This document was prepared in conjunction with work accomplished under Contract No. DE-AC09-96SR18500 with the U. S. Department of Energy.

DISCLAIMER

Key Words:
Simulation
SIPP
RPP-WTP
Pretreament

Retention:
Permanent

OLI/ESP MODELING OF THE SEMI-INTEGRATED PILOT PLANT FOR ESTIMATE OF CAMPAIGNS I-IV SIMULANT VOLUMES (U)

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REPORT DATE AUGUST, 2004

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

ACM	Aspen Custom Modeler
AP-101	Hanford Tank 241-AP-101
AY-102	Hanford Tank 241-AY-102
FEP	RPP-WTP Pretreatment Waste Feed Process (Evaporator)
HLP	RPP-WTP High Level Waste Process
HLW	High Level Waste
IX	Ion Exchange
LAW	Low Activity Waste
OLI/ESP	OLI Environment Simulation Package
RPP	River Protection Project (Hanford, WA)
SBS	Submerged Bed Scrubber
SIPP	Semi-Integrated Pilot Plant
SRNL	Savannah River National Laboratory
TLP	RPP-WTP Pretreatment Treated Feed Process (Evaporator)
UDS	Undissolved Solids
UF	Ultra-Filtration
WTP	Waste Treatment Plant

LIST OF ABRIEVIATIONS

C	Centigrade
ft	feet
ft^2	square feet
g	gram
gal	gallon
gpm	gallons per minute
hr	hour
kg	kilogram
L	liter
m	meter
M	Molar Concentration
MT	Metric Ton
s	second
temp	temperature
wt	weight

1.0 EXECUTIVE SUMMARY

Four SIPP campaigns have been planned to investigate the effect of recycle streams on the RPP-WTP pretreatment process such as the filter flux rate and other areas of interest. This document describes OLI/ESP modeling work done in support of the planning and operation of the SIPP. An existing OLI/ESP steady-state model was expanded to represent the pretreatment system through to the TLP evaporator for the LAW train and the washed sludge for the HLW train.

The model was used to investigate alternative operating scenarios, determine the optimum volumetric waste feed ratio of AP-101 to AY-102, and, for each campaign, estimate the simulant and input recycle volumes corresponding to the target glass production rates of 6MT/day HLW glass and 80MT/day LAW glass and scaled to the target of 140L of Campaign I washed sludge. It was designed to quickly achieve steady state and simulation results indicate this was accomplished by Campaign IV.

The alternative operating scenarios modeled differed only in the point at which the AP-101 and AY-102 waste feed streams were introduced to the process. The results showed no difference in the production rate between the scenarios. Therefore, for these specific waste feeds the process should be operated to maximize the energy efficiency and minimize scaling in the evaporator by feeding the AY-102 waste feed to the ultra-filtration feed prep tank, bypassing the waste feed evaporator.

2.0 INTRODUCTION

SRNL was tasked to support of the planning and operation of the SIPP by modeling the process as requested in Section 6.2 of the Pilot Scale Integration of Pretreatment Process System [1] test specification and in Section III.2 of the RPP-WTP Submittal of Pilot Scale Integrated Pretreatment Test, Task, Technical and Quality Assurance [2] task plan. An existing OLI/ESP steady-state model of the RPP-WTP waste feed evaporator was expanded to represent the WTP-RPP pretreatment system through to the TLP evaporator for the LAW train and the washed sludge for the HLW train. Four campaigns have been planned to investigate the effects of recycle streams on the pretreatment process, such as the filter flux rate and other areas of interest, using simulants of the AP-101 and AY-102 waste feed. Each campaign was modeled using the recycle generated from the previous campaign as input to the subsequent campaign in an iterative approach to quickly achieve steady-state.

The main objectives of this work, as stated in the test specification and the task plan, were to model the WTP-RPP pretreatment process using OLI/ESP to:

1) Investigate alternative modes of operation for the pretreatment system at glass production rates of 80MT/day LAW glass and 6MT/day LAW glass to determine which mode to implement for the SIPP operation.
2) Estimate the volumetric feed- to-recycle ratios in order to quickly approach steady-state across the SIPP campaigns.
3) Estimate the volume of simulant required to complete each campaign.

The model was also used to predict the SIPP output stream flow rates necessary to show that the pretreatment process could meet the glass production rate of 80 MT/day LAW glass and 6 MT/day HLW glass. These minimum SIPP flow rate/flux estimates were based on the Campaign IV model stream compositions and flow rates and the SIPP unit operation scale factors relative to the current WTP design basis.

Each campaign was modeled as a steady-state process using OLI/ESP version 6.6. The OLI/ESP PUBLIC databook, in addition to the private databooks CARBONAT, HNO3DB, SILICA, and ZEOLITE were used to generate the chemistry model[1] for these simulations.

3.0 DISCUSSION

The model for Campaign I was unique since, in the SIPP, it will be used to generate the first batch of recycle and as a baseline for the filtration rate. The Campaign I model simulated the concentration and wash steps of simulant AY-102[3] waste feed only. The structures of the models for Campaigns II-IV were identical, using a blend of simulant AY-102 and AP-101[4] waste feed and modeling most of the pre-treatment process, including the FEP evaporator, ultra-filtration, slurry wash, cesium ion-exchange column recycles, and the TLP evaporator.

[1] In order to accommodate the large chemistry model used for these simulations, OLI Systems, Inc. provided a modified version of their system file, "olgen.sys" (located in the directory …/OLI66/SYS/), which removed a hard-coded limit in version 6.6 on the total number of anion/cation species allowed in the chemistry model.

Each of the campaigns represent an iteration towards steady-state of the ultra-filtration and Cs-IX recycle streams, with the predicted output recycle from one campaign being used as the input recycle to the subsequent campaign.

The major assumptions used in the model are discussed in the Section 3.1, followed by the criteria used to determine several stream flow rates in Section 3.2. Then the model structure is described with the help of simplified flow diagrams in Section 3.3; detailed block diagrams are used to describe certain portions of the model. Finally, the modeling results of Campaigns I and IV are given in Section 3.4, along with estimates of the minimum SIPP flow/flux rates and process times necessary to prove rate based on the results of Campaign IV. A complete OLI/ESP listing of the properties and composition of key streams for Campaigns I and IV are given in Appendix A and B, respectively.

3.1 MODEL ASSUMPTIONS

Although the current design for the WPT pre-treatment process has two FEP evaporator/ultra-filtration trains, only one train was included in the model. The current design basis allows only one train to operate in the concentration mode (concentrating the waste feed blend to 18,000 gals. at 20wt% UDS while generating permeate for the Cs IX column) at any one time. Because this is the rate-limiting mode for this process, one train (train "A") will complete its treat-clean mode and the stand idle while the other train (train "B") completes its concentration mode (the treat-clean mode consists of washing the 18,000 gal. batch of 20wt% UDS slurry, heel and treated sludge transfers, and filter cleaning). At no time will both trains perform the same function simultaneously. Therefore, a single train must be capable of sustaining a production rate of 80MT/day LAW glass when in the concentration mode, or 6MT/day HLW glass when in the treat and clean mode.

LAW glass production rate was based on 14wt% loading of Na_2O[5] derived from "waste" sodium only, i.e. sodium from waste feed alone ("waste" sodium is defined to include sodium addition from the leach step, however, this step was not included in these particular models). The amount of sodium in the LAW stream considered to be "waste" sodium was calculated as the difference between the sodium in the waste feed streams and the sodium sent to HLP in the washed sludge (all sodium to HLP is assumed to be waste sodium). This is conservative, the calculated LAW glass rate would be higher for identical flow rates if some or all of the sodium going to the HLP were considered to be non-waste sodium, resulting in a corresponding increase in the amount of "waste" sodium to the LAW glass. The total amount of sodium sent to the LAW (or HLP) process is the same in either case.

HLW glass production was based on 12.5wt% loading of Fe_2O_3. This was the first metal oxide to meet contract minimum, all other metal oxides and combinations thereof fell below the contract minimums[6].

While the Cs-IX column recycle streams generated during the elution and resin regeneration sequence are modeled, the removal of Cs from the UF permeate by the column is not. This results in some Cs being sent to the TLP evaporator that, in practice, would be removed from the stream and sent to the Cs eluate pot (the pot is not part of the SIPP) and eventually the HLP system. However, the concentration of Cs is small and felt to have no significant effect

on the TLP bottoms with respect to the properties of interest, i.e. flow rates, density, precipitated solids, etc. No other pre-treatment process of the model is affected by this approximation.

With the exception of the filter loop, no approximations of tank heels or line volumes were included in the models. This is not likely to affect the relative feed rates of AY-102 and AP-101 a great deal, it would take a very large heel to impact the chemistry of a stream so dramatically as to shift the split of output to the LAW and HLP systems. But the lack of heels does increase the apparent efficiency of the process. Any treated sludge or Cs-IX effluent that is recycled due to heels and line volumes reduces the plant efficiency and glass production rates. Heels will also generate more recycle per unit of glass as compared to the model predictions. But because these recycles are largely dilute caustic, the only major impact is likely to be an increased load to the evaporators and increased condensate per unit of glass.

The actual SIPP feed and recycle volumes predicted for each campaign were based on producing 140L of washed sludge from Campaign I and the ratio of AP-101:AY-102 waste feed predicted to correspond to a glass production ratio of 80/6 LAW/HLW glass for each of the Campaigns II-IV.

3.2 BASES FOR MODEL INPUT/RECYCLE STREAM FLOW RATES AND COMPOSITIONS

In general, the models of each campaign are steady-state approximations of the pre-treatment process and do not introduce any dynamics. The exception is the iteration on the ultra-filtration and Cs-IX recycle stream as it changes value between Campaigns II, III, and IV (reflected in the difference between the fixed input of the UF and Cs-IX recycles, and the calculated output UF and Cs-IX recycles). All input streams for one particular campaign (HLW and LAW SBS, vessel vent system, recycle inputs from the previous campaign) are set to an average flow rate and do not reflect the cyclic nature of inputs that will exist under actual plant conditions. These average flow rates are based on either the glass production rate, slurry batch size, or the Cs-IX effluent batch size, depending on which criterion is relevant to the stream. The calculations are described in the following paragraphs and the corresponding flows are listed in Table 1, Table 2, and Table 3.

HLW and LAW SBS recycles generated from actual Duratek melter runs are to be used in the SIPP campaigns. The analytical compositions of these streams were used as input to the model and the flow rates were based on the most recent ACM model available at the time (dated 11/04/2003 11:42:35am, for streams RDL62 and RDL21 for HLW and LAW SBS, respectively). Because the HLW glass production rate of the ACM model was 5.4MT/day, the ACM HLW SBS flow rate was adjusted by a ratio of 6:5.4 to represent a flow corresponding to 6MT/day. The vessel vent system (PVP04 and PVP06 combined) and the HLW canister decon. (HDH06) stream compositions and flow rates were also based on the ACM model and the stream compositions given in the ACM model were approximated as a 0.15M NaOH – 0.3M NaNO3 stream for the canister decon. and a 0.1M NaOH stream for the combined PVP04-06 vessel vent system streams. The vessel vent system flow rate is fixed as

tank ventilation is not affected by the glass production rates. The flow rates for these streams are listed in Table 1.

Table 1 Campaigns II-IV Input Recycle Flow Rates as a Function of Glass Production Rate

STREAM	VOLUME - RELATIVE TO 80/6 MT/DAY LAW/HLW GLASS PRODUCTION	DESTINATION
HLW SBS (BASED ON HLW GLASS)	2.79 GPM	FEP EVAPORATOR
LAW SBS (BASED ON LAW GLASS)	12.2 GPM	TLP EVAPORATOR
PVP04 AND PVP06 (VESSEL VENT SYSTEM - FIXED RATE)	3.23 GPM	FEP EVAPORATOR
CANISTER DECON. (BASED ON HLW GLASS)	1.68 GPM	FEP EVAPORATOR

The filter is cleaned once for every 18,000 gal. batch of 20wt% UDS concentrated slurry, produced using three – 5,250 gal. flushes of 2M HNO3, and three – 5,250 gal. flushes of 0.01M NaOH [7]. These acid and caustic rinse streams are each modeled using an average volumetric flow ratio relative to the slurry of 3*5,250/18,000, or 0.875. Following the transfer of treated sludge to the HLP, 700 gals. of sludge remains in the filter loop, which gets pushes to the FEP recycle. This is modeled using an average volumetric flow ratio relative to the slurry of 700/18,000. This same ratio is used for the 0.01M NaOH caustic rinse remaining in the filter loop after cleaning, this volume gets pushed to the Cs-IX at the start of the concentration step. These streams are listed in Table 2

Table 2 Input/Recycle Stream Flow Rates as a Function of the 20wt% UDS Concentrated Slurry Flow Rate

(slurry batch size of 18,000 gals)

STREAM	VOLUME - RELATIVE TO 18,000 GALS. SLURRY (VOLUMETRIC FRACTION RELATIVE TO SLURRY)	DESTINATION
WASHED SLUDGE (IN FILTER LOOP PRIOR TO CLEANING)	700 GALS. (0.03889)	FEP EVAPORATOR
ACID CLEANING (2M HNO_3)	3*5,250 GALS. (0.8750)	FEP EVAPORATOR
CAUSTIC RINSE (0.01M NAOH)	(3*5,250 - 700)GALS. (0.8361)	FEP EVAPORATOR
CAUSTIC RINSE (0.01M NAOH, REMAINING IN FILTER LOOP PRIOR TO CONCENTRATION OF BLENDED WASTE FEED.	700 GALS. (0.03889)	CS-IX COLUMN

The Cs-IX effluent batch size is 30,000 gals[8]. During the elution cycle, one column volume (CV = 1,200 gals.) of 0.1M NaOH is used to displace the feed, followed by one CV of pre-elution DI water. Both of these streams are recycled to the FEP Evaporator and modeled

using a flow ratio relative to the Cs-IX effluent of 1,200/30,000. The acid elution and post-elution DI rinse streams are sent to the Cs eluate pot which is not part of the SIPP, so these streams are not relevant to these models. Finally, the resin is regenerated with 2,500 gals. 0.25M NaOH, 1,300 gals of which is recycled to the FEP Evaporator, while the 1,200 gals. remaining in the column is pushed to the TLP Evaporator by the incoming feed. These streams are modeled using a flow ratio relative to the Cs-IX effluent of 1,300/30,000 and 1,200/30,000 for the FEP and TLP streams, respectively, and are listed in Table 3.

Table 3 Input/Recycle Stream Flow Rates as a Function of the Cs-IX Effluent Flow Rate

(effluent batch size of 30,000 gals, column volume of 1,200gals, liquid bed volume of 300 gals.)

STREAM	VOLUME - RELATIVE TO 30,000 GALS. EFFLUENT (VOLUMETRIC FRACTION RELATIVE TO EFFLUENT)	DESTINATION
0.1M NAOH USED AS FEED DISPLACEMENT	1,200 GALS. (0.040)	FEP EVAPORATOR
DI WATER – PRE-ELUTION RINSE	1,200 GALS. (0.040)	FEP EVAPORATOR
0.25M NAOH RESIN REGENERATION	1,300 GALS. (0.043)	FEP EVAPORATOR
0.25M NAOH RESIN REGENERATION	1,200 GALS. (0.040)	TLP EVAPORATOR

3.3 MODEL FLOW-DIAGRAMS

A simplified flow diagram of the model for Campaign I is shown in Figure 1, and a simplified flow diagram of the model for Campaigns II-IV is shown in Figure 2. The model for Campaigns II-IV consisted of 294 OLI/ESP blocks (mixer, filter, etc.), of which 220 were used to represent the 44 wash steps. To simplify the block-diagram and yet convey a sense of the model's functionality, only the block diagrams detailing a single wash step (Figure 3) and the FEP evaporator – waste feed blend concentration sequence (

Figure 4) were included here. Feed-Back and/or "Manipulate" controllers were used to set the input stream flow rates described above. Note that an OLI/ESP feed-back controller is not capable of reading the density of a stream directly, instead, it can calculate the g/m3 of a collection of up to 100 species; 84 were used to define the permeate density and are listed (using the OLI/ESP naming convention) in Table 4.

Figure 1 Simplified Flow-Diagram of Campaign I

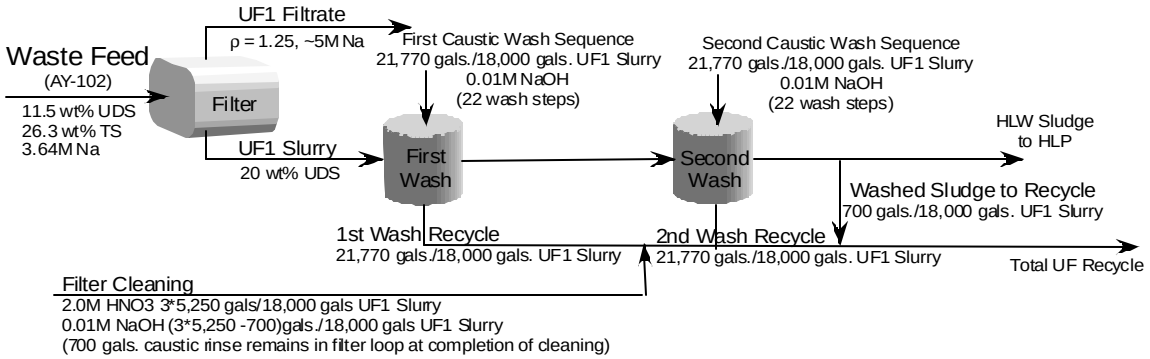
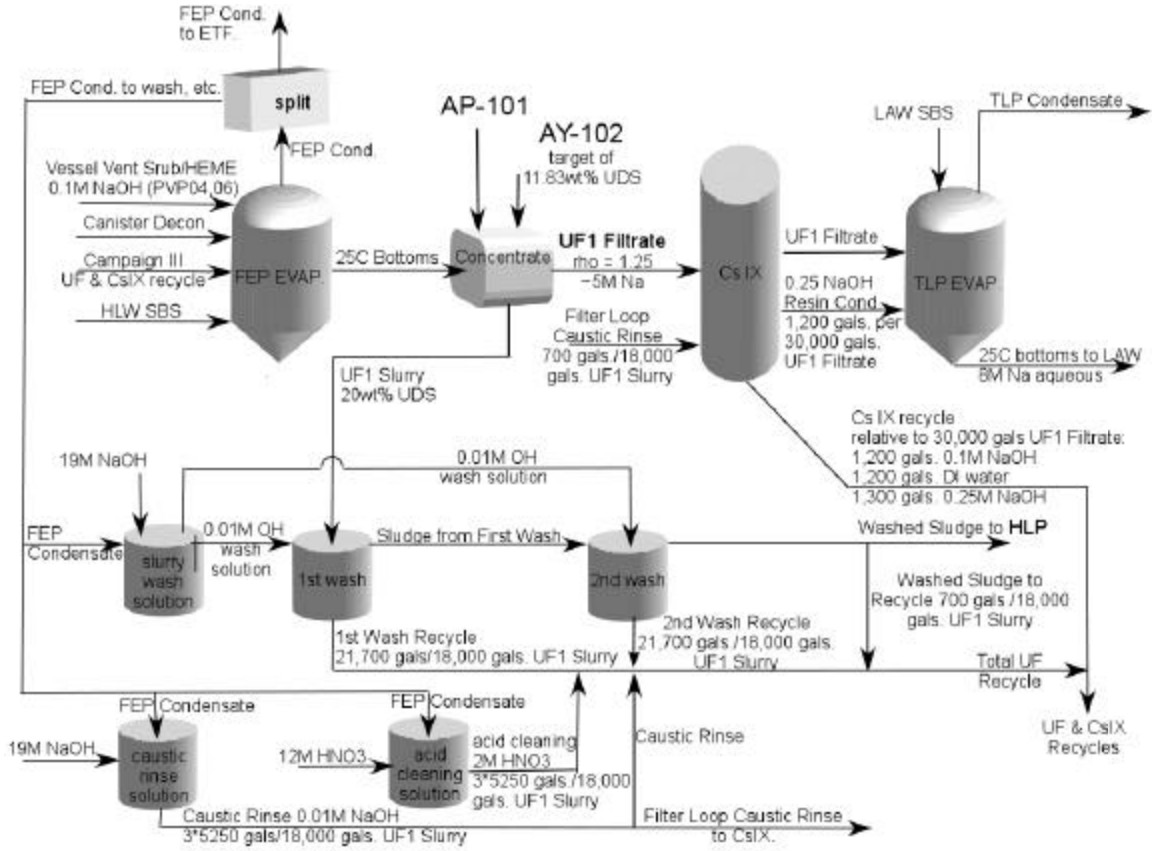


Figure 2 Simplified Flow-Diagram of Campaigns II-IV



HLW Glass - 12.5wt% Fe2O3. All Na to HLW presumed to be from waste. (LAW Waste Na = Input Waste Na + leach Na - HLW Na).
LAW Glass - 14wt% Na2O, Na from waste and leach only. Na from other process additions not included.

Figure 3 Example Wash Step – Step 12 of First Wash Sequence

(sets volumetric flow of "FCW-12 Recycle" equal to "FCW-12)

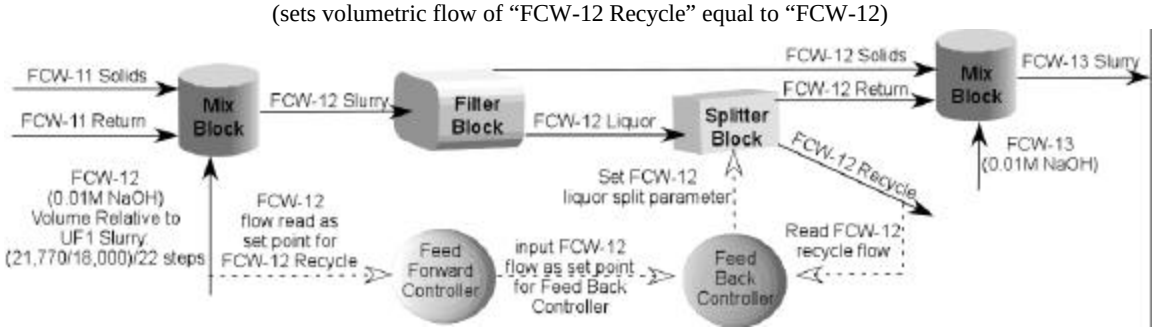


Figure 4 OLI/ESP Representation of FEP Evaporator and Slurry Concentration

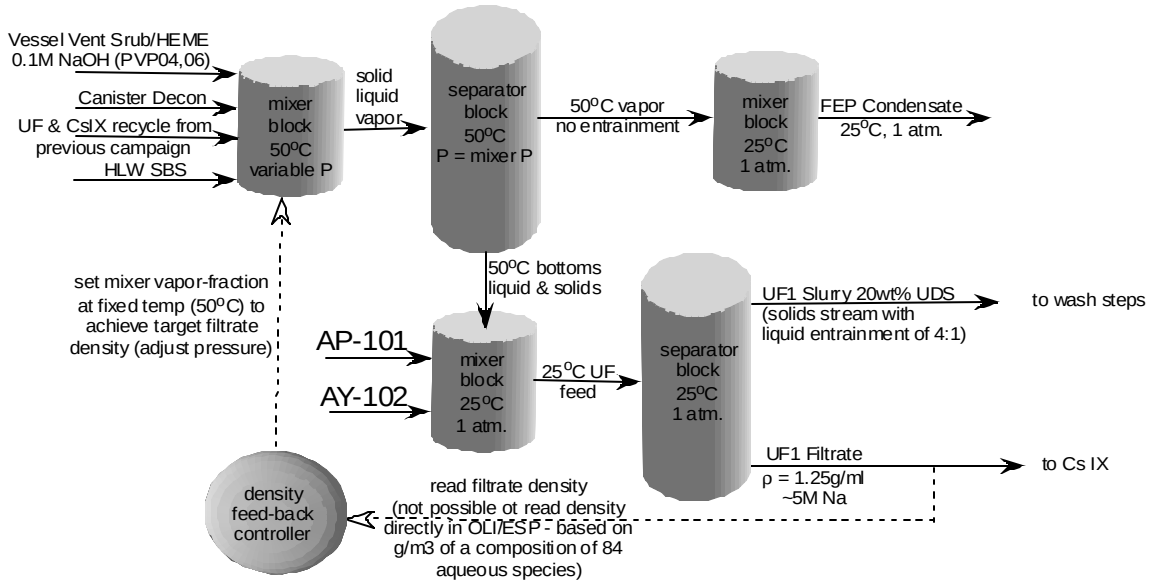


Table 4 OLI/ESP Species used to Estimate Aqueous Phase Density

A suffix of AQ indicates an aqueous phase molecule; a suffix of ION indicates an aqueous phase anion/cation.

H2O	BOH3AQ	CAC2O4AQ	CACO3AQ	CAH2SIO4AQ
CEOH3AQ	CSCLAQ	CSNO3AQ	FEIIIOH3AQ	KACETAQ
KCLAQ	KCOOHAQ	KNO3AQ	LIACETAQ	LIH2BO3AQ
LIOHAQ	NAACETAQ	NAALOH4AQ	NABOH4AQ	NABRAQ
NACOOHAQ	NAFAQ	NAHCO3AQ	NAHSIO3AQ	NANO3AQ
BACO3AQ	OHION	AGCL3ION	AGCL4ION	AGOH2ION
ALACETION	ALOH4ION	ALSIO3OHION	B2OOH5ION	B4O5OH4ION
BAION	BAOHION	BOH4ION	BRION	CAH2BO3ION
CAION	CANO3ION	CAOHION	CAPO4ION	CEOH4ION
CLION	CO3ION	COOHION	CRIIC2O42ION	CRIIIION
CRO4ION	CSION	CUOH3ION	CUOH4ION	FEIIIOH4ION
FION	H2SIO4ION	H3SIO4ION	HCO3ION	HPBO2ION
HPO4ION	KION	KSO4ION	LIION	LISO4ION
MNOH3ION	MNOH4ION	NA2FION	NACO3ION	NAION
NASO4ION	NIOH3ION	NO2ION	NO3ION	ACETATEION
OXALATION	PO4ION	RUIIIOH2ION	SO4ION	SROHION
WO4ION	ZNOH3ION	ZNOH4ION	ZROH5ION	

The structures of the models for Campaigns II-IV are identical. The campaigns are related to each other through the UF and Cs-IX recycles, with the recycle generated from one campaign being used directly, with no modifications, as input recycle to the subsequent campaign. The waste feed rates for each of these campaigns was adjusted to give the 80/6MT/day LAW/HLW glass ratio. The model for Campaign I was unique. The AY-102 waste feed flow rate was completely arbitrary, only the relative flow rates (acid cleaning flow, etc.) were of importance. Before using it as input to Campaign II, the (arbitrary) Campaign I UF recycle flow rate had to be adjusted to some approximation of a steady-state flow corresponding to the 80/6 MT/day production rates of Campaigns II-IV. The was done by assuming that the amount of UF recycle generated in Campaign II would only be a function the AY-102 waste feed, and not of the AP-101 waste feed. Then the ratio of generated UF recycle to AY-102 for campaign II could be calculated by using the same ratio of UF recycle to AY-102 from Campaign I (input UF recycle-II = AY-102-II x (output UF recycle-I)/(AY-102-I)). This turned out to be satisfactory since the results showed a difference between the Campaign III and IV recycle volumetric flow rates was less than 0.09% indicating Campaign IV represented steady-state.

3.4 MODEL RESULTS

Campaign I was intended to serve only as a filtration baseline for the remaining campaigns and does not represent the pre-treatment process, no comparisons between the model flow rates and glass production rates were done here. The simulation results for key streams from Campaign I are summarized in Table 5 and Table 6. A complete OLI/ESP listing of the properties and composition of key streams for Campaign I is given in Appendix A.

Table 5 Composition of Key Streams from the Model of Campaign I

mg/L solution @25C	Waste Feed (AY-102)	UF1 Filtrate to Cs-IX	UF1 Slurry 20wt% UDS	1st Wash Recycle	2nd Wash Recycle	Total UF Recycle	Sludge to HLP
K	427.34	458.61	402.00	245.68	64.18	89.97	27.65
Na	83620.84	80851.08	85865.68	45663.74	13618.32	17675.21	14929.21
Ba	175.81	1.29	317.26	1.06	0.85	0.55	319.25
Ca	965.97	3.44	1746.09	3.65	2.69	1.84	1762.15
Zn	58.36	62.63	54.90	33.55	8.77	12.29	3.78
Cu	67.23	72.15	63.24	38.65	6.63	13.15	8.60
Mg	254.97	0.00	461.62	0.01	0.03	0.01	467.88
Pb	1272.50	1365.61	1197.03	731.56	191.11	267.91	82.33
Al	16182.77	2062.48	27627.02	862.61	163.30	297.89	26746.65
Mn	37.42	2.54	65.69	0.55	0.09	0.18	65.81
Fe	27804.11	45.56	50301.99	18.77	3.76	6.54	50961.18
Ni	910.21	0.41	1647.59	0.17	0.03	0.06	1669.83
F	224.30	240.71	210.99	128.95	33.69	47.22	14.51
Cl	157.97	169.53	148.60	90.82	23.72	33.26	10.22
Br	123.67	132.72	116.34	71.10	18.57	26.04	8.00
Li	85.34	91.59	80.28	49.06	12.82	17.97	5.52
C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P	2108.50	2179.93	2050.60	1085.24	157.47	360.84	555.23
S	803.08	818.09	790.90	438.34	114.64	160.57	123.83
Cr	545.25	585.15	512.91	313.46	81.89	114.80	35.28
Si	8382.35	28.08	15153.32	17.72	9.28	7.84	15327.15
Sr	225.34	0.03	407.96	0.03	0.02	0.01	413.47
B	8.96	9.62	8.43	5.15	1.35	1.89	0.58
Cs	6.23	6.68	5.86	3.58	0.94	1.31	0.40
W	161.10	172.89	151.55	92.62	24.19	33.92	10.42
Ce	246.65	264.70	232.02	135.31	6.71	41.24	61.10
Nd	359.53	0.00	650.93	0.00	0.00	0.00	659.82
Zr	993.32	7.39	1792.40	3.75	0.98	1.37	1811.08
Ag	488.67	0.02	884.71	0.00	0.00	0.00	896.79
Ru	87.20	93.58	82.03	50.13	13.10	18.36	5.64
densiy (g/L)	1231	1169	1281	1098	1029	1041	1137
wt% UDS	11.50	-	20.00	0.09	0.00	0.19	21.39

Table 6 Solids Composition of Key Streams from the Model of Campaign I

Solids (wt% of total UDS)	AY-102 WASTE FEED	20wt% UDS UF1 SLURRY	1st WASH SEQUENCE	2nd WASH SEQUENCE	TOTAL UF Cs-IX RECYCLE	SLUDGE to HLP
Ba(SO4)	0.2097	0.2097	0.0022	0.0107	0.0134	0.2227
Fe(OH)3	37.5385	37.5385	0.2297	0.7329	-	40.1081
Al(OH)3	15.0762	15.0762	14.4437	65.3800	-	16.7198
Mn(OH)2	0.0401	0.0401	0.0297	0.1011	-	0.0438
Ni(OH)2	1.0149	1.0149	0.0017	0.0055	-	1.0842
AGg2(CO3)	0.4413	0.4413	0.0001	0.0002	-	0.4714
Sr(CO3)	0.2683	0.2683	-	-	-	0.2865
ZrO2	0.9416	0.9416	0.0069	0.0319	0.0933	1.0060
Mg(OH)2	0.4322	0.4322	0.0003	0.0273	-	0.4616
NASGEL.15.5H2O	34.8581	34.8581	0.1099	-	-	37.2011
Na2(C2O4)	6.9956	6.9956	85.1755	-	-	-
Ca(CO3)	1.6988	1.6988	-	-	-	1.1021
Nd(PO4).2H2O	0.4848	0.4848	-	-	-	0.5179
Ca(C2O4).1H2O	-	-	-	-	0.2793	-
Ce(PO4)	-	-	-	24.7292	3.3897	0.0416
Pb3(PO4)2	-	-	-	-	16.2916	-
NaAl(CO3)(OH)2	-	-	-	-	79.9325	-
Cu(OH)2	-	-	-	8.9813	-	0.0043
Ca3(PO4)2	-	-	-	-	-	0.7291

Campaigns II and III were intermediary steps towards the UF and Cs-IX recycle stream state-state flows of Campaign IV. As such, only the model results of Campaign IV are reported here and used to estimate the SIPP minimum flux/flow rates necessary to prove rate. These minimum rates, along with the estimated SIPP process volumes are used estimate the corresponding maximum SIPP run times as described below.

In the case of the FEP and TLP evaporators, the overhead flows predicted by the model for the 80/6MT/day glass production rates were scaled by a factor 0.l3 (Table 7) to estimate the minimum SIPP overhead flows needed to prove the glass production rate.

The minimum LAW permeate flux rate necessary for the SIPP to prove rate was calculated by dividing the flow rate of the LAW permeate (going to the Cs-IX) predicted by the model for the 80/6MT/day glass production rates by the design basis filter area of 590 ft^2 (Table 7).

The flux rate for the wash permeate was calculated in a similar manner. However, as described earlier, the concentration mode is the rate-limiting step. One train will have completed the treat-clean mode and remain idle while the other finishes the concentration mode, assuming identical flux rates for the LAW and wash permeates. Instead of using identical fluxes, the calculation for the minimum wash permeate flux rate applied this idle time toward a lower wash permeate flux rate, resulting in equal process times for the

concentration and treat-clean modes. The flux rate was calculated as volume of wash permeate produced by one treat-clean sequence (the washing of 18,000 gals. 20wt% UDS slurry) was divided by the filter area and the time required for one concentration mode, less the time needed for filter cleaning, sludge and heel transfers (i.e. the time available for washing before the train must begin sludge transfer and cleaning in preparation for the next concentration mode).

Table 7 Design Basis and SIPP Capacities

Unit Operation	Design Basis	SIPP	Scale Factor
FEP/TLP Evaporator Cond. Capacity	30 gpm	0.39 gpm	0.13
Ultra-filtration Area	590 ft^2	6.7ft^2	based only on flux rate

These minimum SIPP flux/flow rates where then used to calculate the time required to process the SIPP volumes estimated by the model at these rates. These volumes were based on producing 140L of 20wt% UDS slurry in Campaign I. All flows predicted by the Campaign I model were scaled by the ratio of 140L / (model flow of the 20wt% UDS slurry) to estimate the volumes produced by Campaign I of the SIPP. The calculated volume of the Campaign I SIPP UF recycle (which is also the input UF Recycle for the Campaign II SIPP) was then used to scale the flows predicted by the Campaign II model by the ratio of (Campaign I SIPP UF recycle) / (Campaign II model UF Recycle input). This was done for Campaigns III and IV in the same manner, and is depicted schematically in Figure 5.

The model flow rates and corresponding SIPP volumes for Campaign IV are listed in Table 8. Table 9 shows the estimated Campaign IV SIPP run time bases on values in Table 7 and Table 8. The Cs column will not be operated prototypically, but in a manner to determine the break-through curve, so an estimated run-time for the Cs-IX was not included. Also, it is not possible to scale the filter cleaning or the sludge transfer times; the duration for these operations for the SIPP were set at the design basis with the understanding that they will have to be adjusted based on the actual SIPP time for these operations. Finally, these times are only estimates based on the model compositions, the actual Campaign IV SIPP stream compositions, flow, and flux rates will be used to prove or disprove the glass production rates. The model predictions of the composition for key streams of Campaign IV are given in Table 10 and Table 11. A complete OLI/ESP listing of the properties and composition of key streams for Campaign IV is given in Appendix B.

Figure 5 Algortithm for Estimation of SIPP Volumes based on Model Flow Rates

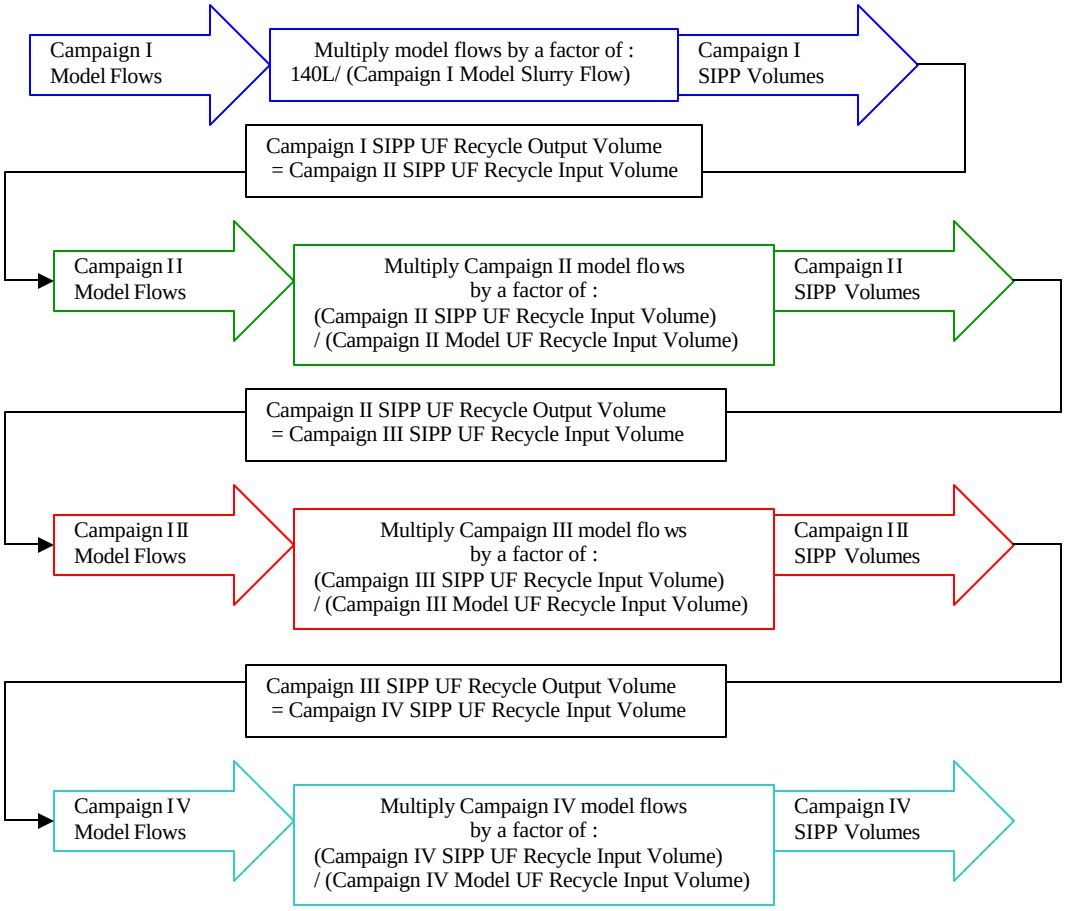


Table 8 Campaign IV SIPP Volumes and Model Flow Rates

stream name	SIPP Campaign IV Volumes (liters)	Model Flow Rates for 80/6 MT/day LAW/HLW glass (gpm)
AY102	241.39	3.545
AP101	672.10	9.870
RECYCLE (previous campaign)	602.79	8.852
HLW SBS	189.94	2.789
PVP04/06 (Vessel Vent System)	219.98	3.230
HLW DECON	114.26	1.678
FEP CONDENSATE	984.86	14.462
FEP COOLED BOTTOMS	144.93	2.128
UF1 FILTRATE to CSIX	943.65	13.857
UF1 SLURRY 20wt% UDS	116.09	1.705
TOTAL CAUSTIC WASH	280.81	4.124
HLW SLURRY to HLP	109.98	1.615
TOTAL ACID CLEANING	101.59	1.492
TOTAL CAUSTIC RINSE	101.54	1.491
CAUSTIC RINSE TO FEP EVAP	97.03	1.425
CSIX DI WATER	37.75	0.554
CSIX CAUSTIC RINSE	37.75	0.554
CSIX 0.25M NAOH FEP RECYCLE	40.89	0.600
CSIX 0.25M NAOH TLP	37.75	0.554
TOTAL UF & CSIX RECYCLE	602.27	8.844
LAW SBS	830.20	12.191
TLP CONDENSATE	1224.90	17.987
TLP COOLED BOTTOMS	598.10	8.783

.

Table 9 Estimated Filtration Batch Cycle Times Necessary to Make WTP Glass Production Rate of 80/6 MT/day LAW/HLW glass

Filtration Step (hrs.)	WTP Batch (18,000 gals.) Cycle Time (hrs.) Design Basis (0.03 gpm/ft2)	WTP Batch (18,000 gals.) Cycle Time (hrs.) Minimum Required Filtration Rates: 0.0235 and 0.00808 gpm/ft2 for the concentration and wash modes respectively	SIPP Batch Cycle Time (hrs.) Design Filtration Rate (0.03 gpm/ft^2)	SIPP Batch Cycle Time (hrs) Minimum Required Filtration Rates: 0.0235 and 0.00808 gpm/ft2 for the concentration and wash modes respectively
1st concentration	137.8	176.0	20.7	26.4
LAW subtotal	**137.8**	**176.0**	**20.7**	**26.4**
1st wash	20.5	76.1	3.1	11.4
2nd wash	20.5	76.1	3.1	11.4
filter cleaning	19.8	19.8	19.8	19.8
sludge heel return	2.0	2.0	2.0	2.0
sludge trans. to HLP	2.0	2.0	2.0	2.0
idle time	73.0	0.0	10.9	0.0
Treat & Clean subtotal	**137.8**	**176.0**	**40.9**	**46.6**
Total Batch Time	***275.5***	***352.0***	***61.6***	***73.0***

Table 10 Composition of Key Streams from Campaign IV Model

mg/L solution @ 25C	AP101	AY102	Input UF&CsIX Recycle	FEP Bottoms	UF Blended Feed	UF Filtrate to Cs-IX	UF Slurry 20wt% UDS	1st Wash Sequence	2nd Wash Sequence	Output UF&CsIX Recycle	HLW Sludge to HLP	TLP Bottoms
K	31175.6	429.2	3560.4	18546.8	22406.3	22704.3	19983.4	12231.6	3190.6	3602.8	1363.9	37357.0
Na	128776.8	83976.2	20822.7	104317.9	115067.1	113992.0	123803.0	62862.6	22113.6	20864.0	21965.4	184149.6
Ba	0.3	176.6	3.2	13.4	42.3	1.0	377.4	0.9	0.8	3.2	380.7	1.6
Ca	7.7	970.1	19.3	288.6	265.3	2.9	2398.4	2.9	2.6	19.3	2425.9	5.3
Zn	5.6	58.6	7.5	218.9	46.8	47.4	41.8	25.6	6.7	7.5	2.9	80.3
Cu	1.6	67.5	3.0	12.4	18.1	18.3	16.1	9.9	2.6	2.9	1.1	28.9
Mg		256.1	4.5	57.2	66.1	0.0	603.8	0.0	0.0	4.6	612.5	1.2
Pb	14.9	1277.9	54.9	228.3	331.8	336.2	295.9	181.1	47.2	53.3	20.2	530.4
Al	7816.2	16251.5	1025.8	4424.2	9264.0	7717.1	21838.3	3334.5	580.5	1040.9	17351.1	12177.4
Mn		37.6	1.1	4.4	9.2	9.3	8.2	4.2	0.2	1.1	2.8	14.7
Fe	2.5	27922.2	463.1	1957.6	6629.5	202.9	58869.4	77.0	13.0	463.6	59598.9	320.1
Ni	13.7	914.1	15.6	64.8	225.8	1.8	2046.2	0.7	0.1	15.6	2074.4	2.9
F	59.8	225.3	18.6	185.8	114.6	116.2	102.2	62.6	16.3	18.4	7.0	955.8
Cl	1623.7	158.6	436.8	12291.8	2747.0	2783.5	2449.9	1499.6	391.2	441.7	167.2	5904.9
Br		124.2	5.2	21.5	31.2	31.6	27.9	17.1	4.4	5.0	1.9	49.9
Li	0.3	85.7	3.6	15.0	21.8	22.1	19.4	11.9	3.1	3.5	1.3	36.9
P	495.9	2117.5	128.1	533.0	869.7	862.6	927.0	409.4	123.0	126.2	287.6	1361.0

mg/L solution @ 25C	AP101	AY102	Input UF&CsIX Recycle	FEP Bottoms	UF Blended Feed	UF Filtrate to Cs-IX	UF Slurry 20wt% UDS	1st Wash Sequence	2nd Wash Sequence	Output UF&CsIX Recycle	HLW Sludge to HLP	TLP Bottoms
S	1339.2	806.5	183.1	851.0	1149.4	1154.9	1104.4	622.3	162.5	184.0	158.2	2059.8
Cr	170.2	547.6	41.7	173.3	256.4	259.8	228.6	139.9	36.5	41.2	15.6	409.9
Si	136.5	8418.0	152.7	886.5	2125.3	125.3	18382.6	48.0	16.0	152.8	18566.4	265.4
Sr		226.3	3.7	15.4	53.7	0.1	489.4	0.1	0.1	3.7	496.2	0.1
B	16.0	9.0	2.1	8.9	13.4	13.6	12.0	7.3	1.9	2.2	0.8	1172.8
Cs		6.3	0.3	1.1	1.6	1.6	1.4	0.9	0.2	0.3	0.1	2.5
W	24.6	161.8	9.5	39.4	57.9	58.6	51.6	31.6	8.2	9.3	3.5	92.5
Ce		247.7	10.2	42.6	62.2	63.1	55.5	34.0	8.9	10.0	3.8	99.5
Nd		361.1	5.9	24.5	85.6	0.0	781.3	0.0	0.0	5.9	792.5	1.0
Zr		997.5	18.3	76.2	237.6	24.1	1973.1	12.5	3.1	18.4	1982.1	38.1
Ag		490.7	8.0	33.2	116.3	0.8	1055.0	0.1	0.0	8.0	1069.9	2.7
Ru		87.6	3.6	15.2	22.0	22.3	19.6	12.0	3.1	3.5	1.3	35.2
density (g/L)	1278	1236	1053	1253	1264	1250	1375	1142	1051	1053	1153	1398
wt% UDS	0.01	11.50	0.60	2.45	2.38	0.00	20.00	0.12	0.00	0.57	21.64	0.05

Table 11 Solids Composition of Key Streams from the Model of Campaign IV

wt% of total UDS	AP101	AY102	Input UF & CsIX Recycle	FEP Bottoms	UF Blended Feed	20wt% UDS UF1 Slurry	1st Wash Sequence	2nd Wash Sequence	UF&CsIX Recycle	HLP Sludge	TLP Bottoms
Fe(OH)3	-	37.54	14.10	12.10	40.83	40.83	0.97	1.24	14.65	45.71	-
Al(OH)3	-	15.08	9.43	29.19	-	-	35.77	98.35	15.81	2.15	-
Ni(OH)2	12.60	1.01	0.39	0.33	1.17	1.17	0.01	0.01	0.41	1.31	-
Ag2(CO3)	-	0.44	0.16	-	0.49	0.49	0.01	0.00	0.17	0.55	-
ZrO2	-	0.94	0.39	0.33	0.96	0.96	0.01	0.04	0.41	1.07	-
Mg(OH)2	-	0.43	-	0.45	0.53	0.53	0.00	0.01	-	0.59	0.42
NASGEL.15.5H2O	-	34.86	14.02	16.74	39.22	39.22	2.19	-	14.57	43.91	-
Nd(PO4).2H2O	-	0.48	0.18	0.15	0.54	0.54	0.00	-	0.19	0.61	0.28
Na2(C2O4)	77.69	7.00	-	38.21	13.55	13.55	61.05	-	-	-	97.91
Ba(SO4)	-	0.21	0.07	0.07	0.23	0.23	-	0.14	0.08	0.26	0.08
Ca(CO3)	9.71	1.70	0.32	2.33	2.18	2.18	-	-	0.57	-	-
Mn(OH)2	-	0.04	-	0.02	-	-	-	0.19	-	0.00	-
Sr(CO3)	-	0.27	0.10	0.08	0.30	0.30	-	0.01	0.10	0.34	0.01
Cu(OH)2	-	-	0.06	-	-	-	-	-	0.06	-	-
Zn(OH)2	-	-	0.13	-	-	-	-	-	0.13	-	-
Ca3(PO4)2	-	-	0.37	-	-	-	-	0.02	0.15	0.09	-
Ce(PO4)	-	-	0.27	-	-	-	-	-	0.28	-	-
Pb3(PO4)2	-	-	1.13	-	-	-	-	-	1.14	-	-
NaAl(CO3)(OH)2	-	-	58.86	-	-	-	-	-	51.30	-	-
CaF2	-	-	-	-	-	-	-	-	-	-	1.30
Ca(C2O4).1H2O	-	-	-	-	-	-	-	-	-	3.41	-

4.0 ADDENDUM

Analytical results of the stream compositions from the SIPP Campaign II run indicate a higher glass production rate that estimated by the model by about 15%. This difference is due to the adjustment made to the solids portion of the simulant recipe used in the model. While it is not necessary, even undesirable, to base the solids portion of a simulant recipe on a charge balanced analysis, the model requires all input streams to be neutral of charge. The simulant solids recipe had an excess of cations and hydroxide was added to achieve a charge balance for the model input. This led to an inconsistency between the charge balance and the concentration of the constituent species, adding hydroxide caused the mass basis to go from 1000 kg to 1138 kg (i.e. the solids composition was given in moles/1000kg dry solids). The simulant recipe was still in development at the time of the model runs, and instead of modifying the ratio of the solids species to achieve the correct mass basis the composition was used as given. The result was to dilute the metals concentration in the solids of the model relative to that of the final simulant composition by 13.8% which is essentially the difference observed between the model and Campaign II.

5.0 REFERENCES

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APPENDIX A. OLI/ESP OUTPUT OF KEY STREAMS FROM CAMPAIGN I

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            O   O   O          L                    I I I I
          O           O        L                       I
        O               O      L                       I
       O                 O     L                       I
       O                 O     L                       I
       O                 O     L                       I
        O               O      L                       I
          O           O        L                       I
            O   O   O          L L L L L L L L      I I I I


     E N V I R O N M E N T A L   S I M U L A T I O N   P R O G R A M

                     V - 6.6   October 1, 2002

                          PROCESS: Campaign I

                   CHEMISTRY MODEL: IPC

                    THIS FILE NAME: IPAY1021.LIS

                             DATE: 03/25/2004

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Campaign I Waste Feed

STREAM: waste feed
TO : UF1 filter
FROM :

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.7319			
Total mol/hr	56.39739	0.976479	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	51.3772	0.0	0.0	0.0
ACETACID	2.25047E-12	0.0	0.0	0.0
CO2	3.32064E-13	0.0	0.0	0.0
H2F2	0.0	0.0	0.0	0.0
ACET2	0.0	0.0	0.0	0.0
HBR	1.08866E-25	0.0	0.0	0.0
HCL	1.80424E-23	0.0	0.0	0.0
HCOOH	8.48036E-14	0.0	0.0	0.0
HF	7.17806E-14	0.0	0.0	0.0
HNO2	8.35077E-13	0.0	0.0	0.0
HNO3	6.80624E-19	0.0	0.0	0.0
BAOX	1.36105E-08	0.0	0.0	0.0
BASO4	9.57040E-11	0.001297129	0.0	0.0
BOH3	7.50648E-09	0.0	0.0	0.0
CAACET2	8.32914E-11	0.0	0.0	0.0
CAC2O4	5.77081E-08	0.0	0.0	0.0
CACL2	0.0	0.0	0.0	0.0
CACO3	2.92248E-06	0.02450818	0.0	0.0
CACOOH2	1.70962E-11	0.0	0.0	0.0
CAH2SIO4	3.68363E-08	0.0	0.0	0.0
CAHC2O42	1.26416E-30	0.0	0.0	0.0
CASO4	6.74804E-10	0.0	0.0	0.0
CEACET3	3.76330E-21	0.0	0.0	0.0
CECL3	6.73575E-28	0.0	0.0	0.0
CEF3	1.65304E-17	0.0	0.0	0.0
CEOH3	3.24217E-05	0.0	0.0	0.0
AGCL	1.02246E-10	0.0	0.0	0.0
CRIIC2O4	1.89047E-04	0.0	0.0	0.0
CSACET	1.69055E-07	0.0	0.0	0.0
CSBR	2.02629E-08	0.0	0.0	0.0
CSCL	5.43845E-08	0.0	0.0	0.0
CSNO3	3.12257E-07	0.0	0.0	0.0
CUACET2	7.88136E-22	0.0	0.0	0.0
CUBR2	1.23749E-26	0.0	0.0	0.0
CUC2O4	2.89012E-17	0.0	0.0	0.0
CUCL2	3.11589E-25	0.0	0.0	0.0
CUCO3	2.30214E-15	0.0	0.0	0.0
CUCOOH2	5.04392E-23	0.0	0.0	0.0
CUNO22	3.66909E-20	0.0	0.0	0.0
CUNO32	8.78522E-27	0.0	0.0	0.0
CUOH2	2.14590E-07	0.0	0.0	0.0
FEIIIOH3	1.40213E-08	0.5071826	0.0	0.0
AGACET	3.26480E-13	0.0	0.0	0.0

AGBR	4.26441E-10	0.0	0.0	0.0
AGF	1.82963E-13	0.0	0.0	0.0
H2WO4	3.85740E-27	0.0	0.0	0.0
H3PO4	1.88267E-24	0.0	0.0	0.0
H4SIO4	6.11338E-10	0.0	0.0	0.0
AGNO2	1.72492E-10	0.0	0.0	0.0
AGNO3	1.41692E-14	0.0	0.0	0.0
AGOH	7.13658E-10	0.0	0.0	0.0
ALF3	2.18994E-25	0.0	0.0	0.0
ALOH3	1.11451E-09	0.2790728	0.0	0.0
KACET	8.81963E-06	0.0	0.0	0.0
KCL	1.11163E-07	0.0	0.0	0.0
KCOOH	6.40434E-06	0.0	0.0	0.0
KHSO4	6.78727E-20	0.0	0.0	0.0
KNO3	8.17704E-06	0.0	0.0	0.0
LIACET	1.98616E-05	0.0	0.0	0.0
LIH2BO3	2.61047E-06	0.0	0.0	0.0
LIOH	0.00270912	0.0	0.0	0.0
MGACET2	1.63838E-14	0.0	0.0	0.0
MGC2O4	6.57131E-11	0.0	0.0	0.0
MGCO3	3.14634E-10	0.0	0.0	0.0
MGCOOH2	4.11527E-15	0.0	0.0	0.0
MGH2SIO4	8.49149E-11	0.0	0.0	0.0
MGHPO4	5.01357E-14	0.0	0.0	0.0
MGSO4	2.80541E-13	0.0	0.0	0.0
MNACET2	5.47000E-16	0.0	0.0	0.0
MNBR2	1.92142E-17	0.0	0.0	0.0
MNC2O4	5.70942E-10	0.0	0.0	0.0
MNCOOH2	4.05104E-16	0.0	0.0	0.0
MNNO32	2.28425E-18	0.0	0.0	0.0
MNOH2	4.16886E-08	6.50985E-04	0.0	0.0
MNSO4	3.08809E-14	0.0	0.0	0.0
NAACET	0.0027299	0.0	0.0	0.0
NAALOH4	0.0223585	0.0	0.0	0.0
NABOH4	2.43284E-04	0.0	0.0	0.0
NABR	4.51083E-05	0.0	0.0	0.0
NACOOH	0.00144151	0.0	0.0	0.0
NAF	0.00323596	0.0	0.0	0.0
NAHCO3	5.48886E-06	0.0	0.0	0.0
NAHSIO3	4.88626E-04	0.0	0.0	0.0
NANO3	0.00246613	0.0	0.0	0.0
NDF3	3.30893E-30	0.0	0.0	0.0
NDOH3	1.71304E-18	0.0	0.0	0.0
NIACET2	4.45812E-20	0.0	0.0	0.0
NIC2O4	4.02407E-13	0.0	0.0	0.0
NICOOH2	3.65174E-20	0.0	0.0	0.0
NIOH2	2.95307E-09	0.01581119	0.0	0.0
NISO4	1.26796E-18	0.0	0.0	0.0
OXALAC	5.94324E-26	0.0	0.0	0.0
PBACET2	6.75282E-18	0.0	0.0	0.0
PBBR2	1.04505E-20	0.0	0.0	0.0
PBC2O4	7.88518E-12	0.0	0.0	0.0
PBCL2	1.83446E-19	0.0	0.0	0.0
PBCOOH2	5.11922E-19	0.0	0.0	0.0
PBF2	7.26543E-19	0.0	0.0	0.0
PBHPO4	1.26362E-18	0.0	0.0	0.0
PBNO22	1.76509E-13	0.0	0.0	0.0

PBNO32	4.72114E-21	0.0	0.0	0.0
PBO	4.02187E-06	0.0	0.0	0.0
RUIIICL3	0.0	0.0	0.0	0.0
BAAC2	5.50844E-11	0.0	0.0	0.0
BACO3	1.71140E-06	0.0	0.0	0.0
SIO2	3.23204E-10	0.0	0.0	0.0
BACOOH2	3.94849E-11	0.0	0.0	0.0
SRC2O4	2.52387E-09	0.0	0.0	0.0
SRCOOH2	1.50350E-12	0.0	0.0	0.0
SRHC2O42	0.0	0.0	0.0	0.0
SRHPO4	3.04061E-13	0.0	0.0	0.0
SRNO32	4.40864E-14	0.0	0.0	0.0
SRSO4	3.34897E-10	0.0	0.0	0.0
ZNACET2	2.39220E-20	0.0	0.0	0.0
ZNBR2	2.82840E-26	0.0	0.0	0.0
ZNC2O4	3.78336E-17	0.0	0.0	0.0
ZNCL2	1.02469E-23	0.0	0.0	0.0
ZNCOOH2	9.70233E-22	0.0	0.0	0.0
ZNHPO4	4.51434E-21	0.0	0.0	0.0
ZNNO32	5.08315E-25	0.0	0.0	0.0
ZNOH2	5.70762E-09	0.0	0.0	0.0
ZROH4	1.06844E-12	0.0	0.0	0.0
OHION	0.389164	0.0	0.0	0.0
AGACET2ION	5.05360E-15	0.0	0.0	0.0
AGBR2ION	2.20990E-09	0.0	0.0	0.0
AGBR3ION	1.34037E-10	0.0	0.0	0.0
AGBR4ION	3.02996E-11	0.0	0.0	0.0
AGC2O4ION	8.70034E-11	0.0	0.0	0.0
AGCL2ION	1.40072E-10	0.0	0.0	0.0
AGCL3ION	7.78187E-11	0.0	0.0	0.0
AGCL4ION	7.62511E-12	0.0	0.0	0.0
AGION	5.60806E-11	0.0	0.0	0.0
AGNO22ION	2.03650E-09	0.0	0.0	0.0
AGOH2ION	1.56738E-07	0.0	0.0	0.0
AGSO4ION	8.40195E-13	0.0	0.0	0.0
ALF2ION	1.55496E-26	0.0	0.0	0.0
ALF4ION	1.23597E-24	0.0	0.0	0.0
ALF5ION	1.54956E-24	0.0	0.0	0.0
ALF6ION	1.39575E-24	0.0	0.0	0.0
ALFION	6.20300E-29	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	1.69859E-17	0.0	0.0	0.0
ALOH4ION	0.0503136	0.0	0.0	0.0
ALOHCLION	9.24017E-28	0.0	0.0	0.0
ALOHION	5.88596E-25	0.0	0.0	0.0
ALSIO3OHION	6.37824E-07	0.0	0.0	0.0
B2OOH5ION	2.33587E-11	0.0	0.0	0.0
B3O3OH4ION	5.09841E-17	0.0	0.0	0.0
B4O5OH4ION	3.91282E-18	0.0	0.0	0.0
BAACETION	1.65807E-08	0.0	0.0	0.0
BACOOHION	1.52834E-08	0.0	0.0	0.0
BAFION	1.34867E-09	0.0	0.0	0.0
BAHCO3ION	6.71699E-11	0.0	0.0	0.0
BAION	7.08137E-06	0.0	0.0	0.0
BAOHION	1.08631E-07	0.0	0.0	0.0
BF2OH2ION	2.10143E-19	0.0	0.0	0.0
BF3OHION	2.78414E-30	0.0	0.0	0.0

BFOH3ION	1.89750E-11	0.0	0.0	0.0
BOH4ION	5.99843E-04	0.0	0.0	0.0
BRION	0.00153399	0.0	0.0	0.0
CAACETION	5.13568E-09	0.0	0.0	0.0
CACLION	2.82566E-15	0.0	0.0	0.0
CACOOHION	6.00752E-09	0.0	0.0	0.0
CAFION	5.38098E-11	0.0	0.0	0.0
CAH2BO3ION	3.98546E-09	0.0	0.0	0.0
CAH2PO4ION	7.72234E-18	0.0	0.0	0.0
CAHC2O4ION	3.12846E-18	0.0	0.0	0.0
CAHCO3ION	3.59585E-11	0.0	0.0	0.0
CAHSIO3ION	1.27325E-11	0.0	0.0	0.0
CAION	1.23188E-06	0.0	0.0	0.0
CANO3ION	4.78327E-10	0.0	0.0	0.0
CAOHION	1.14640E-06	0.0	0.0	0.0
CAPO4ION	7.62353E-05	0.0	0.0	0.0
CEACET2ION	1.41705E-19	0.0	0.0	0.0
CEACETION	3.08248E-18	0.0	0.0	0.0
CEC2O42ION	2.50184E-15	0.0	0.0	0.0
CEC2O43ION	6.87423E-13	0.0	0.0	0.0
CEC2O4ION	3.14074E-16	0.0	0.0	0.0
CECL2ION	2.08136E-24	0.0	0.0	0.0
CECL4ION	4.57369E-30	0.0	0.0	0.0
CECLION	9.83541E-21	0.0	0.0	0.0
CECO3ION	1.63053E-13	0.0	0.0	0.0
CEF2ION	7.53558E-17	0.0	0.0	0.0
CEF4ION	2.89552E-17	0.0	0.0	0.0
CEFION	1.16499E-16	0.0	0.0	0.0
CEH2PO4ION	6.28518E-28	0.0	0.0	0.0
CEHCO3ION	1.17013E-21	0.0	0.0	0.0
CEION	5.56568E-16	0.0	0.0	0.0
CENO3ION	7.96478E-21	0.0	0.0	0.0
CEOH2ION	1.42780E-08	0.0	0.0	0.0
CEOH4ION	0.00176355	0.0	0.0	0.0
CEOHION	1.78905E-13	0.0	0.0	0.0
CESO42ION	1.80770E-20	0.0	0.0	0.0
CESO4ION	3.61956E-19	0.0	0.0	0.0
CLION	0.00454598	0.0	0.0	0.0
CO3ION	0.952907	0.0	0.0	0.0
COOHION	0.00199026	0.0	0.0	0.0
CR2O7ION	2.39567E-20	0.0	0.0	0.0
CRIIC2O42ION	0.00886015	0.0	0.0	0.0
CRIIION	8.54854E-05	0.0	0.0	0.0
CRO4ION	0.00156434	0.0	0.0	0.0
CSION	4.69488E-05	0.0	0.0	0.0
CSSO4ION	2.93222E-07	0.0	0.0	0.0
CUACET3ION	2.72501E-22	0.0	0.0	0.0
CUACETION	3.08173E-20	0.0	0.0	0.0
CUBRION	7.42281E-22	0.0	0.0	0.0
CUC2O42ION	3.23325E-14	0.0	0.0	0.0
CUCL3ION	1.01456E-29	0.0	0.0	0.0
CUCLION	8.09147E-22	0.0	0.0	0.0
CUCO32ION	6.96232E-12	0.0	0.0	0.0
CUCOOHION	6.41334E-21	0.0	0.0	0.0
CUION	2.71900E-19	0.0	0.0	0.0
CUNO2ION	2.53756E-19	0.0	0.0	0.0
CUNO3ION	1.98128E-22	0.0	0.0	0.0

