 234	29 561	53 496	54,997	47	49,112	1,023	-0 028	20,795	0 098	0 07	59	59	8,6	51,3	3 537	0 043	0 043	0 001	0 830	0 71
10/6/1999	11:39:03 AM	0	25 524	21,724	25 272	23 542	22 279	29,923	52 94	54,387	4 676	49 586	1,023	0 018	20 81	0 099	0 073	60	60	8 6	51,3	3 534	0,043	0 043	0 001	0 837	0 71
10/6/1999	11:40:03 AM	0	25 604	21,843	25,191	23,542	21,957	30,48	52 878	54 509	4,588	49 383	0 992	0 018	20 81	0 099	0 073	61	61	8 6	51,1	3 525	0 043	0 043	0 001	0 841	0 72
10/6/1999	11:41:03 AM	0	25 569	21,688	25 236	23,587	21,68	30,922	53,188	54,814	4 588	49,383	1,023	0 018	20,779	0,1	0 073	62	62	8,6	51,3	3 536	0 044	0 043	0 001	0 846	0 72
10/6/1999	11:42:04 AM	0	25 524	21,843	25,191	23 461	21,474	31,036	53 064	54,57	4 652	49 214	1 023	0 018	20,779	0 099	0 073	63	63	8 6	51,1	3 526	0 043	0 043	0 001	0 841	0 72
10/6/1999	11:43:04 AM	0	25 524	21 843	25,181	23,381	21,393	31,354	53 312	55,119	4 572	49 586	1,023	0 018	20 795	0 096	0 073	64	64	8 6	51 4	3 547	0 043	0 043	0 001	0 827	0 70
10/6/1999	11:44:04 AM	0	25 569	21,668	25,156	23,346	21,033	31,239	53 684	55 119	4,716	49 687	1,054	0 018	20 856	0 096	0 073	65	65	8 6	51,7	3 564	0 043	0 043	0 001	0 824	0,70
10/6/1999	11:45:05 AM	0	25 604	21,724	25,191	23,22	20 99	31,592	53,746	55,424	4,84	49,586	1,023	0 018	20,595	0 096	0 07	66	66	8 5	51,7	3 562	0 043	0 043	0 001	0 824	0,70
10/6/1999	11:46:05 AM	0	25,56	21,679	25,147	23,175	20,703	31,569	54,428	56 217	4 664	49,552	1,054	0 018	20 579	0,099	0 073	67	67	8 5	52 0	3 565	0 043	0 043	0 001	0 828	0,70
10/6/1999	11:47:05 AM	0	25 56	21 679	25,147	23,175	20 864	31,468	54 056	55 648	4,74	49,552	1,023	0 018	20 841	0,097	0,07	68	68	8 6	51 8	3 572	0 042	0 042	0 001	0 814	0 69
10/6/1999	11:48:06 AM	0	25,56	21,759	25,147	23,175	20 622	31,627	53,808	55,363	4 668	49 924	1,023	0 018	20 579	0 097	0 073	69	69	8 5	51,9	3 576	0 042	0 042	0 001	0 813	0 69
10/6/1999	11:49:06 AM	0	25,515	21,714	25 102	23 05	20 577	31,582	53,684	55 302	4 62	49 653	1,054	0 018	20 656	0 096	0 073	70	70	8 6	51,7	3 562	0 043	0 043	0 001	0 826	0,70
10/6/1999	11:50:06 AM	0	25 515	21,795	25,182	23 05	20 416	31,424	53,064	54 814	4 413	49 89	1,054	0 018	20 564	0 097	0 07	71	71	8 5	51,5	3 549	0 042	0 042	0 001	0 816	0,70
10/6/1999	11:51:07 AM	0	25,55	21,75	25,137	23 005	20,532	31,817	53,188	54,753	4 652	49,383	1,023	0 018	20,795	0 096	0,07	72	72	8 6	51,3	3,536	0 042	0 042	0 001	0 814	0 69
10/6/1999	11:52:08 AM	0	25 55	21,75	25,137	23 005	20,371	31 538	53 312	54 936	4 549	49 349	1 054	0 018	20 81	0 096	0 07	73	73	8 6	51 3	3 539	0 042	0 042	0 001	0 813	0 69

Run 1.04a(old): 2 wt% Concentration of Insoluble Solids

10/6/1999	11:53:08 AM	0	25 506	21.785	25 173	22 96	20 568	31 494	53 664	55.18	4.664	49 656	1.023	0 018	20.764	0 096	0 07	74	74	8 6	51 8	3 569	0 042	0 042	0 001	0 806	0 69		
10/6/1999	11:54:09 AM	0	25 481	21.741	25 128	22.916	20.442	31.132	53 25	54.675	4 66	49.755	1.023	0 018	20 856	0.095	0 067	75	75	8 7	51 5	3 551	0 041	0 041	0 001	0 802	0 68		
10/6/1999	11:55:08 AM	0	25 541	21.741	25 206	22.918	20 523	30 735	53 436	54 936	4.748	49 687	1.054	0.018	20.733	0 095	0 067	76	76	8 6	51 6	3 555	0 041	0 041	0 001	0 800	0 68		
10/6/1999	11:56:09 AM	0	25 496	21.696	25.163	22 951	20 601	30 214	53.064	54 692	4 572	49 383	1.054	0 018	20.795	0 097	0.073	77	77	8 6	51.2	3 532	0 042	0 042	0 001	0 823	0 70		
10/6/1999	11:57 09 AM	0	25 577	21.776	25 163	22.951	21.123	30 035	54.118	55.729	4.756	49 687	1 054	0 018	20 81	0 095	0 07	78	78	8 6	51.9	3 578	0 041	0 041	0 001	0 795	0 68		
10/6/1999	11:58 10 AM	0	25.577	21.776	25 163	23 032	21 204	29 896	53.86	55 241	4.692	49 282	1.054	0.018	20 748	0 095	0 07	79	79	8 6	51 4	3 545	0 041	0 041	0 001	0 803	0 68		
10/6/1999	11:59 10 AM	0	25 532	21.731	25.199	22 987	21 562	29.692	53 622	55 302	4 666	49 383	1.054	0 018	20.764	0 095	0 067	80	80	8 6	51 5	3 551	0 041	0 041	0 001	0 801	0 68		
10/6/1999	12:00 11 PM	0	25 532	21.731	25 199	23 067	21.642	29 533	53 064	54 326	4.66	49.146	1.054	0 018	20.764	0 095	0 07	81	81	8 6	51 1	3 524	0 041	0 041	0 001	0 807	0 69		
10/6/1999	12:01:10 PM	0	25 532	21.731	25.199	23.228	21.723	29.453	53 56	54 997	4.78	49 349	1.054	0.018	20 825	0 096	0.07	82	82	8 6	51 5	3 548	0 042	0 042	0 001	0 810	0 69		
10/6/1999	12:02:11 PM	0	25 577	21.776	25.163	23.273	21.648	29 418	52.94	54.753	4 501	49.248	1.085	0 018	20.795	0 095	0 07	83	83	8 6	51.1	3 523	0 041	0 041	0 001	0 808	0 69		
10/6/1999	12:03:11 PM	0	25 496	21.776	25.163	23 273	21.929	29.418	53.746	55.363	4.74	49 451	1.085	0 018	20.795	0 094	0 067	84	84	8 6	51 6	3 558	0 041	0 041	0 001	0 792	0 67		
10/6/1999	12:04:12 PM	0	25.496	21.776	25.163	23 353	22 009	29 339	53.126	54 631	4.692	49 045	1 085	0 018	20 779	0 095	0 07	85	85	8 6	51.1	3.522	0 041	0 041	0 001	0 808	0 69		
10/6/1999	12:05:12 PM	0	25 541	21.741	25 206	23.476	22.298	29.383	53 25	54.875	4.66	49.18	1 085	0 018	20 764	0 095	0 07	86	86	8 6	51 2	3 531	0 041	0 041	0 001	0 805	0 69		
10/6/1999	12:06:12 PM	0	25 586	21.785	25 253	23 523	22.34	29.348	53 622	55 424	4.477	49 653	1.116	0 018	20 626	0 095	0 07	87	87	8 6	51.6	3 560	0 041	0 041	0 001	0 797	0 66		
10/6/1999	12:07:13 PM	0	25.586	21.785	25.253	23 523	22 501	29 268	53.166	54 692	4 596	49 552	1.116	0 018	20 595	0 094	0 067	88	88	8 5	51.4	3 542	0 041	0 041	0 001	0 793	0 67		
10/6/1999	12:08:13 PM	0	25 506	21.785	25.173	23 523	22.34	29.268	53 622	55.485	4 656	49.992	1.116	0 018	20 641	0 093	0 067	89	89	8 6	51 8	3 572	0 041	0 040	0 001	0 780	0 66		
10/6/1999	12:09:13 PM	0	25 55	21.83	25 296	23 648	22 385	29.233	53 374	54 997	4.628	49 518	1.116	0 018	20.641	0 094	0 067	90	90	8 6	51.4	3 547	0 041	0 041	0 001	0 791	0 67		
10/6/1999	12:10:14 PM	0	25 515	21.875	25.182	23.773	22.43	29 277	53.496	55.363	4.373	49.518	1.116	0 018	20 564	0.095	0 067	91	91	8 5	51 5	3 551	0 041	0 041	0 001	0 801	0 68		
10/6/1999	12:11:14 PM	0	25 515	21.795	25 262	23.773	22.35	29 357	53.746	55 363	4.644	49 484	1.116	0 018	20.61	0 095	0 07	92	92	8 6	51.6	3 559	0 041	0 041	0 001	0 798	0 68		
10/6/1999	12:12:14 PM	0	25 56	21.84	25 227	23.896	22.556	29.402	53.746	55 363	4 692	49 552	1.116	0 018	20.641	0 094	0 067	93	93	8 6	51 6	3 561	0 041	0 041	0 001	0 789	0 67		
10/6/1999	12:13:15 PM	0	25 56	21.84	25 227	23 818	22 475	29 322	54.118	55.673	-4 596	49.755	1.148	0 018	20 579	0 094	0 067	94	94	8 5	51 9	3 581	0 041	0 041	0 001	0 785	0 67		
10/6/1999	12:14:15 PM	0	25 604	21 885	25.272	23 943	22 52	29 446	53 496	55.18	4.572	49 657	1.148	0 018	20 641	0 094	0 067	95	95	8 6	51 6	3 557	0 041	0 041	0 001	0 789	0 67		
10/6/1999	12:15:15 PM	0	25.524	21.804	25.272	23.663	22.44	30.182	53.932	55.548	4.7	49 518	1.148	0 018	20.533	0 093	0 067	96	96	8 5	51 7	3 568	0 041	0 040	0 001	0 779	0 66		
10/6/1999	12:16:16 PM	0	25 569	21.93	25.156	23.968	22 062	30 653	53 67	55 668	4 517	49 687	1.148	0 018	20 595	0 093	0 067	97	97	8 5	51 8	3 570	0 041	0 040	0 001	0 781	0 66		
10/6/1999	12:17:16 PM	0	25 569	21 849	25.236	23.908	21.76	30.842	53.746	55 424	4.7	49 552	1.148	0 018	20.61	0 093	0 067	98	98	8 6	51.6	3 561	0 041	0 040	0 001	0 781	0 66		
10/6/1999	12:18:16 PM	0	25 614	21.894	25.281	23.792	21.564	31.045	53.168	54.753	4 604	49 62	1.148	0 018	20.595	0 093	0 067	99	99	8 5	51 4	3 544	0 041	0 040	0 001	0 784	0 67		
10/6/1999	12:19:17 PM	0	25.569	21.93	25.156	23 667	21.357	31 239	53.312	54.936	4 612	49.518	1.177	0 018	20 626	0 093	0 067	100	100	8 6	51 4	3 545	0 041	0 040	0 001	0 786	0 67		
10/6/1999	12:20:17 PM	0	25 569	21.93	25 236	23.667	21 277	31.18	53 064	54 692	4.612	49.349	1.148	0 018	20 626	0 093	0 067	101	101	8 6	51.2	3 531	0 041	0 040	0 001	0 788	0 67		
10/6/1999	12:21:17 PM	0	25.489	21.849	25.236	23 587	21.277	31.001	53.312	55.18	4.481	49.112	1.148	0 018	20 626	0 093	0 067	102	102	8 6	51 2	3 531	0 041	0 040	0 001	0 788	0 67		
10/6/1999	12:22:18 PM	0	25 569	21.93	25.236	23.587	21.116	30 922	53.496	55 241	4.477	49 653	1.177	0 018	20 672	0 094	0 067	103	103	8 6	51.6	3 556	0 041	0 040	0 001	0 788	0 67		
10/6/1999	12:23:18 PM	0	25 569	21.93	25.236	23.506	21.196	31.08	53.496	55 058	4.764	49 69	1.177	0 018	20 656	0 093	0 067	104	104	8 6	51.7	3 564	0 041	0 041	0 001	0 790	0 67		
10/6/1999	12:24:18 PM	0	25 569	21.93	25.236	23.506	20 874	31.18	53.374	55.058	4 58	49 518	1.177	0 018	20.672	0 093	0 067	105	105	8 6	51.4	3 547	0 041	0 040	0 001	0 780	0 66		
10/6/1999	12:25:19 PM	0	25 569	21.93	25.236	23 426	20 874	31.18	53 87	55.729	4 477	49.451	1.208	0 018	20.656	0 092	0 064	106	106	8 6	51.7	3 562	0 040	0 040	0 001	0 784	0 67		
10/6/1999	12:26:19 PM	0	25.604	21.885	25.191	23 381	20 667	31.115	52.878	54 57	4 58	49 417	1.177	0 018	20 579	0 092	0 064	107	107	8 5	51.1	3 526	0 040	0 040	0 001	0 772	0 66		
10/6/1999	12:27:19 PM	0	25 604	21.965	25 272	23.461	20.748	31.195	53.064	54 875	4.437	49.518	1.208	0 018	20 626	0 092	0 067	108	108	8 6	51 3	3 536	0 040	0 040	0 001	0 781	0 66		
10/6/1999	12:28:20 PM	0	25 604	21.965	25.191	23.301	20 587	31.274	53.496	55.302	4.604	49 552	1.177	0 018	20 579	0 092	0 064	109	109	8 5	51.5	3 552	0 040	0 040	0 001	0 777	0 66		
10/6/1999	12:29:20 PM	0	25 604	21.965	25 272	23.22	20.748	31.195	53.374	55.241	4.541	49.383	1.208	0 018	20.641	0 092	0 067	110	110	8 6	51 4	3 542	0 040	0 040	0 001	0 775	0 66		
10/6/1999	12:30:20 PM	0	25 56	21 92	25.227	23.256	20 622	31.309	53 56	55.241	4 644	49.755	1.208	0 018	20.672	0 093	0 067	111	111	8 6	51.7	3 562	0 041	0 040	0 001	0 776	0 66		
10/6/1999	12:31:21 PM	0	25 56	21.92	25.227	23.256	20.784	31.309	53.188	54.753	4 636	49 656	1.208	0 018	20.656	0 092	0 067	112	112	8 6	51 5	3 552	0 040	0 040	0 001	0 781	0 66		
10/6/1999	12:32:21 PM	0	25 64	22.001	25 227	23.176	20 945	30.833	53.436	55 424	4.397	49 248	1 208	0 018	20.595	0 093	0 067	113	113	8.5	51 3	3 540	0.041	0 040	0 001	0 775	0 66		
10/6/1999	12:33:21 PM	0	25 595	21.956	25 182	23.211	21.222	30.63	53 25	55.119	4.461	49 62	1.239	0 018	20 641	0 091	0 064	114	114	8 6	51 4	3 546	0 040	0 040	0 001	0 788	0 67		
10/6/1999	12:34:22 PM	0	25 64	22.051	25.307	23.336	21.429	30.436	52 94	54 814	4.453	49.721	1.239	0 018	20.672	0 091	0 064	115	115	8 6	51 3	3 539	0 040	0 039	0 001	0 768	0 65		
10/6/1999	12:35:22 PM	0	25 595	21.956	25.262	23.372	21.788	30.232	53 002	54 875	4.461	49.755	1.239	0 018	20.641	0 091	0 064	116	116	8 6	51.4	3 542	0 040	0 039	0 001	0 767	0 65		
10/6/1999	12:36:22 PM	0	25.595	21.956	25 262	23 452	21.706	30.073	52.754	54.265	4.772	49 417	1.208	0 018	20 61	0 092	0 067	117	117	8 6	51.1	3 522	0 040	0 040	0 001	0 768	0 65		
10/6/1999	12:37:23 PM	0	25 595	21.956	25.262	23.532	21.947	29 914	53.748	55.424	4 66	49.079	1.239	0 018	20 61	0 092	0 067	118	118	8 6	51.4	3 545	0 040	0 040	0 001	0 780	0 66		
10/6/1999	12:38:23 PM	0	25.595	21.956	25.262	23 532	21.947	29.755	53.374	55.18	4 66	49 586	1.208	0 018	20 61	0 091	0 064	119	119	8 6	51.5	3 549	0 040	0 039	0 001	0 775	0 66		
10/6/1999	12:39:23 PM	0	25 64	22 001	25 227	23 657	22.395	29.799	53 002	54.631	4 644	49.464	1.239	0 018	20 641	0 091	0 064	120	120	8 6	51 2	3 533	0 040	0 039	0 001	0 770	0 66		
	Averages		25 5	21.7	25.2	23.3	21.5	30 5	53.3	55 0	4.7	49 3	1.1	0 0	20 8	0 099	0 074			8 6	51 3	3 5	0 043	0 043	0 00084	0 841	0 7			
	Maximum		25 6	22.1	25.3	24.0	22 6	31.9	54.4	56 2	5.1	50 0	1.5	0 0	21.3	0.120	0.094			8 8	52 0	3 6	0 052	0 052	0 00103	1.032	0 9			
	Median		25 5	21.7	25.2	23.2	21.7	30 2	53.4	55 0	4.7	49.4	1.1	0 0	20 8	0 098	0 073			8 6	51.4	3 5	0 043	0 043	0 00083	0 826	0 7			
	Minimum		25 4	21.5	25.1	22.7	20.4	29.2	52.3	53.7	4.4	47.9	1.0	0 0	20.8	0 091	0 064			8 5	50.2	3 5	0 040	0 039	0 00077	0 766	0 7			
	Std Deviation		0 052	0.107	0 050	0.302	0 649	0 813	0 403	0.417	0.128	0 414	0.104	0 015	0.155	0 007	0 007			0 064	0 368	0 025	0 003	0 003	0 000063	0 063	0 054			
	Number of Points Used		109	109	109	109	109	109	109	109	109	109	109	109	109	109	109			109	109	109	109	109	109	109	109			



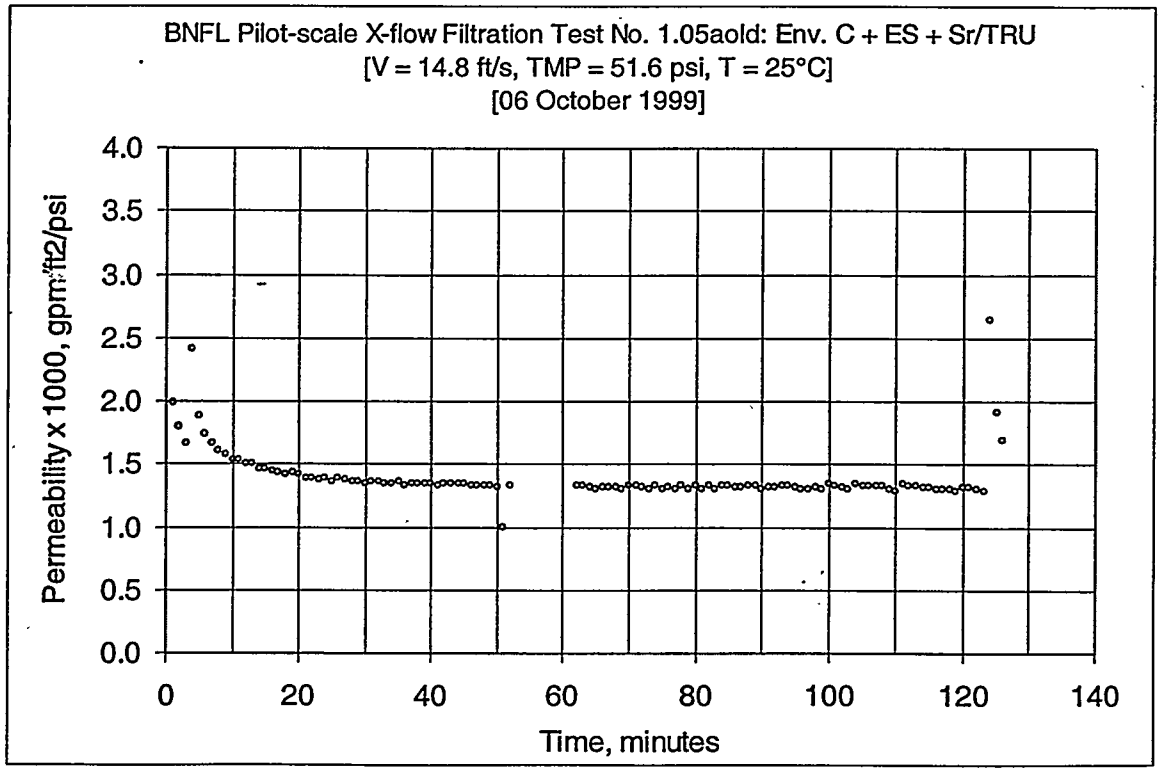


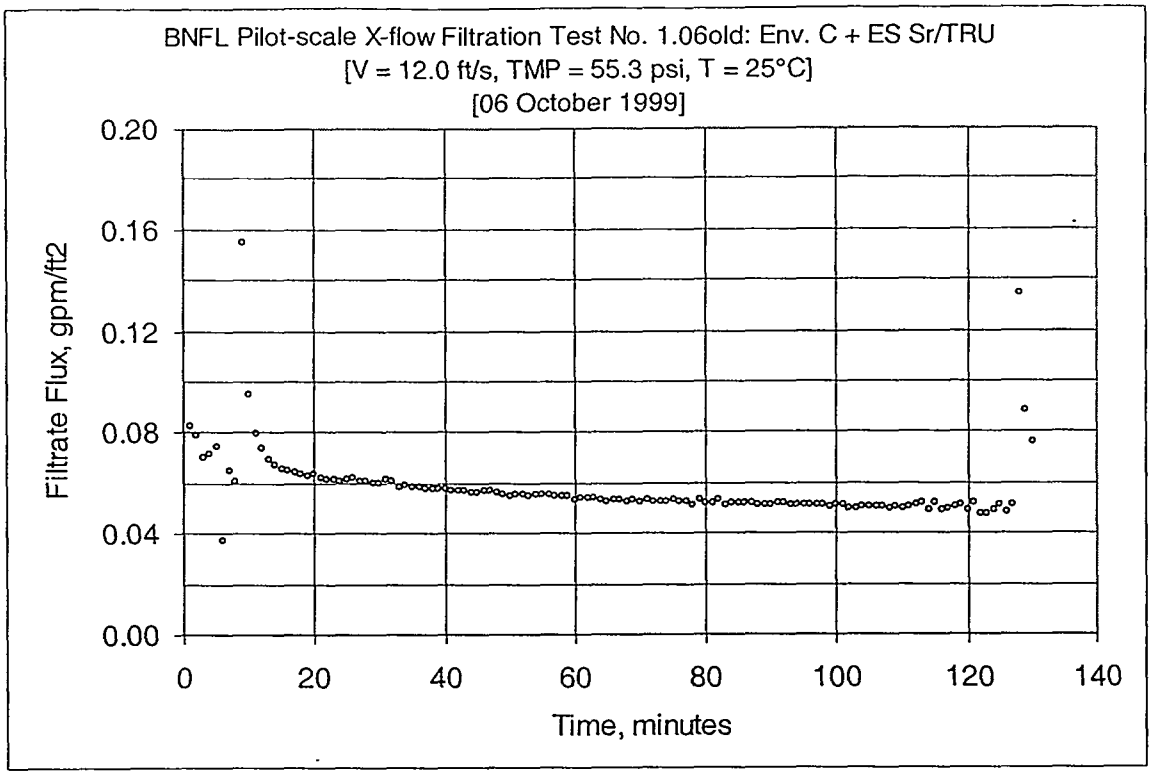
Figure B15: Test Run 1.05a(old), 2 wt% Insoluble Solids Concentration

Run 1.05a(old): 2 wt% Concentration of Insoluble Solids

	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	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 (psig)	PISTON (psig)	SL FLOW	Q2,FLTR F	Q3,FLTR FLOW (gpm)			Filter Surface Area		2.29	FT2				
2	Zeroe - No Flow - Lines Connected																				Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/6/1999	8:15:29 AM	0	20 692	20 262	19 713	20 23	19 77	28 959	0 001	-5 311	-0 015	-0 045	-2 629	-0 075	-0 095	0 011	-0 018										
4	10/6/1999	8:16:29 AM	0	20 773	20 343	19 632	20 473	19 77	29 038	-0 061	-5 311	-0 015	-0 011	-2 629	-0 075	-0 095	0 011	-0 018										
5	10/6/1999	8:17:30 AM	0	20 773	20 262	19 713	20 473	19 65	28 959	0 001	-5 25	-0 015	-0 045	-2 798	-0 075	-0 079	0 011	-0 018										
6	10/6/1999	8:18:30 AM	0	20 692	20 343	19 713	20 392	19 931	28 959	-0 061	-5 311	-0 015	-0 011	-2 798	-0 075	-0 079	0 011	-0 018										
7	Zeroe - Lines Not Connected																											
8	10/6/1999	8:20:53 AM	0	20 289	20 343	19 632	20 311	20 012	28 799	-0 061	-0 067	-0 015	-0 011	-0 117	-0 075	-0 095	0 011	-0 018										
9	10/6/1999	8:21:53 AM	0	20 333	20 307	19 677	20 356	19 976	28 784	0 001	-0 067	-0 015	-0 011	-0 088	-0 075	-0 079	0 011	-0 018										
10	10/6/1999	8:22:53 AM	0	20 333	20 307	19 757	20 275	19 976	28 604	0 001	-0 067	-0 015	-0 011	-0 088	-0 075	-0 079	0 011	-0 018										
11	10/6/1999	8:23:54 AM	0	20 369	20 262	19 713	20 15	19 931	28 72	0 001	-0 067	-0 015	-0 011	-0 088	-0 075	-0 079	0 011	-0 018										
12																												
13																												
14	Data - Per Minute																								at 25C	PERMABILITY	x 1000	
15	10/6/1999	2:57:23 PM	0	26 409	23 496	24 556	26 591	24 693	33 023	55 233	63,107	10 293	45 696	7 372	0 064	36 277	0 226	0 196		Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
16	10/6/1999	2:58:23 PM	0	25 929	23 496	24 636	26 432	24 693	32,704	54 882	62 803	10 221	45 461	7 372	0 064	36 323	0 204	0 177	2	2	15 1	50 2	3 458	0 089	0 090	0 002	1 794	1 33
17	10/6/1999	2:59:23 PM	1	25,78	23 509	24 808	26 603	24,865	33,272	7,439	64 693	9 304	-1 634	56 217	100,132	35,755	0 011	-0 018	3	3	14 8	2,9	0 200	0 005	0 005	0 002	1 663	1 42
18	10/6/1999	3:00:24 PM	0	25 54	23 509	24 888	26,603	24,785	32 401	56,101	64,327	9 687	47,152	7,372	0 064	35 801	0 284	0 25	4	4	14 9	51 6	3 559	0 124	0 124	0 002	2 409	2 05
19	10/6/1999	3:01:24 PM	0	25 426	23 555	24 934	26 649	24 831	32,268	56 163	63 9	9,942	46 712	7,187	0 064	35 77	0 222	0,195	5	5	14 8	51,4	3 546	0 097	0 097	0 002	1 868	1 61
20	10/6/1999	3:02:24 PM	0	25 346	23 555	24,934	26 649	24 831	31,495	56,163	64 083	9 854	47,018	7,217	0 064	35 693	0 205	0,18	6	6	14 8	51 6	3 557	0 089	0 090	0 002	1 738	1 48
21	10/6/1999	3 03 25 PM	0	25 392	23 521	24 96	26 694	24 877	32,806	56,721	64 693	9 83	46,915	7 217	0,111	35,663	0 197	0 174	7	7	14 8	51 8	3 573	0 086	0 086	0 002	1 661	1 41
22	10/6/1999	3:04:25 PM	0	25 357	23 567	25 026	26,82	24 842	31,962	56,225	64,022	9,902	47,118	7,217	0 064	35 647	0,19	0,168	8	8	14 8	51,7	3 563	0 083	0 083	0 002	1 604	1 37
23	10/6/1999	3:05:23 PM	0	25 483	23 613	25,072	26 666	24 888	33 532	56 535	64,266	9 782	47,05	7,248	0 064	35 356	0,188	0 171	9	9	14,7	51 8	3 571	0 082	0 082	0 002	1 581	1 35
24	10/6/1999	3:06:26 PM	0	25 483	23 613	25 152	26,706	24,888	32 82	56 535	64 205	9 679	48 098	7 217	0 064	35 325	0,165	0,164	10	10	14 7	52 3	3 607	0 081	0 080	0 002	1 537	1 31
25	10/6/1999	3:07:26 PM	0	25,449	23 579	25,196	26,832	24 854	33,736	56 287	63,839	9,703	47,422	7,187	0 064	35 294	0,183	0 164	11	11	14 6	51 9	3 575	0 080	0 079	0 002	1 532	1 30
26	10/6/1999	3:08:26 PM	0	25 495	23 625	25,164	26,718	24,96	33,307	57,155	64 815	9 766	47,794	7,217	0 064	35 34	0,181	0 158	12	12	14 7	52 5	3 618	0 079	0 079	0 001	1 499	1 28
27	10/6/1999	3:09:27 PM	0	25 621	23 671	25 29	26 844	24,866	33 668	56 659	64 449	9,727	47,422	7,187	0 064	35 279	0 18	0,158	13	13	14 8	52 0	3 588	0 079	0 078	0 001	1 498	1,27
28	10/6/1999	3:10:27 PM	0	25 541	23 671	25 21	26,764	24,948	34,301	57,403	65 303	9,75	47,828	7,187	0 064	35 279	0,177	0 158	14	14	14 8	52 8	3 628	0 077	0 077	0 001	1 460	1 24
29	10/6/1999	3:11:27 PM	0	25 667	23,717	25 336	26 889	24 912	33 635	56 969	64,815	9 695	48 031	7 217	0 064	35 368	0 177	0,165	15	15	14 7	52 5	3 620	0 077	0 077	0 001	1 458	1 24
30	10/6/1999	3:12:28 PM	0	25 667	23 636	25 256	26,73	24 912	34,109	57,217	64 998	9 743	47,963	7,187	0,111	35 448	0,176	0,158	16	16	14 7	52 6	3 626	0 077	0 076	0 001	1 450	1 23
31	10/6/1999	3:13:28 PM	0	25 633	23 683	25 382	26,775	24 878	33 996	57 031	64,937	9 647	48,166	7 187	0 064	35 402	0 175	0,155	17	17	14 7	52 6	3 626	0 076	0 076	0 001	1 437	1 22
32	10/6/1999	3:14:28 PM	0	25 759	23,729	25 428	26 821	25 004	34,121	57,837	65 791	9 839	48,031	7,156	0 064	35 279	0,174	0 152	18	18	14 6	52 9	3 650	0 076	0 075	0 001	1 418	1 21
33	10/6/1999	3:15:29 PM	0	25,759	23 729	25,428	26,901	25 004	33 805	56 783	64,571	9 671	48 064	7,156	0 064	35 325	0 173	0,155	19	19	14 7	52,4	3 614	0 078	0 075	0 001	1 423	1 21
34	10/6/1999	3:16:29 PM	0	25 725	23 694	25,474	26 867	25 05	34,166	57,155	64 937	9 719	47,963	7,156	0,064	35,356	0,173	0 152	20	20	14 7	52 6	3 624	0 078	0 075	0 001	1 418	1 21
35	10/6/1999	3:17:29 PM	0	25,805	23 694	25 474	26 867	24,97	34,245	57,527	65,364	9 631	48 267	7,156	0 064	35 309	0,171	0,149	21	21	14 7	52 9	3 647	0 075	0 074	0 001	1 393	1,19
36	10/6/1999	3:18:30 PM	0	25 851	23 821	25 52	26,993	25 096	33 817	57,341	65 059	9 663	48 267	7,156	0,064	35 34	0,17	0 149	22	22	14 7	52 8	3 641	0 074	0 073	0 001	1,385	1 18
37	10/6/1999	3:19:30 PM	0	25 851	23 741	25 52	26 993	25 096	32,788	57,713	65 425	9 631	48 267	7,125	0 064	35 217	0,169	0 149	23	23	14 6	53 0	3 653	0 074	0 073	0 001	1 372	1 17
38	10/6/1999	3:20:30 PM	0	25,943	23 833	25 612	27,085	25,188	33,749	57,341	65 059	9 583	48 301	7,156	0 111	35,171	0 171	0 152	24	24	14 6	52 8	3 642	0 075	0 073	0 001	1 389	1 18
39	10/6/1999	3:21:31 PM	0	25 943	23 833	25 612	27,085	25 108	34,303	57,527	65 486	9 695	48 233	7,125	0,064	35 34	0,168	0 146	25	25	14 7	52 9	3 646	0 073	0 072	0 001	1 363	1 16
40	10/6/1999	3:22:31 PM	0	25 969	23 879	25 658	27,051	25 154	34,269	57,155	64 754	9 671	48,233	7,125	0 064	35 309	0 17	0 149	26	26	14 7	52 7	3 633	0 074	0 073	0 001	1 383	1 18
41	10/6/1999	3:23:31 PM	0	25,969	23 879	25 658	27,131	25 074	33,32	56 845	64,632	9 647	47,997	7,125	0 111	35,233	0 168	0,152	27	27	14 6	52,4	3 614	0 073	0 072	0 001	1 373	1 17
42	10/6/1999	3:24:32 PM	0	26 035	23 845	25,704	27,017	25 12	33,781	57,341	65 059	9 647	48 096	7,125	0,111	35 233	0,167	0 149	28	28	14 6	52 7	3 635	0 073	0 071	0 001	1 356	1 15
43	10/6/1999	3:25:32 PM	0	26 035	23 845	25,704	27,097	25,04	33,781	56,783	64 327	9 630	47,852	7,094	0 111	35,323	0,166	0,149	29	29	14 7	52 3	3 607	0 072	0 071	0 001	1 358	1 16
44	10/6/1999	3:26:32 PM	0	26 082	23 892	25,75	27,143	25 187	33,253	57,589	65,303	9,703	48,267	7,094	0 111	35 386	0,167	0 146	30	30	14 7	52 9	3 649	0 073	0 071	0 001	1 349	1,15
45	10/6/1999	3:27:33 PM	0	26 082	23 892	25 75	27,143	25 187	34,36	57 093	64 693	9,719	48,403	7 094	0 064	35,248	0 167	0 143	31	31	14 6	52 7	3 637	0 073	0 071	0 001	1 353	1 15
46	10/6/1999	3:28:33 PM	0	26,128	23,938	25,797	27,189	25,213	33 141	56 721	64 571	9 503	48 031	7 094	0,064	35 325	0,166	0 143	32	32	14,7	52 4	3 611	0 072	0 071	0 001	1 353	1 15
47	10/6/1999	3:29:33 PM	0	26,128	23 938	25,797	27,189	25,213	34,227	56,349	63 951	9 886	48,611	6 94	0,111	35,07	0,162	0,137	33	33	14 9	51,5	3 549	0 071	0 069	0 001	1 343	1 14
48	10/6/1999	3:30:34 PM	0	26,174	23 964	25 643	27,236	25 259	34 61	56,473	64,144	9,926	48 581	7 002	0 064	35 924	0 162	0,14	34	34	14 9	51 7	3 563	0 071	0 069	0 001	1 336	1,14
49	10/6/1999	3:31:34 PM	0	26,174	23 964	25 643	27,156	25 259	34,373	55 853	63,595	9 692	48 306	7,002	0 064	36 062	0,162	0,14	35	35	15 0	51,1	3 522	0 071	0 069	0 001	1 352	1 15
50	10/6/1999	3:32:34 PM	0	26,22	24 031	25 689	27,282	25,225	33,074	56,101	63 656	9,694	48 881	7 002	0 064	35,724	0,161	0 14	36	36	14 8	51,5	3 550	0 070	0 069	0 001	1 331	1 13
51	10/6/1999	3:33 35 PM	0	26,22	23 95	25,689	27,202	25 305	34 613	55,977	63 595	9 918	48,478	7,033	0 064	36 001	0 161	0,14	37	37	14 9	51,2	3 532	0 070	0 069	0 001	1 338	1 14
52	10/6/1999	3:34 36 PM	0	26 266	24 077	25 935	27,408	25,352	33 594	55 543	63,229	9,926	48 509	7,063	0 064	36 031	0,162	0 143	38	38	15 0	51 0	3 516	0 071	0 069	0 001	1 350	1,15
53	10/6/1999	3:35:35 PM	0	26,266	23 997	25,835	27,328	25 352	33,911	55 791	63,473	9 942	48,678	7 063	0 111	36 093	0 162	0 14	39	39	15 0	51,2	3 532	0 071	0 069	0 001	1 345	1 14
54	10/6/1999	3:36 36 PM	0	26,313	24 043	25 992	27,374	25,478	33,64	55,109	62,803	9,998	48 611	7,063	0 064	36 108	0 16	0,137	40	40	15 0	50 9	3 507	0 070	0 068	0 001	1 336	1,14
55	10/6/1999	3:37:37 PM	0	26,313	24 043	25,992	27,454	25,478	34,273	56 287	64,144	9,798	48,915	7,125	0,111	35 816	0,162	0 14	41	41	14 9	51,6	3 558	0 071	0 069	0 001	1 333	1,13
56	10/6/1999	3:38 36 PM	0	26,359	24 009	25 948	27,42	25 524	34 95	56,349	64 063	9 798	48,644	7,156	0 064	35,816	0,163	0 14	42	42	14 9	51 5	3 551	0 071	0 069	0 001	1 345	1 15
57	10/6/1999	3:39:37 PM	0	26,359	24 09	26 028	27,5	25,524	34 555	55,729	63,473	9,75	48,746	7,094	0 111	35,878	0,162	0 14	43	43	14 8	51,2	3 533	0 071	0 069	0 001	1 341	1 14
58	10/6/1999	3:40:38 PM	0	26,405	24,136	26 074	27,546	25,491	34 917	55 419	63,168	9 671	48,915	7,125	0 064	35 709	0,163	0,14	44	44	14 8	51 2	3 528	0 071	0 069	0 001	1 349	1 15
59	10/6/1999	3:41:38 PM	0	26,451	24,102	26 12	27,592	25,457	34 568	55,915	63,717	9 687	48 475	7,094	0 111	35 632	0 162	0,143	45	45	14 8	51 2	3 530	0 071	0 069	0 001	1 339	1 14
60	10/6/1999	3:42:38 PM	0	26,451	24,182	26 04	27,592	25,457	35,278	56 287	64,205	9,719	48 611	7,125	0,111	35 571	0,161	0 143	46	46	14 8	51 4	3 547	0 070	0 068	0 001	1 327	1 13
61	10/6/1999	3:43 39 PM	0	26,496	24,149	26 167	27,559	25,583	34,771	55 791	63 534	9,774	48 712	7,125	0,111	35 54	0,161	0 14	47	47	14,7	51 3	3 534	0 070	0 068	0 001	1 327	1 13
62	10/6/1999	3:44:38 PM	0	26 418	24 229	26 067	27 639	25,583	34,455	55 667	63 656	9 695	48 509	7,094	0,111	35 632	0,16	0 143	48	48	14 8	51,1	3 522	0 070	0 068	0 001	1 326	1 13
63	10/6/1999	3:45:39 PM	0	26 418	24,149	26,167	27,639	25,583	35 087	55 543	63,412	9,679	48,137	7,125	0,111	35 601	0,159	0 137	49	49	14 8	50 8	3 505	0 069	0 067	0 001	1 321	1,12
64	10/6/1999	3:46:40 PM	0	26 544	24,195	26,213	27,685	25,63	34,617	56,721	64 693	9 687	47,05	7,125	0 111	35 693	0 161	0,14	50	50	14 8	51,9	3 577	0 070	0 068	0 001	1 309	1,11
65	10/6/1999																		51	51	14 8	51 9	3 577	0 070	0 068	0 001	1 000	1 11
66	10/6/1999	3:48:26 PM	0	26,846	24,271	26 362	27,936	25,99	34 44	56 348	64 383	9,726	48 706	7 216	0,096	35 77	0 163	0 146	52	52	14 8	51 5	3 553	0 071	0 068	0 001	1 329	1 13
67	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																53	53								
68	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																54	54								
69	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																55	55								
70	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																56	56								
71	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																57	57								
72	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																58	58								
73	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																59	59								
74	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																60	60								
75	10/6/1999	Data Lost	(Data Logging was accidently turned off.)																61	61								
76	10/6/1999	3:58:49 PM	0	26,846	24,271	26 362	27,936	25,99	34 44	56,348	64,383	9 726	48,706	7,216	0 096	35,77	0 163	0,146	62	62	14 8	51 5	3 553	0 071	0 068	0 001	1 329	1 13
77	10/6/1999	3:59:50 PM	0	26 819	24 423	26 434	28 008	25 962	35 379	56,162	64 017	9 814	48 641	7 216	0 096	35,739	0 163	0 143	63	63	14 8	51 5	3 551	0 071	0 068	0 001	1 327	1 13
78	10/6/1999	4:00:50 PM	0	26 819	24 423	26 434	28 008	26 062	35 379	56 472	64,383	9 854	48 604	7 216	0 096	35 848	0,162	0 143	64	64	14 9	51 5	3 553	0 071	0 068	0 001	1 318	1 12
79	10/6/1999	4:01:51 PM	0	26 999	24,423	26 434	28 088	26 062	35 853	56 036	63,834	9 846	48,908	7,216	0 096	35,708	0,16	0 143	65	65	14 8	51 5	3 549	0 070	0 067	0 001	1 304	1 11
80	10/6/1999	4:02:51 PM	0	26,919	24 423	26,434	28 008	26 062	36,247	56,224	64 2	9,782	48 675	7 246	0 096	35 785	0 161	0 137	66	66	14 9	51,5	3,554	0 070	0 068	0 001	1 310	1 11
81	10/6/1999	4:03:51 PM	0	27 045	24 47	26 481	28 054	26,109	35,682	56 472	64,322	9,782	48 807	7,216	0 096	35 693	0,162	0 143	67	67	14 8	51 6	3 560	0 071	0 068	0 001	1 314	1 12
82	10/6/1999	4:04:52 PM	0	27,092	24 517	26 527	28,101	26 156	35,55	56,72	64 81	9 726	48 57	7,246	0 096	35 693	0 162	0 14	68	68	14 8	51 6	3 561	0 071	0 068	0 001	1 312	1 12
83	10/6/1999	4:05:52 PM	0	27 092	24 517	26 527	28,101	26,156	35 866	56,596	64 566	9 758	48 942	7 277	0 096	35,77	0 16	0,137	69	69	14 8	51 8	3 569	0 070	0 067	0 001	1 293	1 10
84	10/6/1999	4:06 52 PM	0	27 092	24,517	26 527	28,101	26,156	35,944	56 658	64 566	9,782	48 976	7 277	0 096	35 723	0,164	0 143	70	70	14 8	51 8	3 573	0 072	0 069	0 001	1 324	1 13
85	10/6/1999	4:07 53 PM	0	27 012	24 517	26 527	28 021	26 156	35 708	56 036	63 695	9 782	47 077	7 246	0 096	35 785	0 163	0 14	71	71	14 9	51 6	3 555	0 071	0 068	0 001	1 322	1 13

Run 1.05a(old): 2 wt% Concentration of Insoluble Solids

	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	10/6/1999	4:08:53 PM	0	27.058	24.563	26.574	28.147	28.122	34.963	54.348	64.363	9.758	47.077	7.218	0.096	35.754	0.163	0.14	72	72	14.8	51.7	3.565	0.071	0.068	0.001	1.317	1.12
87	10/6/1999	4:09:53 PM	0	27.058	24.563	26.654	28.147	28.042	34.856	56.1	64.017	9.798	46.638	7.185	0.096	35.818	0.161	0.143	73	73	14.9	51.4	3.542	0.070	0.067	0.001	1.306	1.11
88	10/6/1999	4:10:54 PM	0	27.138	24.563	26.574	28.147	28.042	34.807	55.542	63.651	9.806	46.469	7.218	0.096	35.848	0.163	0.143	74	74	14.9	51.0	3.517	0.071	0.068	0.001	1.335	1.14
89	10/6/1999	4:11:54 PM	0	27.105	24.61	26.621	28.184	28.009	34.695	55.914	63.834	9.806	46.804	7.218	0.096	35.923	0.16	0.14	75	75	14.9	51.3	3.534	0.070	0.067	0.001	1.302	1.11
90	10/6/1999	4:12:54 PM	0	27.105	24.61	26.621	28.184	28.089	34.832	56.224	64.261	9.806	46.435	7.218	0.096	35.992	0.161	0.143	76	76	15.0	51.3	3.539	0.070	0.067	0.001	1.308	1.11
91	10/6/1999	4:13:55 PM	0	27.185	24.53	26.621	28.273	28.009	34.832	55.48	63.651	9.782	46.3	7.277	0.05	35.906	0.159	0.14	77	77	14.9	50.9	3.509	0.069	0.066	0.001	1.303	1.11
92	10/6/1999	4:14:55 PM	0	27.231	24.657	26.667	28.32	28.055	34.898	55.542	63.59	9.894	46.401	7.277	0.096	35.877	0.162	0.143	78	78	14.9	51.0	3.514	0.071	0.067	0.001	1.324	1.13
93	10/6/1999	4:15:55 PM	0	27.151	24.657	26.667	28.32	25.975	34.82	56.1	64.139	9.83	46.639	7.246	0.096	35.862	0.161	0.143	79	79	14.9	51.4	3.542	0.070	0.067	0.001	1.306	1.11
94	10/6/1999	4:16:56 PM	0	27.196	24.704	26.714	28.368	28.102	34.868	55.542	63.468	9.75	46.3	7.185	0.096	35.693	0.163	0.14	80	80	14.8	50.9	3.511	0.071	0.068	0.001	1.332	1.13
95	10/6/1999	4:17:56 PM	0	27.196	24.704	26.714	28.448	28.102	35.103	55.356	63.348	9.742	46.3	7.185	0.096	35.693	0.158	0.14	81	81	14.8	50.8	3.504	0.069	0.066	0.001	1.293	1.10
96	10/6/1999	4:18:56 PM	0	27.196	24.704	26.714	28.366	28.102	35.103	54.923	62.798	9.702	46.3	7.185	0.096	35.723	0.161	0.14	82	82	14.8	50.6	3.489	0.070	0.067	0.001	1.324	1.13
97	10/6/1999	4:19:57 PM	0	27.196	24.704	26.714	28.446	28.102	34.868	55.232	63.225	9.694	45.962	7.185	0.096	35.754	0.158	0.14	83	83	14.8	50.6	3.488	0.069	0.066	0.001	1.299	1.11
98	10/6/1999	4:20:57 PM	0	27.324	24.75	26.681	28.413	28.149	35.228	55.79	63.773	9.758	45.86	7.185	0.096	35.708	0.163	0.137	84	84	14.8	50.8	3.504	0.071	0.068	0.001	1.336	1.14
99	10/6/1999	4:21:57 PM	0	27.245	24.75	26.681	28.413	28.149	35.038	55.108	63.103	9.734	45.827	7.185	0.096	35.708	0.161	0.14	85	85	14.8	50.5	3.480	0.070	0.067	0.001	1.329	1.13
100	10/6/1999	4:22:58 PM	0	27.245	24.75	26.76	28.493	28.149	35.859	55.418	63.407	9.862	46.334	7.185	0.096	35.723	0.161	0.14	86	86	14.8	50.9	3.508	0.070	0.067	0.001	1.315	1.12
101	10/6/1999	4:23:58 PM	0	27.245	24.75	26.76	28.493	28.149	35.844	54.964	62.92	9.742	45.725	7.218	0.096	35.647	0.16	0.137	87	87	14.8	50.4	3.472	0.070	0.068	0.001	1.320	1.12
102	10/6/1999	4:24:58 PM	0	27.291	24.797	26.807	28.539	28.275	35.668	55.294	63.286	9.71	45.793	7.246	0.096	35.618	0.161	0.137	88	88	14.8	50.5	3.485	0.070	0.067	0.001	1.322	1.13
103	10/6/1999	4:25:59 PM	0	27.291	24.797	26.807	28.459	28.195	34.721	55.356	63.468	9.814	45.556	7.216	0.096	35.77	0.162	0.14	89	89	14.8	50.5	3.479	0.071	0.067	0.001	1.332	1.13
104	10/6/1999	4:26:59 PM	0	27.338	24.844	26.774	28.586	28.322	35.32	55.356	63.348	9.75	45.962	7.246	0.096	35.77	0.159	0.14	90	90	14.8	50.7	3.483	0.069	0.066	0.001	1.304	1.11
105	10/6/1999	4:27:59 PM	0	27.291	24.797	26.807	28.539	28.195	35.274	55.48	63.529	9.694	46.029	7.246	0.096	35.723	0.161	0.14	91	91	14.8	50.8	3.499	0.070	0.067	0.001	1.316	1.12
106	10/6/1999	4:29:00 PM	0	27.338	24.844	26.854	28.506	28.242	35.32	55.418	63.407	9.686	46.469	7.246	0.096	35.708	0.161	0.14	92	92	14.8	50.9	3.512	0.070	0.067	0.001	1.310	1.11
107	10/6/1999	4:30:00 PM	0	27.338	24.844	26.774	28.426	28.242	35.063	54.675	62.796	9.614	46.029	7.277	0.096	35.77	0.161	0.143	93	93	14.8	50.4	3.472	0.070	0.067	0.001	1.328	1.13
108	10/6/1999	4:31:00 PM	0	27.384	24.891	26.901	28.473	28.209	35.13	55.356	63.468	9.67	46.57	7.277	0.096	35.647	0.163	0.14	94	94	14.8	51.0	3.514	0.071	0.067	0.001	1.324	1.13
109	10/6/1999	4:32:01 PM	0	27.464	24.891	26.901	28.393	28.289	35.445	55.356	63.407	9.774	46.401	7.308	0.096	35.862	0.161	0.143	95	95	14.9	50.9	3.508	0.070	0.067	0.001	1.310	1.11
110	10/6/1999	4:33:01 PM	0	27.431	24.938	26.867	28.44	28.336	34.844	55.294	63.468	9.678	46.672	7.308	0.143	35.848	0.16	0.143	96	96	14.9	51.0	3.515	0.070	0.068	0.001	1.300	1.11
111	10/6/1999	4:34:01 PM	0	27.431	24.938	26.947	28.36	28.336	34.623	55.666	63.956	9.75	46.636	7.339	0.096	35.831	0.16	0.137	97	97	14.9	51.2	3.527	0.070	0.068	0.001	1.293	1.10
112	10/6/1999	4:35:02 PM	0	27.431	24.938	26.867	28.36	28.336	35.176	55.976	64.261	9.806	45.793	7.339	0.143	35.877	0.162	0.14	98	98	14.9	50.9	3.508	0.071	0.067	0.001	1.319	1.12
113	10/6/1999	4:36:02 PM	0	27.478	24.965	26.994	28.407	28.383	34.965	55.356	63.468	9.782	46.401	7.339	0.143	35.831	0.16	0.14	99	99	14.9	50.9	3.508	0.070	0.066	0.001	1.298	1.10
114	10/6/1999	4:37:02 PM	0	27.478	24.965	26.834	28.407	28.383	35.222	55.232	63.407	9.702	46.537	7.339	0.143	36	0.164	0.137	100	100	14.9	50.9	3.508	0.072	0.068	0.001	1.337	1.14
115	10/6/1999	4:38:03 PM	0	27.478	24.965	26.914	28.407	28.383	34.827	55.232	63.225	9.662	46.334	7.339	0.143	35.877	0.163	0.143	101	101	14.9	50.8	3.501	0.071	0.067	0.001	1.326	1.13
116	10/6/1999	4:39:03 PM	0	27.525	25.032	26.961	28.453	28.509	35.189	54.984	62.92	9.734	46.537	7.339	0.096	35.818	0.161	0.14	102	102	14.9	50.8	3.500	0.070	0.067	0.001	1.311	1.12
117	10/6/1999	4:40:03 PM	0	27.525	25.032	26.881	28.533	26.429	35.663	55.914	64.078	9.71	46.503	7.4	0.096	35.739	0.161	0.14	103	103	14.8	51.2	3.531	0.070	0.067	0.001	1.302	1.11
118	10/6/1999	4:41:04 PM	0	27.445	25.032	26.961	28.453	26.429	36.057	55.976	64.139	9.606	46.706	7.431	0.096	35.601	0.166	0.14	104	104	14.8	51.3	3.540	0.072	0.069	0.001	1.336	1.14
119	10/6/1999	4:42:04 PM	0	27.492	25.079	26.928	28.58	26.476	35.788	55.914	64.261	9.534	47.01	7.462	0.096	35.401	0.165	0.143	105	105	14.7	51.5	3.548	0.072	0.068	0.001	1.328	1.13
120	10/6/1999	4:43:04 PM	0	27.571	25.079	27.008	28.58	26.316	35.709	55.666	63.773	9.558	47.247	7.462	0.096	35.401	0.166	0.146	106	106	14.7	51.5	3.548	0.072	0.069	0.001	1.331	1.13
121	10/6/1999	4:44:05 PM	0	27.492	24.996	26.928	28.5	26.076	36.339	56.41	64.568	9.596	47.483	7.462	0.143	35.418	0.166	0.143	107	107	14.7	51.9	3.582	0.072	0.069	0.001	1.322	1.12
122	10/6/1999	4:45:05 PM	0	27.492	25.159	26.928	28.5	25.676	36.612	56.41	64.568	9.558	47.483	7.462	0.143	35.388	0.166	0.143	108	108	14.7	51.9	3.582	0.072	0.069	0.001	1.322	1.12
123	10/6/1999	4:46:05 PM	0	27.571	25.079	26.928	28.5	25.436	36.969	56.534	64.81	9.51	47.179	7.462	0.096	35.339	0.162	0.146	109	109	14.7	51.9	3.575	0.071	0.067	0.001	1.292	1.10
124	10/6/1999	4:47:06 PM	0	27.525	25.112	26.881	28.453	25.229	36.766	55.79	64.017	9.51	47.483	7.462	0.143	35.37	0.161	0.146	110	110	14.7	51.6	3.560	0.070	0.067	0.001	1.291	1.10
125	10/6/1999	4:48:06 PM	0	27.478	25.065	26.914	28.327	25.022	36.677	56.1	64.261	9.582	46.739	7.4	0.143	35.555	0.166	0.14	111	111	14.8	51.4	3.545	0.072	0.069	0.001	1.336	1.14
126	10/6/1999	4:49:06 PM	0	27.558	25.145	26.914	28.247	24.882	37.115	56.224	64.444	9.566	47.179	7.4	0.143	35.585	0.166	0.143	112	112	14.8	51.7	3.585	0.072	0.069	0.001	1.329	1.13
127	10/6/1999	4:50:07 PM	0	27.511	25.178	26.947	28.201	24.735	36.968	55.852	63.956	9.542	47.28	7.431	0.143	35.355	0.166	0.143	113	113	14.7	51.6	3.555	0.072	0.069	0.001	1.331	1.13
128	10/6/1999	4:51:07 PM	0	27.544	25.131	26.98	28.074	24.607	37.178	56.1	64.078	9.574	47.449	7.431	0.143	35.447	0.164	0.143	114	114	14.7	51.8	3.570	0.072	0.068	0.001	1.308	1.11
129	10/6/1999	4:52:07 PM	0	27.677	25.163	26.934	28.027	24.48	37.132	55.976	64.261	9.495	47.551	7.4	0.143	35.462	0.165	0.143	115	115	14.7	51.8	3.569	0.072	0.068	0.001	1.318	1.12
130	10/6/1999	4:53:08 PM	0	27.484	25.151	26.92	27.934	24.506	37.041	56.534	64.627	9.566	47.314	7.431	0.096	35.416	0.163	0.143	116	116	14.7	51.9	3.580	0.071	0.067	0.001	1.299	1.11
131	10/6/1999	4:54:08 PM	0	27.564	25.151	26.92	27.934	24.226	37.119	55.542	63.651	9.534	47.483	7.4	0.143	35.447	0.161	0.143	117	117	14.7	51.5	3.552	0.070	0.067	0.001	1.293	1.10
132	10/6/1999	4:55:09 PM	0	27.471	25.136	26.967	27.841	24.133	36.791	55.666	63.895	9.566	46.908	7.4	0.143	35.493	0.161	0.14	118	118	14.7	51.3	3.536	0.070	0.066	0.001	1.296	1.10
133	10/6/1999	4:56:09 PM	0	27.504	25.171	26.94	27.795	24.407	35.679	56.41	64.627	9.574	47.01	7.4	0.143	35.585	0.161	0.14	119	119	14.8	51.7	3.565	0.070	0.067	0.001	1.267	1.10
134	10/6/1999	4:57:09 PM	0	27.537	25.125	26.894	27.748	24.651	35.261	56.162	64.261	9.622	47.348	7.4	0.143	35.493	0.164	0.146	120	120	14.7	51.6	3.568	0.072	0.068	0.001	1.312	1.12
135	10/6/1999	4:58:10 PM	0	27.537	25.205	26.894	27.748	25.001	35.36	56.038	64.078	9.574	47.179	7.37	0.143	35.508	0.163	0.143	121	121	14.7	51.6	3.558	0.071	0.067	0.001	1.308	1.11
136	10/6/1998	4:59:10 PM	0	27.524	25.191	26.88	27.815	25.148	34.478	55.976	64.078	9.598	46.976	7.37	0.143	35.493	0.161	0.143	122	122	14.7	51.5	3.549	0.070	0.067	0.001	1.295	1.10
137	10/6/1998	5:00:10 PM	0	27.604	25.191	26.96	27.974	25.389	34.794	56.534	64.81	9.55	47.145	7.4	0.143	35.555	0.161	0.146	123	123	14.8	51.8	3.574	0.070	0.067	0.001	1.283	1.09
138	10/6/1998	5:01:11 PM	0	27.524	25.191	26.96	28.054	25.469	35.031	54.117	63.164	9.495	45.624	8.448	0.096	35.816	0.318	0.292	124	124	14.9	49.9	3.438	0.139	0.131	0.003	2.635	2.24
139	10/6/1998	5:02:11 PM	0	27.571	25.238	27.007	28.101	25.675	34.287	55.852	64.017	9.558	46.739	7.246	0.143	35.706	0.238	0.213	125	125	14.8	51.3	3.537	0.104	0.096	0.002	1.915	1.63
140	10/6/1998	5:03:11 PM	0	27.524	25.272	26.96	28.134	25.709	34.794	55.418	63.266	9.686	46.976	7.246	0.143	35.631	0.21	0.189	126	126	14.8	51.2	3.530	0.092	0.087	0.002	1.695	1.44
141																												
142		Averages		26.7	24.4	26.3	27.8	25.5	34.8	56.1	64.1	9.7	47.0	7.2	0.1	35.6	0.167	0.146			14.8	51.6	3.555	0.073	0.070	0.00136	1.4	1.2
143		Maximum		27.6	25.2	27.0	28.6	28.5	37.2	57.8	65.8	10.0	48.4	7.5	0.1	36.1	0.284	0.250			15.0	53.0	3.653	0.124	0.124	0.00241	2.4	2.1
144		Median		27.1	24.5	26.5	27.9	25.5	34.8	56.1	64.1	9.7	46.9	7.2	0.1	35.7	0.163	0.143			14.8	51.5	3.552	0.071	0.068	0.00133	1.3	1.1
145		Minimum		25.3	23.5	24.9	26.6	24.1	31.8	54.7	62.8	9.5	45.6	6.9	0.1	35.2	0.158	0.137			14.8	50.4	3.472	0.069	0.066	0.00100	1.0	1.1
146		Std Deviation		0.727	0.541	0.637	0.632	0.613	1.167	0.685	0.642	0.108	0.688	0.120	0.027	0.231	0.015	0.014			0.095	0.654	0.045	0.006	0.007	0.000139	0.139	0.115
147		Number of Points Used		110	110	110	110	110	110	110	110	110	110	110	110	110	110	110			111	111	111	111	111	111	111	111



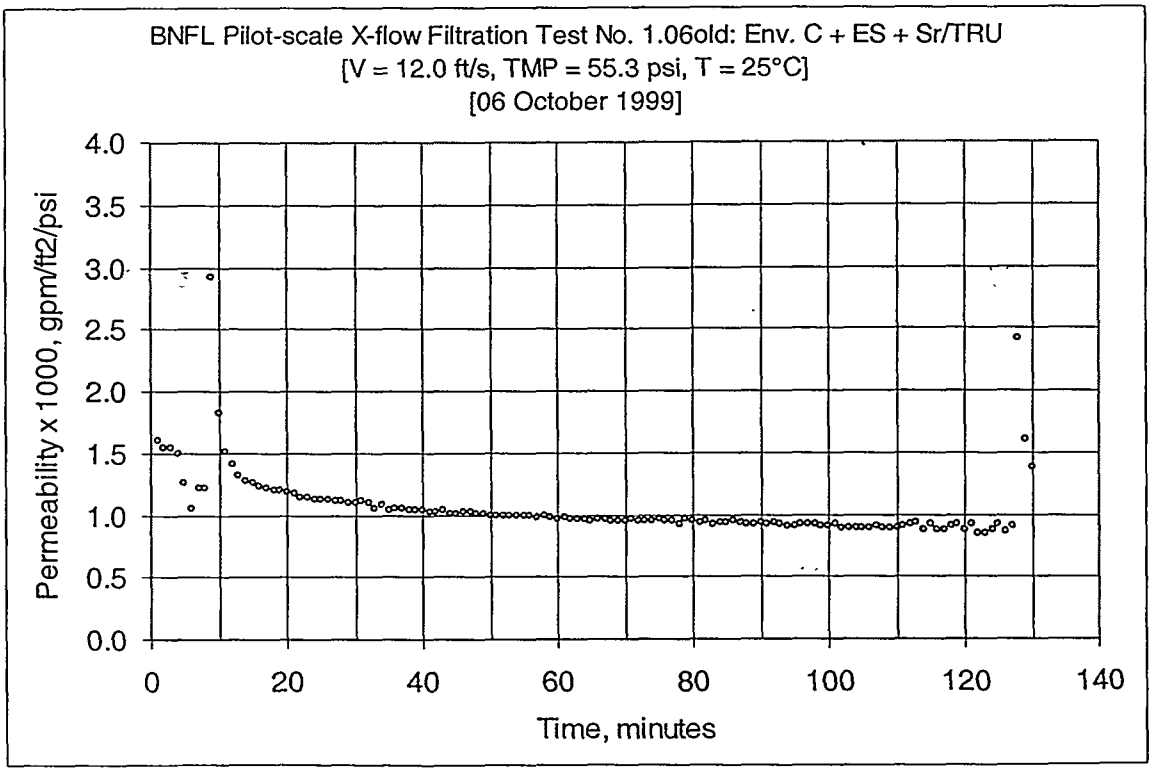


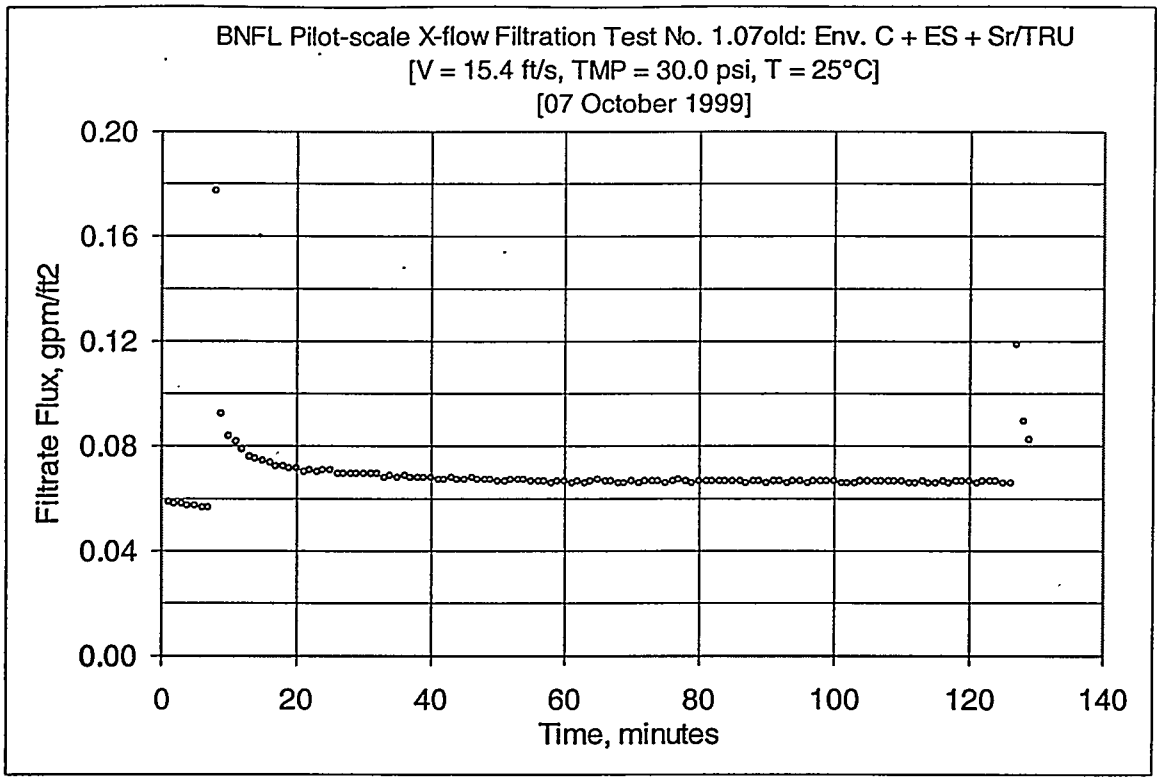
Figure B16: Test Run 1.06(old), 2 wt% Insoluble Solids Concentration

Run 1.06(old): 2 wt% Concentration of Insoluble Solids

	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	FLTAT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	ASL FLOW	O2,FLTR	RO3,FLTR	FLOW (gpm)									
2	Zeros - No Flow - Lines Connected																				Filter Surface Area		2 29	FT2				
3	10/6/1999	8:15:29 AM	0	20 692	20.262	19 713	20.23	19 77	28 959	0 001	-5.311	-0 015	-0 045	-2 829	-0 075	-0 095	0 011	-0 018			Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	10/6/1999	8:16:29 AM	0	20 773	20.343	19 632	20 473	19 77	29 038	-0 061	-5.311	-0 015	-0 011	-2 829	-0 075	-0 095	0 011	-0 018										
5	10/6/1999	8:17:30 AM	0	20 773	20.262	19 713	20 473	19 65	28 959	0 001	-5 25	-0 015	-0 045	-2 798	-0 075	-0 079	0 011	-0 018										
6	10/6/1999	8:18:30 AM	0	20 692	20.343	19 713	20.392	19 931	28 959	-0 061	-5.311	-0 015	-0 011	-2 798	-0 075	-0 079	0 011	-0 018										
7	Zeros - Lines Not Connected																											
8	10/6/1999	8:20:53 AM	0	20.289	20.343	19 632	20.311	20 012	28.799	-0 061	-0 067	-0 015	-0 011	-0.117	-0 075	-0 095	0 011	-0 018										
9	10/6/1999	8:21:53 AM	0	20.333	20.307	19 677	20 356	19 976	28.784	0 001	-0 067	-0 015	-0 011	-0 088	-0 075	-0 079	0 011	-0 018										
10	10/6/1999	8:22:53 AM	0	20.333	20.307	19.757	20.275	19 976	28 804	0 001	-0 067	-0 015	-0 011	-0 088	-0 075	-0 079	0 011	-0 015										
11	10/6/1999	8:23:54 AM	0	20.369	20.262	19.713	20 15	19 931	28.72	0 001	-0 067	-0 015	-0 011	-0 088	-0 075	-0 079	0 011	-0 018										
12																												
13																												
14	Data - Per Minute																								at 25C	PERMEABILITY	x1000	
15	10/6/1999	5:04:10 PM	0	27 524	25 272	26 96	28 214	25 709	34,182	55 976	64 017	8 774	46,942	7.277	0,143	33 631	0 2	0,183	1	1	14 8	51.5	3 548	0 087	0 083	0 002	1 606	1 37
16	10/6/1999	5:05.11 PM	0	27,604	25 272	27,04	28 293	25,789	34 636	55 48	63 346	9 718	47 01	7.308	0,143	33 618	0 191	0 173	2	2	14 8	51.2	3 533	0 083	0 079	0 002	1 537	1 31
17	10/6/1999	5:06:11 PM	0	27,604	25 272	26 8	28,373	25 949	34 636	48,786	58,779	7,292	42,006	9 342	0,143	29 365	0,168	0,149	3	3	12 2	45 4	3,130	0 073	0 070	0 002	1 536	1,31
18	10/6/1999	5:07:11 PM	0	27,444	25 272	26 561	28 373	25 949	34,794	50 893	60 907	7,101	44,779	9 342	0,143	28,735	0,171	0,155	4	4	11,9	47.8	3 298	0 075	0 071	0 001	1,494	1 27
19	10/6/1999	5:08:12 PM	0	27,444	25 272	26 481	28 453	26 029	34,952	61,927	70 603	7,045	56 478	7,801	0 143	29 134	0,178	0,152	5	5	12,1	59 2	4 082	0 078	0 075	0 001	1 259	1 07
20	10/6/1999	5:09:12 PM	0	27,411	25 318	26 607	28 499	26 078	34,84	38 991	47,96	7,444	32 912	8 51	0,143	29,733	0,09	0 064	6	6	12,3	36,0	2 479	0 039	0 038	0 001	1 045	0 89
21	10/6/1999	5:10:12 PM	0	27,331	25 238	26 607	28,499	26,158	34 603	56,906	67,188	7,428	49,14	9 434	0,143	29 656	0,153	0,134	7	7	12 3	53 0	3 656	0 068	0 065	0 001	1,220	1 04
22	10/6/1999	5:11:13 PM	0	27,251	25,318	26 607	28 579	26,156	34,824	53,621	63,103	7,356	46 435	8,91	0,143	29 549	0,145	0 122	8	8	12 3	50 0	3 449	0 063	0 061	0 001	1 210	1 03
23	10/6/1999	5:12:13 PM	0	27,296	25,285	26 654	28,546	26,202	35 044	58,534	63,829	7,436	49 207	6 445	0,143	30,194	0,371	0,32	9	9	12,5	52,9	3 645	0 182	0 155	0 003	2 925	2 49
24	10/6/1999	5:13:14 PM	0	27,296	25 365	26 574	28 548	26 202	35,36	55,668	63,651	7,46	48,484	7,308	0,143	29 902	0,227	0 2041	10	10	12 4	52,1	3 590	0 099	0 095	0 002	1 621	1 53
25	10/6/1999	5:14:14 PM	0	27,296	25 285	26 654	28,546	26,202	34,965	58,1	63,895	7,588	48 903	7,277	0,143	29,795	0,181	0,17	11	11	12 4	52,5	3 620	0 083	0 080	0 002	1 518	1 29
26	10/6/1999	5:15:14 PM	0	27,264	25 331	26 621	28 592	26,329	35,189	55,728	63 834	7,516	49 005	7,216	0,143	29 902	0,178	0,155	12	12	12 4	52 4	3 610	0 077	0 073	0 001	1,402	1,19
27	10/6/1999	5:16:15 PM	0	27,264	25 331	26 621	28 592	26 329	35 09	55,652	63,956	7,404	49,376	7,308	0,143	29,764	0,166	0,146	13	13	12 4	52 6	3 628	0 072	0 069	0 001	1 316	1,12
28	10/6/1999	5:17:15 PM	0	27,311	25 378	26 667	28 559	26,375	35,136	56,41	64,322	7,508	49 65	7,308	0,143	29,733	0,162	0,146	14	14	12 3	53,1	3 683	0 071	0 067	0 001	1,270	1,08
29	10/6/1999	5:18:15 PM	0	27,231	25,378	26 587	28 559	26,375	34,741	55,976	64 017	7,612	49 038	7,246	0,143	29 795	0,158	0,14	15	15	12 4	52 5	3 620	0 069	0 066	0 001	1 257	1 07
30	10/6/1999	5:19:16 PM	0	27,278	25 425	26 634	28 605	26 422	35,182	56,182	64,2	7,548	49 038	7,246	0,143	29 825	0,156	0,137	16	16	12 4	52 8	3 627	0 068	0 065	0 001	1,237	1,05
31	10/6/1999	5:20:16 PM	0	27,278	25 425	26 634	28 685	26,342	34,65	56 41	64,383	7,656	49 376	7,246	0,143	29 81	0,154	0,134	17	17	12 4	52 9	3 647	0 067	0 064	0 001	1 214	1 03
32	10/6/1999	5:21:16 PM	0	27,324	25,392	26 681	28,732	26,389	35 07	56,1	64 261	7,572	48,903	7,277	0,143	29 825	0,152	0,128	18	18	12 4	52,5	3 620	0 066	0 063	0 001	1,206	1,03
33	10/6/1999	5:22:17 PM	0	27,245	25 392	26 601	28 811	26,389	34,912	55 976	63,834	7,667	48 836	7,246	0,143	29 656	0,15	0,128	19	19	12 4	52 4	3 613	0 065	0 063	0 001	1,195	1,02
34	10/6/1999	5:23:17 PM	0	27,245	25,392	26 601	28,732	26,389	35,148	57,402	65 664	7,524	49,051	7,308	0,143	29,702	0,152	0,131	20	20	12 3	53,7	3 701	0 068	0 063	0 001	1,182	1,01
35	10/6/1999	5:24:17 PM	0	27,291	25 438	26 647	28,778	26 615	34,958	56,472	64,139	7,564	49 005	7,246	0,143	29 595	0,149	0,128	21	21	12 3	52,7	3 636	0 063	0 062	0 001	1,178	1,00
36	10/6/1999	5:25:18 PM	0	27,211	25 438	26 647	28,778	26,515	35 037	57,154	65,176	7,412	50 83	7,246	0,143	29 36	0,147	0,126	22	22	12 2	54 0	3,723	0 064	0 061	0 001	1,135	0 97
37	10/6/1999	5:26:18 PM	0	27,258	25 485	26 694	28 825	26 482	35,162	57,464	65 481	7,468	49,965	7,246	0,143	29,58	0,147	0,126	23	23	12,3	53,7	3 704	0 064	0 061	0 001	1,139	0 97
38	10/6/1999	5:27:18 PM	0	27,336	25 485	26 694	28 825	26 242	35 478	57,278	65,176	7,428	50 594	7,216	0,143	29 472	0,146	0,126	24	24	12 2	53 9	3,719	0 064	0 061	0 001	1,127	0 96
39	10/6/1999	5:28:19 PM	0	27,308	25,532	26,741	28,792	25 689	35 839	57,154	65 054	7,292	51,54	7,277	0,143	29,134	0,147	0,131	25	25	12 1	54 3	3,747	0 064	0 061	0 001	1,125	0 96
40	10/6/1999	5:29:19 PM	0	27,305	25 452	26 661	28,712	25 649	36 076	58,332	66 456	7,277	51,405	7,246	0,143	29,134	0,149	0,125	26	26	12,1	54 9	3,783	0 065	0,062	0 001	1 132	0 96
41	10/6/1999	5:30:19 PM	0	27,384	25 532	26,741	28 553	25,409	36,234	57,712	65 664	7,316	51,371	7,246	0,143	29 073	0,146	0,125	27	27	12 1	54 5	3,763	0 063	0 060	0 001	1,103	0 93
42	10/6/1999	5:31:20 PM	0	27,338	25 485	26 694	28,506	25 041	36,424	58 084	66,395	7,213	51,168	7,216	0,143	29 042	0,145	0,125	28	28	12,1	54 6	3,766	0 063	0 060	0 001	1,105	0 94
43	10/6/1999	5:32:20 PM	0	27,338	25 485	26 694	28,426	25 041	36 603	58,332	66,152	7,284	51,168	7,185	0,143	29 042	0,144	0,122	29	29	12,1	54 8	3,775	0 063	0 060	0 001	1,095	0 93
44	10/6/1999	5:33:20 PM	0	27,371	25 518	26 647	28,38	24 834	36 614	57,898	65 908	7,133	51,405	7,185	0,143	29 057	0,144	0,122	30	30	12,1	54,7	3,768	0 063	0 060	0 001	1,096	0 93
45	10/6/1999	5:34:21 PM	0	27,324	25 472	26 601	28,253	24,627	36 647	58 642	66 395	7,269	51,405	7,154	0,143	29,011	0,147	0,126	31	31	12 0	55 0	3,784	0,064	0 061	0 001	1,115	0 95
46	10/6/1999	5:35:21 PM	0	27,358	25 505	26 634	28,127	24,6	36 601	58 518	66 678	7,205	52,149	7,154	0,143	28 919	0,145	0,126	32	32	12 0	55,3	3 815	0 063	0 060	0 001	1,093	0 93
47	10/6/1999	5:36:21 PM	0	27,358	25 505	26,714	28,127	24,42	36,758	58 642	66,7	7,141	52,419	7,154	0,143	28,827	0,14	0,119	33	33	12 0	55 6	3,829	0 061	0 058	0 001	1 049	0 89
48	10/6/1999	5:37:22 PM	0	27,391	25 538	26 667	28 081	24 373	36 555	58 208	66,091	7,245	51,912	7,154	0,143	28 656	0,142	0,122	34	34	12 0	55 1	3,796	0 062	0 059	0 001	1 075	0 91
49	10/6/1999	5:38:22 PM	0	27,296	25 445	26 654	27,906	24 2	36 542	59 368	67,005	7,368	52,419	7,123	0,143	28 961	0,14	0,119	35	35	12,0	55 9	3 854	0 061	0 058	0 001	1 044	0 89
50	10/6/1999	5:39:22 PM	0	27,378	25,525	26,734	27,906	24,2	36 621	59 076	66,944	7,269	52,149	7,123	0,143	28,904	0,141	0,122	36	36	12 0	55 6	3,834	0 062	0 059	0 001	1 054	0 90
51	10/6/1999	5:40:23 PM	0	27,331	25 478	26 687	27,861	24 073	36,678	58 828	66,761	7,189	51,678	7,123	0,143	28 627	0,139	0,122	37	37	12,0	55 4	3 816	0 061	0 058	0 001	1 046	0 89
52	10/6/1999	5:41:23 PM	0	27,365	25 592	26 721	27,815	24 026	36 529	58,704	66,334	7,348	52,385	7,092	0,143	28,842	0,139	0,119	38	38	12,0	55,6	3,830	0 061	0 058	0 001	1,041	0 89
53	10/6/1999	5:42:23 PM	0	27,318	25 545	26,674	27,689	24,14	35,932	58,766	66 578	7,269	52,183	7,092	0,143	28 904	0,139	0,119	39	39	12 0	55 5	3 825	0 061	0 058	0 001	1 044	0 89
54	10/6/1999	5:43:24 PM	0	27,352	25,499	26 628	27,642	24,494	35 67	59,138	67,066	7,245	52,25	7,092	0,143	28 934	0,136	0,116	40	40	12 0	55,7	3 840	0 060	0 058	0 001	1 033	0 88
55	10/6/1999	5:44:24 PM	0	27,305	25,532	26 661	27,676	24,768	35,13	59 014	66 883	7,292	52,453	7,061	0,143	28 919	0,136	0,119	41	41	12,0	55,7	3 843	0 059	0 057	0 001	1 017	0 87
56	10/6/1999	5:45:24 PM	0	27,339	25,486	26,695	27,789	24,962	35 005	59,2	66 883	7,284	52,149	7,061	0,143	28 827	0,137	0,116	42	42	12 0	55,7	3 839	0 060	0 057	0 001	1 024	0 87
57	10/6/1999	5:46:25 PM	0	27,339	25 566	26,695	27,789	25,122	34,926	58,456	66 212	7,189	51,96	7,061	0,143	28,904	0,137	0,116	43	43	12,0	55,2	3 807	0 060	0 057	0 001	1 033	0 88
58	10/6/1999	5:47:25 PM	0	27,339	25 566	26,695	27,869	25,262	34 647	58 642	66,334	7,253	52 656	7,061	0,143	28 888	0,135	0,116	44	44	12 0	55 6	3 837	0 059	0 056	0 001	1 010	0 86
59	10/6/1999	5:48:25 PM	0	27,292	25,52	26 648	27,962	25 396	34,722	58,704	66,334	7,261	52 014	7,061	0,143	28,95	0,134	0,109	45	45	12 0	55 4	3 817	0 058	0 056	0 001	1,009	0 86
60	10/6/1999	5:49:26 PM	0	27,292	25 52	26 648	27,962	25,476	34,722	58 69	66 639	7,213	51,678	7,061	0,143	28 95	0,136	0,112	46	46	12 0	55 4	3 819	0 059	0,057	0 001	1,024	0 87
61	10/6/1999	5:50:26 PM	0	27,372	25,52	26 648	27,962	25 556	34,485	58,394	66 273	7,141	51,678	7,061	0,143	28 796	0,136	0,119	47	47	12 0	55,1	3 801	0 059	0 057	0 001	1,028	0 88
62	10/6/1999	5:51:27 PM	0	27,418	25 566	26,774	28,188	25,683	34 452	59 014	66,822	7,181	52,487	7,031	0,143	28 812	0,135	0,116	48	48	12 0	55 8	3 844	0 059	0 056	0 001	1 006	0 86
63	10/6/1999	5:52:27 PM	0	27,372	25 52	26 728	28,142	25,716	34,406	57,96	65 603	7,213	52,352	7,061	0,189	28 858	0,134	0,112	49	49	12 0	55,2	3 803	0 058	0 056	0 001	1 010	0 86
64	10/6/1999	5:53:28 PM	0	27,418	25 566	26,774	28,268	25 843	34 689	57,774	65,237	7,205	52,385	7,031	0,189	28 842	0 132	0,116	50	50	12 0	55,1	3 796	0 058	0 055	0 001	0 996	0 85
65	10/6/1999	5:54:28 PM	0	27,339	25,566	26,774	28,268	25 923	34,294	59,138	67,005	7,189	52,825	7,031	0,143	28 873	0,133	0,116	51	51	12 0	56 0	3 860	0 058	0 055	0 001	0 987	0 84
66	10/6/1999	5:55:28 PM	0	27,418	25 566	26,774	28,188	25 843	34 531	58,704	66 578	7,284	52,047	7,031	0,143	28 873	0,133	0,112	52	52	12 0	55 4	3 818	0 058	0 055	0 001	0 996	0 85
67	10/6/1999	5:56:29 PM	0	27,418	25 566	26 695	28,347	25,923	34,485	59 61	67,676	7,205	51,96	7,031	0,143	28 842	0,132	0,112	53	53	12 0	55 7	3 843	0 058	0 055	0 001	0 986	0 84
68	10/6/1999	5:57:29 PM	0	27,418	25 486	26,774	28,347	26 003	34,139	58,064	65 786	7,149	52,521	7,031	0,143	28 812	0,133	0,112	54	54	12 0	55 3	3 813	0 058	0 055	0 001	0 999	0 85
69	10/6/1999	5:58:29 PM	0	27,465	25 532	26 821	28,394	26 049	34,413	58 518	66,152	7,205	51,678	7,031	0,143	28 873	0,133	0,109	55	55	12 0	55 2	3 806	0 058	0 055	0 001	1 000	0 85
70	10/6/1999	5:59:30 PM	0	27,465	25 532	26 821	28 394	25,969	34 41	58,456	66,03	7,205	52 521	7,061	0,189	28 827	0 133	0,116	56	56	12 0	55 5	3 826	0 058	0 055	0 001	0 994	0 85
71	10/6/1999	6:00:30 PM	0	27,431	25 578	26 867	28 44	26 096	34,386	59,138	66 883	7,308	52 081	7,031	0,143	28 812	0,132	0,109	57	57	12 0	55 6	3 834	0 058	0 055	0 001	0 983	0 84
72	10/6/1999	6:01:30 PM	0	27,431	25,578	26 867	28 44	26 096	34,307	57,96	65,542	7,237	52,183	7,031	0,143	28 673	0,132	0,112	58	58	12 0	55 1	3 797	0 058	0 055	0 001	0 993	0 83
73	10/6/1999	6:02:31 PM	0	27,431	25 579	26,767	28,36	26 096	34,228	59 014	66,761	7,181	52,115	7,031	0,143	28 812	0,131	0,109	59	59	12 0	55 6	3 831	0 057	0 054	0 001	0 979	0 83
74	10/6/1999	6:03:31 PM	0	27,478	25 545	26 914	28 407	26,142	34,195	58 704	66,456	7,213	52,115	7,031	0 143	28 781	0,128	0,106	60	60	11,9	55 4	3 820	0 056	0 053	0 001	0 956	0 81
75	10/6/1999	6:04:31 PM	0	27,524	25 672	26 96	28,533	26,189	34,399	58 518	66 091	7,253	52 25	7,031	0,189	28 842	0,131	0 112	61	61	12 0	55 4	3 819	0 057	0 054	0 001	0 977	0 83
76	10/6/1999	6:05:32 PM	0	27,524	25 672	26 88	28 453	26,269	34 557	58 952	66,7	7,141	52,284	7	0,143	28 673	0,13	0,109	62	62	12 0	55 6	3 835	0 057	0 054	0 001	0 968	0 82
77	10/6/1999	6:06:32 PM	0	27,444	25 592	26 88	28 453	26,189	34,478	59,2	67,005	7,237	52,014	7	0,143	28 827	0,13	0,106	63	63	12 0	55 6	3 834	0 057	0 054	0 001	0 968	0 82
78	10/6/1999	6:07:32 PM	0	27,571	25 639	26 927	28,499	26,235	34,524	58 828	66 578	7,3	52 656	7	0 189	28 842	0,129	0,106	64	64	12 0	55,7	3 843	0 058	0 055	0 001	0 968	0 82
79	10/6/1999	6:08:33 PM	0	27,491	25 639	26 927	28,499	26,235	34,366	57,96	65,42	7,284	52 284	7,031	0,189	28 656	0 127	0 106	65	65	12 0	55,1	3 800	0 055	0 053	0 001	0 953	0 81
80	10/6/1999	6:09:33 PM	0	27,537	25 685	26 973	28,466	26 362	34 686	58 828	66,817	7,229	52,216	7	0,143	28,873	0,129	0,106	66	66	12 0	55 5	3 828	0 056	0 053	0 001	0 960	0 82
81	10/6/1999	6:10:33 PM	0	27,537	25 605	26 973	28,546	26 282	34,333	59 076	67,066	7,141	51 678	7	0,143	28 888	0,129	0,109	67	67	12 0	55 5	3 825	0 056	0 053	0 001	0 961	0 82
82	10/6/1999	6:11:34 PM	0	27,584	25 652	27 02	28 513	26,329	34 618	59,138	66 822	7,197	51,912	7	0 189	28 888	0,128	0 106	68	68	12 0	55 5	3 826	0 056	0 053	0 001	0 951	0 81
83	10/6/1999	6:12:34 PM	0	27,584	25 652	26 94	28,592	26,329	34 537	59 51	67,188	7,316	52 521	7	0,189	28 934	0,128	0,106	69	69	12 0	56 0	3 862	0 056	0 053	0 001	0 945	0 80
84	10/6/1999	6:13:34 PM	0	27,584	25 652	27,02	28 433	26,249	34,774	59 262	67,066	7,189	52,115	7	0,143	28 95	0,128	0 109	70	70	12 0	55 7	3 840	0 056	0 053	0 001	0 948	0 81
85	10/6/1999	6 14 35 PM	0	27,504	25 652	26 88	28 513	25 929	35 405	59 138	67,005	7,237	52 216	7	0,143	28 934	0,129	0 109	71	71	12 0	55 7	3 839	0 056	0 053	0 001	0 960	0 82

Run 1.06(old): 2 wt% Concentration of Insoluble Solids

	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	10/6/1999	6:15:35 PM	0	27.504	25.652	27.02	28.513	25.609	35.642	58.89	66.639	7.173	51.811	7	0.189	28.796	0.128	0.106	72	72	12.0	55.4	3.816	0.056	0.053	0.001	0.954	0.81
87	10/6/1999	6:16:35 PM	0	27.83	25.699	26.967	28.4	25.335	36.003	59.756	67.737	7.181	52.115	6.969	0.143	28.842	0.128	0.106	73	73	12.0	55.9	3.857	0.056	0.053	0.001	0.945	0.80
88	10/6/1999	6:17:36 PM	0	27.584	25.652	27.02	28.273	25.048	36.115	59.014	67.003	7.101	52.115	7	0.143	28.827	0.128	0.106	74	74	12.0	55.6	3.831	0.056	0.053	0.001	0.950	0.81
89	10/6/1999	6:18:36 PM	0	27.584	25.732	26.94	28.194	24.888	36.273	58.332	65.906	7.173	52.352	7	0.143	28.719	0.128	0.103	75	75	11.9	55.3	3.818	0.056	0.053	0.001	0.956	0.81
90	10/6/1999	6:19:36 PM	0	27.617	25.685	26.973	28.067	24.681	36.305	58.952	66.7	7.109	52.014	7	0.143	28.781	0.128	0.106	76	76	11.9	55.5	3.825	0.056	0.053	0.001	0.953	0.81
91	10/6/1999	6:20:37 PM	0	27.571	25.719	26.927	28.021	24.554	36.26	59.014	66.822	7.173	51.777	7	0.143	28.827	0.127	0.106	77	77	12.0	55.4	3.819	0.055	0.053	0.001	0.946	0.81
92	10/6/1999	6:21:37 PM	0	27.571	25.719	27.007	27.941	24.393	36.495	59.136	66.883	7.221	52.419	7	0.189	28.827	0.124	0.103	78	78	12.0	55.8	3.846	0.054	0.051	0.001	0.917	0.76
93	10/6/1999	6:22:37 PM	0	27.604	25.752	26.96	27.815	24.347	36.45	58.952	66.944	7.053	52.115	6.969	0.189	28.812	0.129	0.106	79	79	12.0	55.5	3.829	0.056	0.053	0.001	0.960	0.82
94	10/6/1999	6:23:38 PM	0	27.558	25.706	26.914	27.689	24.14	36.401	58.89	66.7	7.157	51.912	6.969	0.143	28.781	0.126	0.106	80	80	11.9	55.4	3.820	0.055	0.052	0.001	0.941	0.80
95	10/6/1999	6:24:38 PM	0	27.591	25.739	26.947	27.642	24.093	36.437	58.89	66.395	7.149	52.453	7	0.143	28.766	0.125	0.103	81	81	11.9	55.7	3.838	0.055	0.052	0.001	0.928	0.79
96	10/6/1999	6:25:38 PM	0	27.625	25.693	26.901	27.676	23.966	36.234	59.2	67.127	7.053	52.419	6.969	0.143	28.735	0.126	0.106	82	82	11.9	55.8	3.848	0.056	0.053	0.001	0.949	0.81
97	10/6/1999	6:26:39 PM	0	27.658	25.646	27.014	27.549	24.16	35.636	58.766	66.395	7.123	52.487	6.969	0.143	28.796	0.123	0.103	83	83	12.0	55.6	3.835	0.054	0.051	0.001	0.912	0.78
98	10/6/1999	6:27:39 PM	0	27.612	25.76	26.886	27.503	24.515	35.354	59.136	66.822	7.213	52.893	6.969	0.143	28.858	0.126	0.106	84	84	12.0	56.0	3.862	0.055	0.052	0.001	0.931	0.79
99	10/6/1999	6:28:39 PM	0	27.612	25.76	26.886	27.503	24.755	35.038	59.51	67.127	7.173	53.163	6.969	0.143	28.781	0.126	0.103	85	85	11.9	56.3	3.884	0.055	0.052	0.001	0.926	0.79
100	10/6/1999	6:29:40 PM	0	27.565	25.713	26.921	27.457	24.949	34.992	58.456	66.03	7.133	51.98	6.969	0.143	28.766	0.126	0.103	86	86	11.9	55.2	3.807	0.055	0.052	0.001	0.944	0.80
101	10/6/1999	6:30:40 PM	0	27.645	25.713	26.921	27.616	25.029	34.756	59.2	66.822	7.284	52.284	6.969	0.143	28.796	0.123	0.106	87	87	12.0	55.7	3.843	0.055	0.052	0.001	0.928	0.79
102	10/6/1999	6:31:40 PM	0	27.599	25.667	26.955	27.57	25.223	34.789	59.62	67.493	7.253	52.656	6.969	0.143	28.719	0.124	0.103	88	88	11.9	56.2	3.877	0.054	0.051	0.001	0.911	0.78
103	10/6/1999	6:32:41 PM	0	27.599	25.667	26.875	27.65	25.303	34.868	59.366	66.944	7.133	52.622	6.969	0.143	28.812	0.124	0.103	89	89	12.0	56.0	3.861	0.054	0.051	0.001	0.917	0.78
104	10/6/1999	6:33:41 PM	0	27.599	25.667	26.955	27.65	25.383	34.394	58.208	65.725	7.157	52.352	6.969	0.143	28.796	0.124	0.103	90	90	12.0	55.3	3.811	0.054	0.051	0.001	0.927	0.79
105	10/6/1999	6:34:41 PM	0	27.599	25.747	26.875	27.65	25.383	34.852	59.324	67.005	7.229	52.625	6.969	0.143	28.812	0.123	0.1	91	91	12.0	56.1	3.866	0.055	0.052	0.001	0.923	0.79
106	10/6/1999	6:35:42 PM	0	27.519	25.747	26.955	27.73	25.463	34.315	59.136	66.761	7.213	52.69	6.938	0.143	28.75	0.126	0.103	92	92	11.9	55.9	3.855	0.055	0.052	0.001	0.931	0.79
107	10/6/1999	6:36:42 PM	0	27.599	25.667	26.955	27.81	25.463	34.475	59.51	67.249	7.165	52.318	6.969	0.143	28.781	0.124	0.106	93	93	11.9	55.9	3.853	0.054	0.051	0.001	0.917	0.78
108	10/6/1999	6:37:42 PM	0	27.599	25.667	26.955	27.81	25.543	34.236	59.82	67.493	7.253	53.163	6.938	0.143	28.75	0.124	0.103	94	94	11.9	56.5	3.895	0.054	0.051	0.001	0.907	0.77
109	10/6/1999	6:38:43 PM	0	27.599	25.667	26.955	27.81	25.623	34.394	59.136	66.639	7.245	53.095	6.969	0.189	28.735	0.123	0.1	95	95	11.9	56.1	3.869	0.054	0.051	0.001	0.906	0.77
110	10/6/1999	6:39:43 PM	0	27.645	25.713	27.001	27.856	25.67	34.44	59.136	66.883	7.053	53.028	6.938	0.143	28.796	0.124	0.103	96	96	12.0	56.1	3.867	0.054	0.051	0.001	0.913	0.78
111	10/6/1999	6:40:43 PM	0	27.599	25.667	26.955	27.81	25.704	34.475	58.394	66.091	7.125	52.96	6.938	0.143	28.812	0.124	0.103	97	97	12.0	55.7	3.839	0.054	0.051	0.001	0.920	0.78
112	10/6/1999	6:41:44 PM	0	27.565	25.713	26.921	27.856	25.75	34.44	59.696	67.371	7.229	52.419	6.938	0.143	28.796	0.124	0.103	98	98	12.0	56.1	3.865	0.054	0.051	0.001	0.915	0.78
113	10/6/1999	6:42:44 PM	0	27.565	25.713	26.921	27.856	25.67	34.361	58.828	66.578	7.125	52.385	6.969	0.189	28.75	0.121	0.103	99	99	11.9	55.6	3.834	0.053	0.050	0.001	0.900	0.77
114	10/6/1999	6:43:44 PM	0	27.565	25.713	26.921	27.856	25.67	34.262	58.828	66.517	7.101	53.197	6.938	0.143	28.812	0.123	0.103	100	100	12.0	56.0	3.862	0.054	0.051	0.001	0.908	0.77
115	10/6/1999	6:44:45 PM	0	27.612	25.76	26.968	27.902	25.796	34.406	59.324	67.005	7.181	52.825	6.938	0.143	28.735	0.124	0.097	101	101	11.9	56.1	3.866	0.054	0.051	0.001	0.914	0.78
116	10/6/1999	6:45:45 PM	0	27.612	25.76	26.968	27.822	25.796	34.485	58.89	66.517	7.189	52.554	6.938	0.143	28.781	0.12	0.1	102	102	11.9	55.7	3.842	0.052	0.050	0.001	0.890	0.76
117	10/6/1999	6:46:46 PM	0	27.612	25.76	26.968	27.822	25.796	34.485	59.662	67.796	7.045	52.453	6.907	0.143	28.658	0.121	0.097	103	103	11.9	56.2	3.873	0.053	0.050	0.001	0.890	0.76
118	10/6/1999	6:47:46 PM	0	27.612	25.68	26.968	27.822	25.716	34.801	59.634	67.371	7.069	53.197	6.969	0.143	28.735	0.122	0.103	104	104	11.9	56.4	3.890	0.053	0.050	0.001	0.893	0.76
119	10/6/1999	6:48:46 PM	0	27.658	25.726	26.934	27.869	25.763	34.689	58.704	66.517	7.021	53.197	6.938	0.189	28.796	0.121	0.097	105	105	12.0	56.0	3.858	0.053	0.050	0.001	0.894	0.76
120	10/6/1999	6:49:46 PM	0	27.578	25.726	26.934	27.789	25.843	34.373	59.076	66.761	7.165	52.723	6.938	0.143	28.842	0.121	0.1	106	106	12.0	55.9	3.854	0.053	0.050	0.001	0.895	0.76
121	10/6/1999	6:50:47 PM	0	27.578	25.646	26.934	27.789	25.843	34.768	59.136	66.639	7.213	52.467	6.938	0.143	28.735	0.122	0.1	107	107	11.9	55.8	3.848	0.053	0.050	0.001	0.904	0.77
122	10/6/1999	6:51:47 PM	0	27.578	25.726	27.014	27.789	25.763	34.889	59.634	67.493	7.093	52.25	6.938	0.189	28.766	0.121	0.1	108	108	11.9	55.9	3.857	0.053	0.050	0.001	0.893	0.76
123	10/6/1999	6:52:47 PM	0	27.625	25.773	26.901	27.835	25.809	34.419	59.386	67.005	7.245	52.69	6.938	0.143	28.781	0.121	0.1	109	109	11.9	56.0	3.864	0.053	0.050	0.001	0.894	0.76
124	10/6/1999	6:53:48 PM	0	27.625	25.773	26.981	27.835	25.809	34.419	59.386	67.066	7.221	52.521	6.938	0.143	28.796	0.121	0.1	110	110	12.0	56.0	3.858	0.053	0.050	0.001	0.893	0.76
125	10/6/1999	6:54:48 PM	0	27.625	25.773	26.981	27.755	25.809	34.577	58.89	66.639	7.045	52.693	6.938	0.189	28.812	0.122	0.097	111	111	12.0	55.9	3.854	0.053	0.050	0.001	0.902	0.77
126	10/6/1999	6:55:49 PM	0	27.625	25.693	26.981	27.755	25.809	34.656	58.828	66.395	7.181	52.352	6.938	0.189	28.735	0.124	0.097	112	112	11.9	55.6	3.833	0.054	0.051	0.001	0.921	0.78
127	10/6/1999	6:56:49 PM	0	27.545	25.773	26.981	27.676	25.809	34.814	58.394	65.969	7.157	52.25	6.938	0.189	28.735	0.125	0.1	113	113	11.9	55.3	3.814	0.055	0.052	0.001	0.933	0.79
128	10/6/1999	6:57:49 PM	0	27.591	25.739	26.947	27.722	25.856	34.623	59.324	66.883	7.269	52.588	6.938	0.143	28.658	0.118	0.1	114	114	12.0	56.0	3.858	0.052	0.049	0.001	0.872	0.74
129	10/6/1999	6:58:50 PM	0	27.671	25.739	26.947	27.722	25.776	34.89	59.51	67.371	7.085	52.487	6.907	0.189	28.627	0.125	0.103	115	115	12.0	56.0	3.861	0.055	0.052	0.001	0.923	0.79
130	10/6/1999	6:59:50 PM	0	27.591	25.739	26.947	27.722	25.776	34.623	59.62	67.554	7.069	52.723	6.936	0.143	28.766	0.118	0.103	116	116	11.9	56.3	3.880	0.052	0.049	0.001	0.867	0.74
131	10/6/1999	7:00:50 PM	0	27.637	25.786	26.994	27.689	25.742	34.748	59.572	67.127	7.229	52.926	6.936	0.189	28.75	0.12	0.1	117	117	11.9	56.2	3.878	0.052	0.050	0.001	0.881	0.75
132	10/6/1999	7:01:51 PM	0	27.591	25.739	26.947	27.642	25.776	35.253	58.456	66.091	7.157	52.791	6.907	0.143	28.812	0.121	0.097	118	118	12.0	55.6	3.835	0.053	0.050	0.001	0.899	0.77
133	10/6/1999	7:02:51 PM	0	27.637	25.766	26.914	27.689	25.822	34.965	59.262	66.944	7.189	52.25	6.938	0.143	28.75	0.124	0.097	119	119	11.9	55.8	3.844	0.054	0.051	0.001	0.920	0.78
134	10/6/1999	7:03:51 PM	0	27.558	25.706	26.914	27.589	25.822	34.669	59.758	67.371	7.213	52.554	6.938	0.143	28.842	0.119	0.097	120	120	12.0	56.2	3.872	0.052	0.049	0.001	0.877	0.75
135	10/6/1999	7:04:52 PM	0	27.558	25.706	26.914	27.609	25.743	34.927	59.076	66.822	7.181	52.69	6.936	0.143	28.873	0.125	0.1	121	121	12.0	55.9	3.853	0.055	0.052	0.001	0.926	0.79
136	10/6/1999	7:05:52 PM	0	27.604	25.632	26.96	27.655	25.789	35.268	59.51	67.188	7.181	52.521	6.907	0.143	28.781	0.114	0.1	122	122	11.9	56.0	3.862	0.050	0.047	0.001	0.841	0.72
137	10/6/1999	7:06:52 PM	0	27.604	25.752	26.96	27.655	25.789	34.794	59.448	67.311	7.125	52.791	6.938	0.143	28.766	0.115	0.1	123	123	11.9	56.1	3.869	0.050	0.048	0.001	0.847	0.72
138	10/6/1999	7:07:53 PM	0	27.604	25.632	26.96	27.676	25.789	34.952	59.076	66.761	7.053	52.554	6.907	0.143	28.781	0.119	0.097	124	124	11.9	55.8	3.848	0.052	0.049	0.001	0.881	0.75
139	10/6/1999	7:08:53 PM	0	27.604	25.752	26.96	27.575	25.709	35.268	59.136	66.883	7.101	52.352	6.938	0.143	28.858	0.123	0.097	125	125	12.0	55.7	3.843	0.054	0.051	0.001	0.912	0.78
140	10/6/1999	7:09:53 PM	0	27.651	25.799	26.927	27.622	25.595	35.314	58.952	66.7	7.117	52.757	6.907	0.143	28.735	0.117	0.097	126	126	11.9	55.9	3.851	0.051	0.048	0.001	0.886	0.74
141	10/6/1999	7:10:54 PM	0	27.604	25.752	26.96	27.496	25.228	35.583	59.634	67.188	7.157	53.197	6.907	0.189	28.781	0.124	0.1	127	127	12.0	56.4	3.890	0.054	0.051	0.001	0.908	0.77
142	10/6/1999	7:11:54 PM	0	27.604	25.752	26.96	27.496	24.908	35.82	58.952	66.761	6.941	52.014	7.031	0.189	28.965	0.325	0.295	128	128	12.0	55.5	3.825	0.142	0.134	0.002	2.421	2.06
143	10/6/1999	7:12:54 PM	0	27.604	25.632	26.96	27.336	24.587	36.214	57.774	65.481	7.085	51.777	7.218	0.143	28.873	0.213	0.189	129	129	12.0	54.8	3.777	0.093	0.088	0.002	1.607	1.37
144	10/6/1999	7:13:55 PM	0	27.558	25.706	26.914	27.269	24.36	36.404	58.27	66.03	7.3	52.318	7.248	0.143	28.858	0.184	0.158	130	130	12.0	55.3	3.812	0.080	0.076	0.001	1.377	1.17
145																												
146		Averages		27.5	25.6	26.8	28.1	25.0	35.1	58.6	66.4	7.2	51.9	7.0	0.2	29.0	0.135	0.114			12.0	55.3	3.811	0.059	0.056	0.00102	1.0	0.9
147		Maximum		27.7	25.8	27.0	28.6	25.5	36.5	59.9	67.8	7.7	53.2	7.3	0.2	30.2	0.371	0.320			12.5	56.5	3.895	0.162	0.155	0.00282	2.9	2.5
148		Median		27.5	25.7	26.9	27.9	25.8	34.6	58.9	66.6	7.2	52.3	7.0	0.1	28.8	0.126	0.106			12.0	55.6	3.834	0.056	0.053	0.00096	1.0	0.8
149		Minimum		27.2	25.3	26.8	27.5	24.0	34.1	55.7	63.5	7.0	48.6	6.4	0.1	28.7	0.114	0.097			11.9	52.1	3.590	0.050	0.047	0.00084	0.8	0.7
150		Std Deviation		0.134	0.130	0.138	0.396	0.677	0.745	1.009	0.969	0.132	1.112	0.127	0.018	0.331	0.026	0.025			0.138	1.032	0.071	0.012	0.011	0.000223	0.223	0.190
151		Number of Points Used		119	119	119	119	119	119	119	119	119	119	119	119	119	119	119			119	119	119	119	119	119	119	119



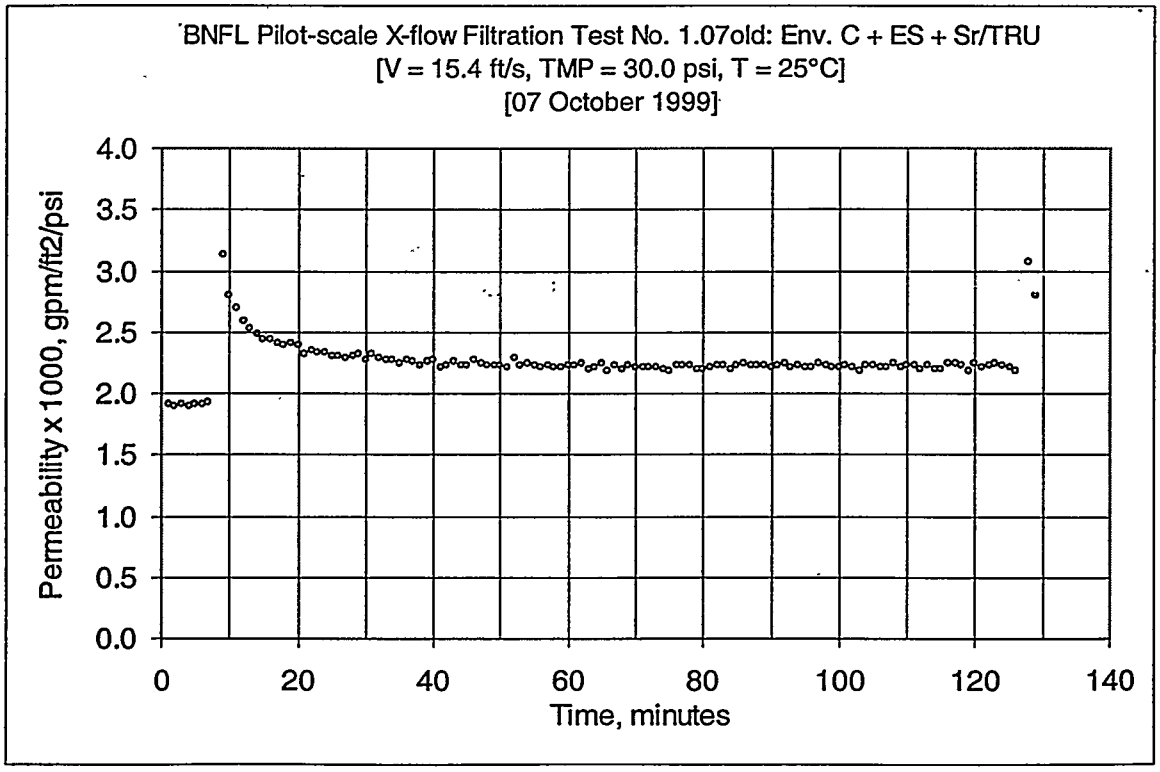


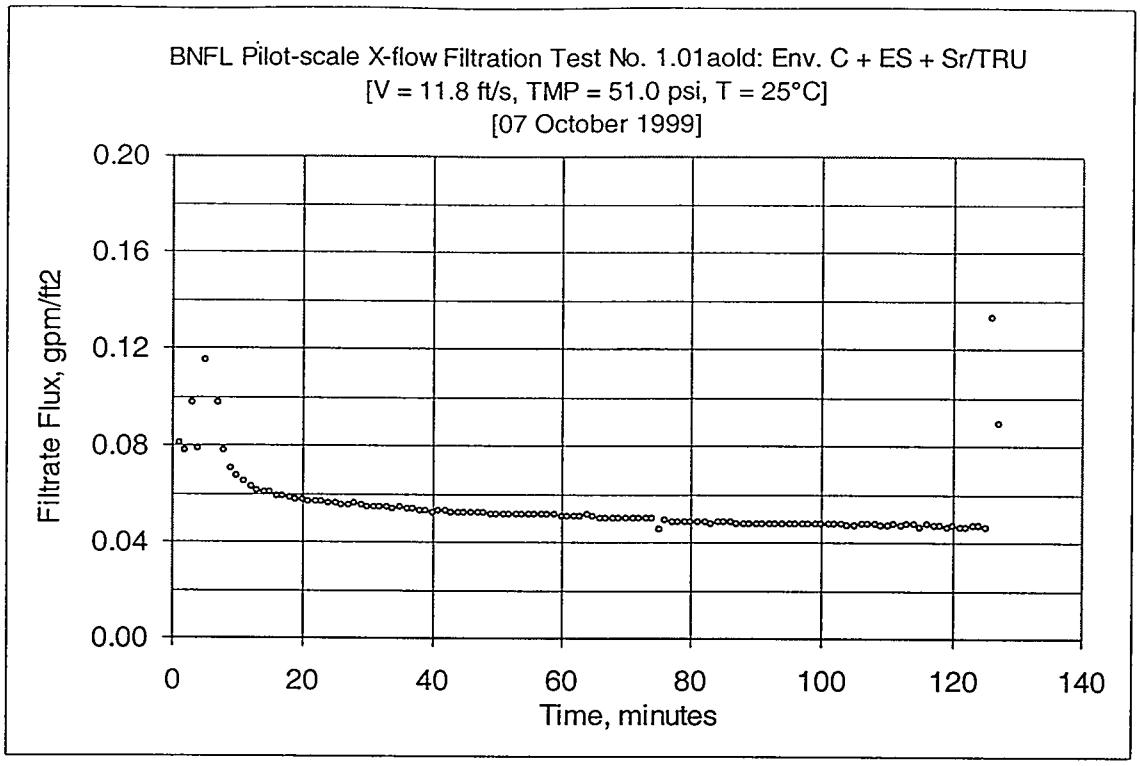
Figure B17: Test Run 1.07(old), 2 wt% Insoluble Solids Concentration

Run 1.07(old): 2 wt% Concentration of Insoluble Solids

	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	FLTAT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	FLTR	PISTON (psig)	SL FLOW	Q2,FLTR	Q3,FLTR	FLOW (gpm									
2	Zeros - No Flow - Lines Connected																					Filter Surface Area Conversion		2.29 FT2 8510145	m3/m2/day/barg / gpm/ft2/barg				
3	10/7/1999	8:38:04 AM	0	19 858	19 024	18 068	18 587	18 53	27 656	0 001	-1 835	-0 015	-0 011	-2 613		-0 075	-0 095	0 011	-0 016										
4	10/7/1999	8:39:51 AM	0	19 858	19 024	18 068	18 587	18 53	27,656	0 001	-1 835	-0 015	-0 011	-2,613		-0 075	-0 095	0 011	-0 016										
5	10/7/1999	8:40:51 AM	0	19 858	19 024	18 068	18 587	18 449	27,818	0 001	-1 896	-0 015	-0 011	-2 644		-0 075	-0 095	0 011	-0 016										
6	10/7/1999	8:41:51 AM	0	19 822	19 068	18 113	18 712	18 413	27,68	0 001	-1 835	-0 015	-0 011	-2 613		-0 075	-0 095	0 011	-0 016										
7	Zeros - Lines Not Connected																												
8	10/7/1999	8:43:08 AM	0	19 579	19 068	18 113	18 831	18 413	27,86	0 001	-0 128	-0 015	-0 011	-0 086		-0 075	-0 079	0 011	-0 018										
9	10/7/1999	8:44:08 AM	0	19 579	18 967	18,113	18 712	18 413	27 86	0 001	-0 067	-0 023	-0 011	-0 086		-0 075	-0 095	0 011	-0 018										
10	10/7/1999	8:45:09 AM	0	19 624	19 032	18 157	18 757	18 457	27,824	0 001	-0 128	-0 015	-0 011	-0 086		-0 075	-0 095	0 011	-0 018										
11																													
12	Data - Per Minute																				Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMIABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
13	10/7/1999	8:48:28 AM	0	20 915	19 032	22,434	18 757	18,781	27,664	36 017	43 899	11,107	25,379	7,372	-0 075	36 861	0 125	0,101			1	1	15 3	30 7	2 117	0 055	0 059	0 002	1 912	1 63
14	10/7/1999	8:49:28 AM	0	21 399	19 032	22,755	18 757	18,781	27,025	35 645	43 899	11,067	25 041	7,665	-0 075	36 645	0,124	0 094			2	2	15 3	30 3	2 092	0 054	0 058	0 002	1 901	1 62
15	10/7/1999	8:50:29 AM	0	21,721	19 032	23 157	18 757	18 882	27,025	35 645	43 899	11 083	24,94	7,957	-0 028	36 984	0 126	0,101			3	3	15 3	30 3	2 089	0 055	0 058	0 002	1 913	1 63
16	10/7/1999	8:51:29 AM	0	22,168	19 076	23 522	19 044	19 068	27,389	35 459	43,716	10,995	24 804	7 957	-0 028	36,753	0,125	0 097			4	4	15 3	30,1	2 077	0 055	0 057	0 002	1 888	1 61
17	10/7/1999	8:52:29 AM	0	22 49	19 076	23 843	19 448	19,149	27,548	34 901	43 411	10 828	24 568	7 968	-0 075	36 753	0,126	0 104			5	5	15 3	29 7	2 050	0 055	0 057	0 002	1 911	1 63
18	10/7/1999	8:53:30 AM	0	22 856	19 04	24 289	19 735	19 193	27,433	35 087	43 655	10 915	24,331	8 05	-0 075	36 646	0 127	0,101			6	6	15 2	29 7	2 048	0 055	0 057	0 002	1 904	1 62
19	10/7/1999	8:54:30 AM	0	23 097	19 04	24,609	19 735	19 355	27,433	34,529	42 964	10 955	24 297	8 08	-0 075	36 661	0 128	0 097			7	7	15 3	29 4	2 028	0 056	0 056	0 002	1 921	1 63
20	10/7/1999	8:55:30 AM	0	23,704	19 084	24 974	19 78	19,318	28 115	36 017	42 558	9,956	26 258	8 077	-0 075	37,168	0 406	0 369			8	8	15 4	31,1	2 147	0 177	0 177	0 006	5 696	4 85
21	10/7/1999	8:56:31 AM	0	24 069	19 048	24 938	19 582	19 363	27,52	34 281	42,964	10 078	24,568	8 204	-0 075	37,153	0 21	0 183			9	9	15 4	29 4	2 029	0 092	0 092	0 003	3 121	2 66
22	10/7/1999	8:57:31 AM	0	24 229	19 048	24,778	19 501	19 363	27,919	34 591	42 801	10 022	25 278	7,711	-0 075	37,091	0 191	0 168			10	10	15 4	29 9	2 064	0 083	0 084	0 003	2 803	2 39
23	10/7/1999	8:58:31 AM	0	24 354	19 092	24,742	19 545	19 407	27,485	34 901	42,964	10 03	25 48	7,495	-0 075	37 014	0 165	0,161			11	11	15 4	30 2	2 082	0 081	0 081	0 003	2 695	2 29
24	10/7/1999	8:59:32 AM	0	24 434	19 011	24,742	19 545	19 326	27,245	35,149	42,862	10,189	25,785	7 433	-0 028	37,168	0,179	0,155			12	12	15 4	30 5	2 101	0 078	0 079	0 003	2 583	2 20
25	10/7/1999	9:00:32 AM	0	24 434	19 011	24 661	19 464	19 326	27,724	34,653	42 558	10,102	25 278	7,464	-0 075	37,061	0,172	0,152			13	13	15 4	30,0	2 068	0 075	0 076	0 003	2 530	2 15
26	10/7/1999	9:01:32 AM	0	24 478	19 056	24 706	19,426	19 29	27,648	34 639	42 558	10 062	25 514	7 464	-0 075	36 999	0,17	0 149			14	14	15 4	30 2	2 061	0 074	0 075	0 002	2 480	2 11
27	10/7/1999	9:02:33 AM	0	24 558	19 056	24 625	19 428	19 29	27,668	35,211	43 045	10,054	25 48	7 433	-0 028	37,076	0,168	0,146			15	15	15 4	30 3	2 092	0 073	0 074	0 002	2 442	2 08
28	10/7/1999	9:03:33 AM	0	24 478	19 056	24 545	19 428	19 29	27,608	34 901	42 619	10 062	25 21	7 433	-0 075	37 076	0 168	0 143			16	16	15 4	30 1	2 072	0 072	0 073	0 002	2 442	2 08
29	10/7/1999	9:04:33 AM	0	24,522	19 1	24 589	19 553	19,335	27,732	34,901	42 801	10 048	25'447	7,433	-0 075	37,163	0 164	0,134			17	17	15 4	30 2	2 080	0 072	0 072	0 002	2 400	2 04
30	10/7/1999	9:05:34 AM	0	24 522	19 1	24,589	19 634	19 335	27,572	35 087	42 923	10 054	25 311	7,433	-0 028	36 968	0,163	0 137			18	18	15 3	30 2	2 082	0 071	0 072	0 002	2 384	2 03
31	10/7/1999	9:06:34 AM	0	24 603	19 1	24 509	19 553	19 415	27,652	34 653	42 558	10 088	24 906	7 402	-0 028	37 03	0,162	0 137			19	19	15 4	29 8	2 053	0 071	0 072	0 002	2 408	2 03
32	10/7/1999	9:07:34 AM	0	24,567	19 145	24,553	19 596	19 541	27,696	34 715	42 497	10 088	25 379	7,402	-0 075	37 091	0 162	0,134			20	20	15 4	30 0	2 072	0 071	0 072	0 002	2 383	2 03
33	10/7/1999	9:08:35 AM	0	24 611	19 109	24 596	19 642	19 505	27 66	35 273	43 228	10 062	25 447	7,402	-0 075	36 968	0,159	0,134			21	21	15 3	30 4	2 093	0 069	0 070	0 002	2 312	1 97
34	10/7/1999	9:09:35 AM	0	24 611	19,109	24 517	19 723	19 424	28 139	34,839	42,558	9 99	25 616	7 402	-0 075	37,061	0,16	0 137			22	22	15 4	30 2	2 084	0 070	0 071	0 002	2 342	1 99
35	10/7/1999	9:10:35 AM	0	24 611	19,189	24 596	19,723	19 343	27,66	34,839	42,619	10 014	25 278	7,402	-0,028	37 014	0,159	0 134			23	23	15 4	30 1	2 072	0 069	0 070	0 002	2 335	1 99
36	10/7/1999	9:11:36 AM	0	24 531	19 109	24 517	19 642	19 343	27,82	34 963	42 801	10 088	25,311	7,372	-0 075	37,122	0 159	0,134			24	24	15 4	30 1	2 078	0 069	0 070	0 002	2 333	1 99
37	10/7/1999	9:12:36 AM	0	24 611	19 109	24 517	19 642	19,343	27,74	35,397	43 35	10 054	25 683	7,402	-0 075	37,122	0 159	0,137			25	25	15 4	30 5	2 106	0 069	0 070	0 002	2 304	1 96
38	10/7/1999	9:13:36 AM	0	24 655	19,153	24,482	19 687	19 387	28 023	34 963	42,74	9 996	25 413	7 402	-0,075	37,03	0,157	0,134			26	26	15 4	30 2	2 081	0 069	0 070	0 002	2 304	1 96
39	10/7/1999	9:14:37 AM	0	24 655	19 153	24,482	19 687	19 468	27,884	35,149	43 045	10,07	25 244	7 372	-0 075	36 984	0,156	0 134			27	27	15 3	30 2	2 082	0 068	0 069	0 002	2 288	1 95
40	10/7/1999	9:15:37 AM	0	24 655	19,153	24,482	19 687	19 468	28 023	35 211	42,923	10,116	25 311	7,372	-0 028	37 03	0 157	0,134			28	28	15 4	30 3	2 086	0 069	0 070	0 002	2 298	1 96
41	10/7/1999	9:16:37 AM	0	24 575	19 153	24 482	19 768	19 468	27,784	34 591	42,497	9,916	25,278	7,402	-0 075	37,03	0,157	0 134			29	29	15,4	29 9	2 064	0 069	0 070	0 002	2 323	1 98
42	10/7/1999	9:17:38 AM	0	24 699	19 196	24 526	19 893	19 513	27,908	35 335	43 228	10 078	25 413	7,402	-0,075	36 984	0,156	0,134			30	30	15 3	30 4	2 094	0 068	0 069	0 002	2 272	1 93
43	10/7/1999	9:18:38 AM	0	24 619	19 196	24,526	19 893	19 594	27,908	34 715	42,375	10 038	25 041	7,372	-0,075	37 061	0,156	0 134			31	31	15 4	29 9	2 060	0 068	0 069	0 002	2 310	1 97
44	10/7/1999	9:19:38 AM	0	24,619	19 196	24,526	19 893	19 594	27 826	35 087	42 923	9,974	25 343	7,372	-0 075	36 999	0,156	0,134			32	32	15 4	30,2	2 083	0 068	0 069	0 002	2 284	1 94
45	10/7/1999	9:20:39 AM	0	24 663	19 242	24,49	20 018	19 636	27,872	34 963	42 801	9 962	25 244	7,372	-0 075	37,045	0,154	0 131			33	33	15 4	30 1	2 078	0 067	0 068	0 002	2 266	1 93
46	10/7/1999	9:21:39 AM	0	24 663	19 242	24 67	20 018	19 557	27,952	34,715	42,497	10,141	25 548	7,372	-0,075	36,984	0,155	0,128			34	34	15 3	30,1	2 077	0 068	0 068	0 002	2 273	1 93
47	10/7/1999	9:22:39 AM	0	24 663	19 242	24 49	20,099	19 557	27,952	35,149	43,106	9,962	25 852	7,372	-0 075	37,045	0,154	0,128			35	35	15 4	30 5	2 103	0 067	0 068	0 002	2 236	1 90
48	10/7/1999	9:23:40 AM	0	24,707	19 206	24 614	20 063	19 602	28 155	34,901	42 862	9,962	25 447	7,402	-0 075	36 984	0 155	0,131			36	36	15 3	30,2	2 080	0 068	0 068	0 002	2 267	1 93
49	10/7/1999	9:24:40 AM	0	24 627	19 267	24 534	20,224	19 763	28,155	34 653	42,253	10,102	25 616	7,372	-0 075	36,953	0,154	0 131			37	37	15 3	30 1	2 078	0 067	0 068	0 002	2 260	1 92
50	10/7/1999	9:25:40 AM	0	24 671	19 251	24,578	20,188	19 646	28,279	35 087	43 045	9,99	25 548	7 372	-0 075	36 999	0 153	0,128			38	38	15 4	30 3	2,090	0 067	0 068	0 002	2 229	1 90
51	10/7/1999	9:26:41 AM	0	24,707	19,206	24,534	20,144	19 521	27,996	34 591	42,253	10,07	25 48	7,372	-0 028	37,014	0,153	0,131			39	39	15 4	30,0	2 071	0 067	0 068	0 002	2 253	1,92
52	10/7/1999	9:27:41 AM	0	24,671	19 251	24,496	20,188	19 646	28,04	34 529	42,314	9 95	25 311	7,372	-0 028	36 968	0,153	0 131			40	40	15 3	29 9	2 063	0 067	0 068	0 002	2 264	1 93
53	10/7/1999	9:28:41 AM	0	24,671	19,251	24 578	20,188	19 646	28,199	35 273	42,964	10 046	25 379	7,372	-0 028	36 938	0,152	0,131			41	41	15 3	30 3	2 091	0 066	0 067	0 002	2 214	1,88
54	10/7/1999	9:29:42 AM	0	24,716	19,295	24 542	20,233	19 691	28,403	35 025	42,801	10 07	25,311	7,372	-0 075	36,968	0,152	0,131			42	42	15,3	30 2	2 080	0 068	0 067	0 002	2 228	1 90
55	10/7/1999	9:30:42 AM	0	24 633	19 295	24 622	20,233	19 633	28,403	34 653	42,558	9 966	25 244	7 372	-0 028	37,045	0 153	0,131			43	43	15 4	29 9	2 065	0 067	0 068	0 002	2 254	1,92
56	10/7/1999	9:31:42 AM	0	24 633	19 295	24 622	20 394	19 772	28,403	34 901	42,862	9 996	25,447	7,341	-0 075	36 964	0,152	0,131			44	44	15 3	30 2	2 080	0 068	0 067	0 002	2 223	1,89
57	10/7/1999	9:32:43 AM	0	24,68	19 34	24,627	20 358	19 816	28,447	35,149	42,801	10 046	25,142	7,372	-0 075	37,076	0,152	0 131			45	45	15 4	30,1	2 078	0 068	0 067	0 002	2 227	1,90
58	10/7/1999	9:33:43 AM	0	24,68	19 34	24,506	20,439	20 059	28 527	34,467	42,314	9 91	25,142	7,341	-0,028	36,953	0 153	0,134			46	46	15 3	29 8	2 055	0 067	0 068	0 002	2 272	1 93
59	10/7/1999	9:34:43 AM	0	24 68	19 34	24 506	20,358	19,978	28 447	34,777	42,619	10 07	25 142	7 372	-0,028	36 922	0,152	0 125			47	47	15 3	30 0	2 066	0 068	0 067	0 002	2 246	1,91
60	10/7/1999	9:35:44 AM	0	24,76	19 259	24 506	20,358	19 978	28,527	35 025	42 801	10 006	25,345	7,372	-0,028	36 968	0,152	0,128			48	48	15,3	30 2	2 081	0 068	0 067	0 002	2 229	1 90
61	10/7/1999	9:36:44 AM	0	24,724	19 364	24 551	20 322	20,022	28,671	34,777	42,497	10,094	25 447	7,372	-0 028	36 999	0,152	0,131			49	49	15 4	30 1	2 076	0 068	0 067	0 002	2 232	1,90
62	10/7/1999	9:37:45 AM	0	24,724	19,364	24 631	20,402	19 942	28,671	34,591	42,314	9,996	25 379	7,372	-0 028	36,953	0,151	0,128			50	50	15 3	30 0	2 067	0 068	0,067	0 002	2 221	1 89
63	10/7/1999	9:38:45 AM	0	24 724	19 364	24,631	20,402	20 345	28,671	35 087	42,923	10,022	25,278	7,372	-0 028	36,984	0,151	0,128			51	51	15 3	30 2	2 081	0 068	0,067	0 002	2 207	1 88
64	10/7/1999	9:39:45 AM	0	24,724	19 364	24 551	20,402	20,103	28,491	34 033	41,643	9 966	24,906	7,372	-0 028	37,014	0 152	0 125			52	52	15 4	29 5	2 032	0 068	0 067	0 002	2 260	1 94
65	10/7/1999	9:40:46 AM	0	24,724	19 364	24 631	20 402	20 022	28 491	34 715	42,497	10 006	25 345	7 372	-0 075	36 922	0 152	0 131			53	53	15 3	30 0	2 070	0 068	0 067	0 002	2 233	1 90
66	10/7/1999	9:41:46 AM	0	24,768	19 429	24 595	20 447	19,968	28 615	34,777	42,497	10 062	25,21	7,372	-0,028	36 922	0 152	0 128			54	54	15 3	30 0	2 068	0 068	0 067	0 002	2 236	1 90
67	10/7/1999	9:42:46 AM	0	24,688	19,348	24,595	20,447	20,229	28,535	34,901	42 619	10,07	25,007	7,372	-0 028	36,953	0,151	0 128			55	55	15 3	30 0	2 065	0 068	0 067	0 002	2 226	1 89
68	10/7/1999	9:43:47 AM	0	24 813	19 474	24 639	20 572	20 354	28 659	34,777	42 558	9 99	25 413	7,402	-0,075	36 999	0 151	0,128			56	56	15 4	30 1	2 075	0 068	0 067	0 002	2 213	1 88
69	10/7/1999	9:44:47 AM	0	24,732	19 474	24 639	20 492	20,435	28,34	34 715	42,558	9 962	25,21	7,372	-0 028	36 508	0,151	0,128			57	57	15,2	30 0	2 066	0 066	0 067	0 002	2 222	1 89
70	10/7/1999	9:45:47 AM	0	24 657	19 437	24 684	20 456	20 802	28 643	34,591	42 436	10,014	25 345	7,402	-0 028	36 953	0,15	0,128			58	58	15 3	30 0	2 066	0 063	0 066	0 002	2 205	1 88
71	10/7/1999	9:46:48 AM	0	24,732	19 474	24 639	20 411	20,273	28,659	34 963	42 801	9 886	25,48	7 402	-0 028	36 953	0 151	0,131			59	59	15 3	30 2	2 084	0 068	0 067	0 002	2 203	1 88
72	10/7/1999	9:47:48 AM	0	24 657	19 518	24 684	20 456	20,802	28,823	34 653	42 619	9 998	25,21	7 402	-0 028	36 968	0 151	0,131			60	60	15 3	29 9	2 064	0 068	0 067	0 002	2 222	1 89
73	10/7/1999	9:48:48 AM	0	24 657	19 518	24 684	20 456	20 64	28,703	34,281	42,131	10 014	25,21	7,402	-0 028	37 014	0 15	0 126			61	61	15 4	29 7	2 051	0 065	0 068	0 002	2 221	1 89
74	10/7/1999	9:49:49 AM	0	24 821	19 563	24 728	20,419	20 604	28 821	34,405	42,314	9 962	25 007	7,372	-0 028	36 953	0 151	0 131			62	62	15 3	29,7	2 048	0 066	0 068	0 002	2 236	1 90
75	10/7/1999	9:50:49 AM	0	24 901	19 563	24 728	20 5	20 282	28 582	34 639	42,619	9 894	25,311	7 402	-0 028	36 984	0,15	0,131			63	63	15 3	30 1	2 074	0 065	0 066	0 002	2 194	1 87
76	10/7/1999	9:51:49 AM	0	24 821	19 563	24 648	20 662	20,362	28 587	34,963	42 801	9 95	25,176	7,402	-0 028	36,999	0,151	0,128			64	64	15 4	30 1	2 073	0 066	0 067	0 002	2 214	1,88
77	10/7/1999	9:52:50 AM	0	24 821	19 563	24,728	20 742	20 282	28,506	34 529	42 314	9,958	25 109	7,402	-0 028	36 953	0,152	0,131			65	65	15 3	29 8	2 056	0 066	0 067	0 002	2 242	1 91
78	10/7/1999	9:53:50 AM	0	24 821	19 563	24 648	20 823	20,282	28 506	34 963	42 862	9 894	25 618	7,402	-0 028	36 968	0,15	0,128			66	66	15 3	30 3	2 088	0 065	0 066	0 002	2 183	1 86
79	10/7/1999	9:54:50 AM	0	24 865	19 606	24 692	20 867	20,326	28,631	34 591	42,375	9 95	25,176	7 402	-0 028	36 953	0,151	0 131			67	67	15 3	29 9	2 060	0 066	0 066	0 002	2 225	1 89
80	10/7/1999	9:55:51 AM	0	24 785	19 606	24 692	21,029	20,407	28,552	34,591	42,436	9 902	25 447	7,402	-0 028	37 014	0 15	0 128			68	68	15 4	30 0	2 070	0 065	0 066	0 002	2 200	1 87
81	10/7/1999	9:56:51 AM	0	24 91	19 572	24 736	21,073	20,532	28,596	34,157	42,009	9,918	25 041	7,402	-0 028	36 953	0,15	0 125			69	69	15 3	29 6	2 041	0 065	0 066	0 002	2 229	1 90
82	10/7/1999	9:57:51 AM	0	24,91	19 572	24 656	21 073	20,371	28,516	34 653	42,375	10 022	25,244	7,402	-0 028	36,999	0,15	0,128			70	70	15 4	29 9	2 065	0 065	0 066	0 002	2 208	1 88
83	10/7/1999	9:58:52 AM	0	24 874	19 616	24,781	21,118	20 416	28,58	34 653	42,436	10 022	25,142	7,433	-0 028	36 907	0,15	0 128			71	71	15 3	29 9	2 061	0 065	0 066	0 002	2 204	1 88
84	10/7/1999	9:59:52 AM	0	24,794	19 616	24,701	21,199	20,335	28 64	34,839	42,801	9 974	25,278	7,433	-0 028	37,045	0 151	0,128			72	72	15 4	30 1	2 072	0 066	0 066	0 002	2 212	1 88
85	10/7/1999	10:00:52 AM	0	24 918	19 681	24 745	21 243	20 46	28 764	34 777	42 619	9 966	25 21	7,402	-0 028	36 984	0 151	0 128			73	73	15 3	30 0	2 068	0 066	0 066	0 002	2 214	1 88