CUOH3ION	2.55765E-05	0.0	0.0	0.0
CUOH4ION	0.00105357	0.0	0.0	0.0
CUOHION	9.35190E-14	0.0	0.0	0.0
FEIIIC2O42ION	2.34186E-25	0.0	0.0	0.0
FEIIIC2O43ION	8.45753E-22	0.0	0.0	0.0
FEIIIC2O4ION	5.23057E-28	0.0	0.0	0.0
FEIIIOH2ION	1.45704E-16	0.0	0.0	0.0
FEIIIOH4ION	7.75636E-04	0.0	0.0	0.0
FEIIIOHION	1.30480E-24	0.0	0.0	0.0
FION	0.00853748	0.0	0.0	0.0
H2P2O7ION	2.76547E-25	0.0	0.0	0.0
H2PO4ION	4.27881E-12	0.0	0.0	0.0
H2SIO4ION	4.55410E-04	0.0	0.0	0.0
H3SIO4ION	5.95191E-06	0.0	0.0	0.0
HCO3ION	2.96346E-05	0.0	0.0	0.0
HCRO4ION	6.87114E-12	0.0	0.0	0.0
HF2ION	2.49746E-16	0.0	0.0	0.0
HION	2.51033E-14	0.0	0.0	0.0
HOXALATION	4.79056E-13	0.0	0.0	0.0
HP2O7ION	2.87961E-17	0.0	0.0	0.0
HPBO2ION	0.00626221	0.0	0.0	0.0
HPO4ION	1.84421E-04	0.0	0.0	0.0
HSO4ION	1.20492E-15	0.0	0.0	0.0
HWO4ION	3.65218E-15	0.0	0.0	0.0
KION	0.0110598	0.0	0.0	0.0
KSO4ION	6.71374E-05	0.0	0.0	0.0
LIION	0.0098103	0.0	0.0	0.0
LISO4ION	6.35060E-06	0.0	0.0	0.0
MGACETION	2.75862E-12	0.0	0.0	0.0
MGC2O42ION	3.69809E-11	0.0	0.0	0.0
MGCOOHION	1.45712E-12	0.0	0.0	0.0
MGFION	3.12094E-15	0.0	0.0	0.0
MGH2PO4ION	2.36667E-21	0.0	0.0	0.0
MGHCO3ION	8.22435E-15	0.0	0.0	0.0
MGHSIO3ION	5.61128E-15	0.0	0.0	0.0
MGION	3.52739E-10	0.0	0.0	0.0
MGOHION	2.65345E-09	0.0	0.0	0.0
MGP2O7ION	3.42993E-17	0.0	0.0	0.0
MGPO4ION	2.58735E-08	0.0	0.0	0.0
MNACET3ION	2.27850E-17	0.0	0.0	0.0
MNACETION	7.71539E-14	0.0	0.0	0.0
MNBRION	4.74439E-14	0.0	0.0	0.0
MNC2O42ION	1.51486E-11	0.0	0.0	0.0
MNC2O43ION	9.58397E-10	0.0	0.0	0.0
MNCLION	1.57433E-14	0.0	0.0	0.0
MNCOOHION	8.66746E-14	0.0	0.0	0.0
MNION	3.28199E-11	0.0	0.0	0.0
MNNO3ION	2.56827E-15	0.0	0.0	0.0
MNOH3ION	2.37055E-06	0.0	0.0	0.0
MNOH4ION	4.15309E-05	0.0	0.0	0.0
MNOHION	2.98698E-09	0.0	0.0	0.0
NA2FION	2.72081E-04	0.0	0.0	0.0
NACO3ION	0.258877	0.0	0.0	0.0
NAION	3.03892	0.0	0.0	0.0
NASO4ION	0.0121212	0.0	0.0	0.0
NDACETION	0.0	0.0	0.0	0.0
NDCO3ION	2.77612E-26	0.0	0.0	0.0

NDF2ION	1.28348E-29	0.0	0.0	0.0
NDF4ION	6.81311E-30	0.0	0.0	0.0
NDFION	1.41504E-29	0.0	0.0	0.0
NDION	4.67444E-29	0.0	0.0	0.0
NDOH2ION	2.75171E-22	0.0	0.0	0.0
NDOH4ION	7.56746E-15	0.0	0.0	0.0
NDOHION	3.09190E-26	0.0	0.0	0.0
NDSO4ION	0.0	0.0	0.0	0.0
NIACET3ION	3.29924E-21	0.0	0.0	0.0
NIACETION	5.58934E-18	0.0	0.0	0.0
NIC2O42ION	4.65318E-14	0.0	0.0	0.0
NICLION	1.71739E-20	0.0	0.0	0.0
NICOOHION	5.67671E-18	0.0	0.0	0.0
NIFION	7.89580E-19	0.0	0.0	0.0
NIION	1.07701E-15	0.0	0.0	0.0
NINO3ION	1.80897E-19	0.0	0.0	0.0
NIOH3ION	6.68896E-06	0.0	0.0	0.0
NIOHION	3.23236E-13	0.0	0.0	0.0
NO2ION	0.106702	0.0	0.0	0.0
NO3ION	0.00234261	0.0	0.0	0.0
ACETATEION	0.00585545	0.0	0.0	0.0
OXALATION	0.0258415	0.0	0.0	0.0
P2O7ION	2.28196E-10	0.0	0.0	0.0
PBACET3ION	1.01257E-17	0.0	0.0	0.0
PBACETION	6.53681E-16	0.0	0.0	0.0
PBBR3ION	2.30364E-21	0.0	0.0	0.0
PBBRION	4.97428E-17	0.0	0.0	0.0
PBCL3ION	8.83553E-22	0.0	0.0	0.0
PBCL4ION	3.51195E-23	0.0	0.0	0.0
PBCLION	5.99022E-17	0.0	0.0	0.0
PBCOOHION	7.57876E-17	0.0	0.0	0.0
PBF3ION	2.35681E-19	0.0	0.0	0.0
PBF4ION	6.11261E-21	0.0	0.0	0.0
PBFION	5.69220E-17	0.0	0.0	0.0
PBH2PO4ION	3.79023E-26	0.0	0.0	0.0
PBION	3.21546E-13	0.0	0.0	0.0
PBNO23ION	5.28424E-13	0.0	0.0	0.0
PBNO2ION	2.61421E-13	0.0	0.0	0.0
PBNO33ION	4.61660E-24	0.0	0.0	0.0
PBNO3ION	1.57604E-17	0.0	0.0	0.0
PBOHION	7.43472E-10	0.0	0.0	0.0
PO4ION	0.06665	0.0	0.0	0.0
RUIIICL2ION	8.23904E-29	0.0	0.0	0.0
RUIIICLION	4.90087E-23	0.0	0.0	0.0
RUIIIION	3.94800E-25	0.0	0.0	0.0
RUIIIOH2ION	8.80250E-04	0.0	0.0	0.0
RUIIIOHION	2.91939E-15	0.0	0.0	0.0
RUIIISO42ION	0.0	0.0	0.0	0.0
RUIIISO43ION	0.0	0.0	0.0	0.0
RUIIISO4ION	5.96193E-29	0.0	0.0	0.0
SO4ION	0.0120617	0.0	0.0	0.0
SRACETION	8.09870E-10	0.0	0.0	0.0
SRCOOHION	6.10230E-10	0.0	0.0	0.0
SRFION	1.10520E-10	0.0	0.0	0.0
SRHC2O4ION	1.59827E-19	0.0	0.0	0.0
SRION	1.49858E-07	0.0	0.0	0.0
SRNO3ION	1.02816E-10	0.0	0.0	0.0

SROHION	4.10008E-08	0.0	0.0	0.0
SRPO4ION	9.97913E-08	0.0	0.0	0.0
WO4ION	8.94050E-04	0.0	0.0	0.0
ZNACET3ION	2.52372E-21	0.0	0.0	0.0
ZNACETION	3.33025E-19	0.0	0.0	0.0
ZNBR3ION	5.49721E-28	0.0	0.0	0.0
ZNBRION	6.71348E-22	0.0	0.0	0.0
ZNC2O42ION	3.16405E-15	0.0	0.0	0.0
ZNC2O43ION	5.18760E-14	0.0	0.0	0.0
ZNCL3ION	3.42989E-26	0.0	0.0	0.0
ZNCLION	1.14944E-20	0.0	0.0	0.0
ZNCOOHION	1.81675E-19	0.0	0.0	0.0
ZNFION	4.24395E-20	0.0	0.0	0.0
ZNH2PO4ION	1.10716E-28	0.0	0.0	0.0
ZNHC2O4ION	1.06598E-28	0.0	0.0	0.0
ZNHCO3ION	7.24925E-22	0.0	0.0	0.0
ZNION	4.38037E-18	0.0	0.0	0.0
ZNNO3ION	7.19858E-21	0.0	0.0	0.0
ZNOH3ION	7.81295E-06	0.0	0.0	0.0
ZNOH4ION	9.02988E-04	0.0	0.0	0.0
ZNOHION	1.12191E-13	0.0	0.0	0.0
ZROH2ION	1.54454E-30	0.0	0.0	0.0
ZROH3ION	3.59765E-21	0.0	0.0	0.0
ZROH5ION	7.70164E-05	0.0	0.0	0.0
AG2CO3	0.0	0.002310978	0.0	0.0
SRCO3	0.0	0.002623698	0.0	0.0
ZRO2	0.0	0.01103309	0.0	0.0
MGOH2	0.0	0.01069999	0.0	0.0
NASGEL.15.5H2O	0.0	0.04336487	0.0	0.0
NDPO4.2H2O	0.0	0.002543158	0.0	0.0
NA2C2O4	0.0	0.07538034	0.0	0.0
	==========	==========	==========	==========
Total g/hr	1111.59	144.391	0.0	0.0
Volume, L/hr	0.95071	0.0695683	0.0	0.0
Enthalpy, cal/hr	-3.98955E+06	-4.14650E+05	0.0	0.0
Density, g/L	1169.23	2075.53		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	115.654			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.144099			
E-Con, cm2/ohm-mol	36.7221			
Abs Visc, cP	2.5561			
Rel Visc	2.8697			
Ionic Strength	4.60903			

Campaign I UF Filtrate

STREAM: UF1 Filtrate
TO :
FROM : UF1 filter

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.7319			
Total mol/hr	27.09439	0.0	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	24.6826	0.0	0.0	0.0
ACETACID	1.08117E-12	0.0	0.0	0.0
CO2	1.59530E-13	0.0	0.0	0.0
H2F2	0.0	0.0	0.0	0.0
ACET2	0.0	0.0	0.0	0.0
HBR	5.23010E-26	0.0	0.0	0.0
HCL	8.66790E-24	0.0	0.0	0.0
HCOOH	4.07412E-14	0.0	0.0	0.0
HF	3.44847E-14	0.0	0.0	0.0
HNO2	4.01187E-13	0.0	0.0	0.0
HNO3	3.26984E-19	0.0	0.0	0.0
BAOX	6.53872E-09	0.0	0.0	0.0
BASO4	4.59780E-11	0.0	0.0	0.0
BOH3	3.60625E-09	0.0	0.0	0.0
CAACET2	4.00147E-11	0.0	0.0	0.0
CAC2O4	2.77240E-08	0.0	0.0	0.0
CACL2	0.0	0.0	0.0	0.0
CACO3	1.40402E-06	0.0	0.0	0.0
CACOOH2	8.21335E-12	0.0	0.0	0.0
CAH2SIO4	1.76968E-08	0.0	0.0	0.0
CAHC2O42	0.0	0.0	0.0	0.0
CASO4	3.24188E-10	0.0	0.0	0.0
CEACET3	1.80796E-21	0.0	0.0	0.0
CECL3	3.23598E-28	0.0	0.0	0.0
CEF3	7.94152E-18	0.0	0.0	0.0
CEOH3	1.55760E-05	0.0	0.0	0.0
AGCL	4.91210E-11	0.0	0.0	0.0
CRIIC2O4	9.08215E-05	0.0	0.0	0.0
CSACET	8.12174E-08	0.0	0.0	0.0
CSBR	9.73470E-09	0.0	0.0	0.0
CSCL	2.61273E-08	0.0	0.0	0.0
CSNO3	1.50014E-07	0.0	0.0	0.0
CUACET2	3.78635E-22	0.0	0.0	0.0
CUBR2	5.94514E-27	0.0	0.0	0.0
CUC2O4	1.38847E-17	0.0	0.0	0.0
CUCL2	1.49693E-25	0.0	0.0	0.0
CUCO3	1.10599E-15	0.0	0.0	0.0
CUCOOH2	2.42319E-23	0.0	0.0	0.0
CUNO22	1.76270E-20	0.0	0.0	0.0
CUNO32	4.22058E-27	0.0	0.0	0.0
CUOH2	1.03093E-07	0.0	0.0	0.0
FEIIIOH3	6.73611E-09	0.0	0.0	0.0
AGACET	1.56847E-13	0.0	0.0	0.0
AGBR	2.04870E-10	0.0	0.0	0.0

AGF	8.78987E-14	0.0	0.0	0.0
H2WO4	1.85317E-27	0.0	0.0	0.0
H3PO4	9.04470E-25	0.0	0.0	0.0
H4SIO4	2.93698E-10	0.0	0.0	0.0
AGNO2	8.28685E-11	0.0	0.0	0.0
AGNO3	6.80713E-15	0.0	0.0	0.0
AGOH	3.42855E-10	0.0	0.0	0.0
ALF3	1.05209E-25	0.0	0.0	0.0
ALOH3	5.35429E-10	0.0	0.0	0.0
KACET	4.23711E-06	0.0	0.0	0.0
KCL	5.34049E-08	0.0	0.0	0.0
KCOOH	3.07677E-06	0.0	0.0	0.0
KHSO4	3.26073E-20	0.0	0.0	0.0
KNO3	3.92840E-06	0.0	0.0	0.0
LIACET	9.54191E-06	0.0	0.0	0.0
LIH2BO3	1.25412E-06	0.0	0.0	0.0
LIOH	0.00130151	0.0	0.0	0.0
MGACET2	7.87111E-15	0.0	0.0	0.0
MGC2O4	3.15698E-11	0.0	0.0	0.0
MGCO3	1.51156E-10	0.0	0.0	0.0
MGCOOH2	1.97705E-15	0.0	0.0	0.0
MGH2SIO4	4.07947E-11	0.0	0.0	0.0
MGHPO4	2.40861E-14	0.0	0.0	0.0
MGSO4	1.34777E-13	0.0	0.0	0.0
MNACET2	2.62789E-16	0.0	0.0	0.0
MNBR2	9.23084E-18	0.0	0.0	0.0
MNC2O4	2.74291E-10	0.0	0.0	0.0
MNCOOH2	1.94620E-16	0.0	0.0	0.0
MNNO32	1.09740E-18	0.0	0.0	0.0
MNOH2	2.00280E-08	0.0	0.0	0.0
MNSO4	1.48358E-14	0.0	0.0	0.0
NAACET	0.00131149	0.0	0.0	0.0
NAALOH4	0.0107415	0.0	0.0	0.0
NABOH4	1.16878E-04	0.0	0.0	0.0
NABR	2.16709E-05	0.0	0.0	0.0
NACOOH	6.92528E-04	0.0	0.0	0.0
NAF	0.00155461	0.0	0.0	0.0
NAHCO3	2.63695E-06	0.0	0.0	0.0
NAHSIO3	2.34745E-04	0.0	0.0	0.0
NANO3	0.00118477	0.0	0.0	0.0
NDF3	1.58967E-30	0.0	0.0	0.0
NDOH3	8.22976E-19	0.0	0.0	0.0
NIACET2	2.14177E-20	0.0	0.0	0.0
NIC2O4	1.93324E-13	0.0	0.0	0.0
NICOOH2	1.75436E-20	0.0	0.0	0.0
NIOH2	1.41871E-09	0.0	0.0	0.0
NISO4	6.09150E-19	0.0	0.0	0.0
OXALAC	2.85525E-26	0.0	0.0	0.0
PBACET2	3.24418E-18	0.0	0.0	0.0
PBBR2	5.02059E-21	0.0	0.0	0.0
PBC2O4	3.78819E-12	0.0	0.0	0.0
PBCL2	8.81308E-20	0.0	0.0	0.0
PBCOOH2	2.45937E-19	0.0	0.0	0.0
PBF2	3.49045E-19	0.0	0.0	0.0
PBHPO4	6.07067E-19	0.0	0.0	0.0
PBNO22	8.47983E-14	0.0	0.0	0.0
PBNO32	2.26812E-21	0.0	0.0	0.0

PBO	1.93218E-06	0.0	0.0	0.0
RUIIICL3	0.0	0.0	0.0	0.0
BAAC2	2.64636E-11	0.0	0.0	0.0
BACO3	8.22187E-07	0.0	0.0	0.0
SIO2	1.55273E-10	0.0	0.0	0.0
BACOOH2	1.89693E-11	0.0	0.0	0.0
SRC2O4	1.21251E-09	0.0	0.0	0.0
SRCOOH2	7.22309E-13	0.0	0.0	0.0
SRHC2O42	0.0	0.0	0.0	0.0
SRHPO4	1.46076E-13	0.0	0.0	0.0
SRNO32	2.11799E-14	0.0	0.0	0.0
SRSO4	1.60891E-10	0.0	0.0	0.0
ZNACET2	1.14926E-20	0.0	0.0	0.0
ZNBR2	1.35882E-26	0.0	0.0	0.0
ZNC2O4	1.81760E-17	0.0	0.0	0.0
ZNCL2	4.92281E-24	0.0	0.0	0.0
ZNCOOH2	4.66118E-22	0.0	0.0	0.0
ZNHPO4	2.16877E-21	0.0	0.0	0.0
ZNNO32	2.44204E-25	0.0	0.0	0.0
ZNOH2	2.74205E-09	0.0	0.0	0.0
ZROH4	5.13300E-13	0.0	0.0	0.0
OHION	0.186962	0.0	0.0	0.0
AGACET2ION	2.42784E-15	0.0	0.0	0.0
AGBR2ION	1.06168E-09	0.0	0.0	0.0
AGBR3ION	6.43940E-11	0.0	0.0	0.0
AGBR4ION	1.45565E-11	0.0	0.0	0.0
AGC2O4ION	4.17981E-11	0.0	0.0	0.0
AGCL2ION	6.72931E-11	0.0	0.0	0.0
AGCL3ION	3.73856E-11	0.0	0.0	0.0
AGCL4ION	3.66325E-12	0.0	0.0	0.0
AGION	2.69422E-11	0.0	0.0	0.0
AGNO22ION	9.78372E-10	0.0	0.0	0.0
AGOH2ION	7.52998E-08	0.0	0.0	0.0
AGSO4ION	4.03645E-13	0.0	0.0	0.0
ALF2ION	7.47034E-27	0.0	0.0	0.0
ALF4ION	5.93784E-25	0.0	0.0	0.0
ALF5ION	7.44439E-25	0.0	0.0	0.0
ALF6ION	6.70545E-25	0.0	0.0	0.0
ALFION	2.98003E-29	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	8.16034E-18	0.0	0.0	0.0
ALOH4ION	0.0241716	0.0	0.0	0.0
ALOHCLION	4.43915E-28	0.0	0.0	0.0
ALOHION	2.82773E-25	0.0	0.0	0.0
ALSIO3OHION	3.06423E-07	0.0	0.0	0.0
B2OOH5ION	1.12220E-11	0.0	0.0	0.0
B3O3OH4ION	2.44937E-17	0.0	0.0	0.0
B4O5OH4ION	1.87979E-18	0.0	0.0	0.0
BAACETION	7.96566E-09	0.0	0.0	0.0
BACOOHION	7.34242E-09	0.0	0.0	0.0
BAFION	6.47927E-10	0.0	0.0	0.0
BAHCO3ION	3.22697E-11	0.0	0.0	0.0
BAION	3.40202E-06	0.0	0.0	0.0
BAOHION	5.21882E-08	0.0	0.0	0.0
BF2OH2ION	1.00957E-19	0.0	0.0	0.0
BF3OHION	1.33755E-30	0.0	0.0	0.0
BFOH3ION	9.11597E-12	0.0	0.0	0.0

BOH4ION	2.88176E-04	0.0	0.0	0.0
BRION	7.36959E-04	0.0	0.0	0.0
CAACETION	2.46728E-09	0.0	0.0	0.0
CACLION	1.35750E-15	0.0	0.0	0.0
CACOOHION	2.88612E-09	0.0	0.0	0.0
CAFION	2.58512E-11	0.0	0.0	0.0
CAH2BO3ION	1.91469E-09	0.0	0.0	0.0
CAH2PO4ION	3.70995E-18	0.0	0.0	0.0
CAHC2O4ION	1.50297E-18	0.0	0.0	0.0
CAHCO3ION	1.72751E-11	0.0	0.0	0.0
CAHSIO3ION	6.11694E-12	0.0	0.0	0.0
CAION	5.91817E-07	0.0	0.0	0.0
CANO3ION	2.29797E-10	0.0	0.0	0.0
CAOHION	5.50751E-07	0.0	0.0	0.0
CAPO4ION	3.66249E-05	0.0	0.0	0.0
CEACET2ION	6.80779E-20	0.0	0.0	0.0
CEACETION	1.48088E-18	0.0	0.0	0.0
CEC2O42ION	1.20193E-15	0.0	0.0	0.0
CEC2O43ION	3.30251E-13	0.0	0.0	0.0
CEC2O4ION	1.50887E-16	0.0	0.0	0.0
CECL2ION	9.99926E-25	0.0	0.0	0.0
CECL4ION	2.19728E-30	0.0	0.0	0.0
CECLION	4.72511E-21	0.0	0.0	0.0
CECO3ION	7.83338E-14	0.0	0.0	0.0
CEF2ION	3.62024E-17	0.0	0.0	0.0
CEF4ION	1.39106E-17	0.0	0.0	0.0
CEFION	5.59682E-17	0.0	0.0	0.0
CEH2PO4ION	3.01952E-28	0.0	0.0	0.0
CEHCO3ION	5.62151E-22	0.0	0.0	0.0
CEION	2.67386E-16	0.0	0.0	0.0
CENO3ION	3.82643E-21	0.0	0.0	0.0
CEOH2ION	6.85940E-09	0.0	0.0	0.0
CEOH4ION	8.47242E-04	0.0	0.0	0.0
CEOHION	8.59491E-14	0.0	0.0	0.0
CESO42ION	8.68452E-21	0.0	0.0	0.0
CESO4ION	1.73890E-19	0.0	0.0	0.0
CLION	0.00218397	0.0	0.0	0.0
CO3ION	0.457795	0.0	0.0	0.0
COOHION	9.56159E-04	0.0	0.0	0.0
CR2O7ION	1.15092E-20	0.0	0.0	0.0
CRIIC2O42ION	0.00425658	0.0	0.0	0.0
CRIIION	4.10688E-05	0.0	0.0	0.0
CRO4ION	7.51538E-04	0.0	0.0	0.0
CSION	2.25551E-05	0.0	0.0	0.0
CSSO4ION	1.40869E-07	0.0	0.0	0.0
CUACET3ION	1.30915E-22	0.0	0.0	0.0
CUACETION	1.48052E-20	0.0	0.0	0.0
CUBRION	3.56606E-22	0.0	0.0	0.0
CUC2O42ION	1.55331E-14	0.0	0.0	0.0
CUCL3ION	4.87413E-30	0.0	0.0	0.0
CUCLION	3.88729E-22	0.0	0.0	0.0
CUCO32ION	3.34483E-12	0.0	0.0	0.0
CUCOOHION	3.08109E-21	0.0	0.0	0.0
CUION	1.30626E-19	0.0	0.0	0.0
CUNO2ION	1.21909E-19	0.0	0.0	0.0
CUNO3ION	9.51843E-23	0.0	0.0	0.0
CUOH3ION	1.22874E-05	0.0	0.0	0.0

CUOH4ION	5.06157E-04	0.0	0.0	0.0
CUOHION	4.49283E-14	0.0	0.0	0.0
FEIIIC2O42ION	1.12507E-25	0.0	0.0	0.0
FEIIIC2O43ION	4.06316E-22	0.0	0.0	0.0
FEIIIC2O4ION	2.51287E-28	0.0	0.0	0.0
FEIIIOH2ION	6.99990E-17	0.0	0.0	0.0
FEIIIOH4ION	3.72630E-04	0.0	0.0	0.0
FEIIIOHION	6.26850E-25	0.0	0.0	0.0
FION	0.00410156	0.0	0.0	0.0
H2P2O7ION	1.32859E-25	0.0	0.0	0.0
H2PO4ION	2.05562E-12	0.0	0.0	0.0
H2SIO4ION	2.18788E-04	0.0	0.0	0.0
H3SIO4ION	2.85941E-06	0.0	0.0	0.0
HCO3ION	1.42370E-05	0.0	0.0	0.0
HCRO4ION	3.30102E-12	0.0	0.0	0.0
HF2ION	1.19983E-16	0.0	0.0	0.0
HION	1.20601E-14	0.0	0.0	0.0
HOXALATION	2.30148E-13	0.0	0.0	0.0
HP2O7ION	1.38342E-17	0.0	0.0	0.0
HPBO2ION	0.00300848	0.0	0.0	0.0
HPO4ION	8.85994E-05	0.0	0.0	0.0
HSO4ION	5.78865E-16	0.0	0.0	0.0
HWO4ION	1.75457E-15	0.0	0.0	0.0
KION	0.00531335	0.0	0.0	0.0
KSO4ION	3.22541E-05	0.0	0.0	0.0
LIION	0.00471305	0.0	0.0	0.0
LISO4ION	3.05095E-06	0.0	0.0	0.0
MGACETION	1.32529E-12	0.0	0.0	0.0
MGC2O42ION	1.77663E-11	0.0	0.0	0.0
MGCOOHION	7.00030E-13	0.0	0.0	0.0
MGFION	1.49936E-15	0.0	0.0	0.0
MGH2PO4ION	1.13699E-21	0.0	0.0	0.0
MGHCO3ION	3.95113E-15	0.0	0.0	0.0
MGHSIO3ION	2.69576E-15	0.0	0.0	0.0
MGION	1.69462E-10	0.0	0.0	0.0
MGOHION	1.27477E-09	0.0	0.0	0.0
MGP2O7ION	1.64780E-17	0.0	0.0	0.0
MGPO4ION	1.24301E-08	0.0	0.0	0.0
MNACET3ION	1.09464E-17	0.0	0.0	0.0
MNACETION	3.70662E-14	0.0	0.0	0.0
MNBRION	2.27929E-14	0.0	0.0	0.0
MNC2O42ION	7.27769E-12	0.0	0.0	0.0
MNC2O43ION	4.60432E-10	0.0	0.0	0.0
MNCLION	7.56337E-15	0.0	0.0	0.0
MNCOOHION	4.16401E-14	0.0	0.0	0.0
MNION	1.57673E-11	0.0	0.0	0.0
MNNO3ION	1.23384E-15	0.0	0.0	0.0
MNOH3ION	1.13886E-06	0.0	0.0	0.0
MNOH4ION	1.99522E-05	0.0	0.0	0.0
MNOHION	1.43500E-09	0.0	0.0	0.0
NA2FION	1.30713E-04	0.0	0.0	0.0
NACO3ION	0.124369	0.0	0.0	0.0
NAION	1.45995	0.0	0.0	0.0
NASO4ION	0.00582325	0.0	0.0	0.0
NDACETION	0.0	0.0	0.0	0.0
NDCO3ION	1.33370E-26	0.0	0.0	0.0
NDF2ION	6.16606E-30	0.0	0.0	0.0

NDF4ION	3.27314E-30	0.0	0.0	0.0
NDFION	6.79813E-30	0.0	0.0	0.0
NDION	2.24569E-29	0.0	0.0	0.0
NDOH2ION	1.32197E-22	0.0	0.0	0.0
NDOH4ION	3.63555E-15	0.0	0.0	0.0
NDOHION	1.48541E-26	0.0	0.0	0.0
NDSO4ION	0.0	0.0	0.0	0.0
NIACET3ION	1.58502E-21	0.0	0.0	0.0
NIACETION	2.68522E-18	0.0	0.0	0.0
NIC2O42ION	2.23548E-14	0.0	0.0	0.0
NICLION	8.25064E-21	0.0	0.0	0.0
NICOOHION	2.72720E-18	0.0	0.0	0.0
NIFION	3.79329E-19	0.0	0.0	0.0
NIION	5.17415E-16	0.0	0.0	0.0
NINO3ION	8.69061E-20	0.0	0.0	0.0
NIOH3ION	3.21350E-06	0.0	0.0	0.0
NIOHION	1.55289E-13	0.0	0.0	0.0
NO2ION	0.0512618	0.0	0.0	0.0
NO3ION	0.00112543	0.0	0.0	0.0
ACETATEION	0.00281307	0.0	0.0	0.0
OXALATION	0.0124147	0.0	0.0	0.0
P2O7ION	1.09630E-10	0.0	0.0	0.0
PBACET3ION	4.86459E-18	0.0	0.0	0.0
PBACETION	3.14040E-16	0.0	0.0	0.0
PBBR3ION	1.10671E-21	0.0	0.0	0.0
PBBRION	2.38974E-17	0.0	0.0	0.0
PBCL3ION	4.24475E-22	0.0	0.0	0.0
PBCL4ION	1.68720E-23	0.0	0.0	0.0
PBCLION	2.87781E-17	0.0	0.0	0.0
PBCOOHION	3.64098E-17	0.0	0.0	0.0
PBF3ION	1.13225E-19	0.0	0.0	0.0
PBF4ION	2.93661E-21	0.0	0.0	0.0
PBFION	2.73464E-17	0.0	0.0	0.0
PBH2PO4ION	1.82090E-26	0.0	0.0	0.0
PBION	1.54477E-13	0.0	0.0	0.0
PBNO23ION	2.53865E-13	0.0	0.0	0.0
PBNO2ION	1.25592E-13	0.0	0.0	0.0
PBNO33ION	2.21790E-24	0.0	0.0	0.0
PBNO3ION	7.57160E-18	0.0	0.0	0.0
PBOHION	3.57178E-10	0.0	0.0	0.0
PO4ION	0.0320199	0.0	0.0	0.0
RUIIICL2ION	3.95819E-29	0.0	0.0	0.0
RUIIICLION	2.35447E-23	0.0	0.0	0.0
RUIIIION	1.89669E-25	0.0	0.0	0.0
RUIIIOH2ION	4.22888E-04	0.0	0.0	0.0
RUIIIOHION	1.40253E-15	0.0	0.0	0.0
RUIIISO42ION	0.0	0.0	0.0	0.0
RUIIISO4ION	2.86422E-29	0.0	0.0	0.0
SO4ION	0.00579468	0.0	0.0	0.0
SRACETION	3.89077E-10	0.0	0.0	0.0
SRCOOHION	2.93166E-10	0.0	0.0	0.0
SRFION	5.30958E-11	0.0	0.0	0.0
SRHC2O4ION	7.67837E-20	0.0	0.0	0.0
SRION	7.19944E-08	0.0	0.0	0.0
SRNO3ION	4.93945E-11	0.0	0.0	0.0
SROHION	1.96976E-08	0.0	0.0	0.0
SRPO4ION	4.79416E-08	0.0	0.0	0.0

WO4ION	4.29518E-04	0.0	0.0	0.0
ZNACET3ION	1.21244E-21	0.0	0.0	0.0
ZNACETION	1.59992E-19	0.0	0.0	0.0
ZNBR3ION	2.64096E-28	0.0	0.0	0.0
ZNBRION	3.22528E-22	0.0	0.0	0.0
ZNC2O42ION	1.52007E-15	0.0	0.0	0.0
ZNC2O43ION	2.49222E-14	0.0	0.0	0.0
ZNCL3ION	1.64778E-26	0.0	0.0	0.0
ZNCLION	5.52211E-21	0.0	0.0	0.0
ZNCOOHION	8.72799E-20	0.0	0.0	0.0
ZNFION	2.03887E-20	0.0	0.0	0.0
ZNH2PO4ION	5.31902E-29	0.0	0.0	0.0
ZNHC2O4ION	5.12114E-29	0.0	0.0	0.0
ZNHCO3ION	3.48268E-22	0.0	0.0	0.0
ZNION	2.10441E-18	0.0	0.0	0.0
ZNNO3ION	3.45833E-21	0.0	0.0	0.0
ZNOH3ION	3.75349E-06	0.0	0.0	0.0
ZNOH4ION	4.33812E-04	0.0	0.0	0.0
ZNOHION	5.38987E-14	0.0	0.0	0.0
ZROH2ION	0.0	0.0	0.0	0.0
ZROH3ION	1.72838E-21	0.0	0.0	0.0
ZROH5ION	3.70001E-05	0.0	0.0	0.0
	==========	==========	==========	==========
Total g/hr	534.031	0.0	0.0	0.0
Volume, L/hr	0.456739	0.0	0.0	0.0
Enthalpy, cal/hr	-1.91665E+06	0.0	0.0	0.0
Density, g/L	1169.23			
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	0.0	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	115.654			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0			
E-Con, cm2/ohm-mol	0.0			
Abs Visc, cP	0.0			
Rel Visc	0.0			
Ionic Strength	4.60903			

Campaign I 20wt% UDS UF Slurry

STREAM: UF1 Slurry
TO : FCWash1 mixer
FROM : UF1 filter

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.7319			
Total mol/hr	29.3031	0.976479	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	26.6947	0.0	0.0	0.0
ACETACID	1.16930E-12	0.0	0.0	0.0
CO2	1.72534E-13	0.0	0.0	0.0
H2F2	0.0	0.0	0.0	0.0
ACET2	0.0	0.0	0.0	0.0
HBR	5.65645E-26	0.0	0.0	0.0
HCL	9.37448E-24	0.0	0.0	0.0
HCOOH	4.40624E-14	0.0	0.0	0.0
HF	3.72958E-14	0.0	0.0	0.0
HNO2	4.33890E-13	0.0	0.0	0.0
HNO3	3.53640E-19	0.0	0.0	0.0
BAOX	7.07174E-09	0.0	0.0	0.0
BASO4	4.97260E-11	0.001297129	0.0	0.0
BOH3	3.90022E-09	0.0	0.0	0.0
CAACET2	4.32766E-11	0.0	0.0	0.0
CAC2O4	2.99840E-08	0.0	0.0	0.0
CACL2	0.0	0.0	0.0	0.0
CACO3	1.51847E-06	0.02450818	0.0	0.0
CACOOH2	8.88288E-12	0.0	0.0	0.0
CAH2SIO4	1.91394E-08	0.0	0.0	0.0
CAHC2O42	0.0	0.0	0.0	0.0
CASO4	3.50615E-10	0.0	0.0	0.0
CEACET3	1.95534E-21	0.0	0.0	0.0
CECL3	3.49977E-28	0.0	0.0	0.0
CEF3	8.58889E-18	0.0	0.0	0.0
CEOH3	1.68457E-05	0.0	0.0	0.0
AGCL	5.31252E-11	0.0	0.0	0.0
CRIIC2O4	9.82251E-05	0.0	0.0	0.0
CSACET	8.78380E-08	0.0	0.0	0.0
CSBR	1.05282E-08	0.0	0.0	0.0
CSCL	2.82572E-08	0.0	0.0	0.0
CSNO3	1.62243E-07	0.0	0.0	0.0
CUACET2	4.09501E-22	0.0	0.0	0.0
CUBR2	6.42977E-27	0.0	0.0	0.0
CUC2O4	1.50165E-17	0.0	0.0	0.0
CUCL2	1.61896E-25	0.0	0.0	0.0
CUCO3	1.19615E-15	0.0	0.0	0.0
CUCOOH2	2.62073E-23	0.0	0.0	0.0
CUNO22	1.90639E-20	0.0	0.0	0.0
CUNO32	4.56464E-27	0.0	0.0	0.0
CUOH2	1.11497E-07	0.0	0.0	0.0
FEIIIOH3	7.28522E-09	0.5071826	0.0	0.0
AGACET	1.69633E-13	0.0	0.0	0.0
AGBR	2.21571E-10	0.0	0.0	0.0

AGF	9.50640E-14	0.0	0.0	0.0
H2WO4	2.00424E-27	0.0	0.0	0.0
H3PO4	9.78200E-25	0.0	0.0	0.0
H4SIO4	3.17640E-10	0.0	0.0	0.0
AGNO2	8.96238E-11	0.0	0.0	0.0
AGNO3	7.36204E-15	0.0	0.0	0.0
AGOH	3.70804E-10	0.0	0.0	0.0
ALF3	1.13785E-25	0.0	0.0	0.0
ALOH3	5.79076E-10	0.2790728	0.0	0.0
KACET	4.58251E-06	0.0	0.0	0.0
KCL	5.77583E-08	0.0	0.0	0.0
KCOOH	3.32758E-06	0.0	0.0	0.0
KHSO4	3.52654E-20	0.0	0.0	0.0
KNO3	4.24864E-06	0.0	0.0	0.0
LIACET	1.03197E-05	0.0	0.0	0.0
LIH2BO3	1.35635E-06	0.0	0.0	0.0
LIOH	0.00140761	0.0	0.0	0.0
MGACET2	8.51274E-15	0.0	0.0	0.0
MGC2O4	3.41433E-11	0.0	0.0	0.0
MGCO3	1.63478E-10	0.0	0.0	0.0
MGCOOH2	2.13822E-15	0.0	0.0	0.0
MGH2SIO4	4.41202E-11	0.0	0.0	0.0
MGHPO4	2.60496E-14	0.0	0.0	0.0
MGSO4	1.45764E-13	0.0	0.0	0.0
MNACET2	2.84211E-16	0.0	0.0	0.0
MNBR2	9.98332E-18	0.0	0.0	0.0
MNC2O4	2.96651E-10	0.0	0.0	0.0
MNCOOH2	2.10485E-16	0.0	0.0	0.0
MNNO32	1.18685E-18	0.0	0.0	0.0
MNOH2	2.16606E-08	6.50985E-04	0.0	0.0
MNSO4	1.60451E-14	0.0	0.0	0.0
NAACET	0.0014184	0.0	0.0	0.0
NAALOH4	0.0116171	0.0	0.0	0.0
NABOH4	1.26406E-04	0.0	0.0	0.0
NABR	2.34375E-05	0.0	0.0	0.0
NACOOH	7.48981E-04	0.0	0.0	0.0
NAF	0.00168134	0.0	0.0	0.0
NAHCO3	2.85191E-06	0.0	0.0	0.0
NAHSIO3	2.53881E-04	0.0	0.0	0.0
NANO3	0.00128135	0.0	0.0	0.0
NDF3	1.71926E-30	0.0	0.0	0.0
NDOH3	8.90063E-19	0.0	0.0	0.0
NIACET2	2.31636E-20	0.0	0.0	0.0
NIC2O4	2.09083E-13	0.0	0.0	0.0
NICOOH2	1.89737E-20	0.0	0.0	0.0
NIOH2	1.53436E-09	0.01581119	0.0	0.0
NISO4	6.58807E-19	0.0	0.0	0.0
OXALAC	3.08800E-26	0.0	0.0	0.0
PBACET2	3.50864E-18	0.0	0.0	0.0
PBBR2	5.42986E-21	0.0	0.0	0.0
PBC2O4	4.09699E-12	0.0	0.0	0.0
PBCL2	9.53150E-20	0.0	0.0	0.0
PBCOOH2	2.65985E-19	0.0	0.0	0.0
PBF2	3.77498E-19	0.0	0.0	0.0
PBHPO4	6.56553E-19	0.0	0.0	0.0
PBNO22	9.17109E-14	0.0	0.0	0.0
PBNO32	2.45301E-21	0.0	0.0	0.0

PBO	2.08969E-06	0.0	0.0	0.0
RUIIICL3	0.0	0.0	0.0	0.0
BAAC2	2.86208E-11	0.0	0.0	0.0
BACO3	8.89210E-07	0.0	0.0	0.0
SIO2	1.67931E-10	0.0	0.0	0.0
BACOOH2	2.05156E-11	0.0	0.0	0.0
SRC2O4	1.31135E-09	0.0	0.0	0.0
SRCOOH2	7.81190E-13	0.0	0.0	0.0
SRHC2O42	0.0	0.0	0.0	0.0
SRHPO4	1.57984E-13	0.0	0.0	0.0
SRNO32	2.29065E-14	0.0	0.0	0.0
SRSO4	1.74006E-10	0.0	0.0	0.0
ZNACET2	1.24294E-20	0.0	0.0	0.0
ZNBR2	1.46958E-26	0.0	0.0	0.0
ZNC2O4	1.96576E-17	0.0	0.0	0.0
ZNCL2	5.32411E-24	0.0	0.0	0.0
ZNCOOH2	5.04115E-22	0.0	0.0	0.0
ZNHPO4	2.34557E-21	0.0	0.0	0.0
ZNNO32	2.64111E-25	0.0	0.0	0.0
ZNOH2	2.96557E-09	0.0	0.0	0.0
ZROH4	5.55144E-13	0.0	0.0	0.0
OHION	0.202202	0.0	0.0	0.0
AGACET2ION	2.62576E-15	0.0	0.0	0.0
AGBR2ION	1.14822E-09	0.0	0.0	0.0
AGBR3ION	6.96433E-11	0.0	0.0	0.0
AGBR4ION	1.57431E-11	0.0	0.0	0.0
AGC2O4ION	4.52054E-11	0.0	0.0	0.0
AGCL2ION	7.27786E-11	0.0	0.0	0.0
AGCL3ION	4.04331E-11	0.0	0.0	0.0
AGCL4ION	3.96187E-12	0.0	0.0	0.0
AGION	2.91384E-11	0.0	0.0	0.0
AGNO22ION	1.05813E-09	0.0	0.0	0.0
AGOH2ION	8.14380E-08	0.0	0.0	0.0
AGSO4ION	4.36549E-13	0.0	0.0	0.0
ALF2ION	8.07930E-27	0.0	0.0	0.0
ALF4ION	6.42188E-25	0.0	0.0	0.0
ALF5ION	8.05124E-25	0.0	0.0	0.0
ALF6ION	7.25206E-25	0.0	0.0	0.0
ALFION	3.22296E-29	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	8.82555E-18	0.0	0.0	0.0
ALOH4ION	0.026142	0.0	0.0	0.0
ALOHCLION	4.80102E-28	0.0	0.0	0.0
ALOHION	3.05824E-25	0.0	0.0	0.0
ALSIO3OHION	3.31402E-07	0.0	0.0	0.0
B2OOH5ION	1.21368E-11	0.0	0.0	0.0
B3O3OH4ION	2.64904E-17	0.0	0.0	0.0
B4O5OH4ION	2.03303E-18	0.0	0.0	0.0
BAACETION	8.61501E-09	0.0	0.0	0.0
BACOOHION	7.94096E-09	0.0	0.0	0.0
BAFION	7.00744E-10	0.0	0.0	0.0
BAHCO3ION	3.49002E-11	0.0	0.0	0.0
BAION	3.67935E-06	0.0	0.0	0.0
BAOHION	5.64425E-08	0.0	0.0	0.0
BF2OH2ION	1.09186E-19	0.0	0.0	0.0
BF3OHION	1.44659E-30	0.0	0.0	0.0
BFOH3ION	9.85908E-12	0.0	0.0	0.0

BOH4ION	3.11667E-04	0.0	0.0	0.0
BRION	7.97034E-04	0.0	0.0	0.0
CAACETION	2.66840E-09	0.0	0.0	0.0
CACLION	1.46816E-15	0.0	0.0	0.0
CACOOHION	3.12139E-09	0.0	0.0	0.0
CAFION	2.79585E-11	0.0	0.0	0.0
CAH2BO3ION	2.07077E-09	0.0	0.0	0.0
CAH2PO4ION	4.01238E-18	0.0	0.0	0.0
CAHC2O4ION	1.62549E-18	0.0	0.0	0.0
CAHCO3ION	1.86834E-11	0.0	0.0	0.0
CAHSIO3ION	6.61558E-12	0.0	0.0	0.0
CAION	6.40061E-07	0.0	0.0	0.0
CANO3ION	2.48530E-10	0.0	0.0	0.0
CAOHION	5.95647E-07	0.0	0.0	0.0
CAPO4ION	3.96104E-05	0.0	0.0	0.0
CEACET2ION	7.36274E-20	0.0	0.0	0.0
CEACETION	1.60160E-18	0.0	0.0	0.0
CEC2O42ION	1.29991E-15	0.0	0.0	0.0
CEC2O43ION	3.57172E-13	0.0	0.0	0.0
CEC2O4ION	1.63187E-16	0.0	0.0	0.0
CECL2ION	1.08144E-24	0.0	0.0	0.0
CECL4ION	2.37640E-30	0.0	0.0	0.0
CECLION	5.11030E-21	0.0	0.0	0.0
CECO3ION	8.47193E-14	0.0	0.0	0.0
CEF2ION	3.91535E-17	0.0	0.0	0.0
CEF4ION	1.50446E-17	0.0	0.0	0.0
CEFION	6.05306E-17	0.0	0.0	0.0
CEH2PO4ION	3.26566E-28	0.0	0.0	0.0
CEHCO3ION	6.07976E-22	0.0	0.0	0.0
CEION	2.89183E-16	0.0	0.0	0.0
CENO3ION	4.13835E-21	0.0	0.0	0.0
CEOH2ION	7.41856E-09	0.0	0.0	0.0
CEOH4ION	9.16307E-04	0.0	0.0	0.0
CEOHION	9.29555E-14	0.0	0.0	0.0
CESO42ION	9.39246E-21	0.0	0.0	0.0
CESO4ION	1.88065E-19	0.0	0.0	0.0
CLION	0.00236201	0.0	0.0	0.0
CO3ION	0.495113	0.0	0.0	0.0
COOHION	0.0010341	0.0	0.0	0.0
CR2O7ION	1.24474E-20	0.0	0.0	0.0
CRIIC2O42ION	0.00460357	0.0	0.0	0.0
CRIIION	4.44166E-05	0.0	0.0	0.0
CRO4ION	8.12802E-04	0.0	0.0	0.0
CSION	2.43937E-05	0.0	0.0	0.0
CSSO4ION	1.52352E-07	0.0	0.0	0.0
CUACET3ION	1.41587E-22	0.0	0.0	0.0
CUACETION	1.60121E-20	0.0	0.0	0.0
CUBRION	3.85675E-22	0.0	0.0	0.0
CUC2O42ION	1.67994E-14	0.0	0.0	0.0
CUCL3ION	5.27146E-30	0.0	0.0	0.0
CUCLION	4.20418E-22	0.0	0.0	0.0
CUCO32ION	3.61749E-12	0.0	0.0	0.0
CUCOOHION	3.33225E-21	0.0	0.0	0.0
CUION	1.41274E-19	0.0	0.0	0.0
CUNO2ION	1.31847E-19	0.0	0.0	0.0
CUNO3ION	1.02944E-22	0.0	0.0	0.0
CUOH3ION	1.32890E-05	0.0	0.0	0.0

CUOH4ION	5.47417E-04	0.0	0.0	0.0
CUOHION	4.85907E-14	0.0	0.0	0.0
FEIIIC2O42ION	1.21678E-25	0.0	0.0	0.0
FEIIIC2O43ION	4.39438E-22	0.0	0.0	0.0
FEIIIC2O4ION	2.71771E-28	0.0	0.0	0.0
FEIIIOH2ION	7.57052E-17	0.0	0.0	0.0
FEIIIOH4ION	4.03006E-04	0.0	0.0	0.0
FEIIIOHION	6.77950E-25	0.0	0.0	0.0
FION	0.00443592	0.0	0.0	0.0
H2P2O7ION	1.43689E-25	0.0	0.0	0.0
H2PO4ION	2.22319E-12	0.0	0.0	0.0
H2SIO4ION	2.36623E-04	0.0	0.0	0.0
H3SIO4ION	3.09250E-06	0.0	0.0	0.0
HCO3ION	1.53976E-05	0.0	0.0	0.0
HCRO4ION	3.57012E-12	0.0	0.0	0.0
HF2ION	1.29763E-16	0.0	0.0	0.0
HION	1.30432E-14	0.0	0.0	0.0
HOXALATION	2.48909E-13	0.0	0.0	0.0
HP2O7ION	1.49619E-17	0.0	0.0	0.0
HPBO2ION	0.00325373	0.0	0.0	0.0
HPO4ION	9.58219E-05	0.0	0.0	0.0
HSO4ION	6.26052E-16	0.0	0.0	0.0
HWO4ION	1.89760E-15	0.0	0.0	0.0
KION	0.00574648	0.0	0.0	0.0
KSO4ION	3.48833E-05	0.0	0.0	0.0
LIION	0.00509725	0.0	0.0	0.0
LISO4ION	3.29965E-06	0.0	0.0	0.0
MGACETION	1.43333E-12	0.0	0.0	0.0
MGC2O42ION	1.92146E-11	0.0	0.0	0.0
MGCOOHION	7.57095E-13	0.0	0.0	0.0
MGFION	1.62158E-15	0.0	0.0	0.0
MGH2PO4ION	1.22968E-21	0.0	0.0	0.0
MGHCO3ION	4.27322E-15	0.0	0.0	0.0
MGHSIO3ION	2.91551E-15	0.0	0.0	0.0
MGION	1.83276E-10	0.0	0.0	0.0
MGOHION	1.37868E-09	0.0	0.0	0.0
MGP2O7ION	1.78213E-17	0.0	0.0	0.0
MGPO4ION	1.34434E-08	0.0	0.0	0.0
MNACET3ION	1.18387E-17	0.0	0.0	0.0
MNACETION	4.00877E-14	0.0	0.0	0.0
MNBRION	2.46509E-14	0.0	0.0	0.0
MNC2O42ION	7.87095E-12	0.0	0.0	0.0
MNC2O43ION	4.97965E-10	0.0	0.0	0.0
MNCLION	8.17992E-15	0.0	0.0	0.0
MNCOOHION	4.50345E-14	0.0	0.0	0.0
MNION	1.70526E-11	0.0	0.0	0.0
MNNO3ION	1.33442E-15	0.0	0.0	0.0
MNOH3ION	1.23169E-06	0.0	0.0	0.0
MNOH4ION	2.15787E-05	0.0	0.0	0.0
MNOHION	1.55198E-09	0.0	0.0	0.0
NA2FION	1.41368E-04	0.0	0.0	0.0
NACO3ION	0.134508	0.0	0.0	0.0
NAION	1.57897	0.0	0.0	0.0
NASO4ION	0.00629795	0.0	0.0	0.0
NDACETION	0.0	0.0	0.0	0.0
NDCO3ION	1.44242E-26	0.0	0.0	0.0
NDF2ION	6.66870E-30	0.0	0.0	0.0

NDF4ION	3.53996E-30	0.0	0.0	0.0
NDFION	7.35229E-30	0.0	0.0	0.0
NDION	2.42875E-29	0.0	0.0	0.0
NDOH2ION	1.42974E-22	0.0	0.0	0.0
NDOH4ION	3.93191E-15	0.0	0.0	0.0
NDOHION	1.60649E-26	0.0	0.0	0.0
NDSO4ION	0.0	0.0	0.0	0.0
NIACET3ION	1.71422E-21	0.0	0.0	0.0
NIACETION	2.90412E-18	0.0	0.0	0.0
NIC2O42ION	2.41771E-14	0.0	0.0	0.0
NICLION	8.92322E-21	0.0	0.0	0.0
NICOOHION	2.94951E-18	0.0	0.0	0.0
NIFION	4.10251E-19	0.0	0.0	0.0
NIION	5.59593E-16	0.0	0.0	0.0
NINO3ION	9.39905E-20	0.0	0.0	0.0
NIOH3ION	3.47546E-06	0.0	0.0	0.0
NIOHION	1.67947E-13	0.0	0.0	0.0
NO2ION	0.0554406	0.0	0.0	0.0
NO3ION	0.00121717	0.0	0.0	0.0
ACETATEION	0.00304238	0.0	0.0	0.0
OXALATION	0.0134268	0.0	0.0	0.0
P2O7ION	1.18567E-10	0.0	0.0	0.0
PBACET3ION	5.26114E-18	0.0	0.0	0.0
PBACETION	3.39640E-16	0.0	0.0	0.0
PBBR3ION	1.19693E-21	0.0	0.0	0.0
PBBRION	2.58454E-17	0.0	0.0	0.0
PBCL3ION	4.59078E-22	0.0	0.0	0.0
PBCL4ION	1.82474E-23	0.0	0.0	0.0
PBCLION	3.11241E-17	0.0	0.0	0.0
PBCOOHION	3.93778E-17	0.0	0.0	0.0
PBF3ION	1.22455E-19	0.0	0.0	0.0
PBF4ION	3.17600E-21	0.0	0.0	0.0
PBFION	2.95756E-17	0.0	0.0	0.0
PBH2PO4ION	1.96933E-26	0.0	0.0	0.0
PBION	1.67069E-13	0.0	0.0	0.0
PBNO23ION	2.74559E-13	0.0	0.0	0.0
PBNO2ION	1.35830E-13	0.0	0.0	0.0
PBNO33ION	2.39870E-24	0.0	0.0	0.0
PBNO3ION	8.18883E-18	0.0	0.0	0.0
PBOHION	3.86294E-10	0.0	0.0	0.0
PO4ION	0.0346301	0.0	0.0	0.0
RUIIICL2ION	4.28085E-29	0.0	0.0	0.0
RUIIICLION	2.54640E-23	0.0	0.0	0.0
RUIIIION	2.05130E-25	0.0	0.0	0.0
RUIIIOH2ION	4.57361E-04	0.0	0.0	0.0
RUIIIOHION	1.51686E-15	0.0	0.0	0.0
RUIIISO42ION	0.0	0.0	0.0	0.0
RUIIISO4ION	3.09771E-29	0.0	0.0	0.0
SO4ION	0.00626705	0.0	0.0	0.0
SRACETION	4.20793E-10	0.0	0.0	0.0
SRCOOHION	3.17064E-10	0.0	0.0	0.0
SRFION	5.74240E-11	0.0	0.0	0.0
SRHC2O4ION	8.30429E-20	0.0	0.0	0.0
SRION	7.78632E-08	0.0	0.0	0.0
SRNO3ION	5.34211E-11	0.0	0.0	0.0
SROHION	2.13033E-08	0.0	0.0	0.0
SRPO4ION	5.18497E-08	0.0	0.0	0.0

WO4ION	4.64531E-04	0.0	0.0	0.0
ZNACET3ION	1.31128E-21	0.0	0.0	0.0
ZNACETION	1.73034E-19	0.0	0.0	0.0
ZNBR3ION	2.85625E-28	0.0	0.0	0.0
ZNBRION	3.48820E-22	0.0	0.0	0.0
ZNC2O42ION	1.64398E-15	0.0	0.0	0.0
ZNC2O43ION	2.69538E-14	0.0	0.0	0.0
ZNCL3ION	1.78211E-26	0.0	0.0	0.0
ZNCLION	5.97226E-21	0.0	0.0	0.0
ZNCOOHION	9.43947E-20	0.0	0.0	0.0
ZNFION	2.20508E-20	0.0	0.0	0.0
ZNH2PO4ION	5.75261E-29	0.0	0.0	0.0
ZNHC2O4ION	5.53861E-29	0.0	0.0	0.0
ZNHCO3ION	3.76658E-22	0.0	0.0	0.0
ZNION	2.27596E-18	0.0	0.0	0.0
ZNNO3ION	3.74025E-21	0.0	0.0	0.0
ZNOH3ION	4.05946E-06	0.0	0.0	0.0
ZNOH4ION	4.69176E-04	0.0	0.0	0.0
ZNOHION	5.82924E-14	0.0	0.0	0.0
ZROH2ION	0.0	0.0	0.0	0.0
ZROH3ION	1.86927E-21	0.0	0.0	0.0
ZROH5ION	4.00163E-05	0.0	0.0	0.0
AG2CO3	0.0	0.002310978	0.0	0.0
SRCO3	0.0	0.002623698	0.0	0.0
ZRO2	0.0	0.01103309	0.0	0.0
MGOH2	0.0	0.01069999	0.0	0.0
NASGEL.15.5H2O	0.0	0.04336487	0.0	0.0
NDPO4.2H2O	0.0	0.002543158	0.0	0.0
NA2C2O4	0.0	0.07538034	0.0	0.0
	==========	==========	==========	==========
Total g/hr	577.564	144.391	0.0	0.0
Volume, L/hr	0.493971	0.0695683	0.0	0.0
Enthalpy, cal/hr	-2.07290E+06	-4.14650E+05	0.0	0.0
Density, g/L	1169.23	2075.53		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	115.654			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0			
E-Con, cm2/ohm-mol	0.0			
Abs Visc, cP	0.0			
Rel Visc	0.0			
Ionic Strength	4.60903			

Campaign I First Wash

STREAM: first wash
TO :
FROM : first wash

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.3289			
Total mol/hr	39.35709	0.00582665	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	37.3345	0.0	0.0	0.0
ACETACID	3.01197E-12	0.0	0.0	0.0
CO2	1.57476E-12	0.0	0.0	0.0
H2F2	0.0	0.0	0.0	0.0
ACET2	0.0	0.0	0.0	0.0
HBR	1.26881E-25	0.0	0.0	0.0
HCL	2.14541E-23	0.0	0.0	0.0
HCOOH	1.14336E-13	0.0	0.0	0.0
HF	1.02539E-13	0.0	0.0	0.0
HNO2	1.15038E-12	0.0	0.0	0.0
HNO3	1.18331E-18	0.0	0.0	0.0
BAOX	5.15986E-08	0.0	0.0	0.0
BASO4	9.52931E-11	6.72044E-08	0.0	0.0
BOH3	9.42266E-09	0.0	0.0	0.0
CAACET2	2.91969E-11	0.0	0.0	0.0
CAC2O4	2.16145E-07	0.0	0.0	0.0
CACL2	0.0	0.0	0.0	0.0
CACO3	2.80344E-06	0.0	0.0	0.0
CACOOH2	6.08166E-12	0.0	0.0	0.0
CAH2SIO4	2.11291E-08	0.0	0.0	0.0
CAHC2O42	9.14056E-29	0.0	0.0	0.0
CASO4	6.63822E-10	0.0	0.0	0.0
CEACET3	1.03257E-20	0.0	0.0	0.0
CECL3	1.29615E-27	0.0	0.0	0.0
CEF3	5.51245E-17	0.0	0.0	0.0
CEOH3	4.09781E-05	0.0	0.0	0.0
AGCL	5.46785E-11	0.0	0.0	0.0
CRIIC2O4	4.59004E-05	0.0	0.0	0.0
CSACET	3.13450E-08	0.0	0.0	0.0
CSBR	3.27168E-09	0.0	0.0	0.0
CSCL	8.95888E-09	0.0	0.0	0.0
CSNO3	4.04735E-08	0.0	0.0	0.0
CUACET2	5.37943E-21	0.0	0.0	0.0
CUBR2	6.40522E-26	0.0	0.0	0.0
CUC2O4	2.10776E-15	0.0	0.0	0.0
CUCL2	1.67878E-24	0.0	0.0	0.0
CUCO3	4.30001E-14	0.0	0.0	0.0
CUCOOH2	3.49372E-22	0.0	0.0	0.0
CUNO22	2.65318E-19	0.0	0.0	0.0
CUNO32	1.21685E-25	0.0	0.0	0.0
CUOH2	8.73615E-07	0.0	0.0	0.0
FEIIIOH3	1.39611E-08	1.52098E-05	0.0	0.0
AGACET	1.96511E-13	0.0	0.0	0.0
AGBR	2.23521E-10	0.0	0.0	0.0

AGF	1.17525E-13	0.0	0.0	0.0
H2WO4	1.90669E-26	0.0	0.0	0.0
H3PO4	2.74917E-23	0.0	0.0	0.0
H4SIO4	1.79960E-09	0.0	0.0	0.0
AGNO2	1.06865E-10	0.0	0.0	0.0
AGNO3	1.21492E-14	0.0	0.0	0.0
AGOH	3.31748E-10	0.0	0.0	0.0
ALF3	5.75319E-25	0.0	0.0	0.0
ALOH3	1.10972E-09	0.001310179	0.0	0.0
KACET	2.30770E-06	0.0	0.0	0.0
KCL	2.58422E-08	0.0	0.0	0.0
KCOOH	1.68809E-06	0.0	0.0	0.0
KHSO4	6.69897E-20	0.0	0.0	0.0
KNO3	2.37476E-06	0.0	0.0	0.0
LIACET	6.54930E-06	0.0	0.0	0.0
LIH2BO3	8.07342E-07	0.0	0.0	0.0
LIOH	6.89915E-04	0.0	0.0	0.0
MGACET2	2.73509E-14	0.0	0.0	0.0
MGC2O4	1.17214E-09	0.0	0.0	0.0
MGCO3	1.43735E-09	0.0	0.0	0.0
MGCOOH2	6.97169E-15	0.0	0.0	0.0
MGH2SIO4	2.31957E-10	0.0	0.0	0.0
MGHPO4	6.79368E-13	0.0	0.0	0.0
MGSO4	1.31428E-12	0.0	0.0	0.0
MNACET2	9.13152E-16	0.0	0.0	0.0
MNBR2	2.43239E-17	0.0	0.0	0.0
MNC2O4	1.01840E-08	0.0	0.0	0.0
MNCOOH2	6.86289E-16	0.0	0.0	0.0
MNNO32	7.73833E-18	0.0	0.0	0.0
MNOH2	4.15096E-08	2.36171E-06	0.0	0.0
MNSO4	1.44671E-13	0.0	0.0	0.0
NAACET	8.31557E-04	0.0	0.0	0.0
NAALOH4	0.0052599	0.0	0.0	0.0
NABOH4	7.21530E-05	0.0	0.0	0.0
NABR	1.19655E-05	0.0	0.0	0.0
NACOOH	4.42339E-04	0.0	0.0	0.0
NAF	0.00105193	0.0	0.0	0.0
NAHCO3	6.15003E-06	0.0	0.0	0.0
NAHSIO3	3.15358E-04	0.0	0.0	0.0
NANO3	4.66960E-04	0.0	0.0	0.0
NIACET2	7.44230E-20	0.0	0.0	0.0
NIC2O4	7.17782E-12	0.0	0.0	0.0
NICOOH2	6.18642E-20	0.0	0.0	0.0
NIOH2	2.94039E-09	1.31210E-07	0.0	0.0
NISO4	5.94014E-18	0.0	0.0	0.0
OXALAC	1.14240E-24	0.0	0.0	0.0
PBACET2	1.34960E-17	0.0	0.0	0.0
PBBR2	1.58385E-20	0.0	0.0	0.0
PBC2O4	1.68385E-10	0.0	0.0	0.0
PBCL2	2.89405E-19	0.0	0.0	0.0
PBCOOH2	1.03827E-18	0.0	0.0	0.0
PBF2	1.65370E-18	0.0	0.0	0.0
PBHPO4	2.04993E-17	0.0	0.0	0.0
PBNO22	3.73733E-13	0.0	0.0	0.0
PBNO32	1.91476E-20	0.0	0.0	0.0
PBO	4.61839E-06	0.0	0.0	0.0
RUIIICL3	0.0	0.0	0.0	0.0