Run 1.07(old): 2 wt% Concentration of Insoluble Solids

	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	10/7/1999	10:01:53 AM	0	24 838	19 58	24 745	21,324	20 48	28 884	35,149	43,167	9 934	25,176	7,433	-0 028	36 964	0,151	0,128	74	74	15,3	30 2	2 080	0 068	0 068	0 002	2 201	1 87
87	10/7/1999	10:02:53 AM	0	24 882	19 706	24,789	21,368	20,586	28,728	34 901	42,74	9 926	25,447	7 402	-0 028	36,968	0,15	0,128	75	75	15,3	30 2	2 080	0 065	0 066	0 002	2,183	1 86
88	10/7/1999	10:03:53 AM	0	24 882	19,706	24,789	21,288	20 505	28,728	34,591	42,558	9 846	25,21	7,402	-0 028	36 907	0,152	0,128	76	76	15,3	29 9	2 062	0 068	0 067	0 002	2 232	1 90
89	10/7/1999	10:04:54 AM	0	24,927	19 75	24,754	21,494	20,55	28,772	34 653	42,375	9 91	25 311	7,402	-0 028	36 953	0,152	0,131	77	77	15,3	30 0	2 067	0 068	0 067	0 002	2 229	1 90
90	10/7/1999	10:05:54 AM	0	24 927	19 67	24,754	21,413	20 55	28 852	34 777	42,436	9 958	25 007	7,402	-0 028	36 999	0 151	0,131	78	78	15 4	29 9	2 061	0 068	0 066	0 002	2 221	1 89
91	10/7/1999	10:06:54 AM	0	24 881	19,714	24,796	21,458	20 514	28,896	34 901	42,74	10 014	24 906	7,402	-0 028	36 907	0,15	0,128	79	79	15,3	29 9	2 062	0 065	0 066	0 002	2 202	1 87
92	10/7/1999	10:07:55 AM	0	24 971	19 714	24 796	21,458	20 514	28 896	34 963	42 801	9 926	25 244	7,433	-0 028	36 999	0,151	0,128	80	80	15 4	30,1	2 076	0 068	0 066	0 002	2 202	1 87
93	10/7/1999	10:08:55 AM	0	25 016	19,759	24 842	21,663	20 639	28 86	34,715	42,558	9 968	25,379	7,433	-0 028	36 938	0 151	0,128	81	81	15 3	30 0	2 072	0 066	0 066	0 002	2 204	1 88
94	10/7/1999	10:09:55 AM	0	25 016	19 678	24 842	21,583	20,72	28 86	34 653	42,558	9 926	25,109	7,464	-0 028	36 907	0,152	0,131	82	82	15 3	29 9	2 060	0 066	0 067	0 002	2 231	1 90
95	10/7/1999	10:10:56 AM	0	24 98	19 804	24,887	21 627	20 764	28,743	34 405	42,192	9 95	25 007	7,433	-0 028	36 938	0,151	0,128	83	83	15 3	29 7	2 048	0 066	0 066	0 002	2 228	1 89
96	10/7/1999	10:11:56 AM	0	24,98	19 723	24 807	21,647	20 845	28,905	34 963	42 923	9 934	25,21	7,464	-0 028	36 968	0,151	0,128	84	84	15 3	30 1	2 074	0 066	0 066	0 002	2 203	1 87
97	10/7/1999	10:12:56 AM	0	24,98	19 804	24 807	21,627	20 603	28 984	34 281	42,07	9 95	25,311	7,433	-0 028	36 922	0,151	0,128	85	85	15,3	29 8	2 054	0 066	0 065	0 002	2 224	1 89
98	10/7/1999	10:13:57 AM	0	25 024	19,768	24 851	21,753	20 728	29 028	34,343	42,253	10 03	24 804	7,433	-0 028	36 953	0,151	0,128	86	86	15 3	29 6	2 039	0 066	0 065	0 002	2 238	1 90
99	10/7/1999	10:14:57 AM	0	24,944	19 768	24 771	21 672	20,728	28,949	34,343	42,192	9 942	24 804	7,433	-0 028	36 968	0,15	0,131	87	87	15 3	29 6	2 039	0 065	0 065	0 002	2 229	1 90
100	10/7/1999	10:15:57 AM	0	24 969	19 813	24 816	21,797	20 854	28,992	34 591	42 436	9 998	25,447	7,464	-0 028	36 845	0,152	0,128	88	88	15 3	30 0	2 070	0 066	0 067	0 002	2 222	1 89
101	10/7/1999	10:16:58 AM	0	24,969	19 813	24 816	21,717	20 773	28 993	34,281	42,192	9 962	25 21	7,464	0 018	36 953	0,151	0,128	89	89	15 3	29 7	2 051	0 066	0 066	0 002	2 228	1 90
102	10/7/1999	10:17:58 AM	0	24,969	19 813	24 816	21,797	20 854	28,913	34 591	42,436	9 918	25,109	7,464	-0 028	36 907	0,15	0,128	90	90	15 3	29 9	2 058	0 065	0 066	0 002	2 205	1 88
103	10/7/1999	10:18:58 AM	0	24 953	19 777	24 86	21,761	20 899	29,117	34 467	42 436	10 022	25,041	7,464	-0 028	36,953	0,151	0,128	91	91	15,3	29 8	2 051	0 066	0 066	0 002	2 224	1 89
104	10/7/1999	10:19:59 AM	0	25 033	19 777	24,78	21,923	20 818	29 037	34 839	42 862	9 998	24 94	7,464	-0 028	36,984	0,152	0,128	92	92	15 3	29 9	2 061	0 066	0 067	0 002	2 234	1 90
105	10/7/1999	10:20:59 AM	0	24 997	19 822	24,824	21,887	20 863	29,161	34 467	42,314	9 974	25,176	7,464	-0 028	36 968	0,15	0,123	93	93	15 3	29 8	2 056	0 065	0 066	0 002	2 207	1 88
106	10/7/1999	10:21:59 AM	0	25 077	19,902	24 824	21,967	20 863	29 081	34,653	42 679	9 694	24,737	7,464	-0 028	36 938	0,151	0,128	94	94	15 3	29 7	2 047	0 066	0 066	0 002	2 231	1 90
107	10/7/1999	10:23:00 AM	0	24 962	19 947	24 869	21,831	20 988	29 205	34,529	42,558	9 99	25,142	7,464	-0 028	37 045	0,151	0,125	95	95	15 4	29 8	2 057	0 066	0 066	0 002	2 218	1 89
108	10/7/1999	10:24:00 AM	0	25 042	19 866	24,789	22,012	20 968	29,126	34,715	42,679	9 886	24,94	7,464	-0 028	37,03	0,15	0,128	96	96	15 4	29 8	2 057	0 065	0 066	0 002	2 208	1 88
109	10/7/1999	10:25:00 AM	0	25 066	19,911	24 833	21,976	21,033	29,249	34,219	41,948	10 014	24,804	7,464	-0 028	36,984	0,151	0,125	97	97	15,3	29 5	2 035	0 066	0 066	0 002	2 244	1,91
110	10/7/1999	10:26:01 AM	0	25 006	19 911	24 833	22 057	21,033	29,17	34,529	42,497	10 048	25 075	7,464	0 018	36 968	0,151	0,128	98	98	15,3	29 8	2 055	0 066	0 066	0 002	2 222	1,89
111	10/7/1999	10:27:01 AM	0	25 051	19,956	24,878	22,021	20 997	29,294	34 839	42 801	9 966	25,21	7,495	-0 028	36,922	0,151	0,125	99	99	15,3	30 0	2 070	0 066	0 066	0 002	2 203	1 87
112	10/7/1999	10:28:01 AM	0	25 051	19 875	24 878	22,021	20 997	29 214	34 591	42 558	9 934	25,379	7,464	-0 028	36,938	0,151	0,128	100	100	15,3	30 0	2 067	0 066	0 066	0 002	2 206	1 88
113	10/7/1999	10:29:02 AM	0	24 971	19 956	24 878	22,101	20 997	29,294	34,405	42,375	9 858	24 838	7,464	-0 028	36 938	0,15	0,126	101	101	15 3	29 6	2 042	0 065	0 066	0 002	2 218	1 89
114	10/7/1999	10:30:02 AM	0	25,015	20 001	24 842	22,066	21,042	29,336	34 591	42 558	10 006	24,973	7,495	0 018	36,999	0,15	0,128	102	102	15 4	29 8	2 053	0 065	0 066	0 002	2 208	1 88
115	10/7/1999	10:31:02 AM	0	25 015	20 001	24 842	22,146	21,042	29 336	35 025	43,106	9 962	25,176	7,495	-0 028	37,03	0,15	0,128	103	103	15 4	30,1	2 073	0 065	0 066	0 002	2 183	1 86
116	10/7/1999	10:32:03 AM	0	25 06	19 965	24 887	22,191	21,087	29 382	34 467	42,436	9 99	25,109	7,495	-0 028	36 938	0,151	0,131	104	104	15 3	29 8	2 054	0 066	0 066	0 002	2 220	1 89
117	10/7/1999	10:33:03 AM	0	25 06	20 046	24 807	22,271	21 087	29 303	34,467	42,314	10 046	24,94	7,464	-0 028	36,953	0,151	0,131	105	105	15 3	29,7	2 048	0 066	0 066	0 002	2 231	1,90
118	10/7/1999	10:34:03 AM	0	25 06	20 046	24 807	22,11	21,087	29 382	34 653	42 619	9 926	25,278	7,464	0 018	36 938	0,151	0,131	106	106	15 3	30 0	2 066	0 066	0 066	0 002	2 212	1 88
119	10/7/1999	10:35:04 AM	0	25,104	20 01	24 851	22,236	21,131	29 426	34,715	42 862	9 838	25 413	7,495	-0 028	37,076	0 152	0,125	107	107	15 4	30,1	2 073	0 066	0 067	0 002	2 218	1 89
120	10/7/1999	10:36:04 AM	0	25,104	20 01	24 851	22,155	21,131	29 506	34,405	42,192	9 95	24 672	7,495	-0 028	36 968	0,151	0,125	108	108	15 3	29 6	2 043	0 066	0 066	0 002	2 233	1,90
121	10/7/1999	10:37:04 AM	0	25 024	20 01	24 851	22,316	21,293	29,426	34,715	42 619	10,006	25 311	7,495	0 018	-37,107	0,151	0,128	109	109	15 4	30 0	2 069	0 066	0 066	0 002	-2 206	1,88
122	10/7/1999	10:38:05 AM	0	25 069	20,055	24,896	22,28	21,418	29 55	34 281	42,314	9 886	25 007	7,495	0 018	37,014	0,151	0,131	110	110	15 4	29 6	2 044	0 066	0 066	0 002	2 230	1 90
123	10/7/1999	10:39:05 AM	0	25,113	20,181	24 94	22,406	21,302	29 595	34,343	42,192	9 926	25,176	7,495	0 018	36,953	0,151	0,125	111	111	15,3	29 8	2 032	0 066	0 066	0 002	2 219	1 89
124	10/7/1999	10:40:05 AM	0	25,113	20,1	24,86	22,325	21,302	29,674	34 591	42,558	9 934	25,109	7,495	0 018	37,014	0,15	0,125	112	112	15 4	29 9	2 058	0 065	0 066	0 002	2 202	1,87
125	10/7/1999	10:41:06 AM	0	25,033	20 1	24 86	22,325	21,221	29 674	34,343	42,314	10 022	25,142	7,495	0 018	36,907	0,151	0,128	113	113	15 3	29,7	2 051	0 066	0 066	0 002	2 225	1,89
126	10/7/1999	10:42:06 AM	0	25,158	20,145	24,905	22,45	21,266	29 639	34,839	43 045	9,99	25,176	7,495	0 018	37,168	0,15	0,125	114	114	15 4	30 0	2 069	0 065	0 066	0 002	2 188	1 88
127	10/7/1999	10:43:06 AM	0	25 078	20,145	24 905	22,37	21,185	29,718	34,715	42 619	9 99	25 075	7,495	-0 028	37,061	0,15	0,125	115	115	15 4	29 9	2 061	0 065	0 066	0 002	2,196	1 87
128	10/7/1999	10:44:07 AM	0	25 078	20,145	24 905	22,45	21,266	29,639	34,405	42 253	9 91	24,94	7,495	0 018	36 938	0,152	0,128	116	116	15,3	29 7	2 046	0 066	0 067	0 002	2 242	1,91
129	10/7/1999	10:45:07 AM	0	25,122	20,19	24,949	22,495	21,311	29 683	34,157	42,131	9,678	24,771	7,495	-0 028	37,03	0,151	0,128	117	117	15 4	29 5	2 031	0 066	0 066	0 002	2 240	1,91
130	10/7/1999	10:46:07 AM	0	25,122	20,19	24,869	22,578	21,391	29,444	34,467	42,487	9 958	25,176	7,495	0 018	36 938	0,151	0,128	118	118	15 3	29 8	2 056	0 066	0 066	0 002	2 219	1,89
131	10/7/1999	10:47:08 AM	0	25,122	20,19	24,869	22,415	21,23	29 604	35 211	43,269	10,07	25,379	7,495	0 018	37,014	0,151	0,128	119	119	15 4	30,3	2 089	0 066	0 066	0 002	2,184	1,86
132	10/7/1999	10:48:08 AM	0	25 067	20,235	24 914	22,54	21,436	29 568	34 591	42 436	9 926	24,94	7,495	0 018	36,968	0,152	0,131	120	120	15 3	29 8	2 052	0 066	0 067	0 002	2 235	1,90
133	10/7/1999	10:49:09 AM	0	25,187	20,235	24,914	22,64	21,597	29 568	34,343	42,192	9,95	24,973	7,495	-0 028	36,938	0,15	0,128	121	121	15 3	29 7	2 045	0 065	0 066	0 002	2 213	1,88
134	10/7/1999	10:50:09 AM	0	25,131	20,28	24 959	22,665	21,562	29,692	34,715	42 801	9 95	25,142	7,526	-0 028	37,076	0,152	0,128	122	122	15 4	29 9	2 063	0 066	0 066	0 002	2 220	1 88
135	10/7/1999	10:51:09 AM	0	25,131	20 28	24 878	22,585	21,481	29 692	34,219	42,375	9 99	24 973	7,495	-0 028	37,107	0,151	0,128	123	123	15 4	29 6	2 041	0 066	0 066	0 002	2 235	1,90
136	10/7/1999	10:52:10 AM	0	25,131	20,28	24,878	22,665	21,481	29 692	34,777	42,74	9 99	25,244	7,495	0 018	37,045	0,152	0,128	124	124	15 4	30 0	2 069	0 066	0 067	0 002	2 219	1,89
137	10/7/1999	10:53:10 AM	0	25,176	20,325	24,923	22,71	21,607	29 696	34,467	42,436	9 996	25,343	7,495	0 018	37,014	0 151	0,125	125	125	15 4	29 9	2 062	0 066	0 066	0 002	2 209	1 88
138	10/7/1999	10:54:10 AM	0	25,141	20,37	25,048	22,765	21 652	29,701	34,653	42,74	9,918	25 21	7,526	0,018	36 999	0,15	0,125	126	126	15 4	29,9	2 064	0 065	0 065	0 002	2,185	1,86
139	10/7/1999	10:55:11 AM	0	25,141	20,37	24 868	22,755	21,732	29,781	33,785	42,314	9,942	24,5	8 019	0,018	37,03	0 271	0,241	127	127	15 4	29,1	2 009	0 118	0,119	0 004	4 072	3 47
140	10/7/1999	10:56:11 AM	0	25,221	20 37	24 968	22,674	21,671	29,781	33 909	42,131	9,942	24,331	7,895	0 018	36,999	0 204	0,174	128	128	15 4	29,1	2 008	0 089	0 089	0 003	3 061	2 60
141	10/7/1999	10:57:11 AM	0	25,141	20 289	24 888	22,753	21,652	29,781	33,909	42,131	9 958	24 534	7,834	0 018	36 938	0,187	0,155	129	129	15 3	29 2	2 015	0 082	0 082	0 003	2 602	2 36
142																												
143		Averages		24 8	19 6	24,7	21 0	20,4	29,7	34,7	42,8	10,0	25 2	7,4	0 0	37,0	0,156	0,133										
144		Maximum		25,2	20 4	25 0	22,8	21,7	29 9	36,0	43,4	10,2	26,3	8 2	0 0	37,2	0,406	0 369			15 4	30 0	2 067	0 068	0 069	0 00229	2 3	2 0
145		Median		24,8	19 6	24,7	20 9	20 4	29 8	34,7	42 6	10 0	25,2	7,4	0 0	37,0	0,151	0,128			15 4	31,1	2 147	0,177	0,177	0 00570	5 7	4 8
146		Minimum		23,7	19 0	24,6	19 4	19 3	27,2	34,0	41,6	9 8	24,6	6,1	-0,1	36 5	0,150	0,125			15 3	30 0	2 066	0 066	0 067	0 00223	2 2	1,9
147		Std Deviation		0,243	0 381	0,145	1,039	0,709	0 648	0,306	0,301	0,065	0,241	0,153	0,029	0 077	0 024	0 023			15 2	29,4	2 029	0 065	0 065	0 00218	2 2	1,9
148		Number of Points Used		119	119	119	119	119	119	119	119	119	119	119	119	119	119	119			0 032	0 249	0 017	0 011	0 011	0 000336	0 336	0 266
																					119	119	119	119	119	119	119	119



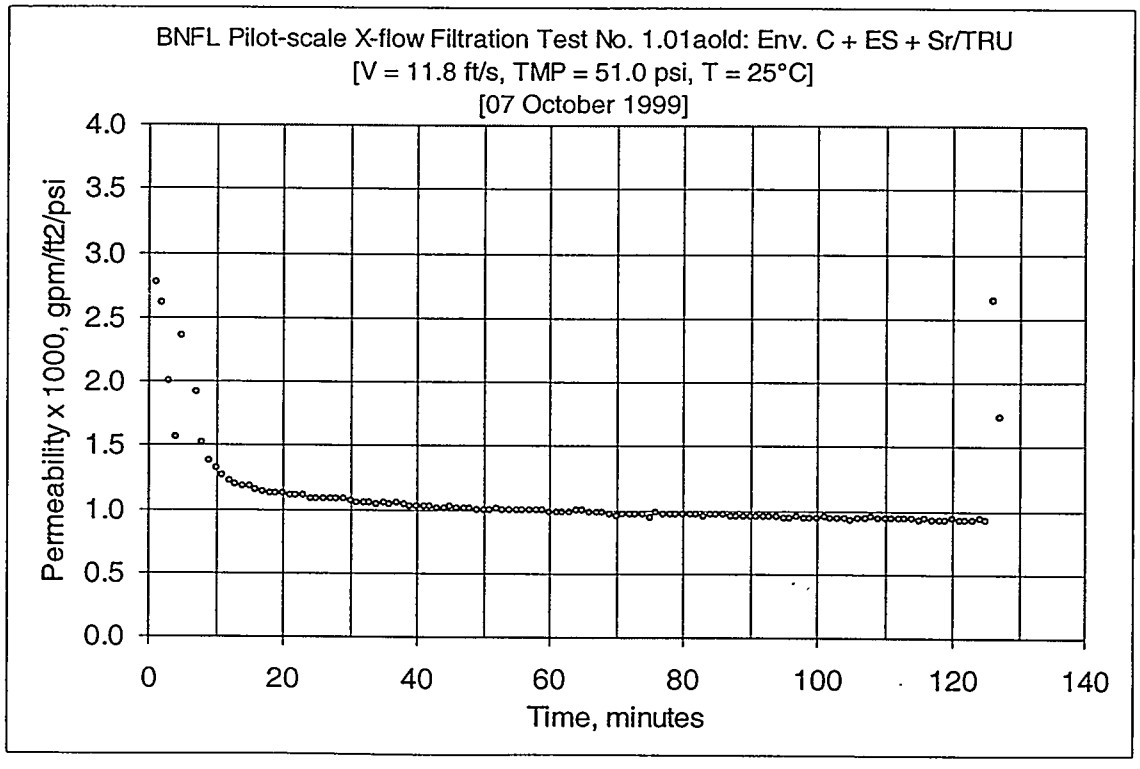


Figure B18: Test Run 1.01a(old), 2 wt% Insoluble Solids Concentration

Run 1.01a(old): 2 wt% Concentration of Insoluble Solids

	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	FLTRAT (cc	SL LOOP	SL LOOP	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (c	FLTR (psi	FLTR DP (c	TOP DP (c	FLTRATE (psig)	PISTON (psig)	SL FLOW	Q2,FLTR F	Q3,FLTR FLOW (gpm)			Filter Surface Area		2 29	FT2				
2	Zeros - No Flow - Lines Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	10/7/1999	8:38:04 AM	0	19 858	19 024	18 068	18 587	18 53	27,856	0 001	-1 835	-0 015	-0 011	-2 613	-0 075	-0 095	0 011	-0 018										
4	10/7/1999	8:39:51 AM	0	19 858	19 024	18 068	18 587	18 53	27,856	0 001	-1 835	-0 015	-0 011	-2 613	-0 075	-0 095	0 011	-0 018										
5	10/7/1999	8:40:51 AM	0	19 858	19 024	18 068	18 587	18 449	27,818	0 001	-1 896	-0 015	-0 011	-2 644	-0 075	-0 095	0 011	-0 018										
6	10/7/1999	8:41:51 AM	0	19 822	19 068	18 113	18 712	18 413	27 86	0 001	-1 835	-0 015	-0 011	-2 613	-0 075	-0 095	0 011	-0 018										
7	Zeros - Lines Not Connected																											
8	10/7/1999	8:43:06 AM	0	19 579	19 068	18 113	18 631	18 413	27 86	0 001	-0 126	-0 015	-0 011	-0 086	-0 075	-0 079	0 011	-0 018										
9	10/7/1999	8:44:06 AM	0	19 579	18 067	18 113	18 712	18 413	27 86	0 001	-0 067	-0 023	-0 011	-0 056	-0 075	-0 095	0 011	-0 018										
10	10/7/1999	8 45 09 AM	0	19 624	19 032	18 157	18 757	18 457	27,824	0 001	-0 128	-0 015	-0 011	-0 086	-0 075	-0 095	0 011	-0 018										
11																												
12	Data - Per Minute																		Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMIABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
13	10/7/1999	10:57:19 AM	0	25 06	20 289	24 888	22,755	21,852	29,781	33 909	42 314	9 934	24,468	7,803	0 018	36 964	0,184	0,152	1	1	15 3	29 2	2 012	0 080	0 081	0 003	2 761	2 35
14	10/7/1999	10:58:19 AM	0	25,185	20 334	24 932	22 8	21,896	29,746	34,591	42,923	10 07	24,737	7,834	0 018	36 953	0,177	0 149	2	2	15 3	29.7	2 045	0 077	0 077	0 003	2 610	2 22
15	10/7/1999	10:59:19 AM	0	25,185	20 415	24 932	22 8	21,896	29 825	52 072	61,768	7,126	45 63	9 159	0 018	28 674	0 223	0 192	3	3	12 0	48 9	3 368	0 097	0 098	0 002	1 997	1 70
16	10/7/1999	11:00:20 AM	0	25,185	20 334	24 932	22 8	21,896	29 825	53,608	62,132	7,261	48 915	7,68	0 018	29 785	0,18	0,152	4	4	12 4	50 4	3 472	0 079	0 079	0 002	1,563	1 33
17	10/7/1999	11:01:20 AM	0	25 23	20 48	24 977	22 925	21,741	29 79	52,256	62,193	7,165	45 461	9,251	0 018	29 642	0,263	0 235	5	5	12 3	48 9	3 369	0,115	0,115	0 002	2 351	2 00
18	10/7/1999	11:02:20 AM	0	25 23	20 378	24 897	22 843	21,741	29,79	55 977	62 01	7,102	49 282	6 707	0 018	29 457	0,492	0 451	6	6	12 2	52 6	3 629	0 215	0 215	0 004	4 093	3 48
19	10/7/1999	11:03:21 AM	0	25,185	20 424	24 942	23 06	21,786	29 814	54 366	62,378	7,134	47,321	7,495	0 018	29,15	0 223	0,195	7	7	12,1	50 8	3 505	0 097	0 098	0 002	1 918	1 63
20	10/7/1999	11:04:21 AM	0	25,185	20 424	24 942	22 889	21,786	29,814	54,304	62 01	7,11	47,929	7,125	0 018	28 935	0,177	0,149	8	8	12 0	51,1	3 524	0 077	0 077	0 002	1 514	1,29
21	10/7/1999	11:05:21 AM	0	25,159	20 469	24 906	23 015	21,831	29 859	54,428	62 01	7,229	47,456	7,156	0 018	28,904	0,16	0,134	9	9	12 0	50 9	3 512	0 070	0 070	0 001	1,375	1,17
22	10/7/1999	11:06:22 AM	0	25 159	20,469	24 906	22,934	21,831	30 038	54 49	61 888	7,265	47,557	7,187	0 018	28 92	0,153	0 128	10	10	12 0	51,0	3 516	0 067	0 067	0 001	1 312	1,12
23	10/7/1999	11:07:22 AM	0	25 204	20 514	24 951	23 06	21,796	30,003	54 242	61,788	7,229	48 2	7,187	0 018	28 643	0,148	0,125	11	11	11,9	51 2	3 532	0 065	0 065	0 001	1 263	1 07
24	10/7/1999	11:08:22 AM	0	25 124	20 514	24 951	23 06	21,796	30 003	54,736	62,437	7,094	48 2	7,217	0 018	28,413	0,144	0,122	12	12	11 8	51,5	3 549	0 063	0 063	0 001	1 223	1 04
25	10/7/1999	11:09:23 AM	0	25,169	20 559	24 816	23,104	21,78	30,127	54 366	62 01	7,189	48 096	7,187	0 018	28,751	0,14	0,119	13	13	11,9	51 2	3 532	0 061	0 061	0 001	1 196	1 02
26	10/7/1999	11:10:23 AM	0	25,213	20 524	24,961	23,069	21,805	30 092	54,428	62,132	7,165	47,997	7,217	0 018	28 605	0,136	0,119	14	14	11 8	51 2	3 531	0 060	0 060	0 001	1,178	1 00
27	10/7/1999	11:11:23 AM	0	25,133	20 604	24 961	23,149	21,725	30,171	54 882	62 559	7,094	48 098	7 217	0 018	28 567	0,136	0,119	15	15	11 8	51,5	3 549	0 060	0 060	0 001	1,171	1 00
28	10/7/1999	11:12:24 AM	0	25,213	20,524	24 961	23,149	21,805	30,231	54 882	62 62	6 99	48 233	7,217	0 018	28 428	0,135	0,113	16	16	11 8	51,5	3 554	0 059	0 059	0 001	1,145	0 97
29	10/7/1999	11:13:24 AM	0	25 178	20 569	24 925	23,114	21,83	30,136	54 6	62,496	6,998	48 233	7,217	0 018	28 398	0,134	0,113	17	17	11 8	51,5	3 552	0 058	0 059	0 001	1 138	0,97
30	10/7/1999	11:14:25 AM	0	25,178	20 569	24,925	23,275	21,83	30 218	54,738	62,437	7,134	48,132	7,217	0 064	28,444	0,132	0,11	18	18	11 8	51,4	3 546	0 058	0 058	0 001	1,123	0 96
31	10/7/1999	11:15:25 AM	0	25,223	20 614	24 97	23,239	21,816	30,26	54,552	62,132	7,11	48,233	7,217	0 018	28 413	0,132	0,11	19	19	11 8	51,4	3 543	0 058	0 058	0 001	1 122	0 95
32	10/7/1999	11:16:26 AM	0	25 223	20 694	24 97	23 32	21,895	30 34	54,49	62 315	7,022	47,963	7,187	0 064	28,426	0,131	0,107	20	20	11 8	51,2	3 532	0 057	0 057	0 001	1,117	0 95
33	10/7/1999	11:17:26 AM	0	25,187	20 659	24 933	23,204	21,88	30,484	54,923	62,803	7,054	48,096	7,187	0 018	28,413	0,13	0,107	21	21	11 8	51,5	3 551	0 057	0 057	0 001	1 104	0 94
34	10/7/1999	11:18:26 AM	0	25,187	20 659	24,833	23,363	21 88	30,384	54,614	62,376	6 998	48 2	7,187	0 018	28,459	0,13	0,107	22	22	11 8	51,4	3 544	0 057	0 057	0 001	1,106	0 94
35	10/7/1999	11:19:27 AM	0	25,187	20 659	24,933	23,124	21 88	30,384	54 614	62,132	7,221	47,794	7,187	0 018	28 659	0,129	0,107	23	23	11,9	51,2	3 530	0 056	0 058	0 001	1,102	0 94
36	10/7/1999	11:20:27 AM	0	25,232	20,704	24 98	23,249	21,905	30,429	54 8	62,376	7,066	48,436	7,187	0 018	28 52	0,128	0,104	24	24	11 8	51,6	3 559	0 056	0 056	0 001	1 083	0 92
37	10/7/1999	11:21:27 AM	0	25,152	20 704	24,98	23,249	21,905	30,349	54 882	62 62	7,046	47,862	7,156	0 018	28,413	0,127	0,104	25	25	11 8	51 4	3 541	0 055	0 055	0 001	1 080	0 92
38	10/7/1999	11:22:28 AM	0	25,197	20 749	25 025	23 374	21,95	30,473	54,882	62 681	7,142	48,132	7,156	0 018	28 505	0,127	0,104	26	26	11 8	51,5	3 551	0 055	0 055	0 001	1 076	0 92
39	10/7/1999	11:23:28 AM	0	25,197	20,749	25 025	23 294	21,95	30 473	54 8	62,496	7,036	48 2	7,156	0 018	28 567	0,127	0,107	27	27	11,9	51,5	3 551	0 055	0 055	0 001	1 076	0 92
40	10/7/1999	11:24:28 AM	0	25 197	20 749	24,945	23,374	21,95	30,473	54,676	62,254	6 974	48,369	7,156	0 018	28 29	0,127	0,104	28	28	11,7	51,5	3 552	0 055	0 056	0 001	1 078	0 92
41	10/7/1999	11:25:29 AM	0	25,162	20,794	24 969	23,339	22,076	30,518	54 614	62,318	6,942	48 064	7,156	0 018	28,196	0,127	0,104	29	29	11,7	51,3	3 540	0 055	0 055	0 001	1 080	0 92
42	10/7/1999	11:26:29 AM	0	25,182	20,794	24,969	23,339	21,995	30 518	54,736	62,376	7,094	48,301	7,156	0 064	28 352	0,125	0,104	30	30	11 8	51,5	3 552	0 055	0 055	0 001	1 059	0 90
43	10/7/1999	11:27:29 AM	0	25,162	20,794	24 969	23,339	22 078	30 518	54 8	62,376	7,038	48,168	7,156	0 018	28 336	0,124	0,104	31	31	11 8	51,5	3 550	0 054	0 054	0 001	1 052	0 90
44	10/7/1999	11:28:30 AM	0	25 207	20 84	25 034	23,464	22,121	30 483	54 426	62,01	7,038	48 064	7,156	0 018	28,213	0,124	0,104	32	32	11,7	51,2	3 533	0 054	0 054	0 001	1 055	0 90
45	10/7/1999	11:29:30 AM	0	25 207	20 84	25 034	23 464	22,121	30 562	54,366	61,949	7,014	48 47	7,125	0 064	28 275	0,124	0,101	33	33	11,7	51,4	3 545	0 054	0 054	0 001	1 052	0 90
46	10/7/1999	11:30:30 AM	0	25,207	20 84	24 954	23,464	22 04	30,562	54 676	62,496	6,982	48 572	7,156	0 018	28,352	0,123	0,101	34	34	11 8	51 6	3 559	0 054	0 054	0 001	1,041	0 89
47	10/7/1999	11:31:31 AM	0	25,252	20 885	24,999	23,509	22,166	30 686	54,736	62,376	6 87	48,504	7,156	0 064	28,106	0,124	0,101	35	35	11,7	51,6	3 559	0 054	0 054	0 001	1 049	0 89
48	10/7/1999	11:32:31 AM	0	25,171	20 804	24,999	23,509	22 085	30 686	55,109	62,742	7,086	48 301	7,125	0 064	28 259	0,123	0 097	36	36	11,7	51,7	3 565	0 054	0 054	0 001	1 039	0 88
49	10/7/1999	11:33:31 AM	0	25,171	20 885	24 999	23,509	22,166	30 686	54,366	61,627	6,974	48 267	7,125	0 018	28,259	0,123	0 097	37	37	11,7	51,3	3 538	0 054	0 054	0 001	1 048	0 89
50	10/7/1999	11:34 32 AM	0	25,297	20 93	25,044	23 474	22,13	30 651	54,738	62,315	7,134	48,47	7,125	0 018	28,367	0,122	0,097	38	38	11 8	51,6	3 558	0 053	0 053	0 001	1,031	0 88
51	10/7/1999	11:35 32 AM	0	25,216	20,93	24 964	23 635	22,211	30 651	54 8	62,437	7,054	48 403	7,125	0 064	28 382	0,121	0 097	39	39	11 8	51,6	3 558	0 053	0 053	0 001	1 025	0 87
52	10/7/1999	11:36:32 AM	0	25,216	20 93	25 044	23 554	22 211	30,731	54 8	62 376	7,054	48,096	7,094	0 018	28,367	0,12	0 097	40	40	11 8	51,4	3 547	0 052	0 052	0 001	1 017	0 87
53	10/7/1999	11:37:33 AM	0	25,261	20 975	25 009	23,599	22,176	30 696	54 8	62,559	6,962	47,929	7,094	0 018	28,428	0,121	0,097	41	41	11 8	51,4	3 541	0 053	0 053	0 001	1 028	0 87
54	10/7/1999	11:38:33 AM	0	25,261	20,975	25 009	23,519	22,176	30,775	54,736	62,376	7,03	48,707	7,094	0 064	28,321	0,121	0,101	42	42	11 8	51,7	3 568	0 053	0 053	0 001	1 021	0 87
55	10/7/1999	11:39:33 AM	0	25,306	21,021	25 054	23,644	22,301	30,741	54,965	62,681	7,038	48 2	7,094	0 018	28,213	0,12	0 097	43	43	11,7	51,8	3 557	0 052	0 052	0 001	1 014	0 86
56	10/7/1999	11:40:34 AM	0	25,226	21,021	25,054	23,564	22,221	30 82	54,738	62,315	7,006	48,47	7,094	0 064	28,167	0,12	0 097	44	44	11,7	51 8	3 558	0 052	0 052	0 001	1 014	0 86
57	10/7/1999	11:41:34 AM	0	25,226	20 94	24,974	23,725	22,301	30,582	54 614	62,132	7,07	48 536	7,094	0 064	28,413	0,12	0 094	45	45	11 8	51,8	3 556	0 052	0 052	0 001	1 018	0 86
58	10/7/1999	11:42:34 AM	0	25,271	21,066	25 099	23,689	22,348	30,765	55 419	63,107	7,038	48,168	7,094	0 018	28,396	0,119	0 097	46	46	11 8	51,8	3 571	0 052	0 052	0 001	1,000	0 85
59	10/7/1999	11:43:35 AM	0	25,226	21,021	24,974	23,725	22,221	30,741	54,738	62,496	7,022	48 335	7,094	0 018	28,352	0,119	0 094	47	47	11 8	51,5	3 553	0 052	0 052	0 001	1 009	0 86
60	10/7/1999	11:44:35 AM	0	25,191	21 066	25 019	23,77	22,348	30,765	54,552	62,193	6 926	48,2	7,094	0 018	28,196	0,119	0 094	48	48	11,7	51,4	3 542	0 052	0 052	0 001	1 011	0 86
61	10/7/1999	11:45:36 AM	0	25,236	21,03	25 064	23 815	22,311	30 63	55,109	62,742	7,149	48,132	7,094	0 018	28,428	0,118	0 097	49	49	11 8	51 8	3 559	0 052	0 051	0 001	0 996	0 85
62	10/7/1999	11:46:36 AM	0	25,236	21,111	25,064	23,815	22,392	30 63	54 614	62,132	7,11	48,233	7,094	0 064	28 582	0,117	0 094	50	50	11 9	51,4	3 545	0 051	0 051	0 001	0 991	0 84
63	10/7/1999	11:47:37 AM	0	25,236	21,111	24,964	23,815	22,311	30 63	54 8	62,376	7,11	48 064	7,094	0 064	28 551	0,117	0 094	51	51	11 8	51,4	3 546	0 051	0 051	0 001	0 994	0 85
64	10/7/1999	11:48:37 AM	0	25,281	21,156	25,109	23,94	22,437	30,874	54,552	62 254	7,126	47,76	7,063	0 064	28,474	0,116	0 094	52	52	11 8	51,2	3 527	0 052	0 051	0 001	1 004	0 85
65	10/7/1999	11:49:37 AM	0	25,281	21,156	25 029	23,94	22,437	30 674	54 882	62,437	7,165	48,504	7,063	0 064	28,505	0,116	0,094	53	53	11 8	51,7	3 563	0 052	0 051	0 001	0 996	0 85
66	10/7/1999	11:50:38 AM	0	25,281	21,156	24 949	23 86	22,437	30 674	54 8	62,437	7,165	48 064	7,063	0 018	28 52	0,117	0 097	54	54	11 8	51,4	3 548	0 051	0 051	0 001	0 994	0 85
67	10/7/1999	11:51:38 AM	0	25,326	21,202	25 074	23,905	22,482	30 919	54 882	62,659	7,149	47,557	7,094	0 018	28 536	0,117	0 097	55	55	11 8	51,2	3 531	0 051	0 051	0 001	0 995	0 85
68	10/7/1999	11:52:38 AM	0	25 248	21,202	24,994	23,905	22,562	30 84	54 8	62,376	7,11	48,267	7,063	0 018	28 551	0,117	0 094	56	56	11 8	51,5	3 553	0 051	0 051	0 001	0 991	0 84
69	10/7/1999	11:53:39 AM	0	25,291	21,247	25 039	23,95	22,527	30 884	54 676	62,315	7,03	48,168	7,063	0 064	28 474	0,117	0 097	57	57	11 8	51,4	3 545	0 051	0 051	0 001	0 992	0 84
70	10/7/1999	11:54:39 AM	0	25 291	21,247	25,039	24 031	22 608	30 884	54,614	62,071	7,03	48 064	7,063	0 018	28 505	0,117	0 094	58	58	11 8	51,3	3 540	0 051	0 051	0 001	0 994	0 85
71	10/7/1999	11:55:39 AM	0	25 211	21,247	25 039	23,95	22 527	30,964	54 614	62 071	7,126	48 267	7,063	0 064	28,259	0,117	0 091	59	59	11,7	51,4	3 547	0 051	0 051	0 001	0 992	0 84
72	10/7/1999	11:56:40 AM	0	25 256	21,292	25 004	24 076	22,573	30 929	54 923	62,318	7,014	48,369	7,033	0 064	28 551	0,116	0 091	60	60	11 8	51,6	3 561	0 051	0 051	0 001	0 980	0 83
73	10/7/1999	11:57:40 AM	0	25 256	21,292	25 084	23 995	22 653	31,008	55,109	62,864	7,126	47,862	7,063	0 064	28 567	0,116	0 091	61	61	11,9	51,5	3 550	0 051	0 051	0 001	0 981	0 84
74	10/7/1999	11:58:40 AM	0	25,256	21,292	25 004	24 076	22,653	30,929	54,736	62,193	7,11	48,301	7,033	0 064	28 428	0,116	0 091	62	62	11 8	51,5	3 552	0 051	0 051	0 001	0 983	0 84
75	10/7/1999	11:59:41 AM	0	25,301	21,338	25 049	24 041	22 698	30 974	54,736	62,193	7,118	48,132	7,063	0 064	28,536	0,116	0 091	63	63	11 8	51,4	3 546	0 051	0 051	0 001	0 983	0 84
76	10/7/1999	12:00:41 PM	0	25,301	21,338	25 049	24,201	22 698	31,132	54,614	62,254	7,054	48,47	7,063	0 018	28,474	0,117	0 094	64	64	11 8	51 6	3 554	0 051	0 051	0 001	0 990	0 84
77	10/7/1999	12:01:41 PM	0	25,221	21,257	24 969	24,121	22,698	31,053	54,366	61,888	6 99	48,301	7,063	0 064	28,352	0,116	0 091	65	65	11 8	51,3	3 539	0 051	0 051	0 001	0 987	0 84
78	10/7/1999	12:02:42 PM	0	25,266	21,302	25 014	24,166	22 663	31,018	54 676	62,193	7,078	48,132	7,063	0 064	28 505	0,115	0 091	66	66	11 8	51,4	3 544	0 050	0 050	0 001	0 978	0 83
79	10/7/1999	12:03:42 PM	0	25,311	21 428	25,139	24,211	22,769	31,142	54,552	62,132	7,094	48 233	7,033	0 064	28 428	0,115	0 091	67	67	11 8	51,4	3 543	0 050	0 050	0 001	0 973	0 83
80	10/7/1999	12:04:42 PM	0	25,311	21 428	25 059	24,211	22,769	31,381	54,552	62 515	7,062	48,369	7,063	0 064	28 474	0,115	0 091	68	68	11 8	51,5	3 548	0 050	0 050	0 001	0 974	0 83
81	10/7/1999	12:05:43 PM	0	25,276	21,474	25,104	24,176	22,754	31,346	54 6	62,515	7,07	48 403	7,033	0 064	28,321	0,115	0 091	69	69	11 8	51,6	3 558	0 050	0 050	0 001	0 970	0 83
82	10/7/1999	12:06:43 PM	0	25,356	21,393	25,104	24,176	22,754	31,425	55,357	63,107	7,149	48 47	7,063	0 064	28 536	0,114	0 088	70	70	11 8	51,9	3 579	0 050	0 050	0 001	0 956	0 81
83	10/7/1999	12:07:44 PM	0	25,276	21,393	25,104	24,256	22,834	31,346	54 738	62,254	7,086	47,76	7,063	0 064	28 567	0,114	0 088	71	71	11 9	51,2	3 533	0 050	0 050	0 001	0 958	0 82
84	10/7/1999	12:08:44 PM	0	25,321	21 519	25 069	24,302	22 679	31,391	55 171	62 925	7,149	47,828	7,033	0 064	28,428	0,114	0 091	72	72	11 8	51,5	3 551	0 050	0 050	0 001	0 964	0 82
85	10/7/1999	12:09:45 PM	0	25 321	21,459	24 969	24,302	22 799	31,311	55,171	62 803	7,102	47,929	7,033	0 018	28 259	0 114	0 091	73	73	11 7	51 6	3 554	0 050	0 050	0 001	0 966	0 82

Run 1.01a(old): 2 wt% Concentration of Insoluble Solids

	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	10/7/1999	12:10:45 PM	0	25.366	21.484	25.114	24.347	22.844	31.356	54.614	62.193	7.078	46.301	7.033	0.064	28.444	0.114	0.091	74	74	11.8	51.5	3.548	0.050	0.050	0.001	0.964	0.82
87	10/7/1999	12:11:45 PM	0	25.286	21.484	25.114	24.427	22.844	31.197	51.514	61.849	7.07	45.63	10.114	0.064	28.367	0.104	0.073	75	75	11.8	48.6	3.349	0.045	0.045	0.001	0.932	0.79
88	10/7/1999	12:12:46 PM	0	25.332	21.53	25.079	24.392	22.89	31.401	53.622	62.071	7.094	47.016	7.926	0.018	28.398	0.113	0.085	76	76	11.8	50.3	3.469	0.049	0.049	0.001	0.978	0.83
89	10/7/1999	12:13:46 PM	0	25.332	21.53	25.16	24.472	22.89	31.401	53.25	62.071	7.126	46.611	8.327	0.018	28.398	0.111	0.082	77	77	11.8	49.9	3.443	0.048	0.048	0.001	0.966	0.82
90	10/7/1999	12:14:46 PM	0	25.332	21.53	25.079	24.392	22.97	31.639	53.56	62.496	7.11	46.814	8.327	0.064	28.567	0.111	0.085	78	78	11.9	50.2	3.460	0.048	0.048	0.001	0.963	0.82
91	10/7/1999	12:15:47 PM	0	25.377	21.575	25.125	24.518	23.015	31.842	53.496	62.316	7.157	47.152	8.296	0.018	28.474	0.111	0.082	79	79	11.8	50.3	3.470	0.048	0.048	0.001	0.959	0.82
92	10/7/1999	12:16:47 PM	0	25.297	21.575	25.125	24.437	22.933	31.525	53.312	62.254	7.094	47.084	8.296	0.018	28.305	0.111	0.082	80	80	11.7	50.2	3.461	0.048	0.048	0.001	0.962	0.82
93	10/7/1999	12:17:47 PM	0	25.342	21.54	25.09	24.563	22.96	31.411	53.746	62.62	7.102	47.084	8.296	0.064	28.396	0.111	0.082	81	81	11.8	50.4	3.476	0.048	0.048	0.001	0.959	0.82
94	10/7/1999	12:18:48 PM	0	25.342	21.62	25.09	24.402	23.061	31.49	53.436	62.315	7.078	46.712	8.265	0.064	28.551	0.111	0.082	82	82	11.8	50.1	3.452	0.048	0.048	0.001	0.965	0.82
95	10/7/1999	12:19:48 PM	0	25.387	21.666	25.135	24.528	23.106	31.615	53.994	62.985	6.958	47.354	8.265	0.064	28.367	0.11	0.082	83	83	11.8	50.7	3.494	0.048	0.048	0.001	0.944	0.80
96	10/7/1999	12:20:48 PM	0	25.387	21.585	25.135	24.448	23.106	31.615	53.932	62.925	7.134	46.847	8.265	0.064	28.536	0.111	0.085	84	84	11.8	50.4	3.474	0.048	0.048	0.001	0.958	0.82
97	10/7/1999	12:21:49 PM	0	25.307	21.666	25.135	24.528	23.106	31.615	53.436	62.315	6.918	47.267	8.234	0.064	28.474	0.111	0.085	85	85	11.8	50.4	3.472	0.048	0.048	0.001	0.959	0.82
98	10/7/1999	12:22:49 PM	0	25.352	21.631	25.1	24.493	23.152	31.818	53.188	61.827	6.996	47.152	8.234	0.064	28.352	0.111	0.085	86	86	11.8	50.2	3.459	0.048	0.048	0.001	0.963	0.82
99	10/7/1999	12:23:49 PM	0	25.396	21.676	25.146	24.536	23.036	31.704	53.684	62.559	7.078	47.084	8.265	0.064	28.352	0.11	0.082	87	87	11.8	50.4	3.474	0.048	0.048	0.001	0.949	0.81
100	10/7/1999	12:24:50 PM	0	25.396	21.676	25.146	24.536	23.036	31.825	53.994	62.925	7.036	47.084	8.265	0.064	28.305	0.11	0.085	88	88	11.7	50.5	3.484	0.048	0.048	0.001	0.946	0.81
101	10/7/1999	12:25:50 PM	0	25.396	21.676	25.146	24.536	22.956	31.825	53.56	62.437	7.102	47.165	8.234	0.064	28.444	0.11	0.085	89	89	11.8	50.4	3.473	0.048	0.048	0.001	0.949	0.81
102	10/7/1999	12:26:50 PM	0	25.443	21.722	25.191	24.664	23.082	31.67	53.188	61.827	6.958	47.354	8.234	0.064	28.382	0.11	0.085	90	90	11.8	50.3	3.466	0.048	0.048	0.001	0.950	0.81
103	10/7/1999	12:27:51 PM	0	25.363	21.722	25.111	24.664	23.082	31.67	53.808	62.681	7.11	47.253	8.234	0.064	28.352	0.11	0.088	91	91	11.8	50.5	3.484	0.048	0.048	0.001	0.947	0.81
104	10/7/1999	12:28:51 PM	0	25.363	21.722	25.111	24.744	23.082	31.67	53.374	62.071	7.134	47.267	8.234	0.064	28.382	0.11	0.088	92	92	11.8	50.3	3.470	0.048	0.048	0.001	0.951	0.81
105	10/7/1999	12:29:51 PM	0	25.408	21.848	25.156	24.709	23.127	31.715	53.67	62.742	7.078	47.354	8.234	0.064	28.244	0.11	0.085	93	93	11.7	50.6	3.490	0.048	0.048	0.001	0.945	0.80
106	10/7/1999	12:30:52 PM	0	25.408	21.848	25.156	24.769	23.208	31.715	53.808	62.62	7.014	47.354	8.204	0.111	28.29	0.11	0.088	94	94	11.7	50.6	3.487	0.048	0.048	0.001	0.945	0.80
107	10/7/1999	12:31:52 PM	0	25.453	21.894	25.201	24.755	23.253	31.839	53.746	62.559	6.942	47.016	8.204	0.064	28.396	0.109	0.088	95	95	11.8	50.4	3.474	0.048	0.047	0.001	0.939	0.80
108	10/7/1999	12:32:52 PM	0	25.453	21.894	25.201	24.755	23.173	31.839	53.808	62.681	7.014	47.219	8.204	0.064	28.413	0.109	0.085	96	96	11.8	50.5	3.483	0.048	0.047	0.001	0.937	0.80
109	10/7/1999	12:33:53 PM	0	25.453	21.813	25.121	24.755	23.253	31.918	53.374	62.132	7.046	46.814	8.204	0.064	28.396	0.11	0.088	97	97	11.8	50.1	3.454	0.048	0.048	0.001	0.955	0.81
110	10/7/1999	12:34:53 PM	0	25.453	21.894	25.201	24.755	23.173	31.839	53.436	62.254	6.894	47.152	8.204	0.064	28.413	0.109	0.085	98	98	11.8	50.3	3.468	0.048	0.047	0.001	0.941	0.80
111	10/7/1999	12:35:54 PM	0	25.373	21.813	25.121	24.755	23.253	31.918	53.312	61.949	7.134	47.354	8.204	0.111	28.52	0.109	0.085	99	99	11.8	50.3	3.470	0.048	0.047	0.001	0.942	0.80
112	10/7/1999	12:36:54 PM	0	25.373	21.894	25.121	24.633	23.173	31.601	53.56	62.254	7.102	47.084	8.204	0.064	28.52	0.109	0.085	100	100	11.8	50.3	3.470	0.048	0.047	0.001	0.942	0.80
113	10/7/1999	12:37:54 PM	0	25.419	21.939	25.167	24.8	23.299	31.725	53.312	62.254	6.996	46.881	8.173	0.064	28.474	0.109	0.085	101	101	11.8	50.1	3.454	0.048	0.047	0.001	0.945	0.80
114	10/7/1999	12:38:55 PM	0	25.419	21.939	25.167	24.96	23.299	31.805	53.436	62.132	7.11	47.084	8.204	0.111	28.52	0.109	0.088	102	102	11.8	50.3	3.465	0.048	0.047	0.001	0.942	0.80
115	10/7/1999	12:39:55 PM	0	25.464	21.904	25.212	24.845	23.424	31.77	53.622	62.254	7.036	47.165	8.173	0.064	28.52	0.109	0.085	103	103	11.8	50.4	3.475	0.048	0.047	0.001	0.938	0.80
116	10/7/1999	12:40:55 PM	0	25.464	21.965	25.212	24.926	23.344	31.849	53.436	62.315	7.03	47.016	8.173	0.111	28.444	0.108	0.082	104	104	11.8	50.2	3.463	0.047	0.047	0.001	0.933	0.79
117	10/7/1999	12:41:56 PM	0	25.429	21.95	25.177	24.971	23.39	31.815	53.994	62.884	6.958	47.253	8.173	0.064	28.336	0.109	0.085	105	105	11.8	50.6	3.490	0.047	0.047	0.001	0.927	0.79
118	10/7/1999	12:42:56 PM	0	25.429	22.031	25.177	25.051	23.39	31.974	53.87	62.681	7.11	46.949	8.173	0.064	28.413	0.109	0.085	106	106	11.8	50.4	3.476	0.045	0.047	0.001	0.939	0.80
119	10/7/1999	12:43:56 PM	0	25.475	21.996	25.223	24.936	23.596	32.732	53.808	62.62	7.054	47.354	8.173	0.064	28.413	0.109	0.085	107	107	11.8	50.6	3.487	0.048	0.047	0.001	0.935	0.80
120	10/7/1999	12:44:57 PM	0	25.475	21.996	25.223	24.936	23.615	32.356	53.126	61.888	7.078	47.118	8.142	0.064	28.428	0.109	0.085	108	108	11.8	50.1	3.456	0.048	0.047	0.001	0.943	0.80
121	10/7/1999	12:45:57 PM	0	25.52	22.041	25.268	24.902	23.561	32.46	53.808	62.559	7.126	46.847	8.173	0.064	28.413	0.108	0.082	109	109	11.8	50.3	3.470	0.047	0.047	0.001	0.930	0.79
122	10/7/1998	12:46:57 PM	0	25.52	22.041	25.188	24.902	23.561	32.381	53.684	62.62	7.086	47.165	8.142	0.111	28.413	0.108	0.082	110	110	11.8	50.4	3.477	0.047	0.047	0.001	0.930	0.79
123	10/7/1999	12:47:58 PM	0	25.52	22.122	25.168	24.902	23.481	32.539	53.808	62.62	6.934	47.659	8.142	0.064	28.305	0.109	0.082	111	111	11.7	50.7	3.498	0.048	0.047	0.001	0.933	0.79
124	10/7/1999	12:48:58 PM	0	25.485	22.168	25.234	24.667	23.446	32.267	53.496	62.132	7.118	47.118	8.142	0.111	28.474	0.108	0.085	112	112	11.8	50.3	3.469	0.047	0.047	0.001	0.931	0.79
125	10/7/1999	12:49:58 PM	0	25.485	22.087	25.234	24.947	23.446	32.188	53.496	62.254	7.038	47.287	8.173	0.064	28.382	0.109	0.085	113	113	11.8	50.4	3.474	0.046	0.047	0.001	0.938	0.80
126	10/7/1999	12:50:59 PM	0	25.485	22.087	25.234	24.667	23.446	32.426	53.746	62.254	7.149	47.321	8.142	0.064	28.244	0.109	0.085	114	114	11.7	50.5	3.484	0.048	0.047	0.001	0.935	0.80
127	10/7/1999	12:51:59 PM	0	25.531	22.213	25.279	25.073	23.572	32.233	53.994	62.742	7.062	47.267	8.142	0.111	28.49	0.107	0.082	115	115	11.8	50.6	3.491	0.047	0.046	0.001	0.935	0.80
128	10/7/1999	12:52:59 PM	0	25.531	22.133	25.199	24.993	23.492	32.312	53.622	62.437	6.942	47.219	8.142	0.111	28.275	0.109	0.082	116	116	11.7	50.4	3.478	0.048	0.047	0.001	0.915	0.78
129	10/7/1999	12:54:00 PM	0	25.451	22.213	25.199	25.073	23.492	32.312	53.808	62.376	7.165	47.152	8.142	0.064	28.536	0.107	0.085	117	117	11.8	50.5	3.480	0.047	0.046	0.001	0.938	0.80
130	10/7/1999	12:55:00 PM	0	25.496	22.259	25.245	25.038	23.618	32.357	53.746	62.376	7.157	47.05	8.142	0.064	28.459	0.108	0.085	118	118	11.8	50.4	3.475	0.047	0.046	0.001	0.920	0.78
131	10/7/1999	12:56:00 PM	0	25.496	22.259	25.245	25.118	23.696	32.278	53.56	62.376	7.054	47.219	8.142	0.064	28.52	0.107	0.085	119	119	11.8	50.4	3.474	0.047	0.046	0.001	0.929	0.79
132	10/7/1999	12:57:01 PM	0	25.542	22.305	25.29	25.164	23.743	32.164	53.126	61.888	6.974	46.712	8.142	0.064	28.413	0.108	0.082	120	120	11.8	49.9	3.442	0.047	0.047	0.001	0.921	0.78
133	10/7/1999	12:58:01 PM	0	25.542	22.305	25.29	25.244	23.663	32.244	53.684	62.437	7.094	47.118	8.142	0.111	28.459	0.107	0.085	121	121	11.8	50.4	3.475	0.047	0.046	0.001	0.937	0.80
134	10/7/1999	12:59:01 PM	0	25.542	22.224	25.29	25.164	23.743	32.323	53.994	62.985	6.974	46.963	8.111	0.064	28.413	0.107	0.085	122	122	11.8	50.5	3.481	0.047	0.046	0.001	0.919	0.78
135	10/7/1999	1:00:02 PM	0	25.542	22.224	25.21	25.244	23.663	32.402	53.87	62.496	7.054	47.084	8.142	0.064	28.398	0.107	0.085	123	123	11.8	50.5	3.480	0.047	0.046	0.001	0.916	0.78
136	10/7/1999	1:01:02 PM	0	25.587	22.35	25.336	25.289	23.789	32.447	53.312	61.949	7.022	47.152	8.111	0.111	28.367	0.108	0.085	124	124	11.8	50.2	3.463	0.047	0.047	0.001	0.930	0.79
137	10/7/1999	1:02:02 PM	0	25.607	22.27	25.336	25.209	23.869	32.527	53.746	62.559	6.958	47.287	8.142	0.111	28.459	0.107	0.085	125	125	11.8	50.5	3.483	0.047	0.048	0.001	0.916	0.78
138	10/7/1999	1:03:03 PM	0	25.607	22.35	25.256	25.289	23.789	32.269	53.374	62.132	6.751	47.368	8.08	0.064	28.551	0.306	0.277	126	126	11.8	50.4	3.474	0.134	0.133	0.003	2.632	2.24
139	10/7/1999	1:04:03 PM	0	25.553	22.316	25.301	25.255	23.635	32.572	54.8	62.496	6.95	48.335	7.063	0.064	28.52	0.206	0.177	127	127	11.8	51.6	3.555	0.090	0.089	0.002	1.729	1.47
140																												
141		Averages		25.3	21.4	25.1	24.1	22.7	31.2	54.2	62.4	7.1	47.7	7.6	0.1	28.4	0.122	0.098			11.8	51.0	3.515	0.053	0.053	0.00104	1.0	0.9
142		Maximum		25.6	22.4	25.3	25.3	23.9	32.7	56.0	63.1	7.3	49.3	10.1	0.1	29.5	0.492	0.451			12.2	52.6	3.629	0.215	0.215	0.00409	4.1	3.5
143		Median		25.3	21.3	25.1	24.2	22.7	31.1	54.4	62.4	7.1	47.9	7.2	0.1	28.4	0.116	0.091			11.8	51.2	3.532	0.050	0.050	0.00098	1.0	0.8
144		Minimum		25.1	20.4	24.9	22.6	21.7	29.6	51.5	61.8	6.9	45.6	5.7	0.0	28.1	0.104	0.073			11.7	48.6	3.349	0.045	0.045	0.00092	0.9	0.8
145		Std Deviation		0.118	0.555	0.107	0.687	0.619	0.743	0.662	0.293	0.074	0.609	0.602	0.029	0.173	0.037	0.036			0.072	0.616	0.042	0.018	0.018	0.000307	0.307	0.261
146		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

APPENDIX C

EXPERIMENTAL DATA: HIGH SOLIDS CONCENTRATION

Appendix Contents

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

Fig.	Run	Solution	Done on
C1	1.08	2 to 22 wt% Solids	11/30 to 12/01/99 (Prewash Dewatering)
C2	1.09/1.10	22 wt% Solids	12/01/99
C3	1.09	14 wt% Solids	12/02/99
C4	1.10	14 wt% Solids	12/02/99
C5	1.11	14 wt% Solids	12/02/99
C6	1.12	14 wt% Solids	12/02/99
C7	1.13	14 wt% Solids	12/03/99
C8	1.14	14 wt% Solids	12/03/99
C9	1.15	14 to 38 wt% Solids	12/09/99 (Postwash Dewatering)

General Note: For measurement uncertainties see Appendix F

Special Notes:

a. In the top graph of Fig. C1 there is a line of data just above the zero Filtrate Flux line and in the bottom graph there is a large amount of scattered data above the permeability line, these data points were due to backpulsing.
b. Explanation for run 1.09/1.10 - On December 1, at the end of the concentrating run, 1.08, a final concentration of 22 wt% of insoluble solids and 49 wt% of total solids was attained. The first steady-state high concentration test run (1.09) began immediately. However, two of the three pumps were leaking slightly, so run 1.09 was done using run 1.10 flow conditions (i.e., slurry velocity of 9 ft/s and a TMP of 30 psid) because a pump failure was feared if the flow conditions of run 1.09 (i.e., 12 ft/s and 55 psid) were used. That is, it appeared that any run was not going to last long with the conditions of the pumps. Despite the leaking, the run was attempted because data at this higher slurry solids loading were desirable. Therefore, the least taxing flow conditions on the pumps were chosen (i.e., run 1.10). As can be seen in Fig. C2, only 36 minutes of data were obtained. The temperature of the slurry could not be maintained because of its viscous nature and because the small volume of the concentrated slurry was not sufficient to cover the cooling coils in the slurry reservoir. Also, the pumps began to leak profusely, so the run was stopped to change the pump seals and to dilute the slurry. The slurry was diluted to approximately 15 wt%; a subsequent analytical measurement put the insoluble solids loading at 14.3 wt% and the total solids at 44.1 wt%. On the following day, with the more dilute slurry, run 1.09 was redone.
c. Backpulsing – For run 1.09, Fig. C3, a backpulse frequency of 20 minutes was used. However, the backpulse seemed ineffective because after a backpulse, the filtrate flowrate would decrease, within a few minutes, to a steady (low) flux. Therefore, for

runs 1.10 to 1.14, Figs. C4 to C8, only an initial and final backpulse was used. Moreover, the data indicate that the filtrate flux was a bit erratic. This was caused by the temperature increases. At this higher solids loading the slurry had a Bingham plastic type character and therefore in the slurry reservoir the slurry movement was minimal because of the yield stress, thus making the cooling coils ineffective. A run would be started at around 23°C and end up above 30°C.

d. 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.
e. 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.
f. 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.
g. To calculate those quantities mentioned in the preceding item, 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.
h. The data for the graphs, and all the data taken for the individual test run that the graphs represent, immediately follow the specific figure.

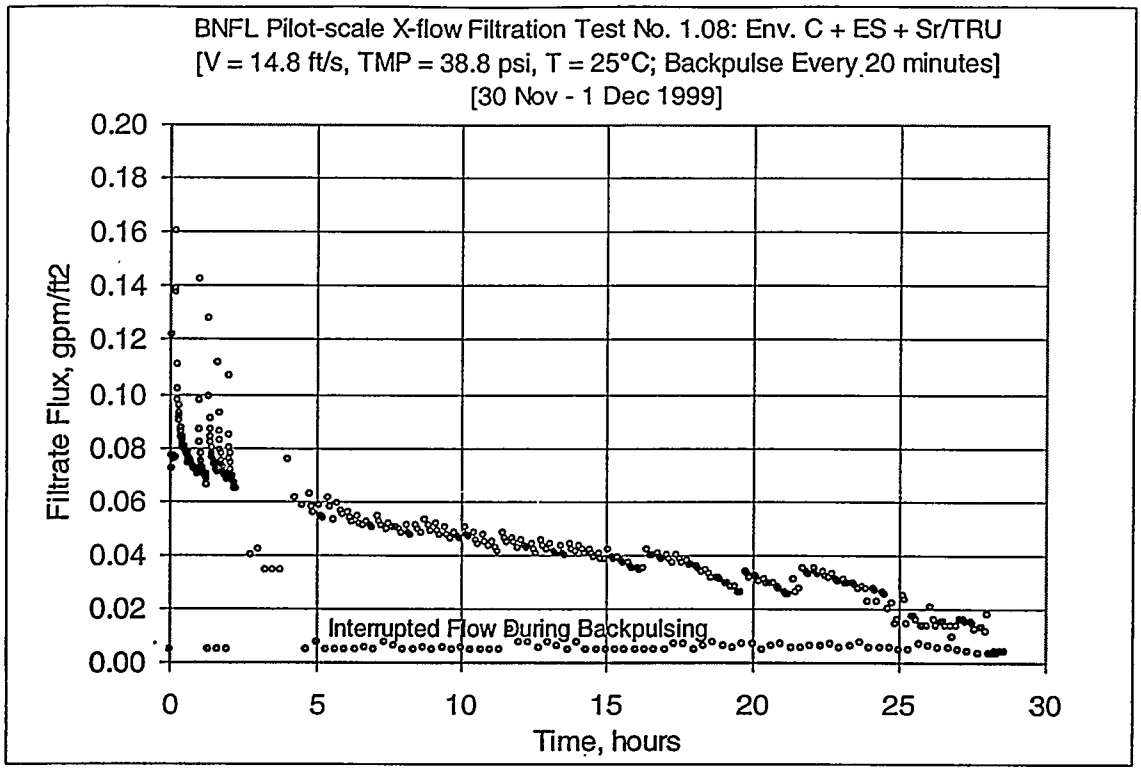
Nomenclature For Data Sheets
(See Figure 1: Main Test Rig - Pilot Scale Cross Flow for the Instrument Location)

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 =	Q2,FLTR Fl	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow from 0 to 1.2 gpm
R =	Q3,FLTR Fl	=	FLTR FLOW (gpm) Q3	Flow Rate of the Filtrate Flow from 0 to 5 gpm

The following columns are calculated results based on the appropriate columns

S =	Number	=	Number	Data numbers which is (usually) equivalent to 1 minute since this was the acquisition frequency
T =	Number	=	Number	Data numbers which are equal to or a subset from Column S to facilitate graphing of some data sets
U =	Vel, ft/s	=	Vel, ft/s	Axial slurry velocity = [Column P] / 7.48 gal/ft2 / 60 sec/min / flow area (=0 005369 ft2*)
V =	TMP, PSI	=	TMP, PSI	Transmembrane Pressure = ([Column J] + [Column M])/2
W =	TMP, bar	=	TMP, bar	[Column U] / 14.504 bar/psi
X =	GPM/FT2	=	GPM/FT2	[Column Q] / inside diameter filter surface area (= 2.29 ft2**)
Y =	GPM/FT2	=	GPM/FT2 at 25°C	Test Spec. correction factor: [Column W] x exp(2500 x ((1/(273+[Column T]))-(1/298)))
Z =	PERMIABILITY	=	PERMIABILITY (gpm/ft2/psi)	[Column X] / [Column U]
AA =	x 1000	=	PERMIABILITY x 1000	[Column Z] x 1000
AB =	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



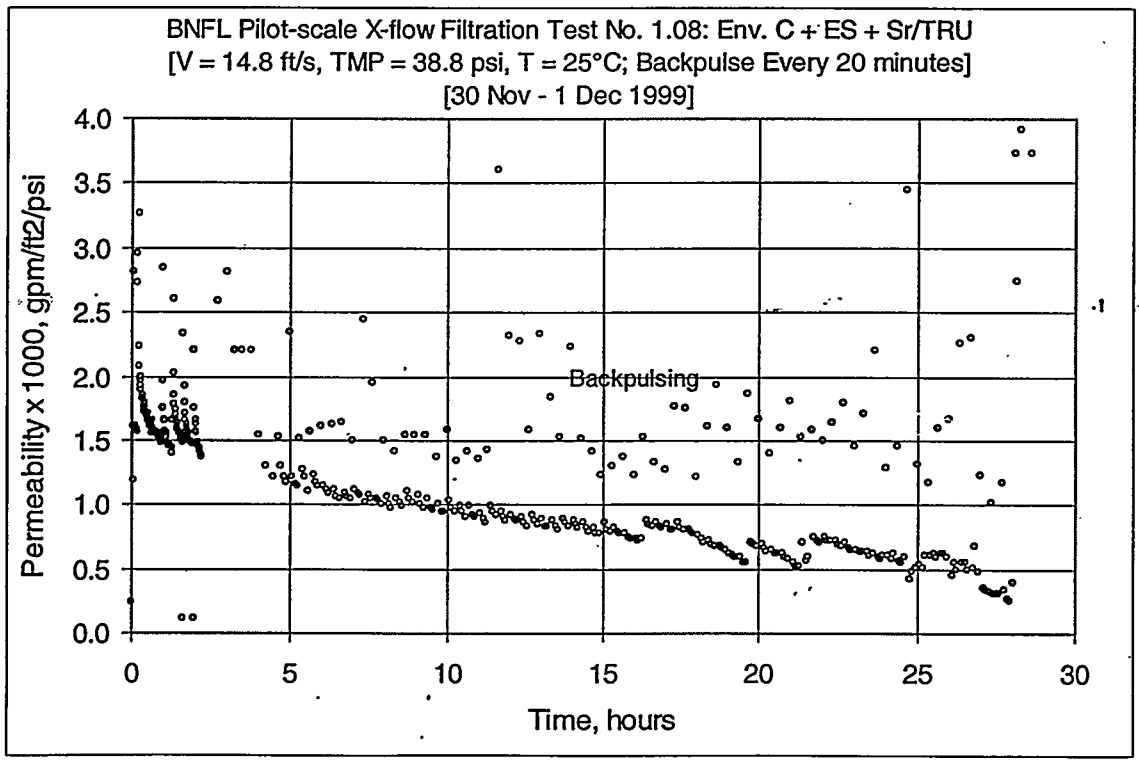


Figure C1: Test Run 1.08, Dewatering from 2 to 22 wt% Insoluble Solids Concentration

Run 1.08 EnvC Dewater: 2 to 20 wt% insoluble solids

	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	AC
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	DOT AMB	T8 (deg C)	DOT DP (p	FLTR (pel	FLTR DP (i	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SSL FLOW	O2,FLTR F	O3,FLTR FLOW (ppm)												
2	Zeros - Lines Not Connected (continuous runs from 11/30 to 12/3/99)																					Filter Surface Area		2 29	FT2					
3	11/30/1999	9:49:49 AM	0	25 96	19 534	25.732	23 366	55.74	171,439	-0 062	-0 133	-0 018	-0 017	-0 707	0 096	-0 095	0 011	-0 018				Conversion		851 0145	m3/m2/day/barg	/ gpm/ft2/barg				
4	11/30/1999	9:50:49 AM	0	25,664	19 578	25 616	23 349	55.782	171,476	-0 062	-0 072	-0 018	-0 017	-0 161	0 096	-0 08	0 011	-0 018												
5	11/30/1999	9:51:50 AM	0	25 74	19 534	25 412	23 366	55 74	171,439	-0 062	-0 072	-0 018	-0 017	-0 161	0 096	-0 08	0 011	-0 018												
6																														
7	Data - Per Minute																		Number	Number		Hours	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMEABILITY GPM/FT2/psi	x1000 GPM/FT2/psi	m/day/bar
8	11/30/1999	9:53:22 AM	0	26 824	19 578	23 853	23.349	55.782	171,476	21.262	35 052	1.684	20 065	12 917	0 096	9 044	0 011	-0 018	1	1		0 02	3 8	20 7	1,425	0 005	0 005	0 00024	0 240	0 20
9	11/30/1999	9:54:22 AM	0	26 468	19 622	24 699	23.393	55 824	171,512	23 973	34.32	1.827	25 001	7,462	0 096	9 428	0 276	0 23	2	2		0 03	3 9	25 5	1 757	0 120	0 122	0 00477	4 788	4 06
10	11/30/1999	9:55:23 AM	0	26 068	19 622	25 019	23.393	20 224	171,512	26 221	34 442	1.795	25.035	7,185	0 096	9 535	0 165	0 14	3	3		0 05	4 0	25 6	1 767	0 072	0 072	0 00281	2 809	2 39
11	11/30/1999	9:56:23 AM	0	25 872	19 666	24 743	23 437	20 429	171,549	61,493	70 908	3.471	59.316	8,417	0 096	13 849	0 184	0 148	4	4		0 07	6 6	50 4	4,183	0 072	0 072	0 00119	1 194	1 02
12	11/30/1999	9:57:23 AM	0	25 712	19 668	24 823	23.437	20 51	171,845	53 373	62.483	11.809	42.75	8 048	0 096	34 648	0 176	0 161	5	5		0 08	14 4	48 1	3 314	0 077	0 077	0 00161	1 607	1 37
13	11/30/1999	9:58:24 AM	0	25 695	19,71	24,786	23.481	19 969	171,586	52,753	61,761	12 024	41.871	7,966	0 096	35,785	0 173	0 149	6	6		0 10	14 9	47 3	3 262	0 076	0 076	0 00161	1 606	1 37
14	11/30/1999	9:59:24 AM	0	25 559	19 755	24,75	23 605	19 63	171,623	53,125	62 005	11,473	42 547	8 017	0 096	35 309	0 174	0 155	7	7		0 12	14 7	47 8	3 296	0 076	0 076	0 00160	1 599	1 36
15	11/30/1999	10:00:24 AM	0	25 399	19,755	24 83	23 625	19 71	171,623	52 816	61,761	11,377	42,818	8 048	0 096	34,817	0 175	0 162	8	8		0 13	14 4	47 8	3 297	0 078	0 077	0 00161	1 605	1 37
16	11/30/1999	10:01:25 AM	0	25,319	19 674	24 83	23 625	19 63	171,623	52 939	61,944	11,356	42,784	8 048	0 096	34,74	0 173	0 149	9	9		0 15	14 4	47 9	3 300	0 078	0 078	0 00159	1 585	1 35
17	11/30/1999	10:02:25 AM	0	25 282	19 716	24 954	23 469	19,755	171,66	53,063	62,066	10,891	43 528	8 048	0 096	34,31	0 174	0 162	10	10		0 17	14 2	48 3	3 330	0 076	0 078	0 00157	1 573	1 34
18	11/30/1999	10:03:26 AM	0	25 282	19,718	25 034	23,469	19 674	171,66	54,964	62,31	8 952	46 908	8 353	0 096	34 909	0 319	0 28	11	11		0 18	14 5	50 9	3 513	0 139	0 139	0 00273	2 731	2,32
19	11/30/1999	10:04:27 AM	0	25 282	19,718	25,114	23,469	20 239	171,66	50,335	62,005	8 96	42,716	10,696	0 096	34,694	0 315	0 28	12	12		0 20	14 5	46 5	3 208	0 138	0 138	0 00296	2 955	2 52
20	11/30/1999	10:05:26 AM	0	25 362	19 718	25 275	23 408	20 642	171,66	53 373	61,578	9,626	44 609	7,185	0 096	36 248	0 369	0 338	13	13		0 22	15 0	49 0	3 378	0 161	0 160	0 00326	3 263	2 78
21	11/30/1999	10:06:27 AM	0	25 523	19 799	25,353	23 469	20 562	171,66	53 663	61,395	9 702	45,117	6 661	0 03	36,507	0 256	0 223	14	14		0 23	15,2	49 4	3 408	0 112	0 111	0 00224	2 240	1 91
22	11/30/1999	10:07:27 AM	0	25 443	19,718	25,435	23,469	20,158	171,66	53,187	61,273	9,718	44,643	7,218	0 096	36 599	0 236	0 207	15	15		0 25	15 2	48 9	3 373	0 103	0 102	0 00208	2 081	1 77
23	11/30/1999	10:08:28 AM	0	25,486	19 843	25 559	23 613	19 679	171,697	53 249	61,578	9 83	44 474	7,4	0 096	36 845	0 227	0 196	16	16		0 27	15 2	48 9	3 369	0 099	0 096	0 00200	1 996	1,70
24	11/30/1999	10:09:28 AM	0	25 647	19 782	25 639	23 613	20,122	171,697	53,063	61,7	9,574	44 542	7,585	0 096	36 246	0 223	0 193	17	17		0 28	15 0	48 8	3 365	0 097	0 096	0 00196	1 959	1 67
25	11/30/1999	10:10:29 AM	0	25 967	19 782	25 639	23 613	20 525	171,697	52,753	61,517	9 83	43,796	7,77	0 096	36 445	0 217	0 186	18	18		0 30	15 1	48 3	3 328	0 095	0 093	0 00193	1 927	1 64
26	11/30/1999	10:11:28 AM	0	26 011	19 806	25 683	23 657	20,731	171,734	52 319	61,334	9 686	43,73	7,955	0 096	36 553	0 213	0 186	19	19		0 32	15 2	48 0	3 311	0 093	0 091	0 00190	1 899	1 62
27	11/30/1999	10:12:29 AM	0	25 931	19 806	25,763	23 657	20 327	171,734	52 877	61,683	9 646	43 9	7,924	0 096	36 645	0 21	0 183	20	20		0 33	15 2	46 4	3 338	0 092	0 090	0 00185	1 854	1 58
28	11/30/1999	10:13:29 AM	0	25 931	19 806	25,763	23 657	20 327	171,734	52 443	61,456	9,622	43,796	8 109	0 096	36 369	0 205	0 178	21	21		0 35	15 1	48 1	3 318	0 089	0 088	0 00182	1 820	1,55
29	11/30/1999	10:14:30 AM	0	26 054	19 851	25 868	23 621	20,372	171,771	51,947	60 968	9 596	43 629	8 202	0 096	36 307	0 205	0 176	22	22		0 37	15 1	47 8	3 293	0 089	0 087	0 00183	1 827	1 55
30	11/30/1999	10:15:30 AM	0	26 134	19 851	25 886	23 621	20,21	171,771	52 009	61,334	9 814	43,528	8 325	0 096	36 491	0 202	0 178	23	23		0 38	15,1	47 8	3 293	0 088	0 086	0 00180	1 801	1,53
31	11/30/1999	10:16:30 AM	0	26,134	19,931	25 968	23,781	19,726	171,771	52,257	61,7	9,67	43,426	8 51	0 096	36 476	0 197	0 17	24	24		0 40	15 1	47 8	3 299	0 088	0 084	0 00175	1 749	1 49
32	11/30/1999	10:17:31 AM	0	26,134	19 851	25 886	23,781	20 049	171,771	51,451	60,785	9 63	42,818	8 51	0 096	36,43	0 197	0,173	25	25		0 42	15 1	47 1	3 250	0 088	0 084	0 00178	1 780	1 51
33	11/30/1999	10:18:31 AM	0	26 134	19 851	25 968	23 781	20,129	171,771	52,257	61,822	9,487	43 392	8 541	0 096	36 384	0 194	0 167	26	26		0 43	15 1	47 8	3 297	0 085	0 082	0 00172	1 723	1 47
34	11/30/1999	10:19:31 AM	0	26 214	19 931	25 968	23 861	20 533	171,771	50,893	60,48	9 782	43 122	8,756	0,096	36,952	0,188	0 161	27	27		0 45	15 3	47 0	3 241	0 082	0 080	0 00170	1 699	1 45
35	11/30/1999	10:20:32 AM	0	26,134	19 931	25 886	23 781	20 936	171,771	51 823	61,334	9 814	43,156	8,756	0 096	36 676	0 19	0 164	28	28		0 47	15 2	47 5	3 274	0 083	0 081	0 00170	1 704	1 45
36	11/30/1999	10:21:32 AM	0	26,178	19 976	25 93	23 825	20 819	171,808	51,513	61,334	9 933	42,685	8,849	0,096	36,998	0 188	0 164	29	29		0 48	15 4	47 2	3 254	0 082	0 080	0 00169	1 694	1 44
37	11/30/1999	10:22:32 AM	0	26,178	19 976	25 77	23 825	20 819	171,808	51 389	61,029	9,79	42 412	8 756	0 096	37,044	0 188	0 164	30	30		0 50	15 4	46 9	3 234	0 082	0 080	0 00171	1 712	1 46
38	11/30/1999	10:23:33 AM	0	26 178	19 976	25 77	23,825	20,738	171,808	51,451	61,029	9 925	42,561	8,695	0 096	36 86	0,188	0 164	31	31		0 52	15 3	47 0	3 242	0 082	0 080	0 00171	1 708	1 45
39	11/30/1999	10:24:33 AM	0	26 098	19 976	25 77	23 825	20,738	171,808	51,761	61,212	9 676	43,122	8,387	0 096	36 553	0 185	0,161	32	32		0 53	15 2	47 4	3 271	0 081	0 079	0 00167	1 668	1 42
40	11/30/1999	10:25:33 AM	0	26 222	20 02	25 814	23,949	20,702	171,844	51,637	61 029	9 75	43 257	8 479	0,096	36 584	0,184	0 161	33	33		0 55	15 2	47,4	3 271	0 080	0 079	0 00165	1 655	1 41
41	11/30/1999	10:26:34 AM	0	26 098	19 976	25 69	23 825	20 9	171,808	51,761	61,456	9 646	43 122	8 602	0 096	36 399	0 181	0,158	34	34		0 57	15 1	47 4	3 271	0 079	0 077	0 00163	1 634	1 39
42	11/30/1999	10:27:34 AM	0	26 098	19 976	25 61	23,905	20,98	171,808	52 009	61,761	9 718	42 618	8 695	0 096	36,522	0,182	0 158	35	35		0 58	15 2	47 4	3 269	0 078	0 078	0 00165	1 647	1 40
43	11/30/1999	10:28:34 AM	0	26 062	20 101	25 494	23,949	20 944	171,844	51 823	61,517	9,71	43,068	8 726	0 096	36,522	0,178	0,155	36	36		0 60	15 2	47 5	3 272	0 078	0 077	0 00161	1 615	1 37
44	11/30/1999	10:29:35 AM	0	25 962	20,101	25 494	23 949	21 347	171,844	51,637	61 273	9 842	43 223	8 695	0,096	36,445	0,182	0 158	37	37		0 62	15,1	47 4	3 270	0 079	0 078	0 00165	1 652	1 41
45	11/30/1999	10:30:35 AM	0	25 946	20 064	25 378	24 074	20,968	171,881	51 699	61,273	9,726	43 257	8 756	0 096	36 415	0,177	0 152	38	38		0 63	15 1	47 5	3 273	0 077	0 076	0 00161	1 610	1 37
46	11/30/1999	10:31:35 AM	0	26 866	20,145	25,296	24,074	21,31	171,881	52 009	61,639	9 774	43 054	8 633	0 096	36 384	0 171	0,146	39	39		0 65	15 1	47 5	3 277	0 075	0 074	0 00156	1 557	1 33
47	11/30/1999	10:32:36 AM	0	25 83	20,108	25 261	24 037	21,757	171,918	51,699	61,334	9 702	43 021	8,756	0,096	36 491	0,174	0 152	40	40		0 67	15 1	47 4	3 265	0 076	0 075	0 00159	1 592	1,35
48	11/30/1999	10:33:36 AM	0	25 75	20,108	25,181	23 877	20 71	171,918	51,575	61,273	9,71	43,068	8,756	0 096	36 481	0 173	0,149	41	41		0 68	15 1	47 3	3 263	0 076	0 075	0 00159	1 587	1 33
49	11/30/1999	10:34:36 AM	0	25,67	20,106	25,101	23 877	20,952	171,918	51 947	61,639	9,726	43 054	8,602	0 096	36,476	0,173	0 149	42	42		0,70	15,1	47 5	3 275	0 076	0 075	0 00159	1 585	1,35
50	11/30/1999	10:35:37 AM	0	25 633	20,153	25 065	23 841	20 635	171,955	51,761	61,578	9 686	42,716	8,756	0,143	36 445	0 17	0,146	43	43		0 72	15,1	47 2	3 257	0 074	0 074	0 00157	1 566	1,33
51	11/30/1999	10:36:37 AM	0	25 653	20,153	24 965	23 841	20,754	171,955	51 885	61,639	9 67	43,156	8,756	0,096	36 399	0,17	0,149	44	44		0 73	15 1	47,5	3 276	0 074	0 074	0 00156	1 562	1 33
52	11/30/1999	10:37:37 AM	0	25 517	20 197	24,949	23,724	20 796	171,992	51,513	61,212	9,71	42,547	8,726	0 096	36,369	0,168	0 146	45	45		0 75	15 1	47 0	3 243	0 073	0 073	0 00156	1 562	1 33
53	11/30/1999	10:38:38 AM	0	25 517	20,197	24 869	23 644	20 637	171,992	51,699	61,395	9 638	43,054	8,756	0 03	36 338	0 168	0,146	46	46		0,77	15 1	47 4	3 266	0 073	0 074	0 00155	1 554	1 32
54	11/30/1999	10:39:38 AM	0	25 451	20 241	24 833	23 447	20,842	172,029	51,575	61,334	9 774	42,75	8,787	0 096	36 292	0 167	0,143	47	47		0 78	15 1	47 2	3 252	0 073	0 073	0 00155	1 553	1 32
55	11/30/1999	10:40:38 AM	0	25,401	20,241	24,833	23 527	21 004	172 029	51,513	61,273	9,71	42 967	8 818	0 096	36 476	0 166	0 143	48	48		0 80	15 1	47 3	3 256	0 072	0 073	0 00154	1 541	1 31
56	11/30/1999	10:41:39 AM	0	25,401	20 241	24 672	23,447	20 923	172,029	51 575	61,395	9,758	42,561	8,849	0,143	36 246	0,165	0,14	49	49		0 82	15 0	47,1	3 246	0 072	0 073	0 00154	1 544	1,31
57	11/30/1999	10:42:39 AM	0	25 285	20,286	24 636	23 41	21,29	172,066	51,389	61,212	9,718	42 818	8,88	0 096	36 369	0 164	0 143	50	50		0,83	15 1	47 1	3 246	0 072	0 072	0 00154	1 536	1 31
58	11/30/1999	10:43:39 AM	0	25,204	20,286	24 558	23,33	20 845	172,066	50 831	60 602	9 67	42,784	8 818	0 096	36 123	0 164	0 14	51	51		0,85	15 0	46 8	3 227	0 072	0 072	0 00155	1 549	1 32
59	11/30/1999	10:44:40 AM	0	25 248	20 33	24 6	23 294	21,012	172,103	51,576	61,456	9 678	43,156	8 818	0 096	36,246	0,163	0,14	52	52		0 87	15 0	47,4	3 266	0 071	0 072	0 00152	1 519	1 29
60	11/30/1999	10:45:40 AM	0	25,168	20 249	24 52	23,284	20 931	172,103	51,017	60,968	9,718	42,75	8,941	0,096	36,323	0,161	0 137	53	53		0 88	15 1	46 9	3 232	0 070	0 071	0 00152	1 520	1 29
61	11/30/1999	10:46:40 AM	0	25 008	20,33	24,52	23,213	20 77	172,103	51 327	61,212	9,702	42 967	8 88	0 096	36 215	0 161	0 14	54	54		0 90	15 0	47 2	3,251	0 070	0 071	0 00151	1 511	1 29
62	11/30/1999	10:47:41 AM	0	25 052	20,374	24,404	23,177	21,056	172,14	51,513	61,395	9,734	42,75	8 88	0 096	36,169	0,159	0,137	55	55		0 92	15 0	47 1	3 250	0 069	0 071	0 00150	1 496	1 27
63	11/30/1999	10:48:41 AM	0	24 972	20,293	24,484	23,177	21,056	172,14	51 513	61,456	9,758	42,547	8 849	0 096	36 292	0,158	0,137	56	56		0 93	15 1	47 3	3 243	0 069	0 070	0 00149	1 488	1 27
64	11/30/1999	10:49:41 AM	0	24 836	20,338	24,367	23,141	21,584	172,177	51,823	61,639	9 67	43 021	8 849	0 096	36 015	0,159	0 134	57	57		0 95	14 9	47 4	3 270	0 069	0 071	0 00149	1 490	1 27
65	11/30/1999	10:50:42 AM	0	24 836	20,338	24,367	23,141	21,342	172,177	50 893	60 663	9 678	42,75	8 88	0 096	36 154	0 157	0,131	58	58		0 97	15 0	46 8	3 228	0 069	0 070	0 00149	1 490	1 27
66	11/30/1999	10:51:42 AM	0	24,96	20 382	24 411	23,185	21,386	172,214	54 489	61,395	9 622	45,996	8,952	0 096	36,138	0 321	0 288	59	59		0 98	15 0	50,2	3 464	0 140	0 142	0 00284	2 836	2 41
67	11/30/1999	10:52:42 AM	0	24 619	20 382	24,251	23,185	21 225	172,214	54,117	62,127	9 359	45 522	8 969	0 096	35 078	0 219	0,189	60	60		1,00	14 6	49 8	3 435	0 096	0 096	0 00196	1 960	1 67
68	11/30/1999	10:53:43 AM	0	24 9	20 382	24 331	23,105	21,064	172,214	53 621	61,578	9 143	45,725	7,092	0 096	34,756	0,195	0 164	61	61		1 02	14 4	49 7	3 425	0 085	0 087	0 00175	1 746	1 49
69	11/30/1999	10:54:43 AM	0	24 827	20,471	24,339	23,113	20 83	172,255	53 559	61,822	9 178	45 489	7 339	0,143	34 679	0,184	0,152	62	62		1 03	14 4	49 5	3 415	0 080	0 082	0 00165	1 652	1 41
70	11/30/1999	10:55:43 AM	0	24,747	20,39	24,339	23,032	20 749	172,288	53 683	62 249	9 239	44 961	7 685	0 096	34,771	0,174	0 143	63	63		1,05	14 4	49 3	3 401	0 078	0 077	0 00157	1 569	1 33
71	11/30/1999	10:56:44 AM	0	24 791	20,434	24,353	23,157	20,715	172,325	52,443	61,334	9,718	43,73	7 801	0 096	36 092	0 168	0,137	64	64		1,07	15 0	48 1	3 315	0 073	0 075	0 00155	1 552	1 32
72	11/30/1999	10:57:45 AM	0	24,791	20 434	24 463	22,996	20,713	172,325	51,885	60 968	10 005	43,561	8 202	0 096	36 568	0 168	0 137	65	65		1,08	15 2	47,7	3 290	0 073	0 074	0 00156	1 560	1 33
73	11/30/1999	10:58:44 AM	0	24,791	20,434	24 463	22,996	20 713	172,325	51,637	60 846	9 822	42,784	8 294	0 143	36 491	0 163	0,134	66	66		1,10	15 1	47 2	3 255	0 071	0 072	0 00153	1 530	1 30
74	11/30/1999	10:59:45 AM	0	24,835	20 479	24 427	22,96	20,435	172,362	51 699	61,09	9 885	43 088	8 359	0 096	36 353	0,161	0 131	67	67		1 12	15 1	47 4	3 268	0 070	0 071	0 00151	1 507	1 28
75	11/30/1999	11:00:46 AM	0	24 755	20,479	24 347	22 879	20 838	172,362	52,319	61,822	9 854	42,619	8 417	0 096	36 077	0,159	0,128	68	68		1 13	15 0	47,8	3 283	0 069	0 071	0 00148	1 485	1,26
76	11/30/1999	11:01:45 AM	0	24 835	20 479	24 347	22 96	21,321	172,362	52,009	61,639	9,726	43,528	8 671	0 096	35,985	0,158	0,131	69	69		1 15	14 9	47 8	3 293	0 069	0 070	0 00147	1 471	1 25
77	11/30/1999	11:02:46 AM	0	24 835	20,479	24,267	22 879	21,563	172,362	52,691	62,432	9 814	43,291	8 602	0 096	36 031	0,158	0,128	70	70		1,17	15 0	48 0	3 309	0 069	0 070	0 00147	1 467	1,25
78	11/30/1999	11:03:46 AM	0	24,719	20 523	24 311	23,004	21,849	172,399	52,381	62,066	9 846	43,46	8 695	0 096	36,215	0,156	0 128	71	71		1 18	15 0	47,9	3 304	0 068	0 069	0 00145	1 449	1 23
79	11/30/1999	11:04:46 AM	0	24,719	20 442	24 311	22,924	21,366	172,399	52 257	62,188	9 822	43,325	8 818	0,143	36,092	0,157	0,128	72	72		1 20	15 0	47 8	3 295	0 069	0 070	0 00146	1 462	1 24
80	11/30/1999	11:05:47 AM	0	24,719	20 442	24,311	22,924	21,285	172,399	51,699	61,456	9 566	43,784	8 818	0 096	35 908	0,156	0,126	73	73		1 22	14 9	47 7	3 291	0 068	0 069	0 00145	1 455	1 24
81	11/30/1999	11:06:48 AM	0	24,763	20,567	24,275	22,968	21,33	172,436	52 071	61,822	9 574	44,001	8 849	0 096	35 524	0 157	0 128	74	74		1,23	14,7	48 0	3 312	0 069	0 070	0 00146	1 458	1 24
82	11/30/1999	11:07:47 AM	0	24 683	20 567	24 275	22 888	21,249	172,436	51,327	61,212	10 093	42 953	8 818	0 096	36 783	0 154	0 128	75	75		1 25	15,3	47 1	3 250	0 067	0 069	0 00146	1 456	1 24
83	11/30/1999	11:08:48 AM	0	24,683	20 487	24,275	22,888	21,491	172,436	51,389	61,212	10 029	42,75	8 818	0 096	36,737	0,153	0 125	76	76		1 27	15 2	47 1	3 245	0 067	0 068	0 00145	1 448	1 23
84	11/30/1999	11:09:48 AM	0	24 727	20 612	24,319	22 932	21,213	172,473	51 699	61,578	10 077	42 618	8 849	0 096	36,722	0 149	0,122	77	77		1,28	15 2	47 3	3 258	0 065	0 066	0 00140	1 403	1 19
85	11/30/1999	11:10:48 AM	1	24 727	20 531	24 239	22 932	21 374	172 473	7 5	61,944	9 662	-1 573	53 103	98 405	36 491	0 011	-0 015	78	78		1 30	15 1	3 0	0 204	0 005	0 005	0 00166	1 656	1 41

Run 1.08 EnvC Dewater: 2 to 20 wt% insoluble solids

	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	AC
86	11/30/1999	11:11:49 AM	0	24.771	20.656	24.283	22.978	21.579	172.81	53.745	61.883	9.933	44.643	7	0.096	37.014	0.287	0.259	79	79	1.32	15.4	49.2	3.392	0.125	0.128	0.00260	2.599	2.21
87	11/30/1999	11:12:50 AM	0	24.691	20.656	24.283	22.978	21.418	172.81	53.311	61.395	9.925	44.88	7.092	0.096	36.553	0.222	0.195	80	80	1.33	15.2	49.1	3.385	0.097	0.099	0.00201	2.014	1.71
88	11/30/1999	11:13:49 AM	0	24.691	20.575	24.283	23.058	21.579	172.81	53.249	61.517	10.021	44.407	7.308	0.096	36.691	0.203	0.178	81	81	1.35	15.2	48.8	3.367	0.089	0.090	0.00185	1.852	1.58
89	11/30/1999	11:14:50 AM	0	24.735	20.62	24.327	23.02	21.543	172.547	52.939	61.334	10.045	43.73	7.524	0.096	36.891	0.194	0.167	82	82	1.37	15.3	48.3	3.332	0.085	0.088	0.00179	1.786	1.52
90	11/30/1999	11:15:51 AM	0	24.735	20.62	24.327	23.02	21.463	172.547	52.629	61.334	9.981	43.73	7.77	0.096	36.768	0.188	0.161	83	83	1.38	15.3	48.2	3.322	0.082	0.084	0.00174	1.736	1.48
91	11/30/1999	11:16:50 AM	0	24.655	20.62	24.167	22.94	21.382	172.547	52.753	61.7	9.997	43.581	7.968	0.096	36.737	0.183	0.155	84	84	1.40	15.2	48.2	3.320	0.080	0.082	0.00170	1.695	1.45
92	11/30/1999	11:17:51 AM	0	24.699	20.684	24.291	22.984	21.104	172.584	52.195	61.395	10.029	43.392	8.202	0.096	36.645	0.179	0.152	85	85	1.42	15.2	47.6	3.295	0.078	0.080	0.00167	1.668	1.42
93	11/30/1999	11:18:51 AM	0	24.699	20.684	24.291	22.904	21.265	172.584	52.257	61.639	10.061	43.156	8.294	0.096	36.996	0.175	0.149	86	86	1.43	15.4	47.7	3.289	0.076	0.078	0.00163	1.634	1.39
94	11/30/1999	11:19:52 AM	0	24.699	20.584	24.291	22.823	20.882	172.584	51.699	61.09	10.061	43.054	8.448	0.096	36.88	0.173	0.146	87	87	1.45	15.3	47.4	3.268	0.076	0.077	0.00163	1.626	1.38
95	11/30/1999	11:20:52 AM	0	24.743	20.709	24.335	22.948	20.967	172.622	51.947	61.517	10.125	43.088	8.51	0.096	36.937	0.171	0.146	88	88	1.47	15.3	47.5	3.278	0.075	0.076	0.00160	1.601	1.36
96	11/30/1999	11:21:52 AM	0	24.743	20.709	24.335	22.948	20.967	172.622	51.885	61.456	10.117	42.919	8.695	0.096	36.952	0.169	0.143	89	89	1.48	15.3	47.4	3.268	0.074	0.075	0.00159	1.588	1.35
97	11/30/1999	11:22:52 AM	0	24.663	20.628	24.255	22.868	21.068	172.622	51.885	61.639	10.117	42.784	8.726	0.096	36.922	0.167	0.14	90	90	1.50	15.3	47.3	3.264	0.073	0.074	0.00157	1.573	1.34
98	11/30/1999	11:23:53 AM	0	24.663	20.709	24.255	22.868	21.471	172.622	51.761	61.578	10.181	42.48	8.818	0.096	36.968	0.165	0.137	91	91	1.52	15.3	47.1	3.249	0.072	0.074	0.00156	1.561	1.33
99	11/30/1999	11:24:53 AM	0	24.663	20.709	24.335	22.948	21.471	172.622	51.203	61.029	10.117	42.615	8.787	0.096	36.937	0.165	0.14	92	92	1.53	15.3	46.9	3.234	0.072	0.073	0.00156	1.565	1.33
100	11/30/1999	11:25:54 AM	0	24.707	20.753	24.299	22.812	21.757	172.659	52.505	61.517	10.085	43.223	7.955	0.096	36.891	0.165	0.14	93	93	1.55	15.3	47.9	3.300	0.072	0.073	0.00153	1.535	1.31
101	11/30/1999	11:26:54 AM	0	24.627	20.753	24.299	22.812	21.435	172.659	51.699	60.907	9.957	43.156	8.202	0.096	37.736	0.161	0.137	94	94	1.57	15.7	47.4	3.270	0.070	0.072	0.00151	1.512	1.29
102	11/30/1999	11:27:54 AM	0	24.707	20.753	24.299	22.992	20.951	172.659	51.761	61.212	9.965	43.291	8.541	0.096	36.461	0.16	0.137	95	95	1.58	15.1	47.5	3.277	0.070	0.071	0.00150	1.499	1.28
103	11/30/1999	11:28:55 AM	0	24.751	20.798	24.344	22.956	21.398	172.696	52.195	61.822	9.965	43.088	8.756	0.096	36.476	0.16	0.134	96	96	1.60	15.1	47.6	3.285	0.070	0.071	0.00149	1.493	1.27
104	11/30/1999	11:29:55 AM	0	24.671	20.798	24.344	22.956	21.318	172.696	52.133	61.944	9.854	42.9[illegible]	8.849	0.096	36.261	0.159	0.134	97	97	1.62	15.0	47.5	3.278	0.069	0.071	0.00149	1.487	1.27
105	11/30/1999	11:30:55 AM	0	24.715	20.842	24.388	23.061	21.604	172.733	47.36	61.09	9.59	39.944	13.225	0.143	36.63	0.011	-0.018	98	98	1.63	15.2	43.7	3.010	0.005	0.005	0.00011	0.112	0.10
106	11/30/1999	11:31:56 AM	0	24.715	20.781	24.388	23	21.604	172.733	52.753	60.785	10.612	43.088	7.123	0.096	38.074	0.251	0.225	99	99	1.65	15.8	47.9	3.304	0.110	0.111	0.00233	2.326	1.98
107	11/30/1999	11:32:56 AM	0	24.76	20.806	24.352	22.964	21.165	172.77	53.125	61.273	10.492	43.494	7.123	0.096	37.659	0.209	0.183	100	100	1.67	15.6	48.3	3.331	0.091	0.093	0.00192	1.923	1.64
108	11/30/1999	11:33:56 AM	0	24.76	20.806	24.352	23.045	21.407	172.77	52.753	60.968	10.508	43.19	7.246	0.096	37.905	0.193	0.167	101	101	1.68	15.7	48.0	3.307	0.084	0.086	0.00179	1.789	1.52
109	11/30/1999	11:34:57 AM	0	24.76	20.806	24.352	22.964	20.762	172.77	52.815	61.456	10.396	43.392	7.462	0.096	37.813	0.185	0.158	102	102	1.70	15.6	48.1	3.317	0.081	0.082	0.00171	1.710	1.46
110	11/30/1999	11:35:57 AM	0	24.76	20.806	24.352	22.964	21.004	172.77	52.381	61.09	10.452	43.021	7.709	0.096	37.567	0.178	0.152	103	103	1.72	15.6	47.7	3.289	0.078	0.079	0.00168	1.659	1.41
111	11/30/1999	11:36:57 AM	0	24.76	20.806	24.352	22.964	20.842	172.77	52.195	61.029	10.492	42.649	7.924	0.096	37.551	0.174	0.146	104	104	1.73	15.6	47.4	3.270	0.076	0.077	0.00163	1.631	1.39
112	11/30/1999	11:37:58 AM	0	24.76	20.806	24.352	22.964	20.842	172.77	51.637	60.848	10.468	42.547	8.202	0.096	37.582	0.169	0.143	105	105	1.75	15.6	47.1	3.247	0.074	0.075	0.00160	1.596	1.36
113	11/30/1999	11:38:58 AM	0	24.724	20.85	24.396	23.009	21.209	172.807	51.885	61.273	10.476	42.243	8.387	0.096	37.766	0.168	0.143	106	106	1.77	15.7	47.1	3.245	0.073	0.075	0.00159	1.585	1.35
114	11/30/1999	11:39:58 AM	0	24.804	20.931	24.396	23.009	21.29	172.807	51.823	61.517	10.572	42.141	8.571	0.096	37.674	0.168	0.14	107	107	1.78	15.6	47.0	3.239	0.072	0.074	0.00157	1.589	1.34
115	11/30/1999	11:40:59 AM	0	24.848	20.895	24.44	23.053	21.496	172.844	51.637	61.181	10.476	42.178	8.571	0.096	37.49	0.16	0.131	108	108	1.80	15.6	46.9	3.234	0.070	0.071	0.00151	1.513	1.29
116	11/30/1999	11:41:59 AM	0	24.768	20.895	24.36	23.053	21.576	172.844	51.885	61.029	10.412	42.412	8.078	0.096	37.367	0.164	0.137	109	109	1.82	15.5	47.1	3.251	0.072	0.073	0.00155	1.546	1.32
117	11/30/1999	11:42:59 AM	0	24.768	20.895	24.44	23.053	21.496	172.844	51.823	61.151	10.42	42.513	8.263	0.096	37.536	0.16	0.134	110	110	1.83	15.6	47.2	3.252	0.070	0.071	0.00150	1.504	1.28
118	11/30/1999	11:44:00 AM	0	24.768	20.895	24.36	23.053	21.254	172.844	51.699	61.212	10.468	42.141	8.571	0.096	37.582	0.157	0.131	111	111	1.85	15.6	46.9	3.235	0.069	0.070	0.00149	1.487	1.27
119	11/30/1999	11:45:00 AM	0	24.768	20.895	24.44	23.053	20.77	172.844	51.451	61.273	10.476	41.837	8.756	0.096	37.582	0.157	0.131	112	112	1.87	15.6	46.6	3.218	0.069	0.070	0.00149	1.493	1.27
120	11/30/1999	11:46:00 AM	0	24.812	20.939	24.485	23.097	20.615	172.881	51.265	61.151	10.5	41.939	8.849	0.096	37.49	0.157	0.131	113	113	1.88	15.6	46.6	3.213	0.069	0.070	0.00149	1.492	1.27
121	11/30/1999	11:47:01 AM	0	24.812	20.859	24.485	23.017	21.057	172.881	51.327	61.212	10.412	41.702	8.818	0.096	37.659	0.156	0.131	114	114	1.90	15.6	46.5	3.207	0.068	0.069	0.00149	1.485	1.26
122	11/30/1039	11:48:01 AM	0	24.812	20.939	24.404	23.017	21.298	172.881	51.637	61.639	10.404	42.141	8.91	0.096	37.505	0.156	0.131	115	115	1.92	15.6	46.9	3.233	0.068	0.069	0.00148	1.477	1.26
123	11/30/1999	11:49:01 AM	0	24.812	20.939	24.404	23.017	21.54	172.881	51.327	61.151	10.548	41.567	8.972	0.096	37.551	0.154	0.131	116	116	1.93	15.6	46.4	3.202	0.067	0.068	0.00147	1.472	1.25
124	11/30/1999	11:50:02 AM	0	24.812	20.939	24.485	23.017	21.137	172.881	50.831	60.663	10.404	41.671	8.972	0.096	37.259	0.155	0.131	117	117	1.95	15.5	46.4	3.196	0.068	0.069	0.00148	1.481	1.26
125	11/30/1999	11:51:02 AM	0	24.812	20.939	24.485	23.017	20.615	172.881	48.802	60.43	10.324	37.882	12.793	0.096	37.766	0.011	-0.018	118	118	1.97	15.7	42.3	2.919	0.005	0.005	0.00012	0.115	0.10
126	11/30/1999	11:52:02 AM	0	24.812	20.939	24.404	22.856	20.653	172.881	53.311	61.393	10.648	43.392	7.123	0.096	37.674	0.24	0.213	119	119	1.98	15.6	48.4	3.334	0.105	0.107	0.00220	2.204	1.88
127	11/30/1999	11:53:03 AM	0	24.812	20.939	24.485	22.937	20.25	172.881	53.187	61.212	10.64	43.695	7.061	0.096	37.474	0.191	0.164	120	120	2.00	15.6	48.4	3.336	0.083	0.085	0.00175	1.748	1.49
128	11/30/1999	11:54:03 AM	0	24.812	20.939	24.404	22.937	20.653	172.881	52.939	61.212	10.596	43.561	7.248	0.096	37.659	0.18	0.152	121	121	2.02	15.6	48.3	3.327	0.079	0.080	0.00166	1.656	1.41
129	11/30/1999	11:55:03 AM	0	24.892	20.939	24.485	22.937	20.169	172.881	52.505	60.848	10.596	43.392	7.462	0.096	37.49	0.17	0.143	122	122	2.03	15.6	47.9	3.306	0.074	0.075	0.00157	1.570	1.34
130	11/30/1999	11:56:04 AM	0	24.892	21.02	24.485	22.937	20.653	172.881	52.443	61.151	10.58	42.953	7.678	0.096	37.643	0.167	0.14	123	123	2.05	15.6	47.7	3.289	0.073	0.074	0.00155	1.551	1.32
131	11/30/1999	11:57:04 AM	0	24.936	20.964	24.529	22.961	21.101	172.919	52.381	60.968	10.436	43.359	7.709	0.096	37.521	0.176	0.149	124	124	2.07	15.6	47.9	3.300	0.077	0.078	0.00163	1.626	1.38
132	11/30/1999	11:58:04 AM	0	24.936	21.064	24.529	22.961	21.02	172.919	52.753	61.578	10.572	42.919	7.647	0.096	37.521	0.161	0.137	125	125	2.08	15.6	47.8	3.298	0.070	0.071	0.00149	1.489	1.27
133	11/30/1999	11:59:05 AM	0	24.856	21.064	24.529	22.961	21.343	172.919	52.319	61.212	10.38	42.682	7.924	0.096	37.278	0.159	0.131	126	126	2.10	15.5	47.5	3.275	0.069	0.070	0.00148	1.481	1.26
134	11/30/1999	12:00:05 PM	0	24.936	20.964	24.609	22.961	21.604	172.919	51.885	60.968	10.181	43.325	8.109	0.05	37.106	0.157	0.131	127	127	2.12	15.4	47.6	3.262	0.069	0.069	0.00146	1.456	1.24
135	11/30/1999	12:01:05 PM	0	24.936	20.964	24.529	22.961	21.826	172.919	52.071	61.456	10.308	42.987	8.232	0.096	37.014	0.165	0.131	128	128	2.13	15.4	47.5	3.277	0.068	0.069	0.00144	1.443	1.23
136	11/30/1999	12:02:07 PM	0	24.936	20.964	24.529	23.061	21.504	172.919	51.947	61.151	10.308	42.75	8.294	0.096	37.183	0.153	0.128	129	129	2.15	15.4	47.3	3.265	0.067	0.068	0.00143	1.429	1.22
137	11/30/1999	12:03:06 PM	0	24.961	21.109	24.653	23.025	21.488	172.958	51.885	61.334	10.264	42.581	8.448	0.096	37.106	0.152	0.125	130	130	2.17	15.4	47.2	3.257	0.066	0.067	0.00142	1.419	1.21
138	11/30/1999	12:04:06 PM	0	24.961	21.028	24.653	23.025	21.387	172.958	51.637	61.029	10.221	42.649	8.51	0.096	37.014	0.151	0.125	131	131	2.18	15.4	47.1	3.250	0.066	0.067	0.00141	1.412	1.20
139	11/30/1999	12:05:07 PM	0	24.961	21.109	24.653	23.106	20.964	172.958	51.685	61.395	10.237	42.818	8.479	0.096	36.963	0.149	0.125	132	132	2.20	15.3	47.4	3.265	0.065	0.066	0.00139	1.387	1.18
140	11/30/1999	12:06:07 PM	0	24.961	21.109	24.653	23.106	21.065	172.958	51.947	61.639	10.26	42.75	8.51	0.096	36.86	0.147	0.122	133	133	2.22	15.3	47.3	3.265	0.064	0.065	0.00137	1.369	1.16
141	11/30/1999	12:07:07 PM	0	24.9	21.028	24.653	23.025	21.307	172.956	51.203	60.602	10.221	42.448	8.664	0.096	36.937	0.147	0.122	134	134	2.23	15.3	46.8	3.228	0.064	0.065	0.00138	1.384	1.18
142	Data - Per 15 Minutes																												
143	11/30/1999	12:38:58 PM	0	29.168	21.303	29.716	23.781	21.743	173.589	17.667	28.467	5.218	13.202	9.927	0.096	24.526	0.104	0.073	1	165.85	2.76	10.2	15.4	1.064	0.045	0.040	0.00258	2.581	2.20
144	11/30/1999	12:53:58 PM	0	31.544	21.375	32.169	24.013	22.297	173.651	17.233	28.406	5.258	12.661	10.297	0.096	24.618	0.117	0.088	2	180.85	3.01	10.2	14.9	1.031	0.051	0.042	0.00281	2.806	2.39
145	11/30/1999	1:08:58 PM	0	33.771	21.545	34.393	23.219	20.857	173.926	17.977	28.588	5.21	13.303	9.743	0.096	24.603	0.102	0.073	3	195.85	3.26	10.2	15.6	1.078	0.045	0.034	0.00220	2.203	1.87
146	11/30/1999	1:23:58 PM	0	35.939	21.581	36.557	23.335	21.637	173.888	17.605	28.345	5.166	13.303	9.65	0.096	24.603	0.107	0.076	4	210.85	3.51	10.2	15.5	1.065	0.047	0.034	0.00221	2.210	1.88
147	11/30/1999	1:38:59 PM	0	35.133	21.725	31.482	23.659	21.922	174.078	18.183	28.588	5.306	13.371	9.465	0.096	24.311	0.095	0.064	5	225.85	3.76	10.1	15.6	1.087	0.041	0.035	0.00220	2.200	1.87
148	11/30/1999	1:53:59 PM	0	26.322	21.734	24.474	23.488	21.69	174.181	53.607	62.005	10.284	44.711	7.154	0.096	36.753	0.171	0.137	6	240.85	4.01	15.3	49.3	3.396	0.075	0.076	0.00154	1.538	1.31
149	11/30/1999	2:09:00 PM	0	25.049	21.903	24.562	23.174	21.376	173.688	51.637	61.395	10.308	42.48	8.726	0.096	36.768	0.138	0.109	7	255.85	4.26	15.3	47.1	3.245	0.060	0.061	0.00130	1.296	1.10
150	11/30/1999	2:24:00 PM	0	25.183	21.957	24.776	23.067	21.429	173.684	52.753	61.517	10.452	43.359	7.77	0.096	36.676	0.133	0.103	8	270.85	4.51	15.2	48.1	3.313	0.058	0.058	0.00122	1.218	1.03
151	Data - Per 5 Minutes																												
152	11/30/1999	2:32:35 PM	1	25.006	21.928	24.753	23.183	21.677	173.621	8.121	61.644	10.173	-1.603	52.619	98.188	36.83	0.011	-0.018	1	279.43	4.66	15.3	3.2	0.218	0.005	0.005	0.00153	1.531	1.30
153	11/30/1999	2:37:35 PM	0	25.051	21.972	24.796	23.227	21.883	173.658	52.692	61.683	10.341	43.545	7.957	0.111	36.584	0.142	0.116	2	284.43	4.74	15.2	48.0	3.311	0.062	0.062	0.00130	1.298	1.10
154	11/30/1999	2:42:35 PM	0	25.095	21.937	24.842	23.352	21.847	173.696	52.506	62.01	10.341	42.858	8.512	0.064	36.446	0.132	0.104	3	289.43	4.82	15.1	47.7	3.288	0.058	0.058	0.00121	1.214	1.03
155	11/30/1999	2:47:35 PM	0	25.14	22.062	24.887	23.397	21.731	173.733	52.63	62.071	10.413	42.554	8.543	0.111	36.538	0.127	0.097	4	294.43	4.91	15.2	47.6	3.281	0.055	0.056	0.00117	1.169	0.99
156	11/30/1999	2:52:36 PM	1	25.184	22.026	25.011	23.622	22.42	173.77	7.687	61.4	10.006	-1.363	52.704	98.234	36.385	0.017	-0.018	5	299.43	4.99	15.1	3.2	0.218	0.007	0.007	0.00235	2.346	2.00
157	11/30/1999	2:57:36 PM	0	25.184	21.946	25.011	23.281	21.656	173.77	53.126	62.071	10.469	43.331	7.865	0.064	36.415	0.134	0.107	6	304.43	5.07	15.1	46.2	3.325	0.058	0.058	0.00121	1.213	1.03
158	11/30/1999	3:02:35 PM	0	25.264	22.107	25.091	23.04	21.293	173.77	62.072	61.644	10.604	42.249	8.604	0.111	36.799	0.125	0.101	7	309.43	5.16	15.3	47.2	3.252	0.055	0.054	0.00115	1.154	0.98
159	11/30/1999	3:07:35 PM	0	25.3	22.062	25.127	22.834	21.248	173.733	61.7	61.4	10.612	42.182	8.789	0.111	36.707	0.124	0.097	8	314.43	5.24	15.2	46.9	3.236	0.054	0.054	0.00115	1.149	0.98
160	11/30/1999	3:12:35 PM	1	25.336	22.017	25.002	22.709	21.264	173.696	7.673	61.522	10.213	-1.499	52.619	98.188	36.723	0.011	-0.018	9	319.43	5.32	15.2	3.2	0.220	0.005	0.005	0.00151	1.507	1.28
161	11/30/1999	3:17:36 PM	0	24.935	22.096	24.441	22.629	20.719	173.696	62.754	61.827	10.445	43.433	8.019	0.111	36.753	0.138	0.11	10	324.43	5.41	15.3	48.1	3.318	0.060	0.061	0.00127	1.273	1.08
162	11/30/1999	3:22:36 PM	0	24.775	22.096	24.441	22.87	21.364	173.696	52.072	61.583	10.397	42.654	8.604	0.111	36.707	0.13	0.101	11	329.43	5.49	15.2	47.3	3.262	0.057	0.058	0.00122	1.219	1.04
163	11/30/1999	3:27:36 PM	0	24.694	22.096	24.441	23.111	21.767	173.696	52.754	61.583	10.437	43.331	8.05	0.064	36.769	0.12	0.094	12	334.43	5.57	15.3	46.0	3.312	0.052	0.053	0.00111	1.108	0.94
164	11/30/1999	3:32:36 PM	1	24.748	21.991	24.416	22.924	18.997	173.471	7.563	61.822	9.83	-1.363	53.228	98.188	36.569	0.011	-0.018	13	339.43	5.66	15.2	3.1	0.214	0.005	0.005	0.00157	1.575	1.34
165	11/30/1999	3:37:36 PM	0	24.739	22.062	24.566	23.078	21.49	173.397	53.188	62.193	10.357	43.669	7.968	0.111	36.477	0.134	0.107	14	344.43	5.74	15.1	48.4	3.339	0.058	0.059	0.00122	1.223	1.04
166	11/30/1999	3:42:36 PM	0	24.784	22.026	24.531	23.201	22.179	173.434	52.382	62.193	10.253	42.926	8.789	0.064	36.016	0.127	0.101	15	349.43	5.82	14.9	47.7	3.286	0.055	0.056	0.00118	1.179	1.00
167	11/30/1999	3:47:36 PM	3	24.792	22.035	24.539	23.21	22.268	173.509	52.692	62.378	10.285	42.926	8.728	0.064	36.231	0.124	0.097	16	354.43	5.91	15.0	47.8	3.296	0.054	0.055	0.00115	1.147	0.98
168	11/30/1999	3:52:36 PM	1	24.926	22.089	24.673	23.504	22.643	173.621	7.501	61.827	9.78	-1.499	53.228	98.141	35.924	0.011	-0.018	17	359.43	5.99	14.9	3.0	0.207	0.005	0.005	0.00161	1.615	1.37
169	11/30/1999	3:57:36 PM	0	24.855	22.098	24.762	23.613	22.652	173.696	53.25	62.071	10.229	43.838	7.968	0.111	35.893	0.127	0.101	18	364.43	6.07	14.9	48.5	3.347	0.055	0.056	0.00115	1.150	0.98
170	11/30/1999	4:02:37 PM	0	24.944	22.107	24.771	23.522	22.178	173.77	52.568	62.01	10.309	43.095	8.635	0.111	36.001	0.122	0.094	19	369.43	6.16	14.9	47.8	3.298	0.053	0.054	0.00112	1.121	0.95