BAAC2	1.95444E-11	0.0	0.0	0.0
BACO3	1.66168E-06	0.0	0.0	0.0
SIO2	8.81359E-10	0.0	0.0	0.0
BACOOH2	1.42171E-11	0.0	0.0	0.0
SRC2O4	9.81220E-09	0.0	0.0	0.0
SRCOOH2	5.56706E-13	0.0	0.0	0.0
SRHC2O42	7.16318E-30	0.0	0.0	0.0
SRHPO4	8.98032E-13	0.0	0.0	0.0
SRNO32	3.25523E-14	0.0	0.0	0.0
SRSO4	3.41962E-10	0.0	0.0	0.0
ZNACET2	1.79311E-19	0.0	0.0	0.0
ZNBR2	1.60771E-25	0.0	0.0	0.0
ZNC2O4	3.03011E-15	0.0	0.0	0.0
ZNCL2	6.06291E-23	0.0	0.0	0.0
ZNCOOH2	7.38025E-21	0.0	0.0	0.0
ZNHPO4	2.74667E-19	0.0	0.0	0.0
ZNNO32	7.73199E-24	0.0	0.0	0.0
ZNOH2	2.55177E-08	0.0	0.0	0.0
ZROH4	1.14644E-12	0.0	0.0	0.0
OHION	0.160894	0.0	0.0	0.0
AGACET2ION	1.09045E-15	0.0	0.0	0.0
AGBR2ION	3.61603E-10	0.0	0.0	0.0
AGBR3ION	8.01492E-12	0.0	0.0	0.0
AGBR4ION	5.65646E-13	0.0	0.0	0.0
AGC2O4ION	2.00591E-10	0.0	0.0	0.0
AGCL2ION	2.38578E-11	0.0	0.0	0.0
AGCL3ION	4.94184E-12	0.0	0.0	0.0
AGCL4ION	1.54239E-13	0.0	0.0	0.0
AGION	4.38156E-11	0.0	0.0	0.0
AGNO22ION	4.65544E-10	0.0	0.0	0.0
AGOH2ION	2.01722E-08	0.0	0.0	0.0
AGSO4ION	5.08768E-13	0.0	0.0	0.0
ALACETION	0.0	0.0	0.0	0.0
ALF2ION	4.99658E-26	0.0	0.0	0.0
ALF4ION	1.24221E-24	0.0	0.0	0.0
ALF5ION	6.97457E-25	0.0	0.0	0.0
ALF6ION	2.40358E-25	0.0	0.0	0.0
ALFION	3.04495E-28	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	2.86009E-17	0.0	0.0	0.0
ALOH4ION	0.015214	0.0	0.0	0.0
ALOHCLION	1.73955E-27	0.0	0.0	0.0
ALOHION	2.13047E-24	0.0	0.0	0.0
ALSIO3OHION	3.49152E-08	0.0	0.0	0.0
B2OOH5ION	9.85868E-12	0.0	0.0	0.0
B3O3OH4ION	2.51734E-17	0.0	0.0	0.0
B4O5OH4ION	7.32498E-19	0.0	0.0	0.0
BAACETION	7.64511E-09	0.0	0.0	0.0
BACOOHION	7.09556E-09	0.0	0.0	0.0
BAFION	6.63739E-10	0.0	0.0	0.0
BAHCO3ION	1.11547E-10	0.0	0.0	0.0
BAION	3.43134E-06	0.0	0.0	0.0
BAOHION	3.86375E-08	0.0	0.0	0.0
BF2OH2ION	1.68343E-19	0.0	0.0	0.0
BF3OHION	3.08191E-30	0.0	0.0	0.0
BFOH3ION	1.10006E-11	0.0	0.0	0.0
BOH4ION	2.51808E-04	0.0	0.0	0.0

BRION	5.94437E-04	0.0	0.0	0.0
CAACETION	2.33950E-09	0.0	0.0	0.0
CACLION	5.94499E-16	0.0	0.0	0.0
CACOOHION	2.75620E-09	0.0	0.0	0.0
CAFION	2.61635E-11	0.0	0.0	0.0
CAH2BO3ION	1.70228E-09	0.0	0.0	0.0
CAH2PO4ION	3.88943E-17	0.0	0.0	0.0
CAHC2O4ION	2.04242E-17	0.0	0.0	0.0
CAHCO3ION	5.05987E-11	0.0	0.0	0.0
CAHSIO3ION	1.22848E-11	0.0	0.0	0.0
CAION	7.68140E-07	0.0	0.0	0.0
CANO3ION	3.10233E-10	0.0	0.0	0.0
CAOHION	4.02892E-07	0.0	0.0	0.0
CAPO4ION	5.78525E-05	0.0	0.0	0.0
CEACET2ION	5.05337E-19	0.0	0.0	0.0
CEACETION	1.76487E-17	0.0	0.0	0.0
CEC2O42ION	2.80948E-13	0.0	0.0	0.0
CEC2O43ION	1.24094E-10	0.0	0.0	0.0
CEC2O4ION	1.19418E-14	0.0	0.0	0.0
CECL2ION	5.85875E-24	0.0	0.0	0.0
CECL4ION	2.80315E-30	0.0	0.0	0.0
CECLION	5.00258E-20	0.0	0.0	0.0
CECO3ION	1.55804E-12	0.0	0.0	0.0
CEF2ION	3.06096E-16	0.0	0.0	0.0
CEF4ION	3.69399E-17	0.0	0.0	0.0
CEFION	7.12342E-16	0.0	0.0	0.0
CEH2PO4ION	3.88086E-26	0.0	0.0	0.0
CEHCO3ION	2.60219E-20	0.0	0.0	0.0
CEION	1.83099E-15	0.0	0.0	0.0
CENO3ION	6.48761E-20	0.0	0.0	0.0
CEOH2ION	3.01206E-08	0.0	0.0	0.0
CEOH4ION	6.17112E-04	0.0	0.0	0.0
CEOHION	7.80155E-13	0.0	0.0	0.0
CESO42ION	1.40031E-19	0.0	0.0	0.0
CESO4ION	3.62019E-18	0.0	0.0	0.0
CLION	0.00174575	0.0	0.0	0.0
CO3ION	0.365057	0.0	0.0	0.0
COOHION	8.76280E-04	0.0	0.0	0.0
CR2O7ION	3.43625E-20	0.0	0.0	0.0
CRIIC2O42ION	0.00345806	0.0	0.0	0.0
CRIIION	3.88893E-06	0.0	0.0	0.0
CRO4ION	6.00730E-04	0.0	0.0	0.0
CSION	1.82164E-05	0.0	0.0	0.0
CSSO4ION	5.46949E-08	0.0	0.0	0.0
CUACET3ION	6.66770E-22	0.0	0.0	0.0
CUACETION	2.73342E-19	0.0	0.0	0.0
CUBRION	5.73198E-21	0.0	0.0	0.0
CUC2O42ION	3.79031E-12	0.0	0.0	0.0
CUCL3ION	1.74101E-29	0.0	0.0	0.0
CUCLION	6.37635E-21	0.0	0.0	0.0
CUCO32ION	5.35238E-11	0.0	0.0	0.0
CUCOOHION	5.72911E-20	0.0	0.0	0.0
CUION	3.74742E-18	0.0	0.0	0.0
CUNO2ION	2.33233E-18	0.0	0.0	0.0
CUNO3ION	2.50252E-21	0.0	0.0	0.0
CUOH3ION	2.88489E-05	0.0	0.0	0.0
CUOH4ION	3.84774E-04	0.0	0.0	0.0

CUOHION	6.40108E-13	0.0	0.0	0.0
FEIIIC2O42ION	2.07178E-23	0.0	0.0	0.0
FEIIIC2O43ION	1.20278E-19	0.0	0.0	0.0
FEIIIC2O4ION	1.56667E-26	0.0	0.0	0.0
FEIIIHPO4ION	0.0	0.0	0.0	0.0
FEIIIOH2ION	2.47191E-16	0.0	0.0	0.0
FEIIIOH4ION	2.13821E-04	0.0	0.0	0.0
FEIIIOHION	4.41553E-24	0.0	0.0	0.0
FION	0.00353939	0.0	0.0	0.0
H2P2O7ION	4.43268E-24	0.0	0.0	0.0
H2PO4ION	1.47657E-11	0.0	0.0	0.0
H2SIO4ION	1.04199E-04	0.0	0.0	0.0
H3SIO4ION	5.63694E-06	0.0	0.0	0.0
HCO3ION	4.06168E-05	0.0	0.0	0.0
HCRO4ION	9.65037E-12	0.0	0.0	0.0
HF2ION	1.64848E-16	0.0	0.0	0.0
HION	4.95753E-14	0.0	0.0	0.0
HOXALATION	2.96666E-12	0.0	0.0	0.0
HP2O7ION	2.04493E-16	0.0	0.0	0.0
HPBO2ION	0.0024017	0.0	0.0	0.0
HPO4ION	1.79572E-04	0.0	0.0	0.0
HSO4ION	1.95977E-15	0.0	0.0	0.0
HWO4ION	5.81562E-15	0.0	0.0	0.0
KION	0.00425786	0.0	0.0	0.0
KSO4ION	1.76857E-05	0.0	0.0	0.0
LIION	0.00411932	0.0	0.0	0.0
LISO4ION	2.10791E-06	0.0	0.0	0.0
MGACETION	5.98458E-12	0.0	0.0	0.0
MGC2O42ION	1.06031E-09	0.0	0.0	0.0
MGCOOHION	3.18369E-12	0.0	0.0	0.0
MGFION	7.05731E-15	0.0	0.0	0.0
MGH2PO4ION	5.67667E-20	0.0	0.0	0.0
MGHCO3ION	9.50161E-14	0.0	0.0	0.0
MGHSIO3ION	2.57831E-14	0.0	0.0	0.0
MGION	1.00533E-09	0.0	0.0	0.0
MGOHION	4.49964E-09	0.0	0.0	0.0
MGP2O7ION	5.46725E-16	0.0	0.0	0.0
MGPO4ION	9.35059E-08	0.0	0.0	0.0
MNACET3ION	1.36357E-17	0.0	0.0	0.0
MNACETION	1.67379E-13	0.0	0.0	0.0
MNBRION	8.96082E-14	0.0	0.0	0.0
MNC2O42ION	4.34340E-10	0.0	0.0	0.0
MNC2O43ION	3.22406E-08	0.0	0.0	0.0
MNCLION	3.03431E-14	0.0	0.0	0.0
MNCOOHION	1.89376E-13	0.0	0.0	0.0
MNION	6.53870E-11	0.0	0.0	0.0
MNNO3ION	7.93470E-15	0.0	0.0	0.0
MNOH3ION	6.53495E-07	0.0	0.0	0.0
MNOH4ION	3.71055E-06	0.0	0.0	0.0
MNOHION	5.06799E-09	0.0	0.0	0.0
NA2FION	3.43446E-05	0.0	0.0	0.0
NACO3ION	0.102958	0.0	0.0	0.0
NAION	1.22823	0.0	0.0	0.0
NASO4ION	0.00494802	0.0	0.0	0.0
NIACET3ION	1.97443E-21	0.0	0.0	0.0
NIACETION	1.21256E-17	0.0	0.0	0.0
NIC2O42ION	1.33415E-12	0.0	0.0	0.0

NICLION	3.31004E-20	0.0	0.0	0.0
NICOOHION	1.24031E-17	0.0	0.0	0.0
NIFION	1.82830E-18	0.0	0.0	0.0
NIION	2.37104E-15	0.0	0.0	0.0
NINO3ION	5.58882E-19	0.0	0.0	0.0
NIOH3ION	1.84396E-06	0.0	0.0	0.0
NIOHION	5.48573E-13	0.0	0.0	0.0
NO2ION	0.0409753	0.0	0.0	0.0
NO3ION	0.00138051	0.0	0.0	0.0
ACETATEION	0.00246753	0.0	0.0	0.0
OXALATION	0.0385915	0.0	0.0	0.0
P2O7ION	3.03663E-10	0.0	0.0	0.0
PBACET3ION	7.25471E-18	0.0	0.0	0.0
PBACETION	1.69846E-15	0.0	0.0	0.0
PBBR3ION	1.08992E-21	0.0	0.0	0.0
PBBRION	1.12524E-16	0.0	0.0	0.0
PBCL3ION	5.35563E-22	0.0	0.0	0.0
PBCL4ION	6.14164E-24	0.0	0.0	0.0
PBCLION	1.38218E-16	0.0	0.0	0.0
PBCOOHION	1.98326E-16	0.0	0.0	0.0
PBF3ION	2.05224E-19	0.0	0.0	0.0
PBF4ION	2.38370E-21	0.0	0.0	0.0
PBFION	1.57797E-16	0.0	0.0	0.0
PBH2PO4ION	1.08885E-24	0.0	0.0	0.0
PBION	2.94135E-13	0.0	0.0	0.0
PBNO23ION	4.12844E-13	0.0	0.0	0.0
PBNO2ION	7.03867E-13	0.0	0.0	0.0
PBNO33ION	9.56176E-24	0.0	0.0	0.0
PBNO3ION	5.83182E-17	0.0	0.0	0.0
PBOHION	1.48993E-09	0.0	0.0	0.0
PO4ION	0.0236407	0.0	0.0	0.0
RUIIICL2ION	4.18827E-29	0.0	0.0	0.0
RUIIICLION	4.49967E-23	0.0	0.0	0.0
RUIIIION	5.64349E-25	0.0	0.0	0.0
RUIIIOH2ION	3.38029E-04	0.0	0.0	0.0
RUIIIOHION	2.33227E-15	0.0	0.0	0.0
RUIIISO42ION	0.0	0.0	0.0	0.0
RUIIISO4ION	1.07687E-28	0.0	0.0	0.0
SO4ION	0.00434881	0.0	0.0	0.0
SRACETION	3.82941E-10	0.0	0.0	0.0
SRCOOHION	2.90533E-10	0.0	0.0	0.0
SRFION	5.57784E-11	0.0	0.0	0.0
SRHC2O4ION	1.08307E-18	0.0	0.0	0.0
SRION	9.60583E-08	0.0	0.0	0.0
SRNO3ION	6.76432E-11	0.0	0.0	0.0
SROHION	1.51606E-08	0.0	0.0	0.0
SRPO4ION	7.86051E-08	0.0	0.0	0.0
WO4ION	3.43327E-04	0.0	0.0	0.0
ZNACET3ION	6.78148E-21	0.0	0.0	0.0
ZNACETION	3.24389E-18	0.0	0.0	0.0
ZNBR3ION	9.75462E-28	0.0	0.0	0.0
ZNBRION	5.69326E-21	0.0	0.0	0.0
ZNC2O42ION	4.07337E-13	0.0	0.0	0.0
ZNC2O43ION	7.83570E-12	0.0	0.0	0.0
ZNCL3ION	7.79736E-26	0.0	0.0	0.0
ZNCLION	9.72297E-20	0.0	0.0	0.0
ZNCOOHION	1.78227E-18	0.0	0.0	0.0

ZNFION	4.41234E-19	0.0	0.0	0.0
ZNH2PO4ION	1.19238E-26	0.0	0.0	0.0
ZNHC2O4ION	1.48808E-26	0.0	0.0	0.0
ZNHCO3ION	2.53691E-20	0.0	0.0	0.0
ZNION	9.62021E-17	0.0	0.0	0.0
ZNNO3ION	9.98579E-20	0.0	0.0	0.0
ZNOH3ION	1.16747E-05	0.0	0.0	0.0
ZNOH4ION	3.38065E-04	0.0	0.0	0.0
ZNOHION	8.55003E-13	0.0	0.0	0.0
ZROH2ION	5.64967E-30	0.0	0.0	0.0
ZROH3ION	6.48568E-21	0.0	0.0	0.0
ZROH5ION	2.76012E-05	0.0	0.0	0.0
AG2CO3	0.0	3.65746E-09	0.0	0.0
SRCO3	0.0	2.51489E-09	0.0	0.0
ZRO2	0.0	3.97873E-07	0.0	0.0
MGOH2	0.0	3.94505E-08	0.0	0.0
NASGEL.15.5H2O	0.0	6.69843E-07	0.0	0.0
NA2C2O4	0.0	0.004497587	0.0	0.0
	==========	==========	==========	==========
Total g/hr	747.41	0.707569	0.0	0.0
Volume, L/hr	0.681211	3.00577E-04	0.0	0.0
Enthalpy, cal/hr	-2.74167E+06	-1833.67	0.0	0.0
Density, g/L	1097.18	2354.04		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	59.7998			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.106637			
E-Con, cm2/ohm-mol	38.6347			
Abs Visc, cP	1.51941			
Rel Visc	1.70583			
Ionic Strength	2.5593			

Campaign I Second Wash

STREAM: second wash
TO :
FROM : second wash

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	12.711			
Total mol/hr	38.27798	1.18556E-04	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	37.661	0.0	0.0	0.0
ACETACID	5.04928E-12	0.0	0.0	0.0
CO2	2.02930E-11	0.0	0.0	0.0
H2F2	1.05738E-30	0.0	0.0	0.0
ACET2	0.0	0.0	0.0	0.0
HBR	1.76912E-25	0.0	0.0	0.0
HCL	3.03046E-23	0.0	0.0	0.0
HCOOH	1.96772E-13	0.0	0.0	0.0
HF	1.81840E-13	0.0	0.0	0.0
HNO2	1.85937E-12	0.0	0.0	0.0
HNO3	2.25235E-18	0.0	0.0	0.0
BAOX	1.85228E-07	0.0	0.0	0.0
BASO4	1.25503E-10	5.20223E-09	0.0	0.0
BOH3	1.47830E-08	0.0	0.0	0.0
CAACET2	6.02709E-12	0.0	0.0	0.0
CAC2O4	8.59035E-07	0.0	0.0	0.0
CACL2	0.0	0.0	0.0	0.0
CACO3	3.59963E-06	0.0	0.0	0.0
CACOOH2	1.32311E-12	0.0	0.0	0.0
CAH2SIO4	1.60417E-08	0.0	0.0	0.0
CAHC2O42	1.13319E-26	0.0	0.0	0.0
CASO4	9.67927E-10	0.0	0.0	0.0
CEACET3	2.88152E-21	0.0	0.0	0.0
CECL3	2.16380E-28	0.0	0.0	0.0
CEF3	1.81851E-17	0.0	0.0	0.0
CEOH3	6.05869E-06	0.0	0.0	0.0
AGCL	2.43294E-11	0.0	0.0	0.0
CRIIC2O4	1.70897E-05	0.0	0.0	0.0
CSACET	2.39085E-09	0.0	0.0	0.0
CSBR	2.07556E-10	0.0	0.0	0.0
CSCL	5.75782E-10	0.0	0.0	0.0
CSNO3	2.04402E-09	0.0	0.0	0.0
CUACET2	3.40313E-20	0.0	0.0	0.0
CUBR2	2.80310E-25	0.0	0.0	0.0
CUC2O4	2.56720E-13	0.0	0.0	0.0
CUCL2	7.54011E-24	0.0	0.0	0.0
CUCO3	1.69203E-12	0.0	0.0	0.0
CUCOOH2	2.32934E-21	0.0	0.0	0.0
CUNO22	1.56028E-18	0.0	0.0	0.0
CUNO32	1.16553E-24	0.0	0.0	0.0
CUOH2	3.61865E-06	1.04517E-05	0.0	0.0
FEIIIOH3	1.83871E-08	7.78647E-07	0.0	0.0
AGACET	1.03773E-13	0.0	0.0	0.0
AGBR	9.81735E-11	0.0	0.0	0.0

AGF	6.56217E-14	0.0	0.0	0.0
H2WO4	2.34002E-25	0.0	0.0	0.0
H3PO4	1.27805E-21	0.0	0.0	0.0
H4SIO4	1.41233E-08	0.0	0.0	0.0
AGNO2	5.44099E-11	0.0	0.0	0.0
AGNO3	7.89434E-15	0.0	0.0	0.0
AGOH	1.41757E-10	0.0	0.0	0.0
ALF3	1.69062E-24	0.0	0.0	0.0
ALOH3	1.46153E-09	9.51595E-05	0.0	0.0
KACET	2.49355E-07	0.0	0.0	0.0
KCL	2.35282E-09	0.0	0.0	0.0
KCOOH	1.87256E-07	0.0	0.0	0.0
KHSO4	6.50806E-20	0.0	0.0	0.0
KNO3	2.54081E-07	0.0	0.0	0.0
LIACET	8.91014E-07	0.0	0.0	0.0
LIH2BO3	1.02792E-07	0.0	0.0	0.0
LIOH	7.59498E-05	0.0	0.0	0.0
MGACET2	5.50150E-14	0.0	0.0	0.0
MGC2O4	4.53924E-08	0.0	0.0	0.0
MGCO3	1.79833E-08	0.0	0.0	0.0
MGCOOH2	1.47792E-14	0.0	0.0	0.0
MGH2SIO4	1.71599E-09	0.0	0.0	0.0
MGHPO4	2.97714E-11	0.0	0.0	0.0
MGSO4	1.86732E-11	0.0	0.0	0.0
MNACET2	1.83676E-15	0.0	0.0	0.0
MNBR2	3.38459E-17	0.0	0.0	0.0
MNC2O4	3.94388E-07	0.0	0.0	0.0
MNCOOH2	1.45485E-15	0.0	0.0	0.0
MNNO32	2.35668E-17	0.0	0.0	0.0
MNOH2	5.46691E-08	1.29032E-07	0.0	0.0
MNSO4	2.05548E-12	0.0	0.0	0.0
NAACET	1.15768E-04	0.0	0.0	0.0
NAALOH4	5.92536E-04	0.0	0.0	0.0
NABOH4	9.68249E-06	0.0	0.0	0.0
NABR	1.38550E-06	0.0	0.0	0.0
NACOOH	6.32196E-05	0.0	0.0	0.0
NAF	1.54847E-04	0.0	0.0	0.0
NAHCO3	6.77880E-06	0.0	0.0	0.0
NAHSIO3	1.99551E-04	0.0	0.0	0.0
NANO3	3.88476E-05	0.0	0.0	0.0
NIACET2	1.49698E-19	0.0	0.0	0.0
NIC2O4	2.77970E-10	0.0	0.0	0.0
NICOOH2	1.31145E-19	0.0	0.0	0.0
NIOH2	3.87256E-09	6.77472E-09	0.0	0.0
NISO4	8.43970E-17	0.0	0.0	0.0
OXALAC	4.69329E-23	0.0	0.0	0.0
PBACET2	2.89948E-17	0.0	0.0	0.0
PBBR2	2.35390E-20	0.0	0.0	0.0
PBC2O4	6.96486E-09	0.0	0.0	0.0
PBCL2	4.41429E-19	0.0	0.0	0.0
PBCOOH2	2.35085E-18	0.0	0.0	0.0
PBF2	3.97205E-18	0.0	0.0	0.0
PBHPO4	9.59482E-16	0.0	0.0	0.0
PBNO22	7.46393E-13	0.0	0.0	0.0
PBNO32	6.22833E-20	0.0	0.0	0.0
PBO	6.30755E-06	0.0	0.0	0.0
BAAC2	3.64415E-12	0.0	0.0	0.0

BACO3	1.92715E-06	0.0	0.0	0.0
SIO2	6.51261E-09	0.0	0.0	0.0
BACOOH2	2.79373E-12	0.0	0.0	0.0
SRC2O4	3.91823E-08	0.0	0.0	0.0
SRCOOH2	1.22046E-13	0.0	0.0	0.0
SRHC2O42	8.92267E-28	0.0	0.0	0.0
SRHPO4	4.05792E-12	0.0	0.0	0.0
SRNO32	1.02224E-14	0.0	0.0	0.0
SRSO4	5.00987E-10	0.0	0.0	0.0
ZNACET2	2.53453E-18	0.0	0.0	0.0
ZNBR2	1.57203E-24	0.0	0.0	0.0
ZNC2O4	8.24601E-13	0.0	0.0	0.0
ZNCL2	6.08432E-22	0.0	0.0	0.0
ZNCOOH2	1.09942E-19	0.0	0.0	0.0
ZNHPO4	8.45825E-17	0.0	0.0	0.0
ZNNO32	1.65472E-22	0.0	0.0	0.0
ZNOH2	2.36164E-07	0.0	0.0	0.0
ZROH4	1.60176E-12	0.0	0.0	0.0
OHION	0.049397	0.0	0.0	0.0
AGACET2ION	1.13967E-16	0.0	0.0	0.0
AGBR2ION	2.61438E-11	0.0	0.0	0.0
AGBR3ION	8.83076E-14	0.0	0.0	0.0
AGBR4ION	6.73439E-16	0.0	0.0	0.0
AGC2O4ION	4.03626E-10	0.0	0.0	0.0
AGCL2ION	1.77030E-12	0.0	0.0	0.0
AGCL3ION	5.66116E-14	0.0	0.0	0.0
AGCL4ION	1.93422E-16	0.0	0.0	0.0
AGION	5.01729E-11	0.0	0.0	0.0
AGNO22ION	4.52300E-11	0.0	0.0	0.0
AGOH2ION	1.38042E-09	0.0	0.0	0.0
AGSO4ION	3.75590E-13	0.0	0.0	0.0
ALACETION	0.0	0.0	0.0	0.0
ALF2ION	2.99314E-25	0.0	0.0	0.0
ALF4ION	7.63893E-25	0.0	0.0	0.0
ALF5ION	8.30919E-26	0.0	0.0	0.0
ALF6ION	3.93365E-27	0.0	0.0	0.0
ALFION	3.68207E-27	0.0	0.0	0.0
ALION	5.12527E-30	0.0	0.0	0.0
ALOH2ION	1.00408E-16	0.0	0.0	0.0
ALOH4ION	0.00343686	0.0	0.0	0.0
ALOHCLION	6.19668E-27	0.0	0.0	0.0
ALOHION	2.04746E-23	0.0	0.0	0.0
ALSIO3OHION	7.03546E-10	0.0	0.0	0.0
ALSO4ION	0.0	0.0	0.0	0.0
B2OOH5ION	2.86481E-12	0.0	0.0	0.0
B3O3OH4ION	8.21413E-18	0.0	0.0	0.0
B4O5OH4ION	3.97916E-20	0.0	0.0	0.0
BAACETION	3.06452E-09	0.0	0.0	0.0
BACOOHION	2.91865E-09	0.0	0.0	0.0
BAFION	2.81362E-10	0.0	0.0	0.0
BAHCO3ION	3.49544E-10	0.0	0.0	0.0
BAION	2.05779E-06	0.0	0.0	0.0
BAOHION	1.26404E-08	0.0	0.0	0.0
BF2OH2ION	8.56093E-20	0.0	0.0	0.0
BF3OHION	2.04799E-30	0.0	0.0	0.0
BFOH3ION	4.28114E-12	0.0	0.0	0.0
BOH4ION	7.50400E-05	0.0	0.0	0.0

BRION	1.57023E-04	0.0	0.0	0.0
CAACETION	1.03824E-09	0.0	0.0	0.0
CACLION	5.75895E-16	0.0	0.0	0.0
CACOOHION	1.25542E-09	0.0	0.0	0.0
CAFION	1.22790E-11	0.0	0.0	0.0
CAH2BO3ION	7.06778E-10	0.0	0.0	0.0
CAH2PO4ION	4.88869E-16	0.0	0.0	0.0
CAHC2O4ION	2.20390E-16	0.0	0.0	0.0
CAHCO3ION	1.53380E-10	0.0	0.0	0.0
CAHSIO3ION	2.47714E-11	0.0	0.0	0.0
CAION	6.57373E-07	0.0	0.0	0.0
CANO3ION	1.69348E-10	0.0	0.0	0.0
CAOHION	1.45950E-07	0.0	0.0	0.0
CAPO4ION	4.04548E-05	0.0	0.0	0.0
CEACET2ION	3.03213E-19	0.0	0.0	0.0
CEACETION	2.23886E-17	0.0	0.0	0.0
CEC2O42ION	5.75170E-12	0.0	0.0	0.0
CEC2O43ION	1.16432E-09	0.0	0.0	0.0
CEC2O4ION	1.36874E-13	0.0	0.0	0.0
CECL2ION	2.49562E-24	0.0	0.0	0.0
CECL4ION	0.0	0.0	0.0	0.0
CECLION	5.34539E-20	0.0	0.0	0.0
CECO3ION	5.74151E-12	0.0	0.0	0.0
CEF2ION	2.05370E-16	0.0	0.0	0.0
CEF4ION	2.55016E-18	0.0	0.0	0.0
CEFION	9.56184E-16	0.0	0.0	0.0
CEH2PO4ION	1.36434E-24	0.0	0.0	0.0
CEHCO3ION	3.05072E-19	0.0	0.0	0.0
CEION	1.40303E-15	0.0	0.0	0.0
CENO3ION	1.01191E-19	0.0	0.0	0.0
CEOH2ION	1.18620E-08	0.0	0.0	0.0
CEOH4ION	1.46120E-05	0.0	0.0	0.0
CEOHION	8.70024E-13	0.0	0.0	0.0
CESO42ION	3.85874E-19	0.0	0.0	0.0
CESO4ION	1.53349E-17	0.0	0.0	0.0
CLION	4.56040E-04	0.0	0.0	0.0
CO3ION	0.103296	0.0	0.0	0.0
COOHION	2.81489E-04	0.0	0.0	0.0
CR2O7ION	6.46642E-20	0.0	0.0	0.0
CRIIC2O42ION	8.98891E-04	0.0	0.0	0.0
CRIIION	3.58133E-07	0.0	0.0	0.0
CRO4ION	1.56926E-04	0.0	0.0	0.0
CSION	4.78378E-06	0.0	0.0	0.0
CSSO4ION	5.83218E-09	0.0	0.0	0.0
CUACET3ION	8.34829E-22	0.0	0.0	0.0
CUACETION	3.71756E-18	0.0	0.0	0.0
CUBRION	6.48227E-20	0.0	0.0	0.0
CUC2O42ION	3.22305E-10	0.0	0.0	0.0
CUCL3ION	1.30402E-29	0.0	0.0	0.0
CUCLION	7.30645E-20	0.0	0.0	0.0
CUCO32ION	4.74995E-10	0.0	0.0	0.0
CUCOOHION	7.99726E-19	0.0	0.0	0.0
CUION	1.12773E-16	0.0	0.0	0.0
CUNO2ION	3.07633E-17	0.0	0.0	0.0
CUNO3ION	4.18624E-20	0.0	0.0	0.0
CUOH3ION	1.91494E-05	0.0	0.0	0.0
CUOH4ION	3.78375E-05	0.0	0.0	0.0

CUOHION	7.10761E-12	0.0	0.0	0.0
FEIIIC2O42ION	3.77815E-21	0.0	0.0	0.0
FEIIIC2O43ION	1.00525E-17	0.0	0.0	0.0
FEIIIC2O4ION	1.59938E-24	0.0	0.0	0.0
FEIIIHPO4ION	3.23672E-30	0.0	0.0	0.0
FEIIIION	0.0	0.0	0.0	0.0
FEIIIOH2ION	8.77720E-16	0.0	0.0	0.0
FEIIIOH4ION	4.50986E-05	0.0	0.0	0.0
FEIIIOHION	3.95684E-23	0.0	0.0	0.0
FION	0.00105237	0.0	0.0	0.0
H2P2O7ION	1.50324E-22	0.0	0.0	0.0
H2PO4ION	9.46020E-11	0.0	0.0	0.0
H2SIO4ION	1.74106E-05	0.0	0.0	0.0
H3SIO4ION	8.14840E-06	0.0	0.0	0.0
HCO3ION	8.70231E-05	0.0	0.0	0.0
HCRO4ION	1.94535E-11	0.0	0.0	0.0
HF2ION	7.25271E-17	0.0	0.0	0.0
HION	2.02096E-13	0.0	0.0	0.0
HOXALATION	2.24768E-11	0.0	0.0	0.0
HP2O7ION	1.39770E-15	0.0	0.0	0.0
HPBO2ION	6.22278E-04	0.0	0.0	0.0
HPO4ION	1.52479E-04	0.0	0.0	0.0
HSO4ION	5.44776E-15	0.0	0.0	0.0
HWO4ION	1.31626E-14	0.0	0.0	0.0
KION	0.00111519	0.0	0.0	0.0
KSO4ION	2.67324E-06	0.0	0.0	0.0
LIION	0.00118142	0.0	0.0	0.0
LISO4ION	4.01142E-07	0.0	0.0	0.0
MGACETION	2.58791E-11	0.0	0.0	0.0
MGC2O42ION	2.86677E-08	0.0	0.0	0.0
MGCOOHION	1.41302E-11	0.0	0.0	0.0
MGFION	3.15474E-14	0.0	0.0	0.0
MGH2PO4ION	6.95245E-18	0.0	0.0	0.0
MGHCO3ION	4.49697E-12	0.0	0.0	0.0
MGHSIO3ION	5.06589E-13	0.0	0.0	0.0
MGION	8.22906E-09	0.0	0.0	0.0
MGOHION	1.59724E-08	0.0	0.0	0.0
MGP2O7ION	1.83772E-14	0.0	0.0	0.0
MGPO4ION	6.37126E-07	0.0	0.0	0.0
MNACET3ION	5.42833E-18	0.0	0.0	0.0
MNACETION	7.23796E-13	0.0	0.0	0.0
MNBRION	3.22206E-13	0.0	0.0	0.0
MNC2O42ION	1.17433E-08	0.0	0.0	0.0
MNC2O43ION	2.00862E-07	0.0	0.0	0.0
MNCLION	1.10551E-13	0.0	0.0	0.0
MNCOOHION	8.40512E-13	0.0	0.0	0.0
MNION	3.54686E-10	0.0	0.0	0.0
MNNO3ION	4.22132E-14	0.0	0.0	0.0
MNOH3ION	1.37834E-07	0.0	0.0	0.0
MNOH4ION	1.16031E-07	0.0	0.0	0.0
MNOHION	1.79989E-08	0.0	0.0	0.0
NA2FION	1.12324E-06	0.0	0.0	0.0
NACO3ION	0.0228552	0.0	0.0	0.0
NAION	0.378652	0.0	0.0	0.0
NASO4ION	0.00100475	0.0	0.0	0.0
NIACET3ION	7.86014E-22	0.0	0.0	0.0
NIACETION	5.24347E-17	0.0	0.0	0.0

NIC2O42ION	3.60716E-11	0.0	0.0	0.0
NICLION	1.20596E-19	0.0	0.0	0.0
NICOOHION	5.50490E-17	0.0	0.0	0.0
NIFION	8.36092E-18	0.0	0.0	0.0
NIION	1.45275E-14	0.0	0.0	0.0
NINO3ION	2.97330E-18	0.0	0.0	0.0
NIOH3ION	3.88924E-07	0.0	0.0	0.0
NIOHION	1.94868E-12	0.0	0.0	0.0
NO2ION	0.0107038	0.0	0.0	0.0
NO3ION	4.44133E-04	0.0	0.0	0.0
ACETATEION	7.47214E-04	0.0	0.0	0.0
OXALATION	0.0337463	0.0	0.0	0.0
P2O7ION	1.42244E-10	0.0	0.0	0.0
PBACET3ION	3.08469E-18	0.0	0.0	0.0
PBACETION	7.84751E-15	0.0	0.0	0.0
PBBR3ION	2.66642E-22	0.0	0.0	0.0
PBBRION	4.32307E-16	0.0	0.0	0.0
PBCL3ION	1.61376E-22	0.0	0.0	0.0
PBCL4ION	2.29425E-25	0.0	0.0	0.0
PBCLION	5.37856E-16	0.0	0.0	0.0
PBCOOHION	9.40500E-16	0.0	0.0	0.0
PBF3ION	1.03154E-19	0.0	0.0	0.0
PBF4ION	2.32122E-22	0.0	0.0	0.0
PBFION	7.70738E-16	0.0	0.0	0.0
PBH2PO4ION	1.42487E-22	0.0	0.0	0.0
PBION	5.50938E-13	0.0	0.0	0.0
PBNO23ION	1.57332E-13	0.0	0.0	0.0
PBNO2ION	3.15399E-12	0.0	0.0	0.0
PBNO33ION	7.57433E-24	0.0	0.0	0.0
PBNO3ION	3.31500E-16	0.0	0.0	0.0
PBOHION	5.61749E-09	0.0	0.0	0.0
PO4ION	0.00325911	0.0	0.0	0.0
RUIIICL2ION	1.18657E-29	0.0	0.0	0.0
RUIIICLION	3.19598E-23	0.0	0.0	0.0
RUIIIION	7.48692E-25	0.0	0.0	0.0
RUIIIOH2ION	8.83016E-05	0.0	0.0	0.0
RUIIIOHION	1.59311E-15	0.0	0.0	0.0
RUIIISO42ION	0.0	0.0	0.0	0.0
RUIIISO4ION	3.03390E-28	0.0	0.0	0.0
SO4ION	0.00142875	0.0	0.0	0.0
SRACETION	1.70752E-10	0.0	0.0	0.0
SRCOOHION	1.32937E-10	0.0	0.0	0.0
SRFION	2.63021E-11	0.0	0.0	0.0
SRHC2O4ION	1.17425E-17	0.0	0.0	0.0
SRION	7.03109E-08	0.0	0.0	0.0
SRNO3ION	3.62841E-11	0.0	0.0	0.0
SROHION	5.55059E-09	0.0	0.0	0.0
SRPO4ION	5.52276E-08	0.0	0.0	0.0
WO4ION	8.96859E-05	0.0	0.0	0.0
ZNACET3ION	1.89711E-20	0.0	0.0	0.0
ZNACETION	9.85730E-17	0.0	0.0	0.0
ZNBR3ION	1.57008E-27	0.0	0.0	0.0
ZNBRION	1.43855E-19	0.0	0.0	0.0
ZNC2O42ION	7.73916E-11	0.0	0.0	0.0
ZNC2O43ION	3.43046E-10	0.0	0.0	0.0
ZNCL3ION	1.54580E-25	0.0	0.0	0.0
ZNCLION	2.43542E-18	0.0	0.0	0.0

ZNCOOHION	5.55864E-17	0.0	0.0	0.0
ZNFION	1.41792E-17	0.0	0.0	0.0
ZNH2PO4ION	1.02621E-23	0.0	0.0	0.0
ZNHC2O4ION	1.09948E-23	0.0	0.0	0.0
ZNHCO3ION	5.96715E-18	0.0	0.0	0.0
ZNION	1.00666E-14	0.0	0.0	0.0
ZNNO3ION	3.73317E-18	0.0	0.0	0.0
ZNOH3ION	2.05114E-05	0.0	0.0	0.0
ZNOH4ION	7.06586E-05	0.0	0.0	0.0
ZNOHION	2.13449E-11	0.0	0.0	0.0
ZROH2ION	5.31943E-29	0.0	0.0	0.0
ZROH3ION	2.39047E-20	0.0	0.0	0.0
ZROH5ION	7.31598E-06	0.0	0.0	0.0
AG2CO3	0.0	8.34838E-11	0.0	0.0
ZRO2	0.0	2.93592E-08	0.0	0.0
MGOH2	0.0	5.32059E-08	0.0	0.0
CEPO4	0.0	1.19425E-05	0.0	0.0
	==========	==========	==========	==========
Total g/hr	701.252	0.0113533	0.0	0.0
Volume, L/hr	0.681497	3.37443E-06	0.0	0.0
Enthalpy, cal/hr	-2.63002E+06	-36.2448	0.0	0.0
Density, g/L	1028.99	3364.52		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	17.5496			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0466241			
E-Con, cm2/ohm-mol	61.0585			
Abs Visc, cP	1.01904			
Rel Visc	1.14407			
Ionic Strength	0.782239			

Campaign I UF Recycle

STREAM: Total UF Recycle
TO :
FROM : Total Recycle mixer

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.97585			
Total mol/hr	130.4417	0.0276501	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	127.057	0.0	0.0	0.0
ACETACID	1.36477E-05	0.0	0.0	0.0
CO2	0.0619819	0.0	0.0	0.0
FORM2	2.87805E-28	0.0	0.0	0.0
H2F2	2.19169E-18	0.0	0.0	0.0
ACET2	1.36380E-18	0.0	0.0	0.0
H2SO4	3.37521E-26	0.0	0.0	0.0
HBR	4.98555E-19	0.0	0.0	0.0
HCL	8.46768E-17	0.0	0.0	0.0
HCOOH	5.29586E-07	0.0	0.0	0.0
HF	4.30556E-07	0.0	0.0	0.0
HNO2	5.13048E-06	0.0	0.0	0.0
HNO3	2.42204E-09	0.0	0.0	0.0
SIF4	2.45840E-26	0.0	0.0	0.0
SO3	4.46544E-30	0.0	0.0	0.0
BAOX	3.17140E-07	0.0	0.0	0.0
BASO4	4.38700E-10	2.68947E-06	0.0	0.0
BOH3	4.05388E-04	0.0	0.0	0.0
CAACET2	1.52303E-10	0.0	0.0	0.0
CAC2O4	7.23598E-06	0.0	0.0	0.0
CACL2	0.0	0.0	0.0	0.0
CACO3	1.31766E-07	0.0	0.0	0.0
CACOOH2	3.31497E-11	0.0	0.0	0.0
CAH2SIO4	5.99194E-15	0.0	0.0	0.0
CAHC2O42	1.90244E-14	0.0	0.0	0.0
CASO4	1.66455E-08	0.0	0.0	0.0
CEACET3	4.34139E-16	0.0	0.0	0.0
CECL3	3.60162E-23	0.0	0.0	0.0
CEF3	2.70594E-12	0.0	0.0	0.0
CEOH3	1.92081E-18	0.0	0.0	0.0
AGCL	1.56642E-09	0.0	0.0	0.0
CRIIC2O4	1.26968E-04	0.0	0.0	0.0
CSACET	1.45436E-08	0.0	0.0	0.0
CSBR	1.31638E-09	0.0	0.0	0.0
CSCL	3.62078E-09	0.0	0.0	0.0
CSNO3	5.34021E-06	0.0	0.0	0.0
CUACET2	2.38936E-13	0.0	0.0	0.0
CUBR2	2.13941E-18	0.0	0.0	0.0
CUC2O4	6.00823E-07	0.0	0.0	0.0
CUCL2	5.65757E-17	0.0	0.0	0.0
CUCO3	1.72089E-08	0.0	0.0	0.0
CUCOOH2	1.62151E-14	0.0	0.0	0.0
CUNO22	1.14164E-11	0.0	0.0	0.0
CUNO32	1.44606E-12	0.0	0.0	0.0

CUOH2	4.17204E-11	0.0	0.0	0.0
FECL3	0.0	0.0	0.0	0.0
FEIIIF3	8.63929E-20	0.0	0.0	0.0
FEIIIOH3	1.05766E-11	0.0	0.0	0.0
AGACET	6.46300E-12	0.0	0.0	0.0
AGBR	6.37487E-09	0.0	0.0	0.0
AGF	4.07003E-12	0.0	0.0	0.0
H2WO4	3.61424E-13	0.0	0.0	0.0
H3PO4	4.79204E-08	0.0	0.0	0.0
H4P2O7	1.95538E-18	0.0	0.0	0.0
H4SIO4	4.36314E-04	0.0	0.0	0.0
HBF4	4.47821E-28	0.0	0.0	0.0
AGNO2	3.45932E-09	0.0	0.0	0.0
AGNO3	2.06680E-10	0.0	0.0	0.0
AGOH	1.13135E-14	0.0	0.0	0.0
ALF3	2.61574E-08	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
ALOH3	4.81789E-11	0.0	0.0	0.0
KACET	1.22230E-06	0.0	0.0	0.0
KCL	1.19227E-08	0.0	0.0	0.0
KCOOH	9.13984E-07	0.0	0.0	0.0
KHSO4	1.67874E-13	0.0	0.0	0.0
KNO3	5.59831E-04	0.0	0.0	0.0
LIACET	6.72034E-06	0.0	0.0	0.0
LIH2BO3	7.86579E-09	0.0	0.0	0.0
LIOH	7.34063E-10	0.0	0.0	0.0
MGACET2	1.82940E-12	0.0	0.0	0.0
MGC2O4	5.03149E-07	0.0	0.0	0.0
MGCO3	8.66244E-10	0.0	0.0	0.0
MGCOOH2	4.87261E-13	0.0	0.0	0.0
MGH2SIO4	8.43450E-16	0.0	0.0	0.0
MGHPO4	1.77603E-08	0.0	0.0	0.0
MGSO4	4.22571E-10	0.0	0.0	0.0
MNACET2	8.92940E-14	0.0	0.0	0.0
MNBR2	1.78866E-15	0.0	0.0	0.0
MNC2O4	6.39113E-06	0.0	0.0	0.0
MNCOOH2	7.01248E-14	0.0	0.0	0.0
MNNO32	2.02456E-10	0.0	0.0	0.0
MNOH2	4.36426E-18	0.0	0.0	0.0
MNSO4	6.80041E-11	0.0	0.0	0.0
NAACET	6.73504E-04	0.0	0.0	0.0
NAALOH4	4.16585E-11	0.0	0.0	0.0
NABOH4	5.66284E-07	0.0	0.0	0.0
NABR	8.40401E-06	0.0	0.0	0.0
NACOOH	3.66224E-04	0.0	0.0	0.0
NAF	8.97129E-04	0.0	0.0	0.0
NAHCO3	0.0441739	0.0	0.0	0.0
NAHSIO3	1.33913E-05	0.0	0.0	0.0
NANO3	0.0946627	0.0	0.0	0.0
NIACET2	3.54585E-15	0.0	0.0	0.0
NIC2O4	2.19475E-06	0.0	0.0	0.0
NICOOH2	3.07991E-15	0.0	0.0	0.0
NIOH2	1.50626E-16	0.0	0.0	0.0
NISO4	1.36045E-12	0.0	0.0	0.0
OXALAC	3.26972E-11	0.0	0.0	0.0
PBACET2	2.78844E-12	0.0	0.0	0.0
PBBR2	2.46084E-15	0.0	0.0	0.0

PBC2O4	2.23274E-04	0.0	0.0	0.0
PBCL2	4.53682E-14	0.0	0.0	0.0
PBCOOH2	2.24156E-13	0.0	0.0	0.0
PBF2	3.78839E-13	0.0	0.0	0.0
PBHPO4	1.65540E-09	0.0	0.0	0.0
PBNO22	7.48054E-08	0.0	0.0	0.0
PBNO32	1.05846E-09	0.0	0.0	0.0
PBO	1.00527E-12	0.0	0.0	0.0
RUIIICL3	4.46159E-20	0.0	0.0	0.0
BAAC2	1.87179E-11	0.0	0.0	0.0
BACO3	1.43390E-08	0.0	0.0	0.0
SIO2	2.04953E-04	0.0	0.0	0.0
BACOOH2	1.42275E-11	0.0	0.0	0.0
SRC2O4	8.59937E-08	0.0	0.0	0.0
SRCOOH2	7.96309E-13	0.0	0.0	0.0
SRHC2O42	3.90293E-16	0.0	0.0	0.0
SRHPO4	4.79314E-10	0.0	0.0	0.0
SRNO32	1.18934E-08	0.0	0.0	0.0
SRSO4	2.24477E-09	0.0	0.0	0.0
ZNACET2	1.73136E-11	0.0	0.0	0.0
ZNBR2	1.16735E-17	0.0	0.0	0.0
ZNC2O4	1.87767E-06	0.0	0.0	0.0
ZNCL2	4.44172E-15	0.0	0.0	0.0
ZNCOOH2	7.44622E-13	0.0	0.0	0.0
ZNHC2O42	2.45032E-15	0.0	0.0	0.0
ZNHPO4	1.03656E-08	0.0	0.0	0.0
ZNNO32	1.99745E-10	0.0	0.0	0.0
ZNOH2	2.64913E-12	0.0	0.0	0.0
ZRC2O42	7.33109E-12	0.0	0.0	0.0
ZRF4	1.96571E-13	0.0	0.0	0.0
ZROH4	5.49726E-12	0.0	0.0	0.0
OHION	2.93782E-07	0.0	0.0	0.0
AGACET2ION	9.71515E-15	0.0	0.0	0.0
AGBR2ION	2.42266E-09	0.0	0.0	0.0
AGBR3ION	1.20216E-11	0.0	0.0	0.0
AGBR4ION	1.33808E-13	0.0	0.0	0.0
AGC2O4ION	1.14693E-08	0.0	0.0	0.0
AGCL2ION	1.61275E-10	0.0	0.0	0.0
AGCL3ION	7.51214E-12	0.0	0.0	0.0
AGCL4ION	3.71437E-14	0.0	0.0	0.0
AGION	1.97690E-09	0.0	0.0	0.0
AGNO22ION	4.01811E-09	0.0	0.0	0.0
AGOH2ION	1.93233E-19	0.0	0.0	0.0
AGSO4ION	2.17891E-11	0.0	0.0	0.0
ALACET2ION	1.75383E-17	0.0	0.0	0.0
ALACETION	1.29747E-15	0.0	0.0	0.0
ALF2ION	3.19189E-09	0.0	0.0	0.0
ALF4ION	1.61102E-08	0.0	0.0	0.0
ALF5ION	2.45889E-09	0.0	0.0	0.0
ALF6ION	1.62282E-10	0.0	0.0	0.0
ALFION	2.96736E-11	0.0	0.0	0.0
ALION	1.40619E-14	0.0	0.0	0.0
ALOH2ION	1.64235E-12	0.0	0.0	0.0
ALOH4ION	1.95972E-10	0.0	0.0	0.0
ALOHCLION	8.69524E-17	0.0	0.0	0.0
ALOHION	1.31495E-13	0.0	0.0	0.0
ALSIO3OHION	9.88289E-25	0.0	0.0	0.0

ALSO42ION	5.34472E-18	0.0	0.0	0.0
ALSO4ION	1.77298E-16	0.0	0.0	0.0
B2OOH5ION	1.09095E-09	0.0	0.0	0.0
B3O3OH4ION	2.49937E-11	0.0	0.0	0.0
B4O5OH4ION	1.74676E-15	0.0	0.0	0.0
BAACETION	1.07940E-08	0.0	0.0	0.0
BACOOHION	1.02356E-08	0.0	0.0	0.0
BAFION	9.86888E-10	0.0	0.0	0.0
BAHCO3ION	1.36355E-06	0.0	0.0	0.0
BAION	5.05389E-06	0.0	0.0	0.0
BAOHION	5.26353E-14	0.0	0.0	0.0
BF2OH2ION	2.41080E-09	0.0	0.0	0.0
BF3OHION	4.48195E-14	0.0	0.0	0.0
BF4ION	4.03800E-18	0.0	0.0	0.0
BFOH3ION	1.55131E-07	0.0	0.0	0.0
BOH4ION	3.49827E-06	0.0	0.0	0.0
BRION	7.56399E-04	0.0	0.0	0.0
CAACETION	1.79912E-08	0.0	0.0	0.0
CACLION	7.42698E-15	0.0	0.0	0.0
CACOOHION	2.16628E-08	0.0	0.0	0.0
CAFION	2.11887E-10	0.0	0.0	0.0
CAH2BO3ION	1.24270E-10	0.0	0.0	0.0
CAH2PO4ION	1.18185E-07	0.0	0.0	0.0
CAHC2O4ION	9.87530E-10	0.0	0.0	0.0
CAHCO3ION	2.98266E-06	0.0	0.0	0.0
CAHSIO3ION	4.95185E-12	0.0	0.0	0.0
CAION	6.86053E-06	0.0	0.0	0.0
CANO3ION	1.14301E-06	0.0	0.0	0.0
CAOHION	2.98996E-12	0.0	0.0	0.0
CAPO4ION	3.24637E-08	0.0	0.0	0.0
CEACET2ION	3.13267E-14	0.0	0.0	0.0
CEACETION	1.73228E-12	0.0	0.0	0.0
CEC2O42ION	1.31793E-07	0.0	0.0	0.0
CEC2O43ION	1.75413E-05	0.0	0.0	0.0
CEC2O4ION	4.72895E-09	0.0	0.0	0.0
CECL2ION	2.75553E-19	0.0	0.0	0.0
CECL4ION	1.83795E-26	0.0	0.0	0.0
CECLION	4.27627E-15	0.0	0.0	0.0
CECO3ION	8.49621E-10	0.0	0.0	0.0
CEF2ION	2.10420E-11	0.0	0.0	0.0
CEF4ION	5.17239E-13	0.0	0.0	0.0
CEFION	7.36603E-11	0.0	0.0	0.0
CEH2PO4ION	1.44808E-12	0.0	0.0	0.0
CEHCO3ION	2.59468E-11	0.0	0.0	0.0
CEION	8.08000E-12	0.0	0.0	0.0
CENO3ION	2.05143E-12	0.0	0.0	0.0
CEOH2ION	1.85913E-15	0.0	0.0	0.0
CEOH4ION	8.12524E-24	0.0	0.0	0.0
CEOHION	5.27007E-14	0.0	0.0	0.0
CESO42ION	3.68535E-14	0.0	0.0	0.0
CESO4ION	1.07817E-12	0.0	0.0	0.0
CLION	0.00220181	0.0	0.0	0.0
CO3ION	9.77225E-04	0.0	0.0	0.0
COOHION	0.00129752	0.0	0.0	0.0
CR2O7ION	1.26983E-07	0.0	0.0	0.0
CRIIC2O42ION	0.00429323	0.0	0.0	0.0
CRIIION	3.98882E-06	0.0	0.0	0.0

CRO4ION	7.08152E-04	0.0	0.0	0.0
CSION	1.77572E-05	0.0	0.0	0.0
CSSO4ION	3.30464E-08	0.0	0.0	0.0
CUACET3ION	8.02272E-15	0.0	0.0	0.0
CUACETION	1.78989E-11	0.0	0.0	0.0
CUBRION	3.25424E-13	0.0	0.0	0.0
CUC2O42ION	4.84923E-04	0.0	0.0	0.0
CUCL3ION	1.38447E-22	0.0	0.0	0.0
CUCLION	3.63667E-13	0.0	0.0	0.0
CUCO32ION	1.34949E-08	0.0	0.0	0.0
CUCOOHION	3.83420E-12	0.0	0.0	0.0
CUION	3.27798E-10	0.0	0.0	0.0
CUNO2ION	1.51013E-10	0.0	0.0	0.0
CUNO3ION	8.54313E-11	0.0	0.0	0.0
CUOH3ION	3.87202E-16	0.0	0.0	0.0
CUOH4ION	1.38139E-21	0.0	0.0	0.0
CUOHION	4.04593E-11	0.0	0.0	0.0
FEIII2OH2ION	0.0	0.0	0.0	0.0
FEIIIBRION	8.94395E-25	0.0	0.0	0.0
FEIIIC2O42ION	1.57073E-07	0.0	0.0	0.0
FEIIIC2O43ION	2.74783E-04	0.0	0.0	0.0
FEIIIC2O4ION	1.00241E-10	0.0	0.0	0.0
FEIIICL2ION	1.05930E-26	0.0	0.0	0.0
FEIIICLION	1.18052E-23	0.0	0.0	0.0
FEIIIF2ION	5.76544E-19	0.0	0.0	0.0
FEIIIFION	2.67384E-19	0.0	0.0	0.0
FEIIIH2PO4ION	3.33859E-19	0.0	0.0	0.0
FEIIIHC2O4ION	4.03307E-21	0.0	0.0	0.0
FEIIIHPO4ION	1.09468E-14	0.0	0.0	0.0
FEIIIION	5.26273E-19	0.0	0.0	0.0
FEIIINO3ION	1.37354E-21	0.0	0.0	0.0
FEIIIOH2ION	2.52464E-13	0.0	0.0	0.0
FEIIIOH4ION	4.55003E-14	0.0	0.0	0.0
FEIIIOHION	4.50387E-15	0.0	0.0	0.0
FEIIISO4ION	7.95160E-22	0.0	0.0	0.0
FION	0.00492878	0.0	0.0	0.0
H2P2O7ION	1.90753E-07	0.0	0.0	0.0
H2PO4ION	0.00635955	0.0	0.0	0.0
H2SIO4ION	1.68167E-12	0.0	0.0	0.0
H3P2O7ION	8.55040E-13	0.0	0.0	0.0
H3SIO4ION	4.32006E-07	0.0	0.0	0.0
HCO3ION	0.460998	0.0	0.0	0.0
HCRO4ION	4.92484E-05	0.0	0.0	0.0
HF2ION	2.57918E-10	0.0	0.0	0.0
HION	2.76124E-07	0.0	0.0	0.0
HOXALATION	2.68659E-05	0.0	0.0	0.0
HP2O7ION	2.56317E-06	0.0	0.0	0.0
HPBO2ION	1.68648E-16	0.0	0.0	0.0
HPO4ION	0.0184289	0.0	0.0	0.0
HSIF6ION	5.96292E-28	0.0	0.0	0.0
HSO4ION	1.32938E-08	0.0	0.0	0.0
HWO4ION	3.48799E-08	0.0	0.0	0.0
HZRF6ION	2.92073E-27	0.0	0.0	0.0
KION	0.00482631	0.0	0.0	0.0
KSO4ION	1.22049E-05	0.0	0.0	0.0
LIION	0.00606792	0.0	0.0	0.0
LISO4ION	2.81774E-06	0.0	0.0	0.0

MGACETION	5.90115E-10	0.0	0.0	0.0
MGC2O42ION	2.04279E-07	0.0	0.0	0.0
MGCOOHION	3.20849E-10	0.0	0.0	0.0
MGFION	7.06379E-13	0.0	0.0	0.0
MGH2PO4ION	2.21171E-09	0.0	0.0	0.0
MGHCO3ION	1.38039E-07	0.0	0.0	0.0
MGHSIO3ION	1.33260E-13	0.0	0.0	0.0
MGION	8.20643E-08	0.0	0.0	0.0
MGOHION	4.36142E-13	0.0	0.0	0.0
MGP2O7ION	3.82801E-10	0.0	0.0	0.0
MGPO4ION	6.72793E-10	0.0	0.0	0.0
MNACET3ION	3.61207E-16	0.0	0.0	0.0
MNACETION	2.41293E-11	0.0	0.0	0.0
MNBRION	1.11999E-11	0.0	0.0	0.0
MNC2O42ION	1.22338E-07	0.0	0.0	0.0
MNC2O43ION	1.35809E-06	0.0	0.0	0.0
MNCLION	3.81001E-12	0.0	0.0	0.0
MNCOOHION	2.79021E-11	0.0	0.0	0.0
MNION	5.73162E-09	0.0	0.0	0.0
MNNO3ION	5.48200E-10	0.0	0.0	0.0
MNOH3ION	1.92994E-23	0.0	0.0	0.0
MNOH4ION	2.93342E-29	0.0	0.0	0.0
MNOHION	6.90711E-13	0.0	0.0	0.0
NA2FION	7.32339E-06	0.0	0.0	0.0
NACO3ION	2.67992E-04	0.0	0.0	0.0
NAION	1.63195	0.0	0.0	0.0
NASO4ION	0.00553732	0.0	0.0	0.0
NIACET3ION	2.54832E-17	0.0	0.0	0.0
NIACETION	8.51689E-13	0.0	0.0	0.0
NIC2O42ION	1.83093E-07	0.0	0.0	0.0
NICLION	2.02503E-15	0.0	0.0	0.0
NICOOHION	8.90382E-13	0.0	0.0	0.0
NIFION	1.35238E-13	0.0	0.0	0.0
NIION	1.40657E-10	0.0	0.0	0.0
NINO3ION	1.88132E-11	0.0	0.0	0.0
NIOH3ION	2.65330E-20	0.0	0.0	0.0
NIOHION	3.79033E-14	0.0	0.0	0.0
NO2ION	0.0516735	0.0	0.0	0.0
NO3ION	0.893293	0.0	0.0	0.0
ACETATEION	0.00347697	0.0	0.0	0.0
OXALATION	0.0734859	0.0	0.0	0.0
P2O7ION	4.44202E-07	0.0	0.0	0.0
PBACET3ION	4.06045E-13	0.0	0.0	0.0
PBACETION	5.17619E-10	0.0	0.0	0.0
PBBR3ION	3.97804E-17	0.0	0.0	0.0
PBBRION	2.97320E-11	0.0	0.0	0.0
PBCL3ION	2.27524E-17	0.0	0.0	0.0
PBCL4ION	4.71063E-20	0.0	0.0	0.0
PBCLION	3.66702E-11	0.0	0.0	0.0
PBCOOHION	6.17734E-11	0.0	0.0	0.0
PBF3ION	1.34106E-14	0.0	0.0	0.0
PBF4ION	4.23435E-17	0.0	0.0	0.0
PBFION	5.06163E-11	0.0	0.0	0.0
PBH2PO4ION	1.31116E-10	0.0	0.0	0.0
PBION	1.14245E-08	0.0	0.0	0.0
PBNO23ION	2.20326E-08	0.0	0.0	0.0
PBNO2ION	2.12105E-07	0.0	0.0	0.0