Run 1.08 EnvC Dewater: 2 to 20 wt% insoluble solids

	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	AC
171	11/30/1999	4:07:36 PM	0	25 024	22.107	24 851	23.201	21 858	173.77	62.568	62 315	10.269	43 162	8 668	0 064	35.939	0.119	0 094	20	374 43	6 24	14 9	47 9	3 300	0 052	0 052	0 00109	1 090	0 93
172	11/30/1999	4:12:36 PM	1	25 06	22.142	24 887	22 916	21.87	173.733	7.563	62.132	9 679	-1.634	53 505	98.141	35.766	0 011	-0 018	21	379 43	6 32	14 9	3 0	0 204	0 005	0 005	0 00162	1 625	1 38
173	11/30/1999	4:17:36 PM	0	25 14	22.142	24 967	22 754	21 328	173.733	53 606	62.376	10.477	43 906	7.587	0.111	36 139	0.125	0.097	22	384 43	6 41	15 0	48 9	3 369	0 055	0 055	0 00112	1 116	0 95
174	11/30/1999	4:22:36 PM	0	25.175	22.178	25 002	22.648	21.203	173.696	53 374	62.437	10 648	43 365	8.111	0 111	36.293	0.116	0.091	23	389 43	6 49	15 1	48 4	3 335	0 052	0 052	0 00106	1 065	0 91
175	11/30/1999	4:27:37 PM	0	25 291	22 214	25 196	22 504	21.239	173.658	53 002	61.949	10 572	43.8	8 06	0 111	36 293	0.117	0 091	24	394 43	6 57	15.1	48 3	3 327	0 051	0 051	0 00105	1 053	0 90
176	11/30/1999	4:32:38 PM	1	25 327	22 069	25.154	22.7	21.758	173 621	7.997	62.071	10 078	-1.634	52 951	98.141	36 461	0 012	-0 018	25	399 43	6 66	15 1	3 2	0 219	0 005	0 005	0 00184	1 839	1 40
177	11/30/1999	4:37:38 PM	0	25.371	22.133	25 276	22 825	21.722	173 658	52.382	61.644	10 604	43 162	8 419	0 064	36 416	0.12	0.091	26	404 43	6.74	15 1	47 8	3 294	0 052	0 052	0 00109	1 088	0 93
178	11/30/1999	4:42:37 PM	0	25 496	22.096	25 002	22 951	22.169	173 696	52.258	61.766	10.357	43.196	8 573	0 111	36 246	0 116	0 085	27	409 43	6 82	15 0	47.7	3 291	0 051	0 051	0 00106	1 061	0 90
179	11/30/1999	4:47:37 PM	0	25 14	22.142	24 887	23 078	22 295	173.733	52.63	62 071	10 445	42 959	8 543	0 064	36.365	0.114	0 085	28	414.43	6 91	15 1	47.8	3 295	0 050	0 050	0 00104	1 045	0 86
180	11/30/1999	4:52:37 PM	1	25.149	22.232	24 695	23.165	22.384	173.608	7.749	62.742	9 551	-1.329	53 844	98 141	35 463	0.011	-0 018	29	419 43	6 99	14.7	3 2	0 221	0 005	0 005	0 00150	1 500	1 28
181	11/30/1999	4:57:38 PM	0	25 113	22.196	24 94	23 049	22 429	173 845	53 064	62 254	10 078	44.244	8 265	0.111	35 74	0 124	0 097	30	424.43	7.07	14 8	48 7	3 355	0 054	0 054	0 00111	1 114	0 95
182	11/30/1999	5:02:38 PM	0	25.158	22.16	24.905	23 094	22.474	173.883	62 816	62.496	10 54	42 655	8 604	0 111	36.492	0.119	0 091	31	429 43	7.16	15 1	47 7	3 291	0 052	0 052	0 00109	1 091	0 93
183	11/30/1999	5:07:38 PM	0	25 202	22.205	24 949	23.058	22 358	173.92	52.506	62.071	10 54	42 689	8 635	0.111	36 431	0 117	0 091	32	434 43	7 24	15 1	47 6	3 282	0 051	0 051	0 00107	1 075	0 91
184	11/30/1999	5:12:38 PM	1	25 156	22.16	24 905	22 933	22 071	173 883	7.811	62 071	10.03	-1.363	53 259	96.095	36.165	0 016	-0.018	33	439 43	7 32	15 0	3 2	0 222	0 008	0 008	0 00244	2 444	2 08
185	11/30/1999	5:17:38 PM	0	25 158	22 241	24.965	23.013	22.313	173.883	52.94	62 01	10 612	43 669	8.142	0.111	36 648	0 113	0 085	34	444 43	7.41	15 2	48 3	3 330	0 049	0 049	0 00102	1 022	0 87
186	11/30/1999	5:22:38 PM	0	25 202	22 286	25.11	22.878	22.277	173.92	52.63	62.132	10.8	42 655	8 481	0 064	36 431	0.118	0.091	35	449.43	7.49	15 1	47 8	3 285	0 052	0 051	0 00108	1 078	0 92
187	11/30/1999	5:27:38 PM	0	25 282	22 286	25.11	22 697	22 436	173.92	52 618	62 071	10.556	43.128	8 45	0.111	36 4	0 116	0 091	36	454 43	7.57	15.1	48 0	3 308	0 051	0 050	0 00105	1 052	0 90
188	11/30/1999	5:32:38 PM	1	25.282	22 286	25.11	22.697	22.277	173.92	8 245	62.318	10.141	-1.566	52 858	98 095	36 477	0 015	-0 018	37	459 43	7.66	15.1	3 3	0 230	0 007	0 007	0 00195	1 955	1 66
189	11/30/1999	5:37:39 PM	0	25 318	22 241	25.145	22.772	22.232	173 883	52 692	62.132	10 588	42 824	8 419	0 111	36 554	0.115	0 088	38	464 43	7.74	15 2	47 8	3 289	0 050	0 050	0 00105	1 047	0 89
190	11/30/1999	5:42:39 PM	0	25 354	22.277	25.181	22 727	22 027	173 845	52.878	62.62	10 333	43 23	8 728	0.111	35.832	0.114	0 085	39	469.43	7 82	14 9	48.1	3 313	0 050	0 050	0 00103	1 030	0 88
191	11/30/1999	5:47:38 PM	0	25 434	22 277	25 341	22.727	21.946	173 845	52 568	62.315	10 596	42 959	8 758	0.111	36 4	0 111	0 085	40	474 43	7.91	15 1	47 8	3 293	0 048	0 048	0 00100	1 005	0 86
192	11/30/1999	5:52:38 PM	1	25 549	22 312	25 296	22.602	21.901	173 808	8 059	62.132	10.133	-1.701	52.796	98 049	36 415	0.011	-0 018	41	479 43	7.99	15 1	3 2	0 219	0 005	0 005	0 00150	1 496	1 27
193	11/30/1999	5:57:38 PM	0	25.505	22 268	25 412	22 557	21 937	173.77	53 374	62 318	10.62	43.196	7.926	0.111	36.661	0.118	0.091	42	484.43	8.07	15 2	48 3	3 329	0 052	0 051	0 00105	1 055	0 90
194	11/30/1999	6:02:38 PM	0	25 576	22 259	25 403	22 548	21.606	173.696	53 56	62.496	10 691	43 297	7.957	0.111	36 723	0 112	0 085	43	489 43	8.16	15 2	48 4	3 339	0 049	0 048	0 00100	0 998	0 83
195	11/30/1999	6:07:39 PM	0	25 656	22 259	25 563	22 548	21 847	173.696	53 684	62 62	10.804	43 636	7.968	0.111	36.738	0.11	0.082	44	494.43	8.24	15 2	48 7	3 355	0 048	0 047	0 00097	0 971	0 83
196	11/30/1999	6:12:39 PM	1	25 772	22.294	25 596	22 504	21.803	173.658	8.183	61.827	10 349	-1.499	52.842	98 049	36 648	0.011	-0 015	45	499 43	8 32	15 2	3 3	0 230	0 005	0 005	0 00141	1 413	1 20
197	11/30/1999	6:17:39 PM	0	25 567	22.25	25.154	22.379	21.756	173.621	53.498	62.315	- 10 74	43 6	7 957	0 111	36 738	0.117	0 088	46	504 43	8.41	15 2	48 5	3 344	0 051	0 051	0 00105	1 049	0 89
198	11/30/1999	6:22:39 PM	0	25 398	22.16	25.145	22.37	21.668	173.546	53.498	62.315	10.596	43.703	7.926	0.111	36 415	0.114	0 085	47	509 43	8 49	15 1	48 6	3 351	0 050	0 050	0 00102	1 020	0 87
199	11/30/1999	6:27:39 PM	0	25.434	22.196	25.18	22.245	21.704	173.609	53.25	62 254	10.588	43.23	7.926	0 111	36.554	0.11	0 082	48	514 43	8.57	15 2	48 2	3 329	0 048	0 048	0 00099	0 990	0 84
200	11/30/1999	6:32:39 PM	1	25.369	22.232	25 056	22.2	21.66	173.471	7.935	61.827	10.125	-1.16	52 951	98 095	36 646	0 012	-0 018	49	519 43	8.66	15 2	3 4	0 234	0 005	0 005	0 00154	1 544	1 31
201	11/30/1999	6:37:39 PM	0	25 345	22 187	25 092	22 236	21.454	173.434	53.374	62.315	10 812	42.993	8 05	0 064	36 881	0 122	0 091	50	524.43	8.74	15 3	48 2	3 322	0 053	0 053	0 00110	1 102	0 94
202	11/30/1999	6:42:40 PM	0	25 336	22 096	25 063	22.227	21.767	173.359	52 618	61.583	10.772	43.433	7.968	0.111	36 784	0.116	0 088	51	529 43	8.82	15 3	48.1	3 318	0 051	0 051	0 00105	1 050	0 89
203	11/30/1999	6:47:40 PM	0	25 372	22.215	25.199	22.424	21.803	173.322	53.25	62.071	10.716	43 297	7.957	0.111	36 63	0.113	0 085	52	534.43	8 91	15 2	48.3	3 328	0 049	0 049	0 00102	1 016	0 86
204	11/30/1999	6:52:40 PM	1	25 407	22.17	25.154	22.379	21.759	173.285	7.935	61.688	10.181	-1.735	52.961	96 095	36 554	0.011	-0 018	53	539 43	8 99	15 2	3 1	0 214	0 005	0 005	0 00154	1 542	1 31
205	11/30/1999	6:57:39 PM	0	25.443	22 206	25 27	22.333	21.714	173.248	52 878	62.01	10.918	42.993	8.142	0 064	37.014	0.119	0 088	54	544 43	9 07	15.4	47.9	3 305	0 052	0 052	0 00108	1 076	0 92
206	11/30/1999	7:02:39 PM	0	25.399	22.161	25 306	22.21	21.508	173.21	52.94	61.705	10 867	42.993	7.988	0 111	36 958	0.112	0 082	55	549 43	9 16	15 3	48 0	3 307	0 049	0 048	0 00101	1 011	0 86
207	11/30/1999	7:07:39 PM	0	25 435	22.197	25 261	22.246	21.766	173.173	52 816	61 827	10.907	43 433	7.988	0 064	37.03	0.109	0.079	56	554 43	9 24	15 4	48.1	3 318	0 048	0 047	0 00098	0 982	0 84
208	11/30/1999	7:12:40 PM	1	25 47	22.153	25 297	22.523	21.741	173.136	8.183	61.949	10.357	-1.465	52.796	96 095	36 876	0 012	-0 018	57	559.43	9 32	15 3	3 4	0 232	0 005	0 005	0 00155	1 547	1 32
209	11/30/1999	7:17:40 PM	0	25.542	22 064	25.369	22.454	21.481	173.061	52.618	61.688	10 931	42.926	8.173	0 111	36 999	0.116	0 088	58	564.43	9 41	15 4	47 9	3 301	0 051	0 050	0 00105	1 047	0 89
210	11/30/1999	7:22:40 PM	0	25 622	22.144	25.449	22.273	21.572	173.061	53.56	62.315	10.907	43 5	7.988	0 064	36 677	0.11	0 079	59	569 43	9 49	15 2	48 5	3 348	0 048	0 047	0 00098	0 977	0 83
211	11/30/1999	7:27:40 PM	0	25.614	22 055	25.44	22.104	21.563	172.987	52 94	61.705	10.963	43 602	7.988	0.111	36 769	0.107	0.079	60	574.43	9 57	15 3	48 3	3 328	0 047	0 046	0 00096	0 956	0 81
212	11/30/1999	7:32:40 PM	1	25 694	22.136	25 52	22.184	21.402	172.987	8 431	62.437	10.381	-1.499	52 827	98 095	36 569	0 011	-0 018	61	579 43	9 66	15 2	3 5	0 239	0 005	0 005	0 00137	1 365	1 16
213	11/30/1999	7:37:40 PM	0	25 685	22.127	25 552	22.337	21.232	172.913	53.064	62.01	10.764	43 534	8.142	0.111	36 615	0.112	0 082	62	584.43	9 74	15 2	48 3	3 330	0 049	0 048	0 00100	1 002	0 85
214	11/30/1999	7:42:40 PM	0	25 481	22.083	25.147	22.373	21.269	172 878	54 056	63.048	10.724	43 568	8 019	0.111	36.431	0.107	0 079	63	589 43	9 82	15 1	48 8	3 365	0 047	0 047	0 00095	0 953	0 81
215	11/30/1999	7:47:40 PM	0	25 481	22 083	25 228	22 212	21.349	172 875	53 684	62 62	10 652	43.771	8.019	0 111	36 461	0.106	0 076	64	594 43	9 91	15.1	48.7	3 360	0 046	0 046	0 00094	0 944	0 80
216	11/30/1999	7:52:41 PM	1	25 437	22.119	25.103	22.067	21.224	172 838	8.121	62 559	10.221	-1.499	53 351	96.095	36 508	0 012	-0 018	65	599 43	9 99	15 2	3 3	0 228	0 005	0 005	0 00158	1 578	1 34
217	11/30/1999	7:57:41 PM	0	25.393	22 078	25.139	22.042	21.26	172.801	53.748	63.048	10.7	43.669	8.265	0.111	36 569	0.115	0.085	66	604 43	10 07	15 1	48 7	3 358	0 050	0 050	0 00103	1 027	0 87
218	11/30/1999	8:02:40 PM	0	25 548	22.03	25 095	22.159	21.135	172.764	53.748	62.742	10 636	43 351	8 08	0.111	36 415	0 109	0 079	67	609.43	10.16	15.1	48 5	3 347	0 048	0 047	0 00096	0 976	0 83
219	11/30/1999	8:07:40 PM	0	25 548	22.111	25.176	22.32	21.155	172.764	53.56	62.378	10.706	43.94	8 05	0.111	36.431	0.107	0.076	68	614.43	10 24	15 1	48 6	3 361	0 047	0 046	0 00095	0 953	0 81
220	11/30/1999	8:12:40 PM	1	25.304	21.966	25.151	22 356	21.494	172.727	8.121	62 378	10.173	-1.025	53.351	96 095	36 63	0 011	-0 018	69	619 43	10.32	15.2	3 5	0 245	0 005	0 005	0 00135	1 348	1 15
221	11/30/1999	8:17:40 PM	0	25 384	22.066	25 211	22.195	21.494	172.727	53.064	62.132	10.684	43.805	8.234	0 111	36 539	0.111	0 082	70	624 43	10 41	15 1	48.4	3 339	0 048	0 048	0 00099	0 995	0 85
222	11/30/1999	8:22:41 PM	0	25.384	22.066	25 211	22.119	21.494	172.727	53.002	61.886	10.7	43 668	8.05	0.111	36.539	0.105	0 076	71	629 43	10 49	15 1	48 3	3 329	0 046	0 046	0 00094	0 944	0 80
223	11/30/1999	8:27:41 PM	0	25.42	22.022	25.247	21.909	21.207	172.69	53.56	62.316	10 86	43.709	8 05	0 064	36 248	0.102	0.073	72	634.43	10.57	15 0	48 6	3 353	0 045	0 044	0 00091	0 909	0 77
224	11/30/1999	8:32:41 PM	1	25.42	22 022	25 327	22.07	21.369	172.69	8 243	62.437	10.348	-1.532	53 074	96.095	36 508	0 011	-0 018	73	639.43	10 66	15 2	3 4	0 231	0 005	0 005	0 00142	1 418	1 21
225	11/30/1999	8:37:41 PM	0	25.456	21 897	25.285	22.267	21.455	172.653	53.496	62.742	10 885	43.399	8.234	0.111	36.554	0.11	0.082	74	644.43	10 74	15 2	48.4	3 340	0 048	0 048	0 00098	0 983	0 84
226	11/30/1999	8:42:41 PM	0	25 536	21 978	25 365	22 348	21.002	172.653	53.56	62.559	10.007	43.872	8 111	0.111	36 492	0.103	0.076	75	649 43	10.82	15 1	48 7	3 359	0 045	0 045	0 00091	0 914	0 78
227	11/30/1999	8:47:41 PM	0	25.573	21.833	25.399	22 062	21.119	172.615	53.574	62.437	10 644	43.602	8 08	0 111	36.293	0.101	0 07	76	654.43	10 91	15.1	48 5	3 343	0 044	0 044	0 00090	0 899	0 77
228	11/30/1999	8:52:41 PM	1	25 606	21.969	25.515	21.937	20.915	172.578	8.359	62.496	10.455	-1.397	53.135	96 095	36.707	0 011	-0 015	77	659 43	10 99	15 2	3 5	0 240	0 005	0 005	0 00136	1 358	1 16
229	11/30/1999	8:57:42 PM	0	25 688	21.969	25 595	21.857	20.832	172.578	53.25	62.62	11.018	43 061	8.45	0.111	36 554	0.104	0.076	78	664 43	11.07	15 2	48 2	3 320	0 045	0 045	0 00093	0 927	0 79
230	11/30/1999	9:02:42 PM	0	25.604	21.925	25.631	22.215	20.707	172.541	53.188	62.315	10.971	43.182	8.265	0.111	36 6	0.1	0 07	79	669 43	11.16	15 2	48 2	3 321	0 044	0 043	0 00089	0 890	0 76
231	11/30/1999	9:07:41 PM	0	25 64	21.881	25.667	22.332	20 421	172.504	53.496	62.62	11.078	43.297	8.173	0.111	36 63	0 097	0 07	80	674.43	11.24	15.2	48 4	3 337	0 042	0 042	0 00086	0 859	0 73
232	11/30/1999	9:12:41 PM	1	25 676	21.917	25.482	22.368	20.538	172.467	8.183	61.949	10 341	-1.532	52.827	96.095	36.707	0 011	-0 018	81	679.43	11.32	15 2	3 3	0 229	0 005	0 005	0 00143	1 425	1 21
233	11/30/1999	9:17:41 PM	0	25.752	21.953	25.416	22.585	20 697	172.43	53.496	62 925	10 828	42.78	8 481	0 064	36 63	0.111	0 082	82	684.43	11.41	15 3	48.1	3 317	0 048	0 048	0 00100	0 995	0 85
234	11/30/1999	9:22:41 PM	0	25 664	21 865	25.41	22.657	20.727	172.356	53.25	62.742	10.628	42.959	8.389	0 111	36 569	0.106	0 079	83	689 43	11.49	15 1	48 1	3 317	0 046	0 046	0 00095	0 951	0 81
235	11/30/1999	9:27:42 PM	0	25.584	21.845	25.33	22.718	20.859	172.356	53.496	62.742	10.764	43.534	8.299	0.111	36 431	0.103	0 073	84	694.43	11 57	15 1	48 5	3 343	0 045	0 045	0 00092	0 919	0 78
236	11/30/1999	9:32:42 PM	1	25.62	21.901	25.366	22.634	20 844	172.319	8.121	62.132	10.253	-1.397	53 043	96 095	36.323	0 026	-0 018	85	699 43	11.66	15.1	3 4	0 232	0 012	0 012	0 00360	3 596	3 06
237	11/30/1999	9:37:42 PM	0	25 54	21.961	25.266	22.634	21.247	172.319	64.118	62 62	10 628	44.378	7.618	0.111	36.047	0.107	0.079	86	704.43	11.74	15 0	49 2	3 396	0 047	0 046	0 00094	0 941	0 80
238	11/30/1999	9:42:42 PM	0	25.54	21.961	25.266	22.754	21.247	172.319	53.932	62.437	10.724	44.278	7.667	0.111	36.569	0.103	0.076	87	709.43	11.82	15.1	49 1	3 386	0 045	0 045	0 00091	0 908	0 77
239	11/30/1999	9:47:42 PM	0	25 54	21.961	25 366	22.915	21.005	172.319	64.118	62 803	10 772	44 041	7.618	0 111	36 523	0 099	0 073	88	714 43	11.91	15 1	49.1	3 384	0 043	0 043	0 00087	0 872	0 74
240	11/30/1999	9:52:42 PM	1	25.54	21.961	25 366	22.995	21.167	172.319	7.997	62 376	10.07	-1.296	53 382	96 095	36 077	0 018	-0 018	89	719.43	11.99	15 0	3 4	0 231	0 008	0 008	0 00232	2 321	1 96
241	11/30/1999	9:57:42 PM	0	25 48	21.981	25.286	22.815	21.086	172.319	53.684	62.193	10 86	43.636	7.772	0.111	36 339	0 104	0 076	90	724.43	12 07	15 1	48 7	3 355	0 045	0 045	0 00093	0 926	0 79
242	11/30/1999	10:02:43 PM	0	25 54	21.961	25.366	23.075	21.167	172.319	53.932	62 62	10 804	43.94	7.741	0 111	36 308	0.101	0.073	91	729 43	12.16	15 1	48 9	3 374	0 044	0 044	0 00089	0 892	0 76
243	11/30/1999	10:07:43 PM	0	25.604	22.026	25.41	23.039	21.292	172.356	53.932	62 62	10 844	44.143	7.711	0.111	36 323	0 099	0 07	92	734.43	12.24	15 1	49 0	3 381	0 043	0 043	0 00087	0 871	0 74
244	11/30/1999	10:12:43 PM	1	25.584	22 026	25.41	23.12	21.453	172.356	8.307	63.107	10.237	-1.465	53.474	96.049	36 062	0 018	-0 018	93	739.43	12.32	15 0	3.4	0 236	0 008	0 008	0 00227	2 271	1 93
245	11/30/1999	10:17:43 PM	0	25 584	22.026	25.49	23.12	21.453	172.356	53.908	62.437	10.995	43.669	7.834	0.111	36 2	0 102	0 073	94	744.43	12.41	15 0	48 7	3 360	0 045	0 044	0 00090	0 901	0 77
246	11/30/1999	10:22:42 PM	0	25.706	22.07	25 634	23.184	21.255	172.393	53.932	62.559	10.852	44.109	7.803	0 111	36.216	0.096	0 07	95	749 43	12.49	15 0	49 0	3 380	0 043	0 042	0 00086	0 860	0 73
247	11/30/1999	10:27:42 PM	0	25 664	22 026	25 57	23.2	20 689	172.356	54 49	63.168	10 899	44.109	7.772	0 111	36.2	0.095	0.067	96	754 43	12.57	15 0	49 3	3 399	0 041	0 041	0 00083	0 828	0 70
248	11/30/1999	10:32:42 PM	1	25.7	21.981	25.446	23.156	21.066	172.319	8.431	62.925	10.245	-1.329	53.567	96.049	36 231	0 013	-0 018	97	759.43	12.66	15 0	3 6	0 245	0 008	0 008	0 00158	1 578	1 34
249	11/30/1999	10:37:43 PM	0	25 664	22.106	25 41	23.26	21 05	172.356	53.684	62.376	10 5	44.616	7.834	0.111	35 816	0 105	0 076	98	764 43	12 74	14 9	49 2	3 369	0 046	0 045	0 00092	0 922	0 78
250	11/30/1999	10:42:43 PM	0	25.584	22.106	25.33	23.28	20 606	172.356	54 056	62 681	10.359	44 684	7.803	0.111	35 601	0 1	0 07	99	769 43	12.82	14 8	49 4	3 404	0 044	0 043	0 00088	0 878	0 75
251	11/30/1999	10:47:43 PM	0	25.504	22.106	25.25	23.28	20 969	172.356	53.932	62 559	10 381	44 684	7.772	0 111	35 494	0.097	0 07	100	774 43	12.91	14 7	49 3	3 400	0 042	0 042	0 00085	0 853	0 73
252	11/30/1999	10:52:43 PM	1	25.504	22.026	25.17	23.361	20 889	172.356	8.245	63.29	10 03	-1 532	53.906	96 049	35.709	0 018	-0 018	101	779.43	12 99	14 8	3 4	0 231	0 008	0 008	0 00233	2 330	1 96
253	11/30/1999	10:57:43 PM	0	25.424	22 026	25.17	23.361	21.05	172.356	54.242	63.107	10.572	44.954	7.803	0.111	35.525	0.101	0.073	102	784 43	13 07	14 7	49 6	3 420	0 044	0 044	0 00088	0 885	0 75
254	11/30/1999	11:02:43 PM	0	25 424	22.026	25.17	23.361	21 05	172.356	54 056	62.559	10.516	44.515	7.803	0 111	35.509	0.095	0 067	103	789 43	13.16	14 7	49 3	3 398	0 041	0 041	0 00084	0 837	0 71
255	11/30/1999	11:07:43 PM	0	25 424	22 026	25 17	23.441	21.292	172.356	53 622	62 254	11.218	43 264	7.772	0 111	37 045	0 093	0 067	104	794 43	13 24	15 4	48 4	3 340	0 041	0 040	0 00083	0 834	0 71

Run 1.08 EnvC Dewater: 2 to 20 wt% insoluble solids

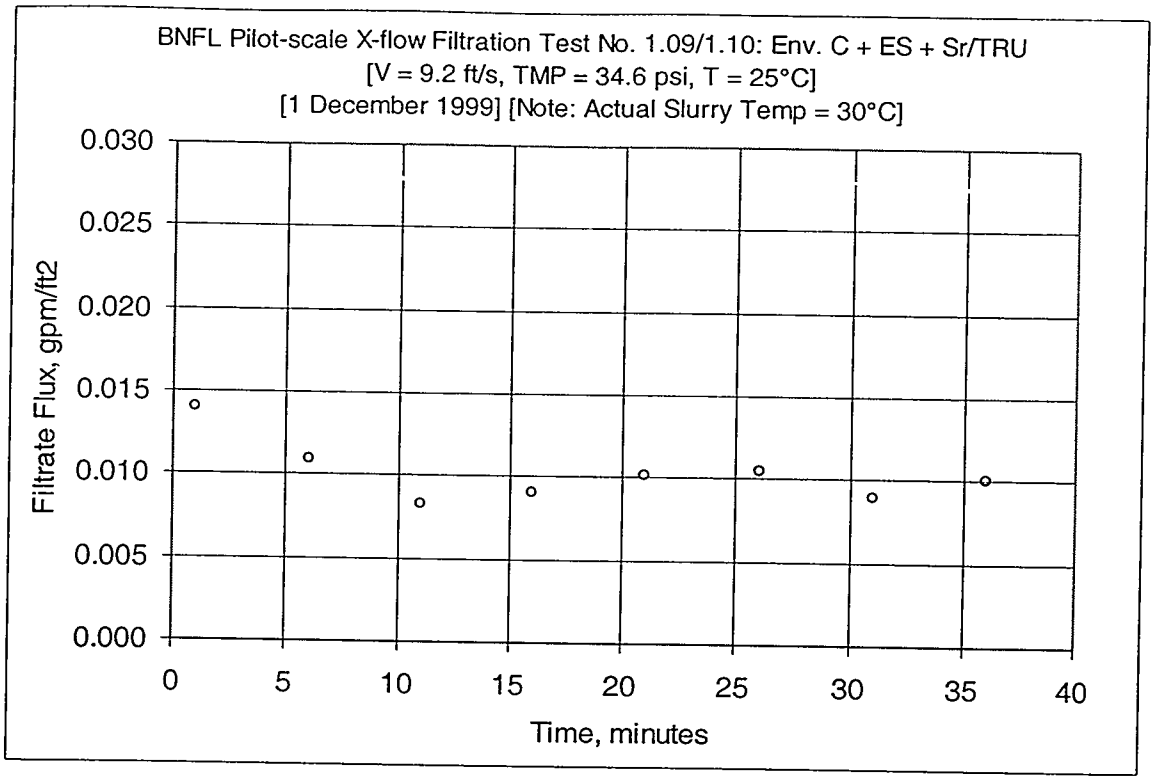
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
256	11/30/1999	11:12:43 PM	1	25 424	22 026	25.17	23.441	21.13	172.358	8 059	62 62	10.181	-1.431	53.783	98 095	35 97	0 014	-0 015	105	799 43	13.32	14 9	3.3	0.228	0 006	0 006	0 00184	1 635	1 56
257	11/30/1999	11:17:44 PM	0	25 424	22 026	25.17	23.441	20 889	172 358	53 622	62.559	10.7	44.278	8.142	0.111	35.883	0 099	0 07	106	804 43	13 41	14.9	49 0	3.375	0 043	0 043	0 00088	0 879	0 75
258	11/30/1999	11:22:43 PM	0	25.3	21 961	25.126	23.397	20 844	172.319	54.242	63.29	10 688	44.244	8.111	0.111	35.555	0 094	0 067	107	809 43	13 49	14 8	49 2	3.395	0 041	0 041	0 00083	0 830	0 71
259	11/30/1999	11:27:43 PM	0	25 418	22 018	25.242	23.353	20 8	172.262	54 058	62.925	10.724	44.244	8 08	0.111	35.74	0 092	0 064	108	814 43	13 57	14 8	49 2	3.389	0 040	0 040	0 00081	0 812	0 69
260	11/30/1999	11:32:43 PM	1	25 432	22 054	25.196	23.309	20.997	172.243	7.935	62.925	10.11	-1 688	54.122	98 049	35 617	0 011	-0 018	109	819 43	13 66	14.8	3 1	0 216	0 005	0 005	0 00152	1.524	1.30
261	11/30/1999	11:37:43 PM	0	25.432	22 054	25.196	23.389	20.594	172.243	53.994	62 864	10 445	44.244	7.957	0.111	35.617	0.101	0 073	110	824 43	13 74	14 8	49 1	3 367	0 044	0 044	0 00089	0 893	0 76
262	11/30/1999	11:42:44 PM	0	25 408	22 01	25.234	23.264	20 469	172.208	53.932	62 864	10 596	44.312	7.926	0.111	35 632	0 097	0 07	111	829 43	13 82	14 9	49 1	3.387	0 042	0 042	0 00086	0 856	0 73
263	11/30/1999	11:47:44 PM	0	25.364	22 048	25.19	23.301	20.748	172.171	54.242	63.168	10 804	44 481	7.926	0.111	35 678	0 095	0 07	112	834 43	13.91	14 8	49 4	3 403	0 041	0 041	0 00084	0 836	0 71
264	11/30/1999	11:52:44 PM	1	25.4	22 002	25.148	23.257	20.381	172.134	8.183	62.925	10 084	-1.566	53.639	98 095	35 801	0 017	-0 018	113	839 43	13.99	14 9	3.3	0 228	0 007	0 007	0 00223	2 234	1.90
265	11/30/1999	11:57:44 PM	0	25.356	21.958	25.102	23.293	20 578	172.097	54.304	63.168	10.718	44.413	7.926	0.111	35 801	0 1	0 07	114	844 43	14 07	14 9	49 4	3 403	0 044	0 044	0 00088	0 882	0 75
266	12/1/1999	12:02:44 AM	0	25.356	21.877	25.102	23.293	20.578	172.097	54.118	62.742	10 62	44 684	7.895	0.111	35 647	0 096	0 067	115	849.43	14.16	14 8	49 4	3.406	0 042	0 042	0 00085	0 846	0 72
267	12/1/1999	12:07:44 AM	0	25.356	21.958	25.182	23.293	20.74	172.097	54.118	62.803	10 644	44 447	7.895	0.111	35.571	0 093	0 067	116	854.43	14.24	14 8	49.3	3 398	0 041	0 040	0 00082	0 820	0.70
268	12/1/1999	12:12:44 AM	1	25.392	21.913	25.158	23.329	20 937	172.06	7.749	62.496	10.094	-1.597	53.937	98.095	35 601	0 011	-0.018	117	859 43	14 32	14 8	3 2	0 219	0 005	0 005	0 00151	1.506	1 28
269	12/1/1999	12:17:45 AM	0	25 472	21.994	25.218	23.329	20.373	172 06	54.18	63.048	10 628	44.176	7.968	0.157	35 463	0 097	0 067	118	864 43	14.41	14.7	49 2	3.391	0 042	0 042	0 00086	0 856	0 73
270	12/1/1999	12:22:45 AM	0	25.429	21.95	25.255	23.365	20.732	172.023	54 49	63.229	10 644	44.481	7.957	0.111	35.371	0 093	0 064	119	869 43	14 49	14.7	49 5	3 412	0 041	0 040	0 00081	0 815	0 69
271	12/1/1999	12:27:45 AM	0	25.365	21.906	25.291	23.321	20 849	171.966	54 49	63.412	10 68	44.512	7.957	0.157	35 432	0 09	0 064	120	874 43	14 57	14 7	49 4	3.406	0 039	0 039	0 00079	0 789	0 67
272	12/1/1999	12:32:45 AM	1	25.545	21.91	25.291	23.241	19 88	171.966	8 059	62 864	10.066	-1.296	53.752	98 095	35.478	0 011	-0 018	121	879 43	14.66	14.7	3 4	0 233	0 005	0 005	0 00141	1.408	1 20
273	12/1/1999	12:37:45 AM	0	25.501	21.942	25 407	23.277	20 078	171.949	54 8	63.717	10.788	44.819	7.957	0.157	35 432	0 094	0 067	122	884.43	14 74	14.7	49 8	3 434	0 041	0 041	0 00081	0 814	0 69
274	12/1/1999	12:42:45 AM	0	25 617	21 896	25.443	23.233	20.357	171.912	54.738	63.656	10.788	44 21	7.926	0.111	35.494	0 09	0 061	123	889 43	14.82	14.7	49 5	3 411	0 039	0 039	0 00078	0 784	0 67
275	12/1/1999	12:47:46 AM	0	25 653	21.854	25 479	23.269	20.393	171.875	53 994	62.681	10 756	44.447	7.926	0.111	35 402	0 089	0 061	124	894.43	14 91	14.7	49 2	3 394	0 039	0 038	0 00078	0 779	0 66
276	12/1/1999	12:52:46 AM	1	25.733	21.854	25 556	23.269	20.315	171.875	8.113	62.496	11.178	-1.597	52.334	98 095	37.521	0 011	-0 018	125	899 43	14 99	15 6	3 9	0 268	0 005	0 005	0 00123	1.225	1 04
277	12/1/1999	12:57:46 AM	0	25.77	21 81	25 595	23.225	20 026	171.838	53.87	62.985	11.49	42.79	8.142	0.111	36.907	0 097	0 07	126	904.43	15 07	15 3	48.3	3 332	0 042	0 042	0 00088	0 862	0 73
278	12/1/1999	1:02:46 AM	0	25 83	21.81	25 755	23.225	20.349	171.838	54 056	63.048	11.482	43 264	8.173	0.111	36 615	0 092	0 064	127	909.43	15.16	15 3	48 7	3 355	0 040	0 039	0 00081	0 808	0 69
279	12/1/1999	1:07:46 AM	0	26 01	21 81	25 915	23 225	20.349	171.838	54 056	63.168	11.474	43.264	8.142	0.111	36.922	0 09	0 064	128	914 43	15.24	15.3	48 7	3 355	0 039	0 038	0 00079	0 787	0 67
280	12/1/1999	1:12:46 AM	1	26.126	21.846	25.852	23.101	20 063	171.801	8.741	62 496	11.043	-1.566	52.673	98 095	37.137	0 011	-0 018	129	919 43	15 32	15 4	3.6	0 247	0 005	0 005	0 00130	1 303	1.11
281	12/1/1999	1:17:46 AM	0	26 062	21.721	26 068	23 057	20.341	171.764	52.94	62.985	11.482	42.249	9.19	0.111	36 523	0.092	0 064	130	924 43	15 41	15.2	47.6	3 281	0 040	0 039	0 00082	0 819	0.70
282	12/1/1999	1:22:47 AM	0	26.196	21.758	26 184	23.013	20 055	171.727	52 818	62.803	11.378	42.585	9 097	0.111	36.508	0 09	0 061	131	929 43	15.49	15.2	47 6	3 282	0 039	0 038	0 00080	0 798	0 68
283	12/1/1999	1:27:47 AM	0	26.314	21.714	26 3	23.049	19 849	171.691	53.25	63.107	11.33	42 655	9 036	0.111	36.277	0 088	0 061	132	934 43	15 57	15.1	48 0	3 306	0 038	0 037	0 00077	0 772	0 66
284	12/1/1999	1:32:47 AM	1	26 554	21.714	26 46	23.049	19 849	171.691	8 969	63.229	10 699	-1.668	53 259	98 095	36 477	0 012	-0 018	133	939.43	15 66	15.1	3.7	0 252	0 005	0 005	0 00137	1.374	1.17
285	12/1/1999	1:37:48 AM	0	26.59	21.67	26.496	23 066	19 805	171.654	53.002	63 29	11.434	42.52	9 406	0.157	36.293	0 089	0 058	134	944 43	15.74	15.1	47.8	3 293	0 039	0 037	0 00078	0 780	0 66
286	12/1/1999	1:42:48 AM	0	26.707	21.625	26.692	22.961	19 642	171.617	52 578	62.963	11.554	42 418	9 282	0.111	36 508	0 086	0 058	135	949 43	15 82	15 2	47.6	3 285	0 038	0 036	0 00075	0 751	0 64
287	12/1/1999	1:47:48 AM	0	26 856	21.625	26 932	23.042	19.741	171.617	53.25	63.29	11.578	42.554	9.19	0.111	36 481	0 085	0 055	136	954.43	15 91	15.1	47.9	3 303	0 037	0 035	0 00073	0 734	0 62
288	12/1/1999	1:52:47 AM	1	27.142	21.581	27.127	22.996	19 678	171.58	8.741	62.925	10 891	-1.397	53.168	98 095	36.446	0 011	-0 018	137	959.43	15 99	15.1	3 7	0 253	0 005	0 005	0 00123	1 232	1.05
289	12/1/1999	1:57:47 AM	0	27.302	21.581	27.367	22.996	19 678	171.58	53.126	63.412	11.625	42 585	9 498	0.157	36.477	0 086	0 058	138	964 43	16 07	15.1	47 8	3 293	0 038	0 035	0 00074	0 736	0 63
290	12/1/1999	2:02:47 AM	0	27.496	21.537	27.563	23.034	19.753	171.543	52.94	63.107	11.53	42.249	9 456	0.111	36 323	0 085	0 055	139	969 43	16.16	15.1	47.6	3 281	0 037	0 035	0 00073	0 726	0 62
291	12/1/1999	2:07:47 AM	0	27.338	21.537	26 924	22.954	19 634	171.543	52.878	63 29	11.123	42 249	9.467	0.111	36.738	0.085	0 058	140	974.43	16 24	15 2	47.6	3 279	0 037	0 035	0 00074	0 739	0 63
292	12/1/1999	2:12:47 AM	1	27.055	21.493	26.721	22.91	19 79	171.506	8.183	62 071	10.492	-1.668	53 012	98 095	36 618	0 012	-0 018	141	979.43	16 32	15 2	3 3	0 225	0 005	0 005	0 00153	1.532	1.30
293	12/1/1999	2:17:47 AM	0	26 978	21.493	26 641	22.91	19.626	171.506	52.258	62.496	11.003	42.52	9.315	0.111	36.677	0,1	0.073	142	984 43	16 41	15 2	47.4	3 267	0 044	0 042	0 00088	0 860	0.75
294	12/1/1999	2:22:47 AM	0	26 851	21.449	26 517	22.866	19 503	171.469	52.506	62.62	11.067	42.585	9.19	0.111	36 753	0.096	0 067	143	989 43	16 49	15.3	47.4	3 271	0 042	0 040	0 00085	0 847	0 72
295	12/1/1999	2:27:48 AM	0	26.692	21.449	26 517	22.866	19 584	171.469	52.382	62 254	11.033	42.365	9.19	0.111	36 661	0.095	0 067	144	994.43	16.57	15.2	47.4	3 267	0 041	0 040	0 00084	0 839	0 71
296	12/1/1999	2:32:48 AM	1	26 648	21.405	26.393	22 822	19 459	171.432	8 493	62.437	10 628	-1.532	53 043	98.095	36.753	0 011	-0 018	145	999 43	16 66	15 3	3.5	0 240	0 005	0 005	0 00133	1.327	1.15
297	12/1/1999	2:37:48 AM	0	26 624	21.442	26.35	22.778	19 577	171.396	52.818	62.864	11.354	42.182	9 251	0.111	37.122	0.097	0 067	146	1004.43	16 74	15 4	47.5	3 275	0 042	0 041	0 00086	0 858	0.73
298	12/1/1999	2:42:47 AM	0	26 481	21.396	26.226	22.734	19.128	171.359	52.444	62 496	11.274	-42.148	9 221	0.111	36.838	0 093	0 064	147	1009.43	16 82	15.3	47 3	3 261	0 041	0 039	0 00083	0 829	0.71
299	12/1/1999	2:47:47 AM	0	26.481	21.396	26.306	22 814	19.29	171.359	52.692	62.803	11.25	42.08	9.159	0.111	36.723	0 092	0.064	148	1014.43	16.91	15 2	47.4	3 267	0 040	0 039	0 00082	0 817	0 70
300	12/1/1999	2:52:47 AM	1	26.437	21.354	26.182	22.69	19 003	171.322	8.555	62.559	10 804	-1.262	53.043	98 095	36 878	0.011	-0 018	149	1019.43	16.99	15 3	3 6	0 251	0 005	0 005	0 00127	1.274	1.08
301	12/1/1999	2:57:48 AM	0	26 393	21.31	26 059	22.726	19 363	171.285	52.32	62 681	11.33	41.675	9 56	0.111	36.738	0 094	0 064	150	1024 43	17.07	15 2	47 0	3 240	0 041	0 040	0 00085	0 846	0 72
302	12/1/1999	3:02:48 AM	0	26.269	21.266	26 018	22 683	19 236	171.248	52.382	62 681	11.394	41.979	9 498	0.111	36.676	0.09	0 061	151	1029.43	17.16	15 3	47.2	3 253	0 039	0 038	0 00081	0 809	0 69
303	12/1/1999	3:07:48 AM	0	26.189	21.266	25 935	22.663	19.157	171.248	52.196	62 496	11.905	40 965	9 467	0.111	37.736	0 088	0 061	152	1034 43	17.24	15.7	46 6	3 212	0 038	0 037	0 00080	0 803	0.68
304	12/1/1999	3:12:48 AM	1	26 066	21.222	25 891	22 639	18.951	171.211	9.237	62.254	11.37	-1.532	52.18	98 095	37.875	0 016	-0 018	153	1039 43	17.32	15 7	3 9	0 266	0 007	0 007	0 00177	1.768	1 50
305	12/1/1999	3:17:48 AM	0	26.146	21.222	25 891	22.639	19 032	171.211	51.638	62.437	11.889	40.796	9.745	0.111	37.762	0 094	0 064	154	1044.43	17.41	15.7	46 2	3 187	0 041	0 040	0 00087	0 866	0 74
306	12/1/1999	3:22:48 AM	0	26.102	21.178	25 847	22.595	19.231	171.175	52.32	62.742	11.745	41.269	9.714	0.111	37.322	0 09	0 061	155	1049.43	17.49	15 5	46 6	3 226	0 039	0 038	0 00082	0 820	0.70
307	12/1/1999	3:27:48 AM	0	26.102	21.178	25.927	22.595	19 069	171.175	52.01	62 62	11.649	41 235	9 683	0.111	37.137	0 088	0 058	156	1054.43	17.57	15 4	46 6	3 214	0 038	0 037	0 00080	0 803	0 68
308	12/1/1999	3:32:48 AM	1	26 058	21.134	25 884	22.551	18 782	171.138	9 361	63.168	11.298	-1.566	52.735	98.141	37.583	0 016	-0 018	157	1059 43	17.66	15 5	3 9	0 269	0 007	0 007	0 00175	1.748	1.49
309	12/1/1999	3:37:48 AM	0	26 095	21.09	25 62	22 507	19.143	171.101	52.382	62.965	11.961	41.506	9 806	0.111	37.429	0 089	0 061	158	1064 43	17.74	15 5	48 9	3 237	0 039	0 038	0 00081	0 807	0 69
310	12/1/1999	3:42:48 AM	0	26.175	21.09	26	22.426	18.9	171.101	51.638	62.193	11.769	40 999	9 745	0.111	37.214	0.088	0 059	159	1069 43	17.82	15 4	46 3	3 193	0 038	0 037	0 00079	0 788	0 67
311	12/1/1999	3:47:48 AM	0	26.131	21.046	26.036	22.463	18 837	171.064	52.382	62.925	11.857	41.708	9.714	0.111	37.183	0.088	0 058	160	1074.43	17.91	15 4	47.0	3 244	0 038	0 036	0 00078	0.775	0 66
312	12/1/1999	3:52:48 AM	1	26.211	21.046	26.196	22.463	19 018	171.064	9.299	63.046	11.426	-1.634	52.766	98.141	37.229	0 011	-0 018	161	1079 43	17.99	15 5	3 8	0 264	0 005	0 005	0 00121	1 212	1 03
313	12/1/1999	3:57:48 AM	0	26.291	20 965	26 276	22.463	19 016	171.064	52 878	63.412	11.841	41.539	9.714	0.111	36 845	0.085	0 055	162	1084.43	18.07	15 3	47 2	3 255	0 037	0 036	0 00076	0 758	0 65
314	12/1/1999	4:02:48 AM	0	26.487	21 002	26.473	22 419	18.731	171.027	52.506	62.803	11.689	41.573	9 683	0.111	36.753	0.083	0 052	163	1089.43	18.16	15 3	47.0	3 243	0 036	0 035	0 00074	0 739	0 63
315	12/1/1999	4:07:48 AM	0	26.647	21.002	26.712	22.419	18.973	171.027	52.754	63.168	11.721	41.776	9 652	0.111	36 692	0 081	0 052	164	1094.43	18 24	15 2	47.3	3 259	0 035	0 034	0 00071	0 713	0 61
316	12/1/1999	4:12:49 AM	1	26.887	21.002	26 952	22.5	18.812	171.027	8.927	63 29	11.058	-1.262	53 474	98.141	36 6	0 015	-0 018	165	1099.43	18.32	15 2	3 6	0 264	0 007	0 006	0 00162	1 618	1.38
317	12/1/1998	4:17:49 AM	0	27.003	20 958	27.148	22.375	18.687	170.991	52.258	62 864	11.649	41.945	9 868	0.111	36.293	0 083	0 052	166	1104.43	18.41	15.1	47.1	3 247	0 036	0 034	0 00072	0 724	0 62
318	12/1/1998	4:22:49 AM	0	27.323	20 877	27.467	22.375	18 606	170.991	53 002	63.656	11.633	42.585	9 806	0.111	36 246	0 081	0 052	167	1109.43	18.49	15 0	47.7	3 288	0 035	0 033	0 00069	0 692	0 59
319	12/1/1998	4:27:49 AM	0	27.599	20 833	27.623	22.331	18 585	170.954	52.754	63.473	11.833	41.472	9.775	0.111	36 536	0 079	0 043	168	1114.43	18.57	15 2	47.1	3 248	0 034	0 032	0 00068	0 677	0 58
320	12/1/1998	4:32:49 AM	1	27.918	20 833	27.982	22.331	18 885	170 954	9.113	63.29	11.219	-1.634	53.382	98 095	36 63	0 018	-0 018	169	1119.43	18 66	15 2	3 7	0 258	0 008	0 007	0 00193	1 934	1.65
321	12/1/1998	4:37:49 AM	0	28 034	20 789	28.258	22.368	18.76	170.917	52.878	63.656	11.921	41.673	10 053	0.111	36 508	0 08	0 052	170	1124.43	18.74	15 2	47.2	3 256	0 035	0 032	0 00068	0 675	0 57
322	12/1/1998	4:42:49 AM	0	28.31	20.745	28.373	22.244	18 716	170.88	52 878	63.717	11.905	42.148	9.991	0.111	36 6	0 078	0 049	171	1129.43	18 82	15 2	47.5	3 276	0 034	0 031	0 00066	0 661	0 56
323	12/1/1998	4:47:49 AM	0	28 549	20.745	28 772	22.244	18 797	170.88	52.818	63 656	11.913	41.844	9.96	0.111	36 538	0 078	0 049	172	1134.43	18.91	15.2	47.3	3 263	0 034	0 031	0 00065	0 646	0 55
324	12/1/1998	4:52:49 AM	1	28 947	20.745	29.17	22.244	18.392	170.88	9 237	63 639	11.266	-1.431	53.721	98.141	36.707	0.016	-0 018	173	1139 43	18 99	15 2	3 9	0 269	0 007	0 006	0 00159	1.594	1.36
325	12/1/1998	4:57:49 AM	0	29.223	20.701	29 524	22.26	18.591	170 844	53.436	64.449	12.12	41.911	10.114	0.111	36.461	0 077	0 049	174	1144 43	19 07	15.1	47.7	3 267	0 034	0 030	0 00062	0 622	0 53
326	12/1/1998	5:02:49 AM	0	29 577	20.738	29 878	22.156	18 647	170 807	53 664	64 632	12.176	41.945	10 022	0 111	36 6	0 077	0 046	175	1149 43	19 16	15 2	47 8	3 297	0 034	0 029	0 00061	0 614	0 52
327	12/1/1998	5:07:49 AM	0	29 875	20 657	30.356	22.156	18 626	170 807	53 064	63.9	12.16	41.911	10 053	0.111	36 6	0.075	0 043	176	1154.43	19 24	15.2	47 5	3 274	0 033	0 028	0 00059	0 595	0 51
328	12/1/1998	5:12:50 AM	1	30 452	20 657	30 753	22.156	18 647	170.807	9 547	64.205	11.418	-1.668	53 628	98.141	36 707	0 014	-0 018	177	1159 43	19 32	15 2	3 9	0 272	0 006	0 005	0 00132	1.323	1.13
329	12/1/1998	5:17:50 AM	0	30 849	20 657	31.229	22.236	18 466	170 807	53.374	64.527	12.272	41.607	10.176	0 064	36.707	0 076	0 043	178	1164.43	19 41	15 2	47.5	3 274	0 033	0 028	0 00059	0 586	0 50
330	12/1/1998	5:22:50 AM	0	31.203	20 613	31.563	22.192	18 965	170.77	53.002	63.981	12.296	41.979	10.114	0.111	36 692	0 072	0 043	179	1169 43	19 49	15 2	47.5	3 274	0 031	0 026	0 00055	0 552	0 47
331	12/1/1998	5:27:50 AM	0	30.329	20 532	29.199	22.192	18.907	170.77	52.754	63 595	11 657	42 047	9 96	0.111	36 477	0 068	0 04	180	1174.43	19 57	15 1	47.4	3 268	0 030	0 026	0 00056	0 557	0 47
332	12/1/1998	5:32:50 AM	1	29 454	20 532	28 642	22.112	18.584	170.77	8 555	62 965	10 676	-1.363	53 596	98.141	36.323	0 017	-0 018	181	1179 43	19 66	15.1	3 6	0 249	0 007	0 007	0 00186	1.865	1.59
333	12/1/1998	5:37:50 AM	0	28 933	20 569	28.2	22.068	18 621	170.733	52.382	63.107	11.822	41.61	9 991	0 111	36 6	0 084	0 055	182	1184.43	19 74	15 2	47 1	3 247	0 037	0 034	0 00071	0 712	0 61
334	12/1/1998	5:42:50 AM	0	28.375	20 569	27.801	22.148	18.64	170.733	52.382	63.107	11.87	41.404	9 96	0.111	36.815	0 081	0 052	183	1189 43	19 82	15 2	46 9	3 233	0 035	0 033	0 00070	0 697	0 59
335	12/1/1998	5:47:50 AM	0	28.136	20 488	27.562	22.228	18 621	170.733	52.444	63.107	11.614	41.945	9 929	0 111	36 446	0 078	0 049	184	1194.43	19 91	15.1	47 2	3 254	0 034	0 032	0 00067	0 672	0 57
336	12/1/1998	5:52:51 AM	1	27.773	20.525	27.358	22.105	18.496	170 697	9 051	63 229	11.003	-1.228	53 351	98.188	36 446	0 018	-0 018	185	1199 43	19 99	15.1	3 9	0 270	0 007	0 007	0 00187	1 672	1.42
337	12/1/1998	5:57:51 AM	0	27.614	20 444	27.279	22 024	18 415	170 697	52 692	63.778	11.562	41.675	10 207	0.111	36 062	0 079	0 049	186	1204 43	20 07	15 0	47.2	3 253	0 034	0 032	0 00069	0 666	0 56
338	12/1/1998	6:02:51 AM	0	27.41	20 481	27.075	22 081	18.371	170 66	52 382	63.29	11.496	41.911	10 084	0.111	36 093	0 076	0 046	187	1209 43	20.16	15 0	47.1	3 251	0 033	0 031	0 00068	0 664	0 57
339	12/1/1998	6:07:50 AM	0	27.49	20 481	27.235	22.081	18 613	170 66	52.63	63 534	11.57	41.911	10 084	0.111	36 093	0 074	0 043	188	1214 43	20.24	15 0	47.3	3 259	0 032	0 030	0 00064	0 642	0 55
340	12/1/1998	6 12:50 AM	1	27.49	20 481	27.235	22.081	18 775	170 66	8 617	62 965	10.971	-1.566	53 567	98 141	36 216	0 012	-0 018	189	1219 43	20.32	15 0	3 5	0 243	0 005	0 005	0 00140	1 396	1.19

Run 1.08 EnvC Dewater: 2 to 20 wt% insoluble solids

	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	AC
341	12/1/1999	6:17:50 AM	0	27.447	20.437	27.272	22.017	18.407	170.623	52.568	63.778	11.713	41.708	10.33	0.111	36.016	0.075	0.045	190	1224.43	20.41	14.9	47.1	3.250	0.033	0.031	0.00065	0.652	0.55
342	12/1/1999	6:22:51 AM	0	27.447	20.437	27.431	22.017	18.326	170.623	52.196	63.168	11.705	41.675	10.268	0.111	36.093	0.072	0.043	181	1229.43	20.49	15.0	46.9	3.236	0.031	0.029	0.00063	0.626	0.53
343	12/1/1999	6:27:51 AM	0	27.606	20.437	27.511	21.937	18.165	170.623	52.444	63.473	11.641	42.047	10.238	0.111	35.839	0.072	0.043	192	1234.43	20.57	14.9	47.2	3.257	0.031	0.029	0.00062	0.620	0.53
344	12/1/1999	6:32:51 AM	1	27.643	20.313	27.707	21.973	18.12	170.586	9.113	63.737	11.035	-1.532	53.721	98.141	36.093	0.015	-0.018	193	1239.43	20.68	15.0	3.8	0.261	0.007	0.006	0.00160	1.602	1.36
345	12/1/1999	6:37:51 AM	0	27.919	20.269	27.963	21.849	18.076	170.55	52.32	63.351	11.713	41.708	10.33	0.111	35.955	0.073	0.045	194	1244.43	20.74	14.9	47.0	3.241	0.032	0.029	0.00062	0.624	0.53
346	12/1/1999	6:42:51 AM	0	28.158	20.269	28.301	21.929	17.995	170.55	53.064	64.205	11.825	41.641	10.299	0.064	36.001	0.07	0.04	195	1249.43	20.82	14.9	47.4	3.265	0.031	0.028	0.00059	0.589	0.50
347	12/1/1999	6:47:51 AM	0	28.477	20.269	28.7	21.849	18.4	170.55	52.94	64.022	11.657	41.845	10.268	0.111	35.955	0.068	0.037	196	1254.43	20.91	14.8	47.4	3.271	0.030	0.027	0.00057	0.573	0.49
348	12/1/1999	6:52:51 AM	1	28.875	20.269	29.018	21.849	18.078	170.55	8.803	63.961	10.844	-1.465	54.368	98.141	35.566	0.017	-0.018	197	1259.43	20.99	14.8	3.7	0.253	0.007	0.007	0.00181	1.609	1.54
349	12/1/1999	6:57:51 AM	0	29.071	20.225	29.375	21.805	18.194	170.513	53.002	64.205	11.873	42.182	10.422	0.111	35.84	0.068	0.037	198	1264.43	21.07	14.7	47.6	3.281	0.030	0.026	0.00055	0.552	0.47
350	12/1/1999	7:02:52 AM	0	29.469	20.225	29.771	21.805	18.113	170.513	53.56	64.754	11.849	42.08	10.361	0.111	35.525	0.066	0.04	199	1269.43	21.16	14.7	47.8	3.297	0.029	0.025	0.00053	0.528	0.45
351	12/1/1999	7:07:51 AM	0	29.867	20.144	30.168	21.686	18.194	170.513	53.56	64.671	11.961	42.182	10.361	0.111	35.647	0.067	0.04	200	1274.43	21.24	14.8	47.9	3.301	0.029	0.025	0.00053	0.530	0.45
352	12/1/1999	7:12:51 AM	1	30.301	20.1	30.602	21.842	18.15	170.476	8.865	64.205	11.003	-1.499	54.491	98.141	35.601	0.015	-0.018	201	1279.43	21.32	14.9	3.7	0.254	0.007	0.006	0.00152	1.523	1.30
353	12/1/1999	7:17:51 AM	0	29.346	20.1	28.772	21.761	18.069	170.476	50.16	62.132	13.875	37.347	11.131	0.064	38.934	0.078	0.049	202	1284.43	21.41	16.2	43.7	3.016	0.034	0.031	0.00070	0.701	0.60
354	12/1/1999	7:22:52 AM	0	29.346	20.1	28.613	21.842	17.745	170.476	52.196	63.656	12.272	40.593	10.751	0.111	36.753	0.066	0.037	203	1289.43	21.49	15.3	46.4	3.199	0.029	0.026	0.00058	0.582	0.49
355	12/1/1999	7:27:52 AM	0	28.709	20.1	27.816	21.842	18.15	170.476	51.7	63.168	11.841	40.39	10.823	0.111	36.984	0.068	0.04	204	1294.43	21.57	15.3	46.0	3.175	0.030	0.027	0.00060	0.599	0.51
356	12/1/1999	7:32:52 AM	1	28.108	20.056	27.294	21.717	18.106	170.44	8.865	62.742	11.019	-1.634	52.658	98.141	37.229	0.014	-0.018	205	1299.43	21.66	15.5	3.6	0.249	0.006	0.006	0.00159	1.585	1.35
357	12/1/1999	7:37:52 AM	0	27.709	20.056	26.815	21.796	17.944	170.44	51.452	62.437	11.45	40.999	10.392	0.111	36.907	0.084	0.053	206	1304.43	21.74	15.3	46.2	3.187	0.037	0.035	0.00075	0.754	0.64
358	12/1/1999	7:42:52 AM	0	27.23	19.975	26.495	21.879	18.187	170.44	52.258	63.412	11.49	41.404	10.33	0.111	36.692	0.081	0.052	207	1309.43	21.82	15.3	46.6	3.229	0.035	0.034	0.00072	0.724	0.62
359	12/1/1999	7:47:52 AM	0	26.787	19.931	26.152	21.754	18.224	170.403	51.946	63.046	11.713	40.796	10.238	0.111	37.337	0.078	0.049	208	1314.43	21.91	15.5	46.4	3.197	0.034	0.033	0.00071	0.711	0.61
360	12/1/1999	7:52:52 AM	1	26.387	20.012	25.732	21.835	18.062	170.403	9.423	62.864	11.348	-1.431	52.519	98.141	37.475	0.014	-0.018	209	1319.43	21.99	15.8	4.0	0.275	0.006	0.006	0.00150	1.498	1.28
361	12/1/1999	7:57:52 AM	0	26.147	19.931	25.492	21.835	18.062	170.403	51.824	62.864	11.665	40.627	10.392	0.111	37.061	0.081	0.053	210	1324.43	22.07	15.4	46.2	3.187	0.035	0.035	0.00075	0.754	0.64
362	12/1/1999	8:02:52 AM	0	25.827	19.931	25.331	21.915	18.224	170.403	52.01	63.046	11.506	41.438	10.299	0.111	36.83	0.078	0.049	211	1329.43	22.16	15.3	46.7	3.221	0.034	0.034	0.00072	0.722	0.61
363	12/1/1999	8:07:53 AM	0	25.567	19.931	25.091	21.835	18.467	170.403	51.948	62.965	11.641	40.726	10.207	0.111	36.968	0.078	0.043	212	1334.43	22.24	15.3	46.3	3.195	0.033	0.033	0.00071	0.714	0.61
364	12/1/1999	8:12:53 AM	1	25.346	19.851	24.851	21.835	18.548	170.403	9.113	63.046	11.027	-1.634	53.197	98.168	36.554	0.014	-0.018	213	1339.43	22.32	15.2	3.7	0.258	0.006	0.006	0.00164	1.641	1.40
365	12/1/1999	8:17:52 AM	0	25.23	19.895	24.734	21.796	18.349	170.44	52.258	63.29	11.609	41.337	10.299	0.111	36.446	0.076	0.046	214	1344.43	22.41	15.1	46.8	3.227	0.033	0.033	0.00071	0.714	0.61
366	12/1/1999	8:22:52 AM	0	24.969	19.895	24.654	21.879	17.944	170.44	51.824	62.742	11.713	41.032	10.207	0.111	36.661	0.073	0.043	215	1349.43	22.49	15.2	46.4	3.201	0.032	0.032	0.00069	0.693	0.59
367	12/1/1999	8:27:52 AM	0	24.953	19.939	24.618	21.922	18.312	170.476	52.196	63.168	11.53	41.742	10.176	0.111	36.306	0.072	0.046	216	1354.43	22.57	15.1	47.0	3.238	0.031	0.032	0.00068	0.676	0.58
368	12/1/1999	8:32:52 AM	1	24.829	19.895	24.574	21.959	18.187	170.44	8.865	63.229	11.018	-1.499	53.413	98.168	36.431	0.015	-0.018	217	1359.43	22.66	15.1	3.7	0.254	0.007	0.007	0.00180	1.799	1.53
369	12/1/1999	8:37:53 AM	0	24.829	19.895	24.574	21.959	18.511	170.44	52.134	63.29	11.783	40.999	10.515	0.111	36.339	0.074	0.043	218	1364.43	22.74	15.1	46.6	3.211	0.032	0.033	0.00070	0.702	0.60
370	12/1/1999	8:42:53 AM	0	24.872	19.858	24.696	22.164	18.474	170.476	52.32	63.534	11.817	41.201	10.422	0.111	36.446	0.071	0.04	219	1369.43	22.82	15.1	46.8	3.224	0.031	0.031	0.00067	0.668	0.57
371	12/1/1999	8:47:53 AM	0	24.916	19.821	24.741	22.208	18.599	170.513	52.072	63.29	11.777	40.965	10.422	0.111	36.477	0.069	0.037	220	1374.43	22.91	15.1	46.5	3.207	0.030	0.030	0.00065	0.652	0.56
372	12/1/1999	8:52:53 AM	1	25.084	19.828	24.969	22.376	18.606	170.586	9.113	63.656	11.155	-1.296	53.721	98.141	36.369	0.013	-0.018	221	1379.43	22.99	15.1	3.9	0.269	0.006	0.006	0.00145	1.452	1.24
373	12/1/1999	8:57:53 AM	0	25.164	19.828	25.069	22.295	18.849	170.55	52.63	63.961	11.657	41.839	10.546	0.111	36.031	0.071	0.04	222	1384.43	23.07	15.0	47.1	3.248	0.031	0.031	0.00066	0.657	0.56
374	12/1/1999	9:02:53 AM	0	25.207	19.791	25.273	22.339	19.62	170.623	52.382	63.656	11.777	41.1	10.484	0.111	36.2	0.068	0.04	223	1389.43	23.16	15.0	46.7	3.223	0.030	0.029	0.00063	0.630	0.54
375	12/1/1999	9:07:53 AM	0	25.496	19.923	25.484	22.551	19.672	170.733	52.32	63.595	11.897	41.708	10.422	0.111	36.461	0.069	0.04	224	1394.43	23.24	15.1	47.0	3.241	0.030	0.030	0.00063	0.632	0.54
376	12/1/1999	9:12:54 AM	1	25.666	19.93	25.571	22.478	19.275	170.807	9.175	63.9	11.083	-1.634	53.813	98.141	36.339	0.015	-0.018	225	1399.43	23.32	15.1	3.8	0.260	0.007	0.006	0.00171	1.709	1.45
377	12/1/1999	9:17:53 AM	0	25.709	19.974	25.695	22.522	19.642	170.844	52.258	63.473	11.841	41.438	10.515	0.111	35.154	0.069	0.043	226	1404.43	23.41	15.0	46.8	3.230	0.030	0.030	0.00063	0.631	0.54
378	12/1/1999	9:22:53 AM	0	25.869	19.894	25.935	22.602	19.561	170.844	52.878	64.063	11.961	41.506	10.453	0.111	35.231	0.068	0.04	227	1409.43	23.49	15.0	47.2	3.254	0.030	0.029	0.00061	0.613	0.52
379	12/1/1999	9:27:53 AM	0	26.073	19.936	26.136	22.645	19.201	170.88	49.468	60.607	11.314	38.564	10.361	0.111	35.248	0.065	0.037	228	1414.43	23.57	14.6	44.0	3.035	0.028	0.027	0.00062	0.624	0.53
380	12/1/1999	9:32:53 AM	1	25.753	20.018	25.258	22.726	18.767	170.88	8.369	63.168	10.826	-1.701	54.06	98.141	35.325	0.017	-0.018	229	1419.43	23.66	14.7	3.3	0.230	0.007	0.007	0.00221	2.210	1.88
381	12/1/1999	9:37:54 AM	0	25.629	19.894	25.615	22.602	19.998	170.844	52.63	64.022	11.657	41.878	10.607	0.111	35.432	0.068	0.037	230	1424.43	23.74	14.7	47.3	3.258	0.029	0.028	0.00060	0.599	0.51
382	12/1/1999	9:42:54 AM	0	25.906	19.93	26.051	22.799	19.679	170.807	52.692	63.839	11.49	42.416	10.515	0.111	35.094	0.065	0.037	231	1429.43	23.82	14.6	47.6	3.279	0.028	0.028	0.00058	0.579	0.49
383	12/1/1999	9:47:54 AM	0	25.746	19.93	25.251	22.88	20.083	170.807	42.278	53.046	9.75	33.493	10.064	0.157	31.577	0.053	0.021	232	1434.43	23.91	13.1	37.9	2.612	0.023	0.023	0.00061	0.606	0.52
384	12/1/1999	9:52:54 AM	1	25.425	19.83	25.09	22.96	20.405	170.807	9.113	64.022	10.995	-1.025	53.844	98.095	33.494	0.012	-0.015	233	1439.43	23.99	14.7	4.0	0.279	0.005	0.005	0.00129	1.292	1.10
385	12/1/1999	9:57:54 AM	0	25.673	20.018	25.818	23.048	20.655	170.88	51.886	63.351	12.567	39.883	10.638	0.111	36.6	0.065	0.034	234	1444.43	24.07	15.2	45.9	3.184	0.028	0.028	0.00060	0.604	0.51
386	12/1/1999	10:02:54 AM	0	26.124	20.07	26.429	23.179	20.545	170.991	52.01	63.412	12.192	40.86	10.638	0.111	36.139	0.064	0.034	235	1449.43	24.16	15.0	46.3	3.195	0.028	0.027	0.00058	0.579	0.49
387	12/1/1999	10:07:54 AM	0	26.451	20.077	25.956	23.267	20.229	171.064	41.266	52.192	10.261	31.687	10.176	0.157	32.391	0.053	0.021	236	1454.43	24.24	13.4	36.5	2.515	0.023	0.023	0.00062	0.617	0.53
388	12/1/1999	10:12:54 AM	1	26.095	20.121	25.68	23.311	20.435	171.101	9.299	63.656	11.306	-1.634	53.567	98.049	35.847	0.013	-0.018	237	1459.43	24.32	14.9	3.8	0.264	0.006	0.006	0.00145	1.453	1.24
389	12/1/1999	10:17:54 AM	0	26.262	20.129	26.567	23.399	21.168	171.176	52.072	63.351	12.567	40.66	10.515	0.111	36.323	0.063	0.034	238	1464.43	24.41	15.1	46.4	3.197	0.028	0.028	0.00057	0.568	0.48
390	12/1/1999	10:22:55 AM	0	26.629	20.217	27.293	23.466	20.45	171.248	52.196	63.29	12.487	40.593	10.546	0.111	36.477	0.062	0.03	239	1469.43	24.49	15.1	46.4	3.199	0.027	0.025	0.00055	0.547	0.47
391	12/1/1999	10:27:54 AM	0	26.473	20.18	25.819	23.53	21.139	171.265	36.141	46.765	7.014	30.011	9.929	0.111	24.942	0.048	-0.003	240	1474.43	24.57	10.4	33.1	2.280	0.020	0.020	0.00059	0.593	0.50
392	12/1/1999	10:32:54 AM	1	26.081	20.188	25.348	23.618	21.308	171.359	4.65	46.765	6.312	-1.397	41.332	98.002	24.773	0.013	-0.018	241	1479.43	24.66	10.3	1.6	0.112	0.006	0.006	0.00346	3.455	2.94
393	12/1/1999	10:37:54 AM	0	25.928	20.278	26.393	23.706	19.863	171.432	56.783	67.864	10.076	47.219	10.238	0.157	29.765	0.053	0.021	242	1484.43	24.74	12.4	52.0	3.585	0.023	0.022	0.00043	0.428	0.36
394	12/1/1999	10:42:54 AM	0	26.488	20.357	25.914	23.868	20.751	171.432	33.599	43.594	6.639	27.441	9.313	0.157	22.745	0.034	-0.018	243	1489.43	24.82	9.4	30.5	2.104	0.015	0.014	0.00047	0.474	0.40
395	12/1/1999	10:47:54 AM	0	26.178	20.364	25.281	24.034	20.618	171.606	33.723	43.716	6.663	27.678	9.313	0.111	22.73	0.036	-0.015	244	1494.43	24.91	9.4	30.7	2.117	0.016	0.016	0.00051	0.508	0.43
396	12/1/1999	10:52:55 AM	1	25.819	20.327	25.605	24.076	20.722	171.543	9.547	63.107	11.753	-1.735	52.85	98.002	36.723	0.012	-0.018	245	1499.43	24.99	15.2	3.9	0.269	0.005	0.005	0.00131	1.311	1.12
397	12/1/1999	10:57:55 AM	0	26.307	20.418	26.852	24.166	20.81	171.617	51.824	63.29	12.822	39.748	10.7	0.111	36.431	0.059	0.03	246	1504.43	25.07	15.1	45.6	3.157	0.026	0.024	0.00053	0.534	0.45
398	12/1/1999	11:02:55 AM	0	27.15	20.46	27.773	24.29	20.29	171.654	51.886	63.534	12.91	39.917	10.638	0.111	36.815	0.058	0.03	247	1509.43	25.16	15.3	45.9	3.165	0.025	0.023	0.00051	0.511	0.43
399	12/1/1999	11:07:55 AM	0	27.39	20.379	28.496	24.29	20.29	171.654	28.268	38.269	8.203	20.443	9.436	0.111	27.722	0.035	-0.018	248	1514.43	25.24	11.5	24.4	1.679	0.015	0.015	0.00060	0.602	0.51
400	12/1/1999	11:12:55 AM	1	26.874	20.504	26.54	24.414	20.696	171.691	10.167	63.29	12.112	-1.634	52.18	98.002	36.83	0.012	-0.018	249	1519.43	25.32	15.3	4.3	0.294	0.005	0.005	0.00118	1.176	1.00
401	12/1/1999	11:17:55 AM	0	26.678	20.468	26.104	24.458	20.781	171.727	32.233	42.497	9.072	23.689	9.652	0.111	29.442	0.04	-0.018	250	1524.43	25.41	12.2	26.0	1.928	0.017	0.017	0.00061	0.605	0.52
402	12/1/1999	11:22:55 AM	0	26.445	20.556	25.632	24.707	20.95	171.801	31.429	41.704	9.001	23.317	9.59	0.111	29.181	0.04	-0.018	251	1529.43	25.49	12.1	27.4	1.887	0.017	0.017	0.00063	0.627	0.53
403	12/1/1999	11:27:55 AM	0	26.123	20.556	25.231	24.626	21.075	171.801	31.367	41.562	8.953	23.182	9.56	0.111	29.043	0.037	-0.018	252	1534.43	25.57	12.1	27.3	1.880	0.016	0.016	0.00059	0.588	0.50
404	12/1/1999	11:32:55 AM	1	25.93	20.681	26.075	24.831	21.659	171.836	10.043	63.29	12.224	-1.532	52.396	97.956	35.799	0.016	-0.018	253	1539.43	25.66	15.3	4.3	0.293	0.007	0.007	0.00159	1.593	1.36
405	12/1/1999	11:37:55 AM	0	26.613	20.644	26.119	24.875	21.361	171.875	25.045	35.057	7.564	18.076	9.406	0.111	25.925	0.032	-0.018	254	1544.43	25.74	10.8	21.6	1.467	0.014	0.014	0.00063	0.626	0.53
406	12/1/1999	11:42:55 AM	0	26.537	20.789	25.603	24.919	21.806	171.912	25.602	35.667	7.189	18.766	9.344	0.157	25.003	0.032	-0.018	255	1549.43	25.82	10.4	22.2	1.530	0.014	0.014	0.00062	0.619	0.53
407	12/1/1999	11:47:55 AM	0	26.081	20.814	25.247	25.123	21.652	171.949	25.788	35.789	7.022	19.294	9.313	0.157	24.568	0.031	-0.018	256	1554.43	25.91	10.2	22.5	1.554	0.014	0.013	0.00060	0.596	0.51
408	12/1/1999	11:52:56 AM	1	25.705	20.858	25.451	25.167	21.091	171.986	9.237	63.412	11.578	-1.465	53.382	97.91	35.555	0.015	-0.018	257	1559.43	25.99	14.8	3.9	0.268	0.007	0.006	0.00166	1.664	1.42
409	12/1/1999	11:57:56 AM	0	26.309	20.902	27.174	25.291	21.618	172.023	52.816	63.778	12.774	41.269	10.238	0.157	35.525	0.051	0.021	258	1564.43	26.07	14.7	47.0	3.243	0.022	0.021	0.00045	0.445	0.38
410	12/1/1999	12:02:57 PM	0	27.506	20.983	27.413	25.371	21.779	172.023	52.421	62.74	9.176	23.892	9.745	0.157	29.889	0.038	-0.018	259	1569.43	26.16	12.0	28.2	1.941	0.017	0.016	0.00055	0.551	0.47
411	12/1/1999	12:07:56 PM	0	27.436	21.071	27.291	25.459	21.948	172.097	31.058	41.338	8.865	22.845	9.487	0.157	28.396	0.033	-0.018	260	1574.43	26.24	11.8	27.0	1.862	0.014	0.014	0.00050	0.501	0.43
412	12/1/1999	12:12:56 PM	1	27.32	21.035	27.066	25.583	22.314	172.134	9.138	63.778	11.704	-1.597	54.707	97.91	28.459	0.013	-0.018	261	1579.43	26.32	11.8	2.4	0.163	0.006	0.005	0.00226	2.260	1.92
413	12/1/1999	12:17:56 PM	0	27.124	21.18	27.03	25.627	21.676	172.171	31.181	41.826	9.128	22.641	9.899	0.157	27.691	0.036	-0.018	262	1584.43	26.41	11.6	26.9	1.855	0.016	0.015	0.00055	0.552	0.47
414	12/1/1999	12:22:56 PM	0	27.124	21.18	26.95	25.707	22.037	172.171	31.367	41.887	9.216	22.911	9.808	0.157	27.845	0.036	-0.018	263	1589.43	26.49	11.6	27.1	1.871	0.016	0.015	0.00055	0.548	0.47
415	12/1/1999	12:27:57 PM	0	27.132	21.248	27.117	25.955	22.668	172.245	31.181	41.765	9.068	22.945	9.778	0.157	27.599	0.033	-0.018	264	1594.43	26.57	11.5	27.1	1.866	0.014	0.014	0.00050	0.502	0.43
416	12/1/1999	12:32:57 PM	1	27.22	21.256	27.445	25.803	22.133	172.319	8.952	61.532	7.748	-1.353	34.678	97.91	27.845	0.013	-0.018	265	1599.43	26.66	11.6	2.3	0.158	0.006	0.005	0.00231	2.310	1.97
417	12/1/1999	12:37:57 PM	0	26.07	21.389	26.956	26.095	22.266	172.43	30.81	41.562	9.032	22.505	10.022	0.157	27.522	0.036	-0.018	266	1604.43	26.74	11.4	26.7	1.838	0.016	0.014	0.00051	0.514	0.44
418	12/1/1999	12:42:57 PM	0	29.265	21.389	30.522	26.015	22.507	172.43	16.428	26.681	6.304	10.909	9.406	0.157	21.993	0.025	-0.018	267	1609.43	26.82	9.1	13.7	0.942	0.011	0.009	0.00069	0.685	0.58
419	12/1/1999	12:47:57 PM	0	30.113	21.442	30.653	26.147	22.64	172.541	31.863	42.558	8.961	23.486	9.96	0.157	27.336	0.036	-0.018	268	1614.43	26.91	11.3	27.7	1.908	0.016	0.013	0.00049	0.486	0.41
420	12/1/1999	12:52:57 PM	1	31.075	21.53	32.09	26.395	22.568	172.615	8.969	64.022	11.234	-1.397	54.183	97.863	33.755	0.013	-0.018	269	1619.43	26.99	14.8	3.6	0.262	0.006	0.005	0.00123	1.230	1.05
421	12/1/1999	12:57:57 PM	0	32.035	21.619	33.048	26.403	22.254	172.69	51.452	62.376	12.304	39.849	10.114	0.157	34.204	0.048	0.013	270	1624.43	27.07	14.2	45.7	3.147	0.020	0.018	0.00035	0.353	0.30
422	12/1/1999	1:02:57 PM	0	33.109	21.664	34.83	26.447	22.781	172.727	51.824	62.742	12.383	40.782	10.114	0.157	34.618	0.047	0.015	271	1629.43	27.16	14.4	48.3	3.192	0.021	0.018	0.00034	0.339	0.29
423	12/1/1999	1:07:58 PM	0	34.374	21.744	35.54	26.527	23.183	172.727	52.506	63.412	12.415	40.728	10.114	0.157	34.311	0.048	0.009	272	1634.43	27.24	14.2	48.6	3.214	0.020	0.015	0.00032	0.323	0.28
424	12/1/1999	1:12:57 PM	1	33.523	21.789	36.451	26.571	22.968	172.764	9.237	63.656	11.019	-1.093	53.536	97.863	34.879	0.013	-0.018	273	1639.43	27.32	14.5	4.1	0.261	0.006	0.004	0.00102	1.022	0.87
425	12/1/1999	1:17:57 PM	0	36.119	21.833	37.124	26.695	22.87	172.801	52.568	63.412	13.014	40.66	10.114	0.203	34.941	0.047	0.018	274	1644.43	27.41	14.5	46.6	3.214	0.021	0.015	0.00032	0.317	0.27

Run 1.08 EnvC Dewater: 2 to 20 wt% insoluble solids

	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	AC
426	12/1/1999	1:22:57 PM	0	36.714	21.878	37.718	26.74	23.075	172.838	53.002	63.839	13.245	40.559	10.084	0.157	35.325	0.048	0.012	275	1649.43	27.49	14.7	46.8	3.225	0.020	0.014	0.000030	0.305	0.26
427	12/1/1999	1:27:57 PM	0	36.993	22.003	37.365	26.864	23.652	172.875	45.811	56.461	11.921	34.507	9.837	0.157	33.144	0.04	-0.018	276	1654.43	27.57	13.8	40.2	2.769	0.017	0.012	0.000031	0.311	0.26
428	12/1/1999	1:32:57 PM	1	37.002	22.091	37.219	26.872	23.369	172.95	7.811	52.853	9.78	-1.363	44.108	97.817	32.422	0.012	-0.018	277	1659.43	27.66	13.5	3.2	0.222	0.005	0.004	0.00117	1.188	0.99
429	12/1/1999	1:37:56 PM	0	37.01	22.1	37.344	26.64	23.538	173.024	42.526	53.351	11.673	31.556	9.96	0.203	31.607	0.041	-0.018	278	1664.43	27.74	13.2	37.0	2.554	0.018	0.013	0.000335	0.348	0.29
430	12/1/1999	1:42:56 PM	0	37.77	22.233	39.007	26.573	23.27	173.136	53.994	65.059	13.612	40.999	10.238	0.157	34.956	0.043	-0.009	279	1669.43	27.82	14.5	47.5	3.275	0.019	0.013	0.000027	0.271	0.23
431	12/1/1999	1:47:56 PM	0	38.171	22.242	38.367	26.222	23.278	173.21	53.87	64.693	13.62	41.303	10.053	0.203	34.71	0.039	-0.018	280	1674.43	27.91	14.4	47.8	3.281	0.017	0.012	0.000225	0.249	0.21
432	12/1/1999	1:52:56 PM	0	38.572	22.331	39.808	26.07	22.965	173.285	50.632	62.965	12.814	39.612	11.378	0.157	34.526	0.062	0.034	281	1679.43	27.99	14.3	45.2	3.118	0.027	0.018	0.000440	0.402	0.34
433	12/1/1999	1:57:56 PM	0	38.818	22.34	38.169	26.079	22.894	173.359	2.728	13.958	3.87	-0.924	10.546	0.157	14.85	0.011	-0.018	282	1684.43	28.07	6.2	0.9	0.062	0.005	0.003	0.00373	3.733	3.18
434	12/1/1999	2:02:56 PM	0	37.681	22.384	36.64	26.263	22.134	173.397	2.978	13.958	3.966	-0.417	10.33	0.203	15.127	0.011	-0.018	283	1689.43	28.16	6.3	1.3	0.088	0.005	0.004	0.00274	2.738	2.33
435	12/1/1999	2:07:59 PM	0	36.422	22.384	35.378	26.683	22.295	173.397	2.604	14.141	3.934	-0.586	10.834	0.157	14.512	0.012	-0.018	284	1694.43	28.24	6.0	1.0	0.070	0.005	0.004	0.00391	3.915	3.33
436	12/1/1999	2:12:59 PM	0	35.87	22.465	34.195	26.843	22.214	173.397	2.358	14.385	3.894	-0.958	11.224	0.157	14.666	0.011	-0.018	285	1699.43	28.32	6.1	0.7	0.048	0.005	0.004	0.00534	5.344	4.55
437	12/1/1999	2:17:59 PM	0	34.212	22.465	33.088	26.683	22.053	173.397	2.604	14.995	3.902	-0.958	11.655	0.157	14.727	0.011	-0.018	286	1704.43	28.41	6.1	0.8	0.057	0.005	0.004	0.00467	4.675	3.98
438	12/1/1999	2:22:59 PM	0	33.667	22.554	32.226	26.452	22.465	173.471	2.604	14.873	3.918	-0.856	11.532	0.157	14.62	0.011	-0.018	287	1709.43	28.49	6.1	0.9	0.060	0.005	0.004	0.00450	4.505	3.83
439	12/1/1999	2:27:59 PM	0	32.841	22.518	31.396	26.176	22.509	173.509	2.978	15.3	4.094	-0.822	11.624	0.203	14.973	0.011	-0.018	288	1714.43	28.57	6.2	1.1	0.074	0.005	0.004	0.00374	3.738	3.18
440																													
441		Averages		26.3	21.1	26.0	23.1	20.7	172.2	43.6	60.7	10.5	34.0	18.2	18.6	35.6	0.1	0.1	115.4	677.8	11.3	14.8	38.8	2.675	0.045	0.045	0.00124	1.2	1.1
442		Maximum		38.6	22.3	39.8	26.9	55.8	174.2	61.5	70.9	13.9	59.3	54.5	98.4	38.9	0.4	0.3	281.0	1679.4	28.0	16.2	60.4	4.155	0.161	0.160	0.00477	4.8	4.1
443		Median		25.6	20.9	25.3	23.0	20.9	172.2	52.2	62.2	10.5	42.5	8.8	0.1	36.4	0.1	0.1	102.5	626.9	10.4	15.1	47.3	3.264	0.043	0.042	0.00129	1.2	1.0
444		Minimum		24.6	19.6	24.2	21.7	17.7	170.4	4.7	26.6	1.8	-1.8	6.0	0.1	9.4	0.0	0.0	1.0	2.0	0.0	3.9	1.6	0.112	0.005	0.004	0.00011	0.1	0.1
445		Std Deviation		2.253	0.836	2.467	0.959	2.111	0.989	17.019	6.377	1.369	18.691	18.404	36.655	3.334	0.065	0.068	78.891	540.189	9.003	1.384	16.940	1.168	0.026	0.029	0.000575	0.575	0.489
446		Number of Points Used		422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422



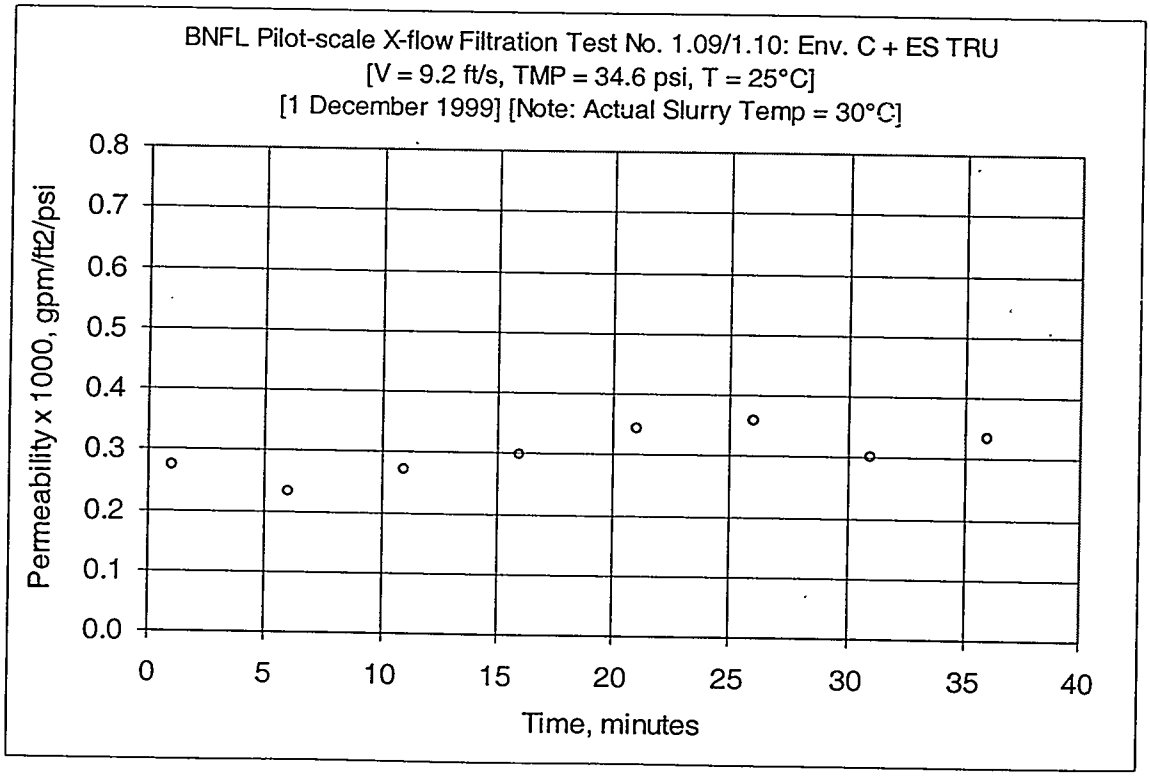
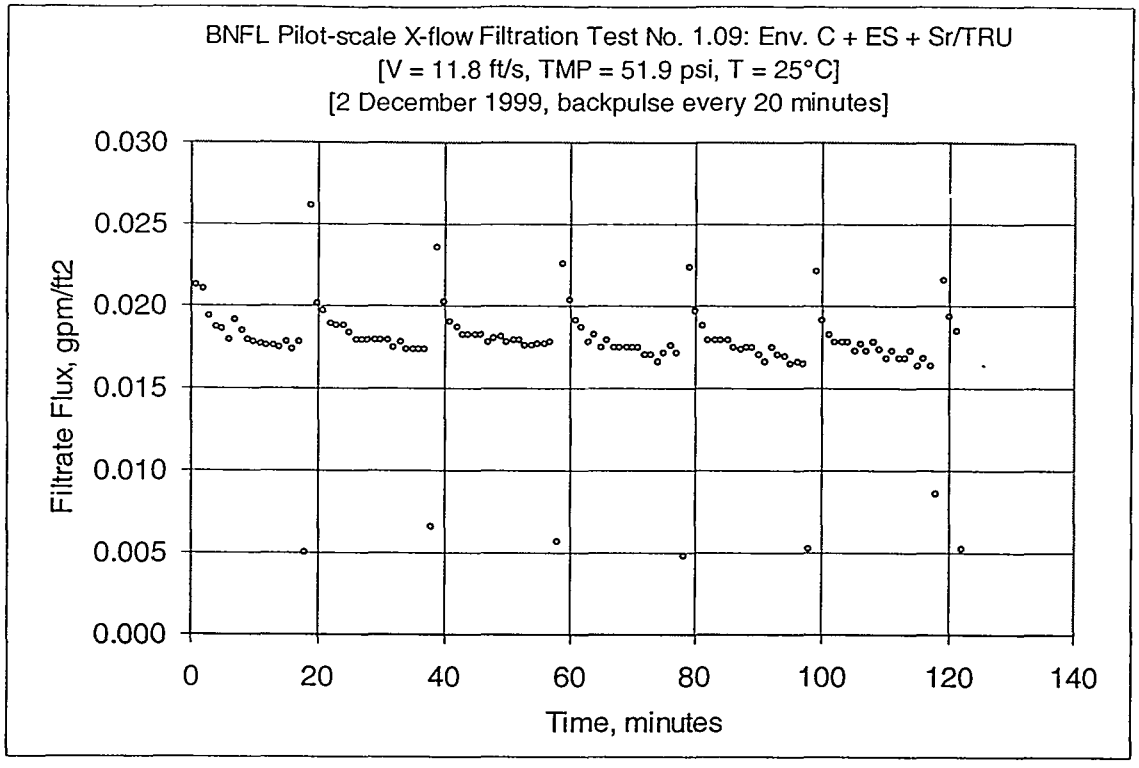


Figure C2: Test Run 1.09/1.10, 22 wt% Insoluble Solids Concentration

Run 1.09/1.10: 22 wt% Concentration of Insoluble Solids

	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	FLTRAT (del	CL LOOP (	SL LOOP (	UP AMB (d	BOT AMB	T6 (deg U	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE (pslg)	PISTON (pslg)	SL FLOW	Q2,FLTR	Q3,FLTR	FLOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - Lines Not Connected (continuous runs from 11/30 to 12/3/99)																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	11/30/1999	9:49:49 AM	0	25.98	19.534	25.752	23.386	55.74	171.439	-0.062	-0.133	-0.018	-0.017	-0.797	0.096	-0.085	0.011	-0.018										
4	11/30/1999	9:50:49 AM	0	25.864	19.578	25.616	23.349	55.782	171.478	-0.062	-0.072	-0.018	-0.017	-0.181	0.096	-0.08	0.011	-0.018										
5	11/30/1999	9:51:50 AM	0	25.74	19.534	25.412	23.386	55.74	171.439	-0.062	-0.072	-0.018	-0.017	-0.181	0.096	-0.08	0.011	-0.018										
6																												
7	Data - Per 5 Minute																			Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMIABILITY GPM/FT2/psi	x 1000 GPM/FT2/psi	PERMIABILITY m/d/psi/bar
8	12/1/1999	3:53:21 PM	0	28.658	22.947	30.154	26.363	23.581	173.733	65.915	65.12	10.724	48.306	8.419	0.203	29.473	0.037	-0.018		1	1	12.2	51.1	3.524	0.016	0.014	0.00027	0.274	0.23
9	12/1/1999	3:58:21 PM	0	30.451	22.911	31.627	26.567	23.706	173.77	51.824	61.705	10.03	42.351	9.067	0.203	26.385	0.03	-0.018		6	6	11.0	47.1	3.247	0.013	0.011	0.00023	0.232	0.20
10	12/1/1999	4:03:21 PM	0	30.451	22.911	30.516	26.407	23.625	173.77	33.847	43.533	7.389	27.103	8.974	0.203	21.563	0.022	-0.018		11	11	8.9	30.5	2.101	0.010	0.008	0.00027	0.271	0.23
11	12/1/1999	4:08:21 PM	0	30.257	22.856	30.48	26.132	23.59	173.808	33.351	43.045	7.102	27.137	8.882	0.157	20.702	0.024	-0.018		16	16	8.6	30.2	2.085	0.010	0.009	0.00030	0.298	0.25
12	12/1/1999	4:13:21 PM	0	30.301	23.001	30.525	25.936	23.795	173.845	33.227	42.964	7.269	25.819	8.789	0.157	19.96	0.027	-0.018		21	21	8.3	29.5	2.036	0.012	0.010	0.00034	0.343	0.29
13	12/1/1999	4:18:21 PM	0	30.505	23.126	30.728	25.821	23.679	173.883	32.785	42.375	7.405	25.514	8.789	0.203	19.612	0.028	-0.018		26	26	8.1	29.2	2.010	0.012	0.010	0.00036	0.358	0.30
14	12/1/1999	4:23:21 PM	0	30.584	23.126	30.807	25.661	23.92	173.883	33.103	42.679	7.301	26.292	8.82	0.203	19.166	0.024	-0.018		31	31	8.0	29.7	2.048	0.010	0.009	0.00030	0.301	0.25
15	12/1/1999	4:28:22 PM	0	30.628	23.171	31.01	25.545	23.684	173.92	33.475	43.045	7.165	26.224	8.82	0.157	19.596	0.027	-0.018		36	36	8.1	29.8	2.058	0.012	0.010	0.00033	0.335	0.28
16																												
17		Averages		30.2	23.0	30.7	26.1	23.7	173.8	38.4	48.1	8.0	30.8	8.8	0.2	22.1	0.027	-0.018				9.2	34.6	2.368	0.012	0.010	0.000301	0.301	0.258
18		Maximum		30.6	23.2	31.6	26.6	23.9	173.9	65.9	65.1	10.7	48.3	9.1	0.2	29.5	0.037	-0.018				12.2	51.1	3.524	0.016	0.014	0.000358	0.358	0.305
19		Median		30.5	23.0	30.6	26.0	23.7	173.8	33.4	43.0	7.3	26.7	8.8	0.2	20.3	0.027	-0.018				8.4	30.0	2.072	0.012	0.010	0.000299	0.299	0.255
20		Minimum		28.7	22.9	30.2	25.5	23.6	173.7	32.8	42.4	7.1	25.5	8.4	0.2	19.2	0.022	-0.018				8.0	29.2	2.010	0.010	0.008	0.000232	0.232	0.197
21		Std Deviation		0.606	0.099	0.414	0.348	0.122	0.062	8.970	8.910	1.359	7.866	0.177	0.022	3.545	0.004	0.000				1.471	8.415	0.580	0.002	0.002	0.000040	0.040	0.034
22		Number of Points Used		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	8	8



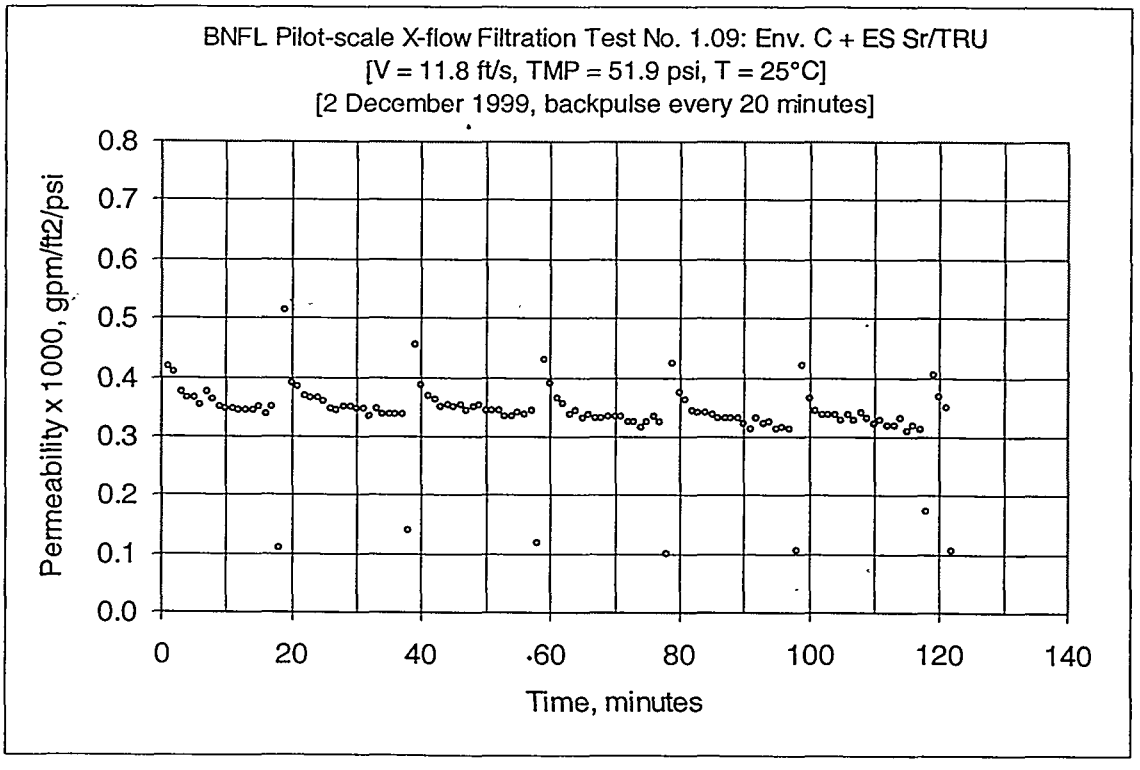


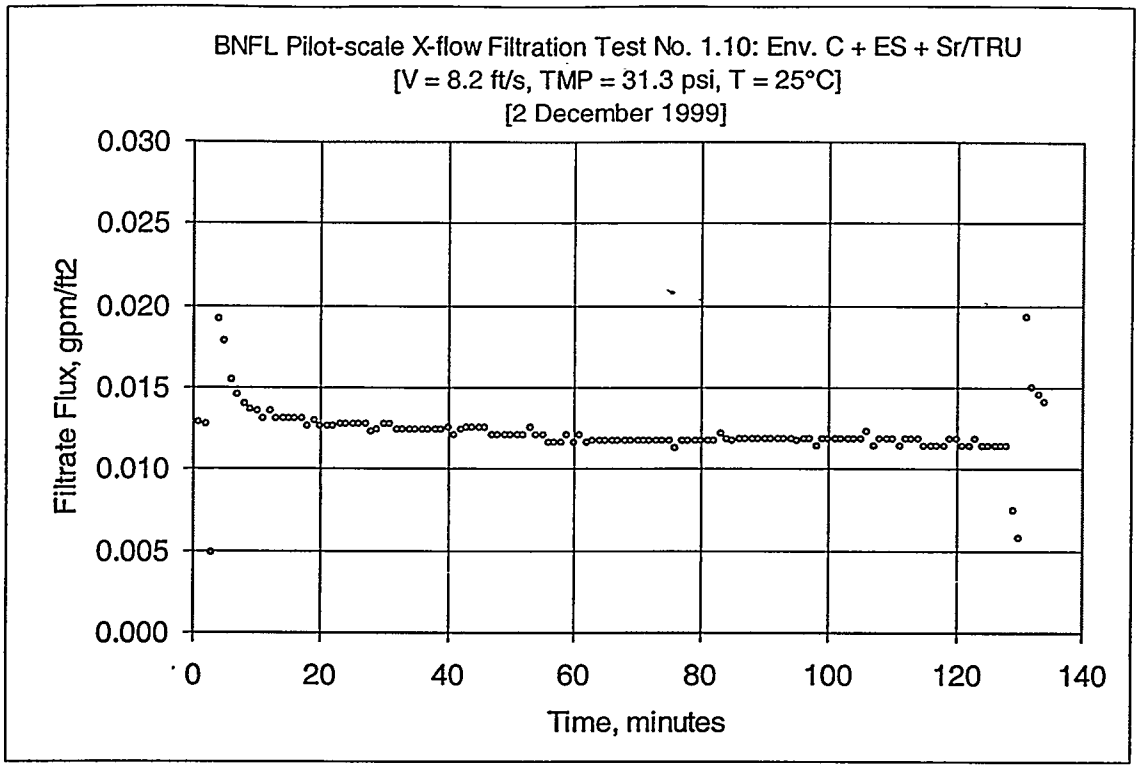
Figure C2: Test Run 1.09, 14 wt% Insoluble Solids Concentration

Run 1.09: 14 wt% Concentration of Insoluble Solids

	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	T6 (deg C)	BOT DP (p	FLTR (pe	FLTR DP (p	TOP DP (p	FLTRATE (peg)	PISTON (peg)	SL FLOW	O2,FLTR F	O3,FLTR	FLOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - Lines Not Connected (continuous runs from 11/30 to 12/3/99)																				Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	11/30/1999	9:49:49 AM	0	25 96	19 534	25.732	23.388	55 74	171,439	-0 062	-0 133	-0 018	-0 017	-0 797	0 096	-0 095	0.011	-0 018										
4	11/30/1999	9:50:49 AM	0	25 864	19.578	25 618	23 349	55 782	171,476	-0 062	-0 072	-0 018	-0 017	-0 181	0 096	-0 08	0 011	-0 018										
5	11/30/1999	9:51:50 AM	0	25.74	19 534	25 412	23.388	55.74	171,439	-0 062	-0 072	-0 018	-0 017	-0.181	0 096	-0 08	0 011	-0 018										
6																												
7	Data - Per Minute																		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMABILITY GPM/FT2/psi	c 1000 GPM/FT2/psi	PERMABILITY m/day/bar
8	12/2/1999	8:39:06 AM	0	21.5	18 418	22 217	22 377	15.209	169 091	55 418	65.115	9 159	48 638	9 095	0 05	29 518	0 045	-0 006	1	1	12.3	51 0	3.518	0 020	0 021	0 00042	0 417	0 35
9	12/2/1999	8 40:06 AM	0	21 655	18.33	22.813	22.35	18.34	169.018	55 542	65.296	8 873	47.418	9 095	0 05	28 627	0 045	-0 018	2	2	11 9	51.5	3 549	0 020	0 021	0 00041	0 408	0 35
10	12/2/1999	8:41:06 AM	0	21.977	18 411	23 095	22 431	18.583	169 018	55.978	65 664	8 705	47 99	9 065	0 05	28 658	0 042	-0 018	3	3	11.9	52 0	3 584	0 018	0 019	0 00037	0 372	0 32
11	12/2/1999	8:42:08 AM	0	22.255	18.368	23.453	22.468	18 62	168.981	55.79	65.725	9 06	48 807	9 095	0 05	29.318	0 041	-0 015	4	4	12 2	51.3	3 537	0 018	0 019	0 00036	0 365	0 31
12	12/2/1999	8:43:08 AM	0	22.701	18.411	23.816	22 511	17.394	169 018	54.923	64.81	8.964	47.644	9 095	0 05	29.257	0 041	-0 018	5	5	12 1	51 0	3 515	0 018	0 019	0 00036	0 363	0 31
13	12/2/1999	8 44:08 AM	0	22 899	18.287	24 085	22 548	17.107	168 981	54.799	64 903	8 944	47.644	9 527	0 05	29.134	0 04	-0 018	6	6	12.1	50 9	3 511	0 017	0 018	0 00035	0 352	0 30
14	12/2/1999	8:45:10 AM	0	23.264	18 33	24 459	22.592	17.313	169 018	54 861	64 871	8 848	48 908	9 373	0 05	29 119	0 043	-0 018	7	7	12 1	50 9	3 508	0 019	0 019	0 00037	0 375	0 32
15	12/2/1999	8:46:10 AM	0	23.585	18 411	24 78	22 592	17.637	169 018	54 964	64 627	8 896	47.314	9 065	0 05	29 103	0 042	-0 018	8	8	12.1	51.1	3 527	0 018	0 018	0 00036	0 361	0 31
16	12/2/1999	8:47:10 AM	0	23.826	18 33	24 94	22 431	18 043	169 018	55.232	64 993	8.888	47.28	9 095	0 05	29 211	0 041	-0 018	9	9	12.1	51.9	3 534	0 018	0 018	0 00035	0 350	0 30
17	12/2/1999	8:48:11 AM	0	24.11	18 374	25 224	22 474	18.329	169 054	55 294	65.115	8 888	47.145	9 095	0 05	29 226	0 041	-0 018	10	10	12.1	51.2	3 531	0 018	0 018	0 00035	0 347	0 30
18	12/2/1999	8:49:11 AM	0	24 431	18 374	25 464	22 474	17.924	169 054	54.737	64 566	8.856	47.077	9 126	0 05	29 334	0 041	-0 018	11	11	12 2	50 9	3 510	0 018	0 018	0 00035	0 347	0 30
19	12/2/1999	8 50:11 AM	0	24 672	18 374	25 624	22 474	18.491	169 054	55 232	64 871	8.904	47.517	9 126	0 096	29 303	0 041	-0 018	12	12	12.2	51.4	3 542	0 018	0 018	0 00034	0 342	0 29
20	12/2/1999	8 51:12 AM	0	24.919	18 361	25 791	22 561	19.226	169 127	54 923	64 627	9 032	48.739	9 095	0 096	29 718	0 041	-0 018	13	13	12 3	50 8	3 503	0 018	0 018	0 00034	0 344	0 29
21	12/2/1999	8 52:12 AM	0	25 078	18.361	25 871	22.561	19 468	169,127	55,106	64.81	9 032	48 607	9 095	0 05	29 61	0 041	-0 018	14	14	12 3	51 0	3 513	0 018	0 017	0 00034	0 343	0 29
22	12/2/1999	8:53:12 AM	0	25.283	18 425	25 994	22 605	19 754	169 164	55 294	65.115	8 976	47.247	9 126	0 05	29 272	0 042	-0 018	15	15	12.1	51.3	3 535	0 018	0 018	0 00035	0 348	0 30
23	12/2/1999	8 54:13 AM	0	25 406	18.388	26.117	22 568	19 394	169 201	55 542	65 296	8 976	47.213	9.126	0 05	29 288	0 041	-0 018	16	16	12 2	51.4	3 542	0 018	0 017	0 00034	0 338	0 29
24	12/2/1999	8:55:13 AM	0	25 653	18.394	26.204	22.575	19 563	169 274	55 418	65.178	9 024	48 604	9.126	0 05	29 533	0 042	-0 018	17	17	12 3	51.0	3 517	0 018	0 018	0 00035	0 347	0 30
25	12/2/1999	8 56:13 AM	0	25.777	18 438	26 327	22 699	19 687	169 31	55,141	64 81	8 489	43 426	12.948	0 05	29 871	0 012	-0 018	18	18	12 4	47.3	3 260	0 005	0 005	0 00011	0 107	0 09
26	12/2/1999	8 57:14 AM	0	25 9	18.401	26.291	22.742	19 408	169 347	55 356	64 993	8 96	46.739	8 91	0 05	29 61	0 062	0 033	19	19	12 3	51.0	3 520	0 027	0 026	0 00051	0 511	0 44
27	12/2/1999	8:58:14 AM	0	25.664	18 445	26 414	22.868	19 615	169 384	55 604	64 993	8 929	47.517	8.726	0 05	29.426	0 048	0 021	20	20	12 2	51.8	3 555	0 021	0 020	0 00039	0 391	0 33
28	12/2/1999	8:59:14 AM	0	26 03	18 452	26.421	22 673	19.458	169,457	55,418	64 686	8.964	47.247	8.726	0 05	29.472	0 047	0 015	21	21	12 2	51 3	3 539	0 021	0 020	0 00038	0 384	0 33
29	12/2/1999	9:00:14 AM	0	26.074	18.496	26.484	22.917	19.421	169,493	55 356	64 627	9	47.28	8.756	0 05	29.426	0 045	0 006	22	22	12.2	51.3	3 536	0 020	0 019	0 00037	0 367	0 31
30	12/2/1999	9:01:15 AM	0	26.197	18 459	26 507	22.88	19 546	169 53	56 038	65.42	9	47.449	8.756	0 05	29 365	0 045	0.009	23	23	12.2	51.7	3 568	0 020	0 019	0 00036	0 364	0 31
31	12/2/1999	9:02:15 AM	0	26 284	18.465	26.514	22.887	19 391	169 603	55 294	64.749	8 872	47.754	8.756	0 05	29 288	0 045	0 009	24	24	12 2	51.5	3 552	0 020	0 019	0 00037	0 365	0 31
32	12/2/1999	9:03:15 AM	0	26.407	18 509	26 558	22 85	19 516	169 64	55.728	65.115	8.912	47.314	8.756	0 096	29 196	0 044	0	25	25	12.1	51.5	3 552	0 019	0 018	0 00036	0 357	0 30
33	12/2/1999	9:04:16 AM	0	26 451	18 472	26 681	22.894	19 56	169,676	56,162	65.842	8 8	47.652	8.756	0 05	29 011	0 043	0 006	26	26	12 0	51.9	3 579	0 019	0 018	0 00035	0 345	0 29
34	12/2/1999	9:05:16 AM	0	26.537	18.56	26.768	23.061	19 89	169,75	55 852	65.359	8.768	47.99	8.756	0.096	29 027	0 043	0 009	27	27	12.0	51.9	3 580	0 019	0 018	0 00034	0 344	0 29
35	12/2/1999	9:06:16 AM	0	26 661	18.523	26 651	23.024	19.933	169,788	55,108	64 505	8.792	47.213	8.756	0 05	29.103	0 043	0	28	28	12.1	51.2	3 527	0 019	0 018	0 00035	0 350	0 30
36	12/2/1999	9:07:17 AM	0	26 667	18 611	26.738	23.031	19 696	169,859	54,799	64,139	8 808	47.652	8.756	0.05	29,18	0 043	0 009	29	29	12.1	51.2	3.532	0 019	0 018	0 00035	0 349	0 30
37	12/2/1999	9:08:17 AM	0	26.711	18 655	26.781	23.078	19 823	169 896	55 232	64 627	8.745	47.686	8.787	0.096	29 211	0 043	0.003	30	30	12.1	51.5	3 548	0 019	0 018	0 00035	0 347	0 30
38	12/2/1999	9:09:17 AM	0	26.796	18 662	26.788	23 082	19 668	169,969	55,48	64,81	8,753	47,618	8,787	0 05	28 965	0 043	0	31	31	12 0	51.5	3 554	0 019	0 018	0 00035	0 346	0 29
39	12/2/1999	9:10:18 AM	0	26 841	18 625	26.832	23,125	19 673	170,006	55 976	65.296	8 824	47,99	8.787	0 05	28.961	0 042	0 006	32	32	12.0	52.0	3 584	0 018	0 017	0 00034	0 335	0 29
40	12/2/1999	9:11:18 AM	0	26 804	18.669	26 875	23,169	19 917	170 043	55 48	64 81	8.753	47.686	8.756	0 096	29 011	0 043	0 006	33	33	12.0	51 6	3 556	0 019	0 018	0 00035	0 345	0 29
41	12/2/1999	9:12:19 AM	0	26 848	18 632	26 918	23.213	19.719	170,079	55,79	65.054	8 848	47.889	8.787	0.05	28.919	0 042	0 003	34	34	12 0	51.8	3 574	0 018	0 017	0 00034	0 335	0 29
42	12/2/1999	9:13:19 AM	0	26.935	18.72	26.925	23.3	20 049	170,153	55,232	64 505	8,761	47,686	8,787	0 096	29,057	0 042	0 003	35	35	12.1	51.5	3 548	0 018	0 017	0 00034	0 338	0 29
43	12/2/1999	9:14:19 AM	0	26 978	18.764	26 969	23.344	19.77	170,188	55 048	64 566	8.729	47.618	8.787	0.096	29 027	0 042	0 009	36	36	12 0	51.3	3 539	0 018	0 017	0 00034	0 338	0 29
44	12/2/1999	9:15:20 AM	0	27.022	18.727	26.932	23.227	20 056	170,226	55,728	65 237	8.848	47.517	8.787	0 05	28.961	0 042	0 015	37	37	12.0	51.6	3 559	0 018	0 017	0 00034	0 336	0 29
45	12/2/1999	9:16:20 AM	0	27.065	18 69	26.976	23.19	20.261	170,263	51,451	65 296	8 53	43 595	13 04	0 096	29 257	0 016	-0 018	38	38	12.1	47.5	3 277	0 007	0 007	0 00014	0 139	0 12
46	12/2/1999	9:17:20 AM	0	27.072	18.778	26 963	23.277	20.51	170,336	55,666	64.81	8,705	47,855	8 541	0 096	29,119	0 057	0 033	39	39	12.1	51.8	3 569	0 025	0 024	0 00045	0 455	0 39
47	12/2/1999	9:18:20 AM	0	27.035	18 822	27.026	23.321	20.393	170,373	56 472	65.601	8 864	48.024	8.541	0 096	29.057	0.049	0 024	40	40	12.1	52 2	3 602	0 021	0 020	0 00039	0 387	0 33
48	12/2/1999	9:19:21 AM	0	27,122	18 829	26 953	23.406	20.481	170,446	55 666	64 871	8,784	47,754	8 571	0 096	29,18	0 046	0 024	41	41	12.1	51.7	3 565	0 020	0 019	0 00037	0 368	0 31
49	12/2/1999	9:20:21 AM	0	27.066	18.792	26.917	23.372	20.525	170,463	55,79	65,176	8 808	47,686	8 602	0 096	29 073	0 045	0 021	42	42	12.1	51.7	3 567	0 020	0 019	0 00036	0 360	0 31
50	12/2/1999	9:21:21 AM	0	27,129	18 836	26 96	23.335	20 407	170 519	56,1	65,42	8.816	48.261	8,602	0.096	29 073	0 044	0 021	43	43	12.1	52 2	3 598	0 019	0 018	0 00035	0 348	0 30
51	12/2/1999	9:22:22 AM	0	27,136	18 924	26.967	23.503	20.233	170 593	55 604	64 871	8 832	47,99	8,633	0 096	29 042	0 044	0 021	44	44	12.1	51.8	3 571	0 019	0 018	0 00035	0 351	0 30
52	12/2/1999	9:23:22 AM	0	27,18	18 887	26 931	23.466	20.297	170 63	56 41	65.725	8 872	47,621	8 633	0 096	29 057	0 044	0 018	45	45	12.1	52.1	3 593	0 019	0 018	0 00035	0 349	0 30
53	12/2/1999	9:24:23 AM	0	27,143	18 851	26 895	23 51	20.583	170,666	55,48	64 81	8 832	47,957	8 633	0 096	29,18	0 044	0,018	46	46	12.1	51.7	3 566	0 019	0 018	0 00035	0 352	0 30
54	12/2/1999	9:25:23 AM	0	27,107	18.975	26.858	23.554	20 546	170,703	55,976	65.237	8.856	47,585	8 664	0.05	29 057	0 043	0,009	47	47	12.1	51.8	3 570	0 019	0 018	0 00034	0 344	0 29
55	12/2/1999	9:26:23 AM	0	27,151	18.938	26.802	23.678	20.267	170,74	55 852	65,176	8.912	47,28	8,633	0 05	29 042	0 043	0 006	48	48	12.1	51 6	3 555	0 019	0 018	0 00035	0 349	0 30
56	12/2/1999	9:27:24 AM	0	27,114	18.962	26.226	23.561	20 634	170,778	56 038	65 296	8 872	47,077	8,602	0 096	29,196	0 043	0	49	49	12.1	51.6	3 555	0 019	0 018	0 00035	0 352	0 30
57	12/2/1999	9:28:24 AM	0	26 998	18 945	26 03	23.605	20.678	170,813	56 038	65 296	8.976	47,517	8 602	0 096	29 088	0 042	-0 009	50	50	12.1	51.8	3 570	0 018	0 018	0 00034	0 344	0 29
58	12/2/1999	9:29:24 AM	0	26.925	19 033	25 877	23.612	20.766	170,867	56 472	65.725	8 617	47,957	8 633	0 096	28,474	0 042	-0 006	51	51	11.8	52.2	3 600	0 018	0 018	0 00034	0 343	0 29
59	12/2/1999	9:30:25 AM	0	26.765	19 033	25.797	23.612	20.443	170,887	56 596	65.786	8 593	48.328	8 664	0 05	28 489	0 042	-0 009	52	52	11.8	52.5	3 617	0 018	0 018	0 00034	0 342	0 29
60	12/2/1999	9:31:25 AM	0	26 649	19 078	25 681	23.736	20 648	170,923	56,596	65,969	8 545	48 633	8 664	0.096	28 428	0 041	-0,006	53	53	11 8	52 6	3 628	0 018	0 018	0 00033	0 334	0 28
61	12/2/1999	9:32:26 AM	0	26 656	19 065	25 608	23.663	20.978	170,997	56,41	65,603	8,569	48,668	8 664	0 05	28,443	0 041	-0 012	54	54	11 8	52.5	3 622	0 018	0 018	0 00033	0 335	0 29
62	12/2/1999	9:33:26 AM	0	26.62	19.129	25 492	23.707	21.184	171,034	56,162	65,481	8,489	47,957	8,664	0.096	28,412	0 041	0,006	55	55	11 8	52.1	3 589	0 018	0 018	0 00034	0 339	0 29
63	12/2/1999	9:34:27 AM	0	26.46	19.129	25.411	23.787	20 661	171,034	56 472	65 664	8 569	48,937	8,664	0 05	28,474	0 041	-0 018	56	56	11 8	52 7	3 634	0 018	0 018	0 00034	0 336	0 29
64	12/2/1999	9:35:27 AM	0	26 467	19.136	25.339	23.714	20 546	171,107	55 666	64,81	8 585	47,754	8 664	0 096	28.351	0 041	-0 018	57	57	11.8	51.7	3 565	0 018	0 018	0 00034	0 343	0 29
65	12/2/1999	9:36:27 AM	0	26.227	19.136	25.259	23.714	20.384	171,107	51,885	65,178	8 202	44,373	12,886	0 096	28 82	0 013	-0 018	58	58	11.8	48.1	3 316	0 006	0 006	0 00012	0 117	0 10
66	12/2/1999	9:37:27 AM	0	26.191	19.18	25.222	23.636	20 993	171,144	56,782	66 03	8,465	48 261	8,571	0 05	28,243	0 052	0,024	59	59	11,7	52 5	3 621	0 023	0 023	0 00043	0 430	0 37
67	12/2/1999	9:38:28 AM	0	26.196	19.188	25.23	23.645	20.759	171,218	56 634	65 908	8.569	48.362	8,726	0 05	28.243	0 047	0 018	60	60	11.7	52 4	3 616	0 021	0 020	0 00039	0 389	0 33
68	12/2/1999	9:39:28 AM	0	26.118	19.188	25.15	23 645	21	171,218	56 038	65.359	8 417	48 633	8 787	0 096	27,796	0 044	0 006	61	61	11.5	52 3	3 606	0 019	0 019	0 00037	0 365	0 31
69	12/2/1999	9:40:28 AM	0	26 082	19.232	25.183	23 689	21.206	171,255	55 852	65.237	8.354	48.903	8 787	0 096	27,782	0 043	0	62	62	11.5	52 4	3 611	0 019	0 019	0 00036	0 358	0 30
70	12/2/1999	9:41:29 AM	0	26 046	19.195	25.157	24 013	20.766	171,291	56,782	66,212	8 481	49,14	8 818	0 096	27,936	0 041	-0 003	63	63	11.6	53 0	3 651	0 018	0 018	0 00034	0 336	0 29
71	12/2/1999	9:42:29 AM	0	26 009	19 239	25.121	23.977	21.213	171,328	57,526	67,005	8 449	48 669	8 849	0 096	27,721	0 042	-0 003	64	64	11.5	53 2	3 668	0 018	0 018	0 00034	0 343	0 29
72	12/2/1999	9:43:30 AM	0	25 893	19 203	25.084	24 021	21.016	171,365	56,72	66,152	8,409	48,903	8 849	0 096	27,787	0 04	-0 018	65	65	11 5	52 6	3 641	0 017	0 017	0 00033	0 330	0 28
73	12/2/1999	9:44:30 AM	0	25 857	19.328	25.126	24 065	21.301	171,402	56 968	66,334	8 481	48 668	8 849	0 096	27,796	0 041	-0 003	66	66	11.5	52 6	3 642	0 018	0 018	0 00034	0 338	0 29
74	12/2/1999	9:45:30 AM	0	25 82	19.291	25 092	24 028	21.506	171,439	56,472	65 847	8 545	48 836	8 849	0 096	27,875	0 04	-0 018	67	67	11.6	52 7	3 630	0 017	0 017	0 00033	0 331	0 28
75	12/2/1999	9:46:30 AM	0	25 74	19.291	25 012	24 106	21.265	171,439	56,472	65.968	8 473	48.837	8 849	0 096	27,813	0 04	-0 018	68	68	11.5	52.7	3 634	0 017	0 017	0 00033	0 331	0 28
76	12/2/1999	9:47:31 AM	0	25 704	19 335	24 978	24,152	21,55	171,478	56 658	66,595	8,433	48,43	8 849	0 096	27,875	0 04	-0 003	69	69	11 6	52 5	3 623	0 017	0 017	0 00033	0 333	0 28
77	12/2/1999	9:48:31 AM	0	25 668	19 379	25 019	24,196	21,594	171,512	56,472	66 03	8,425	48,395	8,68	0 096	27,905	0 04	-0 018	70	70	11.6	52 4	3 615	0 017	0 017	0 00033	0 333	0 28
78	12/2/1999	9:49:32 AM	0	25 712	19 424	24 963	24 32	21,477	171,549	56 72	66,152	8 513	48 43	8 68	0 096	27,936	0 04	-0 015	71	71	11.6	52 6	3 625	0 017	0 017	0 00033	0 332	0 28
79	12/2/1999	9:50:32 AM	0	25 675	19 468	25 027	24 284	21 644	171,586	56,162	65 664	8 457	48 668	8 68	0 096	28 013	0 039	-0 018	72	72	11.6	52 4	3 614	0 017	0 017	0 00032	0 325	0 28
80	12/2/1999	9:51:32 AM	0	25 595	19 468	24 947	24 284	21 441	171,586	56 286	65,725	8 481	48 43	8 649	0 096	27,936	0 039	-0 018	73	73	11.6	52 4	3 610	0 017	0 017	0 00033	0 326	0 28
81	12/2/1999	9:52:33 AM	0	25 603	19 475	24 954	24 291	21 451	171,66	56,286	65 908	8 465	49 241	8 68	0 096	27,905	0 038	-0 018	74	74	11.6	52 8	3 638	0 017	0 017	0 00031	0 315	0 27
82	12/2/1999	9:53:33 AM	0	25 523	19 556	24 874	24 372	21 451	171,66	56,348	65 908	8 529	48 668	8 649	0 096	28 028	0 039	-0 018	75	75	11 6	52 5	3 620	0 017	0 017	0 00033	0 325	0 28
83	12/2/1999	9:54:33 AM	0	25 443	19 475	24 874	24 291	21 61	171,66	56,472	65 847	8 362	48 734	8 68	0 096	27,813	0 04	-0 018	76	76	11 5	52 6	3 627	0 017	0 018	0 00033	0 333	0 28
84	12/2/1999	9:55:34 AM	0	25 53	19 645	24 802	24 299	21 376	171,734	56 038	65 359	8 37	49 275	8 68	0 096	27,644	0 039	-0 018	77	77	11.5	52 7	3 630	0 017	0 017	0 00033	0 325	0 28
85	12/2/1999	9:56:34 AM	0	25.45	19 564	24 962	24 379	21.778	171,734	52 629	65,786	7.995	45 353	12,763	0 096	27 829	0 011	-0 018	78	78	11 5	49 0	3 378	0 005	0 005	0 00010	0 098	0 08

Run 1.09: 14 wt% Concentration of Insoluble Solids

	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	12/2/1999	9:57:34 AM	0	25.414	19.608	24.926	24.423	21.963	171.771	56.348	66.456	8.266	48.768	9.373	0.096	27.752	0.051	0.021	79	79	11.5	52.6	3.624	0.022	0.022	0.00042	0.424	0.36
87	12/2/1999	9:58:35 AM	0	25.378	19.652	24.97	24.467	22.028	171.808	55.976	65.847	8.37	48.836	9.311	0.096	27.844	0.045	0.016	80	80	11.6	52.4	3.613	0.020	0.020	0.00038	0.375	0.32
88	12/2/1999	10:00:35 AM	0	25.422	19.616	25.013	24.511	22.152	171.844	55.852	65.766	8.346	48.869	9.311	0.096	27.66	0.041	-0.018	82	82	11.5	52.4	3.610	0.018	0.018	0.00034	0.342	0.29
89	12/2/1999	10:01:36 AM	0	25.385	19.66	25.057	24.555	22.357	171.881	56.472	66.395	8.401	48.869	9.311	0.143	27.598	0.041	-0.006	83	83	11.5	52.7	3.631	0.018	0.018	0.00034	0.339	0.29
90	12/2/1999	10:02:36 AM	0	25.429	19.705	25.021	24.599	22.16	171.918	56.41	66.334	8.29	49.241	9.311	0.096	27.414	0.041	-0.015	84	84	11.4	52.8	3.642	0.018	0.018	0.00034	0.339	0.29
91	12/2/1999	10:03:36 AM	0	25.393	19.749	25.065	24.563	22.124	171.955	57.03	67.005	8.322	48.903	9.28	0.096	27.383	0.041	-0.018	85	85	11.4	53.0	3.652	0.018	0.018	0.00034	0.337	0.29
92	12/2/1999	10:04:37 AM	0	25.517	19.793	25.109	24.607	22.007	171.992	56.1	65.847	8.274	49.038	9.28	0.096	27.383	0.04	-0.018	86	86	11.4	52.6	3.624	0.017	0.017	0.00033	0.331	0.28
93	12/2/1999	10:05:37 AM	0	25.481	19.757	25.153	24.651	22.212	172.029	56.782	66.822	8.306	48.497	9.28	0.096	27.396	0.04	-0.018	87	87	11.4	52.6	3.629	0.017	0.017	0.00033	0.330	0.28
94	12/2/1999	10:06:37 AM	0	25.525	19.801	25.117	24.695	22.256	172.066	56.72	66.761	8.226	48.836	9.28	0.096	27.322	0.04	-0.018	88	88	11.3	52.8	3.639	0.017	0.017	0.00033	0.330	0.28
95	12/2/1999	10:07:38 AM	0	25.525	19.801	25.117	24.695	22.095	172.066	56.534	66.578	8.268	49.005	9.28	0.096	27.352	0.04	-0.018	89	89	11.4	52.8	3.638	0.017	0.017	0.00033	0.330	0.28
96	12/2/1999	10:08:38 AM	0	25.489	19.845	25.161	24.658	22.481	172.103	56.472	66.334	8.274	49.14	9.249	0.096	27.368	0.039	-0.018	90	90	11.4	52.8	3.641	0.017	0.017	0.00032	0.321	0.27
97	12/2/1999	10:09:39 AM	0	25.489	19.926	25.161	24.658	22.3	172.103	57.154	67.005	8.346	48.836	9.28	0.096	27.396	0.038	-0.018	91	91	11.4	53.0	3.654	0.017	0.017	0.00031	0.312	0.27
98	12/2/1999	10:10:39 AM	0	25.533	19.89	25.125	24.783	22.586	172.14	56.348	66.456	8.226	48.869	9.249	0.096	27.396	0.04	-0.018	92	92	11.4	52.6	3.627	0.017	0.017	0.00033	0.331	0.28
99	12/2/1999	10:11:39 AM	0	25.577	19.934	25.069	24.827	22.469	172.177	56.658	66.7	8.234	49.038	9.249	0.096	27.368	0.039	-0.015	93	93	11.4	52.6	3.644	0.017	0.017	0.00032	0.321	0.27
100	12/2/1999	10:12:40 AM	0	25.54	19.978	25.213	24.871	22.111	172.214	56.348	66.395	8.242	48.159	9.28	0.096	27.306	0.039	-0.018	94	94	11.3	52.3	3.603	0.017	0.017	0.00032	0.324	0.28
101	12/2/1999	10:13:40 AM	0	25.54	19.978	25.213	24.871	21.669	172.214	56.658	66.456	8.282	48.768	9.249	0.096	27.306	0.038	-0.018	95	95	11.3	52.7	3.634	0.017	0.018	0.00031	0.313	0.27
102	12/2/1999	10:14:40 AM	0	25.584	20.023	25.177	24.915	21.633	172.251	56.1	65.969	8.17	49.005	9.249	0.096	27.383	0.038	-0.018	96	96	11.4	52.6	3.623	0.017	0.017	0.00031	0.314	0.27
103	12/2/1999	10:15:40 AM	0	25.548	20.067	25.221	24.879	22.119	172.288	56.472	66.395	8.234	49.376	9.249	0.096	27.368	0.038	-0.012	97	97	11.4	52.9	3.649	0.017	0.016	0.00031	0.311	0.27
104	12/2/1999	10:16:41 AM	0	25.628	20.067	25.301	24.959	22.28	172.288	53.063	66.273	7.867	45.996	12.516	0.096	27.352	0.012	-0.018	98	98	11.4	49.5	3.415	0.005	0.005	0.00010	0.105	0.09
105	12/2/1999	10:17:41 AM	0	25.592	20.111	25.165	25.003	22.485	172.325	56.472	66.334	8.178	49.14	9.219	0.096	27.506	0.051	0.024	99	99	11.4	52.8	3.641	0.022	0.022	0.00042	0.419	0.36
106	12/2/1999	10:18:41 AM	0	25.636	20.156	25.229	25.047	22.69	172.362	53.726	65.481	8.178	49.005	9.188	0.096	27.429	0.044	0.015	100	100	11.4	52.4	3.610	0.019	0.019	0.00036	0.364	0.31
107	12/2/1999	10:19:42 AM	0	25.68	20.2	25.273	25.011	22.252	172.399	56.844	66.7	8.274	49.545	9.188	0.096	27.506	0.042	-0.009	101	101	11.4	53.2	3.668	0.018	0.018	0.00034	0.342	0.29
108	12/2/1999	10:20:42 AM	0	25.68	20.2	25.273	25.091	22.412	172.399	56.72	66.822	8.298	49.14	9.188	0.096	27.537	0.041	-0.018	102	102	11.4	52.9	3.649	0.018	0.018	0.00034	0.336	0.29
109	12/2/1999	10:21:42 AM	0	25.724	20.164	25.317	25.215	22.135	172.436	56.906	66.822	8.346	48.836	9.157	0.096	27.552	0.041	-0.009	103	103	11.4	52.9	3.645	0.018	0.018	0.00034	0.336	0.29
110	12/2/1999	10:22:43 AM	0	25.644	20.164	25.317	25.135	21.813	172.436	56.1	65.847	8.306	49.241	9.188	0.096	27.475	0.041	-0.018	104	104	11.4	52.7	3.631	0.018	0.018	0.00034	0.337	0.29
111	12/2/1999	10:23:43 AM	0	25.668	20.208	25.361	25.259	22.016	172.473	56.844	66.761	8.274	48.937	9.157	0.143	27.552	0.04	-0.015	105	105	11.4	52.9	3.647	0.017	0.017	0.00033	0.326	0.28
112	12/2/1999	10:24:43 AM	0	25.668	20.208	25.361	25.259	21.616	172.473	56.036	65.766	8.282	48.971	9.188	0.096	27.46	0.041	-0.003	106	106	11.4	52.5	3.620	0.018	0.018	0.00034	0.337	0.29
113	12/2/1999	10:25:44 AM	0	25.732	20.333	25.405	25.303	21.901	172.51	56.286	66.152	8.314	48.768	9.157	0.096	27.598	0.04	-0.018	107	107	11.5	52.5	3.622	0.017	0.017	0.00033	0.329	0.28
114	12/2/1999	10:26:44 AM	0	25.732	20.253	25.325	25.303	21.962	172.51	56.534	66.456	8.362	48.193	9.157	0.143	27.475	0.041	0.009	108	108	11.4	52.4	3.610	0.018	0.018	0.00034	0.339	0.29
115	12/2/1999	10:27:44 AM	0	25.777	20.297	25.369	25.347	21.865	172.547	56.41	66.273	8.378	48.362	9.157	0.143	27.629	0.04	-0.003	109	109	11.5	52.4	3.612	0.017	0.017	0.00033	0.330	0.28
116	12/2/1999	10:28:45 AM	0	25.821	20.341	25.413	25.391	22.232	172.584	55.914	65.786	8.346	48.531	9.157	0.096	27.629	0.039	-0.015	110	110	11.5	52.2	3.601	0.017	0.017	0.00032	0.322	0.27
117	12/2/1999	10:29:45 AM	0	25.821	20.341	25.493	25.391	21.99	172.584	55.976	65.969	8.234	48.971	9.157	0.096	27.552	0.04	0.003	111	111	11.4	52.5	3.618	0.017	0.017	0.00033	0.328	0.28
118	12/2/1999	10:30:45 AM	0	25.785	20.386	25.457	25.436	22.195	172.622	56.224	65.908	8.346	48.971	9.188	0.096	27.621	0.039	-0.006	112	112	11.4	52.6	3.626	0.017	0.017	0.00032	0.320	0.27
119	12/2/1999	10:31:46 AM	0	25.785	20.386	25.457	25.436	22.115	172.622	56.596	66.578	8.346	49.038	9.126	0.096	27.567	0.039	-0.009	113	113	11.4	52.8	3.642	0.017	0.017	0.00032	0.318	0.27
120	12/2/1999	10:32:46 AM	0	25.865	20.386	25.537	25.516	22.437	172.622	55.976	65.908	8.29	48.126	9.126	0.096	27.552	0.04	0.006	114	114	11.4	52.1	3.589	0.017	0.017	0.00033	0.330	0.28
121	12/2/1999	10:33:46 AM	0	25.909	20.43	25.501	25.56	22.642	172.659	56.968	66.944	8.37	48.869	9.157	0.096	27.521	0.038	0	115	115	11.4	52.9	3.649	0.017	0.016	0.00031	0.309	0.26
122	12/2/1999	10:34:47 AM	0	25.829	20.43	25.501	25.48	22.642	172.659	56.596	66.617	8.417	48.836	9.157	0.096	27.767	0.039	-0.018	116	116	11.5	52.7	3.635	0.017	0.017	0.00032	0.318	0.27
123	12/2/1999	10:35:47 AM	0	25.953	20.475	25.545	25.524	22.927	172.696	56.1	65.847	8.554	49.005	9.157	0.143	27.706	0.038	-0.018	117	117	11.5	52.6	3.623	0.017	0.016	0.00031	0.311	0.26
124	12/2/1999	10:36:47 AM	0	25.917	20.519	25.589	25.568	22.891	172.733	53.167	65.786	8.042	48.604	12.146	0.096	27.813	0.02	-0.015	118	118	11.5	49.9	3.440	0.009	0.009	0.00017	0.172	0.15
125	12/2/1999	10:37:48 AM	0	25.917	20.519	25.509	25.458	22.972	172.733	56.644	66.152	8.266	49.275	8.571	0.096	27.644	0.05	0.021	119	119	11.5	53.1	3.658	0.022	0.022	0.00041	0.406	0.35
126	12/2/1999	10:38:48 AM	0	25.837	20.519	25.509	25.568	22.972	172.733	56.782	66.091	8.394	49.005	8.756	0.096	27.675	0.045	0.006	120	120	11.5	52.9	3.647	0.020	0.019	0.00037	0.366	0.31
127	12/2/1999	10:39:48 AM	0	25.961	20.564	25.554	25.612	22.936	172.77	56.844	66.273	8.33	48.768	8.787	0.096	27.644	0.043	-0.018	121	121	11.5	52.8	3.641	0.019	0.018	0.00035	0.350	0.30
128	12/2/1999	10:40:49 AM	0	25.881	20.564	25.474	25.612	23.257	172.77	52.195	65.359	7.867	45.928	12.516	0.096	27.675	0.012	-0.018	122	122	11.6	49.1	3.383	0.005	0.005	0.00011	0.105	0.09
129																												
130		Averages		25.8	19.3	25.6	23.9	20.8	171.0	55.8	65.7	8.6	48.0	9.2	0.1	28.3	0.041	-0.005			11.8	51.9	3.581	0.018	0.017	0.00034	0.335	0.283
131		Maximum		27.2	20.6	27.0	25.6	23.3	172.8	57.5	67.0	9.2	49.5	13.0	0.1	29.9	0.062	0.033			12.4	53.2	3.668	0.027	0.026	0.00051	0.511	0.435
132		Median		25.8	19.2	25.4	23.9	21.0	171.2	56.0	65.7	8.5	48.3	9.1	0.1	28.0	0.041	-0.009			11.6	52.3	3.603	0.018	0.018	0.00034	0.339	0.289
133		Minimum		21.5	18.3	22.2	22.3	15.2	169.0	51.1	64.1	7.7	43.4	8.5	0.1	27.3	0.011	-0.018			11.3	47.3	3.260	0.005	0.005	0.00010	0.098	0.084
134		Std Deviation		1.096	0.710	0.859	0.968	1.594	1.231	1.082	0.880	0.295	1.082	0.903	0.024	0.778	0.008	0.015			0.329	1.050	0.072	0.003	0.003	0.000061	0.061	0.052
135		Number of Points Used		122	122	122	122	122	122	122	122	122	122	122	122	122	122	122			122	122	122	122	122	122	122	122



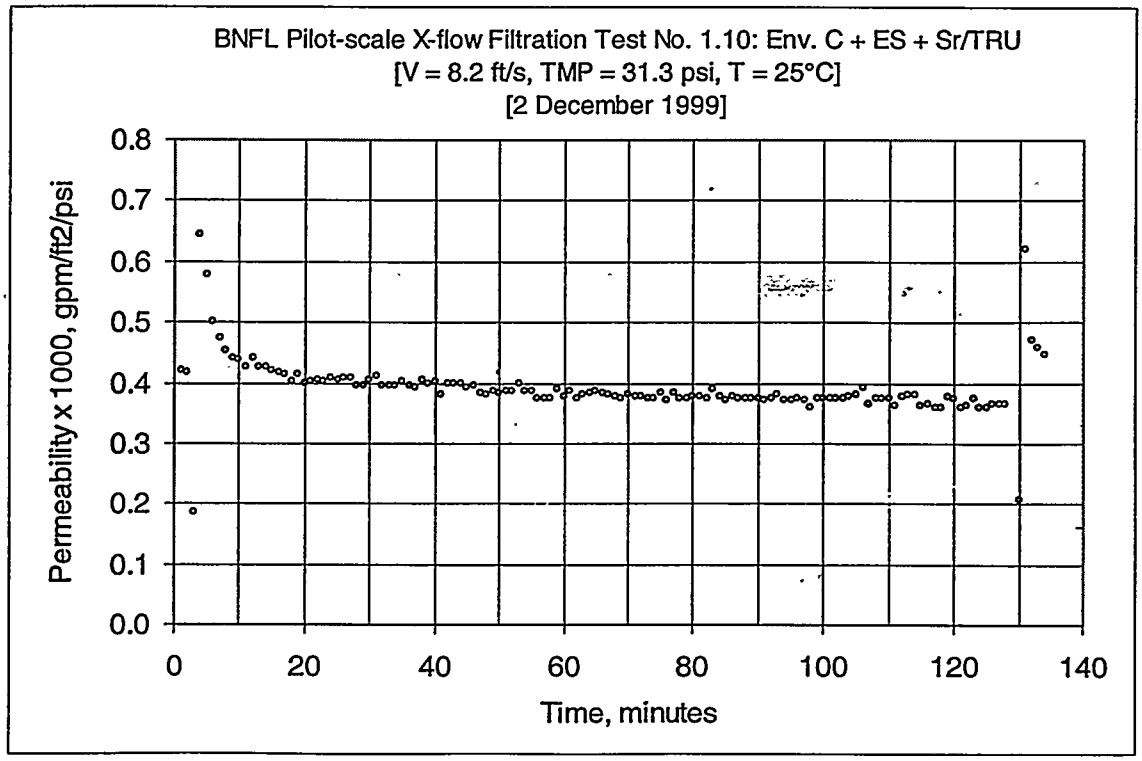


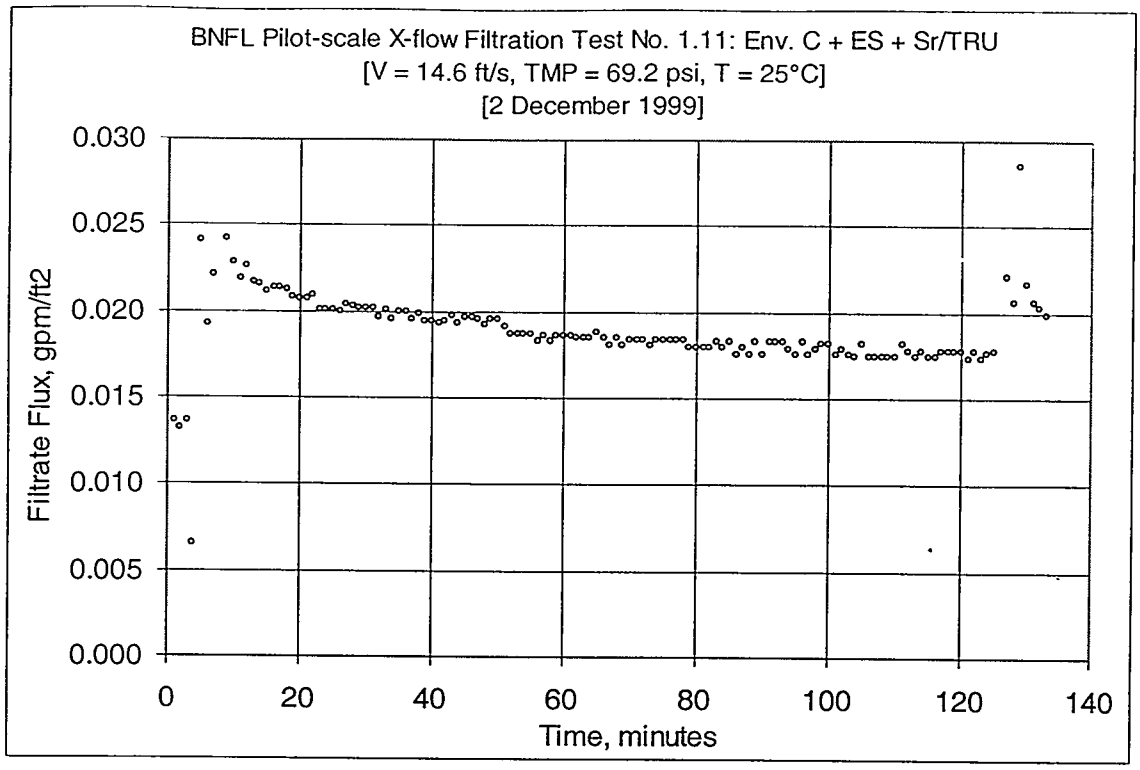
Figure C3: Test Run 1.10, 14 wt% Insoluble Solids Concentration