PBNO33ION	7.40627E-11	0.0	0.0	0.0
PBNO3ION	8.51775E-09	0.0	0.0	0.0
PBOHION	4.38155E-10	0.0	0.0	0.0
PO4ION	6.00676E-07	0.0	0.0	0.0
RUIIICL2ION	3.72881E-17	0.0	0.0	0.0
RUIIICL4ION	3.69322E-23	0.0	0.0	0.0
RUIIICL5ION	6.11383E-26	0.0	0.0	0.0
RUIIICL6ION	2.27834E-28	0.0	0.0	0.0
RUIIICLION	7.27660E-11	0.0	0.0	0.0
RUIIIION	1.31458E-12	0.0	0.0	0.0
RUIIIOH2ION	4.26325E-04	0.0	0.0	0.0
RUIIIOHION	4.49201E-09	0.0	0.0	0.0
RUIIISO42ION	8.57269E-19	0.0	0.0	0.0
RUIIISO43ION	9.09955E-21	0.0	0.0	0.0
RUIIISO4ION	6.07091E-16	0.0	0.0	0.0
SIF6ION	1.71387E-22	0.0	0.0	0.0
SO4ION	0.00619825	0.0	0.0	0.0
SRACETION	7.70933E-10	0.0	0.0	0.0
SRCOOHION	5.97598E-10	0.0	0.0	0.0
SRFION	1.18256E-10	0.0	0.0	0.0
SRHC2O4ION	1.37091E-11	0.0	0.0	0.0
SRION	2.04408E-07	0.0	0.0	0.0
SRNO3ION	6.79025E-08	0.0	0.0	0.0
SROHION	3.23882E-14	0.0	0.0	0.0
SRPO4ION	1.15472E-11	0.0	0.0	0.0
WO4ION	4.32979E-04	0.0	0.0	0.0
ZNACET3ION	1.77379E-13	0.0	0.0	0.0
ZNACETION	4.61761E-10	0.0	0.0	0.0
ZNBR3ION	1.66384E-20	0.0	0.0	0.0
ZNBRION	7.02646E-13	0.0	0.0	0.0
ZNC2O42ION	1.13289E-04	0.0	0.0	0.0
ZNC2O43ION	3.25915E-04	0.0	0.0	0.0
ZNCL3ION	1.54806E-18	0.0	0.0	0.0
ZNCLION	1.16304E-11	0.0	0.0	0.0
ZNCOOHION	2.59294E-10	0.0	0.0	0.0
ZNFION	6.61444E-11	0.0	0.0	0.0
ZNH2PO4ION	6.70651E-10	0.0	0.0	0.0
ZNHC2O4ION	1.33167E-11	0.0	0.0	0.0
ZNHCO3ION	3.08725E-08	0.0	0.0	0.0
ZNION	3.99674E-08	0.0	0.0	0.0
ZNNO3ION	6.81239E-09	0.0	0.0	0.0
ZNOH3ION	3.91215E-16	0.0	0.0	0.0
ZNOH4ION	2.43282E-21	0.0	0.0	0.0
ZNOHION	1.19752E-10	0.0	0.0	0.0
ZRC2O4ION	9.37045E-19	0.0	0.0	0.0
ZRCLION	1.35361E-29	0.0	0.0	0.0
ZRF2ION	1.41731E-17	0.0	0.0	0.0
ZRF3ION	8.76124E-15	0.0	0.0	0.0
ZRF5ION	2.64991E-20	0.0	0.0	0.0
ZRF6ION	1.47264E-19	0.0	0.0	0.0
ZRFION	4.84933E-21	0.0	0.0	0.0
ZRION	4.30453E-27	0.0	0.0	0.0
ZROH2ION	3.64384E-17	0.0	0.0	0.0
ZROH3ION	4.07993E-14	0.0	0.0	0.0
ZROH5ION	4.26964E-11	0.0	0.0	0.0
ZROHION	9.47954E-21	0.0	0.0	0.0
ZRSO4ION	0.0	0.0	0.0	0.0

ZRO2	0.0	3.53444E-05	0.0	0.0
CAC2O4.1H2O	0.0	8.92470E-05	0.0	0.0
CEPO4	0.0	6.73068E-04	0.0	0.0
PB3PO42	0.0	9.37107E-04	0.0	0.0
NAALCO3OH2	0.0	0.02591264	0.0	0.0
Total g/hr	2439.72	4.66806	0.0	0.0
Volume, L/hr	2.34541	0.00164465	0.0	0.0
Enthalpy, cal/hr	-8.95157E+06	-11933.3	0.0	0.0
Density, g/L	1040.21	2838.33		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	29.8565			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0496939			
E-Con, cm2/ohm-mol	33.9288			
Abs Visc, cP	1.01881			
Rel Visc	1.14381			
Ionic Strength	0.765121			

APPENDIX B. OLI/ESP OUTPUT OF KEY STREAMS FROM CAMPAIGN IV

All Flows for Campaign IV Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

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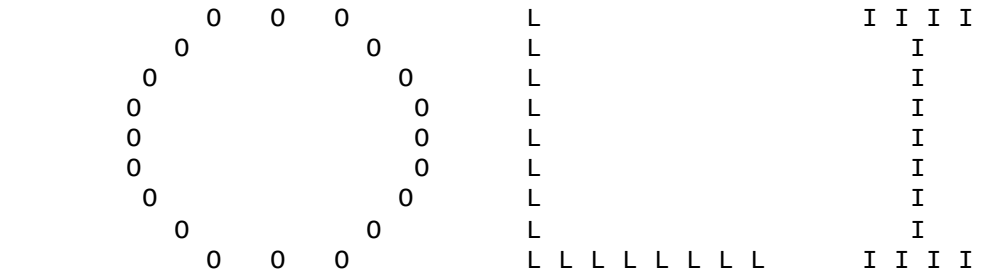

E N V I R O N M E N T A L S I M U L A T I O N P R O G R A M

V - 6.6 October 1, 2002

PROCESS: Campaign IV

CHEMISTRY MODEL: IPC

THIS FILE NAME: IPF4RVA.LIS

DATE: 03/25/2004

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Campaign IV AY-102 Wast Feed

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: adjst AY102
TO : UF Feed Blending Mixer
FROM : AY102 Waste Feed Manipulator

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.7319			
Total mol/hr	22343.73	386.864	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	20354.8	0.0	0.0	0.0
ACETACID	8.91636E-10	0.0	0.0	0.0
CO2	1.31560E-10	0.0	0.0	0.0
H2F2	8.57085E-29	0.0	0.0	0.0
ACET2	6.73519E-29	0.0	0.0	0.0
HBR	4.31307E-23	0.0	0.0	0.0
HCL	7.14809E-21	0.0	0.0	0.0
HCOOH	3.35977E-11	0.0	0.0	0.0
HF	2.84382E-11	0.0	0.0	0.0
HNO2	3.30843E-10	0.0	0.0	0.0
HNO3	2.69642E-16	0.0	0.0	0.0
BAOX	5.39240E-06	0.0	0.0	0.0
BASO4	3.79160E-08	0.5139025	0.0	0.0
BOH3	2.97412E-06	0.0	0.0	0.0
CAACET2	3.30008E-08	0.0	0.0	0.0
CAC2O4	2.28640E-05	0.0	0.0	0.0
CACL2	1.55955E-28	0.0	0.0	0.0
CACO3	0.00115783	9.70973	0.0	0.0
CACOOH2	6.77312E-09	0.0	0.0	0.0
CAH2SIO4	1.45960E-05	0.0	0.0	0.0
CAHC2O42	5.00898E-28	0.0	0.0	0.0
CASO4	2.67348E-07	0.0	0.0	0.0
CEACET3	1.49117E-18	0.0	0.0	0.0
CECL3	2.66865E-25	0.0	0.0	0.0
CEF3	6.54915E-15	0.0	0.0	0.0
CEOH3	0.0128449	0.0	0.0	0.0
AGCL	4.05084E-08	0.0	0.0	0.0
CRIIC2O4	0.0748916	0.0	0.0	0.0
CSACET	6.69823E-05	0.0	0.0	0.0
CSBR	8.02815E-06	0.0	0.0	0.0
CSCL	2.15470E-05	0.0	0.0	0.0
CSNO3	1.23712E-04	0.0	0.0	0.0
CUACET2	3.12277E-19	0.0	0.0	0.0
CUBR2	4.90281E-24	0.0	0.0	0.0
CUC2O4	1.14510E-14	0.0	0.0	0.0
CUCL2	1.23448E-22	0.0	0.0	0.0
CUCO3	9.12091E-13	0.0	0.0	0.0
CUCOOH2	1.99834E-20	0.0	0.0	0.0
CUNO22	1.45365E-17	0.0	0.0	0.0
CUNO32	3.48033E-24	0.0	0.0	0.0
CUOH2	8.50168E-05	0.0	0.0	0.0
FEIIIF3	0.0	0.0	0.0	0.0

FEIIIOH3	5.55497E-06	200.9372	0.0	0.0
AGACET	1.29350E-10	0.0	0.0	0.0
AGBR	1.68947E-07	0.0	0.0	0.0
AGF	7.24857E-11	0.0	0.0	0.0
H2WO4	1.52824E-24	0.0	0.0	0.0
H3PO4	7.45882E-22	0.0	0.0	0.0
H4SIO4	2.42242E-07	0.0	0.0	0.0
AGNO2	6.83376E-08	0.0	0.0	0.0
AGNO3	5.61330E-12	0.0	0.0	0.0
AGOH	2.82734E-07	0.0	0.0	0.0
ALF3	8.67623E-23	0.0	0.0	0.0
ALOH3	4.41545E-07	110.5641	0.0	0.0
KACET	0.00349432	0.0	0.0	0.0
KCL	4.40408E-05	0.0	0.0	0.0
KCOOH	0.00253728	0.0	0.0	0.0
KHSO4	2.68908E-17	0.0	0.0	0.0
KNO3	0.00323948	0.0	0.0	0.0
LIACET	0.00786915	0.0	0.0	0.0
LIH2BO3	0.00103428	0.0	0.0	0.0
LIOH	1.07329	0.0	0.0	0.0
MGACET2	6.49159E-12	0.0	0.0	0.0
MGC2O4	2.60362E-08	0.0	0.0	0.0
MGCO3	1.24655E-07	0.0	0.0	0.0
MGCOOH2	1.63041E-12	0.0	0.0	0.0
MGH2SIO4	3.36474E-08	0.0	0.0	0.0
MGHPO4	1.98629E-11	0.0	0.0	0.0
MGSO4	1.11149E-10	0.0	0.0	0.0
MNACET2	2.16730E-13	0.0	0.0	0.0
MNBR2	7.61233E-15	0.0	0.0	0.0
MNC2O4	2.26211E-07	0.0	0.0	0.0
MNCOOH2	1.60494E-13	0.0	0.0	0.0
MNNO32	9.04859E-16	0.0	0.0	0.0
MNOH2	1.65170E-05	0.2579073	0.0	0.0
MNSO4	1.22353E-11	0.0	0.0	0.0
NAACET	1.08144	0.0	0.0	0.0
NAALOH4	8.85806	0.0	0.0	0.0
NABOH4	0.0963707	0.0	0.0	0.0
NABR	0.017871	0.0	0.0	0.0
NACOOH	0.571102	0.0	0.0	0.0
NAF	1.28204	0.0	0.0	0.0
NAHCO3	0.00217504	0.0	0.0	0.0
NAHSIO3	0.193648	0.0	0.0	0.0
NANO3	0.977076	0.0	0.0	0.0
NDACET3	0.0	0.0	0.0	0.0
NDF3	1.31155E-27	0.0	0.0	0.0
NDOH3	6.78927E-16	0.0	0.0	0.0
NIACET2	1.76626E-17	0.0	0.0	0.0
NIC2O4	1.59468E-10	0.0	0.0	0.0
NICOOH2	1.44683E-17	0.0	0.0	0.0
NIOH2	1.17001E-06	6.264126	0.0	0.0
NISO4	5.02400E-16	0.0	0.0	0.0
OXALAC	2.35460E-23	0.0	0.0	0.0
PBACET2	2.67575E-15	0.0	0.0	0.0
PBBR2	4.13958E-18	0.0	0.0	0.0
PBC2O4	3.12397E-09	0.0	0.0	0.0
PBCL2	7.26696E-17	0.0	0.0	0.0
PBCOOH2	2.02820E-16	0.0	0.0	0.0

PBF2	2.87843E-16	0.0	0.0	0.0
PBHPO4	5.00605E-16	0.0	0.0	0.0
PBNO22	6.99399E-11	0.0	0.0	0.0
PBNO32	1.87051E-18	0.0	0.0	0.0
PBO	0.0015934	0.0	0.0	0.0
RUIIICL3	9.66510E-29	0.0	0.0	0.0
BAAC2	2.18247E-08	0.0	0.0	0.0
BACO3	6.78012E-04	0.0	0.0	0.0
SIO2	1.28055E-07	0.0	0.0	0.0
BACOOH2	1.56428E-08	0.0	0.0	0.0
SRC2O4	9.99995E-07	0.0	0.0	0.0
SRCOOH2	5.95616E-10	0.0	0.0	0.0
SRHC2O42	3.78162E-29	0.0	0.0	0.0
SRHPO4	1.20457E-10	0.0	0.0	0.0
SRNO32	1.74676E-11	0.0	0.0	0.0
SRSO4	1.32611E-07	0.0	0.0	0.0
ZNACET2	9.47761E-18	0.0	0.0	0.0
ZNBR2	1.12069E-23	0.0	0.0	0.0
ZNC2O4	1.49907E-14	0.0	0.0	0.0
ZNCL2	4.05939E-21	0.0	0.0	0.0
ZNCOOH2	3.84384E-19	0.0	0.0	0.0
ZNHPO4	1.78849E-18	0.0	0.0	0.0
ZNNO32	2.01378E-22	0.0	0.0	0.0
ZNOH2	2.26117E-06	0.0	0.0	0.0
ZROH4	4.23281E-10	0.0	0.0	0.0
OHION	154.18	0.0	0.0	0.0
AGACET2ION	2.00231E-12	0.0	0.0	0.0
AGBR2ION	8.75524E-07	0.0	0.0	0.0
AGBR3ION	5.31036E-08	0.0	0.0	0.0
AGBR4ION	1.20044E-08	0.0	0.0	0.0
AGC2O4ION	3.44713E-08	0.0	0.0	0.0
AGCL2ION	5.54939E-08	0.0	0.0	0.0
AGCL3ION	3.08354E-08	0.0	0.0	0.0
AGCL4ION	3.02117E-09	0.0	0.0	0.0
AGION	2.22181E-08	0.0	0.0	0.0
AGNO22ION	8.06822E-07	0.0	0.0	0.0
AGOH2ION	6.20958E-05	0.0	0.0	0.0
AGSO4ION	3.32878E-10	0.0	0.0	0.0
ALACET2ION	0.0	0.0	0.0	0.0
ALACETION	1.20905E-30	0.0	0.0	0.0
ALF2ION	6.16060E-24	0.0	0.0	0.0
ALF4ION	4.89678E-22	0.0	0.0	0.0
ALF5ION	6.13920E-22	0.0	0.0	0.0
ALF6ION	5.52984E-22	0.0	0.0	0.0
ALFION	2.45758E-26	0.0	0.0	0.0
ALION	1.29093E-29	0.0	0.0	0.0
ALOH2ION	6.72957E-15	0.0	0.0	0.0
ALOH4ION	19.9333	0.0	0.0	0.0
ALOHCLION	3.66085E-25	0.0	0.0	0.0
ALOHION	2.33196E-22	0.0	0.0	0.0
ALSIO3OHION	2.52738E-04	0.0	0.0	0.0
ALSO4ION	0.0	0.0	0.0	0.0
B2OOH5ION	9.25554E-09	0.0	0.0	0.0
B3O3OH4ION	2.02031E-14	0.0	0.0	0.0
B4O5OH4ION	1.55060E-15	0.0	0.0	0.0
BAACETION	6.56910E-06	0.0	0.0	0.0
BACOOHION	6.05487E-06	0.0	0.0	0.0

BAFION	5.34307E-07	0.0	0.0	0.0
BAHCO3ION	2.66114E-08	0.0	0.0	0.0
BAION	0.00280549	0.0	0.0	0.0
BAOHION	4.30364E-05	0.0	0.0	0.0
BF2OH2ION	8.32608E-17	0.0	0.0	0.0
BF3OHION	1.10311E-27	0.0	0.0	0.0
BFOH3ION	7.51808E-09	0.0	0.0	0.0
BOH4ION	0.237662	0.0	0.0	0.0
BRION	0.607742	0.0	0.0	0.0
CAACETION	2.03474E-06	0.0	0.0	0.0
CACLION	1.11951E-12	0.0	0.0	0.0
CACOOHION	2.38005E-06	0.0	0.0	0.0
CAFION	2.13183E-08	0.0	0.0	0.0
CAH2BO3ION	1.57905E-06	0.0	0.0	0.0
CAH2PO4ION	3.05943E-15	0.0	0.0	0.0
CAHC2O4ION	1.23952E-15	0.0	0.0	0.0
CAHCO3ION	1.42463E-08	0.0	0.0	0.0
CAHSIO3ION	5.04520E-09	0.0	0.0	0.0
CAION	4.88045E-04	0.0	0.0	0.0
CANO3ION	1.89496E-07	0.0	0.0	0.0
CAOHION	4.54176E-04	0.0	0.0	0.0
CAPO4ION	0.0302025	0.0	0.0	0.0
CEACET2ION	5.61474E-17	0.0	0.0	0.0
CEACETION	1.22131E-15	0.0	0.0	0.0
CEC2O42ION	9.91337E-13	0.0	0.0	0.0
CEC2O43ION	2.72407E-10	0.0	0.0	0.0
CEC2O4ION	1.24442E-13	0.0	0.0	0.0
CECL2ION	8.24624E-22	0.0	0.0	0.0
CECL4ION	1.81207E-27	0.0	0.0	0.0
CECLION	3.89674E-18	0.0	0.0	0.0
CECO3ION	6.46012E-11	0.0	0.0	0.0
CEF2ION	2.98553E-14	0.0	0.0	0.0
CEF4ION	1.14718E-14	0.0	0.0	0.0
CEFION	4.61561E-14	0.0	0.0	0.0
CEH2PO4ION	2.49016E-25	0.0	0.0	0.0
CEHCO3ION	4.63604E-19	0.0	0.0	0.0
CEION	2.20518E-13	0.0	0.0	0.0
CENO3ION	3.15548E-18	0.0	0.0	0.0
CEOH2ION	5.65676E-06	0.0	0.0	0.0
CEOH4ION	0.698688	0.0	0.0	0.0
CEOHION	7.08801E-11	0.0	0.0	0.0
CESO42ION	7.16233E-18	0.0	0.0	0.0
CESO4ION	1.43408E-16	0.0	0.0	0.0
CLION	1.80104	0.0	0.0	0.0
CO3ION	377.533	0.0	0.0	0.0
COOHION	0.788507	0.0	0.0	0.0
CR2O7ION	9.49131E-18	0.0	0.0	0.0
CRIIC2O42ION	3.51025	0.0	0.0	0.0
CRIIION	0.0338634	0.0	0.0	0.0
CRO4ION	0.619765	0.0	0.0	0.0
CSION	0.0186003	0.0	0.0	0.0
CSSO4ION	1.16178E-04	0.0	0.0	0.0
CUACET3ION	1.07977E-19	0.0	0.0	0.0
CUACETION	1.22101E-17	0.0	0.0	0.0
CUBRION	2.94086E-19	0.0	0.0	0.0
CUC2O42ION	1.28115E-11	0.0	0.0	0.0
CUCL3ION	4.01961E-27	0.0	0.0	0.0

CUCLION	3.20577E-19	0.0	0.0	0.0
CUCO32ION	2.75848E-09	0.0	0.0	0.0
CUCOOHION	2.54091E-18	0.0	0.0	0.0
CUION	1.07724E-16	0.0	0.0	0.0
CUNO2ION	1.00536E-16	0.0	0.0	0.0
CUNO3ION	7.84935E-20	0.0	0.0	0.0
CUOH3ION	0.010133	0.0	0.0	0.0
CUOH4ION	0.417408	0.0	0.0	0.0
CUOHION	3.70512E-11	0.0	0.0	0.0
FEIIIC2O42ION	9.27941E-23	0.0	0.0	0.0
FEIIIC2O43ION	3.35147E-19	0.0	0.0	0.0
FEIIIC2O4ION	2.07244E-25	0.0	0.0	0.0
FEIIIF2ION	0.0	0.0	0.0	0.0
FEIIIFION	0.0	0.0	0.0	0.0
FEIIIHPO4ION	0.0	0.0	0.0	0.0
FEIIIION	0.0	0.0	0.0	0.0
FEIIIOH2ION	5.77260E-14	0.0	0.0	0.0
FEIIIOH4ION	0.307292	0.0	0.0	0.0
FEIIIOHION	5.16948E-22	0.0	0.0	0.0
FION	3.3824	0.0	0.0	0.0
H2P2O7ION	1.09559E-22	0.0	0.0	0.0
H2PO4ION	1.69520E-09	0.0	0.0	0.0
H2SIO4ION	0.180456	0.0	0.0	0.0
H3SIO4ION	0.00235843	0.0	0.0	0.0
HCO3ION	0.0117409	0.0	0.0	0.0
HCRO4ION	2.72223E-09	0.0	0.0	0.0
HF2ION	9.89452E-14	0.0	0.0	0.0
HION	9.94556E-12	0.0	0.0	0.0
HOXALATION	1.89807E-10	0.0	0.0	0.0
HP2O7ION	1.14080E-14	0.0	0.0	0.0
HPBO2ION	2.48098	0.0	0.0	0.0
HPO4ION	0.0730648	0.0	0.0	0.0
HSO4ION	4.77382E-13	0.0	0.0	0.0
HWO4ION	1.44693E-12	0.0	0.0	0.0
KION	4.38172	0.0	0.0	0.0
KSO4ION	0.0265995	0.0	0.0	0.0
LIION	3.88668	0.0	0.0	0.0
LISO4ION	0.00251607	0.0	0.0	0.0
MGACETION	1.09298E-09	0.0	0.0	0.0
MGC2O42ION	1.46533E-08	0.0	0.0	0.0
MGCOOHION	5.77296E-10	0.0	0.0	0.0
MGFION	1.23648E-12	0.0	0.0	0.0
MGH2PO4ION	9.37646E-19	0.0	0.0	0.0
MGHCO3ION	3.25840E-12	0.0	0.0	0.0
MGHSIO3ION	2.22349E-12	0.0	0.0	0.0
MGION	1.39751E-07	0.0	0.0	0.0
MGOHION	1.05126E-06	0.0	0.0	0.0
MGP2O7ION	1.35882E-14	0.0	0.0	0.0
MGPO4ION	1.02506E-05	0.0	0.0	0.0
MNACET3ION	9.02824E-15	0.0	0.0	0.0
MNACETION	3.05685E-11	0.0	0.0	0.0
MNBRION	1.87966E-11	0.0	0.0	0.0
MNC2O42ION	6.00245E-09	0.0	0.0	0.0
MNC2O43ION	3.79782E-07	0.0	0.0	0.0
MNCLION	6.23725E-12	0.0	0.0	0.0
MNCOOHION	3.43425E-11	0.0	0.0	0.0
MNION	1.30029E-08	0.0	0.0	0.0

MNNO3ION	1.01762E-12	0.0	0.0	0.0
MNOH3ION	9.39144E-04	0.0	0.0	0.0
MNOH4ION	0.0164562	0.0	0.0	0.0
MNOHION	1.18338E-06	0.0	0.0	0.0
NA2FION	0.107795	0.0	0.0	0.0
NACO3ION	102.556	0.0	0.0	0.0
NAION	1203.98	0.0	0.0	0.0
NASO4ION	4.80205	0.0	0.0	0.0
NDACET2ION	3.35149E-30	0.0	0.0	0.0
NDACETION	9.29260E-29	0.0	0.0	0.0
NDCLION	0.0	0.0	0.0	0.0
NDCO3ION	1.10038E-23	0.0	0.0	0.0
NDF2ION	5.08789E-27	0.0	0.0	0.0
NDF4ION	2.70088E-27	0.0	0.0	0.0
NDFION	5.60951E-27	0.0	0.0	0.0
NDHCO3ION	0.0	0.0	0.0	0.0
NDION	1.85282E-26	0.0	0.0	0.0
NDNO3ION	0.0	0.0	0.0	0.0
NDOH2ION	1.09064E-19	0.0	0.0	0.0
NDOH4ION	2.99887E-12	0.0	0.0	0.0
NDOHION	1.22549E-23	0.0	0.0	0.0
NDSO42ION	0.0	0.0	0.0	0.0
NDSO4ION	1.23036E-29	0.0	0.0	0.0
NIACET3ION	1.30720E-18	0.0	0.0	0.0
NIACETION	2.21466E-15	0.0	0.0	0.0
NIC2O42ION	1.84396E-11	0.0	0.0	0.0
NICLION	6.80521E-18	0.0	0.0	0.0
NICOOHION	2.24934E-15	0.0	0.0	0.0
NIFION	3.12847E-16	0.0	0.0	0.0
NIION	4.26741E-13	0.0	0.0	0.0
NINO3ION	7.16719E-17	0.0	0.0	0.0
NIOH3ION	0.00265027	0.0	0.0	0.0
NIOHION	1.28072E-10	0.0	0.0	0.0
NO2ION	42.2737	0.0	0.0	0.0
NO3ION	0.928062	0.0	0.0	0.0
ACETATEION	2.31993	0.0	0.0	0.0
OXALATION	10.2387	0.0	0.0	0.0
P2O7ION	9.04038E-08	0.0	0.0	0.0
PBACET3ION	4.01313E-15	0.0	0.0	0.0
PBACETION	2.59020E-13	0.0	0.0	0.0
PBBR3ION	9.12613E-19	0.0	0.0	0.0
PBBRION	1.97073E-14	0.0	0.0	0.0
PBCL3ION	3.50019E-19	0.0	0.0	0.0
PBCL4ION	1.39141E-20	0.0	0.0	0.0
PBCLION	2.37295E-14	0.0	0.0	0.0
PBCOOHION	3.00256E-14	0.0	0.0	0.0
PBF3ION	9.33718E-17	0.0	0.0	0.0
PBF4ION	2.42172E-18	0.0	0.0	0.0
PBFION	2.25515E-14	0.0	0.0	0.0
PBH2PO4ION	1.50159E-23	0.0	0.0	0.0
PBION	1.27394E-10	0.0	0.0	0.0
PBNO23ION	2.09333E-10	0.0	0.0	0.0
PBNO2ION	1.03571E-10	0.0	0.0	0.0
PBNO33ION	1.82817E-21	0.0	0.0	0.0
PBNO3ION	6.24318E-15	0.0	0.0	0.0
PBOHION	2.94550E-07	0.0	0.0	0.0
PO4ION	26.4056	0.0	0.0	0.0

RUIIICL2ION	3.26425E-26	0.0	0.0	0.0
RUIIICL4ION	1.06433E-30	0.0	0.0	0.0
RUIIICL5ION	0.0	0.0	0.0	0.0
RUIIICLION	1.94214E-20	0.0	0.0	0.0
RUIIIION	1.56423E-22	0.0	0.0	0.0
RUIIIOH2ION	0.34874	0.0	0.0	0.0
RUIIIOHION	1.15657E-12	0.0	0.0	0.0
RUIIISO42ION	4.87175E-29	0.0	0.0	0.0
RUIIISO43ION	5.42516E-30	0.0	0.0	0.0
RUIIISO4ION	2.36215E-26	0.0	0.0	0.0
SO4ION	4.77882	0.0	0.0	0.0
SRACETION	3.20821E-07	0.0	0.0	0.0
SRCOOHION	2.41752E-07	0.0	0.0	0.0
SRFION	4.37842E-08	0.0	0.0	0.0
SRHC2O4ION	6.33227E-17	0.0	0.0	0.0
SRION	5.93686E-05	0.0	0.0	0.0
SRNO3ION	4.07377E-08	0.0	0.0	0.0
SROHION	1.62424E-05	0.0	0.0	0.0
SRPO4ION	3.95341E-05	0.0	0.0	0.0
WO4ION	0.354207	0.0	0.0	0.0
ZNACET3ION	9.99642E-19	0.0	0.0	0.0
ZNACETION	1.31936E-16	0.0	0.0	0.0
ZNBR3ION	2.17762E-25	0.0	0.0	0.0
ZNBRION	2.65958E-19	0.0	0.0	0.0
ZNC2O42ION	1.25366E-12	0.0	0.0	0.0
ZNC2O43ION	2.05570E-11	0.0	0.0	0.0
ZNCL3ION	1.35864E-23	0.0	0.0	0.0
ZNCLION	4.55367E-18	0.0	0.0	0.0
ZNCOOHION	7.19779E-17	0.0	0.0	0.0
ZNFION	1.68139E-17	0.0	0.0	0.0
ZNH2PO4ION	4.38683E-26	0.0	0.0	0.0
ZNHC2O4ION	4.22343E-26	0.0	0.0	0.0
ZNHCO3ION	2.87250E-19	0.0	0.0	0.0
ZNION	1.73539E-15	0.0	0.0	0.0
ZNNO3ION	2.85214E-18	0.0	0.0	0.0
ZNOH3ION	0.0030955	0.0	0.0	0.0
ZNOH4ION	0.357748	0.0	0.0	0.0
ZNOHION	4.44470E-11	0.0	0.0	0.0
ZROH2ION	6.11845E-28	0.0	0.0	0.0
ZROH3ION	1.42536E-18	0.0	0.0	0.0
ZROH5ION	0.0305102	0.0	0.0	0.0
AG2CO3	0.0	0.9155709	0.0	0.0
SRCO3	0.0	1.039461	0.0	0.0
ZRO2	0.0	4.371115	0.0	0.0
MGOH2	0.0	4.239154	0.0	0.0
NASGEL.15.5H2O	0.0	17.18042	0.0	0.0
NDPO4.2H2O	0.0	1.007561	0.0	0.0
NA2C2O4	0.0	29.86373	0.0	0.0
	==========	==========	==========	==========
Total g/hr	440395.	57205.1	0.0	0.0
Volume, L/hr	376.655	25.8516	0.0	0.0
Enthalpy, cal/hr	-1.58059E+09	-1.64277E+08	0.0	0.0
Density, g/L	1169.23	2212.83		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	115.654			

Redox Pot, volts	0.0
E-Con, 1/ohm-cm	0.1441
E-Con, cm2/ohm-mol	36.7222
Abs Visc, cP	2.55609
Rel Visc	2.86969
Ionic Strength	4.60908

Campaign IV AP-101 Wast Feed

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: adjst AP101
TO : UF Feed Blending Mixer
FROM : AP101 Waste Feed Manipulator

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	14.72			
Total mol/hr	65540.57	1.19457	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	53408.4	0.0	0.0	0.0
ACETACID	6.65195E-10	0.0	0.0	0.0
CO2	1.36065E-12	0.0	0.0	0.0
H2F2	0.0	0.0	0.0	0.0
ACET2	2.18188E-29	0.0	0.0	0.0
HCL	1.69092E-20	0.0	0.0	0.0
HCOOH	6.01274E-11	0.0	0.0	0.0
HF	1.27914E-12	0.0	0.0	0.0
HNO2	4.60108E-10	0.0	0.0	0.0
HNO3	1.60199E-14	0.0	0.0	0.0
BAOX	1.28101E-06	0.0	0.0	0.0
BASO4	2.08145E-08	0.0	0.0	0.0
BOH3	1.45411E-06	0.0	0.0	0.0
CAACET2	2.00742E-06	0.0	0.0	0.0
CAC2O4	4.93844E-05	0.0	0.0	0.0
CACL2	9.53802E-26	0.0	0.0	0.0
CACO3	0.00198924	0.1426151	0.0	0.0
CACOOH2	2.37085E-06	0.0	0.0	0.0
CAH2SIO4	4.16674E-04	0.0	0.0	0.0
CAHC2O42	7.24351E-30	0.0	0.0	0.0
CASO4	1.33440E-06	0.0	0.0	0.0
CUACET2	3.72114E-23	0.0	0.0	0.0
CUC2O4	4.84511E-20	0.0	0.0	0.0
CUCL2	1.47899E-25	0.0	0.0	0.0
CUCO3	3.06975E-18	0.0	0.0	0.0
CUCOOH2	1.37027E-23	0.0	0.0	0.0
CUNO22	6.01934E-21	0.0	0.0	0.0
CUNO32	4.68186E-24	0.0	0.0	0.0
CUOH2	4.20518E-08	0.0	0.0	0.0
FEIIIOH3	6.57366E-08	0.0	0.0	0.0
H2WO4	3.55196E-27	0.0	0.0	0.0
H3PO4	4.47062E-25	0.0	0.0	0.0
H4SIO4	3.68282E-08	0.0	0.0	0.0
ALF3	5.05813E-27	0.0	0.0	0.0
ALOH3	4.53983E-07	0.0	0.0	0.0
KACET	1.03764	0.0	0.0	0.0
KCL	0.041468	0.0	0.0	0.0
KCOOH	1.8074	0.0	0.0	0.0
KHSO4	2.84513E-16	0.0	0.0	0.0
KNO3	151.29	0.0	0.0	0.0
LIACET	1.15454E-04	0.0	0.0	0.0
LIH2BO3	9.94482E-06	0.0	0.0	0.0

LIOH	0.0320828	0.0	0.0	0.0
NAACET	9.86014	0.0	0.0	0.0
NAALOH4	98.4721	0.0	0.0	0.0
NABOH4	0.50944	0.0	0.0	0.0
NACOOH	12.4909	0.0	0.0	0.0
NAF	0.914922	0.0	0.0	0.0
NAHCO3	2.43218E-04	0.0	0.0	0.0
NAHSIO3	0.406696	0.0	0.0	0.0
NANO3	1193.22	0.0	0.0	0.0
NIACET2	7.31058E-18	0.0	0.0	0.0
NIC2O4	2.34367E-12	0.0	0.0	0.0
NICOOH2	3.44601E-17	0.0	0.0	0.0
NIOH2	2.01017E-06	0.1997892	0.0	0.0
NISO4	1.70625E-17	0.0	0.0	0.0
OXALAC	2.70845E-25	0.0	0.0	0.0
PBACET2	1.70112E-18	0.0	0.0	0.0
PBC2O4	7.05214E-14	0.0	0.0	0.0
PBCL2	4.64502E-19	0.0	0.0	0.0
PBCOOH2	7.41998E-19	0.0	0.0	0.0
PBF2	1.12112E-21	0.0	0.0	0.0
PBHPO4	5.88847E-22	0.0	0.0	0.0
PBNO22	1.54514E-13	0.0	0.0	0.0
PBNO32	1.34249E-17	0.0	0.0	0.0
PBO	4.75299E-06	0.0	0.0	0.0
BAAC2	1.46014E-07	0.0	0.0	0.0
BACO3	1.28119E-04	0.0	0.0	0.0
SIO2	2.50261E-08	0.0	0.0	0.0
BACOOH2	6.02230E-07	0.0	0.0	0.0
ZNACET2	4.27004E-21	0.0	0.0	0.0
ZNC2O4	2.39816E-19	0.0	0.0	0.0
ZNCL2	1.83882E-23	0.0	0.0	0.0
ZNCOOH2	9.96552E-22	0.0	0.0	0.0
ZNHPO4	1.49086E-24	0.0	0.0	0.0
ZNNO32	1.02425E-21	0.0	0.0	0.0
ZNOH2	4.22873E-09	0.0	0.0	0.0
OHION	2402.29	0.0	0.0	0.0
ALF2ION	1.27731E-27	0.0	0.0	0.0
ALF4ION	1.50453E-26	0.0	0.0	0.0
ALF5ION	7.08809E-27	0.0	0.0	0.0
ALF6ION	2.61250E-27	0.0	0.0	0.0
ALFION	5.65006E-30	0.0	0.0	0.0
ALOH2ION	8.41387E-16	0.0	0.0	0.0
ALOH4ION	226.1	0.0	0.0	0.0
ALOHCLION	1.08455E-25	0.0	0.0	0.0
ALOHION	8.35684E-25	0.0	0.0	0.0
ALSIO3OHION	0.0808224	0.0	0.0	0.0
B2OOH5ION	1.99684E-08	0.0	0.0	0.0
B3O3OH4ION	1.58479E-14	0.0	0.0	0.0
B4O5OH4ION	4.32576E-15	0.0	0.0	0.0
BAACETION	1.24986E-05	0.0	0.0	0.0
BACOOHION	2.76307E-05	0.0	0.0	0.0
BAFION	7.98021E-08	0.0	0.0	0.0
BAHCO3ION	6.23522E-10	0.0	0.0	0.0
BAION	0.00233229	0.0	0.0	0.0
BAOHION	1.38334E-04	0.0	0.0	0.0
BF2OH2ION	5.92181E-19	0.0	0.0	0.0
BF3OHION	0.0	0.0	0.0	0.0

BFOH3ION	1.39184E-09	0.0	0.0	0.0
BOH4ION	1.147	0.0	0.0	0.0
CAACETION	3.51989E-05	0.0	0.0	0.0
CACLION	4.18666E-10	0.0	0.0	0.0
CACOOHION	9.87728E-05	0.0	0.0	0.0
CAFION	2.89496E-08	0.0	0.0	0.0
CAH2BO3ION	1.79354E-05	0.0	0.0	0.0
CAH2PO4ION	4.40440E-17	0.0	0.0	0.0
CAHC2O4ION	3.31311E-16	0.0	0.0	0.0
CAHCO3ION	3.64340E-09	0.0	0.0	0.0
CAHSIO3ION	2.01444E-08	0.0	0.0	0.0
CAION	0.00255769	0.0	0.0	0.0
CANO3ION	3.13353E-04	0.0	0.0	0.0
CAOHION	0.0132556	0.0	0.0	0.0
CAPO4ION	0.0527084	0.0	0.0	0.0
CLION	51.2844	0.0	0.0	0.0
CO3ION	514.801	0.0	0.0	0.0
COOHION	15.4855	0.0	0.0	0.0
CR2O7ION	9.73377E-19	0.0	0.0	0.0
CRO4ION	3.66822	0.0	0.0	0.0
CUACET3ION	8.66348E-23	0.0	0.0	0.0
CUACETION	4.13772E-22	0.0	0.0	0.0
CUC2O42ION	6.22208E-17	0.0	0.0	0.0
CUCL3ION	1.02817E-28	0.0	0.0	0.0
CUCLION	3.42883E-23	0.0	0.0	0.0
CUCO32ION	8.56280E-15	0.0	0.0	0.0
CUCOOHION	2.06567E-22	0.0	0.0	0.0
CUION	1.96960E-22	0.0	0.0	0.0
CUNO2ION	5.70470E-21	0.0	0.0	0.0
CUNO3ION	2.90873E-22	0.0	0.0	0.0
CUOH3ION	6.20632E-05	0.0	0.0	0.0
CUOH4ION	0.0279858	0.0	0.0	0.0
CUOHION	2.11759E-15	0.0	0.0	0.0
FEIIIC2O42ION	1.10231E-27	0.0	0.0	0.0
FEIIIC2O43ION	3.54805E-24	0.0	0.0	0.0
FEIIIC2O4ION	2.93487E-30	0.0	0.0	0.0
FEIIIOH2ION	8.82061E-17	0.0	0.0	0.0
FEIIIOH4ION	0.0498856	0.0	0.0	0.0
FEIIIOHION	2.35936E-26	0.0	0.0	0.0
FION	2.45809	0.0	0.0	0.0
H2P2O7ION	4.80820E-27	0.0	0.0	0.0
H2PO4ION	2.04267E-11	0.0	0.0	0.0
H2SIO4ION	4.95448	0.0	0.0	0.0
H3SIO4ION	0.00442544	0.0	0.0	0.0
HCO3ION	0.0016498	0.0	0.0	0.0
HCRO4ION	1.18878E-09	0.0	0.0	0.0
HF2ION	2.19122E-15	0.0	0.0	0.0
HION	2.82342E-12	0.0	0.0	0.0
HOXALATION	2.43623E-11	0.0	0.0	0.0
HP2O7ION	1.92433E-18	0.0	0.0	0.0
HPBO2ION	0.0808092	0.0	0.0	0.0
HPO4ION	0.00950369	0.0	0.0	0.0
HSO4ION	1.41604E-13	0.0	0.0	0.0
HWO4ION	3.75230E-14	0.0	0.0	0.0
KION	735.407	0.0	0.0	0.0
KSO4ION	3.93912	0.0	0.0	0.0
LIION	0.0220112	0.0	0.0	0.0

LISO4ION	2.04257E-05	0.0	0.0	0.0
NA2FION	0.153992	0.0	0.0	0.0
NACO3ION	44.7503	0.0	0.0	0.0
NAION	4899.92	0.0	0.0	0.0
NASO4ION	15.0143	0.0	0.0	0.0
NIACET3ION	3.64307E-18	0.0	0.0	0.0
NIACETION	2.60681E-16	0.0	0.0	0.0
NIC2O42ION	3.11062E-13	0.0	0.0	0.0
NICLION	2.52823E-18	0.0	0.0	0.0
NICOOHION	6.35165E-16	0.0	0.0	0.0
NIFION	2.89072E-18	0.0	0.0	0.0
NIION	2.83381E-14	0.0	0.0	0.0
NINO3ION	8.06170E-16	0.0	0.0	0.0
NIOH3ION	0.0624641	0.0	0.0	0.0
NIOHION	2.82994E-11	0.0	0.0	0.0
NO2ION	887.278	0.0	0.0	0.0
NO3ION	765.421	0.0	0.0	0.0
ACETATEION	20.1379	0.0	0.0	0.0
OXALATION	21.4855	0.0	0.0	0.0
P2O7ION	1.40428E-10	0.0	0.0	0.0
PBACET3ION	1.71791E-17	0.0	0.0	0.0
PBACETION	4.68751E-17	0.0	0.0	0.0
PBCL3ION	3.80208E-20	0.0	0.0	0.0
PBCL4ION	3.04489E-20	0.0	0.0	0.0
PBCLION	1.35412E-17	0.0	0.0	0.0
PBCOOHION	1.30356E-17	0.0	0.0	0.0
PBF3ION	1.91665E-22	0.0	0.0	0.0
PBF4ION	1.86801E-24	0.0	0.0	0.0
PBFION	3.20067E-19	0.0	0.0	0.0
PBH2PO4ION	2.26143E-30	0.0	0.0	0.0
PBION	1.97088E-14	0.0	0.0	0.0
PBNO23ION	5.80475E-12	0.0	0.0	0.0
PBNO2ION	3.13844E-14	0.0	0.0	0.0
PBNO33ION	9.38695E-18	0.0	0.0	0.0
PBNO3ION	1.07966E-16	0.0	0.0	0.0
PBOHION	8.98145E-11	0.0	0.0	0.0
PO4ION	17.8788	0.0	0.0	0.0
SO4ION	27.8535	0.0	0.0	0.0
WO4ION	0.150181	0.0	0.0	0.0
ZNACET3ION	3.03252E-21	0.0	0.0	0.0
ZNACETION	1.69045E-20	0.0	0.0	0.0
ZNC2O42ION	2.30202E-17	0.0	0.0	0.0
ZNC2O43ION	3.98894E-16	0.0	0.0	0.0
ZNCL3ION	1.04587E-24	0.0	0.0	0.0
ZNCLION	2.44006E-21	0.0	0.0	0.0
ZNCOOHION	2.21242E-20	0.0	0.0	0.0
ZNFION	1.69113E-22	0.0	0.0	0.0
ZNHC2O4ION	0.0	0.0	0.0	0.0
ZNHCO3ION	5.98705E-25	0.0	0.0	0.0
ZNION	6.60129E-20	0.0	0.0	0.0
ZNNO3ION	3.49207E-20	0.0	0.0	0.0
ZNOH3ION	5.70585E-05	0.0	0.0	0.0
ZNOH4ION	0.0955294	0.0	0.0	0.0
ZNOHION	1.07712E-14	0.0	0.0	0.0
NA2C2O4	0.0	0.8521657	0.0	0.0
Total g/hr	1.43262E+06	146.981	0.0	0.0

Volume, L/hr	1120.69	0.00973007	0.0	0.0
Enthalpy, cal/hr	-4.55368E+09	-3.36487E+05	0.0	0.0
Density, g/L	1278.33	15105.9		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	289.321			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.260945			
E-Con, cm2/ohm-mol	42.6272			
Abs Visc, cP	3.34011			
Rel Visc	3.74991			
Ionic Strength	6.50872			

Campaign IV HLW SBS

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: HLW SBS
TO : FEP Evaporator Mixer
FROM :

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	11.2708			
Total mol/hr	17584.38	2.07515	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	17409.6	0.0	0.0	0.0
H2F2	1.83767E-26	0.0	0.0	0.0
H2SO4	0.0	0.0	0.0	0.0
HCL	1.53832E-16	0.0	0.0	0.0
HF	5.30577E-10	0.0	0.0	0.0
HNO2	6.67155E-08	0.0	0.0	0.0
HNO3	4.35966E-13	0.0	0.0	0.0
CAC2O4	0.00100638	0.0	0.0	0.0
CACL2	4.05869E-21	0.0	0.0	0.0
CAH2SIO4	0.012038	0.0	0.0	0.0
CAHC2O42	6.50240E-24	0.0	0.0	0.0
CASO4	0.00212416	0.0	0.0	0.0
FECL3	0.0	0.0	0.0	0.0
FEIIIF3	3.26968E-29	0.0	0.0	0.0
FEIIIOH3	9.05301E-06	0.1351721	0.0	0.0
H4SIO4	0.00218167	0.0	0.0	0.0
ALF3	7.11481E-21	0.0	0.0	0.0
ALO2H2CL	1.23662E-30	0.0	0.0	0.0
ALOH3	2.96379E-08	0.0	0.0	0.0
KCL	0.0201873	0.0	0.0	0.0
KHSO4	4.96931E-14	0.0	0.0	0.0
KNO3	0.0801598	0.0	0.0	0.0
MGC2O4	1.08704E-05	0.0	0.0	0.0
MGH2SIO4	2.63228E-04	0.0	0.0	0.0
MGSO4	8.37670E-06	0.0	0.0	0.0
NAALOH4	1.81242E-04	0.0	0.0	0.0
NAF	0.00680839	0.0	0.0	0.0
NAHSIO3	0.461784	0.0	0.0	0.0
NANO3	0.0972861	0.0	0.0	0.0
OXALAC	1.13173E-20	0.0	0.0	0.0
SIO2	0.00100893	0.0	0.0	0.0
ZNC2O4	4.14621E-09	0.0	0.0	0.0
ZNCL2	6.63848E-10	0.0	0.0	0.0
ZNHC2O42	1.32965E-29	0.0	0.0	0.0
ZNNO32	2.75326E-13	0.0	0.0	0.0
ZNOH2	0.00244122	0.6838106	0.0	0.0
OHION	0.793933	0.0	0.0	0.0
ALF2ION	4.81980E-21	0.0	0.0	0.0
ALF4ION	5.63566E-22	0.0	0.0	0.0
ALF5ION	8.58233E-24	0.0	0.0	0.0
ALF6ION	4.26513E-26	0.0	0.0	0.0
ALFION	1.92727E-22	0.0	0.0	0.0

ALION	2.56431E-25	0.0	0.0	0.0
ALOH2ION	4.34033E-14	0.0	0.0	0.0
ALOH4ION	0.00206928	0.0	0.0	0.0
ALOHCLION	2.88200E-20	0.0	0.0	0.0
ALOHION	1.25702E-19	0.0	0.0	0.0
ALSIO3OHION	7.01422E-11	0.0	0.0	0.0
ALSO42ION	2.63334E-28	0.0	0.0	0.0
ALSO4ION	1.01373E-26	0.0	0.0	0.0
CACLION	5.56555E-07	0.0	0.0	0.0
CAFION	3.96283E-06	0.0	0.0	0.0
CAHC2O4ION	5.91641E-12	0.0	0.0	0.0
CAHSIO3ION	4.20594E-04	0.0	0.0	0.0
CAION	0.58734	0.0	0.0	0.0
CANO3ION	0.00369477	0.0	0.0	0.0
CAOHION	0.00778123	0.0	0.0	0.0
CLION	71.3852	0.0	0.0	0.0
FEIIIC2O42ION	1.30304E-20	0.0	0.0	0.0
FEIIIC2O43ION	7.07037E-21	0.0	0.0	0.0
FEIIIC2O4ION	8.74614E-21	0.0	0.0	0.0
FEIIICL2ION	6.13606E-29	0.0	0.0	0.0
FEIIICLION	1.23572E-28	0.0	0.0	0.0
FEIIIF2ION	1.21136E-27	0.0	0.0	0.0
FEIIIFION	2.41641E-27	0.0	0.0	0.0
FEIIIION	3.90919E-26	0.0	0.0	0.0
FEIIINO3ION	3.15177E-30	0.0	0.0	0.0
FEIIIOH2ION	9.35830E-12	0.0	0.0	0.0
FEIIIOH4ION	6.57474E-04	0.0	0.0	0.0
FEIIIOHION	6.26909E-18	0.0	0.0	0.0
FEIIISO4ION	6.33041E-29	0.0	0.0	0.0
FION	0.0914812	0.0	0.0	0.0
H2SIO4ION	0.00192583	0.0	0.0	0.0
H3SIO4ION	0.0391623	0.0	0.0	0.0
HF2ION	3.85056E-14	0.0	0.0	0.0
HION	2.19752E-09	0.0	0.0	0.0
HOXALATION	1.65584E-10	0.0	0.0	0.0
HSO4ION	7.51805E-11	0.0	0.0	0.0
KION	22.9461	0.0	0.0	0.0
KSO4ION	0.0591146	0.0	0.0	0.0
MGC2O42ION	2.33800E-09	0.0	0.0	0.0
MGFION	2.05285E-09	0.0	0.0	0.0
MGHSIO3ION	1.75824E-06	0.0	0.0	0.0
MGION	0.00124248	0.0	0.0	0.0
MGOHION	1.70298E-04	0.0	0.0	0.0
NA2FION	1.66290E-05	0.0	0.0	0.0
NAION	63.4298	0.0	0.0	0.0
NASO4ION	0.167456	0.0	0.0	0.0
NO2ION	11.4963	0.0	0.0	0.0
NO3ION	2.61628	0.0	0.0	0.0
OXALATION	0.00568587	0.0	0.0	0.0
SO4ION	0.44542	0.0	0.0	0.0
ZNC2O42ION	1.32511E-10	0.0	0.0	0.0
ZNC2O43ION	6.73499E-14	0.0	0.0	0.0
ZNCL3ION	5.42597E-11	0.0	0.0	0.0
ZNCLION	5.44431E-09	0.0	0.0	0.0
ZNFION	1.96400E-11	0.0	0.0	0.0
ZNHC2O4ION	1.26674E-18	0.0	0.0	0.0
ZNION	6.86286E-08	0.0	0.0	0.0

ZNNO3ION	3.49636E-10	0.0	0.0	0.0
ZNOH3ION	0.0065177	0.0	0.0	0.0
ZNOH4ION	5.15671E-04	0.0	0.0	0.0
ZNOHION	5.07061E-06	0.0	0.0	0.0
MGOH2	0.0	0.3790613	0.0	0.0
NASGEL.15.5H2O	0.0	0.2348952	0.0	0.0
CAF2	0.0	0.6408675	0.0	0.0
CAC2O4.1H2O	0.0	0.001343281	0.0	0.0
	==========	==========	==========	==========
Total g/hr	319400.	427.391	0.0	0.0
Volume, L/hr	316.475	0.236959	0.0	0.0
Enthalpy, cal/hr	-1.19808E+09	-1.40574E+06	0.0	0.0
Density, g/L	1009.24	1803.65		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	12.6078			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0264799			
E-Con, cm2/ohm-mol	90.0165			
Abs Visc, cP	0.906294			
Rel Visc	1.01749			
Ionic Strength	0.282515			

Campaign IV PVP-04/06

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: PVP
TO : FEP Evaporator Mixer
FROM :

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	12.8948			
Total mol/hr	20377.3	0.0	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	20304.	0.0	0.0	0.0
OHION	36.6512	0.0	0.0	0.0
HION	6.18536E-11	0.0	0.0	0.0
NAION	36.6512	0.0	0.0	0.0
	==========	==========	==========	==========
Total g/hr	367250.	0.0	0.0	0.0
Volume, L/hr	366.805	0.0	0.0	0.0
Enthalpy, cal/hr	-1.39115E+09	0.0	0.0	0.0
Density, g/L	1001.21			
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	0.0	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	4.62208			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.022333			
E-Con, cm2/ohm-mol	223.508			
Abs Visc, cP	0.910087			
Rel Visc	1.02174			
Ionic Strength	0.1002			

Campaign IV HLW Canister Decon.

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: HLW decon in
TO : FEP Evaporator Mixer
FROM :

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.0455			
Total mol/hr	10619.53	0.0	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	10454.8	0.0	0.0	0.0
HNO3	1.34194E-13	0.0	0.0	0.0
NANO3	3.70695	0.0	0.0	0.0
OHION	28.3395	0.0	0.0	0.0
HION	1.99330E-11	0.0	0.0	0.0
NAION	80.5106	0.0	0.0	0.0
NO3ION	52.1711	0.0	0.0	0.0
	==========	==========	==========	==========
Total g/hr	194230.	0.0	0.0	0.0
Volume, L/hr	190.532	0.0	0.0	0.0
Enthalpy, cal/hr	-7.23366E+08	0.0	0.0	0.0
Density, g/L	1019.41			
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	0.0	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	19.3127			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0540132			
E-Con, cm2/ohm-mol	122.198			
Abs Visc, cP	0.933534			
Rel Visc	1.04807			
Ionic Strength	0.427461			

Campaign IV Input UF and Cs-IX Recycle (Campaign III Output Recycle)

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: recycle II
TO : FEP Evaporator Mixer
FROM :

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	11.2006			
Total mol/hr	55959.33	43.7185	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	54240.6	0.0	0.0	0.0
ACETACID	6.36307E-07	0.0	0.0	0.0
CO2	1.34256E-05	0.0	0.0	0.0
H2F2	4.79705E-25	0.0	0.0	0.0
ACET2	7.06407E-24	0.0	0.0	0.0
H2SO4	0.0	0.0	0.0	0.0
HBR	2.42941E-21	0.0	0.0	0.0
HCL	2.73602E-17	0.0	0.0	0.0
HCOOH	5.50776E-08	0.0	0.0	0.0
HF	3.94106E-09	0.0	0.0	0.0
HNO2	5.21241E-07	0.0	0.0	0.0
HNO3	7.56857E-11	0.0	0.0	0.0
BAOX	1.29218E-04	0.0	0.0	0.0
BASO4	1.84110E-07	0.01958438	0.0	0.0
BOH3	0.00113188	0.0	0.0	0.0
CAACET2	1.55885E-07	0.0	0.0	0.0
CAC2O4	0.00195736	0.0	0.0	0.0
CACL2	2.11922E-26	0.0	0.0	0.0
CACO3	0.0056221	0.2044268	0.0	0.0
CACOOH2	1.68826E-07	0.0	0.0	0.0
CAH2SIO4	5.69999E-07	0.0	0.0	0.0
CAHC2O42	1.67865E-20	0.0	0.0	0.0
CASO4	4.63777E-06	0.0	0.0	0.0
CEACET3	3.00439E-16	0.0	0.0	0.0
CECL3	8.29596E-21	0.0	0.0	0.0
CEF3	1.62660E-14	0.0	0.0	0.0
CEOH3	9.61389E-07	0.0	0.0	0.0
AGCL	1.04054E-06	0.0	0.0	0.0
CRIIC2O4	0.00980929	0.0	0.0	0.0
CSACET	2.40967E-06	0.0	0.0	0.0
CSBR	2.27954E-08	0.0	0.0	0.0
CSCL	4.15752E-06	0.0	0.0	0.0
CSNO3	6.21930E-04	0.0	0.0	0.0
CUACET2	3.77320E-13	0.0	0.0	0.0
CUBR2	3.69048E-20	0.0	0.0	0.0
CUC2O4	2.50758E-07	0.0	0.0	0.0
CUCL2	4.29094E-15	0.0	0.0	0.0
CUCO3	1.13288E-06	0.0	0.0	0.0
CUCOOH2	1.27412E-13	0.0	0.0	0.0
CUNO22	8.56058E-11	0.0	0.0	0.0
CUNO32	1.06070E-12	0.0	0.0	0.0
CUOH2	0.00530846	0.04053986	0.0	0.0

FEIIIF3	2.64616E-27	0.0	0.0	0.0
FEIIIOH3	2.69734E-05	8.333132	0.0	0.0
AGACET	6.19487E-10	0.0	0.0	0.0
AGBR	6.38631E-08	0.0	0.0	0.0
AGF	8.01939E-11	0.0	0.0	0.0
H2WO4	1.26757E-19	0.0	0.0	0.0
H3PO4	1.67226E-14	0.0	0.0	0.0
H4SIO4	2.10047E-04	0.0	0.0	0.0
AGNO2	7.22542E-07	0.0	0.0	0.0
AGNO3	1.35016E-08	0.0	0.0	0.0
AGOH	9.73399E-09	0.0	0.0	0.0
ALF3	1.39802E-17	0.0	0.0	0.0
ALO2H2CL	5.42320E-30	0.0	0.0	0.0
ALOH3	2.14402E-06	7.634203	0.0	0.0
KACET	0.0356392	0.0	0.0	0.0
KCL	0.00240918	0.0	0.0	0.0
KCOOH	0.0594455	0.0	0.0	0.0
KHSO4	1.48029E-13	0.0	0.0	0.0
KNO3	11.4929	0.0	0.0	0.0
LIACET	9.93711E-04	0.0	0.0	0.0
LIH2BO3	6.96518E-05	0.0	0.0	0.0
LIOH	9.74312E-04	0.0	0.0	0.0
MGACET2	3.21964E-07	0.0	0.0	0.0
MGC2O4	0.0234031	0.0	0.0	0.0
MGCO3	0.00635536	0.0	0.0	0.0
MGCOOH2	4.26701E-07	0.0	0.0	0.0
MGH2SIO4	1.37965E-05	0.0	0.0	0.0
MGHPO4	2.10586E-04	0.0	0.0	0.0
MGSO4	2.02449E-05	0.0	0.0	0.0
MNACET2	7.37942E-10	0.0	0.0	0.0
MNBR2	1.61469E-13	0.0	0.0	0.0
MNC2O4	0.0139591	0.0	0.0	0.0
MNCOOH2	2.88359E-09	0.0	0.0	0.0
MNNO32	7.77117E-07	0.0	0.0	0.0
MNOH2	2.90621E-06	0.0	0.0	0.0
MNSO4	1.52993E-07	0.0	0.0	0.0
NAACET	0.573872	0.0	0.0	0.0
NAALOH4	0.0337908	0.0	0.0	0.0
NABOH4	0.0288131	0.0	0.0	0.0
NABR	7.48508E-04	0.0	0.0	0.0
NACOOH	0.696165	0.0	0.0	0.0
NAF	0.157158	0.0	0.0	0.0
NAHCO3	0.174374	0.0	0.0	0.0
NAHSIO3	0.118179	0.0	0.0	0.0
NANO3	58.2352	0.0	0.0	0.0
NDACET3	0.0	0.0	0.0	0.0
NDF3	4.83569E-29	0.0	0.0	0.0
NDOH3	7.54342E-22	0.0	0.0	0.0
NIACET2	1.65964E-12	0.0	0.0	0.0
NIC2O4	2.71566E-04	0.0	0.0	0.0
NICOOH2	7.17379E-12	0.0	0.0	0.0
NIOH2	5.68127E-06	0.2664657	0.0	0.0
NISO4	1.73366E-10	0.0	0.0	0.0
OXALAC	4.47571E-17	0.0	0.0	0.0
PBACET2	1.63386E-11	0.0	0.0	0.0
PBBR2	1.57468E-16	0.0	0.0	0.0
PBC2O4	3.45714E-04	0.0	0.0	0.0

PBCL2	1.27650E-11	0.0	0.0	0.0
PBCOOH2	6.53509E-12	0.0	0.0	0.0
PBF2	9.37928E-14	0.0	0.0	0.0
PBHPO4	6.53423E-10	0.0	0.0	0.0
PBNO22	2.08146E-06	0.0	0.0	0.0
PBNO32	2.88092E-09	0.0	0.0	0.0
PBO	4.75899E-04	0.0	0.0	0.0
RUIIICL3	2.76227E-23	0.0	0.0	0.0
BAAC2	2.88567E-08	0.0	0.0	0.0
BACO3	9.21536E-04	0.0	0.0	0.0
SIO2	9.92669E-05	0.0	0.0	0.0
BACOOH2	1.09140E-07	0.0	0.0	0.0
SRC2O4	8.56084E-05	0.0	0.0	0.0
SRCOOH2	1.48341E-08	0.0	0.0	0.0
SRHC2O42	1.26732E-21	0.0	0.0	0.0
SRHPO4	1.21630E-07	0.0	0.0	0.0
SRNO32	2.08121E-05	0.0	0.0	0.0
SRSO4	2.30045E-06	0.0	0.0	0.0
ZNACET2	5.89961E-10	0.0	0.0	0.0
ZNBR2	4.34587E-18	0.0	0.0	0.0
ZNC2O4	1.69116E-05	0.0	0.0	0.0
ZNCL2	7.26915E-12	0.0	0.0	0.0
ZNCOOH2	1.26259E-10	0.0	0.0	0.0
ZNHC2O42	7.19858E-23	0.0	0.0	0.0
ZNHPO4	2.37980E-08	0.0	0.0	0.0
ZNNO32	3.16183E-09	0.0	0.0	0.0
ZNOH2	0.00727362	0.08169742	0.0	0.0
ZRC2O42	3.29262E-26	0.0	0.0	0.0
ZRF4	2.25546E-29	0.0	0.0	0.0
ZROH4	2.29418E-09	0.0	0.0	0.0
OHION	2.08222	0.0	0.0	0.0
AGACET2ION	1.84104E-12	0.0	0.0	0.0
AGBR2ION	5.01494E-09	0.0	0.0	0.0
AGBR3ION	5.49628E-12	0.0	0.0	0.0
AGBR4ION	1.46921E-14	0.0	0.0	0.0
AGC2O4ION	5.74419E-07	0.0	0.0	0.0
AGCL2ION	1.46782E-06	0.0	0.0	0.0
AGCL3ION	1.00148E-06	0.0	0.0	0.0
AGCL4ION	7.88465E-08	0.0	0.0	0.0
AGION	1.07280E-07	0.0	0.0	0.0
AGNO22ION	3.61561E-06	0.0	0.0	0.0
AGOH2ION	2.95044E-09	0.0	0.0	0.0
AGSO4ION	1.12401E-09	0.0	0.0	0.0
ALACET2ION	6.13724E-25	0.0	0.0	0.0
ALACETION	2.75305E-23	0.0	0.0	0.0
ALF2ION	4.72214E-18	0.0	0.0	0.0
ALF4ION	3.49929E-18	0.0	0.0	0.0
ALF5ION	2.32016E-19	0.0	0.0	0.0
ALF6ION	7.23282E-21	0.0	0.0	0.0
ALFION	1.29821E-19	0.0	0.0	0.0
ALION	1.40992E-22	0.0	0.0	0.0
ALOH2ION	4.53188E-12	0.0	0.0	0.0
ALOH4ION	0.152294	0.0	0.0	0.0
ALOHCLION	1.89404E-19	0.0	0.0	0.0
ALOHION	2.24594E-17	0.0	0.0	0.0
ALSIO3OHION	3.60253E-10	0.0	0.0	0.0
ALSO42ION	4.74905E-26	0.0	0.0	0.0