Run 1.10: 14 wt% Concentration of Insoluble Solids

	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 (dw	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR	O3,FLTR	FLOW (ppm)		Filter Surface Area		2.29	FT2				
2	Zeros - Lines Not Connected (continuous runs from 11/30 to 12/3/99)																				Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	11/30/1999	9:48:49 AM	0	25.98	19.534	25.732	23.366	55.74	171.439	-0.062	-0.133	-0.018	-0.017	-0.797	0.096	-0.095	0.011	-0.018										
4	11/30/1999	9:50:49 AM	0	25.864	19.578	25.618	23.349	55.782	171.476	-0.062	-0.072	-0.018	-0.017	-0.181	0.096	-0.08	0.011	-0.018										
5	11/30/1999	9:51:50 AM	0	25.74	19.534	25.412	23.388	55.74	171.439	-0.062	-0.072	-0.018	-0.017	-0.181	0.096	-0.08	0.011	-0.018										
6																												
7	Data - Per Minute																								at 25C	PERMEABILITY	x 1000	PERMEABILITY
8	12/2/1999	10:47:34 AM	0	25.826	20.75	24.537	25.677	23.362	172.993	33.226	41.76	5.888	27.739	7.955	0.143	21.884	0.029	-0.018	Number	Number	Vel, ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	meq/psi
9	12/2/1999	10:48:35 AM	0	25.856	20.75	24.617	25.797	23.121	172.993	33.164	41.638	5.904	28.145	7.956	0.096	21.823	0.029	-0.018	1	1	9.1	30.5	2.102	0.013	0.013	0.00042	0.421	0.36
10	12/2/1999	10:49:35 AM	0	25.71	20.673	24.822	25.841	22.823	173.03	28.639	41.682	5.513	23.815	12.639	0.143	21.839	0.011	-0.018	2	2	9.1	30.7	2.114	0.013	0.013	0.00042	0.417	0.36
11	12/2/1999	10:50:35 AM	0	25.71	20.795	24.962	25.921	22.362	173.03	32.42	42.431	5.537	27.367	9.26	0.143	20.947	0.044	0.018	3	3	9.0	29.1	2.007	0.013	0.013	0.00044	0.440	0.37
12	12/2/1999	10:51:36 AM	0	25.674	20.92	25.267	25.966	22.487	173.067	33.226	42.858	5.378	28.077	8.941	0.143	20.502	0.041	-0.003	4	4	8.7	29.9	2.061	0.019	0.019	0.00064	0.643	0.55
13	12/2/1999	10:52:36 AM	0	25.636	20.884	25.551	25.93	22.933	173.104	33.35	42.736	5.473	28.382	6.726	0.096	20.333	0.036	-0.018	5	5	8.5	30.7	2.113	0.018	0.018	0.00058	0.560	0.49
14	12/2/1999	10:53:36 AM	0	25.603	20.928	25.678	26.054	22.897	173.142	33.164	42.309	5.561	28.517	6.664	0.143	20.441	0.034	-0.018	6	6	8.4	30.9	2.126	0.016	0.015	0.00050	0.501	0.43
15	12/2/1999	10:54:37 AM	0	25.603	21.009	25.916	26.054	23.379	173.142	33.536	42.656	5.473	28.483	6.695	0.096	20.241	0.033	-0.018	7	7	8.5	30.8	2.126	0.015	0.015	0.00047	0.472	0.40
16	12/2/1999	10:55:37 AM	0	25.727	20.873	25.96	26.096	23.745	173.179	33.288	42.736	5.489	28.517	6.787	0.143	20.267	0.032	-0.018	8	8	8.4	31.0	2.138	0.014	0.014	0.00045	0.453	0.39
17	12/2/1999	10:56:38 AM	0	25.807	20.973	26.04	26.096	24.066	173.179	33.66	43.182	5.537	28.246	6.818	0.143	20.394	0.032	-0.018	9	9	8.4	30.9	2.131	0.014	0.014	0.00044	0.440	0.37
18	12/2/1999	10:57:38 AM	0	25.831	21.018	26.164	26.143	24.191	173.216	33.35	42.919	5.553	28.246	6.818	0.096	20.471	0.031	-0.018	10	10	8.5	31.0	2.134	0.014	0.014	0.00044	0.438	0.37
19	12/2/1999	10:58:38 AM	0	25.831	21.018	26.084	26.143	24.03	173.216	33.474	42.979	5.593	28.246	6.849	0.096	20.456	0.032	-0.018	11	11	8.5	30.8	2.123	0.014	0.013	0.00043	0.425	0.36
20	12/2/1999	10:59:39 AM	0	26.11	21.107	26.173	26.231	24.199	173.291	33.35	42.979	5.569	28.077	8.849	0.143	20.502	0.031	-0.018	12	12	8.5	30.9	2.126	0.014	0.014	0.00044	0.439	0.37
21	12/2/1999	11:00:39 AM	0	26.11	21.026	26.253	26.151	24.199	173.291	32.978	42.431	5.545	28.348	8.849	0.143	20.425	0.031	-0.018	13	13	8.5	30.7	2.118	0.014	0.013	0.00043	0.426	0.36
22	12/2/1999	11:01:39 AM	0	26.11	21.026	26.253	26.231	24.199	173.291	33.536	42.979	5.457	28.856	8.88	0.096	20.149	0.031	-0.018	14	14	8.5	30.7	2.114	0.014	0.013	0.00043	0.426	0.36
23	12/2/1999	11:02:40 AM	0	26.224	21.152	26.297	26.275	24.324	173.328	33.66	43.264	5.234	28.855	8.88	0.143	19.734	0.031	-0.018	15	15	8.4	31.2	2.154	0.014	0.013	0.00042	0.416	0.36
24	12/2/1999	11:03:40 AM	0	26.268	21.116	26.341	26.32	24.047	173.365	33.536	43.101	5.25	29.294	8.91	0.143	19.565	0.031	-0.018	16	16	8.2	31.3	2.155	0.014	0.013	0.00042	0.417	0.36
25	12/2/1999	11:04:40 AM	0	26.268	21.196	26.341	26.32	24.288	173.365	33.66	43.162	5.258	29.091	8.88	0.143	19.58	0.03	-0.015	17	17	8.1	31.4	2.166	0.014	0.013	0.00041	0.415	0.35
26	12/2/1999	11:05:40 AM	0	26.393	21.16	26.356	26.364	24.573	173.403	33.908	43.467	5.282	29.159	8.849	0.143	19.588	0.03	-0.018	18	18	8.1	31.4	2.163	0.013	0.013	0.00040	0.402	0.34
27	12/2/1999	11:06:41 AM	0	26.357	21.286	26.35	26.468	24.696	173.44	34.032	43.526	5.25	29.227	8.88	0.143	19.703	0.031	-0.018	19	19	8.2	31.5	2.174	0.014	0.013	0.00041	0.413	0.35
28	12/2/1999	11:07:41 AM	0	26.401	21.33	26.314	26.533	24.742	173.477	33.596	43.04	5.306	29.227	8.849	0.143	19.588	0.03	-0.018	20	20	8.2	31.6	2.181	0.013	0.013	0.00040	0.399	0.34
29	12/2/1999	11:08:42 AM	0	26.401	21.33	26.154	26.533	24.181	173.477	33.66	43.162	5.25	28.958	8.849	0.143	19.58	0.03	-0.018	21	21	8.1	31.4	2.166	0.013	0.013	0.00040	0.402	0.34
30	12/2/1999	11:09:42 AM	0	26.401	21.25	26.074	26.533	24.341	173.477	33.908	43.406	5.29	29.261	8.849	0.143	19.596	0.03	-0.018	22	22	8.1	31.3	2.159	0.013	0.013	0.00040	0.405	0.34
31	12/2/1999	11:10:42 AM	0	26.366	21.294	26.119	26.577	24.466	173.514	33.474	42.979	5.242	29.024	8.88	0.143	19.611	0.03	-0.018	23	23	8.1	31.6	2.178	0.013	0.013	0.00040	0.402	0.34
32	12/2/1999	11:11:43 AM	0	26.286	21.294	26.039	26.657	24.225	173.514	33.722	43.223	5.218	29.261	8.88	0.143	19.585	0.03	-0.018	24	24	8.1	31.2	2.155	0.013	0.013	0.00041	0.406	0.35
33	12/2/1999	11:12:43 AM	0	26.33	21.339	26.003	26.701	24.27	173.552	33.66	43.345	5.314	29.024	8.88	0.143	19.642	0.03	-0.018	25	25	8.1	31.5	2.171	0.013	0.013	0.00040	0.404	0.34
34	12/2/1999	11:13:43 AM	0	26.295	21.384	25.968	26.746	24.555	173.589	33.536	43.04	5.25	29.091	8.849	0.143	19.596	0.03	-0.018	26	26	8.2	31.3	2.161	0.013	0.013	0.00041	0.406	0.35
35	12/2/1999	11:14:44 AM	0	26.339	21.429	25.932	26.79	24.76	173.626	33.66	43.162	5.266	28.821	8.88	0.143	19.534	0.029	-0.018	27	27	8.1	31.3	2.159	0.013	0.013	0.00041	0.407	0.35
36	12/2/1999	11:15:44 AM	0	26.259	21.429	25.852	26.79	24.68	173.626	33.66	43.162	5.282	29.058	8.88	0.096	19.58	0.029	-0.018	28	28	8.1	31.2	2.154	0.013	0.012	0.00039	0.395	0.34
37	12/2/1999	11:16:44 AM	0	26.223	21.473	25.817	26.834	24.965	173.664	33.784	43.345	5.306	29.326	8.88	0.143	19.58	0.03	-0.018	29	29	8.1	31.4	2.162	0.013	0.012	0.00039	0.394	0.34
38	12/2/1999	11:17:45 AM	0	26.188	21.516	25.881	26.879	24.849	173.701	33.596	43.223	5.282	28.889	8.88	0.143	19.673	0.03	-0.018	30	30	8.1	31.6	2.176	0.013	0.013	0.00041	0.406	0.35
39	12/2/1999	11:18:45 AM	0	26.312	21.563	25.825	27.003	24.613	173.739	33.412	42.858	5.322	29.193	8.88	0.143	19.657	0.029	-0.018	31	31	8.2	31.2	2.154	0.013	0.013	0.00041	0.409	0.35
40	12/2/1999	11:19:46 AM	0	26.232	21.563	25.745	26.923	24.733	173.739	33.784	43.406	5.194	29.125	8.88	0.143	19.212	0.029	-0.015	32	32	8.2	31.3	2.158	0.013	0.012	0.00040	0.395	0.34
41	12/2/1999	11:20:46 AM	0	26.152	21.563	25.745	26.923	24.573	173.739	33.536	43.223	5.346	28.922	8.91	0.143	19.642	0.029	-0.018	33	33	8.0	31.5	2.169	0.013	0.012	0.00039	0.394	0.34
42	12/2/1999	11:21:46 AM	0	26.197	21.606	25.63	27.047	24.377	173.776	33.596	43.04	5.338	28.212	8.88	0.143	19.596	0.029	-0.018	34	34	8.2	31.2	2.153	0.013	0.012	0.00040	0.397	0.34
43	12/2/1999	11:22:47 AM	0	26.161	21.652	25.674	27.092	24.662	173.813	33.66	43.284	5.29	28.99	8.88	0.189	19.565	0.029	-0.018	35	35	8.1	30.9	2.131	0.013	0.012	0.00040	0.402	0.34
44	12/2/1999	11:23:47 AM	0	26.126	21.697	25.719	27.136	24.626	173.851	33.97	43.406	5.354	29.125	8.88	0.143	19.55	0.029	-0.018	36	36	8.1	31.3	2.160	0.013	0.012	0.00040	0.397	0.34
45	12/2/1999	11:24:47 AM	0	26.126	21.697	25.639	27.056	24.626	173.851	32.654	42.431	5.274	28.72	8.91	0.143	19.534	0.029	-0.018	37	37	8.1	31.5	2.175	0.013	0.012	0.00039	0.393	0.33
46	12/2/1999	11:25:48 AM	0	26.17	21.742	25.603	27.101	24.911	173.888	33.536	43.04	5.226	28.922	8.91	0.143	19.504	0.029	-0.018	38	38	8.1	30.8	2.123	0.013	0.012	0.00040	0.404	0.34
47	12/2/1999	11:26:48 AM	0	26.17	21.742	25.523	27.181	24.751	173.888	33.474	42.979	5.25	28.889	8.88	0.143	19.488	0.029	-0.018	39	39	8.1	31.2	2.153	0.013	0.012	0.00040	0.399	0.34
48	12/2/1999	11:27:48 AM	0	26.135	21.787	25.568	27.225	24.956	173.926	33.908	43.569	5.29	29.193	8.88	0.143	19.427	0.028	-0.018	40	40	8.1	31.2	2.150	0.013	0.012	0.00040	0.400	0.34
49	12/2/1999	11:28:49 AM	0	26.179	21.832	25.613	27.35	25.001	173.963	33.66	43.162	5.282	28.72	8.88	0.143	19.504	0.029	-0.015	41	41	8.1	31.6	2.175	0.012	0.012	0.00038	0.381	0.32
50	12/2/1999	11:29:49 AM	0	26.099	21.832	25.532	27.35	24.68	173.963	33.784	43.223	5.306	28.956	8.91	0.143	19.534	0.029	-0.018	42	42	8.1	31.2	2.150	0.013	0.012	0.00040	0.399	0.34
51	12/2/1999	11:30:49 AM	0	26.144	21.876	25.497	27.394	24.645	174.001	33.66	43.223	5.25	29.024	8.88	0.143	19.534	0.029	-0.018	43	43	8.1	31.4	2.163	0.013	0.012	0.00040	0.398	0.34
52	12/2/1999	11:31:50 AM	0	26.188	21.921	25.542	27.359	24.769	174.038	33.97	43.629	5.234	29.326	8.88	0.143	19.381	0.029	-0.015	44	44	8.0	31.3	2.161	0.013	0.012	0.00040	0.398	0.34
53	12/2/1999	11:32:50 AM	0	26.188	21.921	25.462	27.279	24.769	174.038	33.97	43.528	5.194	29.159	8.91	0.143	19.381	0.029	-0.018	45	45	8.0	31.6	2.182	0.013	0.012	0.00039	0.394	0.34
54	12/2/1999	11:33:50 AM	0	26.153	21.966	25.506	27.243	24.654	174.076	33.908	43.569	5.258	28.855	8.88	0.143	19.381	0.029	-0.018	46	46	8.0	31.6	2.178	0.013	0.012	0.00040	0.398	0.34
55	12/2/1999	11:34:51 AM	0	26.073	21.966	25.506	27.084	24.734	174.076	33.848	43.406	5.266	29.43	8.91	0.143	19.365	0.028	-0.018	47	47	8.0	31.4	2.164	0.012	0.012	0.00038	0.384	0.33
56	12/2/1999	11:35:51 AM	0	26.116	22.011	25.471	27.048	24.939	174.113	33.66	43.284	5.218	28.821	8.91	0.143	19.335	0.028	-0.018	48	48	8.0	31.6	2.181	0.012	0.012	0.00038	0.381	0.32
57	12/2/1999	11:36:51 AM	0	26.082	22.056	25.435	27.013	24.903	174.151	33.66	43.162	5.234	29.091	8.91	0.143	19.35	0.028	-0.018	49	49	8.0	31.2	2.154	0.012	0.012	0.00039	0.386	0.33
58	12/2/1999	11:37:52 AM	0	26.082	22.056	25.435	26.933	24.984	174.151	33.66	43.284	5.234	29.058	8.91	0.143	19.381	0.028	-0.018	50	50	8.0	31.4	2.163	0.012	0.012	0.00038	0.385	0.33
59	12/2/1999	11:38:52 AM	0	26.047	22.101	25.4	26.896	24.946	174.188	33.474	42.919	5.234	28.956	8.91	0.143	19.335	0.028	-0.018	51	51	8.0	31.4	2.162	0.012	0.012	0.00039	0.385	0.33
60	12/2/1999	11:39:52 AM	0	26.011	22.146	25.445	26.862	24.993	174.226	33.784	43.406	5.21	29.058	8.91	0.143	19.335	0.029	-0.018	52	52	8.0	31.2	2.152	0.012	0.012	0.00039	0.387	0.33
61	12/2/1999	11:40:53 AM	0	26.011	22.065	25.365	26.782	24.993	174.226	33.596	43.223	5.426	28.767	8.88	0.143	19.734	0.026	-0.018	53	53	8.0	31.4	2.166	0.013	0.013	0.00040	0.398	0.34
62	12/2/1999	11:41:53 AM	0	25.976	22.11	25.329	26.747	24.958	174.263	33.848	43.467	5.394	28.922	8.88	0.143	19.811	0.029	-0.018	54	54	8.2	31.2	2.151	0.012	0.012	0.00039	0.388	0.33
63	12/2/1999	11:42:53 AM	0	26.021	22.155	25.374	26.792	25.002	174.301	33.35	42.979	5.378	28.787	8.88	0.143	19.688	0.027	-0.018	55	55	8.2	31.4	2.164	0.012	0.012	0.00039	0.388	0.33
64	12/2/1999	11:43:54 AM	0	26.065	22.2	25.419	26.756	24.967	174.338	33.35	42.979	5.346	28.655	8.88	0.189	19.734	0.027	-0.018	56	56	8.2	31.1	2.142	0.012	0.012	0.00038	0.375	0.32
65	12/2/1999	11:44:54 AM	0	26.03	22.245	25.384	26.721	24.932	174.376	33.412	43.04	5.394	28.72	8.88	0.143	19.749	0.027	-0.018	57	57	8.2	31.1	2.144	0.012	0.012	0.00037	0.373	0.32
66	12/2/1999	11:45:54 AM	0	25.995	22.245	25.34	26.641	24.771	174.376	33.288	42.919	5.322	28.616	8.91	0.143	19.78	0.028	-0.018	58	58	8.2	31.1	2.142	0.012	0.012	0.00038	0.375	0.32
67	12/2/1999	11:46:55 AM	0	25.995	22.29	25.348	26.766	24.896	174.414	33.35	43.04	5.366	28.72	8.91	0.143	19.734	0.027	-0.018	59	59	8.2	31.0	2.134	0.012	0.012	0.00039	0.381	0.33
68	12/2/1999	11:47:55 AM	0	26.04	22.255	25.213	26.651	24.54	174.451	33.848	43.526	5.218	28.616	8.91	0.189	19.734	0.028	-0.018	60	60	8.2	31.0	2.140	0.012	0.012	0.00038	0.378	0.32
69	12/2/1999	11:48:55 AM	0	25.88	22.255	25.393	26.491	24.059	174.451	33.412	42.979	5.481	28.652	8.88	0.143	19.934	0.027	-0.015	61	61	8.2	31.2	2.153	0.012	0.012	0.00039	0.388	0.33
70	12/2/1999	11:49:55 AM	0	25.924	22.3	25.278	26.456	23.703	174.489	33.164	42.736	5.617	28.449	8.88	0.143	20.394	0.027	-0.018	62	62	8.3	31.0	2.140	0.012	0.012	0.00038	0.378	0.32
71	12/2/1999	11:50:56 AM	0	25.969	22.345	25.323	26.26	23.426	174.526	33.102	42.736	5.697	27.908	8.88	0.143	20.394	0.027	-0.018	63	63	8.5	30.8	2.124	0.012	0.012	0.00038	0.380	0.32
72	12/2/1999	11:51:56 AM	0	25.889	22.345	25.243	26.02	23.185	174.526	32.792	42.37	5.616	27.739	8.88	0.189	20.732	0.027	-0.018	64	64	8.5	30.5	2.103	0.012	0.012	0.00038	0.383	0.33
73	12/2/1999	11:52:57 AM	0	25.834	22.39	25.287	25.903	23.07	174.564	33.288	42.858	5.808	27.807	8.88	0.143	20.746	0.027	-0.018	65	65	8.6	30.3	2.087	0.012	0.012	0.00039	0.387	0.33
74	12/2/1999	11:53:57 AM	0	25.934	22.39	25.287	25.665	22.909	174.564	33.164	42.797	5.633	28.212	8.88	0.143	20.425	0.027	-0.015	66	66	8.6	30.5	2.106	0.012	0.012	0.00038	0.383	0.33
75	12/2/1999	11:54:57 AM	0	25.854	22.39	25.207	25.585	22.748	174.564	33.536	43.162	5.809	28.382	8.91	0.143	20.133	0.027	-0.015	67	67	8.5	30.7	2.116	0.012	0.012	0.00038	0.381	0.32
76	12/2/1999	11:55:57 AM	0	25.899	22.515	25.252	25.47	22.852	174.602	33.908	43.569	5.505	28.463	8.941	0.189	20.067	0.027	-0.018	68	68	8.4	31.0	2.135	0.012	0.012	0.00038	0.379	0.32
77	12/2/1999	11:56:58 AM	0	25.774	22.39	25.127	25.265	22.348	174.564	33.226	42.797	5.545	28.449	8.91	0.143	20.026	0.027	-0.015	69	69	8.3	31.2	2.151	0.012	0.012	0.00038	0.375	0.32
78	12/2/1999	11:57:58 AM	0	25.819	22.433	25.252	25.229	22.23	174.602	33.536	43.223	5.465	28.382	8.941	0.143	19.995	0.027	-0.018	70	70	8.3	30.8	2.126	0.012	0.012	0.00038	0.381	0.32
79	12/2/1999	11:58:58 AM	0	25.739	22.433	25.172	25.069	22.15	174.602	33.596	43.284	5.513	28.517	8.941	0.189	20.01	0.027	-0.018	71	71	8.3	31.0	2.135	0.012	0.012	0.00038	0.378	0.32
80	12/2/1999	11:59:59 AM	0	25.739	22.455	25.172	24.969	21.969	174.602	33.784	43.467	5.37	28.922	8.941	0.143	19.626	0.027	-0.018	72	72	8.3	31.1	2.141	0.012	0.012	0.00038	0.378	0.32
81	12/2/1999	12:00:59 PM	0	25.784	22.48	25.137	25.034	22.034	174.63	33.722	43.406	5.457	28.753	8.941	0.143	19.66	0.027	-0.018	73	73	8.1	31.4	2.162	0.012	0.012	0.00037	0.374	0.32
82	12/2/1999	12:01:59 PM	0	25.784	22.48	25.137	24.874	21.873	174.639	33.184	42.797	5.697	28.111	8.941	0.143	20.348	0.026	-0.018	74	74	8.3	31.2	2.154	0.012	0.012	0.00038	0.378	0.32
83	12/2/1999	12:03:00 PM	0	25.659	22.515	25.092	24.829	21.828	174.602	33.04	42.736	5.705	28.01	8.91	0.143	20.517	0.027	-0.018	75	75	8.5	30.6	2.112	0.012	0.012	0.00038	0.383	0.33
84	12/2/1999	12:04:00 PM	0	25.659	22.515	25.092	24.829	21.747	174.602	33.102	42.614	5.721	28.348	8.88	0.143	20.348	0.026	-0.018	76	76	8.4	30.5	2.105	0.011	0.011	0.00037	0.371	0.32
85	12/2/1999	12:05:00 PM	0	25.784	22.48	25.137	24.713	21.792	174.639	33.596	43.284	5.418	28.889	8.941	0.143	20.517	0.027	-0.018	77	77	8.5	30.7	2.116	0.012	0.012	0.00038	0.383	0.33
															0.143	19.841	0.027	-0.018	78	78	8.2	31.2	2.154	0.012	0.012	0.00038	0.376	0.32

Run 1.10: 14 wt% Concentration of Insoluble Solids

	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	12/2/1999	12:06:01 PM	0	25 659	22 435	25 092	24 868	21 667	174 602	33 722	43 406	5 433	28 855	8 941	0 143	19 903	0 027	-0 018	79	79	8 3	31 3	2 157	0 012	0 012	0 00038	0 376	0 32
87	12/2/1999	12:07:01 PM	0	25 659	22 515	25 092	24 588	21 586	174 602	33 66	43 406	5 441	28 618	8 941	0 143	19 889	0 027	-0 015	80	80	8 3	31 1	2 147	0 012	0 012	0 00038	0 378	0 32
88	12/2/1999	12:08:01 PM	0	25 659	22 515	25 012	24 588	21 425	174 602	33 474	43 101	5 378	28 821	8 941	0 143	19 749	0 027	-0 018	81	81	8 2	31 1	2 148	0 012	0 012	0 00038	0 378	0 32
89	12/2/1999	12:09:02 PM	0	25 614	22 47	25 047	24 463	21 38	174 564	33 722	43 406	5 258	28 956	8 941	0 143	19 457	0 027	-0 018	82	82	8 1	31 3	2 161	0 012	0 012	0 00038	0 376	0 32
90	12/2/1999	12:10:02 PM	0	25 614	22 47	25 047	24 463	21 38	174 564	33 596	43 162	5 296	29 125	8 941	0 143	19 457	0 028	-0 015	83	83	8 1	31 4	2 162	0 012	0 012	0 00039	0 389	0 33
91	12/2/1999	12:11:02 PM	0	25 534	22 551	24 967	24 383	21 622	174 564	33 596	43 223	5 29	29 058	8 941	0 143	19 473	0 027	-0 018	84	84	8 1	31 3	2 160	0 012	0 012	0 00038	0 377	0 32
92	12/2/1999	12:12:03 PM	0	25 534	22 47	25 047	24 383	21 753	174 564	34 032	43 65	5 306	29 185	8 941	0 143	19 427	0 027	-0 018	85	85	8 1	31 6	2 180	0 012	0 012	0 00037	0 372	0 32
93	12/2/1999	12:13:03 PM	0	25 489	22 425	24 922	24 418	21 899	174 526	33 596	43 162	5 314	29 185	8 941	0 143	19 473	0 027	-0 018	86	86	8 1	31 4	2 165	0 012	0 012	0 00038	0 378	0 32
94	12/2/1999	12:14:04 PM	0	25 534	22 551	24 967	24 463	22 105	174 564	33 97	43 65	5 25	29 261	8 941	0 189	19 473	0 027	-0 018	87	87	8 1	31 6	2 180	0 012	0 012	0 00037	0 373	0 32
95	12/2/1999	12:15:04 PM	0	25 534	22 47	24 967	24 463	22 266	174 564	33 722	43 292	5 266	29 362	8 941	0 143	19 365	0 027	-0 018	88	88	8 0	31 5	2 175	0 012	0 012	0 00037	0 374	0 32
96	12/2/1999	12:16:04 PM	0	25 409	22 425	24 922	24 496	22 361	174 526	33 784	43 406	5 258	29 261	8 941	0 143	19 381	0 027	-0 018	89	89	8 0	31 5	2 173	0 012	0 012	0 00037	0 375	0 32
97	12/2/1999	12:17:04 PM	0	25 409	22 506	24 922	24 496	22 361	174 526	34 094	43 711	5 314	29 125	8 941	0 143	19 396	0 027	-0 015	90	90	8 0	31 6	2 179	0 012	0 012	0 00037	0 374	0 32
98	12/2/1999	12:18:05 PM	0	25 373	22 551	24 967	24 623	22 507	174 564	34 032	43 772	5 25	29 43	8 941	0 143	19 457	0 027	-0 018	91	91	8 1	31 7	2 188	0 012	0 012	0 00037	0 372	0 32
99	12/2/1999	12:19:05 PM	0	25 373	22 47	24 967	24 623	22 587	174 564	33 908	43 467	5 258	29 227	8 941	0 143	19 381	0 027	-0 018	92	92	8 0	31 6	2 176	0 012	0 012	0 00037	0 374	0 32
100	12/2/1999	12:20:06 PM	0	25 293	22 47	24 887	24 623	22 507	174 564	33 184	42 675	5 266	29 091	8 91	0 143	19 457	0 027	-0 018	93	93	8 1	31 1	2 146	0 012	0 012	0 00038	0 380	0 32
101	12/2/1999	12:21:06 PM	0	25 373	22 47	24 967	24 704	22 507	174 564	34 094	43 711	5 25	29 294	8 941	0 143	19 411	0 027	-0 018	94	94	8 1	31 7	2 185	0 012	0 012	0 00037	0 372	0 32
102	12/2/1999	12:22:07 PM	0	25 338	22 515	25 012	24 668	22 632	174 602	33 97	43 711	5 258	29 362	8 941	0 143	19 427	0 027	-0 018	95	95	8 1	31 7	2 183	0 012	0 012	0 00037	0 372	0 32
103	12/2/1999	12:23:07 PM	0	25 338	22 515	24 932	24 668	22 632	174 602	33 908	43 528	5 17	29 362	8 941	0 143	19 212	0 027	-0 018	96	96	8 0	31 6	2 181	0 012	0 012	0 00037	0 373	0 32
104	12/2/1999	12:24:07 PM	0	25 293	22 47	24 887	24 623	22 748	174 564	34 342	44 136	5 194	29 396	8 941	0 143	19 258	0 027	-0 015	97	97	8 0	31 9	2 197	0 012	0 012	0 00037	0 371	0 32
105	12/2/1999	12:25:07 PM	0	25 338	22 515	24 932	24 748	22 793	174 602	33 846	43 406	5 282	29 43	8 91	0 143	19 273	0 026	-0 018	98	96	8 0	31 6	2 181	0 011	0 011	0 00036	0 359	0 31
106	12/2/1999	12:26:08 PM	0	25 303	22 56	24 977	24 793	22 758	174 639	33 784	43 406	5 226	29 227	8 91	0 143	19 457	0 027	-0 018	99	99	8 1	31 5	2 172	0 012	0 012	0 00037	0 374	0 32
107	12/2/1999	12:27:08 PM	0	25 303	22 56	24 897	24 793	22 836	174 639	33 784	43 406	5 218	29 294	8 91	0 143	19 335	0 027	-0 015	100	100	8 0	31 5	2 175	0 012	0 012	0 00037	0 375	0 32
108	12/2/1999	12:28:09 PM	0	25 303	22 56	24 816	24 793	22 758	174 639	33 846	43 467	5 33	29 227	8 91	0 143	19 411	0 027	-0 018	101	101	8 1	31 5	2 174	0 012	0 012	0 00038	0 376	0 32
109	12/2/1999	12:29:09 PM	0	25 303	22 56	24 816	24 713	22 436	174 639	34 094	43 772	5 314	29 193	8 91	0 143	19 442	0 027	-0 018	102	102	8 1	31 6	2 182	0 012	0 012	0 00037	0 374	0 32
110	12/2/1999	12:30:09 PM	0	25 258	22 515	24 852	24 748	22 472	174 602	33 846	43 467	5 282	29 193	8 91	0 143	19 473	0 027	-0 018	103	103	8 1	31 5	2 173	0 012	0 012	0 00038	0 376	0 32
111	12/2/1999	12:31:09 PM	0	25 303	22 56	24 816	24 713	22 597	174 639	33 66	43 345	5 282	29 193	8 91	0 143	19 519	0 027	-0 018	104	104	8 1	31 4	2 167	0 012	0 012	0 00038	0 377	0 32
112	12/2/1999	12:32:10 PM	0	25 258	22 515	24 852	24 668	22 632	174 602	33 474	42 978	5 354	28 922	8 91	0 143	19 458	0 027	-0 018	105	105	8 1	31 2	2 151	0 012	0 012	0 00038	0 379	0 32
113	12/2/1999	12:33:10 PM	0	25 178	22 515	24 852	24 668	22 715	174 602	33 722	43 345	5 368	28 956	8 88	0 143	19 718	0 028	-0 018	106	106	8 2	31 3	2 181	0 012	0 012	0 00039	0 392	0 33
114	12/2/1999	12:34:10 PM	0	25 223	22 56	24 897	24 713	22 838	174 639	33 596	43 223	5 346	28 618	8 91	0 143	19 673	0 026	-0 018	107	107	8 2	31 1	2 145	0 011	0 011	0 00037	0 366	0 31
115	12/2/1999	12:35:11 PM	0	25 223	22 56	24 897	24 793	22 919	174 639	33 66	43 223	5 418	29 261	8 91	0 143	19 289	0 027	-0 018	108	108	8 0	31 5	2 169	0 012	0 012	0 00038	0 376	0 32
116	12/2/1999	12:36:11 PM	0	25 268	22 605	24 861	24 838	22 964	174 677	34 094	43 772	5 322	29 091	8 91	0 143	19 55	0 027	-0 018	109	109	8 1	31 6	2 178	0 012	0 012	0 00037	0 375	0 32
117	12/2/1999	12:37:12 PM	0	25 268	22 605	24 861	24 838	22 883	174 677	33 722	43 223	5 346	29 294	8 88	0 143	19 518	0 027	-0 018	110	110	8 1	31 5	2 172	0 012	0 012	0 00038	0 376	0 32
118	12/2/1999	12:38:12 PM	0	25 268	22 605	24 861	24 838	22 964	174 677	33 846	43 345	5 394	28 99	8 91	0 143	19 749	0 026	-0 015	111	111	8 2	31 4	2 166	0 011	0 011	0 00036	0 363	0 31
119	12/2/1999	12:39:12 PM	0	25 233	22 67	24 826	24 883	22 928	174 715	33 66	43 223	5 37	28 855	8 91	0 143	19 628	0 027	-0 018	112	112	8 1	31 3	2 155	0 012	0 012	0 00038	0 379	0 32
120	12/2/1999	12:40:13 PM	0	25 188	22 525	24 781	24 758	22 964	174 677	33 536	43 162	5 368	28 787	8 88	0 143	19 58	0 027	-0 018	113	113	8 1	31 2	2 148	0 012	0 012	0 00038	0 381	0 32
121	12/2/1999	12:41:13 PM	0	25 233	22 651	24 826	24 723	22 928	174 715	33 722	43 345	5 354	28 686	8 91	0 143	19 58	0 027	-0 015	114	114	8 1	31 2	2 151	0 012	0 012	0 00038	0 380	0 32
122	12/2/1999	12:42:13 PM	0	25 233	22 57	24 746	24 723	22 848	174 715	33 97	43 528	5 306	29 294	8 91	0 143	19 411	0 026	-0 018	115	115	8 1	31 6	2 181	0 011	0 011	0 00036	0 361	0 31
123	12/2/1999	12:43:14 PM	0	25 152	22 67	24 746	24 643	22 928	174 715	33 536	43 101	5 354	29 058	8 91	0 143	19 457	0 026	-0 018	116	116	8 1	31 3	2 158	0 011	0 011	0 00037	0 365	0 31
124	12/2/1999	12:44:14 PM	0	25 197	22 615	24 791	24 768	22 974	174 753	34 032	43 65	5 322	29 294	8 91	0 143	19 427	0 026	-0 018	117	117	8 1	31 7	2 183	0 011	0 011	0 00036	0 361	0 31
125	12/2/1999	12:45:14 PM	0	25 197	22 615	24 871	24 768	22 974	174 753	34 094	43 711	5 266	29 261	8 91	0 143	19 365	0 026	-0 015	118	118	8 0	31 7	2 184	0 011	0 011	0 00036	0 360	0 31
126	12/2/1999	12:46:15 PM	0	25 197	22 615	24 781	24 768	22 813	174 753	33 784	43 406	5 37	29 261	8 91	0 189	19 442	0 027	-0 018	119	119	8 1	31 5	2 173	0 012	0 012	0 00038	0 376	0 32
127	12/2/1999	12:47:15 PM	0	25 162	22 66	24 756	24 733	22 858	174 79	34 156	43 711	5 362	29 326	8 91	0 096	19 457	0 027	-0 018	120	120	8 1	31 7	2 188	0 012	0 012	0 00037	0 374	0 32
128	12/2/1999	12:48:15 PM	0	25 162	22 58	24 836	24 733	22 858	174 79	34 032	43 528	5 338	29 599	8 91	0 143	19 427	0 026	-0 018	121	121	8 1	31 8	2 194	0 011	0 011	0 00036	0 358	0 31
129	12/2/1999	12:49:15 PM	0	25 162	22 58	24 836	24 653	22 858	174 79	33 908	43 589	5 266	29 125	8 88	0 143	19 411	0 026	-0 018	122	122	8 1	31 5	2 173	0 011	0 011	0 00036	0 362	0 31
130	12/2/1999	12:50:16 PM	0	25 127	22 625	24 801	24 696	22 903	174 828	33 908	43 467	5 354	29 43	8 88	0 143	19 473	0 027	-0 018	123	123	8 1	31 7	2 183	0 012	0 012	0 00037	0 374	0 32
131	12/2/1999	12:51:16 PM	0	25 127	22 625	24 801	24 696	22 823	174 828	34 218	43 955	5 266	29 058	8 91	0 143	19 365	0 026	-0 018	124	124	8 0	31 6	2 181	0 011	0 011	0 00036	0 361	0 31
132	12/2/1999	12:52:16 PM	0	25 172	22 67	24 766	24 743	22 787	174 866	34 28	43 894	5 322	29 453	8 88	0 143	19 488	0 026	-0 018	125	125	8 1	31 9	2 197	0 011	0 011	0 00036	0 358	0 31
133	12/2/1999	12:53:17 PM	0	25 092	22 67	24 766	24 743	22 707	174 866	33 784	43 467	5 402	28 821	8 88	0 143	19 78	0 026	-0 018	126	126	8 2	31 3	2 158	0 011	0 011	0 00036	0 365	0 31
134	12/2/1999	12:54:17 PM	0	25 092	22 67	24 766	24 582	22 787	174 866	33 596	43 162	5 629	28 72	8 88	0 143	20 118	0 026	-0 015	127	127	8 3	31 2	2 148	0 011	0 011	0 00037	0 367	0 31
135	12/2/1999	12:55:17 PM	0	25 092	22 59	24 766	24 582	22 787	174 866	33 596	43 101	5 629	28 72	8 849	0 143	20 087	0 026	-0 018	128	128	8 3	31 2	2 146	0 011	0 011	0 00037	0 367	0 31
136	12/2/1999	12:56:18 PM	1	25 137	22 635	24 811	-24 547	22 833	174 904	-6 819	44 504	7 125	-4 413	90 638	99 146	19 35	0 017	0 015	129	129	8 0	-5 6	-0 367	0 007	0 007	-0 00133	-1 328	-1 15
137	12/2/1999	12:57:18 PM	0	25 137	22 635	24 811	24 547	22 833	174 904	29 941	43 101	5 13	25 575	12 424	0 143	20 118	0 013	-0 015	130	130	8 3	27 8	1 914	0 006	0 006	0 00021	0 206	0 17
138	12/2/1999	12:58:18 PM	0	25 182	22 68	24 776	24 592	22 797	174 941	33 536	43 223	5 29	28 889	9 003	0 143	19 995	0 044	0 012	131	131	8 3	31 2	2 152	0 019	0 019	0 00062	0 619	0 53
139	12/2/1999	12:59:19 PM	0	25 137	22 635	-24 731	24 547	22 833	174 904	34 156	43 528	5 338	29 261	8 602	0 143	19 872	0 034	-0 015	132	132	8 2	31 7	2 186	0 015	0 015	0 00047	0 472	0 40
140	12/2/1999	1:00:19 PM	0	25 102	22 68	24 776	24 592	22 797	174 941	33 97	43 345	5 418	29 261	8 695	0 143	19 841	0 033	-0 018	133	133	8 2	31 6	2 180	0 014	0 014	0 00046	0 459	0 39
141	12/2/1999	1:01:19 PM	0	25 057	22 555	24 731	24 547	22 833	174 904	34 156	43 589	5 457	28 99	8 726	0 143	19 857	0 032	-0 018	134	134	8 2	31 6	2 177	0 014	0 014	0 00045	0 446	0 38
142																												
143		Averages		25 7	22 1	25 3	25 7	23 4	174 2	33 6	43 2	5 4	28 9	8 9	0 1	19 7	0 0	0 0	66 0	66 0	8 2	31 3	2 156	0 012	0 012	0 000391	0 391	0 333
144		Maximum		26 4	22 7	26 4	27 4	25 0	174 9	34 3	44 1	5 8	29 6	9 3	0 2	20 9	0 0	0 0	128 0	128 0	8 7	31 9	2 197	0 019	0 019	0 000643	0 643	0 547
145		Median		25 8	22 4	25 3	25 9	23 0	174 5	33 7	43 2	5 3	29 0	8 9	0 1	19 8	0 0	0 0	66 0	66 0	8 1	31 3	2 159	0 012	0 012	0 000381	0 381	0 324
146		Minimum		25 1	20 8	24 7	24 4	21 4	173 0	32 4	42 3	5 2	27 4	8 7	0 1	19 2	0 0	0 0	4 0	4 0	8 0	29 9	2 061	0 011	0 011	0 000358	0 358	0 305
147		Std Deviation		0 407	0 565	0 473	1 016	1 107	0 536	0 312	0 337	0 135	0 413	0 056	0 016	0 365	0 003	0 004	36 083	36 083	0 160	0 341	0 024	0 001	0 001	0 000036	0 036	0 031
148		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	125	125	125



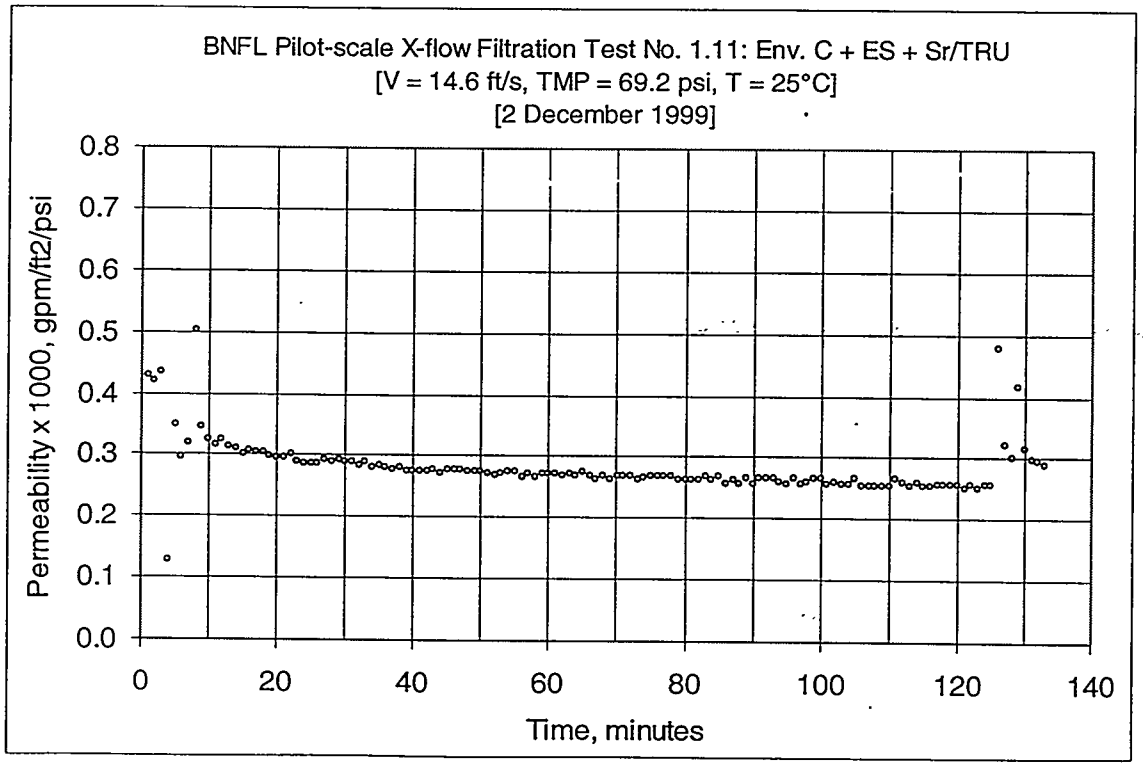


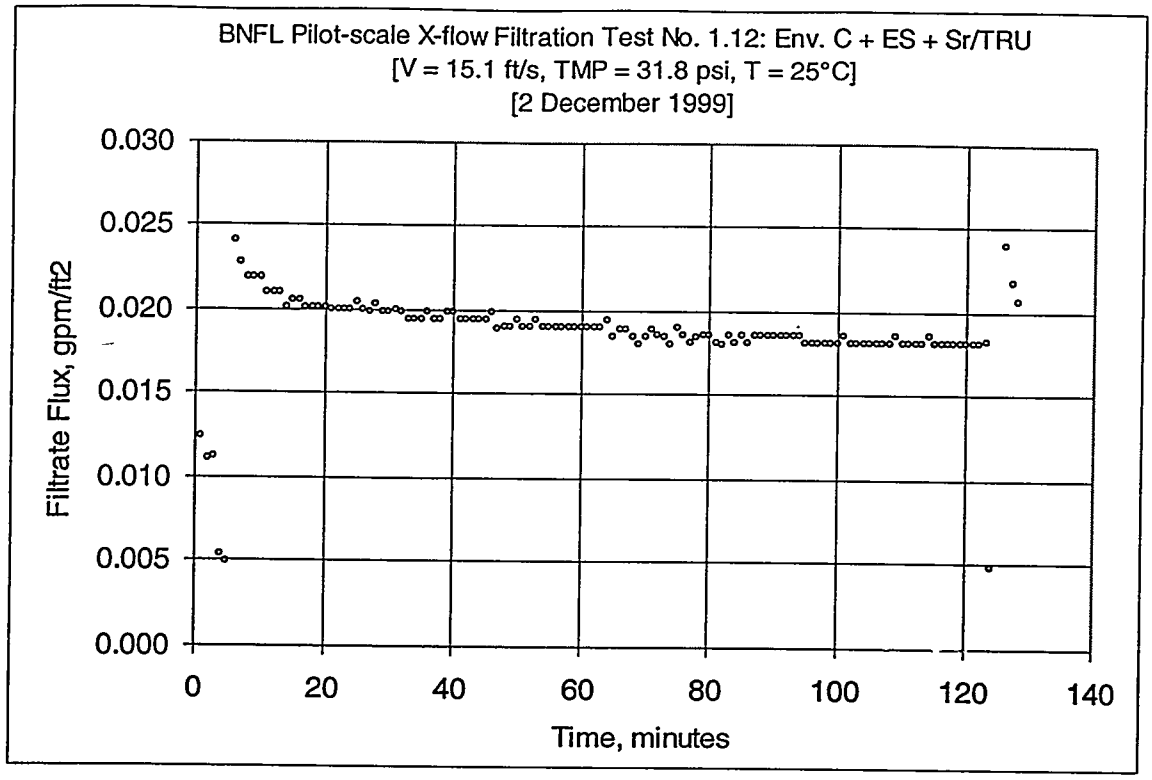
Figure C4: Test Run 1.11, 14 wt% Insoluble Solids Concentration

Run 1.11: 14 wt% Concentration of Insoluble Solids

	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	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR F	O3,FLTR F	LOW (gpm)		Filter Surface Area		2.29	FT2				
2	Zeros - Lines Not Connected (continuous runs from 11/30 to 12/3/99)																				Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	11/30/1999	9:49:49 AM	0	25 96	19 534	25 732	23.386	55.74	171.439	-0 062	-0.133	-0 018	-0 017	-0.797	0 096	-0 095	0 011	-0 018										
4	11/30/1999	9:50:49 AM	0	25 884	19 578	25 618	23.349	55.782	171.478	-0 062	-0 072	-0 018	-0 017	-0.181	0 096	-0 08	0 011	-0 018										
5	11/30/1999	9:51:50 AM	0	25 74	19 534	25 412	23.386	55.74	171.439	-0 062	-0 072	-0 018	-0 017	-0.181	0 096	-0 08	0 011	-0 018										
6																												
7	Data - Per Minute																								at 25C	PERMEABILITY	x 1000	PERMEABILITY
8	12/2/1999	1:01:29 PM	0	25,102	22 68	24,776	24 582	22 878	174,941	34 156	43.528	8 465	29 362	8,726	0,143	19,795	0 031	-0 018		Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	12/2/1999	1:02:29 PM	0	25 102	22 68	24 696	24 672	22.878	174,941	33.908	43,406	5 41	29 058	8,756	0,143	19 826	0 03	-0 018		2	2	8 2	31 5	2,171	0 013	0 013	0 00042	0 420	0 36
10	12/2/1999	1:03:30 PM	0	25 067	22,725	24,741	24,796	23,003	174 979	33.97	43,406	5,418	29 024	8,787	0 143	19 765	0 031	-0 018		3	3	8.2	31.5	2,172	0 014	0 014	0 00043	0 433	0 37
11	12/2/1999	1:04:30 PM	0	25 022	22 6	25 018	24,752	22,958	174,941	84,799	68,164	6 817	48 633	12,701	0 096	25,217	0 015	-0 018		4	4	10 5	51.7	3 566	0 007	0 007	0 00015	0 127	0 11
12	12/2/1999	1:05:30 PM	0	25 067	22 645	25,482	24,796	23,084	174,879	74,573	84 689	11,784	63,745	9,342	0,143	34 065	0 056	- 0 03		5	5	14,1	69 2	4 768	0 024	0 024	0 00035	0 349	0 30
13	12/2/1999	1:06:31 PM	0	25,227	22 645	25 782	24,878	23 084	174,979	72.28	82,433	16,303	57,524	9 28	0,143	39 901	0 045	0 003		6	6	15 6	64 9	4,475	0 020	0 019	0 00030	0 296	0 25
14	12/2/1999	1:07:31 PM	0	25 467	22 645	26 022	24,958	23,084	174 979	74 945	85,118	12,542	63,272	9 311	0,143	35,739	0 052	0 024		7	7	14 8	69 1	4 765	0 023	0 022	0 00032	0 319	0 27
15	12/2/1999	1:08:31 PM	0	25 753	22 69	26,307	25 003	23,129	175 017	75 007	85,36	11,888	64,117	9 556	0 143	35 693	0 083	0 058		8	8	14 8	69 6	4 796	0 036	0 035	0 00050	0 502	0 43
16	12/2/1999	1:09:32 PM	0	25 993	22 69	26 626	25 003	23,209	175 017	75,999	85 848	12,343	64,184	9 065	0,143	36 338	0 058	0 03		9	9	15,1	70,1	4 833	0 025	0 024	0 00035	0 345	0 29
17	12/2/1999	1:10:32 PM	0	26,153	22 69	26 786	25 083	23,129	175,017	75,999	85,663	12,367	64,387	8,818	0,143	36 43	0 055	0 027		10	10	15 1	70 2	4 840	0 024	0 023	0 00033	0 325	0 26
18	12/2/1999	1:11:32 PM	0	26,313	22,69	26 948	25 063	23 209	175 017	75,317	84,933	12,191	63,779	8,756	0,143	36,136	0,053	0 024		11	11	15 0	69 5	4 795	0 023	0 022	0 00032	0 315	0 27
19	12/2/1999	1:12:33 PM	0	26 596	22,736	27,23	25,208	23,255	175,055	75 255	84 75	12,199	63,745	8,726	0,143	36 077	0 055	0 024		12	12	15 0	69 5	4,792	0 024	0 023	0 00032	0 325	0 26
20	12/2/1999	1:13:33 PM	0	26,758	22,736	27,31	25,128	23,335	175,055	75 255	84,831	12,223	63,642	8,756	0 096	36 215	0 053	0 024		13	13	15 0	69 4	4 785	0 023	0 022	0 00031	0 313	0 27
21	12/2/1999	1:14:34 PM	0	26 917	22,736	27,65	25,208	23,255	175,055	75,193	84 611	12,207	63,745	8,787	0,143	35 339	0 053	0 024		14	14	14 7	69 5	4 790	0 023	0 022	0 00031	0 310	0 26
22	12/2/1999	1:15 34 PM	0	27,077	22,736	27,629	25,128	23,335	175 055	75,751	85 [illegible]	11,888	64 387	8 818	0,143	- 36	0,052	0 024		15	15	14 9	70,1	4 831	0 023	0 021	0 00030	0 301	0 25
23	12/2/1999	1:16:34 PM	0	27,282	22,781	27,834	25,173	23,3	175,093	75 255	84,872	11,904	64 252	8 818	0 143	35 8	0 053	0 027		16	16	14 9	69 8	4 809	0 023	0 021	0 00031	0 306	0 26
24	12/2/1999	1:17:34 PM	0	27,362	22,781	27,914	25,173	23,3	175 093	75 317	84 872	11,856	64 624	8 849	0,143	35 693	0 053	0 027		17	17	14 8	70 0	4 824	0 023	0 021	0 00030	0 305	0 26
25	12/2/1999	1:18:35 PM	0	27,522	22,781	28 073	25,173	23,36	175 093	75,255	84 611	11,96	64,184	8 818	0,143	35,723	0 053	0 024		18	18	14 8	69 7	4 807	0 023	0 021	0 00030	0 305	0 26
26	12/2/1999	1:19:35 PM	0	27,726	22,826	28,196	25,218	23,345	175,13	74,945	84,567	11,944	63,914	8,849	0,143	35 706	0 052	0 024		19	19	14 8	69 4	4 787	0 023	0 021	0 00030	0 299	0 25
27	12/2/1999	1:20:36 PM	0	27,851	22,781	28,322	25,183	23,39	175,168	75 503	85,116	11,808	64,151	8 849	0,143	35 585	0 052	0,024		20	20	14 8	69 6	4,814	0 023	0 021	0 00030	0 296	0 25
28	12/2/1999	1:21:36 PM	0	27,956	22,748	28 357	25,138	23,263	175,13	75,379	85 055	11,776	64,184	8 849	0,143	35 754	0 052	0 024		21	21	14 8	69 8	4 811	0 023	0 021	0 00030	0 296	0 25
29	12/2/1999	1:22:36 PM	0	28,09	22,781	28,561	25,103	23,31	175,168	75 379	84,994	11,84	64 252	8 849	0,143	35,77	0 053	0 024		22	22	14 8	69 8	4 814	0 023	0 021	0 00030	0 300	0 26
30	12/2/1999	1:23:37 PM	0	28 25	22,791	28 641	25,103	23,31	175,168	75 503	85 236	11,808	64,286	8,849	0,096	35 693	0 051	0 024		23	23	14 8	69 9	4 819	0 022	0 020	0 00029	0 288	0 24
31	12/2/1999	1:24:37 PM	0	28 33	22,791	28 721	25 023	23 31	175,168	75,379	84,994	11,84	64 218	8 849	0,143	35,77	0 051	0 024		24	24	14,8	69 8	4 812	0 022	0 020	0 00029	0 288	0 24
32	12/2/1999	1:25:37 PM	0	28 409	22,791	28 8	25,103	23,31	175,168	75 069	84 611	11,832	64 252	8 849	0,143	35,77	0,051	0 024		25	25	14 8	69 7	4 803	0 022	0 020	0 00029	0 288	0 24
33	12/2/1999	1:26 36 PM	0	28,489	22,71	28 88	25,103	23,31	175,168	75 565	85 299	11,792	64,151	8 88	0 096	35,723	0 051	0,024		26	26	14,8	69 9	4 816	0 022	0 020	0 00029	0 288	0 24
34	12/2/1999	1:27:36 PM	0	28 569	22,791	28,96	25,103	23,31	175,168	76,131	84,75	11,848	64,421	8,88	0,143	35,754	0 052	0 024		27	27	14 8	69 8	4 811	0 023	0 020	0 00029	0 291	0 25
35	12/2/1999	1:28:39 PM	0	28,773	22,836	29 064	25,148	23 355	175,206	75,441	85,177	11,824	64,32	8 88	0,143	35 831	0 052	0 024		28	28	14 9	69,9	4 818	0 023	0 020	0 00029	0 290	0 25
36	12/2/1999	1:29:39 PM	0	28,853	22 836	29,164	25,148	23,275	175,206	75 007	84 689	11,744	63 88	8 88	0,143	35,77	0 052	0 024		29	29	14 8	69 4	4 788	0 023	0 020	0 00029	0 291	0 25
37	12/2/1999	1:30:39 PM	0	28,932	22 836	29,243	25 068	23 275	175,206	75,255	84 933	11,76	63 948	8 88	0 096	35 816	0 052	0 024		30	30	14,9	69 6	4,799	0 023	0 020	0 00029	0 290	0 25
38	12/2/1999	1:31:40 PM	0	29 012	22 836	29 323	25 068	23,275	175 206	75,131	84 611	11 824	63,948	8 88	0,143	35 8	0 052	0 027		31	31	14 9	69 5	4 795	0 023	0 020	0 00029	0 290	0 25
39	12/2/1999	1:32:40 PM	0	29 092	22 836	29,482	25 068	23,275	175,206	75 007	84,78	11,808	64 049	8 88	0,143	35 8	0 051	0 024		32	32	14,9	69 5	4 794	0 022	0 020	0 00028	0 283	0 24
40	12/2/1999	1:33:40 PM	0	28,171	22,836	29 482	24,988	23,278	175,206	75 069	84 611	11,872	64,117	8 88	0,143	35 8	0,052	0 024		33	33	14 9	69 6	4,796	0 023	0 020	0 00029	0 288	0 25
41	12/2/1999	1:34:41 PM	0	28 296	22 852	29 607	25,114	23 32	175,244	75,131	84 611	11,848	64,184	8 88	0,143	35,923	0 051	0,027		34	34	14 9	69,7	4 803	0 022	0 020	0 00028	0 281	0 24
42	12/2/1999	1:35 41 PM	0	28 331	22 836	28 562	25,148	23 275	175 206	76,123	85 848	11,274	65,233	8 91	0,143	34 802	0 052	0 027		35	35	14,4	70,7	4 873	0 023	0 020	0 00028	0 283	0 24
43	12/2/1999	1:36:41 PM	0	28 48	22 836	28 641	25,148	23,275	175,206	76,247	85 97	11,074	65 672	8,91	0,143	34,571	0 052	0 027		36	36	14 3	71 0	4,892	0 023	0 020	0 00028	0 281	0 24
44	12/2/1999	1:37:42 PM	0	28 535	22 902	28,766	25,184	23 32	175,244	76 627	85,299	11,226	65,706	8,91	0,143	34,74	0 051	0 024		37	37	14,4	70,7	4 872	0 022	0 020	0 00028	0 276	0 23
45	12/2/1999	1:38 42 PM	0	28 614	22 902	28,766	25,184	23 32	175,244	76,185	85 909	11,158	65 603	8 88	0,143	34,679	0 052	0 027		38	38	14 4	70 8	4,884	0,023	0 020	0 00028	0 281	0 24
46	12/2/1999	1:39:42 PM	0	28 694	22,882	29 925	25 274	23,401	175 244	76,123	85 848	11,194	65 672	8 88	0,143	34,71	0,051	0 027		39	39	14,4	70,9	4 888	0 022	0 019	0 00027	0 274	0 23
47	12/2/1999	1:40:43 PM	0	28,774	22,882	29 925	25 274	23,401	175,244	76 061	85,726	11,194	65,773	8,88	0 096	34,71	0 051	0,027		40	40	14 4	70 9	4 889	0 022	0 019	0 00027	0 274	0 23
48	12/2/1999	1:41:43 PM	0	28,774	22,962	30 004	25,274	23,401	175,244	76,247	85,97	11,282	65 604	8 91	0 096	34,74	0 051	0 027		41	41	14 4	70 9	4 890	0 022	0 019	0 00027	0 273	0 23
49	12/2/1999	1:42:43 PM	0	28 653	22 882	29 925	25 274	23 401	175,244	76,751	85,482	11,234	65 435	8 88	0 096	34,71	0 051	0 027		42	42	14 4	70 6	4 867	0 022	0 019	0 00028	0 275	0 23
50	12/2/1999	1:43:44 PM	0	29 896	22,927	30,049	25,399	23,446	175,282	75,927	85 604	11,256	65 706	8 88	0 096	34 894	0 052	0 027		43	43	14,5	70,8	4 883	0 023	0 020	0 00026	0 279	0 24
51	12/2/1999	1:44:44 PM	0	29 978	23 007	30,129	25 399	23 446	175 282	75 873	85 482	11,17	65 658	8,88	0,143	34,725	0 051	0,027		44	44	14 4	70 8	4 878	0 022	0 019	0 00027	0 273	0 23
52	12/2/1999	1:45:44 PM	0	30,022	22,972	30 253	25 444	23,491	178,32	75 999	85,726	11,194	65 368	8 88	0,143	34 817	0 052	0 03		45	45	14 4	70 7	4 873	0 023	0 020	0 00028	0 276	0 24
53	12/2/1999	1:46:45 PM	0	30,102	22,972	30,253	25 444	23,491	178,32	76,813	85 482	11,21	65,537	8 88	0,143	34,74	0 052	0 027		46	46	14 4	70,7	4 873	0 023	0 020	0 00028	0 276	0 24
54	12/2/1999	1:47:45 PM	0	30,181	22,972	30,332	25,444	23,491	178,32	76 061	85,726	11,162	65 604	8 88	0 096	34,679	0,052	0 027		47	47	14,4	70 6	4 864	0 023	0 020	0 00028	0 277	0 24
55	12/2/1999	1:48:46 PM	0	30,102	22,972	30,332	25 444	23 571	178,32	75 627	85 238	11,393	64,952	8,849	0,143	35,14	0 051	0 024		48	48	14 6	70 3	4,847	0 022	0 019	0 00027	0 273	0 23
56	12/2/1999	1:49:46 PM	0	30,226	23 018	30,377	25 409	23,617	178 358	76,185	85 848	11,034	66 078	8 88	0,143	34 51	0 052	0,027		49	49	14 3	71,1	4,904	0 023	0 020	0 00028	0 275	0 23
57	12/2/1999	1:50:46 PM	0	30 306	23,018	30 457	25 409	23,536	178,358	76 061	85,726	11,01	65 943	8 91	0,143	34,478	0 052	0 027		50	50	14,3	71,0	4 895	0 023	0 020	0 00027	0 275	0 23
58	12/2/1999	1:51:47 PM	0	30 306	23,018	30 457	25 409	23,536	178,358	75 999	85,726	11,178	65 604	8 91	0 096	34,771	0 051	0 024		51	51	14 4	70 8	4 882	0 022	0 019	0 00027	0 270	0 23
59	12/2/1999	1:52:47 PM	0	30,43	23 063	30 502	25 455	23 662	178,396	75,131	84 611	11,073	64,286	8 88	0 143	35,739	0 05	0 027		52	52	14 8	69 7	4 806	0 022	0 019	0 00027	0 269	0 23
60	12/2/1999	1:53:47 PM	0	30 43	22,963	30 502	25 374	23,662	178,396	74,367	84 079	10,863	64,252	8,88	0,143	34,218	0 05	0,024		53	53	14 2	69 3	4 779	0 022	0 019	0 00027	0 270	0 23
61	12/2/1999	1:54:48 PM	0	30,51	22,963	30,581	25 455	23,582	178,396	73,767	83,348	11,425	63,035	8 849	0,143	35 263	0 05	0,024		54	54	14 6	68,4	4,716	0 022	0 019	0 00027	0 273	0 23
62	12/2/1999	1:55:48 PM	0	30 51	23,063	30 681	25,455	23 582	178,396	73,705	83,348	11,497	62,765	8 849	0,143	35 535	0 05	0,027		55	55	14,7	68,2	4,703	0 022	0 019	0 00027	0 274	0 23
63	12/2/1999	1:56:48 PM	0	30 589	23,063	30,74	25,374	23,502	178,396	73,953	83,652	11,53	63,204	8 849	0,143	35,124	0,049	0,024		56	56	14 6	68 6	4 728	0 021	0 018	0 00027	0 266	0 23
64	12/2/1999	1:57:49 PM	0	30 589	23,063	30,74	25,455	23,582	178,396	73,767	83,47	11,345	63 035	8 88	0,143	35,14	0 05	0 021		57	57	14,6	68,4	4 716	0 022	0 019	0 00027	0 272	0 23
65	12/2/1999	1:58:49 PM	0	30,714	23 028	30,785	25 5	23 627	178 434	73,705	83,409	11,401	63 035	8 88	0,143	35,278	0 049	0,024		58	58	14 6	68 4	4,714	0 021	0 018	0 00027	0 267	0 23
66	12/2/1999	1:59:49 PM	0	30,714	23 028	30 864	25 5	23 547	178,434	73,396	83,043	11,449	63,035	8 88	0 143	35 201	0 05	0 027		59	59	14 6	68 2	4 703	0 022	0 019	0 00027	0 272	0 23
67	12/2/1999	2:00:50 PM	0	30,793	23,109	30 864	25,42	23 627	178 434	73,767	83 531	11,377	63,17	8 91	0 096	35,201	0 05	0 024		60	60	14,6	68 5	4 721	0 022	0 019	0 00027	0 271	0 23
68	12/2/1999	2:01:50 PM	0	30 836	23 074	30,909	25 465	23 592	178,472	73,829	83,531	11,282	63,339	8 91	0,143	34 909	0 05	0 027		61	61	14 5	68 6	4,729	0 022	0 019	0 00027	0 270	0 23
69	12/2/1999	2:02:51 PM	0	30 872	23,026	30 944	25,42	23 627	178,434	73,953	83,592	11,29	63,305	8 91	0 096	34,966	0 05	0 024		62	62	14 5	68 6	4 732	0 022	0 019	0 00027	0 270	0 23
70	12/2/1999	2:03:51 PM	0	30 817	23,154	30,969	25 545	23 673	178 472	73,705	83,409	11,314	63,238	8 88	0 096	35,124	0 05	0,024		63	63	14 6	68 5	4,721	0 022	0 019	0 00027	0 270	0 23
71	12/2/1999	2:04:51 PM	0	30 917	23,154	30 969	25 645	23,753	178,472	73,705	83,409	11,25	63 407	8 88	0,143	34 971	0 05	0,024		64	64	14 5	68 6	4,727	0 022	0 019	0 00027	0 270	0 23
72	12/2/1999	2:05:51 PM	0	30 997	23,154	31,068	25 645	23,673	178,472	73,767	83,408	11,242	63 272	8 91	0,143	34 694	0 051	0 027		65	65	14 5	68 5	4 724	0 022	0 019	0 00027	0 275	0 23
73	12/2/1999	2:06 52 PM	0	30 997	23,154	31,068	25 625	23 673	178,472	74 015	83,713	11,25	63 441	8 88	0,143	35,109	0 05	0 024		66	66	14 6	68 7	4 739	0 022	0 018	0 00027	0 269	0 23
74	12/2/1999	2:07:52 PM	0	31,076	23,154	31,068	25 625	23 673	178 472	73 643	83,348	11,274	63,476	8 91	0,143	35 032	0 049	0 021		67	67	14 5	68 6	4 727	0 021	0 018	0 00026	0 264	0 22
75	12/2/1999	2:08 53 PM	0	31 076	23,074	31,068	25,625	23 673	178 472	73 829	83,531	11,258	63,407	8 941	0,143	35 002	0 05	0 027		68	68	14 5	68 6	4 727	0 022	0 018	0 00027	0 269	0 23
76	12/2/1999	2:09:53 PM	0	31,121	23,119	31,113	25 59	23 636	178,51	73 891	83,592	11,082	63,475	8 91	0,143	34 879	0 049	0 024		69	69	14,6	68,7	4 735	0 021	0 018	0 00026	0 263	0 22
77	12/2/1999	2:10:53 PM	0	31,201	23,119	31,192	25,59	23 636	178,51	73,953	83 652	11,082	63,711	8 91	0 096	34,848	0 05	0 024		70	70	14 5	68 8	4,746	0 022	0 018	0 00027	0 267	0 23
78	12/2/1999	2:11:53 PM	0	31,201	23,199	31,272	25,67	23 657	178,51	73,705	83 531	11,17	63,407	8 91	0 143	34 725	0 05	0 027		71	71	14 4	68 6	4,727	0 022	0 018	0 00027	0 266	0 23
79	12/2/1999	2:12:54 PM	0	31,201	23,119	31,272	25 67	23,317	178,51	74 018	83,652	11,114	63,407	8 91	0,143	34 833	0 05	0 024		72	72	14,5	68,7	4 737	0 022	0 018	0 00027	0 267	0 23
80	12/2/1999	2:13:54 PM	0	31,26	23,199	31,192	25,59	22,995	178,51	73,767	83,47	11,106	63,339	8 88	0 096	34 602	0 049	0 024		73	73	14 4	68 6	4,726	0 021	0 018	0 00026	0 263	0 22
81	12/2/1999	2:14:54 PM	0	31,26	23,199	31,272	25,61	22,754	178,51	73 953	83 652	11,17	63 644	8 91	0,143	34 909	0 05	0 024		74	74	14 5	68 8	4,743	0 022	0 018	0 00027	0 267	0 23
82	12/2/1999	2:15:55 PM	0	31,359	23,199	31,272	25 43	22,513	178 51	74 018	83,713	11,202	63,407	8 91	0 096	34,879	0 05	0 024		75	75	14 5	68,7	4 737	0 022	0 018	0 00027	0 267	0 23
83	12/2/1999	2:16:55 PM	0	31,314	23,154	31,306	25,305	22,226	178,472	73,767	83,409	11,21	63,17	8 88	0 096	35 908	0 05	0 024		76	76	14 9	68 5	4 721	0 022	0 018	0 00027	0 268	0 23
84	12/2/1999	2:17:55 PM	0	31,349	23,189	31,261	25,179	22,1	178,434	73,767	83,47	11,234	63,373	8 88	0,143	35 078	0 05	0 024		77	77	14 6	68 6	4,728	0 022	0 018	0 00027	0 268	0 23
85	12/2/1999	2:18 56 PM	0	31,383	23,143	31,296	25 054	21 813	175,396	73 891	83 531	11,29	63 272	8 91	0,143	34 966	0 05	0 024		78	78	14 5	68 6	4 728	0 022	0 018	0 00027	0 268	0 23

Run 1.11: 14 wt% Concentration of Insoluble Solids

	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	12/2/1999	2:19:56 PM	0	31.339	23.178	31.33	25.009	21.687	175.358	73.953	83.652	11.182	63.441	8.88	0.143	34.966	0.049	0.024	79	79	14.5	68.7	4.736	0.021	0.018	0.00026	0.262	0.22
87	12/2/1999	2:20:37 PM	0	31.418	23.259	31.33	25.009	21.606	175.358	73.643	83.348	11.186	63.576	8.91	0.096	34.966	0.049	0.027	80	80	14.5	68.6	4.730	0.021	0.018	0.00026	0.262	0.22
88	12/2/1999	2:21:57 PM	0	31.453	23.213	31.285	24.803	21.48	175.32	73.767	83.531	11.242	63.103	8.91	0.096	34.955	0.049	0.024	81	81	14.5	68.4	4.718	0.021	0.018	0.00026	0.263	0.22
89	12/2/1999	2:22:57 PM	0	31.487	23.168	31.32	24.636	21.435	175.282	73.829	83.47	11.146	63.305	8.91	0.096	34.663	0.049	0.021	82	82	14.5	68.6	4.727	0.021	0.018	0.00026	0.262	0.22
90	12/2/1999	2:23:57 PM	0	31.442	23.203	31.354	24.793	21.712	175.244	73.767	83.47	11.202	63.339	8.88	0.143	35.063	0.05	0.024	83	83	14.6	68.6	4.726	0.022	0.018	0.00027	0.267	0.23
91	12/2/1999	2:24:58 PM	0	31.477	23.158	31.369	24.748	21.908	175.206	73.829	83.409	11.186	63.407	8.88	0.143	34.909	0.049	0.024	84	84	14.5	68.6	4.731	0.021	0.018	0.00026	0.261	0.22
92	12/2/1999	2:25:58 PM	0	31.556	23.238	31.369	24.828	22.069	175.206	73.767	83.47	11.242	63.17	8.91	0.143	35.017	0.05	0.024	85	85	14.5	68.5	4.721	0.022	0.018	0.00027	0.267	0.23
93	12/2/1999	2:26:58 PM	0	31.512	23.193	31.424	24.783	22.265	175.168	73.829	83.531	11.242	63.305	8.88	0.143	35.017	0.048	0.024	86	86	14.5	68.6	4.727	0.021	0.018	0.00026	0.256	0.22
94	12/2/1999	2:27:59 PM	0	31.512	23.193	31.424	24.783	22.345	175.168	73.643	83.348	11.314	63.136	8.88	0.143	34.756	0.049	0.021	87	87	14.4	68.4	4.715	0.021	0.018	0.00026	0.262	0.22
95	12/2/1999	2:28:59 PM	0	31.591	23.193	31.424	24.783	22.506	175.168	73.829	83.531	11.298	63.136	8.88	0.143	34.971	0.048	0.024	88	88	14.5	68.5	4.722	0.021	0.018	0.00026	0.256	0.22
96	12/2/1999	2:29:59 PM	0	31.512	23.193	31.424	24.863	22.587	175.168	73.767	83.47	11.26	63.238	8.91	0.143	35.171	0.05	0.021	89	89	14.6	68.5	4.723	0.022	0.018	0.00027	0.267	0.23
97	12/2/1999	2:31:00 PM	0	31.512	23.193	31.424	24.943	22.667	175.168	73.829	83.531	11.282	63.204	8.91	0.096	35.063	0.048	0.024	90	90	14.6	68.5	4.724	0.021	0.018	0.00026	0.256	0.22
98	12/2/1999	2:32:00 PM	0	31.591	23.193	31.503	25.023	22.747	175.168	73.643	83.287	11.306	63.204	8.88	0.096	34.966	0.05	0.024	91	91	14.5	68.4	4.718	0.022	0.018	0.00027	0.267	0.23
99	12/2/1999	2:33:00 PM	0	31.591	23.193	31.503	25.023	22.828	175.168	73.705	83.409	11.29	63.17	8.88	0.143	35.048	0.05	0.024	92	92	14.5	68.4	4.719	0.022	0.018	0.00027	0.267	0.23
100	12/2/1999	2:34:01 PM	0	31.591	23.193	31.503	25.103	22.828	175.168	73.767	83.409	11.242	63.17	8.88	0.096	35.017	0.05	0.024	93	93	14.5	68.5	4.721	0.022	0.018	0.00027	0.266	0.23
101	12/2/1999	2:35:01 PM	0	31.591	23.193	31.503	25.103	22.667	175.168	73.953	83.592	11.098	63.204	8.88	0.143	35.002	0.049	0.024	94	94	14.5	68.6	4.728	0.021	0.018	0.00026	0.261	0.22
102	12/2/1999	2:36:01 PM	0	31.626	23.148	31.458	25.138	22.36	175.13	73.891	83.531	11.242	63.441	8.88	0.143	35.002	0.048	0.024	95	95	14.5	68.7	4.734	0.021	0.018	0.00026	0.255	0.22
103	12/2/1999	2:37:02 PM	0	31.626	23.228	31.536	25.138	22.622	175.13	73.581	83.226	11.266	63.035	8.88	0.096	35.217	0.05	0.024	96	96	14.6	68.3	4.710	0.022	0.018	0.00027	0.267	0.23
104	12/2/1999	2:38:02 PM	0	31.581	23.183	31.493	25.093	22.816	175.093	73.767	83.409	11.258	63.272	8.88	0.143	35.188	0.048	0.024	97	97	14.6	68.5	4.724	0.021	0.018	0.00026	0.256	0.22
105	12/2/1999	2:39:02 PM	0	31.58	23.183	31.572	25.173	22.976	175.093	73.643	83.348	11.226	63.069	8.88	0.096	35.109	0.049	0.024	98	98	14.6	68.4	4.713	0.021	0.018	0.00026	0.261	0.22
106	12/2/1999	2:40:03 PM	0	31.58	23.183	31.572	25.173	23.059	175.093	73.519	83.165	11.306	62.9	8.88	0.096	35.109	0.05	0.024	99	99	14.6	68.2	4.703	0.022	0.018	0.00027	0.267	0.23
107	12/2/1999	2:41:03 PM	0	31.58	23.183	31.572	25.173	23.139	175.093	73.829	83.531	11.346	63.069	8.91	0.143	35.124	0.05	0.024	100	100	14.6	68.4	4.719	0.022	0.018	0.00027	0.266	0.23
108	12/2/1999	2:42:03 PM	0	31.58	23.183	31.572	25.334	23.139	175.093	73.457	83.104	11.266	62.9	8.88	0.096	35.155	0.048	0.024	101	101	14.6	68.2	4.701	0.021	0.017	0.00026	0.256	0.22
109	12/2/1999	2:43:04 PM	0	31.74	23.183	31.572	25.334	23.219	175.093	73.705	83.348	11.298	63.001	8.88	0.096	35.094	0.049	0.027	102	102	14.6	68.4	4.713	0.021	0.018	0.00026	0.261	0.22
110	12/2/1999	2:44:04 PM	0	31.74	23.183	31.572	25.255	23.219	175.093	73.643	83.287	11.266	63.035	8.88	0.096	35.217	0.048	0.027	103	103	14.6	68.3	4.712	0.021	0.017	0.00026	0.258	0.22
111	12/2/1999	2:45:04 PM	0	31.784	23.228	31.617	25.459	23.345	175.13	73.581	83.226	11.298	63.136	8.88	0.143	34.664	0.048	0.027	104	104	14.4	68.4	4.713	0.021	0.017	0.00026	0.255	0.22
112	12/2/1999	2:46:05 PM	0	31.74	23.183	31.572	25.414	23.3	175.093	73.643	83.267	11.202	63.508	8.88	0.143	34.771	0.05	0.027	105	105	14.4	68.6	4.728	0.022	0.018	0.00027	0.266	0.23
113	12/2/1999	2:47:05 PM	0	31.784	23.228	31.617	25.459	23.345	175.13	73.691	83.592	11.106	63.542	8.88	0.143	34.71	0.048	0.024	106	106	14.4	68.7	4.738	0.021	0.017	0.00025	0.254	0.22
114	12/2/1999	2:48:06 PM	0	31.705	23.148	31.696	25.539	23.425	175.13	73.581	83.228	11.146	63.508	8.88	0.143	34.787	0.048	0.024	107	107	14.4	68.5	4.726	0.021	0.017	0.00025	0.254	0.22
115	12/2/1999	2:49:06 PM	0	31.784	23.148	31.696	25.539	23.425	175.13	74.077	83.774	11.138	63.61	9.55	0.143	34.74	0.048	0.024	108	108	14.4	68.8	4.747	0.021	0.017	0.00025	0.253	0.22
116	12/2/1999	2:50:06 PM	0	31.705	23.228	31.696	25.539	23.425	175.13	73.643	83.343	11.058	63.61	8.88	0.096	34.725	0.048	0.024	109	109	14.4	68.6	4.732	0.021	0.017	0.00025	0.254	0.22
117	12/2/1999	2:51:06 PM	0	31.829	23.273	31.652	25.684	23.471	175.168	73.767	83.47	11.074	63.576	8.88	0.096	34.71	0.048	0.024	110	110	14.4	68.7	4.735	0.021	0.017	0.00025	0.254	0.22
118	12/2/1999	2:52:07 PM	0	31.829	23.193	31.662	25.664	23.551	175.168	73.953	83.652	11.002	63.407	8.91	0.143	34.679	0.05	0.024	111	111	14.4	68.7	4.735	0.022	0.018	0.00026	0.265	0.23
119	12/2/1999	2:53:07 PM	0	31.794	23.238	31.706	25.709	23.596	175.206	73.829	83.47	11.002	63.373	8.91	0.143	34.679	0.049	0.024	112	112	14.4	68.6	4.730	0.021	0.018	0.00026	0.259	0.22
120	12/2/1999	2:54:07 PM	0	31.874	23.238	31.788	25.709	23.596	175.206	73.953	83.592	11.234	63.238	8.88	0.143	35.017	0.048	0.024	113	113	14.5	68.6	4.729	0.021	0.017	0.00025	0.253	0.22
121	12/2/1999	2:55:08 PM	0	31.918	23.284	31.751	25.674	23.641	175.244	73.643	83.287	11.25	62.967	8.88	0.143	35.063	0.049	0.024	114	114	14.6	68.3	4.709	0.021	0.018	0.00026	0.260	0.22
122	12/2/1999	2:56:08 PM	0	31.839	23.284	31.751	25.674	23.641	175.244	73.705	83.348	11.026	63.61	8.849	0.143	34.664	0.048	0.024	115	115	14.4	68.7	4.734	0.021	0.017	0.00025	0.253	0.22
123	12/2/1999	2:57:08 PM	0	31.839	23.284	31.751	25.674	23.641	175.244	74.139	83.835	10.963	63.677	8.91	0.096	34.525	0.048	0.024	116	116	14.3	68.9	4.751	0.021	0.017	0.00025	0.253	0.21
124	12/2/1999	2:58:09 PM	0	31.839	23.203	31.751	25.674	23.561	175.244	73.953	83.652	11.018	63.644	8.91	0.096	34.571	0.048	0.024	117	117	14.3	68.6	4.743	0.021	0.018	0.00026	0.258	0.22
125	12/2/1999	2:59:09 PM	0	31.884	23.248	31.796	25.719	23.626	175.282	74.263	84.016	10.995	63.677	8.88	0.143	34.656	0.049	0.024	118	118	14.3	69.0	4.755	0.021	0.018	0.00026	0.257	0.22
126	12/2/1999	3:00:10 PM	0	31.929	23.294	31.841	25.684	23.671	175.32	74.077	83.713	10.979	63.58	8.88	0.143	34.587	0.049	0.024	119	119	14.4	69.0	4.756	0.021	0.018	0.00026	0.257	0.22
127	12/2/1999	3:01:10 PM	0	31.929	23.294	31.841	25.684	23.671	175.32	73.953	83.531	10.995	63.779	8.88	0.096	34.541	0.048	0.021	120	120	14.3	68.9	4.748	0.021	0.018	0.00026	0.257	0.22
128	12/2/1999	3:02:10 PM	0	31.929	23.294	31.841	25.684	23.652	175.32	73.953	83.652	11.034	63.88	8.91	0.143	34.602	0.048	0.024	121	121	14.4	68.9	4.752	0.021	0.017	0.00025	0.252	0.21
129	12/2/1999	3:03:11 PM	0	31.973	23.259	31.806	25.73	23.617	175.356	73.767	83.47	10.931	63.914	8.88	0.143	34.495	0.049	0.021	122	122	14.3	68.8	4.746	0.021	0.018	0.00026	0.258	0.22
130	12/2/1999	3:04:11 PM	0	32.018	23.304	31.93	25.775	23.582	175.396	74.015	83.652	10.955	63.644	8.88	0.143	34.51	0.048	0.024	123	123	14.3	68.8	4.746	0.021	0.017	0.00025	0.252	0.21
131	12/2/1999	3:05:11 PM	0	32.018	23.304	31.93	25.695	23.582	175.396	73.705	83.409	10.899	63.576	8.88	0.096	34.449	0.049	0.021	124	124	14.3	68.6	4.733	0.021	0.018	0.00026	0.258	0.22
132	12/2/1999	3:06:12 PM	0	32.018	23.304	31.851	25.695	23.582	175.396	74.077	83.835	10.967	63.711	8.88	0.143	34.479	0.049	0.021	125	125	14.3	68.9	4.750	0.021	0.018	0.00026	0.257	0.22
133	12/2/1999	3:07:12 PM	0	31.939	23.304	31.851	25.695	23.582	175.396	73.209	83.774	10.875	63.035	9.773	0.096	34.602	0.02	0.064	126	126	14.4	68.1	4.697	0.039	0.033	0.00048	0.478	0.41
134	12/2/1999	3:08:12 PM	0	31.964	23.35	31.895	25.66	23.627	175.434	73.643	83.713	11.138	63.272	9.249	0.096	34.725	0.061	0.036	127	127	14.4	68.5	4.720	0.027	0.022	0.00032	0.322	0.27
135	12/2/1999	3:09:13 PM	0	31.964	23.35	31.816	25.66	23.627	175.434	73.767	83.774	11.162	63.339	9.219	0.143	34.679	0.057	0.03	128	128	14.4	68.6	4.726	0.025	0.021	0.00030	0.301	0.26
136	12/2/1999	3:10:13 PM	0	31.964	23.35	31.696	25.74	23.627	175.434	73.767	83.835	11.01	63.272	9.219	0.096	34.648	0.079	0.035	129	129	14.5	68.5	4.724	0.034	0.029	0.00042	0.416	0.35
137	12/2/1999	3:11:14 PM	0	32.028	23.395	31.851	25.755	23.673	175.472	74.015	83.774	11.05	63.779	9.003	0.096	34.602	0.06	0.033	130	130	14.4	68.9	4.750	0.026	0.022	0.00031	0.315	0.27
138	12/2/1999	3:12:14 PM	0	31.949	23.315	31.782	25.705	23.673	175.472	74.077	83.835	11.13	63.745	8.941	0.143	34.71	0.057	0.03	131	131	14.4	68.8	4.751	0.025	0.021	0.00030	0.300	0.25
139	12/2/1999	3:13:14 PM	0	31.994	23.36	31.827	25.631	23.716	175.51	74.077	83.835	11.122	63.644	8.941	0.096	34.525	0.058	0.03	132	132	14.3	68.9	4.748	0.024	0.020	0.00029	0.294	0.25
140	12/2/1999	3:14:15 PM	0	31.994	23.36	31.827	25.631	23.658	175.51	74.139	83.835	11.098	63.542	8.941	0.096	34.587	0.055	0.027	133	133	14.4	68.8	4.746	0.024	0.020	0.00029	0.289	0.25
141																												
142		Averages		30.41	23.1	30.5	25.3	23.2	175.3	74.5	84.2	11.4	63.9	8.9	0.1	35.1	0.1	0.0	66.5	66.5	14.6	69.2	4.769	0.022	0.019	0.000275	0.275	0.234
143		Maximum		32.0	23.3	31.9	25.8	23.8	175.5	76.2	86.0	12.4	66.1	9.6	0.1	36.4	0.1	0.1	125.0	125.0	15.1	71.1	4.904	0.036	0.033	0.000502	0.502	0.427
144		Median		31.0	23.1	31.1	25.3	23.3	175.2	74.0	83.7	11.3	63.6	8.9	0.1	35.0	0.1	0.0	66.5	66.5	14.5	68.7	4.738	0.022	0.018	0.000266	0.268	0.228
145		Minimum		25.8	22.7	26.3	24.7	21.4	175.0	73.4	83.0	10.9	62.8	8.7	0.1	34.2	0.0	0.0	8.0	8.0	14.2	68.2	4.701	0.021	0.017	0.000252	0.252	0.214
146		Std Deviation		1.621	0.184	1.395	0.265	0.532	0.139	0.900	0.906	0.343	0.621	0.072	0.021	0.475	0.003	0.004	34.062	34.062	0.197	0.839	0.058	0.002	0.002	0.000027	0.027	0.023
147		Number of Points Used		118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118



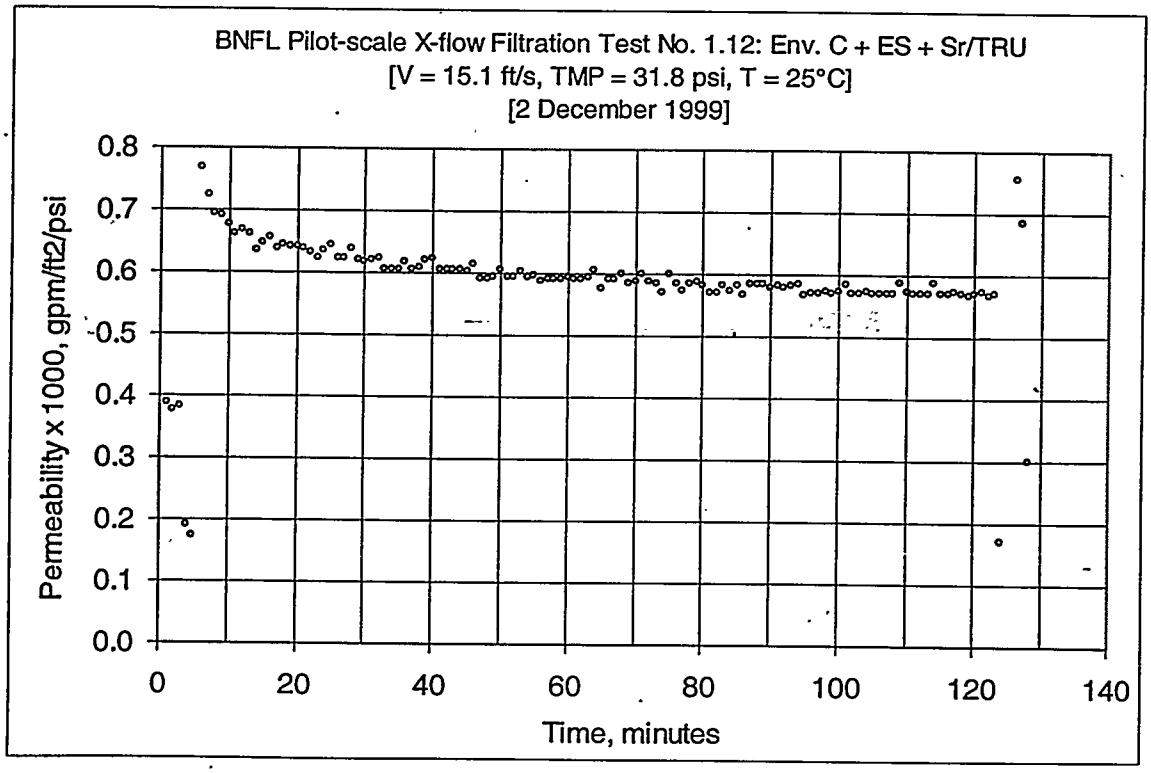


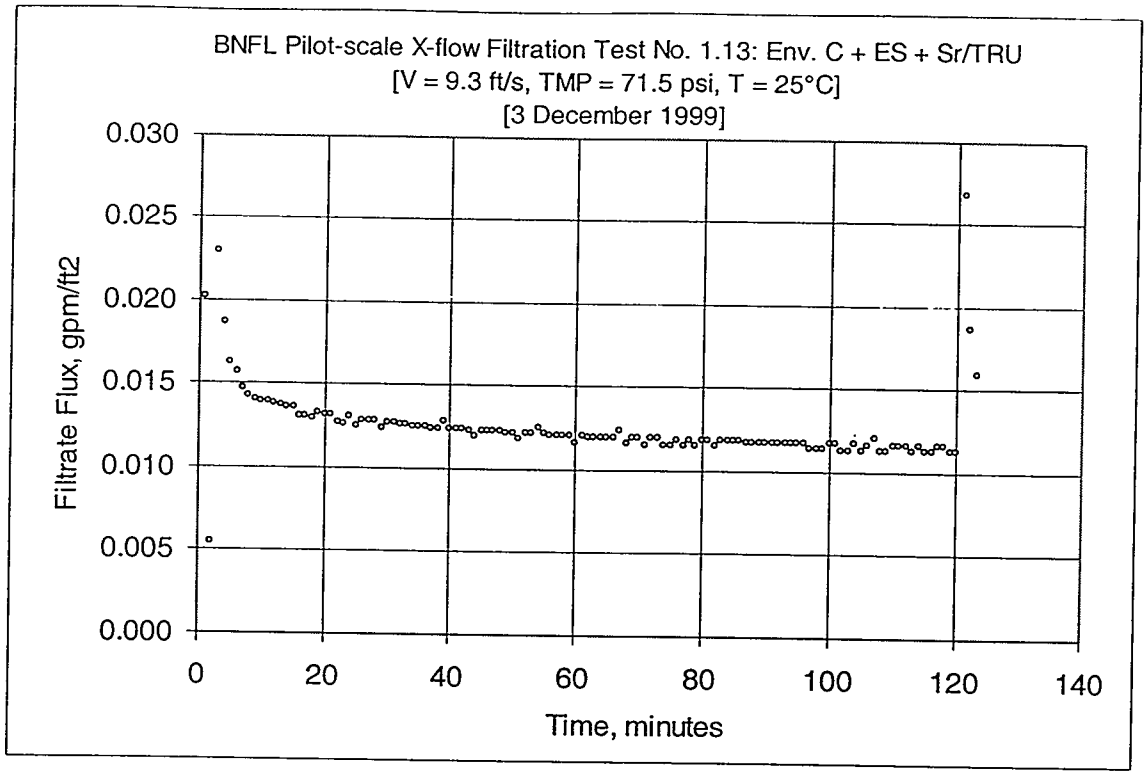
Figure C5: Test Run 1.12, 14 wt% Insoluble Solids Concentration

Run 1.12: 14 wt% Concentration of Insoluble Solids

	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	FLTAT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (pst	FLTR DP (	TOP DP (p	FLTRATE (psig)	PISTON (psig)	RSL FLOW	O2 FLTR	O3 FLTR	FLOW (rpm)		Filter Surface Area		2 29	FT2				
2	Zeros - Lines Not Connected (continuous runs from 11/30 to 12/3/99)																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	11/30/1999	9 49 49 AM	0	25 98	19 534	25 732	23 388	55.74	171.439	-0 062	-0.133	-0 016	-0 017	-0.797	0 096	-0 095	0 011	-0 018										
4	11/30/1999	9 50 49 AM	0	25 864	19 578	25 616	23 349	55 782	171.476	-0 062	-0 072	-0.016	-0 017	-0 181	0 096	-0 08	0 011	-0 018										
5	11/30/1999	9 51 50 AM	0	25 74	19 534	25 412	23 388	55 74	171.439	-0 062	-0 072	-0 016	-0 017	-0 181	0 096	-0 08	0 011	-0 018										
6																												
7	Data - Per Minute																		Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMIABILITY GPM/FT2/psi	x 1000 GPM/FT2/psi	PERMIABILITY meter/bar
8	12/2/1999	3 32 10 PM	0	27 483	23 465	24 356	24 974	21.732	175 396	37.999	48 59	12 327	26.319	9 866	0 143	35 831	0 028	-0.018	1	1	14 9	32 2	2 217	0 012	0 012	0 00039	0 387	0 33
9	12/2/1999	3 33 10 PM	0	27 073	23 374	24 348	24 603	21.722	175 32	35 582	46.18	12 566	23 618	9 804	0 143	36 461	0 025	-0 015	2	2	15 1	29 6	2 041	0 011	0 011	0 00038	0 376	0 32
10	12/2/1999	3 34 10 PM	0	26 788	23 409	24 22	24 678	21 918	175 282	35 396	45 765	13 173	22 837	9 712	0 096	37 567	0 025	-0 015	3	3	15 6	29 1	2 007	0 011	0 011	0 00038	0 383	0 33
11	12/2/1999	3 35 11 PM	0	27 267	23 409	24 22	24 678	22 079	175 212	33 698	46 636	11 816	22 364	12 3	0 096	36 507	0 012	-0 018	4	4	15 2	28 0	1 929	0 005	0 005	0 00019	0 191	0 16
12	12/2/1999	3 36 11 PM	0	26 548	23 409	24 22	24 758	22 24	175 222	33 68	46 455	11 752	22 465	12.177	0 096	36 307	0 011	-0 018	5	5	15 1	28 1	1 935	0 005	0 005	0 00017	0 175	0 15
13	12/2/1999	3 37 11 PM	0	26 308	23 409	24 22	24 758	22 401	175 202	37 008	46 882	11 784	25 778	9 188	0 096	36 23	0 054	0 027	6	6	15 0	31 4	2 164	0 024	0 024	0 00077	0 768	0 65
14	12/2/1999	3 38 12 PM	0	25 908	23 49	24 22	24 758	22 562	175 289	36 946	46 577	11 888	25 846	8 841	0 096	36 261	0 051	0 024	7	7	15 0	31 4	2 165	0 022	0 023	0 00072	0 725	0 62
15	12/2/1999	3 39 12 PM	0	25 748	23 409	24 22	24 838	22 642	175 282	37 131	46 638	11 752	25 85	8 787	0 143	36 261	0 049	0 021	8	8	15 0	31 5	2 172	0 021	0 022	0 00069	0 694	0 59
16	12/2/1999	3 40 12 PM	0	25 668	23 409	24 22	24 918	22 723	175 282	37 379	46 852	11 721	26 015	8 726	0 096	36 491	0 049	0 018	9	9	15 1	31 7	2 185	0 021	0 022	0 00069	0 690	0 59
17	12/2/1999	3 41 13 PM	0	25 508	23 409	24 22	24 818	22 723	175 282	37 668	47 248	11 457	26 928	8 787	0 096	35 568	0 049	0 018	10	10	14 7	32 3	2 228	0 021	0 022	0 00068	0 677	0 58
18	12/2/1999	3 42 13 PM	0	25 428	23 409	24 22	24 998	22 883	175 282	37 131	46 577	11 744	26 353	8 756	0 096	36	0 047	0 018	11	11	14 9	31 7	2 188	0 021	0 021	0 00066	0 661	0 56
19	12/2/1999	3 43 13 PM	0	25 348	23 409	24 14	24 818	22 964	175 282	37 131	46 638	11 848	25 947	8 787	0 096	35 416	0 047	0 018	12	12	14 7	31 5	2 175	0 021	0 021	0 00067	0 667	0 57
20	12/2/1999	3 44 14 PM	0	25 313	23 455	24 185	25 124	23 009	175 32	37 317	46 621	11 816	26 252	8 787	0 096	36 276	0 047	0 018	13	13	15 1	31 5	2 191	0 021	0 021	0 00066	0 661	0 56
21	12/2/1999	3 45 14 PM	0	25 188	23 329	24 14	24 998	22 964	175 282	37 193	46 699	11 752	26 049	8 787	0 096	36 123	0 045	0 006	14	14	15 0	31 6	2 180	0 020	0 020	0 00064	0 637	0 54
22	12/2/1999	3 46 15 PM	0	25 188	23 329	24 14	24 998	22 964	175 282	37 317	46 821	11 792	26 184	8 818	0 143	36 184	0 046	0 018	15	15	15 0	31 8	2 189	0 020	0 021	0 00065	0 645	0 55
23	12/2/1999	3 47 15 PM	0	25 107	23 329	24 22	24 918	22 964	175 282	37 006	46 516	11 984	25 711	8 787	0 096	36 369	0 046	0 012	16	16	15 1	31 4	2 162	0 020	0 021	0 00065	0 655	0 56
24	12/2/1999	3 48 15 PM	0	25 153	23 374	24 266	25 044	23 009	175 32	37 008	46 577	11 984	25 812	8 787	0 143	36 522	0 045	0 009	17	17	15 2	31 4	2 166	0 020	0 020	0 00064	0 639	0 54
25	12/2/1999	3 49 15 PM	0	25 072	23 374	24 185	25 044	23 009	175 32	37 07	46 638	11 952	25 406	8 818	0 143	36 553	0 045	0 015	18	18	15 2	31 2	2 154	0 020	0 020	0 00064	0 643	0 55
26	12/2/1999	3 50 16 PM	0	25 072	23 374	24 266	25 044	23 089	175 32	36 946	46 455	11 912	25 542	8 818	0 143	36 445	0 045	0 018	19	19	15 1	31 2	2 154	0 020	0 020	0 00064	0 642	0 55
27	12/2/1999	3 51 16 PM	0	24 992	23 374	24 266	25 044	23 089	175 32	36 946	46 577	11 936	25 609	8 849	0 096	36 353	0 045	0 015	20	20	15 1	31 3	2 156	0 020	0 020	0 00064	0 641	0 55
28	12/2/1999	3 52 16 PM	0	25 038	23 42	24 311	25 089	23 215	175 358	37 006	46 516	11 896	25 846	8 849	0 143	36 399	0 045	0 015	21	21	15 1	31 4	2 167	0 020	0 020	0 00064	0 637	0 54
29	12/2/1999	3 53 17 PM	0	25 038	23 42	24 391	25 089	23 135	175 358	37 193	46 76	11 884	26 083	8 88	0 096	36 338	0 045	0 012	22	22	15,1	31 6	2 181	0 020	0 020	0 00063	0 632	0 54
30	12/2/1999	3 54 17 PM	0	25 038	23 42	24 391	25 089	23 135	175 358	37 627	47 187	11 768	26 353	8 88	0 143	36 046	0 045	0 018	23	23	15 0	32 0	2 206	0 020	0 020	0 00062	0 625	0 53
31	12/2/1999	3 55 17 PM	0	25 038	23 42	24 391	25 089	23 135	175 358	37 006	46 516	11 816	25 947	8 849	0 143	36 23	0 045	0 018	24	24	15 0	31 5	2 170	0 020	0 020	0 00063	0 635	0 54
32	12/2/1999	3 56 18 PM	0	25 038	23 339	24 391	25 089	23 054	175 358	37 379	46 943	11 625	26 049	8 818	0 096	35,77	0 046	0 018	25	25	14 8	31 7	2,187	0 020	0 020	0 00064	0 644	0 55
33	12/2/1999	3 57 18 PM	0	25 038	23 339	24 391	25 089	23 054	175 358	37 627	47 248	11 633	26 59	8 88	0 143	35 677	0 045	0 012	26	26	14 9	32 1	2 214	0 020	0 020	0 00062	0 622	0 53
34	12/2/1999	3 58 18 PM	0	25 038	23 42	24 471	25 009	22 974	175 358	37 503	47 126	11 625	26 421	8 849	0 143	35 906	0 045	0 018	27	27	14 9	32 0	2 204	0 020	0 020	0 00062	0 624	0 53
35	12/2/1999	3 59 19 PM	0	25 083	23 385	24 517	25 054	23 02	175 396	37 503	47 004	11 625	26 353	8 818	0 096	35 906	0 046	0 018	28	28	14,9	31 9	2 201	0 020	0 020	0 00064	0 638	0 54
36	12/2/1999	4 00 19 PM	0	25 083	23 385	24 517	25 054	23,1	175 396	37 503	47 004	11 673	26 522	8 849	0 096	35 816	0 045	0 018	29	29	14 9	32 0	2 207	0 020	0 020	0 00062	0 622	0 53
37	12/2/1999	4 01 19 PM	0	25 083	23 385	24 517	25 134	23,18	175 396	37 503	47 004	11 585	26 66	8 849	0 143	35 862	0 045	0,018	30	30	14 9	32 2	2 219	0 020	0 020	0 00062	0 619	0 53
38	12/2/1999	4 02 20 PM	0	25 083	23 385	24 436	25,134	23,18	175 396	37 565	47 126	11 537	26 623	8 849	0 143	35 77	0 045	0 018	31	31	14 8	32 1	2 213	0 020	0 020	0 00062	0 622	0 53
39	12/2/1999	4 03 20 PM	0	25 003	23 465	24 517	25,064	23,1	175 396	37 565	47 126	11 609	26 421	8 849	0 143	35 739	0 045	0 015	32	32	14 8	32 0	2 206	0 020	0 020	0 00062	0 622	0 53
40	12/2/1999	4 04 20 PM	0	25 083	23 385	24 517	25,134	23,1	175 396	37 689	47 248	11 553	26 556	8 849	0 096	35 631	0 044	0 009	33	33	14 9	32 1	2 215	0 019	0 019	0 00061	0 606	0 52
41	12/2/1999	4 05 21 PM	0	25 003	23 385	24 517	25 054	23 1	175 396	37 441	47 004	11 677	26 759	8 849	0 096	35 77	0 044	0 009	34	34	14 8	32,1	2 213	0 019	0 019	0 00061	0 607	0 52
42	12/2/1999	4 06 22 PM	0	25 128	23 43	24 562	25 099	23 226	175 434	37 627	47 126	11 569	26 623	8 849	0 096	35 77	0 044	0 009	35	35	14 8	32 1	2 215	0 019	0 019	0 00061	0 605	0 52
43	12/2/1999	4 07 22 PM	0	25 048	23 43	24 562	25 179	23 226	175 434	37 627	47 065	11 537	26 623	8 849	0 096	35 785	0 045	0 018	36	36	14 9	32,1	2 215	0 020	0 020	0 00062	0 619	0 53
44	12/2/1999	4 08 23 PM	0	25 048	23,35	24 562	25 179	23 226	175 434	37 503	47 065	11 497	26 556	8 849	0 143	35 723	0 044	0 018	37	37	14 8	32 0	2 208	0 019	0 019	0 00061	0 607	0 52
45	12/2/1999	4 09 23 PM	0	25 048	23 35	24 482	25 179	23 226	175 434	37 441	46 943	11 569	26 59	8 818	0 143	35 785	0 044	0 018	38	38	14 9	32 0	2,207	0 019	0 019	0 00061	0 609	0 52
46	12/2/1999	4 10 23 PM	0	25 048	23 35	24 562	25 099	23 226	175 434	37 441	47 004	11 545	26 522	8 849	0 096	35 693	0 045	0 018	39	39	14 8	32 0	2 205	0 020	0 020	0 00062	0 622	0 53
47	12/2/1999	4 11 23 PM	0	24 968	23 43	24 562	25 099	23 145	175 434	37 379	46 943	11 569	26 522	8 818	0 096	35 754	0 045	0 018	40	40	14 8	32 0	2 203	0 020	0 020	0 00062	0 622	0 53
48	12/2/1999	4 12 24 PM	0	25 013	23 395	24 607	25 145	23 271	175 472	37 627	47 126	11 561	26 522	8 849	0 096	35 785	0 044	0 015	41	41	14 9	32 1	2 211	0 019	0 019	0 00061	0 606	0 52
49	12/2/1999	4 13 24 PM	0	25 013	23 395	24 607	25 145	23 271	175 472	37 565	47 126	11 601	26 488	8 849	0 143	35 739	0 044	0 018	42	42	14 8	32 0	2 208	0 019	0 019	0 00061	0 606	0 52
50	12/2/1999	4 14 24 PM	0	25 013	23 395	24 607	25 145	23 271	175 472	37 441	46 943	11 513	26 556	8 849	0 096	35 647	0 044	0 018	43	43	14 8	32 0	2 206	0 019	0 019	0 00061	0 607	0 52
51	12/2/1999	4 15 25 PM	0	25 013	23 395	24 527	25 145	23 271	175 472	37 627	47 248	11 521	26 522	8 818	0 096	35 816	0 044	0 018	44	44	14 9	32 1	2 211	0 019	0 019	0 00061	0 607	0 52
52	12/2/1999	4 16 25 PM	0	24 933	23 395	24 607	25 145	23 271	175 472	37 999	47 492	11 513	26 522	8 849	0 143	35 877	0 044	0 012	45	45	14 9	32 3	2 224	0 019	0 019	0 00060	0 602	0 51
53	12/2/1999	4 17 25 PM	0	25 013	23 395	24 607	25 145	23 271	175 472	37 813	47 37	11 617	26 691	8 88	0 096	35 816	0 045	0 018	46	46	14 9	32,3	2 224	0 020	0 020	0 00062	0 616	0 52
54	12/2/1999	4 18 26 PM	0	25 058	23 44	24 653	25 27	23 317	175 51	37 317	46 882	11 601	26 657	8 849	0 143	35 555	0 043	0 015	47	47	14 8	32 0	2 205	0 019	0 019	0 00059	0 593	0 50
55	12/2/1999	4 19 26 PM	0	24 978	23 44	24 572	25 27	23 317	175 51	37 503	47 065	11 625	26 725	8 818	0 096	35,77	0 043	0 018	48	48	14 8	32 1	2 214	0 019	0 019	0 00059	0 592	0 50
56	12/2/1999	4 20 26 PM	0	25 058	23 44	24 572	25 27	23 317	175 51	37 565	47 126	11 593	26 522	8 849	0 096	35 785	0 043	0 018	49	49	14 9	32 0	2 209	0 019	0 019	0 00059	0 593	0 50
57	12/2/1999	4 21 27 PM	0	25 058	23 44	24 653	25,19	23 317	175 51	37 503	47 065	11 625	26 556	8 849	0 143	35 339	0 044	0 018	50	50	14 7	32 0	2 208	0 019	0 019	0 00061	0 606	0 52
58	12/2/1999	4 22 27 PM	0	24 978	23 44	24 572	25 11	23 317	175 51	37 441	46 943	11 849	26 59	8 849	0 096	35 785	0 043	0 018	51	51	14 9	32 0	2 207	0 019	0 019	0 00059	0 593	0 51
59	12/2/1999	4 23 27 PM	0	24 978	23 44	24 572	25,19	23 317	175 51	37 627	47 187	11 589	26 454	8 849	0 143	35,77	0 043	0 018	52	52	14 8	32 0	2 209	0 019	0 019	0 00059	0 593	0 50
60	12/2/1999	4 24 28 PM	0	25 024	23 488	24 618	25,155	23 362	175 548	37 565	47 126	11 585	26 725	8 849	0 143	35 848	0 044	0 021	53	53	14 9	32 1	2 216	0 019	0 019	0 00060	0 604	0 51
61	12/2/1999	4 25 28 PM	0	24 978	23 44	24 572	25,19	23 236	175 51	37 441	47 065	11 561	26 556	8 849	0 143	35 785	0 043	0 009	54	54	14 9	32 0	2 206	0 019	0 019	0 00059	0 594	0 51
62	12/2/1999	4 26 28 PM	0	25 024	23 488	24 618	25,155	23 282	175 548	37 193	46 76	11 561	26 421	8 849	0 096	35 848	0 043	0,012	55	55	14 9	31 8	2 193	0 019	0 019	0 00060	0 597	0 51
63	12/2/1999	4 27 29 PM	0	25 024	23 488	24 618	25,175	23 282	175 548	37 813	47 37	11 657	26 691	8 849	0 096	35 923	0 043	0 009	56	56	14 9	32 3	2 224	0 019	0 019	0 00059	0 588	0 50
64	12/2/1999	4 28 29 PM	0	24 943	23 408	24 618	25,235	23 282	175 548	37 627	47 126	11 625	26 725	8 88	0 096	35,77	0 043	0,006	57	57	14 8	32 2	2 216	0 019	0 019	0 00059	0 590	0 50
65	12/2/1999	4 29 29 PM	0	25 024	23 488	24 618	25,155	23 282	175 548	37 565	47 126	11 609	26 759	8 849	0 096	35 785	0 043	0 006	58	58	14 9	32 2	2 217	0 019	0 019	0 00059	0 590	0 50
66	12/2/1999	4 30 30 PM	0	25 024	23 488	24 618	25,155	23 282	175 548	37 689	47 309	11 537	26 623	8 849	0 143	35 785	0 043	0 008	59	59	14 9	32 2	2 217	0 019	0 019	0 00059	0 590	0 50
67	12/2/1999	4 31 30 PM	0	25 024	23 488	24 538	25 075	23 282	175 548	37 565	47 187	11 553	26 454	8 849	0 096	35 846	0 043	0,015	60	60	14 9	32 0	2 207	0 019	0 019	0 00059	0 594	0 51
68	12/2/1999	4 32 30 PM	0	24 943	23 408	24 618	25 075	23 282	175 548	37 503	47 004	11 569	26 657	8 849	0 096	35 708	0 043	0 009	61	61	14 8	32 1	2 212	0 019	0 019	0 00059	0 591	0 50
69	12/2/1999	4 33 31 PM	0	25 024	23 488	24 618	25 075	23 282	175 548	37 441	47 065	11 609	26 725	8 849	0 143	35 662	0 043	0 012	62	62	14 9	32 1	2 212	0 019	0 019	0 00059	0 591	0 50
70	12/2/1999	4 34 31 PM	0	24 943	23 488	24 538	25 075	23 282	175 548	37 503	47 004	11 625	26 623	8 849	0 096	35 631	0 043	0	63	63	14 9	32 1	2 211	0 019	0 019	0 00059	0 593	0 50
71	12/2/1999	4 35 31 PM	0	24 943	23 408	24 618	24 995	23 282	175 548	37 627	47 187	11 577	26 59	8 849	0 096	35 785	0 044	0 018	64	64	14 9	32 1	2 214	0 019	0 019	0 00060	0 605	0 51
72	12/2/1999	4 36 32 PM	0	25 069	23 451	24 663	25 12	23 327	175 586	37 627	47 126	11 561	26 691	8 849	0 143	35 708	0 042	0 006	65	65	14 8	32 2	2 217	0 018	0 019	0 00058	0 578	0 49
73	12/2/1999	4 37 33 PM	0	24 969	23 451	24 663	25 04	23 327	175 586	37 565	47 126	11 545	26 522	8 849	0 096	35 739	0 043	0 012	66	66	14 8	32 0	2 209	0 019	0 019	0 00059	0 591	0 50
74	12/2/1999	4 38 33 PM	0	24 969	23 451	24 663	25,12	23 247	175 586	37 503	47 004	11 553	26 556	8 849	0 143	35 616	0 043	0 015	67	67	14 9	32 0	2 208	0 019	0 019	0 00059	0 592	0 50
75	12/2/1999	4 39 34 PM	0	24 969	23 451	24 663	25 12	23 327	175 586	36 76	46 272	12 223	24 967	8 756	0 143	37 196	0 042	0 006	68	68	15 4	30 9	2 128	0 018	0 019	0 00060	0 600	0 51
76	12/2/1999	4 40 34 PM	0	24 969	23 451	24 663	25 04	23 327	175 586	36 884	46 394	12 558	24 632	8 849	0 143	37,72	0 041	0 003	69	69	15 7	30 9	2 128	0 018	0 018	0 00059	0 588	0 50
77	12/2/1999	4 41 34 PM	0	24 969	23 451	24 663	25,12	23 327	175 586	37 131	46 638	12 287	25 711	8 88	0 096	37 075	0 042	0 006	70	70	15 4	31 4	2 166	0 018	0 019	0 00059	0 589	0 50
78	12/2/1999	4 42 34 PM	0	24 954	23 497	24 708	25 086	23 292	175 624	37 441	47 065	12 287	25 778	8 88	0 143	37 137	0 043	0	71	71	15 4	31 6	2 179	0 019	0 019	0 00060	0 599	0 51
79	12/2/1999	4 43 35 PM	0	25 034	23 497	24 628	25 086	23 292	175 624	37 378	47 004	12 279	25 542	8 88	0 096	37 106	0 042	0 006	72	72	15 4	31,5	2 169	0 018	0 019	0 00059	0 589	0 50
80	12/2/1999	4 44 35 PM	0	24 969	23 451	24 663	25 04	23 166	175 586	37 441	47 004	12 295	25 846	8 88	0 096	37,121	0 042	0 012	73	73	15 4	31 6	2 182	0 018	0 019	0 00058	0 585	0 50
81	12/2/1999	4 45 35 PM	0	24 969	23 451	24 663	24 96	23 166	175 586	37 503	47 065	12 287	25 947	8 88	0 143	37,137	0 041	0 009	74	74	15 4	31 7	2,187	0 018	0 018	0 00057	0 570	0 48
82	12/2/1999	4 46 36 PM	0	25 034	23 497	24 628	25 005	23 212	175 624	37 441	47 065	12 239	25 711	8 88	0 096	37 075	0 043	0 012	75	75	15 -	31 6	2 177	0 019	0 019	0 00060	0 601	0 51
83	12/2/1999	4 47 36 PM	0	24 954	23 416	24 628	25 005	23 212	175 624	37 627	47 309	12 343	25 711	8 88	0 143	37,137	0 042	0 006	76	76	15 4	31 7	2 183	0 018	0 019	0 00059	0 585	0 50
84	12/2/1999	4 48 36 PM	0	24 969	23 451	24 583	24 88	23 166	175 586	37 441	47 004	12 303	25 711	8 88	0 096	37,183	0 041	0 012	77	77	15 4	31 6	2 177	0 018	0 018	0 00057	0 574	0 49
85	12/2/1999	4 49 37 PM	0	25 034	23 416	24 708	25 005	23 212	175 624	37 441	47 004	12 295	25 778	8 88	0 143	37 106	0 042	0 012	78	78	15 4	31 6	2 179	0 018	0 018	0 00058	0 585	0 50

Run 1.12: 14 wt% Concentration of Insoluble Solids

	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	12/2/1999	4:50:37 PM	0	24 909	23.451	24.583	24 8	23.086	175.586	37,193	46 699	12.247	25.812	8 88	0 096	37.06	0 042	0 018	79	79	15 4	31.5	2.172	0 018	0 019	0 00059	0 589	0 50
87	12/2/1999	4 51:37 PM	0	24 954	23.416	24 628	24 925	23.212	175 624	37 689	47,309	12,335	25 812	8 88	0 096	37,137	0 042	0 018	80	80	15 4	31 8	2.189	0 018	0 019	0 00058	0 584	0 50
88	12/2/1999	4:52:38 PM	0	24 969	23 451	24.583	24 88	23.086	175.586	37,689	47,309	12,279	25 846	8 88	0 096	37,137	0 041	-0 006	81	81	15 4	31 8	2 190	0 018	0 018	0 00057	0 570	0 49
89	12/2/1999	4 53:38 PM	0	24 954	23 497	24.708	24 845	23.212	175 624	37,503	47 065	12.247	25,711	8 849	0,143	37,137	0 041	0 009	82	82	15 4	31 6	2.179	0 018	0 018	0 00057	0 571	0 49
90	12/2/1999	4:54:38 PM	0	25 034	23.416	24 628	24 765	23.132	175 624	37 689	47,309	12,303	25 812	8 88	0 096	37,137	0 042	0 012	83	83	15 4	31 8	2.189	0 018	0 019	0 00058	0 584	0 50
91	12/2/1999	4:55:39 PM	0	24 969	23.451	24 583	24 8	23 086	175 586	37,317	46,882	12,187	25 812	8 88	0 096	36 922	0 041	0 003	84	84	15.3	31.6	2 178	0 018	0 018	0 00057	0 574	0 49
92	12/2/1999	4:56:39 PM	0	25 034	23.416	24 628	24.765	23.132	175 624	37,503	47 065	12.263	26 015	8 88	0 096	37,029	0 042	-0 018	85	85	15 4	31.8	2.190	0 018	0 019	0 00058	0 583	0 50
93	12/2/1999	4:57:39 PM	0	24 969	23.371	24.583	24.72	23.166	175 586	37,627	47,187	12.247	26 015	8 88	0 096	36,998	0 041	-0 009	86	86	15 4	31 8	2.194	0 018	0 018	0 00057	0 569	0 48
94	12/2/1999	4:58 40 PM	0	24 969	23.451	24 583	24.72	23 086	175 586	37,627	47,248	12,231	25 88	8 88	0 096	36 906	0 042	-0 015	87	87	15.3	31.8	2 189	0 018	0 019	0 00058	0 584	0 50
95	12/2/1999	4:59:40 PM	0	24 969	23.451	24.583	24.72	23.086	175 586	37 689	47,248	12,191	25 812	8 88	0 096	37,106	0 042	-0 012	88	88	15 4	31 8	2.189	0 018	0 019	0 00058	0 584	0 50
96	12/2/1999	5:00:40 PM	0	24 969	23.451	24 583	24.72	23.006	175.586	37,503	47,126	12.267	25 961	8 88	0 096	37,075	0 042	-0 015	89	89	15 4	31.7	2.188	0 018	0 019	0 00058	0 584	0 50
97	12/2/1999	5:01:41 PM	0	24 969	23.451	24.583	24 72	23.006	175.586	37,813	47,431	12.239	26,116	8 88	0 096	37,121	0 042	-0 018	90	90	15 4	32.0	2 204	0 018	0 019	0 00058	0 590	0 49
98	12/2/1999	5:02:41 PM	0	24 943	23.406	24 538	24 674	22.96	175.848	37 813	47,37	12,303	26 049	8 88	0 096	37,137	0 042	-0 015	91	91	15 4	31.9	2.202	0 018	0 019	0 00058	0 582	0 50
99	12/2/1999	5:03:41 PM	0	24 943	23.488	24.538	24 674	22.88	175.848	37,875	47,431	12,311	26,116	8 88	0,143	37,152	0 042	-0 018	92	92	15 4	32 0	2 206	0 018	0 019	0 00058	0 581	0 49
100	12/2/1999	5:04:42 PM	0	24 969	23.451	24 583	24.72	23.006	175.586	37,627	47,187	12.271	26 049	8 88	0,143	36 891	0 042	-0 015	93	93	15.3	31.8	2.195	0 018	0 019	0 00058	0 583	0 50
101	12/2/1999	5:05:42 PM	0	24 969	23.371	24 583	24 72	23.006	175 586	37,378	46,882	12 271	25 88	8 88	0,143	37,198	0 042	-0 018	94	94	15 4	31.6	2 181	0 018	0 019	0 00059	0 587	0 50
102	12/2/1999	5:06 42 PM	0	24 969	23.451	24 583	24.72	23.006	175 586	37,875	47,492	12,335	26 015	8 849	0 096	37,121	0 041	-0 018	95	95	15 4	31 9	2.202	0 018	0 018	0 00057	0 567	0 48
103	12/2/1999	5:07:43 PM	0	24 943	23.406	24 538	24 694	22 88	175 848	37,689	47,248	12.295	25 812	8 88	0 096	37,029	0 041	-0 015	96	96	15 4	31 8	2 189	0 018	0 018	0 00057	0 571	0 49
104	12/2/1999	5:08 43 PM	0	24 943	23.406	24 538	24.694	22 88	175.848	37,565	47,187	12.286	23 914	8 849	0 096	37,121	0 041	-0 018	97	97	15 4	31.7	2.188	0 018	0 018	0 00057	0 571	0 49
105	12/2/1999	5:09:43 PM	0	24 943	23.488	24 618	24 814	22.68	175.848	37,441	47,004	12,303	25,711	8 88	0 096	37,137	0 041	-0 012	98	98	15 4	31.6	2 177	0 018	0 018	0 00057	0 573	0 49
106	12/2/1999	5:10:44 PM	0	24 943	23.406	24.538	24.694	22 88	175 848	37,627	47,187	12,303	25 846	8 849	0 096	37,198	0 041	-0 018	99	99	15 4	31.7	2.188	0 018	0 018	0 00057	0 571	0 49
107	12/2/1999	5:11:44 PM	0	24 943	23.406	24 538	24.814	22.88	175.848	37,441	47,004	12,303	25 88	8 88	0,143	37,137	0 041	-0 015	100	100	15 4	31.7	2.183	0 018	0 018	0 00057	0 573	0 49
108	12/2/1999	5:12:44 PM	0	24 896	23.36	24 572	24.588	22.754	175.51	37 689	47,309	12,343	25 778	8 849	0,143	37,167	0 042	-0 018	101	101	15 4	31.7	2.188	0 018	0 019	0 00058	0 585	0 50
109	12/2/1999	5:13:45 PM	0	24 896	23.44	24.492	24.388	22.754	175.51	37,627	47,187	12 311	25,947	8 849	0 096	37,275	0 041	-0 015	102	102	15 5	31 6	2.192	0 018	0 018	0 00057	0 571	0,49
110	12/2/1999	5:14:45 PM	0	24 896	23.44	24.572	24.468	22.754	175 51	37,565	47,126	12,367	25 846	8 849	0,143	37,183	0 041	-0 015	103	103	15 4	31.7	2.186	0 018	0 018	0 00057	0 571	0 49
111	12/2/1999	5:15:46 PM	0	24 896	23.44	24 572	24.388	22.754	175.51	37,503	47,065	12,335	25,711	8 849	0 096	37,213	0 041	-0 018	104	104	15 4	31.6	2.179	0 018	0 018	0 00057	0 573	0 49
112	12/2/1999	5:16:46 PM	0	24 896	23.44	24 492	24.388	22.674	175.51	37,751	47,248	12,327	25 812	8 849	0 096	37,183	0 041	-0 018	105	105	15 4	31.8	2.191	0 018	0 018	0 00057	0 571	0 49
113	12/2/1999	5:17:46 PM	0	24 896	23.44	24.492	24.388	22.754	175 51	37,751	47,309	12,327	25,961	8 849	0 096	37,275	0 041	-0 018	106	106	15 5	31 9	2.197	0 018	0 018	0 00057	0 570	0 48
114	12/2/1999	5:18 46 PM	0	24 853	23.395	24 527	24.343	22.708	175 472	37,689	47,248	12,367	25 846	8 849	0 096	37,198	0 041	-0 012	107	107	15 4	31.8	2.190	0 018	0 018	0 00057	0 571	0 49
115	12/2/1999	5:19:47 PM	0	24 853	23.395	24 527	24.263	22 628	175.472	37,503	47,126	12,327	25,947	8 849	0 096	37,259	0 041	-0 018	108	108	15 5	31.7	2.187	0 018	0 018	0 00057	0 572	0 49
116	12/2/1999	5:20:47 PM	0	24 933	23.475	24 527	24.263	22.628	175.472	37,317	46,943	12,263	25 88	8 849	0 096	37,229	0 042	-0 018	109	109	15 5	31 6	2.179	0 018	0 019	0 00059	0 588	0 50
117	12/2/1999	5:21:48 PM	0	24 888	23.35	24.482	24.217	22.583	175 434	37,565	47,126	12,303	25 846	8 849	0 096	37,229	0 041	-0 015	110	110	15.5	31,7	2.186	0 018	0 018	0 00057	0 573	0 49
118	12/2/1999	5:22:48 PM	0	24 888	23 35	24.482	24.137	22.502	175.434	37,751	47,309	12,223	26 049	8 849	0 096	36 952	0 041	-0 018	111	111	15 3	31.9	2.199	0 018	0 018	0 00057	0 569	0 48
119	12/2/1999	5:23:48 PM	0	24 888	23.35	24 482	24.217	22.583	175.434	37,503	47,065	12.215	26,265	8 88	0 096	37,106	0 041	-0 018	112	112	15.4	31 9	2.199	0 018	0 018	0 00057	0 569	0 48
120	12/2/1999	5:24:48 PM	0	24 842	23.385	24.436	24 092	22 537	175.396	37,813	47,492	12,367	25 961	8 91	0,143	37,259	0 041	-0 018	113	113	15 5	31.9	2.199	0 018	0 018	0 00057	0 570	0 49
121	12/2/1999	5:25:49 PM	0	24 888	23.43	24 562	24,137	22.583	175.434	37,503	47,004	12,303	25,711	8 849	0 096	37,306	0 042	-0 018	114	114	15.5	31 6	2.179	0 018	0 019	0 00059	0 587	0 50
122	12/2/1999	5:26:49 PM	0	24 923	23.385	24.436	24 092	22.537	175.396	37,751	47,309	12,303	26 015	8 88	0 096	37,198	0 041	-0 018	115	115	15 4	31.9	2.196	0 018	0 018	0 00057	0 570	0 49
123	12/2/1999	5:27:50 PM	0	24 842	23.385	24.517	24 092	22.457	175.396	37,689	47,187	12,303	26 049	8 849	0 096	37,198	0 041	-0 018	116	116	15 4	31,9	2.197	0 018	0 018	0 00057	0 569	0 48
124	12/2/1999	5:28 50 PM	0	24 842	23.385	24 517	24.092	22.457	175.396	37,441	47,004	12,335	25,711	8 88	0 096	37,183	0 041	-0 018	117	117	15 4	31.8	2.177	0 018	0 018	0 00057	0 575	0 49
125	12/2/1999	5:29 50 PM	0	24 877	23 339	24.471	24 046	22.411	175.358	37,565	47,126	12,391	26 015	8 88	0 096	37,183	0 041	-0 018	118	118	15.4	31.8	2.192	0 018	0 018	0 00057	0 571	0 49
126	12/2/1999	5:30:51 PM	0	24 923	23.385	24 517	24 011	22 457	175 396	37,875	47,431	12 247	26 015	8 88	0 096	36 952	0 041	-0 018	119	119	15 3	31.9	2.202	0 018	0 018	0 00057	0 568	0 48
127	12/2/1999	5:31:51 PM	0	24 877	23.339	24.471	23 888	22.411	175.358	37,689	47,248	12,375	26 015	8 88	0,143	37,198	0 041	-0 018	120	120	15 4	31.9	2.196	0 018	0 018	0,00057	0 570	0 49
128	12/2/1998	5:32:51 PM	0	24 877	23.339	24.471	23 888	22.411	175 358	37,441	47,065	12,287	25 914	8 849	0 096	37,244	0 041	-0 009	121	121	15 5	31.7	2.184	0 018	0 018	0 00057	0 574	0 49
129	12/2/1999	5:33:52 PM	0	24 832	23 374	24.506	23.84	22 285	175.32	37,813	47,309	12,367	26,116	8 88	0 096	37,244	0 041	-0 018	122	122	15 5	32 0	2 204	0 018	0 018	0 00057	0 568	0 48
130	12/2/1999	5 34 52 PM	0	24 832	23 374	24 426	23.76	22.366	175 32	37,813	47,431	12,415	25 914	8 88	0 096	37,198	0 041	-0 009	123	123	15.4	31.9	2.197	0 018	0 018	0 00057	0 571	0 49
131	12/2/1999	5:35 52 PM	0	24 832	23.374	24.506	23.68	22.285	175.32	34 094	47,309	12,247	22 668	12,362	0 096	37,259	0 011	-0 018	124	124	15 5	28.4	1.957	0 005	0 005	0 00017	0 172	0 15
132	12/2/1999	5:36 53 PM	0	24 832	23.294	24.426	23.76	22.366	175.32	36.946	47,187	12,303	25,102	9,558	0 096	37,163	0,072	0 045	125	125	15.4	31.0	2.139	0 031	0 032	0 00103	1,030	0 88
133	12/2/1999	5:37:53 PM	0	24 832	23.294	24 426	23.68	22.366	175 32	37,503	47,309	12,311	25 846	9,186	0 096	37,044	0,054	0 027	126	126	15 4	31.7	2.184	0,024	0 024	0 00076	0 756	0 64
134	12/2/1999	5 38 53 PM	0	24,787	23.249	24,481	23 635	22.24	175.262	37,627	47,492	12,319	25 846	9,157	0 096	37,121	0 049	0.024	127	127	15 4	31.7	2.188	0 021	0 022	0 00068	0 684	0 58
135	12/2/1999	3:09:13 PM	0	31,964	23.35	31.816	25 66	23 627	175.434	73.767	63.774	11,162	63 339	9 219	0,143	34 679	0 057	0,03	128	128	14.4	68 6	4,726	0 025	0 021	0 00030	0 301	0 26
136																												
137		Averages		25 0	23.4	24 5	24.8	23 0	175 5	37.5	47,1	12.0	26,1	8 9	0,112	36 5	0 043	0,004			15.1	31.8	2.193	0 019	0 019	0 0000601	0 601	0 512
138		Maximum		26.3	23.5	24.7	25.3	23.4	175 6	38 0	47.5	12 6	26,9	9.2	0,143	37.7	0 054	0 027			15.7	32 3	2.228	0 024	0 024	0 000768	0 768	0 653
139		Median		25 0	23.4	24.6	25 0	23.1	175 5	37.5	47.1	11.9	26.0	8 6	0 096	36.5	0 043	0 009			15 1	31.8	2.193	0 019	0 019	0 0000591	0 591	0 503
140		Minimum		24 8	23.3	24.1	23.8	22.3	175.3	36 8	46.3	11.5	24 8	8 7	0 096	35.3	0 041	-0 018			14.7	30.9	2.128	0 018	0 018	0 0000567	0 567	0 482
141		Std Deviation		0.200	0 042	0,138	0.377	0 283	0,106	0.240	0.251	0.338	0 402	0 044	0,022	0.653	0 002	0,015			0 271	0 271	0 019	0 001	0 001	0 0000034	0 034	0 029
142		Number of Points Used		118	118	118	118	118	118	118	118	118	118	118	118	118	118	118			118	118	118	118	118	118	118	118



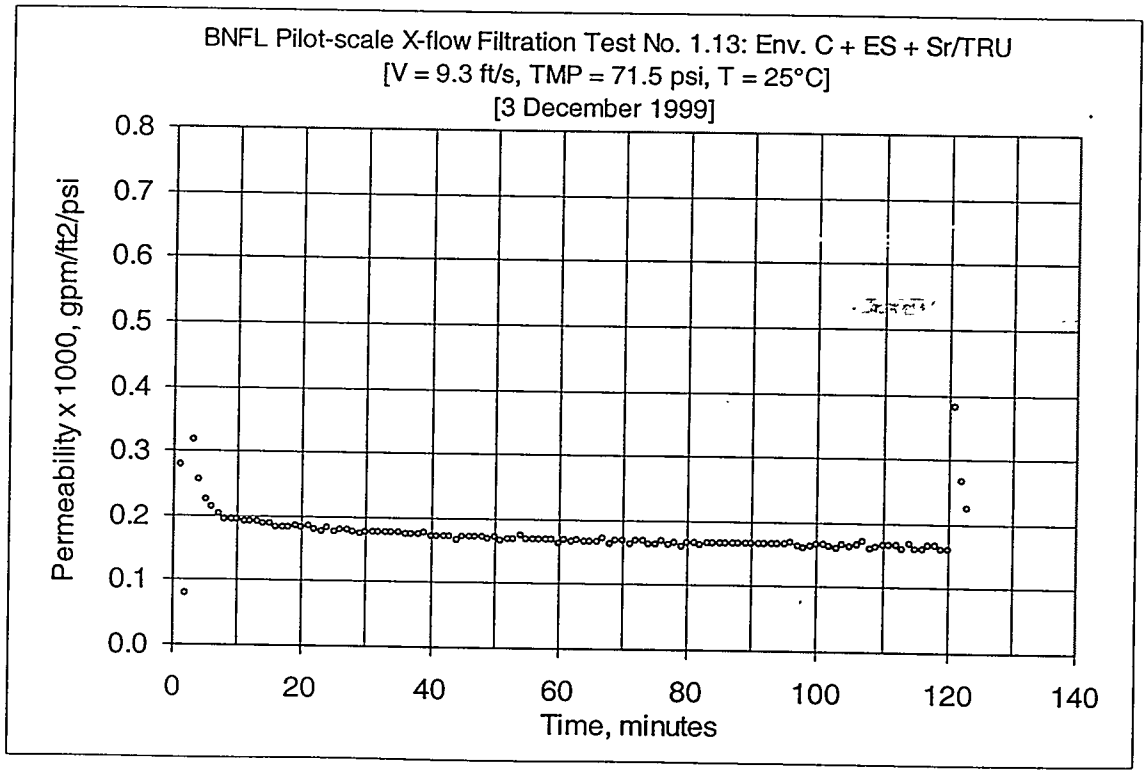


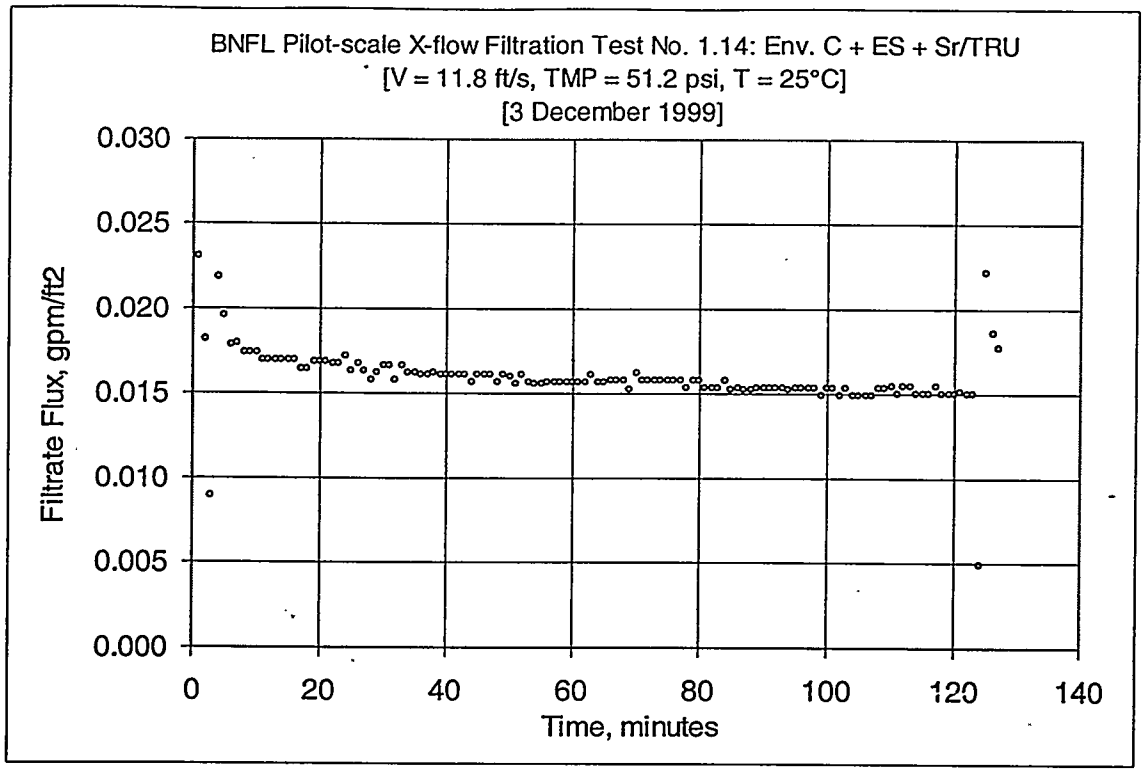
Figure C6: Test Run 1.13, 14 wt% Insoluble Solids Concentration

Run 1.13: 14 wt% Concentration of Insoluble Solids

	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	FLTRAT (cw	CL LOOP	SL LOOP	UP AMB (c	BOT AMB	T6 (deg C)	BOT DP (c	FLTR (psi	FLTR DP (	TOP DP (c	FLTRATE (peg)	PISTON (peg)	SL FLOW	O2,FLTR F	O3,FLTR F	LOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeros - Lines Not Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	12/3/1999	8:31:55 AM	0	21,227	19 033	15 8	22,325	17 613	170 887	-0 062	-0 072	-0 016	-0 017	-0 088	0 004	-0 08	0 011	-0 018										
4	12/3/1999	8:32:55 AM	0	21,307	19 033	15 8	22,164	17,775	170 887	-0 062	-0 072	-0 016	-0 017	-0 088	0 004	-0 095	0 011	-0 018										
5	12/3/1999	8:33:55 AM	0	21,388	19 114	15 8	22,164	18,342	170 887	-0 062	-0 072	-0 008	-0 017	-0 088	0 004	-0 08	0 011	-0 018										
6																									at 25C	PERMEABILITY	x 1000	PERMEABILITY
7	Data - Per Minute																		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
8	12/3/1999	11:27:14 AM	0	25,325	20 488	23,234	22,567	21,17	173,514	75 589	85 604	6 678	69 729	9,26	0 004	21 439	0 044	-0 003	1	1	8 9	72,7	5 013	0 019	0 020	0 00028	0 278	0 24
9	12/3/1999	11:28:15 AM	0	25 726	20 488	23,635	22,567	21,17	173,514	72,218	85,177	8 936	67,227	12 27	0 004	21,208	0 012	-0 018	2	2	8 8	69 7	4 807	0 005	0 005	0 00008	0 078	0 07
10	12/3/1999	11:29:15 AM	0	25,325	20 488	23,956	22,567	21,17	173,514	75,503	85,482	8,303	69 526	9,26	0 004	21,162	0 051	0 021	3	3	8 8	72 5	5 000	0 022	0 023	0 00032	0 316	0 27
11	12/3/1999	11:30:15 AM	0	25,29	20 533	24,321	22 692	21,215	173,552	75 837	85,726	8,479	69 696	9 065	0 004	21,162	0 042	-0 018	4	4	8 8	72 9	5 027	0 018	0 019	0 00026	0 256	0 22
12	12/3/1999	11:31:16 AM	0	25 174	20 577	24 687	22,656	21,259	173,589	75 999	85 543	8 606	69 661	8 849	-0 004	21 04	0 037	-0 018	5	5	8 7	72 8	5 021	0 016	0 016	0 00022	0 224	0 19
13	12/3/1999	11:32:16 AM	0	25 084	20 577	24 927	22,656	21,259	173,589	76 433	85,787	8 726	70,338	8,726	0 004	21,147	0 036	-0 018	6	6	8 8	73 4	5 060	0 018	0 018	0 00021	0 215	0 18
14	12/3/1999	11:33:16 AM	0	24,933	20,577	25 247	22,737	21 259	173,589	76,309	85 604	8 702	70 27	8 695	0 05	21,086	0 034	-0 018	7	7	8 8	73 3	5 053	0 015	0 015	0 00020	0 201	0 17
15	12/3/1999	11:34:17 AM	0	25 014	20,497	25 407	22,737	21,34	173,589	76,309	85 665	8,742	70,304	8 695	0 004	21,132	0 033	-0 018	8	8	8 8	73 3	5 054	0 014	0 014	0 00019	0 194	0,17
16	12/3/1999	11:35:17 AM	0	25,138	20 622	25,772	22,781	21,304	173,626	76,185	85 543	8 678	70 202	8,756	0 004	20 963	0 033	-0 018	9	9	8 7	73 2	5 048	0 014	0 014	0 00019	0 193	0 16
17	12/3/1999	11:36:17 AM	0	25,298	20 541	26 012	22,781	21,304	173,626	75 813	85 233	7,109	69 222	8,756	0 004	21,854	0 033	-0 018	10	10	9 1	72 5	5 000	0 014	0 014	0 00019	0 193	0 16
18	12/3/1999	11:37:18 AM	0	25 503	20 586	26 216	22,826	21,349	173,664	75 837	85,421	7,053	69 323	8 787	0 004	21 808	0 033	-0 018	11	11	9 1	72 6	5 008	0 014	0 014	0 00019	0 192	0,16
19	12/3/1999	11:38:18 AM	0	25 819	20 541	26 332	22,781	21,304	173,626	75 503	84 533	6 957	69,56	8 818	0 004	21,869	0 033	-0 015	12	12	9 0	72 5	5 001	0 014	0 014	0 00019	0 191	0,16
20	12/3/1999	11:39:18 AM	0	25 823	20 586	26 696	22,826	21,268	173,664	75 379	84,711	6,857	69 357	8 818	0 004	21 562	0 033	-0 018	13	13	8 9	72 4	4 990	0 014	0 014	0 00019	0 190	0,16
21	12/3/1999	11:40:19 AM	0	25 963	20 586	26 856	22,826	21,349	173,664	75 627	85,118	7,005	69 391	8,849	0 004	21,7	0 033	-0 018	14	14	9 0	72 5	4 999	0 014	0 014	0 00019	0 189	0 16
22	12/3/1999	11:41:19 AM	0	26,188	20 631	27,06	22 871	21,394	173,701	75,131	84,629	6 869	68 85	8 818	0 004	21 685	0 033	-0 018	15	15	9 0	72 0	4 963	0 014	0 014	0 00019	0 189	0 16
23	12/3/1999	11:42:19 AM	0	26,348	20 631	27,299	22,951	21,394	173,701	74 697	84,14	6,973	68,661	8 849	0 05	21,654	0 032	-0 018	16	16	9 0	71,7	4 943	0 014	0 013	0 00018	0 183	0 16
24	12/3/1999	11:43:20 AM	0	26 632	20 678	27,424	22,996	21,438	173,739	74,759	84,323	6 973	68,546	8 88	0 004	21,731	0 032	-0 018	17	17	9 0	71 7	4 940	0 014	0 013	0 00018	0 182	0 16
25	12/3/1999	11:44:20 AM	0	26,792	20 678	27,863	22 996	21,819	173,739	74 511	83 957	7,005	68 309	8 88	0 004	21,715	0 032	-0 018	18	18	9 0	71,4	4 923	0 014	0 013	0 00018	0 182	0 15
26	12/3/1999	11:45:20 AM	0	26,952	20 678	27,823	23 078	21 438	173,739	74 449	83,957	6 965	68,444	8 88	0 05	21,715	0 033	-0 018	19	19	9 0	71 4	4 926	0 014	0 013	0 00019	0 186	0,16
27	12/3/1999	11:46:21 AM	0	27,078	20,721	28 026	23,04	21,564	173,776	75,441	84,994	7,013	68 884	8 88	0 004	21,781	0 033	-0 018	20	20	9 0	72 2	4 975	0 014	0 013	0 00018	0 183	0 16
28	12/3/1999	11:47:21 AM	0	27,236	20 84	28,186	23,04	21,564	173,776	74 697	84,262	6 846	68,309	8 88	0 004	22 696	0 033	-0 018	21	21	9 4	71,5	4 930	0 014	0 013	0 00018	0 184	0,16
29	12/3/1999	11:48:21 AM	0	27,476	20 84	28,345	23,04	21,483	173,776	74 449	83,957	7,005	67,599	8 68	0 004	21,792	0 032	-0 018	22	22	9 0	71,0	4 897	0 014	0 013	0 00018	0 179	0,15
30	12/3/1999	11:49:22 AM	0	27,63	20 665	28,469	23 065	21,528	173,813	74 535	84,14	7,045	67,768	8 68	0 004	21,884	0 032	-0 018	23	23	9,1	71,2	4 909	0 014	0 013	0 00018	0 178	0 15
31	12/3/1999	11:50:22 AM	0	27,639	20 604	28 629	23,065	21,528	173,813	74 697	84,201	7,053	68,174	8 68	0 004	21,948	0 033	-0 018	24	24	9,1	71,4	4 925	0 014	0 013	0 00018	0 182	0 16
32	12/3/1999	11:51:22 AM	0	27,993	20,73	28 832	23,21	21,573	173,851	74,511	84,018	7,013	68,377	8 911	0 004	21,9	0 033	-0 018	25	25	9 1	71,4	4 928	0 014	0 013	0 00018	0 178	0 15
33	12/3/1999	11:52:23 AM	0	28,167	20,775	28 956	23,255	21,618	173,888	75 069	84,628	7,045	68,444	8 88	0 004	21,838	0 033	-0 018	26	26	9,1	71,8	4 947	0 014	0 013	0 00018	0 180	0,15
34	12/3/1999	11:53:23 AM	0	28 327	20,775	29 115	23,253	21,618	173,888	74 263	83,774	7,005	67,836	8 91	0 004	21,884	0 033	-0 018	27	27	9,1	71 0	4 899	0 014	0 013	0 00018	0 181	0,15
35	12/3/1999	11:54:23 AM	0	28,407	20 694	29,195	23,253	21,696	173,888	75,007	84,628	6 87	68 884	8 91	0 004	21,839	0 033	-0 018	28	28	9 0	71,9	4 960	0 014	0 013	0 00018	0 178	0,15
36	12/3/1999	11:55:24 AM	0	28,486	20 694	29 275	23,253	21 618	173,888	74 621	84,445	6 846	68,613	8,91	0 004	21,908	0 032	-0 018	29	29	9 0	71,7	4 943	0 014	0 012	0 00017	0 173	0 15
37	12/3/1999	11:56:24 AM	0	28,77	20,739	29 396	23,3	21,662	173,926	75 007	84,506	6,91	68 884	8 941	0 004	21,854	0 033	-0 018	30	30	9 0	71,9	4 960	0 014	0 013	0 00018	0 177	0,15
38	12/3/1999	11:57:24 AM	0	28 849	20 819	29 556	23,3	21 662	173,926	74,883	84,445	7,013	68 072	8,941	0 004	21,93	0 033	-0 018	31	31	9,1	71 5	4,928	0 014	0 013	0 00018	0 178	0 15
39	12/3/1999	11:58:25 AM	0	28,973	20,784	29 682	23,344	21,788	173,963	74,387	83,896	6 961	68,444	8,91	0 05	21,869	0 033	-0 018	32	32	9,1	71,4	4 924	0 014	0 013	0 00018	0 177	0,15
40	12/3/1999	11:59:25 AM	0	29 053	20,784	29,841	23,344	21,707	173,963	74,263	83,774	6,969	68,206	8 91	0,004	21,915	0 033	-0 018	33	33	9,1	71,2	4 911	0 014	0 013	0 00018	0 177	0 15
41	12/3/1999	12:00:25 PM	0	29 133	20 784	29 92	23,344	21,707	173,963	74,759	84,262	7,053	68,275	8 941	0 004	21,992	0 033	-0 018	34	34	9 1	71,5	4,931	0 014	0 013	0 00018	0 176	0 15
42	12/3/1999	12:01:26 PM	0	29 257	20,748	29,964	23,359	21,752	174,001	74 016	83 592	6 941	67,565	8,941	0 004	21,854	0 033	-0 018	35	35	9 1	70 8	4 881	0 014	0 013	0 00018	0 177	0,15
43	12/3/1999	12:02:26 PM	0	29,416	20 829	30,123	23,469	21,752	174,001	74 883	84,506	7,093	68,749	8 972	0 004	22,178	0 033	-0 018	36	36	9 2	71 8	4 951	0 014	0 013	0 00017	0 174	0 15
44	12/3/1999	12:03:26 PM	0	29 84	20,793	30,247	23,514	21,797	174,038	75 256	84 811	7,101	68,715	8,972	0 004	22,13	0 033	-0,015	37	37	9 2	72 0	4 963	0 014	0 012	0 00017	0 173	0 15
45	12/3/1999	12:04:27 PM	0	29 62	20 874	30,247	23,514	21,797	174,038	75,069	84 628	7,037	68,715	8,941	0 004	21,992	0 033	-0,018	38	38	9,1	71,9	4,957	0 014	0 012	0 00017	0 173	0 15
46	12/3/1999	12:05:27 PM	0	29,779	20,793	30,247	23,434	21,797	174 038	75,317	84,994	7,077	68,749	8 941	0 004	22,13	0 034	-0 018	39	39	9 2	72 0	4 966	0 015	0 013	0 00018	0 178	0 15
47	12/3/1999	12:06:28 PM	0	29 858	20,793	30,327	23,514	21,877	174 038	75,317	84 872	6,917	69,256	8,941	0 004	21,761	0 033	-0 018	40	40	9 0	72,3	4 964	0 014	0 012	0 00017	0 172	0 15
48	12/3/1999	12:07:28 PM	0	29 903	20 838	30,45	23,479	21,922	174,076	75,131	84,75	6 91	68 85	8 941	0 004	21,823	0 033	-0 018	41	41	9 1	72 0	4 963	0 014	0 012	0 00017	0 172	0 15
49	12/3/1999	12:08:28 PM	0	29 962	20 838	30 53	23,559	21,781	174 076	75 441	85 055	6 969	68,884	8,972	0 004	21,93	0 033	-0 018	42	42	9 1	72 2	4 975	0 014	0 012	0 00017	0 171	0,15
50	12/3/1999	12:09:29 PM	0	30,106	20 883	30,574	23,623	21,808	174,113	75,193	84,75	6 957	68 816	8 972	0 004	21,918	0 033	-0 018	43	43	9 1	72,0	4,964	0 014	0 012	0 00017	0 172	0 15
51	12/3/1999	12:10:29 PM	0	30,141	20 838	30 609	23,479	21,842	174 076	74,821	84,506	6,933	68 58	8 941	0 05	21,854	0 032	-0 018	44	44	9 1	71,7	4 943	0 014	0 012	0 00017	0 167	0 14
52	12/3/1999	12:11:29 PM	0	30,265	20 883	30 654	23 604	21,887	174,113	75 069	84 689	7,005	68,546	8,972	0 004	21,961	0 033	-0 018	45	45	9 1	71 8	4 951	0 014	0 012	0 00017	0 172	0 15
53	12/3/1999	12:12:30 PM	0	30,345	20,883	30,733	23,604	21 887	174,113	74 697	84 384	7,085	68 072	8,941	0,004	22,222	0 033	-0,018	46	46	9 2	71,4	4 922	0 014	0 012	0 00017	0 172	0 15
54	12/3/1999	12:13:30 PM	0	30 345	20 883	-30,733	23,604	21,887	174,113	75,379	85 035	7,093	68,749	8 972	0 004	22,207	0 033	-0 022	47	47	9 2	72,1	4,969	0 014	0 012	0 00017	0 171	0 15
55	12/3/1999	12:14 30 PM	0	30 468	20 926	30 857	23,648	21,932	174,151	74 635	84,262	7,085	67,903	8 941	0 05	22,161	0 033	-0 018	48	48	9 2	71,3	4,914	0 014	0 012	0 00017	0 172	0 15
56	12/3/1999	12:15 31 PM	0	30,468	21,008	30 936	23,648	21,932	174,151	75,441	85 055	6 965	68,951	8,972	0 004	21,961	0 033	-0,018	49	49	9,1	72 2	4 978	0 014	0 012	0 00017	0 169	0 14
57	12/3/1999	12:16:31 PM	0	30 548	20 926	30,936	23 648	21,932	174,151	75,255	84,872	7,013	68 512	8 972	0,05	21,961	0 033	-0 018	50	50	9,1	71,9	4,956	0 014	0 012	0 00017	0 170	0,14
58	12/3/1999	12:17:31 PM	0	30 672	20 973	31 06	23,774	22 057	174,188	75,193	84 811	6,878	68,476	8 972	0 05	21,808	0 032	-0 015	51	51	9 1	71,8	4,953	0 014	0 012	0 00016	0 165	0 14
59	12/3/1999	12:18:32 PM	0	30 672	20 973	-31 06	23,774	22 057	174,188	75,193	84 811	6,917	69 087	8 972	0 05	21,9	0 033	-0,018	52	52	9 1	72,1	4 974	0 014	0 012	0 00017	0 169	0 14
60	12/3/1999	12:19:32 PM	0	30,751	20,973	31,139	23,774	22 057	174,188	75,379	84 994	6 902	69,12	8,972	0 05	21,808	0 033	-0,018	53	53	9,1	72 2	4 981	0 014	0 012	0 00017	0 168	0 14
61	12/3/1999	12:20:32 PM	0	30,875	21,018	31,184	23,818	22,102	174,226	75,379	84,994	6 894	69 087	8,972	0 05	21,854	0 034	-0 018	54	54	9,1	72 2	4 980	0 015	0 013	0 00017	0 173	0 15
62	12/3/1999	12:21:33 PM	0	30 875	21,018	31,184	23 818	22 022	174,226	74 883	84 506	6 846	68 681	8,972	0 004	21,869	0 033	-0 018	55	55	9 1	71,8	4 949	0 014	0 012	0 00017	0 169	0 14
63	12/3/1999	12:22:33 PM	0	30 919	21 063	31,307	23 863	22,066	174,263	74,821	84,445	6,87	68 512	8 972	0 004	21,715	0 033	-0 018	56	56	9 0	71,7	4 941	0 014	0 012	0 00017	0 169	0 14
64	12/3/1999	12:23:33 PM	0	30 999	21 063	31,307	23 863	22,066	174,263	75,255	84,933	6 894	68 813	8 972	0 004	21,731	0 033	-0 015	57	57	9 0	71,9	4,960	0 014	0 012	0 00017	0 168	0 14
65	12/3/1999	12:24:34 PM	0	30 999	21,063	31,307	23 863	22,147	174 263	75,131	84 811	6 886	69 019	8 972	0 004	21,746	0 033	-0,018	58	58	9 0	72,1	4,969	0 014	0 012	0 00017	0 168	0 14
66	12/3/1999	12:25 34 PM	0	30 999	20,962	31,387	23 863	22,586	174 263	75,379	85 055	6 925	69 256	8 972	0 004	21,808	0 033	-0 018	59	59	9 1	72,3	4 986	0 014	0 012	0 00017	0 167	0 14
67	12/3/1999	12:26:34 PM	0	31,122	21,108	31,431	23 908	22,111	174,301	74,945	84,567	6 894	68,546	8 972	0 004	21,869	0 032	-0 018	60	60	9 1	71,7	4 947	0 014	0 012	0 00016	0 163	0 14
68	12/3/1999	12:27:35 PM	0	31,202	21,108	31,431	23 908	22,111	174 301	74,945	84 628	6 862	68,613	9 003	0 05	21,838	0 033	-0 018	61	61	9 1	71 8	4 949	0 014	0 012	0 00017	0 168	0 14
69	12/3/1999	12:28:35 PM	0	31 246	21,153	31,555	23 953	22,156	174,338	75,193	84,872	6,862	69,12	8 972	0,004	21,93	0 033	-0 018	62	62	9,1	72,2	4 975	0 014	0 012	0 00017	0 167	0 14
70	12/3/1999	12:29:35 PM	0	31,246	21,153	31,555	24 033	22,156	174 338	74 821	84,445	6 854	68 816	9 003	0 05	21,808	0 033	-0,018	63	63	9,1	71 8	4 952	0 014	0 012	0 00017	0 167	0 14
71	12/3/1999	12:30:36 PM	0	31,326	21,153	31,655	24 033	22,156	174 338	75 255	84 933	6 917	68 985	9 003	0 004	21,854	0 033	-0 018	64	64	9,1	72,1	4 972	0 014	0 012	0 00017	0 167	0 14
72	12/3/1999	12:31:36 PM	0	31,37	21,196	31,599	23 998	22,201	174,376	75 069	84 689	6 854	69 053	8 972	0 05	21,838	0 033	-0 018	65	65	9 1	72,1	4 968	0 014	0 012	0 00017	0 167	0 14
73	12/3/1999	12:32:36 PM	0	31,37	21,196	31 678	23,998	22,201	174,376	75 193	84 811	6 878	69 256	8,972	0 05	21,854	0 033	-0 018	66	66	9 1	72 2	4 980	0 014	0 012	0 00017	0 166	0,14
74	12/3/1999	12:33:37 PM	0	31,37	21,196	31 599	23 998	22,201	174,376	75 627	85,299	6 87	68 951	8,972	0 05	21,792	0 034	-0 018	67	67	9 0	72 3	4 984	0 015	0 012	0 00017	0 171	0 15
75	12/3/1999	12:34 37 PM	0	31,449	21,117	31 678	24 078	22,201	174 376	74 573	84,14	6 973	68,343	8 972	0 05	21,854	0 032	-0 018	68	68	9 1	71,5	4 927	0 014	0 012	0 00016	0 163	0 14
76	12/3/1999	12:35 37 PM	0	31,494	21 243	31,723	24,123	22,327	174,414	74,573	84,323	7,061	68,174	8 972	0 004	22,284	0 033	-0 018	69	69	9 2	71,4	4 921	0 014	0 012	0 00017	0 168	0 14
77	12/3/1999	12:36:38 PM	0	31,494	21,243	31,723	24 043	22,246	174,414	74 635	84,323	7,013	68 309	8 972	0 05	22,13	0 033	-0 018	70	70	9 2	71,5	4 928	0 014	0 012	0 00017	0 168	0 14
78	12/3/1999	12:37:38 PM	0	31,573	21,243	31,802	24,123	22,246	174,414	74,077	83,713	7,253	67,43	8 972	0 05	22,622	0 032	-0 018	71	71	9,4	70 8	4 878	0 014	0 012	0 00016	0 164	0 14
79	12/3/1999	12:38:39 PM	0	31,652	21,243	31,802	24,123	22 246	174,414	74,759	84,445	7,261	67,788	8 972	0 004	22,622	0 033	-0 018	72	72	9 4	71 3	4 913	0 014	0 012	0 00017	0 168	0,14
80	12/3/1999	12:39:39 PM	0	31,573	21,243	31,802	24 043	22 248	174,414	74 449	84 018	7,292	68 106	8 972	0 004	22,714	0 033	-0 018	73	73	9 4	71 3	4 914	0 014	0 012	0 00017	0 168	0 14
81	12/3/1999	12:40:40 PM	0	31,697	21,288	31 846	24 067	22 291	174,451	74,139	83,774	7,245	67,701	8 972	0 004	22 622	0 032	-0 018	74	74	9 4	70 9	4 890	0 014	0 012	0 00016	0 163	0 14
82	12/3/1999	12:41:40 PM	0	31 697	21,288	31 925	24,168	22,372	174,451	74 573	84,201	7,306	68 005	8 941	0 05	22 606	0 032	-0 018	75	75	9 4	71 3	4 915	0 014	0 012	0 00016	0 162	0 14
83	12/3/1999	12:42:40 PM	0	31 697	21,288	31,925	24,168	22,372	174 451	74,387	84 018	7,229	67,329	8,941	0 05	22,591	0 033	-0 018	76	76	9 4	70 9	4 885	0 014	0 012	0 00017	0 168	0,14
84	12/3/1999	12:43:41 PM	0	31,776	21,288	32,005	24,168	22,372	174,451	74 573	84,262	7,237	68 005	8 972	0 004	22,56	0 032	-0 018	77	77	9 4	71,3	4 915	0 014	0 012	0 00016	0 162	0 14
85	12/3/1999	12:44:41 PM	0	31,776	21 288	32 005	24 248	22 372	174 451	74 821	84,445	7,237	68 106	8 972	0 05	22 652	0 033	-0 018	78	78	9 4	71 5	4 927	0 014	0 012	0 00017	0 168	0 14

Run 1.13: 14 wt% Concentration of Insoluble Solids

	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	AD
86	12/3/1999	12:45 41 PM	0	31.883	21.378	32 014	24.336	22.462	174.526	74.635	84.262	7.261	68 208	8 972	0 004	22 499	0 032	-0 018	79	79	9 3	71.4	4 924	0 014	0 012	0 00016	0 161	0 14
87	12/3/1999	12:46:42 PM	0	31.944	21.378	32.094	24.418	22.462	174 526	74 635	84.223	7.221	67.87	8.972	0 05	22 56	0 033	-0 018	80	80	9 4	71.3	4 913	0 014	0 012	0 00017	0 166	0 14
88	12/3/1999	12:47:42 PM	0	31 821	21 333	32 049	24.293	22.417	174.469	74 573	84.292	7.197	68.14	8 972	0.05	22 591	0 033	-0 018	81	81	9 4	71 4	4 920	0 014	0 012	0 00017	0 166	0 14
89	12/3/1999	12:48:42 PM	0	31.944	21.378	32 094	24 418	22 542	174 526	73 629	83.146	7.181	67 667	8.972	0 05	22.514	0 032	-0 018	82	82	9 3	70 7	4 878	0 014	0 011	0 00016	0 162	0 14
90	12/3/1999	12:49:43 PM	0	31 944	21 378	32 094	24.336	22.462	174 526	74 201	83 835	7.221	68.039	8 972	0 004	22 522	0 033	-0 018	83	83	9 4	71.1	4 903	0 014	0 012	0 00017	0 167	0 14
91	12/3/1999	12 50:43 PM	0	31.969	21.423	32.138	24 463	22 587	174 564	74.759	84 445	7.221	68.309	8 972	0.004	22 499	0 033	-0 018	84	84	9 3	71.5	4 932	0 014	0 012	0 00017	0 165	0 14
92	12/3/1999	12:51:43 PM	0	31.969	21.423	32.138	24.463	22 587	174 564	74.759	84.384	7.237	68 241	8 972	0 004	22.545	0.033	-0 018	85	85	9 4	71.5	4 930	0 014	0 012	0 00017	0 166	0 14
93	12/3/1999	12:52:44 PM	0	31.969	21.423	32 217	24 643	22 587	174 564	74 573	84.14	7.181	68.309	8.972	0 004	22 468	0 033	-0 015	86	86	9 3	71 4	4 926	0 014	0 012	0 00017	0 165	0 14
94	12/3/1999	12:53:44 PM	0	32.112	21.468	32 262	24.508	22.713	174.602	74.449	84 079	7.197	68 005	8 972	0 004	22.499	0 033	-0 018	87	87	9 3	71.2	4 911	0 014	0 012	0 00017	0 166	0 14
95	12/3/1999	12:54:44 PM	0	32 112	21 468	32.262	24 508	22.632	174.602	74.573	84 201	7.189	68.174	8 972	0 004	22 376	0 033	-0.018	88	88	9 3	71 4	4 921	0 014	0 012	0 00017	0 165	0 14
96	12/3/1999	12:55:45 PM	0	32.157	21.433	32 306	24 653	22 678	174 639	74.139	83.774	7.197	68.106	8 972	0.05	22.576	0 033	-0 018	89	89	9 4	71.1	4 904	0 014	0 012	0 00017	0 166	0 14
97	12/3/1999	12:56:45 PM	0	32.157	21 514	32.365	24 653	22.678	174.639	74 621	84 445	7.292	68 208	8.972	0 004	22 683	0 033	-0.018	90	90	9 4	71.5	4 931	0 014	0 012	0 00017	0 166	0 14
98	12/3/1999	12:57:45 PM	0	32 201	21.559	32.35	24.696	22.723	174 677	74 325	84.018	7.261	68 106	8.972	0 004	22 668	0 033	-0 018	91	91	9 4	71 2	4 910	0 014	0 012	0 00016	0 164	0 14
99	12/3/1999	12:58:46 PM	0	32.26	21.478	32 35	24 678	22 642	174.677	74.759	84.445	7.3	67.87	8 972	0 05	22.744	0 033	-0.018	92	92	9 4	71.3	4 917	0 014	0 012	0 00017	0 165	0 14
100	12/3/1999	12:59:46 PM	0	32.201	21.478	32.35	24 678	22.723	174 677	74.759	84.384	7.029	68 58	8.972	0.05	22.192	0.033	-0 018	93	93	9 2	71.7	4 941	0 014	0 012	0 00016	0 164	0 14
101	12/3/1999	1:00:47 PM	0	32.26	21.478	32.35	24.758	22.723	174.677	74.759	84 384	7.221	68.174	9 003	0 004	22 637	0 033	-0 015	94	94	9 4	71 5	4 927	0 014	0 012	0 00017	0 166	0 14
102	12/3/1999	1:01:47 PM	0	32.26	21.559	32.35	24.678	22 642	174 677	74 201	83.957	7.197	67.329	8.972	0 05	22.499	0.033	-0 018	95	95	9 3	70 8	4 879	0 014	0 012	0 00017	0 166	0 14
103	12/3/1999	1:02:48 PM	0	32.325	21.523	32 395	24.723	22.768	174.715	73.953	83.592	7.652	68.281	8 972	0.004	23 344	0 033	-0.018	96	96	9 7	70 1	4 834	0 014	0 012	0 00017	0.168	0 14
104	12/3/1999	1:03:48 PM	0	32.325	21.523	32 395	24.723	22 687	174.715	74 015	83 652	7.779	68 923	8.941	0 05	23 635	0.032	-0 018	97	97	9 8	70 5	4 859	0 014	0 011	0 00016	0 162	0 14
105	12/3/1999	1:04:48 PM	0	32.369	21.569	32.439	24.768	22.732	174.753	74 077	83.713	7.779	67.058	8.972	0 05	23 635	0 032	-0 015	98	98	9 8	70 6	4 865	0 014	0 011	0 00016	0 161	0 14
106	12/3/1999	1:05 49 PM	0	32 325	21.604	32.395	24.723	22 687	174.715	73 581	83.165	7.588	66.45	8 972	0 004	23 282	0.032	-0 018	99	99	9 7	70 0	4 827	0 014	0 011	0 00016	0 163	0 14
107	12/3/1999	1:06:49 PM	0	32 369	21.569	32.516	24 848	22.813	174.753	74 077	83.652	7.755	68.754	8.941	0 05	23 635	0.033	-0 018	100	100	9 8	70 4	4 855	0 014	0 012	0 00017	0 166	0 14
108	12/3/1999	1:07:49 PM	0	32.369	21.649	32.516	24.768	22.813	174.753	73.643	83.267	7.731	68.754	8 941	0 05	23 651	0 033	-0.018	101	101	9 8	70 2	4 840	0 014	0 012	0 00017	0 167	0 14
109	12/3/1999	1:08:49 PM	0	32.414	21.694	32.563	24 813	22.778	174.79	73.581	83.348	7.707	68.362	9 034	0 004	23 574	0 032	-0.015	102	102	9 8	70 0	4.825	0 014	0 011	0 00016	0 162	0 14
110	12/3/1999	1:09:50 PM	0	32 493	21.694	32.563	24.813	22 778	174.79	74 015	83.774	7.699	68.788	9 034	0.05	23 559	0 032	-0 018	103	103	9 8	70.4	4 854	0 014	0 011	0 00016	0 161	0 14
111	12/3/1999	1:10:50 PM	0	32.414	21.694	32.563	24.813	22.858	174.79	74 015	83.713	7.747	68 889	9 065	0 05	23 512	0 033	-0 018	104	104	9 8	70 5	4 857	0 014	0 012	0 00017	0 166	0 14
112	12/3/1999	1:11:51 PM	0	32.493	21 614	32.563	24.813	22 858	174.79	73.519	83.226	7 644	68 416	9 034	0.05	23.456	0 032	-0 018	105	105	9 7	70 0	4 824	0 014	0 011	0 00016	0 162	0 14
113	12/3/1999	1:12:51 PM	0	32.538	21.74	32.607	24.858	22.903	174 828	74 077	83.774	7.532	67.295	9.065	0 05	23 205	0.033	-0 018	106	106	9 6	70 7	4 874	0 014	0 012	0 00017	0 165	0 14
114	12/3/1999	1:13 51 PM	0	32.538	21 659	32.607	24.778	22.903	174.828	74 201	83.957	7.532	67.295	9 034	0.05	23 374	0 034	-0 018	107	107	9.7	70.7	4 878	0 015	0 012	0 00017	0.170	0 14
115	12/3/1999	1:14:52 PM	0	32.538	21.74	32 607	24.858	22.903	174.828	73 828	83 592	7.707	68 686	9 065	0 05	23 526	0 032	-0 015	108	108	9 8	70 3	4 844	0 014	0 011	0 00016	0 161	0 14
116	12/3/1999	1:15 52 PM	0	32.582	21.785	32.573	24.903	22 948	174 888	73.705	83.409	7.506	68.72	9 034	0 004	23 144	0 032	-0 018	109	109	9 6	70 2	4 841	0 014	0 011	0 00016	0 162	0 14
117	12/3/1999	1:16:52 PM	0	32 582	21.785	32.652	24 903	22.948	174.888	73.705	83.409	7.468	68 822	9 065	0 05	23 082	0 033	-0.018	110	110	9 6	70 3	4 844	0 014	0 012	0 00017	0 166	0 14
118	12/3/1999	1:17:53 PM	0	32.582	21.785	32.652	24.963	22.868	174 868	74.139	83 635	7.54	68 855	9 065	0 05	23 221	0 033	-0 018	111	111	9 6	70 5	4 861	0 014	0 012	0 00017	0 166	0 14
119	12/3/1999	1:18 53 PM	0	32.582	21.785	32.652	24 963	22.948	174.868	74.015	83.713	7.34	67.126	9 065	0 05	22 637	0 033	-0 018	112	112	9 5	70.6	4 868	0 014	0 012	0 00017	0 165	0 14
120	12/3/1999	1:19:53 PM	0	32.582	21.785	32.573	24.903	22 948	174.868	73.519	83 287	7.396	67.092	9.065	0 05	23 052	0 032	-0 018	113	113	9 6	70 3	4 847	0 014	0 011	0 00016	0 161	0 14
121	12/3/1999	1:20:54 PM	0	32.582	21.785	32.573	24.903	22 948	174 868	73 209	82.962	7.707	68 585	9 065	0.05	23 681	0 033	-0 018	114	114	9 8	69 9	4 819	0 014	0 012	0 00017	0 167	0 14
122	12/3/1999	1:21 54 PM	0	32 627	21.83	32.617	24.948	22.993	174 904	74.139	83.696	7.731	67.531	9.034	0.004	23 466	0.032	-0 018	115	115	9 7	70 8	4 884	0 014	0 011	0 00016	0 160	0 14
123	12/3/1999	1:22:54 PM	0	32.627	21.911	32.617	24.948	22.993	174.904	73.829	83.592	7.62	68 822	9 034	0 05	23.451	0 032	-0 018	116	116	9 7	70 3	4 849	0 014	0 011	0 00016	0 161	0 14
124	12/3/1999	1:23.55 PM	0	32.547	21.83	32 617	24.948	22.993	174 904	74 077	83.774	7.652	67.058	9 065	0 004	23.42	0 033	-0 018	117	117	9 7	70 6	4 865	0 014	0 012	0 00017	0 166	0 14
125	12/3/1999	1:24 55 PM	0	32.671	21.956	32.741	25.073	23.039	174 941	73.787	83.47	7.659	68.788	9 034	0 05	23.42	0 033	-0 018	118	118	9 7	70 3	4.845	0 014	0 012	0 00017	0 166	0 14
126	12/3/1999	1:25:55 PM	0	32 716	21.921	32.706	25 118	23 084	174.979	73.787	83.47	7.681	68.855	9 065	0 004	23 497	0 032	-0 018	119	119	9 8	70 3	4 848	0 014	0 011	0 00016	0 161	0 14
127	12/3/1999	1:26:56 PM	0	32.671	21.875	32.662	25 073	23.039	174 941	73 829	83.531	7.548	68 754	9 034	0 05	23.221	0.032	-0 018	120	120	9 6	70.3	4 846	0 014	0 011	0 00016	0 161	0 14
128	12/3/1999	1:27.56 PM	0	32.76	21.966	32.751	25.163	23.129	175.017	73 643	83.592	6 925	67.329	9 219	0.05	23.789	0 076	0 049	121	121	9 9	70 5	4 860	0 033	0 027	0 00038	0 381	0 32
129	12/3/1999	1:28:56 PM	0	32 636	21.921	32.706	25.118	23.003	174.979	73.519	83.287	7.013	67.342	9.125	0 05	23 436	0 053	0 027	122	122	9 7	70 4	4 857	0 023	0 019	0 00027	0 266	0 23
130	12/3/1999	1:29 57 PM	0	32.636	21.921	32 627	25.118	23 064	174 979	73 691	83.592	7.205	67.531	9 003	0 05	23 528	0.045	0 015	123	123	9 8	70 7	4 875	0 020	0 016	0 00023	0 225	0 19
131																												
132		Averages		30 3	21.1	30 8	23.9	22.2	174.3	74 7	84 3	7.1	68 2	9 0	0.0	22 3	0 033	-0 017			9 3	71 5	4 927	0 014	0 012	0 000174	0 174	0 148
133		Maximum		32.7	22.0	32.7	25.1	23.1	175.0	76 4	85.8	7.8	70.3	9 3	0 1	23 7	0 051	0.021			9 8	73 4	5 060	0 022	0 023	0 000316	0 316	0 269
134		Median		31 2	21.1	31.5	23.9	22.2	174.3	74.7	84.3	7.1	68 3	9 0	0 0	22.1	0 033	-0 018			9 2	71.5	4 927	0 014	0 012	0 000168	0 168	0 143
135		Minimum		24.9	20 5	24 0	22.6	21.2	173.6	73 2	83.0	6.3	66.3	8 7	0 0	21 0	0 032	-0 022			8 7	69 9	4 819	0 014	0 011	0 000160	0 160	0 136
136		Std Deviation		2.340	0.415	2.220	0 725	0 548	0 413	0 661	0 619	0.304	0 924	0 081	0 023	0 690	0 002	0 004			0.287	0.781	0 054	0 001	0 001	0 000019	0 019	0 016
137		Number of Points Used		118	118	118	118	118	118	118	118	118	118	118	118	118	118	118			118	118	118	118	118	118	118	118



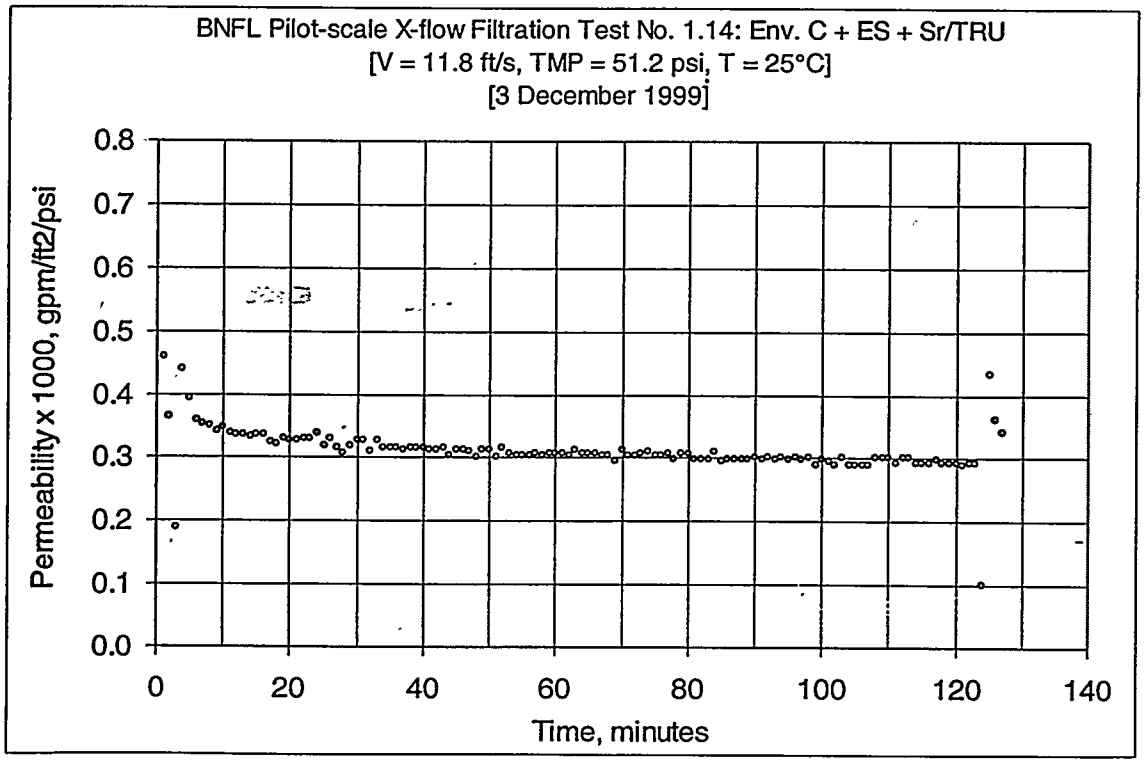


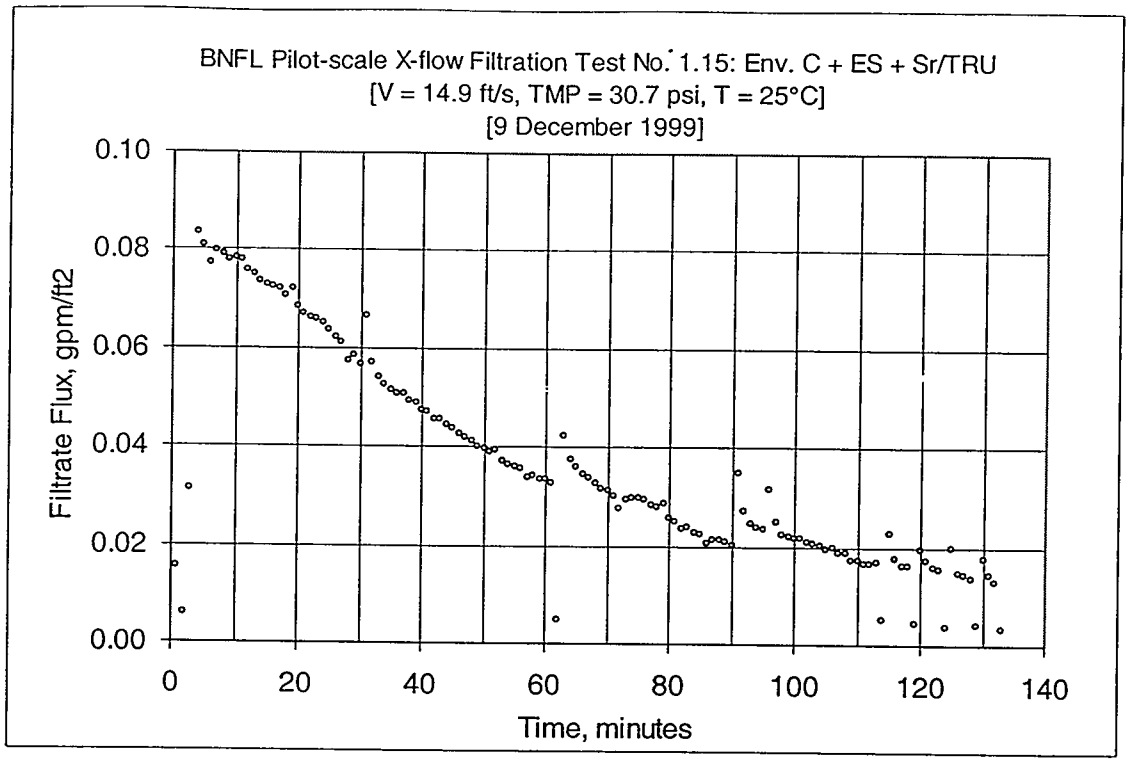
Figure C7: Test Run 1.14, 14 wt% Insoluble Solids Concentration

Run 1.14: 14 wt% Concentration of Insoluble Solids

	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	FLTRAT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR	O3,FLTR	FLOW (ppm)		Filter Surface Area		2 29	FT2				
2	Zeros - Lines Not Connected																				Conversion		651 0145	m3/m2/day/barg / gpm/ft2/barg				
3	12/3/1999	8 31 55 AM	0	21 227	19 033	15 8	22 325	17 613	170 887	-0 062	-0 072	-0 016	-0 017	-0 085	0 004	-0 06	0 011	-0 018										
4	12/3/1999	8 32 55 AM	0	21 307	19 033	15 8	22 184	17 775	170 887	-0 062	-0 072	-0 016	-0 017	-0 088	0 004	-0 095	0 011	-0 018										
5	12/3/1999	8 33 55 AM	0	21 386	19 114	15 8	22 184	18 342	170 887	-0 062	-0 072	-0 008	-0 017	-0 088	0 004	-0 08	0 011	-0 018										
6																												
7	Data - Per Minute																		Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMEABILITY GPM/FT2/psi	PERMEABILITY x 1000 GPM/FT2/psi	PERMEABILITY m/s/s/bar
8	12/3/1999	1 56 45 PM	0	26 628	22 364	24 461	25 239	23 365	175 282	54 365	64 566	9 104	46 401	9 434	0 05	28 458	0 052	0 021	1	1	11 6	50 4	3 474	0 023	0 023	0 00046	0 457	0 39
9	12/3/1999	1 57 45 PM	0	26 308	22 283	24 461	25 239	23 365	175 282	54 427	64 566	9 604	45 658	9 404	0 05	29 042	0 041	-0 018	2	2	12 1	50 0	3 450	0 018	0 018	0 00036	0 363	0 31
10	12/3/1999	1 58 45 PM	0	26 708	22 364	24 381	25 239	23 365	175 282	51 079	64 017	9 335	43 021	12 424	0 05	29 441	0 02	-0 018	3	3	12 2	47 1	3 244	0 009	0 009	0 00019	0 189	0 16
11	12/3/1999	1 59 46 PM	0	26 228	22 364	24 3	25 239	23 285	175 282	54 241	64 322	9 506	45 319	9 465	0 05	29 211	0 049	0 021	4	4	12 1	49 8	3 432	0 021	0 022	0 00044	0 438	0 37
12	12/3/1999	2 00 46 PM	0	25 953	22 329	24 266	25 204	23 331	175 32	54 737	64 871	9 67	45 455	9 465	0 05	29 103	0 044	-0 018	5	5	12 1	50 1	3 454	0 019	0 020	0 00039	0 391	0 33
13	12/3/1999	2 01 46 PM	0	25 713	22 329	24 165	25 284	23 331	175 32	54 469	64 566	9 702	45 522	9 465	0 096	29 165	0 04	-0 018	6	6	12 1	50 0	3 448	0 017	0 018	0 00036	0 357	0 30
14	12/3/1999	2 02 47 PM	0	25 758	22 374	24 15	25 249	23 296	175 358	55 108	65 296	9 399	46 469	9 465	0 05	28 704	0 04	-0 018	7	7	11 9	50 8	3 502	0 017	0 018	0 00035	0 352	0 30
15	12/3/1999	2 03 47 PM	0	25 596	22 374	24 15	25 189	23 296	175 358	54 469	64 566	9 718	45 556	9 465	0 05	29 226	0 039	-0 018	8	8	12 1	50 0	3 449	0 017	0 017	0 00035	0 349	0 30
16	12/3/1999	2 04 48 PM	0	25 518	22 374	24 15	25 009	23 215	175 358	55 604	65 647	9 596	46 232	9 434	0 05	28 873	0 039	-0 018	9	9	12 0	50 9	3 511	0 017	0 017	0 00034	0 342	0 29
17	12/3/1999	2 05 48 PM	0	25 438	22 455	24 15	25 169	23 215	175 358	54 551	64 627	9 518	45 996	9 465	0 05	28 812	0 039	-0 018	10	10	12 0	50 3	3 468	0 017	0 017	0 00035	0 347	0 30
18	12/3/1999	2 06 48 PM	0	25 358	22 455	24 231	25 089	23 215	175 358	54 675	64 871	9 542	45 928	9 465	0 05	28 888	0 038	-0 018	11	11	12 0	50 3	3 468	0 017	0 017	0 00034	0 337	0 29
19	12/3/1999	2 07 49 PM	0	25 323	22 42	24 196	25 134	23 261	175 396	54 737	64 81	9 534	46 57	9 434	0 05	28 934	0 038	-0 018	12	12	12 0	50 7	3 492	0 017	0 017	0 00034	0 335	0 29
20	12/3/1999	2 08 49 PM	0	25 323	22 42	24 196	25 294	23 341	175 396	54 737	64 871	9 562	46 266	9 434	0 05	28 95	0 038	-0 015	13	13	12 0	50 5	3 482	0 017	0 017	0 00034	0 336	0 29
21	12/3/1999	2 09 49 PM	0	25 243	22 42	24 196	25 214	23 341	175 396	55 356	65 296	9 686	46 57	9 404	0 05	29 027	0 038	-0 018	14	14	12 0	51 0	3 514	0 017	0 017	0 00033	0 333	0 28
22	12/3/1999	2 10 49 PM	0	25 163	22 42	24 196	25 134	23 341	175 396	54 984	65 237	9 526	46 334	9 404	0 05	28 996	0 038	-0 018	15	15	12 0	50 7	3 493	0 017	0 017	0 00033	0 335	0 29
23	12/3/1999	2 11 50 PM	0	25 163	22 42	24 276	25 054	23 261	175 396	54 923	64 932	9 614	46 368	9 404	0 05	28 95	0 038	-0 018	16	16	12 0	50 6	3 492	0 017	0 017	0 00033	0 334	0 28
24	12/3/1999	2 12 50 PM	0	25 208	22 546	24 321	25 26	23 306	175 434	55 356	65 481	9 556	46 604	9 404	0 05	28 919	0 037	-0 018	17	17	12 0	51 0	3 515	0 016	0 016	0 00032	0 323	0 27
25	12/3/1999	2 13 51 PM	0	25 208	22 465	24 401	25 179	23 226	175 434	55 604	65 725	9 622	46 368	9 404	0 096	28 934	0 037	-0 018	18	18	12 0	51 0	3 515	0 016	0 016	0 00032	0 322	0 27
26	12/3/1999	2 14 51 PM	0	25 128	22 465	24 482	25 179	23 226	175 434	55 294	65 42	9 455	46 604	9 404	0 05	28 561	0 038	-0 018	19	19	11 9	50 9	3 513	0 017	0 017	0 00033	0 330	0 26
27	12/3/1999	2 15 51 PM	0	25 128	22 465	24 482	25 179	23 226	175 434	55 978	66 03	9 463	46 773	9 434	0 05	28 673	0 038	-0 018	20	20	11 9	51 4	3 542	0 017	0 017	0 00033	0 328	0 26
28	12/3/1999	2 16 52 PM	0	25 208	22 465	24 562	25 179	23 226	175 434	55 418	65 481	9 415	46 942	9 404	0 096	28 627	0 038	-0 018	21	21	11 9	51 2	3 529	0 017	0 017	0 00033	0 328	0 26
29	12/3/1999	2 17 52 PM	0	25 254	22 591	24 607	25 305	23 271	175 472	55 108	65 054	9 431	46 469	9 404	0 05	28 597	0 038	-0 018	22	22	11 9	50 8	3 502	0 017	0 017	0 00033	0 330	0 26
30	12/3/1999	2 18 52 PM	0	25 288	22 546	24 642	25 179	23 226	175 434	55 232	65 42	9 378	46 57	9 404	0 05	28 656	0 038	-0 018	23	23	11 9	50 9	3 509	0 017	0 017	0 00033	0 329	0 26
31	12/3/1999	2 19 53 PM	0	25 334	22 591	24 687	25 225	23 271	175 472	55 17	65 237	9 378	46 401	9 404	0 05	28 581	0 039	-0 018	24	24	11 9	50 8	3 501	0 017	0 017	0 00034	0 338	0 29
32	12/3/1999	2 20 53 PM	0	25 208	22 546	24 642	25 179	23 226	175 434	55 914	66 03	9 455	46 57	9 404	0 05	28 627	0 037	-0 018	25	25	11 9	51 1	3 524	0 016	0 016	0 00032	0 319	0 27
33	12/3/1999	2 21 53 PM	0	25 254	22 591	24 767	25 225	23 271	175 472	55 048	65 296	9 363	46 638	9 404	0 05	28 612	0 038	-0 018	26	26	11 9	50 8	3 505	0 017	0 017	0 00033	0 328	0 28
34	12/3/1999	2 22 54 PM	0	25 254	22 591	24 767	25 225	23 271	175 472	55 728	65 786	9 487	46 908	9 373	0 05	28 612	0 037	-0 018	27	27	11 9	51 3	3 538	0 016	0 016	0 00032	0 317	0 27
35	12/3/1999	2 23 54 PM	0	25 254	22 591	24 848	25 225	23 271	175 472	56 1	66 395	9 455	47 145	9 404	0 05	28 669	0 036	-0 018	28	28	11 9	51 6	3 559	0 016	0 016	0 00031	0 306	0 26
36	12/3/1999	2 24 54 PM	0	25 254	22 591	24 848	25 305	23 271	175 472	55 48	65 603	9 363	46 57	9 373	0 05	28 627	0 037	-0 018	29	29	11 9	51 0	3 518	0 016	0 016	0 00032	0 316	0 27
37	12/3/1999	2 25 55 PM	0	25 254	22 591	24 848	25 305	23 271	175 472	55 79	65 847	9 423	46 537	9 404	0 096	28 658	0 038	-0 018	30	30	11 9	51 2	3 528	0 017	0 017	0 00033	0 328	0 28
38	12/3/1999	2 26 55 PM	0	25 254	22 591	24 848	25 305	23 271	175 472	55 48	65 603	9 391	46 739	9 404	0 096	28 597	0 038	-0 018	31	31	11 9	51 1	3 524	0 017	0 017	0 00033	0 328	0 28
39	12/3/1999	2 27 55 PM	0	25 334	22 591	24 928	25 225	23 351	175 472	55 17	65 176	9 335	46 908	9 373	0 05	28 412	0 036	-0 018	32	32	11 8	51 0	3 519	0 016	0 016	0 00031	0 309	0 26
40	12/3/1999	2 28 56 PM	0	25 334	22 591	24 928	25 305	23 351	175 472	55 294	65 296	9 363	46 739	9 373	0 05	28 55	0 038	-0 018	33	33	11 8	51 0	3 517	0 017	0 017	0 00033	0 326	0 28
41	12/3/1999	2 29 56 PM	0	25 414	22 671	25 008	25 225	23 271	175 472	54 923	64 671	9 375	47 01	9 373	0 05	28 612	0 037	-0 018	34	34	12 0	51 0	3 514	0 016	0 016	0 00032	0 317	0 27
42	12/3/1999	2 30 56 PM	0	25 414	22 591	25 008	25 305	23 351	175 472	55 48	65 542	9 327	46 638	9 373	0 05	28 474	0 037	-0 018	35	35	11 8	51 1	3 520	0 016	0 016	0 00032	0 316	0 27
43	12/3/1999	2 31 57 PM	0	25 414	22 671	25 068	25 305	23 351	175 472	54 984	64 993	9 255	47 179	9 373	0 05	28 504	0 037	-0 018	36	36	11 8	51 1	3 522	0 016	0 016	0 00032	0 315	0 27
44	12/3/1999	2 32 57 PM	0	25 459	22 637	25 133	25 35	23 397	175 51	55 666	65 969	9 255	47 179	9 373	0 05	28 566	0 037	-0 015	37	37	11 9	51 4	3 545	0 016	0 016	0 00031	0 313	0 27
45	12/3/1999	2 33 57 PM	0	25 494	22 671	25 008	25 305	23 351	175 472	55 48	65 542	9 359	46 773	9 373	0 05	28 55	0 037	-0 018	38	38	11 8	51 1	3 525	0 016	0 016	0 00032	0 316	0 27
46	12/3/1999	2 34 58 PM	0	25 459	22 717	25 133	25 35	23 397	175 51	54 984	64 993	9 295	46 875	9 373	0 05	28 581	0 037	-0 018	39	39	11 9	50 9	3 511	0 016	0 016	0 00032	0 316	0 27
47	12/3/1999	2 35 58 PM	0	25 539	22 717	25 133	25 35	23 397	175 51	55 666	65 647	9 335	46 672	9 373	0 05	28 55	0 037	-0 015	40	40	11 8	51 2	3 528	0 016	0 016	0 00031	0 314	0 27
48	12/3/1999	2 36 58 PM	0	25 539	22 637	25 133	25 27	23 397	175 51	55 418	65 603	9 311	47 179	9 373	0 096	28 597	0 037	-0 018	41	41	11 9	51 3	3 537	0 016	0 016	0 00031	0 314	0 27
49	12/3/1999	2 37 59 PM	0	25 539	22 717	25 133	25 43	23 477	175 51	55 542	65 542	9 383	46 976	9 373	0 05	28 627	0 037	-0 018	42	42	11 9	51 3	3 534	0 016	0 016	0 00031	0 314	0 27
50	12/3/1999	2 38 59 PM	0	25 539	22 717	25 213	25 35	23 477	175 51	55 356	65 603	9 351	46 906	9 373	0 05	28 669	0 037	-0 015	43	43	11 9	51 1	3 525	0 016	0 016	0 00031	0 314	0 27
51	12/3/1999	2 39 59 PM	0	25 619	22 717	25 213	25 35	23 477	175 51	55 542	65 542	9 367	47 179	9 373	0 03	28 581	0 036	-0 018	44	44	11 9	51 4	3 541	0 016	0 016	0 00030	0 304	0 26
52	12/3/1999	2 41 00 PM	0	25 584	22 762	25 259	25 395	23 442	175 548	55 542	65 603	9 247	47 077	9 373	0 05	28 489	0 037	-0 018	45	45	11 8	51 3	3 538	0 016	0 016	0 00031	0 313	0 27
53	12/3/1999	2 42 00 PM	0	25 584	22 762	25 259	25 395	23 523	175 548	55 728	65 786	9 295	46 908	9 373	0 096	28 535	0 037	-0 018	46	46	11 8	51 3	3 538	0 016	0 016	0 00031	0 312	0 27
54	12/3/1999	2 43 00 PM	0	25 584	22 762	25 259	25 475	23 523	175 548	56 038	66 091	9 367	47 145	9 373	0 05	28 62	0 037	-0 015	47	47	11 8	51 6	3 557	0 016	0 016	0 00031	0 311	0 26
55	12/3/1999	2 44 01 PM	0	25 664	22 762	25 259	25 475	23 603	175 548	56 224	66 212	9 391	47 28	9 373	0 096	28 474	0 036	-0 015	48	48	11 8	51 8	3 568	0 016	0 016	0 00030	0 301	0 26
56	12/3/1999	2 45 01 PM	0	25 664	22 762	25 179	25 475	23 603	175 548	55 418	65 296	9 311	47 179	9 373	0 05	28 52	0 037	-0 018	49	49	11 8	51 3	3 537	0 016	0 016	0 00031	0 313	0 27
57	12/3/1999	2 46 01 PM	0	25 71	22 688	25 304	25 521	23 648	175 586	55 666	65 908	9 279	46 942	9 373	0 05	28 504	0 037	-0 018	50	50	11 8	51 3	3 537	0 016	0 016	0 00031	0 312	0 27
58	12/3/1999	2 47 02 PM	0	25 664	22 762	25 339	25 550	23 523	175 548	55 914	65 647	9 383	47 382	9 342	0 05	28 566	0 036	-0 018	51	51	11 9	51 6	3 561	0 016	0 016	0 00030	0 301	0 26
59	12/3/1999	2 48 02 PM	0	25 71	22 606	25 224	25 601	23 562	175 586	55 666	65 969	9 319	46 57	9 373	0 05	28 458	0 037	-0 015	52	52	11 8	51 1	3 524	0 016	0 016	0 00031	0 314	0 27
60	12/3/1999	2 49 02 PM	0	25 71	22 606	25 224	25 521	23 562	175 586	55 48	65 542	9 311	46 638	9 342	0 03	28 52	0 036	-0 015	53	53	11 8	51 1	3 520	0 016	0 016	0 00031	0 306	0 26
61	12/3/1999	2 50 03 PM	0	25 755	22 853	25 349	25 648	23 814	175 624	55 294	65 176	9 359	47 418	9 342	0 096	28 535	0 036	-0 018	54	54	11 8	51 4	3 541	0 016	0 016	0 00030	0 303	0 26
62	12/3/1999	2 51 03 PM	0	25 755	22 853	25 269	25 648	23 694	175 624	55 666	65 603	9 335	46 908	9 342	0 05	28 535	0 036	-0 018	55	55	11 8	51 3	3 536	0 016	0 016	0 00030	0 304	0 26
63	12/3/1999	2 52 03 PM	0	25 675	22 853	25 189	25 568	23 814	175 624	55 852	65 725	9 383	46 942	9 342	0 05	28 504	0 036	-0 018	56	56	11 8	51 4	3 544	0 016	0 016	0 00030	0 304	0 26
64	12/3/1999	2 53 04 PM	0	25 71	22 606	25 064	25 601	23 488	175 586	55 542	65 359	9 343	46 908	9 342	0 05	28 474	0 036	-0 018	57	57	11 8	51 2	3 532	0 016	0 016	0 00031	0 306	0 26
65	12/3/1999	2 54 04 PM	0	25 755	22 853	25 189	25 568	23 453	175 624	56 224	66 334	9 319	46 773	9 373	0 05	28 504	0 036	-0 018	58	58	11 8	51 5	3 551	0 016	0 016	0 00030	0 304	0 26
66	12/3/1999	2 55 04 PM	0	25 755	22 853	25 109	25 486	23 373	175 624	55 418	65 296	9 335	46 908	9 342	0 05	28 443	0 036	-0 018	59	59	11 8	51 2	3 528	0 016	0 016	0 00031	0 306	0 26
67	12/3/1999	2 56 05 PM	0	25 755	22 934	25 189	25 406	23 292	175 624	55 728	65 908	9 343	46 368	9 311	0 05	28 351	0 036	-0 018	60	60	11 8	51 0	3 520	0 016	0 016	0 00031	0 306	0 26
68	12/3/1999	2 57 05 PM	0	25 675	22 853	25 109	25 406	23 212	175 624	55 356	65 42	9 231	47 213	9 311	0 096	28 489	0 036	-0 018	61	61	11 8	51 3	3 536	0 016	0 016	0 00031	0 305	0 26
69	12/3/1999	2 58 05 PM	0	25 675	22 934	25 109	25 406	23 292	175 624	55 914	65 969	9 375	46 908	9 342	0 05	28 412	0 036	-0 018	62	62	11 8	51 4	3 545	0 016	0 016	0 00030	0 305	0 26
70	12/3/1999	2 59 06 PM	0	25 71	22 688	25 064	25 281	23 247	175 586	55 79	65 786	9 351	47 01	9 342	0 05	28 458	0 037	-0 018	63	63	11 8	51 4	3 544	0 016	0 016	0 00031	0 314	0 27
71	12/3/1999	3 00 06 PM	0	25 63	22 969	25 064	25 361	23 327	175 586	55 604	65 542	9 319	46 976	9 311	0 096	28 489	0 036	-0 018	64	64	11 8	51 3	3 536	0 016	0 016	0 00031	0 306	0 26
72	12/3/1999	3 01 06 PM	0	25 71	22 969	25 064	25 361	23 407	175 586	55 048	65 115	9 223	47 044	9 342	0 05	28 443	0 036	-0 015	65	65	11 8	51 0	3 519	0 016	0 016	0 00031	0 307	0 26
73	12/3/1999	3 02 07 PM	0	25 664	22 923	25 018	25 315	23 201	175 548	55 604	65 603	9 319	47 01	9 342	0 096	28 397	0 036	-0 018	66	66	11 8	51 3	3 537	0 016	0 016	0 00031	0 306	0 26
74	12/3/1999	3 03 07 PM	0	25 664	22 923	25 018	25 315	23 121	175 548	55 914	65 969	9 303	47 077	9 342	0 096	28 428	0 036	-0 018	67	67	11 8	51 5	3 550	0 016	0 016	0 00031	0 305	0 26
75	12/3/1999	3 04 07 PM	0	25 664	23 004	25 018	25 315	23 201	175 548	55 978	66 091	9 295	46 908	9 342	0 05	28 428	0 036	-0 015	68	68	11 8	51 4	3 547	0 016	0 016	0 00031	0 305	0 26
76	12/3/1999	3 05 08 PM	0	25 664	22 923	25 018	25 315	23 201	175 548	55 604	65 603	9 279	47 382	9 342	0 096	28 412	0 035	-0 015	69	69	11 8	51 5	3 550	0 015	0 015	0 00030	0 297	0 25
77	12/3/1999	3 06 08 PM	0	25 664	23 004	25 018	25 315	23 362	175 548	56 41	66 395	9 375	47 111	9 342	0 096	28 397	0 037	-0 018	70	70	11 8	51 6	3 569	0 016	0 016	0 00031	0 312	0 27
78	12/3/1999	3 07 08 PM	0	25 619	22 958	24 973	25 35	23 236	175 51	56 596	66 659	9 391	47 215	9 342	0 05	28 566	0 036	-0 015	71	71	11 8	51 9	3 579	0 016	0 016	0 00030	0 303	0 26
79	12/3/1999	3 08 09 PM	0	25 619	23 039	24 973	25 27	23 156	175 51	56 038	65 908	9 335	47 179	9 342	0 096	28 458	0 036	-0 018	72	72	11 8	51 6	3 558	0 016	0 016	0 00030	0 305	0 26
80	12/3/1999	3 09 09 PM	0	25 574	22 993	24 928	25 305	23 03	175 472	55 232	65 237	9 199	47 517	9 342	0 05	28 366	0 036	-0 018	73	73	11 8	51 4	3 542	0 016	0 016	0 00031	0 307	0 26
81	12/3/1999	3 10 09 PM	0	25 654	22 993	24 928	25 225	23 191	175 472	55 48	65 664	9 223	46 672	9 311	0 096	28 443	0 036	-0 015	74	74	11 8	51 1	3 522	0 016	0 016	0 00031	0 308	0 26
82	12/3/1999	3 11 10 PM	0	25 574	22 993	24 928	25 225	23 271	175 472	56 162	66 517	9 279	47 28	9 342	0 05	28 382	0 036	-0 018	75	75	11 8	51 7	3 566	0 016	0 016	0 00030	0 304	0 26
83	12/3/1999	3 12 10 PM	0	25 574	22 993	25 008	25 225	23 351	175 472	55 79	65 847	9 327	47 145	9 311	0 096	28 474	0 036	-0 018	76	76	11 8	51 5	3 549	0 016	0 016	0 00031	0 305	0 26
84	12/3/1999	3 13 10 PM	0	25 574	23 074	24 928	25 305	23 512	175 472	55 666	65 786	9 311	47 077	9 342	0 096	28 443	0 036	-0 018	77	77	11 8	51 4	3 542	0 016	0 016	0 00031	0 307	0 26
85	12/3/1999	3 14 11 PM	0	25 574	23 074	25 008	25 385	23 592	175 472	55 048	65 115	9 223	47 348	9 311	0 05	28 474	0 035	-0 015	78	78	11 8	51 2	3 530	0 015	0 015	0 00030	0 298	0 25

Run 1.14: 14 wt% Concentration of Insoluble Solids

	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	12/3/1999	3:15:11 PM	0	25 574	23.074	25 008	25.465	23.673	178.472	55 668	65.788	9.271	47.044	9 342	0 05	28.351	0 036	-0 018	79	79	11 8	51.4	3 541	0 016	0 016	0 000331	0 306	0 26
87	12/3/1999	3:18 12 PM	0	25 574	22 993	24 928	25 465	23.592	178.472	55 668	65 603	9 327	47.145	9 342	0 096	28 426	0 036	-0 018	80	80	11 8	51 4	3 544	0 016	0 016	0 000331	0 306	0 26
88	12/3/1999	3:17:12 PM	0	25 494	23.074	25 008	25.545	23.673	178.472	55.232	65.178	9.247	46 739	9.342	0 05	28.382	0 035	-0 015	81	81	11 8	51 0	3 515	0 015	0 015	0 000330	0 300	0 25
89	12/3/1999	3:18:12 PM	0	25.539	23.039	24 973	25.59	23.718	175 51	55 542	65.542	9.279	47.247	9.311	0 096	28.382	0 035	-0 018	82	82	11 8	51 4	3 543	0 015	0 015	0 000330	0 298	0 25
90	12/3/1999	3:18:13 PM	0	25 539	23 039	24 893	25 59	23.718	175 51	55 418	65.359	9.247	46.976	9.342	0 05	28.351	0 035	-0 018	83	83	11 8	51.2	3 530	0 015	0 015	0 000330	0 299	0 25
91	12/3/1999	3:20:13 PM	0	25 539	23.118	24.973	25 59	23.796	175 51	55.108	65.115	9.207	46.773	9.311	0 05	28.351	0 036	-0 018	84	84	11 8	50 9	3 512	0 016	0 016	0 000331	0 309	0 26
92	12/3/1999	3:21:13 PM	0	25 584	23 084	25 018	25 636	23.763	178.548	55 914	65.908	9.303	47.179	9 342	0 05	28 474	0 033	-0 018	85	85	11 8	51.5	3 554	0 015	0 015	0 000330	0 296	0 25
93	12/3/1999	3:22:13 PM	0	25 504	23 084	24 938	25 636	23.763	178.548	55 79	65.725	9.343	47.077	9.342	0 096	28.289	0 033	-0 018	86	86	11.7	51 4	3 548	0 015	0 015	0 000330	0 298	0 25
94	12/3/1999	3:23:14 PM	0	25 584	23 084	25 018	25 636	23.783	178.548	55.294	65.42	9.239	47.247	9.311	0 096	28 412	0 033	-0 018	87	87	11.8	51.3	3 535	0 015	0 015	0 000330	0 298	0 25
95	12/3/1999	3:24:14 PM	0	25 504	23.164	25 018	25.556	23.683	178 548	55 48	65.481	9.303	46 604	9.342	0 096	28.397	0 035	-0 018	88	88	11 8	51.0	3 519	0 015	0 015	0 000330	0 299	0 25
96	12/3/1999	3:25:15 PM	0	25 504	23 084	24 838	25 636	23.763	178.548	55 418	65.42	9.279	47.213	9.311	0 05	28 428	0 033	-0.015	89	89	11.8	51.3	3 538	0 015	0 015	0 000330	0 298	0 25
97	12/3/1999	3:26 15 PM	0	25.504	23 084	24 938	25.716	23.763	178 548	55.356	65.237	9.279	46.739	9.311	0 096	28.366	0 035	-0 018	90	90	11 8	51.0	3 520	0 015	0 015	0 000330	0 300	0 26
98	12/3/1999	3:27:16 PM	0	25.55	23.13	24 964	25 681	23 809	178 588	55 232	65.42	9 175	48 875	9 342	0 05	28.335	0 035	-0 018	91	91	11 8	51.1	3 520	0 015	0 015	0 000330	0 299	0 25
99	12/3/1999	3:28:18 PM	0	25 55	23.13	24.964	25.761	23.809	178.588	55 048	64.932	9.239	46 976	9 311	0 096	28.335	0 035	-0 015	92	92	11 8	51 0	3 517	0 015	0 015	0 000330	0 300	0 26
100	12/3/1999	3:29:18 PM	0	25 47	23.13	24 903	25 601	23.729	178 586	55 48	65 42	9.239	48 841	9 311	0 096	28.305	0 033	-0 015	93	93	11.7	51.2	3 527	0 015	0 015	0 000330	0 299	0 25
101	12/3/1999	3:30:17 PM	0	25 515	23.175	25 029	25 726	23.854	178.624	54 799	64.688	9.199	46 875	9.311	0 05	28 274	0 035	-0 018	94	94	11.7	50 8	3 505	0 015	0 015	0 000330	0 300	0 26
102	12/3/1999	3:31:17 PM	0	25 56	23.14	24 914	25.692	23.82	178 662	55.356	65 42	9 239	46 875	9 311	0 05	28 243	0 035	-0 015	95	95	11.7	51.1	3 524	0 015	0 015	0 000330	0 300	0 25
103	12/3/1999	3:32:17 PM	0	25 515	23.175	24 949	25 648	23.774	178 624	55 418	65 542	9.215	46 537	9 311	0 096	28.289	0 035	-0 015	96	96	11.7	51.0	3 515	0 015	0 015	0 000330	0 300	0 26
104	12/3/1999	3:33:18 PM	0	25 435	23.095	24 949	25 648	23.774	178 624	55.728	65.725	9.231	47.01	9 311	0 096	28.289	0 035	-0 018	97	97	11.7	51.4	3 542	0 015	0 015	0 000330	0 298	0 25
105	12/3/1999	3:34:18 PM	0	25 48	23.14	24 914	25 692	23 82	178 662	54 861	64.932	9.159	46 401	9 311	0 05	28.274	0 035	-0 018	98	98	11.7	50 6	3 491	0 015	0 015	0 000330	0 303	0 26
106	12/3/1999	3:35:18 PM	0	25 48	23.14	24.914	25 692	23 9	178 662	56.162	66 091	9 335	48.976	9.342	0 096	27.998	0 034	-0 018	99	99	11 6	51 6	3 556	0 015	0 015	0 00029	0 289	0 25
107	12/3/1999	3:36:19 PM	0	25 4	23.14	24 914	25 692	23 82	178.662	55 418	65 481	9.223	47.416	9 342	0 05	28 366	0 035	-0 018	100	100	11 8	51 4	3 545	0 015	0 015	0 000330	0 298	0 25
108	12/3/1999	3:37:18 PM	0	25 445	23.166	24 879	25.737	23.945	178.7	55 914	66 03	9.223	47.551	9 311	0 096	28 259	0 033	-0 018	101	101	11.7	51.7	3 567	0 015	0 015	0 000330	0 296	0 25
109	12/3/1999	3:38:18 PM	0	25.445	23.166	24 879	25.737	23.945	178.7	55 914	66.152	9.231	47.28	9 311	0 096	28 32	0 034	-0 015	102	102	11.8	51.6	3 557	0 015	0 015	0 00029	0 289	0 25
110	12/3/1999	3:39:20 PM	0	25 445	23.166	24.799	25 657	23.863	178.7	55 542	65.542	9.303	46 875	9 311	0 096	28 335	0 035	-0 018	103	103	11.8	51.2	3 531	0 015	0 015	0 000330	0 300	0 26
111	12/3/1999	3:40:20 PM	0	25 491	23 231	24 845	25.782	23 83	178.738	55.78	65.725	9 287	46.942	9 311	0 096	28.32	0 034	-0 018	104	104	11 8	51.4	3 542	0 015	0 015	0 00029	0 290	0 25
112	12/3/1999	3:41:20 PM	0	25.491	23.231	24 845	25.782	23.83	178.738	55 976	66 091	9 303	46.976	9.311	0 096	28.351	0 034	-0 018	105	105	11 8	51.5	3 549	0 015	0 015	0 00029	0 290	0 25
113	12/3/1999	3:42:21 PM	0	25 536	23 277	24 81	25 828	23.635	178.776	55 542	65 664	9 263	47.416	9.311	0 096	28.428	0 034	-0 018	106	106	11 8	51.5	3 549	0 015	0 015	0 00029	0 290	0 25
114	12/3/1999	3:43:21 PM	0	25 456	23.277	24 81	25 828	23.233	178.776	55.852	65.786	9 311	47.111	9 311	0 096	28.335	0 034	-0 018	107	107	11.8	51.5	3 549	0 015	0 015	0 00029	0 290	0 25
115	12/3/1999	3:44:21 PM	0	25 411	23.231	24.765	25 622	22.866	178.738	55 232	65 237	9 247	46.739	9.311	0 05	28.305	0 035	-0 018	108	108	11.7	51.0	3 515	0 015	0 015	0 000330	0 302	0 26
116	12/3/1999	3:45:22 PM	0	25 456	23.277	24 81	25 668	22.671	178.776	55 642	65 642	9.247	46 807	9.311	0 096	28.366	0 035	-0 018	109	109	11.8	51.2	3 528	0 015	0 015	0 000330	0 300	0 26
117	12/3/1999	3:46:22 PM	0	25 491	23.312	24 684	25 462	22.545	178.738	55 604	65.481	9.287	46 976	9.311	0 096	28.382	0 033	-0 018	110	110	11.8	51 3	3 536	0 015	0 015	0 000330	0 301	0 26
118	12/3/1999	3:47:23 PM	0	25.445	23.266	24.719	25.417	22.258	178.7	55 642	65 603	9 247	47.01	9.311	0 05	28 366	0 034	-0 018	111	111	11 8	51.3	3 535	0 015	0 015	0 00029	0 292	0 25
119	12/3/1999	3:48:23 PM	0	25 4	23.301	24 674	25.291	22.132	178 662	55 232	65 296	9.215	46 908	9.311	0 096	28.259	0 035	-0 015	112	112	11.7	51.1	3 521	0 015	0 015	0 000330	0 302	0 26
120	12/3/1999	3:49:23 PM	0	25 435	23.255	24 628	25.166	22 006	178 624	55.356	65 42	9 231	47.111	9 316	0 05	28.32	0 035	-0.018	113	113	11.8	51.2	3 532	0 015	0 015	0 000330	0 301	0 26
121	12/3/1999	3:50:24 PM	0	25 47	23.29	24.583	25 04	21 68	178.586	55 48	65 542	9 279	47.179	9.311	0 096	28 382	0 034	-0 018	114	114	11.8	51.3	3 539	0 015	0 015	0 00029	0 293	0 25
122	12/3/1999	3:51:24 PM	0	25 424	23.245	24 618	24.995	21.634	178 548	55.78	65.908	9 279	47.179	9 311	0 096	28.382	0 034	-0 018	115	115	11.8	51.5	3 550	0 015	0 015	0 00029	0 291	0 25
123	12/3/1999	3:52:25 PM	0	25 459	23 28	24 672	24.949	21.708	175 51	55 356	65 542	9 215	46.908	9 311	0 096	28 612	0 034	-0 015	116	116	11.9	51.1	3 525	0 015	0 015	0 00029	0 294	0 25
124	12/3/1999	3:53:25 PM	0	25 368	23.269	24 562	24.779	21.778	178.434	56 036	66.091	9.287	47.621	9 311	0 05	28.351	0 035	-0 015	117	117	11.8	51.9	3 580	0 015	0 015	0 000330	0 296	0 25
125	12/3/1999	3:54:25 PM	0	25.449	23.269	24 562	24.779	22 018	178 434	55.79	65 847	9.287	47.213	9.311	0 05	28.382	0 034	-0 018	118	118	11.8	51.5	3 551	0 015	0 015	0 00029	0 292	0 25
126	12/3/1999	3:55:26 PM	0	25.403	23.304	24 597	24.814	22 296	178 396	55.728	65 788	9 303	46 841	9.311	0 05	28 412	0 034	-0 018	119	119	11.8	51.3	3 536	0 015	0 015	0 00029	0 293	0 25
127	12/3/1999	3:56:26 PM	0	25 403	23.304	24.597	24 814	22.537	178.396	55 604	65 664	9 311	47.077	9 311	0 096	28.351	0 034	-0 018	120	120	11.8	51.3	3 540	0 015	0 015	0 00029	0 292	0 25
128	12/3/1999	3:57:26 PM	0	25.278	23 259	24 471	24.768	22.572	178.358	56.41	66 456	9.431	47.213	9 311	0 096	28 412	0 034	-0 018	121	121	11 8	51.8	3 572	0 015	0 015	0 00029	0 291	0 25
129	12/3/1999	3:58:27 PM	0	25.323	23.304	24 597	24.974	22 658	178.396	55 666	65 603	9.255	47.418	9.311	0 096	28.382	0 034	-0 015	122	122	11 8	51.5	3 554	0 015	0 015	0 00029	0 291	0 25
130	12/3/1999	3:59:27 PM	0	25 323	23.304	24.617	25 054	22.639	178.396	55.48	65.603	9 271	47.348	9.311	0 05	28.335	0 034	-0 018	123	123	11.8	51 4	3 545	0 015	0 015	0 00029	0 293	0 25
131	12/3/1999	4:00:27 PM	0	25 163	23.304	24 617	24.974	22.639	178.396	52 815	66.456	8.964	43.697	12.732	0 05	28 382	0 011	-0 018	124	124	11 8	48 3	3 327	0 005	0 005	0 00010	0 101	0 09
132	12/3/1999	4:01:28 PM	0	25 243	23.304	24.617	25 054	23.1	178.396	55 232	65.178	9.175	46 976	9.373	0 096	28.335	0 05	0.024	125	125	11.8	51.1	3 525	0 022	0 022	0 00045	0 453	0 37
133	12/3/1999	4:02:28 PM	0	25.163	23.304	24 617	25.054	23.16	178.396	55 852	65.42	9.231	47.01	8 91	0 096	28.382	0 042	-0 018	126	126	11.8	51.4	3 548	0 018	0 019	0 00036	0 361	0 31
134	12/3/1999	4:03:29 PM	0	25 243	23.304	24 617	25.214	23 261	178.396	55.852	65 42	9.215	47.852	8.91	0 096	28 351	0 04	-0 018	127	127	11 8	51.8	3 568	0 017	0 018	0 00034	0 342	0 29
135																												
136		Averages		25 5	22.9	24 8	25.4	23.3	178.8	55 5	65 5	9.3	46 9	9 4	0.1	28 6	0 036	-0 017			11.8	51 2	3 529	0 016	0 018	0 000311	0 311	0 265
137		Maximum		26.2	23 3	25 3	25 8	23.9	178 8	56 6	66.6	97	47.8	9 5	0.1	29 2	0 049	0 021			12.1	51.9	3 580	0 021	0 022	0 000438	0 438	0 373
138		Median		25 5	22.9	24 9	25.4	23 3	178.5	55 6	65 5	9 3	46 9	9 3	0.1	28.6	0 036	-0 018			11.8	51 2	3 533	0 016	0 016	0 000306	0 306	0 260
139		Minimum		25 1	22 3	24 2	24 8	21.7	178.3	54.2	64 3	9 2	45.3	9 3	0.1	28 0	0 034	-0 018			11 6	49 8	3 492	0 015	0 015	0 000289	0 289	0 246
140		Std Deviation		0 176	0 283	0 309	0 240	0 471	0 106	0 418	0 429	0 117	0 418	0 044	0 022	0 217	0 002	0 004			0 090	0 373	0 026	0 003	0 001	0 000020	0 020	0 017
141		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



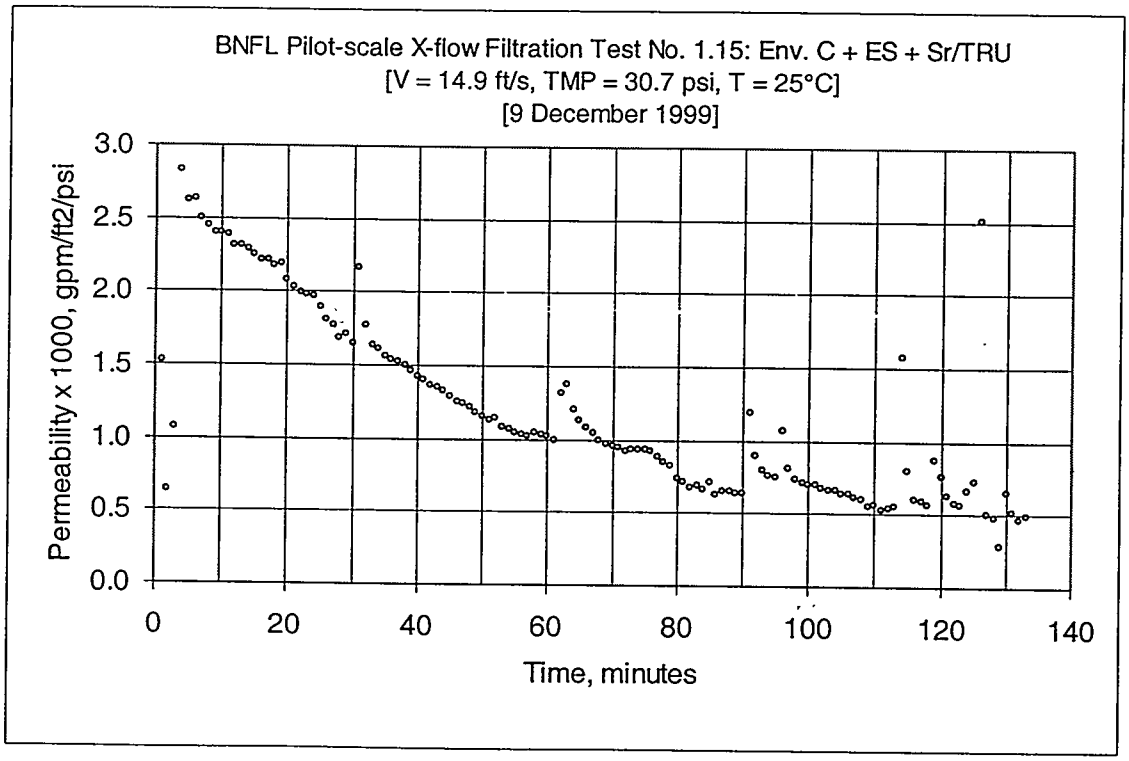


Figure C8: Test Run 1.15, 14 wt% to 38 wt% Insoluble Solids Concentration

Run 1.15: EnvC: Plugging Run - 15 wt% to 38 wt% insoluble solids

	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	FLTAT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTA DP (p	TOP DP (p	FLTRATE	PISTON (psig)	SL FLOW	O2,FLTR	FO3,FLTR	Filter Surface Area					2.29	FT2				
2	Zeros - Lines Not Connected																	Conversion					851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	12/9/1999	8:24:17 AM	0	20.023	19.512	16.774	20.933	16.019	170.86	-0.061	-0.067	-0.007	-0.011	-0.068	-0.028	-0.079	0.011	-0.018										
4	Zeros - Lines Connected																											
5	12/9/1999	8:25:18 AM	0	19.896	19.468	16.729	20.97	15.812	170.623	-0.061	-0.126	-0.007	-0.011	-0.117	-0.028	-0.079	0.011	-0.018										
6	(Note: Wash Runs 3 and 4 were done at 08:38 and 11:33 respectively on 12/9/99, after which Run 1.15 began immediately. Therefore, the zeros are the same)																											
7	Data - Per Minute																								at 25C	PERMIABILITY	x1000	
8	12/9/1999	2:07:31 PM	0	22.848	22.903	18.959	25.759	22.492	175.848	11.097	17.373	1.884	9.354	5.954	0.064	12.183	0.03	-0.018	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
9	12/9/1999	2:08:31 PM	0	22.481	22.857	18.68	25.633	22.366	175.809	9.919	17.19	1.884	8.171	6.971	0.064	12.239	0.011	-0.018	1	1	5.1	10.2	0.705	0.013	0.016	0.00152	1.523	1.30
10	12/9/1999	2:09:32 PM	0	22.481	22.937	18.68	25.633	22.288	175.809	35.397	43.96	12.391	23.567	8.265	0.064	36.799	0.06	0.03	2	2	5.1	9.0	0.624	0.005	0.006	0.00064	0.637	0.54
11	12/9/1999	2:10:32 PM	0	22.435	22.811	18.796	25.508	22.24	175.771	33.681	44.936	8.514	25.447	10.823	0.064	35.555	0.16	0.131	3	3	15.3	29.5	2.033	0.026	0.031	0.00107	1.065	0.91
12	12/9/1999	2:11:32 PM	0	20.839	22.846	18.831	25.382	22.034	175.733	34.963	45.119	8.634	26.664	9.683	0.064	35.647	0.155	0.125	4	4	14.8	29.6	2.038	0.070	0.083	0.00282	2.825	2.40
13	12/9/1999	2:12:33 PM	0	20.571	22.681	18.866	25.337	21.968	175.695	34.095	43.35	9.862	24.534	8.943	0.111	34.704	0.148	0.119	5	5	14.8	30.6	2.124	0.068	0.081	0.00262	2.622	2.23
14	12/9/1999	2:13:33 PM	0	20.122	22.835	18.982	25.292	21.942	175.657	36.575	43.655	9.655	27.374	6.724	0.064	37.951	0.154	0.125	6	6	16.1	29.3	2.021	0.065	0.077	0.00263	2.629	2.24
15	12/9/1999	2:14:33 PM	0	19.995	22.79	18.936	25.168	22.058	175.619	36.781	43.594	9.495	27.779	6.509	0.064	37.721	0.152	0.122	7	7	15.8	32.0	2.205	0.067	0.080	0.00250	2.499	2.13
16	12/9/1999	2:15:34 PM	0	19.753	22.87	19.097	25.168	22.299	175.619	37.194	43.858	9.671	27.949	6.355	0.111	37.828	0.151	0.122	8	8	15.7	32.3	2.225	0.068	0.079	0.00245	2.448	2.08
17	12/9/1999	2:16:34 PM	0	19.672	22.87	19.178	25.248	22.54	175.619	37.194	43.699	9.36	28.32	6.355	0.111	37.445	0.152	0.125	9	9	15.7	32.6	2.246	0.068	0.078	0.00240	2.398	2.04
18	12/9/1999	2:17:34 PM	0	19.753	22.87	19.178	25.328	22.782	175.619	37.256	44.021	9.479	28.118	6.383	0.064	37.491	0.151	0.122	10	10	15.5	32.8	2.258	0.068	0.078	0.00239	2.394	2.04
19	12/9/1999	2:18:35 PM	0	19.591	22.87	19.259	25.408	22.942	175.619	37.256	44.082	9.336	28.219	6.478	0.064	37.383	0.147	0.122	11	11	15.6	32.7	2.254	0.066	0.078	0.00238	2.384	2.03
20	12/9/1999	2:19:35 PM	0	19.672	22.951	19.34	25.488	23.103	175.619	37.009	43.96	9.415	28.016	6.57	0.064	37.383	0.148	0.122	12	12	15.5	32.7	2.257	0.064	0.076	0.00231	2.311	1.97
21	12/9/1999	2:20:35 PM	0	19.591	22.951	19.34	25.488	23.183	175.619	36.823	43.777	9.639	27.374	6.57	0.064	37.89	0.143	0.122	13	13	15.5	32.5	2.242	0.064	0.075	0.00231	2.306	1.96
22	12/9/1999	2:21:36 PM	0	19.591	22.951	19.421	25.567	23.264	175.619	36.885	44.021	9.567	27.613	6.694	0.111	37.828	0.142	0.119	14	14	15.7	32.1	2.213	0.062	0.073	0.00229	2.288	1.95
23	12/9/1999	2:22:36 PM	0	19.591	22.951	19.502	25.567	23.424	175.619	37.38	44.387	9.511	28.219	6.57	0.064	37.353	0.142	0.119	15	15	15.6	32.3	2.230	0.062	0.073	0.00225	2.249	1.91
24	12/9/1999	2:23:36 PM	0	19.672	22.951	19.582	25.567	23.424	175.619	37.194	44.448	9.599	27.813	6.694	0.064	37.337	0.141	0.119	16	16	15.5	32.8	2.261	0.062	0.073	0.00221	2.213	1.88
25	12/9/1999	2:24:37 PM	0	19.718	22.996	19.709	25.612	23.47	175.657	37.194	44.265	9.663	27.847	6.663	0.064	37.337	0.139	0.119	17	17	15.5	32.5	2.241	0.062	0.072	0.00221	2.212	1.88
26	12/9/1999	2:25:37 PM	0	19.799	22.996	19.709	25.692	23.65	175.657	37.504	44.57	9.527	28.368	6.663	0.111	37.29	0.142	0.116	18	18	15.6	32.5	2.242	0.061	0.071	0.00217	2.171	1.85
27	12/9/1999	2:26:37 PM	0	19.879	22.916	19.78	25.612	23.65	175.657	37.442	44.57	9.511	28.354	6.694	0.111	37.045	0.135	0.11	19	19	15.5	32.9	2.272	0.062	0.072	0.00219	2.190	1.86
28	12/9/1999	2:27:38 PM	0	19.879	22.996	19.87	25.612	23.631	175.657	37.566	44.509	9.503	28.287	6.663	0.064	37.122	0.132	0.107	20	20	15.4	32.9	2.268	0.059	0.068	0.00208	2.080	1.77
29	12/9/1999	2:28:38 PM	0	19.925	22.961	19.997	25.657	23.676	175.695	37.814	44.936	9.519	28.354	6.755	0.064	36.999	0.131	0.107	21	21	15.4	32.9	2.270	0.058	0.067	0.00203	2.027	1.73
30	12/9/1999	2:29:38 PM	0	20.006	23.042	20.078	25.657	23.676	175.695	37.814	44.936	9.695	28.658	6.817	0.111	37.245	0.131	0.107	22	22	15.4	33.1	2.281	0.057	0.066	0.00199	1.995	1.70
31	12/9/1999	2:30:39 PM	0	20.087	22.961	20.158	25.657	23.676	175.695	37.938	45.18	9.727	28.523	6.878	0.064	37.306	0.13	0.107	23	23	15.5	33.2	2.292	0.057	0.066	0.00198	1.981	1.69
32	12/9/1999	2:31:39 PM	0	20.167	22.961	20.239	25.657	23.676	175.695	38.186	45.363	9.711	28.76	6.755	0.111	37.168	0.127	0.101	24	24	15.5	33.2	2.291	0.057	0.065	0.00196	1.962	1.67
33	12/9/1999	2:32:39 PM	0	20.213	23.067	20.365	25.623	23.602	175.733	38.93	46.155	9.272	29.943	6.755	0.111	35.97	0.125	0.097	25	25	15.4	33.5	2.308	0.055	0.064	0.00190	1.896	1.62
34	12/9/1999	2:33:40 PM	0	20.294	23.007	20.527	25.623	23.602	175.733	38.116	46.094	9.36	29.876	6.601	0.111	36.062	0.123	0.097	26	26	14.9	34.4	2.374	0.055	0.062	0.00181	1.809	1.54
35	12/9/1999	2:34:40 PM	0	20.536	23.007	20.607	25.623	23.722	175.733	38.868	46.094	9.599	29.537	6.694	0.064	36.431	0.118	0.091	27	27	15.0	34.5	2.378	0.054	0.061	0.00177	1.769	1.51
36	12/9/1999	2:35:40 PM	0	20.501	23.052	20.814	25.668	23.767	175.771	38.806	45.972	9.647	29.504	6.694	0.064	36.461	0.119	0.094	28	28	15.1	34.4	2.358	0.051	0.057	0.00168	1.679	1.43
37	12/9/1999	2:36:41 PM	0	20.582	23.052	20.814	25.668	23.767	175.771	38.93	46.033	9.487	29.808	6.755	0.064	36.001	0.115	0.091	29	29	15.1	34.2	2.355	0.052	0.059	0.00171	1.714	1.46
38	12/9/1999	2:37:41 PM	0	20.789	23.098	21.021	25.633	23.813	175.809	35.211	46.094	9.32	29.393	10.422	0.111	35.709	0.136	0.107	30	30	14.0	34.4	2.370	0.050	0.057	0.00165	1.648	1.40
39	12/9/1999	2:38:41 PM	0	20.95	23.098	21.183	25.633	23.813	175.809	36.885	46.643	9.599	27.408	9.251	0.064	35.566	0.117	0.088	31	31	14.8	30.8	2.124	0.059	0.067	0.00216	2.159	1.84
40	12/9/1999	2:39:42 PM	0	21.031	23.018	21.263	25.553	23.813	175.809	37.442	46.826	9.232	28.658	9.005	0.064	34.71	0.111	0.079	32	32	14.8	32.1	2.216	0.051	0.057	0.00177	1.772	1.51
41	12/9/1999	2:40:42 PM	0	21.031	23.018	21.424	25.553	23.813	175.809	37.318	46.643	9.479	28.185	8.912	0.064	35.309	0.109	0.079	33	33	14.4	33.1	2.279	0.048	0.054	0.00163	1.631	1.39
42	12/9/1999	2:41:42 PM	0	21.236	23.144	21.551	25.679	23.858	175.848	37.442	46.765	9.447	28.354	8.943	0.064	35.048	0.107	0.079	34	34	14.7	32.8	2.258	0.048	0.053	0.00161	1.609	1.37
43	12/9/1999	2:42:43 PM	0	21.399	23.063	21.792	25.599	23.858	175.848	37.69	47.009	9.471	28.354	8.912	0.064	35.064	0.106	0.079	35	35	14.5	32.9	2.268	0.047	0.052	0.00157	1.566	1.33
44	12/9/1999	2:43:43 PM	0	21.48	23.063	21.873	25.599	23.939	175.848	37.752	47.131	9.479	28.523	8.912	0.111	34.833	0.106	0.076	36	36	14.6	33.0	2.277	0.046	0.051	0.00154	1.535	1.31
45	12/9/1999	2:44:44 PM	0	21.687	23.109	21.999	25.644	23.984	175.886	37.69	46.887	9.679	28.118	8.851	0.064	34.71	0.104	0.073	37	37	14.5	33.1	2.285	0.046	0.051	0.00153	1.526	1.30
46	12/9/1999	2:45:44 PM	0	21.767	23.109	22.16	25.644	23.984	175.886	38.062	47.378	9.463	28.658	8.851	0.111	34.772	0.103	0.076	38	38	14.4	32.9	2.269	0.045	0.049	0.00150	1.503	1.28
47	12/9/1999	2:46:44 PM	0	21.926	23.109	22.321	25.564	23.984	175.886	38.062	47.253	9.511	28.692	8.82	0.064	34.572	0.101	0.073	39	39	14.4	33.4	2.300	0.045	0.049	0.00148	1.481	1.26
48	12/9/1999	2:47:44 PM	0	22.009	23.109	22.482	25.644	23.984	175.886	38.062	47.192	9.439	28.692	8.789	0.111	34.326	0.1	0.07	40	40	14.3	33.4	2.301	0.044	0.048	0.00143	1.425	1.21
49	12/9/1999	2:48:45 PM	0	22.155	23.155	22.688	25.69	24.03	175.924	38.248	47.314	9.503	28.963	8.758	0.111	34.326	0.096	0.07	41	41	14.2	33.4	2.301	0.044	0.047	0.00140	1.405	1.20
50	12/9/1999	2:49:45 PM	0	22.296	23.155	22.768	25.81	24.03	175.924	38.434	47.558	9.527	29.166	8.697	0.111	34.28	0.096	0.067	42	42	14.2	33.6	2.317	0.043	0.046	0.00136	1.359	1.16
51	12/9/1999	2:50:45 PM	0	22.457	23.155	22.929	25.69	24.03	175.924	38.062	46.887	9.543	29.03	8.573	0.111	34.311	0.096	0.067	43	43	14.2	33.6	2.330	0.043	0.046	0.00135	1.348	1.15
52	12/9/1999	2:51:46 PM	0	22.583	23.2	23.136	25.818	23.835	175.962	38.558	47.619	9.639	29.132	8.543	0.111	34.326	0.095	0.067	44	44	14.2	33.5	2.313	0.042	0.044	0.00132	1.325	1.13
53	12/9/1999	2:52:46 PM	0	22.744	23.2	23.296	25.818	23.514	175.962	38.434	47.314	9.663	29.301	8.543	0.111	34.296	0.093	0.064	45	45	14.2	33.8	2.333	0.041	0.044	0.00129	1.292	1.10
54	12/9/1999	2:53:47 PM	0	22.905	23.2	23.457	25.735	23.032	175.962	38.682	47.68	9.766	29.199	8.543	0.111	34.265	0.092	0.064	46	47	14.2	33.9	2.340	0.040	0.042	0.00124	1.236	1.05
55	12/9/1999	2:54:47 PM	0	23.02	23.155	23.652	25.81	22.825	175.924	38.682	47.68	9.703	29.335	8.543	0.111	33.958	0.091	0.064	48	48	14.1	34.0	2.345	0.040	0.041	0.00121	1.213	1.03
56	12/9/1999	2:55:47 PM	0	23.135	23.109	23.767	25.564	22.636	175.886	38.558	47.378	9.758	29.368	8.512	0.064	34.035	0.089	0.061	49	49	14.1	34.0	2.342	0.039	0.040	0.00118	1.185	1.01
57	12/9/1999	2:56:48 PM	0	23.378	23.189	23.927	25.484	22.458	175.885	38.93	47.802	9.822	29.335	8.481	0.111	34.142	0.088	0.058	50	50	14.2	34.1	2.353	0.038	0.040	0.00116	1.160	0.99
58	12/9/1999	2:57:48 PM	0	23.456	23.189	24.168	25.404	22.297	175.886	38.992	47.863	9.727	29.537	8.481	0.111	33.82	0.087	0.061	51	51	14.0	34.3	2.362	0.038	0.039	0.00113	1.135	0.97
59	12/9/1999	2:58:48 PM	0	23.652	23.224	24.263	25.559	22.171	175.848	38.93	47.741	9.703	29.842	8.45	0.111	33.589	0.088	0.061	52	52	13.9	34.4	2.371	0.038	0.039	0.00114	1.140	0.97
60	12/9/1999	2:59:49 PM	0	23.847	23.259	24.396	25.233	22.044	175.809	39.116	47.924	9.711	29.774	8.419	0.111	33.42	0.084	0.055	53	53	13.9	34.4	2.375	0.037	0.037	0.00108	1.083	0.92
61	12/9/1999	3:00:49 PM	0	23.962	23.213	24.673	25.107	21.918	175.771	39.302	48.166	10.038	29.436	8.358	0.064	33.789	0.083	0.055	54	54	14.0	34.4	2.370	0.036	0.037	0.00106	1.064	0.91
62	12/9/1999	3:01:49 PM	0	24.077	23.168	24.868	24.982	21.873	175.733	39.054	47.741	9.95	29.402	8.358	0.111	33.85	0.082	0.055	55	55	14.0	34.2	2.360	0.036	0.036	0.00105	1.050	0.89
63	12/9/1999	3:02:50 PM	0	24.318	23.246	25.106	25.062	22.194	175.733	39.24	48.046	10.038	29.504	8.389	0.111	33.758	0.082	0.055	56	56	14.0	34.4	2.370	0.036	0.036	0.00104	1.050	0.89
64	12/9/1999	3:03:50 PM	0	24.519	23.283	25.223	25.018	22.471	175.676	38.248	46.765	11.019	27.712	8.234	0.111	35.724	0.078	0.049	57	57	14.6	33.0	2.274	0.034	0.034	0.00103	1.026	0.87
65	12/9/1999	3:04:50 PM	0	24.753	23.283	25.383	25.018	22.712	175.695	38.062	46.765	11.011	27.609	8.265	0.111	35.663	0.079	0.052	58	58	14.8	32.8	2.260	0.034	0.034	0.00104	1.041	0.89
66	12/9/1999	3:05:51 PM	0	24.788	23.237	25.496	25.081	22.907	175.657	38	46.582	11.394	26.633	8.265	0.064	36.354	0.078	0.052	59	59	15.1	32.4	2.235	0.034	0.034	0.00104	1.036	0.88
67	12/9/1999	3:06:51 PM	0	24.949	23.237	25.538	25.131	22.968	175.657	38.062	46.704	11.366	27.239	8.296	0.111	36.477	0.077	0.049	60	60	15.1	32.7	2.251	0.034	0.033	0.00102	1.020	0.87
68	12/9/1999	3:07:51 PM	0	25.029	23.318	25.538	25.131	23.149	175.657	38.434	47.009	11.25	27.374	8.265	0.111	36.184	0.076	0.049	61	61	15.0	32.9	2.269	0.033	0.033	0.00100	0.999	0.85
69	12/9/1999	3:08:52 PM	0	24.949	23.237	25.658	25.211	23.229	175.657	7.873	46.338	8.45	-0.721	37.942	87.213	36.661	0.011	-0.018	62	62	15.2	3.6	0.247	0.005	0.005	0.00132	1.318	1.12
70	12/9/1999	3:09:52 PM	0	25.029	23.237	25.698	25.292	23.39	175.657	36.079	46.765	11.203	25.21	10.422	0.111	36.185	0.099	0.067	63	63	15.0	30.6	2.113	0.043	0.042	0.00136	1.375	1.17
71	12/9/1999	3:10:52 PM	0	25.395	23.283	26.103	25.337	23.435	175.695	36.761	46.948	11.41	25.663	9.621	0.111	36.016	0.089	0.058	64	64	14.9	31.2	2.153	0.039	0.038	0.00121	1.206	1.03
72	12/9/1999	3:11:53 PM	0	25.509	23.237	26.218	25.372	23.47	175.657	37.318	47.131	11.506	25.954	9.406	0.111	36.016	0.083	0.055	65	65	14.9	31.6	2.181	0.037	0.036	0.00113	1.134	0.96
73	12/9/1999	3:12:53 PM	0	25.555	23.283	26.503	25.337	23.596	175.695	37.442	47.131	11.274	26.529	9.313	0.064	35.263	0.083	0.055	66	66	14.6	32.0	2.205	0.036	0.035	0.00109	1.088	0.92
74	12/9/1999	3:13:53 PM	0	25.875	23.283	26.743	25.417	23.596	175.695	37.628	47.131	11.346	26.731	9.159	0.111	35.11	0.081	0.052	67	67	14.6	32.2	2.219	0.035	0.034	0.00105	1.047	0.89
75	12/9/1999	3:14:54 PM	0	26.035	23.283	26.902	25.337	23.676	175.695	38.186	47.68	11.458	27.197	9.036	0.064	35.048	0.079	0.049	68	68	14.5	32.7	2.252	0.034	0.033	0.00100	1.001	0.85
76	12/9/1999	3:15:54 PM	0	26.195	23.283	27.142	25.417	23.676	175.695	38.124	47.497	11.45	28.9	8.943	0.111	34.972	0.077	0.046	69	69	14.5	32.5	2.242	0.034	0.032	0.00097	0.974	0.83
77	12/9/1999	3:16:54 PM	0	26.4	23.328	27.347	25.382	23.802	175.733	38.248	47.558	11.562	26.667	8.882	0.111	34.967	0.076	0.049	70	70	14.5	32.6	2.245	0.033	0.031	0.00095	0.954	0.81
78	12/9/1999	3:17:55 PM	0	26.56	23.328	27.506	25.462	23.722	175.733	37.752	46.887	12.256	25.755	8.758	0.111	36.124	0.074	0.043	71	71	15.0	31.8	2.190	0.032	0.030	0.00095	0.948	0.81
79	12/9/1999	3:18:55 PM	0	26.72	23.328	27.666	25.462	23.602	175.733	36.761	45.606	14.314	22.845	8.45	0.111	39.803	0.068	0.037	72	72	16.4	29.8	2.055	0.030	0.028	0.00092	0.925	0.79
80	12/9/1999	3:19:55 PM	0	26.925	23.374	27.951	25.508	23.847	175.771	37.876	47.07	12.606	25.244	8.789	0.064	37.214	0.073	0.043	73	73	15.4	31.6	2.176	0.032	0.029	0.00093	0.930	0.79
81	12/9/1999	3:20:56 PM	0	27.12	23.248	27.965	25.462	23.722	175.733	37.814	47.009	12.766	25.413	8.82	0.111	37.107	0.074	0.043	74	74	15.4	31.6	2.180	0.032	0.030	0.00094	0.940	0.80
82	12/9/1999	3:21:56 PM	0	27.29	23.339	28.235	25.473	23.893	175.809	38.186	47.497	12.296	25.886	8.912	0.064	36.431	0.075	0.04	75	75	15.1	32.0	2.209	0.033	0.030	0.00093	0.934	0.79
83	12/9/1999	3:22:56 PM	0	27.45	23.339	28.395	25.553	23.893	175.809	37.938	47.253	12.246	25.954	8.912	0.064	36.17	0.074	0.043	76	76	15.0	31.9	2.203	0.032	0.029	0.00092	0.920	0.78
84	12/9/1999	3:23:57 PM	0	27.69	23.42	28.634	25.473	23.893	175.809	38.186	47.497	12.455	26.258	8.851	0.111	35.965	0.072	0.043	77	77	14.9	32.2	2.222	0.031	0.028	0.00088	0.882	0.75
85	12/9/1999	3:24:57 PM	0	27.769	23.42	28.793	25.473	23.893	175.809	39.116	48.412	12.543	26.968	8.851	0.064	36.093	0.071	0.04	78	78	15.0	33.0	2.278	0.031	0.028	0.00084	0.844	0.72

Run 1.15: EnvC: Plugging Run - 15 wt% to 38 wt% insoluble solids

	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	12/9/1999	3:25:57 PM	0	27,974	23 365	29,157	25 519	23 939	175 846	40,418	49,753	11,681	28,963	8 974	0 111	33 712	0 074	0.046	79	79	14 0	34 7	2 392	0 032	0 029	0 00083	0 630	0 71
87	12/9/1999	3:26 58 PM	0	28,214	23 365	29 395	25 519	23,939	175 846	40 914	49 956	12,184	28 963	8,604	0,111	33 697	0 067	0 04	80	80	14 0	34 9	2,409	0 029	0 026	0 00074	0 741	0 63
88	12/9/1999	3:27 58 PM	0	28 293	23 365	29 714	25 519	23 939	175 846	40,542	49 509	11,976	28,997	8,481	0 111	33,128	0 065	0 037	81	81	13 7	34 8	2 397	0 028	0 025	0 00072	0 716	0 61
89	12/9/1999	3:28 58 PM	0	28 533	23 365	29 873	25 439	23 939	175 846	40 604	49 326	12 06	28,963	8,389	0,111	32 975	0 062	0 034	82	82	13 7	34 8	2 398	0 027	0 024	0 00068	0 680	0 58
90	12/9/1999	3:29:59 PM	0	28 817	23 43	30,156	25 484	23 964	175 886	40 79	49 57	12 224	28 963	8 296	0.111	32 944	0 063	0 037	83	83	13 7	34 9	2 405	0 028	0 024	0 00068	0 684	0 58
91	12/9/1999	3:30:59 PM	0	28 976	23,43	30 395	25 484	23 964	175 886	40 542	49 204	12,192	28 929	8 234	0 111	32,744	0 061	0 034	84	84	13 6	34 7	2 395	0 027	0 023	0 00066	0 660	0 56
92	12/9/1999	3:31:59 PM	0	29,295	23 35	30 633	25 484	23 964	175 886	39 054	47,741	14 96	24 094	6 173	0.111	35 601	0 06	0.034	85	85	14 8	31 6	2 177	0 026	0 022	0 00071	0 710	0 60
93	12/9/1999	3:33:00 PM	0	29 499	23 476	30 599	25,53	24,11	175 924	39 488	48,107	14,147	25 514	6,234	0 064	35,882	0,055	0 027	86	86	14 9	32 5	2 241	0 024	0 021	0 00063	0 633	0 54
94	12/9/1999	3:34 00 PM	0	29 659	23 476	30,758	25 53	24 03	175 924	39 426	48 168	14 011	25,751	6 265	0,111	35 801	0 057	0 03	87	87	14 9	32 6	2 247	0 025	0 021	0 00065	0 651	0 55
95	12/9/1999	3:35:00 PM	0	29 863	23,441	30 962	25 575	24,075	175,962	39 55	48 29	14,011	25 819	6 296	0 064	35,724	0 056	0,03	88	88	14 6	32 7	2,253	0 025	0 021	0 00066	0 657	0 56
96	12/9/1999	3:36:01 PM	0	30 022	23 441	31,2	25 575	24 075	175,962	39 426	48,168	13,764	26,069	6 327	0,111	35 448	0,057	0 03	89	89	14 7	32 8	2 259	0 025	0 021	0 00064	0 640	0 54
97	12/9/1999	3:37:01 PM	0	30 226	23 487	31 245	25,641	24 041	176	38 62	47,314	14,745	24 23	8 234	0 111	36 892	0 055	0 03	90	90	15 3	31 4	2,187	0 024	0 020	0 00064	0 643	0 55
98	12/9/1999	3:38:01 PM	0	30 067	23,487	31,324	25 641	23,961	176	36 203	47,558	14 003	22,37	10 854	0,064	38 888	0 095	0 064	91	91	16 1	29 3	2 019	0 041	0 035	0 00119	1 190	1 01
99	12/9/1999	3:39:02 PM	0	30,465	23,487	31,483	25 541	23,559	176	37,752	47,68	14,737	23 418	9 529	0,111	38 274	0 075	0 043	92	92	15 9	30 6	2 109	0 033	0 027	0 00090	0 895	0 76
100	12/9/1999	3:40:02 PM	0	30 544	23 487	31,642	25 381	22 997	176	38,186	47,863	14 929	23 655	9 313	0,111	38 013	0,068	0 04	93	93	15 8	30 9	2 132	0 030	0 025	0 00080	0 800	0 68
101	12/9/1999	3:41:02 PM	0	30,783	23 487	31 8	25,381	22 836	176	38 558	48 29	15,12	23,756	9 221	0,111	37 813	0 066	0 04	94	94	15 7	31,2	2 148	0 029	0 024	0 00077	0,767	0 65
102	12/9/1999	3:42:03 PM	0	30 896	23 441	31,834	25,255	22 469	175,962	38 62	48,168	15,248	23 689	9,128	0,111	37,752	0,065	0 04	95	95	15,7	31 2	2,148	0 028	0 024	0 00075	0 755	0 64
103	12/9/1999	3:43:03 PM	0	30,772	23,476	31,948	25 209	22,262	175 924	38,451	47,802	14,402	22 573	10 885	0,111	37,997	0 088	0 058	96	96	15 8	29 5	2 035	0 038	0 032	0 00108	1 075	0 92
104	12/9/1999	3:44:03 PM	0	31,124	23 43	31,903	25 084	22,136	175 886	38,186	48 29	15,375	23,114	9,652	0 111	37,46	0 069	0 04	97	97	15 5	30 7	2,113	0 030	0 025	0 00081	0 813	0 69
105	12/9/1999	3:45:04 PM	0	31,362	23,511	32,141	25 004	22,055	175,886	38 744	48,594	15 848	23 012	9 406	0 064	37,475	0,063	0 03	98	98	15 6	30 9	2 129	0 026	0 023	0 00073	0 732	0 62
106	12/9/1999	3:46:04 PM	0	31,476	23 546	32,175	24,958	21,929	175 848	38,744	48 533	15,918	23 08	9 313	0,111	37,291	0 062	0 034	99	99	15 5	30 9	2 131	0 027	0 022	0 00072	0 719	0 61
107	12/9/1999	3:47:04 PM	0	31,51	23,5	32,13	24,912	22 205	175 809	38,744	48 412	15,962	22,911	9 251	0,111	37,168	0,06	0 03	100	100	15,4	30 8	2,125	0 026	0 022	0 00070	0 698	0 59
108	12/9/1999	3:48:05 PM	0	31 589	23,5	32,13	24,752	22,527	175 809	38 806	48,472	16 093	22,845	9,159	0,111	36 999	0 06	0 03	101	101	15 4	30 9	2,129	0 026	0 022	0 00070	0 697	0 59
109	12/9/1999	3:49:05 PM	0	31,579	23,489	32,119	24,741	22 677	175 733	38,744	48 29	16,165	23 114	9,128	0,111	36 953	0 058	0,03	102	102	15 3	30 9	2 132	0 023	0 021	0 00067	0 673	0 57
110	12/9/1999	3:50:05 PM	0	31,658	23,489	32,196	24,741	22,838	175,733	38 868	48 533	16,333	22,61	9 097	0 064	36,799	0,057	0 027	103	103	15 3	30 8	2,126	0 025	0 020	0 00068	0 662	0 56
111	12/9/1999	3:51:06 PM	0	31,737	23 489	32,277	24 621	23,079	175,733	38 992	48,533	16,484	22,877	9 036	0,111	36,707	0,057	0 027	104	104	15 2	30 9	2,133	0,025	0 020	0 00068	0 659	0 56
112	12/9/1999	3:52:06 PM	0	31,737	23 569	32 436	24,621	23,158	175,733	38 806	48,229	16,624	22 81	9 005	0 111	36,63	0 055	0,024	105	105	15 2	30 8	2,124	0 024	0 020	0 00064	0 635	0 54
113	12/9/1999	3:53:06 PM	0	31 817	23,489	32,594	24,902	23,24	175,733	38 992	48,412	16,668	22 607	8 974	0,111	36,323	0,056	0 027	106	106	15 1	30 8	2,124	0 024	0 020	0 00064	0 644	0 55
114	12/9/1999	3:54:07 PM	0	31,896	23,489	32,753	24 902	23,4	175,733	39,116	48 472	16 819	22,336	8 882	0,111	36,154	0 053	0 024	107	107	15 0	30,7	2,118	0 023	0 019	0 00061	0 609	0 52
115	12/9/1999	3:55:07 PM	0	31,975	23,489	32,911	24,902	23,481	175,733	39 24	48 472	16 875	22,843	8,882	0 111	36,016	0 053	0 027	108	108	14 9	31 0	2 140	0 023	0 019	0 00060	0 600	0 51
116	12/9/1999	3:56:08 PM	0	32,134	23,489	33,148	24 982	23,481	175,733	39,178	48,412	16 971	22,607	8 62	0,111	35 801	0,049	0 021	109	109	14 9	30 9	2,130	0 021	0 017	0 00055	0 554	0 47
117	12/9/1999	3:57:08 PM	0	32,292	23,489	33,386	24,982	23,561	175,733	39 054	48,351	16,967	22,167	8,758	0 064	35,509	0 05	0,024	110	110	14,7	30 6	2 110	0 022	0 017	0 00057	0 567	0 48
118	12/9/1999	3:58:08 PM	0	32,451	23,489	33,544	24,982	23,561	175,733	39 736	48 899	17,306	22,37	8,758	0 064	35 371	0,048	0 024	111	111	14 7	31,1	2,141	0 021	0 017	0 00053	0 534	0 45
119	12/9/1999	3:59:08 PM	0	32,53	23,489	33,485	24,982	23,561	175,733	39,488	48 533	17,442	22,37	8,728	0 064	35,555	0 048	0 024	112	112	14 8	30 9	2,132	0 021	0 017	0 00054	0 537	0 46
120	12/9/1999	4:00:09 PM	0	32,609	23,489	33,781	24,982	23,561	175,733	39 24	48,412	17,296	22,167	8 728	0,111	35 294	0 049	0 024	113	113	14 6	30,7	2 117	0 021	0 017	0 00055	0 548	0 47
121	12/9/1999	4:01:09 PM	1	32,537	23,535	34,142	25,027	23,687	175,771	7,935	44,753	9,503	-1,431	36,679	87,12	36,047	0 015	-0,015	114	114	15 0	3 3	0 224	0 007	0 005	0 00157	1 589	1,33
122	12/9/1999	4:02:09 PM	0	32,692	23,535	34,579	25 027	23,687	175,771	36,203	47,009	16,301	20,037	10 238	0,111	35,11	0,067	0 037	115	115	14 6	28,1	1,939	0 029	0 023	0 00081	0 805	0 69
123	12/9/1999	4:03:10 PM	0	33,13	23,535	34,774	25 027	23,767	175,771	38,682	48,412	16 559	20 612	9 313	0,111	34,941	0 053	0,024	116	116	14,5	29 6	2 044	0 023	0 018	0 00060	0 598	0 51
124	12/9/1999	4:04:10 PM	0	33 333	23,56	35,134	25,073	23,813	175,809	36,327	45 667	19,125	18,55	9 036	0,111	36,339	0,049	0,018	117	117	15 1	27,4	1 892	0 021	0 016	0 00059	0 592	0 50
125	12/9/1999	4:05:11 PM	0	33,67	23,56	35,45	25,073	23,813	175,809	37,628	47,07	19,46	18,888	9 067	0 064	36,2	0 049	0,018	118	118	15 0	28 3	1,946	0 021	0 016	0 00057	0 570	0 48
126	12/9/1999	4:06:11 PM	1	33,57	23,56	35 608	24 993	23,813	175,809	10,229	42,497	11,434	-0,518	31,641	87,167	40 378	0,013	-0 015	119	119	15 6	4 9	0 335	0 006	0 004	0 00088	0 876	0 75
127	12/9/1999	4:07:11 PM	0	34,045	23,56	35 765	25,073	23,893	175,809	34,157	45,363	17,817	17,096	10,918	0 111	37,537	0 06	0 03	120	120	15 6	25,6	1,767	0 026	0 020	0 00078	0 763	0 65
128	12/9/1999	4:08:12 PM	0	34 406	23,546	36,125	25,118	23,858	175,848	36 761	47,436	19,965	17,671	10 268	0 111	37,383	0 053	0 021	121	121	15 5	27,2	1,876	0 023	0 017	0 00063	0 629	0 53
129	12/9/1999	4:09:12 PM	0	34 564	23,626	36 619	25,118	23,939	175,848	37,009	47,497	19,724	17,738	10 064	0,111	37,014	0 05	0 018	122	122	15 4	27,4	1 887	0 022	0 016	0 00058	0 584	0 50
130	12/9/1999	4:10:12 PM	0	34 801	23,546	36,896	25,196	23,858	175,848	37,566	47,924	20,019	17,874	9 929	0 064	36,508	0,049	0 018	123	123	15 2	27,7	1,911	0 021	0 016	0 00056	0 564	0 48
131	12/9/1999	4:11:13 PM	1	35,082	23,591	36 8	25,164	23,904	175,886	11,593	44,692	12,144	-0,045	32,673	87,167	40,394	0,012	-0 018	124	124	16 8	5 8	0 398	0 005	0 004	0 00066	0 659	0 56
132	12/9/1999	4:12:13 PM	0	35,161	23 591	36,879	25 164	23,904	175,886	36 613	47,497	18,599	18,043	10 607	0,111	36,799	0 063	0,034	125	125	15 3	27,3	1 851	0 026	0 020	0 00073	0 731	0 62
133	12/9/1999	4:13:13 PM	0	35,477	23,591	37,272	25,164	23 904	175 886	11,531	21,276	11,219	0,226	9 436	0,064	22,33	0,047	0 006	126	126	9 3	5 9	0,405	0 021	0 015	0 00250	2 505	2 13
134	12/9/1999	4:14:14 PM	0	35 68	23 637	37,631	25,209	23,95	175 924	38,496	48 655	20,378	18,448	9,714	0,111	35 893	0 046	0 006	127	127	14,9	28 5	1,963	0 020	0 014	0 00050	0 501	0 43
135	12/9/1999	4:15:14 PM	0	35 871	23,591	38,137	25,164	23,904	175,886	38 806	48 838	20,737	18,248	9 653	0,111	35,571	0 045	0 003	128	128	14 8	28 5	1,967	0 020	0 014	0 00048	0 483	0 41
136	12/9/1999	4:16:14 PM	1	36,187	23,591	38,294	25 084	23,904	175,886	20 065	44,753	12,966	8,643	23 952	87,213	35,786	0 013	-0,016	129	129	14 9	14 3	0 967	0 006	0 004	0 00028	0 277	0 24
137	12/9/1999	4:17:15 PM	0	36,31	23,556	38 888	25,129	23,95	175 924	37,318	48,351	19,995	17,603	10,7	0,111	36 231	0,059	0 03	130	130	15 0	27 5	1,893	0 026	0 018	0 00065	0 646	0 55
138	12/9/1999	4:18:15 PM	0	36,704	23,637	39,437	25,129	23,95	175,924	36,558	48,536	21,607	17,13	9 929	0 111	35,156	0,048	0 018	131	131	14 6	27,8	1 920	0 021	0 014	0 00051	0 511	0 43
139	12/9/1999	4:19:15 PM	0	36,965	23,682	39,673	25,175	23,915	175,962	39 054	49,204	22,724	16,623	9,745	0,111	34,449	0 044	-0 015	132	132	14 3	27,8	1 919	0 019	0 013	0 00046	0 463	0 39
140	12/9/1999	4:20:16 PM	0	37,019	23 637	39,437	25,129	23 869	175,924	14,256	21,047	11,211	-0,958	7,094	0,111	6,495	0 011	-0 018	133	133	2,7	8 7	0 458	0 005	0 003	0 00049	0 490	0 42
141																												
142		Averages		26 8	23 3	27,6	25,3	23,4	175 8	36,9	46 9	12,7	24,6	9 5	3 8	35 9	0,062	0 054			14 9	30,7	2,119	0 036	0 036	0 00116	1 161	1 0
143		Maximum		37,0	23,7	39 9	25 8	24,1	176 0	40,9	49 9	22,7	29 9	37,9	87,2	40 4	0,152	0 125			16,8	34 9	2 409	0 066	0 079	0 00250	2 505	2,1
144		Median		26 4	23,3	27,3	25,4	23,7	175,8	38 2	47,4	11,5	26 8	8,8	0 1	36 0	0 078	0 049			14 9	32 4	2 235	0 033	0 032	0 00102	1,020	0 9
145		Minimum		19 6	22,8	18,9	24,7	21,9	175,8	7,9	21,3	8 6	-1,4	6,4	0 1	22,3	0 011	-0 018			9 3	3 3	0 224	0 005	0 004	0 00028	0 277	0 2
146		Std Deviation		5,272	0 223	5 877	0,270	0 610	0,107	5 668	2,767	3 507	6 405	4,938	17,064	1,910	0 033	0 035			0 793	5 889	0 406	0 015	0 020	0 000569	0 569	0 484
147		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

APPENDIX D

EXPERIMENTAL DATA: SLURRY WASH

Appendix Contents

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

Fig.	Run	Done on
D1	First Wash	12/08/99
D2	Second Wash	12/08/99
D3	Third Wash	12/09/99
D4	Fourth Wash	12/09/99

General Note: For measurement uncertainties see Appendix F

Special Notes:

a. As per customer request, the wash water contained a small concentration of Sodium Hydroxide, i.e., 0.01 M NaOH.
b. Backpulsing was only done in regular intervals for the first-wash run. That run started at a low filtrate flux of approximately 0.03 gpm/ft^2, Fig. D1. Therefore, a backpulse frequency of 15 minutes was used which increase the flux to slightly above 0.04 gpm/ft^2. By the fourth-wash run the starting flux increased to above 0.11 gpm/ft^2, Fig. D4.
c. 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.
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 the preceding item, 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. However, because of the large number of backpulses, around fifteen, for the first-wash run, all of the internal backpulse data points were used. Those points only represent about 5% of all the points throughout the 4.3-hour test.
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.