ALSO4ION	1.68936E-24	0.0	0.0	0.0
B2OOH5ION	3.60634E-07	0.0	0.0	0.0
B3O3OH4ION	5.52745E-11	0.0	0.0	0.0
B4O5OH4ION	4.90242E-13	0.0	0.0	0.0
BAACETION	9.46425E-06	0.0	0.0	0.0
BACOOHION	2.00182E-05	0.0	0.0	0.0
BAFION	1.77964E-07	0.0	0.0	0.0
BAHCO3ION	5.70139E-06	0.0	0.0	0.0
BAION	0.00292987	0.0	0.0	0.0
BAOHION	4.12367E-07	0.0	0.0	0.0
BF2OH2ION	6.11986E-14	0.0	0.0	0.0
BF3OHION	2.60553E-23	0.0	0.0	0.0
BF4ION	0.0	0.0	0.0	0.0
BFOH3ION	1.71962E-07	0.0	0.0	0.0
BOH4ION	0.169403	0.0	0.0	0.0
BRION	0.0643429	0.0	0.0	0.0
CAACETION	1.04729E-05	0.0	0.0	0.0
CACLION	2.79440E-11	0.0	0.0	0.0
CACOOHION	2.81263E-05	0.0	0.0	0.0
CAFION	2.53673E-08	0.0	0.0	0.0
CAH2BO3ION	4.33293E-06	0.0	0.0	0.0
CAH2PO4ION	5.14958E-10	0.0	0.0	0.0
CAHC2O4ION	1.69003E-11	0.0	0.0	0.0
CAHCO3ION	8.37063E-06	0.0	0.0	0.0
CAHSIO3ION	2.98532E-08	0.0	0.0	0.0
CAION	0.00256992	0.0	0.0	0.0
CANO3ION	4.44708E-04	0.0	0.0	0.0
CAOHION	1.55465E-05	0.0	0.0	0.0
CAPO4ION	0.0398372	0.0	0.0	0.0
CEACET2ION	1.23298E-14	0.0	0.0	0.0
CEACETION	4.13479E-13	0.0	0.0	0.0
CEC2O42ION	1.25949E-08	0.0	0.0	0.0
CEC2O43ION	2.15135E-06	0.0	0.0	0.0
CEC2O4ION	4.92548E-10	0.0	0.0	0.0
CECL2ION	5.19903E-18	0.0	0.0	0.0
CECL4ION	5.80048E-23	0.0	0.0	0.0
CECLION	6.99347E-15	0.0	0.0	0.0
CECO3ION	1.43540E-08	0.0	0.0	0.0
CEF2ION	3.50133E-13	0.0	0.0	0.0
CEF4ION	1.26361E-15	0.0	0.0	0.0
CEFION	3.62514E-12	0.0	0.0	0.0
CEH2PO4ION	2.62091E-18	0.0	0.0	0.0
CEHCO3ION	3.33603E-14	0.0	0.0	0.0
CEION	2.20687E-12	0.0	0.0	0.0
CENO3ION	3.00052E-13	0.0	0.0	0.0
CEOH2ION	5.94575E-08	0.0	0.0	0.0
CEOH4ION	7.21709E-08	0.0	0.0	0.0
CEOHION	1.18519E-10	0.0	0.0	0.0
CESO42ION	3.73642E-15	0.0	0.0	0.0
CESO4ION	1.15551E-13	0.0	0.0	0.0
CLION	12.3804	0.0	0.0	0.0
CO3ION	69.7094	0.0	0.0	0.0
COOHION	2.34487	0.0	0.0	0.0
CR2O7ION	3.05870E-13	0.0	0.0	0.0
CRIIC2O42ION	0.36625	0.0	0.0	0.0
CRIIION	4.72801E-04	0.0	0.0	0.0
CRO4ION	0.428898	0.0	0.0	0.0

CSION	0.00133876	0.0	0.0	0.0
CSSO4ION	2.94674E-06	0.0	0.0	0.0
CUACET3ION	2.50475E-14	0.0	0.0	0.0
CUACETION	1.60756E-11	0.0	0.0	0.0
CUBRION	3.05558E-14	0.0	0.0	0.0
CUC2O42ION	2.23475E-04	0.0	0.0	0.0
CUCL3ION	1.43869E-19	0.0	0.0	0.0
CUCLION	2.25931E-12	0.0	0.0	0.0
CUCO32ION	1.53008E-04	0.0	0.0	0.0
CUCOOHION	7.68080E-12	0.0	0.0	0.0
CUION	1.90004E-10	0.0	0.0	0.0
CUNO2ION	2.91803E-10	0.0	0.0	0.0
CUNO3ION	5.26298E-11	0.0	0.0	0.0
CUOH3ION	8.61820E-04	0.0	0.0	0.0
CUOH4ION	5.85114E-05	0.0	0.0	0.0
CUOHION	3.24581E-07	0.0	0.0	0.0
FEIIIBRION	0.0	0.0	0.0	0.0
FEIIIC2O42ION	7.64855E-14	0.0	0.0	0.0
FEIIIC2O43ION	1.71718E-10	0.0	0.0	0.0
FEIIIC2O4ION	5.32089E-17	0.0	0.0	0.0
FEIIICL2ION	1.02038E-30	0.0	0.0	0.0
FEIIICLION	9.83728E-29	0.0	0.0	0.0
FEIIIF2ION	4.88826E-26	0.0	0.0	0.0
FEIIIFION	6.70505E-26	0.0	0.0	0.0
FEIIIH2PO4ION	3.06782E-30	0.0	0.0	0.0
FEIIIHC2O4ION	0.0	0.0	0.0	0.0
FEIIIHPO4ION	1.47915E-21	0.0	0.0	0.0
FEIIIION	3.20914E-25	0.0	0.0	0.0
FEIIINO3ION	1.02366E-27	0.0	0.0	0.0
FEIIIOH2ION	3.99759E-11	0.0	0.0	0.0
FEIIIOH4ION	0.00205929	0.0	0.0	0.0
FEIIIOHION	4.43205E-17	0.0	0.0	0.0
FEIIISO4ION	4.34366E-28	0.0	0.0	0.0
FION	0.825418	0.0	0.0	0.0
H2P2O7ION	1.89686E-14	0.0	0.0	0.0
H2PO4ION	4.06043E-05	0.0	0.0	0.0
H2SIO4ION	2.79003E-04	0.0	0.0	0.0
H3P2O7ION	4.32226E-24	0.0	0.0	0.0
H3SIO4ION	0.00366792	0.0	0.0	0.0
HCO3ION	1.78089	0.0	0.0	0.0
HCRO4ION	1.53974E-06	0.0	0.0	0.0
HF2ION	9.81799E-13	0.0	0.0	0.0
HION	6.96257E-09	0.0	0.0	0.0
HOXALATION	6.39631E-07	0.0	0.0	0.0
HP2O7ION	4.60205E-09	0.0	0.0	0.0
HPBO2ION	0.00140416	0.0	0.0	0.0
HPO4ION	2.20832	0.0	0.0	0.0
HSO4ION	3.26009E-10	0.0	0.0	0.0
HWO4ION	2.12751E-10	0.0	0.0	0.0
KION	79.7435	0.0	0.0	0.0
KSO4ION	0.188783	0.0	0.0	0.0
LIION	0.520364	0.0	0.0	0.0
LISO4ION	2.24329E-04	0.0	0.0	0.0
MGACETION	5.90675E-05	0.0	0.0	0.0
MGC2O42ION	0.0104918	0.0	0.0	0.0
MGCOOHION	7.16313E-05	0.0	0.0	0.0
MGFION	1.45433E-08	0.0	0.0	0.0

MGH2PO4ION	1.65705E-09	0.0	0.0	0.0
MGHCO3ION	6.03699E-05	0.0	0.0	0.0
MGHSIO3ION	1.38142E-07	0.0	0.0	0.0
MGION	0.0049018	0.0	0.0	0.0
MGOHION	3.83635E-04	0.0	0.0	0.0
MGP2O7ION	1.28110E-06	0.0	0.0	0.0
MGPO4ION	0.141962	0.0	0.0	0.0
MNACET3ION	5.90162E-12	0.0	0.0	0.0
MNACETION	1.13412E-07	0.0	0.0	0.0
MNBRION	5.50340E-09	0.0	0.0	0.0
MNC2O42ION	2.95046E-04	0.0	0.0	0.0
MNC2O43ION	0.00496962	0.0	0.0	0.0
MNCLION	1.23871E-07	0.0	0.0	0.0
MNCOOHION	2.92539E-07	0.0	0.0	0.0
MNION	1.98365E-05	0.0	0.0	0.0
MNNO3ION	1.72227E-06	0.0	0.0	0.0
MNOH3ION	2.28055E-07	0.0	0.0	0.0
MNOH4ION	6.57653E-09	0.0	0.0	0.0
MNOHION	2.96738E-05	0.0	0.0	0.0
NA2FION	0.0014825	0.0	0.0	0.0
NACO3ION	18.6275	0.0	0.0	0.0
NAION	799.581	0.0	0.0	0.0
NASO4ION	2.52427	0.0	0.0	0.0
NDACET2ION	1.09225E-29	0.0	0.0	0.0
NDACETION	4.66413E-28	0.0	0.0	0.0
NDCLION	8.96365E-30	0.0	0.0	0.0
NDCO3ION	3.62857E-23	0.0	0.0	0.0
NDF2ION	8.85542E-28	0.0	0.0	0.0
NDF4ION	4.41637E-30	0.0	0.0	0.0
NDFION	6.53171E-27	0.0	0.0	0.0
NDHCO3ION	3.61533E-29	0.0	0.0	0.0
NDION	2.72025E-27	0.0	0.0	0.0
NDNO3ION	5.38491E-28	0.0	0.0	0.0
NDOH2ION	1.71003E-23	0.0	0.0	0.0
NDOH4ION	4.59848E-21	0.0	0.0	0.0
NDOHION	3.12457E-25	0.0	0.0	0.0
NDSO42ION	2.21089E-30	0.0	0.0	0.0
NDSO4ION	1.47127E-28	0.0	0.0	0.0
NIACET3ION	2.35813E-14	0.0	0.0	0.0
NIACETION	2.26751E-10	0.0	0.0	0.0
NIC2O42ION	2.50132E-05	0.0	0.0	0.0
NICLION	3.72970E-12	0.0	0.0	0.0
NICOOHION	5.28767E-10	0.0	0.0	0.0
NIFION	7.40518E-12	0.0	0.0	0.0
NIION	2.26157E-08	0.0	0.0	0.0
NINO3ION	3.34752E-09	0.0	0.0	0.0
NIOH3ION	1.77605E-05	0.0	0.0	0.0
NIOHION	8.87013E-08	0.0	0.0	0.0
NO2ION	93.6872	0.0	0.0	0.0
NO3ION	517.86	0.0	0.0	0.0
ACETATEION	2.82773	0.0	0.0	0.0
OXALATION	34.2978	0.0	0.0	0.0
P2O7ION	1.56950E-05	0.0	0.0	0.0
PBACET3ION	4.70453E-12	0.0	0.0	0.0
PBACETION	1.72504E-09	0.0	0.0	0.0
PBBR3ION	5.26042E-19	0.0	0.0	0.0
PBBRION	1.03577E-11	0.0	0.0	0.0

PBCL3ION	8.69291E-14	0.0	0.0	0.0
PBCL4ION	2.70800E-15	0.0	0.0	0.0
PBCLION	8.45137E-10	0.0	0.0	0.0
PBCOOHION	4.59119E-10	0.0	0.0	0.0
PBF3ION	1.34933E-15	0.0	0.0	0.0
PBF4ION	1.85081E-18	0.0	0.0	0.0
PBFION	3.46886E-11	0.0	0.0	0.0
PBH2PO4ION	3.27029E-15	0.0	0.0	0.0
PBION	2.78330E-08	0.0	0.0	0.0
PBNO23ION	2.64047E-06	0.0	0.0	0.0
PBNO2ION	1.52062E-06	0.0	0.0	0.0
PBNO33ION	2.71489E-10	0.0	0.0	0.0
PBNO3ION	1.89673E-08	0.0	0.0	0.0
PBOHION	1.30374E-05	0.0	0.0	0.0
PO4ION	1.32497	0.0	0.0	0.0
RUIIICL2ION	1.89155E-21	0.0	0.0	0.0
RUIIICL4ION	3.13262E-25	0.0	0.0	0.0
RUIIICL5ION	7.59480E-27	0.0	0.0	0.0
RUIIICL6ION	4.50836E-28	0.0	0.0	0.0
RUIIICLION	3.20026E-16	0.0	0.0	0.0
RUIIIION	5.38180E-19	0.0	0.0	0.0
RUIIIOH2ION	0.0362839	0.0	0.0	0.0
RUIIIOHION	2.55818E-11	0.0	0.0	0.0
RUIIISO42ION	2.33683E-25	0.0	0.0	0.0
RUIIISO43ION	3.27912E-27	0.0	0.0	0.0
RUIIISO4ION	1.74935E-22	0.0	0.0	0.0
SO4ION	3.00696	0.0	0.0	0.0
SRACETION	1.65129E-06	0.0	0.0	0.0
SRCOOHION	2.85541E-06	0.0	0.0	0.0
SRFION	5.21002E-08	0.0	0.0	0.0
SRHC2O4ION	8.63377E-13	0.0	0.0	0.0
SRION	2.87097E-04	0.0	0.0	0.0
SRNO3ION	9.92139E-05	0.0	0.0	0.0
SROHION	6.23312E-07	0.0	0.0	0.0
SRPO4ION	5.21458E-05	0.0	0.0	0.0
WO4ION	0.0517723	0.0	0.0	0.0
ZNACET3ION	1.19463E-11	0.0	0.0	0.0
ZNACETION	8.94880E-09	0.0	0.0	0.0
ZNBR3ION	1.27959E-21	0.0	0.0	0.0
ZNBRION	1.42358E-12	0.0	0.0	0.0
ZNC2O42ION	0.00112658	0.0	0.0	0.0
ZNC2O43ION	0.00491778	0.0	0.0	0.0
ZNCL3ION	3.43981E-14	0.0	0.0	0.0
ZNCLION	1.55973E-09	0.0	0.0	0.0
ZNCOOHION	1.12090E-08	0.0	0.0	0.0
ZNFION	2.63654E-10	0.0	0.0	0.0
ZNH2PO4ION	9.73021E-14	0.0	0.0	0.0
ZNHC2O4ION	7.58836E-15	0.0	0.0	0.0
ZNHCO3ION	2.77319E-09	0.0	0.0	0.0
ZNION	5.01212E-07	0.0	0.0	0.0
ZNNO3ION	8.82482E-08	0.0	0.0	0.0
ZNOH3ION	0.0186233	0.0	0.0	0.0
ZNOH4ION	0.00226391	0.0	0.0	0.0
ZNOHION	2.04451E-05	0.0	0.0	0.0
ZRF2ION	0.0	0.0	0.0	0.0
ZRF3ION	3.67876E-30	0.0	0.0	0.0
ZROH2ION	5.80001E-23	0.0	0.0	0.0

ZROH3ION	1.05721E-15	0.0	0.0	0.0
ZROH5ION	3.13375E-04	0.0	0.0	0.0
ZROHION	1.21113E-30	0.0	0.0	0.0
AG2CO3	0.0	0.03716006	0.0	0.0
SRCO3	0.0	0.04197526	0.0	0.0
ZRO2	0.0	0.2014688	0.0	0.0
NASGEL.15.5H2O	0.0	0.7631583	0.0	0.0
NDPO4.2H2O	0.0	0.04098446	0.0	0.0
CA3PO42	0.0	0.07620613	0.0	0.0
CEPO4	0.0	0.07339693	0.0	0.0
PB3PO42	0.0	0.08802572	0.0	0.0
NAALCO3OH2	0.0	25.81608	0.0	0.0
	==========	==========	==========	==========
Total g/hr	1.05214E+06	6315.9	0.0	0.0
Volume, L/hr	1002.38	2.75238	0.0	0.0
Enthalpy, cal/hr	-3.81879E+09	-1.96748E+07	0.0	0.0
Density, g/L	1049.64	2294.71		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	33.7624			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0660452			
E-Con, cm2/ohm-mol	42.5334			
Abs Visc, cP	0.985476			
Rel Visc	1.10638			
Ionic Strength	1.01728			

Campaign IV FEP Condensate

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: FEP condensate
TO : FEP Condensate Split
FROM : FEP Condensate Mixer

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.05434			
Total mol/hr	90868.91	0.0	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	90868.9	0.0	0.0	0.0
ACETACID	1.22794E-08	0.0	0.0	0.0
CO2	0.0027062	0.0	0.0	0.0
H2F2	0.0	0.0	0.0	0.0
ACET2	1.43525E-27	0.0	0.0	0.0
HCOOH	7.48616E-11	0.0	0.0	0.0
HF	1.15450E-12	0.0	0.0	0.0
HNO2	4.91671E-08	0.0	0.0	0.0
OHION	1.88390E-05	0.0	0.0	0.0
CO3ION	7.44069E-08	0.0	0.0	0.0
COOHION	1.36976E-08	0.0	0.0	0.0
FION	8.08020E-10	0.0	0.0	0.0
HCO3ION	0.00139329	0.0	0.0	0.0
HF2ION	1.38148E-25	0.0	0.0	0.0
HION	0.00144609	0.0	0.0	0.0
NO2ION	3.35697E-05	0.0	0.0	0.0
ACETATEION	2.28429E-07	0.0	0.0	0.0
	==========	==========	==========	==========
Total g/hr	1.63703E+06	0.0	0.0	0.0
Volume, L/hr	1642.21	0.0	0.0	0.0
Enthalpy, cal/hr	-6.20754E+09	0.0	0.0	0.0
Density, g/L	996.847			
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	0.0	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	8.28390E-05			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	3.49140E-07			
E-Con, cm2/ohm-mol	138.713			
Abs Visc, cP	0.890722			
Rel Visc	1.			
Ionic Strength	8.83414E-07			

Campaign IV FEP Cooled Bottoms

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: fep cooled botts
TO : UF Feed Blending Mixer
FROM : FEP Evaporator Cooling Mixer

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.3268			
Total mol/hr	13458.11	61.2973	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	11544.3	0.0	0.0	0.0
ACETACID	3.04422E-09	0.0	0.0	0.0
CO2	2.76003E-10	0.0	0.0	0.0
H2F2	3.70367E-28	0.0	0.0	0.0
ACET2	1.18377E-27	0.0	0.0	0.0
HBR	1.50456E-23	0.0	0.0	0.0
HCL	1.07465E-18	0.0	0.0	0.0
HCOOH	2.62523E-10	0.0	0.0	0.0
HF	2.54579E-11	0.0	0.0	0.0
HNO2	2.44226E-09	0.0	0.0	0.0
HNO3	2.46789E-13	0.0	0.0	0.0
BAOX	5.62480E-06	0.0	0.0	0.0
BASO4	2.51468E-08	0.0220639	0.0	0.0
BOH3	6.42680E-06	0.0	0.0	0.0
CAACET2	1.90990E-07	0.0	0.0	0.0
CAC2O4	7.02235E-05	0.0	0.0	0.0
CACL2	1.75011E-24	0.0	0.0	0.0
CACO3	7.67900E-04	1.72535	0.0	0.0
CACOOH2	2.05310E-07	0.0	0.0	0.0
CAH2SIO4	7.95932E-06	0.0	0.0	0.0
CAHC2O42	2.16363E-26	0.0	0.0	0.0
CASO4	5.22085E-07	0.0	0.0	0.0
CEACET3	7.01862E-17	0.0	0.0	0.0
CECL3	1.07247E-18	0.0	0.0	0.0
CEF3	3.75790E-14	0.0	0.0	0.0
CEOH3	0.00392249	0.0	0.0	0.0
AGCL	1.37530E-06	0.0	0.0	0.0
CRIIC2O4	0.00412558	0.0	0.0	0.0
CSACET	3.00702E-06	0.0	0.0	0.0
CSBR	3.68236E-08	0.0	0.0	0.0
CSCL	4.25946E-05	0.0	0.0	0.0
CSNO3	0.00187291	0.0	0.0	0.0
CUACET2	7.56732E-18	0.0	0.0	0.0
CUBR2	1.24027E-24	0.0	0.0	0.0
CUC2O4	1.47262E-13	0.0	0.0	0.0
CUCL2	5.80052E-18	0.0	0.0	0.0
CUCO3	2.53288E-12	0.0	0.0	0.0
CUCOOH2	2.53635E-18	0.0	0.0	0.0
CUNO22	1.64674E-15	0.0	0.0	0.0
CUNO32	1.55353E-17	0.0	0.0	0.0
CUOH2	7.16657E-05	0.0	0.0	0.0
FEIIIF3	0.0	0.0	0.0	0.0

FEIIIOH3	3.68419E-06	8.404701	0.0	0.0
AGACET	9.97305E-11	0.0	0.0	0.0
AGBR	1.33090E-08	0.0	0.0	0.0
AGF	2.77115E-11	0.0	0.0	0.0
H2WO4	1.61255E-24	0.0	0.0	0.0
H3PO4	2.92672E-21	0.0	0.0	0.0
H4SIO4	4.01167E-07	0.0	0.0	0.0
AGNO2	1.13921E-07	0.0	0.0	0.0
AGNO3	1.85750E-09	0.0	0.0	0.0
AGOH	4.06576E-08	0.0	0.0	0.0
ALF3	1.08124E-21	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
ALOH3	2.92843E-07	27.7768	0.0	0.0
KACET	0.0591707	0.0	0.0	0.0
KCL	0.032839	0.0	0.0	0.0
KCOOH	0.0983288	0.0	0.0	0.0
KHSO4	7.90963E-16	0.0	0.0	0.0
KNO3	31.9985	0.0	0.0	0.0
LIACET	0.00240427	0.0	0.0	0.0
LIH2BO3	2.00005E-04	0.0	0.0	0.0
LIOH	0.0611612	0.0	0.0	0.0
MGACET2	1.23768E-10	0.0	0.0	0.0
MGC2O4	2.63438E-07	0.0	0.0	0.0
MGCO3	2.72357E-07	0.0	0.0	0.0
MGCOOH2	1.62813E-10	0.0	0.0	0.0
MGH2SIO4	6.04457E-08	0.0	0.0	0.0
MGHPO4	8.45458E-11	0.0	0.0	0.0
MGSO4	7.15057E-10	0.0	0.0	0.0
MNACET2	4.13213E-12	0.0	0.0	0.0
MNBR2	1.51510E-15	0.0	0.0	0.0
MNC2O4	2.28883E-06	0.0	0.0	0.0
MNCOOH2	1.60270E-11	0.0	0.0	0.0
MNNO32	3.17785E-09	0.0	0.0	0.0
MNOH2	1.09545E-05	0.0176695	0.0	0.0
MNSO4	7.87135E-11	0.0	0.0	0.0
NAACET	0.984554	0.0	0.0	0.0
NAALOH4	1.5041	0.0	0.0	0.0
NABOH4	0.0533164	0.0	0.0	0.0
NABR	0.00166235	0.0	0.0	0.0
NACOOH	1.18992	0.0	0.0	0.0
NAF	0.578739	0.0	0.0	0.0
NAHCO3	0.00116818	0.0	0.0	0.0
NAHSIO3	0.0890647	0.0	0.0	0.0
NANO3	211.126	0.0	0.0	0.0
NDACET3	1.53784E-30	0.0	0.0	0.0
NDCL3	0.0	0.0	0.0	0.0
NDF3	2.65249E-27	0.0	0.0	0.0
NDOH3	7.30739E-17	0.0	0.0	0.0
NIACET2	3.36751E-16	0.0	0.0	0.0
NIC2O4	1.61352E-09	0.0	0.0	0.0
NICOOH2	1.44480E-15	0.0	0.0	0.0
NIOH2	7.75980E-07	0.266213	0.0	0.0
NISO4	3.23210E-15	0.0	0.0	0.0
OXALAC	2.19624E-22	0.0	0.0	0.0
PBACET2	2.64160E-14	0.0	0.0	0.0
PBBR2	4.26625E-19	0.0	0.0	0.0
PBC2O4	1.63672E-08	0.0	0.0	0.0

PBCL2	1.39109E-12	0.0	0.0	0.0
PBCOOH2	1.04874E-14	0.0	0.0	0.0
PBF2	6.98662E-16	0.0	0.0	0.0
PBHPO4	1.10334E-15	0.0	0.0	0.0
PBNO22	3.22783E-09	0.0	0.0	0.0
PBNO32	3.40156E-12	0.0	0.0	0.0
PBO	5.69926E-04	0.0	0.0	0.0
RUIIICL3	5.89444E-23	0.0	0.0	0.0
BAAC2	4.28970E-08	0.0	0.0	0.0
BACO3	1.52719E-04	0.0	0.0	0.0
SIO2	2.34573E-07	0.0	0.0	0.0
BACOOH2	1.61039E-07	0.0	0.0	0.0
SRC2O4	3.07134E-06	0.0	0.0	0.0
SRCOOH2	1.76695E-08	0.0	0.0	0.0
SRHC2O42	1.63347E-27	0.0	0.0	0.0
SRHPO4	1.55636E-10	0.0	0.0	0.0
SRNO32	1.86215E-05	0.0	0.0	0.0
SRSO4	2.58967E-07	0.0	0.0	0.0
ZNACET2	4.73479E-15	0.0	0.0	0.0
ZNBR2	5.84461E-23	0.0	0.0	0.0
ZNC2O4	3.97437E-12	0.0	0.0	0.0
ZNCL2	3.93227E-15	0.0	0.0	0.0
ZNCOOH2	1.00578E-15	0.0	0.0	0.0
ZNHPO4	1.99472E-16	0.0	0.0	0.0
ZNNO32	1.85315E-14	0.0	0.0	0.0
ZNOH2	3.92952E-05	0.0	0.0	0.0
ZROH4	2.58792E-10	0.0	0.0	0.0
OHION	29.523	0.0	0.0	0.0
AGACET2ION	2.69529E-12	0.0	0.0	0.0
AGBR2ION	1.23030E-08	0.0	0.0	0.0
AGBR3ION	1.58136E-10	0.0	0.0	0.0
AGBR4ION	7.69612E-12	0.0	0.0	0.0
AGC2O4ION	2.46250E-08	0.0	0.0	0.0
AGCL2ION	1.44843E-04	0.0	0.0	0.0
AGCL3ION	0.00735062	0.0	0.0	0.0
AGCL4ION	0.0668239	0.0	0.0	0.0
AGION	5.32412E-09	0.0	0.0	0.0
AGNO22ION	5.07708E-06	0.0	0.0	0.0
AGOH2ION	2.90763E-06	0.0	0.0	0.0
AGSO4ION	1.51195E-10	0.0	0.0	0.0
ALACET2ION	1.94368E-30	0.0	0.0	0.0
ALACETION	3.29572E-29	0.0	0.0	0.0
ALF2ION	6.89066E-23	0.0	0.0	0.0
ALF4ION	5.28270E-21	0.0	0.0	0.0
ALF5ION	6.81135E-21	0.0	0.0	0.0
ALF6ION	6.41020E-21	0.0	0.0	0.0
ALFION	3.33526E-25	0.0	0.0	0.0
ALION	6.40417E-29	0.0	0.0	0.0
ALOH2ION	7.66416E-15	0.0	0.0	0.0
ALOH4ION	3.92084	0.0	0.0	0.0
ALOHCLION	1.30787E-22	0.0	0.0	0.0
ALOHION	2.51868E-22	0.0	0.0	0.0
ALSIO3OHION	2.01263E-05	0.0	0.0	0.0
ALSO42ION	0.0	0.0	0.0	0.0
ALSO4ION	0.0	0.0	0.0	0.0
B2OOH5ION	2.21002E-08	0.0	0.0	0.0
B3O3OH4ION	1.70501E-13	0.0	0.0	0.0

B4O5OH4ION	1.78919E-14	0.0	0.0	0.0
BAACETION	5.71241E-06	0.0	0.0	0.0
BACOOHION	1.20466E-05	0.0	0.0	0.0
BAFION	2.30576E-07	0.0	0.0	0.0
BAHCO3ION	1.36362E-08	0.0	0.0	0.0
BAION	0.00135572	0.0	0.0	0.0
BAOHION	4.90353E-06	0.0	0.0	0.0
BF2OH2ION	3.60824E-16	0.0	0.0	0.0
BF3OHION	1.27092E-26	0.0	0.0	0.0
BFOH3ION	1.22551E-08	0.0	0.0	0.0
BOH4ION	0.145898	0.0	0.0	0.0
BRION	0.0634291	0.0	0.0	0.0
CAACETION	5.20986E-06	0.0	0.0	0.0
CACLION	1.27689E-10	0.0	0.0	0.0
CACOOHION	1.39440E-05	0.0	0.0	0.0
CAFION	2.70882E-08	0.0	0.0	0.0
CAH2BO3ION	2.56079E-06	0.0	0.0	0.0
CAH2PO4ION	9.29739E-15	0.0	0.0	0.0
CAHC2O4ION	8.67943E-15	0.0	0.0	0.0
CAHCO3ION	2.16739E-08	0.0	0.0	0.0
CAHSIO3ION	6.53080E-09	0.0	0.0	0.0
CAION	4.04044E-04	0.0	0.0	0.0
CANO3ION	1.58688E-04	0.0	0.0	0.0
CAOHION	1.52254E-04	0.0	0.0	0.0
CAPO4ION	0.0132343	0.0	0.0	0.0
CEACET2ION	1.16946E-15	0.0	0.0	0.0
CEACETION	1.49712E-14	0.0	0.0	0.0
CEC2O42ION	2.29428E-11	0.0	0.0	0.0
CEC2O43ION	1.46222E-08	0.0	0.0	0.0
CEC2O4ION	1.37693E-12	0.0	0.0	0.0
CECL2ION	3.15187E-17	0.0	0.0	0.0
CECL4ION	5.59850E-19	0.0	0.0	0.0
CECLION	1.61089E-15	0.0	0.0	0.0
CECO3ION	1.54021E-10	0.0	0.0	0.0
CEF2ION	1.53015E-13	0.0	0.0	0.0
CEF4ION	5.69832E-14	0.0	0.0	0.0
CEFION	2.81694E-13	0.0	0.0	0.0
CEH2PO4ION	3.50685E-24	0.0	0.0	0.0
CEHCO3ION	4.33931E-18	0.0	0.0	0.0
CEION	2.14106E-14	0.0	0.0	0.0
CENO3ION	4.45066E-15	0.0	0.0	0.0
CEOH2ION	3.04213E-06	0.0	0.0	0.0
CEOH4ION	0.0694748	0.0	0.0	0.0
CEOHION	3.90043E-11	0.0	0.0	0.0
CESO42ION	6.70116E-17	0.0	0.0	0.0
CESO4ION	1.00868E-15	0.0	0.0	0.0
CLION	83.4657	0.0	0.0	0.0
CO3ION	94.5478	0.0	0.0	0.0
COOHION	1.81232	0.0	0.0	0.0
CR2O7ION	4.37919E-17	0.0	0.0	0.0
CRIIC2O42ION	0.371615	0.0	0.0	0.0
CRIIION	7.91880E-04	0.0	0.0	0.0
CRO4ION	0.428899	0.0	0.0	0.0
CSION	4.86075E-05	0.0	0.0	0.0
CSSO4ION	3.07251E-06	0.0	0.0	0.0
CUACET3ION	4.56817E-18	0.0	0.0	0.0
CUACETION	1.30904E-16	0.0	0.0	0.0

CUBRION	3.22434E-19	0.0	0.0	0.0
CUC2O42ION	3.16618E-10	0.0	0.0	0.0
CUCL3ION	1.45200E-20	0.0	0.0	0.0
CUCLION	1.43230E-16	0.0	0.0	0.0
CUCO32ION	3.18731E-09	0.0	0.0	0.0
CUCOOHION	6.23312E-17	0.0	0.0	0.0
CUION	3.90042E-16	0.0	0.0	0.0
CUNO2ION	2.20763E-15	0.0	0.0	0.0
CUNO3ION	3.87345E-16	0.0	0.0	0.0
CUOH3ION	0.00263529	0.0	0.0	0.0
CUOH4ION	0.0444399	0.0	0.0	0.0
CUOHION	5.20033E-11	0.0	0.0	0.0
FEIIIC2O42ION	4.66418E-21	0.0	0.0	0.0
FEIIIC2O43ION	3.90714E-17	0.0	0.0	0.0
FEIIIC2O4ION	4.97957E-24	0.0	0.0	0.0
FEIIIF2ION	0.0	0.0	0.0	0.0
FEIIIFION	0.0	0.0	0.0	0.0
FEIIIHPO4ION	4.86645E-30	0.0	0.0	0.0
FEIIIION	0.0	0.0	0.0	0.0
FEIIIOH2ION	6.75822E-14	0.0	0.0	0.0
FEIIIOH4ION	0.0663627	0.0	0.0	0.0
FEIIIOHION	5.23817E-22	0.0	0.0	0.0
FION	1.75694	0.0	0.0	0.0
H2P2O7ION	3.70464E-22	0.0	0.0	0.0
H2PO4ION	2.54032E-09	0.0	0.0	0.0
H2SIO4ION	0.0412877	0.0	0.0	0.0
H3SIO4ION	0.00121823	0.0	0.0	0.0
HCO3ION	0.00822598	0.0	0.0	0.0
HCRO4ION	4.33144E-09	0.0	0.0	0.0
HF2ION	1.26518E-13	0.0	0.0	0.0
HION	1.45672E-11	0.0	0.0	0.0
HOXALATION	5.23866E-10	0.0	0.0	0.0
HP2O7ION	9.01586E-15	0.0	0.0	0.0
HPBO2ION	0.265752	0.0	0.0	0.0
HPO4ION	0.0424432	0.0	0.0	0.0
HSO4ION	8.37786E-13	0.0	0.0	0.0
HWO4ION	4.51738E-13	0.0	0.0	0.0
KION	82.188	0.0	0.0	0.0
KSO4ION	0.251409	0.0	0.0	0.0
LIION	0.458407	0.0	0.0	0.0
LISO4ION	4.53406E-04	0.0	0.0	0.0
MGACETION	9.21936E-09	0.0	0.0	0.0
MGC2O42ION	2.84920E-07	0.0	0.0	0.0
MGCOOHION	1.11422E-08	0.0	0.0	0.0
MGFION	4.97421E-12	0.0	0.0	0.0
MGH2PO4ION	9.38705E-18	0.0	0.0	0.0
MGHCO3ION	2.57331E-11	0.0	0.0	0.0
MGHSIO3ION	9.48188E-12	0.0	0.0	0.0
MGION	1.13696E-07	0.0	0.0	0.0
MGOHION	1.22859E-06	0.0	0.0	0.0
MGP2O7ION	4.86985E-14	0.0	0.0	0.0
MGPO4ION	1.47973E-05	0.0	0.0	0.0
MNACET3ION	3.00517E-13	0.0	0.0	0.0
MNACETION	2.57848E-10	0.0	0.0	0.0
MNBRION	1.62143E-11	0.0	0.0	0.0
MNC2O42ION	1.16712E-07	0.0	0.0	0.0
MNC2O43ION	1.76772E-05	0.0	0.0	0.0

MNCLION	2.19255E-09	0.0	0.0	0.0
MNCOOHION	6.62831E-10	0.0	0.0	0.0
MNION	2.78329E-08	0.0	0.0	0.0
MNNO3ION	2.80715E-09	0.0	0.0	0.0
MNOH3ION	2.02817E-04	0.0	0.0	0.0
MNOH4ION	0.00137478	0.0	0.0	0.0
MNOHION	1.38315E-06	0.0	0.0	0.0
NA2FION	0.0284249	0.0	0.0	0.0
NACO3ION	20.0751	0.0	0.0	0.0
NAION	811.296	0.0	0.0	0.0
NASO4ION	1.95062	0.0	0.0	0.0
NDACET2ION	2.45982E-29	0.0	0.0	0.0
NDACETION	4.01054E-28	0.0	0.0	0.0
NDCL2ION	0.0	0.0	0.0	0.0
NDCL4ION	0.0	0.0	0.0	0.0
NDCLION	5.38897E-29	0.0	0.0	0.0
NDCO3ION	9.24471E-24	0.0	0.0	0.0
NDF2ION	9.18883E-27	0.0	0.0	0.0
NDF4ION	4.72857E-27	0.0	0.0	0.0
NDFION	1.20534E-26	0.0	0.0	0.0
NDHCO3ION	0.0	0.0	0.0	0.0
NDION	6.62434E-28	0.0	0.0	0.0
NDNO3ION	1.89686E-28	0.0	0.0	0.0
NDOH2ION	2.06620E-20	0.0	0.0	0.0
NDOH4ION	1.05102E-13	0.0	0.0	0.0
NDOHION	2.39628E-24	0.0	0.0	0.0
NDSO42ION	0.0	0.0	0.0	0.0
NDSO4ION	3.04947E-29	0.0	0.0	0.0
NIACET3ION	4.35119E-17	0.0	0.0	0.0
NIACETION	1.86808E-14	0.0	0.0	0.0
NIC2O42ION	3.58540E-10	0.0	0.0	0.0
NICLION	2.39220E-15	0.0	0.0	0.0
NICOOHION	4.34136E-14	0.0	0.0	0.0
NIFION	1.30958E-15	0.0	0.0	0.0
NIION	8.85936E-13	0.0	0.0	0.0
NINO3ION	1.97711E-13	0.0	0.0	0.0
NIOH3ION	5.72351E-04	0.0	0.0	0.0
NIOHION	1.49681E-10	0.0	0.0	0.0
NO2ION	105.184	0.0	0.0	0.0
NO3ION	403.138	0.0	0.0	0.0
ACETATEION	2.39218	0.0	0.0	0.0
OXALATION	13.2295	0.0	0.0	0.0
P2O7ION	2.34509E-08	0.0	0.0	0.0
PBACET3ION	6.91695E-14	0.0	0.0	0.0
PBACETION	1.13221E-12	0.0	0.0	0.0
PBBR3ION	1.67773E-20	0.0	0.0	0.0
PBBRION	8.80950E-15	0.0	0.0	0.0
PBCL3ION	4.73741E-13	0.0	0.0	0.0
PBCL4ION	1.89091E-12	0.0	0.0	0.0
PBCLION	4.31933E-12	0.0	0.0	0.0
PBCOOHION	3.00308E-13	0.0	0.0	0.0
PBF3ION	1.96193E-16	0.0	0.0	0.0
PBF4ION	5.23320E-18	0.0	0.0	0.0
PBFION	4.88811E-14	0.0	0.0	0.0
PBH2PO4ION	7.79013E-23	0.0	0.0	0.0
PBION	2.16599E-11	0.0	0.0	0.0
PBNO23ION	3.64683E-08	0.0	0.0	0.0

PBNO2ION	9.27255E-10	0.0	0.0	0.0
PBNO33ION	2.49111E-12	0.0	0.0	0.0
PBNO3ION	8.92465E-12	0.0	0.0	0.0
PBOHION	1.68539E-07	0.0	0.0	0.0
PO4ION	4.06159	0.0	0.0	0.0
RUIIICL2ION	1.89295E-22	0.0	0.0	0.0
RUIIICL4ION	4.99072E-23	0.0	0.0	0.0
RUIIICL5ION	8.99995E-23	0.0	0.0	0.0
RUIIICL6ION	6.16859E-22	0.0	0.0	0.0
RUIIICLION	1.21706E-18	0.0	0.0	0.0
RUIIIION	1.04260E-22	0.0	0.0	0.0
RUIIIOH2ION	0.0362839	0.0	0.0	0.0
RUIIIOHION	3.06190E-13	0.0	0.0	0.0
RUIIISO42ION	6.91782E-29	0.0	0.0	0.0
RUIIISO43ION	1.13646E-29	0.0	0.0	0.0
RUIIISO4ION	2.52077E-26	0.0	0.0	0.0
SO4ION	4.18943	0.0	0.0	0.0
SRACETION	8.21451E-07	0.0	0.0	0.0
SRCOOHION	1.41623E-06	0.0	0.0	0.0
SRFION	5.56348E-08	0.0	0.0	0.0
SRHC2O4ION	4.43402E-16	0.0	0.0	0.0
SRION	5.63542E-05	0.0	0.0	0.0
SRNO3ION	4.30592E-05	0.0	0.0	0.0
SROHION	8.00082E-06	0.0	0.0	0.0
SRPO4ION	1.73234E-05	0.0	0.0	0.0
WO4ION	0.0517723	0.0	0.0	0.0
ZNACET3ION	8.71881E-16	0.0	0.0	0.0
ZNACETION	2.91611E-14	0.0	0.0	0.0
ZNBR3ION	2.02581E-25	0.0	0.0	0.0
ZNBRION	6.01152E-18	0.0	0.0	0.0
ZNC2O42ION	6.38722E-10	0.0	0.0	0.0
ZNC2O43ION	2.50718E-08	0.0	0.0	0.0
ZNCL3ION	9.30541E-16	0.0	0.0	0.0
ZNCLION	4.03461E-14	0.0	0.0	0.0
ZNCOOHION	3.64017E-14	0.0	0.0	0.0
ZNFION	1.84427E-15	0.0	0.0	0.0
ZNH2PO4ION	1.15078E-23	0.0	0.0	0.0
ZNHC2O4ION	2.55286E-23	0.0	0.0	0.0
ZNHCO3ION	3.60257E-17	0.0	0.0	0.0
ZNION	4.59038E-13	0.0	0.0	0.0
ZNNO3ION	2.06160E-13	0.0	0.0	0.0
ZNOH3ION	0.015264	0.0	0.0	0.0
ZNOH4ION	0.793927	0.0	0.0	0.0
ZNOHION	1.44040E-09	0.0	0.0	0.0
ZROH2ION	5.63468E-28	0.0	0.0	0.0
ZROH3ION	1.49041E-18	0.0	0.0	0.0
ZROH5ION	0.00558645	0.0	0.0	0.0
SRCO3	0.0	0.0423788	0.0	0.0
ZRO2	0.0	0.196196	0.0	0.0
MGOH2	0.0	0.5686771	0.0	0.0
NASGEL.15.5H2O	0.0	1.07086	0.0	0.0
NDPO4.2H2O	0.0	0.0409845	0.0	0.0
NA2C2O4	0.0	21.1654	0.0	0.0
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Total g/hr	295307.	7422.91	0.0	0.0
Volume, L/hr	239.479	2.18982	0.0	0.0
Enthalpy, cal/hr	-9.23374E+08	-2.22946E+07	0.0	0.0

Density, g/L	1233.12	3389.74		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	165.502			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.18508			
E-Con, cm2/ohm-mol	23.8878			
Abs Visc, cP	1.92716			
Rel Visc	2.1636			
Ionic Strength	4.90519			

Campaign IV UF Blended Feed (AP-101, AY-102, FEP Bottoms)

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: UF blended feed
TO : UF1 filter
FROM : UF Feed Blending Mixer

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	14.4446			
Total mol/hr	101338.	306.129	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	85307.9	0.0	0.0	0.0
ACETACID	1.74487E-09	0.0	0.0	0.0
CO2	1.12791E-11	0.0	0.0	0.0
H2F2	3.89186E-30	0.0	0.0	0.0
ACET2	7.73999E-29	0.0	0.0	0.0
HBR	8.84487E-24	0.0	0.0	0.0
HCL	9.63966E-20	0.0	0.0	0.0
HCOOH	1.48529E-10	0.0	0.0	0.0
HF	8.59481E-12	0.0	0.0	0.0
HNO2	1.23136E-09	0.0	0.0	0.0
HNO3	5.13604E-14	0.0	0.0	0.0
BAOX	1.12404E-05	0.0	0.0	0.0
BASO4	1.26352E-07	0.5306014	0.0	0.0
BOH3	3.89730E-06	0.0	0.0	0.0
CAACET2	1.59377E-06	0.0	0.0	0.0
CAC2O4	1.02447E-04	0.0	0.0	0.0
CACL2	3.57678E-25	0.0	0.0	0.0
CACO3	0.00385838	11.57109	0.0	0.0
CACOOH2	1.66932E-06	0.0	0.0	0.0
CAH2SIO4	5.72419E-04	0.0	0.0	0.0
CAHC2O42	7.18077E-29	0.0	0.0	0.0
CASO4	1.91506E-06	0.0	0.0	0.0
CEACET3	6.91089E-20	0.0	0.0	0.0
CECL3	4.04748E-24	0.0	0.0	0.0
CEF3	2.38400E-18	0.0	0.0	0.0
CEOH3	0.00232599	0.0	0.0	0.0
AGCL	3.54137E-06	0.0	0.0	0.0
CRIIC2O4	0.0688971	0.0	0.0	0.0
CSACET	7.17988E-05	0.0	0.0	0.0
CSBR	9.01783E-07	0.0	0.0	0.0
CSCL	1.59163E-04	0.0	0.0	0.0
CSNO3	0.0201713	0.0	0.0	0.0
CUACET2	4.64611E-21	0.0	0.0	0.0
CUBR2	8.01037E-28	0.0	0.0	0.0
CUC2O4	1.58066E-17	0.0	0.0	0.0
CUCL2	8.72218E-23	0.0	0.0	0.0
CUCO3	9.36369E-16	0.0	0.0	0.0
CUCOOH2	1.51729E-21	0.0	0.0	0.0
CUNO22	7.82319E-19	0.0	0.0	0.0
CUNO32	8.05896E-22	0.0	0.0	0.0
CUOH2	3.13787E-06	0.0	0.0	0.0
FEIIIOH3	1.85115E-05	203.4308	0.0	0.0

AGACET	1.64096E-09	0.0	0.0	0.0
AGBR	2.24600E-07	0.0	0.0	0.0
AGF	1.82791E-10	0.0	0.0	0.0
H2WO4	6.09652E-26	0.0	0.0	0.0
H3PO4	9.34627E-24	0.0	0.0	0.0
H4SIO4	2.26058E-07	0.0	0.0	0.0
AGNO2	1.64884E-06	0.0	0.0	0.0
AGNO3	8.88389E-09	0.0	0.0	0.0
AGOH	5.64936E-06	0.0	0.0	0.0
ALF3	5.72963E-25	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
ALOH3	1.45053E-06	0.0	0.0	0.0
KACET	1.06065	0.0	0.0	0.0
KCL	0.0921211	0.0	0.0	0.0
KCOOH	1.73981	0.0	0.0	0.0
KHSO4	7.10936E-16	0.0	0.0	0.0
KNO3	163.212	0.0	0.0	0.0
LIACET	0.012975	0.0	0.0	0.0
LIH2BO3	0.00114195	0.0	0.0	0.0
LIOH	2.78734	0.0	0.0	0.0
MGACET2	8.72030E-12	0.0	0.0	0.0
MGC2O4	3.24491E-09	0.0	0.0	0.0
MGCO3	1.15544E-08	0.0	0.0	0.0
MGCOOH2	1.11770E-11	0.0	0.0	0.0
MGH2SIO4	3.67038E-08	0.0	0.0	0.0
MGHPO4	2.90938E-13	0.0	0.0	0.0
MGSO4	2.21457E-11	0.0	0.0	0.0
MNACET2	4.79016E-14	0.0	0.0	0.0
MNBR2	1.84760E-17	0.0	0.0	0.0
MNC2O4	4.63864E-09	0.0	0.0	0.0
MNCOOH2	1.81025E-13	0.0	0.0	0.0
MNNO32	3.11258E-12	0.0	0.0	0.0
MNOH2	9.05613E-06	0.0	0.0	0.0
MNSO4	4.01097E-13	0.0	0.0	0.0
NAACET	11.8315	0.0	0.0	0.0
NAALOH4	150.473	0.0	0.0	0.0
NABOH4	0.653006	0.0	0.0	0.0
NABR	0.0204888	0.0	0.0	0.0
NACOOH	14.1148	0.0	0.0	0.0
NAF	2.78811	0.0	0.0	0.0
NAHCO3	9.64229E-04	0.0	0.0	0.0
NAHSIO3	1.09229	0.0	0.0	0.0
NANO3	1412.46	0.0	0.0	0.0
NDACET3	1.94476E-29	0.0	0.0	0.0
NDF3	2.16116E-27	0.0	0.0	0.0
NDOH3	5.56520E-13	0.0	0.0	0.0
NIACET2	2.37265E-17	0.0	0.0	0.0
NIC2O4	1.98747E-11	0.0	0.0	0.0
NICOOH2	9.91850E-17	0.0	0.0	0.0
NIOH2	3.89899E-06	6.741172	0.0	0.0
NISO4	1.00100E-16	0.0	0.0	0.0
OXALAC	2.51046E-24	0.0	0.0	0.0
PBACET2	2.14408E-16	0.0	0.0	0.0
PBBR2	3.64258E-21	0.0	0.0	0.0
PBC2O4	2.32246E-11	0.0	0.0	0.0
PBCL2	2.76528E-16	0.0	0.0	0.0
PBCOOH2	8.29383E-17	0.0	0.0	0.0

PBF2	9.11367E-19	0.0	0.0	0.0
PBHPO4	4.37389E-19	0.0	0.0	0.0
PBNO22	2.02719E-11	0.0	0.0	0.0
PBNO32	2.33273E-15	0.0	0.0	0.0
PBO	3.42448E-04	0.0	0.0	0.0
RUIIICL3	3.90414E-26	0.0	0.0	0.0
BAAC2	4.90347E-07	0.0	0.0	0.0
BACO3	0.00105112	0.0	0.0	0.0
SIO2	1.40583E-07	0.0	0.0	0.0
BACOOH2	1.79357E-06	0.0	0.0	0.0
SRC2O4	4.48068E-06	0.0	0.0	0.0
SRCOOH2	1.42138E-07	0.0	0.0	0.0
SRHC2O42	5.42126E-30	0.0	0.0	0.0
SRHPO4	6.34323E-11	0.0	0.0	0.0
SRNO32	1.31294E-05	0.0	0.0	0.0
SRSO4	9.49916E-07	0.0	0.0	0.0
ZNACET2	4.00899E-19	0.0	0.0	0.0
ZNBR2	5.20570E-27	0.0	0.0	0.0
ZNC2O4	5.88304E-17	0.0	0.0	0.0
ZNCL2	8.15434E-21	0.0	0.0	0.0
ZNCOOH2	8.29756E-20	0.0	0.0	0.0
ZNHPO4	8.24896E-22	0.0	0.0	0.0
ZNNO32	1.32573E-19	0.0	0.0	0.0
ZNOH2	2.37273E-07	0.0	0.0	0.0
ZROH4	1.20670E-09	0.0	0.0	0.0
OHION	2435.5	0.0	0.0	0.0
AGACET2ION	9.97607E-11	0.0	0.0	0.0
AGBR2ION	4.79020E-07	0.0	0.0	0.0
AGBR3ION	1.00930E-08	0.0	0.0	0.0
AGBR4ION	8.41377E-10	0.0	0.0	0.0
AGC2O4ION	1.59342E-07	0.0	0.0	0.0
AGCL2ION	1.31300E-04	0.0	0.0	0.0
AGCL3ION	0.00166666	0.0	0.0	0.0
AGCL4ION	0.00395999	0.0	0.0	0.0
AGION	8.71130E-08	0.0	0.0	0.0
AGNO22ION	1.45405E-04	0.0	0.0	0.0
AGOH2ION	0.00767485	0.0	0.0	0.0
AGSO4ION	2.45990E-09	0.0	0.0	0.0
ALACET2ION	0.0	0.0	0.0	0.0
ALACETION	0.0	0.0	0.0	0.0
ALF2ION	7.29471E-26	0.0	0.0	0.0
ALF4ION	2.52449E-24	0.0	0.0	0.0
ALF5ION	2.08559E-24	0.0	0.0	0.0
ALF6ION	1.31410E-24	0.0	0.0	0.0
ALFION	2.67314E-28	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	4.44277E-15	0.0	0.0	0.0
ALOH4ION	348.215	0.0	0.0	0.0
ALOHCLION	1.42831E-24	0.0	0.0	0.0
ALOHION	1.17739E-23	0.0	0.0	0.0
ALSIO3OHION	0.0854353	0.0	0.0	0.0
B2OOH5ION	3.18957E-08	0.0	0.0	0.0
B3O3OH4ION	3.20024E-14	0.0	0.0	0.0
B4O5OH4ION	5.89481E-15	0.0	0.0	0.0
BAACETION	5.37516E-05	0.0	0.0	0.0
BACOOHION	1.11902E-04	0.0	0.0	0.0
BAFION	8.70775E-07	0.0	0.0	0.0

BAHCO3ION	8.85813E-09	0.0	0.0	0.0
BAION	0.011386	0.0	0.0	0.0
BAOHION	4.70515E-04	0.0	0.0	0.0
BF2OH2ION	8.56467E-18	0.0	0.0	0.0
BF3OHION	1.43209E-29	0.0	0.0	0.0
BFOH3ION	6.12767E-09	0.0	0.0	0.0
BOH4ION	1.53679	0.0	0.0	0.0
BRION	0.670224	0.0	0.0	0.0
CAACETION	3.57881E-05	0.0	0.0	0.0
CACLION	4.01220E-10	0.0	0.0	0.0
CACOOHION	9.45675E-05	0.0	0.0	0.0
CAFION	7.46815E-08	0.0	0.0	0.0
CAH2BO3ION	1.86218E-05	0.0	0.0	0.0
CAH2PO4ION	3.54102E-16	0.0	0.0	0.0
CAHC2O4ION	1.18962E-15	0.0	0.0	0.0
CAHCO3ION	1.14267E-08	0.0	0.0	0.0
CAHSIO3ION	4.58145E-08	0.0	0.0	0.0
CAION	0.00313281	0.0	0.0	0.0
CANO3ION	3.74644E-04	0.0	0.0	0.0
CAOHION	0.0106632	0.0	0.0	0.0
CAPO4ION	0.106366	0.0	0.0	0.0
CEACET2ION	9.47879E-19	0.0	0.0	0.0
CEACETION	4.08484E-18	0.0	0.0	0.0
CEC2O42ION	1.55316E-15	0.0	0.0	0.0
CEC2O43ION	4.61918E-13	0.0	0.0	0.0
CEC2O4ION	1.95209E-16	0.0	0.0	0.0
CECL2ION	6.54372E-22	0.0	0.0	0.0
CECL4ION	7.43810E-25	0.0	0.0	0.0
CECLION	8.55242E-20	0.0	0.0	0.0
CECO3ION	7.55505E-14	0.0	0.0	0.0
CEF2ION	1.99548E-17	0.0	0.0	0.0
CEF4ION	3.26001E-18	0.0	0.0	0.0
CEFION	3.09789E-17	0.0	0.0	0.0
CEH2PO4ION	5.35693E-30	0.0	0.0	0.0
CEHCO3ION	7.77134E-23	0.0	0.0	0.0
CEION	1.48545E-17	0.0	0.0	0.0
CENO3ION	7.99278E-19	0.0	0.0	0.0
CEOH2ION	2.17034E-07	0.0	0.0	0.0
CEOH4ION	0.782613	0.0	0.0	0.0
CEOHION	2.47779E-13	0.0	0.0	0.0
CESO42ION	2.86792E-20	0.0	0.0	0.0
CESO4ION	3.59647E-19	0.0	0.0	0.0
CLION	136.802	0.0	0.0	0.0
CO3ION	1017.6	0.0	0.0	0.0
COOHION	18.3918	0.0	0.0	0.0
CR2O7ION	3.83255E-18	0.0	0.0	0.0
CRIIC2O42ION	3.90071	0.0	0.0	0.0
CRIIION	0.0259297	0.0	0.0	0.0
CRO4ION	4.71688	0.0	0.0	0.0
CSION	4.31249E-04	0.0	0.0	0.0
CSSO4ION	7.25412E-05	0.0	0.0	0.0
CUACET3ION	6.30922E-21	0.0	0.0	0.0
CUACETION	6.61605E-20	0.0	0.0	0.0
CUBRION	1.67241E-22	0.0	0.0	0.0
CUC2O42ION	2.13609E-14	0.0	0.0	0.0
CUCL3ION	7.68631E-26	0.0	0.0	0.0
CUCLION	1.18485E-20	0.0	0.0	0.0

CUCO32ION	2.55987E-12	0.0	0.0	0.0
CUCOOHION	3.11024E-20	0.0	0.0	0.0
CUION	7.56107E-20	0.0	0.0	0.0
CUNO2ION	9.61021E-19	0.0	0.0	0.0
CUNO3ION	5.45619E-20	0.0	0.0	0.0
CUOH3ION	0.00214862	0.0	0.0	0.0
CUOH4ION	0.500669	0.0	0.0	0.0
CUOHION	2.67925E-13	0.0	0.0	0.0
FEIIIC2O42ION	2.67545E-24	0.0	0.0	0.0
FEIIIC2O43ION	1.04584E-20	0.0	0.0	0.0
FEIIIC2O4ION	5.97883E-27	0.0	0.0	0.0
FEIIIOH2ION	4.06723E-14	0.0	0.0	0.0
FEIIIOH4ION	6.3343	0.0	0.0	0.0
FEIIIOHION	2.91526E-23	0.0	0.0	0.0
FION	7.54619	0.0	0.0	0.0
H2P2O7ION	2.22517E-25	0.0	0.0	0.0
H2PO4ION	1.70550E-10	0.0	0.0	0.0
H2SIO4ION	6.58723	0.0	0.0	0.0
H3SIO4ION	0.0126265	0.0	0.0	0.0
HCO3ION	0.00621942	0.0	0.0	0.0
HCRO4ION	3.18966E-09	0.0	0.0	0.0
HF2ION	2.39716E-14	0.0	0.0	0.0
HION	8.57961E-12	0.0	0.0	0.0
HOXALATION	1.07973E-10	0.0	0.0	0.0
HP2O7ION	6.24010E-17	0.0	0.0	0.0
HPBO2ION	2.82937	0.0	0.0	0.0
HPO4ION	0.0405163	0.0	0.0	0.0
HSO4ION	4.34161E-13	0.0	0.0	0.0
HWO4ION	3.07951E-13	0.0	0.0	0.0
KION	842.095	0.0	0.0	0.0
KSO4ION	4.36806	0.0	0.0	0.0
LIION	2.74439	0.0	0.0	0.0
LISO4ION	0.00241964	0.0	0.0	0.0
MGACETION	5.34715E-10	0.0	0.0	0.0
MGC2O42ION	2.20590E-09	0.0	0.0	0.0
MGCOOHION	6.38019E-10	0.0	0.0	0.0
MGFION	1.41160E-13	0.0	0.0	0.0
MGH2PO4ION	3.01860E-21	0.0	0.0	0.0
MGHCO3ION	9.06199E-14	0.0	0.0	0.0
MGHSIO3ION	5.61617E-13	0.0	0.0	0.0
MGION	1.65482E-08	0.0	0.0	0.0
MGOHION	7.38773E-07	0.0	0.0	0.0
MGP2O7ION	3.05471E-17	0.0	0.0	0.0
MGPO4ION	1.00413E-06	0.0	0.0	0.0
MNACET3ION	7.83666E-15	0.0	0.0	0.0
MNACETION	2.46057E-12	0.0	0.0	0.0
MNBRION	1.58793E-13	0.0	0.0	0.0
MNC2O42ION	1.48672E-10	0.0	0.0	0.0
MNC2O43ION	1.14731E-08	0.0	0.0	0.0
MNCLION	3.42456E-12	0.0	0.0	0.0
MNCOOHION	6.24480E-12	0.0	0.0	0.0
MNION	5.58743E-10	0.0	0.0	0.0
MNNO3ION	9.20544E-12	0.0	0.0	0.0
MNOH3ION	0.00318516	0.0	0.0	0.0
MNOH4ION	0.291406	0.0	0.0	0.0
MNOHION	1.36906E-07	0.0	0.0	0.0
NA2FION	0.329037	0.0	0.0	0.0

NACO3ION	136.655	0.0	0.0	0.0
NAION	6893.97	0.0	0.0	0.0
NASO4ION	22.0745	0.0	0.0	0.0
NDACET2ION	2.56068E-28	0.0	0.0	0.0
NDACETION	1.40553E-27	0.0	0.0	0.0
NDCL2ION	0.0	0.0	0.0	0.0
NDCLION	9.48321E-29	0.0	0.0	0.0
NDCO3ION	5.82416E-23	0.0	0.0	0.0
NDF2ION	1.53906E-26	0.0	0.0	0.0
NDF4ION	3.47436E-27	0.0	0.0	0.0
NDFION	1.70262E-26	0.0	0.0	0.0
NDHCO3ION	0.0	0.0	0.0	0.0
NDION	5.74503E-27	0.0	0.0	0.0
NDNO3ION	4.37551E-28	0.0	0.0	0.0
NDOH2ION	1.89347E-17	0.0	0.0	0.0
NDOH4ION	1.52056E-08	0.0	0.0	0.0
NDOHION	1.92606E-22	0.0	0.0	0.0
NDSO42ION	5.17465E-30	0.0	0.0	0.0
NDSO4ION	1.39646E-28	0.0	0.0	0.0
NIACET3ION	6.89634E-18	0.0	0.0	0.0
NIACETION	1.08347E-15	0.0	0.0	0.0
NIC2O42ION	2.77587E-12	0.0	0.0	0.0
NICLION	2.27092E-17	0.0	0.0	0.0
NICOOHION	2.48592E-15	0.0	0.0	0.0
NIFION	3.04840E-17	0.0	0.0	0.0
NIION	1.05739E-13	0.0	0.0	0.0
NINO3ION	3.94055E-15	0.0	0.0	0.0
NIOH3ION	0.0546308	0.0	0.0	0.0
NIOHION	9.00338E-11	0.0	0.0	0.0
NO2ION	1034.73	0.0	0.0	0.0
NO3ION	1182.41	0.0	0.0	0.0
ACETATEION	24.9816	0.0	0.0	0.0
OXALATION	42.9681	0.0	0.0	0.0
P2O7ION	2.42313E-09	0.0	0.0	0.0
PBACET3ION	1.26292E-15	0.0	0.0	0.0
PBACETION	7.56423E-15	0.0	0.0	0.0
PBBR3ION	3.30495E-22	0.0	0.0	0.0
PBBRION	6.04014E-17	0.0	0.0	0.0
PBCL3ION	3.09229E-17	0.0	0.0	0.0
PBCL4ION	3.39177E-17	0.0	0.0	0.0
PBCLION	4.72352E-15	0.0	0.0	0.0
PBCOOHION	1.98083E-15	0.0	0.0	0.0
PBF3ION	2.30793E-19	0.0	0.0	0.0
PBF4ION	3.94441E-21	0.0	0.0	0.0
PBFION	1.31078E-16	0.0	0.0	0.0
PBH2PO4ION	2.88561E-27	0.0	0.0	0.0
PBION	1.70524E-12	0.0	0.0	0.0
PBNO23ION	4.53201E-10	0.0	0.0	0.0
PBNO2ION	5.33579E-12	0.0	0.0	0.0
PBNO33ION	1.11704E-15	0.0	0.0	0.0
PBNO3ION	2.04897E-14	0.0	0.0	0.0
PBOHION	1.14723E-08	0.0	0.0	0.0
PO4ION	48.4202	0.0	0.0	0.0
RUIIICL2ION	6.89749E-25	0.0	0.0	0.0
RUIIICL4ION	1.16368E-26	0.0	0.0	0.0
RUIIICL5ION	5.24894E-27	0.0	0.0	0.0
RUIIICL6ION	9.40248E-27	0.0	0.0	0.0