Nomenclature For Data Sheets

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

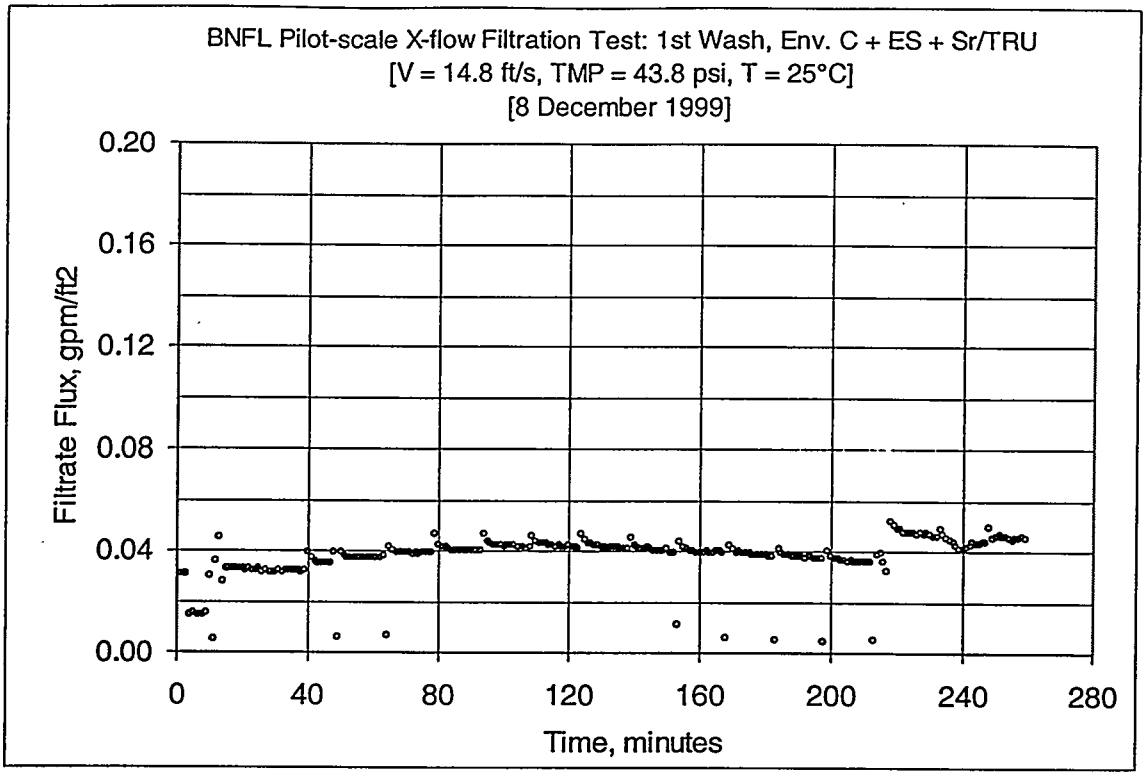
Column	Heading		Full Heading	Explanation
A =	DATE	=	DATE	Day the test was done
B =	TIME	=	TIME	Time data entry was made
C =	SOLENOID	=	SOLENOID	1=yes, 0=no for the pressure to the backpulse piston
D =	FLTRT (deg	=	FLTRT (deg C) T2	Filtrate Temperature in Filter at exit of the Filter Housing
E =	CL LOOP (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 (d	=	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 =	Q2,FLTR FL	=	FLTR FLOW (gpm) Q2	Flow Rate of the Filtrate Flow from 0 to 1.2 gpm
R =	Q3,FLTR FL	=	FLTR FLOW (gpm) Q3	Flow Rate of the Filtrate Flow from 0 to 5 gpm

The following columns are calculated results based on the appropriate columns

S =	Number	=	Number	Data numbers which is (usually) equivalent to 1 minute since this was the acquisition frequency
T =	Number	=	Number	Data numbers which are equal to or a subset from Column S to facilitate graphing of some data sets
U =	Vel, ft/s	=	Vel, ft/s	Axial slurry velocity = [Column P] / 7.48 gal/ft2 / 60 sec/min / flow area (=0.005369 ft2*)
V =	TMP, PSI	=	TMP, PSI	Transmembrane Pressure = ([Column J] + [Column M])/2
W =	TMP, bar	=	TMP, bar	[Column U] / 14 504 bar/psi
X =	GPM/FT2	=	GPM/FT2	[Column Q] / inside diameter filter surface area (= 2.29 ft2**)
Y =	GPM/FT2	=	GPM/FT2 at 25°C	Test Spec. correction factor: [Column W] x exp(2500 x ((1/(273+[Column T]))-(1/298)))
Z =	PERMIABILITY	=	PERMIABILITY (gpm/ft2/psi)	[Column X] / [Column U]
AA =	x 1000	=	PERMIABILITY x 1000	[Column Z] x 1000
AB =	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



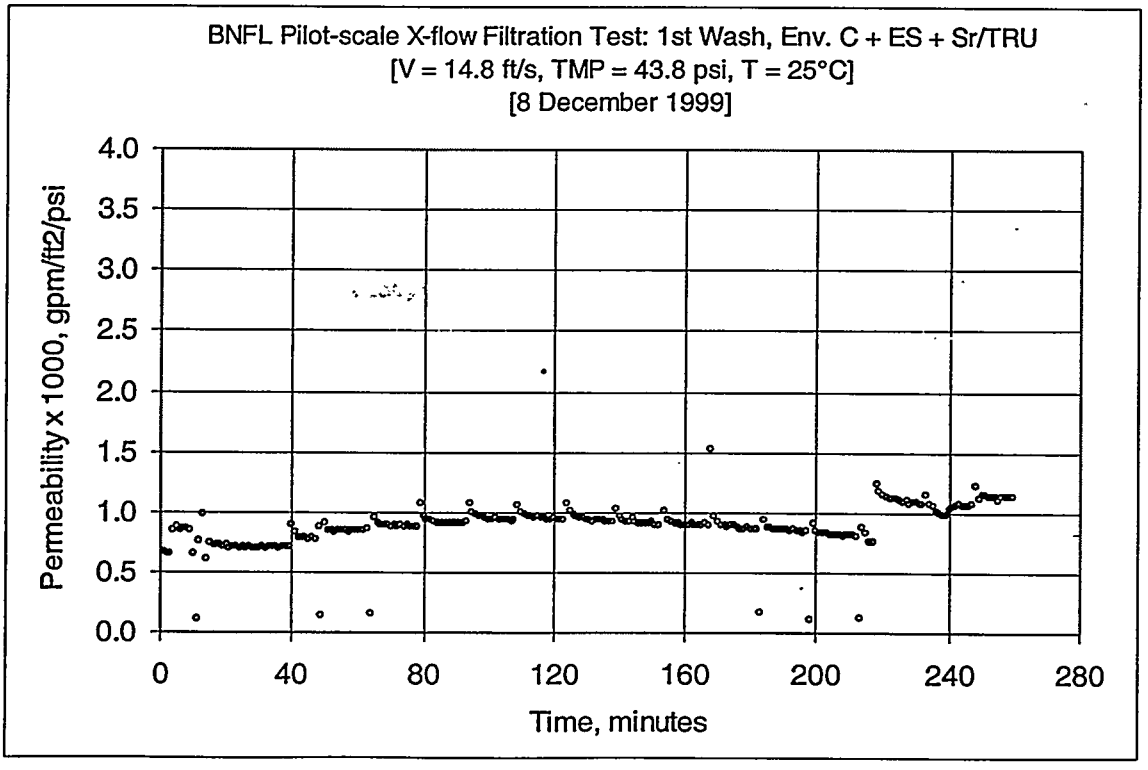


Figure D1: First Wash: 75 liters of Deionized/Filtered Water with 0.01 M NaOH

First Wash: 75 liters DI Filtered Water

	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	T6 (deg C)	BOT DP (p	FLTR (pa	FLTR DP (	TOP DP (p	FLTRATE (pelg)	PISTON (pelg)	SL FLOW	O2,FLTR F	O3,FLTR F	LOW (gpm)		Filter Surface Area		2 29	FT2				
2	Zeroe - Connected																				Conversion		851 0145	m3/m2/day/barg / gpm/ft2/barg				
3	12/8/1999	8:39:57 AM	0	21.278	18.748	15.194	22.347	17.119	170.293	-0.061	-0.067	-0.007	-0.011	-0.117	0.018	-0.095	0.011	-0.018										
4	12/8/1999	8:40:57 AM	0	21.322	18.712	15.239	22.391	17.082	170.329	-0.061	-0.067	-0.007	-0.011	-0.066	0.064	-0.079	0.011	-0.018										
5	12/8/1999	8:41:58 AM	0	21.322	18.712	15.239	22.15	17.082	170.329	-0.061	-0.067	-0.007	-0.011	-0.117	0.064	-0.079	0.011	-0.018										
6	Zeroe - Lines Not Connected																											
7	12/8/1999	8:42:58 AM	0	21.366	18.756	15.283	22.194	17.127	170.366	-0.061	-0.067	-0.007	-0.011	-0.066	0.018	-0.079	0.011	-0.018										
8	12/8/1999	8:43:58 AM	0	21.409	18.719	15.327	22.237	17.171	170.403	-0.061	-0.067	-0.007	-0.011	-0.055	0.018	-0.095	0.011	-0.018										
9	12/8/1999	8:44:59 AM	0	21.248	18.719	15.246	22.076	17.09	170.403	-0.061	-0.067	-0.007	-0.011	-0.066	0.018	-0.095	0.011	-0.018										
10	12/8/1999	8:45:59 AM	0	21.373	18.763	15.29	22.04	17.215	170.44	-0.061	-0.067	-0.007	-0.011	-0.066	0.018	-0.079	0.011	-0.016										
11																												
12	Date - Per Minute																			Number	Number	Vel , ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMEABILITY GPM/FT2/psi	x 1000 GPM/FT2/psi	PERMEABILITY meter/day
13	12/8/1999	9:18:06 AM	0	25.717	19.012	25.782	21.805	20.78	171.322	52.01	61.339	11.306	41.404	8.943	0.064	36.83	0.072	0.04		1	1	15.3	46.7	3.220	0.031	0.031	0.00068	0.658	0.56
14	12/8/1999	9:19:06 AM	0	25.68	19.056	25.826	21.849	20.904	171.359	51.686	61.339	11.043	41.675	9.005	0.064	36.431	0.072	0.043		2	2	15.1	46.8	3.225	0.031	0.031	0.00068	0.656	0.56
15	12/8/1999	9:20:06 AM	0	25.724	19.1	25.71	21.812	20.949	171.396	52.196	61.705	11.123	41.675	8.974	0.018	36.677	0.071	0.043		3	3	15.2	46.9	3.236	0.031	0.030	0.00065	0.647	0.55
16	12/8/1999	9:21:07 AM	0	25.448	19.144	25.593	21.858	20.751	171.432	20.209	29.813	8.104	14.459	9.221	0.018	25.341	0.034	-0.018		4	4	10.5	17.3	1.195	0.015	0.015	0.00084	0.842	0.72
17	12/8/1999	9:22:07 AM	0	25.207	19.064	25.433	21.695	20.589	171.432	20.271	29.995	8.088	14.493	9.282	0.018	25.172	0.035	-0.018		5	5	10.4	17.4	1.198	0.015	0.015	0.00087	0.868	0.74
18	12/8/1999	9:23:07 AM	0	25.091	19.108	25.237	21.739	19.826	171.469	19.899	29.508	8.056	14.696	9.282	0.064	25.233	0.034	-0.018		6	6	10.5	17.3	1.193	0.015	0.015	0.00085	0.852	0.73
19	12/8/1999	9:24:08 AM	0	25.135	19.152	25.041	21.622	19.871	171.506	19.961	29.508	8.025	14.324	9.251	0.064	24.988	0.034	-0.018		7	7	10.4	17.1	1.182	0.015	0.015	0.00086	0.865	0.74
20	12/8/1999	9:25:08 AM	0	24.974	19.152	24.88	21.541	19.871	171.506	19.961	29.563	8.136	14.662	9.221	0.018	25.203	0.034	-0.018		8	8	10.5	17.3	1.194	0.015	0.015	0.00088	0.860	0.73
21	12/8/1999	9:26:08 AM	0	24.858	19.196	24.684	21.586	19.996	171.543	20.787	30.362	8.2	14.527	9.221	0.018	25.249	0.034	-0.018		9	9	10.5	17.6	1.217	0.015	0.015	0.00085	0.849	0.72
22	12/8/1999	9:27:09 AM	0	25.096	19.196	24.604	21.505	20.157	171.543	51.204	61.705	11.227	40.863	9.96	0.064	36.723	0.068	0.04		10	10	15.2	46.0	3.174	0.030	0.030	0.00065	0.652	0.55
23	12/8/1999	9:28:09 AM	0	24.858	19.196	24.604	21.424	20.238	171.543	48.353	61.765	10.979	37.851	12.888	0.064	36.799	0.011	-0.018		11	11	15.3	43.0	2.965	0.005	0.005	0.00011	0.113	0.10
24	12/8/1999	9:29:09 AM	0	24.982	19.241	24.567	21.468	20.282	171.58	52.382	61.644	11.171	41.639	8.758	0.064	36.753	0.081	0.055		12	12	15.3	47.0	3.238	0.035	0.036	0.00076	0.762	0.65
25	12/8/1999	9:30:10 AM	0	24.822	19.241	24.648	21.386	20.363	171.58	51.886	61.583	11.131	40.999	9.344	0.064	36.83	0.103	0.076		13	13	15.3	46.4	3.202	0.045	0.045	0.00096	0.978	0.83
26	12/8/1999	9:31:10 AM	0	24.865	19.285	24.611	21.351	20.407	171.617	50.894	61.888	10.7	40.559	10.577	0.064	35.847	0.063	-0.018		14	14	14.9	45.7	3.153	0.026	0.026	0.00061	0.608	0.52
27	12/8/1999	9:32:10 AM	0	24.829	19.329	24.655	21.395	20.37	171.654	50.026	61.339	10.612	40.221	10.916	0.018	35.693	0.075	0.043		15	15	14.8	45.1	3.111	0.033	0.033	0.00073	0.733	0.62
28	12/8/1999	9:33:11 AM	0	24.873	19.373	24.619	21.359	20.334	171.691	50.274	61.583	10.604	40.458	10.654	0.018	35.709	0.074	0.046		16	16	14.8	45.4	3.128	0.032	0.033	0.00072	0.720	0.61
29	12/8/1999	9:34:11 AM	0	24.873	19.292	24.619	21.359	20.334	171.691	50.212	61.461	10.485	40.39	10.654	-0.018	35.571	0.074	0.043		17	17	14.8	45.3	3.123	0.032	0.033	0.00072	0.721	0.61
30	12/8/1999	9:35:11 AM	0	24.837	19.337	24.663	21.323	20.297	171.727	50.46	61.827	10.54	40.289	10.823	0.064	35.525	0.074	0.043		18	18	14.7	45.4	3.128	0.032	0.033	0.00072	0.719	0.61
31	12/8/1999	9:36:12 AM	0	24.837	19.256	24.663	21.323	20.297	171.727	50.398	61.644	10.365	40.593	10.823	0.064	35.478	0.074	0.043		19	19	14.7	45.5	3.137	0.032	0.033	0.00072	0.717	0.61
32	12/8/1999	9:37:12 AM	0	24.861	19.3	24.707	21.205	20.261	171.764	50.088	61.278	10.062	40.762	10.823	0.064	34.726	0.074	0.043		20	20	14.4	45.4	3.132	0.032	0.033	0.00072	0.717	0.61
33	12/8/1999	9:38:12 AM	0	24.925	19.344	24.751	21.25	20.224	171.801	50.708	61.949	10.149	40.762	10.792	0.064	34.787	0.073	0.043		21	21	14.4	45.7	3.153	0.032	0.032	0.00070	0.702	0.60
34	12/8/1999	9:39:13 AM	0	24.844	19.344	24.751	21.25	20.224	171.801	50.46	61.644	10.062	41.168	10.761	0.064	34.726	0.074	0.043		22	22	14.4	45.8	3.159	0.032	0.033	0.00071	0.710	0.60
35	12/8/1999	9:40:13 AM	0	24.888	19.308	24.714	21.133	20.188	171.838	50.584	61.766	10.066	40.796	10.792	0.064	34.757	0.073	0.043		23	23	14.4	45.7	3.150	0.032	0.032	0.00070	0.703	0.60
36	12/8/1999	9:41:13 AM	0	24.932	19.352	24.758	21.177	20.232	171.875	50.646	61.827	10.046	41.032	10.761	0.064	34.649	0.073	0.046		24	24	14.4	45.8	3.160	0.032	0.032	0.00070	0.700	0.60
37	12/8/1999	9:42:14 AM	0	24.896	19.396	24.802	21.221	20.196	171.912	50.336	61.461	10.006	40.863	10.731	0.064	34.634	0.074	0.043		25	25	14.4	45.6	3.144	0.032	0.032	0.00071	0.712	0.61
38	12/8/1999	9:43:14 AM	0	24.896	19.396	24.802	21.221	20.115	171.912	50.336	61.522	10.405	40.424	10.731	0.064	35.448	0.072	0.043		26	26	14.7	45.4	3.129	0.031	0.032	0.00070	0.696	0.59
39	12/8/1999	9:44:14 AM	0	24.94	19.441	24.766	21.185	20.159	171.949	50.46	61.583	10.213	40.694	10.731	0.018	35.033	0.073	0.043		27	27	14.5	45.6	3.142	0.032	0.032	0.00070	0.704	0.60
40	12/8/1999	9:45:15 AM	0	24.964	19.404	24.81	21.148	20.203	171.986	50.336	61.4	10.532	40.322	10.7	0.064	35.709	0.072	0.043		28	28	14.8	45.3	3.125	0.031	0.032	0.00070	0.697	0.59
41	12/8/1999	9:46:15 AM	0	24.964	19.404	24.81	21.148	20.284	171.986	50.212	61.278	10.492	40.221	10.7	0.064	35.663	0.072	0.04		29	29	14.8	45.2	3.116	0.031	0.032	0.00070	0.699	0.59
42	12/8/1999	9:47:15 AM	0	24.948	19.449	24.774	21.031	20.409	172.023	50.336	61.4	10.445	40.356	10.7	0.018	35.54	0.072	0.04		30	30	14.7	45.3	3.126	0.031	0.032	0.00070	0.696	0.59
43	12/8/1999	9:48:16 AM	0	24.948	19.449	24.774	21.192	20.57	172.023	50.15	61.217	10.341	40.356	10.7	0.018	35.54	0.073	0.043		31	31	14.7	45.3	3.120	0.032	0.032	0.00071	0.709	0.60
44	12/8/1999	9:49:16 AM	0	24.992	19.493	24.818	21.237	20.615	172.06	49.716	60.79	10.492	40.356	10.7	0.064	35.786	0.072	0.04		32	32	14.9	45.0	3.105	0.031	0.032	0.00070	0.701	0.60
45	12/8/1999	9:50:16 AM	0	24.956	19.537	24.862	21.361	20.74	172.097	50.026	61.156	10.516	39.853	10.7	0.018	35.709	0.073	0.043		33	33	14.8	45.0	3.099	0.032	0.032	0.00071	0.712	0.61
46	12/8/1999	9:51:17 AM	0	24.956	19.456	24.782	21.281	20.74	172.097	50.212	61.278	10.54	40.052	10.7	0.064	35.632	0.073	0.043		34	34	14.9	45.1	3.112	0.032	0.032	0.00071	0.710	0.60
47	12/8/1999	9:52:17 AM	0	25	19.501	24.826	21.244	20.784	172.134	49.902	60.79	10.5	40.119	10.7	0.064	35.693	0.073	0.043		35	35	14.9	45.0	3.103	0.032	0.032	0.00071	0.711	0.61
48	12/8/1999	9:53:17 AM	0	25	19.501	24.746	21.466	20.945	172.134	50.398	61.339	10.608	39.984	10.731	0.018	35.909	0.072	0.043		36	36	14.9	45.2	3.116	0.031	0.032	0.00070	0.701	0.60
49	12/8/1999	9:54:18 AM	0	24.963	19.464	24.79	21.45	20.969	172.171	50.46	61.583	10.564	39.815	10.7	0.018	35.801	0.073	0.04		37	37	14.9	45.1	3.112	0.032	0.032	0.00071	0.710	0.60
50	12/8/1999	9:55:18 AM	0	25.007	19.428	24.834	21.494	21.114	172.208	49.84	61.034	10.469	40.018	10.7	0.064	35.909	0.072	0.046		38	38	14.9	44.9	3.096	0.031	0.032	0.00070	0.703	0.60
51	12/8/1999	9:56:18 AM	0	25.052	19.553	24.798	21.538	21.078	172.245	50.15	61.4	10.461	40.221	10.7	0.064	35.77	0.073	0.046		39	39	14.8	45.2	3.115	0.032	0.032	0.00071	0.709	0.60
52	12/8/1999	9:57:19 AM	0	25.015	19.517	24.922	21.502	21.122	172.282	48.787	60.912	10.453	39.308	11.624	0.064	35.847	0.09	0.061		40	40	14.9	44.0	3.037	0.039	0.039	0.00089	0.894	0.76
53	12/8/1999	9:58:19 AM	0	25.059	19.561	24.886	21.706	21.247	172.319	49.53	61.095	10.508	39.477	11.151	0.064	35.847	0.084	0.058		41	41	14.9	44.5	3.068	0.037	0.037	0.00083	0.827	0.70
54	12/8/1999	9:59:19 AM	0	25.104	19.606	24.93	21.671	21.292	172.356	49.84	61.278	10.477	39.612	10.977	0.018	35.724	0.081	0.052		42	42	14.8	44.7	3.084	0.035	0.035	0.00079	0.792	0.67
55	12/8/1999	10:00:20 AM	0	25.104	19.606	24.93	21.671	21.372	172.356	49.654	60.912	10.58	39.615	10.916	0.018	35.018	0.08	0.052		43	43	14.9	44.7	3.084	0.035	0.035	0.00078	0.782	0.67
56	12/8/1999	10:01:20 AM	0	25.067	19.65	24.894	21.716	21.416	172.393	49.344	60.546	10.524	39.746	10.854	0.018	35.862	0.08	0.049		44	44	14.9	44.5	3.071	0.035	0.035	0.00079	0.786	0.67
57	12/8/1999	10:02:20 AM	0	25.112	19.614	24.936	21.679	21.541	172.43	49.592	60.912	10.508	39.511	10.854	0.064	35.939	0.079	0.052		45	45	14.9	44.6	3.072	0.034	0.035	0.00078	0.775	0.66
58	12/8/1999	10:03:21 AM	0	25.112	19.614	24.938	21.921	21.541	172.43	49.096	60.302	10.437	39.511	10.854	0.064	36.001	0.079	0.049		46	46	14.9	44.3	3.055	0.034	0.035	0.00078	0.780	0.66
59	12/8/1999	10:04:21 AM	0	25.156	19.658	24.902	21.804	21.588	172.467	49.465	60.729	10.54	39.917	10.823	0.064	35.74	0.079	0.049		47	47	14.8	44.7	3.081	0.034	0.035	0.00077	0.774	0.66
60	12/8/1999	10:05:21 AM	0	25.12	19.622	24.866	21.929	21.711	172.504	49.096	60.973	10.285	39.477	11.439	0.064	35.601	0.069	0.058		48	48	14.8	44.3	3.053	0.039	0.039	0.00088	0.881	0.75
61	12/8/1999	10:06:22 AM	0	24.923	19.686	24.83	22.134	21.674	172.541	47.733	60.851	10.365	37.851	12.672	0.064	36.108	0.013	-0.018		49	49	15.0	42.7	2.943	0.006	0.006	0.00013	0.134	0.11
62	12/8/1999	10:07:22 AM	0	25.048	19.711	24.874	22.018	21.638	172.578	48.911	60.668	10.54	38.635	11.347	0.064	36.508	0.09	0.061		50	50	15.2	43.9	3.025	0.039	0.039	0.00090	0.899	0.76
63	12/8/1999	10:08:23 AM	0	25.092	19.755	24.918	22.143	21.683	172.615	49.592	61.217	10.556	39.376	11.162	0.064	36.2	0.085	0.058		51	51	15.0	44.5	3.067	0.038	0.038	0.00085	0.846	0.72
64	12/8/1999	10:09:23 AM	0	25.136	19.719	24.882	22.106	21.646	172.653	48.849	60.241	10.692	38.869	11.1	0.064	36.569	0.084	0.055		52	52	15.2	43.8	3.024	0.037	0.037	0.00084	0.839	0.71
65	12/8/1999	10:10:23 AM	0	25.056	19.719	24.882	22.106	21.485	172.653	49.096	60.546	10.668	38.869	11.1	0.064	36.6	0.084	0.055		53	53	15.2	44.0	3.032	0.037	0.037	0.00084	0.837	0.71
66	12/8/1999	**:11:24 AM	0	25.02	19.764	24.846	22.07	21.449	172.69	48.972	60.424	10.397	39.24	11.1	0.018	36.216	0.085	0.055		54	54	15.0	44.1	3.041	0.037	0.037	0.00084	0.845	0.72
67	12/8/1999	10:12:24 AM	0	25.02	19.764	24.846	21.99	21.369	172.69	49.096	60.729	10.389	39.274	11.1	0.064	36.216	0.085	0.055		55	55	15.0	44.2	3.048	0.037	0.037	0.00084	0.843	0.72
68	12/8/1999	*:13:24 AM	0	25.064	19.727	24.73	22.034	21.252	172.727	49.034	60.485	10.349	39.038	11.1	0.064	36.108	0.084	0.055		56	56	15.0	44.0	3.036	0.037	0.037	0.00084	0.839	0.71
69	12/8/1999	10:14:24 AM	0	25.064	19.808	24.81	21.954	21.171	172.727	49.034	60.607	10.361	39.308	11.1	0.064	36.262	0.084	0.055		57	57	15.0	44.2	3.045	0.037	0.037	0.00083	0.833	0.71
70	12/8/1999	10:15:25 AM	0	25.028	19.772	24.774	21.996	21.053	172.764	49.096	60.729	10.381	39.038	11.1	0.064	36.185	0.085	0.055		58	58	15.0	44.1	3.038	0.037	0.037	0.00085	0.847	0.72
71	12/8/1999	10:16:25 AM	0	25.028	19.853	24.774	21.818	20.893	172.764	48.787	60.18	10.333	39.071	11.07	0.018	36.185	0.085	0.055		59	59	15.0	43.9	3.029	0.037	0.037	0.00085	0.850	0.72
72	12/8/1999	10:17:26 AM	0	25.072	19.897	24.819	21.881	20.938	172.801	48.972	60.485	10.269	39.477	11.07	0.064	35.965	0.085	0.058		60	60	14.9	44.2	3.049	0.037	0.037	0.00084	0.843	0.72
73	12/8/1999	10:18:26 AM	0	24.992	19.816	24.739	21.881	20.857	172.801	49.096	60.607	10.253	39.071	11.07	0.018	35.939	0.085	0.055		61	61	14.9	44.1	3.039	0.037	0.037	0.00085	0.848	0.72
74	12/8/1999	10:19:26 AM	0	25.036	19.861	24.783	21.845	20.902	172.838	48.787	60.302	10.133	39.477	11.039	0.018	35.893	0.085	0.058		62	62	14.9	44.1	3.043	0.037	0.037	0.00085	0.846	0.72
75	12/8/1999	10:20:26 AM	0	25.036	19.942	24.783	21.845	20.74	172.838	48.849	60.302	10.157	39.173	11.039	0.018	35.939	0.086	0.056		63	63	14.9	44.0	3.034	0.038	0.038	0.00086	0.858	0.73
76	12/8/1999	10:21:27 AM	0	24.956	19.861	24.783	21.845	20.74	172.838	47.485	60.363	10.07	37.99	12.395	0.064	35.909	0.015	-0.018		64	64	14.9	42.7	2.947	0.007	0.007	0.00015	0.154	0.13
77	12/8/1999	10:22:27 AM	0	25	19.906	24.827	21.809	20.785	172.875	48.972	60.668	10.181	38.97	11.255	0.018	35.74	0.095	0.064		65	65	14.8	44.0	3.032	0.041	0.042	0.00095	0.948	0.81
78	12/8/1999	10:23:28 AM	0	25	19.906	24.827	21.809	20.704	172.875	48.911	60.485	10.086	39.173	11.1	0.064	35.663	0.091	0.064		66	66	14.8	44.0	3.037	0.040	0.040	0.00091	0.906	0.77
79	12/8/1999	10:24:28 AM	0	25.061	19.906	24.827	21.809	20.704	172.875	49.158	60.668	10.141	39.274	11.07	0.064	36.139	0.09	0.061		67	67	15.0	44.2	3.049	0.039	0.039	0.00089	0.893	0.76
80	12/8/1999	10:25:28 AM	0	25.045	19.95	24.871	21.773	20.749	172.913	49.158	60.607	10.301	39.105	11.039	0.064	36.216	0.089	0.061		68	68	15.0	44.1	3.043	0.039	0.039	0.00088	0.884	0.75
81	12/8/1999	10:26:29 AM	0	25.045	19.95	24.791	21.854	20.749	172.913	48.911	60.302	10.157	39.443	11.039	0.064	35.909	0.089	0.061		69	69	14.9	44.2	3.048	0.039	0.039	0.00088	0.885	0.75
82	12/8/1999	10:27:29 AM	0	25.045	19.95	24.791	21.693	20.653	172.913	49.468	60.851	10.245	39.207	11.008	0.064	35.965	0.089	0.058		70	70	14.9	44.3	3.057	0.039	0.039	0.00088	0.881	0.75
83	12/8/1999	10:28:29 AM	0	24.964	19.85	24.791	21.693	20.587	172.913	49.096	60.546	10.054	39.24	10.977	0.064	35.786	0.09	0.061		71	71	14.9	44.2	3.045	0.039	0.040	0.00089	0.895	0.76
84	12/8/1999	10:29:30 AM	0	25.045	19.95	24.791	21.612	20.545	172.913	48.539	59.996	10.102	39.24	10.977	0.064	35.893	0.089	0.058		72	72	14.9	43.9	3.026	0.038	0.039	0.00088	0.880	0.75
85	12/8/1999	10:30:30 AM	0	25.009	19.995	24.835	21.576	20.39	172.95	48.849	60.363	10.141	39.24	10.977	0.064	35.878	0.089	0.058		73	73	14.9	44.0	3.037	0.039	0.039	0.00089	0.886	0.75

First Wash: 75 liters DI Filtered Water

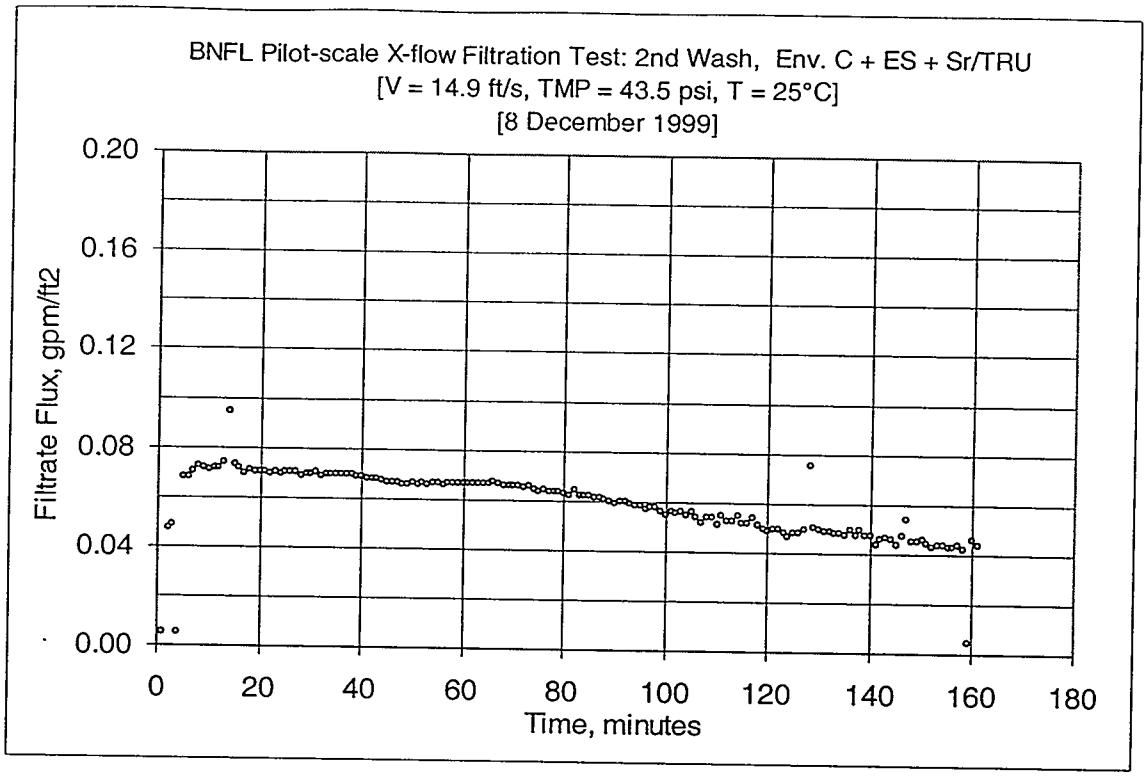
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
66	12/8/1999	10:31:30 AM	0	25.089	19.995	24.835	21.737	20.471	172.85	48.663	59.996	10.03	39.207	10.977	0.018	35.77	0.088	0.058	74	74	14.8	43.9	3.029	0.038	0.039	0.00088	0.878	0.75
67	12/8/1999	10:32:31 AM	0	25.009	19.995	24.835	21.657	20.551	172.85	49.034	60.424	9.996	39.306	10.977	0.064	35.632	0.089	0.061	75	75	14.8	44.2	3.045	0.039	0.039	0.00088	0.884	0.75
68	12/8/1999	10:33:31 AM	0	25.089	20.075	24.835	21.737	20.551	172.85	49.034	60.363	9.934	39.477	10.977	0.064	35.678	0.089	0.061	76	76	14.8	44.3	3.051	0.039	0.039	0.00088	0.882	0.75
69	12/8/1999	10:34:31 AM	0	25.089	20.075	24.835	21.657	20.632	172.95	49.468	60.851	9.99	39.68	10.977	0.064	35.463	0.089	0.061	77	77	14.7	44.6	3.073	0.039	0.039	0.00088	0.876	0.75
80	12/8/1999	10:35:32 AM	0	25.009	20.075	24.835	21.657	20.551	172.95	49.158	60.607	10.006	39.477	10.977	0.064	35.709	0.089	0.061	78	78	14.8	44.3	3.056	0.039	0.039	0.00088	0.881	0.75
81	12/8/1999	10:36:32 AM	0	25.009	20.075	24.835	21.737	20.632	172.95	48.105	60.058	9.894	38.733	11.594	0.064	35.647	0.106	0.079	79	79	14.8	43.4	2.994	0.048	0.048	0.00107	1.071	0.91
82	12/8/1999	10:37:33 AM	0	25.009	20.075	24.835	21.657	20.632	172.85	48.415	59.937	9.966	39.105	11.131	0.064	35.801	0.097	0.067	80	80	14.8	43.8	3.017	0.042	0.043	0.00097	0.972	0.83
83	12/8/1999	10:38:33 AM	0	25.009	20.075	24.835	21.737	20.551	172.95	48.787	60.18	9.902	38.378	11.008	0.018	35.571	0.084	0.064	81	81	14.8	44.1	3.039	0.041	0.041	0.00094	0.935	0.80
84	12/8/1999	10:39:34 AM	0	25.089	20.075	24.835	21.737	20.551	172.85	48.725	59.878	9.974	39.308	10.948	0.064	35.878	0.084	0.064	82	82	14.8	44.0	3.035	0.041	0.041	0.00094	0.937	0.80
85	12/8/1999	10:40:34 AM	0	25.133	20.12	24.88	21.82	20.677	172.987	49.096	60.424	9.848	39.376	10.948	0.064	35.34	0.083	0.064	83	83	14.7	44.2	3.050	0.041	0.041	0.00092	0.921	0.76
86	12/8/1999	10:41:34 AM	0	25.133	20.12	24.88	21.701	20.596	172.987	49.158	60.485	10.048	39.342	10.885	0.064	35.788	0.092	0.064	84	84	14.9	44.3	3.051	0.040	0.040	0.00091	0.911	0.76
87	12/8/1999	10:42:34 AM	0	25.133	20.12	24.88	21.701	20.677	172.987	49.158	60.363	10.054	39.511	10.885	0.064	35.801	0.091	0.064	85	85	14.9	44.3	3.057	0.040	0.040	0.00090	0.899	0.77
88	12/8/1999	10:43:35 AM	0	25.053	20.12	24.88	21.701	20.596	172.987	49.096	60.363	10.054	39.41	10.885	0.064	36.077	0.092	0.064	86	86	15.0	44.3	3.051	0.040	0.040	0.00091	0.911	0.77
89	12/8/1999	10:44:35 AM	0	25.053	20.12	24.8	21.82	20.596	172.987	48.787	60.058	9.942	39.308	10.885	0.064	35.709	0.091	0.064	87	87	14.8	44.0	3.037	0.040	0.040	0.00091	0.907	0.77
100	12/8/1999	10:45:36 AM	0	25.133	20.12	24.88	21.54	20.596	172.987	49.096	60.424	9.848	39.578	10.885	0.064	35.463	0.091	0.061	88	88	14.7	44.3	3.057	0.040	0.040	0.00090	0.899	0.77
101	12/8/1999	10:46:36 AM	0	25.133	20.12	24.88	21.701	20.515	172.987	49.282	60.607	10.078	39.378	10.854	0.018	35.788	0.091	0.064	89	89	14.9	44.3	3.056	0.040	0.040	0.00090	0.899	0.77
102	12/8/1999	10:47:36 AM	0	25.133	20.12	24.88	21.701	20.515	172.987	48.849	60.119	9.974	39.511	10.854	0.064	35.832	0.091	0.061	90	90	14.9	44.2	3.046	0.040	0.040	0.00090	0.902	0.77
103	12/8/1999	10:48:36 AM	0	25.053	20.12	24.88	21.701	20.515	172.987	49.096	60.424	9.962	39.173	10.854	0.064	35.77	0.091	0.064	91	91	14.8	44.1	3.043	0.040	0.040	0.00090	0.903	0.77
104	12/8/1999	10:49:37 AM	0	25.053	20.12	24.8	21.701	20.112	172.987	48.972	60.18	9.996	39.511	10.854	0.018	35.77	0.091	0.064	92	92	14.8	44.2	3.050	0.040	0.040	0.00090	0.903	0.77
105	12/8/1999	10:50:37 AM	0	25.133	20.12	24.88	21.82	20.273	172.987	48.911	60.18	9.99	39.24	10.854	0.018	35.801	0.092	0.064	93	93	14.9	44.1	3.039	0.040	0.040	0.00091	0.914	0.78
106	12/8/1999	10:51:38 AM	0	25.133	20.201	24.88	21.701	20.435	172.987	48.477	60.485	10.048	38.856	11.624	0.018	35.909	0.107	0.079	94	94	14.9	43.7	3.013	0.047	0.047	0.00107	1.072	0.91
107	12/8/1999	10:52:38 AM	0	25.053	20.12	24.88	21.82	20.435	172.987	48.353	59.754	9.962	38.856	11.162	0.064	35.77	0.1	0.07	95	95	14.8	43.6	3.009	0.044	0.044	0.00100	1.004	0.85
108	12/8/1999	10:53:38 AM	0	25.177	20.245	24.924	21.665	20.478	173.024	48.601	59.998	9.882	39.139	11.008	0.064	35.663	0.098	0.07	96	96	14.8	43.9	3.025	0.043	0.043	0.00098	0.977	0.83
109	12/8/1999	10:54:39 AM	0	25.097	20.245	24.844	21.665	20.58	173.024	49.034	60.363	9.838	39.646	10.977	0.064	35.478	0.097	0.067	97	97	14.7	44.3	3.057	0.042	0.043	0.00096	0.959	0.82
110	12/8/1999	10:55:39 AM	0	25.177	20.245	24.924	21.584	20.64	173.024	48.849	60.18	9.842	39.477	10.916	0.064	35.617	0.097	0.067	98	98	14.8	44.2	3.045	0.042	0.042	0.00096	0.961	0.82
111	12/8/1999	10:56:39 AM	0	25.177	20.245	24.924	21.746	20.58	173.024	49.282	60.607	9.982	39.342	10.885	0.064	35.77	0.096	0.064	99	99	14.8	44.3	3.055	0.042	0.042	0.00095	0.948	0.81
112	12/8/1999	10:57:40 AM	0	25.097	20.245	24.924	21.746	20.56	173.024	48.725	59.937	9.852	39.68	10.885	0.064	35.709	0.095	0.067	100	100	14.8	44.2	3.048	0.041	0.042	0.00094	0.940	0.80
113	12/8/1999	10:58:40 AM	0	25.177	20.245	25.004	21.665	20.56	173.024	49.282	60.485	9.848	39.714	10.885	0.064	35.494	0.096	0.067	101	101	14.7	44.5	3.068	0.042	0.042	0.00094	0.942	0.80
114	12/8/1999	10:59:40 AM	0	25.177	20.245	24.924	21.746	20.64	173.024	49.034	60.241	9.822	39.68	10.854	0.064	35.478	0.096	0.067	102	102	14.7	44.4	3.058	0.042	0.042	0.00095	0.947	0.81
115	12/8/1999	11:00:41 AM	0	25.177	20.245	25.004	21.746	20.64	173.024	49.22	60.363	9.886	39.646	10.854	0.064	35.525	0.096	0.067	103	103	14.7	44.4	3.063	0.042	0.042	0.00094	0.943	0.80
116	12/8/1999	11:01:41 AM	0	25.177	20.245	25.084	21.826	20.64	173.024	49.158	60.485	9.878	39.477	10.823	0.064	35.525	0.095	0.067	104	104	14.7	44.3	3.056	0.041	0.041	0.00093	0.934	0.79
117	12/8/1999	11:02:41 AM	0	25.257	20.245	25.004	21.826	20.64	173.024	49.096	60.119	9.838	39.578	10.792	0.064	35.525	0.095	0.067	105	105	14.7	44.3	3.057	0.041	0.041	0.00094	0.935	0.80
118	12/8/1999	11:03:42 AM	0	25.177	20.245	25.004	21.665	20.64	173.024	48.972	60.18	9.822	39.308	10.823	0.064	35.509	0.095	0.067	106	106	14.7	44.1	3.043	0.041	0.041	0.00094	0.939	0.80
119	12/8/1999	11:04:42 AM	0	25.302	20.29	25.128	21.871	20.665	173.061	49.22	60.546	9.862	39.41	10.823	0.064	35.509	0.094	0.067	107	107	14.7	44.3	3.055	0.041	0.041	0.00092	0.923	0.79
120	12/8/1999	11:05:42 AM	0	25.302	20.29	25.128	21.79	20.665	173.061	48.849	60.058	9.83	39.545	10.792	0.018	35.724	0.095	0.067	108	108	14.8	44.2	3.047	0.041	0.041	0.00093	0.935	0.80
121	12/8/1999	11:06:43 AM	0	25.302	20.29	25.128	21.79	20.665	173.061	48.539	60.302	9.854	38.801	11.439	0.064	35.601	0.106	0.076	109	109	14.8	43.7	3.011	0.048	0.048	0.00106	1.056	0.90
122	12/8/1999	11:07:43 AM	0	25.382	20.29	25.128	21.79	20.665	173.061	48.663	60.119	9.91	39.071	11.131	0.064	35.555	0.101	0.07	110	110	14.8	43.9	3.024	0.044	0.044	0.00100	1.001	0.85
123	12/8/1999	11:08:43 AM	0	25.382	20.29	25.128	21.709	20.665	173.061	48.601	59.998	9.886	39.308	11.008	0.064	35.671	0.099	0.07	111	111	14.8	44.0	3.031	0.043	0.043	0.00098	0.980	0.83
124	12/8/1999	11:09:44 AM	0	25.302	20.29	25.128	21.79	20.665	173.061	48.663	59.937	9.894	39.139	10.948	0.064	35.64	0.098	0.067	112	112	14.7	43.9	3.027	0.043	0.043	0.00097	0.971	0.83
125	12/8/1999	11:10:44 AM	0	25.382	20.371	25.128	21.709	20.665	173.061	48.911	60.18	9.91	39.308	10.916	0.064	35.588	0.098	0.07	113	113	14.8	44.1	3.041	0.043	0.043	0.00097	0.966	0.82
126	12/8/1999	11:11:44 AM	0	25.382	20.29	25.209	21.709	20.604	173.061	48.911	60.119	9.87	39.511	10.885	0.018	35.555	0.097	0.07	114	114	14.8	44.2	3.048	0.042	0.042	0.00095	0.952	0.81
127	12/8/1999	11:12:45 AM	0	25.426	20.333	25.253	21.835	20.668	173.099	48.477	59.754	9.87	39.173	10.885	0.064	35.432	0.097	0.067	115	115	14.7	43.8	3.022	0.042	0.042	0.00096	0.959	0.82
128	12/8/1999	11:13:45 AM	0	25.426	20.333	25.333	21.754	20.73	173.099	48.725	59.815	9.838	39.105	10.854	0.064	35.64	0.098	0.067	116	116	14.7	43.9	3.028	0.042	0.042	0.00095	0.945	0.80
129	12/8/1999	11:14:45 AM	0	25.506	20.415	25.333	21.835	20.73	173.099	48.477	59.754	9.862	39.24	10.854	0.018	35.64	0.097	0.067	117	117	14.7	43.9	3.024	0.042	0.042	0.00096	0.956	0.81
130	12/8/1999	11:15:46 AM	0	25.462	20.29	25.289	21.79	20.604	173.061	48.787	60.119	9.87	39.545	10.885	0.018	35.509	0.096	0.07	118	118	14.7	44.2	3.045	0.042	0.042	0.00094	0.941	0.80
131	12/8/1999	11:16:46 AM	0	25.462	20.29	25.369	21.79	20.665	173.061	49.034	60.241	9.958	39.376	10.854	0.018	35.693	0.096	0.07	119	119	14.8	44.2	3.048	0.042	0.041	0.00094	0.938	0.80
132	12/8/1999	11:17:46 AM	0	25.586	20.335	25.413	21.835	20.649	173.099	48.725	59.815	9.95	39.274	10.823	0.064	35.709	0.097	0.067	120	120	14.8	44.0	3.034	0.042	0.042	0.00095	0.951	0.81
133	12/8/1999	11:18:47 AM	0	25.586	20.415	25.493	21.835	20.649	173.099	48.725	59.998	9.91	38.97	10.823	0.064	35.693	0.096	0.067	121	121	14.8	43.8	3.023	0.042	0.041	0.00094	0.943	0.80
134	12/8/1999	11:19:47 AM	0	25.666	20.335	25.493	21.835	20.73	173.099	48.911	60.058	9.962	39.24	10.854	0.064	35.74	0.096	0.067	122	122	14.8	44.1	3.039	0.042	0.041	0.00094	0.938	0.80
135	12/8/1999	11:20:47 AM	0	25.666	20.335	25.573	21.835	20.649	173.099	48.601	59.815	10.006	39.207	10.823	0.018	35.909	0.095	0.067	123	123	14.9	43.9	3.027	0.041	0.041	0.00093	0.930	0.79
136	12/8/1999	11:21:48 AM	0	25.666	20.335	25.573	21.754	20.649	173.099	48.187	59.815	9.99	38.666	11.439	0.018	35.816	0.109	0.078	124	124	14.9	43.4	2.993	0.048	0.047	0.00108	1.078	0.92
137	12/8/1999	11:22:48 AM	0	25.746	20.415	25.573	21.754	20.668	173.099	48.663	60.119	10.054	38.801	11.07	0.018	35.755	0.103	0.073	125	125	14.8	43.7	3.015	0.045	0.044	0.00101	1.012	0.86
138	12/8/1999	11:23:48 AM	0	25.826	20.415	25.653	21.754	20.649	173.099	48.539	59.876	10.038	39.105	10.977	0.064	35.832	0.1	0.07	126	126	14.9	43.8	3.021	0.044	0.043	0.00098	0.978	0.83
139	12/8/1999	11:24:49 AM	0	25.826	20.415	25.733	21.754	20.649	173.099	48.911	60.058	10.022	39.207	10.916	0.064	35.663	0.1	0.07	127	127	14.8	44.1	3.038	0.044	0.043	0.00097	0.971	0.83
140	12/8/1999	11:25:49 AM	0	25.907	20.415	25.733	21.835	20.649	173.099	48.353	59.51	9.962	39.274	10.885	0.064	35.617	0.098	0.067	128	128	14.8	43.8	3.021	0.043	0.042	0.00096	0.957	0.81
141	12/8/1999	11:26:49 AM	0	25.882	20.371	25.689	21.709	20.604	173.061	49.034	60.363	9.846	39.611	10.885	0.064	35.187	0.096	0.07	129	129	14.8	44.3	3.052	0.043	0.042	0.00095	0.948	0.81
142	12/8/1999	11:27:50 AM	0	25.907	20.415	25.813	21.996	20.649	173.099	48.972	60.241	9.87	39.41	10.885	0.064	35.463	0.097	0.07	130	130	14.7	44.2	3.047	0.042	0.041	0.00094	0.937	0.80
143	12/8/1999	11:28:50 AM	0	25.987	20.415	25.893	21.915	20.73	173.099	49.034	60.241	10.03	39.41	10.854	0.064	35.678	0.097	0.067	131	131	14.8	44.2	3.049	0.042	0.041	0.00093	0.934	0.79
144	12/8/1999	11:29:50 AM	0	25.987	20.415	25.893	21.996	20.73	173.099	48.849	60.058	9.99	39.378	10.854	0.064	35.663	0.096	0.067	132	132	14.8	44.1	3.041	0.042	0.041	0.00093	0.927	0.79
145	12/8/1999	11:30:51 AM	0	26.067	20.415	25.893	21.996	20.73	173.099	49.158	60.424	10.022	39.139	10.854	0.064	35.678	0.097	0.07	133	133	14.8	44.1	3.044	0.042	0.041	0.00094	0.935	0.80
146	12/8/1999	11:31:51 AM	0	26.067	20.415	25.973	21.835	20.73	173.099	48.601	59.693	9.918	39.611	10.854	0.018	35.709	0.097	0.067	134	134	14.8	44.1	3.038	0.042	0.041	0.00094	0.935	0.80
147	12/8/1999	11:32:51 AM	0	26.067	20.415	25.973	21.996	20.73	173.099	49.096	60.302	10.014	39.071	10.823	0.064	35.647	0.097	0.07	135	135	14.8	44.1	3.039	0.042	0.041	0.00093	0.935	0.80
148	12/8/1999	11:33:52 AM	0	26.147	20.415	26.053	21.996	20.73	173.099	49.158	60.363	9.974	39.105	10.823	0.064	35.74	0.096	0.067	136	136	14.8	44.1	3.045	0.042	0.041	0.00092	0.922	0.78
149	12/8/1999	11:34:52 AM	0	26.102	20.371	26.009	21.871	20.766	173.061	49.096	60.302	10.006	39.308	10.823	0.064	35.663	0.096	0.07	137	137	14.8	44.2	3.048	0.042	0.041	0.00092	0.922	0.78
150	12/8/1999	11:35:52 AM	0	26.147	20.415	26.053	21.996	20.73	173.099	48.972	60.119	10.062	39.342	10.823	0.064	35.755	0.096	0.07	138	138	14.8	44.2	3.044	0.042	0.041	0.00092	0.921	0.78
151	12/8/1999	11:36:53 AM	0	26.147	20.415	26.133	21.835	20.73	173.099	48.477	60.302	10.014	38.787	11.378	0.064	35.555	0.106	0.076	139	139	14.8	43.6	3.008	0.048	0.045	0.00103	1.028	0.87
152	12/8/1999	11:37:53 AM	0	26.307	20.415	26.213	21.996	20.73	173.099	48.663	59.937	9.958	39.105	11.039	0.064	35.448	0.1	0.07	140	140	14.7	43.9	3.026	0.044	0.042	0.00096	0.961	0.82
153	12/8/1999	11:38:53 AM	0	26.307	20.496	26.213	21.915	20.73	173.099	48.539	59.815	9.934	39.308	10.916	0.018	35.432	0.098	0.07	141	141	14.7	43.9	3.028	0.043	0.041	0.00094	0.941	0.80
154	12/8/1999	11:39:54 AM	0	26.387	20.496	26.293	21.915	20.73	173.099	49.22	60.546	9.974	39.545	10.885	0.018	35.432	0.097	0.07	142	142	14.7	44.4	3.060	0.042	0.041	0.00092	0.920	0.78
155	12/8/1999	11:40:54 AM	0	26.387	20.415	26.293	21.996	20.649	173.099	48.787	59.998	10.062	39.24	10.854	0.018	35.566	0.098	0.067	143	143	14.8	44.0	3.035	0.042	0.040	0.00092	0.918	0.78
156	12/8/1999	11:41:55 AM	0	26.387	20.496	26.293	22.076	20.73	173.099	48.911	60.058	10.038	39.207	10.823	0.064	35.617	0.099	0.07	144	144	14.8	44.1	3.038	0.043	0.042	0.00095	0.948	0.81
157	12/8/1999	11:42:55 AM	0	26.467	20.496	26.293	22.157	20.73	173.099	49.468	60.668	10.102	39.41	10.823	0.018	35.74	0.097	0.067	145	145	14.8	44.4	3.064	0.042	0.041	0.00092	0.919	0.78
158	12/8/1999	11:43:55 AM	0	26.511	20.541	26.257	22.201	20.855	173.136	49.282	60.546	10.094	39.579	10.823	0.018	35.663	0.095	0.064	146	146	14.8	44.4	3.063	0.041	0.040	0.00090	0.901	0.77
159	12/8/1999	11:44:55 AM	0	26.467	20.496	26.293	22.076	20.81	173.099	49.034	60.18	10.054	39.342	10.792	0.064	35.678	0.095	0.067	147	147	14.8	44.2	3.047	0.041	0.040	0.00091	0.905	0.77
160	12/8/1999	11:45:56 AM	0	26.467	20.496	26.293	22.157	20.81	173.099	49.22	60.302	10.07	39.376	10.792	0.064	35.663	0.095	0.067	148	148	14.8	44.3	3.054	0.041	0.040	0.00090	0.903	0.77
161	12/8/1999	11:46:56 AM	0	26.431	20.541	26.257	22.121	20.855	173.136	48.972	60.119	10.022	39.342	10.792	0.064	35.601	0.095	0.067	149	149	14.8	44.2	3.044	0.041	0.040	0.00091	0.907	0.77
162	12/8/1999	11:47:57 AM	0	26.431	20.541	26.257	22.121	20.855	173.136	49.096	60.241	10.102	39.342	10.761	0.064	35.693	0.096	0.067	150	150	14.8	44.2	3.049	0.042	0.040	0.00091	0.915	0.78
163	12/8/1999	11:48:57 AM	0	26.431	20.541	26.257	22.121	20.855	173.136	49.096	60.241	10.094	39.274	10.761	0.064	35.601	0.094	0.067	151	151	14.8	44.2	3.046	0.041	0.040	0.00090	0.897	0.76
164	12/8/1999	11:49:57 AM	0	26.511	20.541	26.257	22.121	20.936	173.136	49.282	60.302	10.062	39.308	10.731	0.064	35.571	0.094	0.067	152	152	14.8	44.3	3.054	0.041	0.040	0.00089	0.894	0.76
165	12/8/1999	11:50:58 AM	1	26.351	20.541	26.257	22.121	20.936	173.136	6.448	59.876	9.376	-3.627	53.043	107.68	34.895	0.026	-0.018	153	153	14.5	1.5	0.101	0.011	0.011	0.00750	7.502	8.38
166	12/8/1999	11:51:58 AM	0	26.431	20.541	26.257	22.121	20.936	173.136	48.601	60.241	10.125	38.463	11.378	0.064	35.601	0.104	0.076	154	154	14.8	43.5	3.001	0.045	0.044	0.00101	1.007	0.86
167	12/8/1999	11:52:58 AM	0	26.431	20.541	26.257	22.121	20.936	173.136	48.849	60.18	10.189	39.207	11.008	0.064	35.632	0.096	0.07	155	155	14.8	44.0	3.036	0.043	0.041	0.00094	0.938	0.80
168	12/8/1999	11:53:58 AM	0	26.475	20.585	26.302	22.165	20.98	173.173	49.158	60.485	10.189	38.97	10.916	0.018	35.632	0.097	0.067	156	156	14.8	44.1	3.038	0.042	0.041	0.00093	0.927	0.79
169	12/8/1999	11:54:59 AM	0	26.431	20.541	26.177	22.121	20.936	173.136	48.911	60.18	10.141	39.071	10.885	0.064	35.555	0.095	0.064	157	157	14.8	44.0	3.033	0.041	0.040	0.00091	0.912	0.78
170	12/8/1999	11:55:59 AM	0	26.431	20.541	26.177	22.121	20.855	173.136	49.282	60.546	10.189	39.342	10.854	0.064	35.678	0.095	0.067	158	158	14.8	44.3	3.055	0.041	0.040	0.00091	0.906	0.77

First Wash: 75 liters DI Filtered Water

	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	12/8/1999	11:57:00 AM	0	26 431	20 541	26 257	22,121	20 936	173,136	49 034	60,18	10,125	39 24	10 623	0 064	35 617	0,094	0 067	159	159	14 8	44 1	3 043	0 041	0 040	0 00090	0 896	0 76
172	12/8/1999	11:58:00 AM	0	26 475	20 585	26 302	22 185	20 96	173,173	49 034	60 241	8 966	39 663	10 854	0,064	35,158	0 094	0,064	160	160	14 6	44 5	3 065	0 041	0 040	0 00089	0 890	0 76
173	12/8/1999	11:59:00 AM	0	26,475	20 585	26 302	22 246	20 9	173,173	48,972	60,18	10,149	39 207	10 623	0 018	35 678	0 093	0 067	161	161	14 8	44 1	3 040	0 041	0 039	0 00089	0 888	0 76
174	12/8/1999	12:00:01 PM	0	26 535	20 585	26 361	22,183	20 96	173,173	49 034	60,038	10,187	39 207	10,823	0 064	35 678	0,095	0 067	162	162	14 8	44,1	3 042	0 041	0 040	0 00090	0 904	0 77
175	12/8/1999	12:01:01 PM	0	26 599	20 63	26 346	22 21	21,025	173,21	49,034	60,119	10,181	39 342	10 792	0 018	35 555	0 094	0 064	163	163	14 8	44 2	3 047	0 041	0 040	0 00089	0 894	0 76
176	12/8/1999	12:02:01 PM	0	26 555	20 585	26 302	22,165	20 9	173,173	49 096	60,18	10,149	39 342	10,792	0 064	35 555	0,094	0 067	164	164	14 8	44 2	3 049	0 041	0 040	0 00089	0 895	0 76
177	12/8/1999	12:03:02 PM	0	26 599	20 649	26 426	22 21	20,944	173,21	49 406	60,546	10,169	39 342	10,761	0 064	35 647	0 095	0 067	165	165	14 8	44 4	3 059	0 041	0 040	0 00090	0 898	0 76
178	12/8/1999	12:04:02 PM	0	26 599	20 63	26 426	22 29	20 944	173,21	49 034	60 058	10,173	39,545	10,761	0 064	35 663	0,095	0 067	166	166	14 8	44 3	3 054	0 041	0 040	0 00090	0 900	0 77
179	12/8/1999	12:05:02 PM	0	26 599	20 63	26 346	22 29	20 863	173,21	49 034	60,18	10,165	39 274	10,731	0 018	35 617	0 093	0 067	167	167	14 8	44 2	3 044	0 041	0 039	0 00089	0 885	0 75
180	12/8/1999	12:06:03 PM	1	26 484	20,675	26,39	22,335	20,908	173,248	8,163	59,937	9 463	-1,025	51,317	107,773	35 532	0,013	-0 018	168	168	14 8	3 6	0 247	0 006	0 005	0 00153	1,525	1,30
181	12/8/1999	12:07:03 PM	0	26 644	20 675	26 39	22,415	20 908	173 248	48,477	59 937	10,253	39 004	11 224	0,064	35 617	0,101	0 07	169	169	14 8	43 7	3 018	0 044	0 042	0 00097	0 969	0 83
182	12/8/1999	12:08:03 PM	0	26 644	20 675	26 31	22,415	20,969	173 248	49 156	60,363	10 317	39,173	10,916	0 064	35 601	0,096	0 067	170	170	14 8	44 2	3 045	0 042	0 040	0 00091	0 915	0 78
183	12/8/1999	12:09:04 PM	0	26 564	20,675	26,23	22,415	20,969	173,248	48,972	60 058	10,317	39,443	10,854	0 064	35 647	0 093	0 064	171	171	14 8	44 2	3 048	0 041	0 039	0 00089	0 887	0 76
184	12/8/1999	12:10:04 PM	0	26,484	20 675	26 23	22,415	21,069	173,248	49,156	60 241	10,325	39,139	10 923	0,064	35 585	0,094	0 064	172	172	14 8	44 1	3 044	0 041	0 040	0 00090	0 898	0 76
185	12/8/1999	12:11:04 PM	0	26,484	20 675	26,07	22,415	21,069	173,248	48 911	59,876	10 269	39 376	10,792	0 064	35 54	0 092	0 064	173	173	14,7	44,1	3 044	0 040	0 039	0 00088	0 883	0 75
186	12/8/1999	12:18:05 PM	0	26 464	20,675	26 07	22,335	21,069	173,248	49 096	60,18	10 221	39,139	10,761	0 064	35 601	0 092	0 064	174	174	14 8	44 1	3 042	0 040	0 039	0 00088	0 883	0 75
187	12/8/1999	12:13:05 PM	0	26 448	20 639	26,035	22,379	21,114	173,263	48 849	59,937	10 285	39 207	10,761	0 064	35 617	0 092	0 064	175	175	14 8	44 0	3 036	0 040	0 039	0 00089	0 886	0 75
188	12/8/1999	12:14:05 PM	0	26 368	20,719	26 035	22,379	21,033	173 265	49,158	60 302	10 269	38,869	10 731	0 064	35,609	0 091	0 064	176	176	14,7	44 0	3 035	0 040	0 039	0 00088	0 877	0 75
189	12/8/1999	12:15:06 PM	0	26 368	20 719	25 875	22,379	21,033	173 265	49 282	60,363	10 277	39 24	10,731	0 064	35 494	0 09	0 064	177	177	14 7	44 3	3 052	0 039	0 038	0 00087	0 866	0 74
190	12/8/1999	12:16:06 PM	0	26,288	20 639	25 875	22,379	21,033	173,265	49 53	60 668	10,293	39 308	10 7	0,018	35,571	0 09	0,064	178	178	14 8	44 4	3 063	0 039	0 038	0 00088	0 863	0 75
191	12/8/1999	12:17:06 PM	0	26 208	20,719	25,795	22,379	21,033	173,283	49 282	60,241	10,245	39 038	10 7	0 018	35 525	0 09	0 061	179	179	14,7	44,2	3 045	0 039	0 038	0 00087	0 870	0 74
192	12/8/1999	12:18:06 PM	0	26,208	20 639	25,795	22,379	21,033	173,265	49 22	60 241	10,248	39 511	10,7	0,064	35 525	0,09	0 061	180	180	14 7	44 4	3 059	0 039	0 038	0 00087	0 866	0 74
193	12/8/1999	12:19:07 PM	0	26 128	20,719	25 795	22,379	21,033	173,265	49,158	60,18	10,189	39 274	10,669	0 064	35,463	0,089	0 061	181	181	14 7	44 2	3 049	0 039	0 038	0 00088	0 859	0 73
194	12/8/1999	12:20:07 PM	0	26,172	20 583	25,759	22 504	21,159	173,322	49,22	60,18	10,325	39 68	10 669	0 018	35,494	0 089	0 061	182	182	14 7	44 5	3 065	0 039	0 038	0 00086	0 858	0 73
195	12/8/1999	12:21:07 PM	0	26 092	20,764	25,759	22,424	21,159	173,322	48,725	59,996	9 655	11,112	7,156	0 712	35 693	0 012	-0,018	183	183	14 8	29 9	2 063	0 005	0 005	0 00017	0 171	0 15
196	12/8/1999	12:22:07 PM	0	26 012	20 764	25 679	22,424	21 078	173,322	48,291	59 876	10,301	39 004	11,193	0,064	35 555	0 095	0 067	184	184	14 8	43 6	3 009	0 041	0 041	0 00093	0 932	0 79
197	12/8/1999	12:23:07 PM	0	26 057	20 809	25 643	22,368	21,123	173,359	49 468	60,668	10 465	39 24	10,916	0 018	35 494	0 091	0 061	185	185	14 7	44 4	3 058	0 040	0 039	0 00088	0 880	0 75
198	12/8/1999	12:24:08 PM	0	25 932	20 683	25 519	22,343	21 078	173,322	49,158	60,424	10 421	39,173	10 854	0 064	35,402	0 09	0 061	186	186	14 7	44 2	3 045	0 039	0 039	0 00088	0 877	0 75
199	12/8/1999	12:25:08 PM	0	25 852	20,764	25 519	22,343	20 997	173,322	49 034	60 119	10,361	39,342	10 823	0 064	35,571	0 089	0 058	187	187	14 8	44 2	3 047	0 039	0 038	0 00087	0 867	0 74
200	12/8/1999	12:26:08 PM	0	25 897	20 809	25 563	22,468	21,123	173,359	49 034	60,119	10,397	38 902	10 623	0 064	35 492	0 088	0,061	188	188	14,7	44 0	3 031	0 038	0 038	0 00088	0 860	0 73
201	12/8/1999	12:27:09 PM	0	25 897	20,726	25 483	22,388	21,042	173,359	48,911	59 996	10,361	39 274	10,761	0 064	35 402	0 088	0 058	189	189	14,7	44 1	3 040	0 038	0 038	0 00088	0 859	0 73
202	12/8/1999	12:28:09 PM	0	25,816	20 726	25,563	22,388	21,042	173,359	49 034	60,058	10,369	38 936	10,792	0,064	35 432	0 088	0,058	190	190	14,7	44 0	3 033	0 038	0 038	0 00086	0 860	0 73
203	12/8/1999	12:29:09 PM	0	25 816	20,726	25,563	22,388	21,042	173,359	49,344	60 424	10 437	39 24	10,761	0 018	35 509	0 088	0,058	191	191	14 7	44 3	3 054	0 038	0 036	0 00085	0 854	0 73
204	12/8/1999	12:30:10 PM	0	25 861	20 653	25 608	22,513	21,087	173,397	49 53	60 807	10,437	39 24	10,761	0 018	35,509	0,087	0 058	192	192	14,7	44 4	3 060	0 038	0 037	0 00084	0 841	0 72
205	12/8/1999	12:31:10 PM	0	25 661	20 773	25,608	22,593	21,167	173,397	49,22	60,18	10 437	39,139	10,731	0 064	35,509	0 088	0 061	193	193	14 7	44,2	3 046	0 038	0 038	0 00085	0 855	0 73
206	12/8/1999	12:32:10 PM	0	25,736	20 809	25,483	22 468	21,123	173,359	49,406	60 546	10,437	39 207	10,731	0,064	35 625	0 087	0,061	194	194	14 7	44 3	3 055	0 038	0 037	0 00085	0 846	0 72
207	12/8/1999	12:33:11 PM	0	25,781	20,773	25,527	22,513	21,167	173,397	49,344	60 424	10,413	39 376	10,7	0 010	35 525	0 087	0 061	195	195	14 7	44 4	3 058	0 038	0 037	0 00084	0 844	0 72
208	12/8/1999	12:34:11 PM	0	25 825	20 817	25 652	22,638	21,212	173,434	49 344	60,241	10,429	39 308	10,7	0 018	35 432	0 086	0 058	196	196	14,7	44 3	3 056	0 038	0 037	0 00083	0 832	0 71
209	12/8/1999	12:35:11 PM	0	25 825	20 817	25,572	22 638	21,293	173,434	48 787	59 815	10 349	39 139	10 7	0 064	35 448	0 086	0,058	197	197	14,7	44 0	3 031	0 038	0 037	0 00084	0 840	0 72
210	12/8/1999	12:36:12 PM	0	25,745	20,817	25,572	22,638	21,212	173,434	47,361	60,18	9 838	38,192	12 456	0 064	35,555	0 011	-0 018	198	198	14 8	42,8	2 949	0 005	0 005	0 00011	0 110	0 09
211	12/8/1999	12:37:12 PM	0	25,825	20 737	25,492	22,638	21,293	173,434	49 034	60 485	10,453	38,902	11 07	0,018	35 233	0 093	0 064	199	199	14 6	44 0	3 031	0 041	0 040	0 00091	0 911	0 77
212	12/8/1999	12:38:12 PM	0	25,825	20 817	25,492	22,558	21 212	173,434	49 592	60 851	10,524	39,308	10 854	0,018	35 279	0,087	0 058	200	200	14 6	44,5	3 065	0 038	0 037	0 00084	0 843	0 72
213	12/8/1999	12:39:13 PM	0	25,745	20 817	25 572	22,558	21,212	173,434	49 096	60 241	10 477	39 342	10,792	0 064	35 309	0 086	0 058	201	201	14,7	44 2	3 049	0 038	0 037	0 00084	0 835	0 71
214	12/8/1999	12:40:13 PM	0	25 87	20 862	25 616	22,683	21,257	173,471	49 344	60 485	10,492	39 308	10 792	0 064	35 202	0 086	0 058	202	202	14 6	44 3	3 056	0 038	0 037	0 00083	0 832	0 71
215	12/8/1999	12:41:13 PM	0	25 79	20 862	25 616	22,683	21,257	173,471	49,158	60,302	10,477	39,105	10,761	0 064	35 279	0 085	0 058	203	203	14 6	44 1	3 043	0 037	0 036	0 00083	0 828	0 70
216	12/8/1999	12:42:14 PM	0	25,79	20 862	25 616	22,602	21,257	173,471	49,718	60 851	10,564	39 274	10,761	0 064	35 279	0 085	0,055	204	204	14 6	44,5	3 068	0 037	0 036	0 00082	0 820	0,70
217	12/8/1999	12:43:14 PM	0	25 834	20 826	25 661	22,647	21,302	173,509	49,158	60,241	10,465	39 071	10,761	0 018	35 601	0 084	0,055	205	205	14 8	44 1	3 042	0 037	0 036	0 00082	0 818	0 69
218	12/8/1999	12:44:14 PM	0	25,79	20 862	25 616	22 683	21,257	173,471	49,158	60 18	10,469	39,443	10 731	0 064	35,309	0,084	0 055	206	206	14,7	44,3	3 054	0 037	0 036	0 00081	0 814	0 69
219	12/8/1999	12:45:15 PM	0	25,834	20 826	25 661	22,727	21,302	173,509	49 096	59 996	10,481	38 97	10,731	0,064	35 309	0 083	0 058	207	207	14,7	44,0	3 036	0 036	0 036	0 00081	0 808	0 69
220	12/8/1999	12:46:15 PM	0	25,834	20 826	25 661	22,647	21,302	173,509	49 344	60,424	10 516	39,173	10,7	0 064	35,386	0,083	0 055	208	208	14,7	44 3	3 051	0 036	0 036	0 00080	0 804	0 68
221	12/8/1999	12:47:15 PM	0	25 834	20 907	25 661	22 647	21,302	173,509	49 344	60 302	10,516	39 24	10,7	0 018	35,417	0 084	0 055	209	209	14,7	44,3	3 054	0 037	0 036	0 00081	0 813	0 69
222	12/8/1999	12:48:16 PM	0	25 878	20,871	25 705	22,691	21,346	173,546	49 53	60,807	10,492	39 207	10,7	0 018	35 417	0 084	0 055	210	210	14,7	44,4	3 059	0 037	0 036	0 00081	0 810	0 69
223	12/8/1999	12:49:16 PM	0	25,858	20 871	25,705	22,691	21,266	173,546	49 53	60,483	10,524	39 038	10,7	0 064	35 371	0,084	0 055	211	211	14 7	44 3	3 053	0 037	0 036	0 00081	0 812	0 69
224	12/8/1999	12:50:16 PM	0	25,858	20 871	25,785	22,691	21,346	173,546	49 468	60,483	10 532	39 342	10,7	0 018	35,432	0 083	0,055	212	212	14 7	44 4	3 062	0 036	0 035	0 00080	0 798	0 68
225	12/8/1999	12:51:17 PM	0	25,796	20 871	25,705	22,691	21,266	173,546	47,961	60,851	10,197	37,816	12 549	0 064	35 632	0 012	-0 018	213	213	14 8	42 8	2 951	0 005	0 005	0 00012	0 120	0 10
226	12/8/1999	12:52:17 PM	0	25,858	20 871	25,785	22,691	21,346	173,546	49,158	60 483	10,812	38 869	10,916	0 064	35,402	0,09	0 061	214	214	14,7	44 0	3 035	0 039	0 038	0 00087	0 873	0 74
227	12/8/1999	12:53:17 PM	0	25,923	20,916	22,702	22,736	21,31	173,583	50,584	61,339	7,149	43,94	10,515	0,018	28,167	0 084	0 055	215	215	11,7	47 3	3 259	0 037	0 039	0 00083	0 829	0 70
228	12/8/1999	12:54:18 PM	0	24 601	20,916	23,104	22,736	21,31	173,583	50,706	61,217	7,142	44,007	10 299	0,064	27,952	0 076	0 046	216	216	11,6	47,4	3 265	0 034	0 036	0,00076	0 759	0 65
229	12/8/1999	12:55:18 PM	0	24 24	20 916	23 264	22,736	21,31	173,583	48,167	58 595	11,376	37,009	10 053	0 064	37,229	0 07	0,043	217	217	15 5	42,6	2 936	0 031	0 032	0 00075	0 754	0 64
230	12/8/1999	12:56:18 PM	0	24,4	20 998	23,264	22,736	21,31	173,583	48,617	58 534	10,477	36 772	11,532	0 064	37,03	0,113	0 065	218	218	15 4	41,7	2 875	0 049	0 052	0 00124	1 243	1 06
231	12/8/1999	12:57:19 PM	0	23,918	20 916	23,264	22,736	21,31	173,583	47,847	58 839	10,309	37,55	10,977	0 018	36,677	0,109	0 079	219	219	15 2	42 5	2 934	0 048	0 050	0 00117	1,175	1,00
232	12/8/1999	12:58:19 PM	0	23,883	20,961	23,309	22,561	21,355	173,621	47,485	58,717	10,397	37,685	10 854	0,018	36,799	0,106	0 078	220	220	15 3	42 6	2,936	0 046	0 049	0 00114	1 140	0 97
233	12/8/1999	12:59:19 PM	0	23,803	20,961	23,369	22,781	21,275	173,621	47,609	58,778	10 365	37,753	10 823	0,064	36,769	0,106	0 076	221	221	15 3	42,7	2,943	0 048	0 048	0 00113	1,135	0 97
234	12/8/1999	1:00:20 PM	0	23,803	20 961	23,369	22,781	21,355	173 621	47,609	58 656	10,397	37,818	10,761	0 018	36 661	0,104	0 073	222	222	15,2	42 8	2 938	0 045	0 048	0 00112	1,115	0 95
235	12/8/1999	1:01:20 PM	0	23,803	20,961	23,369	22,781	21,275	173,621	47 671	58,717	10,333	37,888	10,731	0 064	36,815	0,104	0 076	223	223	15 2	42 8	2 949	0 045	0 048	0 00111	1,111	0 95
236	12/8/1999	1:02:21 PM	0	23,767	21,005	23,354	22,825	21,4	173,658	47,793	58,9	10,429	37,246	10,792	0,034	36 845	0,104	0 076	224	224	15 3	42 5	2,932	0 045	0 048	0 00112	1,119	0 95
237	12/8/1999	1:03:21 PM	0	23,767	21,005	23,434	22,825	21,319	173,658	48 043	59,144	10,518	37,922	10,731	0 064	36 892	0,104	0 076	225	225	15 3	43 0	2 963	0 045	0 047	0 00110	1 104	0 94
238	12/8/1999	1:04:22 PM	0	23,767	21,005	23,434	22,825	21,319	173 658	47,657	58 778	10,445	37,821	10 577	0 064	36,845	0,102	0 073	226	226	15,3	42 8	2 954	0 045	0 047	0 00109	1 087	0 92
239	12/8/1999	1:05:22 PM	0	23,767	21,005	23,434	22,825	21,4	173,658	47,657	58 656	10 477	37,719	10,577	0 018	36,769	0 103	0 076	227	227	15 3	42 6	2,950	0 045	0 047	0 00110	1,098	0 93
240	12/8/1999	1:06:22 PM	0	23,731	20 969	23,479	22 87	21,445	173,696	48 419	59 327	10,54	37,854	10 577	0 064	36 861	0,102	0 076	228	228	15 3	43,1	2 974	0 045	0 046	0 00108	1 078	0 92
241	12/8/1999	1:07:23 PM	0	23,767	21,005	23,434	22,825	21,4	173,658	48,167	59 053	10,429	38,328	10 577	0 064	36 661	0,103	0 076	229	229	15 2	43 2	2 982	0 045	0 047	0 00109	1 087	0 92
242	12/8/1999	1:08:23 PM	0	23,731	20,969	23,559	22,87	21,445	173,696	47,919	58,859	10,453	37,831	10 577	0 064	36 845	0,102	0 076	230	230	15 3	42,9	2 956	0 045	0 048	0 00108	1 082	0 92
243	12/8/1999	1:09:23 PM	0	23,812	20,969	23,479	22,87	21,364	173,696	48 043	59 022	10 492	37,888	10 546	0 064	36,799	0,101	0 076	231	231	15 3	43 0	2,962	0 044	0 046	0 00107	1 071	0 91
244	12/8/1999	1:10:24 PM	0	23,656	21,095	23,523	22,915	21,489	173,733	48 043	58 839	10,405	38,057	10 546	0 018	36,477	0 101	0 076	232	232	15,1	43,1	2 968	0 044	0 046	0 00107	1 068	0 91
245	12/8/1999	1:11:24 PM	0	23,776	21 014	23,604	22,995	21,489	173,733	47,671	59 327	10,477	37,449	11 347	0 064	36,369	0,108	0 079	233	233	15,1	42 6	2 934	0 047	0 049	0 00115	1,152	0 96
246	12/8/1999	1:12:24 PM	0	23,656	21,014	23,523	22,995	21,489	173,733	48,229	59 652	10,349	37,821	10 977	0 064	35 909	0,102	0,073	234	234	14 9	43 0	2 966	0 045	0 048	0 00108	1 078	0 92
247	12/8/1999	1:13:25 PM	0	23,656	21,014	23,604	22,995	21,489	173,733	48,105	59,327	10,213	38 091	10 823	0 064	35,786	0,1	0 07	235	235	14 9	43,1	2 971	0 044	0 045	0 00105	1 054	0 90
248	12/8/1999	1:14:25 PM	0	23,656	21,014	23,604	22,995	21,489	173,733	48 477	59 51	10,078	38,666	10 761	0 018	35 202	0 097	0 07	236	236	14 8	43 6	3 004	0 042	0 044	0 00101	1 011	0 86
249	12/8/1999	1:15:25 PM	0	23,656	21,014	23,684	22,995	21,489	173,733	48,477	59 449	9,878	39,139	10 669	0 018	34,695	0,096	0 067	237	237	14 5	43 8	3 020	0 042	0 043	0 00099	0 993	0 84
250	12/8/1999	1:16:26 PM	0	23,656	21,014	23,523	22,915	21,489	173,733	47,609	58,412	9 615	37,821	10 484	0 018	34 173	0 092	0 061	238	238	14 2	42 7	2 945	0 040	0 042	0 00098	0 980	0 83
251	12/8/1999	1:17:26 PM	0	23,901	21,059	23,407	22,96	21,534	173,77	48 617	57,456	10 66	36 096	10 422	0 064	36,477	0 088	0 061	239	239	15 1	41 4	2 851	0 039	0 041	0 00096	0 963	0 84
252	12/8/1999	1:18:26 PM	0	23,74	21,059	23,247	22,879	21,454	173,77	45,005	55,729	10,564	35 014	10,422	0 064	36 415	0 089	0 061	240	240	15 1	40 0	2 759	0 039	0 041	0 00102	1 020	0 87
253	12/8/1999	1:19:27 PM	0	23,66	20 978	23,086	22,799	21,454	173,77	45,253	56,217	10 508	34,947	10 453	0 064	36 569	0 09	0 061	241	241	15 2	40 1	2 765	0 039	0 041	0 00103	1 034	0 88
254	12/8/1999	1:20:27 PM	0	23,499	20 978	23,086	22,879	21 454	173,77	45,377	56,339	10 516	35 014	10 515	0 064	36,415	0 092	0 064	242	242	15 1	40 2	2 771	0 040	0 042	0 00105	1 055	0 90
255	12/8/1999	1:21:27 PM	0	23,464	21 023	23 05	22,924	21,418	173 808	45 887	56 583	10,397	35 857	10 577	0 064	36 339	0 094	0 067	243	243	15 1	40 7	2 804	0 041	0 043	0 00107	1 066	0 91

First Wash: 75 liters DI Filtered Water

	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
256	12/8/1999	1:22:28 PM	0	23.384	21.104	22.97	22.924	21.499	173.808	45.935	56.949	10.333	35.691	10.607	0.064	36.062	0.093	0.067	244	244	15.0	40.8	2.814	0.041	0.043	0.00105	1.054	0.90
257	12/8/1999	1:23:28 PM	0	23.384	21.023	23.05	22.924	21.499	173.808	45.377	56.278	10.221	35.626	10.638	0.018	36.001	0.093	0.067	245	245	14.9	40.8	2.799	0.041	0.043	0.00106	1.057	0.90
258	12/8/1999	1:24:28 PM	0	23.348	21.149	23.095	22.888	21.543	173.845	45.749	56.644	10.283	35.782	10.638	0.018	36.17	0.094	0.067	246	246	15.0	40.8	2.811	0.041	0.043	0.00106	1.062	0.90
259	12/8/1999	1:25:29 PM	0	23.348	21.149	23.095	23.049	21.543	173.845	45.625	56.644	10.269	35.724	10.638	0.018	36.001	0.095	0.067	247	247	14.9	40.7	2.804	0.041	0.044	0.00108	1.076	0.92
260	12/8/1999	1:26:29 PM	0	23.348	21.068	23.175	23.049	21.543	173.845	45.315	57.01	10.357	35.082	11.378	0.018	36.077	0.107	0.078	248	248	15.0	40.2	2.772	0.047	0.049	0.00122	1.224	1.04
261	12/8/1999	1:27:29 PM	0	23.428	21.149	23.175	23.129	21.624	173.845	45.439	56.949	10.365	35.014	11.07	0.064	35.924	0.096	0.07	249	249	14.9	40.2	2.773	0.043	0.045	0.00112	1.120	0.95
262	12/8/1999	1:28:30 PM	0	23.428	21.149	23.258	23.21	21.624	173.845	45.129	56.522	10.187	35.319	11.008	0.018	35.97	0.1	0.073	250	250	14.9	40.2	2.773	0.044	0.046	0.00114	1.140	0.97
263	12/8/1999	1:29:30 PM	0	23.428	21.149	23.258	23.21	21.624	173.845	45.625	56.949	10.333	35.15	10.946	0.018	36.093	0.101	0.07	251	251	15.0	40.4	2.785	0.044	0.046	0.00115	1.147	0.96
264	12/8/1999	1:30:30 PM	0	23.428	21.149	23.336	23.29	21.704	173.845	45.749	57.01	10.309	35.535	10.946	0.064	35.801	0.1	0.073	252	252	14.9	40.7	2.803	0.044	0.046	0.00113	1.126	0.96
265	12/8/1999	1:31:31 PM	0	23.589	21.149	23.418	23.29	21.624	173.845	45.439	56.827	10.269	35.522	10.916	0.064	35.955	0.1	0.07	253	253	14.9	40.5	2.791	0.044	0.046	0.00113	1.128	0.96
266	12/8/1999	1:32:31 PM	0	23.634	21.194	23.541	23.415	21.749	173.883	44.819	65.912	10.524	34.71	10.885	0.018	36.677	0.099	0.07	254	254	15.2	39.8	2.742	0.043	0.045	0.00113	1.133	0.96
267	12/8/1999	1:33:31 PM	0	23.714	21.194	23.541	23.415	21.749	173.883	45.255	56.461	10.524	34.679	10.885	0.064	36.692	0.097	0.07	255	255	15.2	40.1	2.762	0.042	0.044	0.00110	1.101	0.94
268	12/8/1999	1:34:32 PM	0	23.634	21.194	23.622	23.415	21.749	173.883	45.129	56.461	10.469	34.913	10.916	0.018	36.538	0.1	0.07	256	256	15.2	40.0	2.759	0.044	0.045	0.00113	1.134	0.97
269	12/8/1999	1:35:32 PM	0	23.669	21.149	23.577	23.37	21.704	173.845	45.253	56.522	10.5	34.812	10.916	0.064	36.681	0.1	0.07	257	257	15.2	40.0	2.760	0.044	0.045	0.00114	1.135	0.97
270	12/8/1999	1:36:33 PM	0	23.794	21.194	23.702	23.415	21.749	173.883	45.315	56.583	10.309	35.522	10.977	0.018	36.218	0.101	0.073	258	258	15.0	40.4	2.787	0.044	0.046	0.00113	1.132	0.96
271	12/8/1999	1:37:33 PM	0	23.794	21.194	23.782	23.415	21.749	173.883	45.253	56.522	10.277	35.082	10.946	0.018	36.108	0.1	0.07	259	259	15.0	40.2	2.769	0.044	0.045	0.00112	1.125	0.96
272																												
273		Averages		25.6	20.2	25.3	22.0	20.8	172.9	48.7	60.4	10.2	38.9	11.3	1.1	35.6	0.087	0.058			14.8		43.8	3.020	0.038	0.038	0.000891	0.891	0.758
274		Maximum		26.8	20.9	26.4	22.7	21.7	173.8	50.7	61.9	11.4	44.0	53.0	107.8	37.2	0.109	0.079			15.5		47.4	3.265	0.048	0.047	0.007502	7.502	6.385
275		Median		25.4	20.3	25.1	21.8	20.8	173.1	48.1	60.3	10.1	39.3	10.9	0.1	35.8	0.090	0.061			14.8		44.2	3.046	0.039	0.039	0.000886	0.886	0.754
276		Minimum		24.2	19.3	22.7	21.0	20.1	171.7	6.4	56.8	7.1	-3.5	7.2	0.0	28.0	0.011	-0.018			11.8		1.5	0.101	0.005	0.005	0.000110	0.110	0.094
277		Std Deviation		0.582	0.465	0.633	0.412	0.344	0.456	4.173	0.501	0.396	4.612	4.097	10.635	0.811	0.018	0.017			0.336		4.283	0.295	0.007	0.007	0.000488	0.488	0.416
278		Number of Points Used		203	203	203	203	203	203	203	203	203	203	203	203	203	203	203			203		203	203	203	203	203	203	203



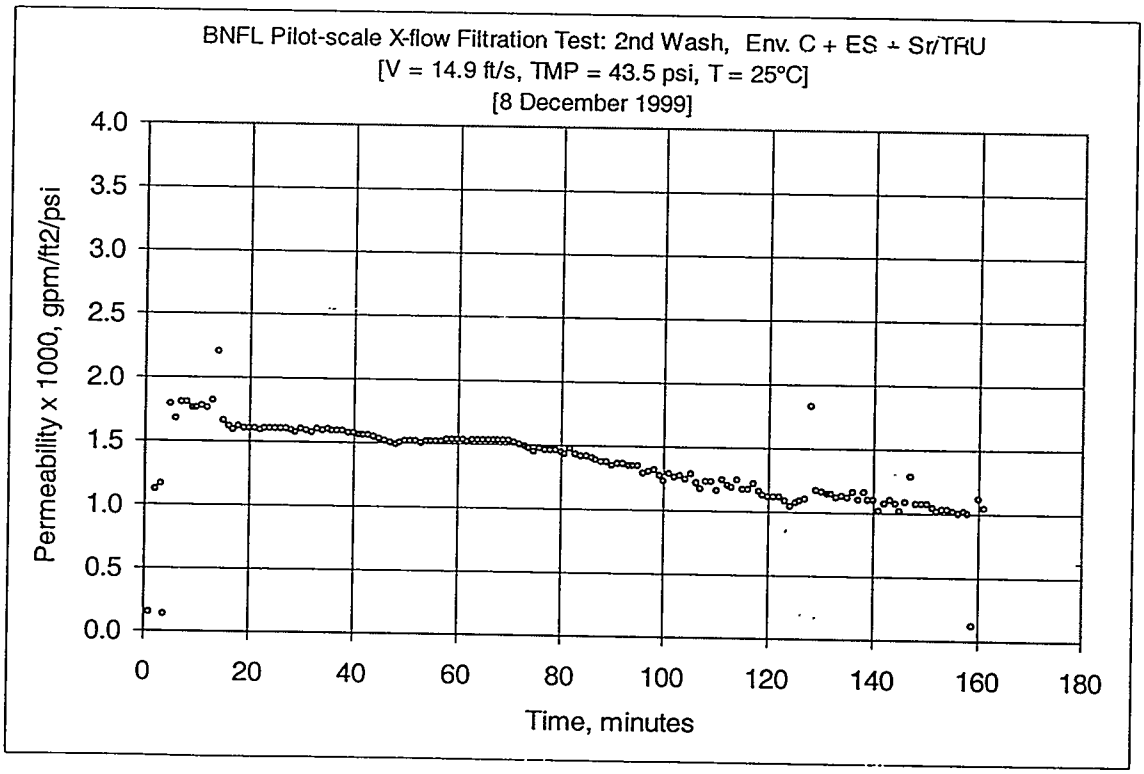


Figure D2: Second Wash: 75 liters of Deionized/Filtered Water with 0.01 M NaOH

Second Wash: 75 liters DI Filtered Water

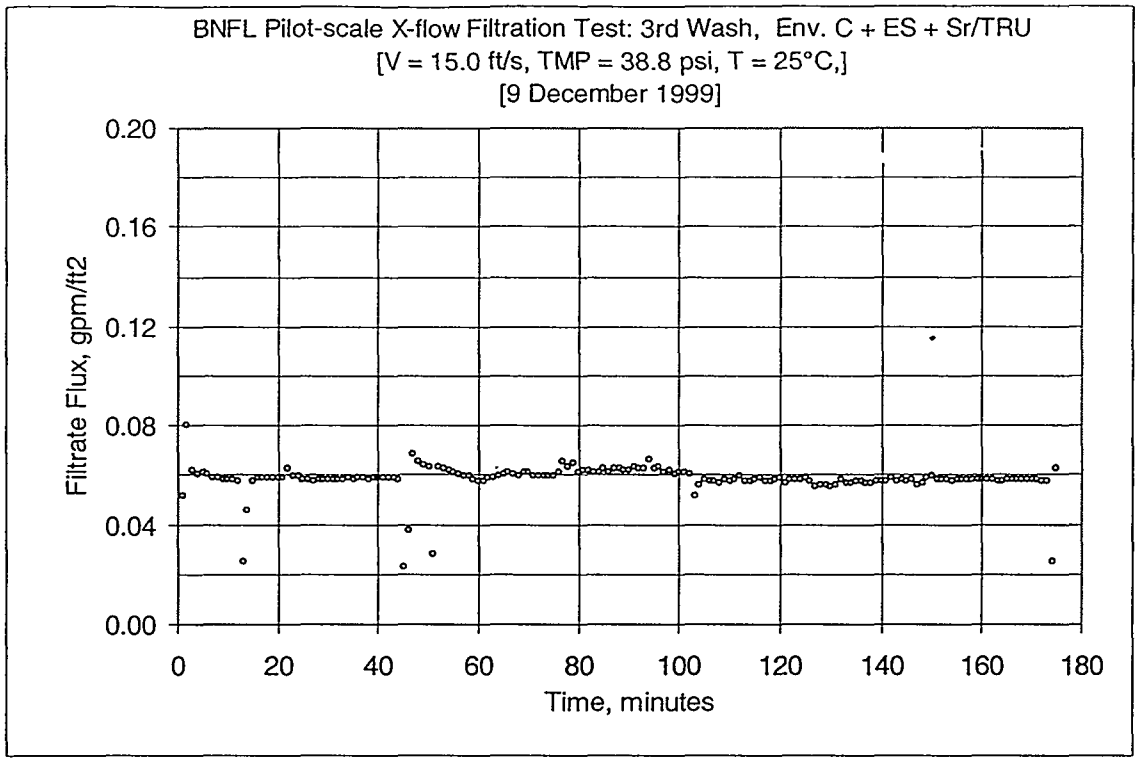
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	DATE	TIME	SOLENOID	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T8 (deg C)	BOT DP (p	FLTR (psi	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	RSL FLOW	O2,FLTR	RO3,FLTR	FLOW (ppm)		Filter Surface Area		2.29	FT2				
2	Zones - Connected																				Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
3	12/9/1999	8:39:57 AM	0	21.278	18.748	15.184	22.347	17.119	170.283	-0.061	-0.067	-0.007	-0.011	-0.117	0.018	-0.095	0.011	-0.018										
4	12/9/1999	8:40:57 AM	0	21.322	18.712	15.239	22.391	17.082	170.329	-0.061	-0.067	-0.007	-0.011	-0.088	0.064	-0.079	0.011	-0.018										
5	12/9/1999	8:41:58 AM	0	21.322	18.712	15.239	22.15	17.082	170.329	-0.061	-0.067	-0.007	-0.011	-0.117	0.064	-0.079	0.011	-0.018										
6	Zones - Lines Not Connected																											
7	12/9/1999	8:42:58 AM	0	21.366	18.756	15.283	22.184	17.127	170.366	-0.061	-0.067	-0.007	-0.011	-0.088	0.018	-0.079	0.011	-0.018										
8	12/9/1999	8:43:58 AM	0	21.408	18.719	15.327	22.237	17.171	170.403	-0.061	-0.067	-0.007	-0.011	-0.053	0.018	-0.095	0.011	-0.018										
9	12/9/1999	8:44:59 AM	0	21.248	18.719	15.246	22.078	17.09	170.403	-0.061	-0.067	-0.007	-0.011	-0.088	0.018	-0.095	0.011	-0.018										
10	12/9/1999	8:45:59 AM	0	21.373	18.783	15.29	22.04	17.215	170.44	-0.061	-0.067	-0.007	-0.011	-0.088	0.018	-0.079	0.011	-0.018										
11																												
12	Data - Per Minute																		Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	at 25C GPM/FT2	PERMIABILITY GPM/FT2/psi	x 1000 GPM/FT2/psi	PERMIABILITY meter/sec
13	12/9/1999	1:38:14 PM	0	23.714	21.184	23.702	23.495	21.749	173.883	43.703	56.339	10.062	34.271	12.302	0.064	36.231	0.012	-0.018	1	1	15.0	39.0	2.688	0.065	0.065	0.00014	0.139	0.12
14	12/9/1999	1:39:15 PM	0	23.919	21.239	23.627	23.54	21.714	173.92	47.051	56.461	10.381	37.246	9.036	0.064	36.031	0.104	0.076	2	2	15.0	42.1	2.906	0.045	0.047	0.00111	1.113	0.95
15	12/9/1999	1:40:15 PM	0	23.918	21.239	22.622	23.48	21.784	173.92	48.679	56.095	9.587	37.449	9.19	0.018	35.448	0.104	0.076	3	3	14.7	42.1	2.900	0.045	0.049	0.00115	1.155	0.98
16	12/9/1999	1:41:15 PM	0	23.437	21.239	22.461	23.46	21.714	173.92	43.207	55.485	9.096	34.575	11.933	0.064	35.816	0.011	-0.018	4	4	14.9	38.9	2.681	0.065	0.065	0.00013	0.133	0.11
17	12/9/1999	1:42:16 PM	0	23.035	21.239	22.3	23.46	21.794	173.92	43.021	54.022	10.293	33.256	10.669	0.018	36.673	0.144	0.116	5	5	16.0	38.1	2.630	0.063	0.068	0.00178	1.780	1.51
18	12/9/1999	1:43:16 PM	0	22.784	21.239	22.3	23.46	21.794	173.92	44.819	53.907	8.929	36.196	10.453	0.064	35.217	0.144	0.116	6	6	14.6	40.5	2.793	0.063	0.068	0.00168	1.676	1.43
19	12/9/1999	1:44:16 PM	0	22.875	21.239	22.22	23.46	21.794	173.92	43.207	55.058	9.248	34.406	11.563	0.064	36.4	0.148	0.119	7	7	15.1	38.6	2.676	0.065	0.070	0.00180	1.802	1.53
20	12/9/1999	1:45:17 PM	0	22.678	21.283	22.265	23.585	21.839	173.958	44.509	55.363	9.08	35.555	10.392	0.018	36.369	0.153	0.122	8	8	15.1	40.0	2.760	0.067	0.072	0.00180	1.803	1.53
21	12/9/1999	1:46:17 PM	0	22.643	21.328	22.229	23.63	21.884	173.995	44.881	55.424	9.112	35.995	10.176	0.064	36.216	0.151	0.122	9	9	15.0	40.4	2.788	0.068	0.071	0.00176	1.764	1.50
22	12/9/1999	1:47:17 PM	0	22.517	21.283	22.184	23.585	21.839	173.958	44.695	55.119	9.256	35.724	10.176	0.018	36.369	0.15	0.122	10	10	15.1	40.2	2.772	0.065	0.071	0.00176	1.764	1.50
23	12/9/1999	1:48:18 PM	0	22.457	21.283	22.104	23.585	21.839	173.958	44.633	55.18	9.176	36.029	10.176	0.064	36.477	0.151	0.122	11	11	15.1	40.3	2.781	0.068	0.072	0.00177	1.775	1.51
24	12/9/1999	1:49:18 PM	0	22.482	21.328	22.149	23.63	21.884	173.995	45.377	55.648	9.144	36.333	9.837	0.064	36.262	0.152	0.125	12	12	15.0	40.9	2.817	0.068	0.072	0.00176	1.761	1.50
25	12/9/1999	1:50:18 PM	0	22.527	21.373	22.274	23.674	21.929	174.033	45.253	55.363	9.064	36.671	9.714	0.064	35.632	0.157	0.131	13	13	14.9	41.0	2.824	0.069	0.074	0.00181	1.808	1.54
26	12/9/1999	1:51:18 PM	0	22.448	21.373	22.274	23.614	21.929	174.033	47.547	55.548	8.993	38.656	7.587	0.064	35.786	0.201	0.174	14	14	14.9	43.1	2.972	0.068	0.095	0.00220	2.199	1.87
27	12/9/1999	1:52:18 PM	0	22.527	21.373	22.334	23.594	22.009	174.033	48.415	55.424	9.024	39.781	6.724	0.018	35.862	0.155	0.131	15	15	14.9	44.1	3.040	0.068	0.073	0.00165	1.654	1.41
28	12/9/1999	1:53:18 PM	0	22.527	21.373	22.334	23.755	22.009	174.033	48.601	55.424	9.024	40.052	6.478	0.064	35.965	0.152	0.131	16	16	14.9	44.3	3.056	0.068	0.072	0.00161	1.614	1.37
29	12/9/1999	1:54:20 PM	0	22.571	21.418	22.48	23.719	22.054	174.07	48.187	55.241	9.016	39.646	6.724	0.064	35.924	0.148	0.128	17	17	14.9	43.9	3.027	0.065	0.069	0.00158	1.581	1.35
30	12/9/1999	1:55:20 PM	0	22.652	21.338	22.56	23.799	22.054	174.07	48.105	55.302	9.001	39.274	6.84	0.064	35.847	0.151	0.128	18	18	14.9	43.7	3.012	0.068	0.071	0.00162	1.617	1.38
31	12/9/1999	1:56:20 PM	0	22.697	21.383	22.605	23.844	22.018	174.108	47.961	55.363	8.833	39.511	7.002	0.064	35.893	0.15	0.128	19	19	14.8	43.7	3.016	0.065	0.070	0.00160	1.602	1.36
32	12/9/1999	1:57:21 PM	0	22.777	21.383	22.685	23.844	22.099	174.108	48.105	55.424	8.817	39.781	7.063	0.064	35.448	0.151	0.125	20	20	14.7	43.9	3.030	0.066	0.070	0.00160	1.602	1.36
33	12/9/1999	1:58:21 PM	0	22.902	21.427	22.811	24.05	22.144	174.145	48.229	55.668	8.993	39.376	7.094	0.064	35.847	0.151	0.128	21	21	14.9	43.6	3.020	0.066	0.070	0.00160	1.601	1.36
34	12/9/1999	1:59:21 PM	0	22.902	21.427	22.891	23.889	22.144	174.145	48.229	55.668	8.841	39.612	7.156	0.018	35.601	0.15	0.125	22	22	14.9	43.9	3.028	0.065	0.070	0.00158	1.583	1.35
35	12/9/1999	2:00:22 PM	0	22.963	21.427	22.891	23.969	22.144	174.145	48.043	55.485	8.833	39.342	7.217	0.064	35.601	0.151	0.128	23	23	14.8	43.7	3.012	0.066	0.070	0.00160	1.602	1.36
36	12/9/1999	2:01:22 PM	0	23.108	21.472	23.016	24.014	22.189	174.183	47.961	55.424	8.833	39.071	7.217	0.064	36.047	0.151	0.131	24	24	15.0	43.5	3.001	0.066	0.070	0.00160	1.602	1.36
37	12/9/1999	2:02:22 PM	0	23.108	21.472	23.016	24.014	22.189	174.183	48.291	55.851	8.833	39.748	7.248	0.018	35.555	0.152	0.131	25	25	14.8	44.0	3.035	0.068	0.070	0.00159	1.595	1.36
38	12/9/1999	2:03:23 PM	0	23.153	21.437	23.141	24.059	22.314	174.22	48.043	55.363	8.921	39.376	7.125	0.064	35.924	0.152	0.128	26	26	14.9	43.7	3.014	0.066	0.070	0.00160	1.600	1.36
39	12/9/1999	2:04:23 PM	0	23.233	21.517	23.141	24.059	22.234	174.22	48.229	55.485	8.961	39.579	6.971	0.018	35.924	0.152	0.128	27	27	14.9	43.9	3.027	0.066	0.070	0.00159	1.593	1.36
40	12/9/1999	2:05:24 PM	0	23.233	21.437	23.222	23.976	22.234	174.22	47.795	55.119	8.937	39.342	7.125	0.064	35.755	0.15	0.128	28	28	14.8	43.6	3.004	0.065	0.069	0.00158	1.581	1.35
41	12/9/1999	2:06:24 PM	0	23.358	21.482	23.347	24.023	22.279	174.258	48.229	55.668	9.001	39.376	7.187	0.064	35.97	0.151	0.128	29	29	14.9	43.8	3.020	0.066	0.069	0.00158	1.577	1.34
42	12/9/1999	2:07:24 PM	0	23.439	21.482	23.427	23.943	22.196	174.258	47.733	55.241	8.953	39.24	7.187	0.064	36.108	0.152	0.131	30	30	15.0	43.5	2.998	0.066	0.069	0.00160	1.595	1.36
43	12/9/1999	2:08:24 PM	0	23.439	21.482	23.427	24.023	22.279	174.258	48.353	55.485	9.016	39.714	6.848	0.064	35.955	0.153	0.128	31	31	14.9	44.0	3.036	0.067	0.070	0.00159	1.588	1.35
44	12/9/1999	2:09:25 PM	0	23.564	21.527	23.552	24.068	22.243	174.295	47.961	55.241	8.953	39.308	6.84	0.064	35.632	0.151	0.128	32	32	14.9	43.6	3.009	0.066	0.069	0.00157	1.573	1.34
45	12/9/1999	2:10:25 PM	0	23.644	21.527	23.552	24.149	22.243	174.295	47.919	55.241	9.176	38.869	7.033	0.018	36.293	0.152	0.131	33	33	15.1	43.4	2.992	0.066	0.069	0.00159	1.593	1.36
46	12/9/1999	2:11:25 PM	0	23.644	21.527	23.552	24.068	22.243	174.295	47.919	55.241	9.156	39.038	7.094	0.064	36.323	0.152	0.128	34	34	15.1	43.5	2.998	0.066	0.069	0.00159	1.590	1.35
47	12/9/1999	2:12:26 PM	0	23.77	21.572	23.597	24.113	22.288	174.333	47.671	55.058	9.176	38.97	7.156	0.064	36.293	0.152	0.134	35	35	15.1	43.3	2.987	0.066	0.069	0.00159	1.594	1.36
48	12/9/1999	2:13:26 PM	0	23.77	21.572	23.676	24.193	22.369	174.333	48.105	55.302	9.184	39.071	6.909	0.064	36.185	0.153	0.134	36	36	15.0	43.8	3.005	0.067	0.069	0.00159	1.591	1.35
49	12/9/1999	2:14:27 PM	0	23.814	21.536	23.803	24.158	22.414	174.37	48.167	55.646	9.112	39.071	7.002	0.064	36.308	0.153	0.128	37	37	15.1	43.6	3.007	0.067	0.069	0.00158	1.584	1.35
50	12/9/1999	2:15:27 PM	0	23.85	21.572	23.836	24.193	22.288	174.333	47.857	55.302	9.2	39.038	7.187	0.064	36.277	0.153	0.128	38	36	15.1	43.4	2.996	0.067	0.069	0.00159	1.589	1.35
51	12/9/1999	2:16:27 PM	0	23.975	21.617	23.883	24.158	22.333	174.37	47.961	55.058	9.168	39.679	7.002	0.064	36.446	0.153	0.131	39	39	15.1	43.8	3.018	0.067	0.069	0.00157	1.575	1.34
52	12/9/1999	2:17:28 PM	0	24.1	21.581	24.006	24.203	22.378	174.408	47.919	55.18	9.264	39.274	7.033	0.064	36.323	0.153	0.128	40	40	15.1	43.6	3.006	0.067	0.069	0.00158	1.576	1.34
53	12/9/1999	2:18:28 PM	0	24.1	21.581	24.068	24.263	22.378	174.408	48.229	55.646	9.192	39.274	6.871	0.064	36.385	0.152	0.128	41	41	15.1	43.6	3.017	0.066	0.068	0.00156	1.556	1.32
54	12/9/1999	2:19:28 PM	0	24.18	21.662	24.068	24.203	22.459	174.408	47.671	55.363	9.232	38.869	7.402	0.064	36.385	0.151	0.128	42	42	15.1	43.3	2.983	0.066	0.068	0.00156	1.563	1.33
55	12/9/1999	2:20:29 PM	0	24.18	21.581	24.189	24.263	22.459	174.408	47.961	55.485	9.232	39.274	7.217	0.064	36.339	0.152	0.131	43	43	15.1	43.6	3.008	0.066	0.068	0.00156	1.557	1.33
56	12/9/1999	2:21:29 PM	0	24.306	21.707	24.215	24.328	22.504	174.446	48.105	55.485	9.232	39.071	7.187	0.018	36.339	0.151	0.128	44	44	15.1	43.6	3.005	0.066	0.067	0.00155	1.546	1.32
57	12/9/1999	2:22:29 PM	0	24.306	21.627	24.294	24.248	22.504	174.446	47.961	55.546	9.264	38.97	7.187	0.064	36.446	0.149	0.128	45	45	15.1	43.5	2.997	0.065	0.068	0.00153	1.526	1.30
58	12/9/1999	2:23:30 PM	0	24.366	21.707	24.374	24.328	22.504	174.446	48.415	55.729	9.312	39.207	7.063	0.064	36.385	0.15	0.128	46	46	15.1	43.8	3.021	0.065	0.067	0.00152	1.521	1.29
59	12/9/1999	2:24:30 PM	0	24.511	21.752	24.419	24.373	22.468	174.483	48.353	55.668	9.296	39.443	7.063	0.018	36.339	0.149	0.125	47	47	15.1	43.9	3.027	0.065	0.066	0.00151	1.506	1.28
60	12/9/1999	2:25:30 PM	0	24.556	21.717	24.544	24.338	22.513	174.521	48.477	55.912	9.32	39.511	7.156	0.064	36.4	0.148	0.125	48	48	15.1	44.0	3.033	0.065	0.065	0.00149	1.488	1.27
61	12/9/1999	2:26:31 PM	0	24.636	21.717	24.544	24.418	22.513	174.521	48.291	55.729	9.272	39.576	7.094	0.064	36.4	0.148	0.125	49	49	15.1	43.6	3.022	0.065	0.065	0.00149	1.493	1.27
62	12/9/1999	2:27:31 PM	0	24.636	21.717	24.544	24.338	22.513	174.521	48.229	55.851	9.296	39.41	7.279	0.064	36.446	0.15	0.131	50	50	15.1	43.6	3.021	0.065	0.066	0.00151	1.514	1.29
63	12/9/1999	2:28:31 PM	0	24.636	21.717	24.544	24.338	22.433	174.521	48.043	55.607	9.232	39.207	7.248	0.064	36.461	0.149	0.125	51	51	15.1	43.6	3.008	0.065	0.066	0.00151	1.510	1.29
64	12/9/1999	2:29:32 PM	0	24.681	21.762	24.589	24.383	22.478	174.559	48.415	55.851	9.28	39.477	7.248	0.064	36.508	0.15	0.128	52	52	15.2	43.9	3.030	0.065	0.066	0.00151	1.507	1.28
65	12/9/1999	2:30:32 PM	0	24.761	21.762	24.669	24.383	22.478	174.559	48.105	55.78	9.32	39.41	7.279	0.064	36.538	0.149	0.125	53	53	15.2	43.8	3.017	0.065	0.066	0.00150	1.500	1.28
66	12/9/1999	2:31:32 PM	0	24.761	21.762	24.669	24.463	22.558	174.559	47.981	55.546	9.264	39.038	7.372	0.064	36.508	0.15	0.125	54	54	15.2	43.5	3.000	0.065	0.066	0.00152	1.519	1.29
67	12/9/1999	2:32:33 PM	0	24.806	21.807	24.634	24.428	22.603	174.596	48.229	55.851	9.336	39.004	7.402	0.018	36.569	0.15	0.128	55	55	15.2	43.6	3.007	0.065	0.066	0.00152	1.517	1.29
68	12/9/1999	2:33:33 PM	0	24.886	21.807	24.714	24.508	22.603	174.596	48.105	55.78	9.256	39.376	7.402	0.064	36.492	0.15	0.128	56	56	15.1	43.7	3.016	0.063	0.066	0.00151	1.509	1.28
69	12/9/1999	2:34:33 PM	0	24.886	21.807	24.714	24.428	22.603	174.596	48.353	55.973	9.24	39.105	7.279	0.064	36.508	0.151	0.125	57	57	15.2	43.7	3.015	0.066	0.066	0.00152	1.520	1.29
70	12/9/1999	2:35:34 PM	0	24.806	21.807	24.784	24.508	22.603	174.596	47.795	55.424	9.264	39.308	7.402	0.064	36.523	0.151	0.128	58	58	15.2	43.6	3.003	0.066	0.066	0.00152	1.522	1.30
71	12/9/1999	2:36:34 PM	0	24.886	21.807	24.714	24.508	22.603	174.596	48.043	55.729	9.32	39.071	7.433	0.064	36.477	0.151	0.131	59	59	15.1	43.6	3.003	0.066	0.066	0.00153	1.526	1.30
72	12/9/1999	2:37:34 PM	0	24.886	21.807	24.784	24.428	22.523	174.596	47.919	55.668	9.248	39.004	7.464	0.064	36.477	0.152	0.131	60	60	15.1	43.5	2.997	0.066	0.067	0.00154	1.536	1.31
73	12/9/1999	2:38:35 PM	0	25.011	21.652	24.919	24.553	22.648	174.634	47.857	55.607	9.24	39.139	7.464	0.064	36.584	0.152	0.134	61	61	15.2	43.5	2.999	0.066	0.067	0.00153	1.529	1.30
74	12/9/1999	2:39:35 PM	0	25.011	21.852	24.919	24.472	22.568	174.634	48.043	55.729	9.256	38.869	7.433	0.064	36.554	0.151	0.128	62	62	15.2	43.6	2.996	0.066	0.066	0.00152	1.520	1.29
75	12/9/1999	2:40:35 PM	0	24.966	21.807	24.874	24.508	22.603	174.596	47.795	55.546	9.208	38.936	7.526	0.064	36.508	0.151	0.128	63	63	15.2	43.6	2.990	0.066	0.066	0.00153	1.525	1.30
76	12/9/1999	2:41:36 PM	0	25.046	21.807	24.874	24.508	22.603	174.596	47.981	55.851	9.272	38.902	7.526	0.064	36.446	0.152	0.128	64	64	15.1	43.4	2.993	0.066	0.067	0.00153	1.533	1.30
77	12/9/1999	2:42:36 PM	0	25.091	21.933	24.999	24.472	22.648	174.634	48.043	55.851	9.248	39.071	7.495	0.018	36.523	0.152	0.128	65	65	15.2	43.6	3.003	0.066	0.066	0.00152	1.523	1.30
78	12/9/1999	2:43:36 PM	0	25.171	21.933	24.999	24.553	22.648	174.634	47.981	55.851	9.272	39.038	7.587	0.064	36.523	0.153	0.128	66	66	15.2	43.5	3.000	0.067	0.067	0.00154	1.535	1.31
79	12/9/1999	2:44:37 PM	0	25.216	21.978	25.044	24.596	22.694	174.672	47.981	55.912	9.24	39.071	7.587	0.064	36.508	0.153	0.131	67	67	15.2	43.5	3.001	0.067	0.067	0.00153	1.533	1.30
80	12/9/1999	2:45:37 PM	0	25.216	21.897	25.044	24.596	22.694	174.672	47.671	55.485	9.208	38.733	7.556	0.018	36.415	0.151	0.128	68	68	15.1	43.2	2.978	0.066	0.066	0.00152	1.524	1.30
81	12/9/1999	2:46:37 PM	0	25.216	21.978	25.124	24.596	22.694	174.672	47.671	55.485	9.264	38.596	7.556	0.064	36.4	0.151	0.128	69	69	15.1	43.1	2.974	0.066	0.066	0.00152	1.523	1.30
82	12/9/1999	2:47:38 PM	0	25.216	21.897	25.204	24.617	22.694	174.672	47.795	55.607	9.232	38.902	7.556	0.064	36.538	0.152	0.128	70	70	15.2	43.3	2.989	0.066	0.066	0.00152	1.522	1.30
83	12/9/1999	2:48:38 PM	0	25.377	21.978	25.284	24.596	22.694	174.672	47.465	55.363	9.224	38.801	7.587	0.064	36.431	0.151	0.128	71	71	15.1	43.1	2.975	0.066	0.066	0.00152	1.522	1.30
84	12/9/1999	2:49:38 PM	0	25.422	22.023	25.329	24.482	22.658	174.709	48.415	56.156	9.304	38.97	7.31	0.064	36.461	0.151	0.128	72	72	15.1	43.7	3.012	0.066	0.065	0.00149	1.495	1.27
85	12/9/1999	2:50:39 PM	0	25.502	21.942	25.489	24.562	22.739	174.709	48.477	56.034	9.24	39.274	7.31	0.064	36.477	0.152	0.131	73	73	15.1	43.9	3.025	0.066	0.065	0.00149	1.492	1.27

Second Wash: 75 liters DI Filtered Water

	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	12/8/1999	2:51:39 PM	0	25 627	22 068	25 534	24,607	22,784	174,747	48 601	56 217	9 368	39 071	7,279	0 064	36 508	0 15	0,126	74	74	15 2	43 8	3 022	0 065	0 065	0 00147	1 472	1 25
87	12/8/1999	2:52:39 PM	0	25 627	22 068	25 534	24 607	22,703	174,747	48,725	56,276	9 368	39 342	7,094	0,064	36 2	0,148	0 125	75	75	15 0	44 0	3 036	0 065	0 064	0 00145	1 445	1 23
88	12/8/1999	2:53:40 PM	0	25 707	21,968	25,614	24,788	22,784	174,747	48 477	55 912	9 344	39,071	7 217	0 064	36 415	0 15	0,126	76	76	15 1	43 8	3 018	0 063	0 064	0 00147	1 470	1 25
89	12/8/1999	2:54:40 PM	0	25,707	21 968	25 694	24,788	22,784	174,747	48,601	55,973	9 232	39 24	7,187	0 064	36,431	0,149	0 125	77	77	15 1	43 9	3 028	0 063	0 064	0 00145	1 452	1 24
90	12/8/1999	2:55 40 PM	0	25,732	22 033	25 659	24,813	22,829	174,785	47,961	55 485	9 288	39,105	7,217	0,064	36 385	0,148	0,125	78	78	15,1	43 5	3 002	0 063	0 063	0 00146	1 457	1 24
91	12/8/1999	2:56 41 PM	0	25 832	22 033	25 659	24 893	22 829	174,785	48,167	55,729	9 336	39 274	7,217	0 064	36 446	0 148	0,125	79	79	15 1	43 7	3 014	0 063	0 063	0 00145	1 451	1 23
92	12/8/1999	2:57:41 PM	0	25 832	22,113	25 659	24 813	22 829	174 785	48,105	55 485	9,36	38 835	7,167	0 064	36,369	0,147	0 125	80	80	15 1	43 5	2 997	0 064	0 063	0 00145	1 449	1 23
93	12/8/1999	2:58:41 PM	0	25 832	22,113	25 579	24 813	22 909	174,785	47,919	55 546	9 312	39 004	7,248	0 064	36 446	0,145	0 122	81	81	15 1	43 5	2,997	0 063	0 062	0 00143	1 433	1 22
94	12/8/1999	2:59:42 PM	0	25 832	22,113	25 659	24 813	22,749	174,785	48 353	55 851	9 36	39,139	7,248	0,064	36,415	0,15	0,126	82	82	15 1	43 7	3 016	0 065	0 064	0 00147	1 469	1 25
95	12/8/1999	3:00:42 PM	0	25 877	22 078	25 624	24 858	22,794	174,823	48,415	55 973	9 368	38 936	7,217	0 064	36 4	0,145	0,122	83	83	15 1	43 7	3 011	0 063	0 062	0 00142	1 424	1 21
96	12/8/1999	3:01:42 PM	0	25 877	22,159	25 624	24,658	22 874	174,823	48 415	55 973	9 352	39,004	7 217	0 064	36 323	0,144	0,122	84	84	15,1	43 7	3 014	0 063	0 062	0 00141	1 413	1 20
97	12/8/1999	3:02:43 PM	0	25,797	22 159	25 624	24 938	22 874	174 823	48,539	56 217	9 368	39 24	7,279	0 064	36 339	0,144	0,119	85	85	15 1	43 9	3 026	0 063	0 062	0 00141	1 413	1 20
98	12/8/1999	3:03:43 PM	0	25 877	22,159	25,624	24,778	22,794	174 823	48,477	55,973	9 399	39,173	7,248	0,111	36,339	0,143	0,119	86	86	15 1	43 6	3 022	0 062	0 061	0 00140	1 400	1 19
99	12/8/1999	3:04:43 PM	0	25,797	22,159	25 624	24,778	22,794	174,823	48,167	55,729	9 32	39 477	7,279	0 111	36,369	0,142	0 122	87	87	15 1	43 6	3 021	0 062	0 061	0 00139	1 390	1 18
100	12/8/1999	3:05:44 PM	0	25 842	22 204	25 669	24,745	22,759	174 86	48 787	56,276	9,407	39,477	7,125	0,111	36,277	0,142	0,119	88	88	15,1	44,1	3 043	0 062	0 061	0 00139	1 390	1 18
101	12/8/1999	3:06:44 PM	0	25 842	22 123	25 669	24,745	22 839	174,86	48,105	55,729	9 328	39 004	7,248	0 064	35 955	0,14	0 116	89	89	14 9	43 6	3 003	0 061	0 060	0 00136	1 377	1 17
102	12/8/1999	3:07:44 PM	0	25 842	22,123	25,749	24,745	22 839	174 86	48 415	56 034	9 376	39 274	7,187	0,064	36,308	0,138	0,113	90	90	15 1	43 6	3 023	0 060	0 059	0 00135	1 345	1 14
103	12/8/1999	3:08:45 PM	0	25 922	22,204	25,749	24,823	22 839	174 86	48,105	55,729	9,407	39 004	7 248	0 064	36 262	0,139	0,116	91	91	15 0	43 6	3 003	0 061	0 059	0 00136	1 364	1 16
104	12/8/1999	3:09 45 PM	0	25 922	22,204	25,749	24 823	22,759	174,86	48 291	55 912	9 383	39,105	7,248	0 064	36 2	0,139	0,119	92	92	15 0	43 7	3 013	0 061	0 059	0 00136	1 360	1 16
105	12/8/1999	3:10:45 PM	0	25,967	22 249	25,794	24,868	22,884	174,896	48 477	55 973	9 391	39 646	7,279	0,064	36,246	0,138	0,116	93	93	15 0	44,1	3 038	0 060	0 059	0 00134	1 337	1 14
106	12/8/1999	3:11:46 PM	0	25 922	22,204	25 749	24,823	22,759	174,86	48,291	55,668	9 463	39,274	7,279	0 064	36,185	0 137	0,113	94	94	15 0	43 8	3 019	0 060	0 059	0 00134	1 338	1 14
107	12/8/1999	3:12:46 PM	0	26 047	22 249	25 794	24,788	22 884	174 896	48 291	55,912	9 391	39,004	7,31	0 064	36 2	0,137	0,113	95	95	15 0	43 6	3 009	0 060	0 058	0 00134	1 340	1 14
108	12/8/1999	3:13:46 PM	0	26 047	22 249	25,794	24,707	22 884	174,896	48,415	55 668	9,447	39 477	7,063	0 064	36 216	0,133	0,107	96	96	15 0	43 9	3 030	0 058	0 057	0 00129	1 292	1 10
109	12/8/1999	3:14:47 PM	0	25 967	22 249	25,674	24,707	22,804	174 896	48 725	56,156	9 519	39,545	7,187	0 064	36 047	0,135	0,113	97	97	15 0	44 1	3 043	0 059	0 058	0 00130	1 303	1 11
110	12/8/1999	3:15:47 PM	0	26 047	22 329	25 874	24,788	22,884	174,896	48 415	55 912	9 503	39,139	7,187	0 064	36,124	0,135	0 11	98	98	15 0	43 8	3 018	0 059	0 058	0 00131	1 314	1 12
111	12/8/1999	3:16:47 PM	0	26,127	22,249	25,954	24,788	22,804	174 896	48 601	56,034	9,463	39,376	7,156	0 064	36,17	0,132	0,11	99	99	15 0	44 0	3 033	0 058	0 056	0 00128	1 275	1 09
112	12/8/1999	3:17:48 PM	0	26,127	22,249	25,954	24,868	22,884	174,896	48 663	55 973	9 467	39,714	7,033	0 064	36 248	0,128	0,104	100	100	15 0	44 2	3 047	0 056	0 054	0 00123	1 231	1 05
113	12/8/1999	3:18:48 PM	0	26 127	22,329	25 874	24 868	22,884	174,896	48,415	55,79	9,511	39,173	7,187	0,064	36 031	0,132	0,11	101	101	15 0	43 8	3 019	0 058	0 056	0 00128	1 284	1 09
114	12/8/1999	3:19:48 PM	0	26,127	22,329	25 874	24,948	22,884	174 896	48 539	55 912	9,479	39,173	7,125	0 064	36,139	0,13	0,107	102	102	15 0	43 9	3 024	0 057	0 055	0 00126	1 263	1 07
115	12/8/1999	3:20:49 PM	0	26,172	22 375	25 919	24,993	22,929	174,936	48,415	55 973	9 439	39,376	7,187	0 064	36,093	0,131	0,107	103	103	15 0	43,9	3 026	0,057	0 056	0 00127	1 270	1 08
116	12/8/1999	3:21:49 PM	0	26,127	22,329	25 954	24 948	22,884	174,896	48 415	55,973	9,559	39,24	7 248	0 064	36 062	0,128	0,104	104	104	15 0	43 8	3 022	0 056	0 054	0 00124	1 241	1 06
117	12/8/1999	3:22:49 PM	0	26 127	22,249	25 874	24,948	22 884	174,896	48,415	55 973	9 559	39,207	7,279	0 064	36,124	0,132	0,11	105	105	15,0	43 8	3 021	0 058	0 056	0 00126	1 283	1 09
118	12/8/1999	3:23:50 PM	0	26,172	22,375	25 919	24 913	22 929	174,936	48 539	55,973	9,527	39,511	7,033	0 064	36,154	0,126	0,101	106	106	15 0	44 0	3 035	0 055	0 054	0 00122	1 218	1 04
119	12/8/1999	3:24:50 PM	0	26 092	22,375	25,919	24,913	22,929	174 936	48,787	55 851	9 543	39 646	6 817	0 064	36 077	0,122	0 097	107	107	15 0	44 2	3 049	0 053	0 052	0 00117	1,174	1 00
120	12/8/1999	3:25:51 PM	0	26,172	22,375	25,919	24 833	22,849	174,936	48,353	55 79	9 495	39 207	7,156	0 064	36,031	0 127	0,104	108	108	15 0	43 8	3 016	0 055	0 054	0 00123	1 234	1 05
121	12/8/1999	3:26:51 PM	0	26,172	22,375	25,919	24,913	22,849	174,936	48 415	55,79	9 511	39 207	7,125	0,111	35 97	0,127	0,104	109	109	14 9	43 8	3 021	0 055	0 054	0 00123	1 233	1 05
122	12/8/1999	3:27:51 PM	0	26,172	22 375	25,999	24,913	22,929	174,936	48 849	56 034	9 559	39,714	6 786	0 064	36 031	0,12	0 097	110	110	15 0	44 3	3 053	0 052	0 051	0 00115	1,150	0 98
123	12/8/1999	3:28:52 PM	0	26,127	22,375	25 999	24,913	22,849	174,936	49 034	56 481	9 623	39 308	7,156	0,111	36 077	0,129	0,107	111	111	15 0	44 2	3 045	0 056	0 055	0 00124	1 240	1 05
124	12/8/1999	3:29:52 PM	0	26,252	22,375	25,999	24 913	22 849	174,936	48 539	55,912	9,591	39,24	7,063	0,111	35 965	0,124	0,104	112	112	14 9	43 9	3 026	0 054	0 053	0 00120	1,199	1 02
125	12/8/1999	3:30:52 PM	0	26,172	22,455	25,999	24 633	22,929	174,936	48 663	56 095	9 663	39 308	7,156	0 064	36 016	0,123	0 097	113	113	14,9	44 0	3 033	0 054	0 052	0 00118	1 187	1 01
126	12/8/1999	3:31:53 PM	0	26 252	22 455	25 999	24,913	22,849	174,936	48,539	55,973	9 583	39 24	7,187	0 064	36,016	0,122	0 097	114	114	15 0	43 9	3 026	0 056	0 054	0 00124	1 238	1 05
127	12/8/1999	3:32:53 PM	0	26,252	22 375	26 079	24,913	22 929	174,936	48 911	56,4	9 591	39,24	7,063	0 111	36 016	0,122	0 097	115	115	14 9	44,1	3 039	0 053	0 052	0 00117	1 172	1 00
128	12/8/1999	3:33:53 PM	0	26,252	22,455	26 079	24,913	22,929	174,936	48 539	56 034	9 623	39 645	7,187	0,111	36,016	0,122	0 097	116	116	14 9	44 0	3 037	0 053	0 052	0 00117	1 173	1 00
129	12/8/1999	3:34 54 PM	0	26,252	22,455	26,159	24,913	22,849	174 936	49 034	55,973	9,639	39,748	6 755	0 064	36 001	0,127	0,104	117	117	14,9	44,4	3 061	0 055	0 054	0 00121	1 209	1 03
130	12/8/1999	3:35:54 PM	0	26,332	22,375	26,159	24,913	22,929	174,936	48 849	56,156	9 671	39 24	7,002	0 111	36,016	0,12	0 094	118	118	14 9	44 0	3 037	0 052	0 051	0 00115	1,151	0 98
131	12/8/1999	3:36 54 PM	0	26,332	22,455	26,239	24 833	22,849	174,936	49,22	56 339	9,703	39,443	6 817	0,111	35,97	0,118	0,097	119	119	14 9	44,3	3 057	0 052	0 050	0 00112	1 122	0 96
132	12/8/1999	3:37:55 PM	0	26 412	22,455	26 239	24 833	22,849	174,936	48 415	55 912	9,703	39 376	7,217	0,111	35 955	0,116	0 094	120	120	14,9	43 9	3 026	0 051	0 049	0 00111	1 114	0 95
133	12/8/1999	3:38:55 PM	0	26 412	22,455	26 319	24 833	22,849	174,936	48,787	56 278	9 671	39 376	7,217	0 111	36 047	0,117	0 094	121	121	15 0	44 1	3 039	0,051	0 049	0 00112	1 117	0 95
134	12/8/1999	3:39:55 PM	0	26,412	22,455	26 319	24,752	22 849	174,936	48,725	56,276	9,463	39,714	7,372	0 064	35 478	0,117	0 097	122	122	14,7	44 2	3 049	0 051	0 049	0 00111	1,113	0 95
135	12/8/1999	3:40:56 PM	0	26 537	22 8	26,444	24,796	22,884	174,974	48,849	56 276	9 519	39,748	7,125	0,111	35,356	0,114	0,091	123	123	14 7	44 3	3 054	0 050	0 048	0 00108	1 079	0 92
136	12/8/1999	3:41:56 PM	0	26 572	22,536	26,399	24 672	22 849	174 936	49 22	56 522	9,567	39,714	7,033	0 064	35 356	0,11	0 085	124	124	14,7	44 5	3 066	0 048	0 048	0 00104	1 038	0 88
137	12/8/1999	3:42:56 PM	0	26,572	22,536	26,479	24,672	22,929	174,936	48,911	56 522	9 527	39,748	7,279	0,111	35,34	0,114	0,091	125	125	14 7	44 3	3 056	0,050	0 048	0 00108	1 077	0 92
138	12/8/1999	3:43:57 PM	0	26,651	22,536	26,559	24,592	22 929	174 936	48 849	56,583	9 519	39,443	7,341	0,111	35 356	0,114	0 091	126	126	14,7	44,1	3 044	0 050	0 048	0 00108	1,079	0 92
139	12/8/1999	3:44:57 PM	0	26,731	22,536	26,639	24,592	23,01	174,936	49,158	56 522	9 535	39,95	7,002	0 064	35 279	0,116	0 094	127	127	14 6	44 8	3 072	0 052	0 049	0 00110	1,104	0 94
140	12/8/1999	3:45:57 PM	0	26 651	22,536	26,719	24,592	23,01	174,936	48,811	56,705	9 662	36,299	10 422	0 064	35,156	0,181	0,152	128	128	14,6	41,1	2 831	0 079	0 075	0 00183	1 834	1,56
141	12/8/1999	3:46:58 PM	0	26,611	22,536	26,719	24,592	23,01	174,936	48 291	56,949	10,397	37,618	8 234	0,111	35,74	0,121	0 094	129	129	14 8	43 0	2 962	0 053	0 050	0 00117	1,172	1 00
142	12/8/1999	3:47:58 PM	0	26,691	22,536	26,799	24,512	23 01	174,936	47,919	56,644	10,261	37,651	8,296	0,111	35 586	0,12	0,094	130	130	14 8	42,8	2,950	0 052	0 050	0 00116	1,164	0 99
143	12/8/1999	3:48:58 PM	0	26,691	22,536	26,799	24,512	23,01	174,936	47,671	56,217	10,237	37,685	8,296	0 064	35,555	0,117	0,091	131	131	14 8	42,7	2 942	0 051	0 049	0 00114	1,138	0 97
144	12/8/1999	3:49:59 PM	0	26,671	22,616	26,799	24,512	22,929	174,936	47,795	56,481	10,205	37,719	8 296	0,064	35 601	0,117	0 091	132	132	14 8	42 8	2 948	0 051	0 049	0 00114	1 136	0 97
145	12/8/1999	3:50:59 PM	0	26,671	22,536	26,878	24,512	22,929	174,936	47,919	56,583	10,237	37,787	8 358	0,111	35,601	0,116	0 094	133	133	14,6	42 9	2,955	0 051	0 048	0 00112	1 121	0 95
146	12/8/1999	3:51:59 PM	0	26 971	22,536	26,958	24,512	23 01	174,936	47,299	55 851	10,237	37,618	8 389	0,111	35 571	0,116	0,094	134	134	14 6	42 9	2 955	0 051	0 048	0 00113	1,129	0 96
147	12/8/1999	3:53:00 PM	0	27,051	22,616	27,038	24,432	23,01	174 936	47,423	56,217	10,221	37,719	8,419	0 111	35 601	0 115	0 091	135	135	14 8	42 6	2 935	0,050	0 047	0 00111	1,114	0 95
148	12/8/1999	3:54:00 PM	0	27,051	22,616	26 958	24,432	22,929	174,936	47,981	56,4	10,317	38,023	8 204	0 064	35 555	0,12	0 097	136	136	14 6	43 0	2,965	0 052	0 050	0 00115	1,153	0 98
149	12/8/1999	3:55:00 PM	0	27,131	22,536	27,038	24,432	22,929	174,936	48,167	56 949	10,325	37,753	8 358	0,111	35 601	0,114	0,091	137	137	14,6	43 0	2 962	0 050	0 047	0 00109	1,094	0 93
150	12/8/1999	3:56:01 PM	0	27,131	22,616	27,118	24 432	22,929	174,936	47,919	56 4	10,285	37,654	8,173	0 064	35 632	0,12	0 094	138	138	14 8	42 9	2 957	0 052	0 049	0 00115	1,151	0 98
151	12/8/1999	3:57:01 PM	0	27,131	22,616	27,038	24,351	22,929	174,936	47,795	56,339	10,293	37,654	8,265	0,111	35 555	0,114	0,088	139	139	14 8	42 8	2 953	0 050	0 047	0 00110	1 096	0 93
152	12/8/1999	3:58:01 PM	0	27,211	22,616	27,118	24,351	22,849	174,936	48,105	56 583	10,293	38 057	8,173	0,111	35 647	0,115	0 091	140	140	14 8	43 1	2 970	0 050	0 047	0 00110	1 096	0 93
153	12/8/1999	3:59:02 PM	0	27,291	22,616	27,118	24,271	22,849	174,936	47,795	56,278	10,293	37,787	8 173	0,111	35 555	0,105	0 082	141	141	14 8	42 8	2 950	0 048	0 043	0 00101	1 010	0 86
154	12/8/1999	4:00:02 PM	0	27,211	22,616	27,118	24,351	23 01	174 936	47,857	56 583	10,333	37,685	8,389	0 111	35 54	0,111	0,085	142	142	14,7	42 8	2 949	0 048	0 046	0 00107	1 068	0 91
155	12/8/1999	4:01:02 PM	0	27,291	22,616	27,118	24,271	22,929	174,936	47,547	56,4	10,317	37,482	8 419	0,064	35 555	0,113	0,088	143	143	14,6	42 5	2 931	0 049	0 046	0 00109	1,094	0 93
156	12/8/1999	4:02:03 PM	0	27,291	22,616	27,118	24,271	22,849	174,936	48,291	56,705	10,253	36,226	8 08	0,111	35 356	0,112	0 088	144	144	14 7	43,3	2 983	0 049	0 046	0 00107	1,065	0 91
157	12/8/1999	4:03:03 PM	0	27,371	22,616	27,038	24,191	22,849	174,936	48,229	56 888	10,269	37,821	8,358	0,111	35,263	0,106	0 079	145	145	14 6	43 0	2 956	0 048	0 044	0 00102	1,016	0 86
158	12/8/1999	4:04:03 PM	0	27,291	22,616	27,118	24,191	22,849	174,936	48,353	56,949	10,285	37,99	8,234	0 111	35,294	0,114	0,091	146	146	14 6	43 2	2 977	0 050	0 047	0 00109	1,086	0 92
159	12/8/1999	4:05:04 PM	0	27,291	22,616	27,038	24,111	22,849	174,936	48 679	56,4	10,325	36,705	9 375	0,111	35,325	0,13	0,101	147	147	14 7	41,7	2 875	0 057	0 054	0 00129	1 286	1 09
160	12/8/1999	4:06:04 PM	0	27,291	22,616	27,038	24,031	22,849	174,936	47,671	56,705	10 429	37,516	8 666	0,111	35,263	0,11	0 082	148	148	14 6	42 6	2 937	0 048	0 045	0 00106	1 065	0 91
161	12/8/1999	4:07:04 PM	0	27,291	22,697	27,038	24,111	22,769	174,936	47,423	56,522	10 421	37,381	8 666	0,111	35,263	0,11	0,082	149	149	14 6	42 4	2 923	0 048	0 045	0 00107	1 070	0 91
162	12/8/1999	4:08:05 PM	0	27,211	22,616	26,958	24,031	22,769	174,936	47,485	56 461	10,413	37,651	8 604	0,111	35 309	0,11	0 082	150	150	14,7	42 6	2 935	0 048	0 045	0 00107	1,043	0 89
163	12/8/1999	4:09:05 PM	0	27,211	22,697	26,878	24,031	22,769	174,936	47,609	56,705	10,429	37,381	8 758	0 064	35 263	0 107	0 082	151	151	14 6	42 5	2 930	0 047	0 044	0 00104	1 043	0 89
164	12/8/1999	4:10:05 PM	0	27,211	22 697	26,878	24,111	22,849	174,936	47,857	56,949	10,461	37,347	8,758	0,111	35,325	0,104	0 076	152	152	14 7	42 6	2 937	0 045	0 043	0 00101	1 011	0 86
165	12/8/1999	4:11:06 PM	0	27,131	22,697	26,878	24,031	22,849	174 936	47,919	56 888	10,453	37,516	8,728	0 111	35 309	0,106	0 079	153	153	14 7	42 7	2 945	0 046	0 044	0 00103	1 028	0 87
166	12/8/1999	4:12:06 PM	0	27,131	22 697	26,799	24,031	22 849	174,936	47,485	56,4	10,445	37,719	8 666	0 111	35,309	0 105	0 079	154	154	14 7	42 6	2 937	0 046	0 044	0 00102	1 023	0 87
167	12/8/1999	4:13:06 PM	0	27,131	22 697	26,799	24,031	22,769	174,936	47,299	56,278	10 461	37,347	8 697	0,111	35,233	0,104	0 079	155	155	14 6	42 3	2 918	0 045	0 043	0 00102	1 020	0 87
168	12/8/1999	4:14:07 PM	0	27,006	22,651	26,674	23,965	22,723	174,896	47,919	57,01	10,518	37,827	8 697	0,111	35,248	0,103	0,079	156	156	14 8	42 9	2 956	0 045	0 043	0 00100	1 001	0 85
169	12/8/1999	4:15:07 PM	0	27,051	22,697	26,719	24,031	22,688	174,936	47,671	56,766	10,405	37,618	8 697	0,111	35 048	0,104	0 076	157	157	14 5	42 6	2 940	0 045	0 043	0 00101	1 015	0 86
170	12/8/1999	4:16:07 PM	0	26 971	22,697	26,719	24,031	22,769	174,936	47 919	56 888	10 461	37 55	8 728	0 111	35 171	0 102	0 076	158	158	14 6	42 7	2 948	0 045	0 042	0 00099	0 993	0 85

Second Wash: 75 liters DI Filtered Water

	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	12/8/1999	4:17:06 PM	0	26.971	22.697	26.639	23.85	22.769	174.936	43.951	56.278	9.671	34.812	12.025	0.111	35.478	0.011	-0.018	159	159	14.7	39.4	2.715	0.005	0.005	0.000121	0.116	0.10
172	12/8/1999	4:18:06 PM	0	26.971	22.697	26.559	23.85	22.769	174.936	48.493	57.071	10.58	36.096	10.238	0.111	35.11	0.11	0.079	160	160	14.6	41.3	2.847	0.048	0.048	0.00111	1.113	0.95
173	12/8/1999	4:19:06 PM	0	26.891	22.697	26.559	23.85	22.769	174.936	48.493	56.827	10.572	36.367	9.991	0.064	35.156	0.104	0.076	161	161	14.6	41.4	2.858	0.043	0.043	0.00105	1.049	0.89
174																												
175		Averages		25.5	22.1	25.4	24.8	22.7	174.7	48.1	56.0	8.5	35.9	7.5	0.1	35.0	0.135	0.111			14.9	43.5	2.998	0.059	0.058	0.001343	1.343	1.143
176		Maximum		27.4	22.7	27.1	25.0	23.0	175.0	49.2	57.1	10.6	40.1	12.0	0.1	36.6	0.181	0.152			15.2	44.6	3.072	0.079	0.075	0.001834	1.834	1.561
177		Median		25.9	22.2	25.7	24.5	22.8	174.9	48.2	55.9	9.4	39.1	7.2	0.1	35.1	0.142	0.119			15.0	43.7	3.012	0.062	0.061	0.001390	1.390	1.183
178		Minimum		22.5	21.3	22.4	23.6	22.0	174.0	44.0	55.1	8.8	34.8	6.5	0.0	35.0	0.011	-0.018			14.5	39.4	2.715	0.005	0.005	0.000116	0.116	0.099
179		Std Deviation		1.344	0.423	1.301	0.343	0.264	0.273	0.604	0.478	0.474	0.867	0.778	0.026	0.432	0.020	0.021			0.179	0.698	0.048	0.009	0.010	0.000230	0.230	0.196
180		Number of Points Used		147	147	147	147	147	147	147	147	147	147	147	147	147	147	147			147	147	147	147	147	147	147	147



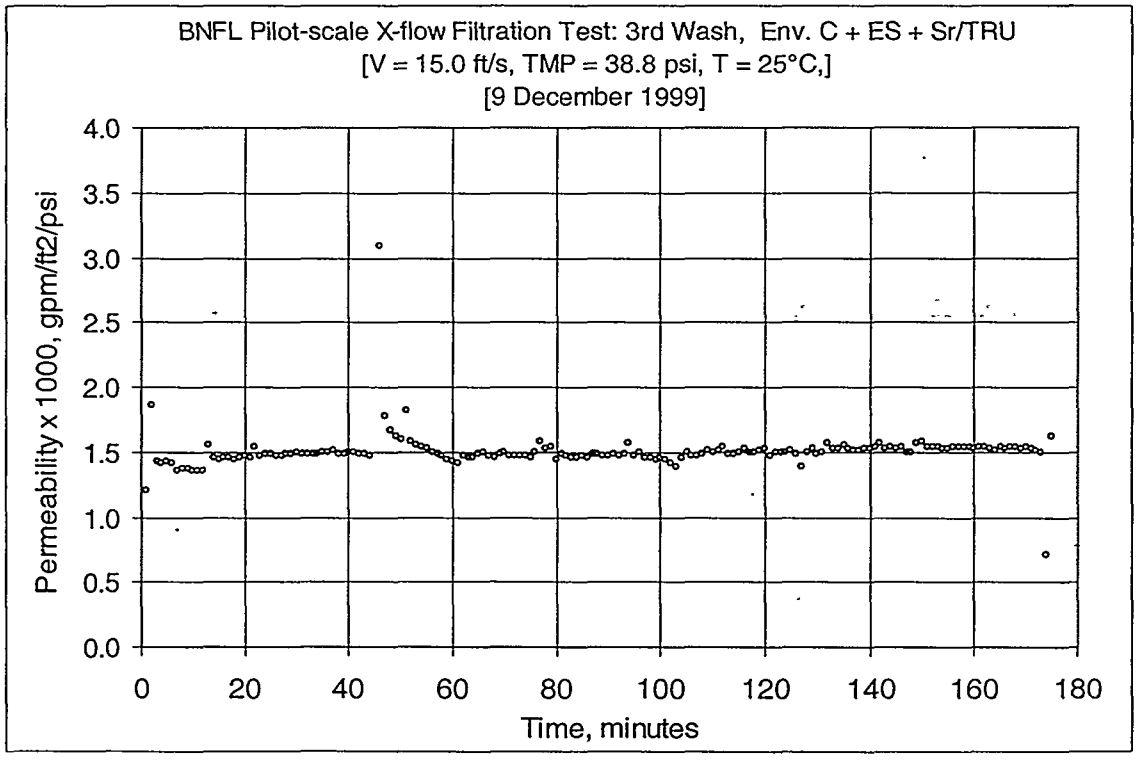


Figure D3: Third Wash: 75 liters of Deionized/Filtered Water with 0.01 M NaOH

Third Wash: 75 liters DI Filtered Water

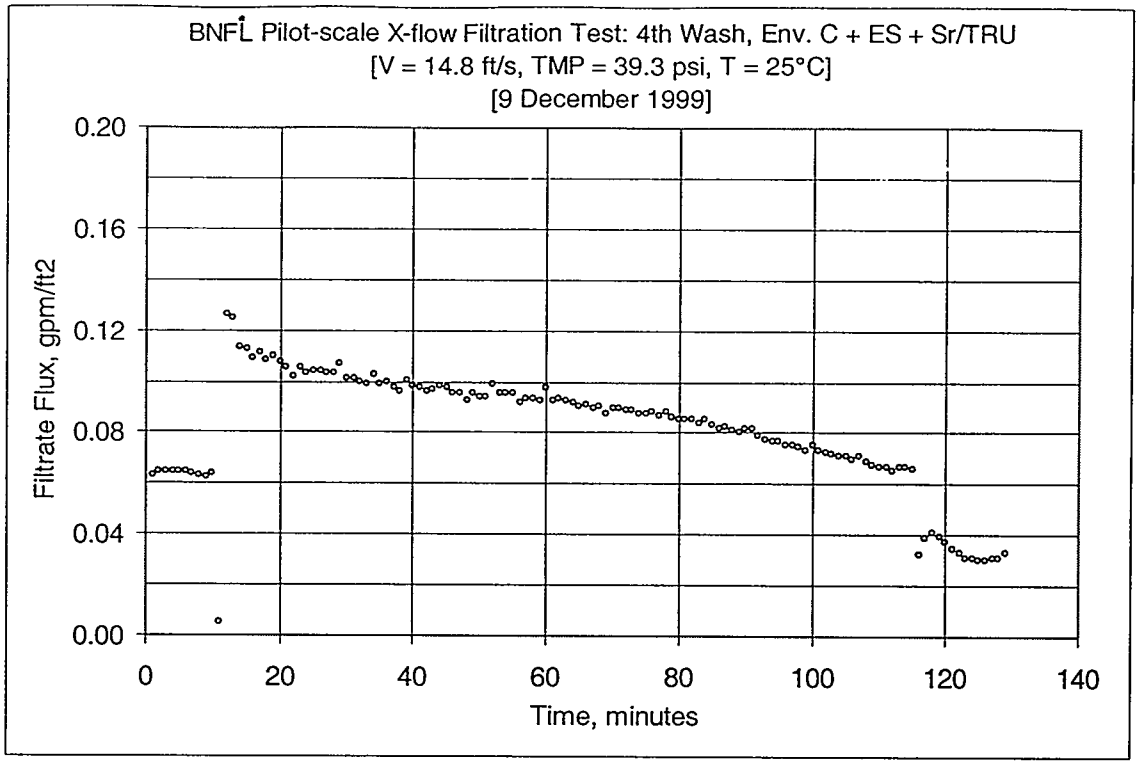
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	DATE	TIME	SOLENOID	FLTAT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (pai	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	SL FLOW	O2,FLTR	RO3,FLTR	FLOW (gpm)									
2	Zeros - Not Connected																				Filter Surface Area		2 29	FT2				
3	12/9/1999	8:21:16 AM	0	18.993	18.482	18.744	20.742	15 908	170.77	-0 061	-0 067	-0 015	-0 011	-0 088	-0 028	-0 095	0 012	-0 018			Conversion		851.0145	m3/m2/day/barg / gpm/ft2/barg				
4	12/9/1999	8:22:17 AM	0	20 03	19 439	18.781	20.779	15 864	170,733	-0 061	-0.128	-0 007	-0 011	-0 088	-0 028	-0 095	0 011	-0 018										
5	12/9/1999	8:23:17 AM	0	19.966	19 475	18.737	20 896	15.982	170 697	-0 061	-0 067	-0 007	-0 011	-0,117	-0 028	-0 079	0 011	-0 018										
6	12/9/1999	8:24:17 AM	0	20 023	19 512	18.774	20 933	16 019	170 66	-0 061	-0 067	-0 007	-0 011	-0 088	-0 028	-0 079	0 011	-0 018										
7	12/9/1999	8:25:18 AM	0	19 896	19 468	18.729	20 87	15 812	170 623	-0 061	-0.128	-0 007	-0 011	-0,117	-0 028	-0 079	0 011	-0 018										
8	12/9/1999	8:26:18 AM	0	19 935	19 424	18.766	21 006	15.93	170 666	-0 061	-0.128	-0 007	-0 011	-0 088	-0 028	-0 079	0 011	-0 018										
9	12/9/1999	8:27:18 AM	0	19 971	19 461	18.722	21.124	15 967	170.55	-0 061	-0.067	-0 007	-0 011	-0 088	-0 028	-0 095	0 011	-0 018										
10																												
11	Data - Per Minute																								at 25C	PERMABILITY	x 1000	PERMABILITY
12	12/9/1999	8:38:16 AM	0	23.384	19 571	24.895	21,717	20 531	170.44	48.291	57,01	10.516	38.023	8.389	-0.028	36 584	0,118	0.101	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
13	12/9/1999	8:39:16 AM	0	23.391	19 578	25.142	21,725	20 661	170,813	47,857	56.4	9.75	38.395	8.234	-0 028	37,396	0,185	0,149	1	1	15 2	43 2	2 978	0 052	0 052	0 00120	1,197	1 02
14	12/9/1999	8:40:17 AM	0	24.318	19 542	25.426	21 649	21,146	170.55	48 228	56,705	8.998	38.53	8.111	-0 028	37,229	0,144	0 119	2	2	15 5	43,1	2 973	0 081	0 080	0 00187	1 865	1,59
15	12/9/1999	8:41:17 AM	0	24.726	19 549	25.753	22.017	21,315	170 623	47,423	56,766	9 842	37.518	9 036	-0 028	37,278	0,141	0,113	3	3	15 5	43,4	2 991	0 063	0 062	0 00143	1 432	1 22
16	12/9/1999	8:42:18 AM	0	25.091	19 512	26,117	21,98	21,278	170 68	47,237	56 4	9.591	37,922	8 851	-0 028	36,707	0,144	0,119	4	4	15 5	42,5	2 928	0 062	0 060	0 00142	1 419	1 21
17	12/9/1999	8:43:18 AM	0	25.418	19 519	26.364	22,149	21 446	170,733	47,795	57,071	9 822	38 228	8 62	-0 028	36 878	0,144	0 119	5	5	15,2	42 6	2 936	0 063	0 061	0 00143	1 431	1 22
18	12/9/1999	8:44:18 AM	0	25.782	19 563	26.727	22,112	21,571	170.77	48,043	57,071	9,703	38,328	8.789	-0 028	36 584	0,141	0,119	6	6	15 3	43 0	2 965	0 063	0 061	0 00141	1 407	1 20
19	12/9/1999	8:45:18 AM	0	26.109	19 57	26.974	22.26	21,739	170 844	47,609	56,705	9 646	38,192	8 758	-0 028	37,245	0,142	0,122	8	8	15 5	42 9	2 958	0 062	0 059	0 00137	1 367	1,16
20	12/9/1999	8:46:19 AM	0	26 313	19 534	27,177	22 405	21,703	170 68	47,237	56,278	9 817	38 226	8 62	-0 028	36 892	0,142	0,119	9	9	15 3	42,7	2 946	0 062	0 058	0 00137	1,365	1,16
21	12/9/1999	8:47:19 AM	0	26 72	19 622	27,503	22 653	21 871	170 954	47,561	56 461	9 878	38,102	8 62	-0 028	37,188	0,143	0,122	10	10	15 4	42 8	2 949	0 062	0 058	0 00136	1,361	1,16
22	12/9/1999	8:48:20 AM	0	26.923	19 585	27,827	22,697	21,815	170,991	47,547	56 644	8,934	38,159	8,789	-0 028	37,26	0,144	0 122	11	11	15,5	42,9	2,955	0 063	0 058	0 00136	1 363	1,16
23	12/9/1999	8:49:20 AM	0	27,17	19 592	27,873	22,665	22,003	171,064	47,237	56,461	8,894	38 091	8 789	-0 028	37,306	0,143	0,119	12	12	15 5	42 7	2 942	0 062	0 058	0 00135	1,351	1,15
24	12/9/1999	8:50:20 AM	0	27,134	19 636	27,917	22 829	21,966	171,101	18 474	26 52	5,027	13 58	7,854	-0 028	25,495	0 062	0,037	13	13	10 6	18 0	1,105	0 027	0 025	0 00156	1 557	1 32
25	12/9/1999	8 51:21 AM	0	27,381	19 644	28,247	22,918	21 893	171,175	34 281	42,74	7,405	28,219	8,481	-0,028	32 437	0,106	0 085	14	14	13 5	31,3	2 155	0 047	0 046	0 00148	1 457	1,24
26	12/9/1999	8 52:21 AM	0	28 945	19 688	24 129	22 88	21,856	171,211	44,261	53,412	9 256	35,468	8,789	-0 028	36 635	0,128	0,104	15	15	15 2	39 9	2,749	0 056	0 057	0 00144	1,436	1,22
27	12/9/1999	8:53:21 AM	0	25.549	19 651	24.092	22,783	21,9	171,248	44,571	53,534	9,312	35,724	8,789	-0 028	36 736	0,131	0,107	16	16	15,2	40,1	2 768	0 057	0 059	0 00146	1 461	1 24
28	12/9/1999	8:54:22 AM	0	25,156	19 659	24,1	22,77	21,827	171,322	44 819	53,839	9,136	36,13	8,728	-0 028	36 692	0,132	0,104	17	17	15 2	40 5	2,791	0 058	0 059	0 00146	1 460	1,24
29	12/9/1999	8:55:22 AM	0	24 879	19,703	24,144	22,653	21,871	171,359	45,191	54,367	9 24	36,232	8,728	-0 028	36 646	0,131	0,104	18	18	15,2	40,7	2 807	0 057	0 059	0 00144	1,439	1,22
30	12/9/1999	8:56:22 AM	0	24,726	19 71	24,151	22 661	21,798	171,432	45,129	54,144	9 344	35 657	8,635	0 018	36,738	0,131	0,107	19	19	15,2	40,4	2 785	0 057	0 059	0 00145	1,450	1,23
31	12/9/1999	8 57:23 AM	0	24 574	19 799	24 079	22,749	21,725	171,606	44,943	53,9	9,268	35,951	8 635	-0 028	36 584	0,132	0,104	20	20	15 2	40 5	2,789	0 058	0 059	0 00146	1 462	1,24
32	12/9/1999	8:58:23 AM	0	24 457	19,782	24 042	22,712	21,608	171,643	44 819	53,778	9,336	35 66	8 635	0 018	36,968	0,131	0,11	21	21	15 3	40 3	2,781	0 057	0 059	0 00146	1,457	1 24
33	12/9/1999	8 59:23 AM	0	24,34	19 806	24 006	22 515	21,411	171,58	44,681	53,639	9,224	36,232	8 635	0 018	36,723	0,139	0,119	22	22	15,2	40 6	2,796	0 061	0 062	0 00154	1,539	1,31
34	12/9/1999	9:00:24 AM	0	24,304	19,77	23,97	22,237	21,213	171,617	45 003	53,717	9 272	36 029	8,543	0 018	36,477	0,132	0 107	23	23	15,1	40 5	2,794	0 058	0 059	0 00146	1,464	1 25
35	12/9/1999	9:01:24 AM	0	24 312	19 858	24 058	22,164	21,221	171,691	44,757	53,717	9 224	35 927	8 635	0 018	36 584	0,133	0,11	24	24	15 2	40 3	2,781	0 058	0 060	0 00148	1,478	1 26
36	12/9/1999	9:02:25 AM	0	24,275	19 822	24 021	22,209	21,104	171,727	43 827	52 619	8,961	35 014	8 512	-0 028	35 878	0,13	0,107	25	25	14,9	39 4	2 718	0 057	0 058	0 00148	1 480	1 26
37	12/9/1999	9:03:25 AM	0	24,319	19 868	24 065	22 092	21,067	171,764	43,703	52,558	9 136	34,778	8 573	-0 028	36 4	0,129	0,107	26	26	15 1	39 2	2,705	0 056	0 058	0 00147	1,473	1 25
38	12/9/1999	9:04:26 AM	0	24,263	19 91	24,109	21,975	21,031	171,801	43,331	52,314	9 128	34 879	8 635	-0 028	36 369	0,128	0,101	27	27	15,1	39 1	2 696	0 056	0 057	0 00147	1 465	1,25
39	12/9/1999	9:05:26 AM	0	24,247	19 874	24,153	21,938	20 914	171,838	43,703	52 619	9 056	35 014	8,635	-0 028	36,154	0,13	0 107	28	28	15 0	39 4	2,714	0 057	0 058	0 00148	1,477	1 26
40	12/9/1999	9:06:26 AM	0	24,291	19,818	24,197	21,821	20,877	171,875	43,703	52,68	9 248	34,71	8 604	-0 028	36,63	0,13	0,104	29	29	15 2	39 2	2,703	0 057	0 058	0 00148	1 461	1,26
41	12/9/1999	9:07:27 AM	0	24,333	19 681	24 241	21,785	20 841	171,912	43,393	52,192	9,128	34,744	8 604	0 018	36 446	0,131	0,107	30	30	15 1	39,1	2 694	0 057	0 058	0 00150	1 495	1 27
42	12/9/1999	9:08:27 AM	0	24,342	19 97	24,329	21,873	20 849	171,966	43 579	52,375	9,176	34 812	8 604	0 018	36,461	0,131	0,107	31	31	15,1	39,2	2 702	0 057	0 058	0 00149	1,487	1 27
43	12/9/1999	9:09:27 AM	0	24,388	20 014	24 373	21,917	20,893	172,023	43,455	52 253	9,104	34,71	8,512	0 018	36 4	0,131	0,11	32	32	15,1	39,1	2 695	0 057	0 058	0 00149	1,489	1,27
44	12/9/1999	9:10:28 AM	0	24 43	19,978	24,417	21 901	20 837	172,06	43 517	52,375	9,144	34 575	8 635	-0,028	36,461	0,131	0,107	33	33	15,1	39 0	2 692	0 057	0 058	0 00149	1 489	1,27
45	12/9/1999	9:11:28 AM	0	24 555	19,941	24 461	21,845	20,82	172 097	43 827	52,68	9,184	34,778	8 668	-0 028	36 431	0,132	0,107	34	34	15,1	39 3	2 710	0 058	0 059	0 00149	1,489	1,27
46	12/9/1999	9:12:28 AM	0	24,599	19 966	24,583	21,808	20 865	172,134	43 517	52 497	9 08	34,71	8,728	-0 028	36,339	0,132	0,107	35	35	15,1	39,1	2 697	0 058	0 058	0 00149	1,491	1 27
47	12/9/1999	9:13:28 AM	0	24 663	19 949	24 629	21,853	20 828	172,171	43,579	52,558	9 048	34,778	8,728	-0 028	36,308	0,133	0,107	36	36	15,1	39 2	2,701	0 058	0 059	0 00150	1,498	1,27
48	12/9/1999	9:14:29 AM	0	24 687	19 994	24 673	21,736	20,792	172,206	43,145	52,192	9 064	34,843	8,789	0 018	36,354	0,133	0,107	37	37	15,1	39 0	2 682	0 058	0 059	0 00151	1 507	1,28
49	12/9/1999	9:15:29 AM	0	24,731	19 957	24,718	21,78	20 836	172,245	43 455	52,497	9 048	34 676	8,728	0,018	36 277	0,132	0,11	38	38	15 1	39,1	2 693	0 058	0 058	0 00149	1 487	1 27
50	12/9/1999	9:16:30 AM	0	24,775	20,002	24 762	21,744	20 8	172,282	44 013	53,107	9,136	35,183	8,728	-0 028	36,339	0,134	0,11	39	39	15,1	39 6	2,730	0 058	0 059	0 00149	1 487	1 27
51	12/9/1999	9:17:30 AM	0	24,819	19 965	24 808	21,788	20,683	172,319	44,013	52 924	9 096	34,879	8 666	0 018	36,248	0,134	0,11	40	40	15 0	39 4	2,720	0 058	0 059	0 00149	1,491	1 27
52	12/9/1999	9:18:30 AM	0	24 863	20 01	24,83	21,752	20,647	172,356	44,013	52,924	9,112	35,082	8 635	0 018	36,124	0,135	0,11	41	41	15 0	39 5	2,727	0 059	0,059	0 00149	1,493	1 27
53	12/9/1999	9:19:31 AM	0	24,967	20 054	24,974	21,635	20,61	172,393	43 869	52 802	9 096	35,048	8 635	0 018	36,231	0,134	0,11	42	42	15,0	39 5	2,721	0 058	0 059	0 00148	1,483	1 26
54	12/9/1999	9:20:31 AM	0	25,031	20 096	25 096	21,76	20,655	172,43	43,703	52,619	9 072	35,265	8,604	0 018	36,216	0,135	0,11	43	43	15,0	39 6	2,723	0 059	0 059	0 00149	1,488	1 27
55	12/9/1999	9:21:31 AM	0	25,156	20 062	25,142	21,643	20,536	172,467	43,869	52,741	9,08	35,265	8 604	0 018	36,154	0,134	0,107	44	44	15 0	39 6	2,729	0 058	0 058	0 00147	1,472	1,25
56	12/9/1999	9:22:32 AM	0	25,12	20,107	25,186	21,687	20,501	172,504	-5,764	1,458	0,926	-4 609	7,248	0 018	19 996	0 053	0 024	45	45	8 3	-5,2	-0 358	0 023	0 023	-0 00444	-4 436	-3 78
57	12/9/1999	9:23:32 AM	0	25,184	20,07	24,99	21,651	20,465	172,541	14,444	24,996	4,541	9 827	10,33	0 018	24 604	0 068	0 061	46	46	10 2	12,1	0 837	0 038	0 038	0 00309	2,094	2 63
58	12/9/1999	9:24:32 AM	0	25 084	20 07	24 91	21,671	20,465	172,541	43,269	53,188	9,328	33 699	9 498	0 018	35 985	0,156	0,125	47	47	14,8	38 6	2 660	0 068	0 068	0 00177	1,769	1,51
59	12/9/1999	9:25:33 AM	0	25,128	20,115	25,114	21,818	20,429	172,578	43,951	53,473	9,288	34,372	8,159	0,018	35 924	0,15	0,122	48	48	14,9	39,2	2,700	0 065	0 065	0 00167	1,667	1,42
60	12/9/1999	9:26:33 AM	0	25,172	20 078	25,158	21,578	20,473	172,618	43,703	52,802	9 288	35 014	8 651	0 018	35 847	0,147	0,119	49	49	14 9	39 4	2,714	0 064	0 064	0 00162	1,623	1,38
61	12/9/1999	9:27:33 AM	0	25,216	20,123	25,203	21,704	20,599	172,653	44,078	53 046	9,28	34,961	8 635	0 018	36 018	0,145	0,119	50	50	14,9	39 5	2,725	0 063	0 063	0 00159	1,592	1,36
62	12/9/1999	9:28:34 AM	0	25,216	20,123	25,123	21,623	20 618	172,653	17,854	24,935	4,718	13,174	6,817	-0,028	24,512	0,065	0,04	51	51	10 2	15 6	1,070	0 028	0 028	0 00162	1 623	1 55
63	12/9/1999	9:29:34 AM	0	25 28	20 087	25,187	21,668	20,562	172 69	44,509	52,965	9 336	35 454	6 265	0 018	35 939	0,146	0,122	52	52	14 9	40 0	2,757	0 064	0 063	0 00159	1,587	1,35
64	12/9/1999	9:30:34 AM	0	25,18	20 087	25,167	21,587	20 482	172 69	44,509	52,965	9 407	35,522	8,142	0 018	35,755	0,143	0,119	53	53	14,8	40 0	2,759	0 062	0 062	0 00155	1,553	1,32
65	12/9/1999	9:31:35 AM	0	25,304	20,131	25,291	21,551	20,529	172,727	44,199	52,68	9 312	35,386	8,142	0,018	35 832	0,142	0,119	54	54	14 9	39 8	2,744	0 062	0 061	0 00155	1,545	1,31
66	12/9/1999	9:32:35 AM	0	25,348	20 095	25,415	21,678	20,571	172,764	44 695	53,046	9 407	35,386	8,111	-0,028	35 816	0,141	0,116	55	55	14 9	40 0	2,761	0 062	0 061	0 00152	1,519	1 29
67	12/9/1999	9:33:35 AM	0	25,429	20,176	25,415	21,515	20,49	172,764	44,943	53,351	9,363	35 589	8 05	0 018	35 816	0,14	0,116	56	56	14 9	40,3	2,776	0 061	0 060	0 00150	1,500	1,28
68	12/9/1999	9:34:36 AM	0	25,509	20 095	25,573	21,595	20,49	172,764	44 695	53 046	9,407	35,893	7,966	0 018	35 678	0,139	0,116	57	57	14,8	40,3	2,778	0 061	0 060	0 00148	1,482	1,26
69	12/9/1999	9:35:36 AM	0	25 553	20,139	25 618	21,559	20 454	172,801	45 005	53 229	9,407	35 555	7,957	0 018	35 617	0,136	0,113	58	58	14 8	40 3	2,777	0 060	0 059	0 00147	1 470	1,25
70	12/9/1999	9:36:36 AM	0	25 677	20,184	25 824	21,523	20,418	172,838	45,253	53,634	9,423	35 68	7,926	0 018	35 64	0,137	0,11	59	59	14,7	40 6	2,799	0 060	0 058	0 00144	1,441	1,23
71	12/9/1999	9:37:37 AM	0	25,757	20,184	25 824	21,523	20,418	172,838	44,881	53,046	9 603	35 961	7,957	0 018	35,755	0,135	0 113	60	60	14 8	40 4	2,787	0 059	0 058	0 00142	1,425	1,21
72	12/9/1999	9:38:37 AM	0	25,757	20 184	25,904	21,443	20,337	172,838	45,129	53,351	9 671	35 826	7,926	0 018	36,093	0,134	0,11	61	61	15 0	40,6	2,791	0 059	0 057	0 00141	1,409	1,20
73	12/9/1999	9:39:37 AM	0	25 861	20,229	23 865	21,568	20,362	172,875	44,365	52,619	9 559	35,183	7,926	0 018	36 63	0,13	0,101	62	62	15 2	39 6	2,743	0 057	0 059	0 00147	1,473	1 25
74	12/9/1999	9:40:38 AM	0	25,036	20,184	24 061	21,362	20,337	172,838	44,943	53 046	9 248	36,232	7,865	0 018	35 97	0,132	0,107	63	63	14 9	40 6	2,798	0 058	0 059	0 00148	1,458	1,24
75	12/9/1999	9:41:38 AM	0	24 84	20,148	24,186	21,487	20,362	172,875	45,005	53,29	9,152	36,401	7,968	0 018	35,965	0,133	0,11	64	64	14 9	40 7	2,806	0 058	0 059	0 00148	1,458	1,24
76	12/9/1999	9:42:38 AM	0	24,76	20,148	24,346	21,487	20,362	172,875	45,181	53,634	9 206	35 893	7,968	0 018	36 031	0,135	0,11	65	65	15 0	40 5	2,795	0 059	0 060	0 00148	1,481	1 26
77	12/9/1999	9:43:39 AM	0	24,724	20,192	24,47	21,531	20 426	172 913	45,253	53,473	8 977	36 603	7,895	0 018	35 494	0,136	0,11	66	66	14 7	40 9	2 822	0 060	0 061	0 00149	1,494	1 27
78	12/9/1999	9:44:39 AM	0	24,724	20,192	24 631	21,531	20 426	172,913	45,563	53,778	9 048	36 636	7,895	0 018	35 617	0,137	0 11	67	67	14 8	41 0	2 830	0 060	0 060	0 00147	1 472	1,25
79	12/9/1999	9:45:39 AM	0	24 804	20,192	24,711	21,37	20 426	172,913	45 501	53,717	9,04	36,772	7,957	0 018	35 64	0,136	0 11	68	68	14,7	41,1	2 836	0 059	0 060	0 00148	1 485	1 24
80	12/9/1999	9:46:40 AM	0	24,884	20,192	24,791	21,531	20 507	172,913	45 501	53 656	8,965	36,705	7,968	0 018	35 402	0,139	0 116	69	69	14,7	41,1	2 834	0 061	0 061	0 00148	1 485	1,26
81	12/9/1999	9:47:40 AM	0	24 884	20,192	24 951	21,531	20 426	172,913	45,439	53,717	9,152	36 367	7 968	0 018	35 77	0 14	0,113	70	70	14 6	40 9	2 820	0 061	0 061	0 00150	1 496	1,27
82	12/9/1999	9:48 40 AM	0	24 954	20,192	25 031	21,531	20 426	172,913	45,253	53 695	9 615	35 826	7,957	0 018	36 953	0,136	0 11	71	71	15 3	40 5	2,795	0 059	0 059	0 00148	1,483	1,25
83	12/9/1999	9:49:41 AM	0	25 049	20,237	25,156	21,576	20 471	172,96	45,501	53,717	9 599	35 826	7,968	0 018	36 646	0,137	0 113	72	72	15,2	40,7	2 804	0 060	0 060	0 00148	1,484	1,25
84	12/9/1999	9:50:41 AM	0	25,249	20,237	25,236	21,495	20 471	172,85	45 625	53,9	9 655	35 826	8 019	0 018	36 769	0 136	0,113	73	73	15,3	40 7	2 808	0 060	0 060	0 00147	1 469	1 25
85	12/9/1999	9:51:42 AM	0	25,249	20 237	25 318	21,578	20,39	172 95	45 005	53 229	9 567	36 029	8 019	0 018	36,707	0,136	0,116	74	74	15 2	40 5	2 794	0 060	0 060	0 00147	1 474	1 25

Third Wash: 75 liters DI Filtered Water

	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	12/9/1999	9:52:42 AM	0	25 329	20 237	25 478	21 495	20 39	172 95	45 377	53 639	9 567	36 062	8 05	0 018	36 723	0 138	0 113	75	75	15 2	40 7	2 807	0 060	0 059	0 00146	1 460	1 24
87	12/9/1999	9:53:43 AM	0	25 454	20 282	25 62	21 84	20 433	172 967	45 625	53 634	9 543	36 367	7 68	0 018	36 723	0 142	0 119	76	76	15 2	41 0	2 827	0 062	0 061	0 00149	1 490	1 27
88	12/9/1999	9:54:43 AM	0	25 534	20 262	25 6	21 84	20 515	172 967	45 935	53 412	9 527	36 84	7 248	0 018	36 677	0 153	0 125	77	77	15 2	41 4	2 854	0 067	0 066	0 00159	1 587	1 35
89	12/9/1999	9:55 43 AM	0	25 614	20 201	25 68	21 459	20 515	172 967	46 183	53 595	9 471	37 144	7 279	0 018	36 538	0 148	0 122	78	78	15 2	41 7	2 873	0 063	0 063	0 00152	1 521	1 29
90	12/9/1999	9:56:44 AM	0	25 774	20 262	25 84	21 84	20 515	172 967	46 307	53 639	9 519	37 144	7 187	0 018	36 508	0 151	0 125	79	79	15 2	41 7	2 877	0 066	0 064	0 00154	1 543	1 31
91	12/9/1999	9:57 44 AM	0	25 818	20 245	25 965	21 584	20 56	173 024	47 175	54 203	9 611	37 462	6 57	0 016	36 508	0 143	0 119	80	80	15 2	42 3	2 918	0 062	0 061	0 00144	1 435	1 22
92	12/9/1999	9:58 44 AM	0	25 854	20 201	26	21 62	20 435	172 967	46 493	53 595	9 363	37 415	6 648	0 016	36 4	0 146	0 125	81	81	15 1	42 0	2 893	0 064	0 062	0 00148	1 477	1 26
93	12/9/1999	9:59:45 AM	0	25 658	20 245	24 202	21 584	20 478	173 024	46 245	53 717	9 058	37 584	7 063	0 018	35 709	0 138	0 119	82	82	14 8	41 9	2 890	0 060	0 062	0 00147	1 470	1 25
94	12/9/1999	10:00:45 AM	0	25 017	20 245	24 363	21 584	20 478	173 024	46 493	53 412	8 945	37 851	6 817	0 018	35 663	0 138	0 116	83	83	14 8	42 1	2 901	0 060	0 061	0 00146	1 458	1 24
95	12/9/1999	10:01:45 AM	0	24 937	20 326	24 443	21 663	20 56	173 024	46 369	53 534	8 937	37 99	6 817	0 018	35 647	0 138	0 116	84	84	14 8	42 2	2 908	0 060	0 061	0 00145	1 451	1 23
96	12/9/1999	10:02:46 AM	0	24 857	20 245	24 523	21 584	20 478	173 024	46 617	53 961	8 913	37 956	7 033	0 018	35 509	0 141	0 122	85	85	14 7	42 3	2 916	0 062	0 062	0 00148	1 475	1 26
97	12/9/1999	10:03:46 AM	0	24 857	20 326	24 684	21 663	20 478	173 024	46 245	53 473	8 897	37 821	6 94	0 018	35 676	0 139	0 119	86	86	14 8	42 0	2 898	0 061	0 061	0 00146	1 457	1 24
98	12/9/1999	10:04:46 AM	0	24 981	20 29	24 806	21 829	20 604	173 081	46 431	53 778	9 016	37 616	7 002	0 018	35 632	0 142	0 125	87	87	14 8	42 0	2 897	0 062	0 062	0 00148	1 483	1 26
99	12/9/1999	10:05:47 AM	0	24 937	20 245	24 844	21 663	20 56	173 024	46 245	53 595	8 873	38 023	7 094	0 018	35 432	0 142	0 122	88	88	14 7	42 1	2 905	0 062	0 062	0 00148	1 478	1 26
100	12/9/1999	10:06:47 AM	0	25 061	20 29	24 968	21 829	20 604	173 081	46 741	54 022	8 937	37 854	6 971	0 018	35 601	0 142	0 125	89	89	14 8	42 3	2 916	0 062	0 062	0 00147	1 467	1 25
101	12/9/1999	10:07:47 AM	0	25 061	20 29	25 128	21 829	20 604	173 081	46 369	53 717	8 969	37 854	7 063	0 018	35 571	0 142	0 125	90	90	14 8	42 1	2 903	0 062	0 062	0 00147	1 467	1 25
102	12/9/1999	10:08:48 AM	0	25 142	20 29	25 209	21 709	20 665	173 081	46 741	54 022	8 937	37 787	6 94	0 018	35 555	0 145	0 128	91	91	14 8	42 3	2 914	0 063	0 063	0 00149	1 489	1 27
103	12/9/1999	10:09:48 AM	0	25 266	20 333	25 333	21 873	20 73	173 099	46 741	53 961	8 785	38 057	7 033	0 018	35 325	0 144	0 128	92	92	14 7	42 4	2 923	0 063	0 062	0 00147	1 469	1 25
104	12/9/1999	10:10:48 AM	0	25 426	20 333	25 413	21 784	20 649	173 099	46 493	53 839	8 969	38 023	7 094	0 018	35 463	0 145	0 128	93	93	14 7	42 3	2 914	0 063	0 063	0 00148	1 481	1 26
105	12/9/1999	10:11:49 AM	0	25 426	20 333	25 573	21 784	20 73	173 099	46 679	54 022	8 945	37 956	7 125	0 018	35 402	0 154	0 134	94	94	14 7	42 3	2 918	0 067	0 066	0 00156	1 583	1 33
106	12/9/1999	10:12:49 AM	0	25 506	20 254	25 653	21 784	20 73	173 099	46 369	53 9	8 905	38 125	7 156	0 018	35 371	0 145	0 125	95	95	14 7	42 2	2 913	0 063	0 062	0 00147	1 471	1 25
107	12/9/1999	10:13:49 AM	0	25 586	20 333	25 733	21 784	20 73	173 099	46 493	53 9	8 889	38 159	7 156	0 018	35 217	0 148	0 128	96	96	14 6	42 3	2 918	0 065	0 063	0 00150	1 495	1 27
108	12/9/1999	10:14 50 AM	0	25 791	20 299	25 657	21 718	20 694	173 136	46 431	53 9	8 921	37 922	7 217	0 018	35 325	0 144	0 128	97	97	14 7	42 2	2 908	0 063	0 061	0 00146	1 455	1 24
109	12/9/1999	10:15 50 AM	0	25 871	20 379	26 017	21 799	20 694	173 136	46 741	54 265	8 969	38 159	7 279	0 018	35 356	0 145	0 128	98	98	14 7	42 5	2 927	0 063	0 062	0 00145	1 449	1 23
110	12/9/1999	10:16:50 AM	0	25 951	20 379	26 097	21 718	20 694	173 136	46 493	54 083	8 937	37 922	7 31	0 018	35 278	0 145	0 125	99	99	14 6	42 2	2 910	0 062	0 061	0 00143	1 434	1 22
111	12/9/1999	10:17 51 AM	0	26 031	20 299	26 177	21 799	20 694	173 136	46 555	54 144	9 016	37 755	7 372	0 018	35 386	0 145	0 125	100	100	14 7	42 2	2 906	0 063	0 061	0 00145	1 453	1 24
112	12/9/1999	10:18:51 AM	0	26 155	20 343	26 381	21 843	20 738	173 173	46 493	54 144	9 008	38 26	7 372	0 018	35 233	0 146	0 128	101	101	14 6	42 4	2 922	0 064	0 061	0 00145	1 447	1 23
113	12/9/1999	10:19 51 AM	0	26 235	20 343	26 381	21 783	20 738	173 173	47 051	54 783	8 921	38 361	7 341	0 018	34 787	0 144	0 128	102	102	14 4	42 7	2 944	0 063	0 060	0 00142	1 416	1 21
114	12/9/1999	10:20:52 AM	0	26 155	20 343	24 22	21 924	20 819	173 173	42 216	49 021	9 958	32 715	6 509	0 018	37 69	0 116	0 097	103	103	15 8	37 5	2 583	0 051	0 052	0 00138	1 382	1 18
115	12/9/1999	10:21:52 AM	0	25 595	20 343	24 139	21 763	20 819	173 173	43 269	50 846	9 758	33 797	7 002	0 018	37 26	0 125	0 107	104	104	15 5	38 5	2 657	0 055	0 056	0 00145	1 451	1 23
116	12/9/1999	10:22:52 AM	0	25 159	20 388	24 184	21 888	20 783	173 21	43 331	50 851	9 651	33 966	7 125	0 018	36 881	0 13	0 107	105	105	15 3	38 6	2 663	0 057	0 058	0 00150	1 503	1 28
117	12/9/1999	10:23:53 AM	0	24 758	20 388	24 264	21 888	20 783	173 21	43 455	50 79	9 603	34 271	7 063	0 018	36 784	0 126	0 107	106	106	15 3	38 9	2 679	0 056	0 057	0 00147	1 468	1 25
118	12/9/1999	10:24:53 AM	0	24 758	20 388	24 184	21 888	20 783	173 21	43 331	50 729	9 471	34 203	7 187	0 018	36 881	0 126	0 11	107	107	15 3	38 8	2 673	0 058	0 057	0 00147	1 475	1 26
119	12/9/1999	10:25:53 AM	0	24 722	20 433	24 308	22 013	20 828	173 248	42 96	50 424	9 591	33 73	7 248	0 018	36 753	0 128	0 107	108	108	15 3	38 3	2 644	0 058	0 057	0 00149	1 486	1 26
120	12/9/1999	10:26:54 AM	0	24 642	20 433	24 308	21 932	20 828	173 248	43 207	50 729	9 519	33 899	7 248	0 018	36 964	0 131	0 11	109	109	15 3	38 6	2 656	0 057	0 058	0 00151	1 513	1 29
121	12/9/1999	10:27:54 AM	0	24 562	20 352	24 308	21 932	20 828	173 248	43 021	50 485	9 575	34	7 279	0 018	37 076	0 129	0 104	110	110	15 4	38 5	2 655	0 058	0 057	0 00149	1 491	1 27
122	12/9/1999	10:28:54 AM	0	24 562	20 352	24 369	21 932	20 828	173 248	43 207	50 729	9 447	34 169	7 279	0 018	36 646	0 131	0 11	111	111	15 2	38 7	2 667	0 057	0 058	0 00150	1 504	1 28
123	12/9/1999	10:29:55 AM	0	24 606	20 477	24 433	21 896	20 872	173 265	43 207	50 79	9 463	34 237	7 341	0 018	36 799	0 134	0 116	112	112	15 3	38 7	2 670	0 058	0 059	0 00154	1 535	1 31
124	12/9/1999	10:30:55 AM	0	24 606	20 397	24 433	22 057	20 953	173 265	43 393	50 973	9 535	34 271	7 402	0 018	36 661	0 13	0 107	113	113	15 2	38 8	2 677	0 057	0 058	0 00148	1 485	1 26
125	12/9/1999	10:31:55 AM	0	24 686	20 477	24 593	22 057	20 872	173 265	43 331	51 156	9 599	34	7 464	0 064	36 753	0 13	0 107	114	114	15 3	38 7	2 666	0 057	0 057	0 00148	1 485	1 26
126	12/9/1999	10:32:56 AM	0	24 731	20 441	24 638	22 102	20 997	173 322	43 207	50 912	9 535	34 169	7 495	0 018	36 968	0 131	0 113	115	115	15 3	38 7	2 667	0 057	0 058	0 00149	1 493	1 27
127	12/9/1999	10:33:56 AM	0	24 731	20 441	24 638	22 102	20 917	173 322	43 455	51 156	9 615	34 068	7 464	0 018	36 938	0 134	0 116	116	116	15 3	38 8	2 672	0 058	0 059	0 00152	1 525	1 30
128	12/9/1999	10:34:56 AM	0	24 811	20 441	24 718	22 102	20 917	173 322	43 207	51 095	9 599	34	7 495	0 018	36 738	0 131	0 11	117	117	15 2	38 6	2 662	0 057	0 058	0 00149	1 493	1 27
129	12/9/1999	10:35:57 AM	0	24 811	20 441	24 718	22 182	20 917	173 322	43 393	51 217	9 599	34	7 526	0 018	36 968	0 131	0 107	118	118	15 3	38 7	2 668	0 057	0 058	0 00149	1 490	1 27
130	12/9/1999	10:36:57 AM	0	24 655	20 488	24 842	22 147	21 042	173 359	43 083	50 851	9 607	33 933	7 556	0 018	36 861	0 133	0 11	119	119	15 3	38 5	2 655	0 058	0 058	0 00151	1 514	1 29
131	12/9/1999	10:37:58 AM	0	24 935	20 488	24 923	22 227	21 042	173 359	43 145	50 973	9 583	33 662	7 587	0 018	36 769	0 134	0 113	120	120	15 3	38 4	2 648	0 058	0 059	0 00153	1 527	1 30
132	12/9/1999	10:38 58 AM	0	24 935	20 488	24 923	22 147	21 042	173 359	43 579	51 399	9 607	34 068	7 587	0 018	36 922	0 13	0 107	121	121	15 3	38 8	2 677	0 057	0 057	0 00146	1 465	1 25
133	12/9/1999	10:39 58 AM	0	25 06	20 531	25 047	22 191	21 006	173 397	43 517	51 46	9 695	33 797	7 649	0 018	36 692	0 133	0 11	122	122	15 3	38 7	2 665	0 058	0 058	0 00150	1 500	1 28
134	12/9/1999	10:40:59 AM	0	25 06	20 531	25 047	22 191	21 006	173 397	43 517	51 46	9 623	33 899	7 618	0 018	36 984	0 133	0 113	123	123	15 3	38 7	2 669	0 058	0 058	0 00150	1 498	1 27
135	12/9/1999	10:41:59 AM	0	25 14	20 45	25 127	22 111	21 006	173 397	43 579	51 582	9 687	34 135	7 68	0 018	37 03	0 134	0 113	124	124	15 4	38 9	2 679	0 058	0 058	0 00150	1 500	1 28
136	12/9/1999	10:42:58 AM	0	25 184	20 495	25 172	22 316	21 051	173 434	43 207	51 217	9 647	34 271	7 68	0 018	37 03	0 135	0 116	125	125	15 4	38 7	2 671	0 059	0 059	0 00151	1 514	1 29
137	12/9/1999	10:43:58 AM	0	25 265	20 495	25 252	22 316	21 051	173 434	43 765	51 643	9 735	34 372	7 649	0 018	37 045	0 133	0 11	126	126	15 4	39 1	2 694	0 058	0 058	0 00148	1 476	1 26
138	12/9/1999	10:45:00 AM	0	25 265	20 495	24 21	22 236	21 051	173 434	43 951	51 46	8 818	35 353	7 187	0 018	34 941	0 123	0 104	127	127	14 5	39 7	2 734	0 054	0 055	0 00138	1 385	1 18
139	12/9/1999	10:46:00 AM	0	25 024	20 495	24 13	22 316	21 132	173 434	41 596	49 326	8 785	33 087	7 495	0 018	35 386	0 125	0 104	128	128	14 7	37 3	2 575	0 055	0 056	0 00150	1 498	1 27
140	12/9/1999	10:47:01 AM	0	24 704	20 495	24 049	22 316	21 051	173 434	41 162	48 899	9 378	32 006	7 464	0 018	36 492	0 124	0 101	129	129	15 1	36 6	2 522	0 054	0 056	0 00152	1 520	1 29
141	12/9/1999	10:48:01 AM	0	24 543	20 495	24 049	22 316	21 051	173 434	41 348	48 96	9 208	32 749	7 433	0 018	36 062	0 123	0 104	130	130	15 0	37 0	2 554	0 054	0 055	0 00149	1 489	1 27
142	12/9/1999	10:49:01 AM	0	24 427	20 539	24 094	22 361	21 096	173 471	41 596	49 387	9 368	32 344	7 495	0 064	36 6	0 124	0 104	131	131	15 2	37 0	2 549	0 054	0 056	0 00150	1 502	1 28
143	12/9/1999	10:50:02 AM	0	24 427	20 459	24 094	22 28	21 096	173 471	41 224	48 96	9 36	32 613	7 556	0 018	36 63	0 129	0 11	132	132	15 2	36 9	2 542	0 056	0 058	0 00157	1 567	1 33
144	12/9/1999	10:51:02 AM	0	24 392	20 584	24 138	22 406	21 06	173 509	41 596	49 509	9 439	32 952	7 587	0 018	36 861	0 127	0 107	133	133	15 3	37 3	2 570	0 055	0 057	0 00152	1 524	1 30
145	12/9/1999	10:52:02 AM	0	24 392	20 584	24 138	22 325	21 14	173 509	41 968	49 997	9 423	32 513	7 649	0 018	36 723	0 127	0 107	134	134	15 2	37 2	2 568	0 055	0 057	0 00153	1 525	1 30
146	12/9/1999	10:53:03 AM	0	24 311	20 503	24 138	22 406	21 06	173 509	41 844	49 631	9 391	32 749	7 587	0 018	36 784	0 129	0 11	135	135	15 3	37 3	2 571	0 056	0 058	0 00155	1 547	1 32
147	12/9/1999	10:54:03 AM	0	24 311	20 503	24 138	22 325	21 06	173 509	42 03	49 997	9 447	32 952	7 649	0 018	36 83	0 128	0 107	136	136	15 3	37 5	2 585	0 056	0 057	0 00153	1 527	1 30
148	12/9/1999	10:55:03 AM	0	24 356	20 548	24 103	22 43	21 104	173 646	42 216	49 997	9 447	33 155	7 587	0 018	36 738	0 127	0 104	137	137	15 2	37 7	2 596	0 055	0 057	0 00151	1 509	1 28
149	12/9/1999	10:56:04 AM	0	24 356	20 548	24 103	22 289	21 104	173 646	42 216	50 119	9 447	32 817	7 68	0 018	36 784	0 127	0 104	138	138	15 3	37 5	2 587	0 055	0 057	0 00152	1 516	1 29
150	12/9/1999	10:57:04 AM	0	24 356	20 548	24 183	22 45	21 104	173 646	41 968	49 814	9 535	32 851	7 741	0 018	36 845	0 128	0 104	139	139	15 3	37 4	2 579	0 056	0 057	0 00153	1 529	1 30
151	12/9/1999	10:58:04 AM	0	24 4	20 674	24 228	22 495	21 149	173 683	41 844	49 814	9 471	32 783	7 772	0 018	36 761	0 128	0 101	140	140	15 3	37 3	2 573	0 056	0 057	0 00153	1 530	1 30
152	12/9/1999	10:59:05 AM	0	24 4	20 583	24 228	22 414	21 149	173 683	41 658	49 57	9 463	32 952	7 741	0 018	36 938	0 129	0 104	141	141	15 3	37 3	2 572	0 056	0 058	0 00154	1 543	1 31
153	12/9/1999	11:00:05 AM	0	24 4	20 583	24 228	22 495	21 149	173 683	42 092	50 058	9 455	32 952	7 711	0 018	36 816	0 132	0 107	142	142	15 3	37 5	2 587	0 058	0 059	0 00157	1 570	1 34
154	12/9/1999	11:01:05 AM	0	24 4	20 583	24 228	22 414	21 23	173 683	42 276	50 363	9 503	32 986	7 741	0 018	36 784	0 126	0 104	143	143	15 3	37 8	2 595	0 056	0 057	0 00152	1 516	1 29
155	12/9/1999	11:02:06 AM	0	24 4	20 583	24 308	22 495	21 149	173 683	42 154	50 119	9 455	33 054	7 803	0 018	36 799	0 13	0 107	144	144	15 3	37 8	2 593	0 057	0 058	0 00154	1 539	1 31
156	12/9/1999	11:03:06 AM	0	24 445	20 638	24 352	22 539	21 184	173 621	42 402	50 548	9 455	33 121	7 834	0 018	36 707	0 129	0 11	145	145	15 2	37 6	2 604	0 056	0 057	0 00152	1 519	1 29
157	12/9/1999	11:04:06 AM	0	24 445	20 638	24 352	22 539	21 184	173 621	42 092	50 119	9 583	33 02	7 741	0 018	36 769	0 13	0 11	146	146	15 3	37 6	2 589	0 057	0 058	0 00154	1 539	1 31
158	12/9/1999	11:05:07 AM	0	24 445	20 638	24 352	22 62	21 184	173 621	42 154	50 058	9 431	32 986	7 649	0 018	36 738	0 126	0 101	147	147	15 2	37 6	2 590	0 055	0 056	0 00149	1 491	1 27
159	12/9/1999	11:06:07 AM	0	24 525	20 638	24 352	22 62	21 184	173 621	42 34	50 241	9 447	33 121	7 649	0 018	36 477	0 127	0 101	148	148	15 1	37 7	2 601	0 055	0 056	0 00150	1 496	1 27
160	12/9/1999	11:07:07 AM	0	24 57	20 683	24 477	22 665	21 239	173 658	42 34	50 302	9 455	32 952	7 741	0 018	36 784	0 133	0 11	149	149	15 3	37 8	2 596	0 058	0 059	0 00157	1 565	1 33
161	12/9/1999	11:08:08 AM	0	24 57	20 683	24 477	22 584	21 239	173 658	42 216	50 058	9 423	33 189	7 711	0 018	36 799	0 134	0 113	150	150	15 3	37 7	2 599	0 058	0 059	0 00157	1 575	1 34
162	12/9/1999	11:09:08 AM	0	24 57	20 683	24 477	22 665	21 318	173 658	42 34	50 424	9 471	33 189	7 741	0 018	36 661	0 131	0 107	151	151	15 2	37 8	2 604	0 057	0 058	0 00154	1 537	1 31
163	12/9/1999	11:10:08 AM	0	24 57	20 683	24 477	22 665	21 239	173 658	42 34	50 363	9 415	33 425	7 68	0 018	36 769	0 131	0 107	152	152	15 3	37 9	2 612	0 057	0 058	0 00153	1 532	1 30
164	12/9/1999	11:11:09 AM	0	24 57	20 683	24 477	22 665	21 239	173 658	42 03	49 936	9 368	33 324	7 711	0 018	36 707	0 131	0 11	153	153	15 2	37 7	2 596	0 057	0 058	0 00154	1 540	1 31
165	12/9/1999	11:12:09 AM	0	24 694	20 727	24 522	22 709	21 284	173 696	42 402	50 424	9 447	33 121	7 741	0 018	36 677	0 13	0 107	154	154	15 2	37 8	2 604	0 057	0 058	0 00152	1 523	1 30
166	12/9/1999	11:13:09 AM	0	24 614	20 647	24 602	22 709	21 284	173 696	42 526	50 424	9 455	33 493	7 649	0 018	36 63	0 131	0 107	155	155	15 2	38 0	2 621	0 057	0 058	0 00152	1 522	1 29
167	12/9/1999	11:14:10 AM	0	24 694	20 647	24 602	22 709	21 364	173 696	42 464	50 548	9 479	33 054	7 772	0 018	36 646	0 131	0 107	156	156	15 2	37 8	2 603	0 057	0 058	0 00153	1 532	1 30
168	12/9/1999	11:15:10 AM	0	24 694	20 727	24 602	22 709	21 284	173 696	42 464	50 548	9 439	33 324	7 803	0 064	36 677	0 132	0 11	157	157	15 2	37 9	2 613	0 058	0 058	0 00154	1 538	1 31
169	12/9/1999	11:16:11 AM	0	24 739	20 772	24 726	22 834	21 409	173 733	42 34	50 424	9 447	33 256	7 803	0 018	36 692	0 132	0 11	158	158	15 2	37 8	2 606	0 058	0 058	0 00154	1 536	1 31
170	12/9/1999	11:17:11 AM	0	24 819	20 692	24 726	22 754	21 409	173 733	42 278	50 302	9 415	33 189	7 803	0 018	36 661	0 132	0 11	159	159	15 2	37 7	2 602	0 058	0 058	0 00154	1 539	1 31

Third Wash: 75 liters DI Filtered Water

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	A	S	T	U	V	W	X	Y	Z	AA	AB
171	12/9/1999	11:18:12 AM	0	24.819	20.772	24.778	22.834	21.529	173.733	42.444	50.546	9.391	33.459	7.803	0.018	36.615	0.152	0.113	160	160	15.2	38.0	2.617	0.056	0.058	0.00153	1.550	1.30
172	12/9/1999	11:19:12 AM	0	24.864	20.736	24.771	22.799	21.375	173.771	42.484	50.729	9.431	33.628	7.803	0.018	36.6	0.153	0.11	161	161	15.2	38.1	2.630	0.056	0.058	0.00153	1.532	1.30
173	12/9/1999	11:20:12 AM	0	24.899	20.692	24.726	22.834	21.248	173.733	42.218	50.741	9.383	33.296	7.741	0.018	36.63	0.152	0.107	162	162	15.2	37.7	2.602	0.058	0.058	0.00154	1.539	1.31
174	12/9/1999	11:21:12 AM	0	24.899	20.772	24.807	22.754	21.067	173.733	42.444	50.485	9.362	33.296	7.741	0.018	36.623	0.151	0.107	162	162	15.2	37.7	2.602	0.058	0.058	0.00154	1.539	1.31
175	12/9/1999	11:22:13 AM	0	24.899	20.772	24.807	22.874	21.067	173.733	42.334	50.302	9.264	33.361	7.803	0.018	36.615	0.151	0.107	163	163	15.2	37.9	2.610	0.057	0.057	0.00152	1.519	1.29
176	12/9/1999	11:23:13 AM	0	24.899	20.772	24.807	22.754	21.248	173.733	42.154	50.302	9.29	33.459	7.803	0.018	36.615	0.151	0.107	164	164	15.3	38.0	2.617	0.057	0.057	0.00152	1.515	1.29
177	12/9/1999	11:24:14 AM	0	24.979	20.772	24.887	22.874	21.529	173.733	42.402	50.424	9.369	33.296	7.772	0.018	36.415	0.153	0.11	165	165	15.1	37.8	2.607	0.058	0.058	0.00154	1.544	1.31
178	12/9/1999	11:25:14 AM	0	24.979	20.653	24.887	22.834	21.529	173.733	42.402	50.667	9.399	33.709	7.865	0.018	36.554	0.152	0.11	166	166	15.2	37.8	2.606	0.058	0.058	0.00153	1.528	1.30
179	12/9/1999	11:26:14 AM	0	24.979	20.653	24.967	22.834	21.409	173.733	42.444	50.546	9.415	33.425	7.834	0.018	36.615	0.153	0.115	167	167	15.2	37.8	2.609	0.058	0.058	0.00154	1.539	1.31
180	12/9/1999	11:27:15 AM	0	25.06	20.772	25.047	22.815	21.409	173.733	42.34	50.363	9.415	33.425	7.834	0.018	36.584	0.153	0.107	168	168	15.2	37.9	2.616	0.058	0.058	0.00153	1.532	1.30
181	12/9/1999	11:28:15 AM	0	25.104	20.698	25.091	22.96	21.454	173.77	42.402	50.424	9.336	33.425	7.741	0.018	36.538	0.153	0.111	169	169	15.2	37.9	2.612	0.058	0.058	0.00153	1.531	1.30
182	12/9/1999	11:29:15 AM	0	25.104	20.617	25.091	22.879	21.454	173.77	42.464	50.363	9.33	33.194	7.834	0.018	36.431	0.154	0.111	170	170	15.1	37.9	2.614	0.058	0.058	0.00154	1.539	1.31
183	12/9/1999	11:30:16 AM	0	25.184	20.617	25.172	22.96	21.454	173.77	42.526	50.546	9.415	33.637	7.741	0.018	36.477	0.153	0.111	171	171	15.1	38.0	2.622	0.058	0.058	0.00152	1.523	1.30
184	12/9/1999	11:31:16 AM	0	25.229	20.862	25.216	23.004	21.499	173.808	42.712	50.79	9.425	33.194	7.741	0.018	36.506	0.152	0.111	172	172	15.2	38.0	2.622	0.058	0.057	0.00151	1.508	1.28
185	12/9/1999	11:32:16 AM	0	25.229	20.862	25.216	23.065	21.579	173.808	39.178	50.546	9.112	30.417	11.607	0.018	36.768	0.057	0.037	173	173	15.2	38.2	2.631	0.056	0.057	0.00150	1.501	1.28
186	12/9/1999	11:33:17 AM	0	25.309	20.862	25.296	23.004	21.499	173.808	43.207	50.424	8.407	34.304	6.848	0.018	36.584	0.145	0.122	174	174	15.3	34.6	2.399	0.025	0.025	0.00071	0.711	0.60
187																			175	175	15.2	38.8	2.672	0.063	0.063	0.00162	1.620	1.35
188		Averages		23.0	20.3	24.8	22.1	20.9	173.0	43.3	51.4	9.2	34.4	7.8	0.0	36.1	0.153	0.110			15.0	38.8	2.676	0.058	0.058	0.001670	1.470	1.231
189		Maximum		25.9	20.9	26.4	23.1	21.9	173.8	47.2	64.6	10.0	38.4	11.1	0.1	37.7	0.156	0.134			15.6	42.7	2.944	0.068	0.068	0.003094	3.094	2.633
190		Median		24.9	20.3	24.7	21.9	20.9	173.1	43.6	52.4	9.4	34.7	7.7	0.0	36.5	0.153	0.110			15.2	39.1	2.695	0.058	0.058	0.001693	1.493	1.271
191		Minimum		24.2	19.7	23.9	21.4	20.3	171.2	-5.8	1.8	0.9	-4.6	4.1	0.0	20.0	0.053	0.024			8.3	-9.2	-0.358	0.023	0.023	-0.004438	-4.438	-3.776
192		Std Deviation		0.483	0.297	0.576	0.479	0.375	0.643	8.200	8.196	0.868	4.374	0.559	0.016	1.003	0.015	0.015			0.790	4.780	0.330	0.006	0.003	0.000491	0.491	0.417
193		Number of Points Used		161	161	161	161	161	161	161	161	161	161	161	161	161	161	161			161	161	161	161	161	161	161	161



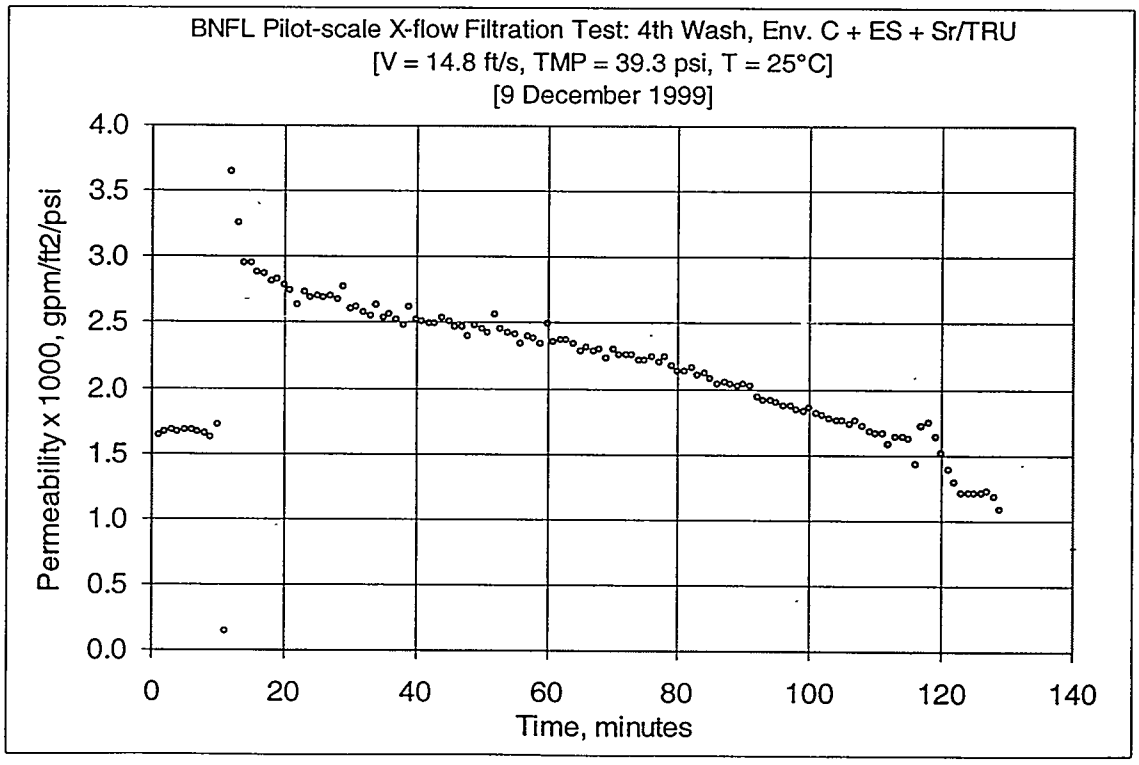


Figure D4: Fourth Wash: 75 liters of Deionized/Filtered Water with 0.01 M NaOH

Fourth Wash: 75 liters DI Filtered Water

DATE	TIME	SOLENOID	FLTRT (de	CL LOOP	SL LOOP	UP AMB (d	BOT AMB	T6 (deg C)	BOT DP (p	FLTR (pai	FLTR DP (p	TOP DP (p	FLTRATE (psig)	PISTON (psig)	ASL FLOW	O2_FLTR	O3_FLTR	FLTR FLOW (ppm)			Filter Surface Area Conversion		2.29 FT2 851 0145 m3/m2/day/barg / ppm/ft2/barg					
Zeros - Line Not Connected																											
12/9/1999	8:21:16 AM	0	19 993	19 482	16,744	20 742	15 908	170 77	-0 061	-0 067	-0 015	-0 011	-0 086	-0 028	-0 095	0 012	-0 018										
12/9/1999	8:22:17 AM	0	20 03	19 438	16,781	20,779	15 864	170,733	-0 061	-0,128	-0 007	-0 011	-0 088	-0 028	-0 095	0 011	-0 018										
12/9/1999	8:23:17 AM	0	19 966	19,475	16,737	20 696	15 962	170 697	-0 061	-0 067	-0 007	-0 011	-0 117	-0 028	-0 079	0 011	-0 018										
12/9/1999	8:24:17 AM	0	20 023	19 512	16 774	20 933	16 018	170 66	-0 061	-0 067	-0 007	-0 011	-0 086	-0 028	-0 079	0 011	-0 018										
12/9/1999	8:25:18 AM	0	19 896	19 468	16,729	20 97	15 812	170 823	-0 061	-0,128	-0 007	-0,011	-0,117	-0 028	-0 079	0 011	-0 018										
12/9/1999	8:26:18 AM	0	19 935	19 424	16,788	21,006	15 83	170 586	-0 061	-0,128	-0 007	-0 011	-0 086	-0 028	-0 079	0 011	-0 018										
12/9/1999	8:27:18 AM	0	19 971	19 481	16,722	21,124	15 967	170 55	-0 061	-0 067	-0 007	-0 011	-0 086	-0 028	-0 095	0 011	-0 018										
Delta - Per Minute																							at 25C	PERMEABILITY	x 1000	PERMEABILITY	
12/9/1999	11:33:26 AM	0	25 344	20 617	25,252	22 86	21,534	173 77	43,331	50 846	9 363	34,304	6 94	0 018	36 538	0 146	0 125	Number	Number	Vel., ft/s	TMP,psi	TMP, bar	GPM/FT2	GPM/FT2/psi	GPM/FT2/psi	GPM/FT2/psi	m/day/bar
12/9/1999	11:34:26 AM	0	25,309	20 662	25,298	23,063	21,499	173,806	43,269	50 668	9,36	34,406	7,063	0 018	36,523	0,149	0,148	1	1	15 2	38 8	2 676	0 064	0 00163	1 630	1,39	
12/9/1999	11:35:26 AM	0	25,309	20 662	25,298	23,004	21,499	173 806	43,083	50,302	9,336	34,102	7,033	0 018	36,231	0,149	0 148	2	2	15 2	38 8	2 678	0 065	0 00166	1 661	1 41	
12/9/1999	11:36:27 AM	0	25,434	20 907	25,421	23,049	21,624	173 845	43,207	50 846	9,368	34,034	7,063	0 018	36 615	0,149	0,134	3	3	15 0	38 8	2 661	0 065	0 065	0 00167	1 671	1 42
12/9/1999	11:37:27 AM	0	25,434	20 907	25,341	23,129	21,543	173 845	43,269	50,729	9,28	34,034	7,063	0 018	36 508	0,15	0,131	4	4	15,2	38 6	2 663	0 065	0 064	0 00166	1 664	1,42
12/9/1999	11:38:27 AM	0	25,434	20 907	25 421	23 049	21,624	173,845	42,588	49 875	9,272	34 034	7,094	0 064	36 646	0,149	0,131	5	5	15 2	38,7	2 665	0 065	0 065	0 00168	1,678	1 43
12/9/1999	11:39:28 AM	0	25,558	20 871	25,465	23,174	21,669	173,883	42 896	50 241	9,312	33,933	7,094	0 018	36,723	0,148	0,131	6	6	15,2	38,3	2 641	0 065	0 064	0 00166	1 678	1,43
12/9/1999	11:40:28 AM	0	25,558	20 952	25,465	23,174	21,669	173,883	43,145	50 548	9,328	33,899	7,094	0 018	36 661	0,147	0,128	7	7	15 2	38 4	2 649	0 065	0 064	0 00166	1 660	1 41
12/9/1999	11:41:28 AM	0	25,558	20 871	25,465	23,174	21,588	173,883	43,083	50 424	9,352	33,764	7,125	0 018	36,815	0,145	0,134	8	8	15 2	38 5	2 656	0 064	0 063	0 00164	1,644	1 40
12/9/1999	11:42:29 AM	0	25,443	20,997	23,104	23,138	21,714	173,92	41,224	48 594	8 809	32,851	7,094	0 018	36 922	0,138	0,122	9	9	15 3	38,4	2 649	0 063	0 062	0 00163	1 626	1,38
12/9/1999	11:43:29 AM	0	24,721	20,918	23,104	23,218	21,714	173,92	40 046	48,472	8 697	31,465	8,142	0 018	37,276	0 011	-0 018	10	10	15 3	37,0	2,554	0 060	0 064	0 00172	1,716	1 46
12/9/1999	11:44:29 AM	0	24 24	20 818	22,944	23,218	21,633	173,92	38,31	48,168	7,907	30,721	9 496	0 018	37,69	0 272	0 247	11	11	15 5	35 8	2 465	0 005	0 005	0 00014	0 142	0 12
12/9/1999	11:45:30 AM	0	23,803	20 961	22,828	23,264	21,678	173,958	42,092	48,107	7,947	34,44	5 677	0 018	37,787	0 268	0 253	12	12	15 6	34 5	2,380	0,119	0,126	0 00365	3 647	3 10
12/9/1999	11:46:30 AM	0	23,482	20,961	22,586	23,264	21,758	173,958	42,216	48,351	7,876	34 676	5,8	0 018	37,322	0,242	0 228	13	13	15,7	38,3	2 638	0,117	0,124	0 00325	3 252	2 77
12/9/1999	11:47:31 AM	0	23,241	20,961	22,506	23,264	21,758	173,958	42,092	48,351	7,931	34,237	5 923	0 018	37,706	0,24	0 222	14	14	15 5	38 4	2 651	0 106	0 113	0 00294	2 943	2 50
12/9/1999	11:48:31 AM	0	23,045	21,006	22,47	23,369	21,884	173,995	41,658	-47,665	7,967	34,271	6 016	0 018	37,69	0,233	0,216	15	15	15 6	38 2	2 631	0,105	0,112	0 00295	2 947	2 51
12/9/1999	11:49:31 AM	0	22 884	21,006	22,39	23,306	21,884	173,995	42 278	48,777	7,493	35 062	6 231	0 018	36 339	0 236	0,225	16	16	15 6	38 0	2 618	0,102	0,109	0 00288	2 879	2 45
12/9/1999	11:50:31 AM	0	22 768	20 97	22,274	23,433	21,848	174,033	42,278	48 638	7,501	35,082	6,262	0 018	36 508	0,23	0,216	17	17	15 1	38 7	2 667	0,103	0 111	0 00287	2 868	2 44
12/9/1999	11:51:32 AM	0	22,643	20 925	22,149	23,369	21,803	173,995	42,154	48,716	7,501	35,183	6,262	0 018	36,323	0,231	0,213	18	18	15 2	38,7	2 667	0,100	0,108	0 00280	2 805	2,39
12/9/1999	11:52:32 AM	0	22 652	21,096	22,238	23,478	21,893	174 07	42,278	48 899	7,509	34,947	6 293	0 018	36,139	0 227	0,213	19	19	15,1	38,7	2 666	0 101	0,109	0 00283	2 828	2 41
12/9/1999	11:53:32 AM	0	22 448	20 97	22,113	23,433	21,788	174,033	42,216	48 716	7,483	35,082	6 324	0 064	36 283	0 223	0 207	20	20	15 0	38,6	2 662	0 099	0,107	0 00278	2,776	2 36
12/9/1999	11:54:33 AM	0	22 491	21,015	22 078	23,396	21,732	174 07	42 092	48 655	7,477	35,15	6 231	0 064	36,218	0,214	0,196	21	21	15 1	38 6	2 665	0 097	0,106	0 00273	2 734	2 33
12/9/1999	11:55:33 AM	0	22,41	21,015	22 078	23,316	21 813	174,07	42,216	48,836	7,453	34,879	6 293	0 018	36,154	0,222	0 204	22	22	15 0	38 6	2 663	0 093	0 102	0 00263	2 628	2 24
12/9/1999	11:56:34 AM	0	22,455	21,06	22,203	23,443	21,938	174,108	42,092	48 655	7,469	35 014	6,324	0 018	35,955	0,218	0,204	23	23	15 0	38 5	2,658	0 097	0,105	0 00273	2,732	2 32
12/9/1999	11:57:34 AM	0	22,375	21 06	22,122	23,443	21,857	174,108	42,092	48 894	7,453	35 251	6 324	0 018	35,955	0,218	0,204	24	24	14,9	38 6	2 658	0 096	0,104	0 00268	2 685	2 28
12/9/1999	11:58:34 AM	0	22,42	21,105	22,167	23,487	21,902	174,145	42,216	48 838	7,493	34 947	6 324	0 018	36,154	0,219	0,198	25	25	15 0	38,7	2 666	0 096	0,104	0 00270	2 695	2 29
12/9/1999	11:59:34 AM	0	22,42	21,105	22,087	23,487	21,902	174,145	41,72	48 412	7,469	34 643	6 324	0 018	36 216	0,217	0 207	26	26	15 0	38 6	2 660	0 096	0,104	0 00269	2 686	2 29
12/9/1999	12:00:35 PM	0	22,42	21,105	22 067	23,487	21,902	174,145	42,278	48,838	7,524	35 062	6,355	0 018	36,185	0,218	0 201	27	27	15 0	38 2	2 632	0 095	0,103	0 00270	2 695	2 29
12/9/1999	12:01:35 PM	0	22,339	21,105	22,167	23,407	21,902	174,145	42 092	48,716	7,524	35 048	6 324	0 018	36 216	0,226	0 21	28	28	15 0	38,7	2 667	0 095	0,103	0 00267	2 673	2 27
12/9/1999	12:02:36 PM	0	22,384	21,15	22,293	23,291	21,947	174,183	42,588	49 204	7,501	35,251	6 201	0 018	36 062	0,215	0,204	29	29	15 0	38 6	2 659	0 099	0 107	0 00277	2 772	2 36
12/9/1999	12:03:36 PM	0	22,465	21,15	22,373	23,452	21,947	174,183	42,154	48 655	7,493	35 082	6 324	0 018	36,108	0,215	0,198	30	30	15 0	38,9	2 663	0,094	0,101	0 00260	2 604	2 22
12/9/1999	12:04:36 PM	0	22,465	21,069	22,293	23,452	22,028	174,183	42,278	48 533	7,524	35,116	6,108	0 018	36,231	0,211	0,192	31	31	15 0	38 6	2 663	0 094	0 101	0 00262	2 619	2 23
12/9/1999	12:05:37 PM	0	22,51	21,195	22,338	23,577	21,992	174,22	42,464	48 899	7,501	35,116	6 262	0 064	36 093	0,21	0,192	32	32	15 0	38,7	2,668	0 092	0 099	0 00257	2 571	2,19
12/9/1999	12:06:37 PM	0	22,51	21,114	22,338	23,497	21,992	174,22	42,34	48,655	7,461	35,251	6 965	0 018	36,139	0,217	0 204	33	33	15 0	38,8	2 674	0 092	0 099	0 00255	2 549	2,17
12/9/1999	12:07:37 PM	0	22,51	21,195	22,338	23,497	21,992	174,22	42,588	48 899	7,501	35,454	6 954	0 018	36 248	0 21	0,192	34	34	15 0	38 6	2 675	0 095	0,102	0 00263	2 634	2 24
12/9/1999	12:08:36 PM	0	22,429	21,195	22,338	23,577	21,992	174,22	42 278	48 594	7,349	35,454	6,016	0 064	36 047	0,211	0,192	35	35	15 0	39 0	2 690	0 092	0 099	0 00253	2 534	2,16
12/9/1999	12:09:36 PM	0	22,555	21,24	22,383	23,622	22 037	174,258	42,526	48,777	7,405	35,183	6,139	0 018	36 093	0 208	0,195	36	36	15 0	38 9	2 680	0 092	0 099	0 00256	2 556	2,18
12/9/1999	12:10:38 PM	0	22 555	21,158	22,383	23,783	22 037	174,258	42,402	49 062	7,405	35 048	6,293	0 064	36,047	0,204	0,195	37	37	15 0	38,9	2 679	0 091	0 098	0 00252	2 517	2,14
12/9/1999	12:11:39 PM	0	22,599	21,204	22,428	23,747	22,163	174,295	42 03	48 533	7,397	34,961	6,293	0 018	36 001	0 214	0,198	38	38	15,0	38 7	2 670	0 089	0 096	0 00248	2 477	2,11
12/9/1999	12:12:39 PM	0	22,599	21,204	22,508	23,747	22,163	174,295	42,34	48,777	7,397	35,353	6,201	0 064	36,17	0,209	0,198	39	39	14 9	38 5	2,655	0 093	0 100	0 00261	2 610	2 22
12/9/1999	12:13:39 PM	0	22,599	21,204	22,428	23,827	22,163	174,295	42,34	48,96	7,421	35 082	6 231	0 018	36,185	0,207	0,195	40	40	15 0	38,8	2,678	0 091	0 098	0 00252	2 521	2,15
12/9/1999	12:14:40 PM	0	22 644	21,25	22,553	23,792	22,127	174,333	42,216	48,777	7,397	35 048	6,262	0 018	36 062	0,206	0,195	41	41	15 0	38,7	2 669	0 090	0 097	0 00251	2 511	2,14
12/9/1999	12:15:40 PM	0	22,725	21,25	22,553	23,672	22,208	174,333	42,464	49 062	7,445	35 082	6,324	0 018	36 047	0,207	0,192	42	42	15 0	38 6	2 664	0 090	0 096	0 00250	2 495	2,12
12/9/1999	12:16:40 PM	0	22 644	21,25	22,553	23,792	22,208	174,333	42,216	48,777	7,415	35,285	6,293	0 018	36,031	0,21	0,195	43	43	15 0	38 8	2 673	0 090	0 097	0 00250	2,496	2,13
12/9/1999	12:17:41 PM	0	22,77	21,295	22,598	23,917	22,253	174,37	42,588	49 082	7,349	35,488	6 201	0 018	36 031	0,209	0,195	44	44	15 0	38 8	2 672	0 092	0 098	0 00254	2 536	2,16
12/9/1999	12:18:41 PM	0	22,77	21,295	22,678	23,917	22,253	174,37	42,154	48,777	7,477	35,082	6,555	0 018	36,154	0,204	0,192	45	45	15 0	39 0	2 692	0 091	0 098	0 00250	2 502	2,13
12/9/1999	12:19:41 PM	0	22,77	21,295	22,678	23,917	22,253	174,37	42,092	48,777	7,421	35 082	6,416	0 018	36,139	0,204	0,192	46	46	15 0	38 6	2 663	0 089	0 095	0 00248	2 483	2,10
12/9/1999	12:20:42 PM	0	22,85	21,295	22,678	23,917	22,172	174,37	41,968	48,655	7,429	35,183	6 416	0 018	36,031	0,196	0,183	47	47	15 0	38 6	2 660	0 089	0 095	0 00247	2,465	2,10
12/9/1999	12:21:42 PM	0	22,815	21,259	22,723	23,882	22,217	174,406	41,968	48,777	7,405	35 082	6 478	0 064	36,154	0,205	0,189	48	48	15 0	38 6	2,660	0 088	0 092	0 00239	2 393	2 04
12/9/1999	12:22:42 PM	0	22,86	21,365	22,768	24,067	22,343	174,446	42,03	48,716	7,461	34,744	6 416	0 018	36 047	0,202	0,186	49	49	15 0	38 6	2,656	0,089	0 095	0 00248	2 478	2,11
12/9/1999	12:23:43 PM	0	22,94	21,365	22,849	24,007	22,343	174,446	42,278	49 062	7,301	35,623	6,447	0 018	35 832	0 203	0,189	50	50	15 0	38,4	2,647	0 088	0 094	0 00245	2 447	2 08
12/9/1999	12:24:43 PM	0	22,94	21,365	22,849	24,067	22,343	174,446	42,34	48 021	7,401	34,961	6,324	0 018	35,97	0 213	0 201	51	51	14,9	39 0	2,686	0 089	0 094	0 00242	2 418	2 06
12/9/1999	12:25:43 PM	0	22,94	21,365	22,849	24,007	22,343	174,446	42,526	49,204	7,429	35,217	6,385	0 018	36 093	0,205	0,177	52	52	14,9	38,7	2 666	0 093	0 099	0 00256	2 556	2,18
12/9/1999	12:26:44 PM	0	22,965	21,43	22,974	24,132	22,388	174,483	42,96	49,692	7,245	35 657	6,385	0 018	35 432	0 206	0,189	53	53	15 0	38 9	2 680	0 089	0 095	0 00245	2 447	2 08
12/9/1999	12:27:44 PM	0	23,056	21,349	22 694	24 212	22,468	174,483	43 021	49,631	7,309	35 691	6,324	0 018	35,586	0,205	0,189	54	54	14,7	39,3	2,710	0 090	0 095	0 00242	2 423	2 06
12/9/1999	12:28:44 PM	0	23 056	21,43	23 054	24,212	22,388	174,483	42,96	49 692	7,341	35 555	6,355	0 018	35 494	0,199	0,186	55	55	14 8	39 4	2,713	0 089	0,095	0 00241	2 414	2 05
12/9/1999	12:29:45 PM	0	23 056	21,43	22,974	24,212	22,307	174,483	42,402	49,204	7,205	35 569	6 478	0 064	35,417	0,202	0,189	56	56	14,7	39 3	2,707	0 087	0,092	0 00234	2 338	1 99
12/9/1999	12:30:45 PM	0	23,191	21,475	23 099	24,257	22,352	174,521	42,588	49 587	7,229	35 657	6 478	0 018	35,64	0,202	0,189	57	57	14,7	39 0	2 689	0 088	0 093	0 00239	2 395	2 04
12/9/1999	12:31:45 PM	0	23,191	21,475	23 099	24 257	22,433	174,521	42,896	49 67	7,317	35 657	6 385	0 018	35 463	0 2	0,186	58	58	14,7	39,1	2,697	0 088	0 093	0 00238	2 379	2 02
12/9/1999	12:32:46 PM	0	23,191	21,394	23,18	24,257	22,433	174,521	42,712	49,326	7,221	35 691	6,416	0 064	35 509	0 212	0 204	59	59	14,7	39 3	2,708	0 087	0 092	0 00235	2 348	2 00
12/9/1999	12:33:46 PM	0	23,236	21 62	23,144	24,302	22,478	174,558	42,712	49 446	7,261	35,724	6,385	0 018	35 525	0,201	0,192	60	60	14,7	39 2	2,703	0 093	0 097	0 00249	2,466	2,12
12/9/1999	12:34:46 PM	0	23,316	21,44	23,225	24,363	22,478	174,558	42,896	49,587	7,301	35,724	6,262	0 064	35 432	0,203	0,183	61	61	14,7	39 2	2,704	0 088	0 092	0 00236	2 358	2 01
12/9/1999	12:35:47 PM	0	23,316	21,44	23,225	24,302	22,478	174 558	42,65	49,326	7,285	35,657	6,355	0 018	35 476	0 202	0,189	62	62	14,7	39 3	2,710	0 089	0 093	0 00237	2 370	2 02
12/9/1999	12:36:47 PM	0	23,397	21,62	23,305	24,302	22,478	174,558	42,774	49,448	7,269	36 029	6,293	0 064	35 417	0,201	0,186	63	63	14,7	39 2	2,699	0 088	0 093	0 00237	2 368	2 02
12/9/1999	12:37:47 PM	0	23,397	21,62	23,383	24,302	22,558	174,558	43,063	49 814	7,581	35,792	6,385	0 064	35 483	0,197	0,183	64	64	14,7	39,4	2,717	0 088	0 092	0 00234	2 336	1 99
12/9/1999	12:38:48 PM	0	23,442	21,565	23,43	24,347	22,523	174,596	42,774	49,326	7,261	35,724	6,293	0 018	35,34	0,199	0,189	65	65	14,7	39 4	2,719	0 086	0 090	0 00228	2 283	1 94
12/9/1999	12:39:48 PM	0	23,442	21,485	23,43	24,428	22,523	174,596	42,774	49,448	7,349	35,792	6 416	0 018	35,417	0,196	0,18	66	66	14,7	39 2	2,706	0 087	0 091	0 00231	2 314	1,97
12/9/1999	12:40:48 PM	0	23,567	21,53	23,556	24,392	22,648	174,634	42,526	49,326	7,341	35,724	6 447	0 064	35 478	0,196	0,183	67	67	14,7	39 3	2,706	0 088	0 089	0 00228	2 277	1 94
12/9/1999	12:41:49 PM	0	23,567	21 61	23 556	24 472	22,648	174 634	42,836	49 631	7,373	35 691	6 509	0 018	35,371	0,192	0,174	68	68	14,7	39,1	2 696	0 088	0 090	0 00230	2 301	1,96
12/9/1999	12:42:49 PM	0	23 647	21 61	23,556	24,472	22,648	174 634	42,402	49,265	7,389	35 758	6 54	0 018	35 417	0 187	0 183	69	69	14,7	39 3	2 707	0 084	0 087	0 00222	2 224	1,89
12/9/1999	12:43:49 PM	0	23,692	21 656	23,681	24,517	22,694	174 672	42,896	49 57	7,389	35 995	6 324	0 064	35,309	0,197	0,186	70	70	14,7	39,1	2 694	0 086	0 090	0 00229	2 292	1 95
12/9/1999	12:44:50 PM	0	23,773	21,575	23,681	24,517	22,694	174,672	42,896	49,509	7,373	36 029	6,293	0 064	35,448	0,196	0,183	71	71	14,7	39 4	2 720	0 086	0 089	0 00228	2 263	1 93
12/9/1999	12:45:50 PM	0	23,773	21,656	23,761	24,517	22,694	174,672	42,836	49,509	7,349	35 927	6,293	0 064	35,356	0,197	0,186	72	72	14,7	39 5	2 721	0 088	0 089	0 00225	2,251	1,92
12/9/1999	12:46:50 PM	0	23,818	21 62	23,806	24,562	22,619	174,709	42,96	49 67	7,373	35 893	6,324	0 018	35,54	0,193	0,18	74	74	14,7	39 4	2,718	0 084	0 087	0 00221	2 210	1 88
12/9/1999	12:47:51 PM	0	23 818	21,62	23 806	24 562	22 739	174 709	43,145	49 936	7,581	35 893	6 416	0 064	35 463	0 194	0 186	75	75	14,7	39 5	2 725	0 085	0 088	0 00222	2 217	1 89

Fourth Wash: 75 liters DI Filtered Water

12/9/1999	12:48:51 PM	0	23.896	21.62	23.886	24.562	22.739	174.709	43.021	49.692	7.421	35.589	6.385	0.018	35.356	0.196	0.183	76	76	14.7	39.3	2.710	0.086	0.088	0.00225	2.246	1.91
12/9/1999	12:49:52 PM	0	23.896	21.62	23.967	24.643	22.739	174.709	43.021	49.692	7.413	35.995	6.447	0.064	35.356	0.193	0.18	77	77	14.7	39.5	2.724	0.084	0.087	0.00220	2.196	1.87
12/9/1999	12:50:52 PM	0	24.023	21.665	24.012	24.627	22.784	174.747	43.121	49.631	7.397	35.68	6.293	0.064	35.356	0.187	0.192	78	78	14.7	39.4	2.719	0.086	0.088	0.00224	2.242	1.91
12/9/1999	12:51:52 PM	0	24.149	21.711	24.137	24.733	22.829	174.785	43.393	49.875	7.565	36.196	6.17	0.064	35.309	0.193	0.189	79	79	14.7	39.8	2.744	0.084	0.086	0.00217	2.189	1.85
12/9/1999	12:52:53 PM	0	24.104	21.665	24.092	24.607	22.784	174.747	43.393	49.814	7.413	36.401	6.077	0.018	35.325	0.19	0.174	80	80	14.7	39.9	2.751	0.083	0.085	0.00213	2.133	1.82
12/9/1999	12:53:53 PM	0	24.149	21.711	24.217	24.672	22.829	174.785	43.578	49.997	7.493	36.232	6.17	0.064	35.309	0.191	0.177	81	81	14.7	39.9	2.751	0.083	0.085	0.00214	2.136	1.82
12/9/1999	12:54:53 PM	0	24.229	21.711	24.217	24.652	22.829	174.785	42.96	49.367	7.405	36.096	6.139	0.018	35.156	0.191	0.18	82	82	14.6	39.3	2.725	0.083	0.085	0.00216	2.157	1.84
12/9/1999	12:55:54 PM	0	24.354	21.756	24.423	24.697	22.874	174.823	43.393	49.814	7.469	36.164	6.139	0.018	35.325	0.189	0.174	83	83	14.7	39.8	2.743	0.083	0.084	0.00211	2.108	1.79
12/9/1999	12:56:54 PM	0	24.354	21.756	24.423	24.697	22.955	174.823	43.765	50.363	7.501	36.739	6.17	0.064	35.125	0.192	0.18	84	84	14.6	40.3	2.775	0.084	0.085	0.00212	2.116	1.80
12/9/1999	12:57:54 PM	0	24.354	21.756	24.423	24.697	22.874	174.823	43.703	50.058	7.453	36.468	5.985	0.018	35.202	0.188	0.18	85	85	14.6	40.1	2.764	0.082	0.083	0.00208	2.081	1.77
12/9/1999	12:58:55 PM	0	24.479	21.882	24.628	24.823	23	174.86	43.827	49.936	7.501	36.908	5.923	0.018	35.263	0.186	0.177	86	86	14.6	40.4	2.783	0.081	0.082	0.00203	2.033	1.73
12/9/1999	12:59:55 PM	0	24.479	21.801	24.548	24.743	22.919	174.86	43.827	50.058	7.532	36.67	5.923	0.064	35.202	0.186	0.177	87	87	14.6	40.2	2.772	0.081	0.082	0.00205	2.046	1.74
12/9/1999	1:00:55 PM	0	24.64	21.801	24.706	24.823	23	174.86	43.269	49.631	7.477	36.803	5.985	0.064	35.233	0.184	0.174	88	88	14.6	39.9	2.753	0.080	0.081	0.00200	2.028	1.73
12/9/1999	1:01:56 PM	0	24.685	21.846	24.753	24.868	23.045	174.896	43.393	49.814	7.485	36.299	6.077	0.064	35.217	0.183	0.168	89	89	14.6	39.8	2.747	0.080	0.080	0.00202	2.019	1.72
12/9/1999	1:02:56 PM	0	24.765	21.846	24.833	24.788	22.964	174.896	43.827	49.814	7.477	36.806	5.738	0.064	35.263	0.187	0.168	90	90	14.6	40.3	2.760	0.082	0.082	0.00203	2.034	1.73
12/9/1999	1:03:56 PM	0	24.81	21.892	24.878	24.833	23.01	174.936	44.013	50.119	7.493	36.908	5.707	0.018	35.233	0.187	0.18	91	91	14.6	40.5	2.790	0.082	0.082	0.00202	2.025	1.72
12/9/1999	1:04:56 PM	0	24.97	21.892	24.959	24.913	23.09	174.936	44.075	50.058	7.501	36.84	5.677	0.064	35.187	0.18	0.168	92	92	14.6	40.5	2.769	0.079	0.079	0.00194	1.944	1.65
12/9/1999	1:05:57 PM	0	24.89	21.892	25.039	24.833	23.09	174.936	44.323	50.424	7.604	36.671	5.769	0.018	35.217	0.178	0.168	93	93	14.6	40.5	2.792	0.078	0.078	0.00192	1.917	1.63
12/9/1999	1:06:57 PM	0	24.89	21.972	25.119	24.993	23.01	174.936	44.075	50.302	7.588	36.502	5.831	0.018	35.202	0.177	0.161	94	94	14.6	40.3	2.776	0.077	0.077	0.00191	1.911	1.63
12/9/1999	1:07:58 PM	0	25.096	21.937	25.164	24.958	23.135	174.974	43.765	49.875	7.612	36.908	5.892	0.064	35.263	0.176	0.161	95	95	14.6	40.3	2.781	0.077	0.076	0.00190	1.896	1.61
12/9/1999	1:08:58 PM	0	25.178	21.937	25.244	25.038	23.135	174.974	44.075	50.363	7.644	36.806	5.965	0.064	35.294	0.174	0.171	96	96	14.6	40.4	2.788	0.076	0.075	0.00187	1.865	1.59
12/9/1999	1:09:58 PM	0	25.256	21.937	25.244	24.958	23.135	174.974	43.703	50.058	7.62	36.603	6.046	0.064	35.356	0.173	0.161	97	97	14.7	40.2	2.768	0.076	0.075	0.00187	1.868	1.59
12/9/1999	1:10:58 PM	0	25.301	21.962	25.369	25.083	23.18	175.012	44.075	50.302	7.66	36.603	5.892	0.064	35.371	0.172	0.164	98	98	14.7	40.3	2.781	0.075	0.074	0.00184	1.842	1.57
12/9/1999	1:11:59 PM	0	25.381	21.962	25.449	25.003	23.18	175.012	43.703	49.936	7.7	36.772	5.923	0.064	35.371	0.17	0.165	99	99	14.7	40.2	2.774	0.074	0.073	0.00182	1.821	1.55
12/9/1999	1:12:59 PM	0	25.381	21.962	25.449	25.003	23.261	175.012	44.013	50.302	7.716	36.739	5.862	0.064	35.217	0.174	0.156	100	100	14.6	40.4	2.784	0.076	0.075	0.00186	1.856	1.58
12/9/1999	1:14:00 PM	0	25.506	22.028	25.574	25.128	23.226	175.05	44.013	50.119	7.676	36.705	5.8	0.018	35.233	0.17	0.158	101	101	14.6	40.4	2.783	0.074	0.073	0.00181	1.809	1.54
12/9/1999	1:15:00 PM	0	25.586	22.028	25.574	25.128	23.145	175.05	44.137	50.424	7.706	36.67	5.892	0.064	35.233	0.169	0.158	102	102	14.6	40.4	2.782	0.074	0.073	0.00180	1.799	1.53
12/9/1999	1:16:00 PM	0	25.666	22.106	25.654	25.048	23.226	175.05	43.827	50.119	7.748	36.671	6.016	0.064	35.233	0.167	0.155	103	103	14.6	40.2	2.775	0.073	0.072	0.00178	1.778	1.51
12/9/1999	1:17:01 PM	0	25.631	22.073	25.779	25.093	23.271	175.087	44.075	50.485	7.772	36.637	6.077	0.064	35.279	0.166	0.158	104	104	14.6	40.4	2.782	0.072	0.071	0.00176	1.757	1.50
12/9/1999	1:18:01 PM	0	25.792	22.073	25.659	25.013	23.331	175.087	43.827	50.302	7.692	36.606	6.139	0.018	35.156	0.166	0.152	105	105	14.6	40.3	2.780	0.072	0.071	0.00175	1.755	1.49
12/9/1999	1:19:01 PM	0	25.637	22.118	25.905	25.136	23.397	175.125	43.827	50.485	7.676	36.603	6.262	0.064	35.094	0.163	0.149	106	106	14.6	40.2	2.773	0.071	0.069	0.00173	1.725	1.47
12/9/1999	1:20:02 PM	0	25.792	22.073	25.939	25.013	23.331	175.087	43.951	50.546	7.652	36.536	6.324	0.064	34.972	0.167	0.155	107	107	14.5	40.2	2.775	0.073	0.071	0.00176	1.764	1.50
12/9/1999	1:21:02 PM	0	25.997	22.118	26.064	25.136	23.477	175.125	43.579	50.18	7.676	36.537	6.324	0.064	35.018	0.162	0.143	108	108	14.5	40.1	2.765	0.071	0.069	0.00171	1.711	1.46
12/9/1999	1:22:02 PM	0	25.992	22.164	26.19	25.184	23.442	175.163	43.889	50.485	7.66	36.536	6.324	0.064	35.002	0.16	0.143	109	109	14.5	40.2	2.773	0.070	0.068	0.00168	1.680	1.43
12/9/1999	1:23:03 PM	0	26.042	22.164	26.269	25.184	23.522	175.163	43.889	50.668	7.66	36.468	6.416	0.064	34.972	0.158	0.146	110	110	14.5	40.2	2.770	0.069	0.067	0.00166	1.657	1.41
12/9/1999	1:24:03 PM	0	26.167	22.209	26.315	25.309	23.648	175.201	44.075	50.973	7.676	36.434	6.478	0.064	34.956	0.159	0.143	111	111	14.5	40.3	2.775	0.069	0.067	0.00166	1.662	1.41
12/9/1999	1:25:03 PM	0	26.247	22.209	26.474	25.229	23.667	175.201	44.943	50.729	7.748	37.28	5.481	0.064	35.125	0.155	0.123	112	112	14.6	41.1	2.634	0.068	0.065	0.00156	1.579	1.34
12/9/1999	1:26:04 PM	0	26.327	22.209	26.474	25.229	23.648	175.201	44.633	50.729	7.82	37.077	5.738	0.018	34.972	0.159	0.152	113	113	14.5	40.9	2.617	0.069	0.067	0.00163	1.630	1.39
12/9/1999	1:27:04 PM	0	26.532	22.254	26.599	25.354	23.693	175.239	44.509	50.607	7.784	36.942	5.769	0.064	34.972	0.16	0.171	114	114	14.5	40.7	2.608	0.070	0.067	0.00164	1.640	1.40
12/9/1999	1:28:04 PM	0	26.572	22.174	26.679	25.354	23.613	175.239	44.509	50.668	7.756	37.009	5.769	0.064	34.941	0.159	0.149	115	115	14.5	40.8	2.610	0.069	0.068	0.00162	1.625	1.38
12/9/1999	1:29:05 PM	0	26.657	22.3	25.785	25.399	23.658	175.277	25.045	30.24	4.501	20.68	4.875	0.064	25.817	0.078	0.061	116	116	10.7	22.9	1.576	0.033	0.032	0.00142	1.420	1.21
12/9/1999	1:30:05 PM	0	26.417	22.219	25.845	25.319	23.658	175.277	24.363	30.484	4.174	20.443	5.892	0.064	24.803	0.09	0.067	117	117	10.3	22.4	1.545	0.039	0.038	0.00171	1.713	1.46
12/9/1999	1:31:05 PM	0	26.382	22.265	25.61	25.444	23.703	175.318	24.921	31.215	3.727	21.66	5.965	0.064	22.991	0.095	0.07	118	118	9.6	23.3	1.606	0.041	0.041	0.00174	1.741	1.48
12/9/1999	1:32:06 PM	0	26.268	22.31	25.935	25.49	23.749	175.353	25.354	31.396	3.576	22.505	5.662	0.064	20.887	0.092	0.073	119	119	8.7	23.9	1.650	0.040	0.039	0.00163	1.635	1.39
12/9/1999	1:33:06 PM	0	26.188	22.31	25.935	25.49	23.749	175.353	26.16	32.13	3.188	23.418	5.707	0.064	19.612	0.088	0.07	120	120	8.1	24.6	1.709	0.038	0.037	0.00151	1.510	1.28
12/9/1999	1:34:06 PM	0	26.153	22.436	26.061	25.535	23.874	175.391	26.718	32.657	3.32	23.486	5.553	0.064	19.351	0.082	0.07	121	121	8.0	25.1	1.731	0.036	0.035	0.00138	1.384	1.18
12/9/1999	1:35:07 PM	0	26.073	22.356	26.141	25.455	23.874	175.391	27.028	32.74	3.288	24.263	5.553	0.064	18.706	0.076	0.064	122	122	7.8	25.6	1.788	0.034	0.033	0.00129	1.286	1.09
12/9/1999	1:36:07 PM	0	26.073	22.356	26.141	25.455	23.794	175.391	27.278	33.167	3.328	23.824	5.615	0.064	18.444	0.073	0.064	123	123	7.7	25.6	1.782	0.032	0.031	0.00121	1.208	1.03
12/9/1999	1:37:07 PM	0	26.118	22.401	26.186	25.5	23.639	175.429	27.214	33.045	3.218	24.128	5.615	0.064	17.907	0.073	0.058	124	124	7.4	25.7	1.770	0.032	0.031	0.00120	1.201	1.02
12/9/1999	1:38:08 PM	0	26.118	22.401	26.186	25.66	23.639	175.429	27.028	32.964	3.503	23.621	5.646	0.064	18.659	0.072	0.055	125	125	7.6	25.3	1.746	0.031	0.030	0.00120	1.201	1.02
12/9/1999	1:39:08 PM	0	26.083	22.447	26.231	25.545	23.905	175.467	26.718	32.862	3.258	23.925	5.738	0.064	18.306	0.072	0.055	126	126	7.6	25.3	1.746	0.031	0.030	0.00120	1.199	1.02
12/9/1999	1:40:08 PM	0	26.083	22.366	26.231	25.625	23.585	175.467	26.656	32.679	3.232	23.959	5.769	0.064	18.078	0.073	0.061	127	127	7.5	25.3	1.745	0.032	0.031	0.00122	1.216	1.04
12/9/1999	1:41:09 PM	0	26.153	22.447	26.311	25.545	23.585	175.467	27.524	33.655	3.001	24.669	5.831	0.064	18.662	0.073	0.055	128	128	7.0	26.1	1.799	0.032	0.031	0.00118	1.177	1.00
12/9/1999	1:42:09 PM	0	26.128	22.492	26.356	25.671	23.93	175.505	32.359	38.777	3.511	28.726	6.046	0.064	18.278	0.078	0.061	129	129	7.6	30.5	2.106	0.034	0.033	0.00107	1.073	0.91
	Averages		23.8	21.8	23.7	24.3	22.6	174.6	42.9	49.4	7.6	35.8	6.2	0.0	35.7	0.196	0.184			14.8	39.3	2.712	0.086	0.090	0.002296	2.298	1.956
	Maximum		26.5	22.3	26.7	25.4	23.7	175.2	44.9	51.0	8.0	37.3	9.5	0.1	37.8	0.272	0.253			15.7	41.1	2.834	0.119	0.128	0.003647	3.647	3.103
	Median		23.4	21.5	23.3	24.3	22.5	174.6	42.8	49.4	7.6	35.7	6.3	0.0	35.5	0.199	0.186			14.7	39.3	2.708	0.087	0.092	0.002337	2.337	1.989
	Minimum		22.3	20.9	22.1	23.2	21.6	173.9	38.3	47.9	7.2	30.7	5.5	0.0	34.9	0.155	0.125			14.5	34.5	2.380	0.068	0.065	0.001579	1.579	1.344
	Std Deviation		1.216	0.381	1.359	0.636	0.552	0.371	0.899	0.706	0.167	0.881	0.398	0.023	0.610	0.023	0.022					0.253	0.882	0.061	0.010	0.013	0.000385	0.385	0.328
	Number of Points Used		104	104	104	104	104	104	104	104	104	104	104	104	104	104	104					104	104	104	104	104	104	104	104

APPENDIX E

ANALYTICAL DATA

Appendix Contents

1. Thirteen pages of Table E1 contain all of the analytical data.
2. Slurry Rheology: Figures E1 and E2
3. Graphs of selected chemical element concentrations throughout the test by molarity
   Figures E3-E17 are Al, Ca, Cl, Cr, F, Fe, La, Mn, Mo, Ni, P, K, Si, Na, and Sr
4. Graphs of selected chemical compounds and other concentrations throughout the test by molarity.
   Figures E18-E23 are: Formate, Oxalate, Phosphate, Sulfate, Nitrate/Nitrite, and Total Inorganic/Organic concentrations.
5. Graphs and tabular data on the particle distributions throughout the test
   Figures E24A, E24B, to E30A, E30B are for test runs: Pre-test, 1.01, 1.07, 1.08mid (9 wt% insoluble solids), 1.08end (22 wt% insoluble solids), 1.10, 1.15.

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: $\leq$ 0.5% of reading by calibration
   Viscosity: 0.34 wt% of reading by manufacturer's statement.
b. Figures for the slurry rheology, Figs. E1 and E2, do not include the slurry used for test runs 1.01 to 1.07 because at the low insoluble solids concentration of 2 wt% the slurry exhibited Newtonian characteristics and therefore is defined by its viscosity value given in Table E1.
c. For the graphs shown as the figures mentioned in items 4 and 5 above, i.e., selected chemical and compounds, a page of explanation that leads those figures should be read to better understand the data. Those graphs show a combination of slurry, filtrate, and target concentrations. Understanding the placement of information on the graphs will make them more useful.
d. Each particle analysis was done by a Volume and a Number distribution, thus there are two figures for each, e.g., 24A and 24B.)

	A	B	C	D	E	F
1	TEST RUN ----------->>		Most Recent Entry Date: 01-Mar-2000	Pre-Test Sample	1.00	1.00
2	BNFL Sample ID ----------->>		Prefix = BNF-SXF2115-C+ES+Sr/TRU	Pre-Test Sample	Prefix_01a	Prefix_01b
3	ADS Sample ID ----------->>			BNF-CSOLIDS-Pre-Test	3-133990	3-133991
4	Type Sample ----------->>			insoluble solids in H2O	slurry loop	slurry loop
5	Sample Size ----------->>	mL		5	15	15
6	Measurement(s) Made ----------->>	(SEE NOMECLATURE TO EXPLAIN TEST SYMBOL)		MICROTRAC	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE
7	Item Measured	Units	Analyst Name			
8	Density	g/mL	Thermal Fluids Lab	n/a	n/a	n/a
9	Al	ug/mL	Frank Pennebaker	n/a	<0.3	n/a
10	B	ug/mL	Frank Pennebaker	n/a	<0.13	n/a
11	Ba	ug/mL	Frank Pennebaker	n/a	<0.02	n/a
12	Ca	ug/mL	Frank Pennebaker	n/a	<0.2	n/a
13	Cd	ug/mL	Frank Pennebaker	n/a	<0.02	n/a
14	Cl	ug/mL	Robert Ray/Joyce Cartledge	n/a	10	n/a
15	Cl Sample	ug/mL	Robert Ray/Sarah Brown	n/a	n/a	2.8
16	Co	ug/mL	Frank Pennebaker	n/a	<0.05	n/a
17	Cr	ug/mL	Frank Pennebaker	n/a	<0.05	n/a
18	Cu	ug/mL	Frank Pennebaker	n/a	<0.02	n/a
19	F (Fluoride) [not accurate]	ug/mL	Robert Ray/Joyce Cartledge	n/a	<2	n/a
20	F Sample (more accurate result)	ug/mL	Robert Ray/Sarah Brown	n/a	n/a	<1
21	Fe	ug/mL	Frank Pennebaker	n/a	<0.06	n/a
22	HCOO (Formate)	ug/mL	Robert Ray/Joyce Cartledge	n/a	<10	n/a
23	K	ug/mL	Sarah Brown	n/a	n/a	<0.135
24	La	ug/mL	Frank Pennebaker	n/a	<0.14	n/a
25	Li	ug/mL	Frank Pennebaker	n/a	<0.7	n/a
26	Mg	ug/mL	Frank Pennebaker	n/a	<0.05	n/a
27	Mn	ug/mL	Frank Pennebaker	n/a	<0.02	n/a
28	Mo	ug/mL	Frank Pennebaker	n/a	<0.04	n/a
29	Na	ug/mL	Frank Pennebaker	n/a	2.60	n/a
30	Ni	ug/mL	Frank Pennebaker	n/a	<0.06	n/a
31	NO2 (Nitrite)	ug/mL	Robert Ray/Joyce Cartledge	n/a	<10	n/a
32	NO3 (Nitrate)	ug/mL	Robert Ray/Joyce Cartledge	n/a	15	n/a
33	C2O4 (Oxalate)	ug/mL	Robert Ray/Joyce Cartledge	n/a	<10	n/a
34	P	ug/mL	Frank Pennebaker	n/a	<0.9	n/a
35	PO4 (Phosphate)	ug/mL	Robert Ray/Joyce Cartledge	n/a	<10	n/a
36	Pb	ug/mL	Frank Pennebaker	n/a	<0.5	n/a
37	Si	ug/mL	Frank Pennebaker	n/a	<0.6	n/a
38	Sn	ug/mL	Frank Pennebaker	n/a	<0.4	n/a
39	SO4 (Sulfate)	ug/mL	Robert Ray/Joyce Cartledge	n/a	13	n/a
40	Sr	ug/mL	Frank Pennebaker	n/a	<0.05	n/a
41	Ti	ug/mL	Frank Pennebaker	n/a	<0.05	n/a
42	V	ug/mL	Frank Pennebaker	n/a	<0.12	n/a
43	Zn	ug/mL	Frank Pennebaker	n/a	<0.05	n/a
44	Zr	ug/mL	Frank Pennebaker	n/a	<0.15	n/a
45	Total Organic Carbon	ug/mL	Robert Ray	n/a	n/a	428
46	Total Inorganic Carbon	ug/mL	Robert Ray	n/a	n/a	14.6
47	Suspended Solids	wt%	Beverly Burch	n/a	<0.002	n/a
48	Total Solids	wt%	Beverly Burch	n/a	n/a	n/a
49	Mean Particle Size by Volume	micron	Don Blankenship	1.527(44%)/5.603(56%)	n/a	n/a
50	Mean Particle Size by Number	micron	Don Blankenship	1.00	n/a	n/a
51	Kinematic Viscosity	centistoke	CONE/TNX-CAPILLARY/TFL	n/s	n/a	n/a
52	Dynamic Viscosity / Consistency	cP	Calculated = Kin. Visc. x Density	n/a	n/a	n/a
53	Comment			high pH diluent/sonication	water before	water after

Table E1: Analytical – All data, Page1

	G	H	I	J	K	L	M
1	TEST RUN ----------->>		1.01(old)	1.01(old)	1.01(old)	1.01(old)	1.01(old)
2	BNFL Sample ID ----------->>		Prefix_02	Prefix_03	Prefix_04	Prefix_05a	Prefix_05b
3	ADS Sample ID ----------->>		3-133992	N/A	3-133993	3-133994	3-133995
4	Type Sample ----------->>		slurry	slurry	slurry	filtrate	filtrate
5	Sample Size ----------->>	mL	15	250	15	15	15
6	Measurement(s) Made ----------->>		MICROTRAC	TS/SS-VISCOSITY	TS/SS	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE
7	Item Measured	Units					
8	Density	g/mL	1.290	1.291	1.290	1.272	1.272
9	Al	ug/mL	n/a	n/a	n/a	220	n/a
10	B	ug/mL	n/a	n/a	n/a	20.8	n/a
11	Ba	ug/mL	n/a	n/a	n/a	<0.02	n/a
12	Ca	ug/mL	n/a	n/a	n/a	124	n/a
13	Cd	ug/mL	n/a	n/a	n/a	<0.02	n/a
14	Cl	ug/mL	n/a	n/a	n/a	816	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	n/a	934
16	Co	ug/mL	n/a	n/a	n/a	<0.05	n/a
17	Cr	ug/mL	n/a	n/a	n/a	0.49	n/a
18	Cu	ug/mL	n/a	n/a	n/a	9.2	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	957	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	n/a	272.2
21	Fe	ug/mL	n/a	n/a	n/a	35	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	5591	n/a
23	K	ug/mL	n/a	n/a	n/a	n/a	1220.86
24	La	ug/mL	n/a	n/a	n/a	1.3	n/a
25	Li	ug/mL	n/a	n/a	n/a	<0.7	n/a
26	Mg	ug/mL	n/a	n/a	n/a	0.41	n/a
27	Mn	ug/mL	n/a	n/a	n/a	9.4	n/a
28	Mo	ug/mL	n/a	n/a	n/a	20.3	n/a
29	Na	ug/mL	n/a	n/a	n/a	127500	n/a
30	Ni	ug/mL	n/a	n/a	n/a	283	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	34089	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	13020	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	2024	n/a
34	P	ug/mL	n/a	n/a	n/a	318	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	1534	n/a
36	Pb	ug/mL	n/a	n/a	n/a	<1.0	n/a
37	Si	ug/mL	n/a	n/a	n/a	10.2	n/a
38	Sn	ug/mL	n/a	n/a	n/a	<0.4	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	4830	n/a
40	Sr	ug/mL	n/a	n/a	n/a	87	n/a
41	Ti	ug/mL	n/a	n/a	n/a	<0.05	n/a
42	V	ug/mL	n/a	n/a	n/a	<0.12	n/a
43	Zn	ug/mL	n/a	n/a	n/a	17	n/a
44	Zr	ug/mL	n/a	n/a	n/a	0.85	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	n/a	9618
46	Total Inorganic Carbon	ug/mL	n/a	n/a	n/a	n/a	12044
47	Suspended Solids	wt%	n/a	1.78	1.93	n/a	n/a
48	Total Solids	wt%	n/a	33.98	33.88	n/a	n/a
49	Mean Particle Size by Volume	micron	1.471(75%)/5.581(23%)	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	micron	0.97	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	3.0	n/a	2.62	2.62
52	Dynamic Viscosity / Consistency	cP	n/a	3.9	n/a	3.33	3.33
53	Comment		high pH diluent/sonication				

Table E1: Analytical – All data, Page2

	N	O	P	Q	R	S	T
1	TEST RUN ----------->>		1.07(old)	1.07(old)	1.07(old)	1.07(old)	1.07(old)
2	BNFL Sample ID ----------->>		Prefix_06	Prefix_07	Prefix_08	Prefix_09a	Prefix_09b
3	ADS Sample ID ----------->>		3-133996	N/A	3-133997	3-133998	3-133999
4	Type Sample ----------->>		slurry	slurry	slurry	filtrate	filtrate
5	Sample Size ----------->>	mL	15	250	15	15	15
6	Measurement(s) Made ----------->>		MICROTRAC	TS/SS-VISCOSITY	TS/SS	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE
7	Item Measured	Units					
8	Density	g/mL	1.285	1.305	1.285	1.270	1.270
9	Al	ug/mL	n/a	n/a	n/a	219	n/a
10	B	ug/mL	n/a	n/a	n/a	21.1	n/a
11	Ba	ug/mL	n/a	n/a	n/a	<0.02	n/a
12	Ca	ug/mL	n/a	n/a	n/a	128	n/a
13	Cd	ug/mL	n/a	n/a	n/a	<0.02	n/a
14	Cl	ug/mL	n/a	n/a	n/a	818	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	n/a	967
16	Co	ug/mL	n/a	n/a	n/a	<0.05	n/a
17	Cr	ug/mL	n/a	n/a	n/a	0.53	n/a
18	Cu	ug/mL	n/a	n/a	n/a	12.1	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	1860	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	n/a	282.5
21	Fe	ug/mL	n/a	n/a	n/a	41	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	5820	n/a
23	K	ug/mL	n/a	n/a	n/a	n/a	1198.88
24	La	ug/mL	n/a	n/a	n/a	1.2	n/a
25	Li	ug/mL	n/a	n/a	n/a	<0.7	n/a
26	Mg	ug/mL	n/a	n/a	n/a	0.41	n/a
27	Mn	ug/mL	n/a	n/a	n/a	14.5	n/a
28	Mo	ug/mL	n/a	n/a	n/a	20.5	n/a
29	Na	ug/mL	n/a	n/a	n/a	126500	n/a
30	Ni	ug/mL	n/a	n/a	n/a	285	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	37431	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	131115	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	1449	n/a
34	P	ug/mL	n/a	n/a	n/a	319	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	1549	n/a
36	Pb	ug/mL	n/a	n/a	n/a	<1.0	n/a
37	Si	ug/mL	n/a	n/a	n/a	11.0	n/a
38	Sn	ug/mL	n/a	n/a	n/a	<0.4	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	4883	n/a
40	Sr	ug/mL	n/a	n/a	n/a	95	n/a
41	Ti	ug/mL	n/a	n/a	n/a	<0.05	n/a
42	V	ug/mL	n/a	n/a	n/a	<0.12	n/a
43	Zn	ug/mL	n/a	n/a	n/a	17	n/a
44	Zr	ug/mL	n/a	n/a	n/a	79.00	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	n/a	9876
46	Total Inorganic Carbon	ug/mL	n/a	n/a	n/a	n/a	12362
47	Suspended Solids	wt%	n/a	2.05	1.89	n/a	n/a
48	Total Solids	wt%	n/a	35.84	34.47	n/a	n/a
49	Mean Particle Size by Volume	micron	1.472(77%)/5.228(23%)	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	micron	0.97	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	centistoke	n/s	3.4	n/a	2.47	2.47
52	Dynamic Viscosity / Consistency	cP	n/a	4.4	n/a	3.14	3.14
53	Comment		high pH diluent/sonication				

Table E1: Analytical – All data, Page 3

	U	V	W	X	Y	Z	AA
1	TEST RUN ----------->>		1.07	1.07	pre 1.08	pre 1.08	pre 1.08
2	BNFL Sample ID ----------->>		N/A	N/A	N/A	N/A	Prefix_10
3	ADS Sample ID ----------->>		N/A	N/A	N/A	N/A	3-135892
4	Type Sample ----------->>		slurry	filtrate	slurry	slurry	slurry
5	Sample Size ----------->>	mL	100 returned	100 returned	100 returned	100 retuned	15
6	Measurement(s) Made ----------->>		DENSITY ONLY	DENSITY & VISCOSITY	DENSITY ONLY	DENSITY ONLY	TS/SS/ICP-ES+HF digest
7	Item Measured	Units					
8	Density	g/mL	1.283	1.267	1.295	1.291	1.293
9	Al	ug/mL	n/a	n/a	n/a	n/a	235
10	B	ug/mL	n/a	n/a	n/a	n/a	18
11	Ba	ug/mL	n/a	n/a	n/a	n/a	<2
12	Ca	ug/mL	n/a	n/a	n/a	n/a	327
13	Cd	ug/mL	n/a	n/a	n/a	n/a	<0.2
14	Cl	ug/mL	n/a	n/a	n/a	n/a	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	n/a	n/a
16	Co	ug/mL	n/a	n/a	n/a	n/a	<0.6
17	Cr	ug/mL	n/a	n/a	n/a	n/a	4.40
18	Cu	ug/mL	n/a	n/a	n/a	n/a	18
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	n/a	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	n/a	n/a
21	Fe	ug/mL	n/a	n/a	n/a	n/a	919
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	n/a	n/a
23	K	ug/mL	n/a	n/a	n/a	n/a	n/a
24	La	ug/mL	n/a	n/a	n/a	n/a	24
25	Li	ug/mL	n/a	n/a	n/a	n/a	<1
26	Mg	ug/mL	n/a	n/a	n/a	n/a	13
27	Mn	ug/mL	n/a	n/a	n/a	n/a	2711
28	Mo	ug/mL	n/a	n/a	n/a	n/a	15
29	Na	ug/mL	n/a	n/a	n/a	n/a	133653
30	Ni	ug/mL	n/a	n/a	n/a	n/a	292
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	n/a	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	n/a	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	n/a	n/a
34	P	ug/mL	n/a	n/a	n/a	n/a	275
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	n/a	n/a
36	Pb	ug/mL	n/a	n/a	n/a	n/a	<6
37	Si	ug/mL	n/a	n/a	n/a	n/a	15
38	Sn	ug/mL	n/a	n/a	n/a	n/a	<3
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	n/a	n/a
40	Sr	ug/mL	n/a	n/a	n/a	n/a	6520
41	Ti	ug/mL	n/a	n/a	n/a	n/a	<1.5
42	V	ug/mL	n/a	n/a	n/a	n/a	<1.4
43	Zn	ug/mL	n/a	n/a	n/a	n/a	25
44	Zr	ug/mL	n/a	n/a	n/a	n/a	32
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
46	Total Inorganic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
47	Suspended Solids	wt%	n/a	n/a	n/a	n/a	1.75
48	Total Solids	wt%	n/a	n/a	n/a	n/a	37.72
49	Mean Particle Size by Volume	micron	n/a	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	2.41	n/a	n/a	n/a
52	Dynamic Viscosity / Consistency	cP	n/a	3.05	n/a	n/a	n/a
53	Comment				First Batch Made	Second Batch Made	

Table E1: Analytical – All data, Page 4

	AB	AC	AD	AE	AF	AG	AH
1	TEST RUN ----------->>		mid 1.08	mid 1.08	mid 1.08	mid 1.08	mid 1.08
2	BNFL Sample ID ----------->>		N/A	N/A	Prefix_11	Prefix_12	Prefix_13
3	ADS Sample ID ----------->>		N/A	N/A	3-135893	N/A	3-135894
4	Type Sample ----------->>		slurry	filtrate	slurry	slurry	slurry
5	Sample Size ----------->>	mL	100 returned	100 returned	15	250	15
6	Measurement(s) Made ----------->>		DENSITY ONLY	DENSITY & VISCOSITY	MICROTRAC	TS/SS-VISCOSITY	TS/SS
7	Item Measured	Units					
8	Density	g/mL	1.355	1.276	1.355	1.357	1.355
9	Al	ug/mL	n/a	n/a	n/a	n/a	n/a
10	B	ug/mL	n/a	n/a	n/a	n/a	n/a
11	Ba	ug/mL	n/a	n/a	n/a	n/a	n/a
12	Ca	ug/mL	n/a	n/a	n/a	n/a	n/a
13	Cd	ug/mL	n/a	n/a	n/a	n/a	n/a
14	Cl	ug/mL	n/a	n/a	n/a	n/a	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	n/a	n/a
16	Co	ug/mL	n/a	n/a	n/a	n/a	n/a
17	Cr	ug/mL	n/a	n/a	n/a	n/a	n/a
18	Cu	ug/mL	n/a	n/a	n/a	n/a	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	n/a	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	n/a	n/a
21	Fe	ug/mL	n/a	n/a	n/a	n/a	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	n/a	n/a
23	K	ug/mL	n/a	n/a	n/a	n/a	n/a
24	La	ug/mL	n/a	n/a	n/a	n/a	n/a
25	Li	ug/mL	n/a	n/a	n/a	n/a	n/a
26	Mg	ug/mL	n/a	n/a	n/a	n/a	n/a
27	Mn	ug/mL	n/a	n/a	n/a	n/a	n/a
28	Mo	ug/mL	n/a	n/a	n/a	n/a	n/a
29	Na	ug/mL	n/a	n/a	n/a	n/a	n/a
30	Ni	ug/mL	n/a	n/a	n/a	n/a	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	n/a	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	n/a	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	n/a	n/a
34	P	ug/mL	n/a	n/a	n/a	n/a	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	n/a	n/a
36	Pb	ug/mL	n/a	n/a	n/a	n/a	n/a
37	Si	ug/mL	n/a	n/a	n/a	n/a	n/a
38	Sn	ug/mL	n/a	n/a	n/a	n/a	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	n/a	n/a
40	Sr	ug/mL	n/a	n/a	n/a	n/a	n/a
41	Ti	ug/mL	n/a	n/a	n/a	n/a	n/a
42	V	ug/mL	n/a	n/a	n/a	n/a	n/a
43	Zn	ug/mL	n/a	n/a	n/a	n/a	n/a
44	Zr	ug/mL	n/a	n/a	n/a	n/a	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
46	Total Inorganic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
47	Suspended Solids	wt%	n/a	n/a	n/a	8.75	10.11
48	Total Solids	wt%	n/a	n/a	n/a	40.73	41.51
49	Mean Particle Size by Volume	micron	n/a	n/a	1.763	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	0.98	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	3.01	n/s	5.5*	n/a
52	Dynamic Viscosity / Consistency	cP	n/a	3.84	n/a	7.4*	n/a
53	Comment				high pH diluent/sonication	*Consistency	

Table E1: Analytical – All data, Page 5

	AI	AJ	AK	AL	AM	AN	AO
1	TEST RUN ----------->>		end 1.08	end 1.08	end 1.08	end 1.08	end 1.08
2	BNFL Sample ID ----------->>		N/A	N/A	Prefix_14	Prefix_15	Prefix_16
3	ADS Sample ID ----------->>		N/A	N/A	3-135895	N/A	3-135896
4	Type Sample ----------->>		slurry	filtrate	slurry	slurry	slurry
5	Sample Size ---------->>	mL	100 returned	100 returned	15	250	15
6	Measurement(s) Made ---------->>		DENSITY ONLY	DENSITY & VISCOSITY	MICROTRAC	TS/SS-VISCOSITY	TS/SS
7	Item Measured	Units					
8	Density	g/mL	1.459	1.281	1.459	1.470	1.459
9	Al	ug/mL	n/a	n/a	n/a	n/a	n/a
10	B	ug/mL	n/a	n/a	n/a	n/a	n/a
11	Ba	ug/mL	n/a	n/a	n/a	n/a	n/a
12	Ca	ug/mL	n/a	n/a	n/a	n/a	n/a
13	Cd	ug/mL	n/a	n/a	n/a	n/a	n/a
14	Cl	ug/mL	n/a	n/a	n/a	n/a	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	n/a	n/a
16	Co	ug/mL	n/a	n/a	n/a	n/a	n/a
17	Cr	ug/mL	n/a	n/a	n/a	n/a	n/a
18	Cu	ug/mL	n/a	n/a	n/a	n/a	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	n/a	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	n/a	n/a
21	Fe	ug/mL	n/a	n/a	n/a	n/a	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	n/a	n/a
23	K	ug/mL	n/a	n/a	n/a	n/a	n/a
24	La	ug/mL	n/a	n/a	n/a	n/a	n/a
25	Li	ug/mL	n/a	n/a	n/a	n/a	n/a
26	Mg	ug/mL	n/a	n/a	n/a	n/a	n/a
27	Mn	ug/mL	n/a	n/a	n/a	n/a	n/a
28	Mo	ug/mL	n/a	n/a	n/a	n/a	n/a
29	Na	ug/mL	n/a	n/a	n/a	n/a	n/a
30	Ni	ug/mL	n/a	n/a	n/a	n/a	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	n/a	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	n/a	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	n/a	n/a
34	P	ug/mL	n/a	n/a	n/a	n/a	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	n/a	n/a
36	Pb	ug/mL	n/a	n/a	n/a	n/a	n/a
37	Si	ug/mL	n/a	n/a	n/a	n/a	n/a
38	Sn	ug/mL	n/a	n/a	n/a	n/a	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	n/a	n/a
40	Sr	ug/mL	n/a	n/a	n/a	n/a	n/a
41	Tl	ug/mL	n/a	n/a	n/a	n/a	n/a
42	V	ug/mL	n/a	n/a	n/a	n/a	n/a
43	Zn	ug/mL	n/a	n/a	n/a	n/a	n/a
44	Zr	ug/mL	n/a	n/a	n/a	n/a	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
46	Total Inorganic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
47	Suspended Solids	wt%	n/a	n/a	n/a	22.11	18.92
48	Total Solids	wt%	n/a	n/a	n/a	49.44	47.24
49	Mean Particle Size by Volume	micron	n/a	n/a	1.573(85%)/6.366(15%)	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	0.98	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	3.08	n/s	15.9*	n/a
52	Dynamic Viscosity / Consistency	cP	n/a	3.95	n/a	23.4*	n/a
53	Comment				high pH diluent/sonication	*Consistency	SS may be low