RUIIICLION	1.13414E-20	0.0	0.0	0.0
RUIIIION	2.02935E-24	0.0	0.0	0.0
RUIIIOH2ION	0.385024	0.0	0.0	0.0
RUIIIOHION	1.53944E-13	0.0	0.0	0.0
RUIIISO42ION	5.19597E-30	0.0	0.0	0.0
RUIIISO43ION	1.00150E-30	0.0	0.0	0.0
RUIIISO4ION	1.57742E-27	0.0	0.0	0.0
SO4ION	36.3694	0.0	0.0	0.0
SRACETION	5.64280E-06	0.0	0.0	0.0
SRCOOHION	9.60396E-06	0.0	0.0	0.0
SRFION	1.53384E-07	0.0	0.0	0.0
SRHC2O4ION	6.07737E-17	0.0	0.0	0.0
SRION	2.86065E-04	0.0	0.0	0.0
SRNO3ION	1.04936E-04	0.0	0.0	0.0
SROHION	4.61469E-04	0.0	0.0	0.0
SRPO4ION	1.39230E-04	0.0	0.0	0.0
WO4ION	0.55616	0.0	0.0	0.0
ZNACET3ION	1.66064E-19	0.0	0.0	0.0
ZNACETION	2.03250E-18	0.0	0.0	0.0
ZNBR3ION	4.16295E-29	0.0	0.0	0.0
ZNBRION	4.30001E-22	0.0	0.0	0.0
ZNC2O42ION	5.94267E-15	0.0	0.0	0.0
ZNC2O43ION	1.18853E-13	0.0	0.0	0.0
ZNCL3ION	6.33628E-22	0.0	0.0	0.0
ZNCLION	5.61364E-19	0.0	0.0	0.0
ZNCOOHION	2.50491E-18	0.0	0.0	0.0
ZNFION	5.15900E-20	0.0	0.0	0.0
ZNH2PO4ION	4.44708E-30	0.0	0.0	0.0
ZNHC2O4ION	3.55025E-29	0.0	0.0	0.0
ZNHCO3ION	2.10497E-22	0.0	0.0	0.0
ZNION	1.18764E-17	0.0	0.0	0.0
ZNNO3ION	4.93784E-18	0.0	0.0	0.0
ZNOH3ION	0.00160084	0.0	0.0	0.0
ZNOH4ION	1.26406	0.0	0.0	0.0
ZNOHION	9.96071E-13	0.0	0.0	0.0
ZROH2ION	2.91864E-29	0.0	0.0	0.0
ZROH3ION	8.37491E-19	0.0	0.0	0.0
ZROH5ION	0.461548	0.0	0.0	0.0
AG2CO3	0.0	0.9459708	0.0	0.0
SRCO3	0.0	1.081079	0.0	0.0
ZRO2	0.0	4.141845	0.0	0.0
MGOH2	0.0	4.807844	0.0	0.0
NASGEL.15.5H2O	0.0	17.99088	0.0	0.0
NDPO4.2H2O	0.0	1.048539	0.0	0.0
NA2C2O4	0.0	53.83923	0.0	0.0
	==========	==========	==========	==========
Total g/hr	2.17985E+06	53242.8	0.0	0.0
Volume, L/hr	1743.87	23.198	0.0	0.0
Enthalpy, cal/hr	-7.10208E+09	-1.42302E+08	0.0	0.0
Density, g/L	1250.01	2295.15		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	224.255			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.228212			
E-Con, cm2/ohm-mol	26.1967			

Abs Visc, cP	2.89538
Rel Visc	3.25061
Ionic Strength	5.85617

Campaign IV UF Filtrate

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: UF1 Filtrate
TO :
FROM : UF1 filter

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	14.4446			
Total mol/hr	91437.	0.0	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	76973.3	0.0	0.0	0.0
ACETACID	1.57440E-09	0.0	0.0	0.0
CO2	1.01772E-11	0.0	0.0	0.0
H2F2	3.51163E-30	0.0	0.0	0.0
ACET2	6.98379E-29	0.0	0.0	0.0
HBR	7.98073E-24	0.0	0.0	0.0
HCL	8.69786E-20	0.0	0.0	0.0
HCOOH	1.34017E-10	0.0	0.0	0.0
HF	7.75510E-12	0.0	0.0	0.0
HNO2	1.11106E-09	0.0	0.0	0.0
HNO3	4.63425E-14	0.0	0.0	0.0
BAOX	1.01422E-05	0.0	0.0	0.0
BASO4	1.14008E-07	0.0	0.0	0.0
BOH3	3.51653E-06	0.0	0.0	0.0
CAACET2	1.43806E-06	0.0	0.0	0.0
CAC2O4	9.24378E-05	0.0	0.0	0.0
CACL2	3.22733E-25	0.0	0.0	0.0
CACO3	0.00348142	0.0	0.0	0.0
CACOOH2	1.50622E-06	0.0	0.0	0.0
CAH2SIO4	5.16493E-04	0.0	0.0	0.0
CAHC2O42	6.47921E-29	0.0	0.0	0.0
CASO4	1.72796E-06	0.0	0.0	0.0
CEACET3	6.23569E-20	0.0	0.0	0.0
CECL3	3.65204E-24	0.0	0.0	0.0
CEF3	2.15108E-18	0.0	0.0	0.0
CEOH3	0.00209874	0.0	0.0	0.0
AGCL	3.19538E-06	0.0	0.0	0.0
CRIIC2O4	0.0621659	0.0	0.0	0.0
CSACET	6.47840E-05	0.0	0.0	0.0
CSBR	8.13678E-07	0.0	0.0	0.0
CSCL	1.43612E-04	0.0	0.0	0.0
CSNO3	0.0182006	0.0	0.0	0.0
CUACET2	4.19218E-21	0.0	0.0	0.0
CUBR2	7.22776E-28	0.0	0.0	0.0
CUC2O4	1.42623E-17	0.0	0.0	0.0
CUCL2	7.87003E-23	0.0	0.0	0.0
CUCO3	8.44886E-16	0.0	0.0	0.0
CUCOOH2	1.36905E-21	0.0	0.0	0.0
CUNO22	7.05886E-19	0.0	0.0	0.0
CUNO32	7.27160E-22	0.0	0.0	0.0
CUOH2	2.83130E-06	0.0	0.0	0.0

FEIIIOH3	1.67030E-05	0.0	0.0	0.0
AGACET	1.48063E-09	0.0	0.0	0.0
AGBR	2.02657E-07	0.0	0.0	0.0
AGF	1.64932E-10	0.0	0.0	0.0
H2WO4	5.50089E-26	0.0	0.0	0.0
H3PO4	8.43314E-24	0.0	0.0	0.0
H4SIO4	2.03972E-07	0.0	0.0	0.0
AGNO2	1.48775E-06	0.0	0.0	0.0
AGNO3	8.01594E-09	0.0	0.0	0.0
AGOH	5.09742E-06	0.0	0.0	0.0
ALF3	5.16985E-25	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
ALOH3	1.30881E-06	0.0	0.0	0.0
KACET	0.957021	0.0	0.0	0.0
KCL	0.0831209	0.0	0.0	0.0
KCOOH	1.56983	0.0	0.0	0.0
KHSO4	6.41478E-16	0.0	0.0	0.0
KNO3	147.267	0.0	0.0	0.0
LIACET	0.0117074	0.0	0.0	0.0
LIH2BO3	0.00103038	0.0	0.0	0.0
LIOH	2.51501	0.0	0.0	0.0
MGACET2	7.86833E-12	0.0	0.0	0.0
MGC2O4	2.92789E-09	0.0	0.0	0.0
MGCO3	1.04256E-08	0.0	0.0	0.0
MGCOOH2	1.00850E-11	0.0	0.0	0.0
MGH2SIO4	3.31179E-08	0.0	0.0	0.0
MGHPO4	2.62514E-13	0.0	0.0	0.0
MGSO4	1.99821E-11	0.0	0.0	0.0
MNACET2	4.32216E-14	0.0	0.0	0.0
MNBR2	1.66709E-17	0.0	0.0	0.0
MNC2O4	4.18545E-09	0.0	0.0	0.0
MNCOOH2	1.63339E-13	0.0	0.0	0.0
MNNO32	2.80848E-12	0.0	0.0	0.0
MNOH2	8.17135E-06	0.0	0.0	0.0
MNSO4	3.61910E-13	0.0	0.0	0.0
NAACET	10.6756	0.0	0.0	0.0
NAALOH4	135.772	0.0	0.0	0.0
NABOH4	0.589208	0.0	0.0	0.0
NABR	0.0184871	0.0	0.0	0.0
NACOOH	12.7358	0.0	0.0	0.0
NAF	2.51571	0.0	0.0	0.0
NAHCO3	8.70024E-04	0.0	0.0	0.0
NAHSIO3	0.985578	0.0	0.0	0.0
NANO3	1274.46	0.0	0.0	0.0
NDACET3	1.75475E-29	0.0	0.0	0.0
NDF3	1.95002E-27	0.0	0.0	0.0
NDOH3	5.02148E-13	0.0	0.0	0.0
NIACET2	2.14084E-17	0.0	0.0	0.0
NIC2O4	1.79329E-11	0.0	0.0	0.0
NICOOH2	8.94946E-17	0.0	0.0	0.0
NIOH2	3.51806E-06	0.0	0.0	0.0
NISO4	9.03204E-17	0.0	0.0	0.0
OXALAC	2.26519E-24	0.0	0.0	0.0
PBACET2	1.93460E-16	0.0	0.0	0.0
PBBR2	3.28670E-21	0.0	0.0	0.0
PBC2O4	2.09555E-11	0.0	0.0	0.0
PBCL2	2.49512E-16	0.0	0.0	0.0

PBCOOH2	7.48352E-17	0.0	0.0	0.0
PBF2	8.22326E-19	0.0	0.0	0.0
PBHPO4	3.94656E-19	0.0	0.0	0.0
PBNO22	1.82914E-11	0.0	0.0	0.0
PBNO32	2.10482E-15	0.0	0.0	0.0
PBO	3.08991E-04	0.0	0.0	0.0
RUIIICL3	3.52271E-26	0.0	0.0	0.0
BAAC2	4.42440E-07	0.0	0.0	0.0
BACO3	9.48427E-04	0.0	0.0	0.0
SIO2	1.26848E-07	0.0	0.0	0.0
BACOOH2	1.61834E-06	0.0	0.0	0.0
SRC2O4	4.04292E-06	0.0	0.0	0.0
SRCOOH2	1.28251E-07	0.0	0.0	0.0
SRHC2O42	4.89160E-30	0.0	0.0	0.0
SRHPO4	5.72350E-11	0.0	0.0	0.0
SRNO32	1.18466E-05	0.0	0.0	0.0
SRSO4	8.57109E-07	0.0	0.0	0.0
ZNACET2	3.61731E-19	0.0	0.0	0.0
ZNBR2	4.69710E-27	0.0	0.0	0.0
ZNC2O4	5.30827E-17	0.0	0.0	0.0
ZNCL2	7.35766E-21	0.0	0.0	0.0
ZNCOOH2	7.48689E-20	0.0	0.0	0.0
ZNHPO4	7.44304E-22	0.0	0.0	0.0
ZNNO32	1.19621E-19	0.0	0.0	0.0
ZNOH2	2.14092E-07	0.0	0.0	0.0
ZROH4	1.08881E-09	0.0	0.0	0.0
OHION	2197.55	0.0	0.0	0.0
AGACET2ION	9.00141E-11	0.0	0.0	0.0
AGBR2ION	4.32220E-07	0.0	0.0	0.0
AGBR3ION	9.10689E-09	0.0	0.0	0.0
AGBR4ION	7.59175E-10	0.0	0.0	0.0
AGC2O4ION	1.43775E-07	0.0	0.0	0.0
AGCL2ION	1.18472E-04	0.0	0.0	0.0
AGCL3ION	0.00150382	0.0	0.0	0.0
AGCL4ION	0.0035731	0.0	0.0	0.0
AGION	7.86021E-08	0.0	0.0	0.0
AGNO22ION	1.31199E-04	0.0	0.0	0.0
AGOH2ION	0.00692502	0.0	0.0	0.0
AGSO4ION	2.21957E-09	0.0	0.0	0.0
ALACET2ION	0.0	0.0	0.0	0.0
ALACETION	0.0	0.0	0.0	0.0
ALF2ION	6.58201E-26	0.0	0.0	0.0
ALF4ION	2.27785E-24	0.0	0.0	0.0
ALF5ION	1.88183E-24	0.0	0.0	0.0
ALF6ION	1.18571E-24	0.0	0.0	0.0
ALFION	2.41197E-28	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	4.00871E-15	0.0	0.0	0.0
ALOH4ION	314.194	0.0	0.0	0.0
ALOHCLION	1.28877E-24	0.0	0.0	0.0
ALOHION	1.06236E-23	0.0	0.0	0.0
ALSIO3OHION	0.0770883	0.0	0.0	0.0
B2OOH5ION	2.87795E-08	0.0	0.0	0.0
B3O3OH4ION	2.88757E-14	0.0	0.0	0.0
B4O5OH4ION	5.31889E-15	0.0	0.0	0.0
BAACETION	4.85001E-05	0.0	0.0	0.0
BACOOHION	1.00970E-04	0.0	0.0	0.0

BAFION	7.85700E-07	0.0	0.0	0.0
BAHCO3ION	7.99270E-09	0.0	0.0	0.0
BAION	0.0102735	0.0	0.0	0.0
BAOHION	4.24546E-04	0.0	0.0	0.0
BF2OH2ION	7.72790E-18	0.0	0.0	0.0
BF3OHION	1.29218E-29	0.0	0.0	0.0
BFOH3ION	5.52900E-09	0.0	0.0	0.0
BOH4ION	1.38665	0.0	0.0	0.0
BRION	0.604743	0.0	0.0	0.0
CAACETION	3.22917E-05	0.0	0.0	0.0
CACLION	3.62021E-10	0.0	0.0	0.0
CACOOHION	8.53283E-05	0.0	0.0	0.0
CAFION	6.73851E-08	0.0	0.0	0.0
CAH2BO3ION	1.68024E-05	0.0	0.0	0.0
CAH2PO4ION	3.19507E-16	0.0	0.0	0.0
CAHC2O4ION	1.07340E-15	0.0	0.0	0.0
CAHCO3ION	1.03103E-08	0.0	0.0	0.0
CAHSIO3ION	4.13385E-08	0.0	0.0	0.0
CAION	0.00282674	0.0	0.0	0.0
CANO3ION	3.38041E-04	0.0	0.0	0.0
CAOHION	0.00962145	0.0	0.0	0.0
CAPO4ION	0.0959739	0.0	0.0	0.0
CEACET2ION	8.55271E-19	0.0	0.0	0.0
CEACETION	3.68575E-18	0.0	0.0	0.0
CEC2O42ION	1.40141E-15	0.0	0.0	0.0
CEC2O43ION	4.16789E-13	0.0	0.0	0.0
CEC2O4ION	1.76137E-16	0.0	0.0	0.0
CECL2ION	5.90440E-22	0.0	0.0	0.0
CECL4ION	6.71139E-25	0.0	0.0	0.0
CECLION	7.71685E-20	0.0	0.0	0.0
CECO3ION	6.81692E-14	0.0	0.0	0.0
CEF2ION	1.80052E-17	0.0	0.0	0.0
CEF4ION	2.94151E-18	0.0	0.0	0.0
CEFION	2.79523E-17	0.0	0.0	0.0
CEH2PO4ION	4.83356E-30	0.0	0.0	0.0
CEHCO3ION	7.01208E-23	0.0	0.0	0.0
CEION	1.34032E-17	0.0	0.0	0.0
CENO3ION	7.21188E-19	0.0	0.0	0.0
CEOH2ION	1.95830E-07	0.0	0.0	0.0
CEOH4ION	0.706152	0.0	0.0	0.0
CEOHION	2.23571E-13	0.0	0.0	0.0
CESO42ION	2.58773E-20	0.0	0.0	0.0
CESO4ION	3.24509E-19	0.0	0.0	0.0
CLION	123.436	0.0	0.0	0.0
CO3ION	918.183	0.0	0.0	0.0
COOHION	16.5949	0.0	0.0	0.0
CR2O7ION	3.45811E-18	0.0	0.0	0.0
CRIIC2O42ION	3.51961	0.0	0.0	0.0
CRIIION	0.0233963	0.0	0.0	0.0
CRO4ION	4.25604	0.0	0.0	0.0
CSION	3.89116E-04	0.0	0.0	0.0
CSSO4ION	6.54539E-05	0.0	0.0	0.0
CUACET3ION	5.69281E-21	0.0	0.0	0.0
CUACETION	5.96966E-20	0.0	0.0	0.0
CUBRION	1.50902E-22	0.0	0.0	0.0
CUC2O42ION	1.92739E-14	0.0	0.0	0.0
CUCL3ION	6.93536E-26	0.0	0.0	0.0

CUCLION	1.06909E-20	0.0	0.0	0.0
CUCO32ION	2.30978E-12	0.0	0.0	0.0
CUCOOHION	2.80637E-20	0.0	0.0	0.0
CUION	6.82236E-20	0.0	0.0	0.0
CUNO2ION	8.67129E-19	0.0	0.0	0.0
CUNO3ION	4.92312E-20	0.0	0.0	0.0
CUOH3ION	0.0019387	0.0	0.0	0.0
CUOH4ION	0.451754	0.0	0.0	0.0
CUOHION	2.41749E-13	0.0	0.0	0.0
FEIIIC2O42ION	2.41406E-24	0.0	0.0	0.0
FEIIIC2O43ION	9.43665E-21	0.0	0.0	0.0
FEIIIC2O4ION	5.39470E-27	0.0	0.0	0.0
FEIIIOH2ION	3.66986E-14	0.0	0.0	0.0
FEIIIOH4ION	5.71544	0.0	0.0	0.0
FEIIIOHION	2.63044E-23	0.0	0.0	0.0
FION	6.80893	0.0	0.0	0.0
H2P2O7ION	2.00777E-25	0.0	0.0	0.0
H2PO4ION	1.53887E-10	0.0	0.0	0.0
H2SIO4ION	5.94366	0.0	0.0	0.0
H3SIO4ION	0.0113929	0.0	0.0	0.0
HCO3ION	0.00561178	0.0	0.0	0.0
HCRO4ION	2.87803E-09	0.0	0.0	0.0
HF2ION	2.16296E-14	0.0	0.0	0.0
HION	7.74138E-12	0.0	0.0	0.0
HOXALATION	9.74238E-11	0.0	0.0	0.0
HP2O7ION	5.63044E-17	0.0	0.0	0.0
HPBO2ION	2.55294	0.0	0.0	0.0
HPO4ION	0.0365578	0.0	0.0	0.0
HSO4ION	3.91744E-13	0.0	0.0	0.0
HWO4ION	2.77864E-13	0.0	0.0	0.0
KION	759.823	0.0	0.0	0.0
KSO4ION	3.9413	0.0	0.0	0.0
LIION	2.47626	0.0	0.0	0.0
LISO4ION	0.00218324	0.0	0.0	0.0
MGACETION	4.82473E-10	0.0	0.0	0.0
MGC2O42ION	1.99038E-09	0.0	0.0	0.0
MGCOOHION	5.75684E-10	0.0	0.0	0.0
MGFION	1.27369E-13	0.0	0.0	0.0
MGH2PO4ION	2.72368E-21	0.0	0.0	0.0
MGHCO3ION	8.17663E-14	0.0	0.0	0.0
MGHSIO3ION	5.06747E-13	0.0	0.0	0.0
MGION	1.49315E-08	0.0	0.0	0.0
MGOHION	6.66595E-07	0.0	0.0	0.0
MGP2O7ION	2.75627E-17	0.0	0.0	0.0
MGPO4ION	9.06027E-07	0.0	0.0	0.0
MNACET3ION	7.07102E-15	0.0	0.0	0.0
MNACETION	2.22018E-12	0.0	0.0	0.0
MNBRION	1.43279E-13	0.0	0.0	0.0
MNC2O42ION	1.34146E-10	0.0	0.0	0.0
MNC2O43ION	1.03522E-08	0.0	0.0	0.0
MNCLION	3.08998E-12	0.0	0.0	0.0
MNCOOHION	5.63469E-12	0.0	0.0	0.0
MNION	5.04154E-10	0.0	0.0	0.0
MNNO3ION	8.30607E-12	0.0	0.0	0.0
MNOH3ION	0.00287397	0.0	0.0	0.0
MNOH4ION	0.262936	0.0	0.0	0.0
MNOHION	1.23530E-07	0.0	0.0	0.0

NA2FION	0.29689	0.0	0.0	0.0
NACO3ION	123.304	0.0	0.0	0.0
NAION	6220.43	0.0	0.0	0.0
NASO4ION	19.9178	0.0	0.0	0.0
NDACET2ION	2.31050E-28	0.0	0.0	0.0
NDACETION	1.26821E-27	0.0	0.0	0.0
NDCL2ION	0.0	0.0	0.0	0.0
NDCLION	8.55670E-29	0.0	0.0	0.0
NDCO3ION	5.25514E-23	0.0	0.0	0.0
NDF2ION	1.38870E-26	0.0	0.0	0.0
NDF4ION	3.13492E-27	0.0	0.0	0.0
NDFION	1.53628E-26	0.0	0.0	0.0
NDHCO3ION	0.0	0.0	0.0	0.0
NDION	5.18375E-27	0.0	0.0	0.0
NDNO3ION	3.94802E-28	0.0	0.0	0.0
NDOH2ION	1.70848E-17	0.0	0.0	0.0
NDOH4ION	1.37200E-08	0.0	0.0	0.0
NDOHION	1.73788E-22	0.0	0.0	0.0
NDSO42ION	4.66909E-30	0.0	0.0	0.0
NDSO4ION	1.26003E-28	0.0	0.0	0.0
NIACET3ION	6.22257E-18	0.0	0.0	0.0
NIACETION	9.77611E-16	0.0	0.0	0.0
NIC2O42ION	2.50467E-12	0.0	0.0	0.0
NICLION	2.04905E-17	0.0	0.0	0.0
NICOOHION	2.24305E-15	0.0	0.0	0.0
NIFION	2.75057E-17	0.0	0.0	0.0
NIION	9.54086E-14	0.0	0.0	0.0
NINO3ION	3.55556E-15	0.0	0.0	0.0
NIOH3ION	0.0492933	0.0	0.0	0.0
NIOHION	8.12375E-11	0.0	0.0	0.0
NO2ION	933.641	0.0	0.0	0.0
NO3ION	1066.89	0.0	0.0	0.0
ACETATEION	22.5409	0.0	0.0	0.0
OXALATION	38.7701	0.0	0.0	0.0
P2O7ION	2.18639E-09	0.0	0.0	0.0
PBACET3ION	1.13953E-15	0.0	0.0	0.0
PBACETION	6.82521E-15	0.0	0.0	0.0
PBBR3ION	2.98206E-22	0.0	0.0	0.0
PBBRION	5.45002E-17	0.0	0.0	0.0
PBCL3ION	2.79017E-17	0.0	0.0	0.0
PBCL4ION	3.06040E-17	0.0	0.0	0.0
PBCLION	4.26204E-15	0.0	0.0	0.0
PBCOOHION	1.78730E-15	0.0	0.0	0.0
PBF3ION	2.08244E-19	0.0	0.0	0.0
PBF4ION	3.55904E-21	0.0	0.0	0.0
PBFION	1.18272E-16	0.0	0.0	0.0
PBH2PO4ION	2.60369E-27	0.0	0.0	0.0
PBION	1.53864E-12	0.0	0.0	0.0
PBNO23ION	4.08923E-10	0.0	0.0	0.0
PBNO2ION	4.81448E-12	0.0	0.0	0.0
PBNO33ION	1.00791E-15	0.0	0.0	0.0
PBNO3ION	1.84878E-14	0.0	0.0	0.0
PBOHION	1.03514E-08	0.0	0.0	0.0
PO4ION	43.6895	0.0	0.0	0.0
RUIIICL2ION	6.22361E-25	0.0	0.0	0.0
RUIIICL4ION	1.04999E-26	0.0	0.0	0.0
RUIIICL5ION	4.73612E-27	0.0	0.0	0.0

RUIIICL6ION	8.48386E-27	0.0	0.0	0.0
RUIIICLION	1.02334E-20	0.0	0.0	0.0
RUIIIION	1.83108E-24	0.0	0.0	0.0
RUIIIOH2ION	0.347407	0.0	0.0	0.0
RUIIIOHION	1.38904E-13	0.0	0.0	0.0
RUIIISO42ION	4.68833E-30	0.0	0.0	0.0
RUIIISO43ION	0.0	0.0	0.0	0.0
RUIIISO4ION	1.42331E-27	0.0	0.0	0.0
SO4ION	32.8161	0.0	0.0	0.0
SRACETION	5.09150E-06	0.0	0.0	0.0
SRCOOHION	8.66565E-06	0.0	0.0	0.0
SRFION	1.38398E-07	0.0	0.0	0.0
SRHC2O4ION	5.48361E-17	0.0	0.0	0.0
SRION	2.58117E-04	0.0	0.0	0.0
SRNO3ION	9.46839E-05	0.0	0.0	0.0
SROHION	4.16384E-04	0.0	0.0	0.0
SRPO4ION	1.25627E-04	0.0	0.0	0.0
WO4ION	0.501823	0.0	0.0	0.0
ZNACET3ION	1.49840E-19	0.0	0.0	0.0
ZNACETION	1.83393E-18	0.0	0.0	0.0
ZNBR3ION	3.75623E-29	0.0	0.0	0.0
ZNBRION	3.87990E-22	0.0	0.0	0.0
ZNC2O42ION	5.36207E-15	0.0	0.0	0.0
ZNC2O43ION	1.07241E-13	0.0	0.0	0.0
ZNCL3ION	5.71723E-22	0.0	0.0	0.0
ZNCLION	5.06519E-19	0.0	0.0	0.0
ZNCOOHION	2.26018E-18	0.0	0.0	0.0
ZNFION	4.65497E-20	0.0	0.0	0.0
ZNH2PO4ION	4.01260E-30	0.0	0.0	0.0
ZNHC2O4ION	3.20339E-29	0.0	0.0	0.0
ZNHCO3ION	1.89931E-22	0.0	0.0	0.0
ZNION	1.07161E-17	0.0	0.0	0.0
ZNNO3ION	4.45541E-18	0.0	0.0	0.0
ZNOH3ION	0.00144444	0.0	0.0	0.0
ZNOH4ION	1.14056	0.0	0.0	0.0
ZNOHION	8.98755E-13	0.0	0.0	0.0
ZROH2ION	2.63349E-29	0.0	0.0	0.0
ZROH3ION	7.55668E-19	0.0	0.0	0.0
ZROH5ION	0.416455	0.0	0.0	0.0
	==========	==========	==========	==========
Total g/hr	1.96688E+06	0.0	0.0	0.0
Volume, L/hr	1573.5	0.0	0.0	0.0
Enthalpy, cal/hr	-6.40821E+09	0.0	0.0	0.0
Density, g/L	1250.01			
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	0.0	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	224.255			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0			
E-Con, cm2/ohm-mol	0.0			
Abs Visc, cP	0.0			
Rel Visc	0.0			
Ionic Strength	5.85617			

Campaign IV 20wt% UDS UF Slurry

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: UF1 Slurry
TO : FCWash1 mixer
FROM : UF1 filter

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	14.4446			
Total mol/hr	9900.681	306.129	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	8334.57	0.0	0.0	0.0
ACETACID	1.70474E-10	0.0	0.0	0.0
CO2	1.10197E-12	0.0	0.0	0.0
H2F2	0.0	0.0	0.0	0.0
ACET2	7.56196E-30	0.0	0.0	0.0
HBR	8.64143E-25	0.0	0.0	0.0
HCL	9.41793E-21	0.0	0.0	0.0
HCOOH	1.45112E-11	0.0	0.0	0.0
HF	8.39712E-13	0.0	0.0	0.0
HNO2	1.20304E-10	0.0	0.0	0.0
HNO3	5.01790E-15	0.0	0.0	0.0
BAOX	1.09819E-06	0.0	0.0	0.0
BASO4	1.23446E-08	0.5306014	0.0	0.0
BOH3	3.80765E-07	0.0	0.0	0.0
CAACET2	1.55711E-07	0.0	0.0	0.0
CAC2O4	1.00090E-05	0.0	0.0	0.0
CACL2	3.49451E-26	0.0	0.0	0.0
CACO3	3.76964E-04	11.57109	0.0	0.0
CACOOH2	1.63092E-07	0.0	0.0	0.0
CAH2SIO4	5.59252E-05	0.0	0.0	0.0
CAHC2O42	7.01561E-30	0.0	0.0	0.0
CASO4	1.87101E-07	0.0	0.0	0.0
CEACET3	6.75193E-21	0.0	0.0	0.0
CECL3	3.95439E-25	0.0	0.0	0.0
CEF3	2.32916E-19	0.0	0.0	0.0
CEOH3	2.27249E-04	0.0	0.0	0.0
AGCL	3.45991E-07	0.0	0.0	0.0
CRIIC2O4	0.00673124	0.0	0.0	0.0
CSACET	7.01473E-06	0.0	0.0	0.0
CSBR	8.81040E-08	0.0	0.0	0.0
CSCL	1.55502E-05	0.0	0.0	0.0
CSNO3	0.00197074	0.0	0.0	0.0
CUACET2	4.53924E-22	0.0	0.0	0.0
CUBR2	7.82612E-29	0.0	0.0	0.0
CUC2O4	1.54431E-18	0.0	0.0	0.0
CUCL2	8.52156E-24	0.0	0.0	0.0
CUCO3	9.14832E-17	0.0	0.0	0.0
CUCOOH2	1.48239E-22	0.0	0.0	0.0
CUNO22	7.64325E-20	0.0	0.0	0.0
CUNO32	7.87359E-23	0.0	0.0	0.0
CUOH2	3.06569E-07	0.0	0.0	0.0
FEIIIOH3	1.80857E-06	203.4308	0.0	0.0

AGACET	1.60321E-10	0.0	0.0	0.0
AGBR	2.19434E-08	0.0	0.0	0.0
AGF	1.78587E-11	0.0	0.0	0.0
H2WO4	5.95630E-27	0.0	0.0	0.0
H3PO4	9.13130E-25	0.0	0.0	0.0
H4SIO4	2.20858E-08	0.0	0.0	0.0
AGNO2	1.61091E-07	0.0	0.0	0.0
AGNO3	8.67955E-10	0.0	0.0	0.0
AGOH	5.51942E-07	0.0	0.0	0.0
ALF3	5.59785E-26	0.0	0.0	0.0
ALOH3	1.41717E-07	0.0	0.0	0.0
KACET	0.103625	0.0	0.0	0.0
KCL	0.00900022	0.0	0.0	0.0
KCOOH	0.169979	0.0	0.0	0.0
KHSO4	6.94584E-17	0.0	0.0	0.0
KNO3	15.9458	0.0	0.0	0.0
LIACET	0.00126766	0.0	0.0	0.0
LIH2BO3	1.11569E-04	0.0	0.0	0.0
LIOH	0.272322	0.0	0.0	0.0
MGACET2	8.51973E-13	0.0	0.0	0.0
MGC2O4	3.17028E-10	0.0	0.0	0.0
MGCO3	1.12887E-09	0.0	0.0	0.0
MGCOOH2	1.09199E-12	0.0	0.0	0.0
MGH2SIO4	3.58596E-09	0.0	0.0	0.0
MGHPO4	2.84246E-14	0.0	0.0	0.0
MGSO4	2.16364E-12	0.0	0.0	0.0
MNACET2	4.67998E-15	0.0	0.0	0.0
MNBR2	1.80510E-18	0.0	0.0	0.0
MNC2O4	4.53195E-10	0.0	0.0	0.0
MNCOOH2	1.76862E-14	0.0	0.0	0.0
MNNO32	3.04099E-13	0.0	0.0	0.0
MNOH2	8.84783E-07	0.0	0.0	0.0
MNSO4	3.91872E-14	0.0	0.0	0.0
NAACET	1.15594	0.0	0.0	0.0
NAALOH4	14.7012	0.0	0.0	0.0
NABOH4	0.0637986	0.0	0.0	0.0
NABR	0.00200176	0.0	0.0	0.0
NACOOH	1.37902	0.0	0.0	0.0
NAF	0.272398	0.0	0.0	0.0
NAHCO3	9.42051E-05	0.0	0.0	0.0
NAHSIO3	0.106717	0.0	0.0	0.0
NANO3	137.997	0.0	0.0	0.0
NDACET3	1.90002E-30	0.0	0.0	0.0
NDF3	2.11145E-28	0.0	0.0	0.0
NDOH3	5.43720E-14	0.0	0.0	0.0
NIACET2	2.31808E-18	0.0	0.0	0.0
NIC2O4	1.94175E-12	0.0	0.0	0.0
NICOOH2	9.69036E-18	0.0	0.0	0.0
NIOH2	3.80930E-07	6.741172	0.0	0.0
NISO4	9.77978E-18	0.0	0.0	0.0
OXALAC	2.45271E-25	0.0	0.0	0.0
PBACET2	2.09476E-17	0.0	0.0	0.0
PBBR2	3.55880E-22	0.0	0.0	0.0
PBC2O4	2.26904E-12	0.0	0.0	0.0
PBCL2	2.70168E-17	0.0	0.0	0.0
PBCOOH2	8.10306E-18	0.0	0.0	0.0
PBF2	8.90404E-20	0.0	0.0	0.0

PBHPO4	4.27328E-20	0.0	0.0	0.0
PBNO22	1.98056E-12	0.0	0.0	0.0
PBNO32	2.27907E-16	0.0	0.0	0.0
PBO	3.34571E-05	0.0	0.0	0.0
RUIIICL3	3.81434E-27	0.0	0.0	0.0
BAAC2	4.79068E-08	0.0	0.0	0.0
BACO3	1.02694E-04	0.0	0.0	0.0
SIO2	1.37349E-08	0.0	0.0	0.0
BACOOH2	1.75231E-07	0.0	0.0	0.0
SRC2O4	4.37762E-07	0.0	0.0	0.0
SRCOOH2	1.38869E-08	0.0	0.0	0.0
SRHC2O42	0.0	0.0	0.0	0.0
SRHPO4	6.19733E-12	0.0	0.0	0.0
SRNO32	1.28274E-06	0.0	0.0	0.0
SRSO4	9.28066E-08	0.0	0.0	0.0
ZNACET2	3.91677E-20	0.0	0.0	0.0
ZNBR2	5.08596E-28	0.0	0.0	0.0
ZNC2O4	5.74772E-18	0.0	0.0	0.0
ZNCL2	7.96678E-22	0.0	0.0	0.0
ZNCOOH2	8.10670E-21	0.0	0.0	0.0
ZNHPO4	8.05923E-23	0.0	0.0	0.0
ZNNO32	1.29524E-20	0.0	0.0	0.0
ZNOH2	2.31816E-08	0.0	0.0	0.0
ZROH4	1.17895E-10	0.0	0.0	0.0
OHION	237.948	0.0	0.0	0.0
AGACET2ION	9.74661E-12	0.0	0.0	0.0
AGBR2ION	4.68002E-08	0.0	0.0	0.0
AGBR3ION	9.86082E-10	0.0	0.0	0.0
AGBR4ION	8.22024E-11	0.0	0.0	0.0
AGC2O4ION	1.55677E-08	0.0	0.0	0.0
AGCL2ION	1.28280E-05	0.0	0.0	0.0
AGCL3ION	1.62832E-04	0.0	0.0	0.0
AGCL4ION	3.86890E-04	0.0	0.0	0.0
AGION	8.51093E-09	0.0	0.0	0.0
AGNO22ION	1.42061E-05	0.0	0.0	0.0
AGOH2ION	7.49832E-04	0.0	0.0	0.0
AGSO4ION	2.40332E-10	0.0	0.0	0.0
ALF2ION	7.12692E-27	0.0	0.0	0.0
ALF4ION	2.46643E-25	0.0	0.0	0.0
ALF5ION	2.03762E-25	0.0	0.0	0.0
ALF6ION	1.28387E-25	0.0	0.0	0.0
ALFION	2.61165E-29	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	4.34058E-16	0.0	0.0	0.0
ALOH4ION	34.0206	0.0	0.0	0.0
ALOHCLION	1.39546E-25	0.0	0.0	0.0
ALOHION	1.15031E-24	0.0	0.0	0.0
ALSIO3OHION	0.00834702	0.0	0.0	0.0
B2OOH5ION	3.11621E-09	0.0	0.0	0.0
B3O3OH4ION	3.12663E-15	0.0	0.0	0.0
B4O5OH4ION	5.75922E-16	0.0	0.0	0.0
BAACETION	5.25153E-06	0.0	0.0	0.0
BACOOHION	1.09329E-05	0.0	0.0	0.0
BAFION	8.50746E-08	0.0	0.0	0.0
BAHCO3ION	8.65439E-10	0.0	0.0	0.0
BAION	0.00111241	0.0	0.0	0.0
BAOHION	4.59693E-05	0.0	0.0	0.0

BF2OH2ION	8.36767E-19	0.0	0.0	0.0
BF3OHION	1.39915E-30	0.0	0.0	0.0
BFOH3ION	5.98673E-10	0.0	0.0	0.0
BOH4ION	0.150144	0.0	0.0	0.0
BRION	0.0654808	0.0	0.0	0.0
CAACETION	3.49650E-06	0.0	0.0	0.0
CACLION	3.91992E-11	0.0	0.0	0.0
CACOOHION	9.23924E-06	0.0	0.0	0.0
CAFION	7.29637E-09	0.0	0.0	0.0
CAH2BO3ION	1.81935E-06	0.0	0.0	0.0
CAH2PO4ION	3.45958E-17	0.0	0.0	0.0
CAHC2O4ION	1.16226E-16	0.0	0.0	0.0
CAHCO3ION	1.11639E-09	0.0	0.0	0.0
CAHSIO3ION	4.47607E-09	0.0	0.0	0.0
CAION	3.06076E-04	0.0	0.0	0.0
CANO3ION	3.66027E-05	0.0	0.0	0.0
CAOHION	0.0010418	0.0	0.0	0.0
CAPO4ION	0.0103919	0.0	0.0	0.0
CEACET2ION	9.26077E-20	0.0	0.0	0.0
CEACETION	3.99088E-19	0.0	0.0	0.0
CEC2O42ION	1.51743E-16	0.0	0.0	0.0
CEC2O43ION	4.51294E-14	0.0	0.0	0.0
CEC2O4ION	1.90719E-17	0.0	0.0	0.0
CECL2ION	6.39320E-23	0.0	0.0	0.0
CECL4ION	7.26701E-26	0.0	0.0	0.0
CECLION	8.35571E-21	0.0	0.0	0.0
CECO3ION	7.38128E-15	0.0	0.0	0.0
CEF2ION	1.94958E-18	0.0	0.0	0.0
CEF4ION	3.18503E-19	0.0	0.0	0.0
CEFION	3.02664E-18	0.0	0.0	0.0
CEH2PO4ION	0.0	0.0	0.0	0.0
CEHCO3ION	7.59259E-24	0.0	0.0	0.0
CEION	1.45128E-18	0.0	0.0	0.0
CENO3ION	7.80893E-20	0.0	0.0	0.0
CEOH2ION	2.12042E-08	0.0	0.0	0.0
CEOH4ION	0.0764612	0.0	0.0	0.0
CEOHION	2.42080E-14	0.0	0.0	0.0
CESO42ION	2.80196E-21	0.0	0.0	0.0
CESO4ION	3.51374E-20	0.0	0.0	0.0
CLION	13.3655	0.0	0.0	0.0
CO3ION	99.4197	0.0	0.0	0.0
COOHION	1.79688	0.0	0.0	0.0
CR2O7ION	3.74440E-19	0.0	0.0	0.0
CRIIC2O42ION	0.381099	0.0	0.0	0.0
CRIIION	0.00253332	0.0	0.0	0.0
CRO4ION	0.460839	0.0	0.0	0.0
CSION	4.21330E-05	0.0	0.0	0.0
CSSO4ION	7.08726E-06	0.0	0.0	0.0
CUACET3ION	6.16410E-22	0.0	0.0	0.0
CUACETION	6.46387E-21	0.0	0.0	0.0
CUBRION	1.63395E-23	0.0	0.0	0.0
CUC2O42ION	2.08695E-15	0.0	0.0	0.0
CUCL3ION	7.50951E-27	0.0	0.0	0.0
CUCLION	1.15759E-21	0.0	0.0	0.0
CUCO32ION	2.50099E-13	0.0	0.0	0.0
CUCOOHION	3.03870E-21	0.0	0.0	0.0
CUION	7.38716E-21	0.0	0.0	0.0

CUNO2ION	9.38916E-20	0.0	0.0	0.0
CUNO3ION	5.33069E-21	0.0	0.0	0.0
CUOH3ION	2.09920E-04	0.0	0.0	0.0
CUOH4ION	0.0489153	0.0	0.0	0.0
CUOHION	2.61763E-14	0.0	0.0	0.0
FEIIIC2O42ION	2.61392E-25	0.0	0.0	0.0
FEIIIC2O43ION	1.02179E-21	0.0	0.0	0.0
FEIIIC2O4ION	5.84131E-28	0.0	0.0	0.0
FEIIIOH2ION	3.97367E-15	0.0	0.0	0.0
FEIIIOH4ION	0.618861	0.0	0.0	0.0
FEIIIOHION	2.84821E-24	0.0	0.0	0.0
FION	0.737262	0.0	0.0	0.0
H2P2O7ION	2.17399E-26	0.0	0.0	0.0
H2PO4ION	1.66627E-11	0.0	0.0	0.0
H2SIO4ION	0.643572	0.0	0.0	0.0
H3SIO4ION	0.00123361	0.0	0.0	0.0
HCO3ION	6.07637E-04	0.0	0.0	0.0
HCRO4ION	3.11630E-10	0.0	0.0	0.0
HF2ION	2.34202E-15	0.0	0.0	0.0
HION	8.38227E-13	0.0	0.0	0.0
HOXALATION	1.05489E-11	0.0	0.0	0.0
HP2O7ION	6.09657E-18	0.0	0.0	0.0
HPBO2ION	0.276429	0.0	0.0	0.0
HPO4ION	0.00395843	0.0	0.0	0.0
HSO4ION	4.24175E-14	0.0	0.0	0.0
HWO4ION	3.00867E-14	0.0	0.0	0.0
KION	82.2726	0.0	0.0	0.0
KSO4ION	0.426759	0.0	0.0	0.0
LIION	0.268127	0.0	0.0	0.0
LISO4ION	2.36398E-04	0.0	0.0	0.0
MGACETION	5.22416E-11	0.0	0.0	0.0
MGC2O42ION	2.15516E-10	0.0	0.0	0.0
MGCOOHION	6.23343E-11	0.0	0.0	0.0
MGFION	1.37913E-14	0.0	0.0	0.0
MGH2PO4ION	2.94917E-22	0.0	0.0	0.0
MGHCO3ION	8.85355E-15	0.0	0.0	0.0
MGHSIO3ION	5.48699E-14	0.0	0.0	0.0
MGION	1.61676E-09	0.0	0.0	0.0
MGOHION	7.21781E-08	0.0	0.0	0.0
MGP2O7ION	2.98445E-18	0.0	0.0	0.0
MGPO4ION	9.81035E-08	0.0	0.0	0.0
MNACET3ION	7.65641E-16	0.0	0.0	0.0
MNACETION	2.40398E-13	0.0	0.0	0.0
MNBRION	1.55140E-14	0.0	0.0	0.0
MNC2O42ION	1.45252E-11	0.0	0.0	0.0
MNC2O43ION	1.12092E-09	0.0	0.0	0.0
MNCLION	3.34579E-13	0.0	0.0	0.0
MNCOOHION	6.10117E-13	0.0	0.0	0.0
MNION	5.45891E-11	0.0	0.0	0.0
MNNO3ION	8.99370E-13	0.0	0.0	0.0
MNOH3ION	3.11189E-04	0.0	0.0	0.0
MNOH4ION	0.0284704	0.0	0.0	0.0
MNOHION	1.33757E-08	0.0	0.0	0.0
NA2FION	0.0321469	0.0	0.0	0.0
NACO3ION	13.3512	0.0	0.0	0.0
NAION	673.54	0.0	0.0	0.0
NASO4ION	2.15667	0.0	0.0	0.0

NDACET2ION	2.50178E-29	0.0	0.0	0.0
NDACETION	1.37321E-28	0.0	0.0	0.0
NDCL2ION	0.0	0.0	0.0	0.0
NDCLION	9.26508E-30	0.0	0.0	0.0
NDCO3ION	5.69020E-24	0.0	0.0	0.0
NDF2ION	1.50366E-27	0.0	0.0	0.0
NDF4ION	3.39445E-28	0.0	0.0	0.0
NDFION	1.66346E-27	0.0	0.0	0.0
NDION	5.61289E-28	0.0	0.0	0.0
NDNO3ION	4.27487E-29	0.0	0.0	0.0
NDOH2ION	1.84992E-18	0.0	0.0	0.0
NDOH4ION	1.48558E-09	0.0	0.0	0.0
NDOHION	1.88175E-23	0.0	0.0	0.0
NDSO42ION	0.0	0.0	0.0	0.0
NDSO4ION	1.36434E-29	0.0	0.0	0.0
NIACET3ION	6.73772E-19	0.0	0.0	0.0
NIACETION	1.05854E-16	0.0	0.0	0.0
NIC2O42ION	2.71202E-13	0.0	0.0	0.0
NICLION	2.21868E-18	0.0	0.0	0.0
NICOOHION	2.42874E-16	0.0	0.0	0.0
NIFION	2.97828E-18	0.0	0.0	0.0
NIION	1.03307E-14	0.0	0.0	0.0
NINO3ION	3.84991E-16	0.0	0.0	0.0
NIOH3ION	0.00533742	0.0	0.0	0.0
NIOHION	8.79629E-12	0.0	0.0	0.0
NO2ION	101.093	0.0	0.0	0.0
NO3ION	115.522	0.0	0.0	0.0
ACETATEION	2.4407	0.0	0.0	0.0
OXALATION	4.19798	0.0	0.0	0.0
P2O7ION	2.36739E-10	0.0	0.0	0.0
PBACET3ION	1.23387E-16	0.0	0.0	0.0
PBACETION	7.39025E-16	0.0	0.0	0.0
PBBR3ION	3.22893E-23	0.0	0.0	0.0
PBBRION	5.90121E-18	0.0	0.0	0.0
PBCL3ION	3.02116E-18	0.0	0.0	0.0
PBCL4ION	3.31376E-18	0.0	0.0	0.0
PBCLION	4.61488E-16	0.0	0.0	0.0
PBCOOHION	1.93527E-16	0.0	0.0	0.0
PBF3ION	2.25484E-20	0.0	0.0	0.0
PBF4ION	3.85368E-22	0.0	0.0	0.0
PBFION	1.28063E-17	0.0	0.0	0.0
PBH2PO4ION	2.81924E-28	0.0	0.0	0.0
PBION	1.66602E-13	0.0	0.0	0.0
PBNO23ION	4.42777E-11	0.0	0.0	0.0
PBNO2ION	5.21306E-13	0.0	0.0	0.0
PBNO33ION	1.09135E-16	0.0	0.0	0.0
PBNO3ION	2.00184E-15	0.0	0.0	0.0
PBOHION	1.12084E-09	0.0	0.0	0.0
PO4ION	4.73064	0.0	0.0	0.0
RUIIICL2ION	6.73884E-26	0.0	0.0	0.0
RUIIICL4ION	1.13691E-27	0.0	0.0	0.0
RUIIICL5ION	5.12821E-28	0.0	0.0	0.0
RUIIICL6ION	9.18622E-28	0.0	0.0	0.0
RUIIICLION	1.10806E-21	0.0	0.0	0.0
RUIIIION	1.98267E-25	0.0	0.0	0.0
RUIIIOH2ION	0.0376168	0.0	0.0	0.0
RUIIIOHION	1.50403E-14	0.0	0.0	0.0

RUIIISO42ION	0.0	0.0	0.0	0.0
RUIIISO43ION	0.0	0.0	0.0	0.0
RUIIISO4ION	1.54114E-28	0.0	0.0	0.0
SO4ION	3.55328	0.0	0.0	0.0
SRACETION	5.51300E-07	0.0	0.0	0.0
SRCOOHION	9.38306E-07	0.0	0.0	0.0
SRFION	1.49856E-08	0.0	0.0	0.0
SRHC2O4ION	5.93758E-18	0.0	0.0	0.0
SRION	2.79485E-05	0.0	0.0	0.0
SRNO3ION	1.02522E-05	0.0	0.0	0.0
SROHION	4.50855E-05	0.0	0.0	0.0
SRPO4ION	1.36027E-05	0.0	0.0	0.0
WO4ION	0.0543368	0.0	0.0	0.0
ZNACET3ION	1.62245E-20	0.0	0.0	0.0
ZNACETION	1.98575E-19	0.0	0.0	0.0
ZNBR3ION	4.06720E-30	0.0	0.0	0.0
ZNBRION	4.20111E-23	0.0	0.0	0.0
ZNC2O42ION	5.80598E-16	0.0	0.0	0.0
ZNC2O43ION	1.16119E-14	0.0	0.0	0.0
ZNCL3ION	6.19054E-23	0.0	0.0	0.0
ZNCLION	5.48452E-20	0.0	0.0	0.0
ZNCOOHION	2.44729E-19	0.0	0.0	0.0
ZNFION	5.04034E-21	0.0	0.0	0.0
ZNH2PO4ION	0.0	0.0	0.0	0.0
ZNHC2O4ION	3.46859E-30	0.0	0.0	0.0
ZNHCO3ION	2.05655E-23	0.0	0.0	0.0
ZNION	1.16032E-18	0.0	0.0	0.0
ZNNO3ION	4.82426E-19	0.0	0.0	0.0
ZNOH3ION	1.56402E-04	0.0	0.0	0.0
ZNOH4ION	0.123499	0.0	0.0	0.0
ZNOHION	9.73160E-14	0.0	0.0	0.0
ZROH2ION	2.85151E-30	0.0	0.0	0.0
ZROH3ION	8.18228E-20	0.0	0.0	0.0
ZROH5ION	0.0450932	0.0	0.0	0.0
AG2CO3	0.0	0.9459708	0.0	0.0
SRCO3	0.0	1.081079	0.0	0.0
ZRO2	0.0	4.141845	0.0	0.0
MGOH2	0.0	4.807844	0.0	0.0
NASGEL.15.5H2O	0.0	17.99088	0.0	0.0
NDPO4.2H2O	0.0	1.048539	0.0	0.0
NA2C2O4	0.0	53.83923	0.0	0.0
	==========	==========	==========	==========
Total g/hr	212971.	53242.8	0.0	0.0
Volume, L/hr	170.376	23.198	0.0	0.0
Enthalpy, cal/hr	-6.93873E+08	-1.42302E+08	0.0	0.0
Density, g/L	1250.01	2295.15		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	224.255			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0			
E-Con, cm2/ohm-mol	0.0			
Abs Visc, cP	0.0			
Rel Visc	0.0			
Ionic Strength	5.85617			

Campaign IV First Wash

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: first wash
TO :
FROM : first wash

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.9575			
Total mol/hr	13441.63	2.88648	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	12223.6	0.0	0.0	0.0
ACETACID	5.25445E-10	0.0	0.0	0.0
CO2	1.44967E-11	0.0	0.0	0.0
H2F2	1.86656E-30	0.0	0.0	0.0
ACET2	3.16535E-29	0.0	0.0	0.0
HBR	2.41596E-24	0.0	0.0	0.0
HCL	2.76433E-20	0.0	0.0	0.0
HCOOH	4.40103E-11	0.0	0.0	0.0
HF	2.97239E-12	0.0	0.0	0.0
HNO2	4.34870E-10	0.0	0.0	0.0
HNO3	2.08084E-14	0.0	0.0	0.0
BAOX	7.56060E-06	0.0	0.0	0.0
BASO4	2.75873E-08	0.0	0.0	0.0
BOH3	1.05431E-06	0.0	0.0	0.0
CAACET2	9.88702E-08	0.0	0.0	0.0
CAC2O4	6.80400E-05	0.0	0.0	0.0
CACL2	2.01214E-26	0.0	0.0	0.0
CACO3	8.08885E-04	0.0	0.0	0.0
CACOOH2	1.00262E-07	0.0	0.0	0.0
CAH2SIO4	5.81273E-05	0.0	0.0	0.0
CAHC2O42	9.41669E-28	0.0	0.0	0.0
CASO4	4.12858E-07	0.0	0.0	0.0
CEACET3	4.75457E-20	0.0	0.0	0.0
CECL3	2.40466E-24	0.0	0.0	0.0
CEF3	2.08299E-18	0.0	0.0	0.0
CEOH3	7.94356E-04	0.0	0.0	0.0
AGCL	4.06781E-07	0.0	0.0	0.0
CRIIC2O4	0.00505555	0.0	0.0	0.0
CSACET	5.80363E-06	0.0	0.0	0.0
CSBR	6.61179E-08	0.0	0.0	0.0
CSCL	1.22514E-05	0.0	0.0	0.0
CSNO3	9.93646E-04	0.0	0.0	0.0
CUACET2	9.23304E-21	0.0	0.0	0.0
CUBR2	1.30972E-27	0.0	0.0	0.0
CUC2O4	3.36295E-16	0.0	0.0	0.0
CUCL2	1.57184E-22	0.0	0.0	0.0
CUCO3	6.28846E-15	0.0	0.0	0.0
CUCOOH2	2.91933E-21	0.0	0.0	0.0
CUNO22	2.13826E-18	0.0	0.0	0.0
CUNO32	2.62131E-21	0.0	0.0	0.0
CUOH2	3.90940E-06	0.0	0.0	0.0
FEIIIOH3	4.10477E-06	0.02844794	0.0	0.0

AGACET	1.97935E-10	0.0	0.0	0.0
AGBR	2.45737E-08	0.0	0.0	0.0
AGF	2.38771E-11	0.0	0.0	0.0
H2WO4	9.66731E-26	0.0	0.0	0.0
H3PO4	4.42123E-23	0.0	0.0	0.0
H4SIO4	1.51331E-07	0.0	0.0	0.0
AGNO2	2.33246E-07	0.0	0.0	0.0
AGNO3	1.37095E-09	0.0	0.0	0.0
AGOH	5.39554E-07	0.0	0.0	0.0
ALF3	3.29728E-25	0.0	0.0	0.0
ALOH3	3.26274E-07	1.430427	0.0	0.0
KACET	0.0615285	0.0	0.0	0.0
KCL	0.00508896	0.0	0.0	0.0
KCOOH	0.0993085	0.0	0.0	0.0
KHSO4	1.94641E-16	0.0	0.0	0.0
KNO3	8.44262	0.0	0.0	0.0
LIACET	8.67891E-04	0.0	0.0	0.0
LIH2BO3	6.86195E-05	0.0	0.0	0.0
LIOH	0.147624	0.0	0.0	0.0
MGACET2	3.08431E-12	0.0	0.0	0.0
MGC2O4	1.22873E-08	0.0	0.0	0.0
MGCO3	1.38107E-08	0.0	0.0	0.0
MGCOOH2	3.82747E-12	0.0	0.0	0.0
MGH2SIO4	2.12503E-08	0.0	0.0	0.0
MGHPO4	1.19028E-12	0.0	0.0	0.0
MGSO4	2.72205E-11	0.0	0.0	0.0
MNACET2	7.87244E-14	0.0	0.0	0.0
MNBR2	2.49825E-17	0.0	0.0	0.0
MNC2O4	8.16162E-08	0.0	0.0	0.0
MNCOOH2	2.88043E-13	0.0	0.0	0.0
MNNO32	8.37266E-12	0.0	0.0	0.0
MNOH2	9.33086E-06	0.0	0.0	0.0
MNSO4	2.29080E-12	0.0	0.0	0.0
NAACET	0.801814	0.0	0.0	0.0
NAALOH4	8.19049	0.0	0.0	0.0
NABOH4	0.0427484	0.0	0.0	0.0
NABR	0.00125946	0.0	0.0	0.0
NACOOH	0.941215	0.0	0.0	0.0
NAF	0.204618	0.0	0.0	0.0
NAHCO3	2.99898E-04	0.0	0.0	0.0
NAHSIO3	0.153035	0.0	0.0	0.0
NANO3	60.7249	0.0	0.0	0.0
NDACET3	0.0	0.0	0.0	0.0
NDF3	6.17983E-29	0.0	0.0	0.0
NDOH3	6.22009E-15	0.0	0.0	0.0
NIACET2	8.39191E-18	0.0	0.0	0.0
NIC2O4	7.52581E-11	0.0	0.0	0.0
NICOOH2	3.39650E-17	0.0	0.0	0.0
NIOH2	8.64566E-07	2.45368E-04	0.0	0.0
NISO4	1.23038E-16	0.0	0.0	0.0
OXALAC	1.09916E-23	0.0	0.0	0.0
PBACET2	9.87723E-17	0.0	0.0	0.0
PBBR2	1.38062E-21	0.0	0.0	0.0
PBC2O4	1.14543E-10	0.0	0.0	0.0
PBCL2	1.15521E-16	0.0	0.0	0.0
PBCOOH2	3.69921E-17	0.0	0.0	0.0
PBF2	4.92368E-19	0.0	0.0	0.0

PBHPO4	2.33069E-18	0.0	0.0	0.0
PBNO22	1.28443E-11	0.0	0.0	0.0
PBNO32	1.75890E-15	0.0	0.0	0.0
PBO	9.19775E-05	0.0	0.0	0.0
RUIIICL3	2.60759E-27	0.0	0.0	0.0
BAAC2	3.08070E-08	0.0	0.0	0.0
BACO3	2.23173E-04	0.0	0.0	0.0
SIO2	8.09385E-08	0.0	0.0	0.0
BACOOH2	1.09100E-07	0.0	0.0	0.0
SRC2O4	3.07106E-06	0.0	0.0	0.0
SRCOOH2	8.96954E-09	0.0	0.0	0.0
SRHC2O42	7.33680E-29	0.0	0.0	0.0
SRHPO4	4.69734E-11	0.0	0.0	0.0
SRNO32	1.37577E-06	0.0	0.0	0.0
SRSO4	2.11340E-07	0.0	0.0	0.0
ZNACET2	8.72219E-19	0.0	0.0	0.0
ZNBR2	9.31835E-27	0.0	0.0	0.0
ZNC2O4	1.37031E-15	0.0	0.0	0.0
ZNCL2	1.60882E-20	0.0	0.0	0.0
ZNCOOH2	1.74783E-19	0.0	0.0	0.0
ZNHPO4	2.07593E-20	0.0	0.0	0.0
ZNNO32	4.72096E-19	0.0	0.0	0.0
ZNOH2	3.23638E-07	0.0	0.0	0.0
ZROH4	3.09387E-10	0.0	0.0	0.0
OHION	186.259	0.0	0.0	0.0
AGACET2ION	3.18006E-12	0.0	0.0	0.0
AGBR2ION	1.25632E-08	0.0	0.0	0.0
AGBR3ION	8.39071E-11	0.0	0.0	0.0
AGBR4ION	1.89460E-12	0.0	0.0	0.0
AGC2O4ION	5.43793E-08	0.0	0.0	0.0
AGCL2ION	3.79550E-06	0.0	0.0	0.0
AGCL3ION	1.60329E-05	0.0	0.0	0.0
AGCL4ION	1.08327E-05	0.0	0.0	0.0
AGION	1.65738E-08	0.0	0.0	0.0
AGNO22ION	6.37497E-06	0.0	0.0	0.0
AGOH2ION	1.53379E-04	0.0	0.0	0.0
AGSO4ION	2.72504E-10	0.0	0.0	0.0
ALACETION	0.0	0.0	0.0	0.0
ALF2ION	5.85476E-26	0.0	0.0	0.0
ALF4ION	4.15772E-25	0.0	0.0	0.0
ALF5ION	1.29990E-25	0.0	0.0	0.0
ALF6ION	2.64863E-26	0.0	0.0	0.0
ALFION	5.17892E-28	0.0	0.0	0.0
ALION	0.0	0.0	0.0	0.0
ALOH2ION	1.95483E-15	0.0	0.0	0.0
ALOH4ION	19.2512	0.0	0.0	0.0
ALOHCLION	6.58892E-25	0.0	0.0	0.0
ALOHION	1.84929E-23	0.0	0.0	0.0
ALSIO3OHION	3.84539E-04	0.0	0.0	0.0
B2OOH5ION	2.04848E-09	0.0	0.0	0.0
B3O3OH4ION	2.16863E-15	0.0	0.0	0.0
B4O5OH4ION	1.16624E-16	0.0	0.0	0.0
BAACETION	5.01129E-06	0.0	0.0	0.0
BACOOHION	1.02607E-05	0.0	0.0	0.0
BAFION	8.78556E-08	0.0	0.0	0.0
BAHCO3ION	3.74257E-09	0.0	0.0	0.0
BAION	0.00118189	0.0	0.0	0.0

BAOHION	3.69247E-05	0.0	0.0	0.0
BF2OH2ION	1.20402E-18	0.0	0.0	0.0
BF3OHION	2.75349E-30	0.0	0.0	0.0
BFOH3ION	6.29834E-10	0.0	0.0	0.0
BOH4ION	0.115502	0.0	0.0	0.0
BRION	0.0486522	0.0	0.0	0.0
CAACETION	3.29450E-06	0.0	0.0	0.0
CACLION	5.14515E-12	0.0	0.0	0.0
CACOOHION	8.56334E-06	0.0	0.0	0.0
CAFION	7.43993E-09	0.0	0.0	0.0
CAH2BO3ION	1.53855E-06	0.0	0.0	0.0
CAH2PO4ION	5.14943E-16	0.0	0.0	0.0
CAHC2O4ION	1.58933E-15	0.0	0.0	0.0
CAHCO3ION	3.88332E-09	0.0	0.0	0.0
CAHSIO3ION	8.70999E-09	0.0	0.0	0.0
CAION	4.96544E-04	0.0	0.0	0.0
CANO3ION	4.48936E-05	0.0	0.0	0.0
CAOHION	8.26654E-04	0.0	0.0	0.0
CAPO4ION	0.0148524	0.0	0.0	0.0
CEACET2ION	9.67734E-19	0.0	0.0	0.0
CEACETION	1.02374E-17	0.0	0.0	0.0
CEC2O42ION	3.23665E-14	0.0	0.0	0.0
CEC2O43ION	1.07543E-11	0.0	0.0	0.0
CEC2O4ION	2.12981E-15	0.0	0.0	0.0
CECL2ION	6.08661E-22	0.0	0.0	0.0
CECL4ION	1.11210E-25	0.0	0.0	0.0
CECLION	2.08358E-19	0.0	0.0	0.0
CECO3ION	2.57391E-13	0.0	0.0	0.0
CEF2ION	2.38757E-17	0.0	0.0	0.0
CEF4ION	8.15176E-19	0.0	0.0	0.0
CEFION	8.38284E-17	0.0	0.0	0.0
CEH2PO4ION	2.09110E-28	0.0	0.0	0.0
CEHCO3ION	9.36174E-22	0.0	0.0	0.0
CEION	4.70877E-17	0.0	0.0	0.0
CENO3ION	2.71660E-18	0.0	0.0	0.0
CEOH2ION	1.41492E-07	0.0	0.0	0.0
CEOH4ION	0.0559262	0.0	0.0	0.0
CEOHION	5.48138E-13	0.0	0.0	0.0
CESO42ION	6.29729E-20	0.0	0.0	0.0
CESO4ION	1.27427E-18	0.0	0.0	0.0
CLION	9.88845	0.0	0.0	0.0
CO3ION	68.13	0.0	0.0	0.0
COOHION	1.43416	0.0	0.0	0.0
CR2O7ION	1.53895E-18	0.0	0.0	0.0
CRIIC2O42ION	0.283002	0.0	0.0	0.0
CRIIION	6.64550E-04	0.0	0.0	0.0
CRO4ION	0.340847	0.0	0.0	0.0
CSION	4.93610E-04	0.0	0.0	0.0
CSSO4ION	5.38514E-06	0.0	0.0	0.0
CUACET3ION	3.31346E-21	0.0	0.0	0.0
CUACETION	1.95102E-19	0.0	0.0	0.0
CUBRION	4.46918E-22	0.0	0.0	0.0
CUC2O42ION	4.49342E-13	0.0	0.0	0.0
CUCL3ION	3.48591E-26	0.0	0.0	0.0
CUCLION	3.34282E-20	0.0	0.0	0.0
CUCO32ION	5.31145E-12	0.0	0.0	0.0
CUCOOHION	9.02212E-20	0.0	0.0	0.0