Table E1: Analytical – All data, Page 6

	AP	AQ	AR	AS	AT	AU	AV
1	TEST RUN ----------->>		end 1.08	end 1.08	1.10	1.10	1.10
2	BNFL Sample ID ----------->>		Prefix_COIL	N/A	Prefix_17	Prefix_18	Prefix_19
3	ADS Sample ID ----------->>		3-135942	N/A	3-135938	N/A	3-135939
4	Type Sample ----------->>		slurry from near coil	slurry from near coil	slurry	slurry	slurry
5	Sample Size ----------->>	mL	15	125	15	250	15
6	Measurement(s) Made ----------->>		TS/SS	TS-VISCOSITY	MICROTRAC	TS/SS-VISCOSITY	TS/SS
7	Item Measured	Units					
8	Density	g/mL	n/a	n/a	1.360	1.393	1.360
9	Al	ug/mL	n/a	n/a	n/a	n/a	n/a
10	B	ug/mL	n/a	n/a	n/a	n/a	n/a
11	Ba	ug/mL	n/a	n/a	n/a	n/a	n/a
12	Ca	ug/mL	n/a	n/a	n/a	n/a	n/a
13	Cd	ug/mL	n/a	n/a	n/a	n/a	n/a
14	Cl	ug/mL	n/a	n/a	n/a	n/a	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	n/a	n/a
16	Co	ug/mL	n/a	n/a	n/a	n/a	n/a
17	Cr	ug/mL	n/a	n/a	n/a	n/a	n/a
18	Cu	ug/mL	n/a	n/a	n/a	n/a	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	n/a	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	n/a	n/a
21	Fe	ug/mL	n/a	n/a	n/a	n/a	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	n/a	n/a
23	K	ug/mL	n/a	n/a	n/a	n/a	n/a
24	La	ug/mL	n/a	n/a	n/a	n/a	n/a
25	Li	ug/mL	n/a	n/a	n/a	n/a	n/a
26	Mg	ug/mL	n/a	n/a	n/a	n/a	n/a
27	Mn	ug/mL	n/a	n/a	n/a	n/a	n/a
28	Mo	ug/mL	n/a	n/a	n/a	n/a	n/a
29	Na	ug/mL	n/a	n/a	n/a	n/a	n/a
30	Ni	ug/mL	n/a	n/a	n/a	n/a	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	n/a	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	n/a	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	n/a	n/a
34	P	ug/mL	n/a	n/a	n/a	n/a	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	n/a	n/a
36	Pb	ug/mL	n/a	n/a	n/a	n/a	n/a
37	Si	ug/mL	n/a	n/a	n/a	n/a	n/a
38	Sn	ug/mL	n/a	n/a	n/a	n/a	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	n/a	n/a
40	Sr	ug/mL	n/a	n/a	n/a	n/a	n/a
41	Ti	ug/mL	n/a	n/a	n/a	n/a	n/a
42	V	ug/mL	n/a	n/a	n/a	n/a	n/a
43	Zn	ug/mL	n/a	n/a	n/a	n/a	n/a
44	Zr	ug/mL	n/a	n/a	n/a	n/a	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
46	Total Inorganic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a
47	Suspended Solids	wt%	17.15	not measurable	n/a	14.25	11.80
48	Total Solids	wt%	46.43	49.60	n/a	44.14	45.02
49	Mean Particle Size by Volume	micron	n/a	n/a	1.543(85%)/6.411(15%)	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	0.795	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	15.8*	n/s	8.3*	n/a
52	Dynamic Viscosity / Consistency	cP	n/a	23*	n/a	11.6*	n/a
53	Comment			*Consistency	high pH diluent/sonication	*Consistency	

Table E1: Analytical – All data, Page 7

	AW	AX	AY	AZ	BA	BB	BC
1	TEST RUN ----------->>		1.10	1.10	WASH 1	WASH 1	WASH 1
2	BNFL Sample ID ----------->>		Prefix_20a	Prefix_20b	N/A	Prefix_21	Prefix_22a
3	ADS Sample ID ----------->>		3-135940	3-135941	N/A	3-136211	3-136212
4	Type Sample ----------->>		filtrate	filtrate	filtrate	filtrate	filtrate
5	Sample Size ----------->>	mL	15	15	100 returned	15	15
6	Measurement(s) Made ----------->>		ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE	DENSITY & VISCOSITY	TS/SS	ICP-ES/IC-ANIONS
7	Item Measured	Units					
8	Density	g/mL	1.276*	1.276*	1.127	1.127	1.127
9	Al	ug/mL	224	n/a	n/a	n/a	96
10	B	ug/mL	22	n/a	n/a	n/a	8.4
11	Ba	ug/mL	<0.02	n/a	n/a	n/a	0.14
12	Ca	ug/mL	132	n/a	n/a	n/a	65
13	Cd	ug/mL	<0.02	n/a	n/a	n/a	<0.02
14	Cl	ug/mL	1517	n/a	n/a	n/a	508
15	Cl Sample	ug/mL	n/a	1368	n/a	n/a	n/a
16	Co	ug/mL	<0.05	n/a	n/a	n/a	<0.05
17	Cr	ug/mL	0.62	n/a	n/a	n/a	0.32
18	Cu	ug/mL	12.6	n/a	n/a	n/a	9.18
19	F (Fluoride) [not accurate]	ug/mL	2388	n/a	n/a	n/a	921
20	F Sample (more accurate result)	ug/mL	n/a	286	n/a	n/a	n/a
21	Fe	ug/mL	29.5	n/a	n/a	n/a	7.32
22	HCOO (Formate)	ug/mL	6852	n/a	n/a	n/a	2996
23	K	ug/mL	n/a	1157.35	n/a	n/a	n/a
24	La	ug/mL	0.82	n/a	n/a	n/a	0.24
25	Li	ug/mL	<0.7	n/a	n/a	n/a	0.10
26	Mg	ug/mL	0.6	n/a	n/a	n/a	<0.09
27	Mn	ug/mL	15.3	n/a	n/a	n/a	11.6
28	Mo	ug/mL	20.7	n/a	n/a	n/a	8.6
29	Na	ug/mL	126500	n/a	n/a	n/a	57551
30	Ni	ug/mL	287	n/a	n/a	n/a	123
31	NO2 (Nitrite)	ug/mL	35347	n/a	n/a	n/a	14371
32	NO3 (Nitrate)	ug/mL	132935	n/a	n/a	n/a	58090
33	C2O4 (Oxalate)	ug/mL	909	n/a	n/a	n/a	3241
34	P	ug/mL	269	n/a	n/a	n/a	114
35	PO4 (Phosphate)	ug/mL	1142	n/a	n/a	n/a	938
36	Pb	ug/mL	<0.5	n/a	n/a	n/a	<0.6
37	Si	ug/mL	13	n/a	n/a	n/a	4.5
38	Sn	ug/mL	<0.4	n/a	n/a	n/a	<0.26
39	SO4 (Sulfate)	ug/mL	4572	n/a	n/a	n/a	1993
40	Sr	ug/mL	87	n/a	n/a	n/a	47.1
41	Tl	ug/mL	<0.05	n/a	n/a	n/a	<0.14
42	V	ug/mL	<0.12	n/a	n/a	n/a	<0.13
43	Zn	ug/mL	16	n/a	n/a	n/a	6.4
44	Zr	ug/mL	2.7	n/a	n/a	n/a	0.26
45	Total Organic Carbon	ug/mL	n/a	10500	n/a	n/a	n/a
46	Total Inorganic Carbon	ug/mL	n/a	10080	n/a	n/a	n/a
47	Suspended Solids	wt%	n/a	n/a	n/a	0.015	n/a
48	Total Solids	wt%	n/a	n/a	n/a	16.86	n/a
49	Mean Particle Size by Volume	micron	n/a	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	n/a	1.33	n/a	n/a
52	Dynamic Viscosity / Consistency	cP	n/a	n/a	1.50	n/a	n/a
53	Comment		*density estimated	*density estimated			

Table E1: Analytical – All data, Page 8

	BD	BE	BF	BG	BH	BI	BJ
1	TEST RUN ----------->>		WASH 1	WASH 2	WASH 2	WASH 2	WASH 2
2	BNFL Sample ID ----------->>		Prefix_22b	N/A	Prefix_23	Prefix_24a	Prefix_24b
3	ADS Sample ID ----------->>		3-136213	N/A	3-136214	3-136215	3-136216
4	Type Sample ----------->>		filtrate	filtrate	filtrate	filtrate	filtrate
5	Sample Size ---------->>	mL	15	100 returned	15	15	15
6	Measurement(s) Made ----------->>		AA/TIC-TOC/ISE	DENSITY & VISCOSITY	TS/SS	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE
7	Item Measured	Units					
8	Density	g/mL	1.127	1.059	1.059	1.059	1.059
9	Al	ug/mL	n/a	n/a	n/a	36	n/a
10	B	ug/mL	n/a	n/a	n/a	3.20	n/a
11	Ba	ug/mL	n/a	n/a	n/a	0.05	n/a
12	Ca	ug/mL	n/a	n/a	n/a	26	n/a
13	Cd	ug/mL	n/a	n/a	n/a	<0.02	n/a
14	Cl	ug/mL	n/a	n/a	n/a	229	n/a
15	Cl Sample	ug/mL	546	n/a	n/a	n/a	224
16	Co	ug/mL	n/a	n/a	n/a	<0.05	n/a
17	Cr	ug/mL	n/a	n/a	n/a	0.14	n/a
18	Cu	ug/mL	n/a	n/a	n/a	3.9	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	360	n/a
20	F Sample (more accurate result)	ug/mL	78.11	n/a	n/a	n/a	40.25
21	Fe	ug/mL	n/a	n/a	n/a	2.1	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	1106	n/a
23	K	ug/mL	436.67	n/a	n/a	n/a	168.82
24	La	ug/mL	n/a	n/a	n/a	0.08	n/a
25	Li	ug/mL	n/a	n/a	n/a	<0.1	n/a
26	Mg	ug/mL	n/a	n/a	n/a	<0.09	n/a
27	Mn	ug/mL	n/a	n/a	n/a	9.3	n/a
28	Mo	ug/mL	n/a	n/a	n/a	3.2	n/a
29	Na	ug/mL	n/a	n/a	n/a	25825	n/a
30	Ni	ug/mL	n/a	n/a	n/a	45	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	5326	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	21716	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	7672	n/a
34	P	ug/mL	n/a	n/a	n/a	34	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	437	n/a
36	Pb	ug/mL	n/a	n/a	n/a	<0.6	n/a
37	Si	ug/mL	n/a	n/a	n/a	2.0	n/a
38	Sn	ug/mL	n/a	n/a	n/a	<0.26	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	770	n/a
40	Sr	ug/mL	n/a	n/a	n/a	19.3	n/a
41	Ti	ug/mL	n/a	n/a	n/a	<0.14	n/a
42	V	ug/mL	n/a	n/a	n/a	<0.13	n/a
43	Zn	ug/mL	n/a	n/a	n/a	3.2	n/a
44	Zr	ug/mL	n/a	n/a	n/a	0.06	n/a
45	Total Organic Carbon	ug/mL	5428	n/a	n/a	n/a	4408
46	Total Inorganic Carbon	ug/mL	7696	n/a	n/a	n/a	4038
47	Suspended Solids	wt%	n/a	n/a	<0.0001	n/a	n/a
48	Total Solids	wt%	n/a	n/a	7.60	n/a	n/a
49	Mean Particle Size by Volume	micron	n/a	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	1.18	n/a	n/a	n/a
52	Dynamic Viscosity / Consistency	cP	n/a	1.25	n/a	n/a	n/a
53	Comment						

Table E1: Analytical – All data, Page 9

	BK	BL	BM	BN	BO	BP	BQ
1	TEST RUN ---------->>		WASH 3	WASH 3	WASH 3	WASH 3	WASH 4
2	BNFL Sample ID ---------->>		N/A	Prefix_25	Prefix_26a	Prefix_26b	N/A
3	ADS Sample ID ---------->>		N/A	3-136252	3-136253	3-136254	N/A
4	Type Sample ---------->>		filtrate	filtrate	filtrate	filtrate	filtrate
5	Sample Size ---------->>	mL	100 returned	15	15	15	100 returned
6	Measurement(s) Made ---------->>		DENSITY & VISCOSITY	TS/SS	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE	DENSITY & VISCOSITY
7	Item Measured	Units					
8	Density	g/mL	1.018	1.018	1.018	1.018	1.009
9	Al	ug/mL	n/a	n/a	11	n/a	n/a
10	B	ug/mL	n/a	n/a	1.1	n/a	n/a
11	Ba	ug/mL	n/a	n/a	<0.01	n/a	n/a
12	Ca	ug/mL	n/a	n/a	7.6	n/a	n/a
13	Cd	ug/mL	n/a	n/a	<0.02	n/a	n/a
14	Cl -	ug/mL	n/a	n/a	83	n/a	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	66	n/a
16	Co	ug/mL	n/a	n/a	<0.05	n/a	n/a
17	Cr	ug/mL	n/a	n/a	<0.1	n/a	n/a
18	Cu	ug/mL	n/a	n/a	1.3	n/a	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	115	n/a	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	12.75	n/a
21	Fe	ug/mL	n/a	n/a	0.4	n/a	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	325	n/a	n/a
23	K	ug/mL	n/a	n/a	n/a	54.93	n/a
24	La	ug/mL	n/a	n/a	<0.06	n/a	n/a
25	Li	ug/mL	n/a	n/a	<0.1	n/a	n/a
26	Mg	ug/mL	n/a	n/a	<0.09	n/a	n/a
27	Mn	ug/mL	n/a	n/a	2.40	n/a	n/a
28	Mo	ug/mL	n/a	n/a	1	n/a	n/a
29	Na	ug/mL	n/a	n/a	8245	n/a	n/a
30	Ni	ug/mL	n/a	n/a	14	n/a	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	1628	n/a	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	6406	n/a	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	2798	n/a	n/a
34	P	ug/mL	n/a	n/a	7	n/a	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	195.00	n/a	n/a
36	Pb	ug/mL	n/a	n/a	<0.6	n/a	n/a
37	Si	ug/mL	n/a	n/a	1	n/a	n/a
38	Sn	ug/mL	n/a	n/a	<0.26	n/a	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	289	n/a	n/a
40	Sr	ug/mL	n/a	n/a	6	n/a	n/a
41	Ti	ug/mL	n/a	n/a	<0.14	n/a	n/a
42	V	ug/mL	n/a	n/a	<0.13	n/a	n/a
43	Zn	ug/mL	n/a	n/a	1	n/a	n/a
44	Zr	ug/mL	n/a	n/a	<0.05	n/a	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	2290	n/a
46	Total Inorganic Carbon	ug/mL	n/a	n/a	n/a	1123	n/a
47	Suspended Solids	wt%	n/a	0.054 (?)	n/a	n/a	n/a
48	Total Solids	wt%	n/a	2.59	n/a	n/a	n/a
49	Mean Particle Size by Volume	micron	n/a	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	centistoke	0.98	n/a	n/a	n/a	0.98
52	Dynamic Viscosity / Consistency	cP	1.00	n/a	n/a	n/a	0.99
53	Comment						

Table E1: Analytical – All data, Page 10

	BR	BS	BT	BU	BV	BW	BX
1	TEST RUN ---------->>		WASH 4	WASH 4	WASH 4	Pre 1.15	Pre 1.15
2	BNFL Sample ID ---------->>		Prefix_27	Prefix_28a	Prefix_28b	Prefix_29	Prefix_30
3	ADS Sample ID ---------->>		3-136255	3-136256	3-136257	3-136258	N/A
4	Type Sample ---------->>		filtrate	filtrate	filtrate	slurry	slurry
5	Sample Size ---------->>	mL	15	15	15	15	250
6	Measurement(s) Made ---------->>		TS/SS	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE	MICROTRAC	TS/SS-VISCOSITY
7	Item Measured	Units					
8	Density	g/mL	1.009	1.009	1.009	n/a	1.148
9	Al	ug/mL	n/a	6	n/a	n/a	n/a
10	B	ug/mL	n/a	0.5	n/a	n/a	n/a
11	Ba	ug/mL	n/a	<0.01	n/a	n/a	n/a
12	Ca	ug/mL	n/a	3.6	n/a	n/a	n/a
13	Cd	ug/mL	n/a	<0.02	n/a	n/a	n/a
14	Cl	ug/mL	n/a	61	n/a	n/a	n/a
15	Cl Sample	ug/mL	n/a	n/a	33	n/a	n/a
16	Co	ug/mL	n/a	<0.05	n/a	n/a	n/a
17	Cr	ug/mL	n/a	<0.1	n/a	n/a	n/a
18	Cu	ug/mL	n/a	0.72	n/a	n/a	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	56	n/a	n/a	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	6.1	n/a	n/a
21	Fe	ug/mL	n/a	0.24	n/a	n/a	n/a
22	HCOO (Formate)	ug/mL	n/a	155	n/a	n/a	n/a
23	K	ug/mL	n/a	n/a	27.82	n/a	n/a
24	La	ug/mL	n/a	<0.06	n/a	n/a	n/a
25	Li	ug/mL	n/a	<0.1	n/a	n/a	n/a
26	Mg	ug/mL	n/a	<0.09	n/a	n/a	n/a
27	Mn	ug/mL	n/a	1.61	n/a	n/a	n/a
28	Mo	ug/mL	n/a	0.48	n/a	n/a	n/a
29	Na	ug/mL	n/a	4550	n/a	n/a	n/a
30	Ni	ug/mL	n/a	6.8	n/a	n/a	n/a
31	NO2 (Nitrite)	ug/mL	n/a	753	n/a	n/a	n/a
32	NO3 (Nitrate)	ug/mL	n/a	3313	n/a	n/a	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	1367	n/a	n/a	n/a
34	P	ug/mL	n/a	2.7	n/a	n/a	n/a
35	PO4 (Phosphate)	ug/mL	n/a	141	n/a	n/a	n/a
36	Pb	ug/mL	n/a	<0.6	n/a	n/a	n/a
37	Si	ug/mL	n/a	0.8	n/a	n/a	n/a
38	Sn	ug/mL	n/a	<0.26	n/a	n/a	n/a
39	SO4 (Sulfate)	ug/mL	n/a	189	n/a	n/a	n/a
40	Sr	ug/mL	n/a	2.8	n/a	n/a	n/a
41	Ti	ug/mL	n/a	<0.14	n/a	n/a	n/a
42	V	ug/mL	n/a	<0.13	n/a	n/a	n/a
43	Zn	ug/mL	n/a	0.57	n/a	n/a	n/a
44	Zr	ug/mL	n/a	<0.05	n/a	n/a	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	1371	n/a	n/a
46	Total Inorganic Carbon	ug/mL	n/a	n/a	661	n/a	n/a
47	Suspended Solids	wt%	<0.0001	n/a	n/a	n/a	17.53
48	Total Solids	wt%	1.37	n/a	n/a	n/a	18.94
49	Mean Particle Size by Volume	micron	n/a	n/a	n/a	1.435(90%)/5.570(10%)	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	n/a	0.96	n/a
51	Kinematic Viscosity	centistoke	n/a	n/a	n/a	n/a	3.6*
52	Dynamic Viscosity / Consistency	cP	n/a	n/a	n/a	n/a	4.1*
53	Comment					high pH diluent/sonication	*Consistency

Table E1: Analytical – All data, Page 11

	BY	BZ	CA	CB	CC	CD	CE
1	TEST RUN ----------->>		Pre 1.15	Pre 1.15	Pre 1.15	Pre 1.15	Pre 1.15
2	BNFL Sample ID ----------->>		Prefix_31	Prefix_31digest1	Prefix_31digest2	Prefix_32a	Prefix_32b
3	ADS Sample ID ----------->>		3-136259	3-136260	3-136261	3-136262	3-136263
4	Type Sample ----------->>		slurry	slurry	slurry	filtrate	filtrate
5	Sample Size ---------->>	mL	15	15	15	15	15
6	Measurement(s) Made ---------->>		TS/SS	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE	ICP-ES/IC-ANIONS	AA/TIC-TOC/ISE
7	Item Measured	Units					
8	Density	g/mL	n/a	n/a	n/a	n/a	n/a
9	Al	ug/mL	n/a	236	n/a	7.6	n/a
10	B	ug/mL	n/a	<21	n/a	<2.1	n/a
11	Ba	ug/mL	n/a	<10	n/a	<0.1	n/a
12	Ca	ug/mL	n/a	1560	n/a	3.9	n/a
13	Cd	ug/mL	n/a	<2	n/a	<0.2	n/a
14	Cl	ug/mL	n/a	71	n/a	64	n/a
15	Cl Sample	ug/mL	n/a	n/a	51	n/a	43
16	Co	ug/mL	n/a	<5	n/a	<0.5	n/a
17	Cr	ug/mL	n/a	88	n/a	<1	n/a
18	Cu	ug/mL	n/a	30	n/a	0.6	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	23	n/a	63	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	7.65	n/a	15
21	Fe	ug/mL	n/a	7850	n/a	<0.6	n/a
22	HCOO (Formate)	ug/mL	n/a	1002	n/a	174	n/a
23	K	ug/mL	n/a	n/a	66.51	n/a	31.06
24	La	ug/mL	n/a	212	n/a	<0.6	n/a
25	Li	ug/mL	n/a	<10	n/a	<1	n/a
26	Mg	ug/mL	n/a	115	n/a	<0.9	n/a
27	Mn	ug/mL	n/a	22100	n/a	0.7	n/a
28	Mo	ug/mL	n/a	<10	n/a	<1	n/a
29	Na	ug/mL	n/a	9675	n/a	4895	n/a
30	Ni	ug/mL	n/a	40	n/a	7.9	n/a
31	NO2 (Nitrite)	ug/mL	n/a	938	n/a	846	n/a
32	NO3 (Nitrate)	ug/mL	n/a	4112	n/a	3689	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	2107	n/a	1701	n/a
34	P	ug/mL	n/a	<68	n/a	<6.8	n/a
35	PO4 (Phosphate)	ug/mL	n/a	141	n/a	145	n/a
36	Pb	ug/mL	n/a	<60	n/a	<6	n/a
37	Si	ug/mL	n/a	119	n/a	<1.3	n/a
38	Sn	ug/mL	n/a	<26	n/a	<2.6	n/a
39	SO4 (Sulfate)	ug/mL	n/a	214	n/a	199	n/a
40	Sr	ug/mL	n/a	54573	n/a	3.3	n/a
41	Ti	ug/mL	n/a	<14	n/a	<1.4	n/a
42	V	ug/mL	n/a	<13	n/a	<1.3	n/a
43	Zn	ug/mL	n/a	89	n/a	<3.7	n/a
44	Zr	ug/mL	n/a	202	n/a	<0.5	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	20390	n/a	1374
46	Total Inorganic Carbon	ug/mL	n/a	n/a	10265	n/a	666
47	Suspended Solids	wt%	14.62	n/a	n/a	n/a	n/a
48	Total Solids	wt%	16.22	n/a	n/a	n/a	n/a
49	Mean Particle Size by Volume	micron	n/a	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	micron	n/a	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	centistoke	n/a	n/a	n/a	n/a	n/a
52	Dynamic Viscosity / Consistency	cP	n/a	n/a	n/a	n/a	n/a
53	Comment						

Table E1: Analytical – All data, Page 12

	CF	CG	CH	CI	CJ	CK	CL	CM
1	TEST RUN ----------->>		Post 1.15	Post 1.15	1.16	1.17	1.18	1.19
2	BNFL Sample ID ----------->>		Prefix_post1.15a	Prefix_post1.15b	N/A	N/A	N/A	Prefix_33
3	ADS Sample ID ----------->>		N/A	3-136264	N/A	N/A	N/A	136889
4	Type Sample ----------->>		thick slurry	thick slurry	slurry	slurry	slurry	slurry
5	Sample Size ----------->>	mL	250	15	100 returned	100 returned	100 returned	15
6	Measurement(s) Made ----------->>		TS/SS-VISCOSITY	TS/SS	DENSITY ONLY	DENSITY ONLY	DENSITY ONLY	TS/SS
7	Item Measured	g/mL						
8	Density	ug/mL	?	?	1.016	0.998	1.029	0.999
9	Al	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
10	B	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
11	Ba	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
12	Ca	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
13	Cd	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
14	Cl	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
15	Cl Sample	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
16	Co	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
17	Cr	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
18	Cu	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
19	F (Fluoride) [not accurate]	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
20	F Sample (more accurate result)	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
21	Fe	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
22	HCOO (Formate)	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
23	K	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
24	La	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
25	Li	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
26	Mg	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
27	Mn	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
28	Mo	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
29	Na	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
30	Ni	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
31	NO2 (Nitrite)	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
32	NO3 (Nitrate)	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
33	C2O4 (Oxalate)	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
34	P	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
35	PO4 (Phosphate)	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
36	Pb	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
37	Si	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
38	Sn	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
39	SO4 (Sulfate)	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
40	Sr	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
41	Ti	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
42	V	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
43	Zn	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
44	Zr	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
45	Total Organic Carbon	ug/mL	n/a	n/a	n/a	n/a	n/a	n/a
46	Total Inorganic Carbon	wt%	n/a	n/a	n/a	n/a	n/a	n/a
47	Suspended Solids	wt%	37.57	?	n/a	n/a	n/a	<0.0001
48	Total Solids	micron	40.54	32.18	n/a	n/a	n/a	0.014
49	Mean Particle Size by Volume	micron	n/a	n/a	n/a	n/a	n/a	n/a
50	Mean Particle Size by Number	centistoke	n/a	n/a	n/a	n/a	n/a	n/a
51	Kinematic Viscosity	cP	?	n/a	n/a	n/a	n/a	n/a
52	Dynamic Viscosity / Consistency	cP	24	n/a	n/a	n/a	n/a	n/a
53	Comment			couldn't suspend				

Table E1: Analytical – All data, Page 13

Figures E1 and E2 show some aspects of the slurry rheology. Figure E1 shows the Apparent Viscosity of the slurry versus the Shear Rate and Fig. E2 shows the Shear Stress versus Shear Rate. Data are only shown for the slurry when it reached the point where it exhibited non-Newtonian characteristics. That is, the slurry used for test runs from 1.01 to 1.07 are not shown because with an insoluble solids loading of approximately 2 wt% the slurry rheological characteristics were close to Newtonian.

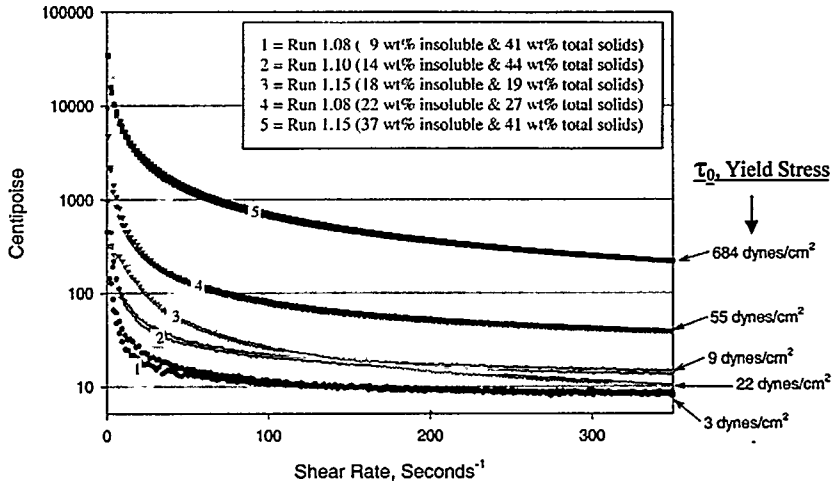


Figure E1. Apparent viscosity of Envelope C + Entrained Solids + Sr/TRU precipitants

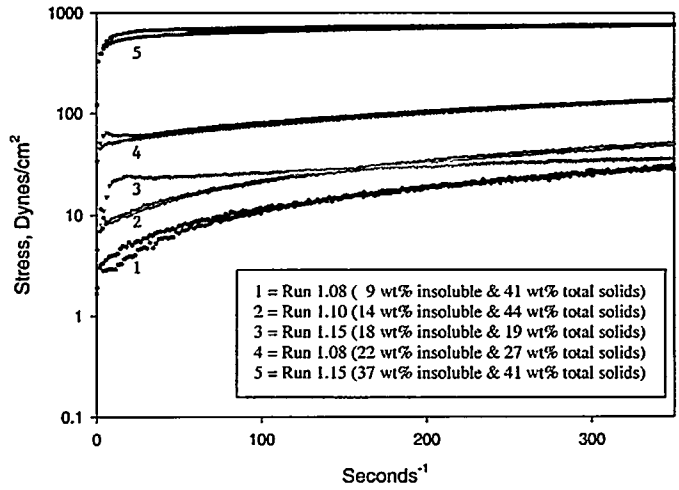


Figure E2. Shear stress vs. shear rate of Envelope C + Entrained Solids + Sr/TRU precipitants

The curves in Fig. E2 indicate that the slurry has similarities to a Bingham plastic (also see Fig. 14), which is known for having a yield stress that then reduces to a Newtonian fluid while in movement. However, this is not exactly true and the slurry is actually a time dependent pseudoplastic (a thixotropic,like ink and some paints) as can be seen in Fig. E2 by the separation of the lines for the same sample (that is, a different relation existed when increasing the shear rate, than when it was decreasing).

EXPLANATION OF HOW THE DATA ARE ORIENTED ON THE GRAPHS THAT ARE FIGS E3 TOE23

For an example Fig. E3 is reproduced here:

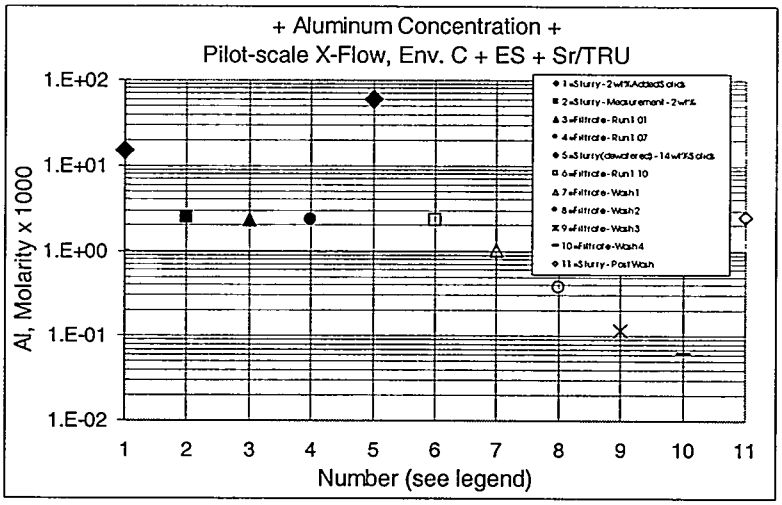


Figure E3. Analytical Data: Aluminum

The symbols have been listed in chronological order with number 1 being the earliest. However, not all data are from analytical measurements. The following two numbers, which are shown as the solid diamonds on the graph, are not analytical measurements, but are considered benchmarks. Those two symbols indicate the concentration of a constituent that was intended for the simulant.

Number 1 – low-solids concentration benchmark: is a measurement of the total amount of moles per liter of Aluminum that were used to make up the simulant (2 wt% insoluble solids), be it in the form of a soluble or insoluble solids. This is the simulant that was used for test runs 1.01 to 1.07.

Number 5 – high-solids concentration benchmark: is an estimate of the total amount of moles per liter of Aluminum that the simulant (2 wt% insoluble solids) had after it was dewatered to a concentration of approximately 14 wt% insoluble solids. This is the simulant that was used for test runs 1.09 to 1.14.

There are no data points for both Numbers 1 and 5 for those quantities difficult to estimate, i.e., Formate, Oxalate, Phosphate, Sulfate, Nitrate/Nitrite, and TIC/TOC.

The remaining symbols indicate analytical measurements of the slurry or the filtrate:

Number 2 (the closed box): is an analytical measurement of a digested sample of 2 wt% insoluble solids slurry. It should be equal than or less than Number 1. The sample was

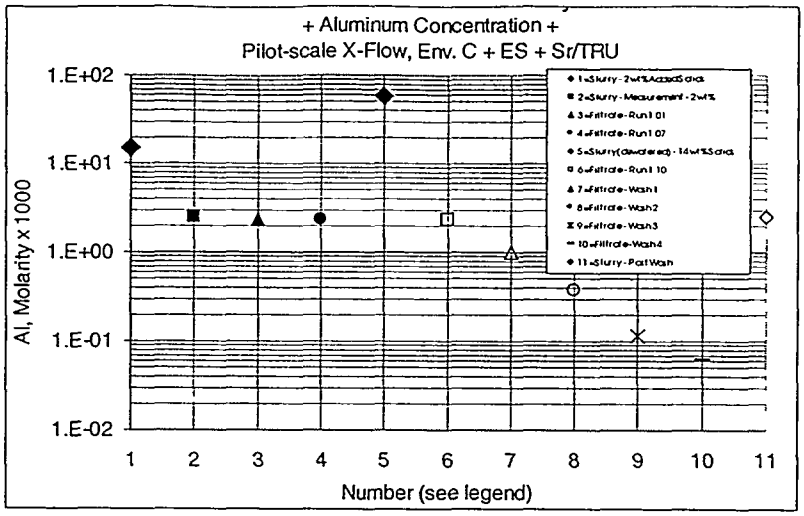
actually taken after test run 1.07 was completed and is listed in Table E1 as sample BNF-SXF2115-C+ES+Sr/TRU_10 (column AA). There are no Number 2 data for F, K, Formate, Oxalate, Phosphate, Sulfate, Nitrate/Nitrite, and TIC/TOC, because they either were not measured or the results were contaminated in the process of dissolving the sample solids.

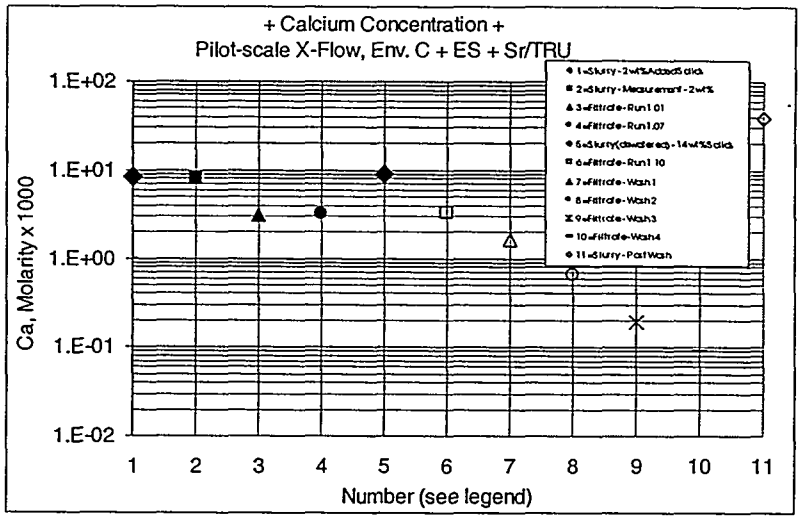
Numbers 3 and 4 (the closed diamond and circle): are analytical measurements of the concentration in the filtrate from test runs 1.01 and 1.07 respectively. Both of these results should be equal to or less than Numbers 1 or 2. When they are not, i.e., K and Phosphate, measurement uncertainty is a likely cause.

Number 6 (the open square): is the analytical measurement of the concentration in the filtrate from test run 1.10. This result should be equal to or less than Number 5. When it is not, i.e., Cl and K, measurement uncertainty is a likely cause.

Numbers 7 to 10 (the open triangle, circle, crossed X and the dash, respectively): are analytical measurements of the concentration in the filtrate from wash runs 1 to 4. Each successive point should be lower than the preceding point since the washing generally reduces the concentration. The exception is when the washing solution dissolves some of a previously insoluble solid, which may lead to an increase in concentration in the filtrate, e.g., Oxalate.

Number 11 (the open diamond): is an analytical measurement of a digested sample of 18 wt% insoluble solids post-washed slurry. This result should be less than Number 5. When it is not, i.e., Ca, Fe, La, Mn, measurement uncertainty is a likely cause. The sample was actually taken after the last wash run and before test run 1.15. It is listed in Table E1 as samples BNF-SXF2115-C+ES+Sr/TRU_32digest1 (column CB) and BNF-SXF2115-C+ES+Sr/TRU_32digest2 (column CC). There are no Number 5 data for F, K, Formate, Oxalate, Phosphate, Sulfate, Nitrate/Nitrite, and TIC/TOC, because they either were not measured or the results were contaminated in the process of dissolving the sample solids.





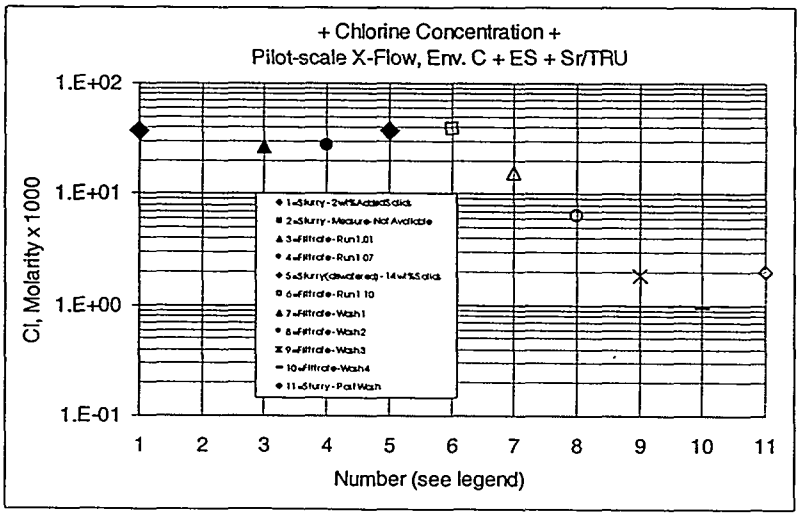
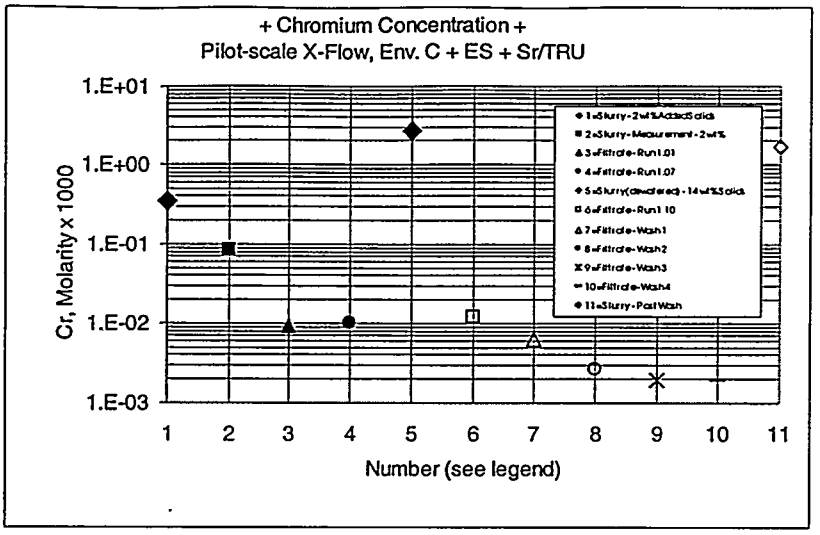
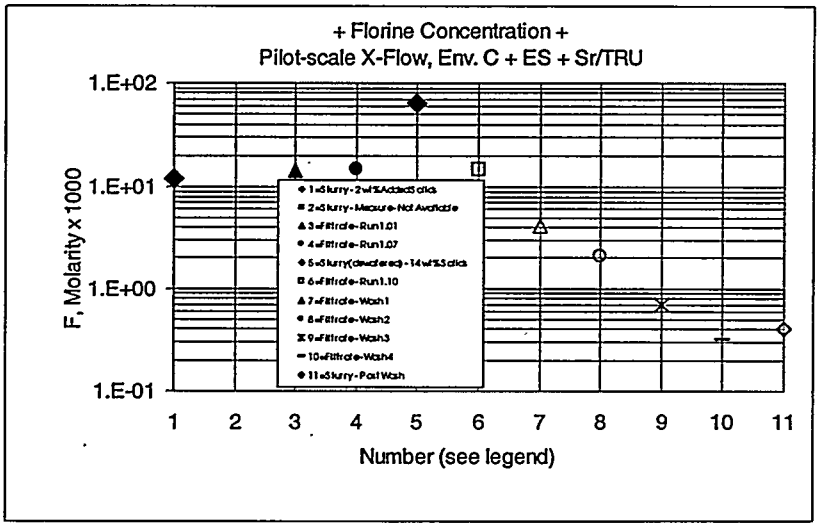


Figure E3, E4, and E5. Aluminum, Calcium, and Chlorine, respectively





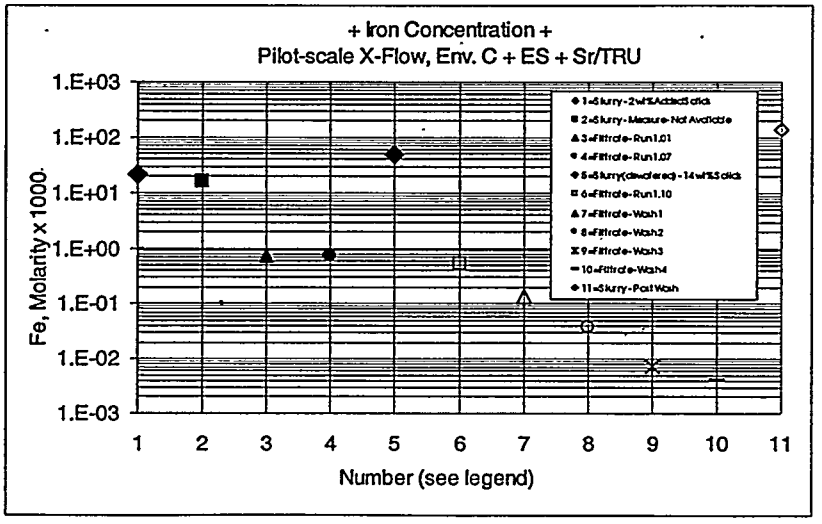
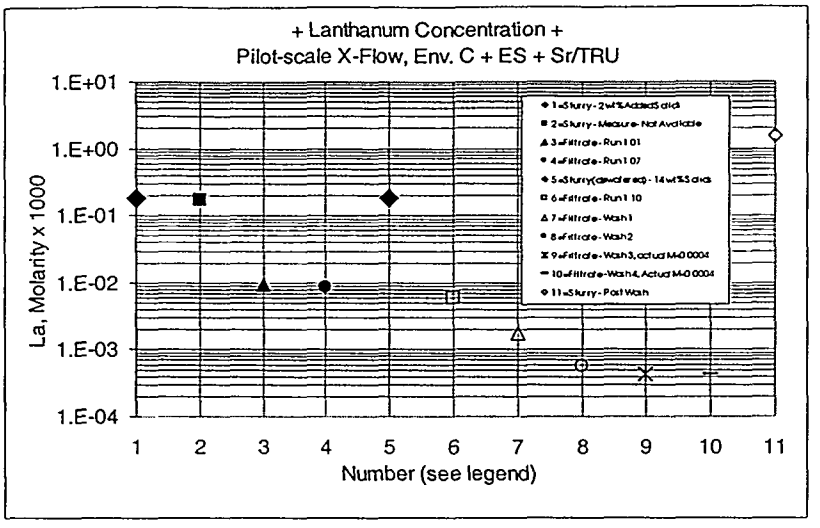
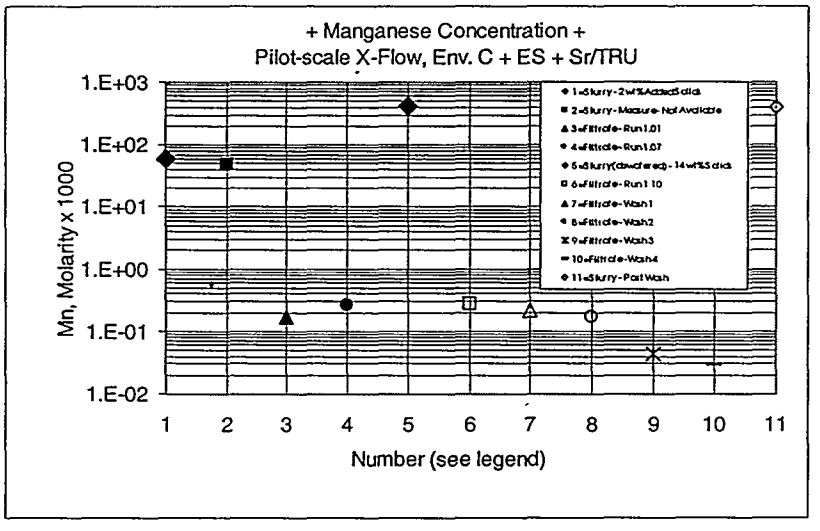


Figure E6, E7, and E8. Chromium, Florine, and Iron, respectively





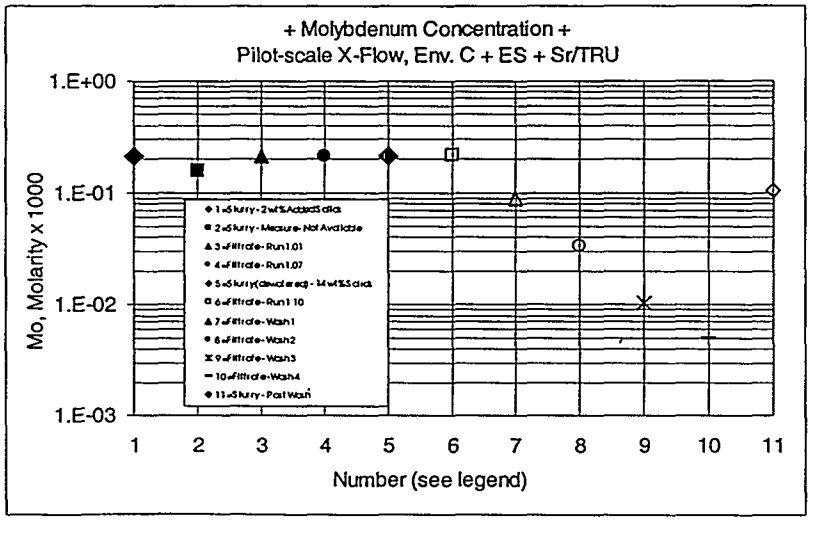
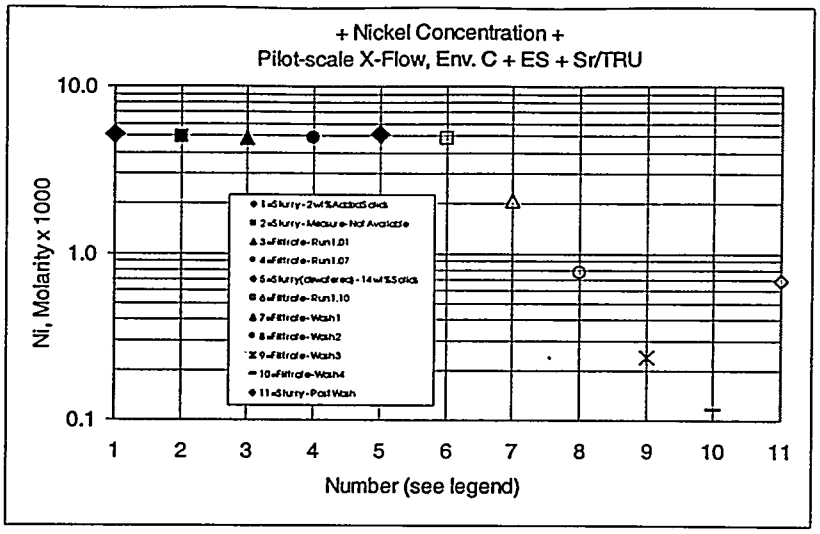
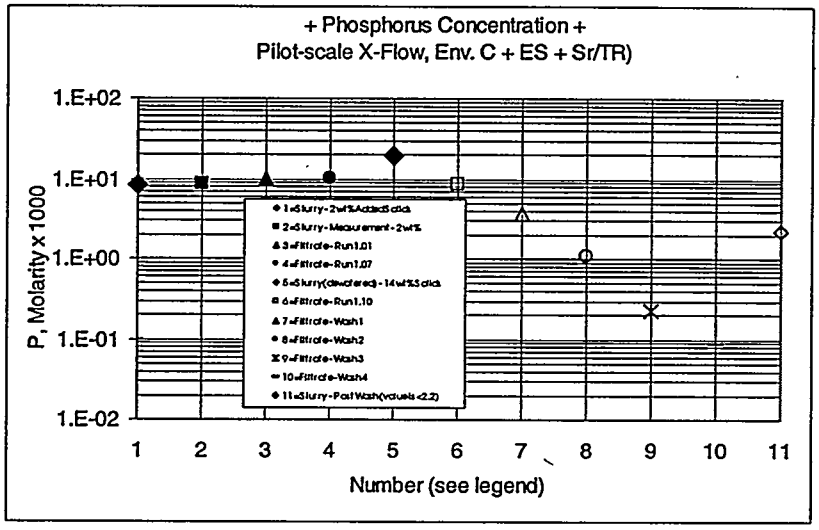


Figure E9, E10, and E11. Lanthanum, Manganese, and Molybdenum, respectively





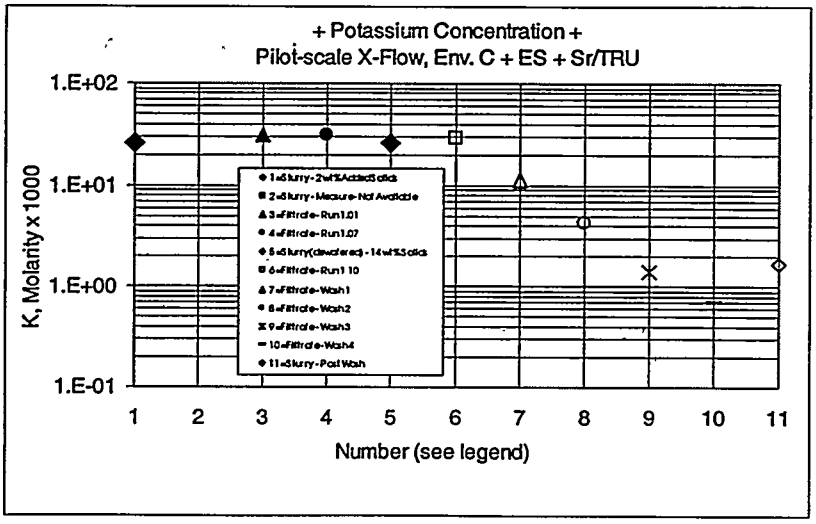
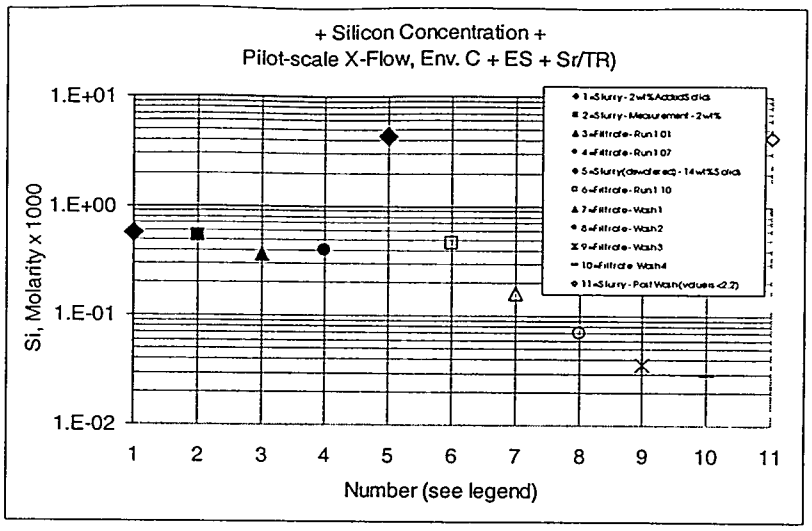
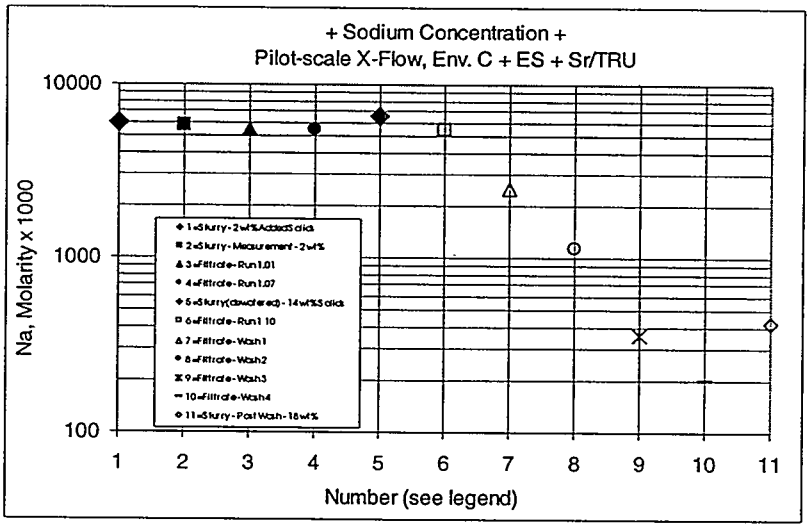


Figure E12, E13, and E14. Nickel, Phosphorous, and Potassium respectively





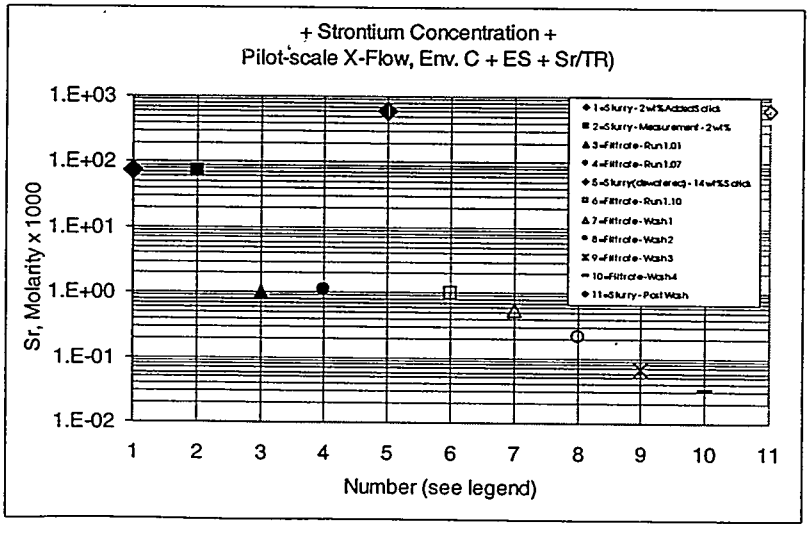
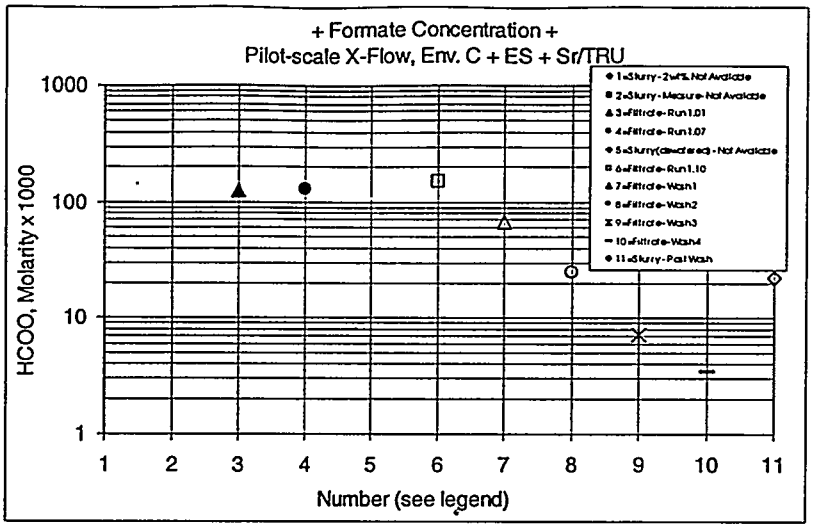
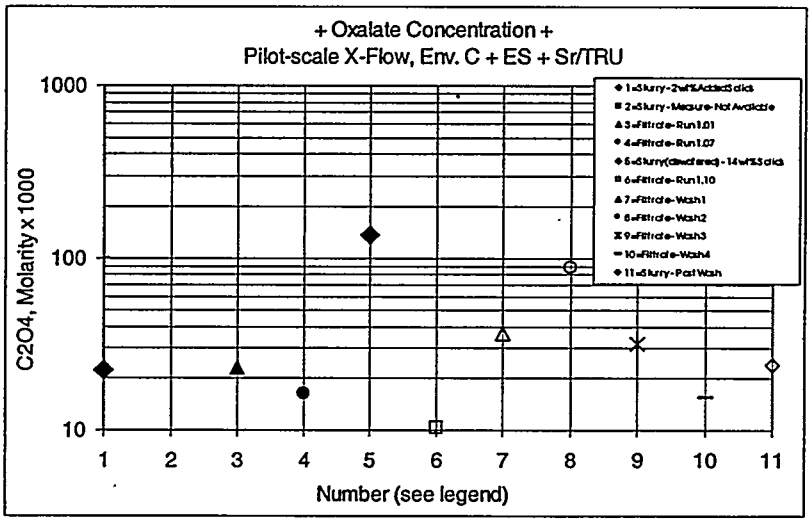


Figure E15, E16, and E17. Silicon, Sodium, and Strontium, respectively





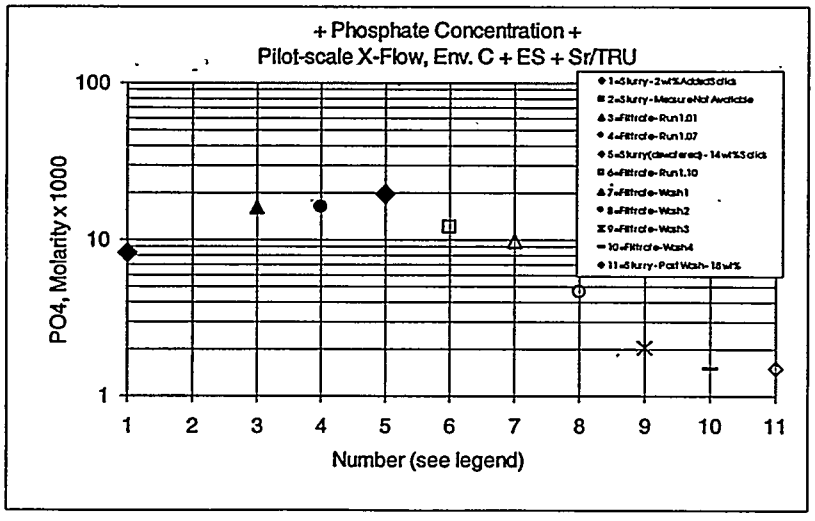
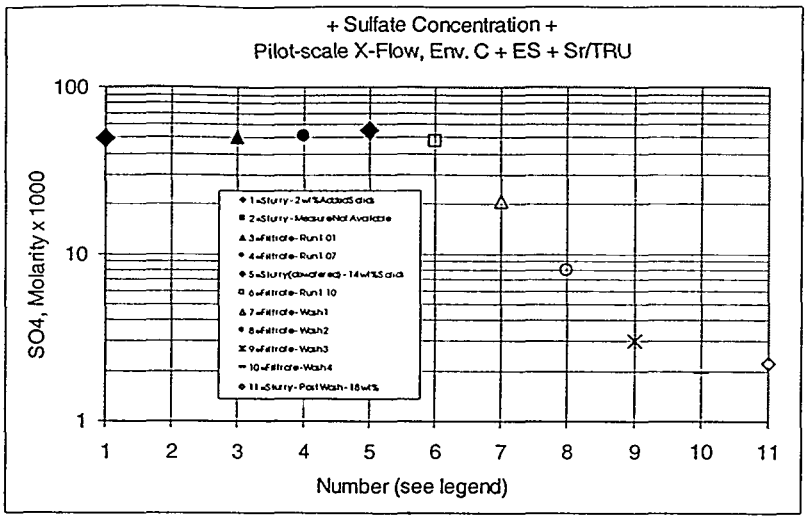
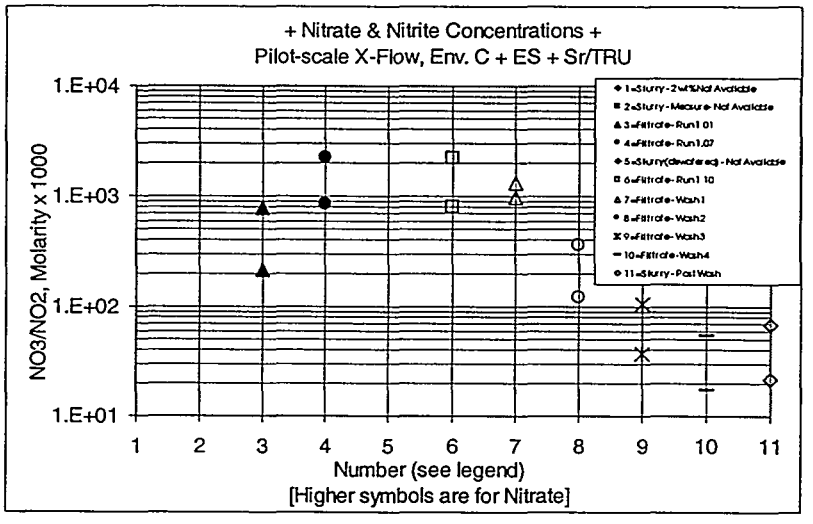


Figure E18, E19, and E20. Formate, Oxalate, and Phosphate, respectively





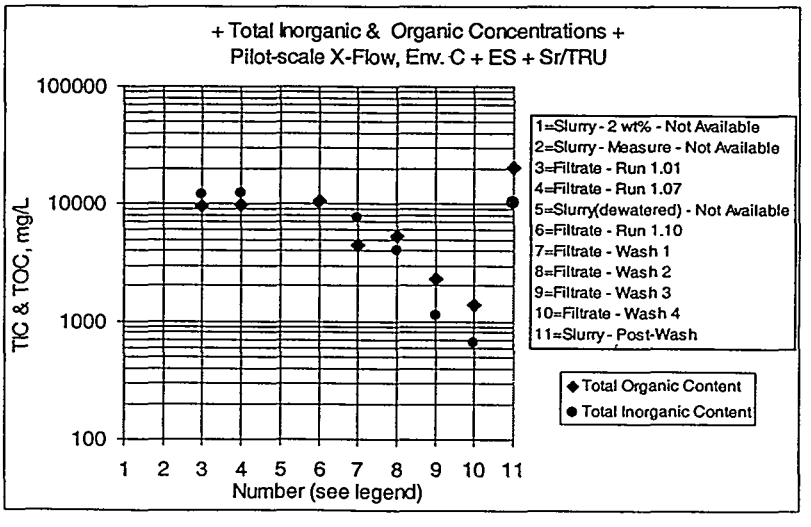
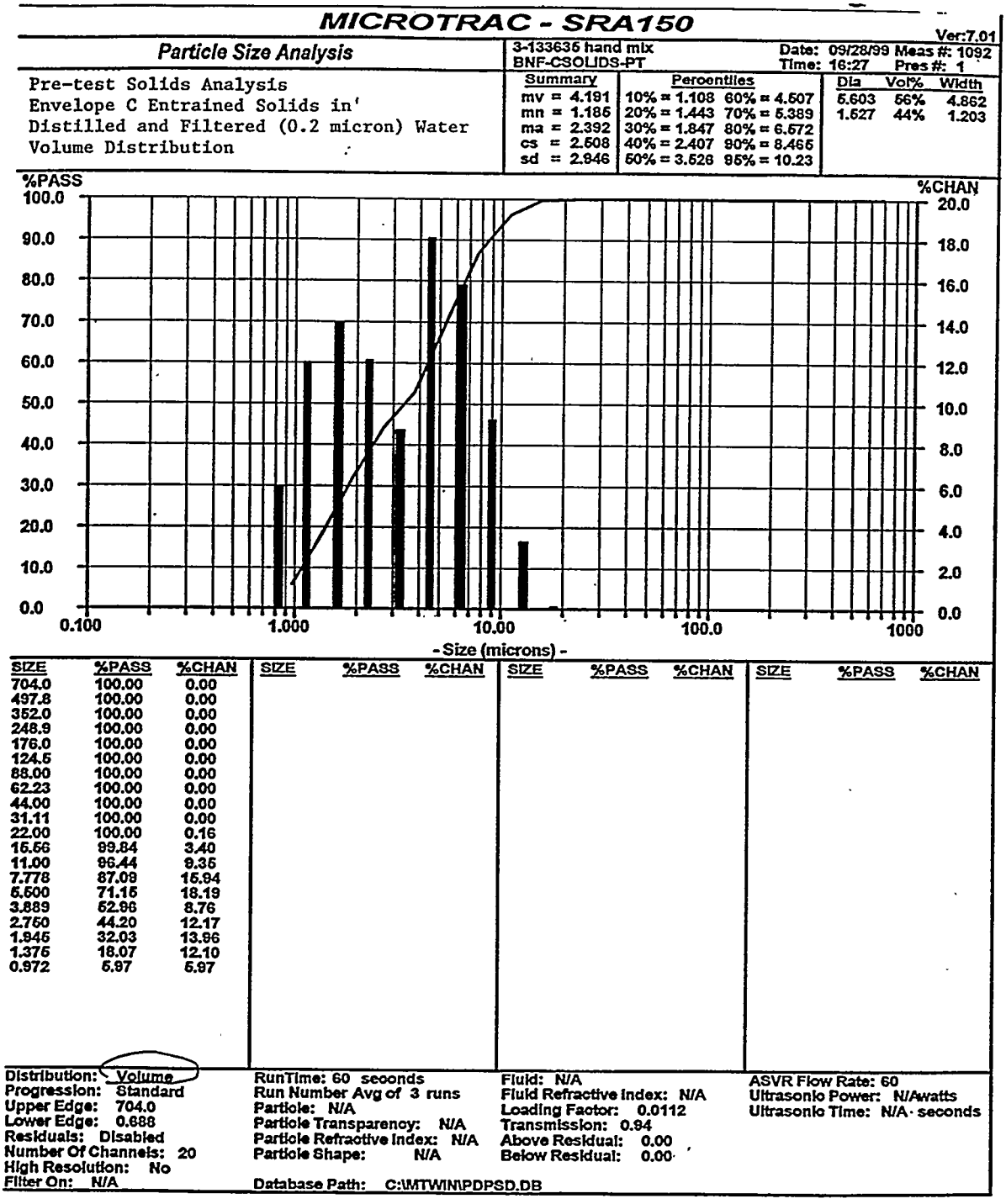


Figure E21, E22, and E23. Sulfate, Nitrate & Nitrite, and TIC/TOC, respectively



MICROTRAC - SRA150 Ver:7.01

Particle Size Analysis

3-133636 hand mix
BNF-CSOLIDS-PT
Date: 09/28/99 Meas #: 1092
Time: 16:27 Pres #: 1

Pre-test Solids Analysis
Envelope C Entrained Solids in'
Distilled and Filtered (0.2 micron) Water
Volume Distribution

Summary		Percentiles			Dia	Vol%	Width
mv = 4.191		10% = 1.108	60% = 4.507		5.603	56%	4.862
mn = 1.186		20% = 1.443	70% = 5.389		1.527	44%	1.203
ma = 2.392		30% = 1.847	80% = 6.572				
cs = 2.508		40% = 2.407	90% = 8.466				
sd = 2.946		50% = 3.528	95% = 10.23				

%PASS 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0 0.0
%CHAN 20.0 18.0 16.0 14.0 12.0 10.0 8.0 6.0 4.0 2.0 0.0
0.100 1.000 10.00 100.0 1000
- Size (microns) -

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	0.16									
15.56	99.84	3.40									
11.00	96.44	9.35									
7.778	87.09	15.94									
5.500	71.15	18.19									
3.889	52.96	8.76									
2.750	44.20	12.17									
1.945	32.03	13.96									
1.375	18.07	12.10									
0.972	5.97	5.97									

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

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0112
Transmission: 0.94
Above Residual: 0.00
Below Residual: 0.00

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

Database Path: C:\MTWIN\PDPSD.DB

Figure E24A. Insoluble Solids VOLUME Distribution: Pre-test Sample
(sample contained only insoluble solids in distilled and filtered water)

MICROTRAC - SRA100 002

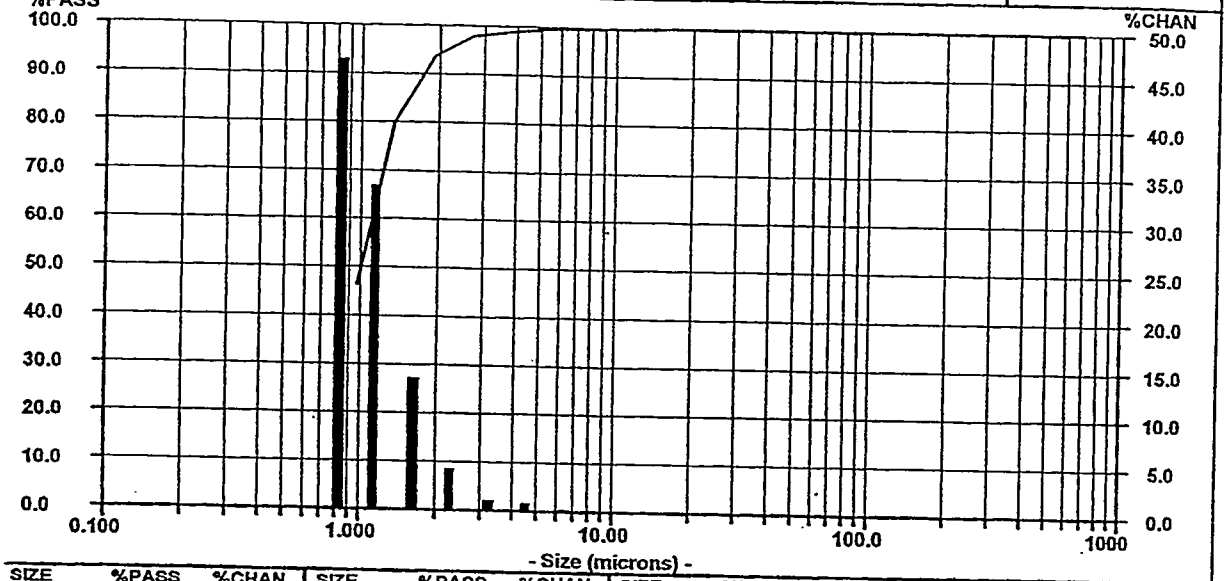
Particle Size Analysis

3-133636 hand mix
BNF-CSOLIDS-PT

Date: 09/28/99 Meas #: 1092
Time: 16:27 Pres #: 1

Pre-test Solids Analysis
Envelope C Entrained Solids in
Distilled and Filtered (0.2 micron) Water
Number Distribution

Summary		Percentiles		Dia	Num%	Width
mv = 4.191	10% = 0.768	60% = 1.091		1.000	100%	0.681
mn = 1.186	20% = 0.816	70% = 1.208				
ma = 2.392	30% = 0.871	80% = 1.376				
os = 2.608	40% = 0.929	90% = 1.700				
sd = 0.340	50% = 1.000	95% = 2.091				



SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN	SIZE	%PASS	%CHAN
704.0	100.00	0.00									
497.8	100.00	0.00									
362.0	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	0.05									
7.778	99.94	0.24									
5.500	99.70	0.78									
3.889	98.92	1.07									
2.750	97.85	4.20									
1.945	93.66	13.64									
1.375	80.01	33.44									
0.972	46.57	46.57									

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: 60 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: 0.0112
Transmission: 0.94
Above Residual: 0.00
Below Residual: 0.00

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

Figure E24B. Insoluble Solids NUMBER Distribution: Pre-test Sample
(sample contained only insoluble solids in distilled and filtered water)

MICROTRAC - SRA150

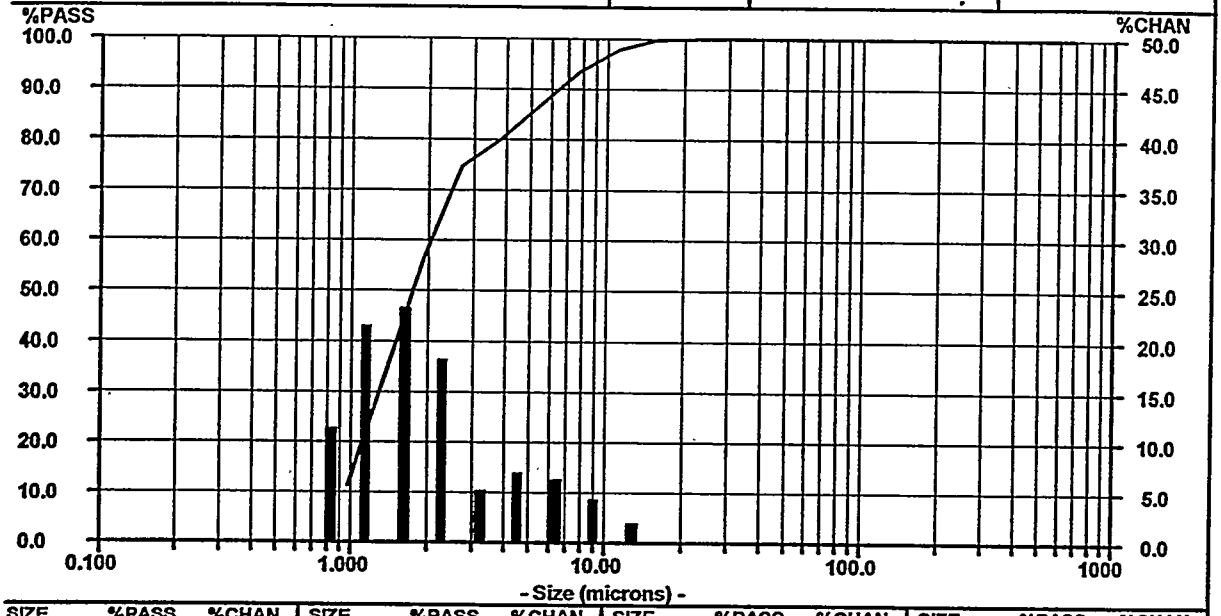
Ver:7.01

Particle Size Analysis

3-133992
bnf-sxf2115-...02
Date: 11/11/99 Meas #: 1282
Time: 14:44 Pres #: 1

Mark Dulgnan
Envelope C + Entrained Solids
+ Strontium/Transuranic
Run 1.01 (2 wt% insoluble & 36 wt% total solids)
Volume Distribution

Summary		Percentiles		Dia	Vol%	Width
mv = 2.746	10% = 0.843	60% = 2.057		5.681	25%	5.738
mn = 1.109	20% = 1.129	70% = 2.455		1.471	75%	1.163
ma = 1.678	30% = 1.315	80% = 3.886				
cs = 3.576	40% = 1.520	90% = 6.387				
sd = 1.860	50% = 1.762	95% = 8.608				



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	0.11									
15.56	99.89	2.01									
11.00	97.88	4.40									
7.778	93.48	6.42									
5.500	87.06	7.05									
3.889	80.01	5.31									
2.750	74.70	18.25									
1.945	56.45	23.35									
1.375	33.10	21.60									
0.972	11.50	11.50									

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

Fluid: N/A
Fluid Refractive Index: N/A
Loading Factor: 0.0086
Transmission: 0.96
Above Residual: 0.00
Below Residual: 0.00

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

Database Path: C:\MTWIN\PDPSD.DB

Figure E25A.Insoluble Solids VOLUME Distribution: Run 1.01
(2 wt% insoluble solids slurry experienced about 1 hour of circulation)

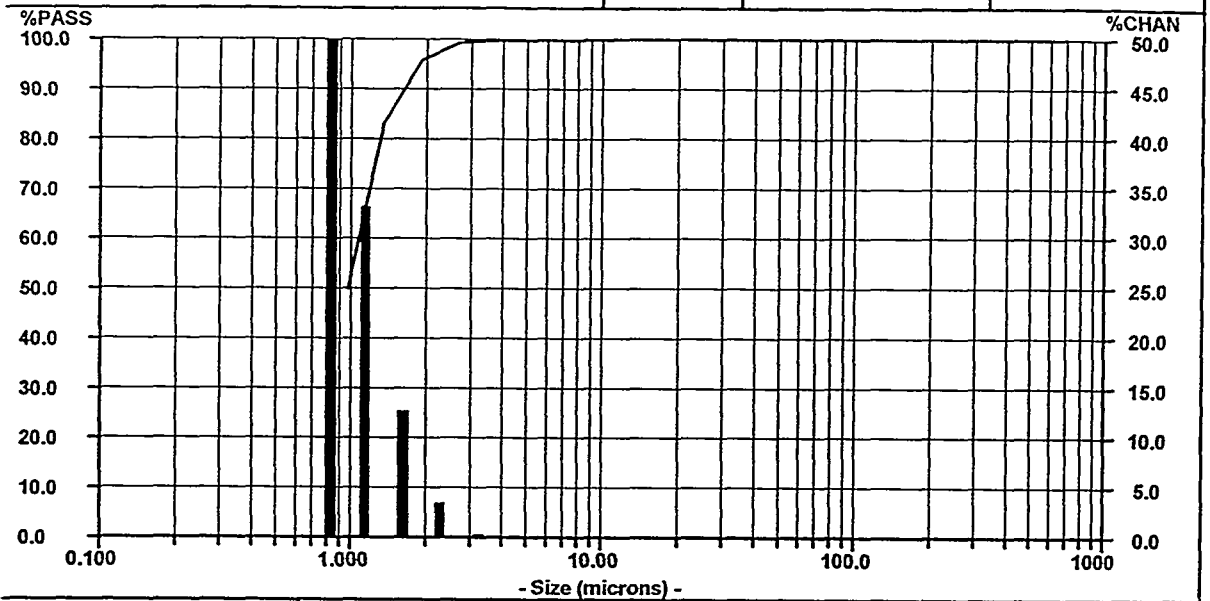
MICROTRAC - SRA150 Ver:7.01

Particle Size Analysis

3-133992 Date: 11/11/99 Meas #: 1282
bnf-sxf2115-...02 Time: 14:44 Pres #: 1

Mark Duignan
Envelope C + Entrained Solids
+ Strontium/Transuranic
Run 1.01 (2 wt% insoluble & 36 wt% total solids)
Number Distribution

Summary		Percentiles		Dia	Num%	Width
mv = 2.746		10% = 0.764	60% = 1.065	0.972	100%	0.608
mn = 1.109		20% = 0.807	70% = 1.162			
ma = 1.678		30% = 0.868	80% = 1.312			
cs = 3.676		40% = 0.912	90% = 1.576			
sd = 0.304		50% = 0.972	95% = 1.862			



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	0.01									
7.778	99.99	0.05									
5.500	99.84	0.17									
3.889	99.77	0.36									
2.750	99.41	3.51									
1.945	95.90	12.70									
1.375	83.20	33.24									
0.972	49.96	49.96									

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: 0.0086
Transmission: 0.96
Above Residual: 0.00
Below Residual: 0.00

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

Figure E25B.Insoluble Solids NUMBER Distribution: Run 1.01
(2 wt% insoluble solids slurry experienced about 1 hour of circulation)

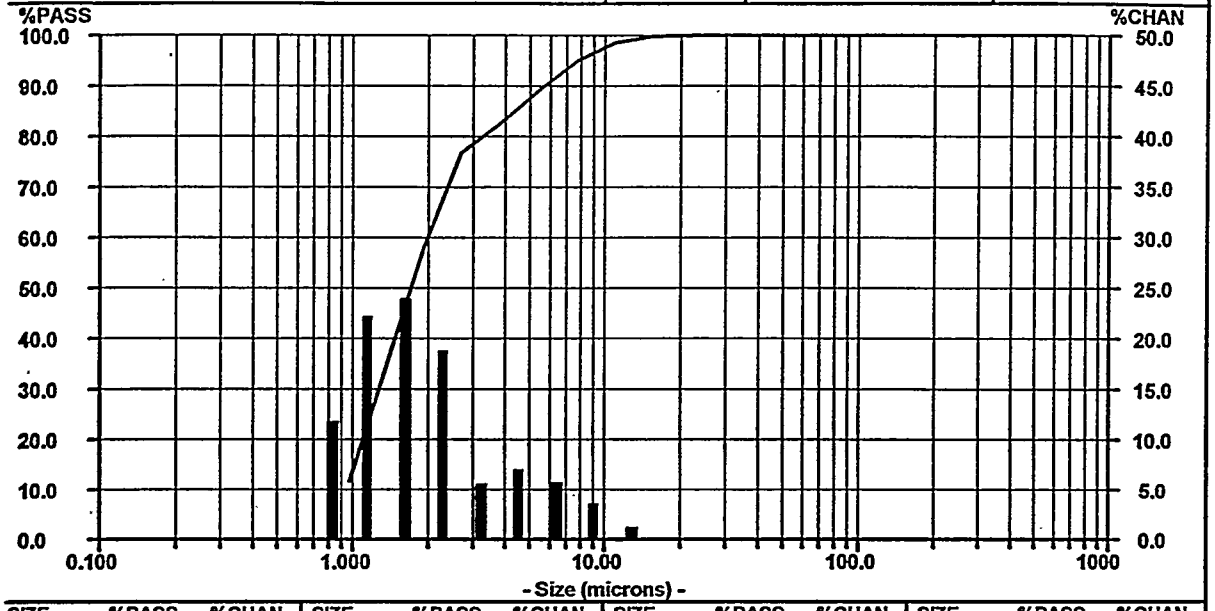
MICROTRAC - SRA150 Ver:7.01

Particle Size Analysis

3-133896 Date: 11/11/99 Meas #: 1278
bnf-sxf2116-...06 Time: 14:27 Pres #: 1

Mark Duignan
Envelope C + Entrained Solids
- Strontium/Transuranic
Run 1.07 (2 wt% insoluble & 36wt% total solids)
Volume Distribution

Summary		Percentiles		Dia	Vol%	Width
mv = 2.554	10% = 0.938	60% = 2.007		5.228	23%	5.179
mn = 1.109	20% = 1.120	70% = 2.368		1.472	77%	1.164
ma = 1.641	30% = 1.300	80% = 3.219				
cs = 3.655	40% = 1.497	90% = 5.678				
sd = 1.596	50% = 1.728	95% = 7.713				



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	0.05									
15.56	99.95	1.22									
11.00	98.73	3.61									
7.778	95.12	6.71									
5.500	89.41	6.98									
3.889	82.43	5.69									
2.750	76.74	18.80									
1.945	57.94	23.97									
1.376	33.97	22.17									
0.972	11.80	11.80									

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: 0.0073
Transmission: 0.96
Above Residual: 0.00
Below Residual: 0.00

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

Figure E26A.Insoluble Solids VOLUME Distribution: Run 1.07
(2 wt% insoluble solids slurry experienced about 27 hours of circulation)

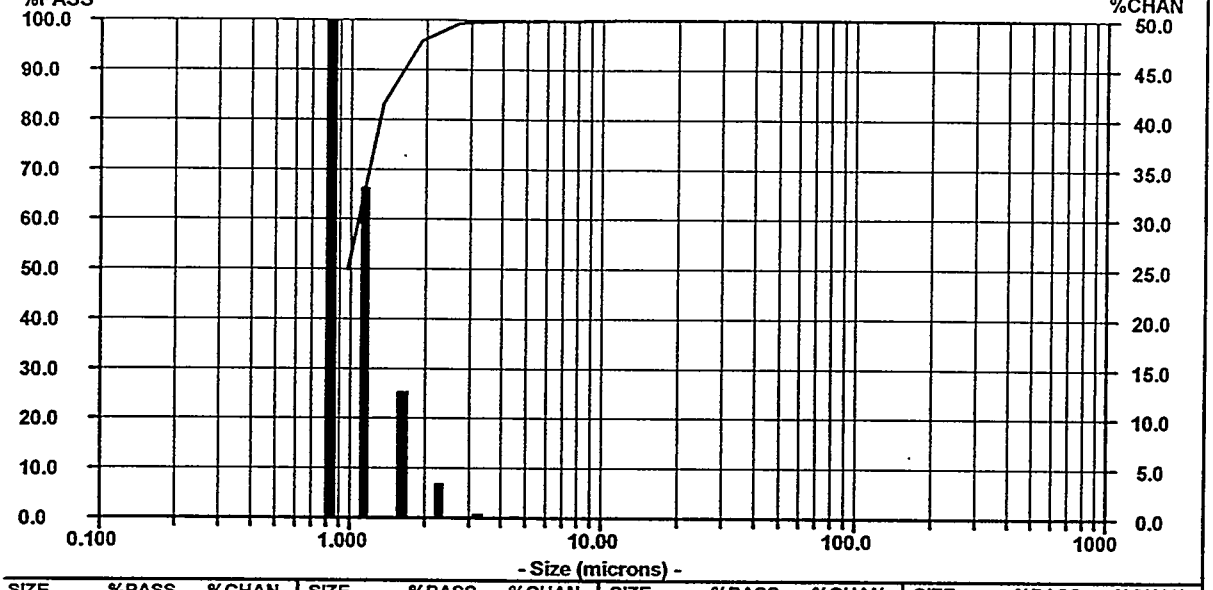
MICROTRAC - SRA150 Ver:7.01

Particle Size Analysis

3-133996 Date: 11/11/99 Meas #: 1278
bnf-sxf2115-...06 Time: 14:27 Pres #: 1

Mark Duignan
Envelope C + Entrained Solids
+ Strontium/Transuranic
Run 1.07 (2wt% insoluble & 36wt% solids)
Number Distribution

Summary		Percentiles		Dia	Num%	Width
mv = 2.664		10% = 0.754	60% = 1.055	0.973	100%	0.609
mn = 1.109		20% = 0.807	70% = 1.162			
ma = 1.641		30% = 0.858	80% = 1.313			
cs = 3.656		40% = 0.913	90% = 1.577			
sd = 0.304		50% = 0.973	95% = 1.864			



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	0.01									
7.778	99.99	0.05									
5.500	99.94	0.16									
3.889	99.78	0.38									
2.750	99.40	3.62									
1.945	95.88	12.70									
1.375	83.18	33.24									
0.972	49.94	49.94									

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: 0.0073
Transmission: 0.96
Above Residual: 0.00
Below Residual: 0.00

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

Figure E26B.Insoluble Solids NUMBER Distribution: Run 1.07
(2 wt% insoluble solids slurry experienced about 27 hours of circulation)

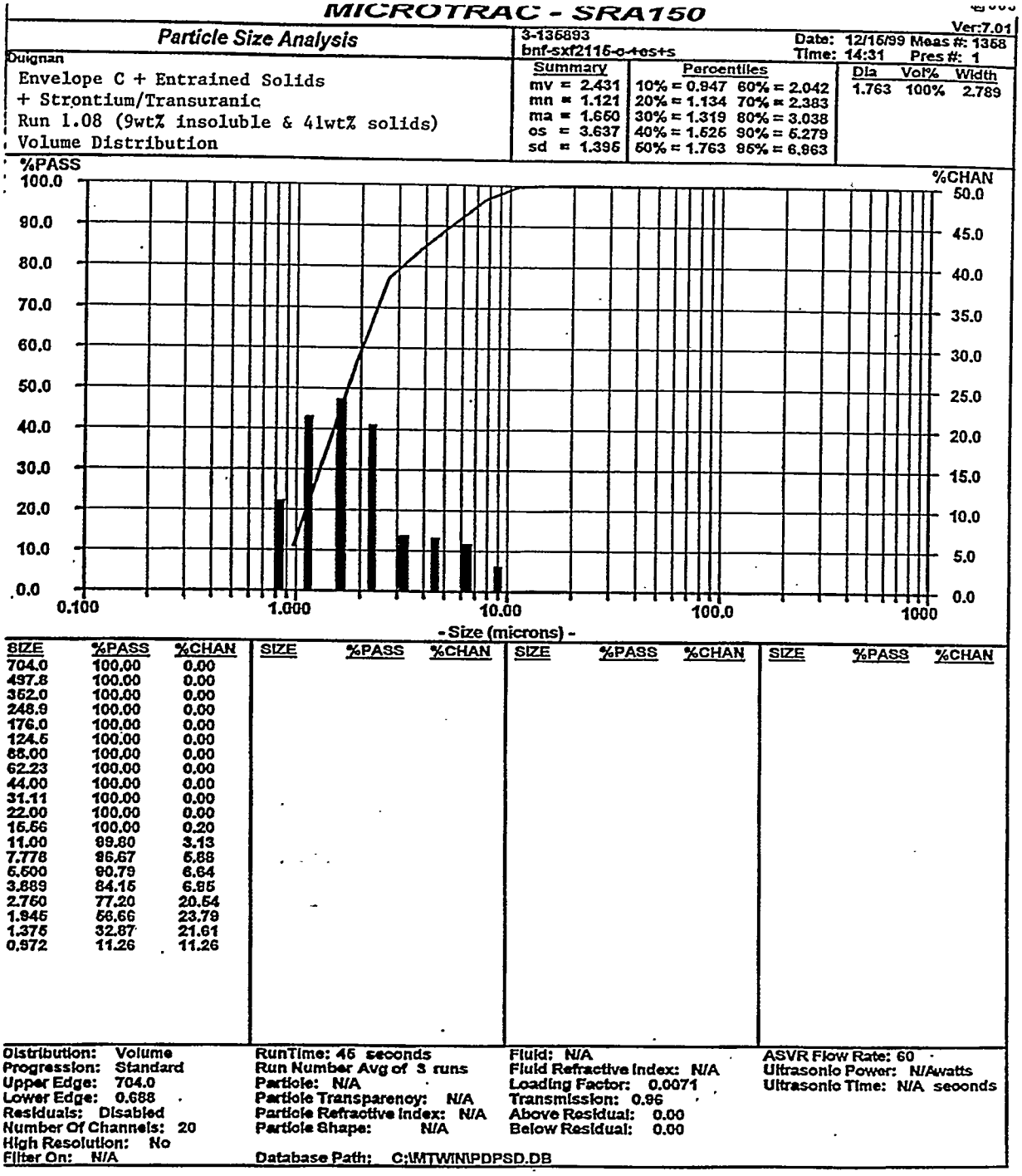


Figure E27A.Insoluble Solids VOLUME Distribution: Run 1.08
(9 wt% insoluble solids slurry experienced about 21 hours of circulation)

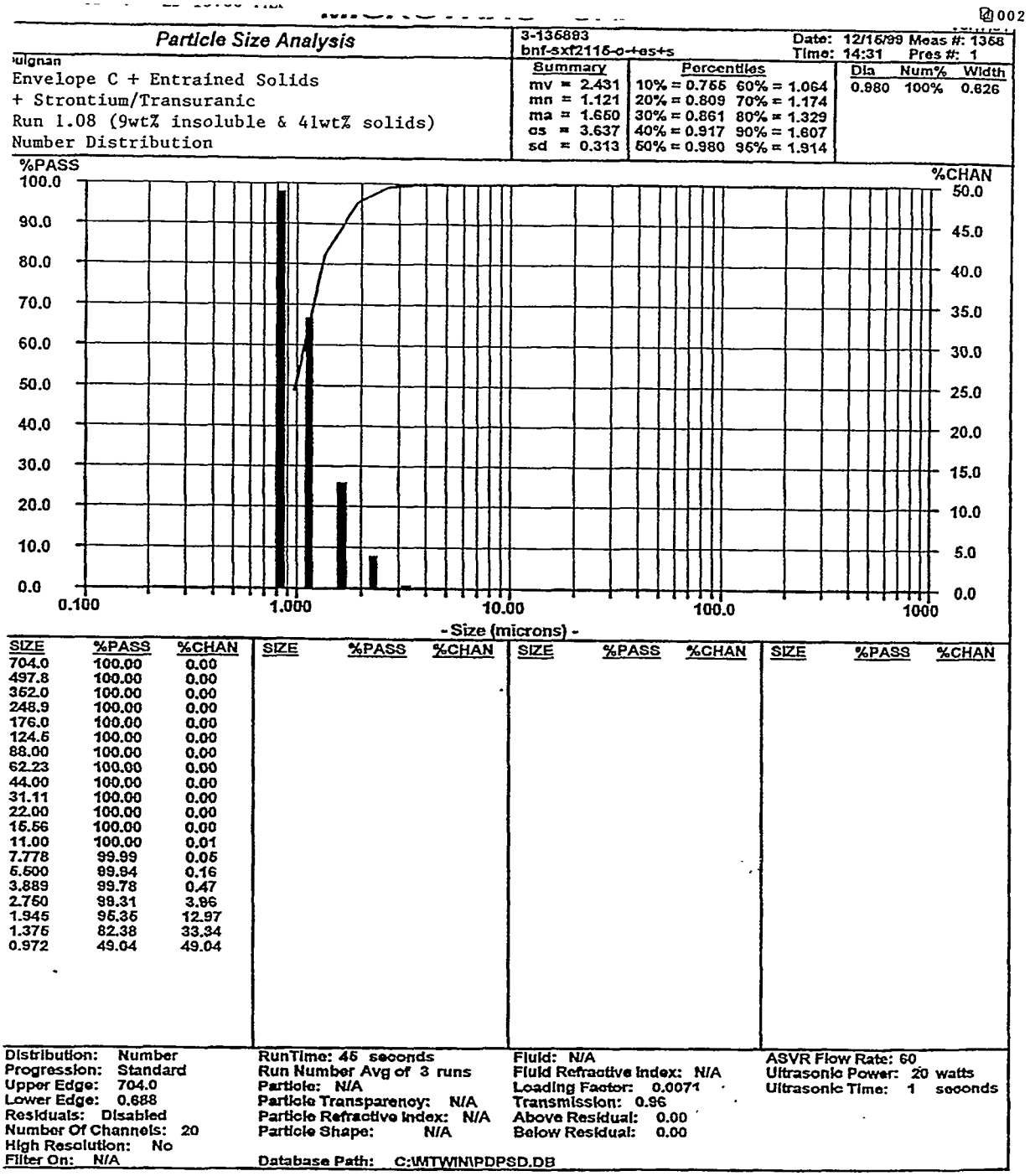


Figure E27B.Insoluble Solids NUMBER Distribution: Run 1.08
(9 wt% insoluble solids slurry experienced about 21 hours of circulation)

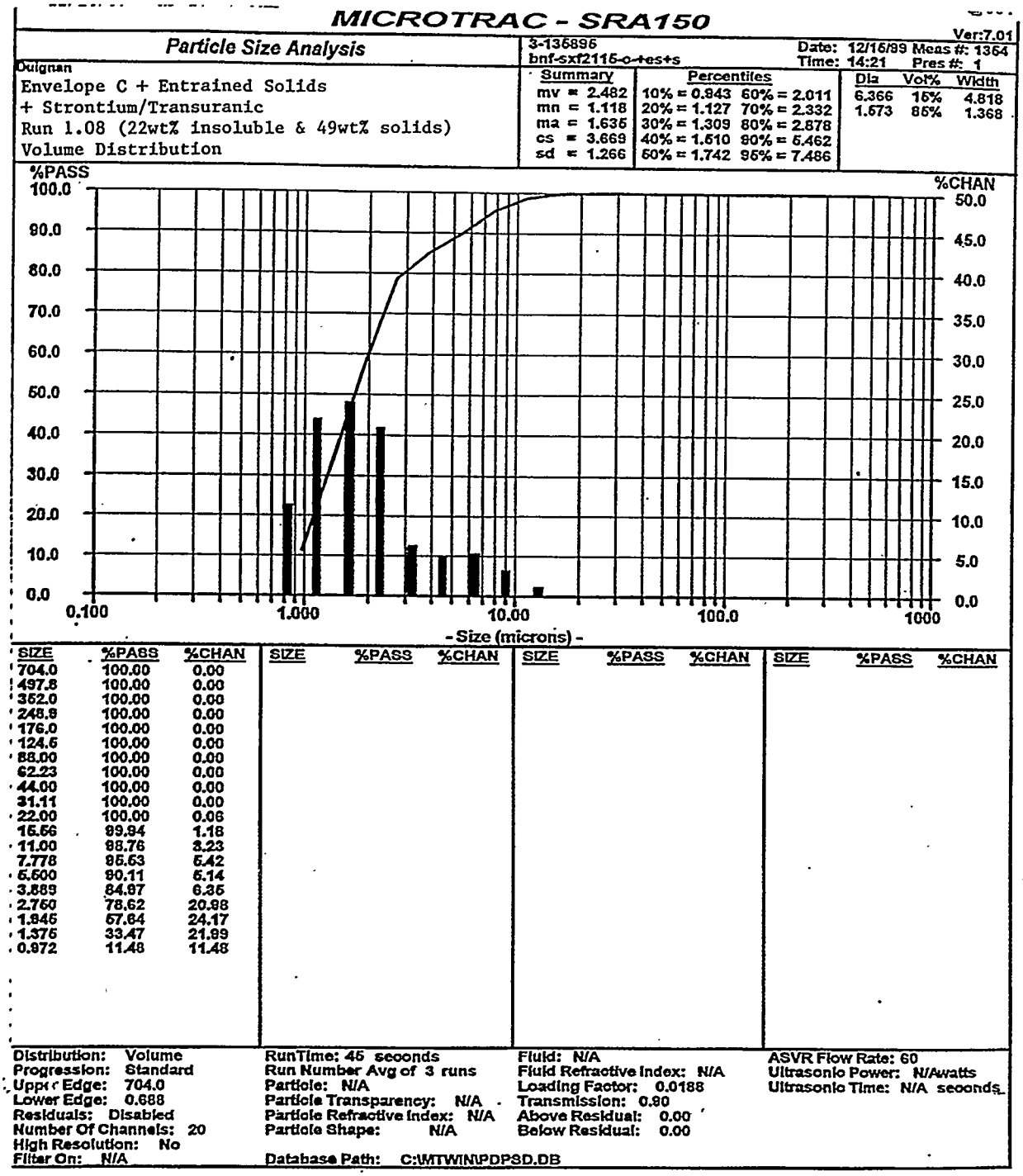


Figure E28A.Insoluble Solids VOLUME Distribution: Run 1.08
(22 wt% insoluble solids slurry experienced about 30 hours of circulation)

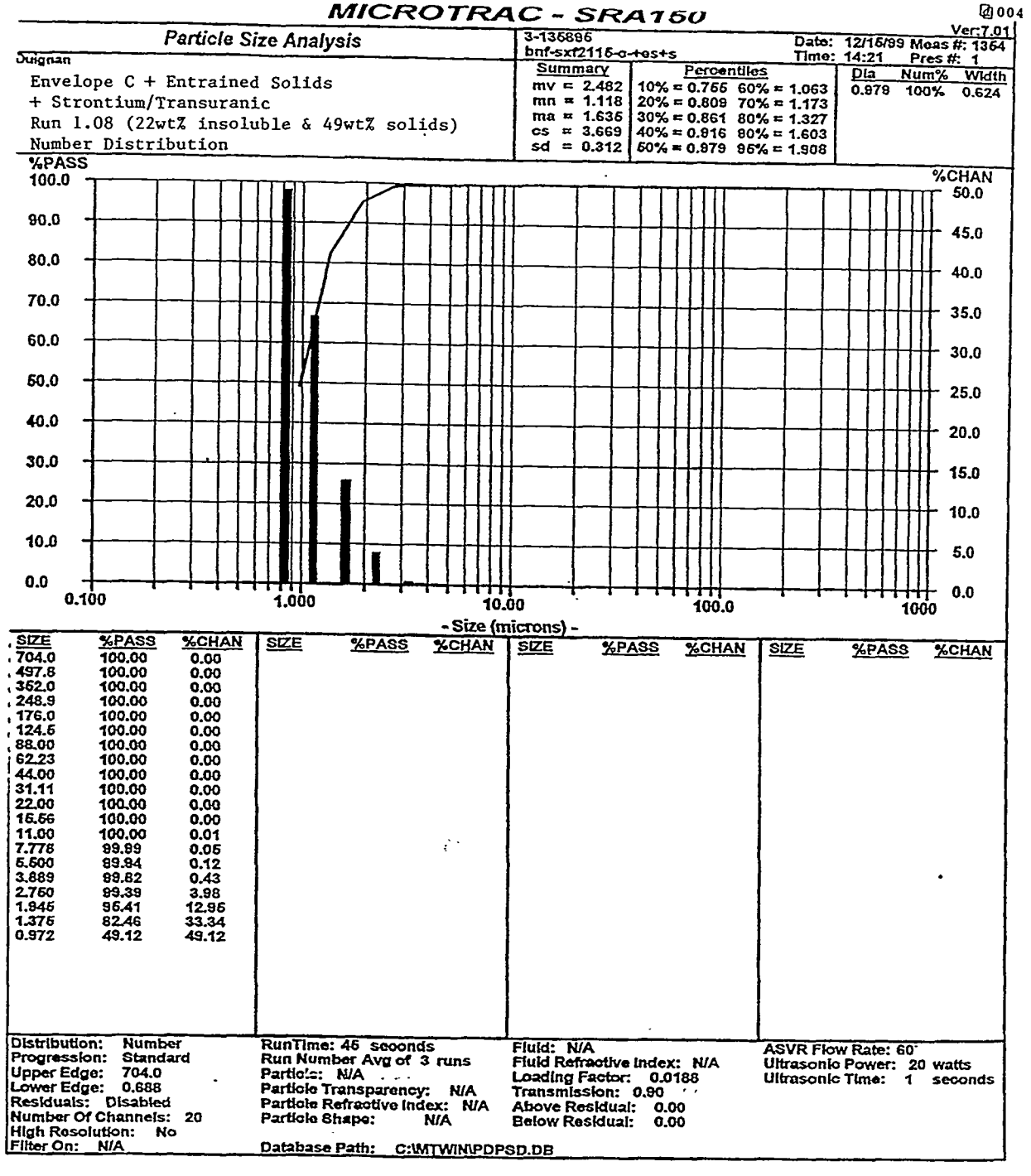


Figure E28B.Insoluble Solids NUMBER Distribution: Run 1.08
(22 wt% insoluble solids slurry experienced about 30 hours of circulation)

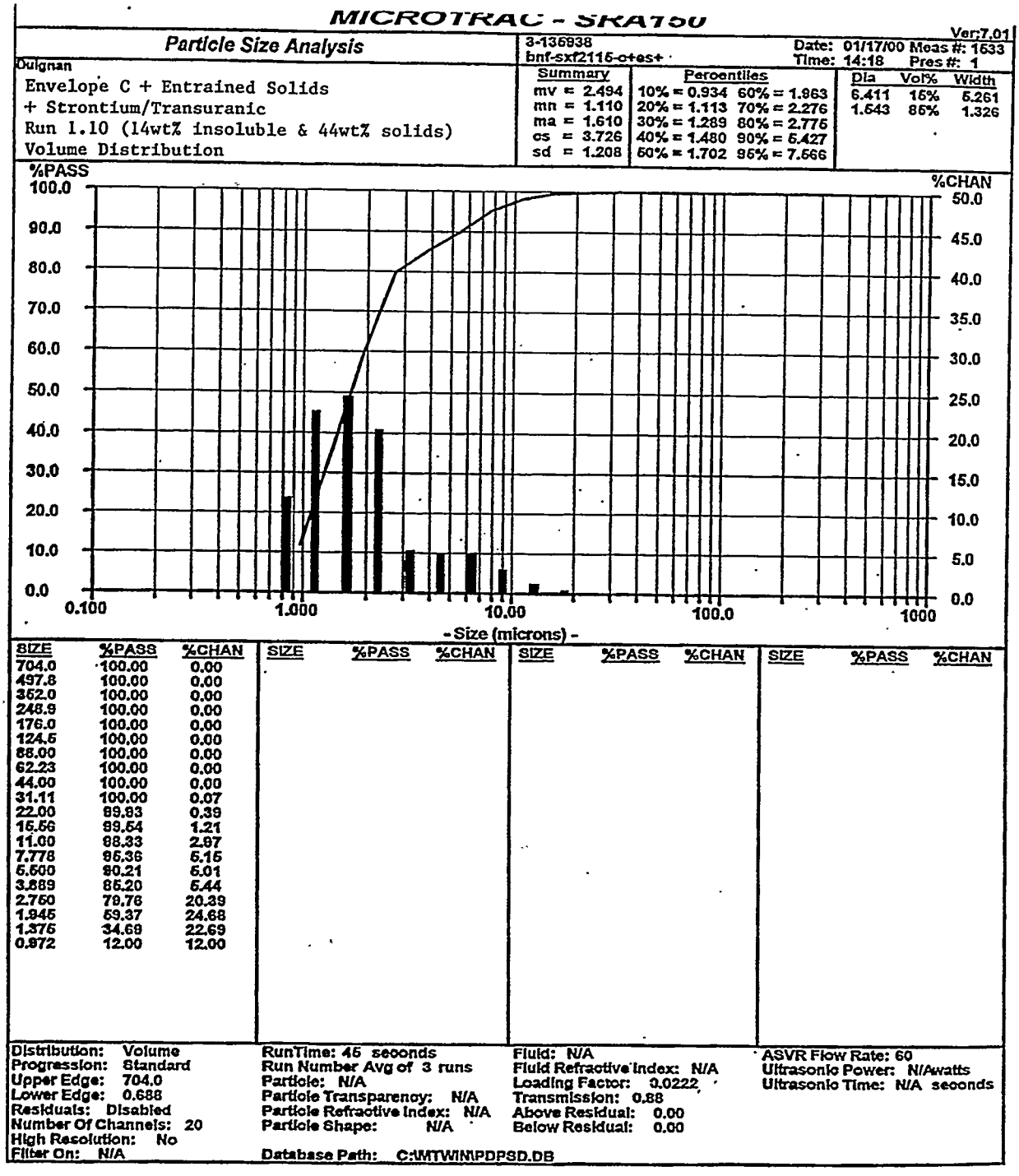


Figure E29A.Insoluble Solids VOLUME Distribution: Run 1.10
(14 wt% insoluble solids slurry experienced about 34 hours of circulation)

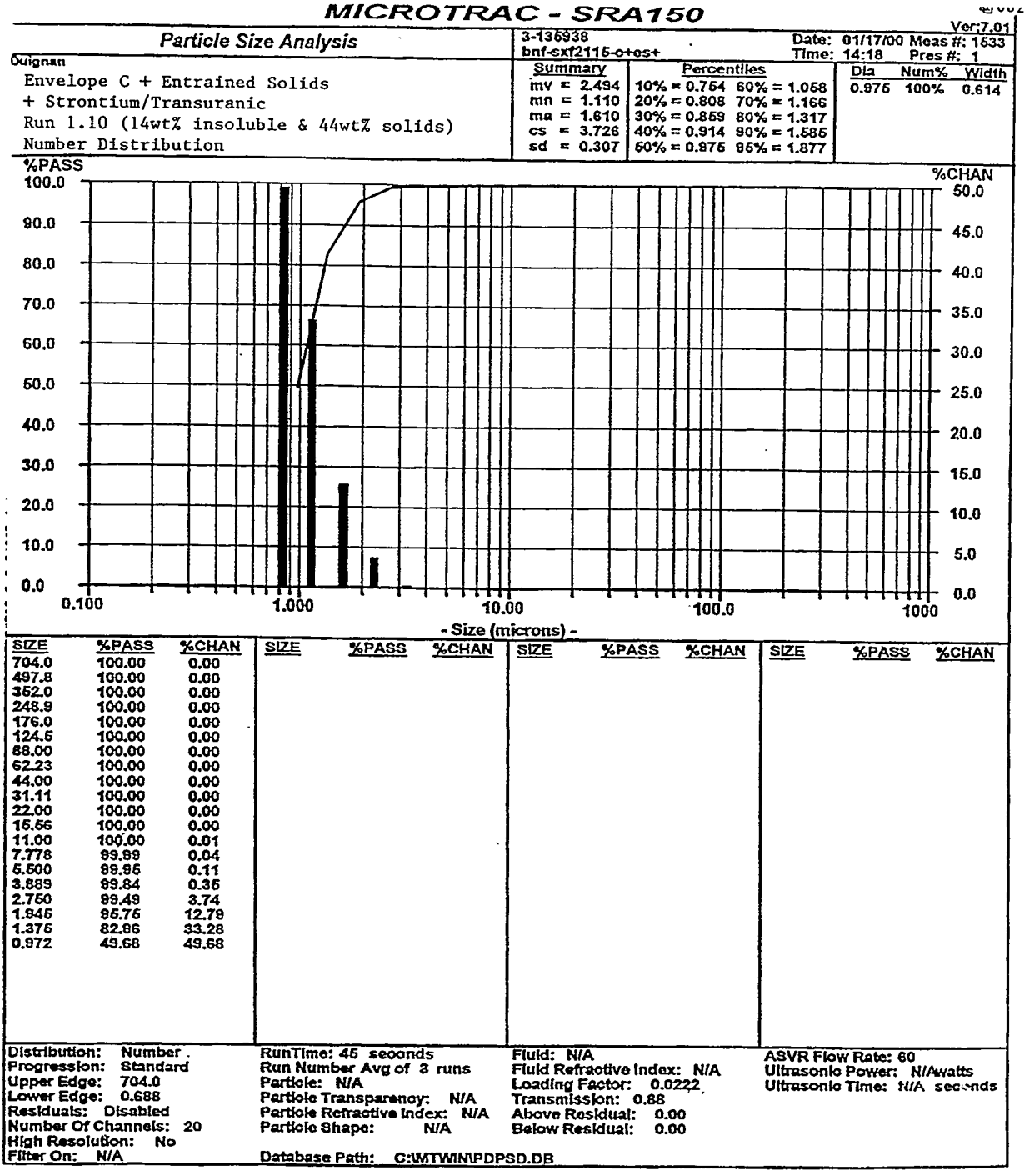


Figure E29B.Insoluble Solids NUMBER Distribution: Run 1.10
(14 wt% insoluble solids slurry experienced about 34 hours of circulation)

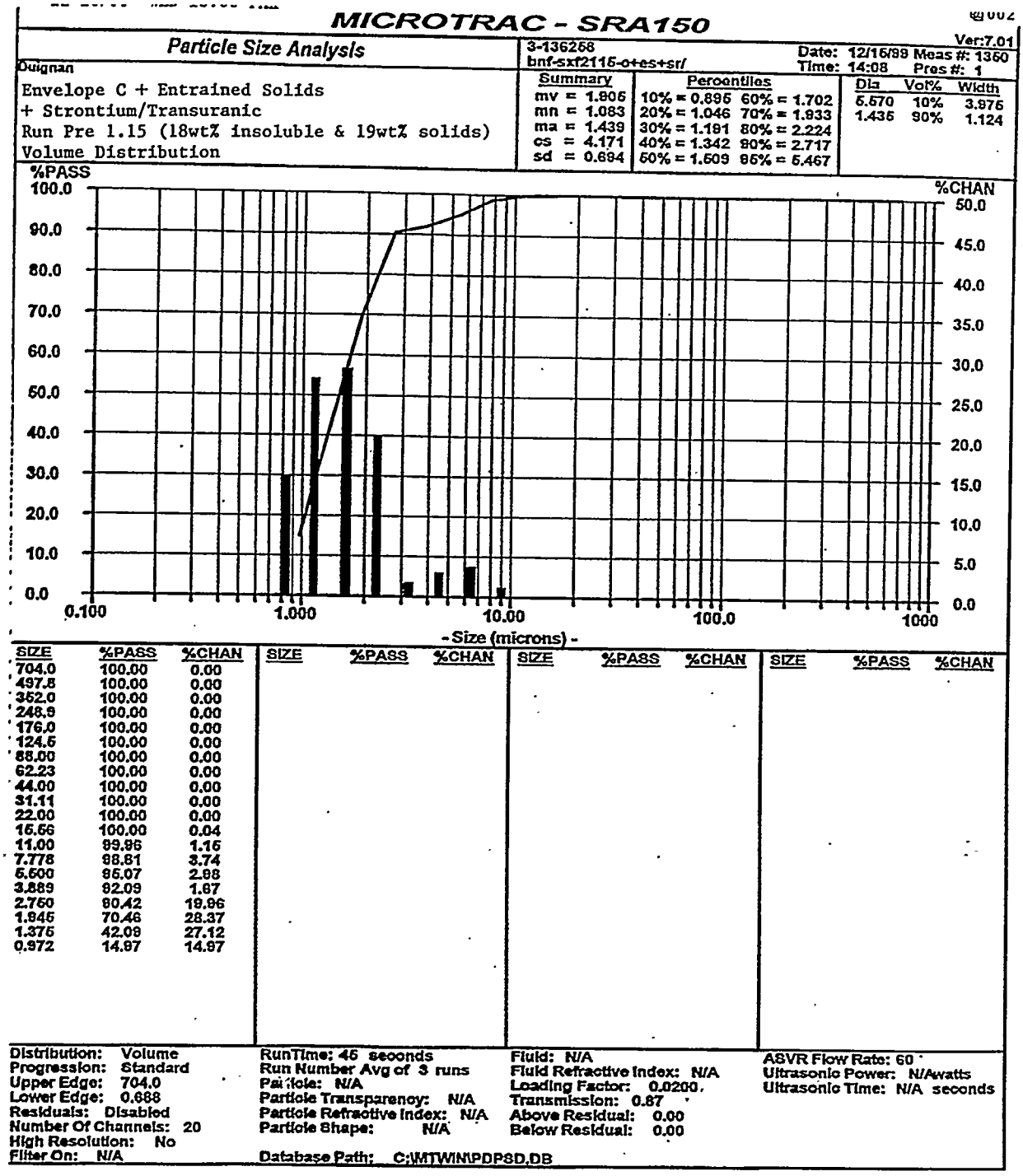


Figure E30A.Insoluble Solids VOLUME Distribution: Run 1.15
(18 wt% insoluble solids slurry experienced about 55 hours of circulation)

MICROTRAC - SRA150

003

Ver:7.01

Particle Size Analysis

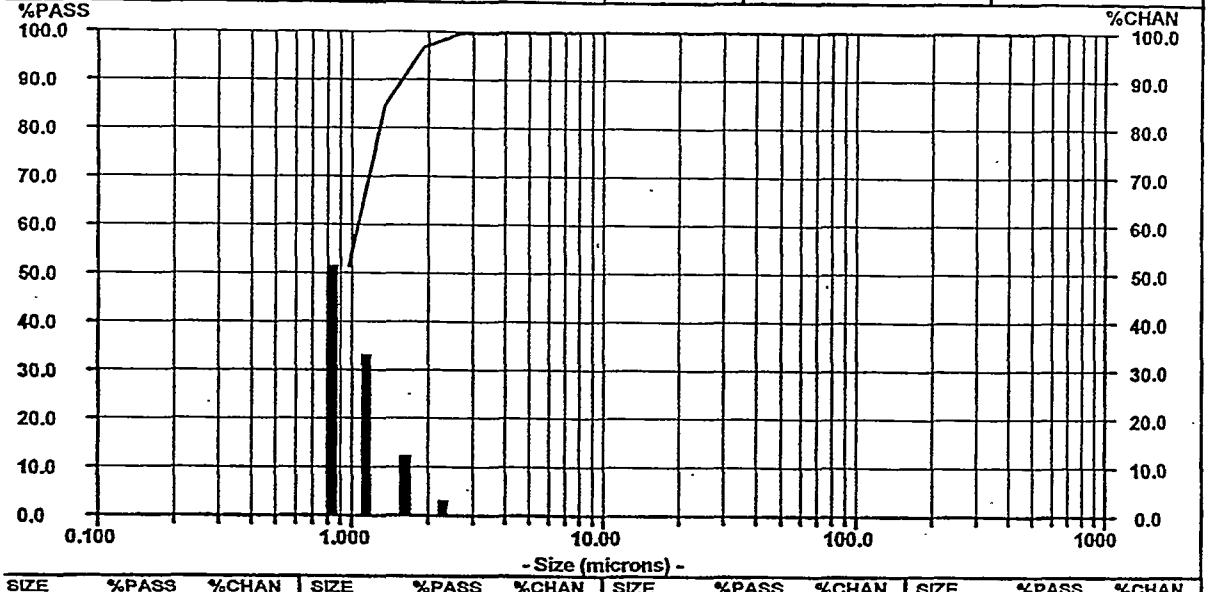
3-136268
bnf-sxf2115-c+es+sr/

Date: 12/16/99 Meas #: 1350
Time: 14:08 Pres #: 1

Julgnan

Envelope C + Entrained Solids
+ Strontium/Transuranic
Run Pre 1.15 (18wt% insoluble & 19wt% solids)
Number Distribution

Summary		Percentiles		Dia	Num%	Width
mv = 1.905		10% = 0.762	60% = 1.041	0.963	100%	0.680
mn = 1.083		20% = 0.804	70% = 1.143			
ma = 1.439		30% = 0.853	80% = 1.287			
os = 4.171		40% = 0.906	90% = 1.531			
sd = 0.290		50% = 0.963	95% = 1.786			



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	0.00									
7.778	100.00	0.03									
5.500	99.97	0.06									
3.889	99.91	0.09									
2.750	99.82	3.04									
1.945	96.78	12.22									
1.375	84.56	33.06									
0.972	51.50	51.50									

Distribution: Number	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: 20 watts
Upper Edge: 704.0	Particle: N/A	Loading Factor: 0.0200	Ultrasonic Time: 1 seconds
Lower Edge: 0.688	Particle Transparency: N/A	Transmission: 0.87	
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 E30B.Insoluble Solids NUMBER Distribution: Run 1.15
(18 wt% insoluble solids slurry experienced about 55 hours of circulation)

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
4. 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 because those uncertainties 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 first Number Column, usually column S) and there are calculated data columns (all columns to the right of the second Number Column, usually Column T). The uncertainty of a raw data measurement is the calibrated uncertainty of the individual instrument to a 95% confidence level, Figs. F3 to F16.

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 cases, like on Runs 1.09-1.14 for a thick slurry 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. 28].

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. 28). 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: $a = b \times c / d$ 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 (but having lowest slurry flowrate and TMP to obtain the largest uncertainty) of a representative group of results is: Run 1.02 at the 20th minute [The data for Run 1.02 can be found in Appendix B in the first table and the 20th minute is row 31.]

The measurement uncertainty for the following values will be shown:

V, ft/s	TMP, psi	Fc (at 25°C), gpm/ft^2,	P, gpm/ft^2/psi
9.1	31.2	0.038*	0.001210

*actual temperature was 25.2°C but was adjusted to 25.0°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**	**± 8.09 %**
Transmembrane Pressure	=	**TMP**	**± 1.10 %**
Temperature Corrected Filtrate Flux	=	**Fc**	**± 11.69 %**
Permeability	=	**P**	**± 11.74 %**

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): $\delta Q1 = \pm 0.26$ gpm
Slurry flow rate: $Q1 = 21.87$ gpm [Run 1.02, Row 31, 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, $[(0.26/21.87)^2 + 4(0.015/0.375)^2]^{1/2} \times 100\% = \pm 8.09\ \%$

The uncertainty of the example **V** is: **9.1 ±0.8 ft/s**

[since 9.1 x 0.0809 ~ 0.74]

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

This uncertainty will come from two instruments, dP2 and dP3. Also, there is another uncertainty due 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 fluid being in the pressure lines (water) a liquid-filled system will give approximately* the correct 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 correct pressure drop, for any dP, is obtained when the test liquid is the same as the liquid in the pressure lines. Since the slurry was more dense than the water the readings are affected accordingly. For instance, the pressure lines to obtained dP3 are lines 3 and 4, Fig. F2, and their heights were 150.38 inches and 141.75 inches, respectively. With NO flow in a completely water-filled system, then dP3 = 0, (that is, the two water columns cancel each other) but with a different density fluid in the test rig there is a differential pressure $dP3 = P_{line3} - P_{line4} = (150.38-141.75) \times (\text{density difference})$. In the worst case the slurry density was approximately 1.4 g/cc, therefore the offset could be a maximum of 8.63 inches x 0.4 = 3.5 inches H_2O or 0.13 psid. However, the actual magnitude of the offest was probably smaller because the differential height, 8.6 inches, was a combination of slurry and filtrate, which had a lower density. Combining this complication of obtaining the true contribution to the overall uncertainty, along with the measurement fluctuations and other factors, then this quantity to the uncertainty was neglected.]

The measurement uncertainty estimate:

Calibrated uncertainty (Figs. F1 and F12): $\delta dP2 = \pm 0.23$ psi
Pressure drop: dP2 = 33.16 psid [Run 1.02, Row 31, Column J: Appendix B]
Calibrated uncertainty (Figs. F1 and F13): $\delta dP3 = \pm 0.25$ psi
Pressure drop: dP3 = 29.26 psid [Run 1.02, Row 31, 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, $[(0.23/33.16)^2 + (0.25/29.26)^2]^{1/2} \times 100\% = \pm \mathbf{1.10}$ **%**

The uncertainty of the example **TMP** is: **32.1 ±0.4 psid**

[since 32.1 x 0.0110 ~ 0.35]

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 = 0.0.087 gpm [Run 1.02, Row 31, 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, $[(0.009/0.087)^2 + (0.015/0.375)^2 + (0.125/40)^2]^{1/2} \times 100\% = \pm 11.10\ \%$

The uncertainty of the example **F** is: **0.038 ± 0.004 gpm/ft^2**

[since 0.038 x 0.1110 ~ 0.0042]

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

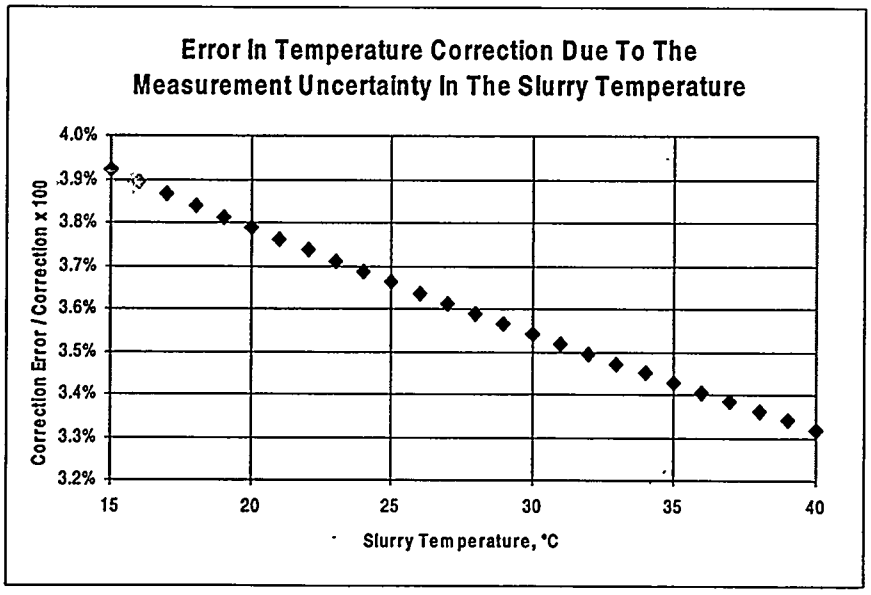
As per the customer specification the filtrate flux was to adjusted such that it would give a result at 25°C. The equation as was stated is:

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

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

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 filtrate flux, 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 0.2°C. That is, for Run 1.02 at the 20th minute the slurry temperature was 25.192°C [Initial test runs were only cooled with water cooling coils which were not adequate. 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 exactly 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** (section F.3) and the correction factor. The analyses still follows Eq. (1) therefore:

The measurement uncertainty estimate:

Filtrate flux relative uncertainty: $\delta F/F = \pm 11.10\%$ [section F.3]
Correction factor relative uncertainty: $\delta CF/CF = \pm 3.66\%$ [section F.3.1]

Fc = Fcorrected = F x CF

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

Therefore, $[(11.10\%)^2 + (3.66\%)^2]^{1/2} = \pm 11.69\ \%$

The uncertainty of the example **Fc** is: **0.038 ±0.005 gpm/ft²**

[since 0.038 x 0.1169 ~ 0.0044]

F.4 Permeability [P = Fc / TMP]

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

The measurement uncertainty estimate:

Filtrate flux relative uncertainty: $\delta Fc/Fc = \pm 11.69\%$ [section F.3]
TMP relative uncertainty: $\delta TMP/TMP = \pm 1.10\%$ [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, $[(11.69\%)^2 + (1.10\%)^2]^{1/2} = \pm 11.74\ \%$

The uncertainty of the example **P** is: **0.00121 ±0.00014 gpm/ft²/psi**

[since 0.00121 x 0.1174 ~ 0.000154]

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 1.02, Row 31, Columns G and H: Appendix B], the temperatures were 23.2°C and 22.3°C, respectively. This gradient varied hourly and daily for several reasons. Most importantly, the 0.9°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 1.02 the flow rate was, Q1 = 21.9 gpm. The loop volume was approximately 5 gallons so a fluid particle traversed the loop every 5/21.9 x 60 ~ 14 seconds. [Note that the slurry flow rate for Run 1.02 was one of the slowest.] In this example, the slurry temperature was measured to be 25.2°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	T(C) = 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x mV^3
T2	Thermocouple	TR-02926	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1 3C	1 1C	1.2C	T(C) = 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x mV^3
T3	Thermocouple	TR-02929	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1 5C	1.2C	1.3C	T(C) = 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x mV^3
T4	Thermocouple	TR-02930	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1 2C	1 4C	1 3C	T(C) = 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x mV^3
T5	Thermocouple	TR-02927	OMEGA	TJ36-CXSS-18U-6-SB-OST-M	0 to 100C	1 0C	1 4C	1 2C	T(C) = 0.00483 + 17.040918 x mV - 0.224284 x mV^2 + 0.005038 x mV^3
P1	Pres Transducer	TR-02917	Rosemount	1151GPE2AT0068B2L4	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	1151DP5E22	-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	10D1475DK11PL2SKD11CAC	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	10D1475EN01PF2SKW12CAC2	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	10D1475CN811B6L1	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
6	P1			Chan06 = 0 4975mA - 5E-15
7	P2			Chan07 = 0 4988mA + 0 003
8	P3			Chan08 = 0.498mA + 0 002
9	dP1			Chan 09 = 0.4988mA + 0 003
10	dP2			Chan10 = 0 4975mA + 0 002
10	dP2(valid after 3/25;recalibrated on 3/24/99)			Chan10 = 0 4975mA + 0 002
11	dP3			Chan11 = 0.4983mA + 0 005
12	Q1			Chan12 = 0.4988mA + 0 007
13	Q2			Chan13 = 0.4975mA + 0 01
14	Q3	Added on	7/14/1999	Chan14 = 0.4988mA + 0 003

Notes *post-test uncertainty includes, and is depended upon, the pre-test uncertainty analyses
**The true instrument measurement uncertainty on any data point taken dunng this experiment is between the pre- and post-calibration uncertainty. Therefore, the overall uncertainty was taked as the average value between the pre and post results

Transfer Functions Used with the DAS

Conversion from mA to Volts
P(PSIG) = 12 4844 x V - 24 895
P(PSIG) = 12 616 x V - 35.561
P(PSIG) = 18 960 x V - 37.750
P(PSID) = 3 267 x V - 6 503
P(PSID) = 31 453 x V - 62.463
P(PSID) = 12 691 x V - 25 231
P(PSID) = 13.843 x V - 37 923
Q(GPM) = 6 269 x V - 12 553
Q(GPM) = 0.1508 x V - 0.2905
Q(GPM) = 0 6235 x V - 1 2553

Current	Channel 6	Channel 6	Channel 7	Channel 7	Channel 8	Channel 8	Channel 9	Channel 9	Channel 10	Channel 10
mA	V, meas.	V, calc.	V, meas.	V, calc.	V, meas.	V, calc.	V, meas.	V, calc.	V, meas.	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	Channel 11	Channel 11	Channel 12	Channel 12	Channel 13	Channel 13	Channel 14	Channel 14
mA	V, meas.	V, calc.	V, meas.	V, calc.	V, meas.	V, calc.	V, meas.	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

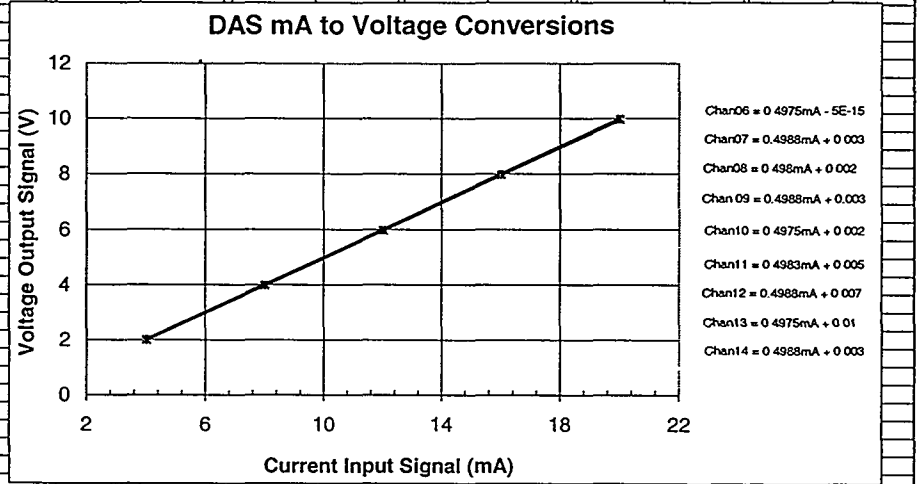


Figure F1. Instrumentation Used with their Transfer Functions

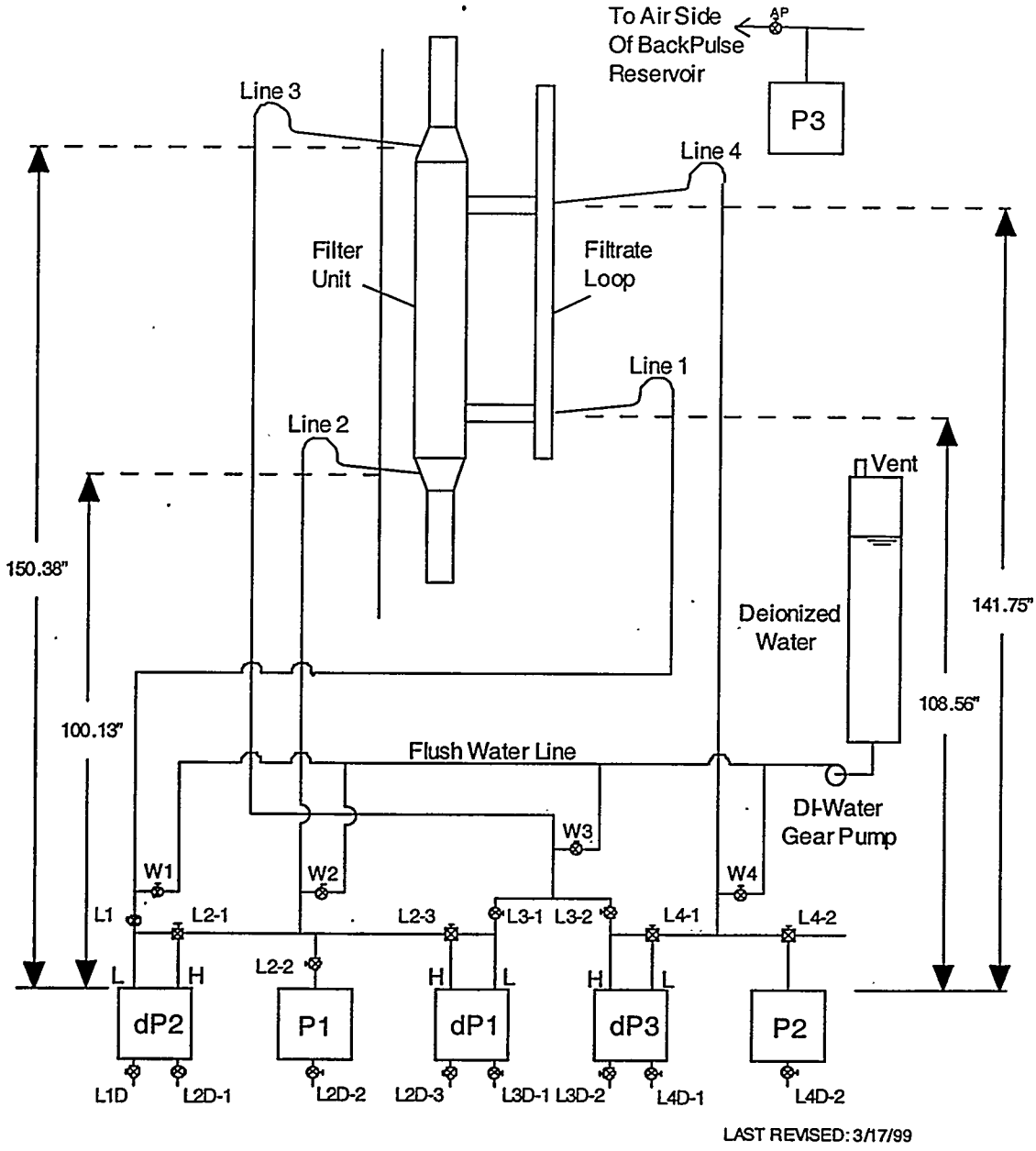


Figure F2. Pressure Transducer Locations

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 **TR-2926** 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	6.349	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 psid^2	SEE mADC^2	MSE mADC^2
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 psid^2	SEE mADC^2	MSE mADC^2
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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J. L. Steimke, 786-5A
H. F. Sturm, 773-A
P. S. Townson, BNFL, Inc.
S. T. Wach, 773-42A
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BNFL File, 773-41A, Room 260
ETF File, 786-5A