CUION	6.65775E-19	0.0	0.0	0.0
CUNO2ION	3.46497E-18	0.0	0.0	0.0
CUNO3ION	2.04665E-19	0.0	0.0	0.0
CUOH3ION	5.78569E-04	0.0	0.0	0.0
CUOH4ION	0.035752	0.0	0.0	0.0
CUOHION	6.65665E-13	0.0	0.0	0.0
FEIIIC2O42ION	3.62008E-23	0.0	0.0	0.0
FEIIIC2O43ION	1.58097E-19	0.0	0.0	0.0
FEIIIC2O4ION	4.23686E-26	0.0	0.0	0.0
FEIIIHPO4ION	0.0	0.0	0.0	0.0
FEIIIOH2ION	1.74139E-14	0.0	0.0	0.0
FEIIIOH4ION	0.293904	0.0	0.0	0.0
FEIIIOHION	4.03842E-23	0.0	0.0	0.0
FION	0.555961	0.0	0.0	0.0
H2P2O7ION	9.46701E-25	0.0	0.0	0.0
H2PO4ION	1.29520E-10	0.0	0.0	0.0
H2SIO4ION	0.203004	0.0	0.0	0.0
H3SIO4ION	0.00211417	0.0	0.0	0.0
HCO3ION	0.00174422	0.0	0.0	0.0
HCRO4ION	1.09251E-09	0.0	0.0	0.0
HF2ION	2.97046E-15	0.0	0.0	0.0
HION	3.88000E-12	0.0	0.0	0.0
HOXALATION	1.22142E-10	0.0	0.0	0.0
HP2O7ION	1.25440E-16	0.0	0.0	0.0
HPBO2ION	0.204386	0.0	0.0	0.0
HPO4ION	0.00717372	0.0	0.0	0.0
HSO4ION	1.59426E-13	0.0	0.0	0.0
HWO4ION	1.26167E-13	0.0	0.0	0.0
KION	64.3204	0.0	0.0	0.0
KSO4ION	0.240372	0.0	0.0	0.0
LIION	0.252215	0.0	0.0	0.0
LISO4ION	1.48652E-04	0.0	0.0	0.0
MGACETION	2.80647E-10	0.0	0.0	0.0
MGC2O42ION	8.25876E-09	0.0	0.0	0.0
MGCOOHION	3.29399E-10	0.0	0.0	0.0
MGFION	7.30013E-14	0.0	0.0	0.0
MGH2PO4ION	2.50279E-20	0.0	0.0	0.0
MGHCO3ION	2.88138E-13	0.0	0.0	0.0
MGHSIO3ION	6.08754E-13	0.0	0.0	0.0
MGION	1.52084E-08	0.0	0.0	0.0
MGOHION	3.16460E-07	0.0	0.0	0.0
MGP2O7ION	1.24155E-16	0.0	0.0	0.0
MGPO4ION	7.99417E-07	0.0	0.0	0.0
MNACET3ION	3.40362E-15	0.0	0.0	0.0
MNACETION	6.00075E-12	0.0	0.0	0.0
MNBRION	3.50929E-13	0.0	0.0	0.0
MNC2O42ION	2.58637E-09	0.0	0.0	0.0
MNC2O43ION	1.62819E-07	0.0	0.0	0.0
MNCLION	7.99021E-12	0.0	0.0	0.0
MNCOOHION	1.49809E-11	0.0	0.0	0.0
MNION	1.26136E-09	0.0	0.0	0.0
MNNO3ION	2.92346E-11	0.0	0.0	0.0
MNOH3ION	6.86706E-04	0.0	0.0	0.0
MNOH4ION	0.0173839	0.0	0.0	0.0
MNOHION	2.72610E-07	0.0	0.0	0.0
NA2FION	0.00996475	0.0	0.0	0.0
NACO3ION	15.9101	0.0	0.0	0.0

NAION	547.408	0.0	0.0	0.0
NASO4ION	2.31971	0.0	0.0	0.0
NDACET2ION	8.55564E-30	0.0	0.0	0.0
NDACETION	1.15267E-28	0.0	0.0	0.0
NDCLION	5.02517E-30	0.0	0.0	0.0
NDCO3ION	6.49357E-24	0.0	0.0	0.0
NDF2ION	6.02644E-28	0.0	0.0	0.0
NDF4ION	2.84326E-29	0.0	0.0	0.0
NDFION	1.50761E-27	0.0	0.0	0.0
NDHCO3ION	0.0	0.0	0.0	0.0
NDION	5.81801E-28	0.0	0.0	0.0
NDNO3ION	4.86634E-29	0.0	0.0	0.0
NDOH2ION	4.04313E-19	0.0	0.0	0.0
NDOH4ION	3.55615E-11	0.0	0.0	0.0
NDOHION	1.41102E-23	0.0	0.0	0.0
NDSO42ION	0.0	0.0	0.0	0.0
NDSO4ION	1.61923E-29	0.0	0.0	0.0
NIACET3ION	6.44609E-19	0.0	0.0	0.0
NIACETION	5.68663E-16	0.0	0.0	0.0
NIC2O42ION	1.03927E-11	0.0	0.0	0.0
NICLION	1.14031E-17	0.0	0.0	0.0
NICOOHION	1.28345E-15	0.0	0.0	0.0
NIFION	1.73147E-17	0.0	0.0	0.0
NIION	5.85420E-14	0.0	0.0	0.0
NINO3ION	2.69327E-15	0.0	0.0	0.0
NIOH3ION	0.00253481	0.0	0.0	0.0
NIOHION	3.85981E-11	0.0	0.0	0.0
NO2ION	74.771	0.0	0.0	0.0
NO3ION	130.135	0.0	0.0	0.0
ACETATEION	1.87353	0.0	0.0	0.0
OXALATION	8.57309	0.0	0.0	0.0
P2O7ION	7.95167E-10	0.0	0.0	0.0
PBACET3ION	1.53752E-16	0.0	0.0	0.0
PBACETION	5.17156E-15	0.0	0.0	0.0
PBBR3ION	3.00272E-23	0.0	0.0	0.0
PBBRION	3.74217E-17	0.0	0.0	0.0
PBCL3ION	4.17860E-18	0.0	0.0	0.0
PBCL4ION	1.09095E-18	0.0	0.0	0.0
PBCLION	3.08923E-15	0.0	0.0	0.0
PBCOOHION	1.33216E-15	0.0	0.0	0.0
PBF3ION	3.56838E-20	0.0	0.0	0.0
PBF4ION	2.30797E-22	0.0	0.0	0.0
PBFION	9.69709E-17	0.0	0.0	0.0
PBH2PO4ION	3.11655E-26	0.0	0.0	0.0
PBION	3.54537E-13	0.0	0.0	0.0
PBNO23ION	8.89956E-11	0.0	0.0	0.0
PBNO2ION	4.46023E-12	0.0	0.0	0.0
PBNO33ION	2.84768E-16	0.0	0.0	0.0
PBNO3ION	1.82421E-14	0.0	0.0	0.0
PBOHION	6.60611E-09	0.0	0.0	0.0
PO4ION	3.06992	0.0	0.0	0.0
RUIIICL2ION	7.21228E-26	0.0	0.0	0.0
RUIIICL4ION	1.95600E-28	0.0	0.0	0.0
RUIIICL5ION	2.93603E-29	0.0	0.0	0.0
RUIIICL6ION	1.49564E-29	0.0	0.0	0.0
RUIIICLION	3.10577E-21	0.0	0.0	0.0
RUIIIION	1.29950E-24	0.0	0.0	0.0

RUIIIOH2ION	0.0278222	0.0	0.0	0.0
RUIIIOHION	3.51579E-14	0.0	0.0	0.0
RUIIISO42ION	1.28264E-30	0.0	0.0	0.0
RUIIISO43ION	0.0	0.0	0.0	0.0
RUIIISO4ION	6.28297E-28	0.0	0.0	0.0
SO4ION	1.97932	0.0	0.0	0.0
SRACETION	5.36073E-07	0.0	0.0	0.0
SRCOOHION	8.97350E-07	0.0	0.0	0.0
SRFION	1.57694E-08	0.0	0.0	0.0
SRHC2O4ION	8.37917E-17	0.0	0.0	0.0
SRION	6.75681E-05	0.0	0.0	0.0
SRNO3ION	1.16045E-05	0.0	0.0	0.0
SROHION	3.49545E-05	0.0	0.0	0.0
SRPO4ION	2.00635E-05	0.0	0.0	0.0
WO4ION	0.0401888	0.0	0.0	0.0
ZNACET3ION	9.54813E-20	0.0	0.0	0.0
ZNACETION	6.56186E-18	0.0	0.0	0.0
ZNBR3ION	1.78627E-29	0.0	0.0	0.0
ZNBRION	1.25801E-21	0.0	0.0	0.0
ZNC2O42ION	1.36860E-13	0.0	0.0	0.0
ZNC2O43ION	2.23289E-12	0.0	0.0	0.0
ZNCL3ION	4.04373E-22	0.0	0.0	0.0
ZNCLION	1.57936E-18	0.0	0.0	0.0
ZNCOOHION	7.95496E-18	0.0	0.0	0.0
ZNFION	1.80247E-19	0.0	0.0	0.0
ZNH2PO4ION	2.26804E-28	0.0	0.0	0.0
ZNHC2O4ION	1.66345E-27	0.0	0.0	0.0
ZNHCO3ION	2.83780E-21	0.0	0.0	0.0
ZNION	1.09713E-16	0.0	0.0	0.0
ZNNO3ION	2.07595E-17	0.0	0.0	0.0
ZNOH3ION	6.06587E-04	0.0	0.0	0.0
ZNOH4ION	0.0908514	0.0	0.0	0.0
ZNOHION	2.61223E-12	0.0	0.0	0.0
ZROH2ION	4.68434E-29	0.0	0.0	0.0
ZROH3ION	4.11560E-19	0.0	0.0	0.0
ZROH5ION	0.0318275	0.0	0.0	0.0
AG2CO3	0.0	6.46260E-05	0.0	0.0
ZRO2	0.0	2.16619E-04	0.0	0.0
MGOH2	0.0	5.14700E-07	0.0	0.0
NASGEL.15.5H2O	0.0	0.005880648	0.0	0.0
NDPO4.2H2O	0.0	1.25180E-10	0.0	0.0
NA2C2O4	0.0	1.421197	0.0	0.0
	==========	==========	==========	==========
Total g/hr	266746.	311.951	0.0	0.0
Volume, L/hr	233.856	0.0518222	0.0	0.0
Enthalpy, cal/hr	-9.26517E+08	-9.22506E+05	0.0	0.0
Density, g/L	1140.64	6019.64		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	119.727			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.187428			
E-Con, cm2/ohm-mol	39.8753			
Abs Visc, cP	1.62975			
Rel Visc	1.8297			
Ionic Strength	3.18303			

Campaign IV Second Wash

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: second wash
TO :
FROM : second wash

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	13.231			
Total mol/hr	13205.99	0.128695	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	12788.3	0.0	0.0	0.0
ACETACID	1.11019E-09	0.0	0.0	0.0
CO2	3.20377E-10	0.0	0.0	0.0
H2F2	6.35635E-30	0.0	0.0	0.0
ACET2	9.75464E-29	0.0	0.0	0.0
HBR	4.17583E-24	0.0	0.0	0.0
HCL	4.89656E-20	0.0	0.0	0.0
HCOOH	9.58150E-11	0.0	0.0	0.0
HF	7.52323E-12	0.0	0.0	0.0
HNO2	9.23827E-10	0.0	0.0	0.0
HNO3	5.87410E-14	0.0	0.0	0.0
BAOX	9.96821E-05	0.0	0.0	0.0
BASO4	4.05865E-08	6.17135E-05	0.0	0.0
BOH3	1.99183E-06	0.0	0.0	0.0
CAACET2	1.43521E-08	0.0	0.0	0.0
CAC2O4	6.52112E-04	0.0	0.0	0.0
CACL2	2.05291E-27	0.0	0.0	0.0
CACO3	8.93123E-04	0.0	0.0	0.0
CACOOH2	1.54527E-08	0.0	0.0	0.0
CAH2SIO4	2.56142E-05	0.0	0.0	0.0
CAHC2O42	1.26766E-24	0.0	0.0	0.0
CASO4	4.41540E-07	0.0	0.0	0.0
CEACET3	2.34627E-19	0.0	0.0	0.0
CECL3	6.99222E-24	0.0	0.0	0.0
CEF3	1.19404E-17	0.0	0.0	0.0
CEOH3	0.00150742	0.0	0.0	0.0
AGCL	1.79125E-07	0.0	0.0	0.0
CRIIC2O4	6.47197E-04	0.0	0.0	0.0
CSACET	4.53664E-07	0.0	0.0	0.0
CSBR	4.22801E-09	0.0	0.0	0.0
CSCL	8.02884E-07	0.0	0.0	0.0
CSNO3	5.37996E-05	0.0	0.0	0.0
CUACET2	2.48648E-19	0.0	0.0	0.0
CUBR2	2.36038E-26	0.0	0.0	0.0
CUC2O4	5.97958E-13	0.0	0.0	0.0
CUCL2	2.97517E-21	0.0	0.0	0.0
CUCO3	1.28813E-12	0.0	0.0	0.0
CUCOOH2	8.34722E-20	0.0	0.0	0.0
CUNO22	5.82133E-17	0.0	0.0	0.0
CUNO32	1.22451E-19	0.0	0.0	0.0
CUOH2	5.56740E-05	0.0	0.0	0.0
FEIIIOH3	5.94621E-06	0.001169976	0.0	0.0

AGACET	1.03965E-10	0.0	0.0	0.0
AGBR	1.05588E-08	0.0	0.0	0.0
AGF	1.31836E-11	0.0	0.0	0.0
H2WO4	1.85859E-24	0.0	0.0	0.0
H3PO4	6.77140E-21	0.0	0.0	0.0
H4SIO4	1.41569E-06	0.0	0.0	0.0
AGNO2	1.23180E-07	0.0	0.0	0.0
AGNO3	9.48387E-10	0.0	0.0	0.0
AGOH	2.06086E-07	0.0	0.0	0.0
ALF3	1.44285E-24	0.0	0.0	0.0
ALOH3	4.72644E-07	0.1271846	0.0	0.0
KACET	0.00752768	0.0	0.0	0.0
KCL	5.21969E-04	0.0	0.0	0.0
KCOOH	0.0125193	0.0	0.0	0.0
KHSO4	2.55892E-16	0.0	0.0	0.0
KNO3	0.997706	0.0	0.0	0.0
LIACET	1.31747E-04	0.0	0.0	0.0
LIH2BO3	9.31402E-06	0.0	0.0	0.0
LIOH	0.0162961	0.0	0.0	0.0
MGACET2	8.44906E-12	0.0	0.0	0.0
MGC2O4	2.22237E-06	0.0	0.0	0.0
MGCO3	2.87768E-07	0.0	0.0	0.0
MGCOOH2	1.11322E-11	0.0	0.0	0.0
MGH2SIO4	1.76712E-07	0.0	0.0	0.0
MGHPO4	1.62049E-10	0.0	0.0	0.0
MGSO4	5.49372E-10	0.0	0.0	0.0
MNACET2	2.82082E-13	0.0	0.0	0.0
MNBR2	5.99054E-17	0.0	0.0	0.0
MNC2O4	1.93086E-05	0.0	0.0	0.0
MNCOOH2	1.09583E-12	0.0	0.0	0.0
MNNO32	5.20394E-11	0.0	0.0	0.0
MNOH2	1.76803E-05	2.11557E-04	0.0	0.0
MNSO4	6.04749E-11	0.0	0.0	0.0
NAACET	0.13096	0.0	0.0	0.0
NAALOH4	0.972806	0.0	0.0	0.0
NABOH4	0.00662168	0.0	0.0	0.0
NABR	1.68280E-04	0.0	0.0	0.0
NACOOH	0.158403	0.0	0.0	0.0
NAF	0.0351316	0.0	0.0	0.0
NAHCO3	5.43417E-04	0.0	0.0	0.0
NAHSIO3	0.104341	0.0	0.0	0.0
NANO3	6.33752	0.0	0.0	0.0
NIACET2	2.29885E-17	0.0	0.0	0.0
NIC2O4	1.36117E-08	0.0	0.0	0.0
NICOOH2	9.87871E-17	0.0	0.0	0.0
NIOH2	1.25242E-06	1.01049E-05	0.0	0.0
NISO4	2.48320E-15	0.0	0.0	0.0
OXALAC	2.23645E-21	0.0	0.0	0.0
PBACET2	3.34226E-16	0.0	0.0	0.0
PBBR2	3.12638E-21	0.0	0.0	0.0
PBC2O4	2.55907E-08	0.0	0.0	0.0
PBCL2	2.74744E-16	0.0	0.0	0.0
PBCOOH2	1.32902E-16	0.0	0.0	0.0
PBF2	1.84108E-18	0.0	0.0	0.0
PBHPO4	3.91955E-16	0.0	0.0	0.0
PBNO22	4.39376E-11	0.0	0.0	0.0
PBNO32	1.03240E-14	0.0	0.0	0.0

PBO	1.55174E-04	0.0	0.0	0.0
RUIIICL3	3.01525E-28	0.0	0.0	0.0
BAAC2	6.15180E-09	0.0	0.0	0.0
BACO3	3.38976E-04	0.0	0.0	0.0
SIO2	6.70987E-07	0.0	0.0	0.0
BACOOH2	2.31310E-08	0.0	0.0	0.0
SRC2O4	3.95786E-05	0.0	0.0	0.0
SRCOOH2	1.88625E-09	0.0	0.0	0.0
SRHC2O42	1.32808E-25	0.0	0.0	0.0
SRHPO4	4.55680E-10	0.0	0.0	0.0
SRNO32	4.65812E-07	0.0	0.0	0.0
SRSO4	3.03924E-07	0.0	0.0	0.0
ZNACET2	2.65259E-17	0.0	0.0	0.0
ZNBR2	1.89648E-25	0.0	0.0	0.0
ZNC2O4	2.75152E-12	0.0	0.0	0.0
ZNCL2	3.43886E-19	0.0	0.0	0.0
ZNCOOH2	5.64368E-18	0.0	0.0	0.0
ZNHPO4	3.13764E-17	0.0	0.0	0.0
ZNNO32	2.49045E-17	0.0	0.0	0.0
ZNOH2	5.20482E-06	0.0	0.0	0.0
ZROH4	5.04188E-10	0.0	0.0	0.0
OHION	52.7048	0.0	0.0	0.0
AGACET2ION	2.87830E-13	0.0	0.0	0.0
AGBR2ION	7.60964E-10	0.0	0.0	0.0
AGBR3ION	7.53626E-13	0.0	0.0	0.0
AGBR4ION	1.91690E-15	0.0	0.0	0.0
AGC2O4ION	3.24970E-07	0.0	0.0	0.0
AGCL2ION	2.41453E-07	0.0	0.0	0.0
AGCL3ION	1.54995E-07	0.0	0.0	0.0
AGCL4ION	1.20897E-08	0.0	0.0	0.0
AGION	2.36420E-08	0.0	0.0	0.0
AGNO22ION	5.83310E-07	0.0	0.0	0.0
AGOH2ION	7.34122E-06	0.0	0.0	0.0
AGSO4ION	1.81716E-10	0.0	0.0	0.0
ALACET2ION	0.0	0.0	0.0	0.0
ALACETION	3.87491E-30	0.0	0.0	0.0
ALF2ION	6.16605E-25	0.0	0.0	0.0
ALF4ION	3.29569E-25	0.0	0.0	0.0
ALF5ION	1.96335E-26	0.0	0.0	0.0
ALF6ION	5.79086E-28	0.0	0.0	0.0
ALFION	1.78916E-26	0.0	0.0	0.0
ALION	3.65497E-29	0.0	0.0	0.0
ALOH2ION	1.04529E-14	0.0	0.0	0.0
ALOH4ION	3.93646	0.0	0.0	0.0
ALOHCLION	3.47947E-24	0.0	0.0	0.0
ALOHION	5.85318E-22	0.0	0.0	0.0
ALSIO3OHION	4.37260E-06	0.0	0.0	0.0
ALSO4ION	0.0	0.0	0.0	0.0
B2OOH5ION	5.96300E-10	0.0	0.0	0.0
B3O3OH4ION	7.31832E-16	0.0	0.0	0.0
B4O5OH4ION	6.01404E-18	0.0	0.0	0.0
BAACETION	2.50811E-06	0.0	0.0	0.0
BACOOHION	5.29017E-06	0.0	0.0	0.0
BAFION	4.61960E-08	0.0	0.0	0.0
BAHCO3ION	2.06093E-08	0.0	0.0	0.0
BAION	9.10077E-04	0.0	0.0	0.0
BAOHION	1.45635E-05	0.0	0.0	0.0

BF2OH2ION	7.55749E-19	0.0	0.0	0.0
BF3OHION	2.49843E-30	0.0	0.0	0.0
BFOH3ION	2.73485E-10	0.0	0.0	0.0
BOH4ION	0.0346978	0.0	0.0	0.0
BRION	0.0128617	0.0	0.0	0.0
CAACETION	1.19862E-06	0.0	0.0	0.0
CACLION	3.04630E-12	0.0	0.0	0.0
CACOOHION	3.20960E-06	0.0	0.0	0.0
CAFION	2.84381E-09	0.0	0.0	0.0
CAH2BO3ION	5.00131E-07	0.0	0.0	0.0
CAH2PO4ION	1.36386E-14	0.0	0.0	0.0
CAHC2O4ION	5.50111E-14	0.0	0.0	0.0
CAHCO3ION	1.32204E-08	0.0	0.0	0.0
CAHSIO3ION	1.32176E-08	0.0	0.0	0.0
CAION	3.88466E-04	0.0	0.0	0.0
CANO3ION	2.26757E-05	0.0	0.0	0.0
CAOHION	2.37136E-04	0.0	0.0	0.0
CAPO4ION	0.0126593	0.0	0.0	0.0
CEACET2ION	1.19696E-17	0.0	0.0	0.0
CEACETION	4.21184E-16	0.0	0.0	0.0
CEC2O42ION	1.19983E-10	0.0	0.0	0.0
CEC2O43ION	6.57004E-08	0.0	0.0	0.0
CEC2O4ION	1.71825E-12	0.0	0.0	0.0
CECL2ION	5.31181E-21	0.0	0.0	0.0
CECL4ION	4.67170E-26	0.0	0.0	0.0
CECLION	7.32015E-18	0.0	0.0	0.0
CECO3ION	2.40157E-11	0.0	0.0	0.0
CEF2ION	3.26143E-16	0.0	0.0	0.0
CEF4ION	8.46468E-19	0.0	0.0	0.0
CEFION	3.61578E-15	0.0	0.0	0.0
CEH2PO4ION	6.20307E-25	0.0	0.0	0.0
CEHCO3ION	4.52992E-19	0.0	0.0	0.0
CEION	6.73250E-15	0.0	0.0	0.0
CENO3ION	1.87327E-16	0.0	0.0	0.0
CEOH2ION	9.67819E-07	0.0	0.0	0.0
CEOH4ION	0.0132991	0.0	0.0	0.0
CEOHION	2.04109E-11	0.0	0.0	0.0
CESO42ION	2.90669E-18	0.0	0.0	0.0
CESO4ION	1.16003E-16	0.0	0.0	0.0
CLION	2.58231	0.0	0.0	0.0
CO3ION	23.0176	0.0	0.0	0.0
COOHION	0.475112	0.0	0.0	0.0
CR2O7ION	4.42350E-18	0.0	0.0	0.0
CRIIC2O42ION	0.074716	0.0	0.0	0.0
CRIIION	1.03102E-05	0.0	0.0	0.0
CRO4ION	0.0889813	0.0	0.0	0.0
CSION	3.38803E-04	0.0	0.0	0.0
CSSO4ION	5.34427E-07	0.0	0.0	0.0
CUACET3ION	1.53766E-20	0.0	0.0	0.0
CUACETION	1.31688E-17	0.0	0.0	0.0
CUBRION	2.46573E-20	0.0	0.0	0.0
CUC2O42ION	1.64772E-09	0.0	0.0	0.0
CUCL3ION	9.53207E-26	0.0	0.0	0.0
CUCLION	1.89893E-18	0.0	0.0	0.0
CUCO32ION	2.57156E-10	0.0	0.0	0.0
CUCOOHION	6.27345E-18	0.0	0.0	0.0
CUION	1.74941E-16	0.0	0.0	0.0

CUNO2ION	2.43447E-16	0.0	0.0	0.0
CUNO3ION	1.78900E-17	0.0	0.0	0.0
CUOH3ION	0.0010635	0.0	0.0	0.0
CUOH4ION	0.00836634	0.0	0.0	0.0
CUOHION	3.54312E-11	0.0	0.0	0.0
FEIIIC2O42ION	1.02441E-19	0.0	0.0	0.0
FEIIIC2O43ION	7.37295E-16	0.0	0.0	0.0
FEIIIC2O4ION	2.60963E-23	0.0	0.0	0.0
FEIIIHPO4ION	5.90266E-30	0.0	0.0	0.0
FEIIIION	0.0	0.0	0.0	0.0
FEIIIOH2ION	9.15602E-14	0.0	0.0	0.0
FEIIIOH4ION	0.0533513	0.0	0.0	0.0
FEIIIOHION	1.08950E-21	0.0	0.0	0.0
FION	0.165582	0.0	0.0	0.0
H2P2O7ION	1.95238E-22	0.0	0.0	0.0
H2PO4ION	1.95352E-09	0.0	0.0	0.0
H2SIO4ION	0.0259224	0.0	0.0	0.0
H3SIO4ION	0.00287836	0.0	0.0	0.0
HCO3ION	0.00498822	0.0	0.0	0.0
HCRO4ION	2.71385E-09	0.0	0.0	0.0
HF2ION	1.51654E-15	0.0	0.0	0.0
HION	1.99675E-11	0.0	0.0	0.0
HOXALATION	3.72585E-09	0.0	0.0	0.0
HP2O7ION	5.64200E-15	0.0	0.0	0.0
HPBO2ION	0.0532257	0.0	0.0	0.0
HPO4ION	0.0124853	0.0	0.0	0.0
HSO4ION	5.42668E-13	0.0	0.0	0.0
HWO4ION	3.63649E-13	0.0	0.0	0.0
KION	18.0448	0.0	0.0	0.0
KSO4ION	0.0384572	0.0	0.0	0.0
LIION	0.0881991	0.0	0.0	0.0
LISO4ION	2.86516E-05	0.0	0.0	0.0
MGACETION	1.92688E-09	0.0	0.0	0.0
MGC2O42ION	3.08056E-06	0.0	0.0	0.0
MGCOOHION	2.32986E-09	0.0	0.0	0.0
MGFION	4.83378E-13	0.0	0.0	0.0
MGH2PO4ION	1.25093E-17	0.0	0.0	0.0
MGHCO3ION	2.60989E-11	0.0	0.0	0.0
MGHSIO3ION	1.74332E-11	0.0	0.0	0.0
MGION	2.74894E-07	0.0	0.0	0.0
MGOHION	1.66527E-06	0.0	0.0	0.0
MGP2O7ION	2.47392E-14	0.0	0.0	0.0
MGPO4ION	1.28584E-05	0.0	0.0	0.0
MNACET3ION	2.10157E-15	0.0	0.0	0.0
MNACETION	5.38910E-11	0.0	0.0	0.0
MNBRION	2.57611E-12	0.0	0.0	0.0
MNC2O42ION	1.26189E-06	0.0	0.0	0.0
MNC2O43ION	7.55554E-05	0.0	0.0	0.0
MNCLION	6.03923E-11	0.0	0.0	0.0
MNCOOHION	1.38600E-10	0.0	0.0	0.0
MNION	1.43190E-08	0.0	0.0	0.0
MNNO3ION	3.64560E-10	0.0	0.0	0.0
MNOH3ION	1.63052E-04	0.0	0.0	0.0
MNOH4ION	5.44081E-04	0.0	0.0	0.0
MNOHION	1.87690E-06	0.0	0.0	0.0
NA2FION	4.43567E-04	0.0	0.0	0.0
NACO3ION	5.88606	0.0	0.0	0.0

NAION	210.983	0.0	0.0	0.0
NASO4ION	0.55496	0.0	0.0	0.0
NIACET3ION	3.04287E-19	0.0	0.0	0.0
NIACETION	3.90436E-15	0.0	0.0	0.0
NIC2O42ION	3.87653E-09	0.0	0.0	0.0
NICLION	6.58916E-17	0.0	0.0	0.0
NICOOHION	9.07794E-15	0.0	0.0	0.0
NIFION	1.24896E-16	0.0	0.0	0.0
NIION	5.81546E-13	0.0	0.0	0.0
NINO3ION	2.56764E-14	0.0	0.0	0.0
NIOH3ION	4.60133E-04	0.0	0.0	0.0
NIOHION	2.03202E-10	0.0	0.0	0.0
NO2ION	19.5197	0.0	0.0	0.0
NO3ION	44.6948	0.0	0.0	0.0
ACETATEION	0.576093	0.0	0.0	0.0
OXALATION	23.6864	0.0	0.0	0.0
P2O7ION	2.52997E-09	0.0	0.0	0.0
PBACET3ION	8.96523E-17	0.0	0.0	0.0
PBACETION	4.38644E-14	0.0	0.0	0.0
PBBR3ION	9.58523E-24	0.0	0.0	0.0
PBBRION	2.59447E-16	0.0	0.0	0.0
PBCL3ION	1.76853E-18	0.0	0.0	0.0
PBCL4ION	5.29545E-20	0.0	0.0	0.0
PBCLION	2.20500E-14	0.0	0.0	0.0
PBCOOHION	1.16402E-14	0.0	0.0	0.0
PBF3ION	2.41701E-20	0.0	0.0	0.0
PBF4ION	2.97877E-23	0.0	0.0	0.0
PBFION	8.64031E-16	0.0	0.0	0.0
PBH2PO4ION	1.92434E-23	0.0	0.0	0.0
PBION	1.47266E-12	0.0	0.0	0.0
PBNO23ION	5.27462E-11	0.0	0.0	0.0
PBNO2ION	3.93794E-11	0.0	0.0	0.0
PBNO33ION	3.79347E-16	0.0	0.0	0.0
PBNO3ION	2.14846E-13	0.0	0.0	0.0
PBOHION	4.41746E-08	0.0	0.0	0.0
PO4ION	0.904075	0.0	0.0	0.0
RUIIICL2ION	2.50294E-26	0.0	0.0	0.0
RUIIICL4ION	3.26758E-30	0.0	0.0	0.0
RUIIICL5ION	0.0	0.0	0.0	0.0
RUIIICLION	4.33856E-21	0.0	0.0	0.0
RUIIIION	6.58443E-24	0.0	0.0	0.0
RUIIIOH2ION	0.00726325	0.0	0.0	0.0
RUIIIOHION	4.26947E-14	0.0	0.0	0.0
RUIIISO42ION	2.35439E-30	0.0	0.0	0.0
RUIIISO43ION	0.0	0.0	0.0	0.0
RUIIISO4ION	2.27449E-27	0.0	0.0	0.0
SO4ION	0.592636	0.0	0.0	0.0
SRACETION	2.62259E-07	0.0	0.0	0.0
SRCOOHION	4.52233E-07	0.0	0.0	0.0
SRFION	8.10512E-09	0.0	0.0	0.0
SRHC2O4ION	3.89987E-15	0.0	0.0	0.0
SRION	5.80335E-05	0.0	0.0	0.0
SRNO3ION	6.85974E-06	0.0	0.0	0.0
SROHION	1.23699E-05	0.0	0.0	0.0
SRPO4ION	2.29950E-05	0.0	0.0	0.0
WO4ION	0.0104916	0.0	0.0	0.0
ZNACET3ION	5.00379E-19	0.0	0.0	0.0

ZNACETION	5.00164E-16	0.0	0.0	0.0
ZNBR3ION	5.12478E-29	0.0	0.0	0.0
ZNBRION	7.83799E-20	0.0	0.0	0.0
ZNC2O42ION	5.66741E-10	0.0	0.0	0.0
ZNC2O43ION	8.79436E-09	0.0	0.0	0.0
ZNCL3ION	1.53817E-21	0.0	0.0	0.0
ZNCLION	9.30366E-17	0.0	0.0	0.0
ZNCOOHION	6.24651E-16	0.0	0.0	0.0
ZNFION	1.44342E-17	0.0	0.0	0.0
ZNH2PO4ION	1.25850E-24	0.0	0.0	0.0
ZNHC2O4ION	1.20625E-23	0.0	0.0	0.0
ZNHCO3ION	2.20158E-18	0.0	0.0	0.0
ZNION	2.86326E-14	0.0	0.0	0.0
ZNNO3ION	2.19717E-15	0.0	0.0	0.0
ZNOH3ION	0.00155104	0.0	0.0	0.0
ZNOH4ION	0.0223199	0.0	0.0	0.0
ZNOHION	1.51973E-10	0.0	0.0	0.0
ZROH2ION	1.42213E-27	0.0	0.0	0.0
ZROH3ION	2.42117E-18	0.0	0.0	0.0
ZROH5ION	0.00800627	0.0	0.0	0.0
AG2CO3	0.0	7.45808E-07	0.0	0.0
SRCO3	0.0	5.71110E-06	0.0	0.0
ZRO2	0.0	3.17417E-05	0.0	0.0
MGOH2	0.0	1.32986E-05	0.0	0.0
CA3PO42	0.0	5.57746E-06	0.0	0.0
	==========	==========	==========	==========
Total g/hr	246061.	10.0875	0.0	0.0
Volume, L/hr	234.089	0.00411264	0.0	0.0
Enthalpy, cal/hr	-9.05652E+08	-39631.8	0.0	0.0
Density, g/L	1051.14	2452.81		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	36.2466			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.089903			
E-Con, cm2/ohm-mol	63.8005			
Abs Visc, cP	1.062			
Rel Visc	1.1923			
Ionic Strength	1.21268			

Campaign IV Cs-IX Recycle to FEP

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: total Cs recycle
TO : Total Recycle
FROM : Total Cs IX Recycle

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.0092	25.0092	25.0092	25.0092
Pressure, atm	1.	1.	1.	1.
pH	12.9701			
Total mol/hr	10788.37	0.0	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	10741.7	0.0	0.0	0.0
OHION	23.3348	0.0	0.0	0.0
HION	2.80780E-11	0.0	0.0	0.0
NAION	23.3348	0.0	0.0	0.0
	==========	==========	==========	==========
Total g/hr	194448.	0.0	0.0	0.0
Volume, L/hr	194.046	0.0	0.0	0.0
Enthalpy, cal/hr	-7.36417E+08	0.0	0.0	0.0
Density, g/L	1002.07			
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	0.0	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	5.56183			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0266722			
E-Con, cm2/ohm-mol	221.799			
Abs Visc, cP	0.913737			
Rel Visc	1.02606			
Ionic Strength	0.120585			

Campaign IV UF Recycle to FEP (First & Second Wash, Treated Sludge, Filter Cleaning and Rinse)

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: total UF recycle
TO : Total Recycle
FROM : Total UF Recycle

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	10.394			
Total mol/hr	45112.36	44.6306	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	43440.8	0.0	0.0	0.0
ACETACID	3.95282E-06	0.0	0.0	0.0
CO2	3.87783E-04	0.0	0.0	0.0
FORM2	0.0	0.0	0.0	0.0
H2F2	2.24110E-23	0.0	0.0	0.0
ACET2	3.44790E-22	0.0	0.0	0.0
H2SO4	1.70785E-30	0.0	0.0	0.0
HBR	1.49042E-20	0.0	0.0	0.0
HCL	1.74462E-16	0.0	0.0	0.0
HCOOH	3.41374E-07	0.0	0.0	0.0
HF	2.30079E-08	0.0	0.0	0.0
HNO2	3.25978E-06	0.0	0.0	0.0
HNO3	4.51816E-10	0.0	0.0	0.0
BAOX	1.03811E-04	0.0	0.0	0.0
BASO4	1.45565E-07	0.02042198	0.0	0.0
BOH3	0.00688779	0.0	0.0	0.0
CAACET2	2.09346E-07	0.0	0.0	0.0
CAC2O4	0.00196382	0.0	0.0	0.0
CACL2	2.99864E-26	0.0	0.0	0.0
CACO3	0.00444507	0.4642786	0.0	0.0
CACOOH2	2.25700E-07	0.0	0.0	0.0
CAH2SIO4	2.10933E-07	0.0	0.0	0.0
CAHC2O42	7.76749E-19	0.0	0.0	0.0
CASO4	4.57928E-06	0.0	0.0	0.0
CEACET3	1.65320E-15	0.0	0.0	0.0
CECL3	4.93703E-20	0.0	0.0	0.0
CEF3	8.38166E-14	0.0	0.0	0.0
CEOH3	1.07393E-08	0.0	0.0	0.0
AGCL	1.10058E-06	0.0	0.0	0.0
CRIIC2O4	0.00761718	0.0	0.0	0.0
CSACET	2.77691E-06	0.0	0.0	0.0
CSBR	2.59430E-08	0.0	0.0	0.0
CSCL	4.91793E-06	0.0	0.0	0.0
CSNO3	7.37622E-04	0.0	0.0	0.0
CUACET2	1.86073E-11	0.0	0.0	0.0
CUBR2	1.77499E-18	0.0	0.0	0.0
CUC2O4	9.23843E-06	0.0	0.0	0.0
CUCL2	2.22953E-13	0.0	0.0	0.0
CUCO3	3.28909E-05	0.0	0.0	0.0
CUCOOH2	6.25485E-12	0.0	0.0	0.0
CUNO22	4.27856E-09	0.0	0.0	0.0

CUNO32	4.95865E-11	0.0	0.0	0.0
CUOH2	0.00419709	0.02686328	0.0	0.0
FECL3	0.0	0.0	0.0	0.0
FEIIIF3	9.65089E-25	0.0	0.0	0.0
FEIIIOH3	2.13263E-05	8.337263	0.0	0.0
AGACET	6.38341E-10	0.0	0.0	0.0
AGBR	6.49890E-08	0.0	0.0	0.0
AGF	8.08453E-11	0.0	0.0	0.0
H2WO4	4.56044E-18	0.0	0.0	0.0
H3PO4	9.21459E-13	0.0	0.0	0.0
H4P2O7	2.19622E-30	0.0	0.0	0.0
H4SIO4	0.00282506	0.0	0.0	0.0
AGNO2	7.49537E-07	0.0	0.0	0.0
AGNO3	1.35458E-08	0.0	0.0	0.0
AGOH	1.27003E-09	0.0	0.0	0.0
ALF3	7.84410E-16	0.0	0.0	0.0
ALO2H2CL	5.34754E-30	0.0	0.0	0.0
ALOH3	2.60788E-07	0.0	0.0	0.0
KACET	0.0399352	0.0	0.0	0.0
KCL	0.00277103	0.0	0.0	0.0
KCOOH	0.0664605	0.0	0.0	0.0
KHSO4	9.58216E-13	0.0	0.0	0.0
KNO3	13.0445	0.0	0.0	0.0
LIACET	0.00114109	0.0	0.0	0.0
LIH2BO3	7.83486E-05	0.0	0.0	0.0
LIOH	1.41664E-04	0.0	0.0	0.0
MGACET2	9.92357E-07	0.0	0.0	0.0
MGC2O4	0.0538895	0.0	0.0	0.0
MGCO3	0.0115324	0.0	0.0	0.0
MGCOOH2	1.30923E-06	0.0	0.0	0.0
MGH2SIO4	1.17177E-05	0.0	0.0	0.0
MGHPO4	7.32758E-04	0.0	0.0	0.0
MGSO4	4.58778E-05	0.0	0.0	0.0
MNACET2	8.10195E-10	0.0	0.0	0.0
MNBR2	1.72900E-13	0.0	0.0	0.0
MNC2O4	0.0114497	0.0	0.0	0.0
MNCOOH2	3.15161E-09	0.0	0.0	0.0
MNNO32	8.08817E-07	0.0	0.0	0.0
MNOH2	5.11565E-08	0.0	0.0	0.0
MNSO4	1.23500E-07	0.0	0.0	0.0
NAACET	0.634308	0.0	0.0	0.0
NAALOH4	7.27553E-04	0.0	0.0	0.0
NABOH4	0.031037	0.0	0.0	0.0
NABR	8.17053E-04	0.0	0.0	0.0
NACOOH	0.767737	0.0	0.0	0.0
NAF	0.169947	0.0	0.0	0.0
NAHCO3	0.891549	0.0	0.0	0.0
NAHSIO3	0.284271	0.0	0.0	0.0
NANO3	66.4548	0.0	0.0	0.0
NDACET3	1.54144E-30	0.0	0.0	0.0
NDF3	2.51757E-28	0.0	0.0	0.0
NDOH3	8.51372E-24	0.0	0.0	0.0
NIACET2	8.18442E-11	0.0	0.0	0.0
NIC2O4	0.010005	0.0	0.0	0.0
NICOOH2	3.52172E-10	0.0	0.0	0.0
NIOH2	4.49184E-06	0.2556458	0.0	0.0
NISO4	6.28587E-09	0.0	0.0	0.0

OXALAC	1.63204E-15	0.0	0.0	0.0
PBACET2	4.70891E-11	0.0	0.0	0.0
PBBR2	4.42626E-16	0.0	0.0	0.0
PBC2O4	7.44376E-04	0.0	0.0	0.0
PBCL2	3.87626E-11	0.0	0.0	0.0
PBCOOH2	1.87495E-11	0.0	0.0	0.0
PBF2	2.58739E-13	0.0	0.0	0.0
PBHPO4	2.12604E-09	0.0	0.0	0.0
PBNO22	6.07986E-06	0.0	0.0	0.0
PBNO32	7.87107E-09	0.0	0.0	0.0
PBO	2.21036E-05	0.0	0.0	0.0
RUIIICL3	2.13559E-21	0.0	0.0	0.0
BAAC2	3.10313E-08	0.0	0.0	0.0
BACO3	5.83423E-04	0.0	0.0	0.0
SIO2	0.00134935	0.0	0.0	0.0
BACOOH2	1.16834E-07	0.0	0.0	0.0
SRC2O4	8.58909E-05	0.0	0.0	0.0
SRCOOH2	1.97967E-08	0.0	0.0	0.0
SRHC2O42	5.86421E-20	0.0	0.0	0.0
SRHPO4	1.84405E-07	0.0	0.0	0.0
SRNO32	2.64955E-05	0.0	0.0	0.0
SRSO4	2.27143E-06	0.0	0.0	0.0
ZNACET2	8.32935E-09	0.0	0.0	0.0
ZNBR2	5.98417E-17	0.0	0.0	0.0
ZNC2O4	1.78379E-04	0.0	0.0	0.0
ZNCL2	1.08133E-10	0.0	0.0	0.0
ZNCOOH2	1.77452E-09	0.0	0.0	0.0
ZNHC2O42	3.50184E-20	0.0	0.0	0.0
ZNHPO4	3.79314E-07	0.0	0.0	0.0
ZNNO32	4.23178E-08	0.0	0.0	0.0
ZNOH2	0.00164643	0.0	0.0	0.0
ZRC2O42	5.59470E-23	0.0	0.0	0.0
ZRF4	6.29076E-26	0.0	0.0	0.0
ZROH4	1.79528E-09	0.0	0.0	0.0
OHION	0.254238	0.0	0.0	0.0
AGACET2ION	2.41563E-12	0.0	0.0	0.0
AGBR2ION	6.41760E-09	0.0	0.0	0.0
AGBR3ION	9.16929E-12	0.0	0.0	0.0
AGBR4ION	3.35544E-14	0.0	0.0	0.0
AGC2O4ION	5.63075E-07	0.0	0.0	0.0
AGCL2ION	2.02922E-06	0.0	0.0	0.0
AGCL3ION	1.87599E-06	0.0	0.0	0.0
AGCL4ION	2.10157E-07	0.0	0.0	0.0
AGION	9.16979E-08	0.0	0.0	0.0
AGNO22ION	4.80806E-06	0.0	0.0	0.0
AGOH2ION	6.20668E-11	0.0	0.0	0.0
AGSO4ION	1.08434E-09	0.0	0.0	0.0
ALACET2ION	3.11254E-23	0.0	0.0	0.0
ALACETION	1.22656E-21	0.0	0.0	0.0
ALF2ION	2.29244E-16	0.0	0.0	0.0
ALF4ION	2.44597E-16	0.0	0.0	0.0
ALF5ION	2.09446E-17	0.0	0.0	0.0
ALF6ION	8.85493E-19	0.0	0.0	0.0
ALFION	5.66073E-18	0.0	0.0	0.0
ALION	4.94708E-21	0.0	0.0	0.0
ALOH2ION	3.61885E-12	0.0	0.0	0.0
ALOH4ION	0.00295444	0.0	0.0	0.0

ALOHCLION	1.24814E-18	0.0	0.0	0.0
ALOHION	1.15168E-16	0.0	0.0	0.0
ALSIO3OHION	3.41160E-12	0.0	0.0	0.0
ALSO42ION	1.95311E-24	0.0	0.0	0.0
ALSO4ION	6.29983E-23	0.0	0.0	0.0
B2OOH5ION	2.73739E-06	0.0	0.0	0.0
B3O3OH4ION	3.26264E-09	0.0	0.0	0.0
B4O5OH4ION	3.76117E-11	0.0	0.0	0.0
BAACETION	8.61427E-06	0.0	0.0	0.0
BACOOHION	1.81793E-05	0.0	0.0	0.0
BAFION	1.58485E-07	0.0	0.0	0.0
BAHCO3ION	2.40191E-05	0.0	0.0	0.0
BAION	0.002413	0.0	0.0	0.0
BAOHION	4.65755E-08	0.0	0.0	0.0
BF2OH2ION	3.49833E-12	0.0	0.0	0.0
BF3OHION	1.15082E-20	0.0	0.0	0.0
BF4ION	1.83536E-28	0.0	0.0	0.0
BFOH3ION	1.27222E-06	0.0	0.0	0.0
BOH4ION	0.162201	0.0	0.0	0.0
BRION	0.062302	0.0	0.0	0.0
CAACETION	1.19044E-05	0.0	0.0	0.0
CACLION	2.70679E-11	0.0	0.0	0.0
CACOOHION	3.18991E-05	0.0	0.0	0.0
CAFION	2.82123E-08	0.0	0.0	0.0
CAH2BO3ION	4.82506E-06	0.0	0.0	0.0
CAH2PO4ION	5.19876E-09	0.0	0.0	0.0
CAHC2O4ION	1.12761E-10	0.0	0.0	0.0
CAHCO3ION	4.47560E-05	0.0	0.0	0.0
CAHSIO3ION	7.38550E-08	0.0	0.0	0.0
CAION	0.00249625	0.0	0.0	0.0
CANO3ION	4.83647E-04	0.0	0.0	0.0
CAOHION	2.19273E-06	0.0	0.0	0.0
CAPO4ION	0.0097883	0.0	0.0	0.0
CEACET2ION	5.74255E-14	0.0	0.0	0.0
CEACETION	1.69151E-12	0.0	0.0	0.0
CEC2O42ION	4.92550E-08	0.0	0.0	0.0
CEC2O43ION	1.15016E-05	0.0	0.0	0.0
CEC2O4ION	1.71381E-09	0.0	0.0	0.0
CECL2ION	2.55028E-17	0.0	0.0	0.0
CECL4ION	4.51184E-22	0.0	0.0	0.0
CECLION	2.93052E-14	0.0	0.0	0.0
CECO3ION	3.93827E-08	0.0	0.0	0.0
CEF2ION	1.56099E-12	0.0	0.0	0.0
CEF4ION	8.11153E-15	0.0	0.0	0.0
CEFION	1.45144E-11	0.0	0.0	0.0
CEH2PO4ION	9.49969E-17	0.0	0.0	0.0
CEHCO3ION	6.32534E-13	0.0	0.0	0.0
CEION	6.46685E-12	0.0	0.0	0.0
CENO3ION	1.09063E-12	0.0	0.0	0.0
CEOH2ION	4.36715E-09	0.0	0.0	0.0
CEOH4ION	1.29984E-10	0.0	0.0	0.0
CEOHION	5.53372E-11	0.0	0.0	0.0
CESO42ION	1.41523E-14	0.0	0.0	0.0
CESO4ION	3.95724E-13	0.0	0.0	0.0
CLION	12.5088	0.0	0.0	0.0
CO3ION	54.3219	0.0	0.0	0.0
COOHION	2.2951	0.0	0.0	0.0

CR2O7ION	1.46121E-11	0.0	0.0	0.0
CRIIC2O42ION	0.357144	0.0	0.0	0.0
CRIIION	3.60815E-04	0.0	0.0	0.0
CRO4ION	0.43103	0.0	0.0	0.0
CSION	0.00116201	0.0	0.0	0.0
CSSO4ION	3.17922E-06	0.0	0.0	0.0
CUACET3ION	1.57284E-12	0.0	0.0	0.0
CUACETION	6.70999E-10	0.0	0.0	0.0
CUBRION	1.25967E-12	0.0	0.0	0.0
CUC2O42ION	0.0103391	0.0	0.0	0.0
CUCL3ION	9.77050E-18	0.0	0.0	0.0
CUCLION	9.67613E-11	0.0	0.0	0.0
CUCO32ION	0.00439507	0.0	0.0	0.0
CUCOOHION	3.19878E-10	0.0	0.0	0.0
CUION	6.58694E-09	0.0	0.0	0.0
CUNO2ION	1.22180E-08	0.0	0.0	0.0
CUNO3ION	2.15021E-09	0.0	0.0	0.0
CUOH3ION	1.09551E-04	0.0	0.0	0.0
CUOH4ION	1.24642E-06	0.0	0.0	0.0
CUOHION	1.68108E-06	0.0	0.0	0.0
FEIIIBRION	3.25797E-29	0.0	0.0	0.0
FEIIIC2O42ION	2.11708E-11	0.0	0.0	0.0
FEIIIC2O43ION	6.49775E-08	0.0	0.0	0.0
FEIIIC2O4ION	1.31039E-14	0.0	0.0	0.0
FEIIICL2ION	3.54445E-28	0.0	0.0	0.0
FEIIICLION	2.91762E-26	0.0	0.0	0.0
FEIIIF2ION	1.54249E-23	0.0	0.0	0.0
FEIIIFION	1.90011E-23	0.0	0.0	0.0
FEIIIH2PO4ION	7.89040E-27	0.0	0.0	0.0
FEIIIHC2O4ION	2.44246E-28	0.0	0.0	0.0
FEIIIHPO4ION	5.51172E-19	0.0	0.0	0.0
FEIIIION	6.76358E-23	0.0	0.0	0.0
FEIIINO3ION	2.63353E-25	0.0	0.0	0.0
FEIIIOH2ION	2.07736E-10	0.0	0.0	0.0
FEIIIOH4ION	2.62510E-04	0.0	0.0	0.0
FEIIIOHION	1.46783E-15	0.0	0.0	0.0
FEIIISO4ION	1.05252E-25	0.0	0.0	0.0
FION	0.802596	0.0	0.0	0.0
H2P2O7ION	1.99894E-12	0.0	0.0	0.0
H2PO4ION	3.69593E-04	0.0	0.0	0.0
H2SIO4ION	1.02411E-04	0.0	0.0	0.0
H3P2O7ION	2.63839E-21	0.0	0.0	0.0
H3SIO4ION	0.00782441	0.0	0.0	0.0
HCO3ION	8.26461	0.0	0.0	0.0
HCRO4ION	9.11540E-06	0.0	0.0	0.0
HF2ION	7.25431E-12	0.0	0.0	0.0
HION	3.52152E-08	0.0	0.0	0.0
HOXALATION	3.68878E-06	0.0	0.0	0.0
HP2O7ION	7.52713E-08	0.0	0.0	0.0
HPBO2ION	1.02909E-05	0.0	0.0	0.0
HPO4ION	3.38861	0.0	0.0	0.0
HSO4ION	1.85029E-09	0.0	0.0	0.0
HWO4ION	1.21057E-09	0.0	0.0	0.0
KION	79.1797	0.0	0.0	0.0
KSO4ION	0.197485	0.0	0.0	0.0
LIION	0.505411	0.0	0.0	0.0
LISO4ION	2.41163E-04	0.0	0.0	0.0

MGACETION	1.54095E-04	0.0	0.0	0.0
MGC2O42ION	0.0303377	0.0	0.0	0.0
MGCOOHION	1.86452E-04	0.0	0.0	0.0
MGFION	3.71102E-08	0.0	0.0	0.0
MGH2PO4ION	3.83940E-08	0.0	0.0	0.0
MGHCO3ION	7.32763E-04	0.0	0.0	0.0
MGHSIO3ION	7.84359E-07	0.0	0.0	0.0
MGION	0.010137	0.0	0.0	0.0
MGOHION	1.24582E-04	0.0	0.0	0.0
MGP2O7ION	8.50280E-06	0.0	0.0	0.0
MGPO4ION	0.080055	0.0	0.0	0.0
MNACET3ION	8.25060E-12	0.0	0.0	0.0
MNACETION	1.05391E-07	0.0	0.0	0.0
MNBRION	5.05113E-09	0.0	0.0	0.0
MNC2O42ION	3.03904E-04	0.0	0.0	0.0
MNC2O43ION	0.00771674	0.0	0.0	0.0
MNCLION	1.18111E-07	0.0	0.0	0.0
MNCOOHION	2.71241E-07	0.0	0.0	0.0
MNION	1.58498E-05	0.0	0.0	0.0
MNNO3ION	1.53130E-06	0.0	0.0	0.0
MNOH3ION	6.47237E-10	0.0	0.0	0.0
MNOH4ION	3.11971E-12	0.0	0.0	0.0
MNOHION	3.42721E-06	0.0	0.0	0.0
NA2FION	0.00189651	0.0	0.0	0.0
NACO3ION	15.1229	0.0	0.0	0.0
NAION	763.09	0.0	0.0	0.0
NASO4ION	2.62026	0.0	0.0	0.0
NDACET2ION	5.13980E-29	0.0	0.0	0.0
NDACETION	1.92781E-27	0.0	0.0	0.0
NDCL2ION	0.0	0.0	0.0	0.0
NDCLION	3.78738E-29	0.0	0.0	0.0
NDCO3ION	1.00587E-22	0.0	0.0	0.0
NDF2ION	3.98886E-27	0.0	0.0	0.0
NDF4ION	2.86436E-29	0.0	0.0	0.0
NDFION	2.64226E-26	0.0	0.0	0.0
NDH2PO4ION	0.0	0.0	0.0	0.0
NDHCO3ION	6.92587E-28	0.0	0.0	0.0
NDION	7.97786E-27	0.0	0.0	0.0
NDNO3ION	1.97757E-27	0.0	0.0	0.0
NDOH2ION	1.26916E-24	0.0	0.0	0.0
NDOH4ION	8.36789E-24	0.0	0.0	0.0
NDOHION	1.48297E-25	0.0	0.0	0.0
NDSO42ION	8.46076E-30	0.0	0.0	0.0
NDSO4ION	5.09077E-28	0.0	0.0	0.0
NIACET3ION	1.48077E-12	0.0	0.0	0.0
NIACETION	9.46459E-09	0.0	0.0	0.0
NIC2O42ION	0.00115724	0.0	0.0	0.0
NICLION	1.59735E-10	0.0	0.0	0.0
NICOOHION	2.20213E-08	0.0	0.0	0.0
NIFION	3.02422E-10	0.0	0.0	0.0
NIION	8.13930E-07	0.0	0.0	0.0
NINO3ION	1.33687E-07	0.0	0.0	0.0
NIOH3ION	2.26404E-06	0.0	0.0	0.0
NIOHION	4.60858E-07	0.0	0.0	0.0
NO2ION	94.5564	0.0	0.0	0.0
NO3ION	510.389	0.0	0.0	0.0
ACETATEION	2.78663	0.0	0.0	0.0

OXALATION	34.1244	0.0	0.0	0.0
P2O7ION	4.60550E-05	0.0	0.0	0.0
PBACET3ION	1.72651E-11	0.0	0.0	0.0
PBACETION	4.20809E-09	0.0	0.0	0.0
PBBR3ION	1.85944E-18	0.0	0.0	0.0
PBBRION	2.49550E-11	0.0	0.0	0.0
PBCL3ION	3.37665E-13	0.0	0.0	0.0
PBCL4ION	1.45975E-14	0.0	0.0	0.0
PBCLION	2.11537E-09	0.0	0.0	0.0
PBCOOHION	1.11747E-09	0.0	0.0	0.0
PBF3ION	4.63714E-15	0.0	0.0	0.0
PBF4ION	8.21445E-18	0.0	0.0	0.0
PBFION	8.27936E-11	0.0	0.0	0.0
PBH2PO4ION	7.08529E-14	0.0	0.0	0.0
PBION	5.73366E-08	0.0	0.0	0.0
PBNO23ION	9.88699E-06	0.0	0.0	0.0
PBNO2ION	3.72103E-06	0.0	0.0	0.0
PBNO33ION	9.19603E-10	0.0	0.0	0.0
PBNO3ION	4.42694E-08	0.0	0.0	0.0
PBOHION	3.94640E-06	0.0	0.0	0.0
PO4ION	0.326258	0.0	0.0	0.0
RUIIICL2ION	1.20541E-19	0.0	0.0	0.0
RUIIICL4ION	3.16554E-23	0.0	0.0	0.0
RUIIICL5ION	1.03990E-24	0.0	0.0	0.0
RUIIICL6ION	8.78342E-26	0.0	0.0	0.0
RUIIICLION	1.74216E-14	0.0	0.0	0.0
RUIIIION	2.62514E-17	0.0	0.0	0.0
RUIIIOH2ION	0.0351844	0.0	0.0	0.0
RUIIIOHION	1.71712E-10	0.0	0.0	0.0
RUIIISO42ION	1.14987E-23	0.0	0.0	0.0
RUIIISO43ION	2.17081E-25	0.0	0.0	0.0
RUIIISO4ION	7.78298E-21	0.0	0.0	0.0
SO4ION	2.92404	0.0	0.0	0.0
SRACETION	1.87699E-06	0.0	0.0	0.0
SRCOOHION	3.23840E-06	0.0	0.0	0.0
SRFION	5.79434E-08	0.0	0.0	0.0
SRHC2O4ION	5.76058E-12	0.0	0.0	0.0
SRION	2.87381E-04	0.0	0.0	0.0
SRNO3ION	1.09777E-04	0.0	0.0	0.0
SROHION	8.97977E-08	0.0	0.0	0.0
SRPO4ION	1.28126E-05	0.0	0.0	0.0
WO4ION	0.0508232	0.0	0.0	0.0
ZNACET3ION	2.14767E-10	0.0	0.0	0.0
ZNACETION	1.06938E-07	0.0	0.0	0.0
ZNBR3ION	2.21572E-20	0.0	0.0	0.0
ZNBRION	1.68021E-11	0.0	0.0	0.0
ZNC2O42ION	0.014922	0.0	0.0	0.0
ZNC2O43ION	0.0981975	0.0	0.0	0.0
ZNCL3ION	6.54543E-13	0.0	0.0	0.0
ZNCLION	1.91182E-08	0.0	0.0	0.0
ZNCOOHION	1.33648E-07	0.0	0.0	0.0
ZNFION	3.08266E-09	0.0	0.0	0.0
ZNH2PO4ION	1.03271E-11	0.0	0.0	0.0
ZNHC2O4ION	5.32252E-13	0.0	0.0	0.0
ZNHCO3ION	1.53259E-07	0.0	0.0	0.0
ZNION	5.25459E-06	0.0	0.0	0.0
ZNNO3ION	1.00899E-06	0.0	0.0	0.0

ZNOH3ION	6.63296E-04	0.0	0.0	0.0
ZNOH4ION	1.38392E-05	0.0	0.0	0.0
ZNOHION	3.04249E-05	0.0	0.0	0.0
ZRC2O4ION	9.26397E-30	0.0	0.0	0.0
ZRF2ION	2.36363E-29	0.0	0.0	0.0
ZRF3ION	1.12688E-26	0.0	0.0	0.0
ZRF6ION	0.0	0.0	0.0	0.0
ZRFION	0.0	0.0	0.0	0.0
ZROH2ION	1.90265E-21	0.0	0.0	0.0
ZROH3ION	5.43110E-15	0.0	0.0	0.0
ZROH5ION	3.86953E-05	0.0	0.0	0.0
ZROHION	3.13972E-28	0.0	0.0	0.0
AG2CO3	0.0	0.03715337	0.0	0.0
SRCO3	0.0	0.04200457	0.0	0.0
ZRO2	0.0	0.2021258	0.0	0.0
NASGEL.15.5H2O	0.0	0.7382424	0.0	0.0
NDPO4.2H2O	0.0	0.04098287	0.0	0.0
CEPO4	0.0	0.07171804	0.0	0.0
PB3PO42	0.0	0.08592833	0.0	0.0
NAALCO3OH2	0.0	34.30797	0.0	0.0
	==========	==========	==========	==========
Total g/hr	856407.	6904.82	0.0	0.0
Volume, L/hr	807.835	2.9914	0.0	0.0
Enthalpy, cal/hr	-3.07761E+09	-2.11817E+07	0.0	0.0
Density, g/L	1060.13	2308.22		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	40.8094			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0757285			
E-Con, cm2/ohm-mol	33.9932			
Abs Visc, cP	1.00484			
Rel Visc	1.12812			
Ionic Strength	1.20131			

Campaign IV Treated Sludge to HLP

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: HLW slurry melte
TO :
FROM : HLW Slurry Splitter

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	12.9184			
Total mol/hr	9022.375	254.958	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	8861.15	0.0	0.0	0.0
ACETACID	8.96367E-10	0.0	0.0	0.0
CO2	7.49285E-10	0.0	0.0	0.0
H2F2	5.71870E-30	0.0	0.0	0.0
ACET2	8.56256E-29	0.0	0.0	0.0
HBR	3.13018E-24	0.0	0.0	0.0
HCL	3.68657E-20	0.0	0.0	0.0
HCOOH	7.86548E-11	0.0	0.0	0.0
HF	6.34381E-12	0.0	0.0	0.0
HNO2	7.27723E-10	0.0	0.0	0.0
HNO3	5.03026E-14	0.0	0.0	0.0
BAOX	1.05576E-04	0.0	0.0	0.0
BASO4	3.01415E-08	0.5073304	0.0	0.0
BOH3	1.55944E-06	0.0	0.0	0.0
CAACET2	2.88531E-09	0.0	0.0	0.0
CAC2O4	4.93486E-04	0.0	0.0	0.0
CACL2	3.58867E-28	0.0	0.0	0.0
CACO3	4.84037E-04	0.0	0.0	0.0
CACOOH2	3.21136E-09	0.0	0.0	0.0
CAH2SIO4	1.04359E-05	0.0	0.0	0.0
CAHC2O42	4.26813E-24	0.0	0.0	0.0
CASO4	2.34292E-07	0.0	0.0	0.0
CEACET3	2.01389E-19	0.0	0.0	0.0
CECL3	4.86630E-24	0.0	0.0	0.0
CEF3	1.06346E-17	0.0	0.0	0.0
CEOH3	0.00104296	0.0	0.0	0.0
AGCL	7.55505E-08	0.0	0.0	0.0
CRIIC2O4	2.99175E-04	0.0	0.0	0.0
CSACET	7.91934E-08	0.0	0.0	0.0
CSBR	6.85218E-10	0.0	0.0	0.0
CSCL	1.30693E-07	0.0	0.0	0.0
CSNO3	8.44582E-06	0.0	0.0	0.0
CUACET2	4.79289E-19	0.0	0.0	0.0
CUBR2	3.92166E-26	0.0	0.0	0.0
CUC2O4	4.33867E-12	0.0	0.0	0.0
CUCL2	4.98665E-21	0.0	0.0	0.0
CUCO3	6.69364E-12	0.0	0.0	0.0
CUCOOH2	1.66326E-19	0.0	0.0	0.0
CUNO22	1.06809E-16	0.0	0.0	0.0
CUNO32	2.69085E-19	0.0	0.0	0.0
CUOH2	9.29496E-05	0.0	0.0	0.0
FEIIIOH3	4.41595E-06	195.6952	0.0	0.0

AGACET	4.70246E-11	0.0	0.0	0.0
AGBR	4.43398E-09	0.0	0.0	0.0
AGF	6.03700E-12	0.0	0.0	0.0
H2WO4	3.83088E-24	0.0	0.0	0.0
H3PO4	4.58811E-20	0.0	0.0	0.0
H4SIO4	2.51844E-06	0.0	0.0	0.0
AGNO2	5.43582E-08	0.0	0.0	0.0
AGNO3	4.58019E-10	0.0	0.0	0.0
AGOH	8.67521E-08	0.0	0.0	0.0
ALF3	1.37935E-24	0.0	0.0	0.0
ALOH3	3.51009E-07	12.58141	0.0	0.0
KACET	0.00157657	0.0	0.0	0.0
KCL	1.01939E-04	0.0	0.0	0.0
KCOOH	0.00266585	0.0	0.0	0.0
KHSO4	1.53788E-16	0.0	0.0	0.0
KNO3	0.206859	0.0	0.0	0.0
LIACET	2.89745E-05	0.0	0.0	0.0
LIH2BO3	1.98628E-06	0.0	0.0	0.0
LIOH	0.00333541	0.0	0.0	0.0
MGACET2	7.24451E-12	0.0	0.0	0.0
MGC2O4	7.17282E-06	0.0	0.0	0.0
MGCO3	6.65170E-07	0.0	0.0	0.0
MGCOOH2	9.86705E-12	0.0	0.0	0.0
MGH2SIO4	3.07070E-07	0.0	0.0	0.0
MGHPO4	1.07253E-09	0.0	0.0	0.0
MGSO4	1.24330E-09	0.0	0.0	0.0
MNACET2	2.41867E-13	0.0	0.0	0.0
MNBR2	4.42734E-17	0.0	0.0	0.0
MNC2O4	6.23198E-05	0.0	0.0	0.0
MNCOOH2	9.71291E-13	0.0	0.0	0.0
MNNO32	5.08687E-11	0.0	0.0	0.0
MNOH2	1.31303E-05	0.009016858	0.0	0.0
MNSO4	1.36863E-10	0.0	0.0	0.0
NAACET	0.0317281	0.0	0.0	0.0
NAALOH4	0.219342	0.0	0.0	0.0
NABOH4	0.00157397	0.0	0.0	0.0
NABR	3.78508E-05	0.0	0.0	0.0
NACOOH	0.0390186	0.0	0.0	0.0
NAF	0.00861689	0.0	0.0	0.0
NAHCO3	3.85862E-04	0.0	0.0	0.0
NAHSIO3	0.0550477	0.0	0.0	0.0
NANO3	1.33486	0.0	0.0	0.0
NDF3	0.0	0.0	0.0	0.0
NDOH3	7.44461E-18	0.0	0.0	0.0
NIACET2	1.97111E-17	0.0	0.0	0.0
NIC2O4	4.39326E-08	0.0	0.0	0.0
NICOOH2	8.75603E-17	0.0	0.0	0.0
NIOH2	9.30109E-07	6.479566	0.0	0.0
NISO4	5.61981E-15	0.0	0.0	0.0
OXALAC	7.38968E-21	0.0	0.0	0.0
PBACET2	2.90323E-16	0.0	0.0	0.0
PBBR2	2.34078E-21	0.0	0.0	0.0
PBC2O4	8.36755E-08	0.0	0.0	0.0
PBCL2	2.07518E-16	0.0	0.0	0.0
PBCOOH2	1.19338E-16	0.0	0.0	0.0
PBF2	1.63912E-18	0.0	0.0	0.0
PBHPO4	2.62810E-15	0.0	0.0	0.0

PBNO22	3.63289E-11	0.0	0.0	0.0
PBNO32	1.02237E-14	0.0	0.0	0.0
PBO	1.15384E-04	0.0	0.0	0.0
RUIIICL3	5.69523E-29	0.0	0.0	0.0
BAAC2	1.73091E-09	0.0	0.0	0.0
BACO3	2.57118E-04	0.0	0.0	0.0
SIO2	1.16533E-06	0.0	0.0	0.0
BACOOH2	6.72782E-09	0.0	0.0	0.0
SRC2O4	4.10420E-05	0.0	0.0	0.0
SRCOOH2	5.38868E-10	0.0	0.0	0.0
SRHC2O42	6.12739E-25	0.0	0.0	0.0
SRHPO4	9.68986E-10	0.0	0.0	0.0
SRNO32	1.46293E-07	0.0	0.0	0.0
SRSO4	2.20988E-07	0.0	0.0	0.0
ZNACET2	5.54286E-17	0.0	0.0	0.0
ZNBR2	3.41577E-25	0.0	0.0	0.0
ZNC2O4	2.16427E-11	0.0	0.0	0.0
ZNCL2	6.24833E-19	0.0	0.0	0.0
ZNCOOH2	1.21908E-17	0.0	0.0	0.0
ZNHC2O42	0.0	0.0	0.0	0.0
ZNHPO4	5.06094E-16	0.0	0.0	0.0
ZNNO32	5.93279E-17	0.0	0.0	0.0
ZNOH2	9.42005E-06	0.0	0.0	0.0
ZROH4	3.83326E-10	0.0	0.0	0.0
OHION	18.64	0.0	0.0	0.0
AGACET2ION	5.95122E-14	0.0	0.0	0.0
AGBR2ION	1.35616E-10	0.0	0.0	0.0
AGBR3ION	5.23247E-14	0.0	0.0	0.0
AGBR4ION	4.44108E-17	0.0	0.0	0.0
AGC2O4ION	2.52922E-07	0.0	0.0	0.0
AGCL2ION	4.34097E-08	0.0	0.0	0.0
AGCL3ION	1.09039E-08	0.0	0.0	0.0
AGCL4ION	2.85052E-10	0.0	0.0	0.0
AGION	1.80707E-08	0.0	0.0	0.0
AGNO22ION	1.14800E-07	0.0	0.0	0.0
AGOH2ION	1.31468E-06	0.0	0.0	0.0
AGSO4ION	9.91684E-11	0.0	0.0	0.0
ALACET2ION	0.0	0.0	0.0	0.0
ALACETION	9.62724E-30	0.0	0.0	0.0
ALF2ION	9.66949E-25	0.0	0.0	0.0
ALF4ION	1.45807E-25	0.0	0.0	0.0
ALF5ION	3.69018E-27	0.0	0.0	0.0
ALF6ION	3.96041E-29	0.0	0.0	0.0
ALFION	4.49718E-26	0.0	0.0	0.0
ALION	1.64716E-28	0.0	0.0	0.0
ALOH2ION	1.40616E-14	0.0	0.0	0.0
ALOH4ION	1.27581	0.0	0.0	0.0
ALOHCLION	4.53780E-24	0.0	0.0	0.0
ALOHION	1.47155E-21	0.0	0.0	0.0
ALSIO3OHION	4.66146E-07	0.0	0.0	0.0
ALSO42ION	0.0	0.0	0.0	0.0
ALSO4ION	0.0	0.0	0.0	0.0
B2OOH5ION	2.06938E-10	0.0	0.0	0.0
B3O3OH4ION	2.61534E-16	0.0	0.0	0.0
B4O5OH4ION	8.64340E-19	0.0	0.0	0.0
BAACETION	1.17049E-06	0.0	0.0	0.0
BACOOHION	2.51009E-06	0.0	0.0	0.0

BAFION	2.18232E-08	0.0	0.0	0.0
BAHCO3ION	2.81934E-08	0.0	0.0	0.0
BAION	6.03580E-04	0.0	0.0	0.0
BAOHION	6.44457E-06	0.0	0.0	0.0
BF2OH2ION	3.16077E-19	0.0	0.0	0.0
BF3OHION	1.13668E-30	0.0	0.0	0.0
BFOH3ION	1.05146E-10	0.0	0.0	0.0
BOH4ION	0.0122636	0.0	0.0	0.0
BRION	0.00432568	0.0	0.0	0.0
CAACETION	3.99675E-07	0.0	0.0	0.0
CACLION	1.55614E-12	0.0	0.0	0.0
CACOOHION	1.08808E-06	0.0	0.0	0.0
CAFION	9.59885E-10	0.0	0.0	0.0
CAH2BO3ION	1.61683E-07	0.0	0.0	0.0
CAH2PO4ION	3.81913E-14	0.0	0.0	0.0
CAHC2O4ION	7.47547E-14	0.0	0.0	0.0
CAHCO3ION	1.24186E-08	0.0	0.0	0.0
CAHSIO3ION	9.59576E-09	0.0	0.0	0.0
CAION	2.01398E-04	0.0	0.0	0.0
CANO3ION	8.18502E-06	0.0	0.0	0.0
CAOHION	7.49874E-05	0.0	0.0	0.0
CAPO4ION	0.00825996	0.0	0.0	0.0
CEACET2ION	1.70406E-17	0.0	0.0	0.0
CEACETION	9.67489E-16	0.0	0.0	0.0
CEC2O42ION	6.67042E-10	0.0	0.0	0.0
CEC2O43ION	2.07370E-07	0.0	0.0	0.0
CEC2O4ION	9.16962E-12	0.0	0.0	0.0
CECL2ION	6.58012E-21	0.0	0.0	0.0
CECL4ION	1.38590E-26	0.0	0.0	0.0
CECLION	1.57399E-17	0.0	0.0	0.0
CECO3ION	9.21847E-11	0.0	0.0	0.0
CEF2ION	4.75833E-16	0.0	0.0	0.0
CEF4ION	3.48892E-19	0.0	0.0	0.0
CEFION	8.40283E-15	0.0	0.0	0.0
CEH2PO4ION	1.19464E-23	0.0	0.0	0.0
CEHCO3ION	3.14783E-18	0.0	0.0	0.0
CEION	2.42521E-14	0.0	0.0	0.0
CENO3ION	4.95285E-16	0.0	0.0	0.0
CEOH2ION	1.20790E-06	0.0	0.0	0.0
CEOH4ION	0.00391449	0.0	0.0	0.0
CEOHION	4.88263E-11	0.0	0.0	0.0
CESO42ION	7.94522E-18	0.0	0.0	0.0
CESO4ION	4.35827E-16	0.0	0.0	0.0
CLION	0.864849	0.0	0.0	0.0
CO3ION	8.96573	0.0	0.0	0.0
COOHION	0.174663	0.0	0.0	0.0
CR2O7ION	3.88743E-18	0.0	0.0	0.0
CRIIC2O42ION	0.0249388	0.0	0.0	0.0
CRIIION	3.50202E-06	0.0	0.0	0.0
CRO4ION	0.0297985	0.0	0.0	0.0
CSION	1.23309E-04	0.0	0.0	0.0
CSSO4ION	1.12560E-07	0.0	0.0	0.0
CUACET3ION	1.35488E-20	0.0	0.0	0.0
CUACETION	4.21023E-17	0.0	0.0	0.0
CUBRION	7.31757E-20	0.0	0.0	0.0
CUC2O42ION	8.63259E-09	0.0	0.0	0.0
CUCL3ION	6.81015E-26	0.0	0.0	0.0

CUCLION	5.66515E-18	0.0	0.0	0.0
CUCO32ION	6.91932E-10	0.0	0.0	0.0
CUCOOHION	2.03917E-17	0.0	0.0	0.0
CUION	9.84067E-16	0.0	0.0	0.0
CUNO2ION	7.64241E-16	0.0	0.0	0.0
CUNO3ION	6.08201E-17	0.0	0.0	0.0
CUOH3ION	7.59843E-04	0.0	0.0	0.0
CUOH4ION	0.00232376	0.0	0.0	0.0
CUOHION	1.07423E-10	0.0	0.0	0.0
FEIIIC2O42ION	6.11307E-19	0.0	0.0	0.0
FEIIIC2O43ION	2.49788E-15	0.0	0.0	0.0
FEIIIC2O4ION	1.49486E-22	0.0	0.0	0.0
FEIIIF2ION	0.0	0.0	0.0	0.0
FEIIIFION	0.0	0.0	0.0	0.0
FEIIIHPO4ION	6.96754E-29	0.0	0.0	0.0
FEIIIION	0.0	0.0	0.0	0.0
FEIIIOH2ION	1.22594E-13	0.0	0.0	0.0
FEIIIOH4ION	0.0168559	0.0	0.0	0.0
FEIIIOHION	2.71034E-21	0.0	0.0	0.0
FION	0.0586899	0.0	0.0	0.0
H2P2O7ION	1.93585E-21	0.0	0.0	0.0
H2PO4ION	5.31818E-09	0.0	0.0	0.0
H2SIO4ION	0.00748237	0.0	0.0	0.0
H3P2O7ION	0.0	0.0	0.0	0.0
H3SIO4ION	0.00227105	0.0	0.0	0.0
HCO3ION	0.00501079	0.0	0.0	0.0
HCRO4ION	2.39680E-09	0.0	0.0	0.0
HF2ION	6.08755E-16	0.0	0.0	0.0
HION	2.80002E-11	0.0	0.0	0.0
HOXALATION	5.49279E-09	0.0	0.0	0.0
HP2O7ION	2.59897E-14	0.0	0.0	0.0
HPBO2ION	0.0177609	0.0	0.0	0.0
HPO4ION	0.0130481	0.0	0.0	0.0
HSO4ION	5.60969E-13	0.0	0.0	0.0
HWO4ION	3.34425E-13	0.0	0.0	0.0
KION	6.17584	0.0	0.0	0.0
KSO4ION	0.00977551	0.0	0.0	0.0
LIION	0.0316767	0.0	0.0	0.0
LISO4ION	7.60283E-06	0.0	0.0	0.0
MGACETION	2.74032E-09	0.0	0.0	0.0
MGC2O42ION	7.17921E-06	0.0	0.0	0.0
MGCOOHION	3.36872E-09	0.0	0.0	0.0
MGFION	6.84424E-13	0.0	0.0	0.0
MGH2PO4ION	1.49401E-16	0.0	0.0	0.0
MGHCO3ION	1.13514E-10	0.0	0.0	0.0
MGHSIO3ION	5.39793E-11	0.0	0.0	0.0
MGION	6.35820E-07	0.0	0.0	0.0
MGOHION	2.23031E-06	0.0	0.0	0.0
MGP2O7ION	2.39615E-13	0.0	0.0	0.0
MGPO4ION	3.57830E-05	0.0	0.0	0.0
MNACET3ION	8.23711E-16	0.0	0.0	0.0
MNACETION	7.66414E-11	0.0	0.0	0.0
MNBRION	3.40074E-12	0.0	0.0	0.0
MNC2O42ION	2.94082E-06	0.0	0.0	0.0
MNC2O43ION	7.33364E-05	0.0	0.0	0.0
MNCLION	8.01442E-11	0.0	0.0	0.0
MNCOOHION	2.00400E-10	0.0	0.0	0.0

MNION	2.75488E-08	0.0	0.0	0.0
MNNO3ION	5.61236E-10	0.0	0.0	0.0
MNOH3ION	5.15148E-05	0.0	0.0	0.0
MNOH4ION	6.71320E-05	0.0	0.0	0.0
MNOHION	2.51385E-06	0.0	0.0	0.0
NA2FION	5.78926E-05	0.0	0.0	0.0
NACO3ION	1.97328	0.0	0.0	0.0
NAION	84.8483	0.0	0.0	0.0
NASO4ION	0.159878	0.0	0.0	0.0
NDACET2ION	0.0	0.0	0.0	0.0
NDACETION	9.92848E-30	0.0	0.0	0.0
NDCLION	0.0	0.0	0.0	0.0
NDCO3ION	2.11997E-24	0.0	0.0	0.0
NDF2ION	1.09481E-29	0.0	0.0	0.0
NDF4ION	0.0	0.0	0.0	0.0
NDFION	1.37736E-28	0.0	0.0	0.0
NDHCO3ION	0.0	0.0	0.0	0.0
NDION	2.56952E-28	0.0	0.0	0.0
NDNO3ION	8.08643E-30	0.0	0.0	0.0
NDOH2ION	3.19493E-21	0.0	0.0	0.0
NDOH4ION	2.26900E-15	0.0	0.0	0.0
NDOHION	1.26445E-24	0.0	0.0	0.0
NDSO42ION	0.0	0.0	0.0	0.0
NDSO4ION	5.04825E-30	0.0	0.0	0.0
NIACET3ION	1.19265E-19	0.0	0.0	0.0
NIACETION	5.55260E-15	0.0	0.0	0.0
NIC2O42ION	9.03422E-09	0.0	0.0	0.0
NICLION	8.74420E-17	0.0	0.0	0.0
NICOOHION	1.31257E-14	0.0	0.0	0.0
NIFION	1.79800E-16	0.0	0.0	0.0
NIION	1.15759E-12	0.0	0.0	0.0
NINO3ION	3.95285E-14	0.0	0.0	0.0
NIOH3ION	1.45375E-04	0.0	0.0	0.0
NIOHION	2.72159E-10	0.0	0.0	0.0
NO2ION	6.53686	0.0	0.0	0.0
NO3ION	15.8823	0.0	0.0	0.0
ACETATEION	0.206012	0.0	0.0	0.0
OXALATION	12.7159	0.0	0.0	0.0
P2O7ION	3.61674E-09	0.0	0.0	0.0
PBACET3ION	3.55986E-17	0.0	0.0	0.0
PBACETION	6.31987E-14	0.0	0.0	0.0
PBBR3ION	3.04571E-24	0.0	0.0	0.0
PBBRION	3.46982E-16	0.0	0.0	0.0
PBCL3ION	6.00628E-19	0.0	0.0	0.0
PBCL4ION	6.66998E-21	0.0	0.0	0.0
PBCLION	2.96443E-14	0.0	0.0	0.0
PBCOOHION	1.70507E-14	0.0	0.0	0.0
PBF3ION	9.95852E-21	0.0	0.0	0.0
PBF4ION	5.21399E-24	0.0	0.0	0.0
PBFION	1.26012E-15	0.0	0.0	0.0
PBH2PO4ION	2.32836E-22	0.0	0.0	0.0
PBION	2.26540E-12	0.0	0.0	0.0
PBNO23ION	1.94502E-11	0.0	0.0	0.0
PBNO2ION	5.57100E-11	0.0	0.0	0.0
PBNO33ION	1.83351E-16	0.0	0.0	0.0
PBNO3ION	3.35083E-13	0.0	0.0	0.0
PBOHION	6.03530E-08	0.0	0.0	0.0

PO4ION	0.402331	0.0	0.0	0.0
RUIIICL2ION	8.41478E-27	0.0	0.0	0.0
RUIIICL4ION	0.0	0.0	0.0	0.0
RUIIICLION	2.53174E-21	0.0	0.0	0.0
RUIIIION	6.14211E-24	0.0	0.0	0.0
RUIIIOH2ION	0.00243236	0.0	0.0	0.0
RUIIIOHION	2.48871E-14	0.0	0.0	0.0
RUIIISO42ION	1.74659E-30	0.0	0.0	0.0
RUIIISO4ION	2.31915E-27	0.0	0.0	0.0
SO4ION	0.228057	0.0	0.0	0.0
SRACETION	1.19832E-07	0.0	0.0	0.0
SRCOOHION	2.10089E-07	0.0	0.0	0.0
SRFION	3.74881E-09	0.0	0.0	0.0
SRHC2O4ION	7.26196E-15	0.0	0.0	0.0
SRION	3.91349E-05	0.0	0.0	0.0
SRNO3ION	3.29117E-06	0.0	0.0	0.0
SROHION	5.24494E-06	0.0	0.0	0.0
SRPO4ION	2.05597E-05	0.0	0.0	0.0
WO4ION	0.0035135	0.0	0.0	0.0
ZNACET3ION	4.77963E-19	0.0	0.0	0.0
ZNACETION	1.73350E-15	0.0	0.0	0.0
ZNBR3ION	3.91727E-29	0.0	0.0	0.0
ZNBRION	2.52162E-19	0.0	0.0	0.0
ZNC2O42ION	3.21881E-09	0.0	0.0	0.0
ZNC2O43ION	2.08028E-08	0.0	0.0	0.0
ZNCL3ION	1.25666E-21	0.0	0.0	0.0
ZNCLION	2.95963E-16	0.0	0.0	0.0
ZNCOOHION	2.20109E-15	0.0	0.0	0.0
ZNFION	5.06405E-17	0.0	0.0	0.0
ZNH2PO4ION	3.66300E-23	0.0	0.0	0.0
ZNHC2O4ION	1.70378E-22	0.0	0.0	0.0
ZNHCO3ION	2.19930E-17	0.0	0.0	0.0
ZNION	1.70879E-13	0.0	0.0	0.0
ZNNO3ION	8.24336E-15	0.0	0.0	0.0
ZNOH3ION	0.00126724	0.0	0.0	0.0
ZNOH4ION	0.0067191	0.0	0.0	0.0
ZNOHION	4.95628E-10	0.0	0.0	0.0
ZROH2ION	3.62278E-27	0.0	0.0	0.0
ZROH3ION	3.31585E-18	0.0	0.0	0.0
ZROH5ION	0.00273163	0.0	0.0	0.0
AG2CO3	0.0	0.9094758	0.0	0.0
SRCO3	0.0	1.038541	0.0	0.0
ZRO2	0.0	3.982053	0.0	0.0
MGOH2	0.0	4.619854	0.0	0.0
NASGEL.15.5H2O	0.0	17.30962	0.0	0.0
NDPO4.2H2O	0.0	1.007561	0.0	0.0
CA3PO42	0.0	0.1358951	0.0	0.0
CAC2O4.1H2O	0.0	10.68251	0.0	0.0
	==========	==========	==========	==========
Total g/hr	165703.	45750.1	0.0	0.0
Volume, L/hr	161.069	22.3224	0.0	0.0
Enthalpy, cal/hr	-6.18002E+08	-1.25593E+08	0.0	0.0
Density, g/L	1028.77	2049.52		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	19.909			

Redox Pot, volts	0.0
E-Con, 1/ohm-cm	0.0560441
E-Con, cm2/ohm-mol	24.0621
Abs Visc, cP	0.979531
Rel Visc	1.09971
Ionic Strength	0.715794

Campaign IV LAW SBS

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: adjst LAW SBS
TO : TLP Evaporator Mixer
FROM : LAW SBS Manipulator

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	7.36307			
Total mol/hr	76668.8	0.612492	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	76159.7	0.0	0.0	0.0
FORM2	2.24376E-25	0.0	0.0	0.0
H2F2	5.19685E-14	0.0	0.0	0.0
H2SO4	1.07655E-23	0.0	0.0	0.0
HCL	8.01357E-13	0.0	0.0	0.0
HCOOH	3.71602E-04	0.0	0.0	0.0
HF	0.00188695	0.0	0.0	0.0
HNO2	0.00464852	0.0	0.0	0.0
HNO3	2.51510E-08	0.0	0.0	0.0
SIF4	1.21779E-19	0.0	0.0	0.0
SO3	1.40191E-27	0.0	0.0	0.0
BOH3	98.3987	0.0	0.0	0.0
CAC2O4	3.51442E-06	0.0	0.0	0.0
CACL2	3.89467E-26	0.0	0.0	0.0
CACOOH2	1.64635E-08	0.0	0.0	0.0
CAH2SIO4	1.42841E-11	0.0	0.0	0.0
CAHC2O42	1.11545E-17	0.0	0.0	0.0
CASO4	3.38217E-06	0.0	0.0	0.0
AGCL	6.81510E-04	0.008001183	0.0	0.0
CROH3	0.00138177	0.5350416	0.0	0.0
H2SIF6	1.57648E-27	0.0	0.0	0.0
AGF	7.24065E-07	0.0	0.0	0.0
H4SIO4	1.63275	0.0	0.0	0.0
HBF4	1.46125E-19	0.0	0.0	0.0
AGNO2	1.44093E-04	0.0	0.0	0.0
AGNO3	9.61759E-08	0.0	0.0	0.0
AGOH	3.33709E-10	0.0	0.0	0.0
ALF3	0.00328507	0.0	0.0	0.0
ALO2H2CL	1.33274E-27	0.0	0.0	0.0
ALOH3	2.75793E-08	0.0	0.0	0.0
KCL	0.00529415	0.0	0.0	0.0
KCOOH	0.0300913	0.0	0.0	0.0
KHSO4	2.51233E-09	0.0	0.0	0.0
KNO3	0.230995	0.0	0.0	0.0
LIH2BO3	4.54688E-04	0.0	0.0	0.0
LIOH	1.12166E-07	0.0	0.0	0.0
MGC2O4	2.93850E-04	0.0	0.0	0.0
MGCOOH2	2.90991E-07	0.0	0.0	0.0
MGH2SIO4	2.41780E-09	0.0	0.0	0.0
MGSO4	1.03246E-04	0.0	0.0	0.0
MNC2O4	7.79252E-04	0.0	0.0	0.0
MNCOOH2	8.74292E-09	0.0	0.0	0.0

MNNO32	5.25238E-09	0.0	0.0	0.0
MNOH2	4.54978E-13	0.0	0.0	0.0
MNSO4	3.46893E-06	0.0	0.0	0.0
NAALOH4	1.29847E-08	0.0	0.0	0.0
NABOH4	0.0748276	0.0	0.0	0.0
NACOOH	0.137727	0.0	0.0	0.0
NAF	1.86068	0.0	0.0	0.0
NAHSIO3	0.0264407	0.0	0.0	0.0
NANO3	0.405678	0.0	0.0	0.0
NDCL3	1.08823E-18	0.0	0.0	0.0
NDF3	1.10958E-08	0.006939904	0.0	0.0
NDOH3	9.47529E-18	0.0	0.0	0.0
OXALAC	2.49269E-11	0.0	0.0	0.0
SIO2	0.744229	0.0	0.0	0.0
SRC2O4	1.01195E-06	0.0	0.0	0.0
SRCOOH2	9.55599E-09	0.0	0.0	0.0
SRHC2O42	5.54423E-18	0.0	0.0	0.0
SRNO32	2.97857E-08	0.0	0.0	0.0
SRSO4	1.10448E-05	0.0	0.0	0.0
ZNC2O4	0.0274645	0.0	0.0	0.0
ZNCL2	1.20832E-05	0.0	0.0	0.0
ZNCOOH2	1.11365E-05	0.0	0.0	0.0
ZNHC2O42	4.32657E-14	0.0	0.0	0.0
ZNNO32	6.21690E-07	0.0	0.0	0.0
ZNOH2	3.31268E-05	0.0	0.0	0.0
OHION	4.15909E-04	0.0	0.0	0.0
AGC2O4ION	7.49066E-07	0.0	0.0	0.0
AGCL2ION	0.0019592	0.0	0.0	0.0
AGCL3ION	0.0017397	0.0	0.0	0.0
AGCL4ION	1.06216E-04	0.0	0.0	0.0
AGION	1.96265E-05	0.0	0.0	0.0
AGNO22ION	4.47428E-04	0.0	0.0	0.0
AGOH2ION	1.07900E-14	0.0	0.0	0.0
AGSO4ION	5.95340E-07	0.0	0.0	0.0
ALF2ION	2.03349E-05	0.0	0.0	0.0
ALF4ION	0.0231007	0.0	0.0	0.0
ALF5ION	0.02748	0.0	0.0	0.0
ALF6ION	0.00915806	0.0	0.0	0.0
ALFION	6.35042E-09	0.0	0.0	0.0
ALION	1.19253E-13	0.0	0.0	0.0
ALOH2ION	3.06300E-10	0.0	0.0	0.0
ALOH4ION	2.19843E-07	0.0	0.0	0.0
ALOHCLION	2.26346E-13	0.0	0.0	0.0
ALOHION	7.03824E-12	0.0	0.0	0.0
ALSIO3OHION	1.11744E-20	0.0	0.0	0.0
ALSO42ION	1.37576E-15	0.0	0.0	0.0
ALSO4ION	1.52924E-14	0.0	0.0	0.0
B2OOH5ION	0.189641	0.0	0.0	0.0
B3O3OH4ION	1.61783	0.0	0.0	0.0
B4O5OH4ION	0.054407	0.0	0.0	0.0
BF2OH2ION	0.0443382	0.0	0.0	0.0
BF3OHION	4.97155E-06	0.0	0.0	0.0
BF4ION	2.70269E-09	0.0	0.0	0.0
BFOH3ION	0.473053	0.0	0.0	0.0
BOH4ION	1.76952	0.0	0.0	0.0
CACLION	4.26407E-11	0.0	0.0	0.0
CACOOHION	3.03209E-06	0.0	0.0	0.0

CAFION	1.62364E-07	0.0	0.0	0.0
CAH2BO3ION	6.01636E-06	0.0	0.0	0.0
CAHC2O4ION	1.51133E-10	0.0	0.0	0.0
CAHSIO3ION	3.63943E-09	0.0	0.0	0.0
CAION	2.53752E-04	0.0	0.0	0.0
CANO3ION	2.47992E-06	0.0	0.0	0.0
CAOHION	4.17634E-10	0.0	0.0	0.0
CLION	42.543	0.0	0.0	0.0
COOHION	1.87916	0.0	0.0	0.0
CRFION	0.534667	0.0	0.0	0.0
CRIIICL2ION	6.75447E-11	0.0	0.0	0.0
CRIIICLION	4.76341E-08	0.0	0.0	0.0
CRIIIION	2.18836E-06	0.0	0.0	0.0
CRIIINO3ION	9.35301E-07	0.0	0.0	0.0
CROH2ION	2.48914E-05	0.0	0.0	0.0
CROH4ION	5.19256E-07	0.0	0.0	0.0
CROHION	0.00111449	0.0	0.0	0.0
CRSO4ION	6.83171E-04	0.0	0.0	0.0
FION	37.1509	0.0	0.0	0.0
H2SIO4ION	1.62226E-08	0.0	0.0	0.0
H3SIO4ION	0.00334098	0.0	0.0	0.0
HF2ION	1.25359E-05	0.0	0.0	0.0
HION	7.71940E-05	0.0	0.0	0.0
HOXALATION	4.20125E-05	0.0	0.0	0.0
HSIF6ION	2.06812E-19	0.0	0.0	0.0
HSO4ION	8.69753E-06	0.0	0.0	0.0
KION	38.5545	0.0	0.0	0.0
KSO4ION	0.337656	0.0	0.0	0.0
LIION	0.293591	0.0	0.0	0.0
LISO4ION	3.99006E-04	0.0	0.0	0.0
MGC2O42ION	3.41357E-07	0.0	0.0	0.0
MGCOOHION	5.40011E-05	0.0	0.0	0.0
MGFION	6.55858E-07	0.0	0.0	0.0
MGHSIO3ION	1.17771E-07	0.0	0.0	0.0
MGION	0.00437008	0.0	0.0	0.0
MGOHION	7.20674E-08	0.0	0.0	0.0
MNC2O42ION	4.26795E-08	0.0	0.0	0.0
MNC2O43ION	2.51668E-10	0.0	0.0	0.0
MNCLION	1.78988E-06	0.0	0.0	0.0
MNCOOHION	9.80508E-07	0.0	0.0	0.0
MNION	5.14472E-05	0.0	0.0	0.0
MNNO3ION	2.98967E-07	0.0	0.0	0.0
MNOH3ION	3.80854E-18	0.0	0.0	0.0
MNOH4ION	7.48187E-24	0.0	0.0	0.0
MNOHION	2.45950E-08	0.0	0.0	0.0
NA2FION	0.00254979	0.0	0.0	0.0
NAION	165.857	0.0	0.0	0.0
NASO4ION	1.62407	0.0	0.0	0.0
NDCL2ION	1.47888E-16	0.0	0.0	0.0
NDCL4ION	1.37437E-20	0.0	0.0	0.0
NDCLION	3.11702E-14	0.0	0.0	0.0
NDF2ION	3.72377E-09	0.0	0.0	0.0
NDF4ION	2.84696E-08	0.0	0.0	0.0
NDFION	3.11977E-10	0.0	0.0	0.0
NDION	2.93968E-12	0.0	0.0	0.0
NDNO3ION	3.72473E-14	0.0	0.0	0.0
NDOH2ION	1.14306E-15	0.0	0.0	0.0

NDOH4ION	6.16162E-21	0.0	0.0	0.0
NDOHION	1.04654E-13	0.0	0.0	0.0
NDSO42ION	6.21397E-14	0.0	0.0	0.0
NDSO4ION	1.30053E-12	0.0	0.0	0.0
NO2ION	90.2112	0.0	0.0	0.0
NO3ION	16.6698	0.0	0.0	0.0
OXALATION	0.142864	0.0	0.0	0.0
SIF6ION	8.13168E-14	0.0	0.0	0.0
SO4ION	5.4282	0.0	0.0	0.0
SRCOOHION	2.02405E-06	0.0	0.0	0.0
SRFION	2.19541E-06	0.0	0.0	0.0
SRHC2O4ION	5.08308E-11	0.0	0.0	0.0
SRION	1.60732E-04	0.0	0.0	0.0
SRNO3ION	3.32320E-06	0.0	0.0	0.0
SROHION	1.00506E-10	0.0	0.0	0.0
ZNC2O42ION	0.00474049	0.0	0.0	0.0
ZNC2O43ION	7.24183E-06	0.0	0.0	0.0
ZNCL3ION	1.30397E-07	0.0	0.0	0.0
ZNCLION	6.55394E-04	0.0	0.0	0.0
ZNCOOHION	0.00109296	0.0	0.0	0.0
ZNFION	0.00152635	0.0	0.0	0.0
ZNHC2O4ION	6.13790E-08	0.0	0.0	0.0
ZNION	0.0464386	0.0	0.0	0.0
ZNNO3ION	4.45652E-04	0.0	0.0	0.0
ZNOH3ION	1.01903E-08	0.0	0.0	0.0
ZNOH4ION	8.00373E-14	0.0	0.0	0.0
ZNOHION	4.96826E-04	0.0	0.0	0.0
CAF2	0.0	0.01792938	0.0	0.0
MGF2	0.0	0.04457996	0.0	0.0
	==========	==========	==========	==========
Total g/hr	1.39258E+06	61.8395	0.0	0.0
Volume, L/hr	1384.3	0.0171357	0.0	0.0
Enthalpy, cal/hr	-5.25268E+09	-1.45129E+05	0.0	0.0
Density, g/L	1005.98	3608.82		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	8.29717			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.013823			
E-Con, cm2/ohm-mol	52.6326			
Abs Visc, cP	0.902667			
Rel Visc	1.01341			
Ionic Strength	0.154633			

Campaign IV TLP Condensate

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: TLP condensate
TO :
FROM : TLP Condenser Mixer

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.98815			
Total mol/hr	113016.	0.0	0.0	0.0
----------	mol/hr	mol/hr	mol/hr	mol/hr
H2O	113016.	0.0	0.0	0.0
ACETACID	1.95138E-10	0.0	0.0	0.0
CO2	1.23642E-06	0.0	0.0	0.0
ACET2	0.0	0.0	0.0	0.0
HCOOH	1.34250E-12	0.0	0.0	0.0
HNO2	4.73048E-10	0.0	0.0	0.0
OHION	2.01040E-04	0.0	0.0	0.0
CO3ION	2.49908E-09	0.0	0.0	0.0
COOHION	2.10764E-09	0.0	0.0	0.0
HCO3ION	5.46189E-06	0.0	0.0	0.0
HION	2.09311E-04	0.0	0.0	0.0
NO2ION	2.77125E-06	0.0	0.0	0.0
ACETATEION	3.11468E-08	0.0	0.0	0.0
	==========	==========	==========	==========
Total g/hr	2.03603E+06	0.0	0.0	0.0
Volume, L/hr	2042.47	0.0	0.0	0.0
Enthalpy, cal/hr	-7.72050E+09	0.0	0.0	0.0
Density, g/L	996.847			
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	0.0	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	2.12957E-07			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	5.54219E-08			
E-Con, cm2/ohm-mol	11908.			
Abs Visc, cP	0.89072			
Rel Visc	1.			
Ionic Strength	1.02806E-07			

Campaign IV TLP Cooled Bottoms

Flows Correspond to Glass Production Rates of 40TM/day LAW and 3MT/day HLW

STREAM: TLP Cooled Botts
TO :
FROM : TLP Evap Bottoms Cooling Mixer

Phases---------->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	14.9511			
Total mol/hr	58407.29	5.20326	0.0	0.0
----------	mol/hr--------	mol/hr--------	mol/hr--------	mol/hr--------
H2O	44016.7	0.0	0.0	0.0
ACETACID	3.68204E-10	0.0	0.0	0.0
CO2	4.55450E-13	0.0	0.0	0.0
H2F2	1.36260E-29	0.0	0.0	0.0
ACET2	1.33283E-29	0.0	0.0	0.0
HBR	1.82432E-24	0.0	0.0	0.0
HCL	2.42650E-20	0.0	0.0	0.0
HCOOH	3.67947E-11	0.0	0.0	0.0
HF	8.66413E-12	0.0	0.0	0.0
HNO2	1.92248E-10	0.0	0.0	0.0
HNO3	8.71280E-15	0.0	0.0	0.0
BAOX	1.89162E-06	0.0	0.0	0.0
BASO4	3.26738E-08	0.00233977	0.0	0.0
BOH3	4.99652E-05	0.0	0.0	0.0
CAACET2	4.26479E-07	0.0	0.0	0.0
CAC2O4	4.42326E-06	0.0	0.0	0.0
CACL2	1.36192E-25	0.0	0.0	0.0
CACO3	2.24751E-04	0.0	0.0	0.0
CACOOH2	6.15615E-07	0.0	0.0	0.0
CAH2SIO4	4.06943E-05	0.0	0.0	0.0
CAHC2O42	0.0	0.0	0.0	0.0
CASO4	1.27055E-07	0.0	0.0	0.0
CEACET3	6.71547E-21	0.0	0.0	0.0
CECL3	6.67587E-25	0.0	0.0	0.0
CEF3	2.12380E-17	0.0	0.0	0.0
CEOH3	3.32761E-04	0.0	0.0	0.0
AGCL	1.76683E-07	0.0	0.0	0.0
CRIIC2O4	0.0223392	0.0	0.0	0.0
CROH3	1.07470E-05	0.0	0.0	0.0
CSACET	2.63999E-05	0.0	0.0	0.0
CSBR	3.24093E-07	0.0	0.0	0.0
CSCL	6.98103E-05	0.0	0.0	0.0
CSNO3	0.0187303	0.0	0.0	0.0
CUACET2	1.42223E-22	0.0	0.0	0.0
CUBR2	2.34260E-29	0.0	0.0	0.0
CUC2O4	7.80712E-20	0.0	0.0	0.0
CUCL2	3.79920E-24	0.0	0.0	0.0
CUCO3	6.23953E-18	0.0	0.0	0.0
CUCOOH2	6.40099E-23	0.0	0.0	0.0
CUNO22	1.31089E-20	0.0	0.0	0.0
CUNO32	1.97709E-23	0.0	0.0	0.0
CUOH2	1.24309E-07	0.0	0.0	0.0

FEIIIOH3	2.64170E-06	0.0	0.0	0.0
AGACET	6.86320E-11	0.0	0.0	0.0
AGBR	9.18169E-09	0.0	0.0	0.0
AGF	3.44725E-11	0.0	0.0	0.0
H2WO4	1.93986E-27	0.0	0.0	0.0
H3PO4	1.10961E-25	0.0	0.0	0.0
H4SIO4	1.03420E-08	0.0	0.0	0.0
AGNO2	5.10221E-08	0.0	0.0	0.0
AGNO3	3.32634E-10	0.0	0.0	0.0
AGOH	2.68796E-07	0.0	0.0	0.0
ALF3	7.20191E-24	0.0	0.0	0.0
ALOH3	2.92795E-07	0.0	0.0	0.0
KACET	0.936112	0.0	0.0	0.0
KCL	0.0969862	0.0	0.0	0.0
KCOOH	1.80263	0.0	0.0	0.0
KHSO4	1.26951E-16	0.0	0.0	0.0
KNO3	213.059	0.0	0.0	0.0
LIACET	0.0128706	0.0	0.0	0.0
LIH2BO3	0.0688204	0.0	0.0	0.0
LIOH	3.14539	0.0	0.0	0.0
MGACET2	1.74245E-12	0.0	0.0	0.0
MGC2O4	1.04617E-10	0.0	0.0	0.0
MGCO3	5.02576E-10	0.0	0.0	0.0
MGCOOH2	3.07789E-12	0.0	0.0	0.0
MGH2SIO4	1.94845E-09	0.0	0.0	0.0
MGHPO4	4.00799E-15	0.0	0.0	0.0
MGSO4	1.09712E-12	0.0	0.0	0.0
MNACET2	1.49016E-15	0.0	0.0	0.0
MNBR2	5.49105E-19	0.0	0.0	0.0
MNC2O4	2.32833E-11	0.0	0.0	0.0
MNCOOH2	7.76106E-15	0.0	0.0	0.0
MNNO32	7.76016E-14	0.0	0.0	0.0
MNOH2	3.64597E-07	0.0	0.0	0.0
MNSO4	3.09364E-15	0.0	0.0	0.0
NAACET	7.61677	0.0	0.0	0.0
NAALOH4	86.0207	0.0	0.0	0.0
NABOH4	23.7099	0.0	0.0	0.0
NABR	0.0128923	0.0	0.0	0.0
NACOOH	10.6673	0.0	0.0	0.0
NAF	8.09336	0.0	0.0	0.0
NAHCO3	1.10267E-04	0.0	0.0	0.0
NAHSIO3	0.16422	0.0	0.0	0.0
NANO3	1821.88	0.0	0.0	0.0
NDACET3	6.90696E-29	0.0	0.0	0.0
NDCL3	0.0	0.0	0.0	0.0
NDF3	7.03681E-25	0.0	0.0	0.0
NDOH3	2.90995E-12	0.0	0.0	0.0
NIACET2	2.61645E-18	0.0	0.0	0.0
NIC2O4	3.53631E-13	0.0	0.0	0.0
NICOOH2	1.50738E-17	0.0	0.0	0.0
NIOH2	5.56440E-07	0.0	0.0	0.0
NISO4	2.73685E-18	0.0	0.0	0.0
OXALAC	6.97525E-26	0.0	0.0	0.0
PBACET2	3.10354E-17	0.0	0.0	0.0
PBBR2	5.03723E-22	0.0	0.0	0.0
PBC2O4	5.42421E-13	0.0	0.0	0.0
PBCL2	5.69565E-17	0.0	0.0	0.0

PBCOOH2	1.65452E-17	0.0	0.0	0.0
PBF2	2.68218E-18	0.0	0.0	0.0
PBHPO4	4.36497E-21	0.0	0.0	0.0
PBNO22	1.60625E-12	0.0	0.0	0.0
PBNO32	2.70612E-16	0.0	0.0	0.0
PBO	6.91029E-05	0.0	0.0	0.0
RUIIICL3	6.52875E-26	0.0	0.0	0.0
BAAC2	5.11426E-07	0.0	0.0	0.0
BACO3	2.38648E-04	0.0	0.0	0.0
SIO2	7.57945E-09	0.0	0.0	0.0
BACOOH2	2.57808E-06	0.0	0.0	0.0
SRC2O4	8.58831E-07	0.0	0.0	0.0
SRCOOH2	2.22346E-07	0.0	0.0	0.0
SRHC2O42	0.0	0.0	0.0	0.0
SRHPO4	5.19516E-12	0.0	0.0	0.0
SRNO32	1.24998E-05	0.0	0.0	0.0
SRSO4	2.79778E-07	0.0	0.0	0.0
ZNACET2	1.22810E-20	0.0	0.0	0.0
ZNBR2	1.52350E-28	0.0	0.0	0.0
ZNC2O4	2.90785E-19	0.0	0.0	0.0
ZNCL2	3.55446E-22	0.0	0.0	0.0
ZNCOOH2	3.50306E-21	0.0	0.0	0.0
ZNHPO4	1.74219E-24	0.0	0.0	0.0
ZNNO32	3.25478E-21	0.0	0.0	0.0
ZNOH2	9.40666E-09	0.0	0.0	0.0
ZROH4	2.43547E-10	0.0	0.0	0.0
OHION	2101.91	0.0	0.0	0.0
AGACET2ION	2.31902E-11	0.0	0.0	0.0
AGBR2ION	1.06381E-07	0.0	0.0	0.0
AGBR3ION	6.90187E-09	0.0	0.0	0.0
AGBR4ION	2.00365E-09	0.0	0.0	0.0
AGC2O4ION	5.97653E-09	0.0	0.0	0.0
AGCL2ION	4.34308E-05	0.0	0.0	0.0
AGCL3ION	0.00207169	0.0	0.0	0.0
AGCL4ION	0.0209203	0.0	0.0	0.0
AGION	2.46341E-09	0.0	0.0	0.0
AGNO22ION	1.85024E-05	0.0	0.0	0.0
AGOH2ION	0.00230889	0.0	0.0	0.0
AGSO4ION	1.41775E-10	0.0	0.0	0.0
ALF2ION	1.41130E-25	0.0	0.0	0.0
ALF4ION	7.95244E-22	0.0	0.0	0.0
ALF5ION	9.33246E-21	0.0	0.0	0.0
ALF6ION	9.44681E-20	0.0	0.0	0.0
ALFION	3.04277E-29	0.0	0.0	0.0
ALOH2ION	5.54695E-16	0.0	0.0	0.0
ALOH4ION	363.304	0.0	0.0	0.0
ALOHCLION	2.15288E-25	0.0	0.0	0.0
ALOHION	3.56130E-25	0.0	0.0	0.0
ALSIO3OHION	0.782802	0.0	0.0	0.0
B2OOH5ION	1.38080E-04	0.0	0.0	0.0
B3O3OH4ION	7.97005E-09	0.0	0.0	0.0
B4O5OH4ION	3.02675E-07	0.0	0.0	0.0
BAACETION	4.01497E-05	0.0	0.0	0.0
BACOOHION	9.81796E-05	0.0	0.0	0.0
BAFION	2.92146E-06	0.0	0.0	0.0
BAHCO3ION	1.19215E-09	0.0	0.0	0.0
BAION	0.00870709	0.0	0.0	0.0

BAOHION	3.77320E-04	0.0	0.0	0.0
BF2OH2ION	7.39113E-15	0.0	0.0	0.0
BF3OHION	4.89853E-26	0.0	0.0	0.0
BFOH3ION	1.33414E-06	0.0	0.0	0.0
BOH4ION	84.409	0.0	0.0	0.0
BRION	0.610339	0.0	0.0	0.0
CAACETION	6.85838E-06	0.0	0.0	0.0
CACLION	6.04690E-08	0.0	0.0	0.0
CACOOHION	2.12803E-05	0.0	0.0	0.0
CAFION	6.42835E-08	0.0	0.0	0.0
CAH2BO3ION	2.14308E-04	0.0	0.0	0.0
CAH2PO4ION	3.79559E-18	0.0	0.0	0.0
CAHC2O4ION	3.00851E-17	0.0	0.0	0.0
CAHCO3ION	5.34617E-10	0.0	0.0	0.0
CAHSIO3ION	2.05456E-09	0.0	0.0	0.0
CAION	2.16701E-04	0.0	0.0	0.0
CANO3ION	6.64039E-05	0.0	0.0	0.0
CAOHION	0.00216207	0.0	0.0	0.0
CAPO4ION	0.0133653	0.0	0.0	0.0
CEACET2ION	6.59610E-20	0.0	0.0	0.0
CEACETION	8.44375E-20	0.0	0.0	0.0
CEC2O42ION	2.18383E-17	0.0	0.0	0.0
CEC2O43ION	1.17624E-14	0.0	0.0	0.0
CEC2O4ION	2.19678E-18	0.0	0.0	0.0
CECL2ION	6.39807E-23	0.0	0.0	0.0
CECL4ION	8.13382E-25	0.0	0.0	0.0
CECLION	1.98905E-21	0.0	0.0	0.0
CECO3ION	1.16081E-15	0.0	0.0	0.0
CEF2ION	2.81238E-17	0.0	0.0	0.0
CEF4ION	7.27835E-16	0.0	0.0	0.0
CEFION	2.83500E-18	0.0	0.0	0.0
CEHCO3ION	2.63431E-25	0.0	0.0	0.0
CEION	2.90542E-19	0.0	0.0	0.0
CENO3ION	1.73329E-20	0.0	0.0	0.0
CEOH2ION	1.98454E-08	0.0	0.0	0.0
CEOH4ION	0.707917	0.0	0.0	0.0
CEOHION	5.70121E-15	0.0	0.0	0.0
CESO42ION	9.52140E-22	0.0	0.0	0.0
CESO4ION	6.22156E-21	0.0	0.0	0.0
CLION	165.919	0.0	0.0	0.0
CO3ION	999.545	0.0	0.0	0.0
COOHION	20.4792	0.0	0.0	0.0
CR2O7ION	6.02839E-19	0.0	0.0	0.0
CRFION	2.48998E-24	0.0	0.0	0.0
CRIIC2O42ION	3.57316	0.0	0.0	0.0
CRIIIBRION	0.0	0.0	0.0	0.0
CRIIICL2ION	0.0	0.0	0.0	0.0
CRIIICLION	0.0	0.0	0.0	0.0
CRIIIHPO4ION	1.91683E-26	0.0	0.0	0.0
CRIIIION	1.17163E-30	0.0	0.0	0.0
CRIIINO3ION	2.20408E-28	0.0	0.0	0.0
CRIIION	0.00966998	0.0	0.0	0.0
CRO4ION	4.25604	0.0	0.0	0.0
CROH2ION	3.41909E-14	0.0	0.0	0.0
CROH4ION	1.07291	0.0	0.0	0.0
CROHION	5.98146E-20	0.0	0.0	0.0
CRSO4ION	1.16087E-27	0.0	0.0	0.0

CSION	7.92962E-07	0.0	0.0	0.0
CSSO4ION	3.67556E-05	0.0	0.0	0.0
CUACET3ION	1.07342E-21	0.0	0.0	0.0
CUACETION	1.45041E-21	0.0	0.0	0.0
CUBRION	3.59029E-24	0.0	0.0	0.0
CUC2O42ION	2.98066E-16	0.0	0.0	0.0
CUCL3ION	2.21970E-26	0.0	0.0	0.0
CUCLION	3.05949E-22	0.0	0.0	0.0
CUCO32ION	6.55559E-14	0.0	0.0	0.0
CUCOOHION	8.00646E-22	0.0	0.0	0.0
CUION	3.34833E-22	0.0	0.0	0.0
CUNO2ION	1.45215E-20	0.0	0.0	0.0
CUNO3ION	1.06309E-21	0.0	0.0	0.0
CUOH3ION	5.15650E-04	0.0	0.0	0.0
CUOH4ION	0.453179	0.0	0.0	0.0
CUOHION	6.29321E-15	0.0	0.0	0.0
FEIIIC2O42ION	3.75247E-26	0.0	0.0	0.0
FEIIIC2O43ION	2.65652E-22	0.0	0.0	0.0
FEIIIC2O4ION	6.70940E-29	0.0	0.0	0.0
FEIIIOH2ION	3.66751E-15	0.0	0.0	0.0
FEIIIOH4ION	5.71546	0.0	0.0	0.0
FEIIIOHION	7.25779E-25	0.0	0.0	0.0
FION	39.9266	0.0	0.0	0.0
H2P2O7ION	3.72921E-27	0.0	0.0	0.0
H2PO4ION	1.72210E-11	0.0	0.0	0.0
H2SIO4ION	8.47515	0.0	0.0	0.0
H3SIO4ION	0.00278263	0.0	0.0	0.0
HCO3ION	0.00149865	0.0	0.0	0.0
HCRO4ION	6.05371E-10	0.0	0.0	0.0
HF2ION	3.87326E-13	0.0	0.0	0.0
HION	6.25978E-13	0.0	0.0	0.0
HOXALATION	1.38448E-11	0.0	0.0	0.0
HP2O7ION	1.41800E-18	0.0	0.0	0.0
HPBO2ION	2.55318	0.0	0.0	0.0
HPO4ION	0.0175564	0.0	0.0	0.0
HSO4ION	8.55420E-14	0.0	0.0	0.0
HWO4ION	4.52203E-14	0.0	0.0	0.0
KION	731.815	0.0	0.0	0.0
KSO4ION	5.08998	0.0	0.0	0.0
LIION	2.07026	0.0	0.0	0.0
LISO4ION	0.00330717	0.0	0.0	0.0
MGACETION	7.65177E-11	0.0	0.0	0.0
MGC2O42ION	2.00922E-10	0.0	0.0	0.0
MGCOOHION	1.07208E-10	0.0	0.0	0.0
MGFION	1.03035E-13	0.0	0.0	0.0
MGH2PO4ION	2.41607E-23	0.0	0.0	0.0
MGHCO3ION	1.45303E-15	0.0	0.0	0.0
MGHSIO3ION	1.88067E-14	0.0	0.0	0.0
MGION	1.17692E-09	0.0	0.0	0.0
MGOHION	1.21137E-07	0.0	0.0	0.0
MGP2O7ION	5.47216E-19	0.0	0.0	0.0
MGPO4ION	9.42157E-08	0.0	0.0	0.0
MNACET3ION	1.35497E-15	0.0	0.0	0.0
MNACETION	5.48190E-14	0.0	0.0	0.0
MNBRION	3.46432E-15	0.0	0.0	0.0
MNC2O42ION	2.10826E-12	0.0	0.0	0.0
MNC2O43ION	3.76876E-10	0.0	0.0	0.0

MNCLION	8.98662E-14	0.0	0.0	0.0
MNCOOHION	1.63368E-13	0.0	0.0	0.0
MNION	1.24132E-11	0.0	0.0	0.0
MNNO3ION	1.89543E-13	0.0	0.0	0.0
MNOH3ION	8.10797E-04	0.0	0.0	0.0
MNOH4ION	0.265844	0.0	0.0	0.0
MNOHION	3.47423E-09	0.0	0.0	0.0
NA2FION	1.92629	0.0	0.0	0.0
NACO3ION	41.9523	0.0	0.0	0.0
NAION	5966.74	0.0	0.0	0.0
NASO4ION	7.72281	0.0	0.0	0.0
NDACET2ION	6.51311E-28	0.0	0.0	0.0
NDACETION	1.06211E-27	0.0	0.0	0.0
NDCL2ION	0.0	0.0	0.0	0.0
NDCL4ION	0.0	0.0	0.0	0.0
NDCLION	1.39744E-28	0.0	0.0	0.0
NDCO3ION	3.27082E-23	0.0	0.0	0.0
NDF2ION	7.92835E-25	0.0	0.0	0.0
NDF4ION	2.83510E-23	0.0	0.0	0.0
NDFION	5.69603E-26	0.0	0.0	0.0
NDION	4.16507E-27	0.0	0.0	0.0
NDNO3ION	3.46871E-28	0.0	0.0	0.0
NDOH2ION	6.32607E-17	0.0	0.0	0.0
NDOH4ION	5.02711E-07	0.0	0.0	0.0
NDOHION	1.62369E-22	0.0	0.0	0.0
NDSO42ION	6.27906E-30	0.0	0.0	0.0
NDSO4ION	8.82978E-29	0.0	0.0	0.0
NIACET3ION	4.22682E-18	0.0	0.0	0.0
NIACETION	8.55665E-17	0.0	0.0	0.0
NIC2O42ION	1.39538E-13	0.0	0.0	0.0
NICLION	2.11245E-18	0.0	0.0	0.0
NICOOHION	2.30531E-16	0.0	0.0	0.0
NIFION	1.08135E-17	0.0	0.0	0.0
NIION	7.18807E-15	0.0	0.0	0.0
NINO3ION	2.87617E-16	0.0	0.0	0.0
NIOH3ION	0.0492963	0.0	0.0	0.0
NIOHION	8.09304E-12	0.0	0.0	0.0
NO2ION	1023.86	0.0	0.0	0.0
NO3ION	470.994	0.0	0.0	0.0
ACETATEION	25.6196	0.0	0.0	0.0
OXALATION	33.8546	0.0	0.0	0.0
P2O7ION	2.07931E-10	0.0	0.0	0.0
PBACET3ION	1.01603E-15	0.0	0.0	0.0
PBACETION	7.84014E-16	0.0	0.0	0.0
PBBR3ION	2.48283E-22	0.0	0.0	0.0
PBBRION	6.13053E-18	0.0	0.0	0.0
PBCL3ION	2.98658E-17	0.0	0.0	0.0
PBCL4ION	1.86164E-16	0.0	0.0	0.0
PBCLION	5.76762E-16	0.0	0.0	0.0
PBCOOHION	2.41079E-16	0.0	0.0	0.0
PBF3ION	1.70224E-17	0.0	0.0	0.0
PBF4ION	4.13259E-18	0.0	0.0	0.0
PBFION	6.10325E-17	0.0	0.0	0.0
PBH2PO4ION	1.67287E-29	0.0	0.0	0.0
PBION	8.22868E-13	0.0	0.0	0.0
PBNO23ION	1.47665E-10	0.0	0.0	0.0
PBNO2ION	3.81192E-13	0.0	0.0	0.0

PBNO33ION	6.44768E-16	0.0	0.0	0.0
PBNO3ION	1.96273E-15	0.0	0.0	0.0
PBOHION	1.28142E-09	0.0	0.0	0.0
PO4ION	43.7843	0.0	0.0	0.0
RUIIICL2ION	6.83779E-25	0.0	0.0	0.0
RUIIICL4ION	1.29014E-25	0.0	0.0	0.0
RUIIICL5ION	2.18692E-25	0.0	0.0	0.0
RUIIICL6ION	1.66483E-24	0.0	0.0	0.0
RUIIICLION	2.67481E-21	0.0	0.0	0.0
RUIIIION	1.16066E-25	0.0	0.0	0.0
RUIIIOH2ION	0.347407	0.0	0.0	0.0
RUIIIOHION	3.43440E-14	0.0	0.0	0.0
RUIIISO42ION	1.74893E-30	0.0	0.0	0.0
RUIIISO43ION	0.0	0.0	0.0	0.0
RUIIISO4ION	2.76676E-28	0.0	0.0	0.0
SO4ION	51.2501	0.0	0.0	0.0
SRACETION	4.80062E-06	0.0	0.0	0.0
SRCOOHION	9.59719E-06	0.0	0.0	0.0
SRFION	5.86118E-07	0.0	0.0	0.0
SRHC2O4ION	6.82305E-18	0.0	0.0	0.0
SRION	3.71496E-08	0.0	0.0	0.0
SRNO3ION	9.04075E-05	0.0	0.0	0.0
SROHION	4.39858E-04	0.0	0.0	0.0
SRPO4ION	7.76654E-05	0.0	0.0	0.0
WO4ION	0.501823	0.0	0.0	0.0
ZNACET3ION	2.82743E-20	0.0	0.0	0.0
ZNACETION	4.45910E-20	0.0	0.0	0.0
ZNBR3ION	6.61858E-30	0.0	0.0	0.0
ZNBRION	9.23801E-24	0.0	0.0	0.0
ZNC2O42ION	8.29839E-17	0.0	0.0	0.0
ZNC2O43ION	3.84453E-15	0.0	0.0	0.0
ZNCL3ION	1.29512E-22	0.0	0.0	0.0
ZNCLION	1.63759E-20	0.0	0.0	0.0
ZNCOOHION	6.45300E-20	0.0	0.0	0.0
ZNFION	5.08377E-21	0.0	0.0	0.0
ZNHC2O4ION	0.0	0.0	0.0	0.0
ZNHCO3ION	9.27983E-25	0.0	0.0	0.0
ZNION	5.67427E-20	0.0	0.0	0.0
ZNNO3ION	1.00120E-19	0.0	0.0	0.0
ZNOH3ION	2.71921E-04	0.0	0.0	0.0
ZNOH4ION	1.22466	0.0	0.0	0.0
ZNOHION	2.52335E-14	0.0	0.0	0.0
ZROH2ION	1.02323E-30	0.0	0.0	0.0
ZROH3ION	1.07757E-19	0.0	0.0	0.0
ZROH5ION	0.416455	0.0	0.0	0.0
SRCO3	0.0	4.69141E-04	0.0	0.0
MGOH2	0.0	0.0494041	0.0	0.0
NDPO4.2H2O	0.0	0.006939469	0.0	0.0
NA2C2O4	0.0	5.02924	0.0	0.0
CAF2	0.0	0.114868	0.0	0.0
Total g/hr	1.39375E+06	688.292	0.0	0.0
Volume, L/hr	997.302	0.00417588	0.0	0.0
Enthalpy, cal/hr	-4.19932E+09	-1.64039E+06	0.0	0.0
Density, g/L	1397.52	164826.		
Vapor fraction	0.0	0.0	0.0	0.0
Solid fraction	0.0	1.	0.0	0.0

Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	332.566			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.242238			
E-Con, cm2/ohm-mol	17.1334			
Abs Visc, cP	5.45597			
Rel Visc	6.12536			
Ionic Strength	10.0132			